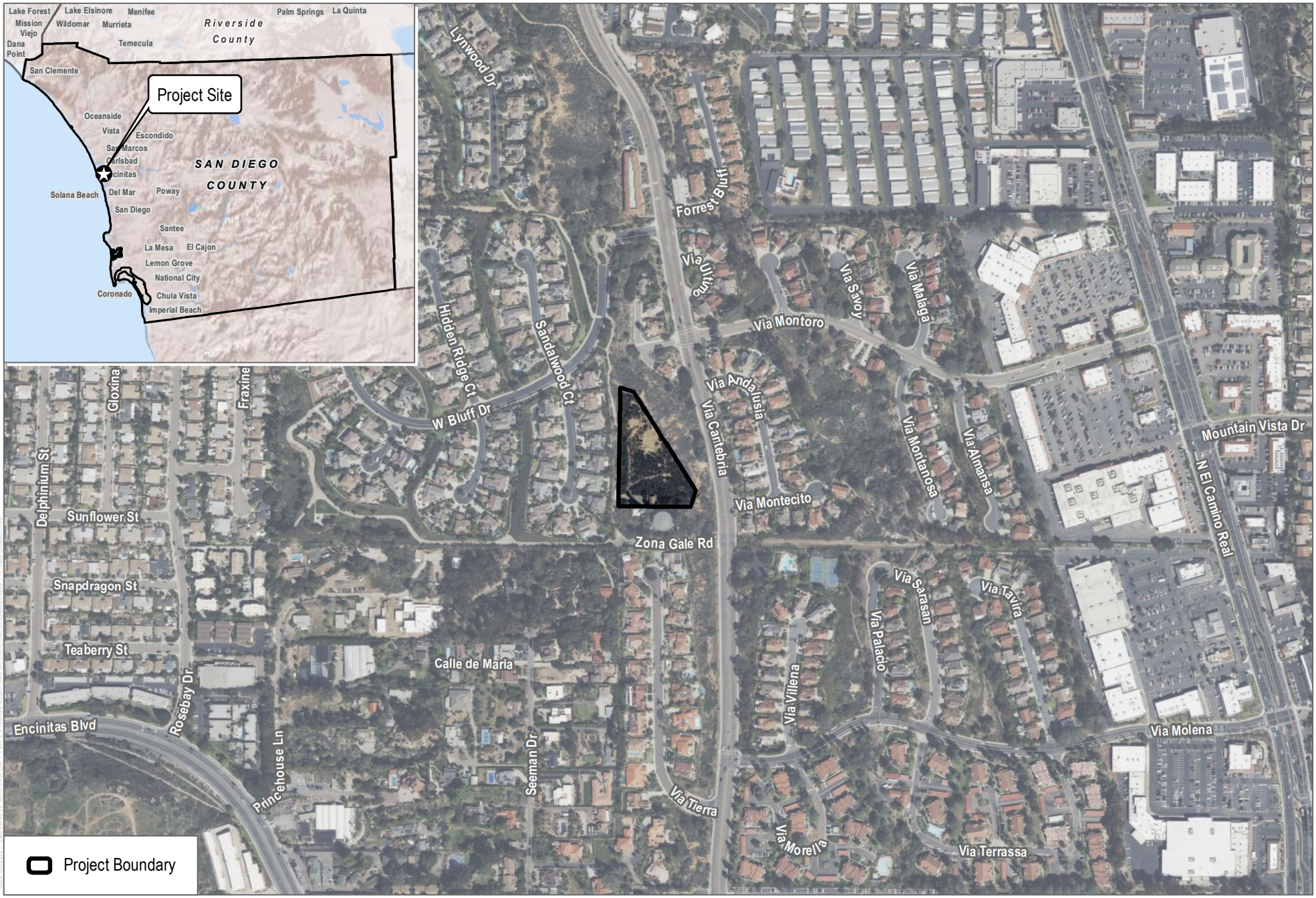
Attachment 1: Figures



SOURCE: Bing Maps 2020

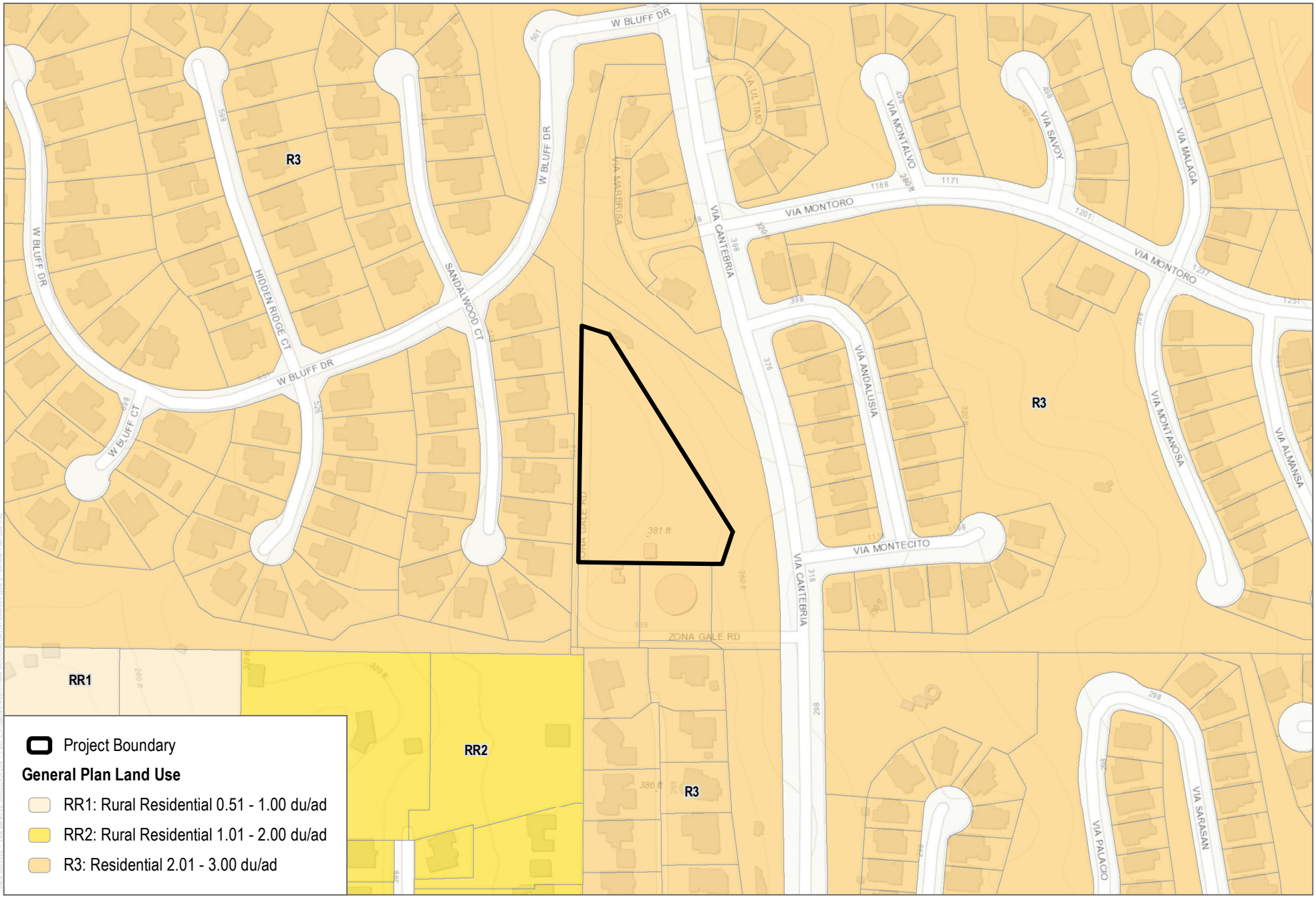
DUDEK

0 250 500 Feet

FIGURE 1

Project Location

Zona Gale Estates Project



SOURCE: Esri; City of Encinitas 2020

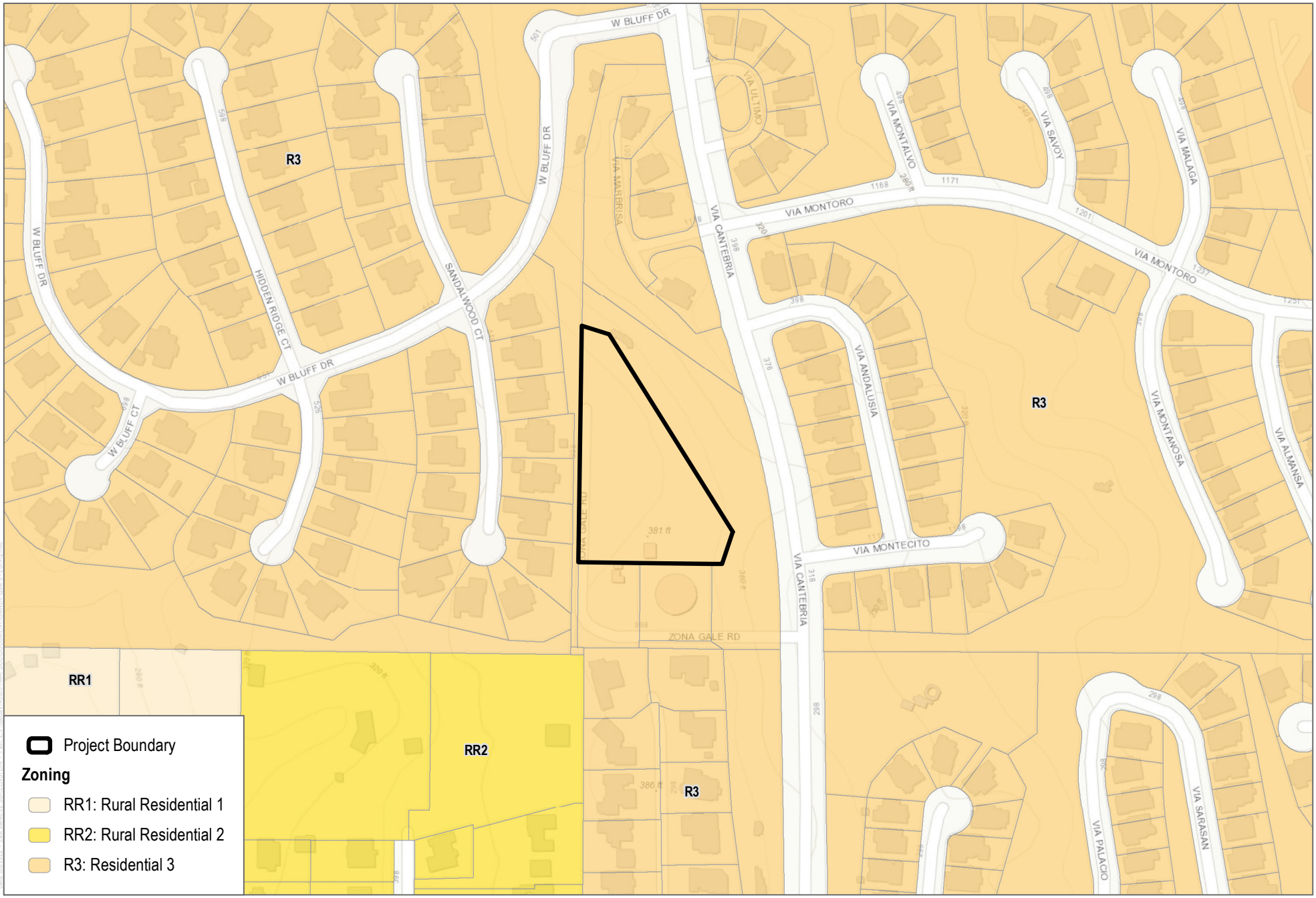
DUDEK

0 100 200 Feet

FIGURE 2

General Plan Land Use

Zona Gale Estates Project



SOURCE: Esri; City of Encinitas 2020

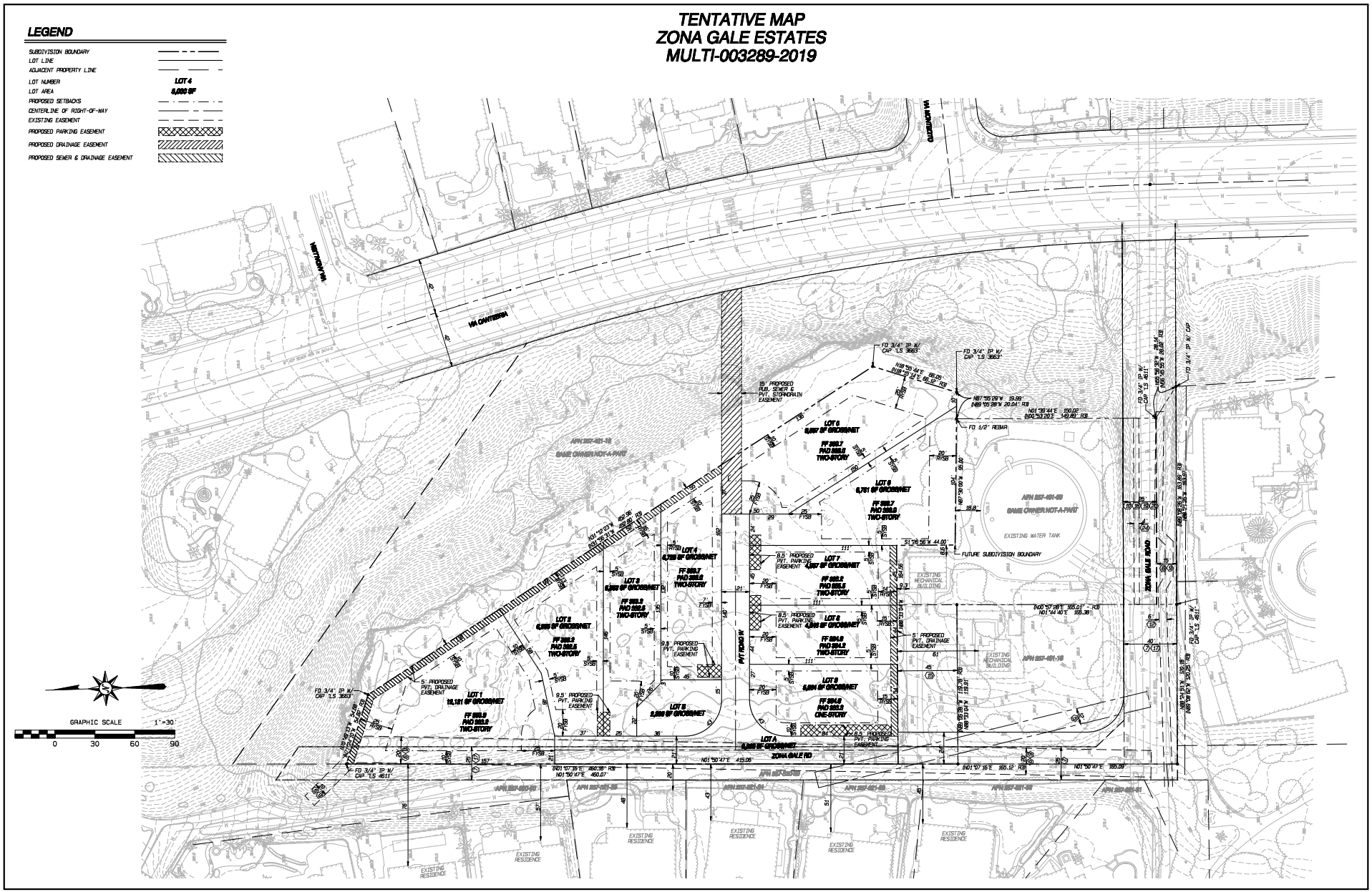
DUDEK

0 100 200 Feet

FIGURE 3

Zoning

Zona Gale Estates Project



SOURCE: Pasco Laret Suiter & Associates

DUDEK

FIGURE 4

Site Plan

Zona Gale Estates Project

Attachment 2: Appendices

Appendix A: Tentative Map, Architectural Plans, And Landscape Concept Plan

ZONA GALE ESTATES

ABBREVIATIONS

AB	anchor bolt	LVR	louver
ADD	addendum	LW	lightweight
ADJ	adjacent	LWC	lightweight concrete
AFCI	arc fault circuit interrupter	MAS	masonry
AFF	above finish floor	MAX	maximum
AL	aluminum	MC	medicine cabinet
ARCH	architect(ural)	MED	medium
BD	board	MET	metal
BLDG	building	MFR	manufacturer(r)
BLK	block	MIN	minimum
BLKG	blocking	MIR	mirror(ed)
BRG	bearing	MISC	miscellaneous
BRK	brick	MRB	marble
BS	both sides	MTL	material(s)
CAB	cabinet	MULL	mullion
CBC	California Building Code	N	north
CEC	California Electrical Code	NEC	National Electric Code
CFL	counterflashing	NIC	not in contract
CFM	cubic feet per minute	NOM	nominal
CFT	cubic foot	OA	overall
CIPC	cast-in-place concrete	OC	on centre(s)
CIR	circle	OD	outside diameter
CLG	ceiling	OPG	opening
CLR	clearance	OPP	opposite
CMU	concrete masonry unit	OPT	option(al)
COL	column	P&T	pressure & temperature
COMB	combination	PAR	parallel
COMC	concrete	PCC	precast concrete
CONST	construction	PFB	prefabricate(d)
CONT	continuous or continue	PFN	prefinished
CONTR	contract(or)	PH	phone
CSMT	casement	PK	parking
CT	ceramic tile	PL	plate or property line
CTR	counter	PNL	panel
CYD	cubic yard	PNT	paint(ed)
DBL	double	PR	pair
DEC	decorative	PSF	pounds per square foot
DF	douglas fir	PSI	pounds per square inch
DH	double hung	PT	point or post-tension(ed)
DIA	diameter	PT	pressure-treated
DIAG	diagonal	PWD	plywood
DIM	dimension	QT	quarry tile
DR	door	R	riser
DTL	detail	R(AD)	radius
DW	dishwasher	RAG	return air grille
E	east	RC	resilient channel
EF	each face	RD	roof drain
ELEC	electric(al)	REF	reference
ELEV	elevation	REF(RG)	refrigerator
EP	electrical panel	REM	remove
EQ	equal	RFG	roofing
EST	estimate	RH	right hand
EXG	existing	RM	room
EXP	exposed	RO	rough opening
EXT	exterior	ROW	right of way
F	fluorescent	S	south
FAU	forced air unit	SC	SOLID-CORE
FB	face brick	SCH	schedule
FBO	furnished by others	SD	smoke detector
FFE	finished floor elevation	SH	shelf or shelving
FFL	finished floor line	SH	single hung
FG	fuel gas	SHT	sheet
FGL	fiberglass	SIM	similar
FIN	finish(ed)	SKL	skylight
FLG	flashing	SL	slider or sliding
FLR	flooring	SPL	special
FLUOR	fluorescent	SPEC	specification(s)
FND	foundation	SQ	square
FOC	face of concrete	ST	steel
FOF	face of finish	STD	standard
FOM	face of masonry	STR	structural
FOS	face of studs	SUS	suspended
FPL	fireplace	T	tread
FR	frame(d),(ing) or French	T&G	tongue and groove
FT	foot or feet	TB	towel bar
FTG	footing	TC	trash compactor
FUT	future	TEMP	tempered
FX	fixed	THK	thick(ness)
GC	general contract(or)	TR	towel ring
GFI / GFCI	ground fault circuit interrupter	TR	transom
GI	galvanized iron	TSL	top of slab
GL	glass	TV	television
GPDW	gypsum dry wall	TYP	typical
GPF	gallons per flush	UBC	Uniform Building Code
GPM	gallons per minute	UL	Underwriter's Laboratories
HB	hose bibb	UMC	Uniform Mechanical Code
HC	hollow core	UON	unless otherwise noted
HDW	hardware	UPC	Uniform Plumbing Code
HDR	header	V	voltage)
HOR	horizontal	VERT	vertical
HT	height	VIN	vinyl
IBC	Internat'l Bldg. Code	VNR	veneer
ICBO	Internat'l Council of Bldg. Officials	W	west
ID	inside diameter	W	width or wide
IN	inch(es)	WC	water closet
INCL	include(d), (ing)	WD	wood
INT	interior	WH	water heater
IRC	Internat'l Residential Code	WI	wrought iron
J	joist	WIN	window
KIT	kitchen	WP	waterproof(ing)
KPL	kickplate	WS	water softener
LAV	lavatory	WSCT	wainscot
L	length	WWF	welded wire fabric
LBL	label		
LH	left hand		
LT	light		

DENSITY BONUS NOTES

THE DESIGNATED AFFORDABLE UNIT SHALL SATISFY BOTH THE INCLUSIONARY REQUIREMENT AND THE DENSITY BONUS REQUIREMENT.

AN AFFORDABLE HOUSING COVENANT AND AGREEMENT SHALL BE RECORDED. HOUSEHOLD INCOME RESTRICTIONS, CALCULATION OF RENTAL AND SALES PRICE, AND LONG-TERM REQUIREMENTS WILL BE DESCRIBED IN THE AGREEMENT.

AFFORDABLE UNIT WILL BE RESTRICTED FOR A PERIOD OF 55-YEARS PER ENCINITAS MUNICIPAL CODE 30.16.020(C)(9)

ENSURE COMPLIANCE WITH ENCINITAS MUNICIPAL CODE 20.16.020(C)(10)(b), THAT THE EXTERIOR APPEARANCE AND OVERALL QUALITY OF CONSTRUCTION INCLUDING YARD SPACE AND PARKING ARE COMPARABLE TO OTHER MARKET RATE HOMES IN THE DEVELOPMENT. THE INTERIOR FINISHES AND AMENITIES MAY DIFFER FROM THOSE PROVIDED IN THE MARKET-RATE UNITS, BUT NEITHER THE WORKMANSHIP NOR THE PRODUCTS MAY BE OF SUBSTANDARD OR INFERIOR QUALITY.

SYMBOL LEGEND

FLOOR PLANS

- EXISTING WOOD STUD WALL TO REMAIN
- EXISTING WOOD STUD WALL TO BE DEMOLISHED
- NEW WOOD STUD WALL (2 X 4 STUDS @ 16" O/C)
- NEW WOOD STUD WALL (2 X 6 STUDS @ 16" O/C)
- NEW WOOD STUD WALL (2 X 8 STUDS @ 16" O/C)
- CONCRETE BLOCK WALL / BRICK OR VENEER
- WOOD STUD WALL (THERMAL OR SOUND INSULATED)
- EXISTING STUD WALL
- WOOD FINISH
- DRYWALL FINISH
- FURRED CEILING OR SOFFIT AREA, HEIGHT AS NOTED PER PLAN
- POTSHELF / PLANTLEDGE, HEIGHT AS NOTED PER PLAN
- DIFFERENTIAL IN FLOOR LEVELS OR FINISH SURFACES
- REVISION, TYPE AND DATE AS NOTED PER PLAN
- INTERIOR ELEV. INDICATOR, VIEWED FROM THIS VANTAGE POINT

FRAMING / SECTIONS

- FURRED CEILING OR SOFFIT AREA, (2 X 4 @ 16" O/C)
- POTSHELF/PLANTLEDGE, (DRYWALL O/ PWD. OVER FRAMING)
- FIBERGLASS BATT INSULATION AS NOTED PER PLAN
- WOOD, ROUGH, CONTINUOUS MEMBER, (3/8" OR LARGER DETAIL)
- WOOD, ROUGH, NON-CONT. MEMBER, (3/8" OR LARGER DETAIL)
- BUILDING SECTION, REFERENCE DRAWING NUMBER
- DETAIL, REFERENCE DRAWING NUMBER

PROJECT DATA

- LEGAL DESC.:

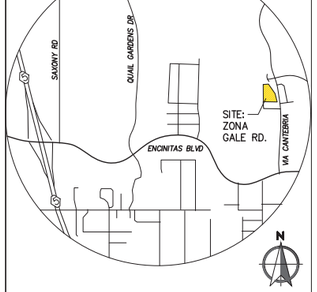
(APN: 257-401-11-00)
LOT 163 OF THE COUNTY OF SAN DIEGO, TRACT NO. 3474-3, ACCORDING TO MAP THEROF NO 10140, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY JULY 8, 1981

- SCOPE OF WORK: NEW SINGLE-FAMILY DEVELOPMENT CONSISTING OF 9 RESIDENCE, GUEST PARKING SPACES AND PRIVATE ROAD THROUGH SITE.
- ADDRESS: ADDRESS NOT ASSIGNED
- A.P.N.: 257-401-11-00
- ZONES: R-3 (RESIDENTIAL 3)
- CONSTR. TYPE: V-B (S13D SPRINKLERED)
- OCCUPANCY:
  PRIVATE RESIDENCE: R-3 / U
- MAXIMUM DENSITY: 3.0 (ALLOWED WITH DENSITY BONUS)
- MIDRANGE DENSITY: 2.5
- BUILDING HEIGHT: 22'-0" MAX. TOP OF ROOF FINISH AT EXTERIOR WALL / 26'-0" MAX. AT RIDGE
- NO. OF STORIES: 2
- LOT AREA: 14,500 SF TOTAL
- FLOOR AREA RATIO: N/A
- REQD. SETBACKS:
  FRONT YARD: 25'-0"
  REAR YARD: 25'-0"
  INTERIOR SIDE YARD: 10'-0"
  STREET SIDE YARD: 10'-0"
- LOT COVERAGE: 35%
- CLIMATE ZONE: 7
- WATER DISTRICT: SAN DIEGUITO WATER DISTRICT
- SANITATION DISTRICT: LEUCADIA WASTEWATER DISTRICT
- EXISTING LAND USE: VACANT LAND
- PROPOSED LAND USE: SINGLE FAMILY RESIDENTIAL
- PARKING REQUIRED: EMC 30.54
- RELEVANT CODES: WORK SHALL COMPLY WITH THE 2016 CALIFORNIA RESIDENTIAL CODE, BUILDING, GREEN, ELECTRICAL, MECHANICAL, PLUMBING AND FIRE CODES, THE 2016 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS AND THE COUNTY OF SAN DIEGO MUNICIPAL CODE.

PROJECT DIRECTORY

- ARCHITECT / APPLICANT:
  EDINGER ARCHITECTS - (858) 704-4004
  444 S. CEDROS AVE. #235, SOLANA BEACH, CA 92075
- PROPERTY OWNER:
  Aspen Growth Properties Inc.
  8799 Balboa Ave. Suite 260
  San Diego CA 92123
- CIVIL ENGINEER:
  PASCO LARET SUITER AND ASSOCIATES - (858) 259-8212
  535 N. HWY. 101, SUITE A, SOLANA BEACH, CA 92075
- LANDSCAPE ARCHITECT:
  JPBLA, INC. - (760) 479-0644
  4403 MANCHESTER AVE. STE 201, ENCINITAS, CA 92024

VICINITY MAP



AREA CALCULATIONS

PLAN 1 / LOT 1

FIRST FLOOR LIVABLE	1742 SF
SECOND FLOOR LIVABLE	1508 SF
TOTAL LIVABLE	3250 SF
2-CAR GARAGE	428 SF
COVERED PORCH	133 SF
COVERED PATIO	331 SF
COVERED BALCONY	98 SF

PLAN 2 / LOT 2

FIRST FLOOR LIVABLE	1818 SF
SECOND FLOOR LIVABLE	1926 SF
TOTAL LIVABLE	3744 SF
3-CAR GARAGE	632 SF
COVERED PORCH	72 SF
COVERED PATIO	254 SF
COVERED BALCONY	114 SF

PLAN 3 / LOT 3

FIRST FLOOR LIVABLE	1724 SF
SECOND FLOOR LIVABLE	1841 SF
TOTAL LIVABLE	3615 SF
3-CAR GARAGE	655 SF
COVERED PORCH	104 SF
COVERED PATIO	369 SF
COVERED BALCONY	130 SF

PLAN 4 / LOT 4

FIRST FLOOR LIVABLE	1478 SF
SECOND FLOOR LIVABLE	1625 SF
TOTAL LIVABLE	3103 SF
3-CAR GARAGE	700 SF
COVERED PORCH	70 SF
COVERED PATIO	166 SF
COVERED BALCONY	106 SF

PLAN 5 / LOT 5

FIRST FLOOR LIVABLE	1670 SF
SECOND FLOOR LIVABLE	1884 SF
TOTAL LIVABLE	3554 SF
3-CAR GARAGE	631 SF
COVERED PORCH	114 SF
COVERED PATIO	145 SF
COVERED BALCONY	121 SF

PLAN 6 / LOT 6

FIRST FLOOR LIVABLE	2023 SF
SECOND FLOOR LIVABLE	1765 SF
TOTAL LIVABLE	3788 SF
2-CAR GARAGE	430 SF
COVERED PORCH	78 SF
COVERED PATIO	248 SF
COVERED BALCONY	158 SF

PLAN 7 / LOT 9

FIRST FLOOR LIVABLE	2023 SF
TOTAL LIVABLE	2023 SF
2-CAR GARAGE	422 SF
COVERED PORCH	44 SF
COVERED PATIO	131 SF

PLAN 8 / LOT 8

FIRST FLOOR LIVABLE	1398 SF
SECOND FLOOR LIVABLE	1724 SF
TOTAL LIVABLE	3122 SF
3-CAR GARAGE	673 SF
COVERED PORCH	140 SF
COVERED PATIO	130 SF

PLAN 9 / LOT 7

FIRST FLOOR LIVABLE	1505 SF
SECOND FLOOR LIVABLE	1677 SF
TOTAL LIVABLE	3182 SF
3-CAR GARAGE	632 SF
COVERED PORCH	104 SF
COVERED PATIO	113 SF

SHEET INDEX

- ARCHITECTURE
  - A0-1 TITLE SHEET
  - A0-2 SITE PLAN (1:20 SCALE)
  - A0-2.1 SITE DEMO PLAN (1:20 SCALE)
  - A0-3 BUILDING MASSING SITE PLAN (1:20 SCALE)
  - A0-4 FIRE ACCESS SITE PLAN (1:20 SCALE)
  - A0-5 LOT COVERAGE / SETBACK SITE PLAN (1:20 SCALE)
  - A0-6 PARKING SITE PLAN (1:20 SCALE)
  - A0-7 DESIGN GUIDELINE DIAGRAMS / STREET SCENES

PLAN 1 / LOT 1 - ELEVATION B / MEDITERRANEAN
- A1-2 FLOOR PLANS
- A1-3 REFLECTED CEILING / ROOF PLAN
- A1-5 EXTERIOR ELEVATIONS
- A1-6 EXTERIOR RENDERINGS

PLAN 2 / LOT 2 - ELEVATION A / SPANISH
- A2-2 FLOOR PLANS
- A2-3 REFLECTED CEILING / ROOF PLAN
- A2-5 EXTERIOR ELEVATIONS
- A2-6 EXTERIOR RENDERINGS

PLAN 3 / LOT 3 - ELEVATION C / TUSCAN
- A3-2 FLOOR PLANS
- A3-3 REFLECTED CEILING / ROOF PLAN
- A3-5 EXTERIOR ELEVATIONS
- A3-6 EXTERIOR RENDERINGS

PLAN 4 / LOT 4 - ELEVATION D / ANDALUSIAN
- A4-2 FLOOR PLANS
- A4-3 REFLECTED CEILING / ROOF PLAN
- A4-5 EXTERIOR ELEVATIONS
- A4-6 EXTERIOR RENDERINGS

PLAN 5 / LOT 5 - ELEVATION C / TUSCAN
- A5-2 FLOOR PLANS
- A5-3 REFLECTED CEILING / ROOF PLAN
- A5-5 EXTERIOR ELEVATIONS
- A5-6 EXTERIOR RENDERINGS

PLAN 6 / LOT 6 - ELEVATION D / ANDALUSIAN
- A6-2 FLOOR PLANS
- A6-3 REFLECTED CEILING / ROOF PLAN
- A6-5 EXTERIOR ELEVATIONS
- A6-6 EXTERIOR RENDERINGS

PLAN 7 / LOT 7 - ELEVATION A / SPANISH
- A7-2 FLOOR PLANS
- A7-3 REFLECTED CEILING / ROOF PLAN
- A7-5 EXTERIOR ELEVATIONS
- A7-6 EXTERIOR RENDERINGS

PLAN 8 / LOT 8 - ELEVATION B / MEDITERRANEAN
- A8-2 FLOOR PLANS
- A8-3 REFLECTED CEILING / ROOF PLAN
- A8-5 EXTERIOR ELEVATIONS
- A8-6 EXTERIOR RENDERINGS

PLAN 9 / LOT 9 - ELEVATION C / TUSCAN
- A9-2 FLOOR PLANS
- A9-3 REFLECTED CEILING / ROOF PLAN
- A9-5 EXTERIOR ELEVATIONS
- A9-6 EXTERIOR RENDERINGS

- LANDSCAPE (BY OTHERS)
  - LC-1 TITLE SHEET
  - LC-2 LANDSCAPE CONCEPT PLANTING PLAN
  - LC-3 LANDSCAPE CONCEPTLEGEND & NOTES
  - LC-4 IRRIGATION WATER CALCULATIONS

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ZONA GALE ESTATES
ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

LICENSED ARCHITECT
PATRICK EDINGER
No. 26155
05-31-2022
STATE OF CALIFORNIA

PLANNING SET

PLAN CHECK 00/00/19
PLANNING COMMENTS 01/29/20

TITLE SHEET

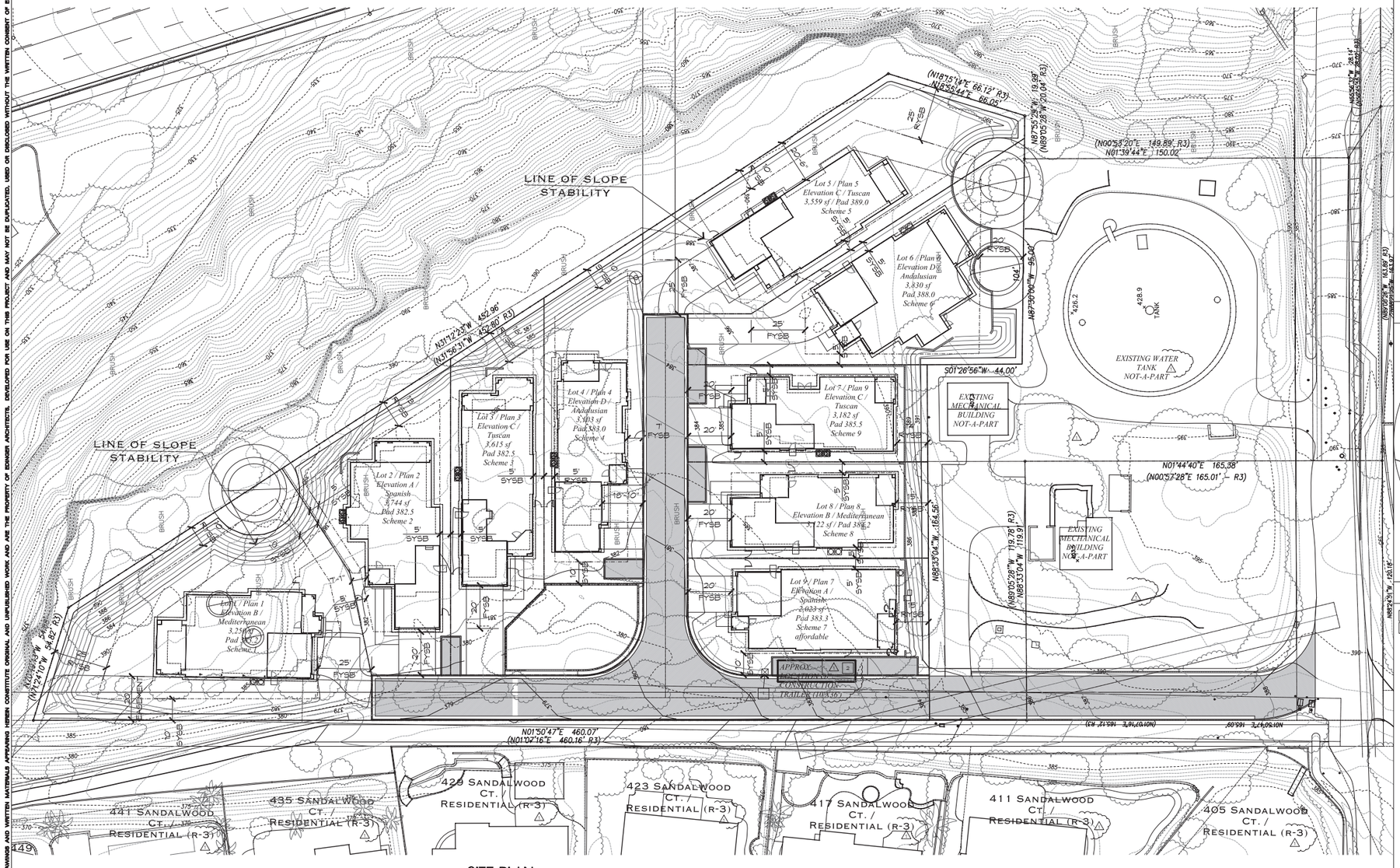
19009-SITE PLAN eA19009

A0-1

9/22/21 • 10/18/21

PROJECT SUMMARY TABLE

	BUILDING CHARACTERISTICS					PROPOSED BUILDING SQUARE FOOTAGE				HEIGHT	PARKING (PER R-3 ZONE)		SETBACKS (PER R-3 ZONE)									
LOT NUMBER / LOT SQUARE FOOTAGE	PLAN # / STYLE	BUILDING TYPE	ARCH STYLE	AFFORDABLE UNIT	BED/BATH	1ST FLR (SF)	2ND FLR (SF)	LIVABLE (SF)	GARAGE (SF)	HEIGHT (PER R-3 ZONE) 26' RIDGE MAX. / 22' PLATE MAX.	PARKING REQUIRED	PARKING PROVIDED	FRONT YARD SETBACK (FT.) 25'-0"	REAR YARD SETBACK (FT.) 25'-0"	INTERIOR SIDE YARD SETBACK (FT.) 10'-0"	STREET SIDE YARD SETBACK (FT.) 10'-0"	LOT COVERAGE (PER R-3 ZONE)	REQUESTED WAIVERS	GARAGE DOOR TYPE (OR EQUIV.)	COLOR SCHEME	PATIO SQ. FOOTAGE	BALCONY SQ. FOOTAGE (COVERED)	COVERED PORCH
LOT 1 / 12,121 SF	1 / B	SFR	MEDITERRANEAN		4 / 3.5	1742	1508	3250 SF	428	25'-3.75"	3	3	25'	25'	10'	NA	17.9 %	SEE BELOW	B	#1	337	95	133
LOT 2 / 6,965 SF	2 / A	SFR	SPANISH COLONIAL		5 / 4.5	1818	1926	3744 SF	632	24'-0.5"	3	3	20'	13'	5'	NA	35.2 %	SEE BELOW	A	#2	254	114	72
LOT 3 / 6,383 SF	3 / C	SFR	TUSCAN		4 / 3.5	1724	1891	3615 SF	655	24'-2.75"	3	3	20'-0"	16'	5'	NA	37.2 %	SEE BELOW	C	#3	383	130	109
LOT 4 / 6,723 SF	4 / D	SFR	ANDALUSIAN		4 / 4.5	1478	1625	3103 SF	700	25'-0.5"	3	3	7'	5'	10'	NA	32.4 %	SEE BELOW	D	#4	166	106	70
LOT 5 / 9,687 SF	5 / C	SFR	TUSCAN		4 / 4.5	1670	1889	3559 SF	631	25'-4.75"	3	3	25'	25'	10' / 5'	NA	23.8 %	SEE BELOW	C	#5	195	127	114
LOT 6 / 8,751 SF	6 / D	SFR	ANDALUSIAN		4 / 3.5	2023	1765	3788 SF	490	25'-0.25"	3	3	25'	20'	5'	NA	28.0 %	SEE BELOW	D	#6	248	158	78
LOT 7 / 4,987 SF	9 / C	SFR	TUSCAN		4 / 3.5	1505	1677	3182 SF	632	25'-2.25"	3	3	20'	14'	5'	NA	42.9 %	SEE BELOW	C	#9	113	-	104
LOT 8 / 4,946 SF	8 / B	SFR	MEDITERRANEAN		5 / 4.5	1393	1729	3122 SF	673	25'-6"	3	3	20'	15'	5'	NA	47.8 %	SEE BELOW	B	#8	130	-	140
LOT 9 / 5,864 SF	7 / A	SFR	SPANISH COLONIAL	X	4 / 3.5	2023	-	2023 SF	422	18'-4.25"	2	3	20'	15'	5'	10'	41.1 %	SEE BELOW	A	#7	131	-	49



SITE PLAN
SCALE: 1" = 20'-0"

SUMMARY TABLE NOTES

- ☐ REQUESTED INCENTIVES / CONCESSIONS:
  THREE INCENTIVES/CONCESSIONS ARE ALLOWED, ZERO INCENTIVES/CONCESSIONS ARE PROPOSED FOR THIS PROJECT
- ☐ REQUESTED WAIVERS:
  WAIVERS OF "DEVELOPMENT STANDARDS" AS DEFINED BY STATE DENSITY BONUS LAW 65915 ARE PROPOSED FOR THIS PROJECT AS IT RELATES TO SECTION 30.16.020C (DENSITY BONUS REGULATIONS) IN THE CITY OF ENCINITAS MUNICIPAL CODE, INCLUDING BUT NOT LIMITED TO:
  SETBACKS, MINIMUM LOT WIDTH, MINIMUM LOT DEPTH, MINIMUM LOT AREA, PANHANDLE WIDTH, GUEST PARKING AND LOT COVERAGE

  THE SHADED AREAS IN THE PROJECT SUMMARY TABLE INDICATES A LOCATION OF A REQUESTED WAIVER, REFER TO "REQUESTED WAIVER" COLUMN FOR ADDITIONAL INFORMATION

(REFER TO CIVIL SHEETS FOR ADDITIONAL CLARIFICATIONS)

- ☐ AFFORDABLE UNIT CALCULATIONS:

LOT 1 / PLAN 1	4 BEDROOMS / 3.5 BATH
LOT 2 / PLAN 2	5 BEDROOMS / 4.5 BATH
LOT 3 / PLAN 3	4 BEDROOMS / 3.5 BATH
LOT 4 / PLAN 4	4 BEDROOMS / 4.5 BATH
LOT 5 / PLAN 5	4 BEDROOMS / 4.5 BATH
LOT 6 / PLAN 6	4 BEDROOMS / 3.5 BATH
LOT 7 / PLAN 9	4 BEDROOMS / 3.5 BATH
LOT 8 / PLAN 8	5 BEDROOMS / 4.5 BATH
LOT 9 / PLAN 7 AFFORDABLE	4 BEDROOMS / 3.5 BATH

AFFORDABLE UNIT PROVIDES 4 BEDROOMS COMPARABLE WITH AVERAGE MARKET RATE UNIT BEDROOM COUNT, 4 BEDROOMS

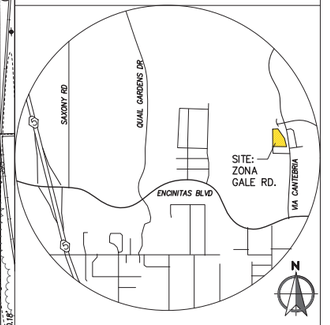
AFFORDABLE UNIT PROVIDES 3.5 BATHROOMS COMPARABLE WITH AVERAGE MARKET RATE UNIT BATHROOM COUNT, 3.5 BATHROOMS

- ☐ AVERAGE MARKET RATE UNIT SQUARE FOOTAGE:
  27,405 TOTAL SF / 8 UNITS = 3,426 AVERAGE SF
- ☐ AFFORDABLE UNIT MINIMUM SQUARE FOOTAGE:
  3,426 / 75% = 2,569.5 SF MINIMUM
- ☐ PROVIDED AFFORDABLE UNIT SQUARE FOOTAGE:
  2,569.5 SF > 2,023 SF (PROJECT EXEMPT FROM THIS REQUIREMENT)

LOT COVERAGE FOR ZONE R-3 35%

- THE ALLOWABLE SETBACKS ARE DEFINED BY THE BUILDABLE ENVELOPE SHOWN ON THE TENTATIVE MAP.
- ALLOWABLE ENCROACHMENTS SHALL BE IN ACCORDANCE WITH ENCINITAS MUNICIPAL CODE SECTION 30.16.010.E.8
- ACCESSORY STRUCTURES SHALL BE IN ACCORDANCE WITH ENCINITAS MUNICIPAL CODE SECTION 30.16.010.E AND ENCINITAS MUNICIPAL CODE CHAPTER 30.46 (ACCESSORY USE REGULATIONS)

VICINITY MAP



NUMBERED NOTES

1. APPROXIMATE LOCATION OF MAILBOX KIOSK.
2. APPROXIMATE LOCATION OF CONSTRUCTION TRAILER (10' X 36')

NORTH

0' 20' 40'
SCALE: 1"=20'-0"

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ZONA GALE ESTATES
ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

LICENSED ARCHITECT PATRICK EDINGER No. C-31737 STATE OF CALIFORNIA

PLANNING SET

PLAN CHECK	00/00/19
△ PLANNING COMMENTS	01/29/20

SITE PLAN

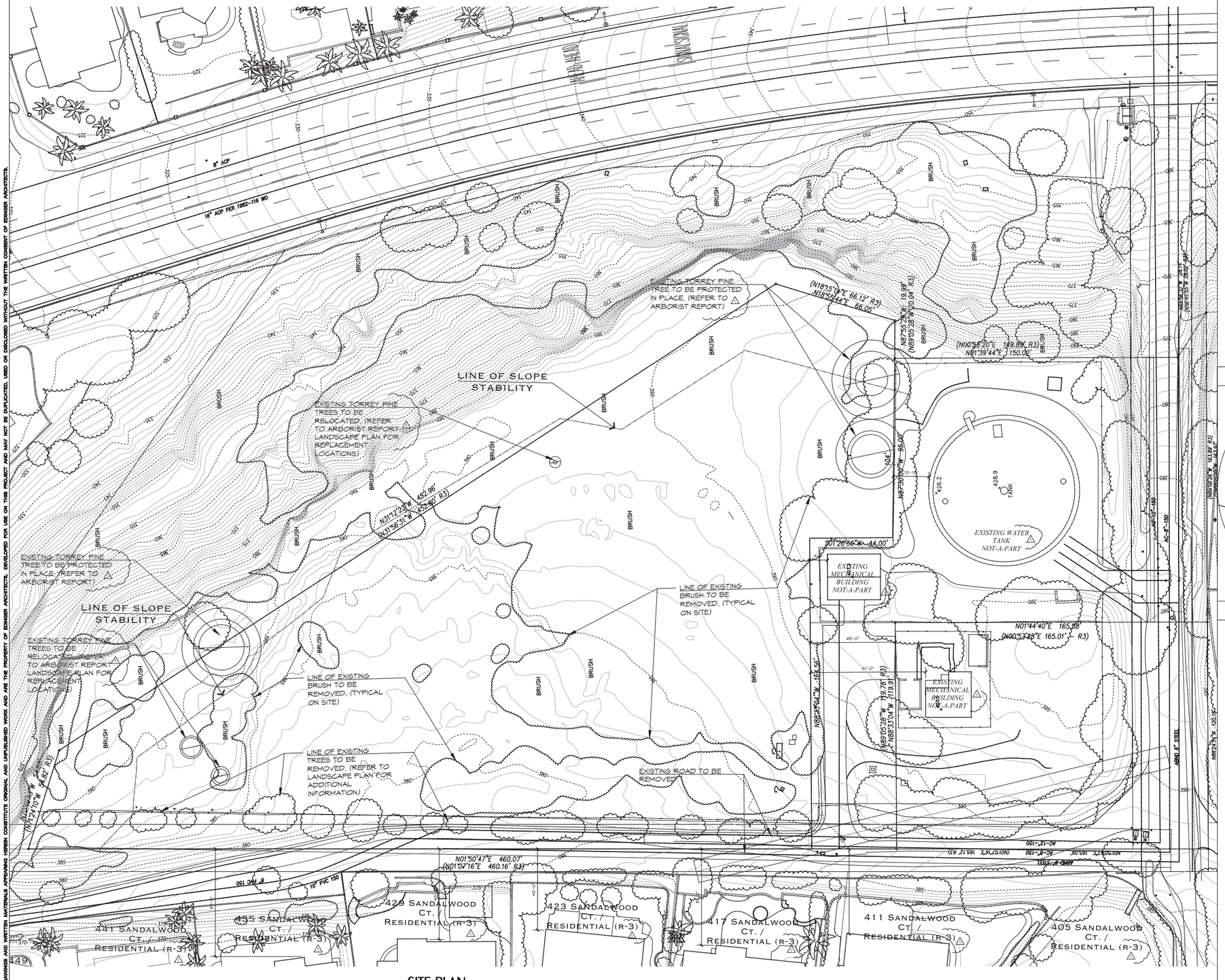
19009-SITE PLAN eA19009

A0-2

9/22/21 • 10/18/21

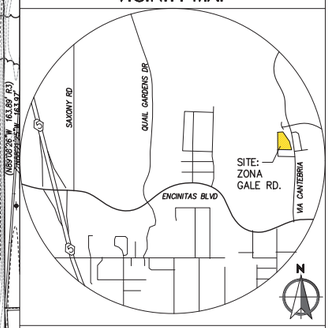
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SITE PLAN
SCALE: 1" = 20'-0"

VICINITY MAP



NUMBERED NOTES

NORTH

0' 20' 40'
SCALE: 1"=20'-0"

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PLANNING SET

PLAN CHECK	00/00/19
△ PLANNING COMMENTS	01/29/20

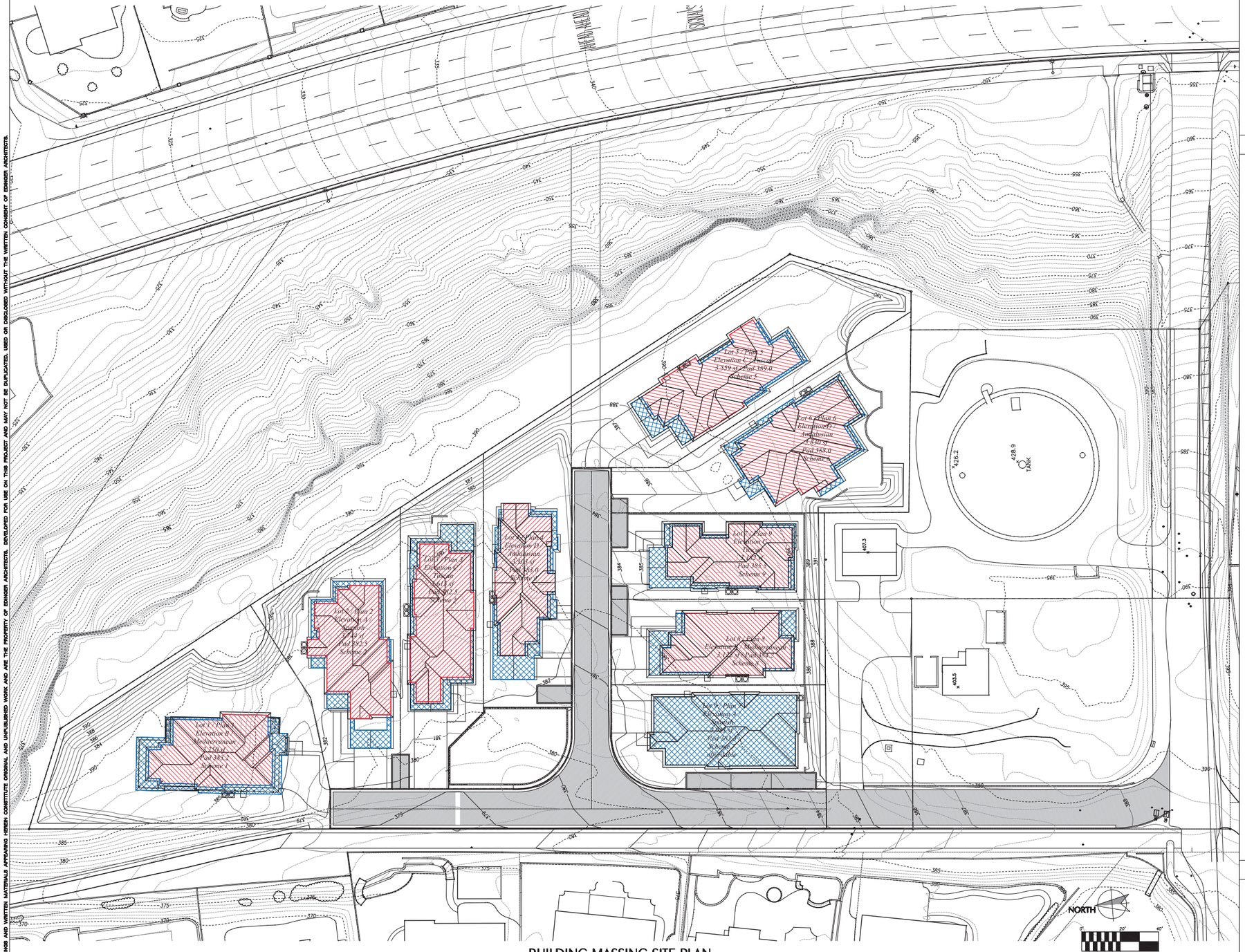
SITE DEMOLITION PLAN

19009-SITE PLAN eA19009

A0-2.1

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BUILDING MASSING SITE PLAN

SCALE: 1" = 20'-0"

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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PLANNING SET

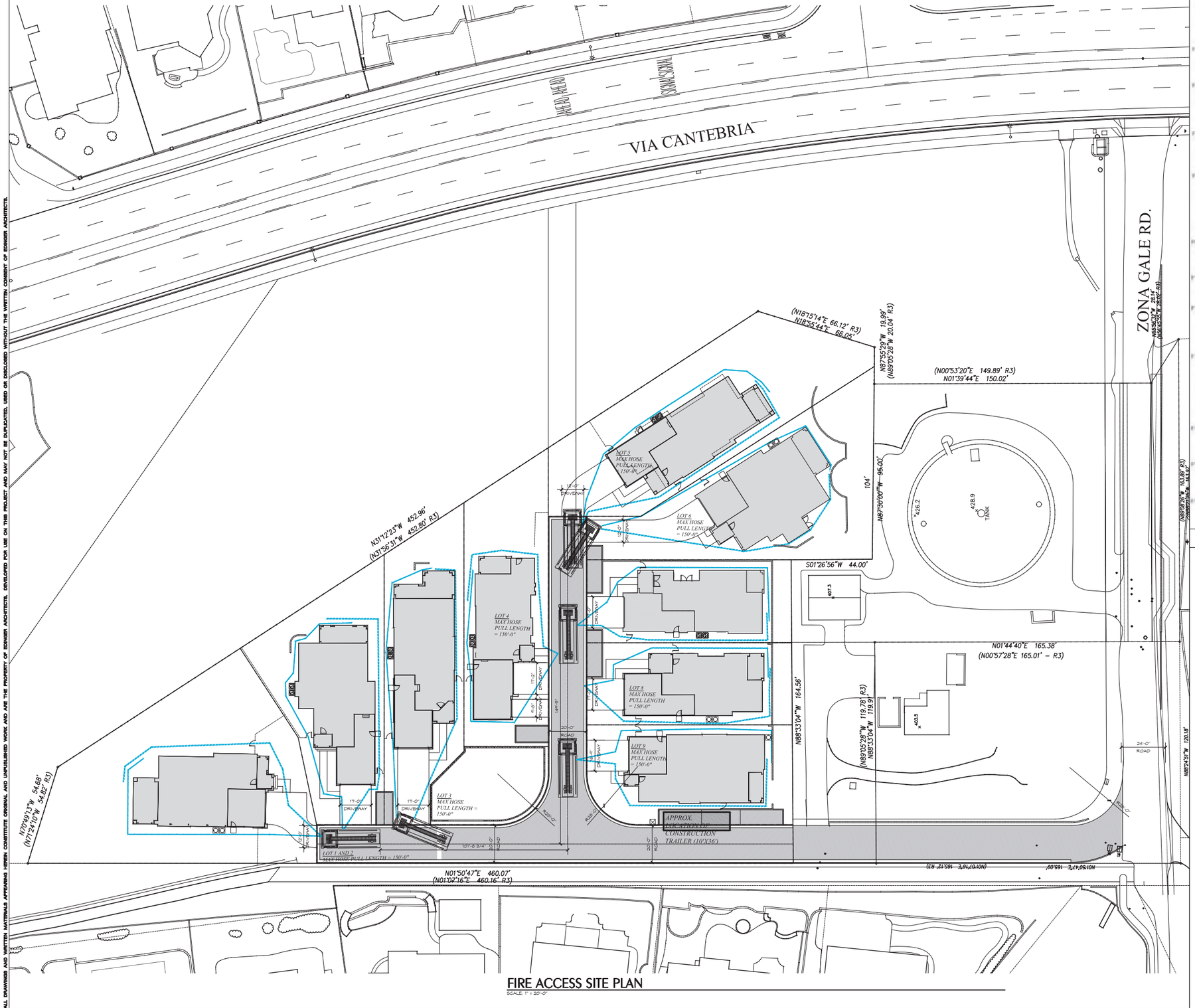
PLAN CHECK 00/00/19

BUILDING MASSING SITE PLAN

19009-SITE PLAN eA19009

A0-3

9/22/21 • 10/18/21



FIRE ACCESS SITE PLAN

SCALE: 1" = 20'-0"

FIRE DEPARTMENT NOTES

F1 **FIRE CONDITIONS:**

CONTACT THE FIRE DEPARTMENT REGARDING COMPLIANCE WITH THE FOLLOWING CONDITIONS:

F2 **ACCESS ROAD MINIMUM DIMENSIONS:** Fire apparatus access roads shall have an unobstructed improved width of not less than 24 feet, curb line to curb line, and an unobstructed vertical clearance of not less than 13 feet 6 inches. Exception: Single-Family residential driveways serving no more than two single-family dwellings, shall have minimum of 16 feet, curb line to curb line, of unobstructed improved width. Access roads shall be designed and maintained to support the imposed loads of not less than 75,000 pounds and shall be provided with an approved paved surface to provide all-weather driving capabilities.

F4 **DEAD ENDS:** All dead-end fire access roads in excess of 150 feet in length shall be provided with an approved area for turning around fire apparatus. A cul-de-sac shall be provided in residential areas where the access roadway serves more than four (4) structures. The minimum unobstructed paved surface within a cul-de-sac shall be 36 feet in residential areas with no parking.

F5 **GRADE:** The gradient for a fire apparatus access roadway shall not exceed 20.0%. Grades exceeding 15.0% (incline or decline) shall not be permitted without mitigation. Minimal mitigation shall be a surface of Portland cement concrete, with a deep broom finish perpendicular to the entries direction of travel. Additional mitigation measures may be required where deemed appropriate. The angle of departure and angle of approach of a fire access roadway shall not exceed seven degrees (12 percent).

F7 **RESPONSE MAPS:** Any new development, which necessitates updating of emergency response maps by virtue of new structures, hydrants, roadways or similar features, shall be required to provide map updates in one of the following formats (AutoCad DWG, DXF, ESRI shapefile, ESRI personal geodatabase, or KML format), and shall be charged a mutually/s fee for updating all response maps.

F8 **CONSTRUCTION MATERIALS:** Prior to delivery of combustible building construction materials to the project site all of the following conditions shall be completed to the satisfaction of the Fire Department:

1. All wet and dry utilities shall be installed and approved by the appropriate inspecting department or agency;
2. As a minimum the first lift of asphalt paving shall be in place to provide a permanent all weather surface for emergency vehicles; and
3. Water supply for fire protection, fire hydrants and standpipes, shall be installed, in service and accepted by the Fire Department and applicable water district.

F9 **POSTING OR STRIPING ROADWAYS "NO PARKING FIRE LANE":** Fire Department access roadways, where required, shall be properly identified as per Encinitas Fire Department standards. The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

F10 **OBSTRUCTION OF ROADWAYS DURING CONSTRUCTION:** All roadways shall be a minimum of 24 feet in width during construction and maintained free and clear, including the parking of vehicles, in accordance with the California Fire Code and the Encinitas Fire Department.

F11 **FIRE HYDRANTS AND FIRE FLOW:** The applicant shall provide fire hydrants of a type, number, and location satisfactory to the Encinitas Fire Department. A letter from the water agency serving the area shall be provided that states the required fire flow is available. Fire hydrants shall be of a bronze type. Multi-family residential or industrial fire hydrants shall have two (2) 4-inch and two (2) 2 ½-inch NST outlets. Reactionary fire hydrants shall have one (1) 4-inch NST outlet, and one (1) 2 ½-inch NST outlets.

F13 **ADDRESS NUMBERS:** STREET NUMBERS: Approved numbers and/or addresses shall be placed on all new and existing buildings and at appropriate additional locations as to be plainly visible and legible from the street or roadway fronting the property from either direction of approach. Said numbers shall contrast with their background, and shall meet the following minimum standards as to size: Four inches high with a ½ inch stroke width for residential buildings, eight inches high with a ½-inch stroke for commercial and multi-family residential buildings, 12 inches high with a one-inch stroke for industrial buildings. Additional numbers shall be required where deemed necessary by the Fire Marshal, such as rear access doors, building corners, and entrances to commercial centers.

F14 **ADDRESS NUMBERS FOR STRUCTURES LOCATED OFF ROADWAY:** Where structures are located off a roadway on long easements/driveways, a monument marker shall be placed at the entrance where the easement/driveway intersects the main roadway. Permanent address numbers with height conforming to Fire Department standards shall be affixed to this marker.

F15A **AUTOMATIC FIRE SPRINKLER SYSTEM-ONE AND TWO FAMILY DWELLINGS: Structures shall be protected** by an automatic fire sprinkler system designed and installed to the satisfaction of the Fire Department. Plans for the automatic fire sprinkler system shall be approved by the Fire Department prior to installation.

F18 **CLASS "A" ROOF:** All structures shall be furnished with a Class "A" (fire) roofing to the satisfaction of the Encinitas Fire Department.

NUMBERED NOTES

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LICENSED ARCHITECT PATRICK EDINGER No. C-30139 05-31-22 STATE OF CALIFORNIA

PLANNING SET

PLAN CHECK 00/00/19

FIRE ACCESS SITE PLAN

19009-SITE PLAN eA19009

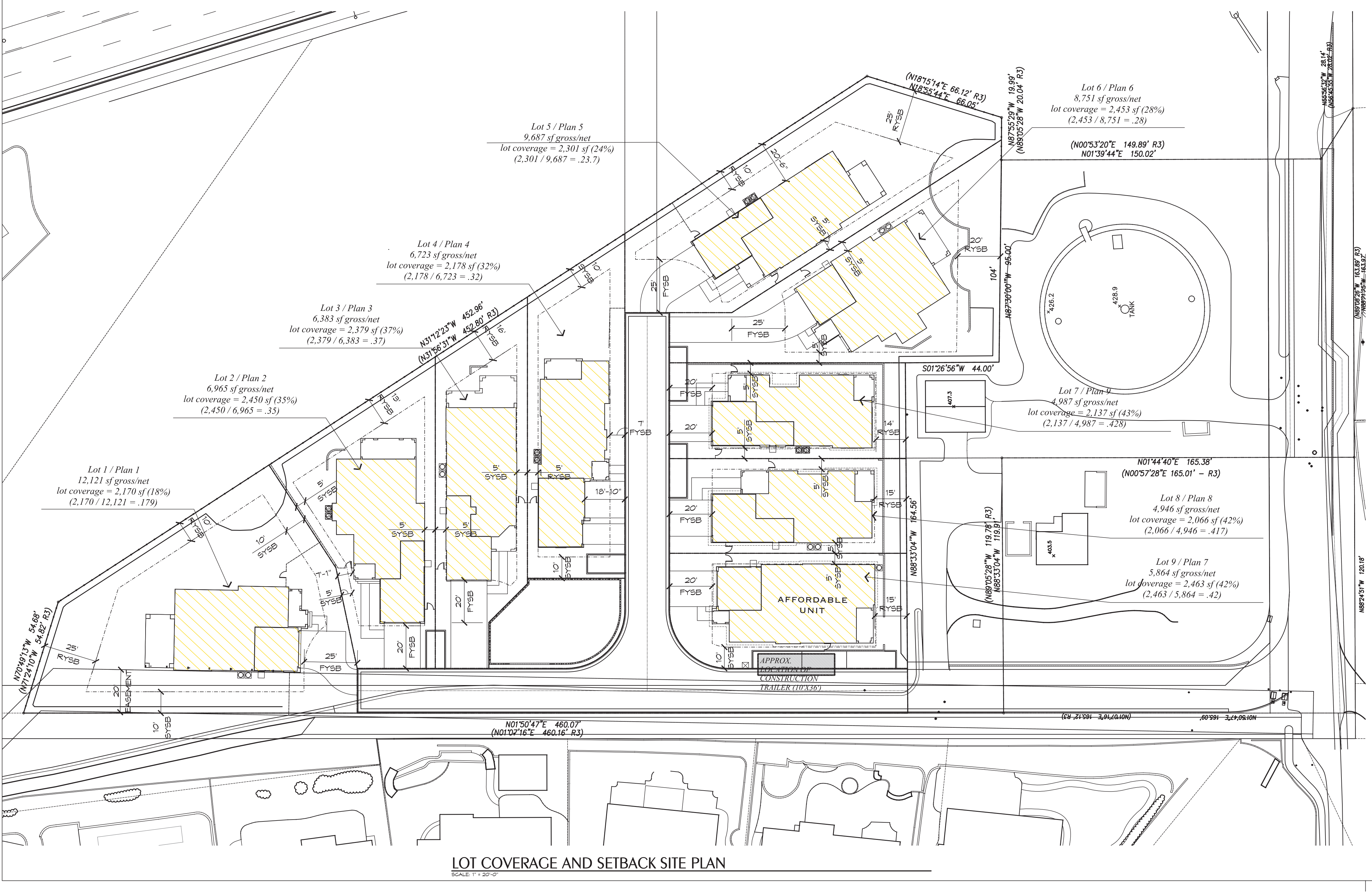
A0-4

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PROJECT SUMMARY TABLE

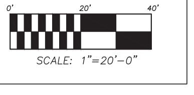
	BUILDING CHARACTERISTICS					PROPOSED BUILDING SQUARE FOOTAGE				HEIGHT	PARKING (PER R-3 ZONE)		SETBACKS (PER R-3 ZONE)										
LOT NUMBER / LOT SQUARE FOOTAGE	PLAN # / STYLE	BUILDING TYPE	ARCH STYLE	AFFORDABLE UNIT	BED/BATH	1ST FLR (SF)	2ND FLR (SF)	LIVABLE (SF)	GARAGE (SF)	HEIGHT (PER R-3 ZONE) 26' RIDGE MAX. / 22' PLATE MAX.	PARKING REQUIRED	PARKING PROVIDED	FRONT YARD SETBACK (FT.) 25'-0"	REAR YARD SETBACK (FT.) 25'-0"	INTERIOR SIDE YARD SETBACK (FT.) 10'-0"	STREET SIDE YARD SETBACK (FT.) 10'-0"	LOT COVERAGE (PER R-3 ZONE)	REQUESTED WAVERS	GARAGE DOOR TYPE (OR EQUIV.)	COLOR SCHEME	PATIO SQ. FOOTAGE	BALCONY SQ. FOOTAGE (COVERED)	COVERED PORCH
LOT 1 / 12,121 SF	1 / B	SFR	MEDITERRANEAN		4 / 3.5	1742	1508	3250 SF	428	25'-3.75"	3	3	25'	25'	10'	NA	17.9 %	SEE BELOW	B	#1	337	95	133
LOT 2 / 6,965 SF	2 / A	SFR	SPANISH COLONIAL		5 / 4.5	1818	1926	3744 SF	632	24'-0.5"	3	3	20'	13'	5'	NA	35.2 %	SEE BELOW	A	#2	254	114	72
LOT 3 / 6,383 SF	3 / C	SFR	TUSCAN		4 / 3.5	1724	1891	3615 SF	655	24'-2.75"	3	3	20'-0"	16'	5'	NA	37.2 %	SEE BELOW	C	#3	383	130	109
LOT 4 / 6,723 SF	4 / D	SFR	ANDALUSIAN		4 / 4.5	1478	1625	3103 SF	700	25'-0.5"	3	3	7'	5'	10'	NA	32.4 %	SEE BELOW	D	#4	166	106	70
LOT 5 / 9,687 SF	5 / C	SFR	TUSCAN		4 / 4.5	1670	1889	3559 SF	631	25'-4.75"	3	3	25'	25'	10' / 5'	NA	23.8 %	SEE BELOW	C	#5	195	127	114
LOT 6 / 8,751 SF	6 / D	SFR	ANDALUSIAN		4 / 3.5	2023	1765	3788 SF	430	25'-0.25"	3	3	25'	20'	5'	NA	28.0 %	SEE BELOW	D	#6	248	158	78
LOT 7 / 4,987 SF	9 / C	SFR	TUSCAN		4 / 3.5	1505	1677	3182 SF	632	25'-2.25"	3	3	20'	14'	5'	NA	42.9 %	SEE BELOW	C	#9	113	-	104
LOT 8 / 4,946 SF	8 / B	SFR	MEDITERRANEAN		5 / 4.5	1393	1729	3122 SF	673	25'-6"	3	3	20'	15'	5'	NA	47.8 %	SEE BELOW	B	#8	130	-	140
LOT 9 / 5,864 SF	7 / A	SFR	SPANISH COLONIAL	X	4 / 3.5	2023	-	2023 SF	422	18'-4.25"	2	3	20'	15'	5'	10'	41.7 %	SEE BELOW	A	#7	131	-	49



LOT COVERAGE AND SETBACK SITE PLAN

SCALE: 1" = 20'-0"





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LICENSED ARCHITECT
PATRICK EDINGER
REN. 03-31-22
STATE OF CALIFORNIA

PLANNING SET

PLAN CHECK 00/00/19

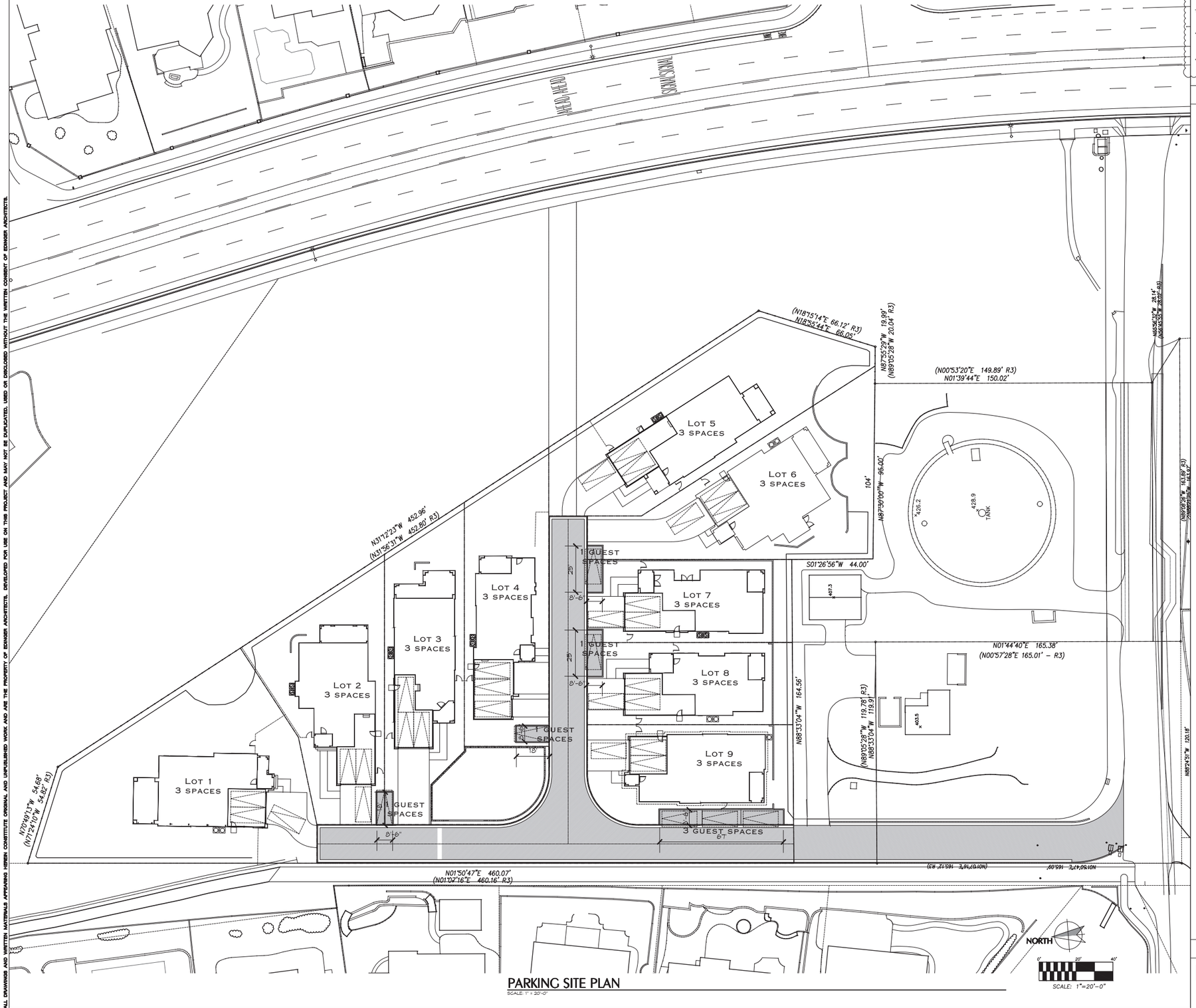
LOT COVERAGE AND SETBACK SITE PLAN

19009-SITE PLAN eA19009

A0-5

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PARKING SITE PLAN

SCALE: 1" = 20'-0"

⚠ SITE PARKING CALCULATIONS

PARKING CALCULATIONS: (MUNC. CODE SECT. 30.54.030)

RESIDENCE PARKING =	27 SPACES
STREET SPACES =	7 SPACES
TOTAL PROPOSED PARKING SPACES=	34 SPACES
TOTAL REQUIRED PARKING SPACES =	35 SPACES
(RESIDENCE PARKING = 26 SPACES) *	
(GUEST PARKING 1 SPACE PER LOT (9 LOTS)**=	9 SPACES

* SEE CALCULATION TABLE ON SHEET A0-2 FOR EACH LOT PARKING BREAKDOWN
2 ENCLOSED PARKING SPACES FOR EACH UNIT UP TO 2,500 SQ. OF FLOOR AREA, 3 SPACES FOR DWELLING UNITS IN EXCESS OF 2,500 SF, AND PARKING SPACE OVER 2 SPACES MAY BE ENCLOSED OF UNENCLOSED.

**SEE REQUESTED PAVERS AS PART OF DENSITY BONUS, WE ARE REQUESTING PAVER FOR GUEST PARKING.

NUMBERED NOTES

LEGEND

STANDARD 9'-0" X 18'-0" PARKING SPACE

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LICENSED ARCHITECT PATRICK EDINGER No. C-30785 05-31-22 STATE OF CALIFORNIA

PLANNING SET

PLAN CHECK	00/00/19
⚠ PLANNING COMMENTS	01/25/20

PARKING SITE PLAN

19009-SITE PLAN eA19009

A0-6

9/22/21 • 10/18/21

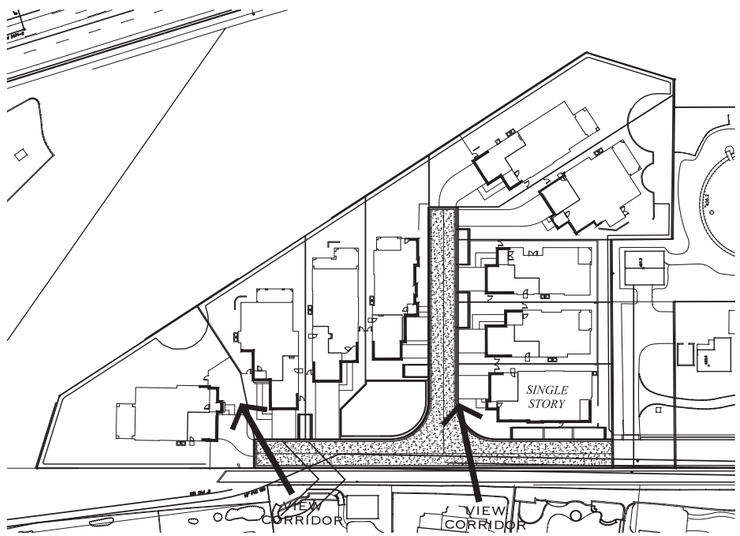
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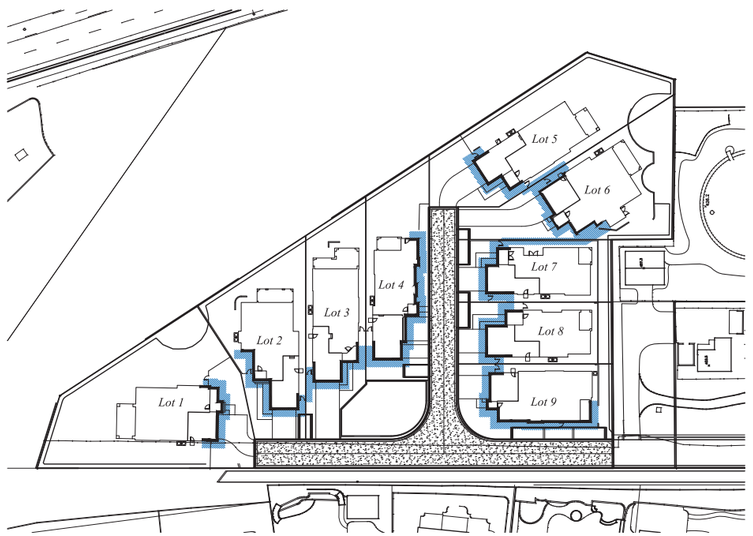
STREET SCENE LOTS 1, 2, 3 AND 4
SCALE: N.T.S.
1



STREET SCENE LOTS 5, 6, 7, 8, AND 9
SCALE: N.T.S.
2



VIEW CORRIDOR DIAGRAM
SCALE: 1" = 40'-0"
2.5.5



STREET FACADE DIAGRAM
SCALE: 1" = 40'-0"
2.4.6 AND 2.4.7

STREET SCENE KEY

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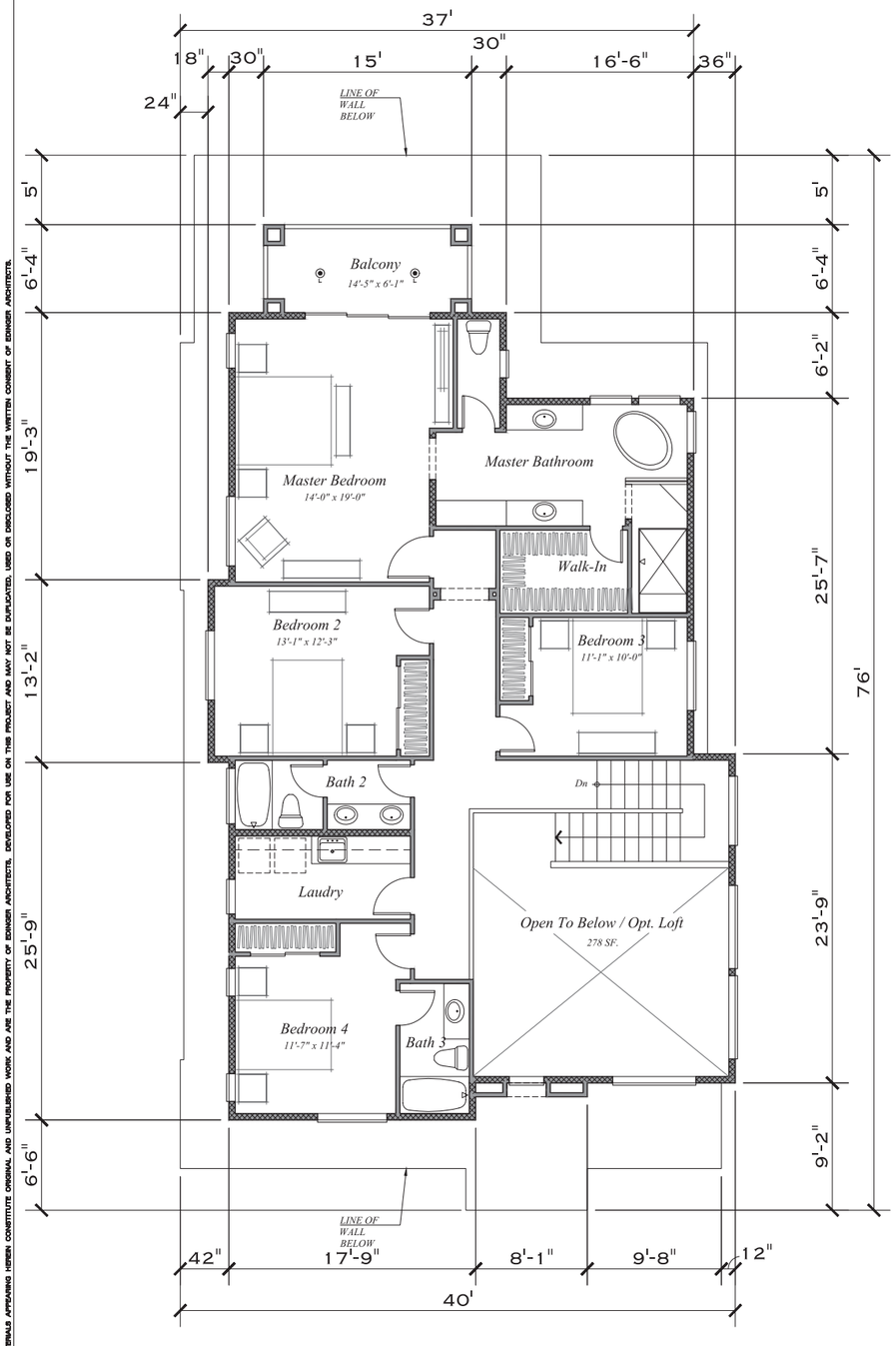
PLAN CHECK 00/00/19

DESIGN GUIDELINES DIAGRAMS / STREET SCENES

19009-SITE PLAN eA19009

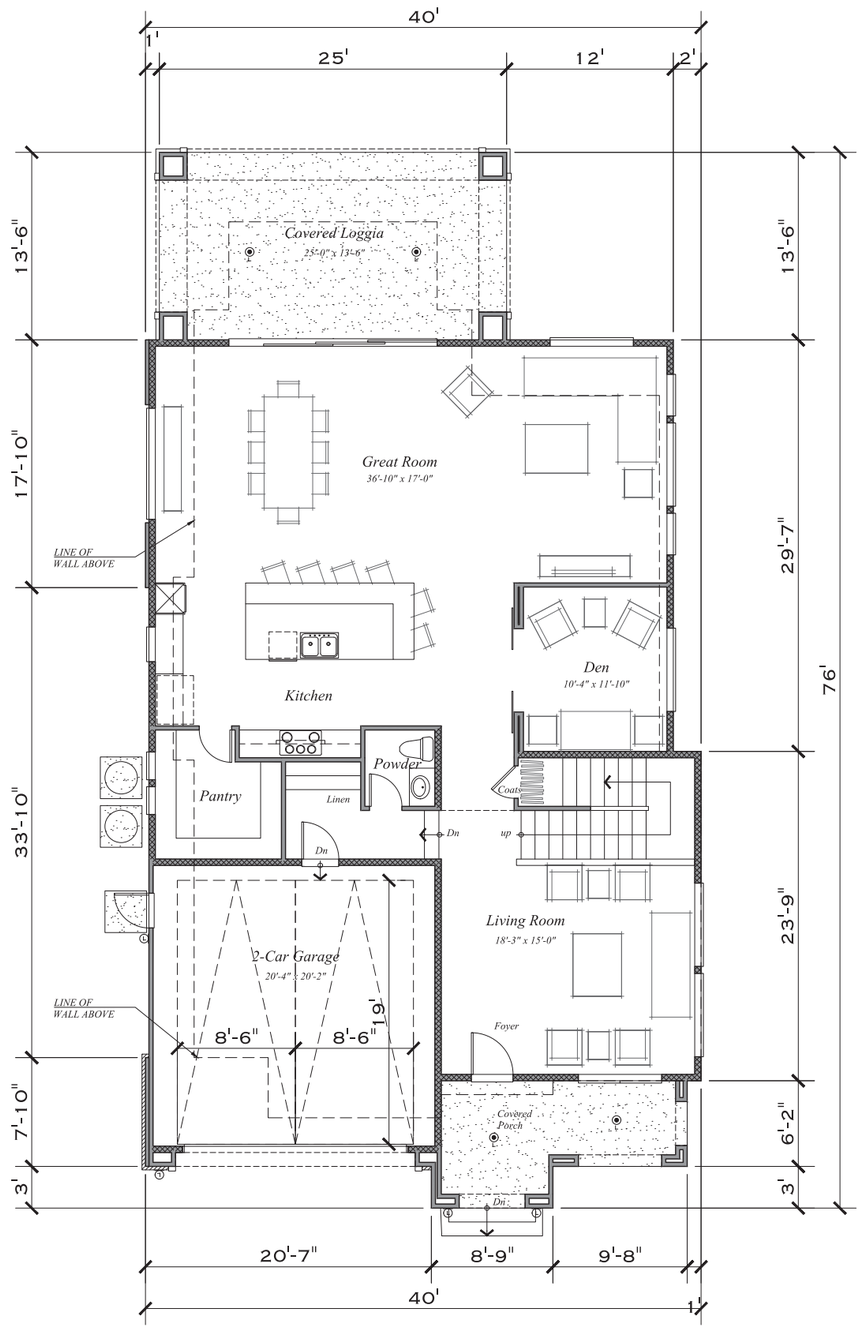
A0-7

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SECOND FLOOR PLAN

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



FIRST FLOOR PLAN

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

1B

NORTH

0" 4" 8"

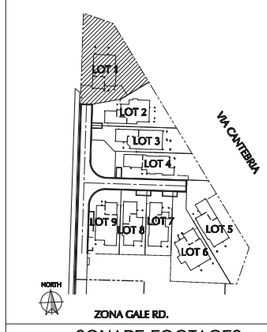
SCALE: 1/4"=1'-0"

FLOOR PLAN NOTES

- ☐ REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND THE ARCHITECT SHALL BE NOTIFIED, IN WRITING, OF ANY OMISSIONS, VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO DETAILS / CROSS-SECTIONS / AND FRAMING PLANS FOR CLARIFICATIONS AND DIMENSIONS OF ALL SOFFITED AREAS.
- ☐ REFER TO SHEET A0-1 FOR WALL LEGEND.
- ☐ ALL WINDOWS AND DOORS TO HAVE ALUMINUM CLAD WOOD FRAMES WITH CLEAR LOW E DUAL GLAZING. SEE EXTERIOR ELEVATIONS FOR LOCATIONS OF WINDOWS WITH MULLION BARS, (ALL OPERABLE WINDOWS TO HAVE SCREENS). .25 MAX. SHGC / .32 MAX U-VALUE (OR BETTER)
- ☐ THIS SYMBOL (◇) INDICATES AN INTERIOR ELEVATION VIEWED FROM THIS VANTAGE POINT WITH THE LETTER INSIDE THE SYMBOL INDICATING THE INTERIOR ELEVATION. REFER TO SHEETS A-12 AND A-13 FOR INTERIOR ELEVATIONS.
- ☐ PROVIDE BLOCKING AND / OR BACKING AT ALL TOWEL BAR ( ), AND / OR TOWEL RING ( ) LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK-THRU.
- ☐ PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/A0-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDINGS.
- ☐ OPENABLE WINDOWS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY PLUMBING VENT, CHIMNEY, ETC. C.R.C. SECTION 3095.
- ☐ PENETRATIONS OF FIRE-RESISTIVE HALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 1 / LOT 1	
FIRST FLOOR LIVABLE	1742 SQ. FT.
SECOND FLOOR LIVABLE	1508 SQ. FT.
TOTAL LIVABLE	3250 SQ. FT.
2-CAR GARAGE	428 SQ. FT.
COVERED PORCH	139 SQ. FT.
COVERED PATIO	391 SQ. FT.
COVERED BALCONY	95 SQ. FT.

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PLANNING SET

PLAN CHECK 00/00/19

FLOOR PLANS

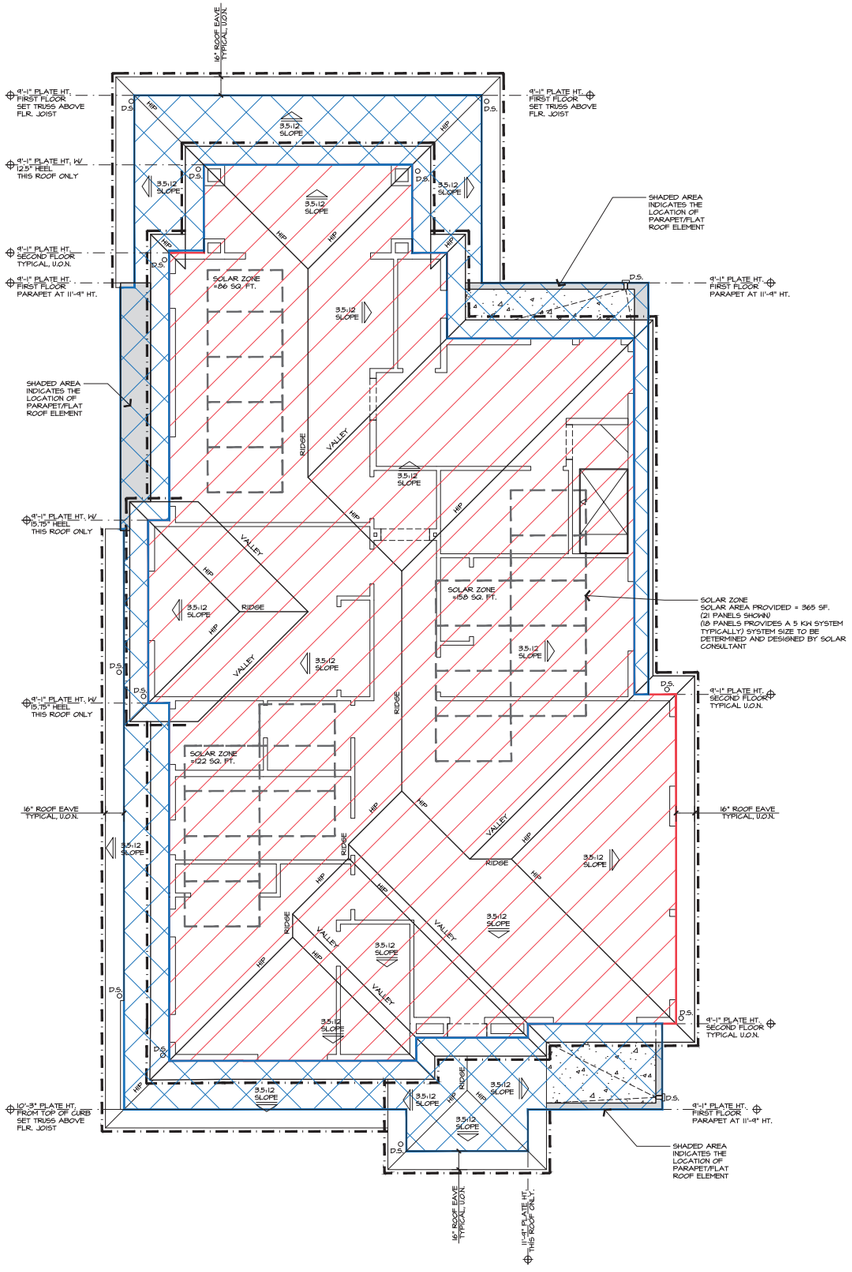
PLAN 1B eA19009

PLAN 1 / LOT 1

A1-2

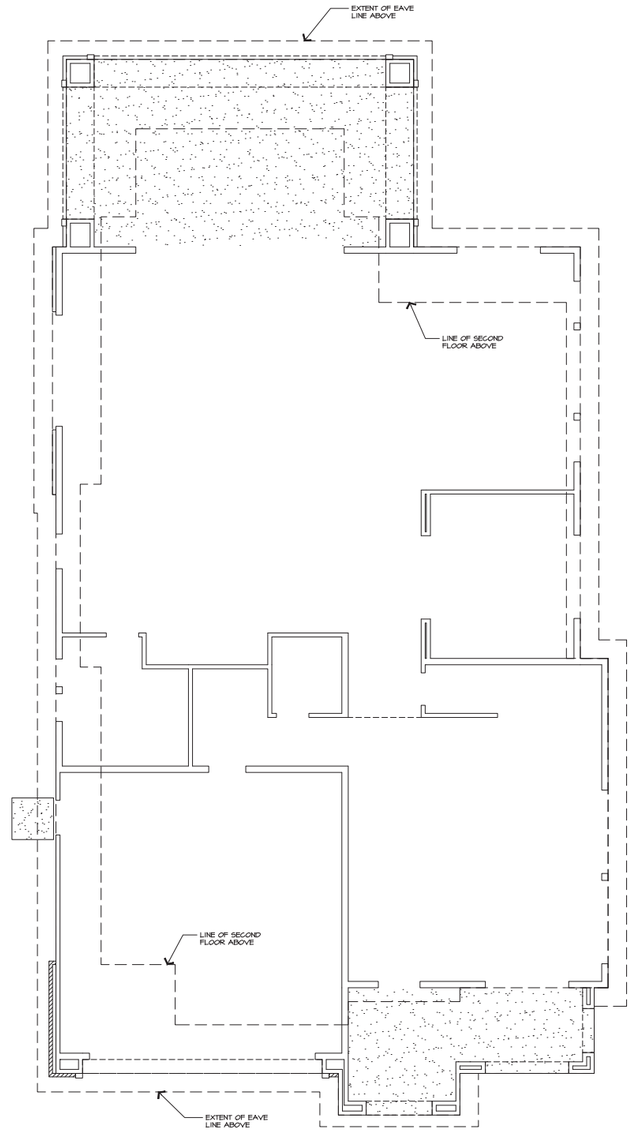
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ROOF PLAN

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



FIRST FLOOR REFLECTED CEILING PLAN 1B

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

ROOF PLAN NOTES

- ☐ REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND ARCHITECT SHALL BE NOTIFIED OF ANY VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO THE FLOOR PLANS, ADDENDA PLANS, AND INTERIOR ELEVATIONS FOR ADDITIONAL NOTES AND INFORMATION NOT SHOWN HERE.
- ☐ REFER TO STRUCTURAL PLANS PREPARED BY OTHERS FOR ADDITIONAL NOTES AND CLARIFICATIONS, AS WELL AS ADDITIONAL SPECIFICATIONS (I.E., NAILING, BRACING, ETC.). THE FOLLOWING NOTES ARE TO CLARIFY THE ROOF PLAN.
- ☐ VERIFY ALL PLATE HEIGHTS SHOWN WITH STRUCTURAL PLANS. (I.E. PLATE HEIGHTS WILL DIFFER DEPENDING ON WHAT TYPE OF ROOF FRAMING IS USED).
- ☐ ALL FLASHING PERTAINING TO THE METHODS AND MATERIALS USED TO CONSTRUCT THE ROOF AND CHIMNEY TO BE COPPER FLASHING.
- ☐ ROOF COVERING TO BE:
- ☐ OVERHANGS TO BE,
  EAVES: 16" UNLESS OTHERWISE NOTED
  RAKE: 12" UNLESS OTHERWISE NOTED
  (SEE DETAILS FOR CLARIFICATIONS). OVERHANGS LISTED ABOVE ARE TYPICAL PER ELEVATION, UNLESS OTHERWISE NOTED AT SPECIAL CONDITIONS.
- ☐ COMBINE AND GROUP PLUMBING VENTS WHENEVER POSSIBLE TO MINIMIZE ROOF PENETRATIONS. FOR FLASHING AT ROOF PENETRATIONS (I.E. "B" VENTS), REFER TO DETAIL 12/AD-2 FOR TYPICAL ROOF PENETRATION FLASHING INFORMATION.
- ☐ ATTIC VENTILATION.

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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ZONA GALE ESTATES

ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

ROOF PLAN

PLAN 1B eA19009

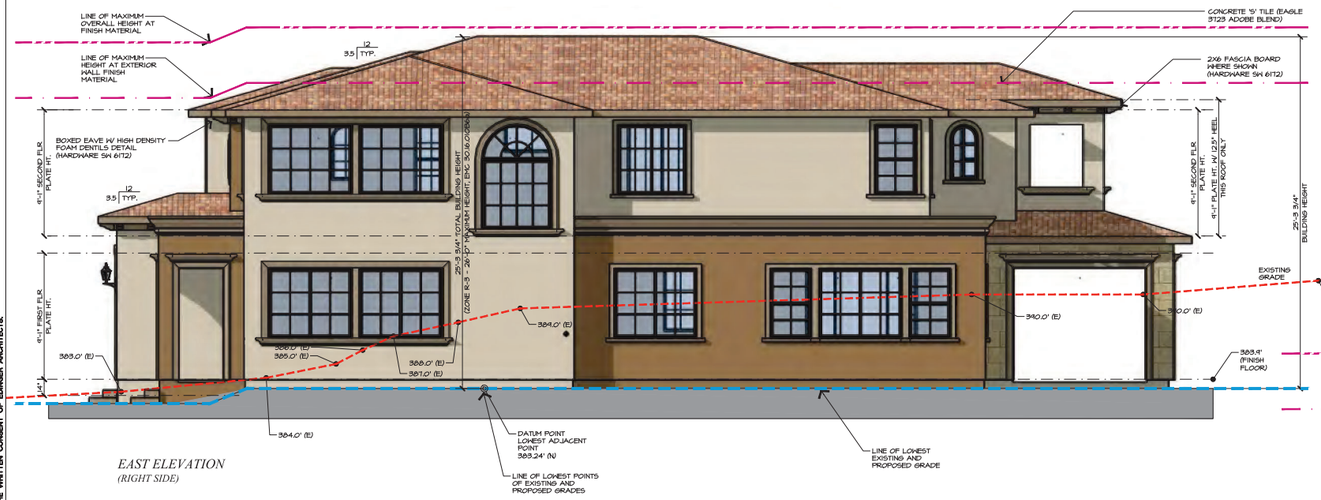
PLAN 1 / LOT 1

A1-3

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EAST ELEVATION
(RIGHT SIDE)

LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES

LINE OF EXISTING GRADE

LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)

LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)



Verona Outdoor Wall Sconce No. BFCD683

by Troy Lighting

Details

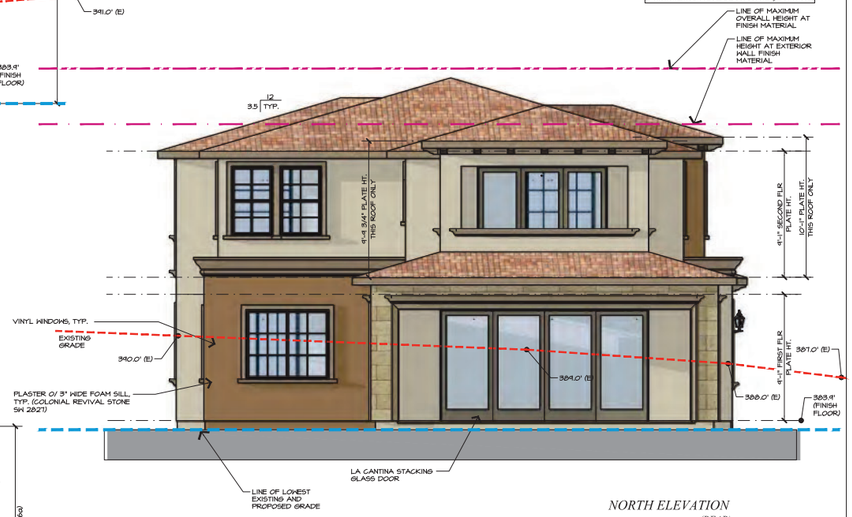
A cross between Victorian and early American design, the Troy Lighting Verona Outdoor Wall Sconce No. BFCD683 gives entryway a regal, fascinated feel with its curling metalwork, and frosted beveled glass.

The Verona Outdoor Wall Sconce No. BFCD683 is available with the following:

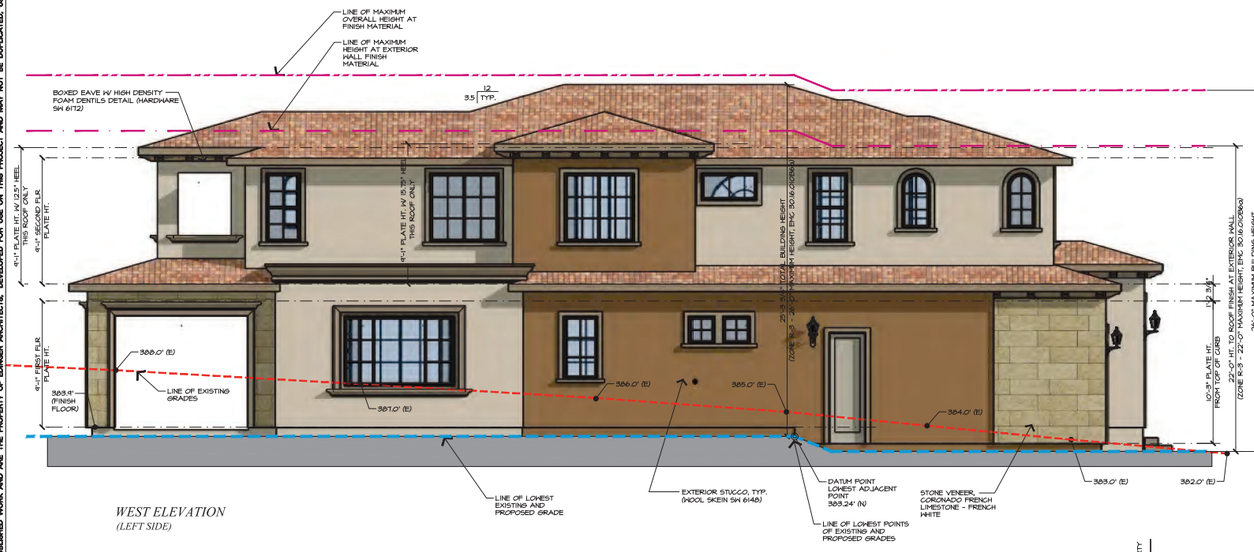
Details:
Frosted beveled glass shade
Cast aluminum construction
Decorative wall plate
Fixed Color: Frosted beveled
Finish: Antique Bronze, Matte Black, Bronze Patina.

Dimensions:
Extra Tall La Large Outdoor Fixture | Height: 49.5" | Top to Center: 51.5" | Width: 11" | Depth: 13"
Extra Large Option Fixture - Height: 35", Top to Center: 21", Width: 10", Depth: 17"
Large Option Fixture - Height: 25", Top to Center: 13", Width: 11.5", Depth: 15"

Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder

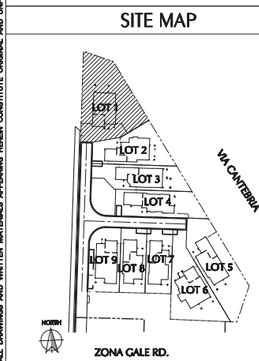


NORTH ELEVATION
(REAR)

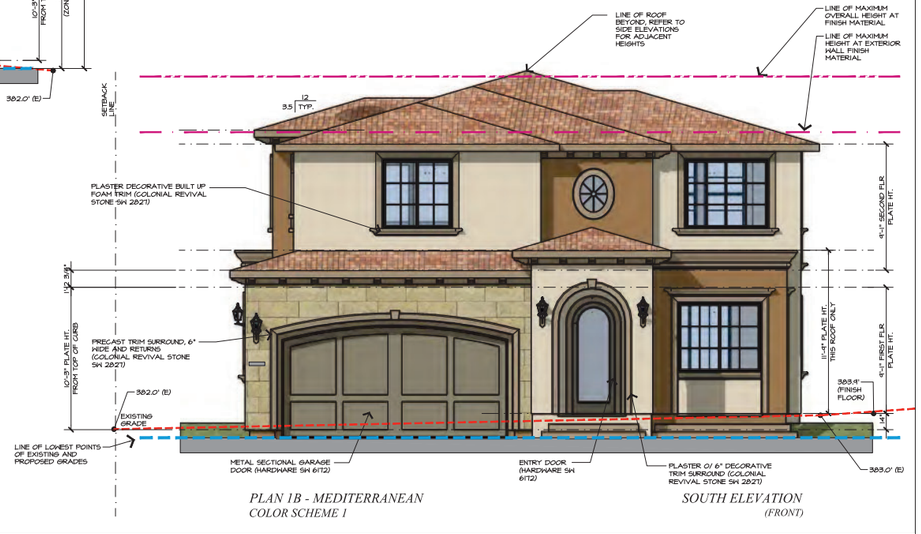


WEST ELEVATION
(LEFT SIDE)

SITE MAP



PROPERTY LINE



PLAN 1B - MEDITERRANEAN
COLOR SCHEME 1

SOUTH ELEVATION
(FRONT)

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PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR ELEV. "B" MEDITERRANEAN

PLAN 1B eA19009

PLAN 1 / LOT 1

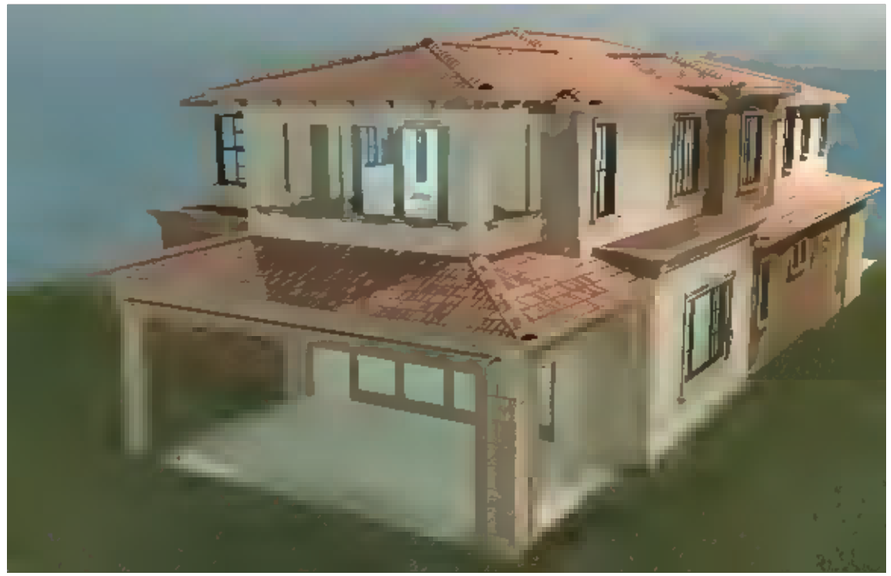
A1-5

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NORTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE



SOUTHWEST PERSPECTIVE



SOUTHEAST PERSPECTIVE
PLAN 1B - MEDITERRANEAN

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ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

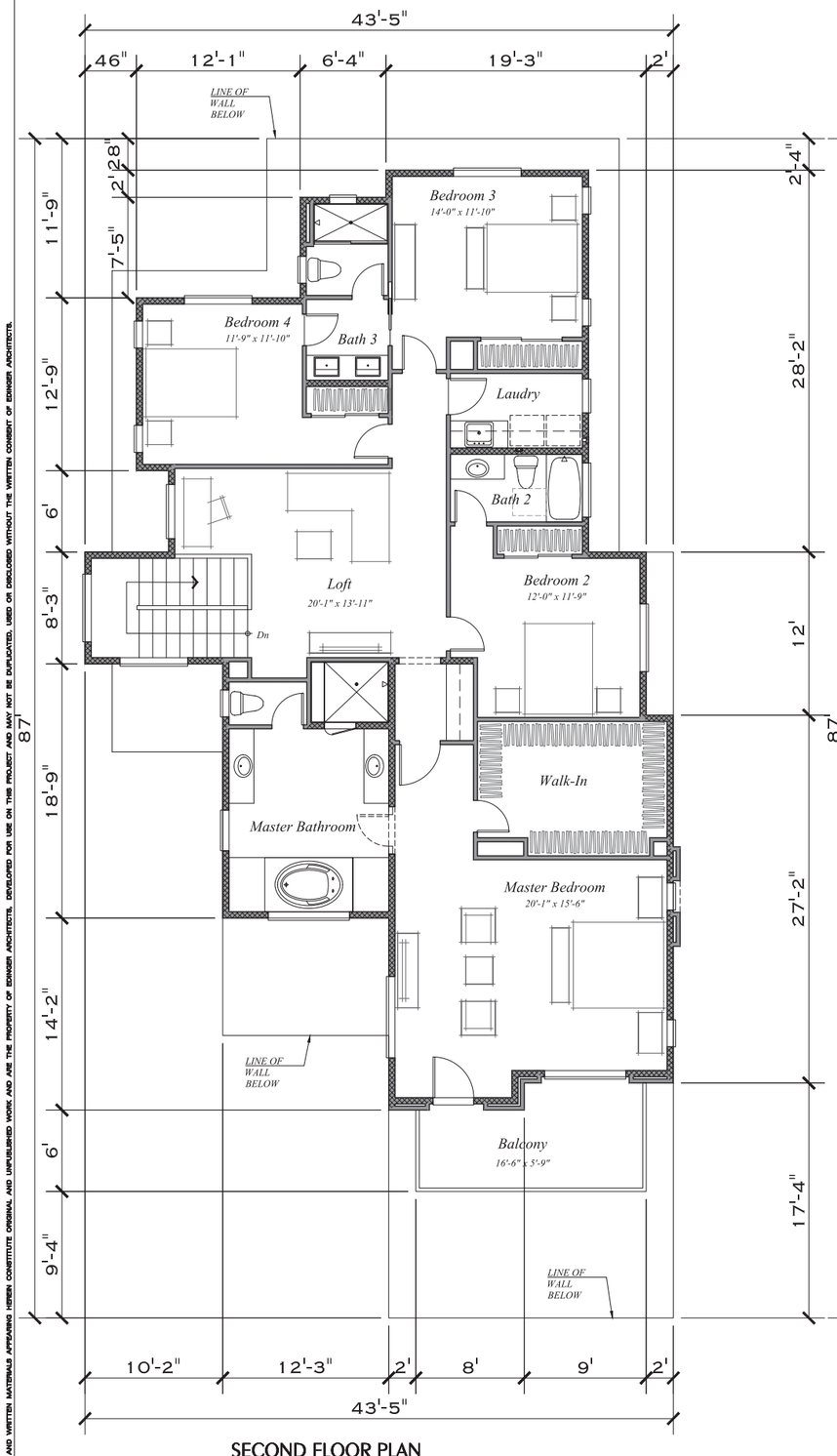
EXTERIOR RENDERINGS
ELEV. "B"
MEDITERRANEAN

PLAN 1B eA19009

PLAN 1 / LOT 1

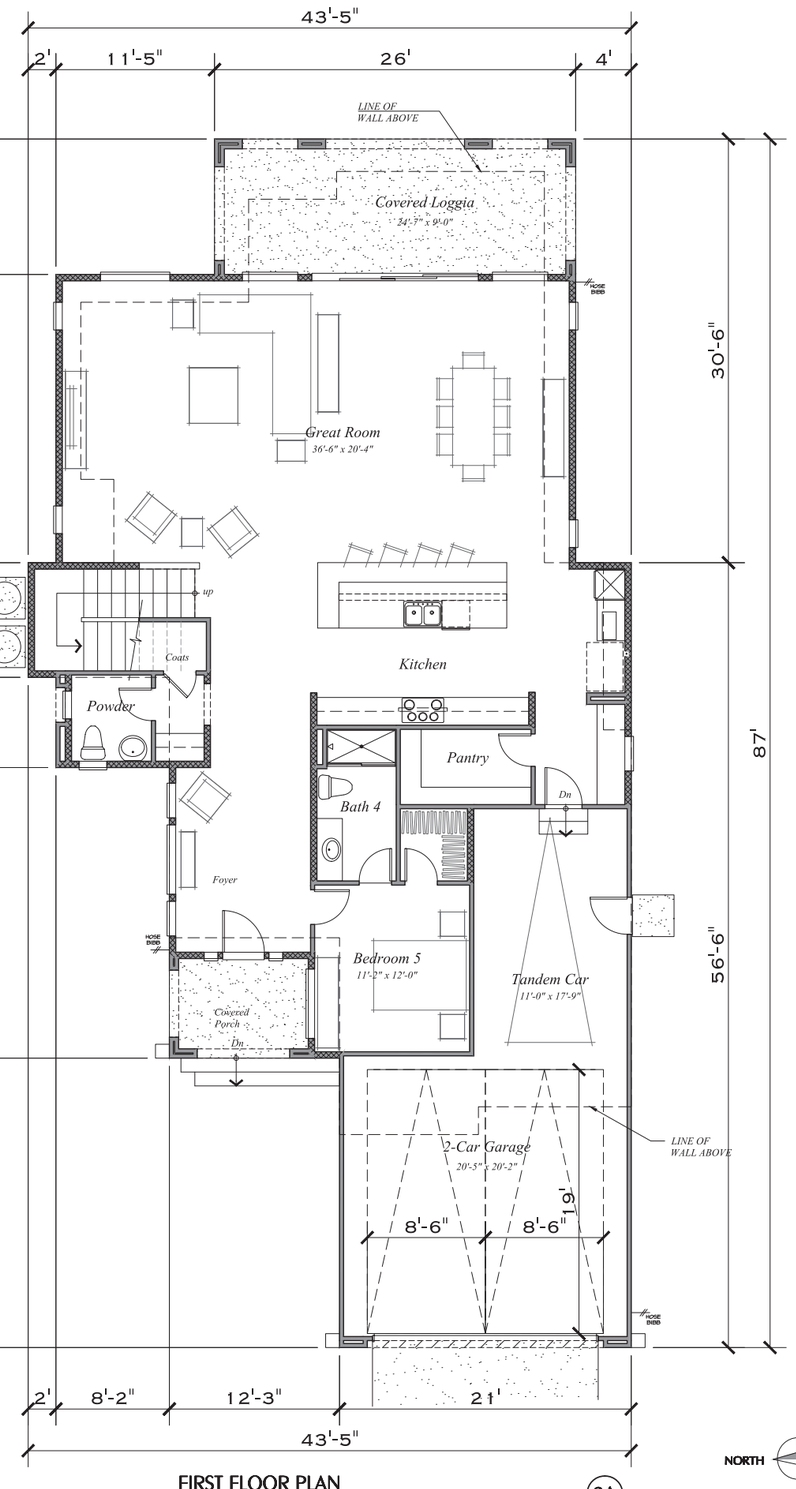
A1-6

9/22/21 • 9/22/21



SECOND FLOOR PLAN

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



FIRST FLOOR PLAN

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

2A

NORTH

0" 4" 8"

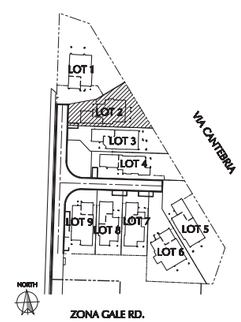
SCALE: 1/4"=1'-0"

FLOOR PLAN NOTES

- ☐ REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND THE ARCHITECT SHALL BE NOTIFIED, IN WRITING, OF ANY OMISSIONS, VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO DETAILS / CROSS-SECTIONS / AND FRAMING PLANS FOR CLARIFICATIONS AND DIMENSIONS OF ALL SOFFITED AREAS.
- ☐ REFER TO SHEET A0-1 FOR WALL LEGEND.
- ☐ ALL WINDOWS AND DOORS TO HAVE ALUMINUM CLAD WOOD FRAMES WITH CLEAR LOW E DUAL GLAZING. SEE EXTERIOR ELEVATIONS FOR LOCATIONS OF WINDOWS WITH MULLION BARS, (ALL OPERABLE WINDOWS TO HAVE SCREENS) .25 MAX. SHGC / .32 MAX U-VALUE (OR BETTER)
- ☐ THIS SYMBOL (◇) INDICATES AN INTERIOR ELEVATION VIEWED FROM THIS VANTAGE POINT WITH THE LETTER INSIDE THE SYMBOL INDICATING THE INTERIOR ELEVATION. REFER TO SHEETS A-12 AND A-13 FOR INTERIOR ELEVATIONS.
- ☐ PROVIDE BLOCKING AND / OR BACKING AT ALL TOWEL BAR (⊢⊣), AND / OR TOWEL RING (—) LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK-THRU.
- ☐ PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/AD-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDING.
- ☐ OPENABLE WINDOWS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY PLUMBING VENT, CHIMNEY, ETC. C.R.C. SECTION 3095.
- ☐ PENETRATIONS OF FIRE-RESISTIVE HALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 2 / LOT 2	
FIRST FLOOR LIVABLE	1818 SQ. FT.
SECOND FLOOR LIVABLE	1926 SQ. FT.
TOTAL LIVABLE	3744 SQ. FT.
3-CAR GARAGE	632 SQ. FT.
COVERED PORCH	72 SQ. FT.
COVERED PATIO	254 SQ. FT.
COVERED BALCONY	114 SQ. FT.

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ZONA GALE ESTATES

ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

FLOOR PLANS

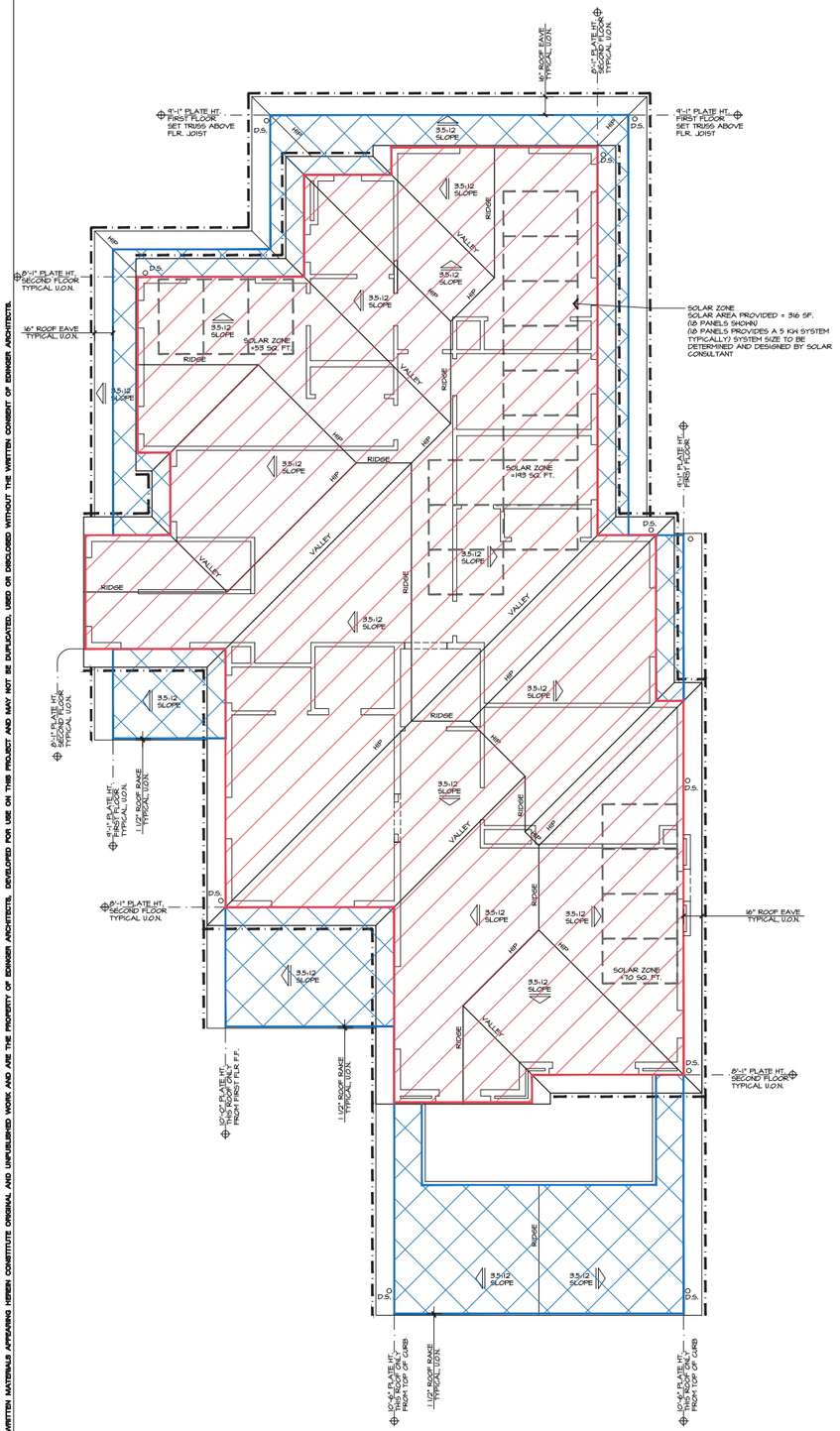
PLAN 2A eA19009

PLAN 2 / LOT 2

A2-2

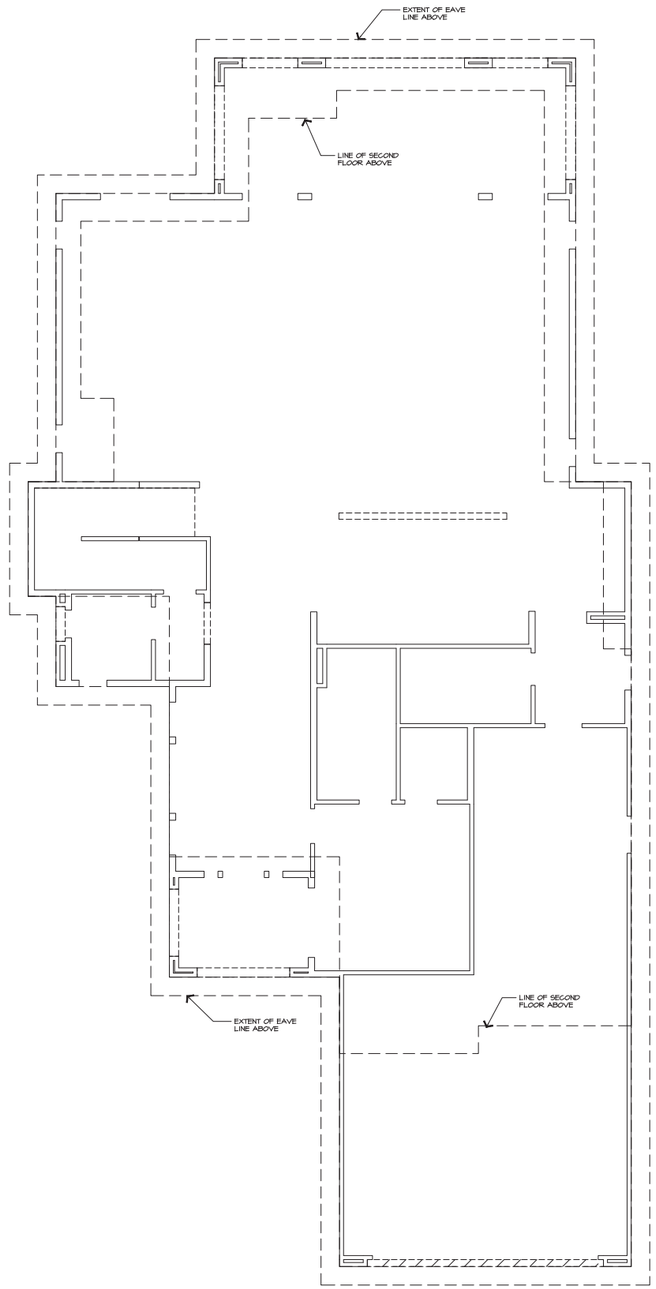
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ROOF PLAN

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



FIRST FLOOR REFLECTED CEILING PLAN

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

2A

ROOF PLAN NOTES

- ☐ REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND ARCHITECT SHALL BE NOTIFIED OF ANY VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO THE FLOOR PLANS, ADDENDA PLANS, AND INTERIOR ELEVATIONS FOR ADDITIONAL NOTES AND INFORMATION NOT SHOWN HERE.
- ☐ REFER TO STRUCTURAL PLANS PREPARED BY OTHERS FOR ADDITIONAL NOTES AND CLARIFICATIONS, AS WELL AS ADDITIONAL SPECIFICATIONS (I.E., NAILING, BRACING, ETC.). THE FOLLOWING NOTES ARE TO CLARIFY THE ROOF PLAN.
- ☐ VERIFY ALL PLATE HEIGHTS SHOWN WITH STRUCTURAL PLANS. (I.E. PLATE HEIGHTS WILL DIFFER DEPENDING ON WHAT TYPE OF ROOF FRAMING IS USED).
- ☐ ALL FLASHING PERTAINING TO THE METHODS AND MATERIALS USED TO CONSTRUCT THE ROOF AND CHIMNEY TO BE COPPER FLASHING.
- ☐ ROOF COVERING TO BE:
- ☐ OVERHANGS TO BE:
  EAVES: 16" UNLESS OTHERWISE NOTED
  RAKE: 0" UNLESS OTHERWISE NOTED
  (SEE DETAILS FOR CLARIFICATIONS). OVERHANGS LISTED ABOVE ARE TYPICAL PER ELEVATION, UNLESS OTHERWISE NOTED AT SPECIAL CONDITIONS.
- ☐ COMBINE AND GROUP PLUMBING VENTS WHENEVER POSSIBLE TO MINIMIZE ROOF PENETRATIONS. FOR FLASHING AT ROOF PENETRATIONS (I.E. "B" VENTS), REFER TO DETAIL 12/AD-2 FOR TYPICAL ROOF PENETRATION FLASHING INFORMATION.
- ☐ ATTIC VENTILATION.

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

ROOF PLAN

PLAN 2A eA19009

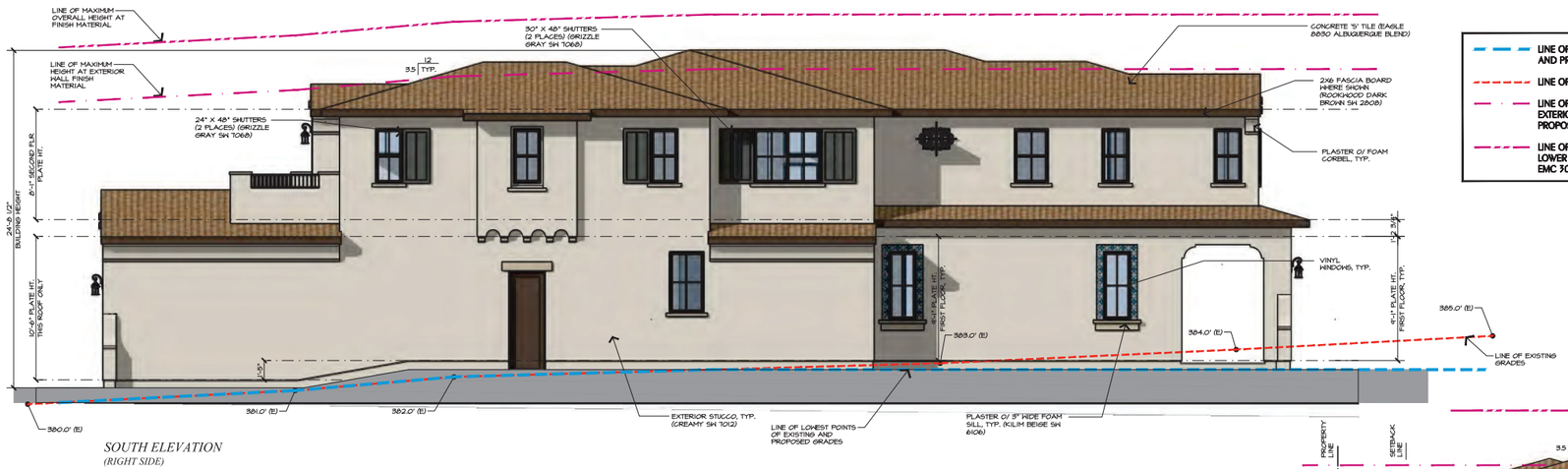
PLAN 2 / LOT 2

A2-3

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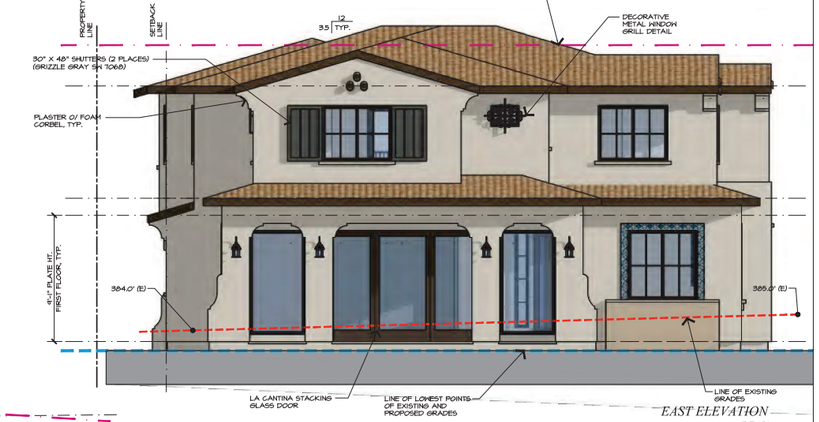


SOUTH ELEVATION
(RIGHT SIDE)

- LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES
- LINE OF EXISTING GRADE
- LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 70.16.010B6)
- LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 70.16.010B6)



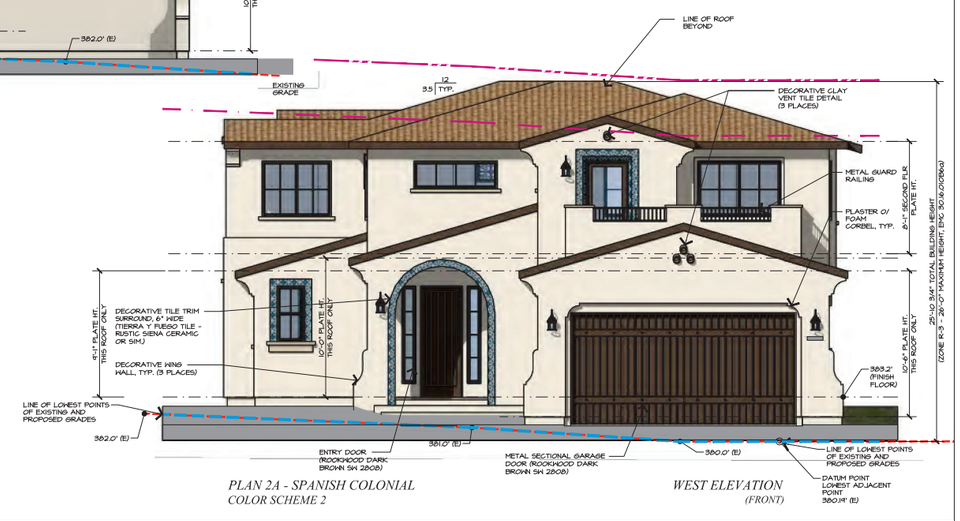
Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder



EAST ELEVATION
(REAR)



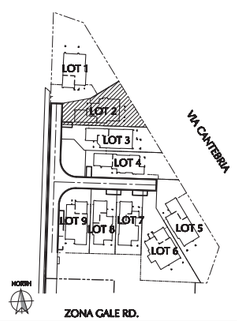
NORTH ELEVATION
(LEFT SIDE)



PLAN 2A - SPANISH COLONIAL
COLOR SCHEME 2

WEST ELEVATION
(FRONT)

SITE MAP



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ZONA GALE ESTATES
ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR ELEV. 'A' SPANISH COLONIAL

PLAN 2A **eA19009**

PLAN 2 / LOT 2

A2-5

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SOUTHWEST PERSPECTIVE



SOUTHEAST PERSPECTIVE



NORTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE
PLAN 2A - SPANISH COLONIAL

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ZONA GALE ESTATES
ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

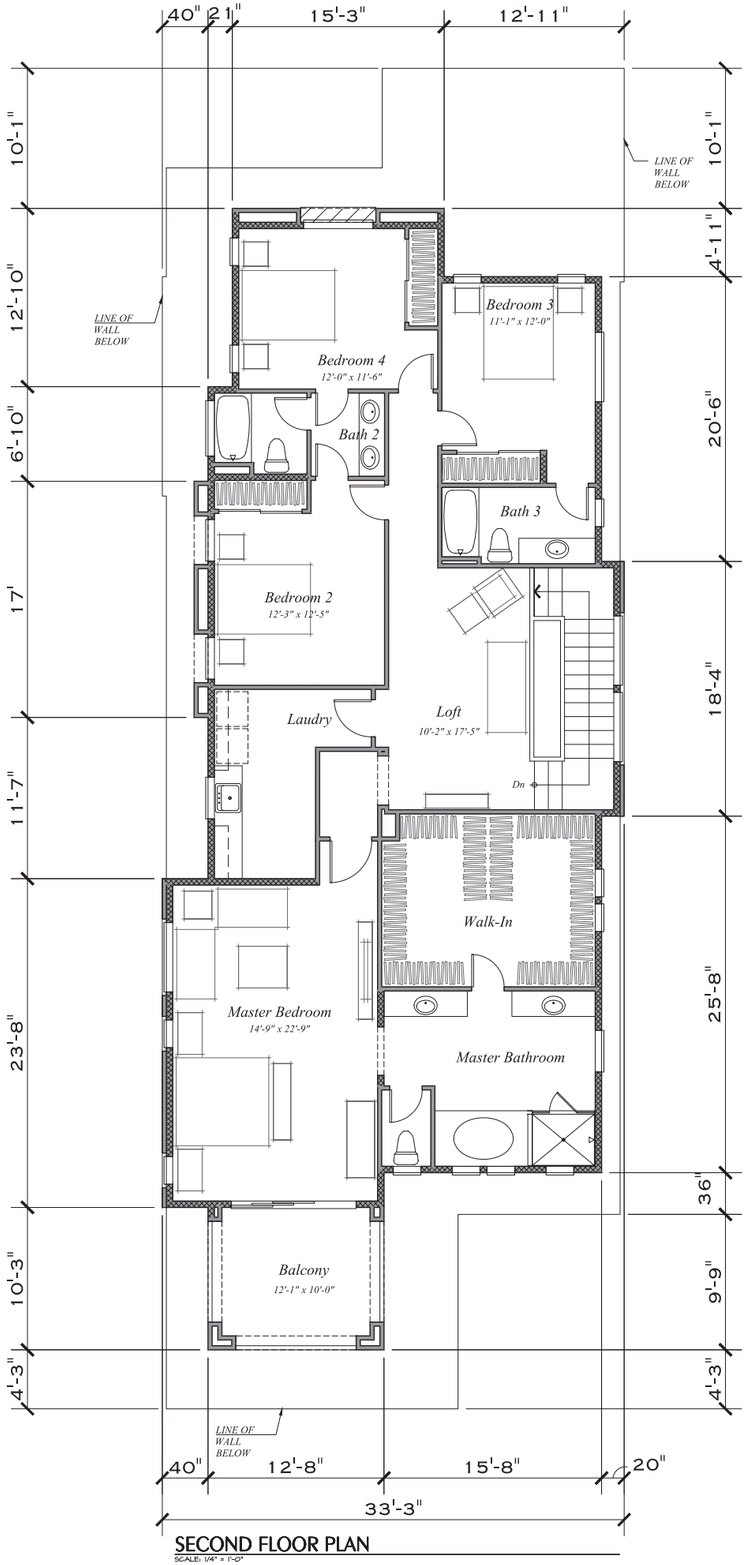
EXTERIOR RENDERINGS
ELEV. "A"
SPANISH COLONIAL

PLAN 2A eA19009

PLAN 2 / LOT 2

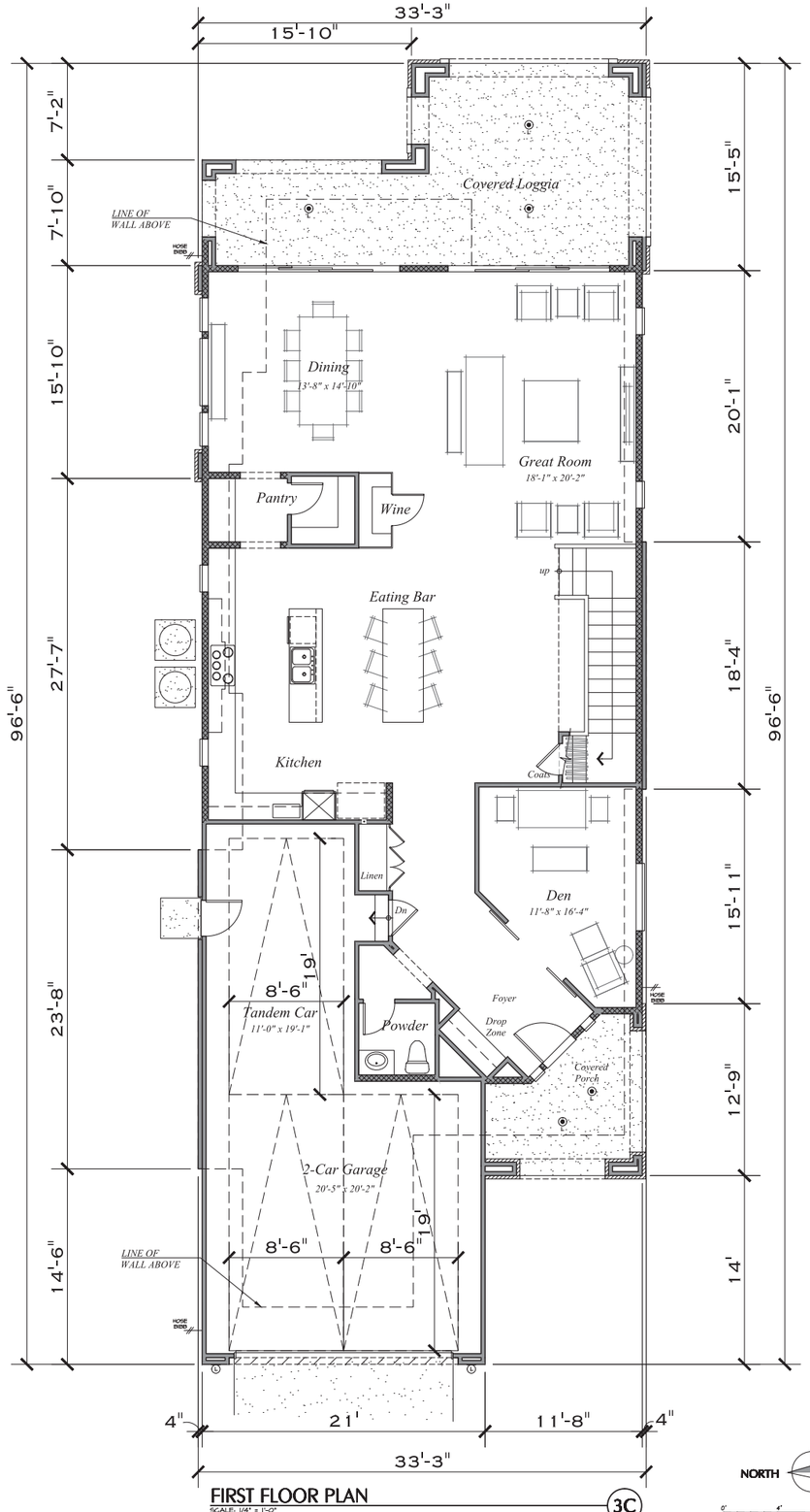
A2-6

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SECOND FLOOR PLAN

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



FIRST FLOOR PLAN

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

3C

NORTH

0" 4" 8"

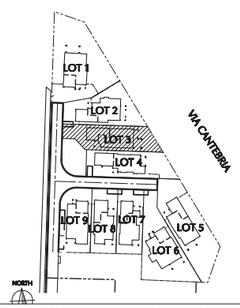
SCALE: 1/4"=1'-0"

FLOOR PLAN NOTES

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- REFER TO DETAILS / CROSS-SECTIONS / AND FRAMING PLANS FOR CLARIFICATIONS AND DIMENSIONS OF ALL SOFFITED AREAS.
- REFER TO SHEET A0-1 FOR WALL LEGEND.
- ALL WINDOWS AND DOORS TO HAVE ALUMINUM CLAD WOOD FRAMES WITH CLEAR LOW E DUAL GLAZING. SEE EXTERIOR ELEVATIONS FOR LOCATIONS OF WINDOWS WITH MULLION BARS, (ALL OPERABLE WINDOWS TO HAVE SCREENS). .25 MAX. SHGC / .32 MAX U-VALUE (OR BETTER)
- THIS SYMBOL (◇) INDICATES AN INTERIOR ELEVATION VIEWED FROM THIS VANTAGE POINT WITH THE LETTER INSIDE THE SYMBOL INDICATING THE INTERIOR ELEVATION. REFER TO SHEETS A-12 AND A-13 FOR INTERIOR ELEVATIONS.
- PROVIDE BLOCKING AND / OR BACKING AT ALL TOWEL BAR ( ), AND / OR TOWEL RING ( ) LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK-THRU.
- PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/AD-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDINGS.
- OPENABLE WINDOWS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY PLUMBING VENT, CHIMNEY, ETC. C.R.C. SECTION 3095.
- PENETRATIONS OF FIRE-RESISTIVE HALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 3 / LOT 3

FIRST FLOOR LIVABLE	1724 SQ. FT.
SECOND FLOOR LIVABLE	1841 SQ. FT.
TOTAL LIVABLE	3615 SQ. FT.
3-CAR GARAGE	655 SQ. FT.
COVERED PORCH	104 SQ. FT.
COVERED PATIO	388 SQ. FT.
COVERED BALCONY	130 SQ. FT.

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ZONA GALE ESTATES

ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

FLOOR PLANS

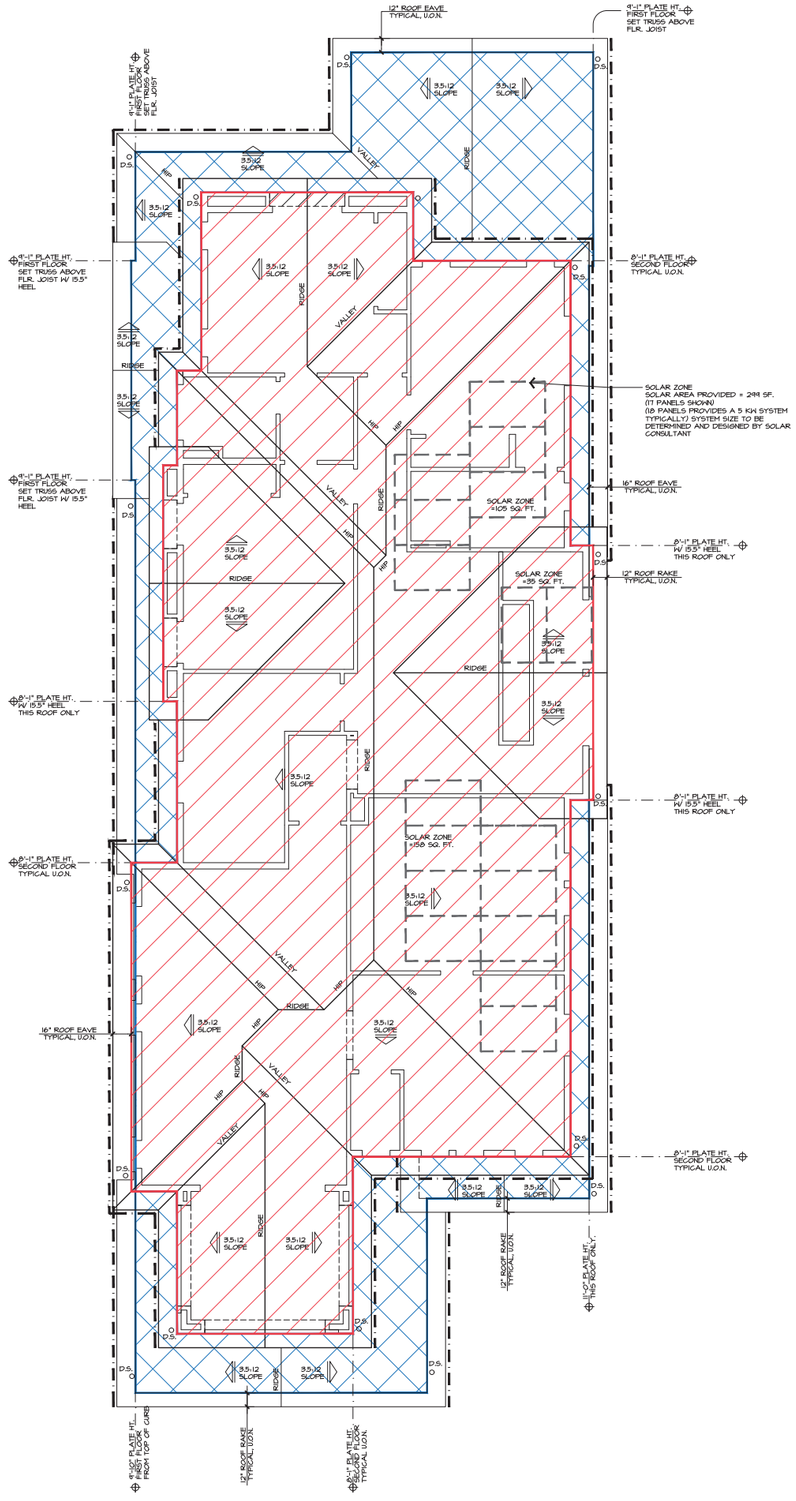
PLAN 3C eA19009

PLAN 3 / LOT 3

A3-2

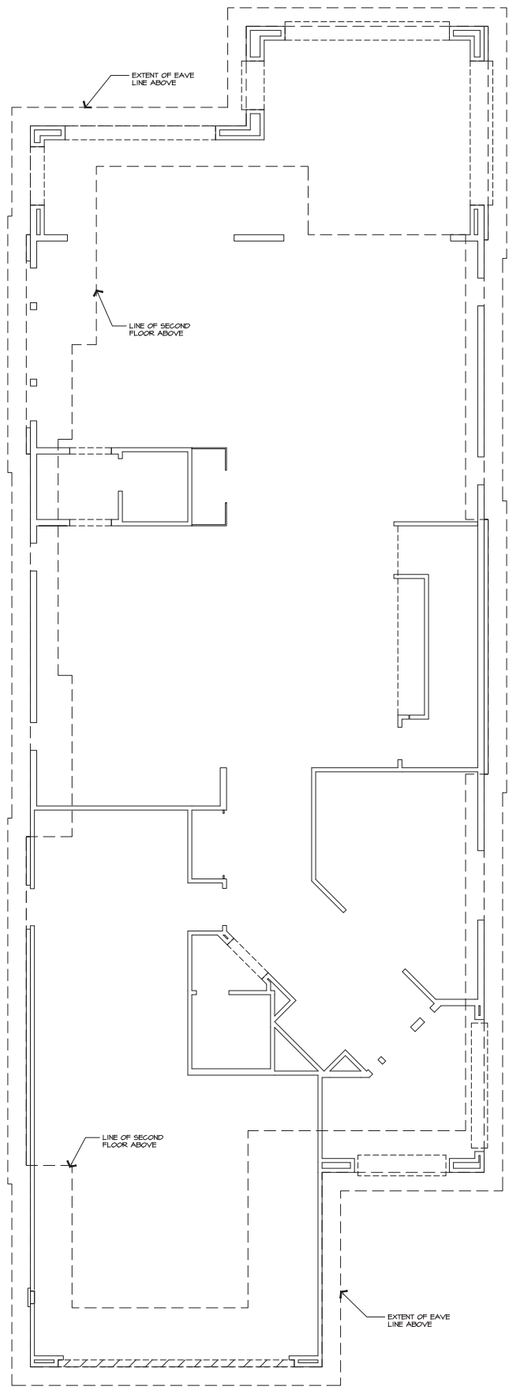
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ROOF PLAN

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



FIRST FLOOR REFLECTED CEILING PLAN

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

3C

ROOF PLAN NOTES

- ☐ REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND ARCHITECT SHALL BE NOTIFIED OF ANY VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO THE FLOOR PLANS, ADDENDA PLANS, AND INTERIOR ELEVATIONS FOR ADDITIONAL NOTES AND INFORMATION NOT SHOWN HERE.
- ☐ REFER TO STRUCTURAL PLANS PREPARED BY OTHERS FOR ADDITIONAL NOTES AND CLARIFICATIONS, AS WELL AS ADDITIONAL SPECIFICATIONS (I.E., NAILING, BRACING, ETC.). THE FOLLOWING NOTES ARE TO CLARIFY THE ROOF PLAN.
- ☐ VERIFY ALL PLATE HEIGHTS SHOWN WITH STRUCTURAL PLANS. (I.E. PLATE HEIGHTS WILL DIFFER DEPENDING ON WHAT TYPE OF ROOF FRAMING IS USED).
- ☐ ALL FLASHING PERTAINING TO THE METHODS AND MATERIALS USED TO CONSTRUCT THE ROOF AND CHIMNEY TO BE COPPER FLASHING.
- ☐ ROOF COVERING TO BE:
- ☐ OVERHANGS TO BE:
  EAVES: 16" UNLESS OTHERWISE NOTED
  RAKE: 12" UNLESS OTHERWISE NOTED
  (SEE DETAILS FOR CLARIFICATIONS). OVERHANGS LISTED ABOVE ARE TYPICAL PER ELEVATION, UNLESS OTHERWISE NOTED AT SPECIAL CONDITIONS.
- ☐ COMBINE AND GROUP PLUMBING VENTS WHENEVER POSSIBLE TO MINIMIZE ROOF PENETRATIONS. FOR FLASHING AT ROOF PENETRATIONS (I.E. "B" VENTS), REFER TO DETAIL 12/AD-2 FOR TYPICAL ROOF PENETRATION FLASHING INFORMATION.
- ☐ ATTIC VENTILATION.

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

ROOF PLAN

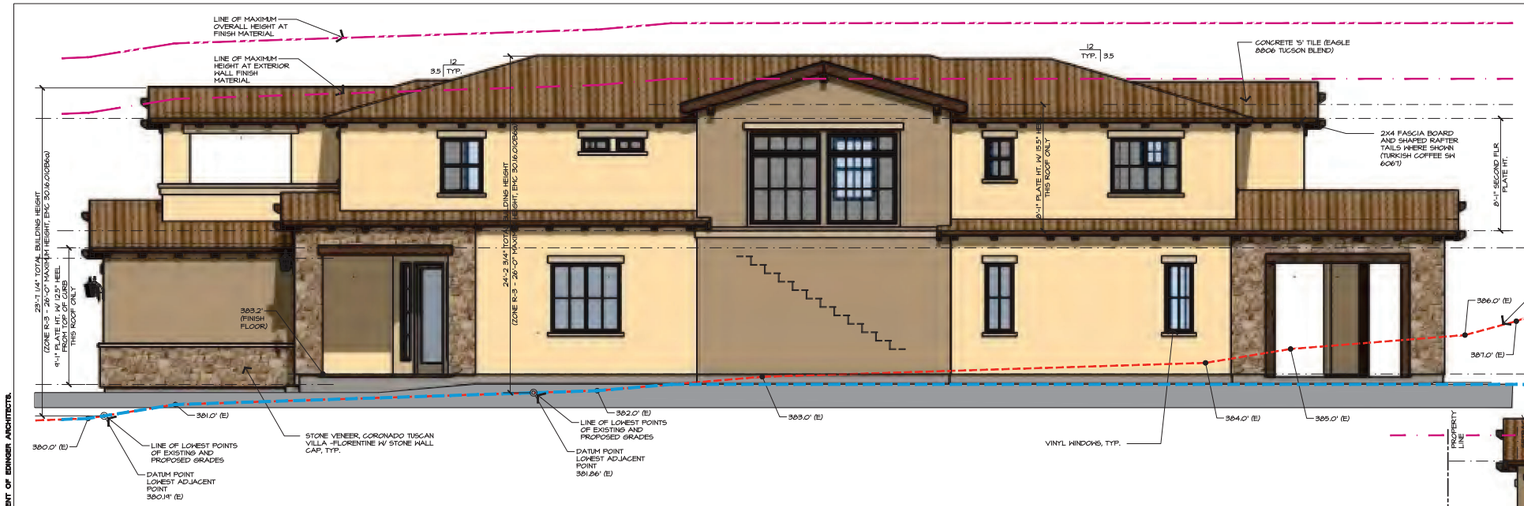
PLAN 3C eA19009

PLAN 3 / LOT 3

A3-3

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SOUTH ELEVATION
(RIGHT SIDE)

LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES
LINE OF EXISTING GRADE
LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)
LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)



Verona Outdoor Wall Sconce No. BFCD683
by Troy Lighting

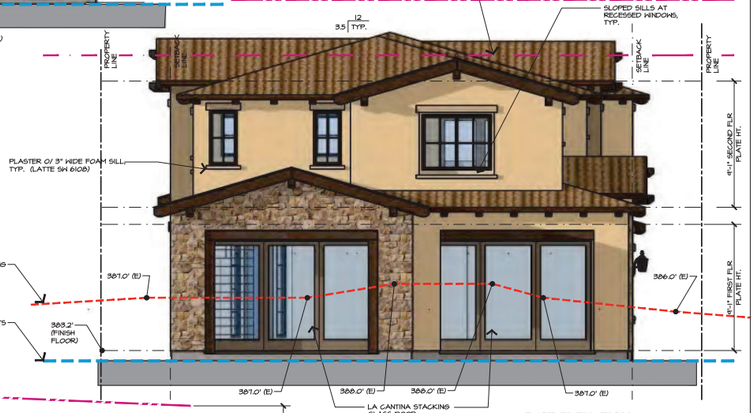
Details

A cross between Victorian and early American design, the Troy lighting Verona Outdoor Wall Sconce No. BFCD683 gives entryway a regal, illuminated feel with its curling metalwork and frosted beveled glass.

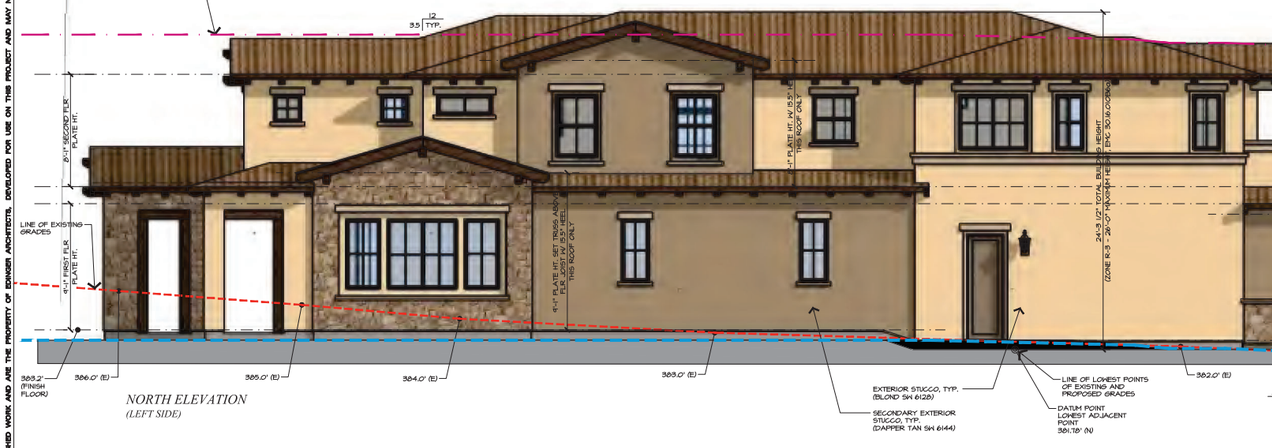
The Verona Outdoor Wall Sconce No. BFCD683 is available with the following:
Details:
Frosted beaded glass shade
Cast aluminum construction
Decorative wall plate
Fixed Color: Frosted beaded
Finish: Antique Bronze, Matte Black, Bronze Patina.

Dimensions:
Extra Tall or Large Outdoor Fixture: Height 49.5" Top to Center 31.5", Width 13" Depth 13"
Extra Large Option Fixture: Height 35", Top to Center 21", Width 10", Depth 17"
Large Option Fixture: Height 28", Top to Center 17", Width 11.5", Depth 15"

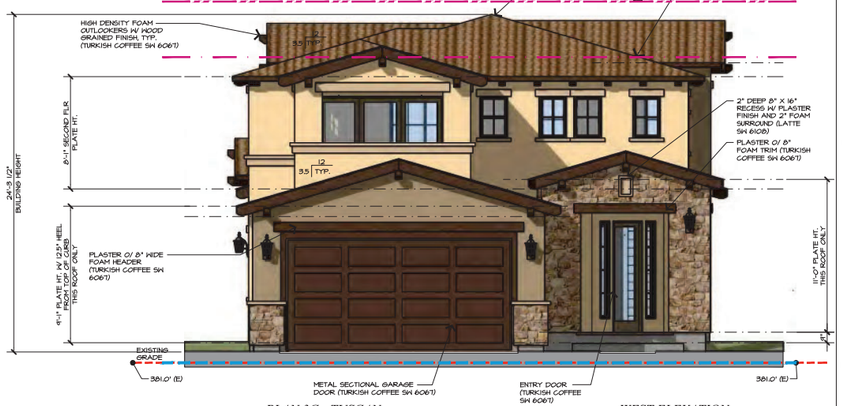
Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder



EAST ELEVATION
(REAR)



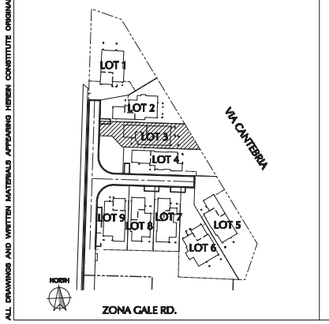
NORTH ELEVATION
(LEFT SIDE)



PLAN 3C - TUSCAN
COLOR SCHEME 3

WEST ELEVATION
(FRONT)

SITE MAP



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ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR ELEV. "C" TUSCAN

PLAN 3C eA19009

PLAN 3 / LOT 3

A3-5

9/22/21 • 9/22/21



SOUTHEAST PERSPECTIVE



NORTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE



SOUTHWEST PERSPECTIVE
PLAN 3C - TUSCAN

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ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR RENDERINGS
ELEV. "C"
TUSCAN

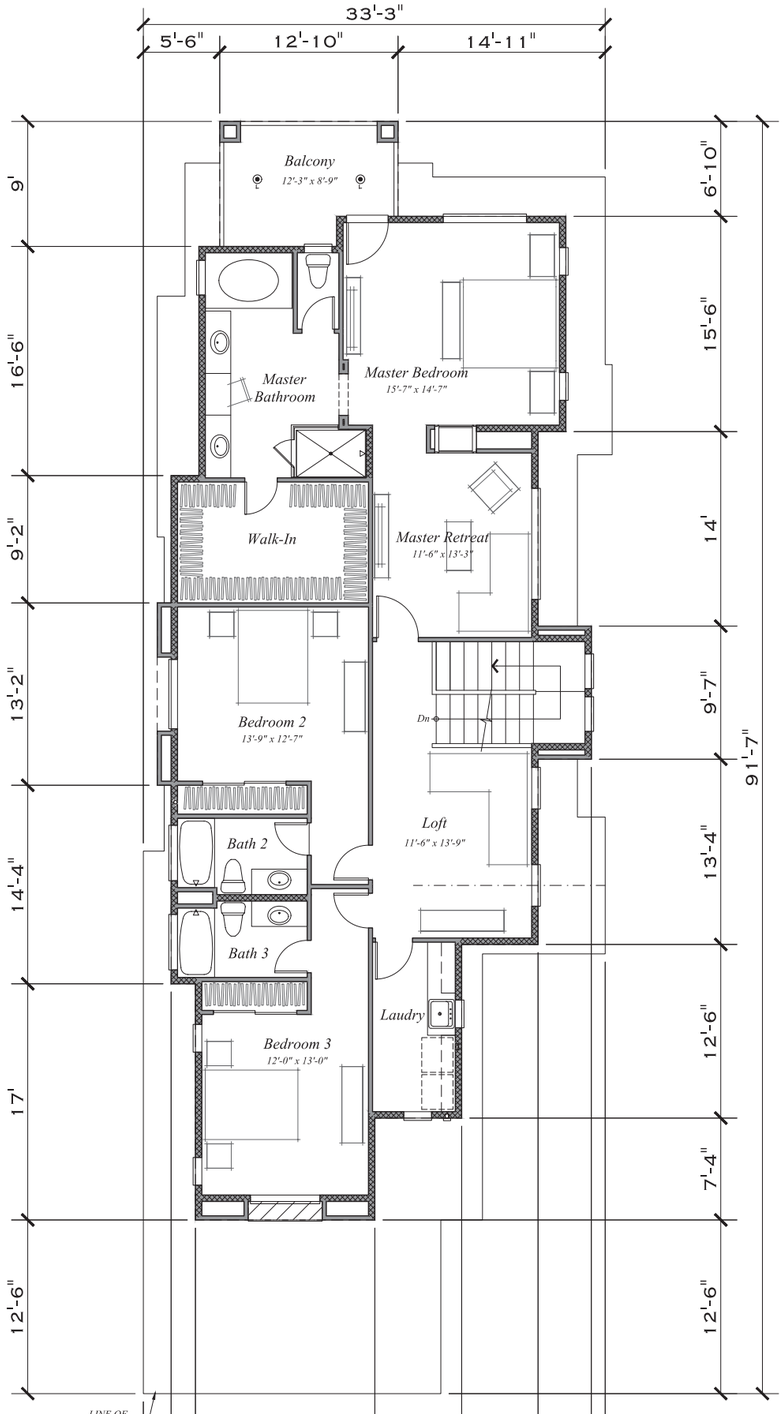
PLAN 3C eA19009

PLAN 3 / LOT 3

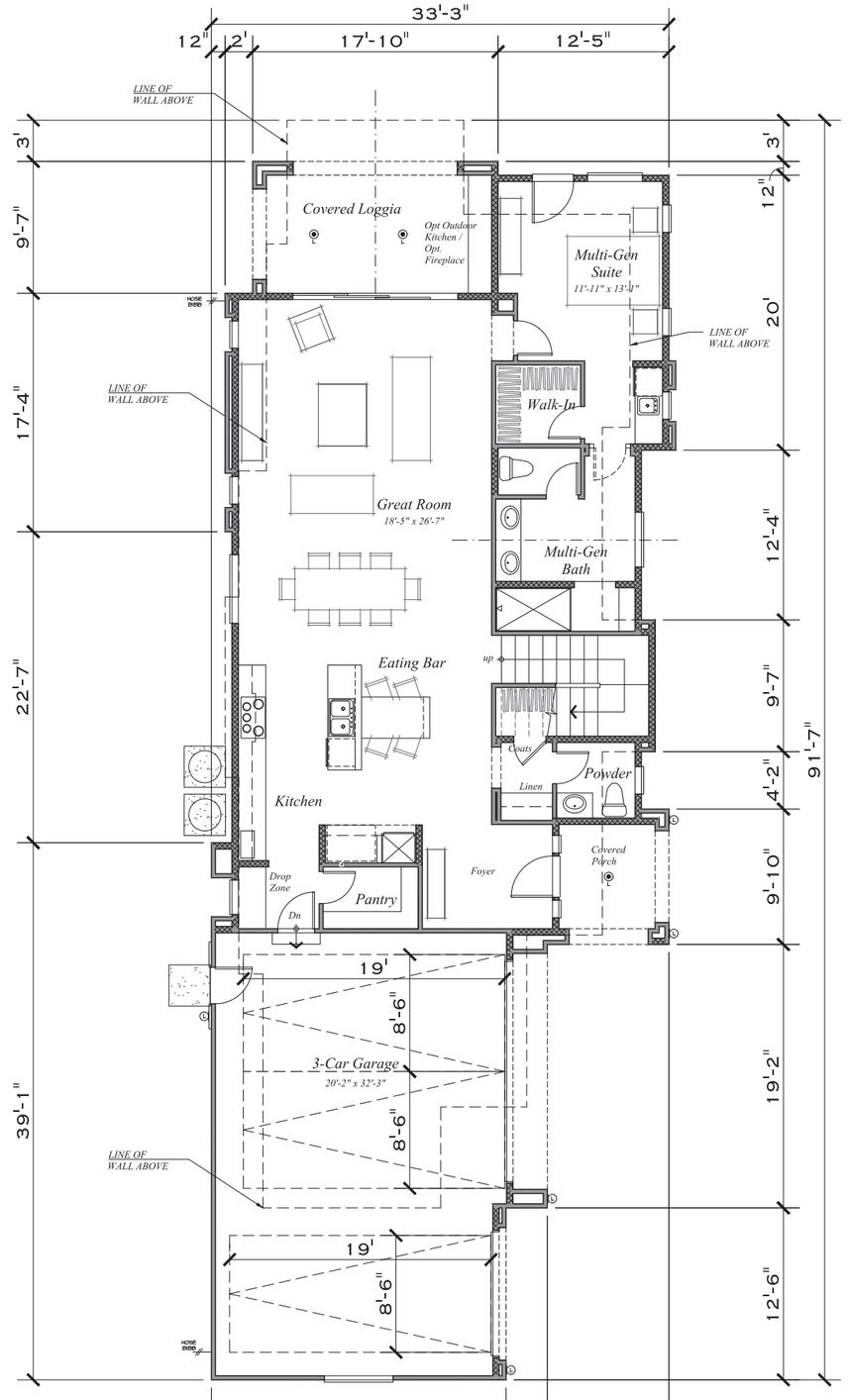
A3-6

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SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

4D

NORTH

0" 4" 8"

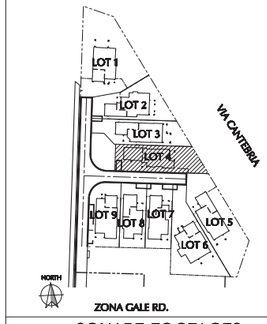
SCALE: 1/4"=1'-0"

FLOOR PLAN NOTES

- ☐ REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND THE ARCHITECT SHALL BE NOTIFIED, IN WRITING, OF ANY OMISSIONS, VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO DETAILS / CROSS-SECTIONS / AND FRAMING PLANS FOR CLARIFICATIONS AND DIMENSIONS OF ALL SOFFITED AREAS.
- ☐ REFER TO SHEET A0-1 FOR WALL LEGEND.
- ☐ ALL WINDOWS AND DOORS TO HAVE ALUMINUM CLAD WOOD FRAMES WITH CLEAR LOW E DUAL GLAZING. SEE EXTERIOR ELEVATIONS FOR LOCATIONS OF WINDOWS WITH MULLION BARS, (ALL OPERABLE WINDOWS TO HAVE SCREENS). .25 MAX. SHGC / .32 MAX U-VALUE (OR BETTER)
- ☐ THIS SYMBOL (◇) INDICATES AN INTERIOR ELEVATION VIEWED FROM THIS VANTAGE POINT WITH THE LETTER INSIDE THE SYMBOL INDICATING THE INTERIOR ELEVATION. REFER TO SHEETS A-12 AND A-13 FOR INTERIOR ELEVATIONS.
- ☐ PROVIDE BLOCKING AND / OR BACKING AT ALL TOWEL BAR (⊢⊣), AND / OR TOWEL RING (—|) LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK-THRU.
- ☐ PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/A10-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDING.
- ☐ OPENABLE WINDOWS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY PLUMBING VENT, CHIMNEY, ETC. C.R.C. SECTION 3095.
- ☐ PENETRATIONS OF FIRE-RESISTIVE WALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 4 / LOT 4

FIRST FLOOR LIVABLE	1478 SQ. FT.
SECOND FLOOR LIVABLE	1625 SQ. FT.
TOTAL LIVABLE	3103 SQ. FT.
3-CAR GARAGE	700 SQ. FT.
COVERED PORCH	70 SQ. FT.
COVERED PATIO	166 SQ. FT.
COVERED BALCONY	106 SQ. FT.

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PLANNING SET

PLAN CHECK 00/00/19

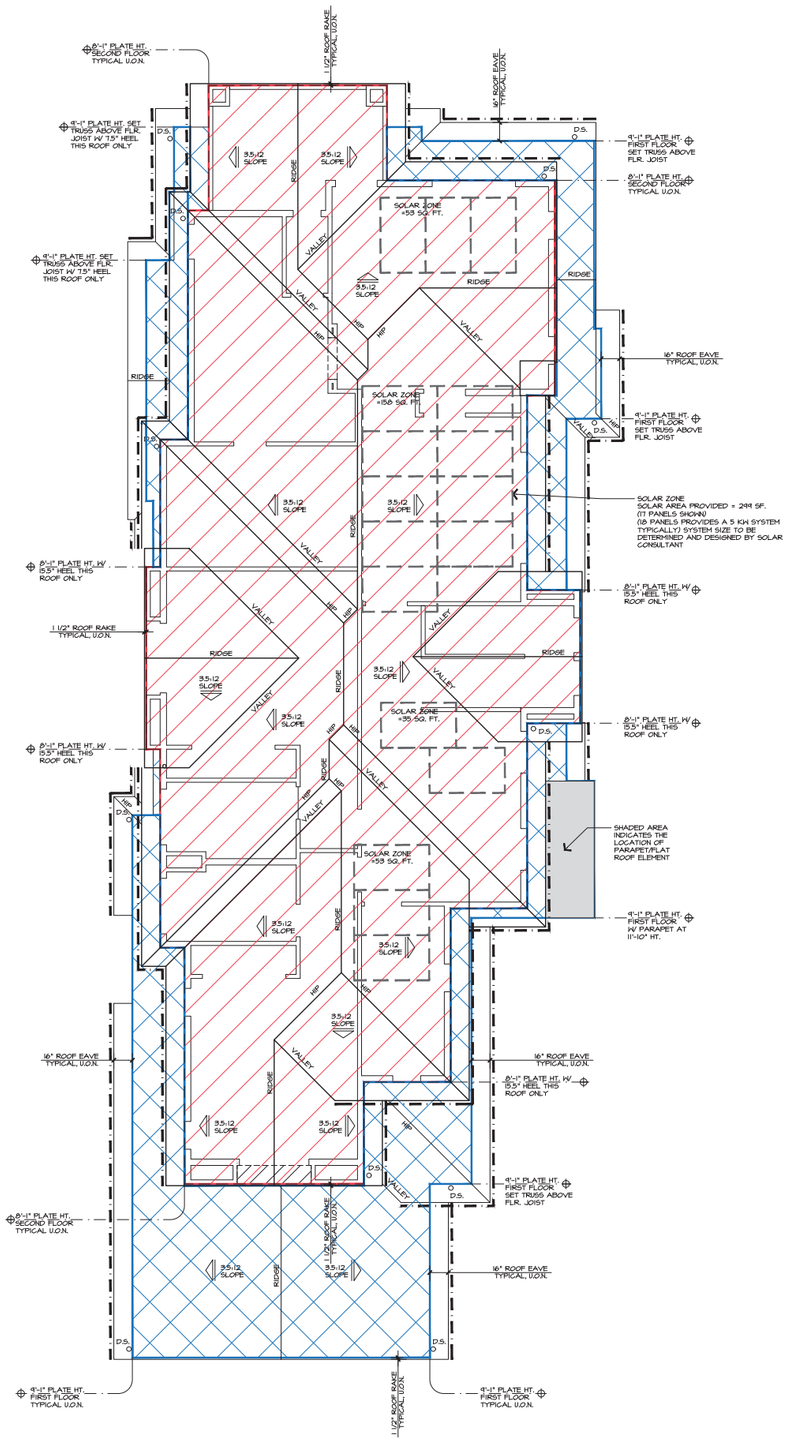
FLOOR PLANS

PLAN 4D eA19009

PLAN 4 / LOT 4

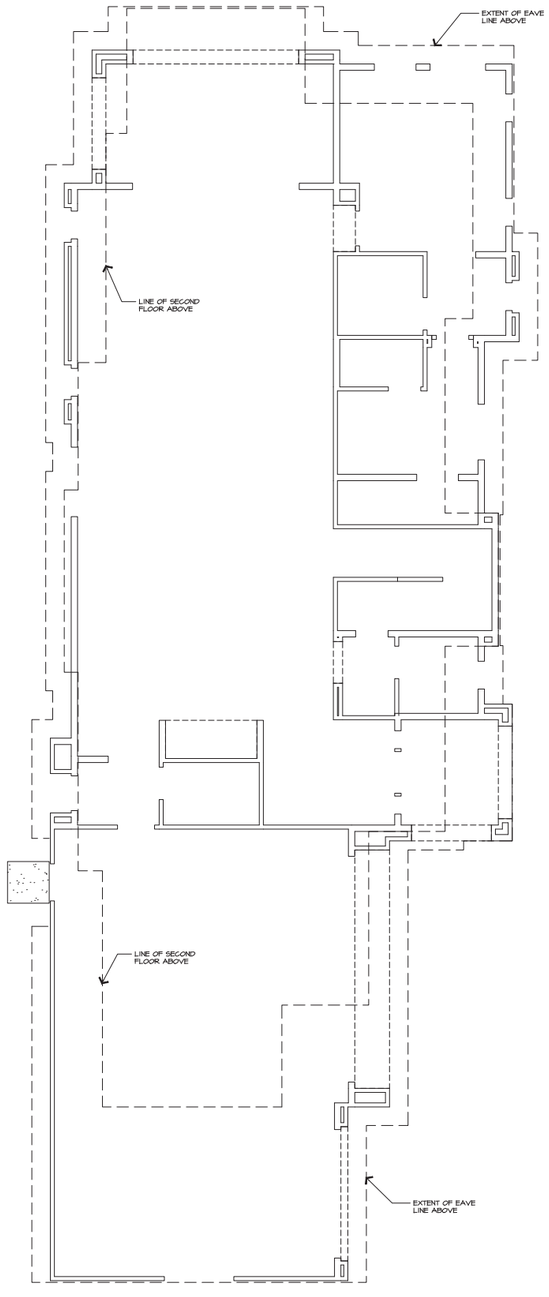
A4-2

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ROOF PLAN

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



FIRST FLOOR REFLECTED CEILING PLAN

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

4D

ROOF PLAN NOTES

- ☐ REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND ARCHITECT SHALL BE NOTIFIED OF ANY VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO THE FLOOR PLANS, ADDENDA PLANS, AND INTERIOR ELEVATIONS FOR ADDITIONAL NOTES AND INFORMATION NOT SHOWN HERE.
- ☐ REFER TO STRUCTURAL PLANS PREPARED BY OTHERS FOR ADDITIONAL NOTES AND CLARIFICATIONS, AS WELL AS ADDITIONAL SPECIFICATIONS (I.E., NAILING, BRACING, ETC.). THE FOLLOWING NOTES ARE TO CLARIFY THE ROOF PLAN.
- ☐ VERIFY ALL PLATE HEIGHTS SHOWN WITH STRUCTURAL PLANS. (I.E. PLATE HEIGHTS WILL DIFFER DEPENDING ON WHAT TYPE OF ROOF FRAMING IS USED).
- ☐ ALL FLASHING PERTAINING TO THE METHODS AND MATERIALS USED TO CONSTRUCT THE ROOF AND CHIMNEY TO BE COPPER FLASHING.
- ☐ ROOF COVERING TO BE:
- ☐ OVERHANGS TO BE:
  EAVES: 16" UNLESS OTHERWISE NOTED
  RAKE: 0" UNLESS OTHERWISE NOTED
  (SEE DETAILS FOR CLARIFICATIONS). OVERHANGS LISTED ABOVE ARE TYPICAL PER ELEVATION, UNLESS OTHERWISE NOTED AT SPECIAL CONDITIONS.
- ☐ COMBINE AND GROUP PLUMBING VENTS WHENEVER POSSIBLE TO MINIMIZE ROOF PENETRATIONS. FOR FLASHING AT ROOF PENETRATIONS (I.E. "B" VENTS), REFER TO DETAIL 12/AD-2 FOR TYPICAL ROOF PENETRATION FLASHING INFORMATION.
- ☐ ATTIC VENTILATION.

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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PLANNING SET

PLAN CHECK 00/00/19

ROOF PLAN

PLAN 4D eA19009

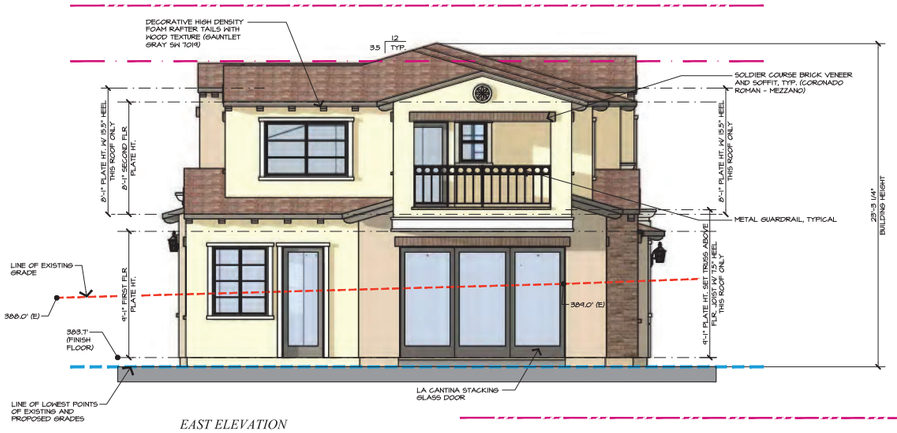
PLAN 4 / LOT 4

A4-3

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EAST ELEVATION
(RIGHT SIDE)

LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES

LINE OF EXISTING GRADE

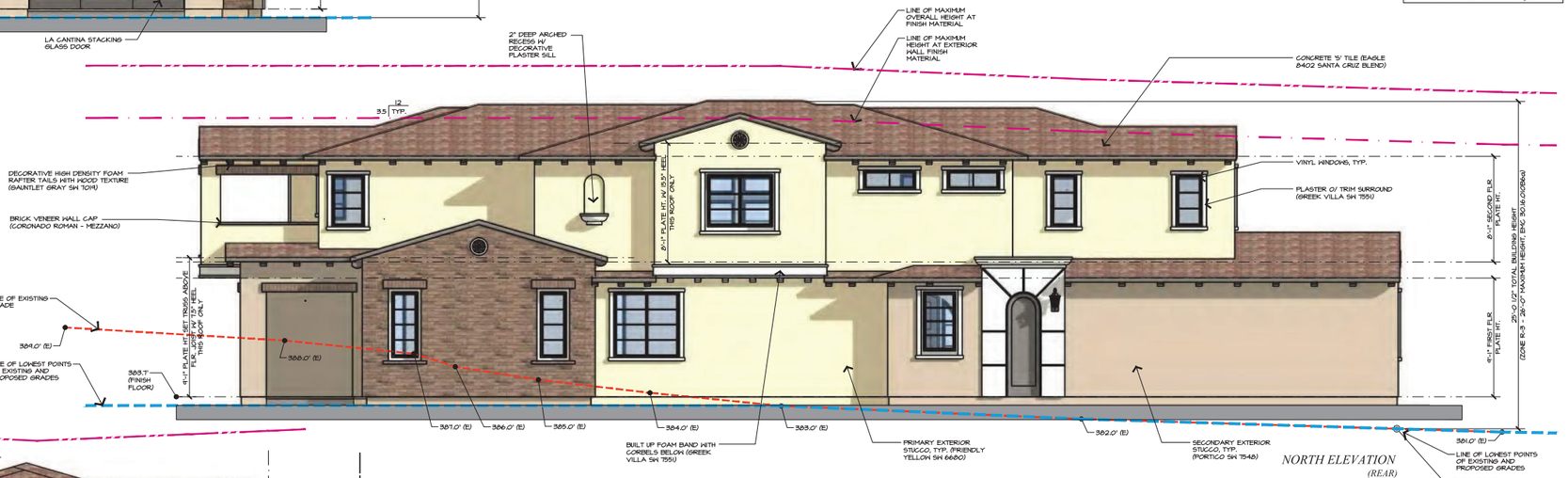
LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 70.16.010B6)

LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 70.16.010B6)



Troy Lighting BCD8891MB
Verona 2 Light 22 inch Matte Black Outdoor Wall Lantern in Incandescent

Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder

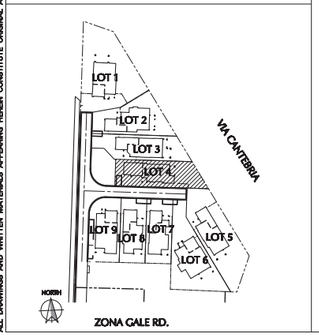


NORTH ELEVATION
(REAR)



WEST ELEVATION
(LEFT SIDE)

SITE MAP





PLAN 4D - ANDALUSIAN
COLOR SCHEME 4

SOUTH ELEVATION
(FRONT)

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PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR ELEV. "D" ANDALUSIAN

PLAN 4D eA19009

PLAN 4 / LOT 4

A4-5

9/22/21 • 9/22/21



SOUTHEAST PERSPECTIVE



NORTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE



SOUTHWEST PERSPECTIVE
PLAN 4D - ANDALUSIAN

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PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR RENDERINGS
ELEV. "D"
ANDALUSIAN

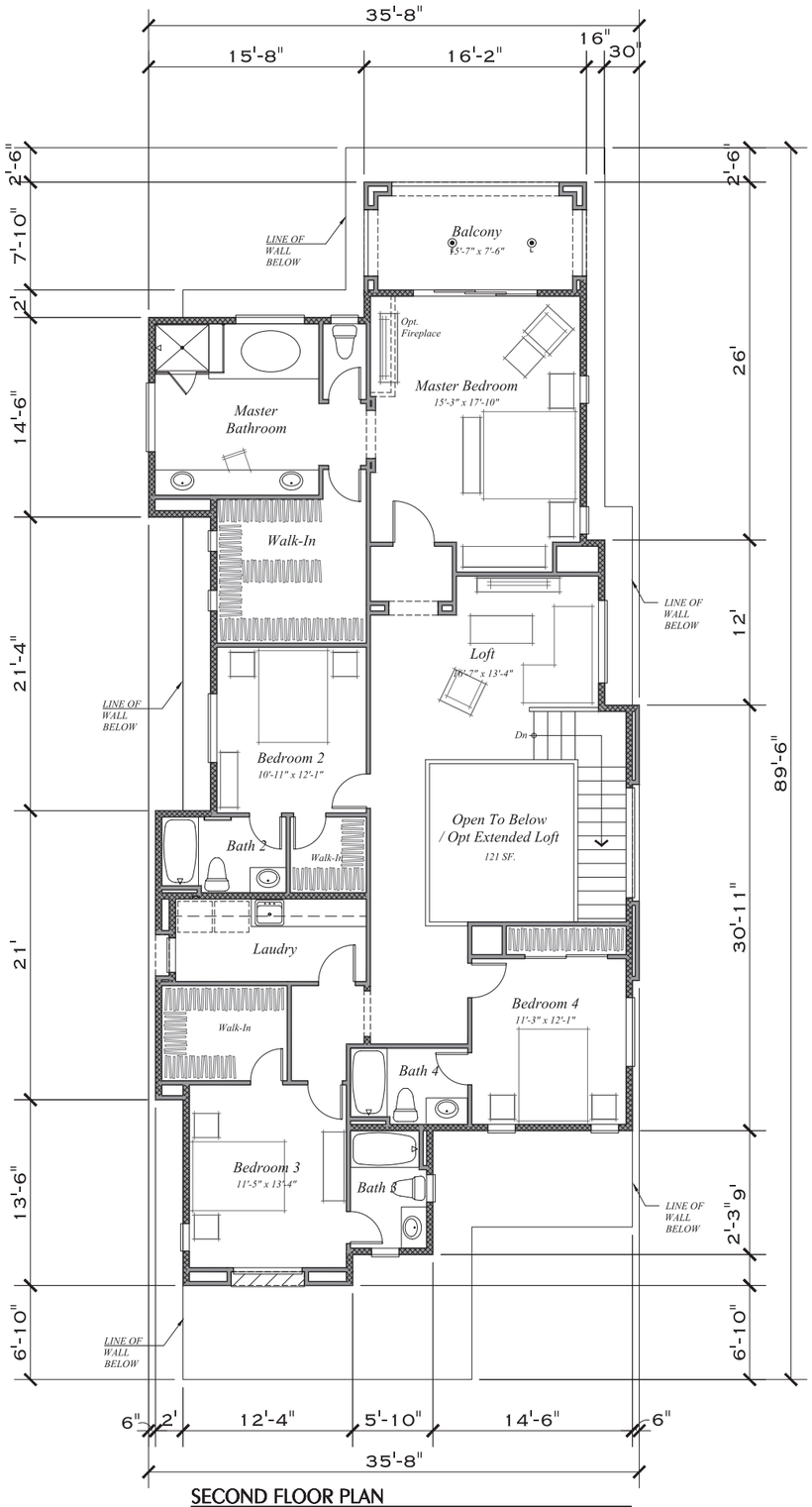
PLAN 4D eA19009

PLAN 4 / LOT 4

A4-6

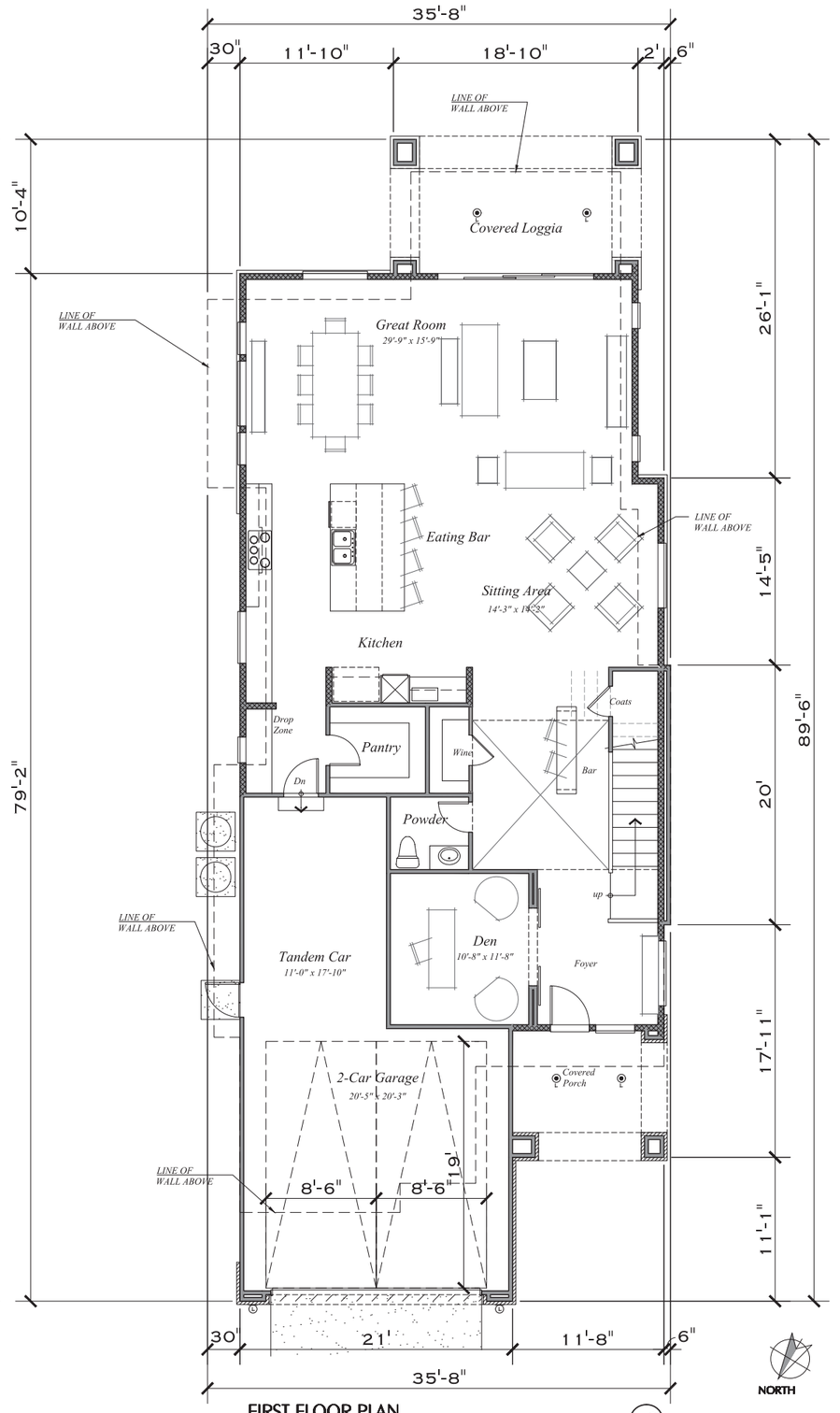
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SECOND FLOOR PLAN

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



FIRST FLOOR PLAN

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

5C

NORTH

0" 4" 8"

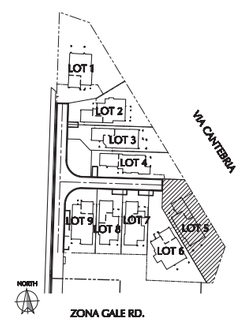
SCALE: 1/4"=1'-0"

FLOOR PLAN NOTES

- REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
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- REFER TO DETAILS / CROSS-SECTIONS / AND FRAMING PLANS FOR CLARIFICATIONS AND DIMENSIONS OF ALL SOFFITED AREAS.
- REFER TO SHEET A0-1 FOR WALL LEGEND.
- ALL WINDOWS AND DOORS TO HAVE ALUMINUM CLAD WOOD FRAMES WITH CLEAR LOW E DUAL GLAZING. SEE EXTERIOR ELEVATIONS FOR LOCATIONS OF WINDOWS WITH MULLION BARS, (ALL OPERABLE WINDOWS TO HAVE SCREENS). .25 MAX. SHGC / .32 MAX U-VALUE (OR BETTER)
- THIS SYMBOL (◯) INDICATES AN INTERIOR ELEVATION VIEWED FROM THIS VANTAGE POINT WITH THE LETTER INSIDE THE SYMBOL INDICATING THE INTERIOR ELEVATION. REFER TO SHEETS A-12 AND A-13 FOR INTERIOR ELEVATIONS.
- PROVIDE BLOCKING AND / OR BACKING AT ALL TOWEL BAR ( ), AND / OR TOWEL RING ( ) LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK-THRU.
- PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/A10-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDING.
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- PENETRATIONS OF FIRE-RESISTIVE HALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 5 / LOT 5

FIRST FLOOR LIVABLE	1670 SQ. FT.
SECOND FLOOR LIVABLE	1884 SQ. FT.
TOTAL LIVABLE	3554 SQ. FT.
3-CAR GARAGE	631 SQ. FT.
COVERED PORCH	114 SQ. FT.
COVERED PATIO	115 SQ. FT.
COVERED BALCONY	121 SQ. FT.

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LICENSED ARCHITECT PATRICK EDINGER No. C-30531 STATE OF CALIFORNIA

PLANNING SET

PLAN CHECK 00/00/19

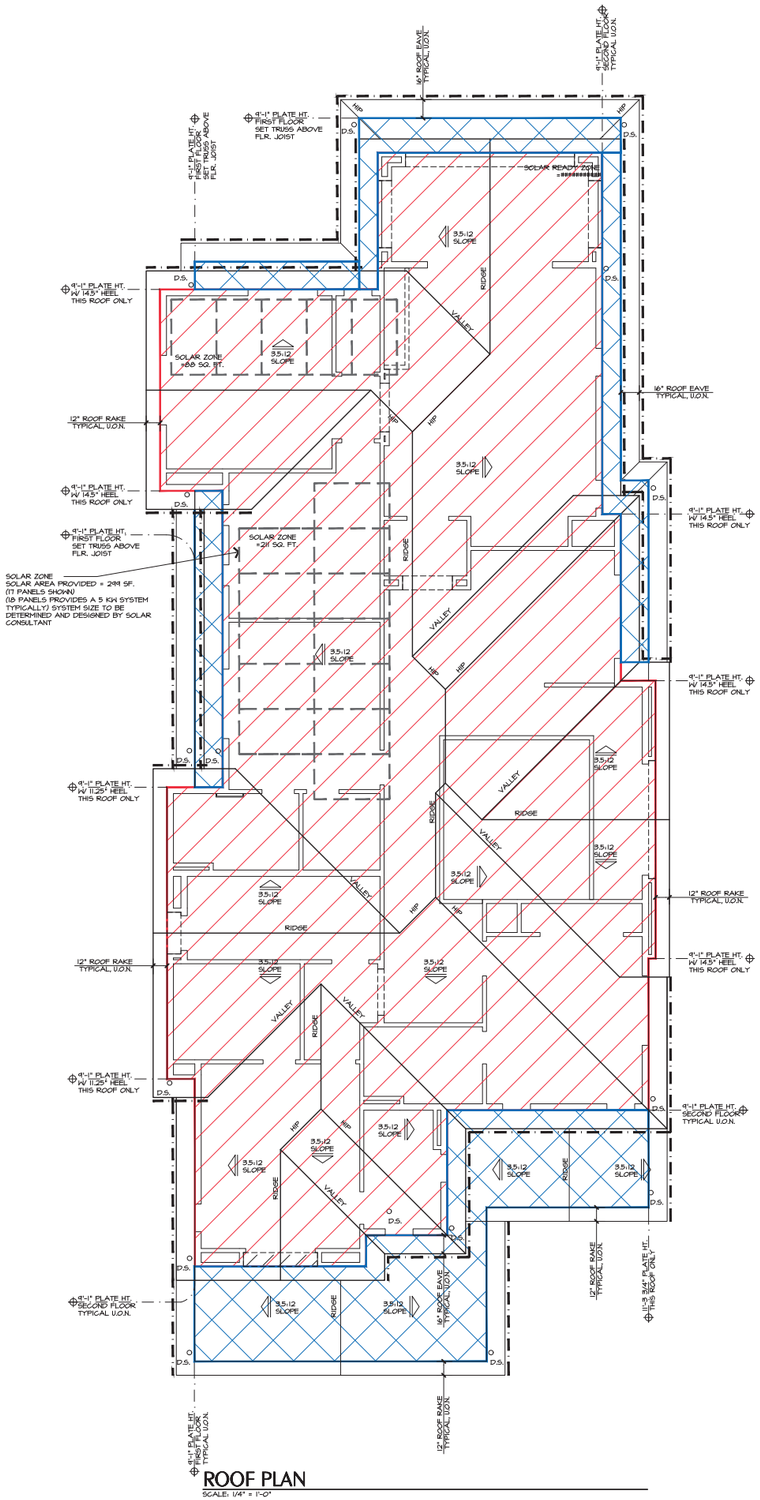
FLOOR PLANS

PLAN 5C eA19009

PLAN 5 / LOT 5

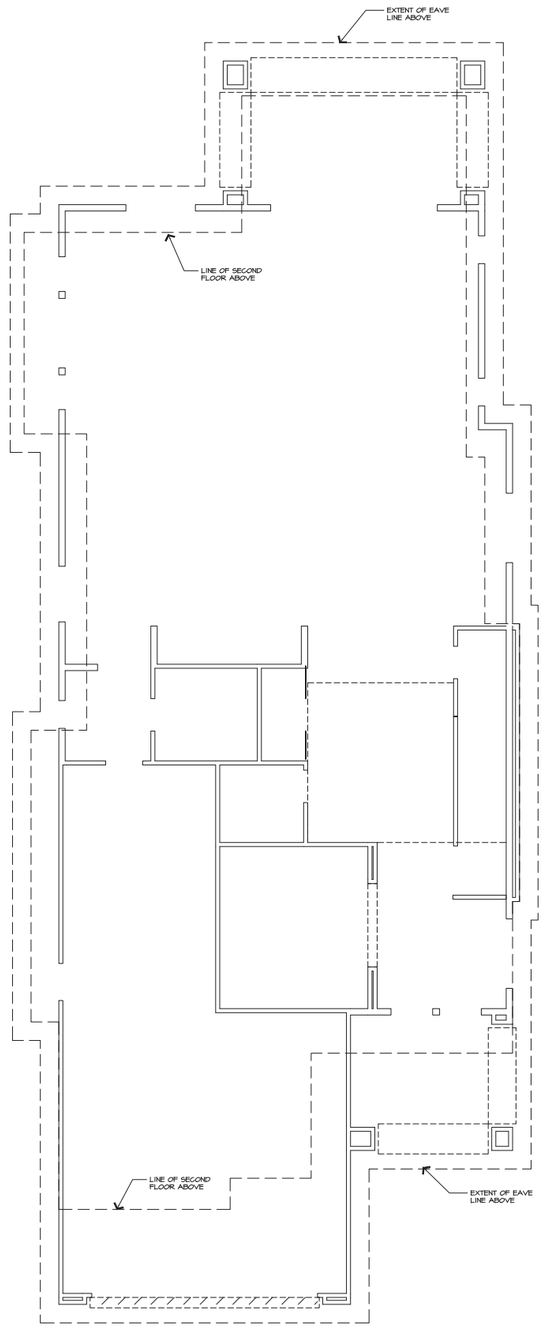
A5-2

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ROOF PLAN

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



FIRST FLOOR REFLECTED CEILING PLAN 5C

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

ROOF PLAN NOTES

- ☐ REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND ARCHITECT SHALL BE NOTIFIED OF ANY VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO THE FLOOR PLANS, ADDENDA PLANS, AND INTERIOR ELEVATIONS FOR ADDITIONAL NOTES AND INFORMATION NOT SHOWN HERE.
- ☐ REFER TO STRUCTURAL PLANS PREPARED BY OTHERS FOR ADDITIONAL NOTES AND CLARIFICATIONS, AS WELL AS ADDITIONAL SPECIFICATIONS (I.E., NAILING, BRACING, ETC.). THE FOLLOWING NOTES ARE TO CLARIFY THE ROOF PLAN.
- ☐ VERIFY ALL PLATE HEIGHTS SHOWN WITH STRUCTURAL PLANS. (I.E. PLATE HEIGHTS WILL DIFFER DEPENDING ON WHAT TYPE OF ROOF FRAMING IS USED).
- ☐ ALL FLASHING PERTAINING TO THE METHODS AND MATERIALS USED TO CONSTRUCT THE ROOF AND CHIMNEY TO BE COPPER FLASHING.
- ☐ ROOF COVERING TO BE:
- ☐ OVERHANGS TO BE,
  EAVES: 16" UNLESS OTHERWISE NOTED
  RAKE: 12" UNLESS OTHERWISE NOTED
  (SEE DETAILS FOR CLARIFICATIONS). OVERHANGS LISTED ABOVE ARE TYPICAL PER ELEVATION, UNLESS OTHERWISE NOTED AT SPECIAL CONDITIONS.
- ☐ COMBINE AND GROUP PLUMBING VENTS WHENEVER POSSIBLE TO MINIMIZE ROOF PENETRATIONS. FOR FLASHING AT ROOF PENETRATIONS (I.E. "B" VENTS), REFER TO DETAIL 12/AD-2 FOR TYPICAL ROOF PENETRATION FLASHING INFORMATION.
- ☐ ATTIC VENTILATION.

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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ZONA GALE ESTATES

ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

LICENSED ARCHITECT PATRICK EDINGER No. C-30000 05-31-22 STATE OF CALIFORNIA

PLANNING SET

PLAN CHECK 00/00/00

ROOF PLAN

PLAN 5C eA19009

PLAN 5 / LOT 5

A5-3

9/22/21 • 9/22/21

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WEST ELEVATION
(RIGHT SIDE)

- LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES
- LINE OF EXISTING GRADE
- LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)
- LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)



Verona Outdoor Wall Sconce No. BFCD683
by Troy Lighting

Details

A cross between Victorian and early American design, the Troy Lighting Verona Outdoor Wall Sconce No. BFCD683 gives exteriors a regal, illustrated feel with its ceiling metalwork and frosted beveled glass.

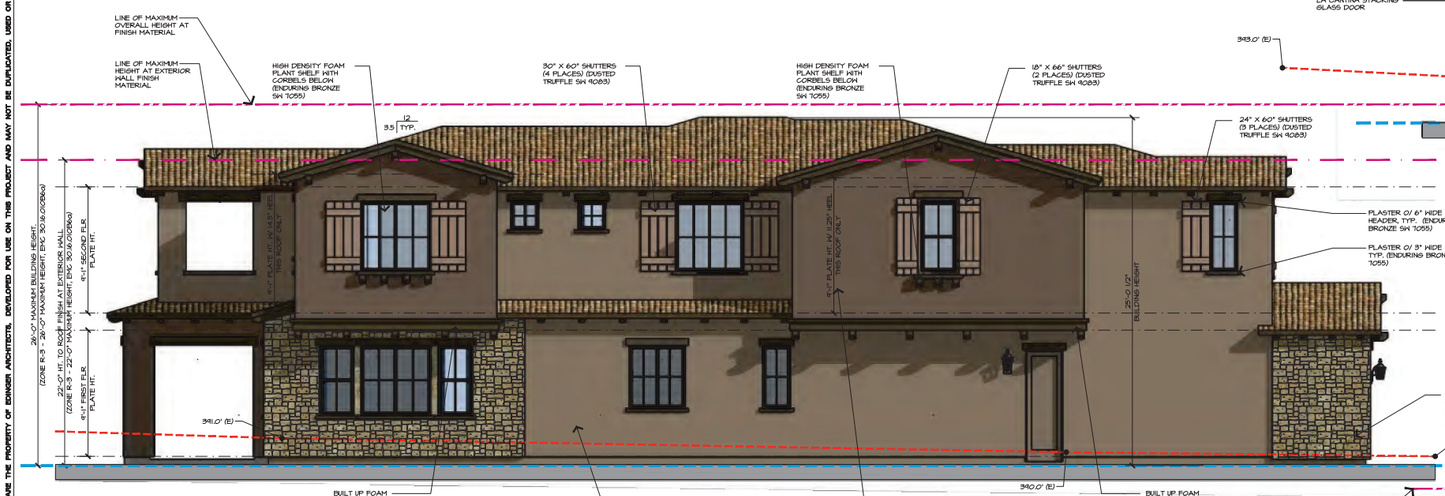
The Verona Outdoor Wall Sconce No. BFCD683 is available with the following:
Details:
Frosted beveled glass shade
Cast aluminum construction
Decorative wall plate
Fixed Color: Frosted Beveled
Finish: Antique Bronze, Matte Black, Bronze Patina.

Dimensions:
Extra Extra Large Option Fixture: Height 49.5" Top to Center 31.5", Width 13", Depth 13"
Extra Large Option Fixture: Height 35", Top to Center 25", Width 10", Depth 17"
Large Option Fixture: Height 25", Top to Center 19", Width 11.5", Depth 15"

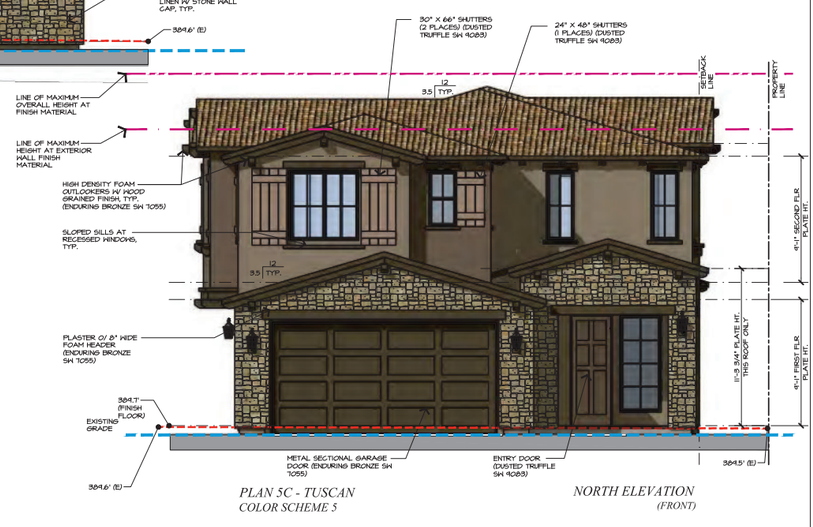
Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder



SOUTH ELEVATION
(REAR)



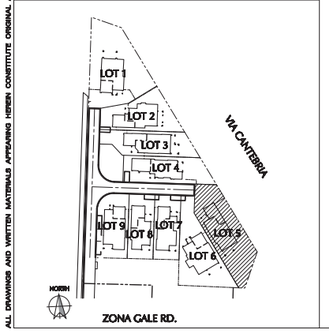
EAST ELEVATION
(LEFT SIDE)



PLAN 5C - TUSCAN
COLOR SCHEME 5

NORTH ELEVATION
(FRONT)

SITE MAP



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PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR ELEV. 'C' TUSCAN

PLAN 5C eA19009

PLAN 5 / LOT 5

A5-5

9/22/21 • 9/22/21



SOUTHWEST PERSPECTIVE



SOUTHEAST PERSPECTIVE



NORTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE
PLAN 5C - TUSCAN

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ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

LICENSED ARCHITECT
PATRICK EDINGER
No. C-30931
EXP. 05-31-22
STATE OF CALIFORNIA

PLANNING SET

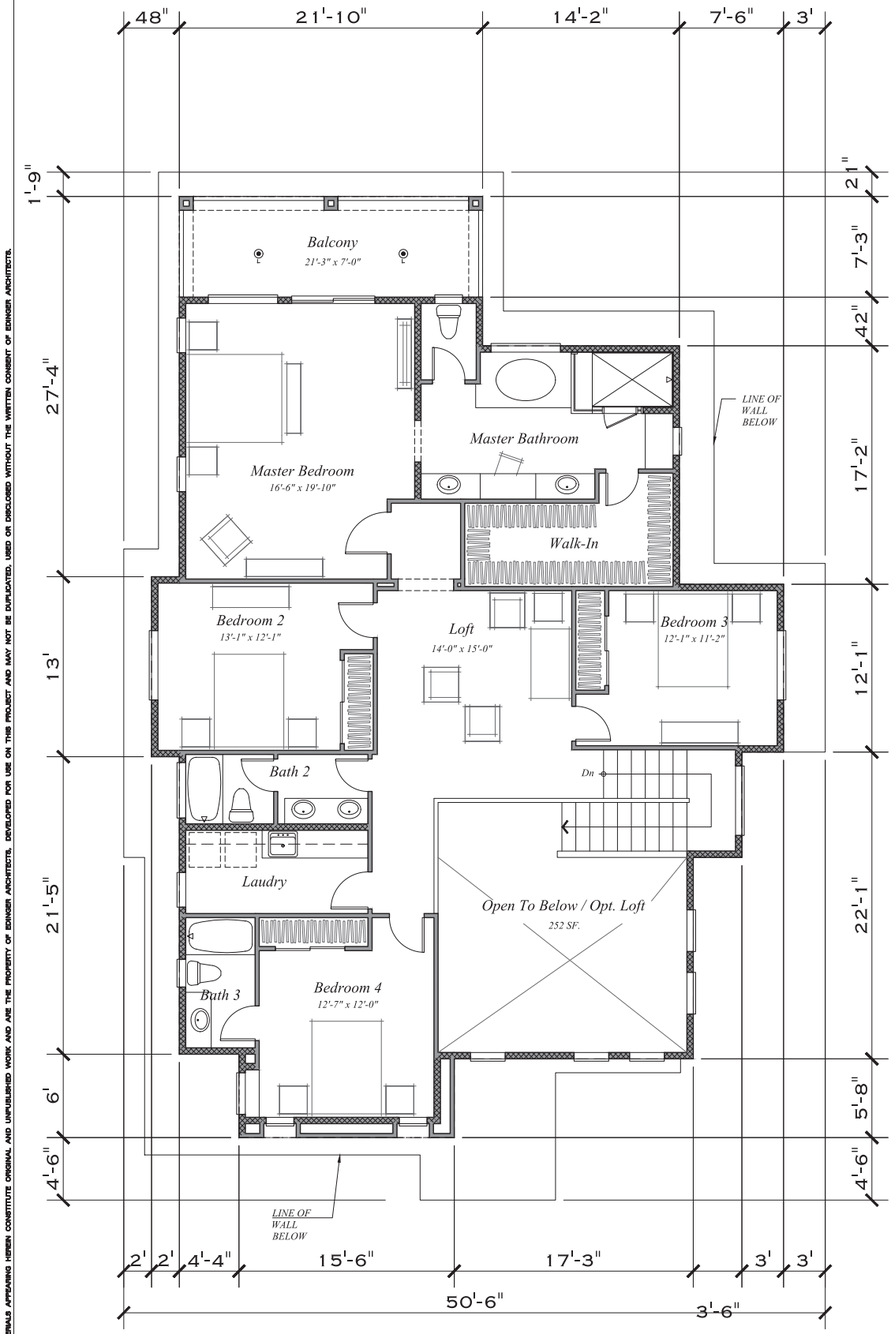
PLAN CHECK 00/00/19

EXTERIOR RENDERINGS
ELEV. "C"
TUSCAN

PLAN 5C eA19009

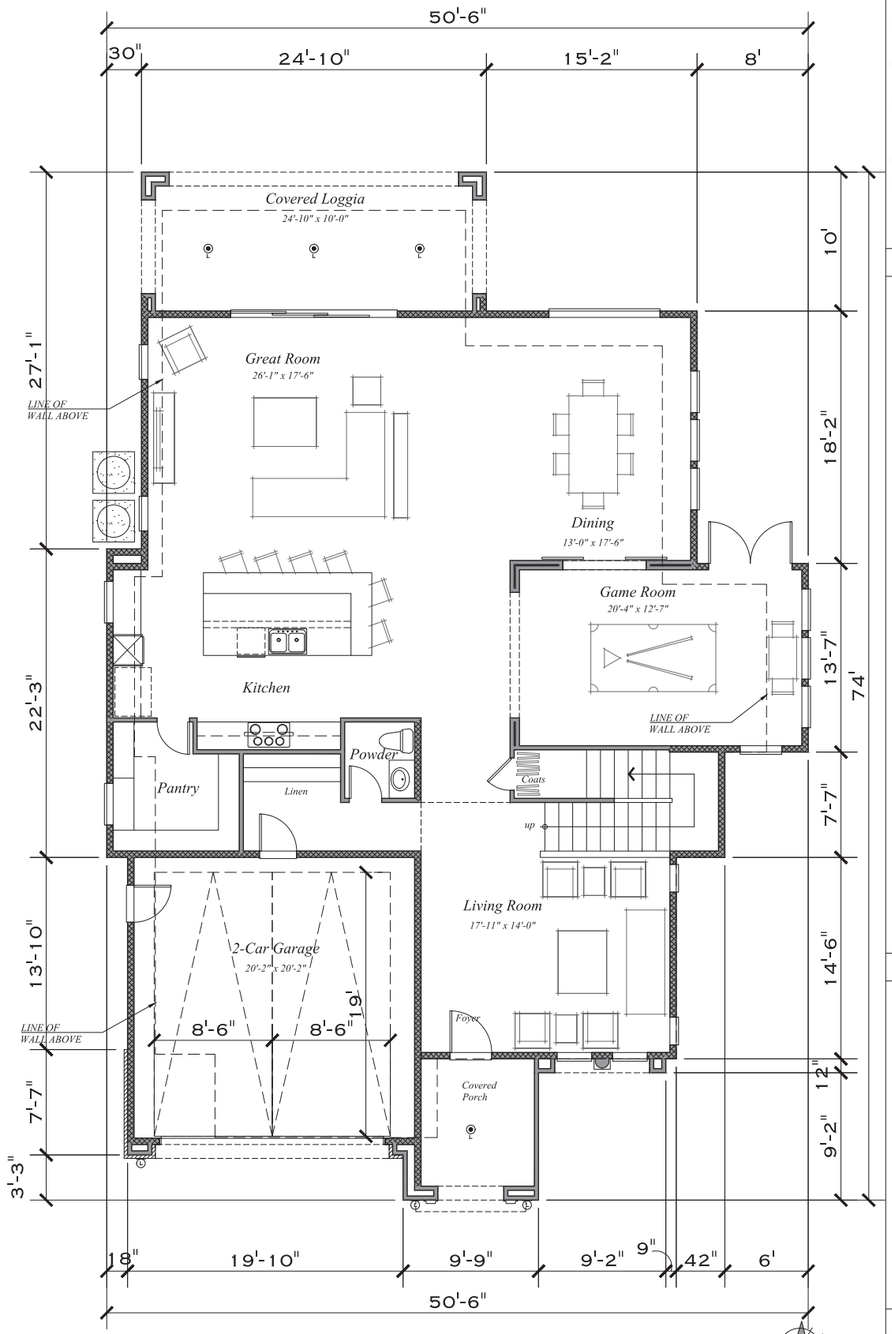
PLAN 5 / LOT 5
A5-6

9/22/21 • 9/22/21



SECOND FLOOR PLAN

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



FIRST FLOOR PLAN

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

6D

NORTH

0" 4" 8"

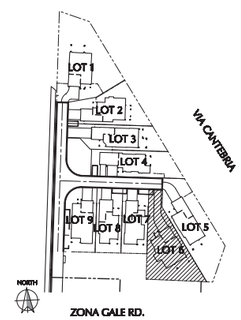
SCALE: 1/4"=1'-0"

FLOOR PLAN NOTES

- ☐ REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
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- ☐ REFER TO DETAILS / CROSS-SECTIONS / AND FRAMING PLANS FOR CLARIFICATIONS AND DIMENSIONS OF ALL SOFFITED AREAS.
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- ☐ ALL WINDOWS AND DOORS TO HAVE ALUMINUM CLAD WOOD FRAMES WITH CLEAR LOW E DUAL GLAZING. SEE EXTERIOR ELEVATIONS FOR LOCATIONS OF WINDOWS WITH MULLION BARS, (ALL OPERABLE WINDOWS TO HAVE SCREENS). .25 MAX. SHGC / .32 MAX U-VALUE (OR BETTER)
- ☐ THIS SYMBOL (◇) INDICATES AN INTERIOR ELEVATION VIEWED FROM THIS VANTAGE POINT WITH THE LETTER INSIDE THE SYMBOL INDICATING THE INTERIOR ELEVATION. REFER TO SHEETS A-12 AND A-13 FOR INTERIOR ELEVATIONS.
- ☐ PROVIDE BLOCKING AND / OR BACKING AT ALL TOWEL BAR (⊢⊣), AND / OR TOWEL RING (⊣) LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK-THRU.
- ☐ PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/A0-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDING.
- ☐ OPENABLE WINDOWS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY PLUMBING VENT, CHIMNEY, ETC. C.R.C. SECTION 3095.
- ☐ PENETRATIONS OF FIRE-RESISTIVE HALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 6 / LOT 6

FIRST FLOOR LIVABLE	2023 SQ. FT.
SECOND FLOOR LIVABLE	1165 SQ. FT.
TOTAL LIVABLE	3188 SQ. FT.
2-CAR GARAGE	430 SQ. FT.
COVERED PORCH	86 SQ. FT.
COVERED PATIO	248 SQ. FT.
COVERED BALCONY	158 SQ. FT.

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ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

LICENSED ARCHITECT PATRICK EDINGER Registered Professional 05-31-22 STATE OF CALIFORNIA

PLANNING SET

PLAN CHECK 00/00/19

FLOOR PLANS

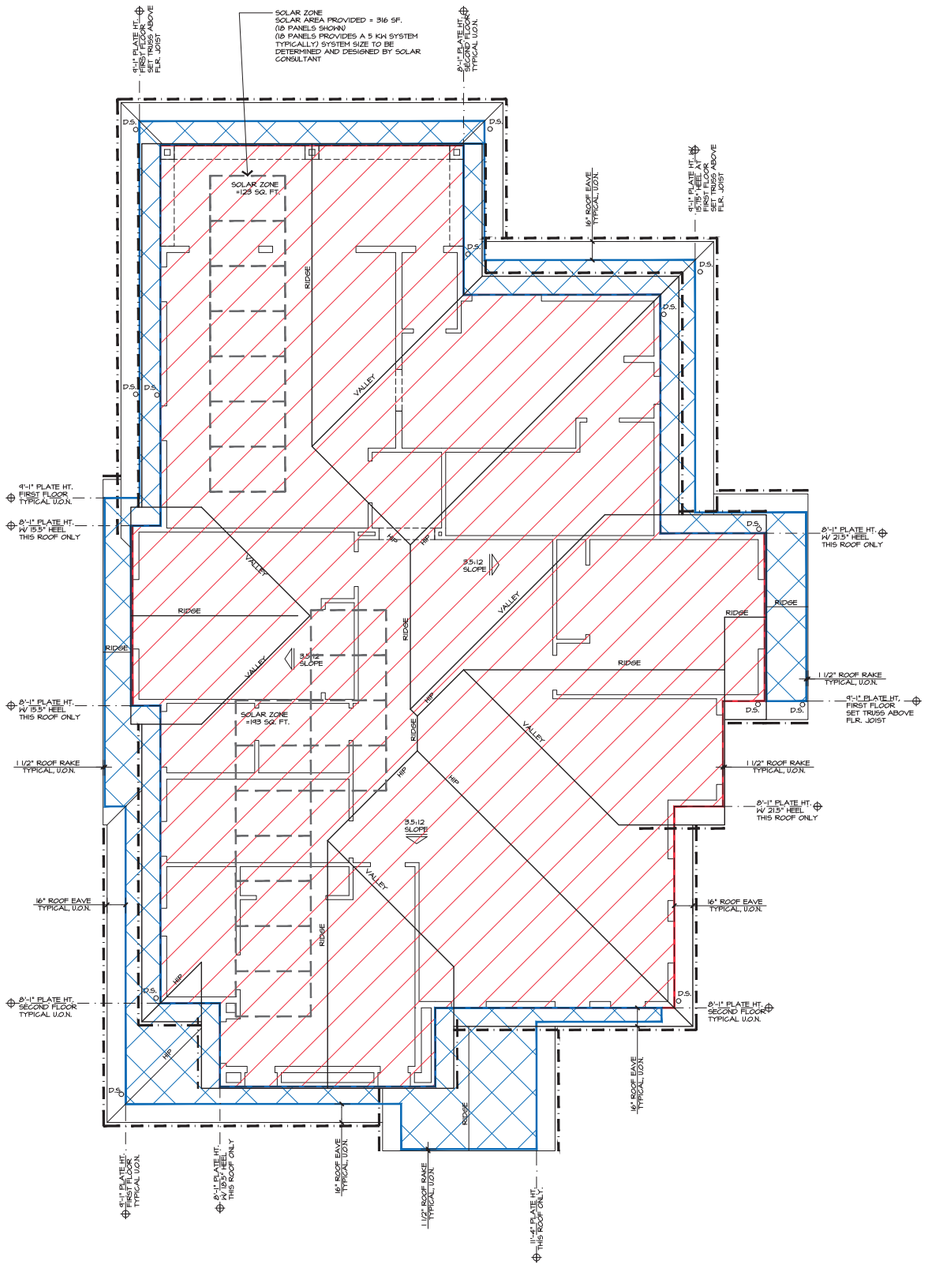
PLAN 6D eA19009

PLAN 6 / LOT 6

A6-2

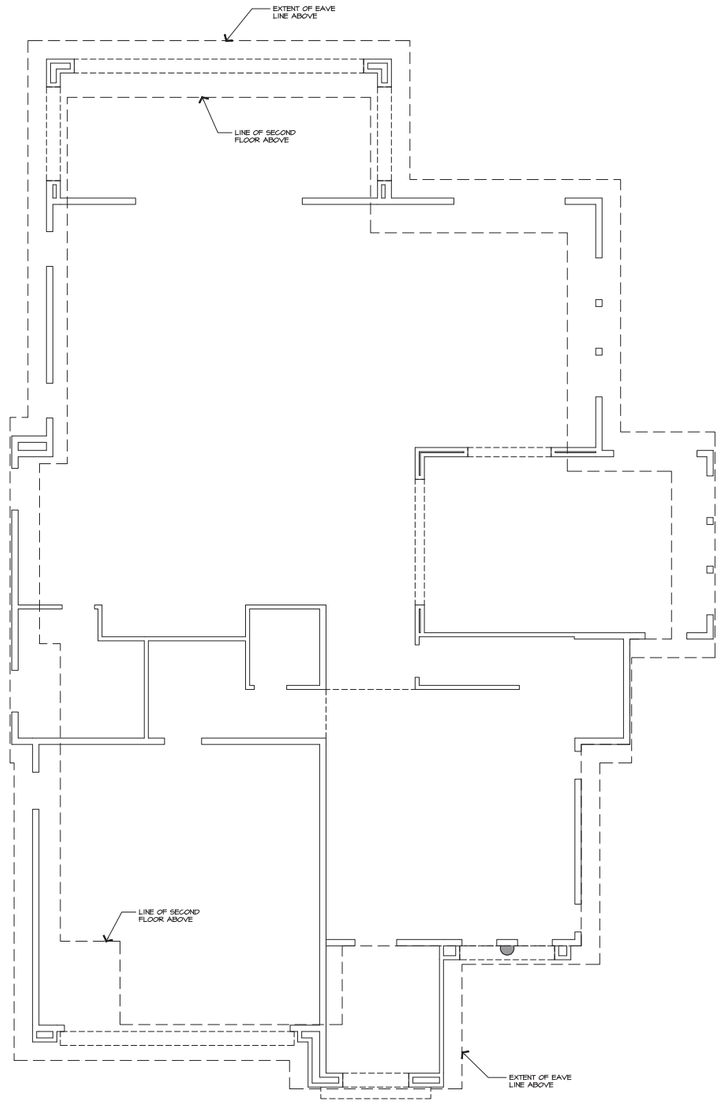
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ROOF PLAN

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



FIRST FLOOR REFLECTED CEILING PLAN 6D

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

ROOF PLAN NOTES

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- ☐ ROOF COVERING TO BE:
- ☐ OVERHANGS TO BE,
  EAVES: 16" UNLESS OTHERWISE NOTED
  RAKE: 0" UNLESS OTHERWISE NOTED
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- ☐ ATTIC VENTILATION.

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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PLANNING SET

PLAN CHECK 00/00/19

ROOF PLAN

PLAN 6D eA19009

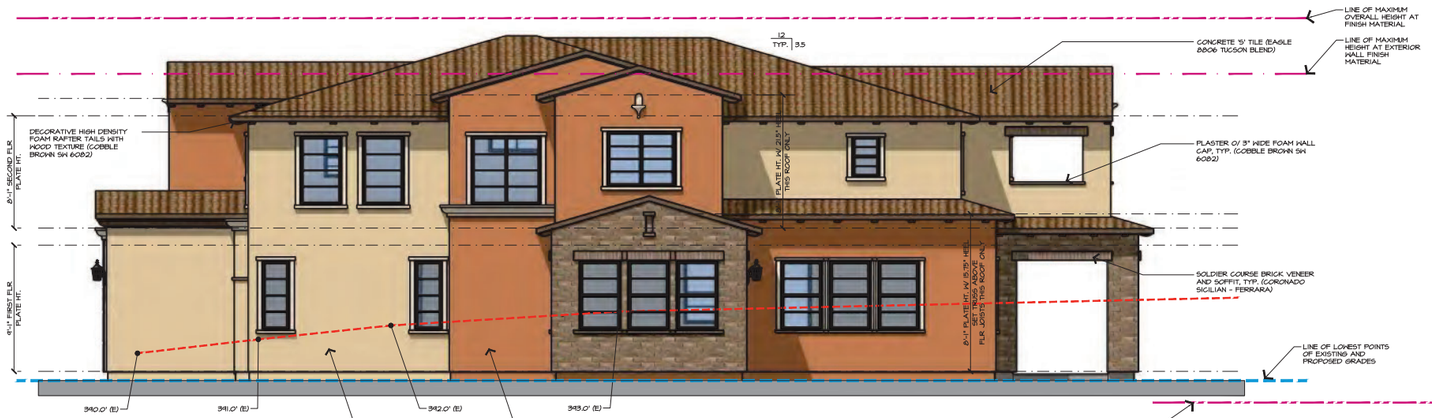
PLAN 6 / LOT 6

A6-3

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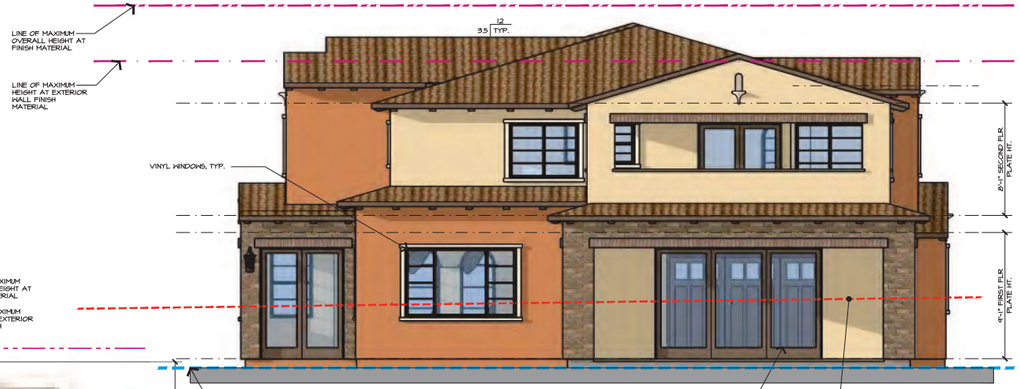


WEST ELEVATION
(RIGHT SIDE)

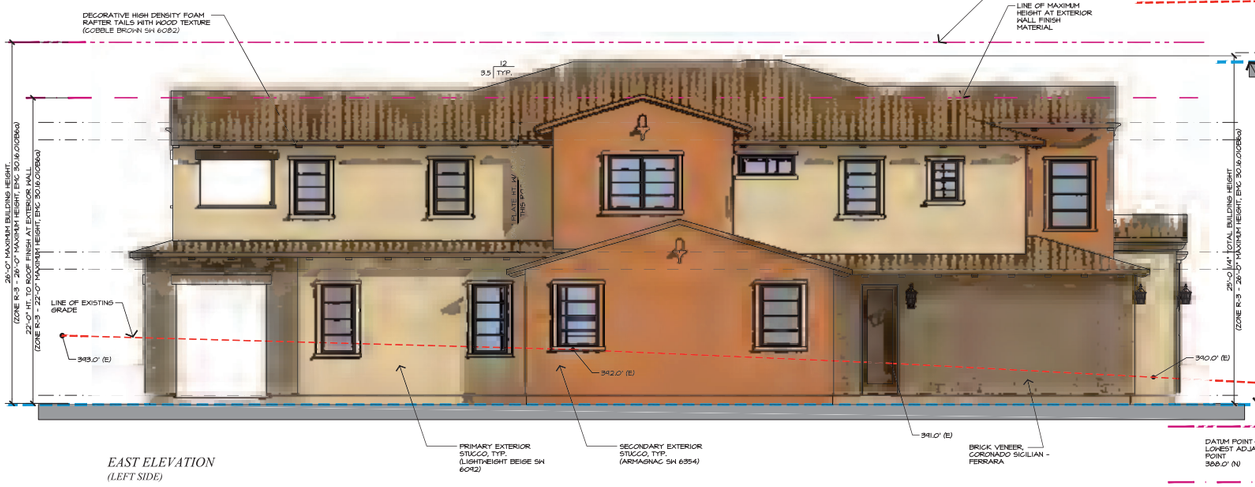
- LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES
- LINE OF EXISTING GRADE
- LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)
- LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)



Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder

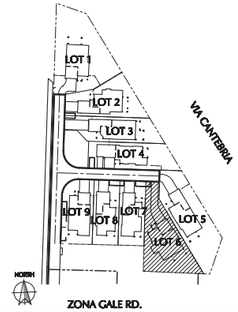


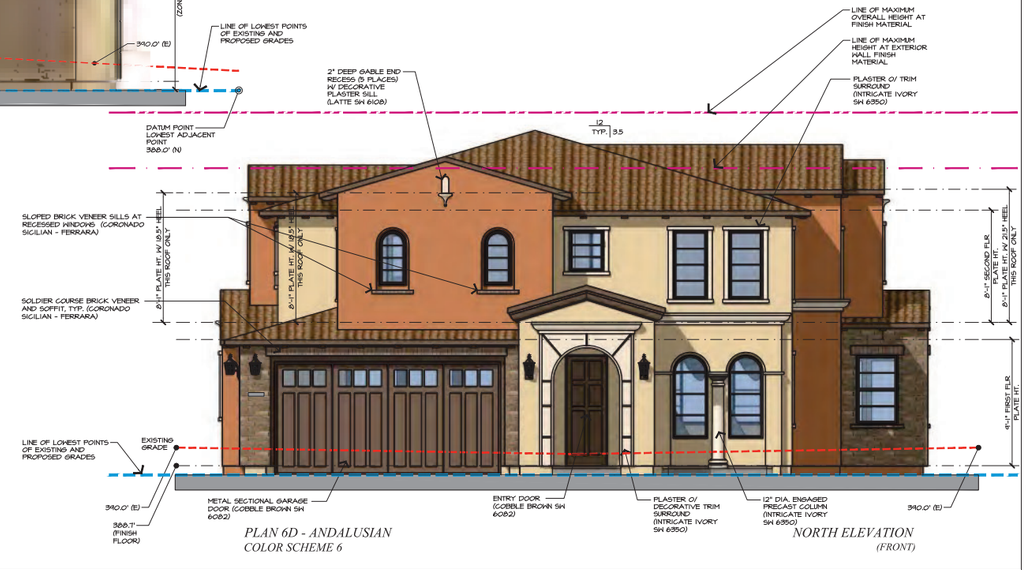
SOUTH ELEVATION
(REAR)



EAST ELEVATION
(LEFT SIDE)

SITE MAP





PLAN 6D - ANDALUSIAN
COLOR SCHEME 6

NORTH ELEVATION
(FRONT)

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PLANNING SET

PLAN CHECK 00/00/00

EXTERIOR ELEV. "D" ANDALUSIAN

PLAN 6D #A19009

PLAN 6 / LOT 6

A6-5

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SOUTHWEST PERSPECTIVE



SOUTHEAST PERSPECTIVE



NORTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE
PLAN 6D - ANDALUSIAN

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PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR RENDERINGS
ELEV. "D"
ANDALUSIAN

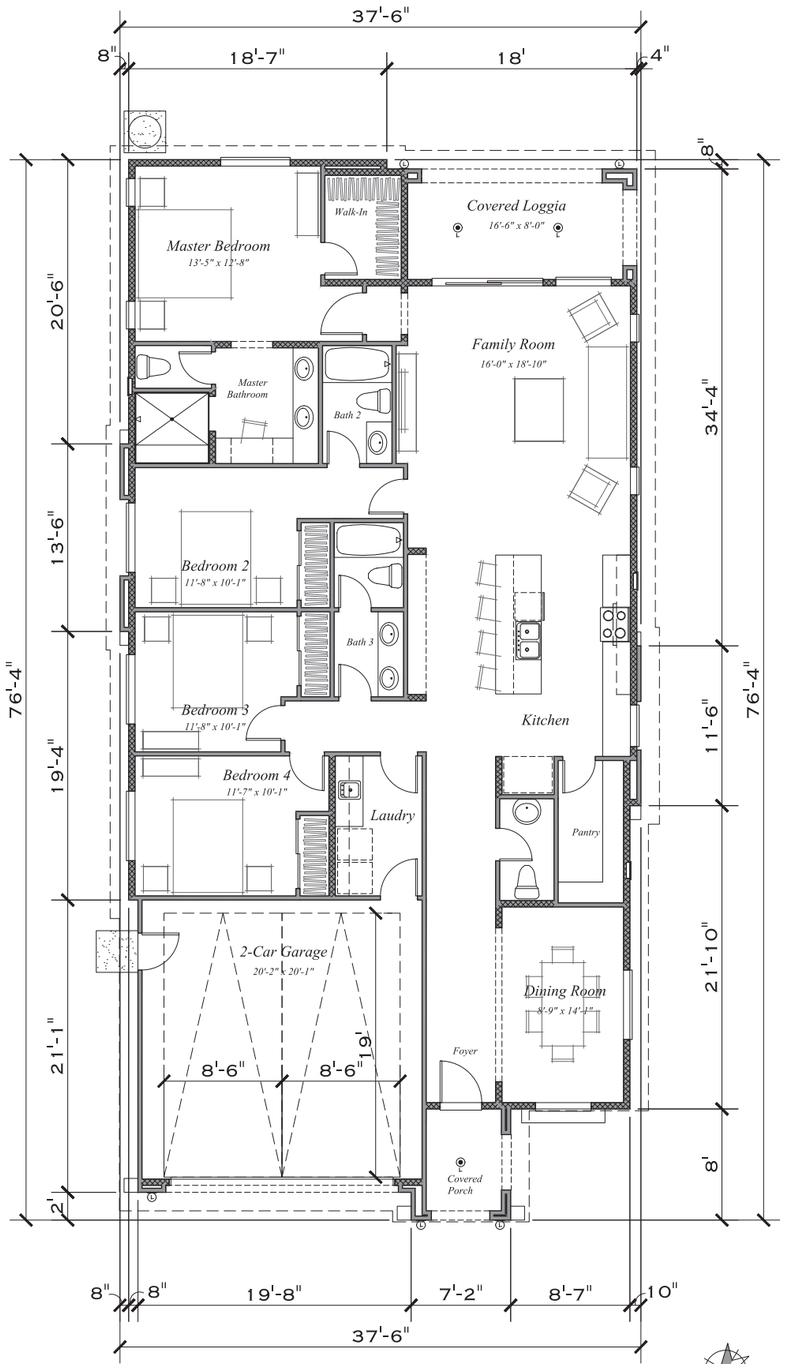
PLAN 6D eA19009

PLAN 6 / LOT 6

A6-6

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FIRST FLOOR PLAN

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

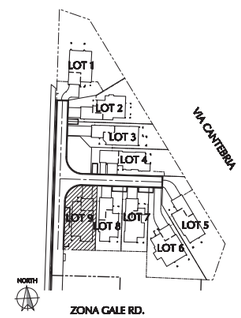
7A

FLOOR PLAN NOTES

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- PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/AD-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDING.
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- PENETRATIONS OF FIRE-RESISTIVE HALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 7 / LOT 9

FIRST FLOOR LIVABLE	2023 SQ. FT.
TOTAL LIVABLE	2023 SQ. FT.
2-CAR GARAGE	422 SQ. FT.
COVERED PORCH	44 SQ. FT.
COVERED PATIO	131 SQ. FT.

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ZONA GALE ESTATES

ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

FLOOR PLANS

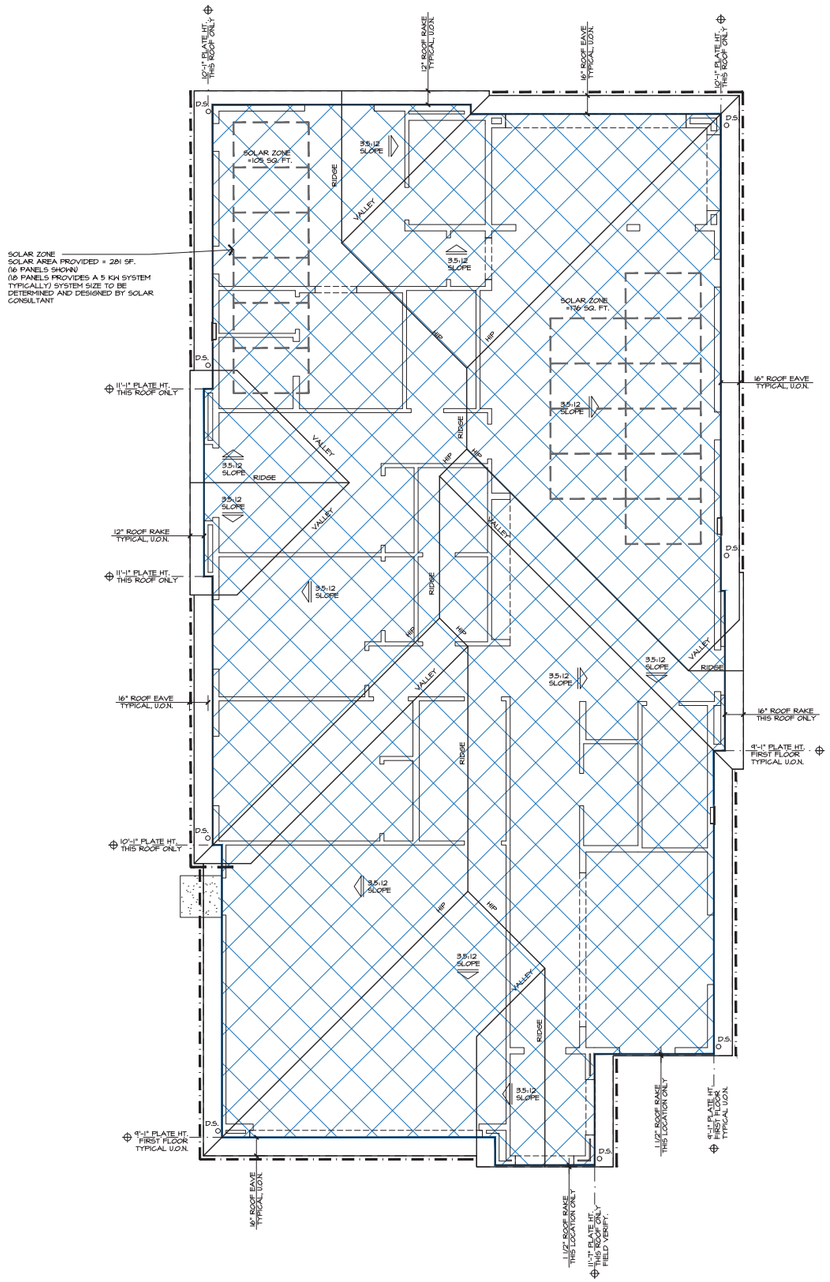
PLAN 7A eA19009

PLAN 7 / LOT 7

A7-2

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ROOF PLAN
SCALE: 1/4" = 1'-0"

7A

ROOF PLAN NOTES

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- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND ARCHITECT SHALL BE NOTIFIED OF ANY VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
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- ☐ REFER TO STRUCTURAL PLANS PREPARED BY OTHERS FOR ADDITIONAL NOTES AND CLARIFICATIONS, AS WELL AS ADDITIONAL SPECIFICATIONS (I.E., NAILING, BRACING, ETC.). THE FOLLOWING NOTES ARE TO CLARIFY THE ROOF PLAN.
- ☐ VERIFY ALL PLATE HEIGHTS SHOWN WITH STRUCTURAL PLANS. (I.E. PLATE HEIGHTS WILL DIFFER DEPENDING ON WHAT TYPE OF ROOF FRAMING IS USED).
- ☐ ALL FLASHING PERTAINING TO THE METHODS AND MATERIALS USED TO CONSTRUCT THE ROOF AND CHIMNEY TO BE COPPER FLASHING.
- ☐ ROOF COVERING TO BE:
  2-PIECE CLAY MISSION ROOF TILE BY "US TILE", MADERA BLEND I.C.C. REPORT NO. ESR-1017, OVER MINIMUM ONE LAYER OF 30# ROOFING FELT ALL OVER STRUCTURAL ROOF SHEATHING PER STRUCTURAL DRAWINGS. INSTALL PER MANUFACTURER SPECIFICATIONS. ROOFING SHALL HAVE A MIN. CLASS "A" FIRE RATING.
- ☐ OVERHANGS TO BE:
  EAVES: 18" UNLESS OTHERWISE NOTED
  RAKE: @12 UNLESS OTHERWISE NOTED
  (SEE DETAILS FOR CLARIFICATIONS). OVERHANGS LISTED ABOVE ARE TYPICAL PER ELEVATION, UNLESS OTHERWISE NOTED AT SPECIAL CONDITIONS.
- ☐ COMBINE AND GROUP PLUMBING VENTS WHENEVER POSSIBLE TO MINIMIZE ROOF PENETRATIONS. FOR FLASHING AT ROOF PENETRATIONS (I.E. "B" VENTS), REFER TO DETAIL 12/AD-2 FOR TYPICAL ROOF PENETRATION FLASHING INFORMATION.
- ☐ ATTIC VENTILATION:
  VENTILATION IS PROVIDED BY CLOAKED FIELD TILE VENTS MANUFACTURED BY: "OHAGIN MFG. LLC" OR EQUIVALENT. ICC REPORT No. ESR-1650A. EACH FIELD VENT TILE PROVIDES:
  72.00 SQ. IN. FOR ASPHALT SHINGLE ROOFS
  REFER TO ROOF PLANS FOR VENT QUANTITIES. INSTALL PER MANUFACTURER'S SPECIFICATIONS

  GABLE END VENTILATION, WHEN USED, IS PROVIDED BY "AMERICAN LOUVER AND VENT COMPANY" OR EQUIVALENT.
  VENTS PROVIDE THE FOLLOWING:
  24" DIAMETER= 154 SQ. IN.
  14" X 20" RECTANGULAR= 44.5 SQ. IN.

  REFER TO ROOF PLANS AND EXTERIOR ELEVATIONS FOR VENT QUANTITIES.

  ATTIC VENTILATION TO COMPLY WITH C.R.C. SECTION R806.1 AND R806.2. THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/150 OF THE AREA OF THE SPACE. THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED ONE OR MORE OF THE FOLLOWING CONDITIONS ARE MET:
  1. AT LEAST 40% AND NOT MORE THAN 50% OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER 1/3 PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NO MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY. THE BALANCE OF THE REQUIRED VENTILATION SHALL BE LOCATED IN THE BOTTOM 1/3 OF THE ATTIC SPACE.
  2. IN CLIMATE ZONES 6, 7, AND 8, A CLASS I OR II VAPOR RETARDER IS INSTALLED ON THE WARM-IN-WINTER SIDE OF THE CEILING.

NUMBERED NOTES

LEGEND

LINE OF FIRST FLOOR BUILDING

EXTENT OF FIRST FLOOR

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ZONA GALE ESTATES
ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

ROOF PLAN

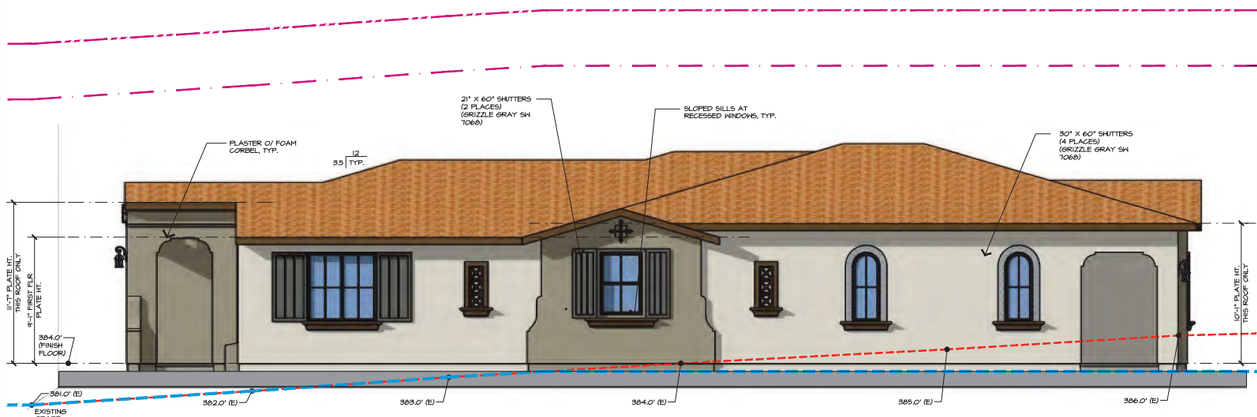
PLAN 7A eA19009

PLAN 7 / LOT 7

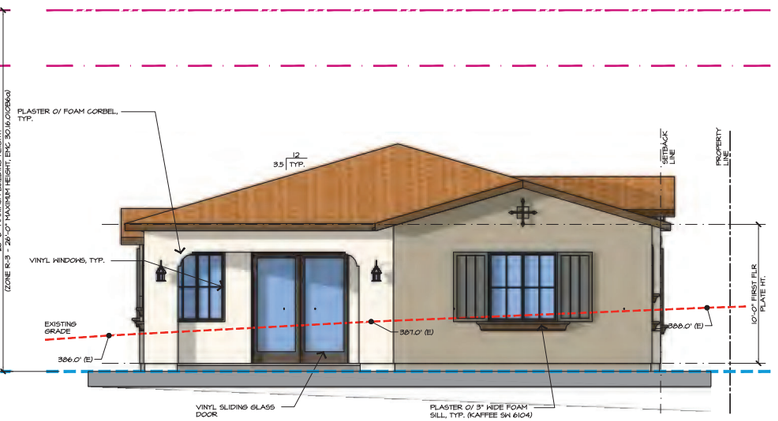
A7-3

9/22/21 • 9/22/21

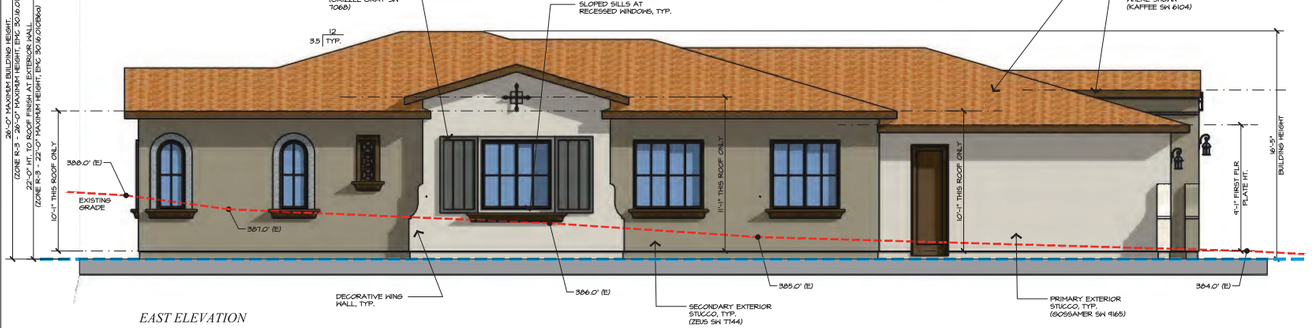
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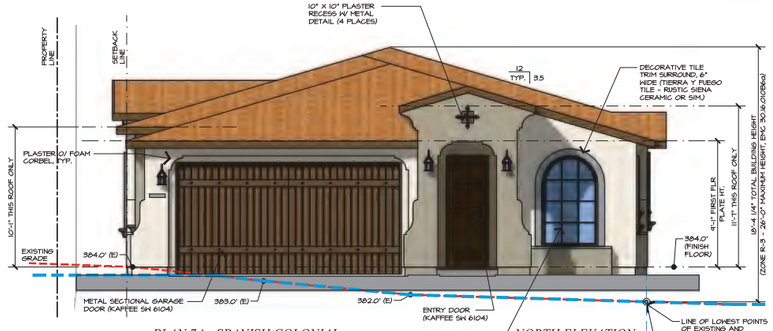
WEST ELEVATION
(RIGHT SIDE)



SOUTH ELEVATION
(REAR)



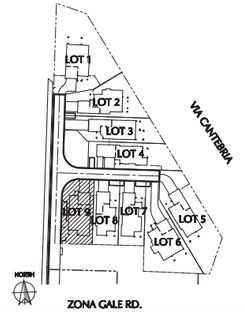
EAST ELEVATION
(LEFT SIDE)



PLAN 7A - SPANISH COLONIAL
COLOR SCHEME 7

NORTH ELEVATION
(FRONT)

SITE MAP



- LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES
- LINE OF EXISTING GRADE
- LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)
- LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)



Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder

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ZONA GALE ESTATES
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PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR ELEV. 'A' SPANISH COLONIAL

PLAN 7A eA19009

PLAN 7 / LOT 7

A7-5

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SOUTHWEST PERSPECTIVE



SOUTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE



NORTHEAST PERSPECTIVE
PLAN 7A - SPANISH COLONIAL

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ZONA GALE ESTATES
ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

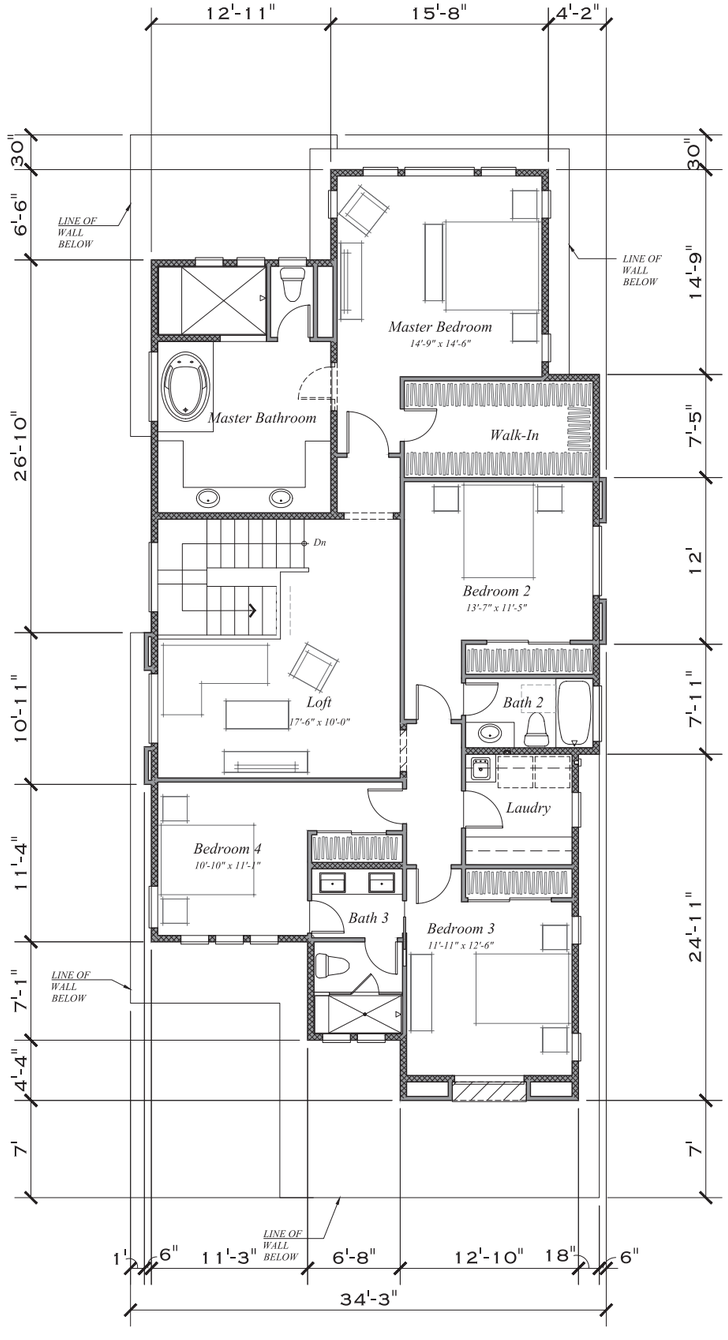
EXTERIOR RENDERINGS
ELEV. "A"
SPANISH COLONIAL

PLAN 7A **eA19009**

PLAN 7 / LOT 7

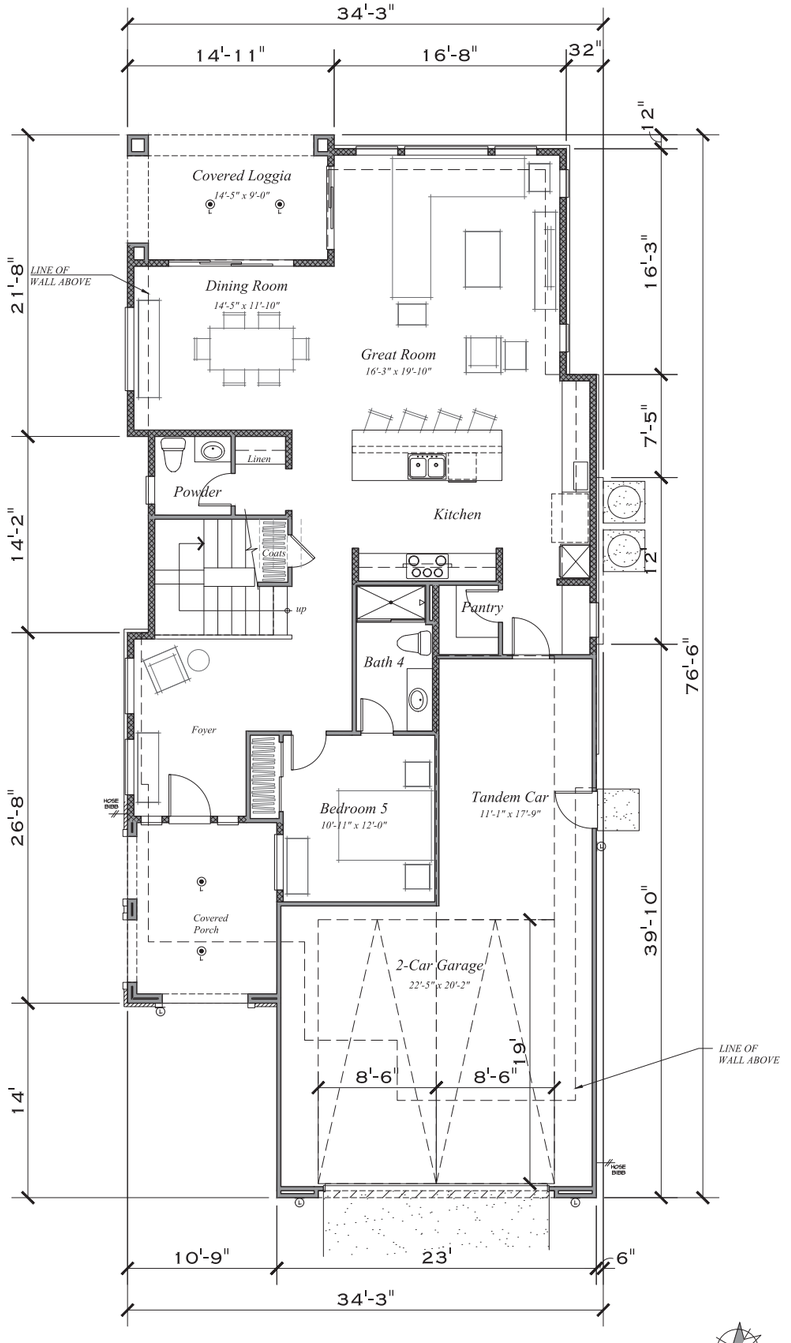
A7-6

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SECOND FLOOR PLAN

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



FIRST FLOOR PLAN

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

8B

NORTH

0' 4' 8'

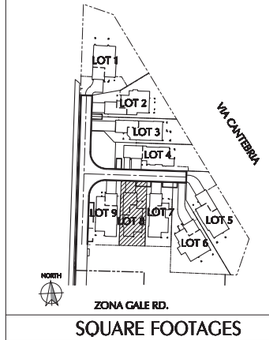
SCALE: 1/4"=1'-0"

FLOOR PLAN NOTES

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- ☐ REFER TO SHEET A0-1 FOR WALL LEGEND.
- ☐ ALL WINDOWS AND DOORS TO HAVE ALUMINUM CLAD WOOD FRAMES WITH CLEAR LOW E DUAL GLAZING. SEE EXTERIOR ELEVATIONS FOR LOCATIONS OF WINDOWS WITH MULLION BARS, (ALL OPERABLE WINDOWS TO HAVE SCREENS). .25 MAX. SHGC / .32 MAX U-VALUE (OR BETTER)
- ☐ THIS SYMBOL (◯) INDICATES AN INTERIOR ELEVATION VIEWED FROM THIS VANTAGE POINT WITH THE LETTER INSIDE THE SYMBOL INDICATING THE INTERIOR ELEVATION. REFER TO SHEETS A-12 AND A-13 FOR INTERIOR ELEVATIONS.
- ☐ PROVIDE BLOCKING AND / OR BACKING AT ALL TOWEL BAR ( ), AND / OR TOWEL RING ( ) LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK-THRU.
- ☐ PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/A0-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDING.
- ☐ OPENABLE WINDOWS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY PLUMBING VENT, CHIMNEY, ETC. C.R.C. SECTION 3095.
- ☐ PENETRATIONS OF FIRE-RESISTIVE HALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 8 / LOT 8	
FIRST FLOOR LIVABLE	1348 SQ. FT.
SECOND FLOOR LIVABLE	1774 SQ. FT.
TOTAL LIVABLE	3122 SQ. FT.
3-CAR GARAGE	673 SQ. FT.
COVERED PORCH	140 SQ. FT.
COVERED PATIO	130 SQ. FT.

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ZONA GALE ESTATES

ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

FLOOR PLANS

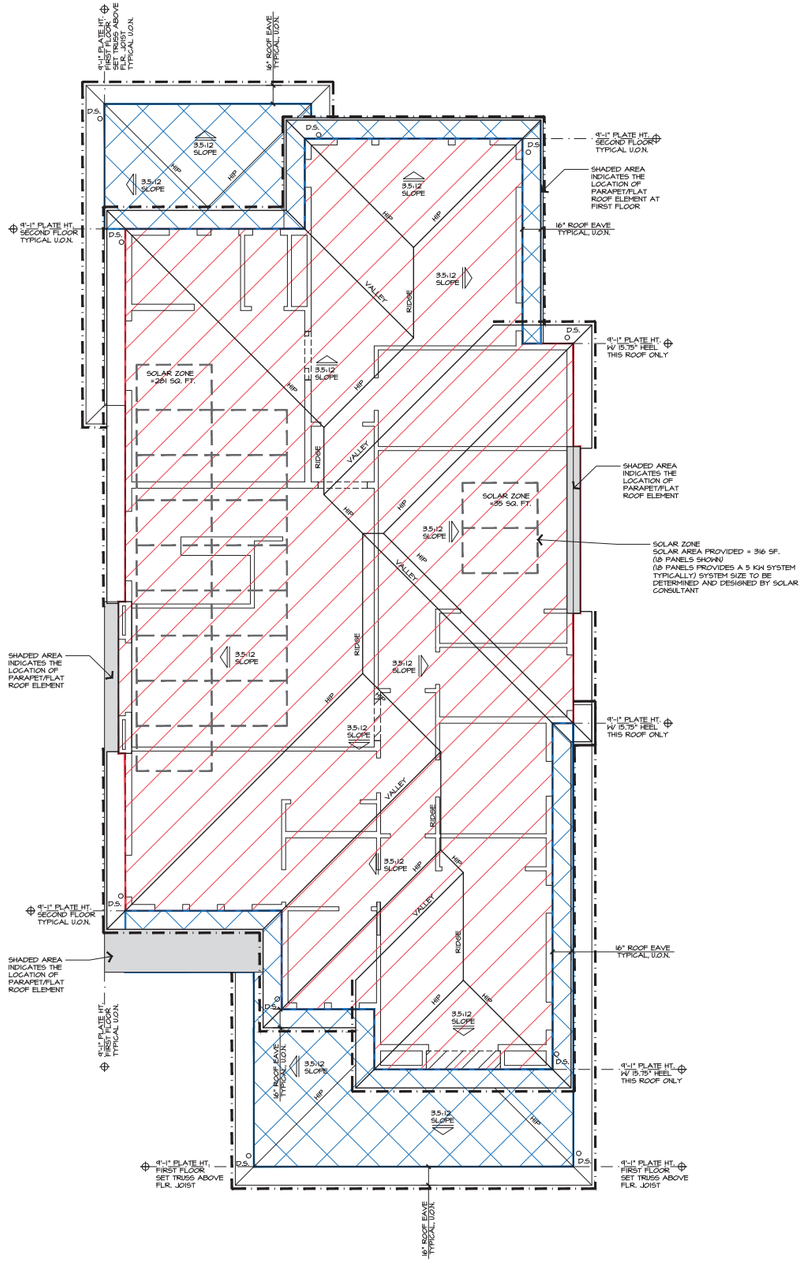
PLAN 8B eA19009

PLAN 8 / LOT 8

A8-2

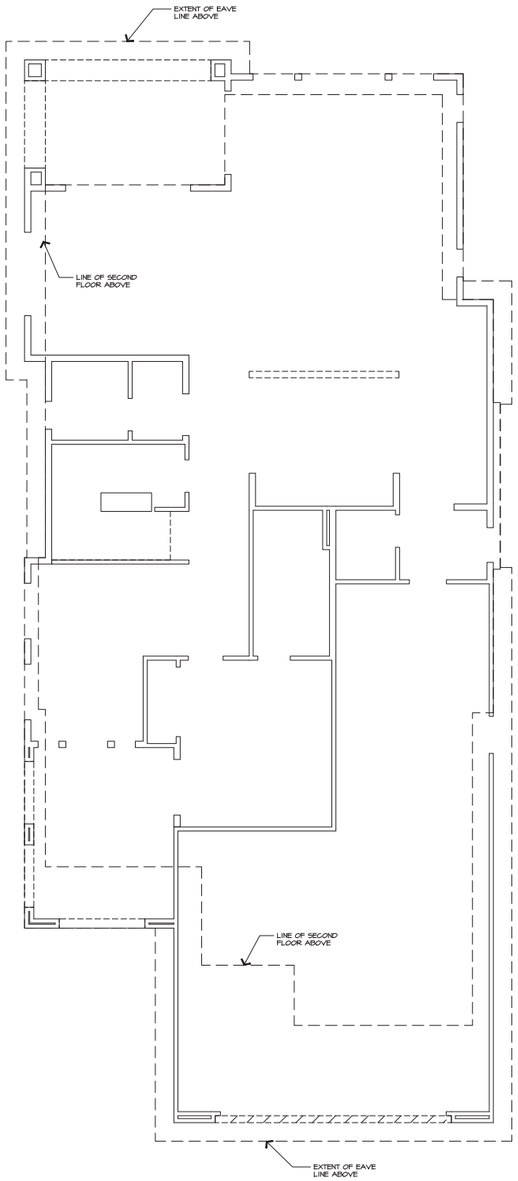
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ROOF PLAN

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



FIRST FLOOR REFLECTED CEILING PLAN

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

8B

ROOF PLAN NOTES

- ☐ REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION.
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- ☐ VERIFY ALL PLATE HEIGHTS SHOWN WITH STRUCTURAL PLANS. (I.E. PLATE HEIGHTS WILL DIFFER DEPENDING ON WHAT TYPE OF ROOF FRAMING IS USED).
- ☐ ALL FLASHING PERTAINING TO THE METHODS AND MATERIALS USED TO CONSTRUCT THE ROOF AND CHIMNEY TO BE COPPER FLASHING.
- ☐ ROOF COVERING TO BE:
- ☐ OVERHANGS TO BE:
  EAVES: 16" UNLESS OTHERWISE NOTED
  RAKE: 12" UNLESS OTHERWISE NOTED
  (SEE DETAILS FOR CLARIFICATIONS). OVERHANGS LISTED ABOVE ARE TYPICAL PER ELEVATION, UNLESS OTHERWISE NOTED AT SPECIAL CONDITIONS.
- ☐ COMBINE AND GROUP PLUMBING VENTS WHENEVER POSSIBLE TO MINIMIZE ROOF PENETRATIONS. FOR FLASHING AT ROOF PENETRATIONS (I.E. "B" VENTS), REFER TO DETAIL 12/AD-2 FOR TYPICAL ROOF PENETRATION FLASHING INFORMATION.
- ☐ ATTIC VENTILATION.

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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PLANNING SET

PLAN CHECK 00/00/19

ROOF PLAN

PLAN 8B eA19009

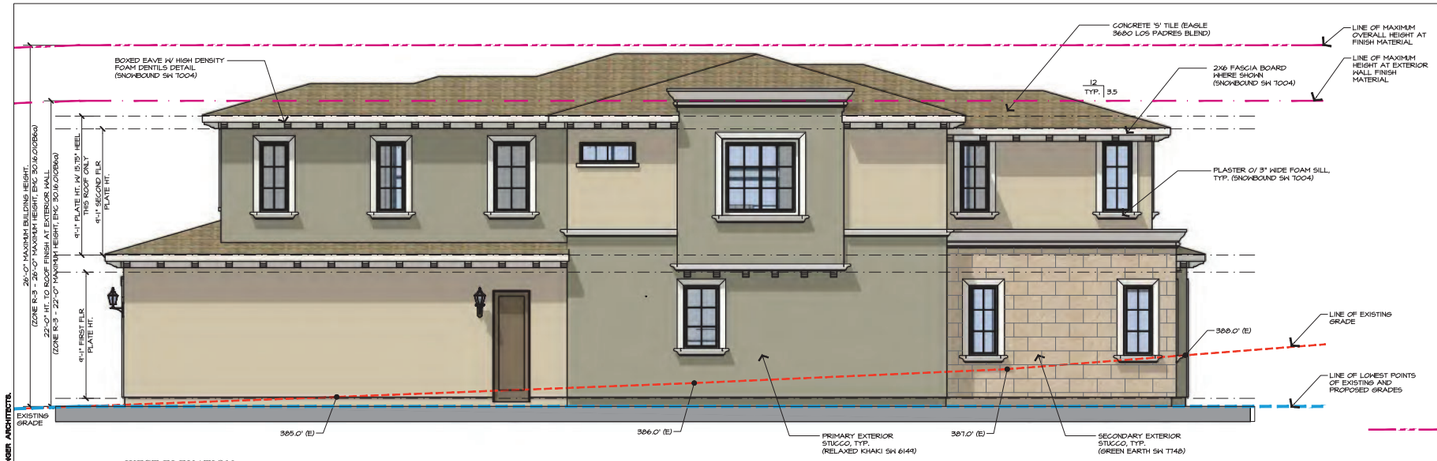
PLAN 8 / LOT 8

A8-3

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WEST ELEVATION
(RIGHT SIDE)

- LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES
- LINE OF EXISTING GRADE
- LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)
- LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)



Verona Outdoor Wall Sconce No. BFCD683
by Troy Lighting

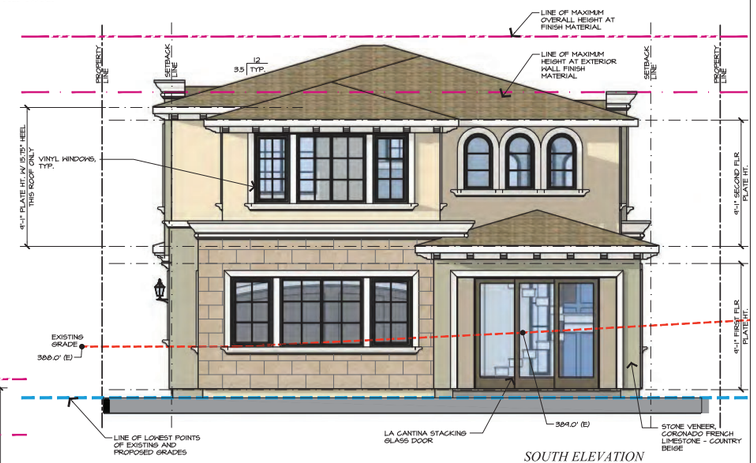
Details

A cross between Victorian and early American design, the Troy Lighting Verona Outdoor Wall Sconce No. BFCD683 gives exteriors a regal, decorated flair with its curling metalwork and frosted beveled glass.

The Verona Outdoor Wall Sconce No. BFCD683 is available with the following:
Details:
Frosted beveled glass shade
Cast aluminum construction
Decorative wall plate
Fixed Down, Frosted Beveled
Finish: Antique Bronze, Matte Black, Bronze Patina.

Dimensions:
Extra Tall 4 Light Outdoor Fixture: Height 49.5" Top to Center 31.5", Width 13", Depth 13"
Extra Large Outdoor Fixture: Height 35", Top to Center 21", Width 10", Depth 13"
Large Outdoor Fixture: Height 25", Top to Center 13", Width 11.5", Depth 15"

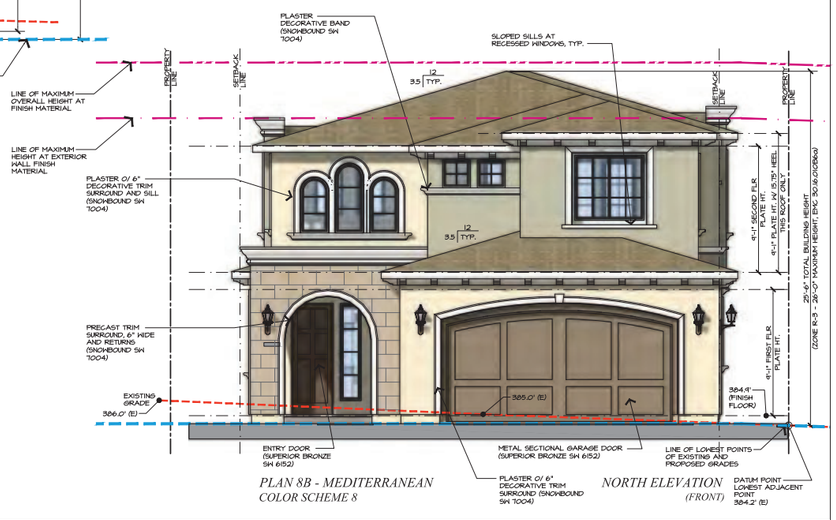
Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder



SOUTH ELEVATION
(REAR)



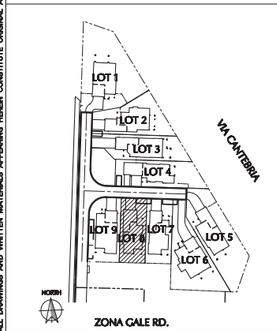
EAST ELEVATION
(LEFT SIDE)



PLAN 8B - MEDITERRANEAN
COLOR SCHEME 8

NORTH ELEVATION
(FRONT)

SITE MAP



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ZONA GALE ESTATES
ASPEN GROVE PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR ELEV. "B" MEDITERRANEAN

PLAN 8B eA19009

PLAN 8 / LOT 8

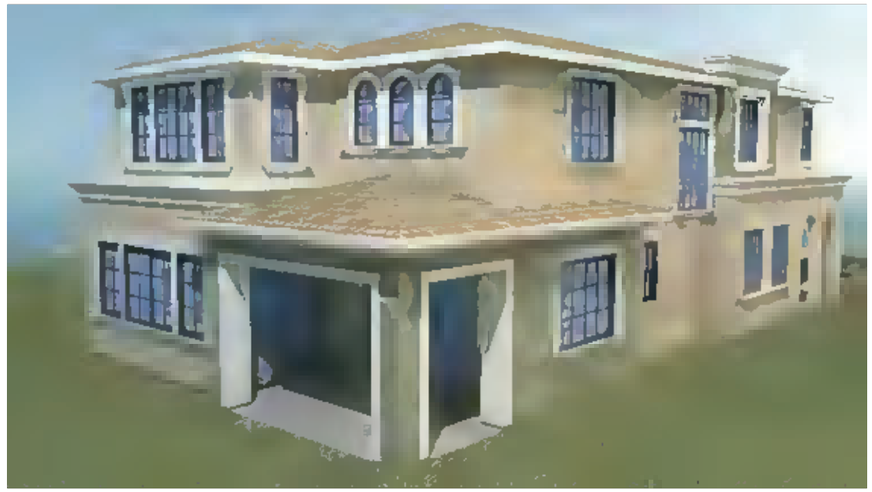
A8-5

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SOUTHWEST PERSPECTIVE



SOUTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE



NORTHEAST PERSPECTIVE
PLAN 8B - MEDITERRANEAN

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ZONA GALE ESTATES
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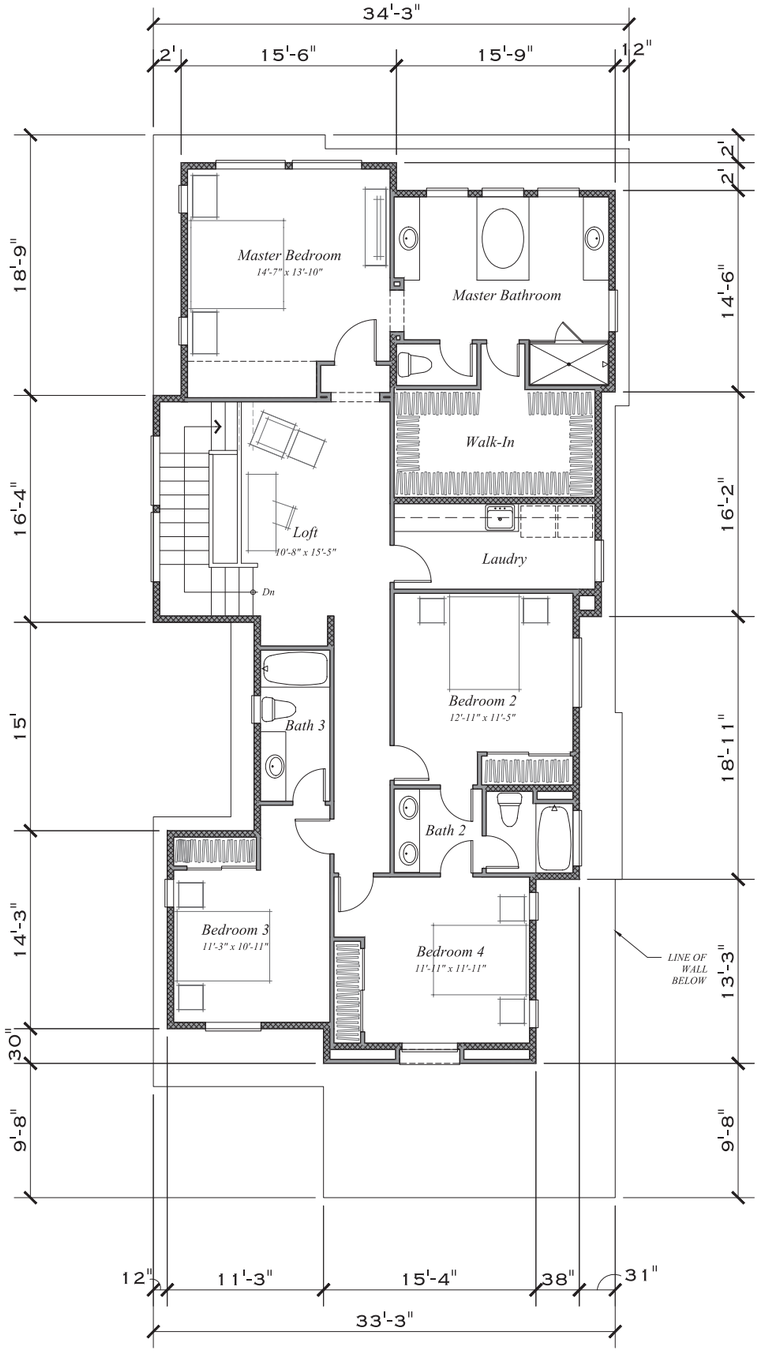
EXTERIOR RENDERINGS
ELEV. "B"
MEDITERRANEAN

PLAN 8B eA19009

PLAN 8 / LOT 8
A8-6

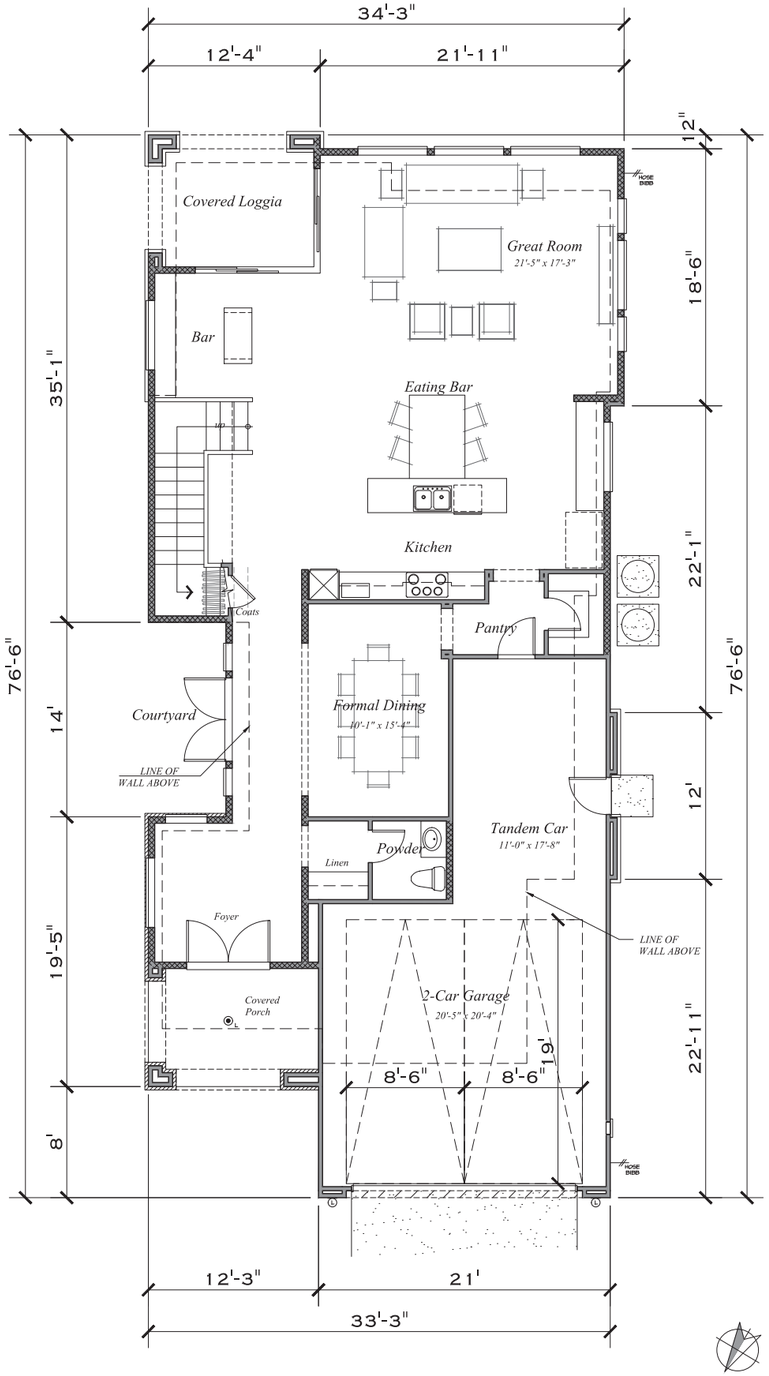
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SECOND FLOOR PLAN

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



FIRST FLOOR PLAN

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

9C

NORTH

0" 4" 8"

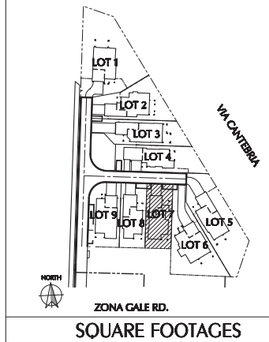
SCALE: 1/4"=1'-0"

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- PROVIDE BLOCKING AND / OR BACKING AT ALL TOWEL BAR ( ), AND / OR TOWEL RING ( ) LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK-THRU.
- PROVIDE A CONCRETE STOOP AT ALL EXTERIOR DOORS, INCLUDING OPTIONAL DOORS WHEN THE OPTION IS CHOSEN. THE CONCRETE STOOP SHALL BE A MIN. 36" MEASURED IN THE DIRECTION OF TRAVEL AND THE SIDES SHALL EXTEND A MIN. 3" ON EACH SIDE OF THE ACTIVE DOOR PANEL. SLOPE TO DRAIN, 2% MAX. SLOPE. REFER TO DETAIL 7/A0-1 FOR DISTANCE REQUIREMENTS BETWEEN EXTERIOR DOOR THRESHOLD AND EXTERIOR LANDING.
- OPENABLE WINDOWS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY PLUMBING VENT, CHIMNEY, ETC. C.R.C. SECTION 3095.
- PENETRATIONS OF FIRE-RESISTIVE HALLS, FLOOR-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED IN C.R.C. SECTION R302.4.

NUMBERED NOTES

SITE MAP



SQUARE FOOTAGES

PLAN 9 / LOT 7

FIRST FLOOR LIVABLE	1505 SQ. FT.
SECOND FLOOR LIVABLE	1677 SQ. FT.
TOTAL LIVABLE	3182 SQ. FT.
3-CAR GARAGE	682 SQ. FT.
COVERED PORCH	104 SQ. FT.
COVERED PATIO	113 SQ. FT.

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phone: (858) 704-4004

ZONA GALE ESTATES
ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

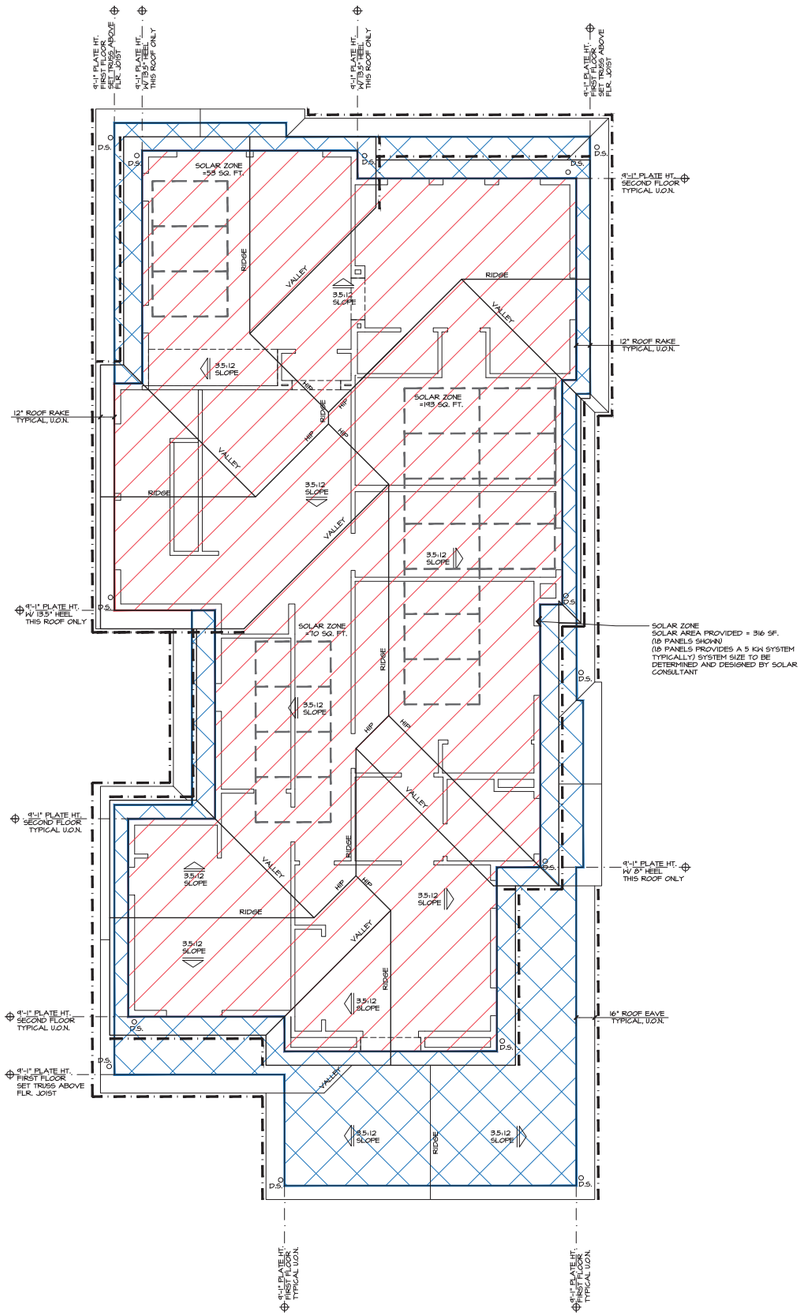
FLOOR PLANS

PLAN 9C eA19009

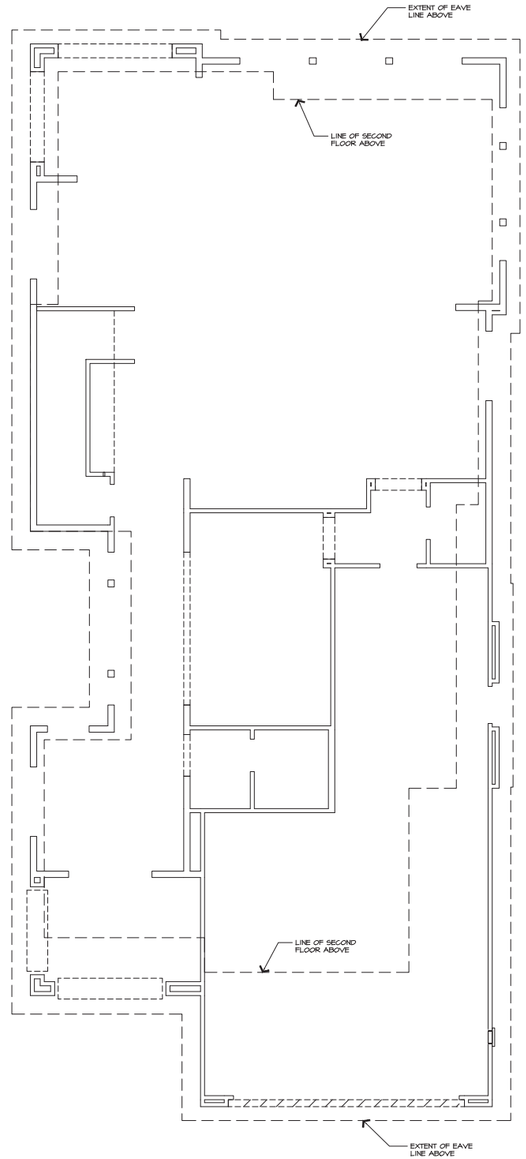
PLAN 9 / LOT 9

A9-2

9/22/21 • 9/22/21



ROOF PLAN
SCALE: 1/4" = 1'-0"



FIRST FLOOR REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

9C

ROOF PLAN NOTES

- ☐ REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION.
- ☐ DO NOT SCALE DRAWINGS. ALL WRITTEN DIMENSIONS HEREIN SHALL BE FIELD VERIFIED BY PROJECT SUPERINTENDENT AND ARCHITECT SHALL BE NOTIFIED OF ANY VARIATIONS OR DISCREPANCIES IN THE ARCHITECTS CONSTRUCTION DOCUMENTS.
- ☐ REFER TO THE FLOOR PLANS, ADDENDA PLANS, AND INTERIOR ELEVATIONS FOR ADDITIONAL NOTES AND INFORMATION NOT SHOWN HERE.
- ☐ REFER TO STRUCTURAL PLANS PREPARED BY OTHERS FOR ADDITIONAL NOTES AND CLARIFICATIONS, AS WELL AS ADDITIONAL SPECIFICATIONS (I.E., NAILING, BRACING, ETC.). THE FOLLOWING NOTES ARE TO CLARIFY THE ROOF PLAN.
- ☐ VERIFY ALL PLATE HEIGHTS SHOWN WITH STRUCTURAL PLANS. (I.E. PLATE HEIGHTS WILL DIFFER DEPENDING ON WHAT TYPE OF ROOF FRAMING IS USED).
- ☐ ALL FLASHING PERTAINING TO THE METHODS AND MATERIALS USED TO CONSTRUCT THE ROOF AND CHIMNEY TO BE COPPER FLASHING.
- ☐ ROOF COVERING TO BE:
- ☐ OVERHANGS TO BE:
  EAVES: UNLESS OTHERWISE NOTED
  RAKE: UNLESS OTHERWISE NOTED
  (SEE DETAILS FOR CLARIFICATIONS). OVERHANGS LISTED ABOVE ARE TYPICAL PER ELEVATION, UNLESS OTHERWISE NOTED AT SPECIAL CONDITIONS.
- ☐ COMBINE AND GROUP PLUMBING VENTS WHENEVER POSSIBLE TO MINIMIZE ROOF PENETRATIONS. FOR FLASHING AT ROOF PENETRATIONS (I.E. "B" VENTS), REFER TO DETAIL 12/AD-2 FOR TYPICAL ROOF PENETRATION FLASHING INFORMATION.
- ☐ ATTIC VENTILATION.

NUMBERED NOTES

LEGEND

- LINE OF SECOND FLOOR BUILDING
- EXTENT OF SECOND FLOOR
- LINE OF FIRST FLOOR BUILDING
- EXTENT OF FIRST FLOOR

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PLANNING SET

PLAN CHECK 00/00/19

ROOF PLAN

PLAN 9C eA19009

PLAN 9 / LOT 9

A9-3

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WEST ELEVATION
(RIGHT SIDE)

LINE OF LOWEST GRADE FROM LOWER OF EXISTING AND PROPOSED GRADES

LINE OF EXISTING GRADE

LINE OF 22'-0" HEIGHT TO TOP OF ROOF FINISH AT EXTERIOR WALL FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)

LINE OF 26'-0" MAXIMUM BUILDING HEIGHT FROM LOWER OF EXISTING AND PROPOSED GRADES (PER EMC 30.16.010B6)



Verona Outdoor Wall Sconce No. BFCD683
by Troy Lighting

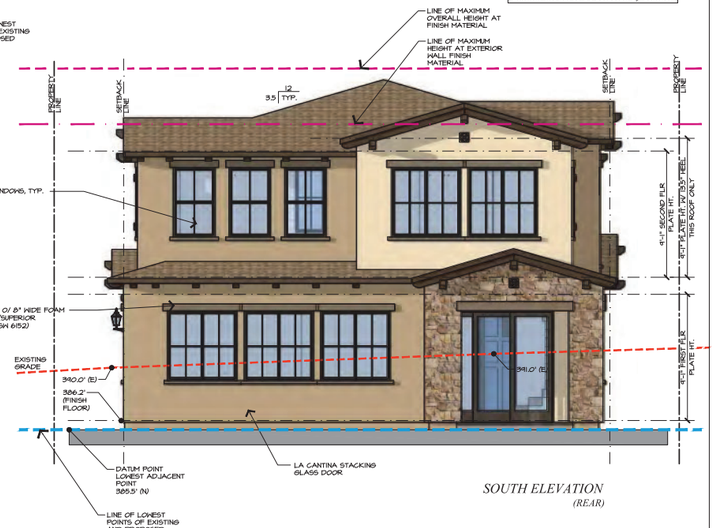
Details

A cross between Victorian and early American design, the Troy Lighting Verona Outdoor Wall Sconce No. BFCD683 gives exteriors a regal, decorated flair with its curling metalwork and frosted beveled glass.

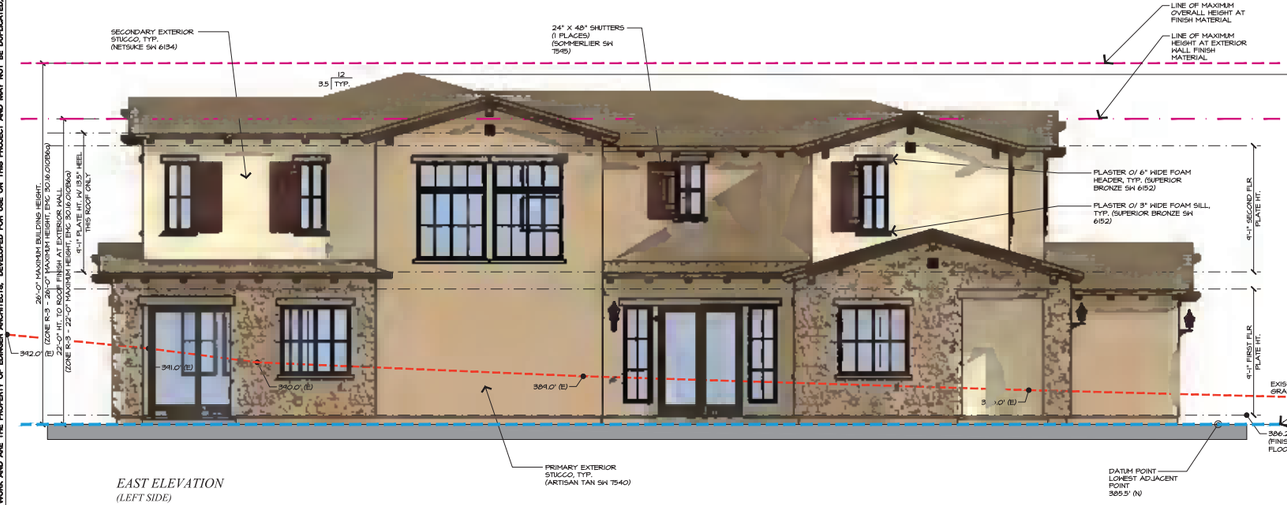
The Verona Outdoor Wall Sconce No. BFCD683 is available with the following:
Details:
Frosted beaded glass shade
Cast aluminum construction
Decorative wall plate
Glass Type: Frosted Beaded
Finish: Antique Bronze, Matte Black, Bronze Patina

Dimensions:
Extra Extra Large Outdoor Fixture | Height: 43.5" | Top to Center: 11.5" | Width: 13" | Depth: 13"
Extra Large Outdoor Fixture | Height: 35" | Top to Center: 21" | Width: 10" | Depth: 13"
Large Outdoor Fixture | Height: 26" | Top to Center: 13" | Width: 11.5" | Depth: 15"

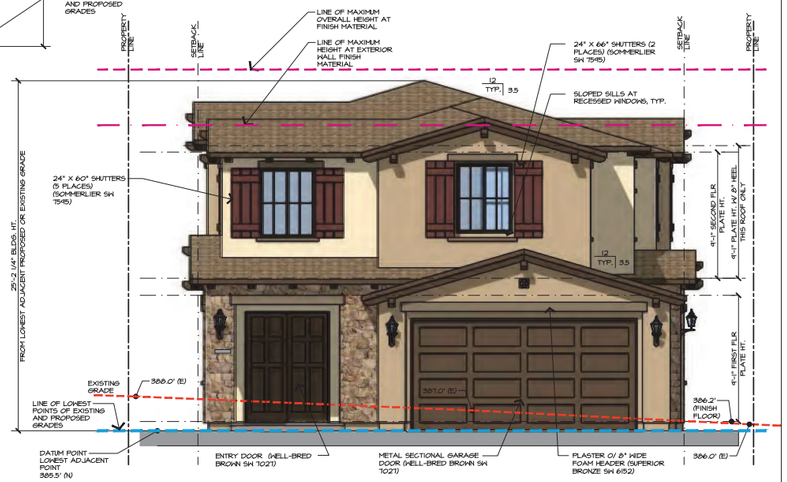
Proposed Decorative wall coach lighting, Down light only to avoid any up-lighting of neighborhood, Typical Similar model to be selected by builder



SOUTH ELEVATION
(REAR)



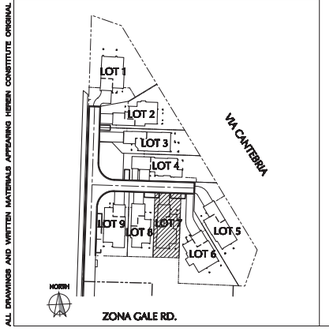
EAST ELEVATION
(LEFT SIDE)



PLAN 9C - TUSCAN
COLOR SCHEME 9

NORTH ELEVATION
(FRONT)

SITE MAP



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PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR ELEV. 'C' TUSCAN

PLAN 9C eA19009

PLAN 9 / LOT 9

A9-5

9/22/21 • 9/22/21

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SOUTHWEST PERSPECTIVE



SOUTHEAST PERSPECTIVE



NORTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE
PLAN 9C - TUSCAN

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ZONA GALE ESTATES
ASPEN GROWTH PROPERTIES - ENCINITAS, CA.

PLANNING SET

PLAN CHECK 00/00/19

EXTERIOR RENDERINGS
ELEV. "C"
TUSCAN

PLAN 9C eA19009

PLAN 9 / LOT 9

A9-6

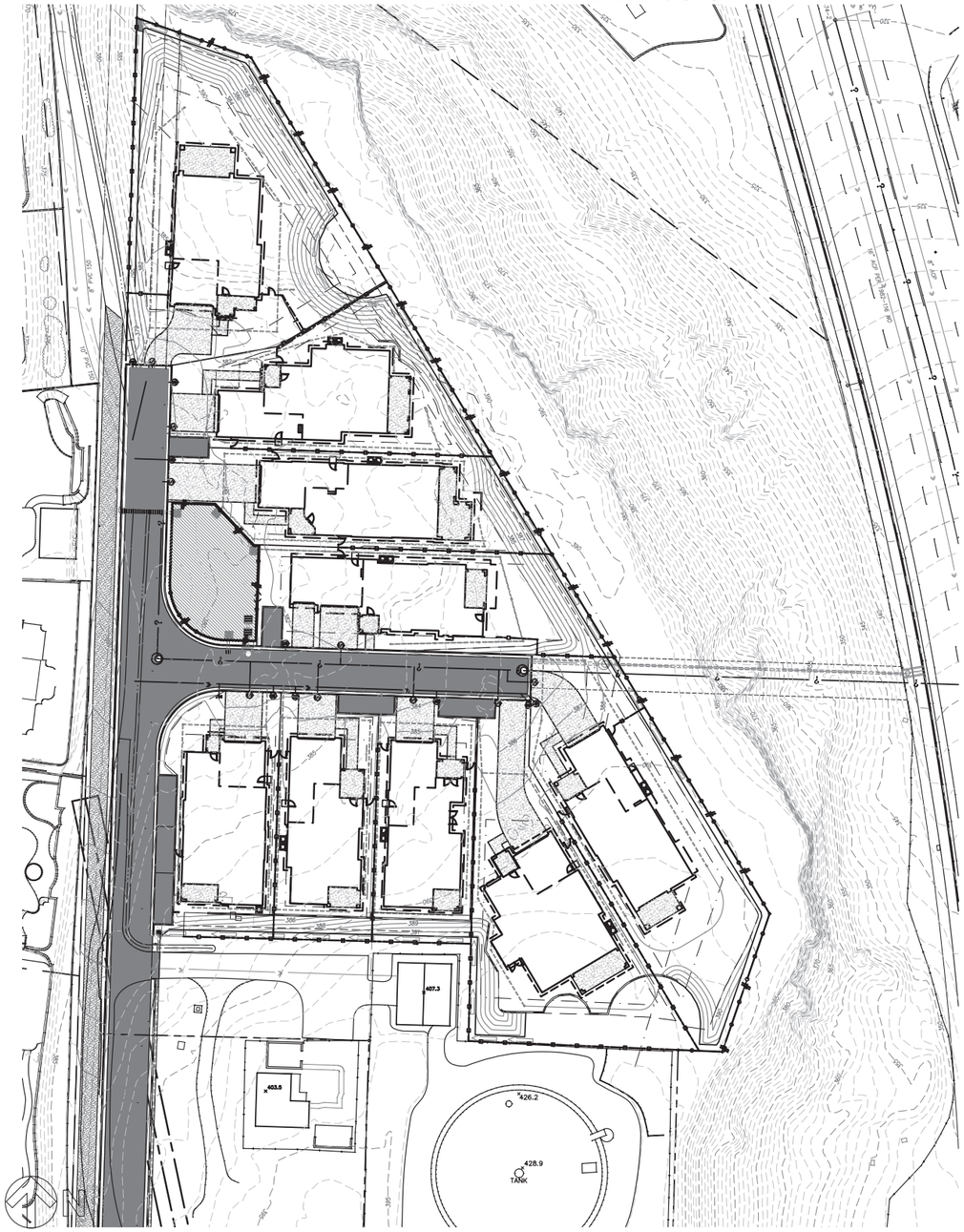
9/22/21 • 9/22/21

LANDSCAPE ARCHITECTURAL PLANS FOR:

ZONA GALE, OLIVENHAIN

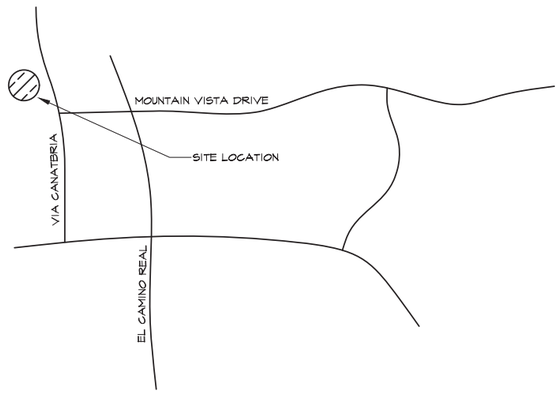
VIA CANTEBRIA, ENCINITAS, CA 92024

APN 257-401-1100



SITE PLAN

SCALE: 1"=30'-0"



VICINITY MAP N

NTS

LANDSCAPE ARCHITECT OBSERVATION REQUIREMENTS.

1. ALL LANDSCAPE PROJECTS WILL REQUIRE THE FOLLOWING CERTIFICATIONS BE PROREVIEW PROJECT SUBMITTALS FOR CONFORMANCE WITH APPROVED PLANS AND PROVIDE A COPY OF THE APPROVED SUBMITTAL TO THE HOA FOR THEIR REVIEW AND RECORDS.
2. DRAINAGE HAS BEEN INSTALLED PER PLAN
3. PROVIDE A WRITTEN REVIEW OF THE IRRIGATION MAIN LINE PRESSURE TEST AND INSTALLED PER PLAN. NOTE THE PIPE DEPTH 18" FOR PRESSURE MAINLINE, 12" FOR LATERAL LINES, AND 2"-3" FOR DRIP IN-LINE TUBING.
4. PROVIDE A WRITTEN REVIEW OF THE IRRIGATION COVERAGE TEST
5. PROVIDE A WRITTEN REVIEW OF THE PLANT MATERIAL INSPECTION ON-SITE UPON DELIVERY, AND VERIFY PLANT LOCATIONS IN FIELD.
6. PROVIDE A WRITTEN REVIEW THAT THE INSTALLATION IS IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED PLANS.
7. PREPARE AN AS-BUILT PLAN OF ANY CHANGES AND PROVIDE THE OWNER AND HOA A COPY OF THE IRRIGATION DEPICTING AS-BUILT LOCATIONS OF THE MAINLINE AND REMOTE-CONTROL VALVES BY DIMENSIONS FROM KNOWN SITE ELEMENTS.

ALL CERTIFICATIONS WILL BE PROVIDED IN LETTER FORM. THESE OBSERVATION REQUIREMENTS SHOULD BE BUDGETED FOR AND SHOWN AS A SEPARATE LINE ITEM ON CONTRACTS WITH LANDSCAPE ARCHITECTS.

LANDSCAPE CONTRACTOR SHALL FOLLOW APPROVED PLANS FOR CONSTRUCTION. ANY DEVIATIONS FROM APPROVED PLANS SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT OF RECORD FOR REVIEW AND APPROVED PRIOR TO CONSTRUCTION

PROJECT NOTES:

GENERAL:

- REFER TO ARCHITECTURAL SITE PLAN IS FOR BUILDING IDENTIFICATION AND INFORMATION ONLY.
- IN THE EVENT OF A CONFLICT BETWEEN LANDSCAPE PLANS AND ARCHITECTURAL PLANS, LANDSCAPE PLANS SHALL TAKE PRECEDENCE FOR SITE DRAINAGE.
- ALL LANDSCAPE AND IRRIGATION SHALL CONFORM TO THE STANDARDS OF THE COUNTY-WIDE LANDSCAPE REGULATIONS AND THE CITY OF ENCINITAS LAND DEVELOPMENT MANUAL LANDSCAPE STANDARDS AND ALL OTHER LANDSCAPE RELATED CITY AND REGIONAL STANDARDS.

PLANTING:

- A MINIMUM OF 3" OF TOP DRESS MULCH WILL BE APPLIED TO ALL EXPOSED SOIL SURFACE EXCLUDING TURF AREAS.
- SPACING OF SLOPE SHRUBS AND GROUND COVERS SHALL BE ADEQUATE FOR EROSION CONTROL. REFER TO PLANTING LEGEND. REINFORCED STRAW MATTING WILL BE INSTALLED ON ALL SLOPES 3:1 OR GREATER.
- ALL EXISTING TREES SHOWN ON PLAN ARE OFF-SITE.

PROJECT INFO:

OWNER: X

LANDSCAPE ARCHITECT:
JPBLA
4403 MANCHESTER AVE, STE 201
ENCINITAS,CA 92024
760-479-0644

CIVIL ENGINEER:
PSLA
535 NORTH HIGHWAY 101, STE A
SOLANA BEACH CA 92075
858-259-8212

ARCHITECT:
EDINGER ARCHITECTS
444 S CEDROS AVE #125
SOLANA BEACH, CA 92075
858-704-4004

SHEET INDEX:

TITLE SHEET	LC-1
LANDSCAPE CONCEPT PLANTING PLAN	LC-2
LANDSCAPE CONCEPT LEGEND & NOTES	LC-3
IRRIGATION WATER CALCULATIONS	LC-4
WALL, FENCING AND MATERIALS PLAN	LC-5

DECLARATION OF RESPONSIBLE CHARGE

I AM FAMILIAR WITH THE REQUIREMENTS FOR LANDSCAPE AND IRRIGATION PLANS CONTAINED IN THE CITY OF ENCINITAS WATER EFFICIENT LANDSCAPE REGULATIONS. I HAVE PREPARED THIS PLAN IN COMPLIANCE WITH THOSE REGULATIONS AND THE LANDSCAPE DESIGN MANUAL. I CERTIFY THAT THE PLAN IMPLEMENTS THOSE REGULATIONS TO PROVIDE EFFICIENT USE OF WATER. UNDER PENALTY OF PERJURY, I AFFIRM THAT THE FOREGOING IS TRUE AND CORRECT.

06-12-19

James P. Benedetti — DATE
Landscape Architect
4403 MANCHESTER AVE. STE. 201
ENCINITAS, CA 92024
760.479.0644

ROOT BARRIER NOTE:

ALL TREES PLANTED WITHIN 5' OF ANY CURB, WALL, HARDSCAPE ELEMENT, BUILDING, FIRE HYDRANT, UTILITY VAULT, OR LIGHT FIXTURE SHALL RECEIVE A 10' LENGTH OF 19.5" DEEP ROOT BARRIER. NO ROOT BARRIER SHALL ENCIRCLE THE ROOT BALL.

Underground Service Alert
Call: TOLL FREE 1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG
"CAUTION": Remember that the USA Center notifies only those utilities belonging to the center. There could be other utilities present at the work site. The center will inform you of whom they will notify.

JAMES P. BENEDETTI
LANDSCAPE ARCHITECT
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ENCINITAS, CA 92024
760/479-0644 FAX 760/479-0645

JPBLA

REGISTERED LANDSCAPE ARCHITECT JAMES P. BENEDETTI
Signature
Ren Date 9/30/20
Date 05/15/20
STATE OF CALIFORNIA

All ideas, designs, and arrangements indicated on these drawings are the property of the Landscape Architect to be used in connection with this specific project only and shall not otherwise be used without permission in writing from the landscape architect. There shall be no changes or deviations from these drawings or the accompanying specifications without the written consent of the landscape architect.

ZONA GALE OLIVENHAIN
0 VIA CANEBRIA
ENCINITAS, CA 92024
APN # 257-401-1100

SUBMITTALS

1-CITY	05/18/20

REVISIONS

A	xx/xx/xx

Phase:

Date: 10/13/21

Reviewed by: JPB

Drawn: JA

Job No.: 2019-15

Sheet Title: TITLE PAGE

Sheet: LC-1

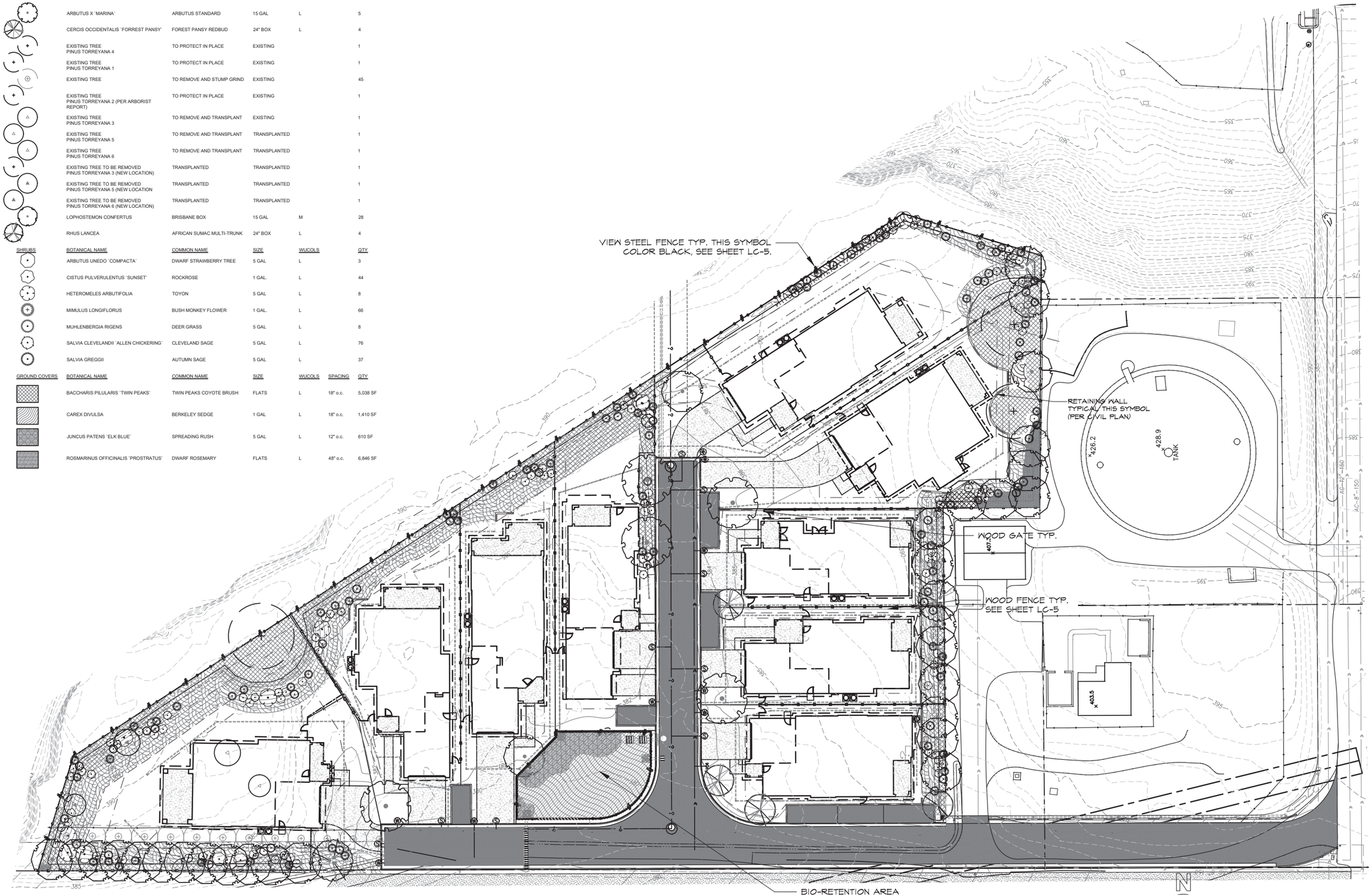
Of 5 Sheets

PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	SIZE	WUCOLS		QTY
	ARBUTUS X 'MARINA'	ARBUTUS STANDARD	15 GAL	L		5
	CERCIS OCCIDENTALIS 'FORREST PANSY'	FOREST PANSY REDBUD	24" BOX	L		4
	EXISTING TREE PINUS TORREYANA 4	TO PROTECT IN PLACE	EXISTING			1
	EXISTING TREE PINUS TORREYANA 1	TO PROTECT IN PLACE	EXISTING			1
	EXISTING TREE	TO REMOVE AND STUMP GRIND	EXISTING			45
	EXISTING TREE PINUS TORREYANA 2 (PER ARBORIST REPORT)	TO PROTECT IN PLACE	EXISTING			1
	EXISTING TREE PINUS TORREYANA 3	TO REMOVE AND TRANSPLANT	EXISTING			1
	EXISTING TREE PINUS TORREYANA 5	TO REMOVE AND TRANSPLANT	TRANSPLANTED			1
	EXISTING TREE PINUS TORREYANA 6	TO REMOVE AND TRANSPLANT	TRANSPLANTED			1
	EXISTING TREE TO BE REMOVED PINUS TORREYANA 3 (NEW LOCATION)	TRANSPLANTED	TRANSPLANTED			1
	EXISTING TREE TO BE REMOVED PINUS TORREYANA 5 (NEW LOCATION	TRANSPLANTED	TRANSPLANTED			1
	EXISTING TREE TO BE REMOVED PINUS TORREYANA 6 (NEW LOCATION)	TRANSPLANTED	TRANSPLANTED			1
	LOPHOSTEMON CONFERTUS	BRISBANE BOX	15 GAL	M		28
	RHUS LANCEA	AFRICAN SUMAC MULTI-TRUNK	24" BOX	L		4

SHRUBS	BOTANICAL NAME	COMMON NAME	SIZE	WUCOLS		QTY
	ARBUTUS UNEDO `COMPACTA`	DWARF STRAWBERRY TREE	5 GAL	L		3
	CISTUS PULVERULENTUS `SUNSET`	ROCKROSE	1 GAL.	L		44
	HETEROMELES ARBUTIFOLIA	TOYON	5 GAL	L		8
	MIMULUS LONGIFLORUS	BUSH MONKEY FLOWER	1 GAL.	L		66
	MUHLENBERGIA RIGENS	DEER GRASS	5 GAL	L		8
	SALVIA CLEVELANDII `ALLEN CHICKERING`	CLEVELAND SAGE	5 GAL	L		76
	SALVIA GREGGII	AUTUMN SAGE	5 GAL	L		37

GROUND COVERS	BOTANICAL NAME	COMMON NAME	SIZE	WUCOLS	SPACING	QTY
	BACCHARIS PILULARIS `TWIN PEAKS`	TWIN PEAKS COYOTE BRUSH	FLATS	L	18" o.c.	5,038 SF
	CAREX DIVULSA	BERKELEY SEDGE	1 GAL	L	18" o.c.	1,410 SF
	JUNCUS PATENS `ELK BLUE`	SPREADING RUSH	5 GAL	L	12" o.c.	610 SF
	ROSMARINUS OFFICINALIS `PROSTRATUS`	DWARF ROSEMARY	FLATS	L	48" o.c.	6,846 SF



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JPBLA

JAMES P. BENEDETTI LANDSCAPE ARCHITECT
Signature
Ren Date 9/30/20
Date 05/15/20
STATE OF CALIFORNIA

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ZONA GALE OLIVENHAIN
0 VIA CANEBRIA
ENCINITAS, CA 92024
APN # 257-401-1100

SUBMITTALS

1-CITY	05/18/20

REVISIONS

A	xx/xx/xx

Phase:	
Date:	10/13/21
Reviewed by:	JPB
Drawn:	JA
Job No.:	2019-15

Sheet Title: LANDSCAPE CONCEPT PLAN

Sheet: LC-2
Of 5 Sheets

MONTHLY AVERAGE REFERENCE EVAPOTRANSPIRATION

INCHES PER MONTH

MONTH	ETo
JANUARY	1.83
FEBRUARY	2.20
MARCH	3.42
APRIL	4.49
MAY	5.25
JUNE	5.67
JULY	5.86
AUGUST	5.61
SEPTEMBER	4.49
OCTOBER	3.42
NOVEMEBER	2.36
DECEMBER	1.83

INCHES PER DAY

MONTH	ETo
JANUARY	0.06
FEBRUARY	0.08
MARCH	0.11
APRIL	0.15
MAY	0.17
JUNE	0.19
JULY	0.19
AUGUST	0.18
SEPTEMBER	0.15
OCTOBER	0.11
NOVEMEBER	0.08
DECEMBER	0.06

ANNUAL ETO: 46.4 DATA SOURCE: THE CITY OF SOLANA BEACH AND CALIFORNIA IRRIGATION MANAGEMENT INFORMATION SYSTEMS (CIMIS: TORREY PINES STATION #173, ETO ZONE 1)

6 MONTH ESTABLISHMENT IRRIGATION SCHEDULE

DAILY RUN TIMES 3-5 DAYS A WEEK

MONTH	MINUTES DRIP	MINUTES ROTORS	MINUTES BUBBLERS
JANUARY	5	9.5	10
FEBRUARY	7	12.5	11
MARCH	8	15	15
APRIL	8	16.5	16.0
MAY	15	21.5	22
JUNE	15	21.5	22
JULY	15	20.5	21
AUGUST	15	20.5	21
SEPTEMBER	9	19	19
OCTOBER	7	15	15
NOVEMEBER	2	2	5
DECEMBER	2	2	5

NOTES:
1. AN ET CONTROLLER SHALL BE INSTALLED FOR THIS PROJECT AND THE CONTRACTOR SHALL INSTALL PER MANUFACTURER. THIS INFORMATION IS PROVIDED FOR REFERENCE ONLY.
2. NO OVERHEAD IRRIGATION SHALL BE USED BETWEEN THE HOURS OF 8:00 AM AND 6:00 PM

MATURE LANDSCAPE IRRIGATION SCHEDULE

DAILY RUN TIMES 3-5 DAYS A WEEK

MONTH	MINUTES DRIP	MINUTES ROTORS	MINUTES BUBBLERS
JANUARY	3	9	8
FEBFRUARY	3.5	12	10
MARCH	4.5	14.5	12
APRIL	5	16	13
MAY	6.5	21	14
JUNE	6.5	21	15
JULY	6.5	20	15
AUGUST	6.5	20	15
SEPTEMBER	5.5	18.5	14
OCTOBER	4.5	14.5	13
NOVEMEBER	1	1.5	3
DECEMBER	1	1.5	3

SOILS MANAGEMENT REPORT:

SOIL ANALYSIS
THE TEXTURE OF THE SOIL IS CLASSIFIED AS CLAYEY SAND. THE SMALL CLAY PARTICLES OF THE SOIL CAUSES IT TO CONSOLIDATE AND COMPACT, RESULTING IN A MODERATE TO SLOW SOIL INFILTRATION RATE. ADDITIONAL FACTORS SUCH AS, COMPACTION DUE TO SITE GRADING, MAY FURTHER SLOW THE ACTUAL SOIL INFILTRATION RATE. THE SOIL IS STRONGLY ALKALINE AT 9.1 ON THE PH SCALE, WHICH, IF NOT AMENDED, COULD CAUSE A BROAD RANGE OF PLANTS TO SHOW SYMPTOMS OF ALKALINITY, INCLUDING CHLOROSIS. THE TOTAL SOLUBLE SALTS IS SAFELY LOW AT 2.60 DS/M (MEASURED BY THE ECE). THE SODIUM LEVEL OF THE SOIL IS 10.7 MEQ/LITER. THE ORGANIC CONTENT OF THE SOIL IS LOW AT 0.5 OF THE TOTAL SAMPLE BY DRY WEIGHT.

RECOMMENDED SOIL AMENDMENTS
APPLY IN LBS PER ACRE

NITROGEN = 70	MANGANESE = 20	ZINC = 0
POTASSIUM (K20) = 250	BORON = 1	IRON = 0
SULFUR = 0	PHOSPHORUS (P205) = 70	COPPER = 0

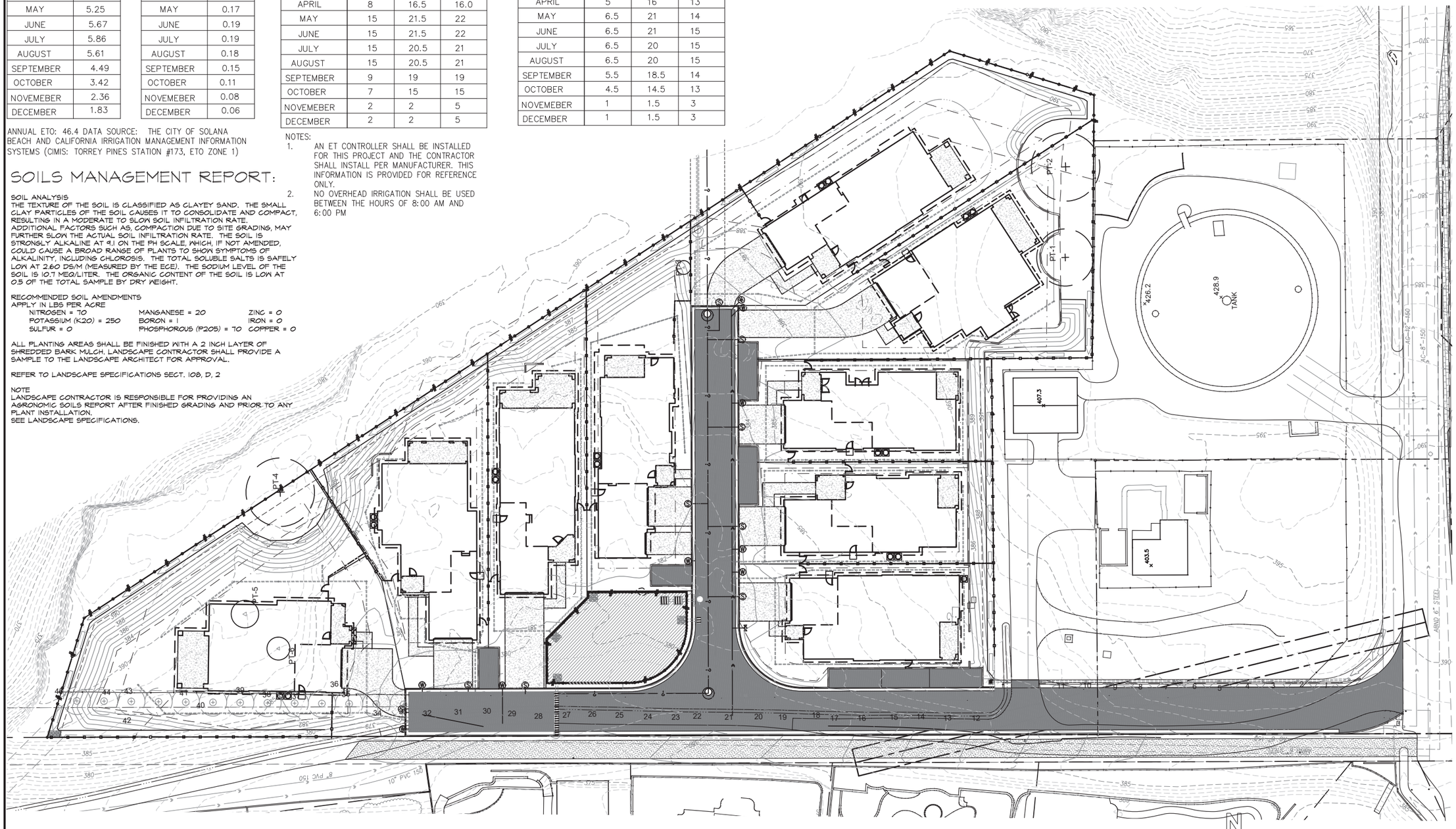
ALL PLANTING AREAS SHALL BE FINISHED WITH A 2 INCH LAYER OF SHREDDED BARK MULCH. LANDSCAPE CONTRACTOR SHALL PROVIDE A SAMPLE TO THE LANDSCAPE ARCHITECT FOR APPROVAL.

REFER TO LANDSCAPE SPECIFICATIONS SECT. 108, D, 2

NOTE
LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN AGRONOMIC SOILS REPORT AFTER FINISHED GRADING AND PRIOR TO ANY PLANT INSTALLATION.
SEE LANDSCAPE SPECIFICATIONS.

EXISTING_PLANT_SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	DBH	HEIGHT	SPREAD	REMOVED/NOT REMOVED
1-45	LOPHOSTEMON CONFERTUS/ BRISBANE BOX	4"-6	20'	10'	REMOVE AND STUMP GRIND
PT-1	PINUS TORREYANA / TORREY PINE	8.5"	24'	30'	PROTECT IN PLACE
PT-2	PINUS TORREYANA / TORREY PINE	10.5"	20'	25'	PROTECT IN PLACE
PT-3	PINUS TORREYANA / TORREY PINE	1"	6'	6'	REMOVE, BOX AND TRANSPLANT
PT-4	PINUS TORREYANA / TORREY PINE	12"	18'	30'	PROTECT IN PLACE
PT-5	PINUS TORREYANA / TORREY PINE	5"	15'	12'	REMOVE, BOX AND TRANSPLANT
PT-6	PINUS TORREYANA / TORREY PINE	3.7"	16'	10'	REMOVE, BOX AND TRANSPLANT



N

30 15 0 30 60 90

SCALE: 1"=30'-0"

ROOT BARRIER NOTE:

ALL TREES PLANTED WITHIN 5' OF ANY CURB, WALL, HARDSCAPE ELEMENT, BUILDING, FIRE HYDRANT, UTILITY VAULT, OR LIGHT FIXTURE SHALL RECEIVE A 10' LENGTH OF 19.5" DEEP ROOT BARRIER. NO ROOT BARRIER SHALL ENCIRCLE THE ROOT BALL.

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JAMES P. BENEDETTI
LANDSCAPE ARCHITECT
4403 MANCHESTER AVE., SUITE 201
ENCINITAS, CA 92024
760/479-0644 FAX 760/479-0645

JPBLA

JAMES P. BENEDETTI LANDSCAPE ARCHITECT
Signature
Ren Date 3/30/20
Date 05/15/20
STATE OF CALIFORNIA

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ZONA GALE OLIVENHAIN
0 VIA CANEBRIA
ENCINITAS, CA 92024
APN # 257-401-1100

SUBMITTALS

1-CITY	05/18/20

REVISIONS

A	xx/xx/xx

Phase:

Date: 10/13/21

Reviewed by: JPB

Drawn: JA

Job No.: 2019-15

Sheet Title: EXISTING TREE PLAN

Sheet: LC-3

Of 5 Sheets

Landscape Documentation Package
Water Efficient Landscape Worksheet

CITY OF ENCINITAS
DEVELOPMENT SERVICES DEPARTMENT
505 South Vulcan Avenue
Encinitas, California 92024
(760) 633-2710

PROJECT ADDRESS: ZONA GALE OLIVENHAIN **APN:** 257-401-1100

PLANNING CASE NO.: _____

BUILDING PLANCHECK NO.: _____ **GRADING PLANCHECK NO.:** _____

APPLICANT NAME: JIM BENEDETTI **TELE. NO.:** 7604790644

TITLE: LANDSCAPE ARCHITECT **FAX NO.:** _____

COMPANY: JPBLA INC. **EMAIL:** JIM@JPBLA.COM

ADDRESS: 4403 MANCHESTER AVE

CITY: ENCINITAS **STATE:** CA **ZIP CODE:** 92024

Complete all portions of this worksheet and submit with the Landscape Documentation Package for the project. The Water Efficient Landscape Worksheet must be prepared, signed, and stamped by a California-licensed civil engineer, architect, or landscape architect. A landscape contractor may prepare the Water Efficient Landscape Worksheet if the landscaping is for the homeowner of a single-family residential project.

I.	Hydrozone Information Table	p. 2
II.	Maximum Applied Water Allowance Calculation	p. 3
III.	Estimated Total Water Use Calculation	p. 4

(City Use)

Date Received (stamp) By: _____

I. Hydrozone Information Table

Complete a hydrozone information table for each irrigation point of connection. Use as many tables as necessary to provide information on the total landscaped area. All references in this worksheet must correspond to equivalent references in the irrigation plan (controller number, hydrozone number, valve circuit number, etc.).

Irrigation Point of Connection (POC) No. _____

A	B	C	D	E	F	G	H	I	J
Controller No.	Hydrozone No.	Valve Circuit No.	Irrigation Method (Code)	Plant Factor (average) (PF)	Hydrozone Area (HA) (sq. ft.)	% of Total Landscaped Area	PF x HA	IE	(PF x HA) / IE
A	1		D	0.3	311	2	93.3	0.8	116.6
A	2		R	0.3	13,958	90	4,187.4	0.7	5,982
A	3		D	0.3	1,125	8	337.5	0.8	421.9
		TOTAL			13,394				6,529.5
						100%			

Hydrozone Category	PF – Plant Factor (average)
High Water Use	0.8
Moderate Water Use	0.5
Low Water Use	0.3
Very Low Water Use	0.1
Special Landscaped Area	1.0

Irrigation Method Code	IE – Irrigation Efficiency*
S = Spray	0.55
R = Rotor	0.70
D = Drip	0.80

- Hydrozone Category is based on the feature or plant within the hydrozone with the highest plant factor.
- Artificial turf is considered a low water use.
- * *Turf and Landscape Irrigation Best Management Practices*, April 2005, Water Management Committee of the Irrigation Association.

II. Maximum Applied Water Allowance (MAWA) Calculations

The project's Maximum Applied Water Allowance shall be calculated using this equation:

MAWA = (ETo)(0.62)[0.55 x LA + 0.45 x SLA]

Where:

MAWA = Maximum Applied Water Allowance in gallons per year.

ETo = Evapctranspiration in inches per year; for Encinitas ETo = 42.9 inches.

0.62 = Conversion factor to gallons per square foot.

0.55 = ET adjustment factor for plant factors and irrigation efficiency.

LA = Landscaped area includes special landscaped area in square feet.

0.45 = the additional ET adjustment factor for a special landscaped area (1.0 - 0.55 = 0.45)

SLA = Portion of the landscaped area identified as a special landscaped area in square feet.

Show values:

LA = 12,218 square feet (Total from Column F of project Hydrozone Table)

SLA = 0 square feet

Show calculation:

MAWA A = (42.9)(0.62)(0.55 X 15,394)
= 26.59X8,466.7
= 225,129.5

Maximum Applied Water Allowance = 178,685 **gallons per year**

III. Estimated Total Water Use (ETWU) Calculations

The project's Estimated Total Water Use for each landscaped area and the entire project using the following equation:

ETWU = (ETo)(0.62)(PF x HA / IE + SLA)

Where:

ETWU = Estimated total water use in gallons per year.

ETo = Evapotranspiration in inches per year, for Encinitas ETo = 42.9 inches.

0.62 = Conversion factor to gallons per square foot.

PF = Plant factor from WUCOLS

HA = Hydrozone Area in square feet. Each HA shall be classified based upon the data included in the landscape and irrigation plan as high, medium or low water use.

IE = Irrigation Efficiency of the irrigation method used in the hydrozone.

SLA = Special landscaped area in square feet.

Show calculation:

ETWU A = (42.9)(0.62)(6,520.5)
= 26.59 X 6,520.0
= 173,432.3

Estimated Total Water Use = 173,432.3 **gallons per year**

Signature

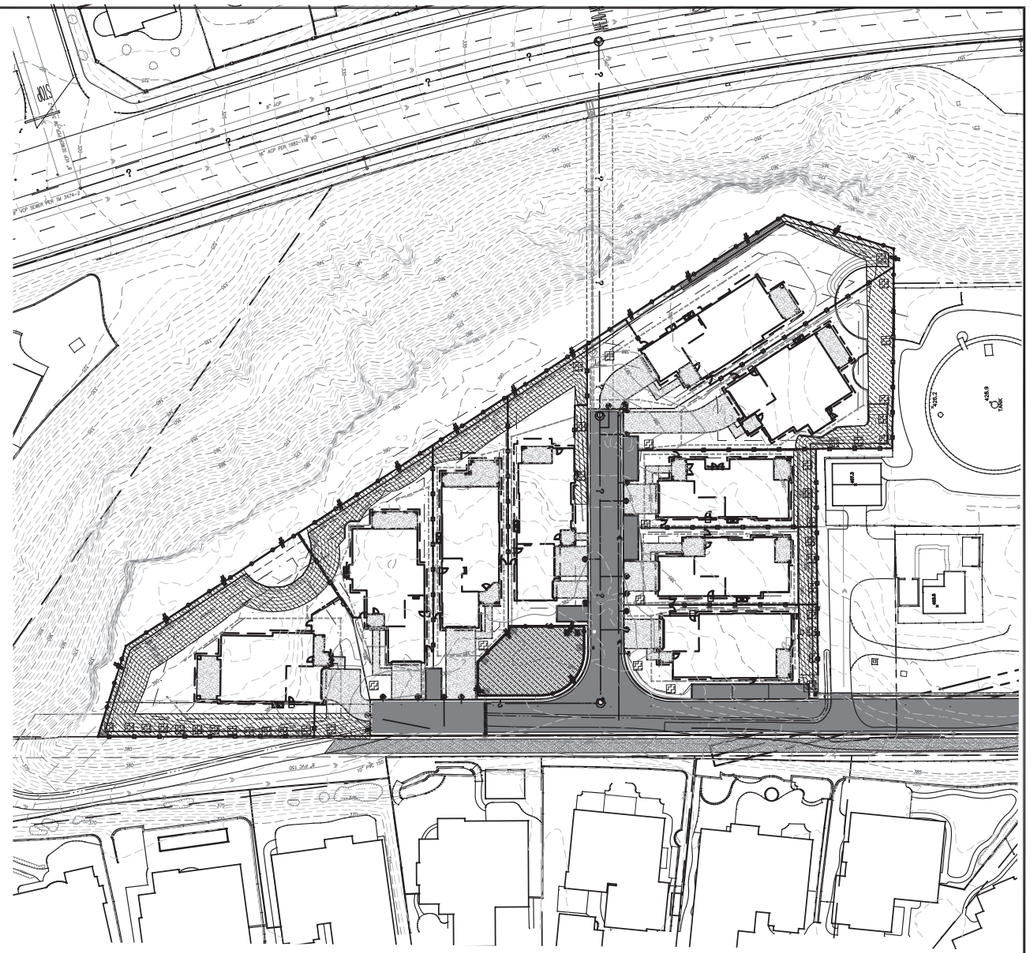
5-17-2020
Date

JIM BENEDETTI
Name

CA #3058
License No.

9/30/2020
Renewal Date

Stamp



HYDROZONE PLAN

LEGEND

1 HYDROZONE ONE: DRIP (LOW WATER USE)
(311 SF, 2% OF TOTAL LANDSCAPE AREA)

2 HYDROZONE FOUR: MP ROTATOR (LOW WATER-USE)
(13,958 SF, 90% OF TOTAL LANDSCAPE AREA)

3 HYDROZONE SEVEN: BUBBLERS (LOW WATER-USE)
(1,125 SF, 8% OF TOTAL LANDSCAPE AREA)

TOTAL AREA 15,394 SF

IRRIGATION NOTES:

1. AN ET CONTROLLER SHALL BE INSTALLED FOR THIS PROJECT AND THE CONTRACTOR SHALL INSTALL PER MANUFACTURER. THIS INFORMATION IS PROVIDED FOR REFERENCE ONLY.
2. NO OVERHEAD IRRIGATION SHALL BE USED BETWEEN THE HOURS OF 8:00 AM AND 6:00 PM
3. ANY SLOPE OVER 25% WILL BE IRRIGATED WITH A PRECIPITATION RATE OF .75 INCHES PER HOUSE OR LESS TO PREVENT RUNOFF AND EROSION.
4. IRRIGATION PIPING AND IRRIGATION DEVICES SHALL BE INSTALLED BELOW GRADE IF THEY ARE WITHIN 24 INCHES OF AN IMPERMEABLE SURFACE UNLESS THE IMPERMEABLE SURFACE DESIGN CAN BE CONSTRUCTED TO CAUSE WATER TO DRAIN ENTIRELY INTO A LANDSCAPE AREA.

N

40 20 0 40 80 120
SCALE: 1"=40'-0"

ROOT BARRIER NOTE:

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Signature
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Date 05/15/20
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SUBMITTALS

1-CITY 05/18/20

REVISIONS

A xx/xx/xx

Phase:

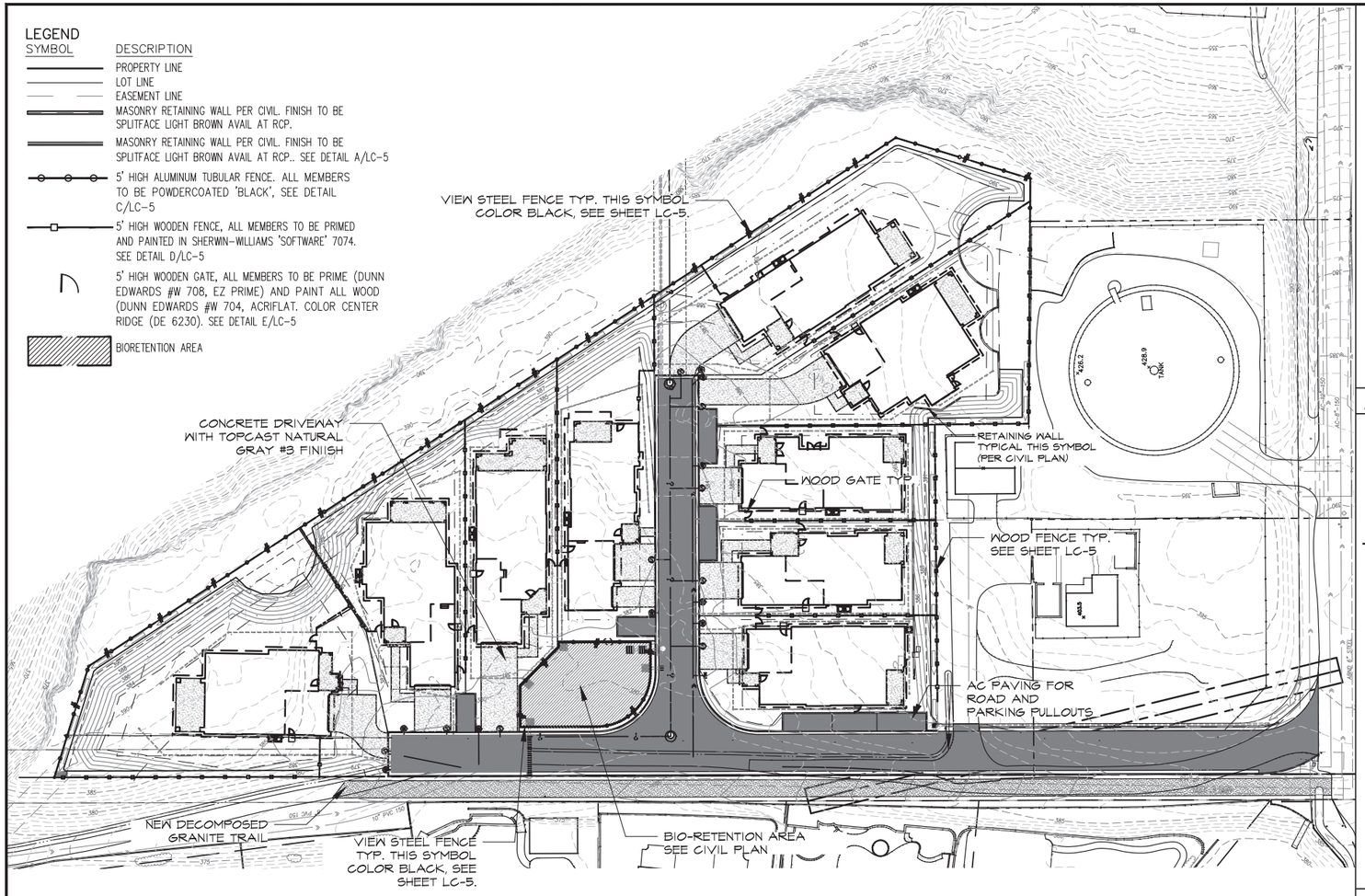
Date: 10/13/21
Reviewed by: JPB
Drawn: JA
Job No.: 2019-15

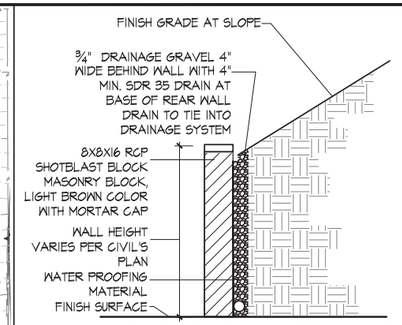
Sheet Title: IRRIGATION WATER CALCULATIONS

Sheet: LC-4
Of 5 Sheets

LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE
	LOT LINE
	EASEMENT LINE
	MASONRY RETAINING WALL PER CIVIL. FINISH TO BE SPLITFACE LIGHT BROWN AVAIL AT RCP.
	MASONRY RETAINING WALL PER CIVIL. FINISH TO BE SPLITFACE LIGHT BROWN AVAIL AT RCP.. SEE DETAIL A/LC-5
	5' HIGH ALUMINUM TUBULAR FENCE. ALL MEMBERS TO BE POWDERCOATED 'BLACK', SEE DETAIL C/LC-5
	5' HIGH WOODEN FENCE, ALL MEMBERS TO BE PRIMED AND PAINTED IN SHERWIN-WILLIAMS 'SOFTWARE' 7074. SEE DETAIL D/LC-5
	5' HIGH WOODEN GATE, ALL MEMBERS TO BE PRIME (DUNN EDWARDS #W 708, EZ PRIME) AND PAINT ALL WOOD (DUNN EDWARDS #W 704, ACRIFLAT. COLOR CENTER RIDGE (DE 6230). SEE DETAIL E/LC-5
	BIORETENTION AREA

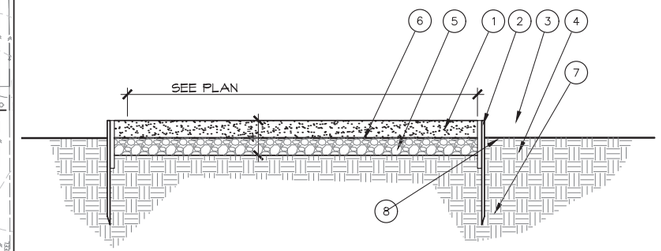




MASONRY WALL WITH STUCCO FINISH LIGHT BROWN

NOTE:
BLOCK WALL MATERIAL 8X8X16 RCP SHOTBLAST BLOCK (OR APPROVED EQUAL) LIGHT BROWN COLOR

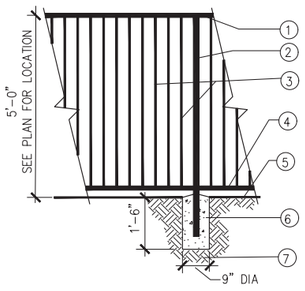
A MASONRY RETAINING WALL N.T.S.



DETAIL LEGEND

1. STABILIZED DECOMPOSED GRANITE, 2" DEPTH. SEE PLAN FOR COLOR & SIZE
2. 2X4 BEND A BOARD HEADER
3. FINISH GRADE, 2" BELOW TOP OF HEADER
4. COMPACTED SUBGRADE
5. COMPACTED CLASS 2 BASE
6. FILTER FABRIC
7. SYNTHETIC BENDER BOARD STAKE OR EQUIVALENT
8. STAINLESS STEEL SCREW CONNECTING STAKE AND BENDER BOARD, SCREW IN ALL STAKES

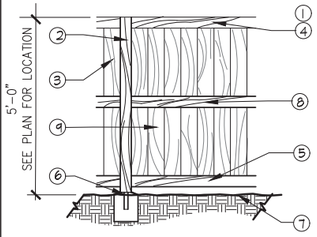
B DECOMPOSED GRANITE PAVING N.T.S.



1. 2"X1-½" TUBULAR ALUMINUM TOP RAIL
2. 2" SQ. TUBULAR ALUMINUM POSTS @ 8' O.C. MAX.
3. 5/8" SQ. PICKETS @ 4-1/2" O.C.
4. 2"X 1-1/2" TUBULAR ALUMINUM BOTTOM RAIL
5. FINISH GRADE
6. CONCRETE FOOTING
7. COMPACTED SUBGRADE

NOTES
- ALL SURFACE WELDS SHALL BE GROUND SMOOTH
- TREAT ALL EXPOSED SURFACES W/ 2 COATS MOISTURE-PROOF PRIMER AND 2 COATS FINISH COLOR IN BLACK POWDER COATED FINISH

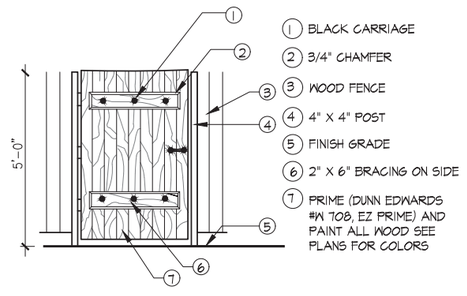
C 5' HIGH ALUMINUM TUBULAR FENCE N.T.S.



1. 1 X 4 TOP RAIL
2. 4 X 4 POST
3. 1 X 5 INFILL BOARD
4. 2 X 4 TOP STRINGER
5. 1 X 4 BOTTOM RAIL
6. SIMPSON STRONG TIE POST ANCHOR TYPICAL AB INSTALLATION TYPE IN 12" ROUND X 18" DEEP CONCRETE FOOTING.
7. FINISH GRADE
8. 1 X 4 MIDRAIL BOARD
9. PRIME (SHERWIN WILLIAMS PRIME) AND PAINT ALL WOOD SEE PLANS FOR COLORS

ALL FENCING ON TOP OF WALLS SHALL NOT EXCEED 6' OVERALL TOTAL HEIGHT

D 5' HIGH WOODEN FENCE N.T.S.



1. BLACK CARRIAGE
2. 3/4" CHAMFER
3. WOOD FENCE
4. 4" X 4" POST
5. FINISH GRADE
6. 2" X 6" BRACING ON SIDE
7. PRIME (DUNN EDWARDS #W 708, EZ PRIME) AND PAINT ALL WOOD SEE PLANS FOR COLORS

E 5' HIGH WOOD GATE N.T.S.

N

30 15 0 30 60 90
SCALE: 1"=30'-0"

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SUBMITTALS

1-CITY	05/18/20

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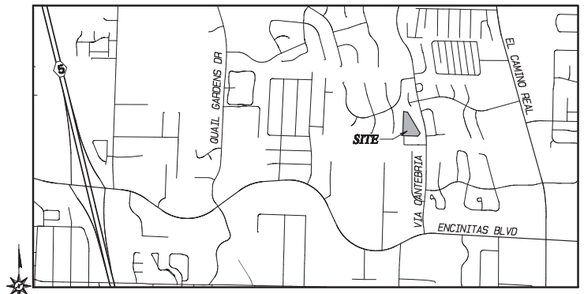
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Phase:	
Date:	10/13/21
Reviewed by:	JPB
Drawn:	JA
Job No.:	2019-15

Sheet Title: WALL, FENCING AND MATERIALS PLAN

Sheet: LC-5
Of 5 Sheets

TENTATIVE MAP
ZONA GALE ESTATES
MULTI-003289-2019



VICINITY MAP
N.T.S.

LEGEND

- SUBDIVISION BOUNDARY
- LOT LINE
- ADJACENT PROPERTY LINE
- LOT NUMBER — LOT 4
- LOT AREA — 5,000 SF
- PROPOSED SETBACKS
- CENTERLINE OF RIGHT-OF-WAY
- EXISTING EASEMENT
- EXISTING SPOT ELEVATION — x100.0
- EXISTING CONTOUR — 100
- EXISTING WATER MAIN — W
- EXISTING SEWER MAIN — S
- EXISTING GAS MAIN — G
- MOD. ROLLED CURB PER SDRSD G-4A
- PROPOSED G-1 CURB
- PROPOSED 0 HT CURB
- PROPOSED CONTOUR — 100
- PROPOSED DRAINAGE DIRECTION
- PROPOSED DRAINAGE SWALE (1% MIN)
- PROPOSED RETAINING WALL PER SDRSD
- PROPOSED RETAINING WALL PER STRUCTURAL
- PROPOSED AC PAVING
- PROPOSED TOP AND BOTTOM OF RETAINING WALL ONLY — TW 102.0 / BW 100.0
- PROPOSED SPOT ELEVATION — FS 100.0
- PROPOSED DG PATH
- D-75 BROW DITCH
- PROPOSED EASEMENT
- STEEP SLOPE SETBACK
- FENCE PER LANDSCAPE
- PROPOSED WATER MAIN — W
- PROPOSED SEWER MAIN — S
- PROPOSED WATER SERVICE — W
- PROPOSED SEWER LATERAL — S
- PROPOSED PCC PAVING
- PROPOSED BIORETENTION BASIN

ABBREVIATIONS

ASSY	ASSEMBLY
BOP	BOTTOM OF PIPE
BWFG	BOTTOM OF WALL AT FINISH GRADE
CB	CATCH BASIN
CGG	CURB & GUTTER
CL	CENTER LINE
EX	EXISTING
FH	FIRE HYDRANT
FL	FLOWLINE
HOA	HOME OWNER'S ASSOCIATION
IE	INVERT ELEVATION
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
OC	ON CENTER
PCC	PORTLAND CEMENT CONCRETE
PVT	PRIVATE
RIM	RIM ELEVATION
RT	RIGHT
ROW	RIGHT-OF-WAY
STA	STATION
SW	SIDEWALK
TC	TOP OF CURB
TOP	TOP OF PIPE
TW	TOP OF WALL
TWBFG	TOP OF WALL AT FINISH GRADE
TYP	TYPICAL

SHEET INDEX

TITLE SHEET	1
PRELIMINARY LOT LAYOUT	2
PRELIMINARY GRADING PLAN	3
DETAILS & SECTIONS	4
SEWER PROFILE	5
SLOPE ANALYSIS	6
DMA EXHIBIT	7

LOT	GROSS LOT AREA	NET LOT AREA	FRONT YARD SETBACK	STREET SIDE YARD SETBACK	INTERIOR YARD SETBACK	REAR YARD SETBACK	LOT COVERAGE	PAD ELEVATION
1	12,121 SF	12,121 SF	25 FT	--	10 FT	25 FT	18.1%	383.2
2	6,965 SF	6,965 SF	20 FT	--	5 FT	13 FT	35.3%	382.5
3	6,383 SF	6,383 SF	20 FT	--	5 FT	16 FT	37.7%	382.5
4	6,723 SF	6,723 SF	7 FT	--	10 FT	5 FT	33.0%	383.0
5	9,687 SF	9,687 SF	25 FT	--	5 FT/10 FT	25 FT	24.0%	389.0
6	8,751 SF	8,751 SF	25 FT	--	5 FT	20 FT	28.7%	388.0
7	4,987 SF	4,987 SF	20 FT	--	5 FT	14 FT	43.1%	385.5
8	4,946 SF	4,946 SF	20 FT	--	5 FT	15 FT	42.1%	384.2
9	5,864 SF	5,864 SF	20 FT	10 FT	5 FT	15 FT	42.3%	383.3
A	9,260 SF	9,260 SF						
B	2,330 SF	2,330 SF						

DENSITY CALCULATION

GROSS ACREAGE = 1.79 AC

BASE DENSITY = 1.79 AC X 3 DU = 5.37

ROUND UP = 6

1 UNITS RESERVED @ "VERY LOW" AFFORDABLE LEVEL = 16.7% (1/6)

35% "LOWER" DENSITY BONUS PER GOVT. CODE 65915 = 8.1 DU

PER DENSITY BONUS ROUND UP = 9 DU

MARKET RATE UNITS = 8 DU

"VERY LOW" AFFORDABLE UNIT = 1 DU

TOTAL UNITS = 9 DU

* LOT 9 SHALL BE AN AFFORDABLE LOT.

IMPERVIOUS AREAS

DISTURBED AREA:	90,055 SF
EXISTING ON-SITE IMPERVIOUS AREA:	617 SF
EXISTING OFF-SITE IMPERVIOUS AREA:	3,380 SF
NEW OR REPLACED ON-SITE IMPERVIOUS AREA:	31,725 SF
NEW OR REPLACED OFF-SITE IMPERVIOUS AREA:	14,650 SF
TOTAL NET INCREASE IN PROJECT IMPERVIOUS AREA:	42,378 SF

DEVELOPMENT NOTES

1. ALL EXISTING STRUCTURES ON SITE ARE TO BE DEMOLISHED UNLESS NOTED OTHERWISE.
2. EXISTING UTILITIES SHOWN PER BEST AVAILABLE RECORDS. ACTUAL FIELD CONDITIONS MAY VARY
3. "NO PARKING FIRE LANE" SIGNS SHALL BE INSTALLED PER DIRECTION OF THE ENCINITAS FIRE DEPARTMENT
4. ALL EXISTING OVERHEAD ONSITE UTILITIES TO BE UNDERGROUNDED.
5. ALL UNDOCUMENTED AND/OR UNSUITABLE FILL MATERIALS ACROSS THE ENTIRE PROJECT SITE SHALL BE REMOVED AND REPLACED TO THE SATISFACTION OF THE PROJECT SOILS ENGINEER AND CITY ENGINEER.
6. THE DEVELOPEMENT PROPOSES TO DISTURB 82,152 SF OR 1.89 AC.
7. PURSUANT TO GOVERNMENT CODE SECTION 65943, THIS TENTATIVE MAP IS PART OF AN APPLICATION FOR A DEVELOPMENT PERMIT
8. 7 ON-STREET PARKING SPACES PROVIDED. NOTE, EACH LOT'S INDIVIDUAL OFF-STREET PARKING SHALL ADHERE TO THE OFF-STREET PARKING DESIGN MANUAL AND EMC CHAPTER 30.54.
9. PROPOSED LOT B SHALL BE PLACED IN A DEED RESTRICTED OPEN SPACE FOR PURPOSES ONLY FOR WATER QUALITY TREATMENT. NO FURTHER DEVELOPMENT OF THIS PROPERTY INCLUDING THE CONSTRUCTION OF STRUCTURES SHALL BE PERMITTED.
10. EXISTING TRAIL TO BE REMOVED AND REPLACED WITHIN EASEMENT.
11. PRIOR TO FINAL SIGN OFF OF THE PROJECT & OCCUPANCY OF THE LAST HOUSE, THE APPLICANT SHALL PROVIDE A FULL WIDTH OVERLAY OF ZONA GALE ROAD TO REPAIR ANY/ALL DAMAGE OR STRESS CAUSED BY THE CONSTRUCTION EQUIPMENT ASSOCIATED WITH THIS PROJECT TO THE SATISFACTION OF THE CITY.
12. ALL EXISTING SURVEY MONUMENTS LOCATED WITHIN THE AREA OF WORK SHALL BE PROTECTED IN PLACE OR SHALL BE REESTABLISHED AND DOCUMENTED BY A LICENSED LAND SURVEYOR.
13. APPLICANT SHALL PROVIDE A PUBLIC EASEMENT FOR A PRIVATE STREET OVER ALL OF LOT A AND ANY/ALL OTHER PRIVATE ROADS WITHIN THE PROJECT.

STATEMENT OF WORK

THE PROJECT INCLUDES THE DEMOLITION OF ALL ONSITE IMPROVEMENTS AND THE DEVELOPMENT OF 9 RESIDENTIAL LOTS. 8 MARKET-RATE UNITS, 1 "VERY LOW" AFFORDABLE UNIT ARE PROPOSED. CONSTRUCTION OF THE RESIDENTIAL SUBDIVISION WILL INCLUDE SITE GRADING, DRAINAGE, AND UTILITY IMPROVEMENTS, TWO PRIVATE STREETS, AND WIDENING IMPROVMENTS ALONG ZONA GALE ROAD.

DEVELOPMENT REGULATIONS

1) THREE INCENTIVES/CONCESSIONS ARE ALLOWED. ZERO INCENTIVES/ CONCESSIONS AS DEFINED BY STATE DENSITY BONUS LAW 65915 ARE CURRENTLY PROPOSED FOR THIS PROJECT.

2) WAIVERS OF "DEVELOPMENT STANDARDS" AS DEFINED BY STATE DENSITY BONUS LAW 65915 ARE PROPOSED FOR THIS PROJECT AS IT RELATES TO SECTION 30.16.020C (DENSITY BONUS REGULATIONS) IN THE CITY OF ENCINITAS MUNICIPAL CODE, INCLUDING, BUT NOT LIMITED TO:

SETBACKS, MINIMUM LOT WIDTH, MINIMUM LOT DEPTH, MINIMUM LOT AREA, PANHANDLE WIDTH, GUEST PARKING & LOT COVERAGE

NOTE: ALL ROADWAYS SHALL BE A MINIMUM OF 20 FEET IN WIDTH DURING CONSTRUCTION AND MAINTAINED FREE AND CLEAR, INCLUDING THE PARKING OF VEHICLES, IN ACCORDANCE WITH THE FIRE CODE AND THE ENCINITAS FIRE DEPARTMENT

NOTE: PRIOR TO THE DELIVERY OF BUILDING CONSTRUCTION MATERIALS TO THE PROJECT SITE, ALL OF THE FOLLOWING CONDITIONS SHALL BE COMPLETED TO THE SATISFACTION OF THE ENCINITAS FIRE DEPARTMENT:
1. ALL WET AND DRY UTILITIES SHALL BE INSTALLED AND APPROVED BY THE APPROPRIATE INSPECTING DEPARTMENT OR AGENCY.
2. AS A MINIMUM, THE FIRST LIFT OF ASPHALT PAVING SHALL BE IN PLACE TO PROVIDE A PERMANENT ALL WEATHER SURFACE FOR EMERGENCY VEHICLES.
3. ALL FIRE HYDRANTS SHALL BE INSTALLED, IN SERVICE, AND ACCEPTED BY THE ENCINITAS FIRE DEPARTMENT AND APPLICABLE WATER DISTRICT. THIS INCLUDES ALL FIRE HYDRANTS THAT ARE TO BE RELOCATED.

ABBREVIATED LEGAL DESCRIPTION

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

ALL THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 11, TOWNSHIP 13 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, ACCORDING TO RECORD OF SURVEY MAP NO. 7628, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY JUNE 22, 1972 AND THAT PORTION OF LOT 153 OF COUNTY OF SAN DIEGO TRACT NO. 3474-3, ACCORDING TO MAP THEREOF NO. 10140, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JULY 8, 1981, BOTH IN THE CITY OF ENCINITAS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA.

EXISTING EASEMENTS

THE EASEMENTS PLOTTED HEREON ARE AS LISTED IN TITLE REPORT PREPARED BY PACIFIC COAST TITLE COMPANY, ORDER NO. 10095590-OXE-KP, DATED SEPTEMBER 27, 2018.

(4) SAN DIEGO GAS AND ELECTRIC COMPANY PUBLIC UTILITY EASEMENT RECORDED JANUARY 16, 1953, BOOK 4718, PAGE 472, O.R.
(5) SAN DIEGO GAS AND ELECTRIC COMPANY PUBLIC UTILITY EASMENT RECORDED OCTOBER 22, 1962, F/P. 181255, O.R.
(6) THE OLIVENHAIN MUNICIPAL WATER DISTRICT PIPELINE EASMENT RECORDED OCTOBER 22, 1975, F/P. 75-291340, O.R. (SAID EASEMENT HAS BEEN GRANTED AND/OR RESERVED IN VARIOUS DEEDS OF RECORD)
(7) E. G. THORNTON AND HELEN E. THORNTON ACCESS AND UTILITY EASEMENT, RECORDED AUGUST 28, 1979, F/P. 79-361698, O.R. SAID EASEMENT HAS BEEN GRANTED AND/OR RESERVED IN VARIOUS DEEDS OF RECORD.
(9) OLIVENHAIN MUNICIPAL WATER DISTRICT PIPELINE EASEMENT, RECORDED AUGUST 5, 1980, F/P. 80-247541, O.R.
(10) ELMOND G. THORNTON, HELEN E. THORNTON, THORNTON'S WHOLESALE FLORIST, A CALIFORNIA CORPORATION, THORTON'S FLOWER GROWERS, A CALIFORNIA CORPORATION, ROBERT J. THORNTON AND LEWIS G. THORNTON, ACCESS AND UTILITY EASEMENT, RECORDED APRIL 5, 1982, F/P. 82-092318, O.R.
(12) SAN DIEGO GAS AND ELECTRIC COMPANY PUBLIC UTILITY EASEMENT, RECORDED MARCH 1, 1988, F/P. 88-094153, O.R.
(15) AIRTOUCH CELLULAR, A GENERAL EASEMENT RECORDED JANUARY 21, 1999, F/P. 1999-0035689, O.R.
(17) ELMOND G. THORNTON; HELEN E. THORNTON; THORNTON WHOLESALE FLORISTS; THORNTON'S FLOWER GROWERS; ROBERT J. THORNTON AND LEWIS G. THORNTON, A PUBLIC UTILITY EASEMENT, RECORDED FEBRUARY 19, 1982, F/P. 82-045640, O.R.
(18) CAMINO CREEK, A JOINT VENUTRE COMPOSED OF THE MEISTER COMPANY, INCORPORATED, AND FINANCIAL SCENE, INC., AN EASEMENT RECORDED JUNE 3, 1982, F/P. 82-169155, O.R.
(19) SHAPELL INDUSTRIES OF SAN DIEGO, INC., AN ACCESS EASEMENT, RECORDED OCTOBER 13, 1982, F/P. 82-313668, O.R.
(20) PACTEL MOBILE ACCESS, AN EASEMENT RECORDED OCTOBER 13, 1983, F/P. 83-369391, O.R.
(24) OLIVENHAIN MUNICIPAL WATER DISTRICT PRIVATE ENCROACHMENT PERMIT NO. 323 WITH COXCOM INC., DBA COX COMMUNICATIONS, RECORDED OCTOBER 28, 2010, F/P. 2010-0583408, O.R.

OWNER'S CERTIFICATE

WE HEREBY CERTIFY THAT WE ARE THE RECORD OWNERS OF THE PROPERTY SHOWN ON THE ATTACHED TENTATIVE PARCEL MAP AND THAT SAID MAP SHOWS THE ENTIRE CONTIGUOUS OWNERSHIP. I UNDERSTAND THAT PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS, UTILITY EASEMENTS, OR RAILROAD RIGHTS OF WAY.

OWNER: _____

KIMBERLY A. THORNER FOR
OLIVENHAIN MUNICIPAL WATER DISTRICT
1966 OLIVENHAIN ROAD
ENCINITAS, CA 92024
(760) 753-6466

SUBDIVIDER'S CERTIFICATE

THE SUBDIVIDER AGREES TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE CITY OF ENCINITAS AND ITS AGENTS, OFFICERS, AND EMPLOYEES FROM ANY CLAIM, ACTION, OR PROCEEDING AGAINST THE CITY OF ENCINITAS OR ITS AGENTS, OFFICERS, OR EMPLOYEES, TO ATTACK, SET ASIDE, VOID, OR ANNUL AN APPROVAL FROM THE CITY OF ENCINITAS CONCERNING THE SUBDIVISION WHEN SUCH ACTION IS BROUGHT WITHIN THE TIME PERIOD SPECIFIED IN GOV. CODE SECTION 66499.37. THIS CERTIFICATE IS CONDITIONED UPON THE CITY OF ENCINITAS PROVIDING PROMPT NOTICE TO THE SUBDIVIDER AS PROVIDED FOR BY THE ACT. (GOV. CODE 66474.9)

SUBDIVIDER: _____

MAX STEWART
FOR ASPEN GROWTH PROPERTIES INC
9789 BALBOA AVENUE, SUITE 260
SAN DIEGO, CA 92123

SUBDIVISION NAME:	ZONA GALE ESTATES
SUBDIVIDER'S ADDRESS:	1966 OLIVENHAIN ROAD ENCINITAS, CA 92024
SITE ADDRESS:	ZONA GALE ROAD ENCINITAS, CA 92024
ASSESSOR'S PARCEL NUMBER:	257-401-11
CALIFORNIA COORDINATES:	322-1683
TOTAL ACREAGE:	78,017 SF (1.791 AC) GROSS 68,757 SF (1.578 AC) NET
TOTAL PARCELS:	11 PARCELS
MINIMUM NET PARCEL SIZE:	2,330 SF (0.05 AC) NON-BUILDABLE 4,946 SF (0.11 AC) BUILDABLE
MAXIMUM NET PARCEL SIZE:	12,121 SF (0.28 AC)
AVERAGE NET PARCEL SIZE:	7,381 SF (0.17 AC) BUILDABLE
GENERAL PLAN DESIGNATION:	R-3
PRESENT ZONING REGULATIONS:	R-3
HEIGHT:	PER CODE 30.16.010 B7
PARCEL COVERAGE:	35%
MINIMUM PARCEL SIZE:	14,500 SF
SETBACKS: FRONT YARD (FYSB) INTERIOR SIDE YARD (SYSB) REAR YARD (RYSB) STREET SIDE YARD (SYSB)	 25' FROM P/L 10' FROM P/L 25' FROM P/L 10' FROM P/L
PRESENT USE:	VACANT
PROPOSED USE:	11 LEGAL LOTS (1 PRIVATE STREET LOT; LOT A) (9 RESIDENTIAL LOTS; LOTS 1-9) (1 DRAINAGE LOT; LOT B)
ACCESS:	ZONA GALE ROAD, A PRIVATE STREET
UTILITIES: WATER FIRE SEWER ELEMENTARY SCHOOL HIGH SCHOOL	 OLIVENHAIN MUNICIPAL WATER DISTRICT ENCINITAS FIRE PROTECTION DISTRICT LEUCADIA WASTEWATER DISTRICT ENCINITAS UNION SCHOOL DISTRICT SAN DIEGUITO UNION SCHOOL DISTRICT
SOLAR STATEMENT:	THIS IS A SOLAR SUBDIVISION AS REQUIRED BY THE SUBDIVISION ORDINANCE. ALL PARCELS TO HAVE AT LEAST 100 SQUARE FEET OF UNOBSTRUCTED ACCESS TO SUNLIGHT ON THE BUILDABLE PORTION OF THE PARCEL.
TOPOGRAPHY:	FIELD SURVEY BY PASCO LARET SUITER & ASSOCIATES ON NOVEMBER 23 & 27, 2018.
EARTHWORK:	CUT: 6,850 CY FILL: 400 CY EXPORT: 6,450 CY REMEDIAL GRADING: 1,750 CY MAXIMUM HEIGHT CUT: 7.3 FT MAXIMUM HEIGHT FILL: 2.5 FT
MAP PREPARED BY:	PASCO LARET SUITER & ASSOCIATES, INC. 535 N. HIGHWAY 101, SUITE A SOLANA BEACH, CA 92075 (858) 259-8212 BRIAN ARDOLINO, RCE 71651 EXPIRATION DATE: 12-31-2021
DATE PREPARED:	8/5/2019
REVISIONS:	10/12/2021

ENGINEER OF WORK

BRIAN ARDOLINO, RCE 71651

REGISTERED PROFESSIONAL ENGINEER — BRIAN MICHAEL ARDOLINO — No. 71651 — Exp. 12/31/21 — CIVIL — STATE OF CALIFORNIA

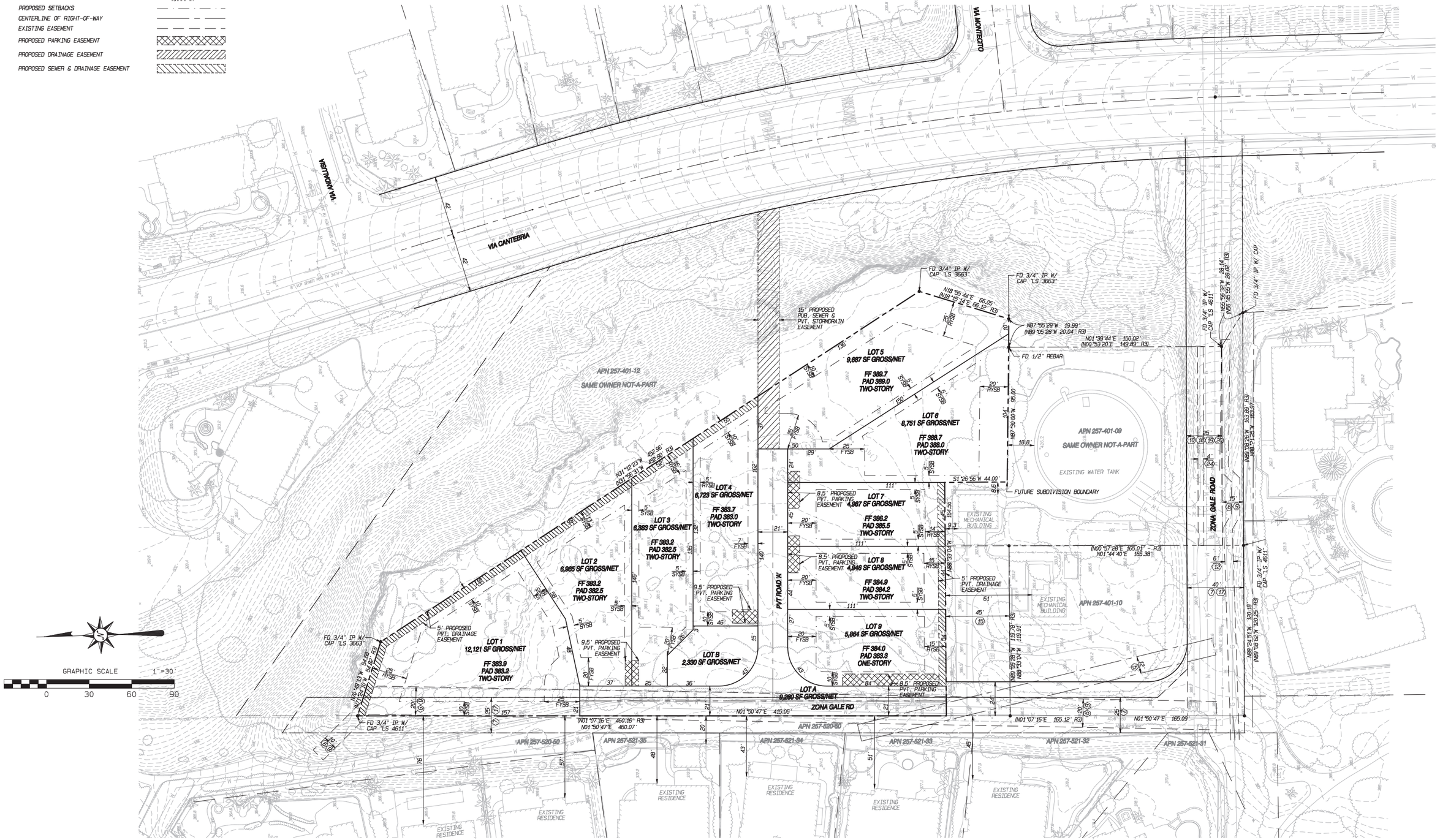
PREPARED BY:

PASCO LARET SUITER & ASSOCIATES
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING
535 North Highway 101, Ste A, Solana Beach, CA 92075
ph 858.259.8212 | fx 858.259.4812 | plsaengineering.com

TENTATIVE MAP
ZONA GALE ESTATES
MULTI-003289-2019

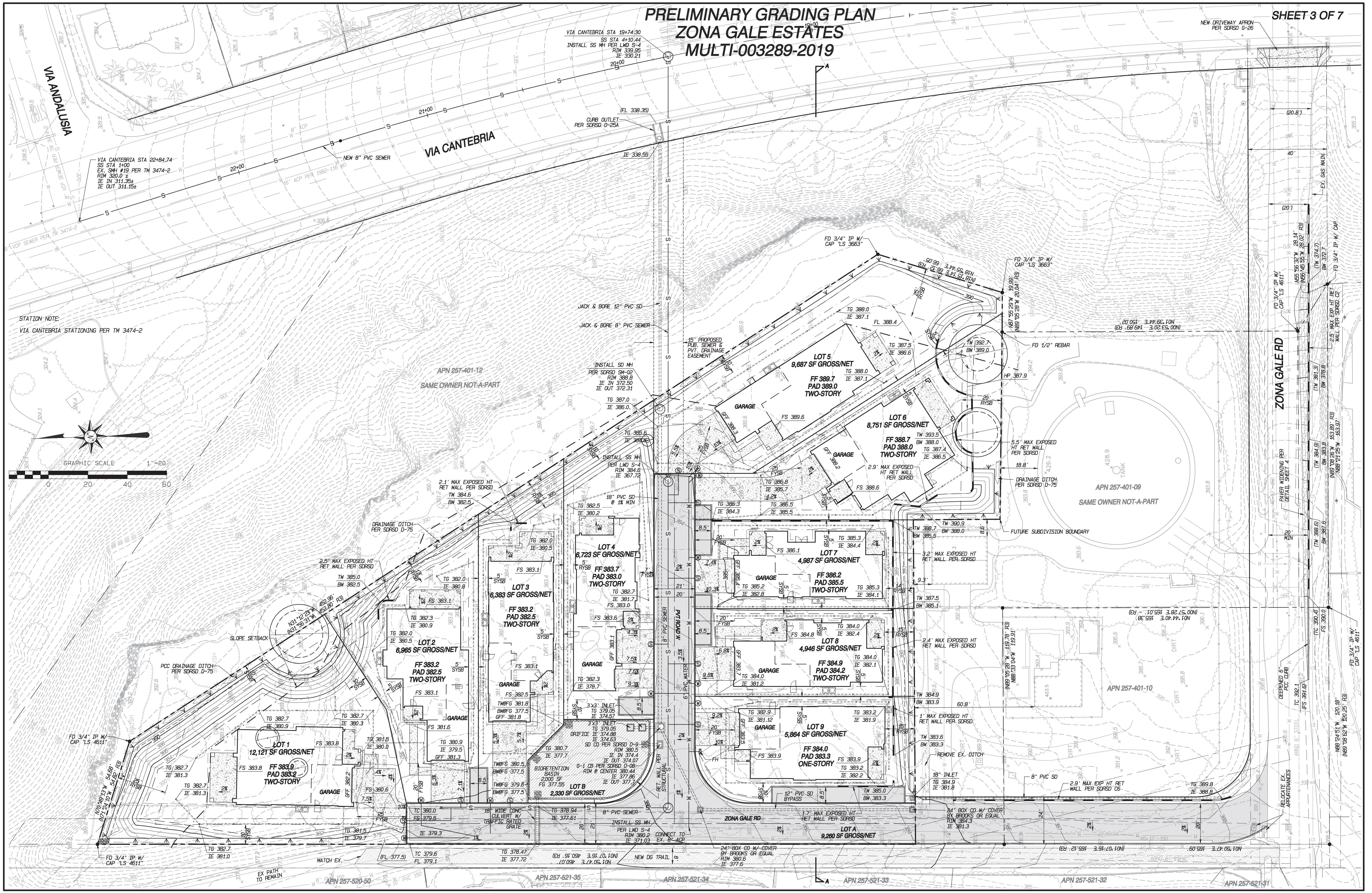
LEGEND

SUBDIVISION BOUNDARY	
LOT LINE	
ADJACENT PROPERTY LINE	
LOT NUMBER	LOT 4
LOT AREA	5,000 SF
PROPOSED SETBACKS	
CENTERLINE OF RIGHT-OF-WAY	
EXISTING EASEMENT	
PROPOSED PARKING EASEMENT	
PROPOSED DRAINAGE EASEMENT	
PROPOSED SEWER & DRAINAGE EASEMENT	



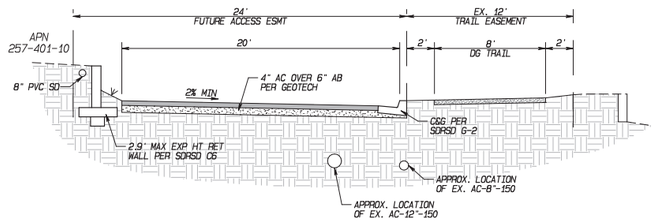
PRELIMINARY GRADING PLAN
ZONA GALE ESTATES
MULTI-003289-2019

SHEET 3 OF 7



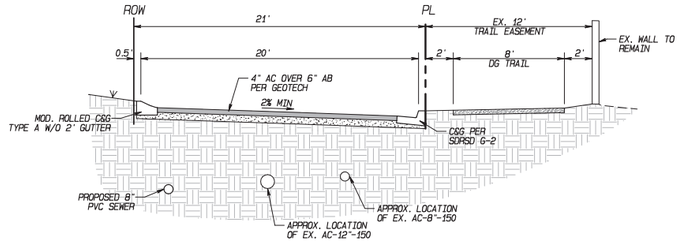
10/12/2021 PLSA 2897

SECTIONS & DETAILS
ZONA GALE ESTATES
MULTI-003289-2019



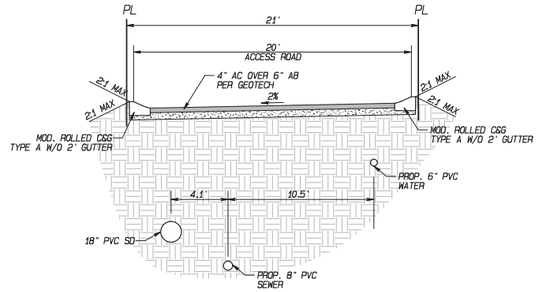
OFF-SITE ZONA GALE ROAD

NTS



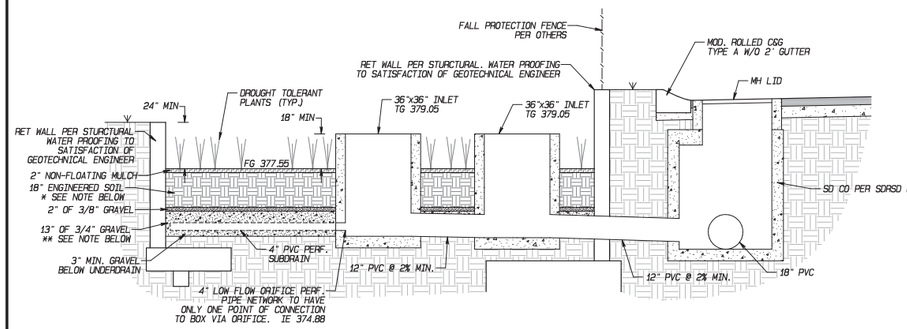
ON-SITE ZONA GALE ROAD

NTS



PRIVATE ROAD 'A'

NTS



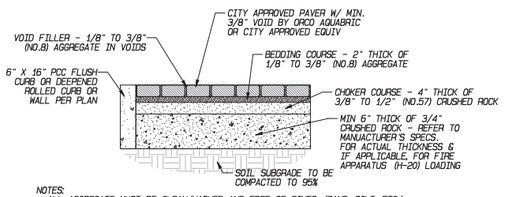
* BIORETENTION "ENGINEERED SOIL" LAYER SHALL BE MINIMUM 18" DEEP "SANDY LOAM" SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 65% SAND, 15% COMPOST OR HARDWOOD MULCH, AND 20% TOPSOIL, FREE OF STONES, STUMPS, ROOTS, OR SIMILAR OBJECTS, AND ALSO FREE OF NOXIOUS WEEDS.

** 3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 13" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE DETAIL

THE EFFECTIVE AREA OF THE BASIN SHALL BE LEVEL AND SHALL BE SIZED BASED ON CALCULATION.

BIORETENTION AREA DETAIL

NTS

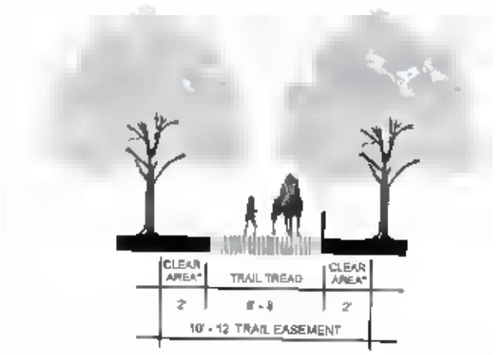


NOTES:
- ALL AGGREGATE MUST BE CLEAN/WASHED AND FREE OF FINES (SAND, SILT, ETC.)
- THE PAVERS SHALL NOT BE SEALED ONCE THE VOID FILLER HAS BEEN ADDED
- EACH COURSE SHALL BE VIBRATORY COMPACTED BEFORE PLACEMENT OF NEXT COURSE
- NO IMPERVIOUS LINER OR FILTER FABRIC IS TO BE USED
- SPECIAL APPROVAL REQUIRED FOR USE IN HIGHLY EXPANSIVE SOIL - SUBDRAIN MAY BE REQUIRED

CONSTRUCTION NOTE:
- PAVERS TO BE COVERED AND PROTECTED DURING CONSTRUCTION

PERVIOUS PAVER DETAIL

NTS

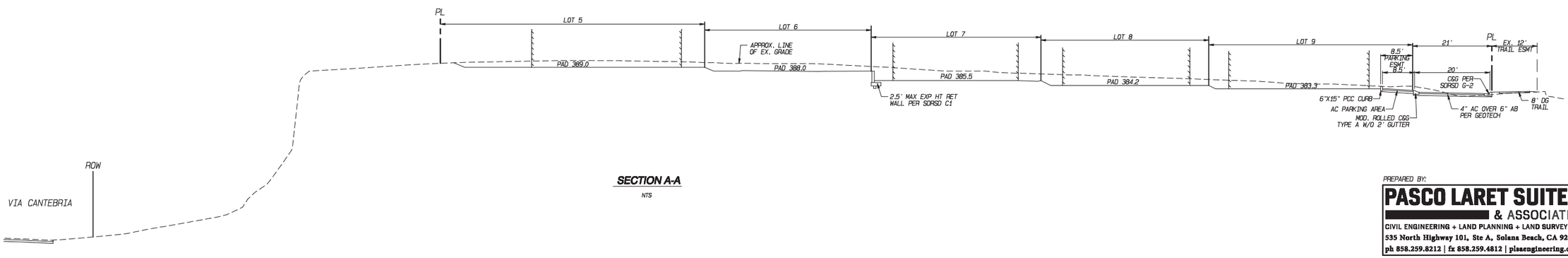


*CLEAR AREA / TURNOUT AREA: ZONE OF LOW VEGETATION (1' OR LESS)

-LOCATE ALL UTILITIES OUTSIDE OF TRAIL TREAD AT EDGES OF TRAIL EASEMENT
-LOCATE FENCE OUTSIDE OF TRAIL TREAD & TURNOUT
WHERE TRAIL IS LESS THAN 6' WIDE, SEE "TURNOUT" DETAIL
-SEE TRAIL STANDARDS FOR ADDITIONAL REQUIREMENTS

TRAIL DETAIL

NTS. SEE ENCINITAS TRAIL MASTER PLAN

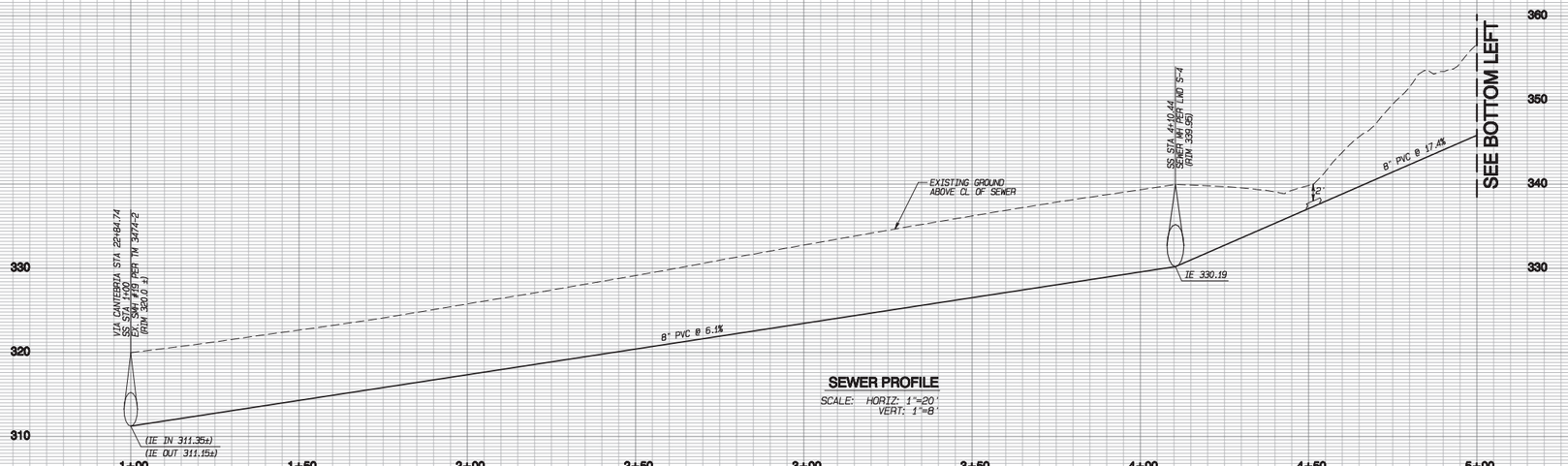


SECTION A-A

NTS

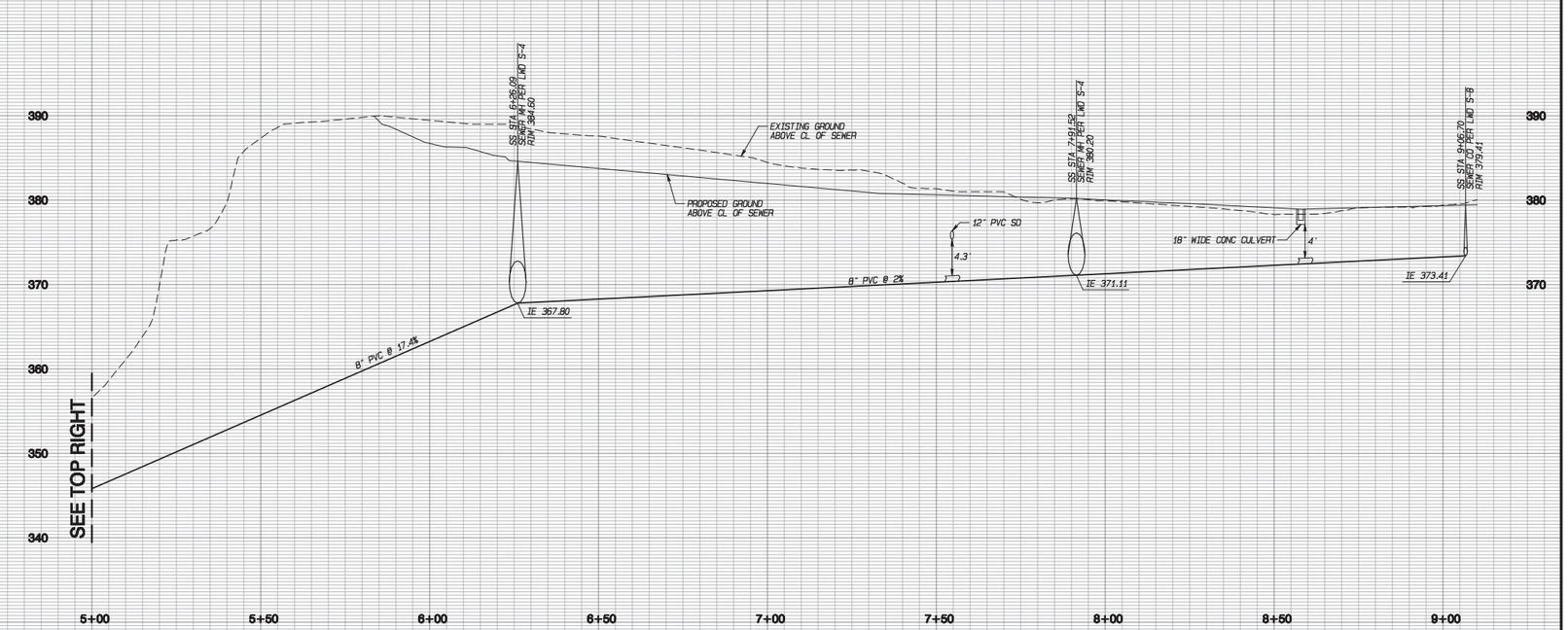
PREPARED BY:
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CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING
535 North Highway 101, Ste A, Solana Beach, CA 92075
ph 858.259.8212 | fx 858.259.4812 | plsaengineering.com

SEWER PROFILE
ZONA GALE ESTATES
MULTI-003289-2019



SEWER PROFILE

SCALE: HORIZ: 1"=20'
VERT: 1"=8'



SEWER PROFILE

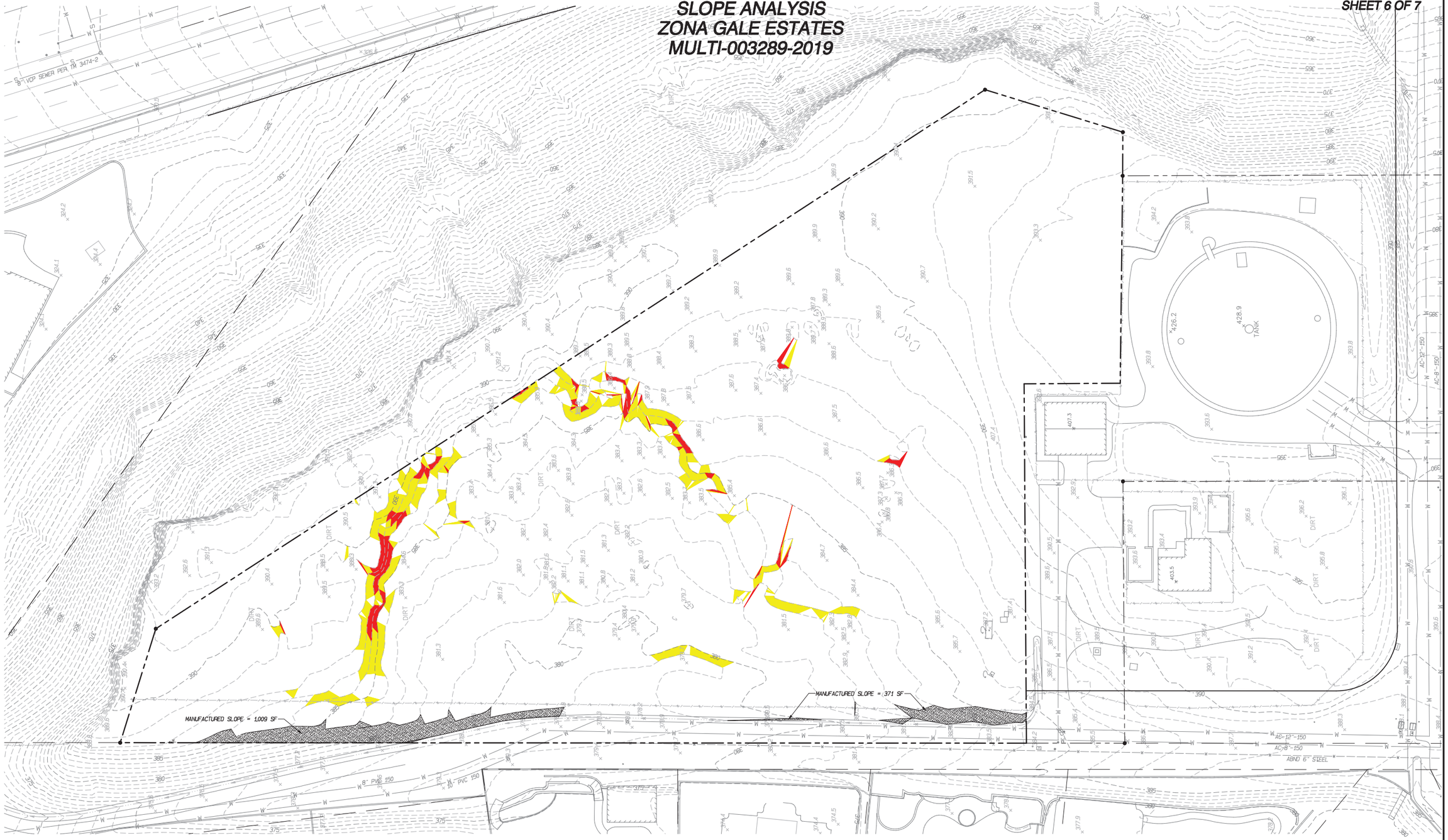
SCALE: HORIZ: 1"=20'
VERT: 1"=8'

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SLOPE ANALYSIS
ZONA GALE ESTATES
MULTI-003289-2019



INDICATES AREA WITH SLOPES LESS THAN 25% OR MANUFACTURED SLOPE = 75,574 SF (1.735 AC)

INDICATES AREA WITH SLOPES GREATER THAN 25% AND LESS THAN 40% = 1,989 SF (0.046 AC)

INDICATES AREA WITH SLOPES 40% OR GREATER = 454 SF (0.010 AC)

GRAPHIC SCALE 1"=20'

0 20 40 60

PREPARED BY:

PASCO LARET SUITER & ASSOCIATES

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SHEET 7 OF 7

DMA/HMP AREA EXHIBIT
ZONA GALE ESTATES
MULTI-003289-2019

WQV SIZING

	DMA NAME	DMA AREA	PPST	DMA RF	RF * AREA	SOIL TYPE	IMP NAME
						D	BIORETENTION
LOT 1	1	2959	BLDG	0.9	2663		
	2	50	PCC	0.9	45		
	3	471	PCC	0.9	424		
	4	7370	L	0.3	2211		
LOT 2	5	3073	BLDG	0.9	2766		
	6	149	PCC	0.9	134		
	7	360	PCC	0.9	324		
	8	3030	L	0.3	909		
LOT 3	9	3230	BLDG	0.9	2907		
	10	98	PCC	0.9	88		
	11	683	PCC	0.9	615		
	12	2130	L	0.3	639		
LOT 4	13	2924	BLDG	0.9	2632		
	14	29	PCC	0.9	26		
	15	448	PCC	0.9	403		
	16	3011	L	0.3	903		
LOT 5	17	3044	BLDG	0.9	2740		
	18	92	PCC	0.9	83		
	19	540	PCC	0.9	486		
	20	5383	L	0.3	1615		
LOT 6	21	3157	BLDG	0.9	2841		
	22	46	PCC	0.9	41		
	23	949	PCC	0.9	854		
	24	4093	L	0.3	1228		
LOT 7	25	2665	BLDG	0.9	2399		
	26	81	PCC	0.9	73		
	27	318	PCC	0.9	286		
	28	1576	L	0.3	473		
LOT 8	29	2558	BLDG	0.9	2302		
	30	143	PCC	0.9	129		
	31	312	PCC	0.9	281		
	32	1645	L	0.3	494		
LOT 9	33	2964	BLDG	0.9	2668		
	34	33	PCC	0.9	30		
	35	349	PCC	0.9	314		
	36	1580	L	0.3	474		
COMM.	37	7747	AC	0.9	6972		
	38	1524	PCC	0.9	1372		
	39	1260	AC	0.9	1134		
	40	3740	L	0.3	1122		
	41	3378	AC	0.9	3040		
	42	406	PCC	0.9	365		
	43	2698	L	0.3	809		
	TOTAL	82,296	TOTAL		52,314		

IMP SF	MIN AREA	PROP AREA	
0.03	1,569	2,000	IMP AREA

HMP SIZING

	DMA NAME	DMA AREA	PPST	DMA RF	RF * AREA	SOIL TYPE	IMP NAME
						D	BIORETENTION
LOT 1	1	2959	BLDG	1.0	2959		
	2	50	PCC	1.0	50		
	3	471	PCC	1.0	471		
	4	7370	L	0.1	737		
LOT 2	5	3073	BLDG	1.0	3073		
	6	149	PCC	1.0	149		
	7	360	PCC	1.0	360		
	8	3030	L	0.1	303		
LOT 3	9	3230	BLDG	1.0	3230		
	10	98	PCC	1.0	98		
	11	683	PCC	1.0	683		
	12	2130	L	0.1	213		
LOT 4	13	2924	BLDG	1.0	2924		
	14	29	PCC	1.0	29		
	15	448	PCC	1.0	448		
	16	3011	L	0.1	301		
LOT 5	17	3044	BLDG	1.0	3044		
	18	92	PCC	1.0	92		
	19	540	PCC	1.0	540		
	20	5383	L	0.1	538		
LOT 6	21	3157	BLDG	1.0	3157		
	22	46	PCC	1.0	46		
	23	949	PCC	1.0	949		
	24	4093	L	0.1	409		
LOT 7	25	2665	BLDG	1.0	2665		
	26	81	PCC	1.0	81		
	27	318	PCC	1.0	318		
	28	1576	L	0.1	158		
LOT 8	29	2558	BLDG	1.0	2558		
	30	143	PCC	1.0	143		
	31	312	PCC	1.0	312		
	32	1645	L	0.1	165		
LOT 9	33	2964	BLDG	1.0	2964		
	34	33	PCC	1.0	33		
	35	349	PCC	1.0	349		
	36	1580	L	0.1	158		
COMM.	37	7747	AC	1.0	7747		
	38	1524	PCC	1.0	1524		
	39	1260	AC	1.0	1260		
	40	3740	L	0.1	374		
	41	3378	AC	1.0	3378		
	42	406	PCC	1.0	406		
	43	2698	L	0.1	270		
	TOTAL	82,296	TOTAL		49,666		

15% CONTINGENCY

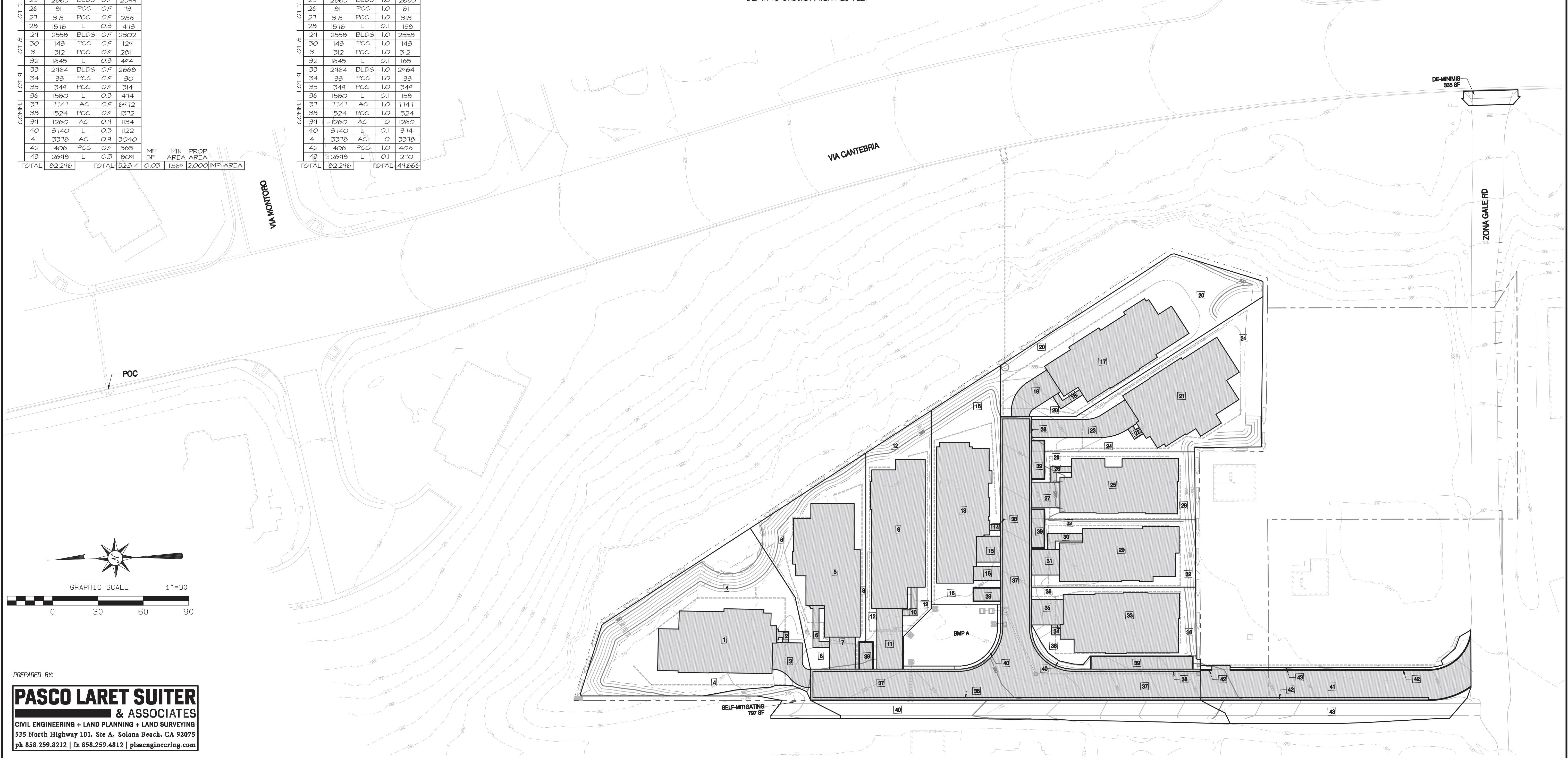
PROPOSED IMPERVIOUS SURFACE AREA

LOT	IMPERV AREA	15% CONT.	TOTAL
1	3,480	522	4,002
2	3,582	537	4,119
3	4,011	602	4,613
4	3,401	510	3,911
5	3,676	551	4,227
6	4,152	623	4,775
7	3,064	460	3,524
8	3,013	452	3,465
9	3,346	502	3,848
C	14,315		14,315
		TOTAL	50,799

TOTAL TREATMENT AREA =82,296 SF
CONTINGENCY IMPERVIOUS AREA =50,799 SF
CONTINGENCY PERVIOUS AREA =31,497 SF

POTENTIAL POLLUTANT SOURCE	SOURCE CONTROL
INTERIOR PARKING GARAGES DRAIN TO SEWER	*PARKING GARAGE FLOOR DRAINS SHALL BE PLUMBED TO THE SANITARY SEWER. INSPECT AND MAINTAIN DRAINS TO PREVENT BLOCKAGES AND OVERFLOW.*
NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTROL	*BUILDING DESIGN FEATURES SHALL DISCOURAGE ENTRY OF PESTS. INTEGRATED PEST MANAGEMENT INFORMATION SHALL BE PROVIDED TO OWNERS, LESSEES, AND OPERATORS.*
LANDSCAPE/OUTDOOR PESTICIDE USE	*FINAL LANDSCAPE PLANS SHALL:* *PRESERVE EXISTING DROUGHT TOLERANT TREES, SHRUBS, AND GROUND COVER TO THE MAXIMUM EXTENT POSSIBLE.* *BE DESIGNED TO MINIMIZE IRRIGATION AND RUNOFF, PROMOTE SURFACE INFILTRATION WHERE APPROPRIATE, AND MINIMIZE THE USE OF FERTILIZERS AND PESTICIDES.* *SPECIFY PLANTS THAT ARE TOLERANT OF PERIODIC SATURATED SOIL CONDITIONS FOR AREAS TO RETAIN OR DETAIN STORMWATER.* *CONSIDER THE USE OF PEST-RESISTANT PLANTS, ESPECIALLY ADJACENT TO HARDSCAPE.* *SELECT PLANTS APPROPRIATE TO SITE SOILS, SLOPES, CLIMATE, SUN, WIND, RAIN, LAND USE, AIR MOVEMENT, ECOLOGICAL CONSISTENCY, AND PLANT INTERACTIONS.* *MAINTAIN LANDSCAPING USING MINIMUM OR NO PESTICIDES.*
REFUSE/TRASH AREAS MUST BE COVERED	*OUTDOOR REFUSE RECEPTACLES SHALL BE COVERED, GRADED, AND PAVED TO PREVENT RUN-ON. ANY DRAINS FROM DUMPSTERS, COMPACTORS, AND TALLOW BIN AREAS SHALL BE CONNECTED TO A GREASE REMOVAL DEVICE BEFORE DISCHARGE TO SANITARY SEWER. SIGNS SHALL BE POSTED ON OR NEAR DUMPSTERS WITH THE WORDS "DO NOT DUMP HAZARDOUS MATERIALS HERE" OR SIMILAR. AN ADEQUATE NUMBER OF RECEPTACLES SHALL BE PROVIDED. INSPECT RECEPTACLES REGULARLY; REPAIR OR REPLACE LEAKY RECEPTACLES. KEEP RECEPTACLES COVERED. PROHIBIT/PREVENT DUMPING OF LIQUID OR HAZARDOUS WASTES. POST "NO HAZARDOUS MATERIALS" SIGNS. INSPECT AND PICK UP LITTER DAILY AND CLEAN UP SPILLS IMMEDIATELY. KEEP SPILL CONTROL MATERIALS AVAILABLE ON-SITE.*
PLAZA, SIDEWALKS, AND PARKING LOTS	*PLAZAS, SIDEWALKS, AND PARKING LOTS SHALL BE SWEPT REGULARLY TO PREVENT THE ACCUMULATIONS OF LITTER AND DEBRIS. DEBRIS FROM PRESSURE WASHING SHALL BE COLLECTED TO PREVENT ENTRY INTO THE STORM DRAIN SYSTEM. WASHWATER CONTAINING ANY CLEANING AGENT OR DEGREASER SHALL BE COLLECTED AND DISCHARGED TO THE SANITARY SEWER AND NOT DISCHARGED TO A STORM DRAIN.*

DEPTH TO GROUNDWATER > 20 FEET



PREPARED BY:

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Appendix B: Biological Resources Report, Arborist Report, Horizontal Directional Drilling Memo, and CAGN Survey Results

Zona Gale Estates Project

Biological Technical Report

February 2023 | 04533.00001.001

Prepared for:

City of Encinitas
Development Services Department
505 S. Vulcan Avenue
Encinitas, CA 92024

Project Proponent:

Aspen Growth Properties
8799 Balboa Avenue, Suite 270
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Zona Gale Estates Project
Biological Technical Report

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EXECUTIVE SUMMARY

On behalf of Aspen Growth Properties (Project Proponent/Applicant), HELIX Environmental Planning, Inc. (HELIX) has completed the biological resources technical report for the Zona Gale Estates project (project), which is proposed in the City of Encinitas, California. The proposed project generally consists of a nine-lot residential subdivision development on undeveloped land. Additionally, the project includes a biofiltration basin, landscaping, and other necessities such as a paved road, private driveways, and additional off-street parking areas. The project also includes connections and improvements to existing public infrastructure off-site beyond the property and is limited to new portions of Zona Gale Road and utility improvements within Via Cantebria. The project would disturb 1.8 acres of the 2.1-acre property. The 2.1-acre property is referred to herein as the project site or site. Additionally, approximately 0.3-acre of off-site infrastructure improvements are included in the project impacts, totaling 2.1 acres of disturbance.

In preparing the biological resources technical study for the project, HELIX established a study area encompassing the 2.1-acre project site, 0.3-acre off-site improvements, and a 100-foot buffer surrounding these areas. The purpose of this report is to document the existing biological conditions within the project site and off-site improvement areas (i.e., project area) and provide an analysis of potential impacts on sensitive biological resources with respect to local, state, and federal policy. This report follows the County of San Diego Report Format and Content Requirements for Biological Resources (County 2010) and provides the biological resources technical documentation necessary for review under California Environmental Quality Act (CEQA) by the City of Encinitas Development Services Department.

Biological surveys were conducted for the project, including vegetation/habitat mapping, preliminary jurisdictional delineation, focused rare plant surveys, protocol-level focused surveys for coastal California gnatcatcher (*Polioptila californica californica*), San Diego fairy shrimp (*Branchinecta* sandiegonensis), and vernal pool fairy shrimp (*Branchinecta lynchi*), as well as mitigation assessment surveys and mapping, between 2018 and 2022. The project area supports four vegetation communities/habitat types: non-native vegetation, disturbed habitat, urban/developed, and southern maritime chaparral (including disturbed form). One sensitive natural community was found present on-site and requires compensatory mitigation for impacts: southern maritime chaparral (including disturbed form).

Four special status plant species were observed within the project area during nine rare plant surveys conducted in 2019: Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), Torrey pine (*Pinus torreyana* ssp. *torreyana*), and wart-stemmed ceanothus (*Ceanothus verrucosus*).

No special status animals have been recorded in the project area or were detected during biological surveys conducted between 2018 and 2020. Three species were determined to have a moderate potential to occur, including San Diego legless lizard (*Anniella stebbinsi*), orange-throated whiptail (*Aspidoscelis hyperythra*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*). No special status animals have a high potential to occur.

The project area was found to support several seasonal/ephemeral depressions, which were surveyed for rare plants, aquatic plants, and sensitive animals, but none were detected. These depression features were not found to support wetland conditions. Because of the historical grading and disturbances on-site, these features are not natural and are not considered jurisdictional aquatic resources as those typically

subject to the regulatory jurisdiction of the State Regional Water Quality Control Board (RWQCB) pursuant to the Clean Water Act (CWA) or Porter-Cologne Water Quality Control Act (Porter-Cologne).

The project occurs within the boundaries of the San Diego Multiple Habitat Conservation Program (MHCP) North County, which was finalized and adopted in 2003 (AMEC Earth & Environmental et al. 2003). Within the North County MHCP, the project is located in the Encinitas subarea. The Encinitas Subarea Plan is in Draft form and has not been approved or adopted (Ogden 2001). In the context of these plans, the project is not located within a Pre-Approved Mitigation Area (PAMA) or Focused Planning Area (FPA), targeted for conservation by the North County MHCP or Draft Subarea Plan, respectively. Within the Draft Encinitas Subarea Plan, a proposed FPA, targeting an area for "hardline" conservation was identified immediately adjacent to the east of project development. Additionally, U.S. Fish and Wildlife Service (USFWS) Critical Habitat for the coastal California gnatcatcher is adjacent to the site matching the limits of the Draft Subarea Plan FPA. Habitats within the FPA are contiguous with habitats at the project site.

Potential significant impacts were identified for special status species and sensitive natural communities. The mitigation measures proposed would fully mitigate the potential significant impacts on special status species and sensitive natural communities/habitats. Implementation of these mitigation measures would mitigate the potential impacts to less than significant.

The project will require the submittal of an Incidental Take Permit (ITP) application and consultation with the USFWS in accordance with Section 10 of the Federal Endangered Species Act (FESA) for impacts to federally listed species (i.e., Del Mar manzanita). To ensure, at a minimum, no net loss of sensitive vegetation communities and sensitive species by the project, mitigation measures would be implemented, which include but are not limited to the preparation and implementation of a Del Mar Manzanita and Wart Stemmed Ceanothus Mitigation and Monitoring Plan (MMP) and a Preserve Management Plan (PMP).

Compensatory mitigation for impacts to 16 Del Mar manzanita individuals and 43 wart-stemmed ceanothus individuals would be provided at a minimum 1:1 replacement ratio through transplanting or new plantings, which would occur within the proposed PFA located immediately east of the project development. Project mitigation also includes a 2:1 replacement ratio for impacts to southern maritime chaparral vegetation via the purchase of 3.0-acre credits of southern maritime chaparral habitat from the Carlsbad Oaks Conservation Bank.

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

At the request of Aspen Growth Properties, HELIX Environmental Planning, Inc. (HELIX) has completed this biological technical report for the proposed Zona Gale Estates Project (project). The purpose of this report is to document the existing biological conditions within a proposed project site (including off-site project components) and provide an analysis of potential project impacts to sensitive biological resources with respect to local, state, and federal policy. This report follows the County of San Diego Report Format and Content Requirements for Biological Resources (County 2010) and provides the biological resources technical documentation necessary for the review of the project under the California Environmental Quality Act (CEQA) by the lead agency authority, which is the City of Encinitas.

1.2 PROJECT LOCATION AND DESCRIPTION

The project study area evaluated for this biological resources technical report includes the subject property, surrounding areas within 100 feet of the property, and the off-site infrastructure connections/improvement areas. The information, analysis, and discussions in this report primarily describe the project, which is defined by the subject property "on-site" development and off-site infrastructure areas. Areas within the 100-foot surrounding buffer (i.e., study area) were reviewed for adjacency context as well as the opportunity for potential mitigation. Other than providing mitigation for the project, areas within the 100-foot buffer study area are not discussed in detail herein.

1.2.1 Project Location

The project is located approximately 1.2 miles east of Interstate (I-) 5, approximately 0.4-mile north of Encinitas Boulevard, and just west of Via Cantebria in the City of Encinitas in north San Diego County, California (Figure 1, *Regional Location*). Further and more specifically, the site occurs immediately east and north of Zona Gale Road (Figure 2, *USGS Topography*). Primary access to the site is provided by Zona Gale Road. The site is depicted within Section 11 of Township 13 South, Range 4 West of the U.S. Geological Survey (USGS) 7.5-minute topographic Encinitas quadrangle map (Figure 3, *Aerial Photograph of Project Site*). The project site occurs within Assessor's Parcel Number (APN) 257-040-11-10, which consists of approximately two acres. The project is located within the City's Special Study Overlay Zone, within the Coastal Zone.

The project is located within the boundaries of the Multiple Habitat Conservation Program (MHCP) North County, which was finalized and adopted in 2003 (AMEC Earth & Environmental et al. 2003). Within the North County MHCP, the project is located in the Encinitas subarea. The Encinitas Draft Subarea Plan has not been approved or adopted (Ogden 2001). In the context of these plans, the project is not located within a Pre-Approved Mitigation Area (PAMA) or Focused Planning Area (FPA), targeted for conservation by the North County MHCP or Draft Subarea Plan, respectively. The project is not located within USFWS designated or proposed critical habitat (Figure 4, *Regional Planning Context*).

1.2.2 Project Description

The project consists of residential subdivision development on undeveloped land and infrastructure improvements/connections within existing developed areas. The project would generally include site grading and new construction. Specifically, the project proposes to construct nine detached residences, a

biofiltration basin, landscaping, and other necessities (a paved road, private driveways, and additional off-street parking areas). The project also includes connections and improvements to existing public infrastructure off-site beyond the property such as, but not limited to: new portions of Zona Gale Road and utility improvements within Via Cantebria (Figure 5, *Site Plan*).

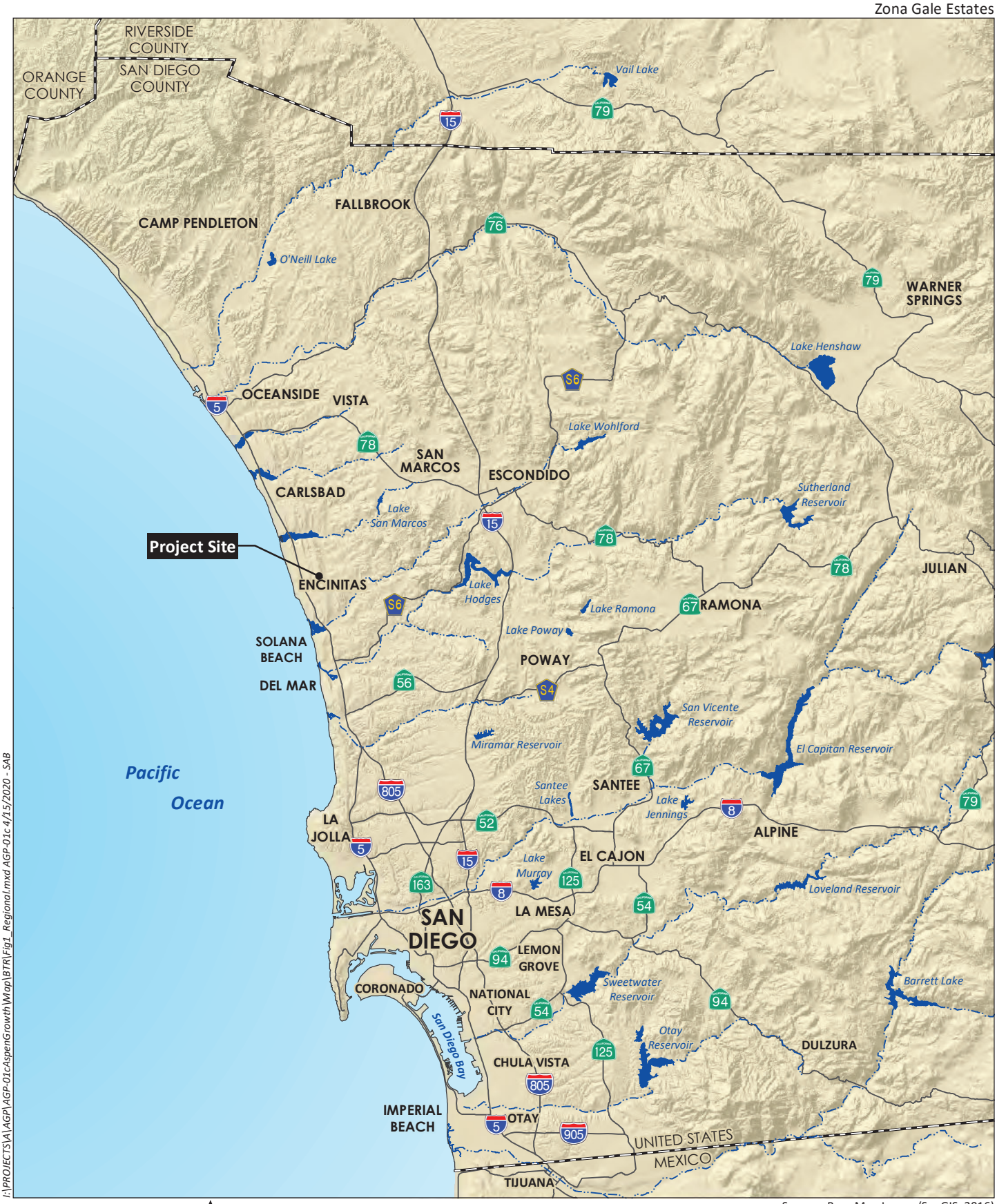
1.3 SURVEY METHODOLOGIES

1.3.1 Literature Review

Prior to conducting the field surveys, HELIX performed a review of relevant maps, databases, and literature pertaining to biological resources known to occur within the project vicinity. Recent and historical aerial imagery (Google 2020; NETRonline 2020), topographic maps (USGS 2020), soils maps (Natural Resource Conservation Service 2020), and other maps of the project boundary and vicinity were reviewed to obtain information on the natural environmental setting. In addition, a query of sensitive species and habitats within a two-mile radius of the project was conducted, including the following databases: the California Natural Diversity Database (CNDDB; California Department of Fish and Wildlife [CDFW] 2020a-c), the California Native Plant Society (CNPS) Electronic Inventory (CNPS 2020). Additionally, HELIX conducted a review of pertinent information from USFWS, SanBIOS, CalFlora, the North County MHCP, and the San Diego Plant Atlas (SDNHM 2010).

1.3.2 General Biological Surveys

A general biological survey of the project site and an additional 100-foot buffer (which made up the study area) was conducted by HELIX biologist Jason Kurnow on February 26, 2020. Mr. Kurnow conducted a follow-up survey of the proposed off-site infrastructure improvement areas on May 30, 2020. Additionally, surveys were conducted within the eastern portion of the study area by HELIX biologists to identify and quantify potential mitigation areas; surveys were performed by Angelia Bottiani on August 23, 2023, and Ryan Fitch on August 31, 2023. The biological surveys conducted by HELIX for the project were performed on foot, with the aid of binoculars and a Global Positioning System (GPS) unit. A 1-inch = 50-foot scale aerial map with an overlay of the project boundary was carried throughout the survey to map existing vegetation communities, habitats, and land cover types. A minimum mapping unit size of 0.1 acre was used when mapping uplands vegetation and a 0.01-acre minimum mapping unit was applied for any wetland or riparian vegetation, where present. Plant and animal species observed or otherwise detected within the study area were recorded in the field during the surveys. Animal identifications were made by direct, visual observation or indirectly by detection of calls, burrows, tracks, or scat. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs. Lists of plants and animal species detected during the surveys were recorded directly in the field and are presented in Appendices A and B, respectively. The locations of special-status plant and animal species were mapped, if observed or otherwise detected. The project site and off-site improvement areas were examined for evidence of potential jurisdictional waters and wetlands, including vernal pools. Areas beyond the project site and outside of the off-site improvement areas that occur within the 100-foot buffer study area were evaluated for mitigation opportunity and proposed project development adjacency context purposes only.



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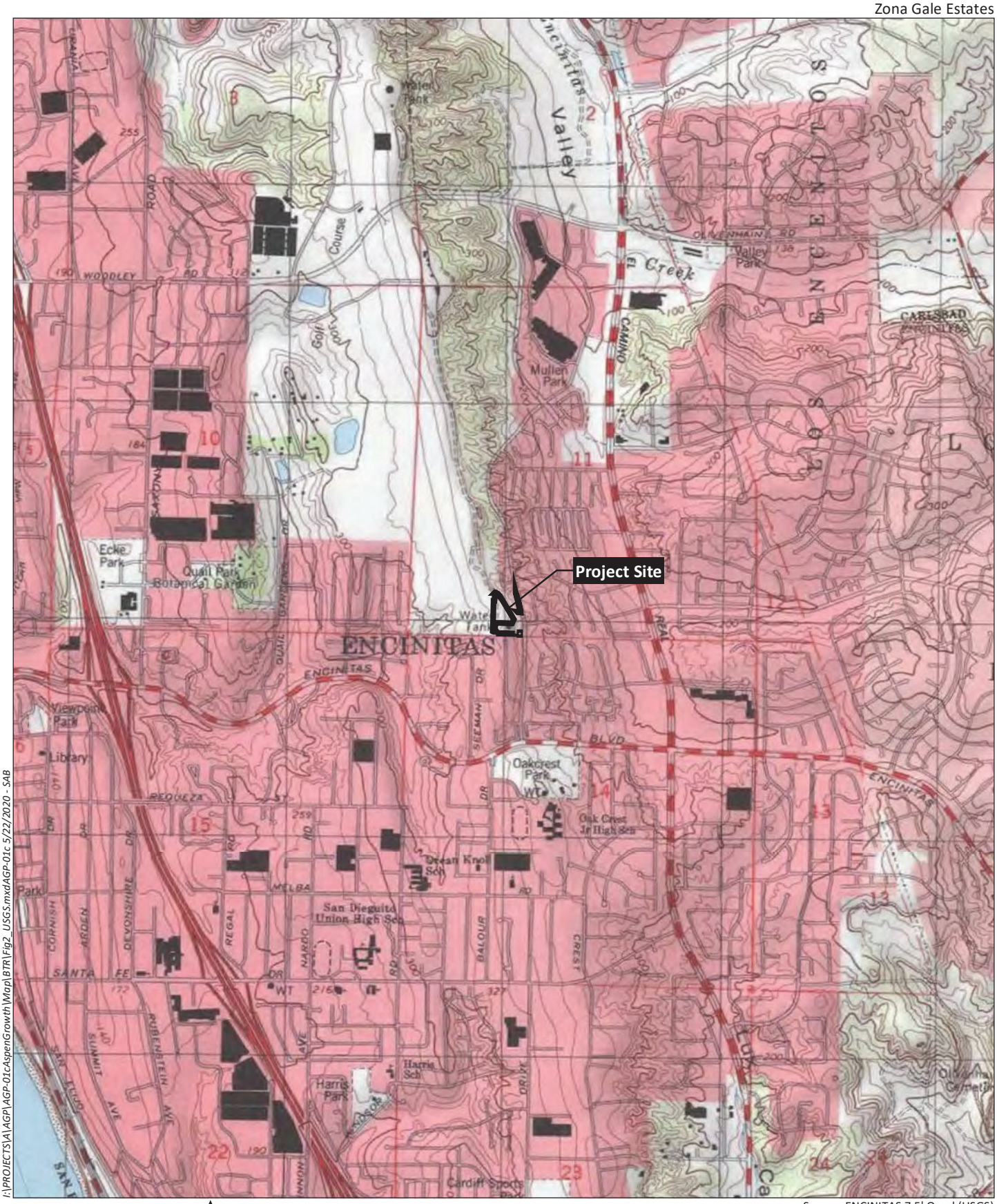
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



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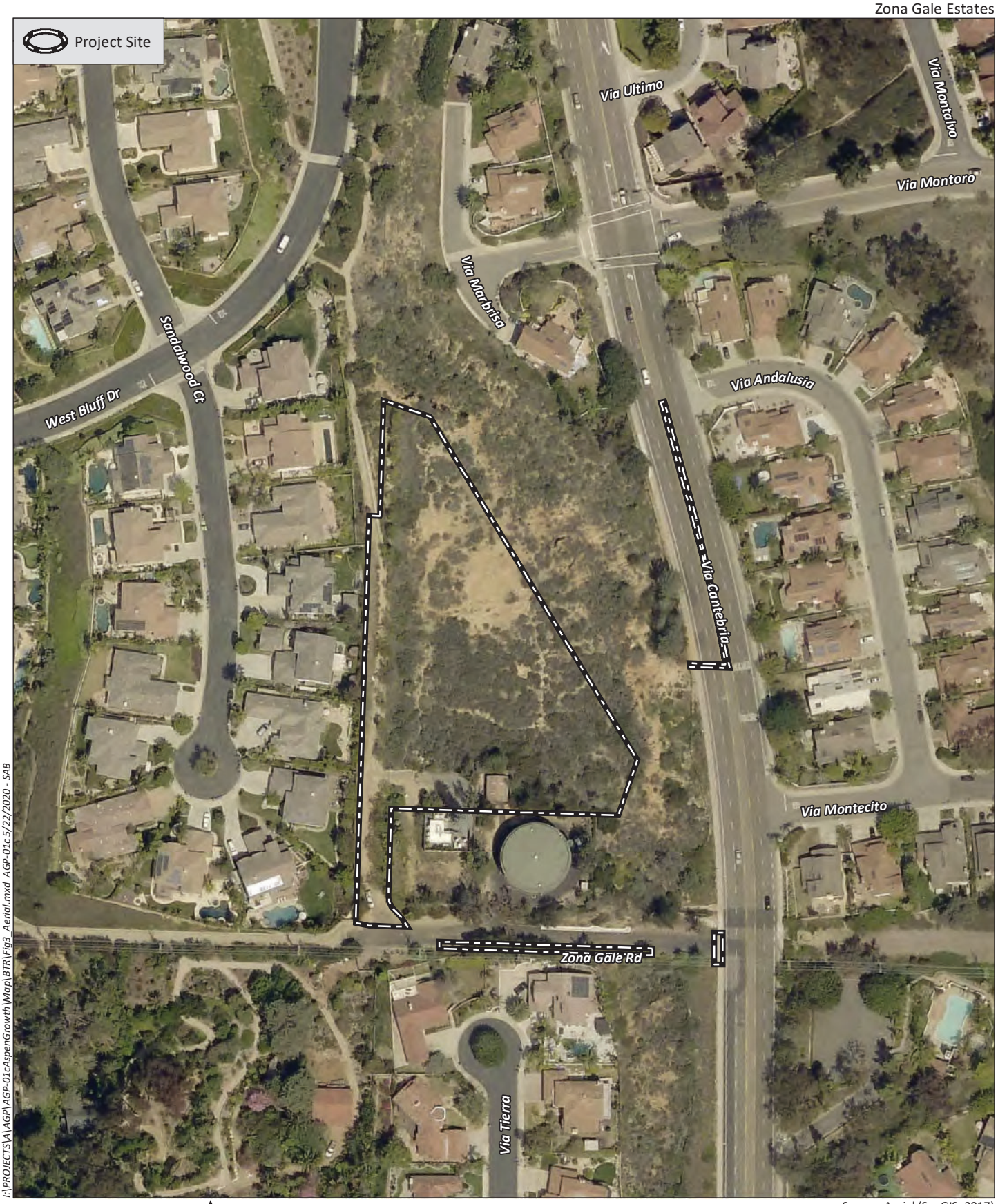
0 2,000 Feet

Source: ENCINITAS 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2



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0 150 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Aerial Photograph of Project Site

Figure 3



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0 300 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Regional Planning Context

Figure 4



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0 100 Feet

Source: Aerial (NearMap, 2019)

HELIX Environmental Planning

Site Plan

Figure 5

1.3.3 Focused Species Surveys

Rare Plants

Rare plant surveys were conducted across the project site nine times by Cadre Environmental between January 25 and April 18, 2019 (Cadre 2019a). Generally, the survey methods followed the standards and guidance provided by CNPS and CDFW. Specific methods and findings are provided in the Sensitive Plant Focused Surveys report prepared by Cadre Environmental, which is attached to this report as Appendix C.

Coastal California Gnatcatcher

A focused survey for the coastal California gnatcatcher (*Polioptila californica californica*) was conducted in 2019 in accordance with the *Coastal California Gnatcatcher Presence/Absence Survey Protocol* (USFWS 1997) by Cadre Environmental. The survey consisted of nine site visits made between January 25 through April 19, 2019 (Cadre 2019b). Specific methods and findings are provided in the Coastal California Gnatcatcher United States Fish and Wildlife Service Focused Surveys report prepared by Cadre Environmental, which is attached to this report as Appendix D.

Fairy Shrimp

Focused dry-season and wet-season surveys for the San Diego fairy shrimp (*Branchinecta sandiegoensis*), Riverside fairy shrimp (*Streptocephalus woottoni*), and vernal pool fairy shrimp (*Branchinecta lynchi*) were conducted in 2018 and 2019, respectively, by M.J. Klinefelter Consulting (2019). Surveys were conducted in accordance with the *U.S. Fish and Wildlife Service (USFWS) Survey Guidelines for the Listed Large Branchiopods to Permittees for Recovery Permits Under Section 10(a)(1)(A) of the Endangered Species Act* (USFWS 2015). Specific methods and findings are provided in the 90-Day Letter Report of Vernal Pool Branchiopod Sampling prepared by M.J. Klinefelter Consulting, which is attached to this report as Appendix E.

1.3.4 Jurisdictional Delineation

An assessment of potentially jurisdictional aquatic resources was conducted in 2018 by Pangea Biological. HELIX also conducted a preliminary assessment of potential jurisdictional aquatic resources concurrent with the general biological surveys. The assessment was conducted to identify and map potential wetlands and other waters of the U.S. subject to U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), waters of the State subject to Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to CWA Section 401 and State Porter-Cologne Water Quality Control Act (Porter-Cologne), and streambed and riparian habitat subject to CDFW jurisdiction pursuant to Sections 1600 *et seq.* of the California Fish and Game Code (CFG Code). Areas generally characterized by depressions, drainage features, and riparian and wetland vegetation were evaluated.

Waters of the U.S. (USACE Jurisdiction)

Potential USACE-jurisdictional waters of the U.S. were delineated by HELIX in accordance with the Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). Areas were determined to be potential wetland waters of the U.S. if there was a dominance of hydrophytic vegetation, hydric soils, and

wetland hydrology indicators. Areas were determined to be non-wetland waters of the U.S. if there was evidence of regular surface flow within an OHWM, but the vegetation and/or soils criterion were not met.

Waters of the State (RWQCB Jurisdiction)

In the context of HELIX's assessment, potential RWQCB-jurisdictional waters of the State include the same areas delineated as potential USACE-jurisdictional wetlands or waters of the U.S. Additionally, features that support aquatic resources (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology), but are isolated (i.e., lack downstream connectivity to traditional navigable waters of the U.S.) could be subject to regulation pursuant to the State Porter-Cologne Water Quality Control Act (Porter-Cologne) and were identified as potential RWQCB-jurisdictional waters of the State.

Streambed and Riparian Habitat (CDFW Jurisdiction)

Potential CDFW-jurisdictional streambed and riparian habitat were determined by HELIX based on the presence of riparian vegetation or regular surface flow within a definable bed and bank. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72). Potential CDFW jurisdictional unvegetated-streambed encompasses the top-of-slope to top-of-slope width for the ephemeral streams and includes all riparian shrub or tree canopy extending beyond the top-of-slope.

1.3.5 Tree Survey

HELIX arborist, Alexander Walsh (WE-12997A), certified by the International Society of Arboriculture (ISA), completed a tree survey of the project site on July 29, 2021. The focus of the survey was to document and assess all Torrey pine (*Pinus torreyana*) trees within the project site. A total of six trees were identified, and their locations were recorded using a GPS unit with sub-meter accuracy. Additionally, all of these trees were evaluated, and the following data was collected in the field for each tree: average tree canopy spread, height, trunk diameter at breast height (DBH), and overall tree health and vigor (HELIX 2021).

1.3.6 Survey Limitations

Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the lists of species identified are not necessarily comprehensive accounts of all species that utilize the study area as species that are nocturnal, secretive, or seasonally restricted may not have been observed. Those species that are of special status and have the potential to occur in the study area, however, are still addressed in this report.

1.3.7 Nomenclature

Nomenclature used in this report generally comes from Holland (1986) and Oberbauer (2008) for vegetation; Baldwin et al. (2012) for plants; Collins et al. (2006) for reptiles; and American Ornithologists' Society (2019) for birds. Plant species status is from the California Native Plant Society (CNPS; 2020), CDFW (2020a), and County (2010). Animal species status is from CDFW (2020b and 2020c).

1.4 ENVIRONMENTAL SETTING – EXISTING CONDITIONS

1.4.1 Regional Context

The site is located within the boundaries of the North County MHCP (AMEC Earth & Environmental et al. 2003). Implementation of the North County MHCP is contingent upon approval of a subarea habitat conservation plan for each subarea (i.e., City). The City of Carlsbad Habitat Management Plan is the only approved and adopted sub-regional plan for the MHCP. The project is recognized within the Encinitas Subarea, which has a Draft Encinitas Subarea Plan, but was never approved or adopted and remains in draft form as of the date of this document (Ogden 2001). Although not adopted for the Encinitas subarea, in the context of the MHCP, the project site does not occur within or adjacent to PAMA. Within the Draft Encinitas Subarea Plan, a proposed "hardline" conservation (FPA) was identified immediately adjacent to the east of the project site. Additionally, USFWS Critical Habitat for the coastal California gnatcatcher is adjacent to the east of the site, matching the limits of the Draft Subarea Plan FPA (Figure 4). The project site is within the incorporated municipal boundaries of the City; thus, in the jurisdiction and under the lead agency authority of the City.

1.4.2 General Land Uses

Current land uses at the project site primarily include undeveloped land and native vegetation, with a few areas of the site disturbed as reflected by the areas of bare ground and planted schemes of non-native ornamental vegetation. Based on a review of historical imagery, site disturbances seem to be a result of initial land clearing in 1947 and possibly earlier (data available does not go earlier than 1947), previous activities from the adjacent nursery operations (early 1960s through 1999), and construction/access to an above ground water storage tank (constructed sometime between 1964 and 1967) (NETRonline 2020). The old access roads and areas historically cleared of vegetation on-site have somewhat revegetated over time; however, areas of bare ground and stands of non-native vegetation remain on-site. One of these old access roads is still used to access the site, which will be improved and paved as an extension of Zona Gale Road as part of the proposed project.

Existing development occurs immediately adjacent to the site to the south and west; undeveloped lands are located north and east of the site, but only for approximately 50 to 100 linear feet before interfacing with existing city streets and residential development (Figure 3).

1.4.3 Topography and Soils

Elevations at the project site range from approximately 378 feet above mean sea level (AMSL) in the northwest portion of the site to approximately 395 feet AMSL in the southwest portion of the site. The study area is generally flat (less than 10 percent slopes), sloping westward, but immediately west and north of the site contains a southeast-to-northwest trending ridgeline supporting relatively steep east-facing and northeast-facing hillsides (Figure 2).

Two soil types have been mapped on the project site: Carlsbad gravelly loamy sand, 2 to 5 percent slopes, and Terrace escarpments (Natural Resource Conservation Service [NRCS] 2020; Figure 6, *Soils*).

1.4.4 Vegetation Communities/Habitat Types

Four vegetation communities/habitat types occur in the study area, as presented in Table 1, *Existing*

Vegetation/Habitat Types, below and reflected on Figure 7, *Vegetation, Land Cover Types, and Special-Status Species*. The numeric codes in parentheses following each community/habitat type name are from the Holland classification system (Holland 1986) and as added to by Oberbauer (2008) as presented in the County's Biology Guidelines (County 2010). The communities/habitat types are described below in order by Holland code.

Table 1
EXISTING VEGETATION/HABITAT TYPES [1]

Vegetation Community or Land Cover Type	Project Site		TOTAL
	On-Site	Off-Site	
Upland			
Non-native Vegetation (11000)	0.3	0.1	0.4
Disturbed Habitat (11300)	0.3	0.1	0.4
Developed (12000)	0.1	0.1	0.2
Southern Maritime Chaparral (37C30)	1.2	-	1.2
Southern Maritime Chaparral-disturbed form (37C30)	0.2	-	0.2
TOTAL	**2.1**	**0.3**	**2.4**

[1] Acres rounded to the nearest 0.1 acre.

Non-native Vegetation

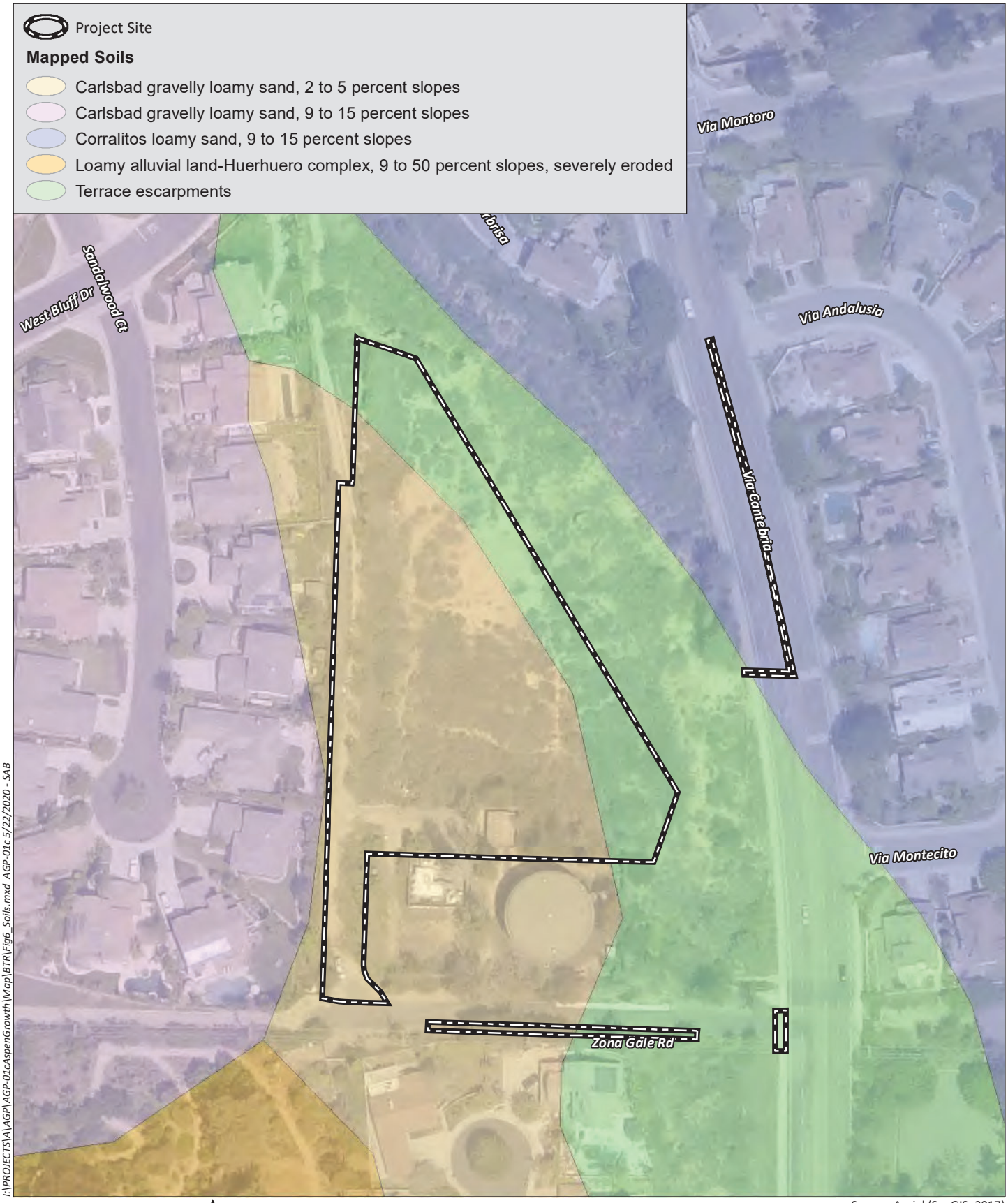
Non-native vegetation is defined as areas characterized predominantly by non-native species introduced and established through human action. These areas are not typically artificially irrigated, but receive water from precipitation or runoff (Oberbauer 2008). Non-native vegetation mapped at the project site reflects stands of planted trees and shrubs located along the western and southern boundaries of the site. Non-native vegetation comprised of ornamental and naturalized plant species used in typical landscaping schemes such as hottentot fig (*Carpobrotus edulis*), Cootamundra wattle (*Acacia baileyana*), bank catclaw (*Acacia redolens*), ngaio tree (*Myoporum laetum*), and Brisbane box tree (*Lophostemon confertus*) (Cadre 2019).

Disturbed Habitat

Disturbed habitat is characterized by areas that have been physically disturbed (by previous legal human activity) and are no longer recognizable as a native or naturalized vegetation association but continue to retain a soil substrate. Typically, vegetation, if present, is nearly exclusively composed of non-native plant species such as ornamentals or ruderal exotic species that take advantage of disturbance or show signs of past or present animal uses that remove any capability of providing a viable natural habitat for uses other than dispersal (Oberbauer 2008). Areas of disturbed habitat on the project site reflect the historical dirt access road, other access trails, and areas dominated by non-native annual weedy plant species.

Urban/Developed

Urban/developed land includes areas that have been constructed upon or otherwise covered with a permanent, unnatural surface and may include, for example, structures, pavement, irrigated landscaping, or hardscape to the extent that no natural land is evident. These areas no longer support native or naturalized vegetation (Oberbauer 2008). Urban/developed land in the study area consists of the paved areas on-site, portions of City streets, and areas associated with the water storage tank facility.

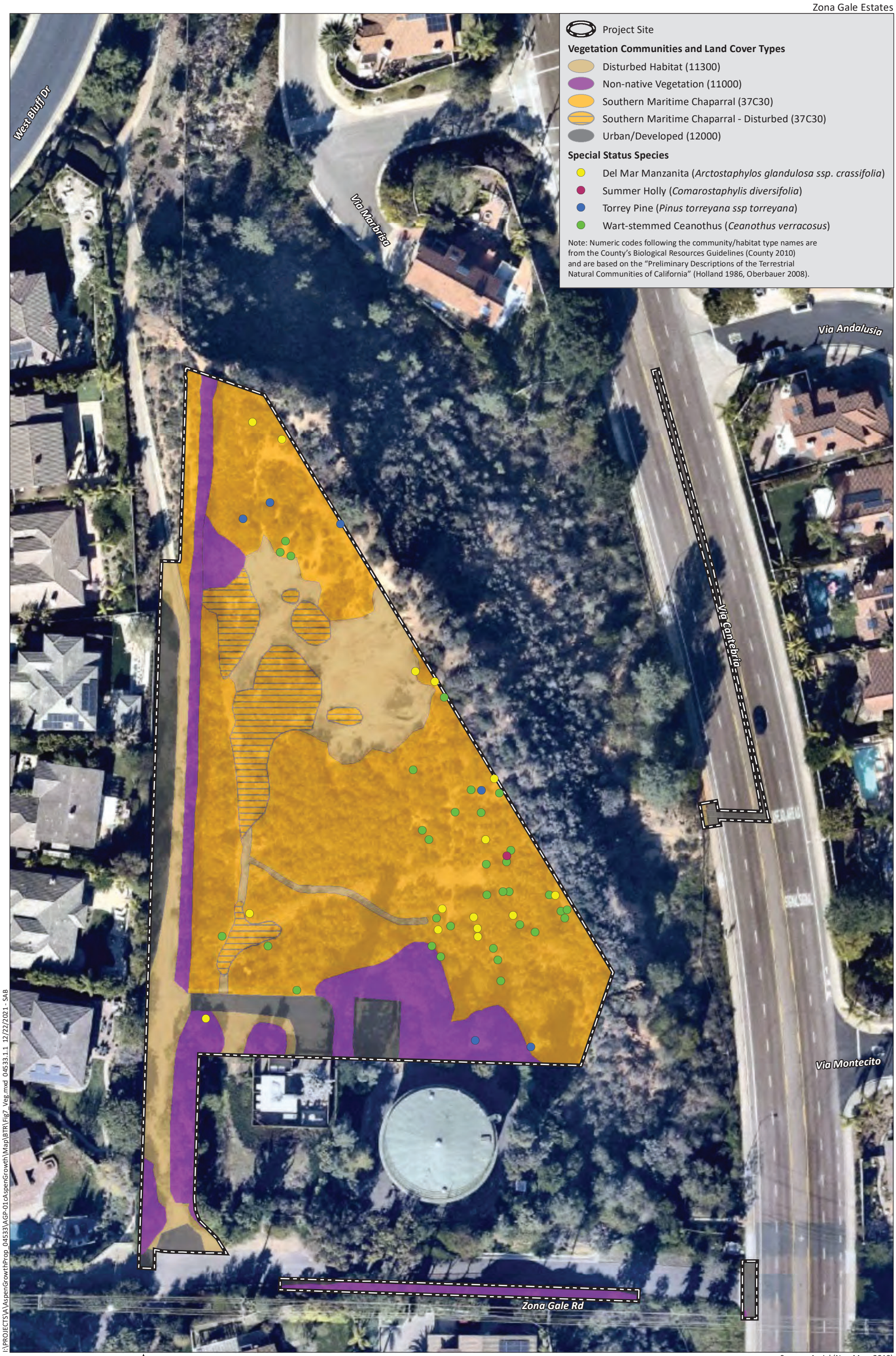


Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Soils

Figure 6



Source: Aerial (NearMap, 2019)

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HELIX Environmental Planning

Vegetation, Land Cover Types, and Special-Status Species

Figure 7

Southern Maritime Chaparral (Including Disturbed Form)

Southern maritime chaparral is a low-growing, fairly open chaparral community dominated by wart-stemmed ceanothus (*Ceanothus verrucosus*) and Del Mar Manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*) is found on weathered sandy soils within the coastal fog belt (Oberbauer 2008).

Southern maritime chaparral vegetation within San Diego County is represented by a distinct species composition and distribution; signature species include: Del Mar manzanita, chamise (*Adenostoma fasciculatum*), ceanothus, Torrey pine, Indian pink (*Silene laciniate*), rein orchid (*Piperia unalascensis*), short-leaved dudleya (*Dudleya brevifolia (blochmaniae ssp. brevifolia*), Encinitas baccharis (*Baccharis vanessae*), Nuttall's scrub oak (*Quercus dumosa*), Orcutt's spineflower (*Chorizanthe orcuttiana*), lemonade berry (*Adenostoma fasciculatum*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), Mojave yucca (*Yucca schidigera*), and/or redberry (*Rhamnus crocea*) (Hogan 1996). There are two forms of southern maritime chaparral in San Diego County; one form is found on coastal/ocean bluffs, and the second form is found inland within four miles of the Pacific coast but may be located up to five miles inland. Inland areas beyond five miles from the coastline support other kinds of chaparral vegetation that replace southern maritime chaparral (Hogan 1996). Southern maritime chaparral is the predominant vegetation community occupying approximately 67 percent of the project site and supports wart-stemmed ceanothus, Del Mar manzanita, Torrey pine, and summer holly. Areas mapped as "disturbed" southern maritime chaparral were where non-native species cover was more prevalent and ranged from 25 to 50 percent.

1.4.5 Flora

HELIX identified a total of 37 plant species recorded at the project site during the general biological surveys in 2020, of which seven species (19 percent) are non-native species (Appendix A). Additional plant species were observed by Cadre Environmental during the focused rare plant surveys and the associated list of species observed is provided in that report (Appendix C).

1.4.6 Fauna

A total of eight animal species were observed or otherwise detected by HELIX at the project site during the general biological surveys in 2020; including one invertebrate and six bird species (Appendix B). Additional animal species (all birds) were observed by Cadre Environmental during the focused California gnatcatcher surveys and the associated list of species observed is provided in that report (Appendix D).

1.4.7 Sensitive Vegetation Communities/Habitat Types

Sensitive vegetation communities/habitat types are defined as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the State CEQA Guidelines.

One sensitive vegetation community/habitat type was mapped at the project site, southern maritime chaparral. The remaining areas at the project site include non-native vegetation, disturbed habitat, and urban/developed, which are not considered sensitive.

1.4.8 Special Status Plant Species

Special status plant species have been afforded special status and/or recognition by the USFWS and/or CDFW and may also be included in the CNPS' Inventory of Rare and Endangered Plants. Their status is often based on one or more of three distributional attributes: geographic range, habitat specificity, and/or population size. A species that exhibits a small or restricted geographic range (such as those endemic to the region) is geographically rare. A species may be more or less abundant but occur only in very specific habitats. Lastly, a species may be widespread but exists naturally in small populations.

Special Status Plant Species Observed

Four special status plant species were observed at the project site during biological surveys as discussed below and presented on Figure 7.

Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)
Status: Federally listed as Endangered, CNPS Rare Plant Rank 1B.1. Proposed as a Covered Species and Narrow Endemic under the North County MHCP (Appendix C)
Distribution: A few cities within San Diego County and south into northwestern Baja California, Mexico.
Habitat(s): This perennial, evergreen shrub typically blooms sometime between December and June and can be found within chaparral vegetation types (e.g., southern maritime and southern mixed chaparrals). This species prefers maritime and sandy soils.
Presence in the Project Area: Nineteen Del Mar manzanita individuals occur on-site, most of them in the eastern and southeastern portion of the project site. Several individuals of this species were also found within the study area, within the FPA located immediately east of the proposed development.

Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)
Status: CNPS Rare Plant Rank 1B.2. Proposed as a Covered Species under the North County MHCP (Appendix C).
Distribution: Orange, Riverside, and San Diego counties south into Baja California, Mexico.
Habitat(s): This perennial evergreen shrub that may bloom from April to June occurs on mesic north-facing slopes in southern mixed chaparral. Rugged steep drainages seem to be a preferred location for isolated individuals.
Presence in the Project Area: One summer holly individual occurs on-site, in the southeastern portion of the project site.

Torrey pine (*Pinus torreyana* ssp. *torreyana*)
Status: CNPS Rare Plant Rank 1B.2. Proposed as a Covered Species under the North County MHCP (Appendix C).
Distribution: Northern portions of San Diego County, along the coast.
Habitat(s): This perennial evergreen tree can be found along the coast within coastal sage scrub and chaparral vegetation types (e.g., southern maritime and southern mixed chaparrals).
Presence in the Project Area: Six naturalized (presumably not planted) Torrey pine trees occur, most of them in the eastern and southeastern portion of the project site.

Wart-stemmed ceanothus (*Ceanothus verrucosus*)
Status: CNPS Rare Plant Rank 2B.2. Proposed as a Covered Species under the North County MHCP (Appendix C).
Distribution: Western San Diego County and adjacent Baja California, Mexico.
Habitat(s): This perennial evergreen shrub that may bloom from December to May occurs in chaparral.
Presence in the Project Area: Forty-three wart-stemmed ceanothus individuals occur, most of them in the eastern and southeastern portion of the project site. Several individuals of this species were also found within the study area, within the FPA located immediately east of the proposed development.

Special Status Plant Species with Potential to Occur

No other special status plant species have a high potential to occur on-site and because focused sensitive plant surveys were conducted, no other special status plants are expected to occur on-site. Special status plant species evaluated for the potential to occur at the project site are listed in Appendix F.

1.4.9 Special Status Animal Species

Special status animal species include those that have been afforded special status and/or recognition by the USFWS and/or CDFW. In general, the principal reason an individual taxon (species or subspecies) is given such recognition is the documented or perceived decline or limitations of its population size or geographical extent and/or distribution, resulting in most cases from habitat loss.

Special Status Animal Species Observed or Otherwise Detected

No special status animal species have been observed or detected in the project area during the biological surveys.

Special Status Animal Species with Potential to Occur

Special status animal species that were not observed but were evaluated for the potential to occur in the study area are listed in Appendix G. No special status animal species are considered to have a high potential to occur in the study area, but three special status animal species have a moderate potential to occur, including San Diego legless lizard (*Anniella stebbinsi*), orange-throated whiptail (*Aspidoscelis hyperythra*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*).

A protocol survey for the coastal California gnatcatcher was conducted in 2019 and was negative, indicating the site is not occupied by the coastal California gnatcatcher. This species is federally threatened and is a covered species under the North County MHCP. Because the site does not support suitable coastal sage scrub habitat typically preferred by this species for breeding, the potential for the species to colonize the site in the future is considered low. Specific methods and results of the surveys are provided in the Coastal California Gnatcatcher United States Fish and Wildlife Service Focused Surveys report prepared by Cadre Environmental, which is attached to this report as Appendix D.

Focused protocol dry-season and wet-season surveys for the federally endangered San Diego fairy shrimp, federally endangered Riverside fairy shrimp, and the federally threatened vernal pool fairy shrimp were conducted across the project site in 2018 and 2019. Survey results were negative, and no fairy shrimp species were detected. San Diego and Riverside fairy shrimp are covered species under the North County MHCP. Vernal pool shrimp is not a North County MHCP-covered species. Specific methods and results of

the surveys are provided in the 90-day Letter Report of Wet Season Vernal Pool Branchiopod Sampling Surveys report prepared by M.J. Klinefelter Consulting, which is attached to this report as Appendix E.

1.4.10 Jurisdictional Wetlands and Waters

Wetlands

There are no potential wetland waters of the U.S. on-site that would be considered subject to USACE jurisdiction under Section 404 of the CWA. Additionally, there are no potential wetlands on-site that would be classified as wetland waters of the State subject to RWQCB jurisdiction pursuant to CWA Section 401.

Non-Wetland Waters of the U.S./State

There are no potential waters of the U.S. under the jurisdiction of the USACE on the project site. Additionally, there are no potential waters of the State subject to RWQCB jurisdiction pursuant to CWA Section 401 or Porter-Cologne. The "seasonal depressions" (i.e., ephemeral basins) detected on-site and surveyed for fairy shrimp and rare plants were thoroughly evaluated. Because of the historical and ongoing grading/clearing of the site (dating back to 1947 and possibly earlier), and that the locations of these depressions are within these historically graded areas, they are assumed artificial and a result of these historical anthropogenic disturbances. Prior to the historical disturbances, there is no evidence available that suggests pools, ponds, or other aquatic features occurred on-site or immediately off-site. Further, negative results of the protocol fairy shrimp surveys and the lack of finding wetland aquatic plants during focused plant surveys also suggest these depressions are not natural. Therefore, these depressions were considered non-wetland, non-waters, and non-jurisdictional.

Streambed and Riparian Habitat

There are no streambeds or riparian habitat on the project site that would be under the jurisdiction of CDFW pursuant to Sections 1600-1603 of the CFG Code.

1.4.11 Habitat Connectivity and Wildlife Corridors

Wildlife corridors connect otherwise isolated pieces of habitat and allow the movement or dispersal of plants and animals. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations. A corridor is a specific route that is used for the movement and migration of species, and may be different from a linkage in that it represents a smaller or narrower avenue for movement. A linkage is an area of land that supports or contributes to the long-term movement of animals and genetic exchange by providing live-in habitat that connects to other habitat areas. Many linkages occur as stepping-stone linkages that are comprised of a fragmented archipelago arrangement of habitat over a linear distance.

Important corridors and linkages have been identified on a local and regional scale throughout the North County MHCP (AMEC Earth & Environmental et al. 2003). The planning objectives of most corridors and linkages in western San Diego County include establishing a connection between the northern and southern regional populations of the coastal California gnatcatcher, in addition to facilitating movement and connectivity of habitat for large mammals and riparian bird species.

The project site is not located within an identified corridor, or habitat linkage, and does not occur within or adjacent to any lands identified as PAMA under the North County MHCP or FPA conservation areas under the Draft Encinitas Subarea Plan. A proposed FPA for hardline conservation is located immediately adjacent to the east of the project site and is contiguous with narrow bands (less than 150 linear feet) of habitat north and south of the project site (Figure 4). USFWS critical habitat for the coastal California gnatcatcher is recorded adjacent to the site overlapping with the Draft Subarea Plan FPA lands; however, coastal California gnatcatcher has not been recorded during focused surveys and has low potential to occur due to a lack of suitable sage scrub habitat.

Although the habitats on-site are contiguous with off-site habitats within the proposed FPA, the habitats are constrained in function by natural steep topography along the northern/eastern property boundaries and the existing surrounding development. Adjacent off-site habitat is limited to narrow bands of vegetation that may be used by smaller urban-adapted mammal species and bird species. The site is nearly surrounded by existing development and does not serve as a regional wildlife corridor or substantial habitat linkage that would be used by large mammals, riparian birds, or migratory birds.

1.5 APPLICABLE REGULATIONS

Biological resources in the project area are subject to regulatory review by federal, State, and local agencies. Under CEQA, impacts associated with a proposed project or program are assessed with regard to significance criteria determined by the CEQA Lead Agency (in this case, the City) pursuant to CEQA Guidelines. Biological resources-related laws and regulations that apply to the project include the federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), Porter-Cologne, CEQA, Natural Communities Conservation Planning Act, and CFG Code.

With respect to the proposed Project, the USFWS will be responsible for reviewing issues related to Del Mar manzanita pursuant to the FESA, migratory birds pursuant to the MBTA, and regional conservation planning in light of the North County MHCP. The CDFW will be responsible for reviewing issues related to nesting birds and raptors pursuant to CFG Code and regional conservation planning in light of the North County MHCP.

The City is the lead agency for the CEQA environmental review process in accordance with State law and local ordinances. During CEQA review, the City will be responsible for reviewing project issues pursuant to CEQA Appendix G. The City will also be responsible for reviewing the proposed project, with respect to conservation planning in light of the North County MHCP, and consistency with biological elements of the City's Draft Subarea Plan.

1.5.1 Federal Government

Federal Endangered Species Act

Administered by the USFWS, the FESA provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a 'take' under the FESA. Section 9(a) of the FESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." 'Harm' and 'harass' are

further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

The USFWS designates critical habitat for endangered and threatened species. Critical habitat is defined as areas of land that are considered necessary for endangered or threatened species to recover. The ultimate goal is to restore healthy populations of listed species within their native habitats so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the FESA, all federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of the critical habitat.

Section 10(a) of the FESA regulates actions that could jeopardize endangered or threatened species. Section 10(a) allows the issuance of permits for incidental take of endangered or threatened species with the preparation of a Habitat Conservation Plan (HCP) when there is no federal nexus. The term "incidental" applies if the taking of a listed species is incidental to, and not the purpose of, an otherwise lawful activity. An HCP demonstrating how the taking would be minimized and how steps taken would ensure the species' survival must be submitted for issuance of Section 10(a) permits.

Migratory Bird Treaty Act

All migratory bird species that are native to the U.S. or its territories are protected under the federal MBTA, as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is now used to place restrictions on the disturbance of active bird nests during the nesting season (generally February 1 to August 31). In addition, the USFWS commonly places restrictions on disturbances allowed near active raptor nests.

1.5.2 State of California

California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (or impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

Porter-Cologne Water Quality Control Act

This statute regulates surface waters and wetlands within the state and is governed by the RWQCB. Features that support aquatic resources (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology), but are isolated (i.e., lack downstream connectivity to waters of the U.S.) could be subject to regulation pursuant to the State Porter-Cologne Water Quality Control Act (Porter-Cologne). Impacts to isolated wetlands and/or waters of the State require an Individual Order for Waste Discharge Requirement Permit from the RWQCB.

California Fish and Game Code

The CFG Code provides specific protection and listing for several types of biological resources. Pursuant to CFG Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS.

Natural Communities Conservation Planning Act

The Natural Communities Conservation Planning (NCCP) program is a cooperative effort to protect habitats and species. It began under the State's NCCP Act of 1991, legislation broader in its orientation and objectives than the CESA or FESA. These laws are designed to identify and protect individual species that have already declined significantly in number. The NCCP Act of 1991 and the associated Southern California Coastal Sage Scrub NCCP Process Guidelines (1993a), Southern California Coastal Sage Scrub NCCP Conservation Guidelines (1993b), and NCCP General Process Guidelines (1998) have been superseded by the NCCP Act of 2003, which was amended most recently in 2012 (CDFW).

The primary objective of the NCCP program is to conserve natural communities at the ecosystem level while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by a species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

This voluntary program allows the state to enter into planning agreements with landowners, local governments, and other stakeholders to prepare plans that identify the most important areas for a threatened or endangered species, and the areas that may be less important. These NCCP plans may become the basis for a State permit to take threatened and endangered species in exchange for conserving their habitat. The CDFW and USFWS worked to combine the NCCP program with the federal HCP process to provide take permits for state and federal listed species. Under the NCCP, local governments, such as the City and County, can take the lead in developing these NCCP plans and become the recipients of state and federal take permits. The County has an adopted NCCP plan for the project site, the North County MHCP; however, the Encinitas Subarea Plan is still in draft form.

1.5.3 Local

San Diego County Multiple Habitat Conservation Program

The MHCP Plan spans across northwestern San Diego County and has goals of providing protection for over 80 special status species and approximately 19,000 acres of proposed conservation land (AMEC Earth & Environmental et al. 2003). The City of Encinitas and six additional city jurisdictions (Carlsbad, Escondido, Oceanside, Solana Beach, San Marcos, and Vista) make up the MHCP Plan area. It is a comprehensive, long-term habitat conservation plan that addresses the needs of multiple species by identifying key areas for preservation as open space in order to link core biological areas into a regional

wildlife preserve. The North County MHCP is one of several large multiple jurisdictional habitat planning efforts in San Diego County, each of which constitutes a subregional plan under the NCCP Act of 1991. The MHCP includes incorporated cities in northwestern San Diego County that will implement their respective portions of the MHCP through citywide "subarea" plans, which describe the specific implementing mechanisms each city will institute for the MHCP.

The project site is located within the Encinitas Subarea, which has a Draft Subarea Plan, but was never approved or adopted and remains in draft form as of the date of this report (Ogden 2001). Although not adopted, the Draft Encinitas Subarea Plan identifies potential preserve areas as "FPAs" which reflect areas targeted for conservation by the City in collaboration with the wildlife agencies, developers, property owners, and various environmental groups. The City requests that projects demonstrate consistency with the proposed land use adjacency guidelines (LUAGs) described in Section 4.2.2 of the Draft Subarea Plan. These guidelines are to ensure that rare plants and critical populations of special status species are adequately protected and that land uses adjacent to preserve areas are managed to avoid and minimize potential impacts to sensitive biological resources within the preserve areas.

Section 4.2.2 of the Draft subarea plan provides a framework for projects adjacent to preserve areas and lists additional considerations for project design when adjacent to a preserve area, such as drainage and toxins, erosion and sedimentation, lighting, noise, barriers, landscape restrictions, and fire and brush management. Adhering to the LUAGs can be made a condition of the project approval by the City.

City of Encinitas General Plan

The Resources Management Element of the City's General Plan (City 2011) provides goals and policies related to the protection and preservation of natural resources in the Planning Area (i.e., City). The following goals and underlying policies listed below are those considered applicable to the project.

Goal 3: The City will make every effort possible to preserve significant mature trees, vegetation, and wildlife habitat within the Planning Area.

- Policy 3.6: Future development shall maintain significant mature trees to the extent possible and incorporate them into the design of development projects.

Goal 10: The City will preserve the integrity, function, productivity, and long-term viability of environmentally sensitive habitats throughout the City, including…. coastal sage scrub and coastal mixed chaparral habitats.

- Policy 10.1: The City will minimize development impacts on coastal mixed chaparral and coastal sage scrub environmentally sensitive habitats by preserving within the inland bluff and hillside systems, all native vegetation on natural slopes of 25% grade and over other than manufactured slopes.

- Policy 10.5: The City will control development design on coastal mixed chaparral and coastal sage scrub…by including all parcels containing concentrations of these habitats within the Special Study Overlay designation…guidelines will be used to evaluate projects for approval. In addition, all new development shall be designed to be consistent with multi-species and multi-habitat preservation goals and requirements as established in the statewide NCCP Act. Compliance…shall be implemented in consultation with the USFWS and CDFW.

2.0 PROJECT EFFECTS

Project effects can be classified as direct and indirect. Direct effects (i.e., direct impacts) are immediate impacts and generally result in permanent habitat removal. Direct impacts for the project were quantified by overlaying the limits of project-related ground disturbance on the biological resources map of the site. Indirect impacts are actions that are not direct removal of habitat, but affect the surrounding biological resources either as a secondary effect of the direct impacts (e.g., construction noise, runoff, nighttime lighting, fugitive dust, etc.) or as the cause of degradation of a biological resource over time (e.g., edge effects and adjacency issues). Cumulative impacts are those caused by numerous projects in the region and their additive effect of multiple direct and indirect impacts to biological resources over time.

In total, approximately 1.8 acres of the 2.1-acre property would be directly impacted by the project as a result of the mass grading and residential subdivision development. Additionally, 0.3 acre of off-site infrastructure improvements and connections with existing public infrastructure are necessary for the development, which are incorporated as part of the project (Figure 8, *Impacts to Biological Resources).* Further details regarding potential direct and indirect impacts to biological resources from the proposed project are discussed below.

2.1 SPECIAL STATUS SPECIES

2.1.1 Special Status Plant Species

The project would result in direct impacts to four special status plants: Del Mar manzanita, which is a federally listed endangered species, CRPR 1B.1, and a proposed Covered Species and Narrow Endemic Species under the MHCP; summer holly, which is a CRPR 1B.2 species and a Covered Species under the MHCP; Torrey pine, which is a CRPR 1B.2 species and a Covered Species under the MHCP; and wart-stemmed ceanothus, which is a CRPR 2B.2 species and a Covered Species under the MHCP.

2.1.2 Special Status Animal Species

No special status animal species have been recorded within the project area or were found to occur during biological surveys for the project. Additionally, no special status animals have a high potential to occur. Therefore, no direct impacts to special status animal species are anticipated as a result of the project.

Nesting Birds

Although special status animal species are not expected to occur at the project site, the project site contains trees, shrubs, and other vegetation that may provide suitable nesting habitat for common birds, including raptors, protected under the MBTA and the CFG Code. Construction of the proposed project includes vegetation clearing, which could result in direct impacts to nesting birds if the removal or trimming of vegetation occurs during the bird nesting season (February 15 through August 31 for general birds and January 15 through July 15 for raptors, annually). Indirect impacts to nesting birds adjacent to the project footprint as a result of construction-generated noise during the breeding season could also

occur. These potential direct and indirect impacts to nesting birds would be in violation of the MBTA and the CFG Code.

2.2 RIPARIAN HABITAT OR SENSITIVE NATURAL COMMUNITY

Direct impacts to vegetation communities and habitat types are presented in Table 2, *Impacts to Vegetation Communities/Habitat Types,* below and are reflected on Figure 8. Southern maritime chaparral, including the disturbed form, is considered a sensitive natural community. No riparian habitats or other sensitive natural communities occur on-site.

Table 2
IMPACTS TO VEGETATION COMMUNITIES/HABITAT TYPES[1]

VEGETATION COMMUNITY/ HABITAT TYPE	EXISTING ACRES ON-SITE	PROJECT IMPACT ACRES		
		On-Site	Off-Site	Total
Non-native vegetation (11000)	0.3	0.2	0.1	0.3
Disturbed habitat (11300)	0.3	0.3	0.1	0.4
Urban/developed (12000)	0.1	<0.01	0.1	0.1
Southern Maritime Chaparral (37C30)	1.2	1.1	--	1.1
Southern Maritime Chaparral – disturbed (37C30)	0.2	0.2	--	0.2
TOTAL	**2.1**	**1.8**	**0.3**	**2.1**

[1] Communities/habitat types are rounded to the nearest 0.1 acre.

2.3 JURISDICTIONAL WETLANDS AND WATERS

No potential wetlands or waters of the U.S. subject to USACE jurisdiction, waters of the state subject to RWQCB jurisdiction, or streambed and riparian habitat subject to CDFW jurisdiction occur on-site; thus, no impacts to such resources would occur.

2.4 WILDLIFE MOVEMENT AND NURSERY SITES

The project site does not function as a regional wildlife corridor or substantial habitat linkage that would be used for wildlife movements or breeding/nursery sites. The habitat at the project site is severely constrained by existing surrounding development and is contiguous with native habitats off-site to the east. Although the habitats on-site are contiguous with off-site habitats, such habitats are constrained in function by natural steep topography along the northern/eastern property boundaries and the existing surrounding development. Adjacent off-site habitat is limited to narrow bands of vegetation that may be used by smaller urban-adapted mammal species and bird species. The site is nearly surrounded by existing development and does not serve as a regional wildlife corridor or substantial habitat linkage that would be used by large mammals, riparian birds, or migratory birds. Thus, the project would not result in adverse impacts to regional wildlife movement or breeding/nursery sites.

2.5 INDIRECT IMPACTS

Potential indirect impacts may occur as a result of the project. Indirect impacts can be short-term or long-term and incorporate areas off-site adjacent to the project site (i.e., edge effects). Examples of short-term and long-term indirect impacts include construction-related noise, increased human presence,

Project Site
Survey Area
Plan Lines
Project Impacts
Off-site Impacts

Vegetation Communities and Land Cover Types

Disturbed Habitat (11300)
Non-native Vegetation (11000)
Southern Maritime Chaparral (37C30)
Southern Maritime Chaparral - Disturbed (37C30)
Urban/Developed (12000)

Special Status Species

Del Mar Manzanita (*Arctostaphylos glandulosa ssp. crassifolia*)
Summer Holly (*Comarostaphylis diversifolia*)
Torrey Pine (*Pinus torreyana ssp torreyana*)
Wart-stemmed Ceanothus (*Ceanothus verracosus*)

Note: Numeric codes following the community/habitat type names are from the County's Biological Resources Guidelines (County 2010) and are based on the "Preliminary Descriptions of the Terrestrial Natural Communities of California" (Holland 1986, Oberbauer 2008).

West Bluff Dr
Via Andalusia
Via Cantebria
Via Montecito
Zona Gale Rd

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0 60 Feet

Source: Aerial (NearMap, 2019)

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Impacts to Biological Resources

Figure 8

domesticated animals, spread of non-native ornamental/weedy plant species, and artificial lighting, which are discussed further below.

Noise

Construction-related noise from such sources as clearing, grubbing, and grading would be a temporary impact to wildlife. Breeding birds and mammals may temporarily or permanently leave their territories to avoid disturbances from construction activities, which could lead to reduced reproductive success and increased mortality. Potential short-term noise impacts could result from construction for the proposed project if construction occurs during the avian breeding season (generally January 15 to August 31 annually). Because the site is nearly surrounded by existing development and City roadways, the site and adjacent habitat are currently exposed to urban-related noises and ambient noise levels; thus, long-term indirect impacts are not expected.

Human Access

Increases in human activity in the area could result in the degradation of open space habitat and associated indirect impacts through the creation of unauthorized trails and the removal of vegetation. Illegal dumping of lawn and garden clippings, trash, and other refuse could also occur in the preserve area without adequate barriers in-place. The project was designed not to promote entry or provide public access into the adjacent preserve. For example, the project does not include trails or trailheads, and the development interface with the preserve would be fenced (i.e., backyard lots) to preclude access. Because the project site is surrounded by existing residential development and is currently subject to human access and related anthropogenic disturbances, a potential increase in human activity due to project implementation is not expected. As stated above, residential backyard fencing and on-site fencing along the interface with the preserve would preclude unauthorized human access.

Domesticated Predators

The project is residential in nature; however, some domestic predators (e.g., dogs and cats) may be introduced to the surrounding habitat. Although such introductions have the potential to harm native wildlife species, the site is adjacent to existing residential development and already subject to some level of disturbance and predation by domestic animals. The project construction of nine single-family homes is not expected to result in a substantial introduction of domestic predators; thus, impacts to native species within the preserve are not anticipated.

Exotic Plant Species

Non-native plants could colonize areas disturbed by construction and development and potentially spread into adjacent native habitats. Many non-native plants are highly invasive and can displace native vegetation (reducing native species diversity), potentially increase flammability and fire frequency, change ground and surface water levels, and potentially adversely affect native wildlife dependent on native plant species. The project does not propose the use of non-native or invasive plant species, including during construction for erosion control (i.e., hydroseed palette) or within landscaping schemes following construction. Non-native invasive plants and exotics would be prohibited from the project site. Thus, the introduction or spread of exotic plants into adjacent habitat areas as a result of the project is not anticipated.

Lighting

Night lighting that extends from a developed area onto adjacent wildlife habitat can discourage nocturnal wildlife in the habitat and provide nocturnal predators with an unnatural advantage over their prey, resulting in a potentially significant impact. The project is residential in nature, so domestic artificial lighting may be introduced to the surrounding habitat; however, the site is adjacent to existing residential development and already exposed to some level of night lighting. Lighting associated with the project would be selectively placed for the minimum necessary for human safety and would be within the City streets and residential frontages. Unless otherwise required by the City, no lighting would be placed within or directed towards the adjacent preserve by the project. Thus, lighting impacts as a result of the project are not anticipated.

3.0 SPECIAL STATUS SPECIES

3.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the USFWS or CDFW?

3.2 ANALYSIS OF PROJECT EFFECTS

The proposed project would result in impacts to four special status plant species: Del Mar manzanita, federally listed endangered, CRPR 1B.1; summer holly, CRPR 1B.2; Torrey pine, CRPR 1B.2; and wart-stemmed ceanothus, CRPR 2B.2 Impacts to plant species with a CNPS CRPR of 2 or lower are considered potentially significant. The project would not impact special status animal species. Although no special status animal species are expected to occur at the project site, implementation of the project could adversely affect nesting birds if project construction activities occur during the bird breeding season.

Del Mar Manzanita

The project would impact 16 of the 19 Del Mar manzanita individuals on-site, all of which are located within the southern maritime chaparral habitat on-site (Figure 8). In addition to the avoidance of three individuals, approximately 11 additional Del Mar manzanita individuals located in the FPA immediately east of the project would also be avoided. Thus, approximately 53 percent of Del Mar manzanita individuals within the project study area would be directly impacted. Because this species is a CRPR 1B.1 species, an MHCP-Covered Species and Narrow Endemic species, as well as listed as a federally endangered species, proposed project impacts to Del Mar manzanita would be considered significant. As a regulatory requirement under Section 10 of the FESA, the project proponent would be required to consult the USFWS for an evaluation of proposed project impacts. The consultation would include, at minimum, a submittal of an Incidental Take Permit (ITP) application to the USFWS.

In addition to the impacts, the ITP application would incorporate compensatory mitigation measures, including detailed information about the specific type(s) and location(s) for the mitigation. To reduce impacts to less than significant, compensatory mitigation for impacts to Del Mar manzanita would be accomplished through the following: a minimum 1:1 replacement ratio of the 16 individuals impacted by the project, providing a minimum of 16 individuals to be planted within the FPA, east of the proposed development (Figure 9, *Conceptual Del Mar Manzanita and Wart Stemmed Ceanothus Establishment*

Areas); plus, the purchase of 3.0 southern maritime chaparral credits from the Carlsbad Oaks Conservation Bank. Thus, ultimately providing a 1:1 mitigation ratio for this species. Planting installation, monitoring, and management of the mitigation establishment site would occur according to the methods outlined in a Del Mar Manzanita and Wart-Stemmed Ceanothus Mitigation and Monitoring Plan (MMP) and Preserve Management Plan (PMP), respectively. Implementation of proposed mitigation measures would ensure direct impacts to this species would be reduced to less than significant level.

Summer Holly

The project would impact one summer holly on-site, located within the southern maritime chaparral on-site (Figure 8). Because summer holly is a CRPR 1B.2 species, project impacts would be potentially considered significant. Summer holly is relatively widespread throughout the City and region, and project impacts to a single individual would not likely jeopardize the status of the species in the region and would not directly contribute to the future elevated listing of the species. Thus, the proposed impacts to one summer holly are considered less than significant.

Torrey Pine

The project would impact three of the six naturalized (presumably not-planted) Torrey pine trees on-site, located within the southern maritime chaparral and non-native vegetation on-site (Figure 8). These three trees are the youngest (not mature) and smallest individuals on-site. Because Torrey pine is a CRPR 1B.2 species, impacts would be potentially considered significant. However, because the project was designed to avoid and retain the mature specimens (other three Torrey pine trees) occurring on-site and the project's Landscape Architectural Plan (JPBLA 2021) will include the planting of Torrey pine trees on-site, impacts to these three individual trees are considered less than significant.

Wart-Stemmed Ceanothus

The project would impact 43 wart-stemmed ceanothus shrubs on-site, located within the southern maritime chaparral on-site (Figure 8). Because wart-stemmed ceanothus is a CRPR 2B.2 species, project impacts would be potentially considered significant. Wart-stemmed ceanothus is relatively widespread throughout the City and region, and project impacts to 43 individuals would not likely jeopardize the status of the species in the region and would not directly contribute to the future elevated listing of the species. In addition to the 43 individuals within the project footprint, approximately 15 individuals are located in the project study area, within the FPA directly east of the proposed development, and would be avoided by the project. However, because this species is sensitive, project impacts to wart-stemmed ceanothus are considered significant. Mitigation would be accomplished through the following: a 1:1 replacement ratio of the 43 individuals impacted by the project, totaling a minimum of 43 individuals to be planted within the study area, east of the proposed development (Figure 9), as well as the purchase of 3.0 southern maritime chaparral credits from the Carlsbad Oaks Conservation Bank. Thus, ultimately providing a 1:1 mitigation ratio for this species. Mitigation installation, monitoring, and management would occur, according to the methods prescribed by the MMP and PMP for the project.

Nesting Birds

Impacts (direct and indirect) to nesting birds, including raptors, would be considered significant. Potential direct and/or indirect impacts could occur if project construction activities occur during the

breeding season. Per the County Guidelines for Determining Significance, February 15 through August 31 is the breeding season for general birds and January 15 through July 15 for tree-nesting raptors, annually (County 2010). These potential direct and indirect impacts to nesting birds would be considered significant and in violation of the MBTA and the CFG Code. Ultimately, the project would be required to comply with state and federal regulations (i.e., FESA, CESA, MBTA, and CFG Code) regarding impacts to sensitive species, including nesting birds.

3.3 CUMULATIVE IMPACT ANALYSIS

The project would contribute to the cumulative impact on sensitive plant species in the region. However, in the context of the much larger cumulative area/region, project impacts to Del Mar manzanita, summer holly, Torrey pine, and wart-stemmed ceanothus are not significant when compared to the total number of individuals in the region and suitable habitat available for these species. Mitigation for the project would be accomplished through a minimum 1:1 replacement ratio of the 16 Del Mar Manzanita and 43 wart-stemmed ceanothus individuals impacted by planting these species within the study area, adjacent to and east of the proposed development within the FPA. Ultimately such mitigation would provide no net loss for these species. Installation, monitoring, and management of the mitigation establishment site would occur according to the requirements described in the MMP and PMP, respectively.

Impacts to Del Mar Manzanita would also require consultation with the USFWS under Section 10 of the FESA, where specific compensatory mitigation measures would be prescribed by the USFWS through the issuance of the ITP for this species. Such mitigation would fully compensate for direct impacts to these species as well as the cumulative loss of the species' habitat. Ultimately, implementation of the project measures to mitigate impacts to special status species would reduce the project's contribution to the cumulative impact to less than significant.

Due to project compliance with the state and federal regulations pertaining to nesting birds, the project would not contribute cumulative impacts on nesting birds in the region.

3.4 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

M-B-1 Prior to issuance of a grading permit, impacts to 16 Del Mar manzanita and 43 wart-stemmed ceanothus individuals shall be mitigated at a minimum ratio of 1:1 for Del Mar manzanita and minimum 1:1 ratio for wart-stemmed ceanothus. Mitigation for impacts to these two plant species shall be accomplished within the project study area in the FPA through a combination of translocation and/or new plantings as well as the purchase of conservation Mitigation Bank credits, resulting in a no-net loss of species and habitat. Specifically, prior to issuance of a grading permit, mitigation for impacts to Del Mar manzanita wart-stemmed ceanothus shall be completed as follows:

- The project Applicant shall provide documentation to the City that consultation with the USFWS for impacts to Del Mar manzanita has occurred/completed in accordance with Section 10 of the FESA, or demonstrate to the City that none was required. Any additional measures prescribed by the USFWS shall be required.

- A Del Mar Manzanita and Wart Stemmed Ceanothus Mitigation and Monitoring Plan (MMP) shall be provided to the City for approval. The MMP shall include a discussion of installation, maintenance, and monitoring of the mitigation planting

Zona Gale Estates



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0 60 Feet

Source: Aerial (NearMap, 2022)

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Conceptual Del Mar Manzanita and Wart Stemmed Ceanothus Establishment Areas

Figure 9

site as well as prescribe the specific mitigation actions of creation/establishment, restoration, and/or preservation, as applicable. The MMP shall include a discussion on the location of any creation/establishment, restoration, and/or preservation site(s); requirements for site preparation, soil amendments, temporary irrigation, native plant palettes, installation methods, maintenance, and performance monitoring, as appropriate. The MMP shall also include information pertaining to rare plant translocation, as applicable. The MMP shall provide a minimum 1:1 replacement ratio of the 16 Del Mar manzanita and 43 wart-stemmed ceanothus individuals impacted to be planted within the study area, in the PFA located adjacent to and east of the proposed development. The MMP shall require that all mitigation areas (except for preservation areas not restored) be subject to a minimum five-year performance monitoring period with specific success criteria to ensure that the impacted functions and services are restored. Contingency measures, in case performance standards are not met after five years, shall be included in the plan to ensure success (i.e., no loss of these plant species) is achieved.

- A protective instrument, such as a conservation easement, open space easement, restrictive covenant, or similar, shall be recorded over the mitigation establishment areas described in the MMP where such a protective instrument does not already exist.

- All project mitigation areas (except for mitigation bank credits) shall be subject to long-term management as outlined by a Preserve Management Plan (PMP). The PMP shall be provided to the City for approval. The PMP shall prescribe the actions of stewardship and perpetual management of the mitigation areas and include, at minimum, (a) the location and description of the mitigation area; final plans for the mitigation area; (b) the responsible entities for the mitigation area; (c) the management funding amount and mechanism, based on a Property Analysis Record or similar cost estimation method; (d) specific habitat and monitoring management directives such as vegetation monitoring, sensitive species monitoring, control and treatment of non-native invasive/exotic plant species; (e) specific success criteria (f) public awareness; (g) preserve barriers or fencing management; (h) monitoring and reporting schedules; and (i) adaptive management recommendations for the preserve area. Implementation of long-term management shall be provided by a qualified entity approved by the City with experience in managing preserve lands (i.e., CDFW list of qualified entities).

- The purchase of 3.0 acres of southern maritime chaparral credits from the Carlsbad Oaks Conservation Bank. The mitigation credits include suitable habitat for Del Mar manzanita and wart-stemmed ceanothus; resulting in a no-net loss of habitat for these species. The project Applicant shall demonstrate to the City, via receipt, that applicable mitigation credits have been acquired for the project.

M-B-2 To protect nesting birds, construction activities shall be conducted outside of the nesting season for birds/raptors (February 15 through August 31 for general birds and January 15 through July 15 for raptors, annually). If construction activities are needed during the

nesting season, a qualified biologist shall conduct a pre-construction survey no more than three days prior to the start of work to search for nesting birds/raptors within the proposed work area and surrounding 500 feet, where feasible. If the surveys conclude no active nesting, the work shall resume as planned. However, if project activities are delayed or suspended for more than three days during the breeding season, surveys shall be repeated prior to resuming work. If the results of the survey identify nesting birds (including raptors), no-work disturbance buffers shall be implemented: 100 feet around non-listed active passerine (perching birds and songbirds) nests and 500 feet around active raptor nests. The buffers may be reduced, if appropriate, and as directed by a qualified biologist. The reduction in no-work buffers shall be approved by the City prior to implementation. The buffers shall be respected and maintained until the end of the bird breeding season or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

3.5 CONCLUSION

Project implementation would result in significant impacts to special status plants: Del Mar manzanita and wart-stemmed ceanothus from direct impacts and loss of habitat. However, the implementation of mitigation measure **M-B-1** would reduce project impacts to less than significant. Implementation of **M-B-2** would provide sufficient protection and mitigation to avoid potential impacts to nesting birds.

4.0 RIPARIAN HABITAT OR SENSITIVE NATURAL COMMUNITY

4.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the USFWS or CDFW?

4.2 ANALYSIS OF PROJECT EFFECTS

The project would impact one sensitive natural community. Specifically, the project would impact approximately 1.3 acres of southern maritime chaparral and, as such, would be considered significant.

4.3 CUMULATIVE IMPACT ANALYSIS

The project would contribute to the cumulative impact on sensitive upland communities in the region. However, in the context of the much larger cumulative area/region, such impacts to sensitive upland vegetation proposed by the project are not significant when compared to the total amount of existing habitat. Nonetheless, the project would mitigate for the proposed impacts to sensitive uplands. Mitigation for habitat loss will compensate for direct impacts as well as cumulative loss of habitat.

Project impacts to sensitive upland habitat (southern maritime chaparral) would be fully mitigated in-kind through the purchase of 3.0 acres of credits from the Carlsbad Oaks Conservation Bank; thus, ultimately there would be no contribution to a cumulative loss of the resource.

4.4 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

M-B-3 Prior to issuance of a grading permit, impacts to 1.3 acres of southern maritime chaparral shall be mitigated at a minimum 2:1 ratio. Mitigation shall be accomplished off-site through the purchase of 3.0 acres of credits from Carlsbad Oaks Conservation Bank as described in mitigation measure **M-B-1.** The project proponent shall demonstrate to the City receipt that applicable mitigation credits have been acquired for the project prior to the issuance of a grading permit.

4.5 CONCLUSION

The project would result in significant impacts to one sensitive natural community (southern maritime chaparral); however, the proposed mitigation measure herein would fully compensate for the loss of habitat and result in the project impacts to below a level of significance. Mitigation is proposed at ratios consistent with the North County MHCP and ratios typically recommended by Wildlife Agencies. With the implementation of mitigation measure **M-B-3**, project impacts on sensitive natural communities would be reduced to less than significant.

5.0 JURISDICTIONAL WETLANDS AND WATERS

5.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means?

5.2 ANALYSIS OF PROJECT EFFECTS

The proposed project would not result in impacts to federally-protected wetlands or other jurisdictional aquatic resources. There are no aquatic resources on-site considered potential wetlands or waters of the U.S. subject to the regulatory jurisdiction of the USACE pursuant to Section 404 of the CWA associated with the project.

5.3 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

No additional mitigation measures or design considerations are required.

5.4 CONCLUSION

The project impacts would be less than significant and would not affect federally protected wetlands defined by Section 404 of the CWA or affect other jurisdictional aquatic resources. No mitigation is required.

6.0 WILDLIFE MOVEMENT AND NURSERY SITES

6.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

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

6.2 ANALYSIS OF PROJECT EFFECTS

The project site does not support aquatic habitat that could support fish. Additionally, the project site is not considered a wildlife linkage or corridor or used by wildlife as a nursery site. Although native upland habitat occurs on-site and adjacent to the site, the project would not impede wildlife access within/through these off-site areas that could be used for urban wildlife movements, foraging, or breeding. The project mitigation (i.e., M-B-1) includes habitat restoration/creation in the project study area via the planting of native plants and perpetual management and preservation of native habitat. Such efforts would enhance the FPA.

Regardless of the implementation of M-B-1, the project is nearly surrounded by existing residential development. Additionally, as evidenced by biological surveys discussed herein, the project areas do not support critical populations of animal species. Thus, project impacts would be less than significant, and no additional mitigation is required or proposed.

6.3 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

No additional mitigation measures are required.

6.4 CONCLUSION

Project impacts would be less than significant, and no additional mitigation measures are required.

7.0 LOCAL POLICIES, ORDINANCES, AND ADOPTED PLANS

7.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? Would the project conflict with the provisions of an adopted HCP, NCCP plan, or other approved local, regional or state HCP?

7.2 ANALYSIS OF PROJECT EFFECTS

The project would not conflict with any local policies or ordinances protecting biological resources. The project was considered and designed to adhere to the City's General Plan policies pertaining to biological resources. For example, Policy 3.6 states that future development shall maintain significant mature trees to the extent possible and incorporate them into the design of development projects; the project conducted a formal arborist survey of the property, and the site plan was specifically designed to avoid the three mature Torrey pine trees on-site. Policies 10.1 and 10.5 of the General Plan focus on the protection of coastal mixed chaparral and coastal sage scrub within the City's inland bluff and hillside

systems. No coastal sage scrub or mixed chaparral would be impacted by the project but impacts to southern maritime chaparral would occur. Although maritime chaparral impacts would occur, such impacts would be outside of bluff/hillside systems (not within slopes of greater than 25 percent grade) as defined by Policies 10.1 and 10.5. Further, as stated in Policy 10.5, the project design and mitigation proposed are compliant with the MHCP. Therefore, the project would not conflict with the City's General Plan policies for protecting biological resources.

The project would occur within the boundaries of the North County MHCP, particularly within the Encinitas Subarea, which has a Draft Encinitas Subarea Plan. The North County MHCP is implemented through the adoption of subarea plans. Because the Draft Encinitas Subarea Plan was not approved or adopted and is in draft form as of the date of this report, the draft policies and guidelines are not currently applicable to the proposed project. Further, because the Draft Subarea Plan has not been adopted, any conflicts would not be considered a conflict with the provisions of an adopted habitat conservation plan. Nonetheless, implementation of the project would not preclude or prevent finalizing and adoption of the Draft Subarea Plan because the Draft Subarea Plan is not reliant on conserving the project site.

The proposed project considered the context of the MHCP, including the Draft Subarea Plan. Section 4.2 of the Draft Subarea Plan describes Land Uses Within and Adjacent to the Preserve, and Section 4.3.1.2 refers to proposed Narrow Endemic Species considerations for accomplishing City-wide preserve design and protection of rare species.

Because the project is directly adjacent to an FPA identified in the Draft Subarea Plan, additional considerations are imposed on the project to ensure the proposed land uses adjacent to a proposed preserve area are consistent with the guidelines outlined in Section 4.2.2 of the City's Draft Subarea Plan. These guidelines address issues of drainage and toxins, erosion and sedimentation, lighting, noise, barriers, landscape restrictions, and fire and brush management. Each of these adjacency issues are provided per the Draft Subarea Plan *in italics* below, followed by a discussion of project conformance.

Section 4.3.1.2 of the Draft Subarea Plan discusses a goal of the MHCP whereby new project impacts to any narrow endemic species should have no more than 20 percent net loss outside the FPA; however, except for when such would preclude reasonable use of a property and except when impacts are approved through consultation with the Wildlife Agencies. Although the proposed project would result in impacts to more than 20 percent of the Del Mar manzanita on-site outside of the FPA, the project proposes a minimum 1:1 replacement via plant relocation as well as new plantings of this species immediately adjacent to the project development, which would result in no loss of the species within the study area. Overall, the implementation of the proposed project would not result in a loss of Del Mar manzanita or its habitat and would not jeopardize the continued existence of the species. Because Del Mar manzanita is a federally listed species any impacts to this species require approval and consultation with the USFWS in accordance with the FESA. Ultimately, the proposed project would not preclude or prevent the finalization and adoption of the Draft Subarea Plan, and the proposed project impacts would be less than significant with mitigation.

Drainage and Toxins

All new and proposed parking lots and developed areas in and adjacent to the preserve shall not drain directly into the preserve. All developed and paved areas and agricultural and recreational use areas shall prevent the release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem processes within the preserve. This can

be accomplished using a variety of methods, including natural detention basins, grass swales, or mechanical trapping devices. These systems shall be maintained approximately once a year, or as often as needed to ensure proper functioning. Maintenance shall include dredging out sediments if needed, removing exotic plant materials, and adding chemical-neutralizing compounds (e.g., clay compounds when necessary and appropriate). Restaurants adjacent to the lagoon shall comply with storm drain regulations.

The project proposes a development design arranged and located so as not to drain into the adjacent preserve area. Developed areas associated with the project would not drain directly into the FPA due to the topography (natural or constructed) or because they would first drain into a water treatment facility. Water treatment facilities for the project would be constructed to intercept flows (i.e., storm water and urban drainage) prior to connection with the FPA. These facilities primarily include roadside and on-lot landscaping contours, but primarily consist of an on-site bio-retention basin. The project was designed to capture flows within the entire development area, and ultimately direct flows into a water quality bio-filtration basin for treatment prior to conveyance into the City's municipal storm drain system within Zona Gale Road. Therefore, the project is consistent with this adjacency guideline.

Erosion and Sedimentation

All new development adjacent to preserve areas shall be required to adhere to measures outlined in the city's Grading, Erosion, and Sediment Control Ordinance to avoid degradation of lagoons, other wetland habitats, and upland habitats from erosion and sedimentation. These measures include restrictions on the timing and amount of grading and vegetation removal. For example, grading or vegetation removal shall be prohibited during the rainy season (October 1 through April 15) without an approved erosion control plan and program in place. Grading or vegetation removal shall be prohibited adjacent to preserve areas during the rainy season unless determined to be allowable on a site-specific basis. In addition, all necessary erosion control devices must be in place, and appropriate monitoring and maintenance must be implemented during the grading period. Once the subarea plan is adopted, the city will amend the ordinance to restrict grading when covered bird species are using the habitat for breeding.

The project would comply with the City's grading requirements, including seasonal restrictions, and implementation of current construction best management practices (BMPs). Erosion and sedimentation construction BMPs for the project would be incorporated in accordance with the State Construction General Permit requirements and shall be implemented through the Storm Water Pollution Prevention Plan (SWPPP) for the project. For example, erosion control mechanisms include preservation of existing vegetation, mulching, hydroseeding, soil binding, and drainage swales; examples of sediment control devices used during construction would include silt fencing, sediment basins and traps, fiber rolls, gravel bag berms, sweeping, sandbag barriers, storm drain inlet protection, and stabilized construction entrance/exit. Thus, the project is consistent with this adjacency guideline.

Lighting

Lighting of all developed areas adjacent to the preserve shall be directed away from the preserve. Where necessary, development shall provide adequate shielding, berming, or other methods to protect the preserve and sensitive species from night lighting.

The project does not propose lighting adjacent to the preserve. Lighting associated with the project would be selectively placed and the minimum required for human safety and would be within City streets and

residential frontages. Unless otherwise required by the City, no lighting would be placed within or directed towards the adjacent preserve by the project. Thus, the project is consistent with this adjacency guideline.

Noise

Land uses adjacent to the preserve shall be designed to minimize noise impacts. Berms and walls shall be constructed adjacent to commercial areas, recreational areas, and any other use that may introduce noises that could impact or interfere with wildlife utilization of the preserve. Any activities that generate noise levels greater than 60 decibels (A-weighted scale) within 500 feet of nesting sensitive bird species (such as California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, California least tern, and snowy plover) shall be conducted outside of the breeding season or include sound attenuation devices.

The project is strictly residential and does not include commercial, industrial, or recreational uses adjacent to the preserve. Fencing would be constructed where excessive noises could interfere with wildlife in the preserve. Fencing along the periphery of the development and the preserve will minimize noise in the adjacent habitat. Additionally, no sensitive bird species were observed or otherwise detected nesting in the preserve during biological surveys in 2019, including focused surveys for coastal California gnatcatcher. Therefore, the project is consistent with this adjacency guideline.

Barriers

New development adjacent to the preserve may be required to provide barriers (e.g., noninvasive vegetation, rocks/boulders, fences, walls, and signs) along the preserve boundary to direct public access to appropriate entrance locations and reduce domestic animal predation.

The existing topography along the eastern portions of the project periphery includes steep slopes and currently hinders public entry into the adjacent off-site preserve area. The project was designed to avoid promoting entry or providing public access into the adjacent preserve. For example, the project does not include trails or trailheads. Further, the periphery of the development, where it interfaces with the preserve, would be fenced to preclude access. No public access would be provided along the residential lot fencing. Additional fencing, placed throughout the project, with interpretive signage about the preserve, would further preclude direct public access. Thus, the project is consistent with this adjacency guideline.

Landscaping Restrictions

When landscaping within or adjacent to the preserve, the following guidelines shall be followed. Prohibit the use of nonnative, invasive plant species (i.e., container stock and hydroseed material) in landscaping palettes. Revegetate areas of exotic species removal with native species appropriate to the adjacent preserve area. Table 4-2 provides a partial list of attractive native landscape plants that are tolerant of some summer irrigation and are compatible with adjacent preserve areas. See also Table 7-1 in Section 7 for a list of landscape plants not recommended within 1,000 feet of preserve areas. Control and monitor horticultural regimes (e.g., irrigation, fertilization, pest control, and pruning), which can alter site conditions in natural areas, to prevent shifts in species composition from native to nonnative flora. Irrigation runoff, for example, can alter natural areas that are adapted to xeric (dry) conditions, thereby promoting establishment of nonnative plants and displacement of native species. Irrigation can also carry pesticides into natural areas, adversely affecting both plants and wildlife. Irrigation should generally be directed away from the preserve, as this could foster conditions favorable to Argentine and fire ants.

Finally, fertilizer management programs shall be implemented that apply the minimal amount of fertilizer required for all public horticultural areas adjacent to the preserve.

The introduction of non-native species into the adjacent off-site preserve area is not expected to occur as a result of the project. The project does not propose the use of non-native or invasive plant species, including during construction for erosion control (i.e., hydroseed palette) or within landscaping schemes following construction. Non-native invasive plants and exotics would be prohibited from use on the project site. Project plantings adjacent to the preserve would not include non-native invasive species and would include species included in Table 4-2 of the City's Draft Subarea Plan. Additionally, all container plants and plant materials would be inspected prior to arrival on-site/removal from the delivery truck and immediately prior to on-site installation by the landscape specialist/biologist for the presence of Argentine ants (*Linepithema humile*), diseases, weeds, and other pests. Plants or planting materials containing pests, weeds, or diseases will be rejected, and removed from the project site. Thus, the project is consistent with this adjacency guideline.

Fire and Brush Management

Fire and brush management guidelines shall be enforced so that both biological and safety goals are met, consistent with the recommendations of the Wildland/Urban Interface Task Force. Brush management to reduce fuel and protect urban uses shall occur where existing development is adjacent to the preserve. New residential development located adjacent to the preserve must be set back to incorporate brush management zones on the development pad and outside the preserve. For existing projects and approved projects, the brush management zones, standards and locations, and clearing techniques will not change from those required under existing regulations. Where consistent with the Wildland/Urban Interface Development Standards, vegetation clearing for fire management shall involve brushing rather than disking. Brushing maintains a firmer ground surface that is less prone to erosion and invasion of exotic plant species. Brushing shall require an approved erosion control program and shall be prohibited when covered species are using the habitat for breeding.

The project was reviewed by the City Fire Department and was classified as "non-high fire." Thus, a brush management zone extending beyond the residential development lots was determined unnecessary because the distance between the dwellings and the adjacent off-site habitat would be adequately set-back from the adjacent vegetation. The City does not have defined set-backs of new development from preserve areas; however, new development (including required brush management zones) should be located outside of preserve areas. As stated above, a brush management zone is not required for the proposed project. In consideration of protecting the preserve areas, fencing proposed by the project along the periphery of the development would provide a barrier and protection of the adjacent off-site preserve area. Ultimately, the project is consistent with this adjacency guideline.

7.3 CUMULATIVE IMPACT ANALYSIS

The project would not conflict with any adopted local policies or ordinances protecting biological resources. There are no currently adopted plans protecting biological resources that are applicable to the project. The project considered the goals and policies of North County MHCP and the Draft Subarea Plan, and implementation of the proposed project would not jeopardize the protection of biological resources in the MHCP and would not preclude or prevent finalizing and adoption of the Draft Subarea Plan.

7.4 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Significant impacts to narrow endemic species (i.e., Del Mar manzanita) by the project would be reduced to less than significant by the implementation and completion of mitigation measures M-B-1 and M-B-3. No additional mitigation is required or proposed.

7.5 CONCLUSION

The project would be required to comply with Federal and State statutes and policies pertaining to the protection of biological resources (e.g., FESA, MBTA, CFG Code Sections 3503 and 3503.5, etc.) as part of the "Conditions of Approval" of the project. With the implementation of the mitigation proposed herein, no significant impacts would occur.

8.0 SUMMARY OF PROJECT IMPACTS AND MITIGATION

The implementation of the project would result in potential significant impacts to special status animal species and sensitive natural communities; all of which would be reduced to less than significant by the implementation of the proposed mitigation measures. Table 3, *Project Impacts to Vegetation/Habitat and Required Mitigation,* provides a summary of project impacts and mitigation pertaining to sensitive natural communities. Table 4, *Summary of Biological Resources Mitigation Measures for the Zona Gale Estates Project,* provides a list of the proposed project mitigation measures.

Table 3
PROJECT IMPACTS TO VEGETATION/HABITAT AND REQUIRED MITIGATION[1]

VEGETATION COMMUNITY/HABITAT	TOTAL EXISTING[2]	TOTAL IMPACTS[2]	MITIGATION	
			Ratio[3]	Required
Non-native vegetation (11000)	0.4	0.3	--	--
Disturbed habitat (11300)	0.4	0.4	--	--
Urban/developed (12000)	0.2	0.1	--	--
Southern Maritime Chaparral (37C30)	1.2	1.1	2:1	2.2
Southern Maritime Chaparral – disturbed (37C30)	0.2	0.2	2:1	0.4
TOTAL	**2.4**	**2.1**	--	**2.6**

1 Acreages are rounded to the nearest 0.1 acre.
2 Includes on-site and off-site areas of the project.
3 Outside of FPA.

Table 4
SUMMARY OF BIOLOGICAL RESOURCES MITIGATION MEASURES FOR THE ZONA GALE ESTATES PROJECT

PROPOSED MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
M-B-1 Prior to issuance of a grading permit, impacts to 16 Del Mar manzanita and 43 wart-stemmed ceanothus individuals shall be mitigated at a minimum ratio of 1:1 for Del Mar manzanita and minimum 1:1 ratio for wart-stemmed ceanothus. Mitigation for impacts to these two plant species shall be accomplished within the project study area in the FPA through a combination	LESS THAN SIGNIFICANT

PROPOSED MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
of translocation and/or new plantings as well as the purchase of conservation Mitigation Bank credits, resulting in a no-net loss of species and habitat. Specifically, prior to issuance of a grading permit, mitigation for impacts to Del Mar manzanita wart-stemmed ceanothus shall be completed as follows: • The project Applicant shall provide documentation to the City that consultation with the USFWS for impacts to Del Mar manzanita has occurred/completed in accordance with Section 10 of the FESA, or demonstrate to the City that none was required. Any additional measures prescribed by the USFWS shall be required. • A Del Mar Manzanita and Wart Stemmed Ceanothus Mitigation and Monitoring Plan (MMP) shall be provided to the City for approval. The MMP shall include a discussion of installation, maintenance, and monitoring of the mitigation planting site as well as prescribe the specific mitigation actions of creation/establishment, restoration, and/or preservation, as applicable. The MMP shall include a discussion on the location of any creation/establishment, restoration, and/or preservation site(s); requirements for site preparation, soil amendments, temporary irrigation, native plant palettes, installation methods, maintenance, and performance monitoring, as appropriate. The MMP shall also include information pertaining to rare plant translocation, as applicable. The MMP shall provide a minimum 1:1 replacement ratio of the 16 Del Mar manzanita and 43 wart-stemmed ceanothus individuals impacted to be planted within the study area, in the PFA located adjacent to and east of the proposed development. The MMP shall require that all mitigation areas (except for preservation areas not restored) be subject to a minimum five-year performance monitoring period with specific success criteria to ensure that the impacted functions and services are restored. Contingency measures, in case performance standards are not met after five years, shall be included in the plan to ensure success (i.e., no loss of these plant species) is achieved. • A protective instrument, such as a conservation easement, open space easement, restrictive covenant, or similar, shall be recorded over the mitigation establishment areas described in the MMP where such a protective instrument does not already exist. • All project mitigation areas (except for mitigation bank credits) shall be subject to long-term management as outlined by a Preserve Management Plan (PMP). The PMP shall be provided to the City for approval. The PMP shall prescribe the actions of stewardship and perpetual management of the mitigation areas and include at minimum: (a) the location and description of the mitigation area; final plans for the mitigation area; (b) the responsible entities for the mitigation area; (c) the management funding amount and mechanism, based on a Property Analysis Record or similar cost estimation method; (d) specific habitat and monitoring management directives such as vegetation monitoring, sensitive species monitoring, control and treatment of non-native invasive/exotic plant species; (e) specific	

PROPOSED MITIGATION	LEVEL OF SIGNIFICANCE AFTER MITIGATION
success criteria (f) public awareness; (g) preserve barriers or fencing management; (h) monitoring and reporting schedules; and (i) adaptive management recommendations for the preserve area. Implementation of long-term management shall be provided by a qualified entity approved by the City with experience in managing preserve lands (i.e., CDFW list of qualified entities). • The purchase of 3.0 acres of southern maritime chaparral credits from the Carlsbad Oaks Conservation Bank. The mitigation credits include suitable habitat for Del Mar manzanita and wart-stemmed ceanothus; resulting in a no-net loss of habitat for these species. The project Applicant shall demonstrate to the City, via receipt, that applicable mitigation credits have been acquired for the project.	
M-B-2 To protect nesting birds, construction activities shall be conducted outside of the nesting season for birds/raptors (February 15 through August 31 for general birds and January 15 through July 15 for raptors, annually). If construction activities are needed during the nesting season, a qualified biologist shall conduct a pre-construction survey no more than three days prior to the start of work to search for nesting birds/raptors within the proposed work area and surrounding 500 feet, where feasible. If the surveys conclude no active nesting, the work shall resume as planned. However, if project activities are delayed or suspended for more than three days during the breeding season, surveys shall be repeated prior to resuming work. If the results of the survey identify nesting birds (including raptors), no-work disturbance buffers shall be implemented: 100 feet around non-listed active passerine (perching birds and songbirds) nests and 500 feet around active raptor nests. The buffers may be reduced, if appropriate, and as directed by a qualified biologist. The reduction in no-work buffers shall be approved by the City prior to implementation. The buffers shall be respected and maintained until the end of the bird breeding season or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.	LESS THAN SIGNIFICANT
M-B-3 Prior to issuance of a grading permit, impacts to 1.3 acres of southern maritime chaparral shall be mitigated at a minimum 2:1 ratio. Mitigation shall be accomplished off-site through the purchase of 3.0 acres of credits from Carlsbad Oaks Conservation Bank as described in mitigation measure M-B-1. The project proponent shall demonstrate to the City receipt that applicable mitigation credits have been acquired for the project prior to the issuance of a grading permit.	LESS THAN SIGNIFICANT

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10.0 REFERENCES

AMEC Earth & Environmental, Conservation Biology Institute, Onaka Planning & Economics, and The Rick Alexander Company. 2003. Final Multiple Habitat Conservation Program Plan, Volume I. March.

American Ornithologists' Society (AOS). 2019. The AOU Checklist of North American Birds. Retrieved from: https://americanornithology.org/publications/north-and-middle-american-checklist/.

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkeley.

Cadre Environment (Cadre). 2019a. Sensitive Plant Focused Surveys for the 1.97-Acre Olivenhain Municipal Water District Wiegand Parcel Study Area, City of Encinitas, California. June 25.

2019b. Coastal California Gnatcatcher United States Fish and Wildlife Service Focused Surveys for the 1.97-Acre Olivenhain Municipal Water District Wiegand Parcel Study Area, City of Encinitas, California. June 25.

California Department of Fish and Wildlife. 2020a. State and federally listed endangered, threatened, and rare plants of California. State of California, The Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, California Natural Diversity Database. Retrieved from: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEPlants.pdf.

2020b. State and federally listed endangered and threatened animals of California. State of California, The Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, California Natural Diversity Database. Retrieved from: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEAnimals.pdf.

2020c. Special animals list. Periodic publication. 51 pp. State of California, The Resources Agency, Department of Fish and Game, Biogeographic Data Branch, California Natural Diversity Database. Retrieved from: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf.

2012. Natural Community Conservation Planning Act of 1991. California Fish and Game Code Chapter 10 Section 2800 - 2835. Retrieved from: https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=FGC&division=3.&title=&part=&chapter=10.&article=.

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Retrieved from: http://www.rareplants.cnps.org.

City of Encinitas. 2011. Resource Management Element City of Encinitas General Plan. As Amended.

Collins, Joseph T. and Travis W. Taggart. 2006. The Center for North American Herpetology (CNAH): The Academic Portal to North American Herpetology. Retrieved from: http://www.cnah.org/index.asp.

County of San Diego (County). 2010. Report Format and Content Requirements, Biological Resources. Fourth Revision, September 15.

Google Earth Pro (Google). 2020. Current and historical imagery.

HELIX Environmental Planning Inc. (HELIX) 2021. Tree Survey Report for the Zona Gale Estates Project. August.

Hogan, C. David, et al. Southern Maritime Chaparral. Fremontia Volume 24, No. 4 (1996). 1-7.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, The Resources Agency, 156 pp.

James P. Benedetti Landscape Architect (JPBLA). 2021. Landscape Architectural Plan for Zona Gale, Olivenhain. October 13.

M.J. Klinefelter Consulting. 2019. 90-Day Letter Report of Wet Season Vernal Pool Branchiopod Sampling for the Wiegand Parcel Site in Encinitas San Diego County, California. June 30.

Natural Community Conservation Planning General Process Guidelines. 1998. Available at: https://wildlife.ca.gov/Conservation/Planning/NCCP/History.

Natural Resource Conservation Service. 2020. Web soil survey. Retrieved from: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

NETRonline. 2020. Retrieved from: https://www.historicaerials.com/viewer.

Oberbauer, Thomas. 2008. Terrestrial Vegetation Communities in San Diego County Based on Holland's Descriptions. Revised from 1996 and 2005. July.

Ogden. 2001. Draft Encinitas Subarea Plan. June

San Diego Natural History Museum. 2010. Plant Atlas Project. Version May 2010. Retrieved from:

http://www.sdplantatlas.org/.

Southern California Coastal Sage Scrub NCCP Conservation Guidelines. 1993a. Available at:

https://wildlife.ca.gov/Conservation/Planning/NCCP/History.

1993b. Available at: https://wildlife.ca.gov/Conservation/Planning/NCCP/History.

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Eds. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center. September.

U.S. Fish and Wildlife Service (USFWS). 2015. Survey Guidelines for the Listed Large Branchiopods. May 31.

1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol. August 6.

U.S. Geological Survey (USGS). 2020. Topographic maps. Earth Point Data. Retrieved from: http://www.earthpoint.us/TopoMap.aspx.

Appendix A

Plant Species Observed

Family	Scientific Name*,†	Common Name
Dicots		
Fagaceae	*Quercus berberidifolia*	Scrub oak
Rhamnaceae	*Ceanothus tomentosus*	Wollyleaf ceanothus
	Ceanothus verrucosus	Wart stemmed ceanothus
	Rhamnus crocea	spiny redberry
Ericaceae	*Arctostaphylos glandulosa* ssp. *crassifolia*	Del Mar manzanita
Rosaceae	*Adenostoma fasciculatum*	chamise
Crassulaceae	*Dudleya pulverulenta*	chalk-lettuce
Agavaceae	*Hesperoyucca whipplei*	Our Lord's candle
	Chlorogalum parviflorum	small-flower soap-plant
Pinaceae	*Pinus torreyana* ssp. *torreyana*	Torrey pine
Asteraceae	*Artemisia californica*	California sagebrush
	Hazardia squarrosa var. *grindelioides*	saw-toothed goldenbush
	Baccharis pilularis	Coyote bush
	*Sonchus oleraceus**	Sow thistle
	Deinandra fasciculata	fascicled tarplant
	Corethrogyne filaginifolia var. *incana*	San Diego sand aster
	*Hypochaeris glabra**	Smooth cat's ear
	Logfia gallica	narrow-leaf filago
Lamiaceae	*Salvia mellifera*	Black sage
	Salvia clevelandii	fragrant sage
Polygonaceae	*Eriogonum crocatum*	Conejo buckwheat
	Eriogonum fasciculatum	California buckwheat
Rutaceae	*Cneoridium dumosum*	bushrue
Fabaceae	*Acacia cyclops*	coastal wattle
	Acmispon glaber	deerweed
Myrsinaceae	*Anagallis arvensis**	Scarlett pimpernel
Themidaceae	*Dichelostemma capitatum*	Blue dicks
Cactaceae	*Opuntia littoralis*	coastal prickly pear
Cistaceae	*Helianthemum scoparium*	peak rush-rose
Scrophulariaceae	*Myoporum laetum*	false sandalwood
Apiaceae	*Bowlesia incana*	American bowlesia
Selaginellaceae	*Selaginella bigelovii*	Bigelow's mossfern
Solanaceae	*Solanum xanti*	purple nightshade
Monocots		
Poaceae	*Cortaderia jubata**	pink pampas grass
	*Bromus diandrus**	common ripgut grass
	*Schismus barbatus**	Mediterranean grass
	*Bromus hordeaceus**	soft brome

* Non-Native Species

† Special Status Species

[1] CLOW=Coast live oak woodland; DCSS=Diegan coastal sage scrub; DCSS-D=Diegan coastal sage scrub-disturbed; DH=Disturbed habitat; DW=Disturbed wetland; EW=Eucalyptus woodland; MFS=Mulefat scrub; MSS=maritime succulent scrub, NG=Native grassland; NNG=Non-native grassland; NNV=Non-native vegetation; ORF=Oak riparian forest; ORF-D= Oak riparian forest-disturbed; SCWRF=southern cottonwood-willow riparian forest (includes disturbed phase); SMC=Southern mixed chaparral, SRF=Southern riparian forest; SRF-D=Southern riparian forest-disturbed; SWS=Southern willow scrub.

Appendix B

Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	**Family**		
INVERTEBRATES			
Lepidoptera	Nymphalidae	*Chamaea fasciata*	Painted lady butterfly
VERTEBRATES			
Birds			
Apodiformes	Trochilidae	*Calypte anna*	Anna's hummingbird
Columbiformes	Columbidae	*Zenaida macroura*	Mourning dove
Passerellidae	Passerellidae	*Chamaea fasciata*	Wrentit
Passeriformes	Corvidae	*Aphelocoma californica*	Western scrub jay
		Corvus corax	Common raven
	Fringillidae	*Spinus psaltria*	Lesser goldfinch
Passerine	Polioptilidae	*Polioptila caerulea*	Blue grey gnatcatcher

Appendix C

Sensitive Plant Focused Surveys Report

INFORMATION SUMMARY

A. Report Date: June 25th, 2019

B. Report Title: Sensitive Plant Focused Surveys for the 1.97-Acre Olivenhain Municipal Water District Wiegand Parcel Study Area, City of Encinitas, California.

C. Project Location: Assessor's Parcel Number 257-401-11, USGS 7.5' series Encinitas Quadrangle, East of Zona Gale Road and West of Via Cantebria.

D. Project Contact: 8788 Balboa Ave., Suite 270
San Diego, CA 92123
Contact: Max Stewart (858) 268-8901

E. Project Biologist: Cadre Environmental
701 Palomar Airport Road, Suite 300
Carlsbad, CA. 92011
Contact: Ruben S. Ramirez, Jr. (949) 300-0212
USFWS permit #TE780566-14, CDFW permit #02243

F. Date of Surveys: January 25th, February 7th, 19th, March 4th, 22nd, 28th, April 4th, 11th and 18th 2019.

G. Summary: The 1.97-acre Olivenhain Municipal Water District Wiegand Parcel study area is dominated by southern maritime chaparral and ornamental vegetation communities.

Based on the results of the biological resources constraints analysis conducted in August 2018 by Pangea Biological which documented the presence of sensitive plants and suitable habitat, focused surveys were initiated during the spring season of 2019. Therefore, as described in the following report, all habitats (1.97-acres) within the study area were surveyed to determine the presence/absence and distribution of sensitive plants.

A total of four (4) sensitive plant species were documented onsite including Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), Federally Endangered (FE), California Rare Plant Ranking (CRPR) 1B.1, Torrey pine (*Pinus torreyana* ssp. *torreyana*), CRPR 1B.2, wart-stemmed ceanothus (*Ceanothus verrucosus*), CRPR 2B.2, and summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), CRPR 1B.2.

SUBJECT

Focused Sensitive Plant Surveys for the 1.97 Acre Olivenhain Municipal Water District (OMWD) Wiegand Parcel Study Area, City of Encinitas, California.

This report presents the findings of focused sensitive plant surveys conducted for the 1.97-acre Olivenhain Municipal Water District (OMWD) Wiegand Parcel study area (Assessor's Parcel Number 257-401-11) located in the City of Encinitas, California ("Study Area") as illustrated in Attachment A, *Regional Location Map*. Specifically, the Study Area is located immediately east of Zona Gale Road and west of Via Cantebria. as illustrated in Attachment B, *Vegetation Communities Map*.

This report incorporates the findings of a habitat assessment, literature review, compilation of existing documentation, and focused surveys conducted on January 25th, February 7th, 19th, March 4th, 22nd, 28th, April 4th, 11th and 18th, 2019.

Based on the results of the biological resources constraints analysis conducted in August 2018 by Pangea Biological and presence of suitable habitat for the sensitive plants, focused surveys were initiated during the spring season of 2019. Therefore, as described in the following report, all habitats (1.97-acres) within the Study Area were surveyed to determine the presence/absence and distribution of sensitive plants within and immediately adjacent to the property according to U.S. Fish and Wildlife Service (USFWS), California Native Plant Society (CNPS), California Department of Fish and Wildlife (CDFW), and California Native Plant Society (CNPS) survey guidelines.

References and literature cited in this report are listed in the References section and a floral compendium listing all native and non-native plants observed onsite is attached as Appendix A (Floral Compendium).

METHODS OF STUDY

APPROACH

A site-specific survey program was developed to achieve the following goals: (1) characterize the vegetation; (2) prepare a detailed floristic compendium; (3) conduct focused surveys to document the distribution and abundance, or absence, of sensitive plant species at the site; and 4) prepare botanical resource maps showing the distribution of vegetation communities and the location of the sensitive plant species observed onsite. The project surveys also proposed to document other CNPS sensitive plants or species of local concern onsite, if present.

The methodology and focus of the survey program are consistent with the scientific and technical standards listed by USFWS (1996), CNPS (2001), and CDFW (2009) for sensitive plant species surveys. The surveys were conducted on-foot throughout the Study Area as shown in Attachment A, *Vegetation Communities Map*.

Literature Review

Existing biological resources within and adjacent to the Study Area were initially investigated through a review of pertinent literature and online data. The California Natural Diversity Database (CNDDB 2019), and CNPS (2019). In addition, soil, local floras, and consultation with

local experts were utilized in the identification of species, soils, or habitats that could support the target sensitive plants within or adjacent to the Study Area. These and other references are listed below and in the References section.

Prior to conducting fieldwork, a thorough archival review was conducted using the following baseline resources:

- California Native Plant Society 8th Inventory Online (2019);
- California Natural Diversity Data Base for the USGS 7.5' Encinitas Quadrangle;
- Soil Survey of Western San Diego Area (USDA-NRCS 2019);
- Beauchamp, Mitchel. 1986. A Flora of San Diego County, California (Beauchamp 1986); and
- City of Encinitas Subarea Plan (Ogden Environmental and Energy Services Co., Inc. 2001)

Focused Survey Program Developed for Target Plants

Floristic and focused plant surveys were conducted in order to identify all species observed on the Study Area. Additionally, program goals would also locate, census, and map the target sensitive plants, and other CNPS or species of local concern, if present, occurring onsite.

Field notes and site photographs were taken during each field survey. These notes recorded the date, location, plant species observed, and general habitat characteristics of each area of the project and habitats examined that day. All plant species encountered during the field surveys were identified and recorded in the field notes, including any special-status plants occurring on the Study Area. Surveys were performed in a manner consistent with applicable survey protocol requirements as outlined by USFWS (1996), CNPS (2001), and CDFW (2009).

Fieldwork was coordinated throughout the spring and blooming periods, site-specific habitat conditions, and vegetation-soil associations of the target species. Accordingly, nine (9) surveys were conducted onsite, including January 25th, February 7th, 19th, March 4th, 22nd, 28th, April 4th, 11th and 18th 2019, which covered all suitable habitat areas within the Study Area.

All portions of the Study Area were surveyed on-foot by walking slowly and methodically across each habitat type. A complete list of the plants observed can be found in Appendix A–Floral Compendium. Scientific nomenclature and common names used in this report generally follow Roberts et al. (2004) and Baldwin et al. (2012), or Jepson Project eFlora (2019) for updated taxonomy.

Cadre Environmental conducted the vegetation mapping during the initial habitat assessment conducted on January 25th, 2019 as shown in Attachment B, *Vegetation Communities Map* (Cadre Environmental 2019).

EXISTING CONDITIONS

VEGETATION COMMUNITIES

The 1.97-acre Study Area is dominated by southern maritime chaparral and ornamental vegetation communities as described in this report and illustrated in Attachment B, *Vegetation Communities Map*, Attachments C and D, *Current Study Area Photographs*, and summarized in

Table 1, *Study Area Vegetation Community Acreages*. Natural community names and hierarchical structure follows the "*Manual of California Vegetation*" (Sayer and Keeler-Wolf 2009) classification system, which has been refined and augmented where appropriate to better characterize the habitat types observed.

Table 1 – Study Area Vegetation Community Acreages

Vegetation Community	Acres
Southern Maritime Chaparral	1.44
Ornamental	0.22
Exposed Substrates	0.21
Developed	0.10
Seasonal Depression	0.003
TOTAL	**1.97**

Source: Cadre Environmental 2019.

Southern Maritime Chaparral (SMC)

The dominant vegetation community documented onsite was southern maritime chaparral. Southern maritime chaparral is a sensitive vegetation community which occurs where sandstone substrates are located within the coastal fog belt. Common species documented onsite and associated within this vegetation community include Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), wart-stemmed ceanothus (*Ceanothus verrucosus*), chamise (*Adenostoma fasciculatum*), thick leaved yerba santa (*Eriodictyon crassifolium* var. *crassifolium*), blue ceanothus (*Ceanothus tomentosus*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), Cleveland sage (*Salvia clevelandii*), coastal sage brush (*Artemisia californica*), bushrue (*Cneoridium dumosum*), Torrey pine (*Pinus torreyana* ssp. *torreyana*), Mojave yucca (*Yucca schidigera*), and California buckwheat (*Eriogonum fasciculatum*). Species documented within the understory include bisbee peak rushrose (*Crocanthemum scoparium*), common yarrow (*Achillea millefolium*), biscuit root (*Lomatium lucidum*), and large blue toadflax (*Nuttallanthus texanus*).

Exposed Substrate (ES)

Several generally unvegetated regions of exposed sandstone were documented onsite. These regions have been devoid of scrub vegetation for at least 25 years and do not show signs of reestablishment. Common native and non-native species documented within this region of the Study Area include common cryptantha (*Cryptantha intermedia*), scarlet pimpernel (*Lysimachia arvensis*), sand pygmy weed (*Crassula connata*), Bigelow's spike moss (*Selaginella bigelovii*), fascicled tarweed (*Deinandra fasciculata*), red-stemmed filaree (*Erodium cicutarium*), tocalote (*Centaurea melitensis*), petty spurge (*Euphorbia peplus*), small flowered soaproot (*Chlorogalum parviflorum*), common sow-thistle (*Sonchus oleraceus*), prickly sow-thistle (*Sonchus asper*), California sun cup (*Camissonia bistorta*), and dark tip bird's beak (*Cordylanthus rigidus* ssp. *setigerus*).

Developed (DEV)

Developed regions of the Study Area include access roads and existing Olivenhain Municipal Water District support structures located in the southern region of the property.

Ornamental (ORN)

Ornamental landscaping is located along the western Study Area boundary and adjacent to the OMWD facilities. Ornamental species documented onsite include but are not limited to hottentot fig (*Carpobrotus edulis*), Cootamundra wattle (*Acacia baileyana*), bank catclaw (*Acacia redolens*), ngaio tree (*Myoporum laetum*), and Brisbane box tree (*Lophostemon confertus*).

Seasonal Depression (SD)

A total of seven (7) inundated seasonal depressions were documented in the central region of the Study Area. Species documented within the seasonal depressions include fascicled tarplant (*Deinandra fasciculata*), annual beard grass (*Polypogon monspeliensis*), hyssop loosestrife (*Lythrum hyssopifolia*), everlasting neststraw (*Stylocline gnaphaloides*), and holly-leaved skunkweed (*Navarretia atractyloides*).

SOILS

The Soil Survey of Western San Diego Area has classified the Study Area as Carlsbad gravelly loamy sand, 2 to 5 percent slopes (CbB), and terrace escarpments (TeF) as shown in Attachment E, *Soils Association Map* (USDA-NRCS 2019).

The average rainfall total recorded for the City of Encinitas is 12.00 inches per season (July 1st to June 31st). To date, rainfall total in Encinitas for the 2018-2019 season is 14.27 inches as of June 12th, 2019. Accordingly, the project survey results were not constrained by low seasonal rainfall. [1]

RESULTS

A total of four (4) sensitive plant species were documented onsite including Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), Federally Endangered (FE), California Rare Plant Ranking (CRPR) 1B.1, Torrey pine (*Pinus torreyana* ssp. *torreyana*), CRPR 1B.2, wart-stemmed ceanothus (*Ceanothus verrucosus*), CRPR 2B.2, and summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), CRPR 1B.2, as noted in Table 2, *Potential Sensitive Plants Assessment*, and shown in Attachment F – *Sensitive Plant Distribution Map*. No other CNPS, special-status plants, or species of local concern were observed onsite.

[1] https://www.wunderground.com/weather/us/ca/encinitas/92023 - Accessed June 2019.

Table 2
Potential Sensitive Plants Assessment

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
San Diego thorn-mint (*Acanthomintha ilicifolia*) FT CRPR 1B.1	Annual herb generally blooming from April to June within chaparral, coastal scrub, valley and foothill grassland, and vernal pools in association with open clay substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
San Diego ambrosia (*Ambrosia pumila*) FE CRPR List 1B.1	San Diego ambrosia is known from Baja California, Mexico, and San Diego and Riverside counties in the United States. It blooms May to September. San Diego ambrosia occurs primarily on upper terraces of rivers and drainages as well as in open grasslands, openings in coastal sage scrub, and occasionally in areas adjacent to vernal pools.	Not detected onsite during focused surveys conducted during spring 2019.
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*) FE CRPR 1B.1	Perennial evergreen generally blooming from December to June in sandy/maritime chaparral habitats (CNPS 2019).	A total of nineteen (19) Del Mar Manzanita documented onsite as shown in Attachment F – *Sensitive Plant Distribution Map*
Encinitas baccharis (*Baccharis vanessae*) FT/SE CRPR 1B.1	Perennial deciduous shrub generally blooming from August to November in chaparral (maritime) and cismontane woodland habitats in association with sandstone substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
Thread-leaved brodiaea (*Brodiaea filifolia*) FT/SE CRPR 1B.1	Perennial bulbiferous herb generally blooming from march to June within chaparral, coastal scrub, grassland and vernal pool habitats in association with clay substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019 and no suitable soils present.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Wart-stemmed ceanothus (*Ceanothus verrucosus*) CRPR 2B.2	Perennial evergreen shrub generally blooming from December to May within chaparral habitats (CNPS 2019).	A total of forty-three (43) wart-stemmed ceanothus detected onsite and fourteen (14) offsite and east of the Study Area as shown in Attachment F – *Sensitive Plant Distribution Map.*
Orcutt's spineflower (*Chorizanthe orcuttiana*) ST CRPR 1B.1	Annual herb generally blooming from March to May within chaparral (maritime) and coastal scrub habitats in association with sandy openings (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*) CRPR 1B.2	Perennial evergreen shrub generally blooming from April to June in chaparral and cismontane woodland (CNPS 2019).	A total of one (1) summer holly was detected onsite as shown in Attachment E – *Sensitive Plant Distribution Map.*
Del Mar mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*) CRPR 1B.1	Perennial herb generally blooming from May to September within coastal bluff scrub, chaparral (maritime) and coastal scrub habitats in association with sandy substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) CRPR 1B.1	Perennial herb generally blooming from April to June within coastal bluff scrub, chaparral, coastal scrub and grassland habitats in association with rocky, clay and serpentinite substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019 and no suitable soils present.
Short-leaved dudleya (*Dudleya brevifolia*) SE CRPR 1B.1	Perennial herb generally blooming from April to May within chaparral (maritime) and coastal sage habitats in association with Torrey sandstone substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
Sticky dudleya (*Dudleya viscida*) CRPR 1B.2	Perennial herb generally blooming from May to June within coastal bluff scrub, chaparral, and coastal scrub habitats in association with rocky substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
San Diego button-celery (*Eryngium aristulatum* var. *parishii*) FE/SE CRPR 1B.1	Annual and perennial herb generally blooming from April to June within coastal scrub, grassland and vernal pool habitats in association with mesic conditions (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
Cliff spurge (*Euphorbia misera*) CRPR 2B.2	Perennial shrub generally blooming from December to October within coastal bluff scrub, coastal scrub and Mojavean desert scrub habitats in association with rocky substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
San Diego barrel cactus (*Ferocactus viridescens*) CRPR 2B.1	Perennial stem succulent generally blooming from May to June within chaparral, coastal scrub, grassland and vernal pools (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
Orcutt's hazardia (*Hazardia orcuttii*) ST CRPR 1B.1	Perennial evergreen shrub generally blooming from August to October within chaparral (maritime), coastal scrub habitats in association with clay substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019 and no suitable soils present.
San Diego marsh elder (*Iva hayesiana*) CRPR 2B.2	Perennial herb generally blooming from April to October within marsh, swamp and playa habitats (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019 and no suitable habitats present.
Nuttall's (acmispon) lotus (*Lotus nuttallianus*) CRPR 1B.1	Annual herb generally blooming from March to July within coastal dunes and coastal scrub (sandy) habitats (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019 and no suitable habitats present.
Little mousetail (*Myosurus minimus* ssp. *apus*) CRPR 3.1	Annual herb generally blooming from March to June within grassland and vernal pool (alkaline) habitats.	Not detected onsite during focused surveys conducted during spring 2019 and no suitable soils present.
Spreading navarretia (*Navarretia fossalis*) FT CRPR List 1B.1	Spreading navarretia is a member of the phlox family, and is found in vernal pools, chenopod scrub, edge of marshes, and playas on saline-alkali soils. It occasionally grows in ditches and depressions associated with degraded habitat or old stock ponds.	Not detected onsite during focused surveys conducted during spring 2019.

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
	Spreading navarretia is a small prostrate to occasionally erect annual. Spreading navarretia blooms April to June.	
California Orcutt grass (*Orcuttia californica*) FE/SE CRPR List 1B.1	California Orcutt grass is a small, unique grass that occurs primarily in vernal pool habitats. In southern California, it is known from Orange (recently reported occurrence), Los Angeles, Riverside, Ventura, and San Diego Counties, and continues south into Baja California, Mexico. California Orcutt grass blooms April to August.	Not detected onsite during focused surveys conducted during spring 2019.
Torrey pine (*Pinus torreyana* ssp. *torreyana*) CRPR 1B.2	Perennial evergreen tree occurring within closed-cone coniferous forest and chaparral habitats in association with sandstone substrates (CNPS 2019).	A total of six (6) Torrey pines were detected onsite as shown in Attachment F – *Sensitive Plant Distribution Map.*
Nuttall's scrub oak (*Quercus dumosa*) CRPR 1B.1	Perennial evergreen shrub generally blooming from February to August within coniferous forest, chaparral, and coastal scrub habitats in association with sandy and clay loam substrates (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.
Engelmann oak (*Quercus engelmannii*) CRPR 4.2	Perennial deciduous tree generally blooming from March to June within chaparral, cismontane woodland, riparian woodland and grassland habitats (CNPS 2019).	Not detected onsite during focused surveys conducted during spring 2019.

California Native Plant Society (CNPS): California Rare Plant Rank (CRPR)
CRPR 1A – plants presumed extinct in California
CRPR 1B – plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 2A – plants presumed extirpated in California but common elsewhere
CRPR 2B – plants rare, threatened, or endangered in California but more common elsewhere
CRPR 3 – plants about which we need more information, a review list
CRPR 4 – plants of limited distribution, a watch list
.1 – Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

Species Name (*Scientific Name*) Status	**Habitat Description**	**Comments**
Federal (USFWS) Protection and Classification FE – Federally Endangered FT – Federally Threatened FC – Federal Candidate for Listing **State (CDFW) Protection and Classification** SE – State Endangered ST – State Threatened		

REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, eds. 2012. The Jepson manual: Vascular plants of California, 2nd ed. University of California Press, Berkeley.

Beauchamp, Mitchel. 1986. A Flora of San Diego County, California.

California Department of Fish and Wildlife (CDFW), Natural Diversity Data Base (CNDDB). 2019. Sensitive Element Record Search for the Encinitas Quadrangle. California Department of Fish and Wildlife. Sacramento, California. Accessed January 2019.

California Department of Fish and Wildlife (CDFW). 2018a. Endangered, Threatened, and Rare Plants of California. Natural Heritage Division, Natural Diversity Data Base.

California Department of Fish and Wildlife (CDFW). 2018b. Special Vascular Plants, Bryophytes, and Lichens. Natural Heritage Division, Natural Diversity Data Base.

California Department of Fish and Wildlife (CDFW). 2018c. California Sensitive Natural Communities, ww.wildlife.ca.gov/Data/VegCAMP/Naturalcommunities#sensitive natural communities. Accessed November 2018.

California Native Plant Society. 2019. California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 12 June 2019].

Jepson Flora Project. 2019. Jepson eFlora, http://ucjeps.berkeley.edu/eflora/ [accessed on June 2019].

Natural Resources Conservation Service (USDA-NRCS). 2019. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed January 2019.

Ogden Environmental and Energy Services Co., Inc. 2001. Public Review Draft Encinitas SubArea Plan.

Pangea Biological. 2018. Biological Resource Assessment for the Olivenhain Municipal Water District (OMWD) Wiegand Parcel.

Sawyer, J.O., T. Keeler-Wolf, and J. Evans. 2009. A Manual of California Vegetation, 2nd Edition. Sacramento: California Native Plant Society.

U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Department of the Interior, U.S. Fish and Wildlife Service, Portland, OR.

U.S. Fish and Wildlife Service. 2019. Species Occurrence Database. Accessed January-June 2019.

Attachments

A – Regional Location Map
B – Vegetation Communities Map
C – Current Study Area Photographs
D – Current Study Area Photographs
E – Soils Association Map
F – Sensitive Plant Distribution Map

Certification

"*I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief*."

Author: _____ Date: June 25th, 2019

Fieldwork Performed By: _____ Date: June 25th, 2019

APPENDIX A

OLIVENHAIN MUNICIPAL WATER DISTRICT WIEGAND PARCEL PROJECT FLORAL COMPENDIUM

(*) asterisk indicates a non-native species

CONIFEROPHYTA – CONE-BEARING PLANTS

PINACEAE – PINE FAMILY

Pinus torreyana* ssp. *torreyana TORREY PINE

MONOCOTYLEDONES – MONOCOTS

ARECACEAE – PALM FAMILY

****Washingtonia robusta*** MEXICAN FAN PALM

LILIACEAE – LILY FAMILY

Calochortus splendens SPLENDID MARIPOSA LILY

POACEAE (GRAMINEAE) – GRASS FAMILY

****Avena barbata*** SLENDER WILD OAT
****Avena fatua*** WILD OAT
****Bromus diandrus*** COMMON RIPGUT GRASS
****Bromus hordeaceus*** SOFT CHESS
****Bromus madritensis* subsp. *rubens*** FOXTAIL CHESS or RED BROME
****Festuca myuros*** RATTAIL FESCUE
****Lamarckia aurea*** GOLDENTOP
****Cortaderia selloana*** PAMPAS GRASS
****Gastridium phleoides*** NIT GRASS
Stipa pulchra PURPLE NEEDLE GRASS
****Schismus barbatus*** MEDITERRANEAN SCHISMUS

THEMIDACEAE – BRODIAEA FAMILY

Dichelostemma capitatum* subsp. *capitatum BLUE-DICKS

EUDICOTYLEDONES – EUDICOTS

AGAVACEAE – CENTURY PLANT FAMILY

Chlorogalum parviflorum SMALL FLOWERED SOAPROOT
Yucca schidigera MOJAVE YUCCA

AIZOACEAE – ICEPLANT FAMILY

****Carpobrotus edulis*** FREEWAY ICEPLANT

ANACARDIACEAE – SUMAC FAMILY

Malosma laurina LAUREL SUMAC
Rhus integrifolia LEMONADE BERRY

APIACEAE (UMBELLIFERAE) – CARROT FAMILY

Apiastrum angustifolium MOCK PARSLEY
Lomatium lucidum BISCUIT ROOT

ASTERACEAE (COMPOSITAE) – SUNFLOWER FAMILY

Achillea millefolium COMMON YARROW
Artemisia californica COASTAL SAGEBRUSH
Baccharis pilularis COYOTE BRUSH
****Centaurea melitensis*** TOCALOTE
Corethrogyne filaginifolia SAND ASTER
Deinandra fasciculata FASCICLED TARPLANT
Hazardia squarrosa SAWTOOTH GOLDENBUSH
****Helminthotheca echioides*** BRISTLY OX-TONGUE
Heterotheca grandiflora TELEGRAPH WEED
****Hypochaeris glabra*** SMOOTH CAT'S EAR
****Hypochaeris radicata*** ROUGH CAT'S EAR
****Lactuca serriola*** PRICKLY or WILD LETTUCE
Logfia filaginoides CALIFORNIA FILAGO or FLUFFWEED
****Logfia gallica*** NARROW-LEAVED FILAGO
****Matricaria discoidea*** PINEAPPLE WEED
****Polypogon monspeliensis*** ANNUAL BEARD GRASS
****Senecio vulgaris*** COMMON GROUNDSEL
****Sonchus asper*** PRICKLY SOW-THISTLE
****Sonchus oleraceus*** COMMON SOW-THISTLE
Stylocline gnaphaloides EVERLASTING NESTSTRAW

BORAGINACEAE – BORAGE or WATERLEAF FAMILY

Cryptantha intermedia COMMON CRYPTANTHA
Eriodictyon crassifolium* var. *crassifolium THICK LEAVED YERBA SANTA
Pectocarya linearis* subs. *ferocula NARROW TOOTHED PECTOCARYA

BRASSICACEAE (CRUCIFERAE) – MUSTARD FAMILY

****Brassica nigra*** BLACK MUSTARD

CACTACEAE – CACTUS FAMILY

Opuntia littoralis COAST PRICKLY PEAR CACTUS

CHENOPODIACEAE – GOOSEFOOT FAMILY

****Salsola tragus*** RUSSIAN-THISTLE

CISTACEAE – ROCK-ROSE FAMILY

Crocanthemum scoparium BISBEE PEAK RUSH-ROSE

CRASSULACEAE – STONECROP FAMILY

Crassula connata SAND PIGMY-STONECROP

CUCURBITACEAE – GOURD FAMILY

Marah microcarpa CHILICOTHE

ERICACEAE – HEATH FAMILY

Arctostaphylos glandulosa* ssp. *crassifolia DEL MAR MANZANITA
Comarostaphylis diversifolia* ssp. *diversifolia SUMMER HOLLY

EUPHORBIACEAE – SPURGE FAMILY

Chamaesyce albomarginata RATTLESNAKE SPURGE
Euphorbia peplus PETTY SPURGE

FABACEAE (LEGUMINOSAE) – PEA FAMILY

Acacia baileyana COOTAMUNDRA WATTLE
Acacia redolens VANILLA SCENTED WATTLE
Acmispon glaber* var. *glaber COASTAL DEERWEED

FAGACEAE – OAK FAMILY

Quercus berberidifolia CALIFORNIA SCRUB OAK

GENTIANACEAE – GENTIAN FAMILY

Zeltnera venusta CALIFORNIA CENTAURY

GERANIACEAE – GERANIUM FAMILY

****Erodium botrys*** LONG-BEAKED FILAREE
****Erodium cicutarium*** RED-STEMMED FILAREE
****Erodium moschatum*** WHITE-STEMMED FILAREE

LAMIACEAE (LABIATAE) – MINT FAMILY

Salvia mellifera BLACK SAGE
Salvia clevelandii CLEVELAND SAGE

LYTHRACEAE – LOOSESTRIFE FAMILY

****Lythrum hyssopifolia*** HYSSOP LOOSESTRIFE

MELANTHIACEAE – FALSE HELLEBORE FAMILY

Toxicoscordion fremontii FREMONT'S DEATH CAMAS

MYRSINACEAE – MYRSINE FAMILY

****Lysimachia arvensis*** SCARLET PIMPERNEL

MYRTACEAE – MYRTLE FAMILY

**** Lophostemon confertus*** BRISBANE BOX TREE

ONAGRACEAE – EVENING PRIMROSE FAMILY

Camissoniopsis bistorta CALIFORNIA SUN CUP

OROBANCHACEAE – BROOMRAPE FAMILY

Cordylanthus rigidus* subsp. *setiger DARK TIP BIRD'S BEAK

PHRYMACEAE – LOPSEED FAMILY

Diplacus aurantiacus ORANGE BUSH MONKEYFLOWER

PLANTAGINACEAE – PLANTAIN FAMILY

Nuttallanthus texanus LARGER BLUE TOAD-FLAX

POLEMONIACEAE – PHLOX FAMILY

Navarretia atractyloides HOLLY-LEAVED SKUNKWEED

POLYGONACEAE – BUCKWHEAT FAMILY

Chorizanthe staticoides TURKISH RUGGING
Eriogonum fasciculatum INTERIOR CALIFORNIA BUCKWHEAT

RHAMNACEAE – BUCKTHORN FAMILY

Ceanothus tomentosus BLUE CEANOTHUS
Ceanothus verrucosus WART-STEMMED CEANOTHUS
Rhamnus crocea REDBERRY BUCKTHORN

ROSACEAE – ROSE FAMILY

Adenostoma fasciculatum* var. *fasciculatum CHAMISE

RUTACEAE – RUE FAMILY

Cneoridium dumosum BUSHRUE

SELAGINELLACEAE – SPIKE MOSS FAMILY

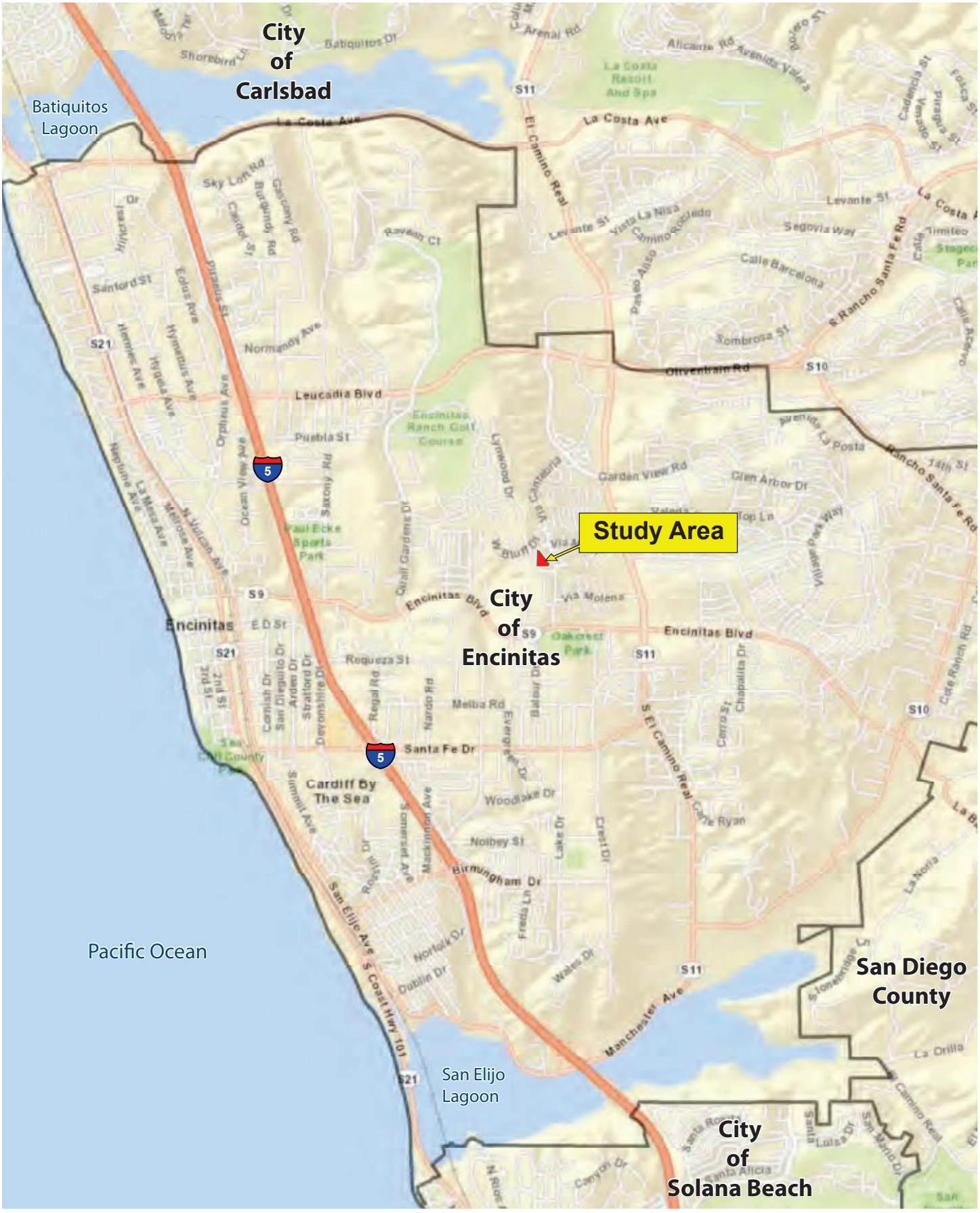
Selaginella bigelovii BIGELOW'S SPIKE MOSS

SOLANACEAE – NIGHTSHADE FAMILY

Solanum xanti CHAPARRAL NIGHTSHADE

SCROPHULARIACEAE – FIGWORT FAMILY

**** Myoporum laetum*** MYOPORUM



Attachment A - Regional Location Map

Sensitive Plant Focused Surveys
Olivenhain Municipal Water District (OMWD) Wiegand Parcel

CADRE Environmental

not to scale



Attachment B - Vegetation Communities Map

Sensitive Plant Focused Surveys

Olivenhain Municipal Water District (OMWD) Wiegand Parcel

CADRE Environmental

N

1 inch = 60 ft.



PHOTOGRAPH 1 - Southwest view of the Study Area from the central region of the property.



PHOTOGRAPH 2 - Northeast view of the northern region of the Study Area.

Refer to Attachment B for Photographic Key Map



PHOTOGRAPH 3 - Southward view of Study Area from the central region of the property.



PHOTOGRAPH 4 - Northeast view of the Study Area from the southwest region of the property. The Study Area is dominated by southern maritime chaparral.

Refer to Attachment B for Photographic Key Map



Attachment E - Soils Association Map

Sensitive Plant Focused Surveys
Olivenhain Municipal Water District (OMWD) Wiegand Parcel

CADRE Environmental

N

1 inch = 60 ft.



Attachment F - Sensitive Plant Distribution Map

Sensitive Plant Focused Surveys
Olivenhain Municipal Water District (OMWD) Wiegand Parcel

CADRE Environmental

N

1 inch = 60 ft.

Appendix D

Coastal California Gnatcatcher United States Fish and Wildlife Service Focused Surveys Report

INFORMATION SUMMARY

A. Report Date: June 25th, 2019

B. Report Title: Coastal California Gnatcatcher United States Fish and Wildlife Service Focused Surveys for the 1.97-Acre Olivenhain Municipal Water District Wiegand Parcel Study Area, City of Encinitas, California.

C. Project Location: Assessor's Parcel Number 257-401-11, USGS 7.5' series Encinitas Quadrangle, East of Zona Gale Road and West of Via Cantebria.

D. Project Contact: 8788 Balboa Ave., Suite 270
San Diego, CA 92123
Contact: Max Stewart (858) 268-8901

E. Project Biologist: Cadre Environmental
701 Palomar Airport Road, Suite 300
Carlsbad, CA. 92011
Contact: Ruben S. Ramirez, Jr. (949) 300-0212
USFWS permit #TE780566-14, CDFW permit #02243

F. Date of Surveys: January 25th, February 7th, 19th, March 4th, 22nd, 28th, April 4th, 11th and 18th 2019.

G. Summary: The 1.97-acre Olivenhain Municipal Water District Wiegand Parcel study area is dominated by southern maritime chaparral and ornamental vegetation communities.

Based on the results of the biological resources constraints analysis conducted in August 2018 by Pangea Biological, presence of suitable habitat for the federally threatened coastal California gnatcatcher (*Polioptila californica californica*) documented onsite and designation of United States Fish and Wildlife Service critical habitat adjacent to the property, focused surveys were initiated during the non-breeding season of 2019. Therefore, as described in the following report, all suitable coastal California gnatcatcher habitat (1.44-acres) was surveyed to determine the current status of the species onsite.

No coastal California gnatcatcher were documented within or adjacent to the study area during nine (9) USFWS focused surveys.

SUBJECT

Focused United States Fish and Wildlife Service Coastal California Gnatcatcher Surveys for the 1.97 Acre Olivenhain Municipal Water District (OMWD) Wiegand Parcel Study Area, City of Encinitas, California.

This report presents the findings of focused United States Fish and Wildlife Service (USFWS) coastal California gnatcatcher (*Polioptila californica californica)* surveys conducted for the 1.97-acre Olivenhain Municipal Water District (OMWD) Wiegand Parcel study area (Assessor's Parcel Number 257-401-11) located in the City of Encinitas, California ("Study Area") as illustrated in Attachment A, *Regional Location Map*. Specifically, the Study Area is located immediately east of Zona Gale Road and west of Via Cantebria. as illustrated in Attachment B, *Vegetation Communities Map*.

This report incorporates the findings of a habitat assessment, literature review, compilation of existing documentation, and focused USFWs coastal California gnatcatcher surveys conducted on January 25th, February 7th, 19th, March 4th, 22nd, 28th, April 4th, 11th and 18th 2019.

METHODS OF STUDY

APPROACH

Prior to initiating the focused surveys, a biological resources constraints analysis was conducted by Pangea Biological to determine the presence and/or absence of suitable habitat for sensitive floral and faunal species to occur within the Study Area (Pangea Biological 2018). The constraints analysis included a review of all available and relevant data on the biological characteristics, sensitive habitats, and species potentially present on or adjacent to the Study Area. Additionally, aerial photography and USGS topographic map data were examined. After conducting an independent habitat assessment on January 25th, 2019 Cadre Environmental initiated focused surveys for the coastal California gnatcatcher.

General/Sensitive Wildlife Inventory

All general and sensitive wildlife identified during the focused coastal California gnatcatcher surveys by sight, call, tracks, scat, or other characteristic sign were recorded. In addition to species actually detected, expected use of the site by other wildlife was derived from the analysis of habitats on the site, combined with known habitat preferences of regionally occurring wildlife species.

Focused Coastal California Gnatcatcher Surveys

Protocol surveys for the federally threatened/state species of special concern, coastal California gnatcatcher were performed in all areas of suitable habitat within the Study Area. Specifically, a total of 1.44 acres of suitable habitat (southern maritime chaparral) were surveyed. As stated by the USFWS:

> "S*urveys shall be conducted between 6:00am and 12:00pm. Surveys shall avoid periods of excessive or abnormal heat, wind, rain, or other inclement weather. Taped coastal California gnatcatcher vocalization shall be used only until individuals have been initially located. Tapes shall not be used frequently or to*

> *illicit further behaviors from the birds. Surveys shall be conducted by slowly walking survey routes. Sites with deep canyons, ridgelines, steep terrain, and thick shrub cover should be surveyed more slowly. Prevailing site conditions and professional judgment must be applied to determine appropriate survey routes and acreage covered per day. These factors may dictate that the maximum daily coverage specified below is not prudent under certain conditions. No more than 100 acres (40ha) shall be surveyed per biologist per day*." (USFWS 1997)

Surveys were conducted in accordance with the 1997 USFWS guidelines for projects located outside of an adopted California natural Community Conservation Planning (NCCP) (City of Encinitas Subarea Plan not approved) , which stipulates that during the breeding season (March 15th to June 30th), a minimum of six (6) surveys shall be conducted in all areas of suitable habitat with at least seven (7) days between site visits and surveys conducted between June 30th and March 15th, a minimum of nine (9) surveys shall be conducted with at least fourteen (14) days between site visits. Therefore, four (4) surveys were conducted during the non-breeding season and five (5) conducted during the breeding season. Surveys were not conducted during extreme weather conditions (i.e., winds exceeding 15 miles per hour, rain, or temperatures in excess of 95º F). The Study Area was surveyed on foot by walking slowly and methodically throughout all suitable habitats. Presence of coastal California gnatcatchers was determined by identification of birds by sight and call, using a combination of taped vocalization and "pishing" sounds. The use of taped vocalizations was utilized only when necessary to elicit a response from birds potentially present on site.

Focused surveys were conducted on January 25th, February 7th, 19th, March 4th, 22nd, 28th, April 4th, 11th and 18th 2019 by permitted coastal California gnatcatcher biologist Ruben Ramirez (USFWS Permit 780566-14, CDFW 002243), as outlined in Table 1, *Coastal California Gnatcatcher Survey Schedule*.

Table 1 – Coastal California Gnatcatcher Survey Schedule

Survey	Dates (Conditions) 2019	Results
1	January 25th - 62°F, winds 0-4 mph, no rain	None
2	February 7th - 55°F, winds 2-8 mph, no rain	None
3	February 19th - 55°F, winds 0-2 mph, no rain,	None
4	March 4th - 55°F, winds 0-12 mph, no rain	None
5	March 22nd - 58°F, winds 4-8 mph, no rain	None
6	March 28th - 60°F, winds 0-4 mph, no rain	None
7	April 4th - 60°F, winds 2-8 mph, no rain,	None
8	April 11th - 62°F, winds 4-8 mph, no rain	None
9	April 18th - 65°F, winds 0-10 mph, no rain	None

EXISTING CONDITIONS

VEGETATION COMMUNITIES

The 1.97-acre Study Area is dominated by southern maritime chaparral and ornamental vegetation communities as described in this report and illustrated in Attachment B, *Vegetation Communities Map*, Attachments C and D, *Current Study Area Photographs*, and summarized in Table 1, *Study Area Vegetation Community Acreages*. Natural community names and hierarchical structure follows the "*Manual of California Vegetation*" (Sayer and Keeler-Wolf 2009) classification system, which has been refined and augmented where appropriate to better characterize the habitat types observed.

Table 1 – Study Area Vegetation Community Acreages

Vegetation Community	Acres
Southern Maritime Chaparral	1.44
Ornamental	0.22
Exposed Substrates	0.21
Developed	0.10
Seasonal Depression	0.003
TOTAL	**1.97**

Source: Cadre Environmental 2019.

Southern Maritime Chaparral (SMC)

The dominant vegetation community documented onsite was southern maritime chaparral. Southern maritime chaparral is a sensitive vegetation community which occurs where sandstone substrates are located within the coastal fog belt. Common species documented onsite and associated within this vegetation community include Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), wart-stemmed ceanothus (*Ceanothus verrucosus*), chamise (*Adenostoma fasciculatum*), thick leaved yerba santa (*Eriodictyon crassifolium* var. *crassifolium*), blue ceanothus (*Ceanothus tomentosus*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), Cleveland sage (*Salvia clevelandii*), coastal sage brush (*Artemisia californica*), bushrue (*Cneoridium dumosum*), Torrey pine (*Pinus torreyana* ssp. *torreyana*), Mojave yucca (*Yucca schidigera*), and California buckwheat (*Eriogonum fasciculatum*). Species documented within the understory include bisbee peak rushrose (*Crocanthemum scoparium*), common yarrow (*Achillea millefolium*), biscuit root (*Lomatium lucidum*), and large blue toadflax (*Nuttallanthus texanus*).

Exposed Substrate (ES)

Several generally unvegetated regions of exposed sandstone were documented onsite. These regions have been devoid of scrub vegetation for at least 25 years and do not show signs of reestablishment. Common native and non-native species documented within this region of the Study Area include common cryptantha (*Cryptantha intermedia*), scarlet pimpernel (*Lysimachia arvensis*), sand pygmy weed (*Crassula connata*), Bigelow's spike moss (*Selaginella bigelovii*), fascicled tarweed (*Deinandra fasciculata*), red-stemmed filaree (*Erodium cicutarium*), tocalote (*Centaurea melitensis*), petty spurge (*Euphorbia peplus*), small flowered soaproot (*Chlorogalum parviflorum*), common sow-thistle (*Sonchus oleraceus*), prickly sow-thistle (*Sonchus asper*),

California sun cup (*Camissonia bistorta*), and dark tip bird's beak (*Cordylanthus rigidus* ssp. *setigerus*).

Developed (DEV)

Developed regions of the Study Area include access roads and existing Olivenhain Municipal Water District support structures located in the southern region of the property.

Ornamental (ORN)

Ornamental landscaping is located along the western Study Area boundary and adjacent to the OMWD facilities. Ornamental species documented onsite include but are not limited to hottentot fig (*Carpobrotus edulis*), Cootamundra wattle (*Acacia baileyana*), bank catclaw (*Acacia redolens*), ngaio tree (*Myoporum laetum*), and Brisbane box tree (*Lophostemon confertus*).

Seasonal Depression (SD)

A total of seven (7) inundated seasonal depressions were documented in the central region of the Study Area. Species documented within the seasonal depressions include fascicled tarplant (*Deinandra fasciculata*), annual beard grass (*Polypogon monspeliensis*), hyssop loosestrife (*Lythrum hyssopifolia*), everlasting neststraw (*Stylocline gnaphaloides*), and holly-leaved skunkweed (*Navarretia atractyloides*).

The Study Area is located immediately west and south of USFWS critical habitat for the coastal California gnatcatcher (North County MHCP final designation) as shown in Attachment E, *Coastal California Gnatcatcher Critical Habitat Map*.

RESULTS

No federally threatened coastal California gnatcatcher were documented within or adjacent to the Study Area during nine (9) USFWS focused surveys.

General wildlife species documented onsite include but are not limited to red-tailed hawk (*Buteo jamaicensis*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), ruby-crowned kinglet (*Regulus calendula*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), bushtit (*Psaltriparus minimus*), California scrub jay (*Aphelocoma californica*), wrentit (*Chamaea fasciata*), yellow rumped warbler (*Setophaga coronata*), American crow (*Corvus brachyrhynchos*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculatus*), northern mockingbird (*Mimus polyclottos*), white-crowned sparrow (*Zonotrichia leucophrys*), European starling (*Sturnus vulgaris*), lesser goldfinch (*Spinus psaltria*), and house finch (*Haemorhous mexicanus*).

REFERENCES

California Department of Fish and Wildlife (CDFW), Natural Diversity Data Base (CNDDB). 2019. Sensitive Element Record Search for the Encinitas Quadrangle. California Department of Fish and Wildlife. Sacramento, California. Accessed May 2019.

Ogden Environmental and Energy Services Co., Inc. 2001. Public Review Draft Encinitas SubArea Plan.

Pangea Biological. 2018. Biological Resource Assessment for the Olivenhain Municipal Water District (OMWD) Wiegand Parcel.

U.S. Department of the Interior, Fish and Wildlife Service. 2019. Species Occurrence Database. Accessed May 2019.

U.S. Department of the Interior, Fish and Wildlife Service. December 19, 2007. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Coastal California Gnatcatcher (*Polioptila californica californica*), Final Rule. Federal Register 72 (No. 243):72010-72213.

U.S. Department of the Interior, Fish and Wildlife Service. 1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines.

Attachments

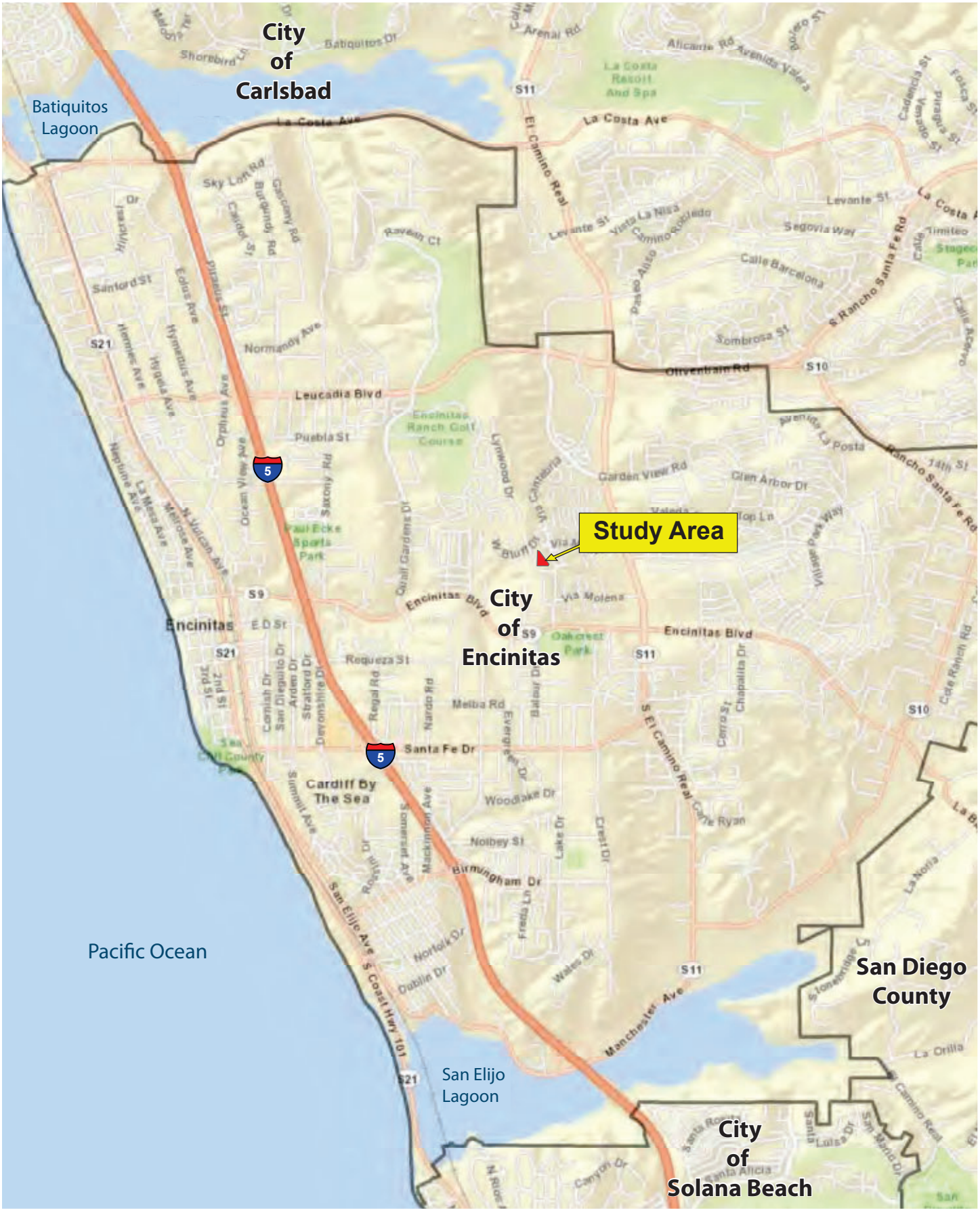
A – Regional Location Map
B – Vegetation Communities Map
C – Current Study Area Photographs
D – Current Study Area Photographs
E – Coastal California Gnatcatcher Critical Habitat Map

Certification

"*I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief*."

Author: _____ Date: June 25th 2019

Fieldwork Performed By: _____ Date: June 25th, 2019



Attachment A - Regional Location Map

oastal ali ornia natcatcher Focused Surveys

Olivenhain Municipal Water District (OMWD) Wiegand Parcel

CADRE Environmental

not to scale



Attachment B - Vegetation Communities Map

oastal ali ornia natcatcher Focused Surveys

Olivenhain Municipal Water District (OMWD) Wiegand Parcel

CADRE Environmental

N

1 inch = 60 ft.



PHOTOGRAPH 1 - Southwest view of the Study Area from the central region of the property.



PHOTOGRAPH 2 - Northeast view of the northern region of the Study Area.

Refer to Attachment B for Photographic Key Map



PHOTOGRAPH 3 - Southward view of Study Area from the central region of the property.



PHOTOGRAPH 4 - Northeast view of the Study Area from the southwest region of the property. The Study Area is dominated by southern maritime chaparral.

Refer to Attachment B for Photographic Key Map



Attachment E - Coastal California Gnatcatcher Critical Habitat Map

oastal ali ornia natcatcher Focused Surveys

Olivenhain Municipal Water District (OMWD) Wiegand Parcel

CADRE Environmental

N

1 inch = 60 ft.

Appendix E

90-day Letter Report of Wet Season Vernal Pool Branchiopod Sampling Surveys Report

30 June 2019

Ms. Stacy Love
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Re: 90-Day Letter Report of Wet Season Vernal Pool Branchiopod Sampling for the Wiegand Parcel Site in Encinitas, San Diego County, California; Conducted Under The Endangered Species Act Section 10(A)(1)(A) Permit # TE-038716-4.

Dear Ms. Love:

The following report has been prepared to submit primary survey data and results of the 2019 wet season sampling for vernal pool branchiopods listed under the federal Endangered Species Act of 1973 (ESA) on the Wiegand Parcel in San Diego County, California.

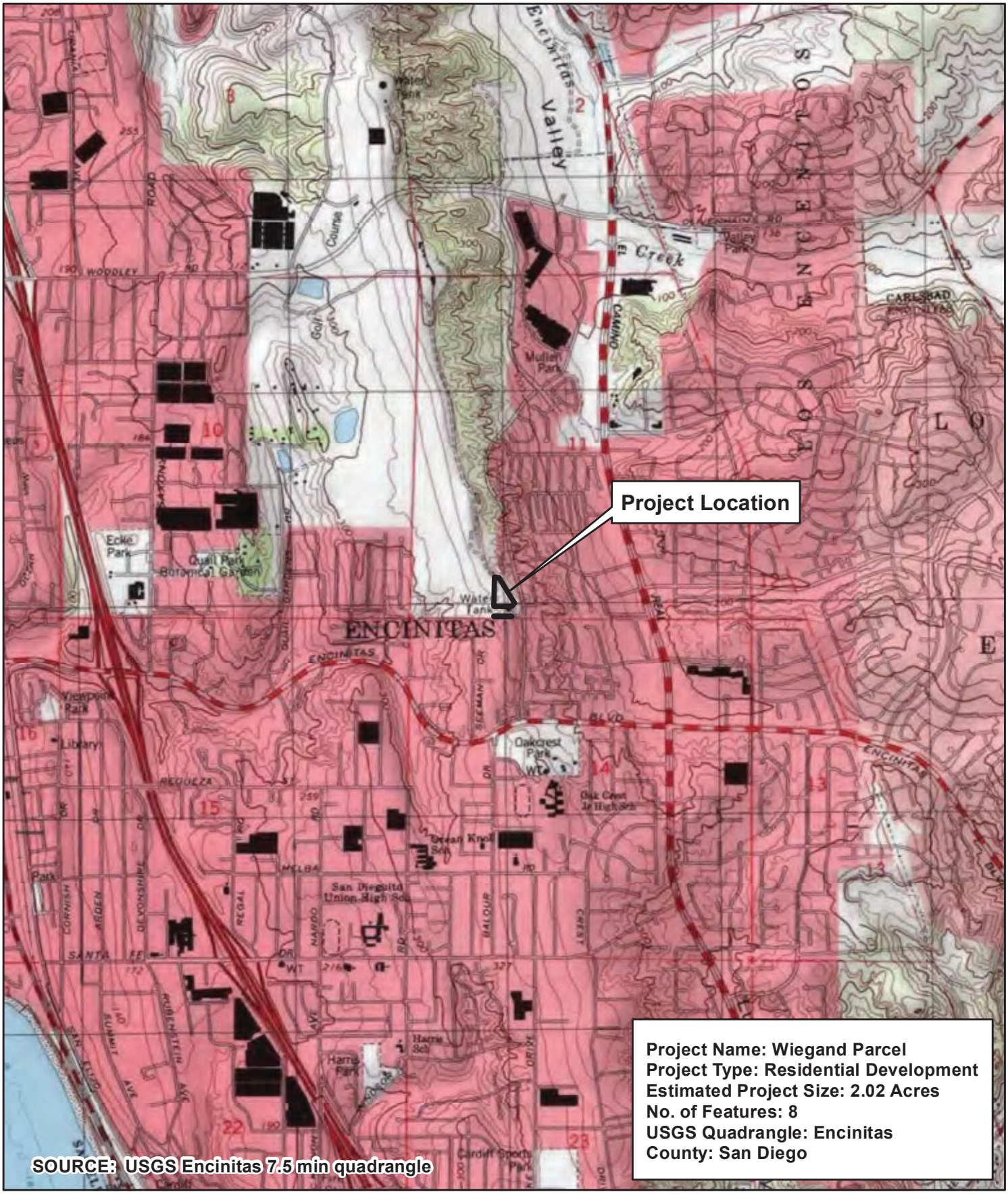
SUMMARY

M.J. Klinefelter Consulting conducted wet season surveys for federally endangered or threatened branchiopods at the Wiegand Parcel Site in San Diego County, California. Survey sampling was authorized under the ESA Section 10(a)(1)(A) and was conducted by Frank Wegscheider (permit #TE-038716-4) in accordance with the U.S. Fish and Wildlife Service Survey Guidelines for the Listed Large Branchiopods (USFWS, 2015). Eight seasonal depressions were sampled within the Study Area. No federally listed San Diego fairy shrimp *Branchinecta sandiegoensis*, Riverside fairy shrimp *Streptocephalus woottoni*, or federally threatened vernal pool fairy shrimp *Branchinecta lynchi* were found in any of the sampled depressions during the 2019 wet season sampling surveys. Furthermore, none of the depressions contained any non-listed fairy shrimp species.

STUDY AREA (SA) DESCRIPTION AND LOCATION

The Olivenhain Municipal Water District (OMWD) Wiegand parcel (APN 257-401-11-00) is located approximately 0.6-mile northwest of the intersection of Encinitas Boulevard and El Camino Real, west of Via Cantebria, in the City of Encinitas, in San Diego County, California (Figure 1). The site is located within Township 13 South, Range 4 West, Section 11, on the U.S. Geological Survey (USGS) 7.5-minute Encinitas quadrangle.

Max Stewart proposes to subdivide the undeveloped 2.02 acre parcel into 9 single family lots and include the construction of building pads, utilities, a street, and 9 single family homes.



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0 2,000 4,000 Feet

N

TITLE **Branchiopod Survey Location**

PROJECT **Wiegand Parcel**
Encinitas, CA

FIGURE 1

FILE NAME: Path: S:\gis_data\stewart_eninitas\encinitas_USGS.mxd

DATE 10/1/2018

VEGETATION COMMUNITIES

Pangea biologists conducted a reconnaissance level survey of biological resources within the Study Area (SA) in 2018 (Pangea, 2018). Pangea classified vegetation within the SA (totaling 1.97 acres) into three vegetation communities including Southern Maritime Chaparral, Disturbed, and Urban/Developed. A brief description of each community follows:

Southern Maritime Chaparral

There is an estimated 1.48 acres of Southern Maritime Chaparral within the SA. Southern maritime chaparral habitat within the SA includes areas dominated by low growing shrubs associated with the coastal fog belt and weathered sandstone soils. Dominant plant species observed include chamise (*Adenostoma fasciculatum*), black sage (*Salvia mellifera*), wart-stemmed ceanothus (*Ceanothus verrucosus*), Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), deerweed (*Acmispon glaber*), Mohave yucca (*Yucca schidigera*), sawtooth goldenbush (*Hazardia squarrosa* var. *squarrosa*), and fascicled tarweed (*Deinandra fasciculata*).

Disturbed Habitat

Approximately 0.21 acre of disturbed habitat is present in the SA. Much of the disturbed habitat within the SA includes areas dominated by non-native species, and vegetation and soils characterized by physical disturbance. Dominant plant species observed in disturbed habitat include hottentot-fig (*Carpobrotus edulis*), oat (*Avena* sp.), deerweed, coyote brush (*Baccharis pilularis*), and fascicled tarweed.

Urban/Developed Habitat

Urban/Developed habitat comprises ca. 0.28 acres. The urban/developed land within the SA includes buildings, paved areas and dirt access roads, bare ground associated with disturbance and/or development, and ornamental landscaping. Dominant plant species observed in these areas include golden wattle (*Acacia pycnantha*), ngaio (*Myoporum laetum*), eucalyptus (*Eucalyptus* sp.), and other landscape/ornamental pine trees and shrubs.

HYDROLOGICAL MONITORING

M.J. Klinefelter Consulting associate biologist Frank Wegscheider commenced hydrological monitoring of the Project in November of 2018 (Table 1). None of the rain events during November resulted in inundation. The next substantial rainfall event occurred during the last week of November 2018, whereupon most of the depressions became inundated and were included in the wet season surveys.

TABLE 1

2018-2019 MONTHLY RAINFALL TOTALS FOR
THE WIEGAND PARCEL PROJECT

MONTH	RAINFALL (in inches)
October	0.67
November	1.01
December	1.66
January	3.34
February	4.58
March	1.45
April	0.7
May	1.02
June	0
Source: Weather Underground https://www.wunderground.com/history/monthly/us/ca/carlsbad/KCRQ/date/2018-10 through https://www.wunderground.com/history/monthly/us/ca/carlsbad/KCRQ/date/2019-06	

BRANCHIOPOD SURVEYS

Frank Wegscheider [(FW) permit #TE-038716-4] conducted protocol wet season fairy shrimp surveys at the SA commencing on 30 November 2018 after the initial onsite ponding events were documented. Each depression sampled was mapped using field-collected global positioning system (GPS) coordinates, during the wet season study. Fairy shrimp sampling sites were located on Public Land Survey Sections (California, San Bernardino Base and Meridian) within the U.S. Geological Survey (USGS) 7.5-minute Encinitas quadrangle topographic map.

Depressions Sampled

Five potentially seasonally-ponded depressions (SDs) were originally identified by Pangea Biological biologists within the SA. An additional three potential SDs were identified during a reconnaissance survey conducted on 13 October 2018 by Frank Wegscheider prior to commencing protocol dry season surveys. Hence, a total of eight SDs were sampled during the wet season sampling period. The location of each depression is listed in Table 2 and is depicted in the Wet Season Survey Sampling Locations Map (Figure 2) following.

Sampling Timelines

On 5 November 2018, the United States Fish & Wildlife Service (USFWS) was notified of Intent–to –Perform wet-season surveys for ESA listed branchiopods on the SA.

The first rains of the 2019 wet season occurred during October 2018. However, no ponding was noted at this time. The next substantial rainfall events resulting in ponding occurred during late November. Monthly rainfall data, as recorded by the Weather Underground, are provided in Table 1. Protocol wet season sampling commenced on 30 November 2018,

whereupon six of the depressions retained at least 3 cm of standing water for a period exceeding 24 hours. Surveys dates comprise the following:
11/30, 12/08, 12/15, 12/27 (2018) and 1/12, 1/19, 1/26, 2/02, 2/08, 2/15, 2/22, 3/01, 3/07, 3/16, 3/22, 3/28, and 4/05 (2019). Although rain events occurred through May, the final recorded rainfall event of the wet season that resulted in inundation occurred in late March 2019.

TABLE 2: LOCATION OF SEASONAL DEPRESSIONS SAMPLED ON THE WIEGAND PARCEL SITE DURING THE 2019 WET SEASON STUDY

Feature	GPS Coordinates (center)	
Seasonal Depression 1	UTM 11 0474976 E	3657047 N
Seasonal Depression 2	UTM 11 0474978E	3657052 N
Seasonal Depression 3	UTM 11 0474983 E	3657053 N
Seasonal Depression 4	UTM 11 0474974 E	3657059 N
Seasonal Depression 5	UTM 11 0474973 E	3657060 N
Seasonal Depression 6	UTM 11 0474974 E	3657063 N
Seasonal Depression 7	UTM 11 0474990 E	3657074 N
Seasonal Depression 8	UTM 11 0474986 E	3657069 N
Note: All ponded area locations were recorded using the NAD 83 Datum.		

METHODS

Wet Season sampling

Wet season sampling followed the U.S. Fish and Wildlife Service (USFWS) Survey Guidelines for the Listed Large Branchiopods to Permittees for Recovery Permits Under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. Briefly, pools are considered inundated once they have retained 3 cm of standing water for a period exceeding 24 hours. Pools are then sampled within 3 days of inundation and then re-sampled every 7 days thereafter until they are desiccated or until the pool has experienced 120 days of continuous inundation. If pools dry and then refill, sampling is reinitiated within 8 days of refilling.
Each depression was photographed (see Appendix I) and the exact location was recorded using a Garmin hand-held GPS receiver. At each subsequent visit the air temperature, wind speed and other weather conditions were recorded along with the maximum surface area, depth, water temperature, and total dissolved solids (TDS) of each depression. The depressions were sampled throughout the entire water column, including edges and bottom, with a standard 500-micron aquatic dip net (Bioquip®). Additionally, a 10-micron aquarium net was often used to sample the water column to ascertain the presence of newly hatched fairy shrimp and other small branchiopods (e.g., cladocerans and conchostracans).



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0 60 120 Feet

FILE NAME: Path: S:\gis_data\stewart_eninitas\pool_locations.mxd

DATE

TITLE Branchiopod Survey Locations

PROJECT Wiegand Parcel

Encinitas, CA

FIGURE 2

RESULTS OF 2019 WET SEASON STUDY

Eight SDs were wet sampled for the presence of fairy shrimp. Neither the federally listed San Diego fairy shrimp *Branchinecta sandiegoensis*, the Riverside fairy shrimp *Streptocephalus woottoni*, the federally threatened vernal pool fairy shrimp *Branchinecta lynchi*, or the non-listed versatile fairy shrimp *Branchinecta lindahli* were found in any of the sampled depressions during the 2019 wet season sampling surveys, although the SA occurs within the documented range of all these species (Eriksen and Belk, 1999). The data summary analysis from the SD's sampled is provided in Appendix I.

On one occasion, water fleas (Cladocera)—a non-anostracan branchiopod—were observed to reside within one of these depressions (SD-7) and copepods (Copepoda) were often detected in all of the SDs except for SD-8. The only other crustacea associated with any of these pools was seed shrimp (Ostracoda) observed in SDs-1, 2, 3, 5, 6, and 7. The only hexapods found residing in the pools were mosquito larvae (Culicidae) and midge larvae (Chironomidae).
No other aquatic insects or coleopterans were detected in any of the SDs indicating that these depressions do not remain inundated for extended periods.

DISCUSSION

Seasonal/Vernal Pools

Vernal pools are characterized by shallow, ephemeral wetlands with very specific hydrologic characteristics and possess a unique vegetative community (Zedler, 1987). As such, they are habitat for specific types of wildlife including fairy shrimp. None of the SDs within the SA area supported typical vernal pool vegetation during this suite of surveys or during the previous Pangea biological survey (Pangea, 2018). Hence, these features were considered to be seasonal depressions and not true vernal pools. However, branchiopods—including listed fairy shrimp—are often found in SDs not meeting the criteria of a typical vernal pool.

Fairy Shrimp Species of Concern

Three species of anostracan brachiopods listed for protection under the ESA have the potential to occur at or near the SA: the San Diego fairy shrimp (*Branchinecta sandiegoensis*), the Riverside fairy shrimp (*Streptocephalus woottoni*), and the vernal pool fairy shrimp (*Branchinecta lynchi*) (Eriksen and Belk, 1999).

The federally listed San Diego fairy shrimp **(***Branchinecta sandiegonensis*) (USFWS, 1997) typically exists in cool-water, short-lived pools (Eriksen and Belk, 1999), the same conditions that *Branchinecta lindahli* thrives in. Cysts hatch in 3-4 days at 10-15º C; hatching will not occur at warmer temperatures and larvae will then mature in 10-20 days as temperatures fluctuate around 20º C (Hathaway & Simovich, 1996). The fairy shrimps generally die after ca. one month,

but subsequent cohorts can hatch after following rain events (USFWS, 2000). The site lies within the range of *B. sandiegonensis* (Fugate, 1993*)* and conditions are likely suitable for hatching and maturation of the San Diego fairy shrimp.

The Riverside fairy shrimp is federally listed as endangered (Federal Register, 1993a). This species lives in warm-water, long-lived pools with low to moderate total dissolved solids (TDS) generally with a depth greater than 30 cm (Eng, Belk, and Eriksen, 1990; Hathaway and Simovich, 1996; Eriksen and Belk, 1999), although it has been found in stock ponds with relatively high TDS (F. Wegscheider, unpublished data). None of the onsite depressions appear to possess sufficient depth or duration to support Riverside fairy shrimp**.**

The federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (Federal Register, 1993b) lives in short-lived cool-water pools that may exist for only three weeks in the spring, with low to moderate TDS (Eriksen and Belk, 1999). Generally, they exist in vernal pools (79 percent), although they are sometimes found in a range of natural and artificially created ephemeral habitats such as alkali pools and seasonal drainages (Federal Register, 2003). The vernal pool fairy shrimp generally hatches early in the season when water temperatures are below 10 degrees Celsius (Gallagher 1996; Helm 1998) and may cohabit with the versatile fairy shrimp. However, it is found in very low densities, typically comprising perhaps only 1 to 5 percent of the total containment population.

Widespread and Common Fairy Shrimp Species

The versatile fairy shrimp (*Branchinecta lindahli*), which ranges throughout this area, is not a concern since it is a widespread and common brachiopod, and not an ESA listed species. Furthermore, no fairy shrimp were detected in any of the sampled SDs during these surveys.

Summary

Based on the USFWS protocol for fairy shrimp surveys, either two consecutive wet season surveys or one full wet season and one dry season are required to complete protocol requirements. A protocol dry season survey with negative findings for fairy shrimp cysts was completed during the 2018 dry season. The completion of this 2018/2019 wet season survey fulfills the protocol requirements for fairy shrimp surveys at the SA and no further surveys should be required at this time. If you have any questions regarding this report, please contact me via phone at (714) 402-2899 or email at fwegscheider@fullerton.edu. The primary Project contact is Mike Klinefelter at (951) 698-8374.

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.



Frank J. Wegscheider	30 June 2019	TE-038716-4
Frank J. Wegscheider	Date	Permit No.

REFERENCES

California Department of Fish and Game (CDFG). 1998. California Vernal Pool Assessment Preliminary Report. Prepared by Todd Keeler-Wolf, Diane R. Elam, Kari Lewis, and Scott A. Flint. May. http://www.dfg.ca.gov/whdab/wetlands/vp%5Fasses%5Frept/

Dudek and Associates, Inc. 2003. Western Riverside County Final Multiple Species Habitat Conservation Plan, Volumes I-V. Prepared for the County of Riverside, Transportation and Land Management Agency by Dudek and Associates, 605 Third Street, Encinitas, California 92024.

Eng, L., D. Belk, and C. Eriksen. 1990. Californian Anostraca: distribution, habitat, and status. Journal of Crustacean Biology 10(2): 47-27

Eriksen, C. & D. Belk. 1999. Fairy Shrimp of California's Puddles, Pools, and Playas. Mad River Press, Inc. 196 pp.

Federal Register. 1993a. Endangered and threatened wildlife and plants; determination of endangered status for three vernal pool plants and the Riverside Fairy shrimp. Federal Register 58(147):41384-41392.

Federal Register. 1993b. Endangered and threatened wildlife and plants; determination of endangered status for the conservancy fairy shrimp, longhorn fairy shrimp, and the vernal pool tadpole shrimp; and threatened status for the vernal pool fairy shrimp. Federal Register 59(180):48136-48135

Federal Register. 1997. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the San Diego Fairy Shrimp; Final Rule Federal Register 62(22): 4925-4939.

Federal Register. 2001. Endangered and threatened wildlife and plants; final designation of critical habitat for the Riverside Fairy shrimp. Final rule. Federal Register 66(104):59884-29414.

Federal Register. 2003. Endangered and threatened wildlife and plants; critical habitat designation for four vernal pool crustaceans and eleven vernal pool plants in California and southern Oregon. Federal Register 68(151):46684-46867.

Federal Register. 2005. Endangered and threatened wildlife and plants; designation of critical habitat for the Riverside Fairy shrimp (*Streptocephalus woottoni*). Final rule. Federal Register 70(69):19154-19200.

Fugate, M. 1993. *Branchinecta sandiegonensis*, a New Species of Fairy Shrimp (Crustacea: Anostraca) from Western North America. Proceedings of the Biological Society of Washington 106(2):296-304.

Gallagher, S. 1996. Seasonal occurrence and habitat characteristics of some vernal pool branchiopods in northern California, U.S.A. Journal of Crustacean Biology 16:323-329.

Hathaway S. and M. Simovich. 1996. Factors affecting the distribution and co-occurrence of two southern Californian anostracans (Branchiopoda), *Branchinecta sandiegonensis* and *Streptocephalus woottoni*. Journal of Crustacean Biology 16(4):669-677.

Helm, B. 1998. The biogeography of eight large branchiopods endemic to California. *In*: C. Witham, E. Bauder, D. Belk, W. Ferren, and R. Ornduff (eds.), Ecology, Conservation, and Management of Vernal Pool Ecosystems – Proceedings from a 1996 Conference. California Native Plant Society, Sacramento, California.

Hickman, J.C. (ed.). 1993. *The Jepson Manual: Higher Plants of California*. Berkeley: University of California Press.

Pangea Biological. 2018. Biological Resource Assessment for the Olivenhain Municipal Water District (OMWD) Wiegand Parcel. Letter Report prepared by Pangea Biological, 6812 Embarcadero Lane Carlsbad, California 92011.

Rogers, D.C. 2001. Revision of the Nearctic *Lepidurus* (Notostraca). Journal of Crustacean Biology 21: 99–1006

U. S. Department of the Interior, Fish and Wildlife Service. 1996. Interim Survey *Guidelines to Permittees for Recovery Permits Under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. 12 pp*.

USFWS. 2000. Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the San Diego Fairy Shrimp (*Branchinecta sandiegoensis*); Final Rule Federal Register Vol. 65, No. 205: 63438-63466. 23 October.

USFWS. 2015. Survey Guidelines for the Listed Large Branchiopods to Permittees for Recovery Permits Under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. 24 pp.

Zedler, P. 1987. The ecology of southern California vernal pools: a community profile. U. S. Fish and Wildlife Service Biological Report 85(7.11).

APPENDIX I

WIEGAND PARCEL PROJECT
2019 WET SEASON FAIRY SHRIMP SURVEYS SUMMARY ANALYSIS

Survey Dates	Surface Area (ft)	Depth (cm)	H_20 Temp. (°C)	Dissolved Solids (PPM)	pH	Anostracans	Copepods	Ostracods
SD 1								
11/30/18	24	21	19.2	31.5	5.5	0	0	0
12/08/18	24	22	16.3	87	5.8	0	0	0
12/15/18	Dry	0	N/A	N/A	N/A	0	+	0
12/27/18	1.5	2	16.1	125	5.6	0	+	0
1/12/19	26	22	14.8	107	5.3	0	0	0
1/19/19	40	23	16.1	298	5	0	+	+
1/26/19	20	12	15.2	373	5	0	+	+
2/02/19	30	22	13.3	81	5	0	+	+
2/08/19	28	21	16.7	166	4.9	0	+	+
2/15/19	45	26	14.3	171	5	0	0	+
2/22/19	35	23	6.3	177	4.9	0	0	+
3/01/19	22	17	19.2	191	4.9	0	0	+
3/07/19	40	22	21.5	171	5.1	0	0	0
3/16/19	22	18	10.9	166	4.8	0	+	+
3/22/19	10	9	23.9	170	4.8	0	0	+
3/28/19	Dry	0	N/A	N/A	N/A	0	0	0
4/05/19	Dry	0	N/A	N/A	N/A	0	0	0

Survey Dates	Surface Area (ft)	Depth (cm)	H_20 Temp. (°C)	Dissolved Solids (PPM)	pH	Anostracans	Copepods	Ostracods
SD 2								
11/30/18	Dry	0	N/A	N/A	N/A	0	0	0
12/08/18	Dry	0	N/A	N/A	N/A	0	0	0
12/15/18	Dry	0	N/A	N/A	N/A	0	0	0
12/27/18	Dry	0	N/A	N/A	N/A	0	0	0
1/12/19	6	9	16.5	136	5.1	0	0	0
1/19/19	5	5	24.1	243	5.2	0	0	0
1/26/19	Dry	0	N/A	N/A	N/A	0	0	0
2/02/19	4	5	15.2	114	4.9	0	0	0
2/08/19	Dry	0	N/A	N/A	N/A	0	0	0
2/15/19	6	8	20.5	65	4.9	0	+	+
2/22/19	2.5	5	9	91	4.9	0	0	+
3/01/19	Dry	0	N/A	N/A	N/A	0	0	0
3/07/19	0.25	1	24.6	82	5	0	0	0
3/16/19	Dry	0	N/A	N/A	N/A	0	0	0
3/22/19	Dry	0	N/A	N/A	N/A	0	0	0
3/28/19	Dry	0	N/A	N/A	N/A	0	0	0
4/05/19	Dry	0	N/A	N/A	N/A	0	0	0

Note: N/A = not applicable; N/R = not recorded; N/S = not sampled; +/0 = presence/absence

Survey Dates	Surface Area (ft)	Depth (cm)	H_20 Temp. (°C)	Dissolved Solids (PPM)	pH	Anostracans	Copepods	Ostracods
SD 3								
11/30/18	35	9	18.5	75.4	5.4	0	0	0
12/08/18	22	8	18.1	228	5.5	0	0	0
12/15/18	Dry	0	N/A	N/A	N/A	0	0	0
12/27/18	2	3	16	219	5.5	0	+	0
1/12/19	40	13	13.7	234	4.9	0	0	0
1/19/19	36	11	17.9	199	5.1	0	0	0
1/26/19	Dry	0	N/A	N/A	N/A	0	0	0
2/02/19	35	13	14	87	5	0	+	0
2/08/19	24	9	17.4	83	5.2	0	+	0
2/15/19	42	15	16.5	62	5.2	0	+	0
2/22/19	35	11	6.6	75	4.9	0	+	0
3/01/19	Dry	0	N/A	N/A	N/A	0	0	0
3/07/19	30	8	22.5	122	5	0	0	0
3/16/19	8	6	10.2	143	4.9	0	+	+
3/22/19	0.2	2	23.4	92	5.1	0	0	+
3/28/19	Dry	0	N/A	N/A	N/A	0	0	0
4/05/19	Dry	0	N/A	N/A	N/A	0	0	0

Survey Dates	Surface Area (ft)	Depth (cm)	H_20 Temp. (°C)	Dissolved Solids (PPM)	pH	Anostracans	Copepods	Ostracods
SD 4								
11/30/18	Dry	0	N/A	N/A	N/A	0	0	0
12/08/18	5	9	22.9	523	5.5	0	0	0
12/15/18	Dry	0	N/A	N/A	N/A	0	0	0
12/27/18	Dry	0	N/A	N/A	N/A	0	0	0
1/12/19	5	10	17.6	476	5.1	0	0	0
1/19/19	6	10	21.5	314	5	0	0	0
1/26/19	Dry	0	N/A	N/A	N/A	0	0	0
2/02/19	5	9	14.9	154	5	0	0	0
2/08/19	5	8	21.4	108	5.1	0	+	0
2/15/19	6	10	20.3	73	5.1	0	+	0
2/22/19	6	10	7.9	132	5	0	0	0
3/01/19	Dry	0	N/A	N/A	N/A	0	0	0
3/07/19	5	9	25.5	137	5	0	0	0
3/16/19	Dry	0	N/A	N/A	N/A	0	0	0
3/22/19	Dry	0	N/A	N/A	N/A	0	0	0
3/28/19	Dry	0	N/A	N/A	N/A	0	0	0
4/05/19	Dry	0	N/A	N/A	N/A	0	0	0

Note: N/A = not applicable; N/R = not recorded; N/S = not sampled; +/0 = presence/absence

Survey Dates	Surface Area (ft)	Depth (cm)	H_20 Temp. (°C)	Dissolved Solids (PPM)	pH	Anostracans	Copepods	Ostracods
SD 5								
11/30/18	Dry	0	N/A	N/A	N/A	0	0	0
12/08/18	6	5	19.1	494	5.6	0	0	0
12/15/18	Dry	0	N/A	N/A	N/A	0	0	0
12/27/18	Dry	0	N/A	N/A	N/A	0	0	0
1/12/19	8	9	16.6	381	5.1	0	0	0
1/19/19	8	8	21	351	5	0	0	0
1/26/19	Dry	0	N/A	N/A	N/A	0	0	0
2/02/19	8	7	14.9	154	5	0	0	0
2/08/19	8	7	21.3	117	5.1	0	0	0
2/15/19	12	9	20	82	5	0	+	0
2/22/19	10	8	9.2	151	4.9	0	+	0
3/01/19	Dry	0	N/A	N/A	N/A	0	0	0
3/07/19	8	6	26.4	154	5.1	0	0	0
3/16/19	2	4	16.4	210	5.1	0	+	+
3/22/19	Dry	0	N/A	N/A	N/A	0	0	0
3/28/19	Dry	0	N/A	N/A	N/A	0	0	0
4/05/19	Dry	0	N/A	N/A	N/A	0	0	0

Survey Dates	Surface Area (ft)	Depth (cm)	H_20 Temp. (°C)	Dissolved Solids (PPM)	pH	Anostracans	Copepods	Ostracods
SD 6								
11/30/18	3	4	20.9	120	5.7	0	0	0
12/08/18	4	4	22.4	268	5.5	0	0	0
12/15/18	Dry	0	N/A	N/A	N/A	0	0	0
12/27/18	Dry	0	N/A	N/A	N/A	0	0	0
1/12/19	22	13	16.1	365	4.9	0	0	0
1/19/19	18	12	21.4	477	5	0	+	0
1/26/19	4	4	24.3	261	5.1	0	+	0
2/02/19	14	9	14.8	202	5	0	+	0
2/08/19	12	9	20.7	155	5.1	0	+	0
2/15/19	50	13	16.2	83	5.1	0	+	0
2/22/19	15	11	8.3	146	4.8	0	+	0
3/01/19	0.75	1	24.4	204	5.3	0	+	+
3/07/19	20	10	25.7	172	5	0	+	0
3/16/19	Dry	0	N/A	N/A	N/A	0	0	0
3/22/19	Dry	0	N/A	N/A	N/A	0	0	0
3/28/19	Dry	0	N/A	N/A	N/A	0	0	0
4/05/19	Dry	0	N/A	N/A	N/A	0	0	0

Note: N/A = not applicable; N/R = not recorded; N/S = not sampled; +/0 = presence/absence

Survey Dates	Surface Area (ft)	Depth (cm)	H_20 Temp. (°C)	Dissolved Solids (PPM)	pH	Anostracans	Copepods	Ostracods
SD 7								
11/30/18	12	4	20.5	52.9	5.4	0	0	0
12/08/18	24	12	21.2	638	5.5	0	0	0
12/15/18	Dry	0	N/A	N/A	N/A	0	0	0
12/27/18	0.25	2	16.7	440	5.5	0	0	0
1/12/19	38	14	16.2	378	4.9	0	0	0
1/19/19	40	20	16	449	5	0	0	0
1/26/19	1.5	2	22.6	305	5.3	0	0	0
2/02/19	32	17	14.8	211	4.9	0	0	+
2/08/19	32	13	17.6	160	5	0	0	+
2/15/19	60	22	14.4	77	5	0	0	+
2/22/19	50	19	7.3	140	7.3	0	+	0
3/01/19	6	4	21.6	197	5.1	0	+	+
3/07/19	22	10	24.8	167	4.9	0	0	0
3/16/19	15	7	15.2	204	4.9	0	0	+
3/22/19	3	4	24.7	195	5.2	0	0	+
3/28/19	Dry	0	N/A	N/A	N/A	0	0	0
4/05/19	Dry	0	N/A	N/A	N/A	0	0	0

Survey Dates	Surface Area (ft)	Depth (cm)	H_20 Temp. (°C)	Dissolved Solids (PPM)	pH	Anostracans	Copepods	Ostracods
SD 8								
11/30/18	Dry	N/A	N/A	N/A	0	0	0	0
12/08/18	Dry	N/A	N/A	N/A	0	0	0	0
12/15/18	Dry	N/A	N/A	N/A	0	0	0	0
12/27/18	Dry	N/A	N/A	N/A	0	0	0	0
1/12/19	28	6	19.8	153	4.8	0	0	0
1/19/19	6	3	20	251	5.2	0	0	0
1/26/19	Dry	0	N/A	N/A	N/A	0	0	0
2/02/19	Dry	0	N/A	N/A	N/A	0	0	0
2/08/19	Dry	0	N/A	N/A	N/A	0	0	0
2/15/19	30	5	20.6	59	5.1	0	0	0
2/22/19	Dry	0	N/A	N/A	N/A	0	0	0
3/01/19	Dry	0	N/A	N/A	N/A	0	0	0
3/07/19	Dry	0	N/A	N/A	N/A	0	0	0
3/16/19	Dry	0	N/A	N/A	N/A	0	0	0
3/22/19	Dry	0	N/A	N/A	N/A	0	0	0
3/28/19	Dry	0	N/A	N/A	N/A	0	0	0
4/05/19	Dry	0	N/A	N/A	N/A	0	0	0

Note: N/A = not applicable; N/R = not recorded; N/S = not sampled; +/0 = presence/absence

APPENDIX II

WIEGAND PARCEL PROJECT
2019 WET SEASON FAIRY SHRIMP SURVEYS PHOTOGRAPHIC DOCUMENTATION

Site Photo 1 Location: UTM 11 0474976 E 3657047 N Date: 19 January 2019
View looking east Photo by: F. J. Wegscheider



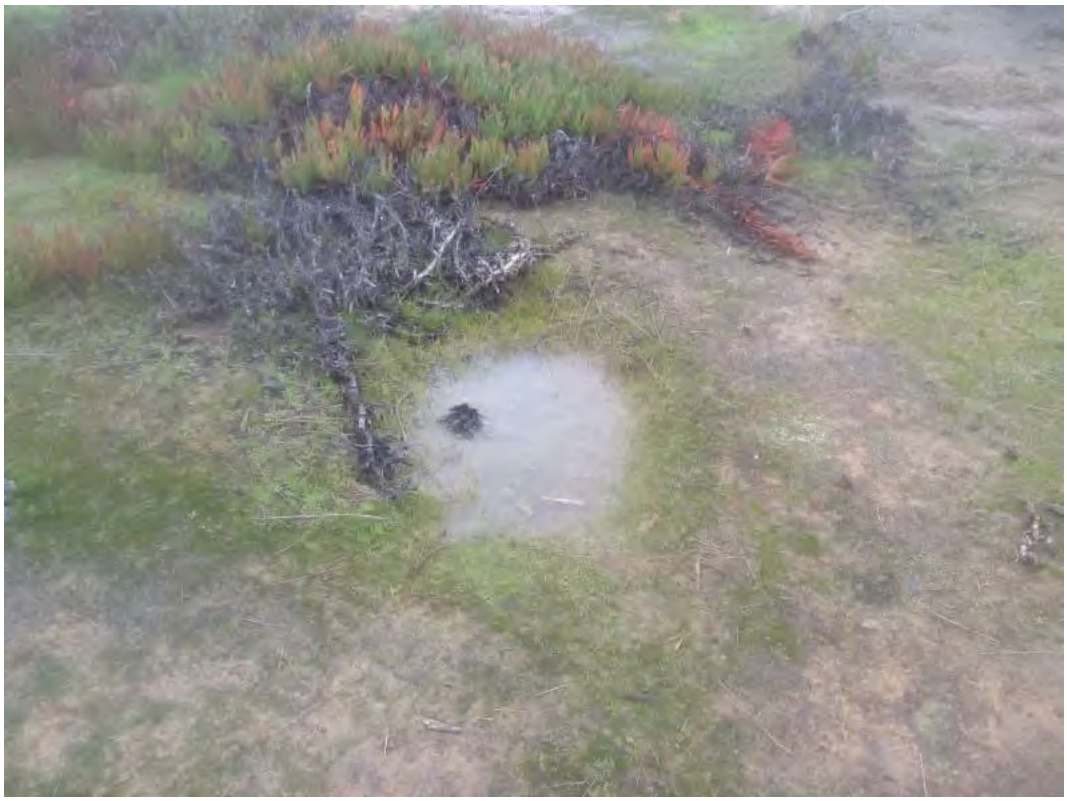
Site Photo 2 Location: UTM 11 0474978E 3657052 N Date: 12 January 2019
View looking south Photo by: F. J. Wegscheider



Depression 1 Location: UTM 11 0474976 E 3657047 N Date: 2 February 2019
View looking north Photo by: F. J. Wegscheider



Depression 2 Location: UTM 11 0474978E 3657052 N Date: 2 February 2019
View looking north Photo by: F. J. Wegscheider



Depression 3 Location: UTM 11 0474983 E 3657053 N Date: 2 February 2019
View looking south Photo by: F. J. Wegscheider



Depression 4 Location: UTM 11 0474974 E 3657059 N Date: 2 February 2019
View looking north Photo by: F. J. Wegscheider



Depression 5 Location: UTM 11 0474973 E 3657060 N Date: 2 February 2019
View looking northwest Photo by: F. J. Wegscheider



Depression 6 Location: UTM 11 0474974 E 3657063 N Date: 2 February 2019
View looking north Photo by: F. J. Wegscheider



Depression 7 Location: UTM 11 0474990 E 3657074 N Date: 2 February 2019
View looking east Photo by: F. J. Wegscheider



Depression 8 Location: UTM 11 0474986 E 3657069 N Date: 2 February 2019
View looking east Photo by: F. J. Wegscheider



Appendix F

Sensitive Plant Species Potential to Occur

Species Name	Status	Habit, Ecology and Life History	Potential to Occur
San Diego thornmint *(Acanthomintha ilicifolia)*	FE/ST1 CNPS Rank 1B.12 MHCP Covered NE	Annual herb. Chaparral, coastal scrub, valley, and foothill grassland vernal pools supported by clay soils. Bloom: April–June. Known elevation limits: 30-3,050 feet (8-930 meters).	**Not expected.** Limited suitable habitat occurs within the project site; however, clay soils are not on site and the species was not detected during focused sensitive plant surveys in 2019. Last recorded observation was in 1994 by CNDDB at Quail Park Botanical Gardens, 0.7 miles west of the project site.
Nuttall's lotus (*Acmispon prostratus*)	--/-- CRPR 1B.1	Annual herb. Found in the coastal regions of southern California and Baja California. Habitats include coastal dunes, coastal scrub with sandy soils, and disturbed areas. Flowering Period: March to June. Elevation: below 33 feet (10 meters).	**Not Expected.** Coastal dunes and coastal scrub habitats are not present within the project site or surrounding area. In addition, sandy soils are not present within the study area.
California adolphia (*Adolphia californica*)	--/-- CRPR 2B.1	Perennial shrub. Most often found in sage scrub but occasionally occurs in peripheral chaparral habitats, particularly hillsides near creeks on clay soils. Flowering period: December to April. Elevation: below 1,312 feet (400 meters).	**Presumed Absent:** Limited suitable habitat occurs within the project site; however, the species was not detected during focused sensitive plant surveys in 2019.
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)	FE/-- CRPR 1B.1 MHCP Covered	Perennial shrub. Found within Relatively open, coastal chaparral. At occasional inland sites it occurs in denser mixed chaparral vegetation. Elevation: below 1,200 feet (365 meters). Flowering Period: December to June.	**Present:** Suitable habitat occurs on site, and approximately 19 individuals were documented on site during focused sensitive plant surveys in 2019.
South coast saltscale (*Atriplex pacifica*)	--/-- CRPR 1B.2	Annual herb. Found coastally on dunes and within playas in alkali sinks, sage scrub and wetland riparian communities. Flowering period: March to October. Elevation: below 984 feet (300 meters).	**Not Expected.** Coastal dunes, alkali sinks, coastal scrub, and wetland riparian habitats are not present within the project site or surrounding area.

Species Name	Status	Habit, Ecology and Life History	Potential to Occur
Encinitas baccharis (*Baccharis vanessae*)	FT/SE CRRP 1B.1 MHCP Covered NE	Perennial shrub. Grows on sandstone within chaparral, maritime chaparral, woodlands, and Torrey-pine forest understory. Flowering period: August to December. Elevation: 196 to 2,400 feet (60 to 720 meters).	**Presumed Absent:** Although suitable habitat occurs within the project site, the species was not observed during focused plant surveys in 2019. Last recorded observation was in 2018 by CNDDB in Oak Crest Park, just South of Encinitas Blvd, 500 feet north of project site.
Thread-leaved brodiaea (*Brodiaea filifolia*)	FT/SE CRPR 1B.1 MHCP Covered NE	Perennial bulbiferous herb. Often associated with vernal pools and known from habitats including valley grassland, foothill woodland, coastal sage scrub and chaparral. Species prefers clay soils. Flowering period: March to June. Elevation: 82 to 2821 feet (25 to 860 meters).	**Not expected.** Limited suitable habitat occurs within the project site; however, clay soils are not on site and the species was not detected during focused sensitive plant surveys in 2019.
Orcutt's brodiaea (*Brodiaea orcuttii*)	--/-- CRPR 1B.1	Perennial bulbiferous herb. Occurs within closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Prefers mesic or clay soils. Flowering period: May to July. Elevation: 98 to 5,550 feet (30 to 1,692 meters).	**Not expected.** Limited suitable habitat occurs within the project site; however, clay soils are not on site and the species was not detected during focused sensitive plant surveys in 2019.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	--/-- CRPR 2B.2 MHCP Covered	Perennial shrub. Found on rocky slopes within chaparral, particularly southern maritime chaparral. Flowering period: December to May. Elevation: below 1,148 feet (350 meters).	**Present:** Suitable habitat occurs within the project area. Approximately 43 individuals were recorded on site during focused sensitive plant surveys in 2019.
Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*)	--/-- CRPR 1B.1	Annual herb. Found on coastal dunes and sandy coastal bluff scrub. Typically, in proximity to moist ocean breezes. Elevation: below 328 feet (100 meters). Flowering Period: January to August.	**Not Expected.** Coastal dunes and sandy bluff scrub habitats are not present within the project site or surrounding area.

Species Name	Status	Habit, Ecology and Life History	Potential to Occur
Orcutt's spineflower (*Chorizanthe orcuttiana*)	FE/SE CRPR 1B.1 MHCP Covered	Annual herb. Found in sandy openings of coastal sage scrub, chaparral, and coniferous forests. Known from only three occurrences in Encinitas and Point Loma. Flowering period: March to May. Elevation: below 410 feet (125 meters).	**Not expected.** Suitable habitat occurs within the project site; however, the species was not detected during focused sensitive plant surveys in 2019.
Long-spined spineflower *(Chorizanthe polygonoides* var. *longispina)*	--/-- CRPR 1B.2	Annual herb. Occurs in chaparral, coastal scrub, and native grassland, often in sandy soils. Flowering period: April to June. Elevation: 98 to 4,920 feet (30 to 1,500 meters).	**Not expected.** Suitable habitat occurs within the project site; however, the species was not detected during focused sensitive plant surveys in 2019.
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	--/-- CRPR 1B.2 MHCP Covered	Perennial shrub. Occurs in chaparral and cismontane woodland. Flowering period: May to June. Elevation: 328 to 1,804 feet (100 to 550 meters).	**Present:** Suitable habitat present on site. One individual of this species was observed within the project site during focused sensitive plant surveys in 2019.
Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*)	--/-- CRPR 1B.1	Perennial herb. Found on sandy soils and disturbed areas within southern maritime chaparral, coastal sage scrub, and coastal bluffs. Flowering Period: May to September. Elevation: below 492 feet (150 meters).	**Not Expected.** Although suitable sandy soils and maritime chaparral occur within project site, species was not observed during focused sensitive plant surveys in 2019.
San Diego barrel cactus (*Ferocactus viridescens*)	--/-- CRPR 2B.1 MHCP Covered	Perennial (stem succulent) shrub. Grows in sandy to rocky areas within chaparral, valley grassland and coastal sage scrub communities. Flowering period: May to June. Elevation: 33 to 492 feet (10 to 150 meters).	**Presumed Absent.** Suitable chaparral habitat is present within the project site; however, this is a conspicuous succulent that would have been observed if present.
Palmer's grapplinghook (*Harpagonella palmeri*)	--/-- CRPR 4.2 County List D	Annual herb. Clay soils in annual grasslands and coastal sage scrub. Flowering period: March to May. Elevation: below 3,300 feet (1,005 meters).	**Not expected**. Suitable grassland and coastal sage scrub habitat does not occur within the project site. **S**pecies was not observed during focused sensitive plant surveys in 2019.

Species Name	Status	Habit, Ecology and Life History	Potential to Occur
Orcutt's hazardia (*Hazardia orcuttii*)	FC/ST CNPS List 1B.1 MHCP Covered	Perennial shrub. Found in open chaparral with chamise. At the one known U.S. site, soils are mapped as loamy alluvial land of the Huerhuero complex. Flowering period: August to October. Elevation: sea-level to 330 feet (100 meters).	**Presumed Absent.** Suitable chaparral habitat and soil is present within the project site; however, this is a conspicuous shrub that would have been observed during 2019 focused surveys.
Beach goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*)	--/-- CRPR 1B.1	Perennial herb. Occurs in coastal chaparral, coastal dunes, and coastal scrub. Flowering Period: March to December. Elevation: below 4,020 feet (1,225 meters).	**Presumed Absent:** Suitable Maritime chaparral exists within the project site; however, this species was not detected during focused sensitive plant surveys in 2019.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	--/-- CRPR 1B.1	Annual herb. Grows in vernal pools, playas, and saline habitats within alkali sinks, coastal salt marshes, and wetland communities. Flowering period: April to May. Elevation: below 3,281 feet (1,000 meters).	**Not Expected.** Suitable habitat occurs within the project site; however, species was not observed during focused sensitive plant surveys in 2019.
Sea dahlia (*Leptosyne maritima*)	--/-- CRPR 2B.2	Perennial herb. Occurs within coastal scrub and coastal bluffs scrub. Flowering period: March to May. Elevation: below 500 feet (150 meters).	**Not Expected.** Suitable coastal scrub and bluff scrub does not occur within the project site. Species was not observed during focused sensitive plant surveys in 2019.
Coast woolly-heads (*Nemacaulis denudata* var. *denudata*)	--/-- CRPR 1B.2	Annual herb. Occurs within coastal dunes. The back dunes in mildly protected areas seem to be preferred. Flowering Period: April to September. Elevation: below 330 feet (100 meters)	**Not expected.** Coastal dune habitat does not occur within the project site. Species was not observed during focused sensitive plant surveys in 2019.
Short lobed broomrape (*Orobanche parishii* ssp. *brachyloba)*	--/-- CNPS List 4.2	Perennial herb. Found in coastal bluff scrub and coastal dunes. Flowering period: April to October. Elevation: 195 to 6,235 feet (60 to 1,900 meters).	**Not expected.** Coastal dune and bluff scrub habitats do not occur within the project site. Species was not observed during focused sensitive plant surveys in 2019.

Species Name	Status	Habit, Ecology and Life History	Potential to Occur
Torrey pine (*Pinus torreyana* ssp. *torreyana*)	--/-- CRPR 1B.2 MHCP Covered	Perennial evergreen tree. Occurs within closed cone coniferous forest and chaparral atop sandstone soils. Elevation: 98 and 430 feet (29 to 131 meters).	**Present:** Suitable habitat occurs within the project site. Six individuals were recorded on site during focused sensitive plant surveys in 2019 and the arborist survey in 2021.
Nuttall's scrub oak (*Quercus dumosa*)	--/-- CRPR 1B.1 MHCP Covered	Perennial shrub. Occurs on sandy or clay loam soils near the coast within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Flowering period: March to May. Elevation: below 656 feet (200 meters).	**Presumed Absent.** Suitable chaparral habitat is present within the project site; however, this is a conspicuous shrub that would have been observed during focused sensitive plant surveys in 2019.

[1] Listing codes as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare

CRPR = California Native Plant Society Rare Plant Rank: 1A – presumed extirpated in California and either rare or extinct elsewhere; 1B – rare, threatened, or endangered in California and elsewhere; 2A – presumed extirpated in California, but more common elsewhere; 2B – rare, threatened, or endangered in California, but more common elsewhere; 3 – more information needed; 4 – watch list for species of limited distribution. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered.

MHCP Covered Species: Covered Species under County of San Diego Draft North County Multiple Habitat Conservation Program (MHCP). NE = Narrow Endemic Species

[2] Potential to Occur is assessed as follows: **None**: There are no present or historical records of the species occurring on or in the immediate vicinity (i.e. as defined by the 2 mile search radius) of the study area and the diagnostic habitats and soils associated with the species do not occur on or in the immediate vicinity of the project; **Not Expected**: There are no present or historical records of the species occurring on or in the immediate vicinity of the study area. Suitable habitat not present on site; or, suitable habitat is present; but, the species would have been observed during focused surveys for the species. **Low**: Suitable habitat is present in the study area and a historical record of the species occurs in the immediate vicinity but existing conditions such as elevation, soils, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation substantially reduce the possibility that the species may occur; **Moderate**: The diagnostic habitats associated with the species occur on or in the immediate vicinity of the study area, but there is not a recorded occurrence of the species within the immediate vicinity. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High**: Suitable habitat occurs in the study area and the species has been recorded recently on or in the immediate vicinity but the species was not observed during project surveys; **Present**: The species was observed during biological surveys for the project and is assumed to occupy the study area; **Presumed Absent**: Species would be visible all year and would have been observed if present.

Appendix G

Sensitive Animal Species Potential to Occur

Species Name	Status	Habitat Associations	Potential to Occur
VERTEBRATES			
Amphibians			
Western spadefoot toad (*Spea hammondii*)	--/SSC MHCP Covered	Suitable upland habitats include coastal sage scrub, chaparral, and grasslands. Most common in grasslands with vernal pools or mixed grassland-coastal sage scrub areas. Breeds in temporary pools formed by heavy rains, but also found in riparian habitats with suitable water resources. Breeding pools must lack exotic predators such fish, bullfrogs, and crayfish for the species to successfully reproduce. Estivates in burrows within upland habitats adjacent to potential breeding sites.	**Low.** Marginal suitable habitat occurs on-site within the ephemeral basins identified during the surveys; however, this species was not detected during project surveys.
Reptiles			
San Diegan legless lizard (*Anniella stebbinsi*)	--/SSC	Occurs in sparsely vegetated areas with moist warm, loose soil with plant cover; moisture is essential. Common in several habitats but especially in beach dunes, coastal scrub, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Found primarily in areas with sandy or loose organic soils or where there is plenty of leaf litter. Sometimes found in suburban gardens in southern California.	**Moderate.** Suitable chaparral habitat occurs on-site; however, this species was not detected during project surveys.
California glossy snake (*Arizona elegans occidentalis*)	--/SSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral. Prefers open areas and areas with soils loose enough for easy burrowing.	**Low.** Marginal suitable chaparral habitat occurs on-site; however, this species was not detected during project surveys. Other preferably habitats (rocky washes, grasslands) do not occur on site.

Species Name	Status	Habitat Associations	Potential to Occur
Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	--/WL MHCP Covered	Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species correlated with the presence perennial plants (such as California buckwheat, California sagebrush, black sage, or chaparral) to provide a food base for its major food source, termites.	**Moderate.** Suitable chaparral habitat occurs on-site; however, this species was not detected during project surveys.
Birds			
Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)	--/WL MSCP Covered	Generally found on moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. Prefer areas with California sagebrush but area also generally absent from areas with dense stands of coastal sage scrub or chaparral. May occur on steep grassy slopes without shrubs if rock outcrops are present.	**Low.** Suitable chaparral habitat for this species exists within the study area; however, the species was not detected during biological surveys for the project included focused surveys for California gnatcatcher, which would have detected this species if present.
Coastal California Gnatcatcher (*Polioptila californica californica*)	FT/SSC MHCP Covered	Typically occurs in arid, open sage scrub habitats on gently slopes hillsides to relatively flat areas at elevations below 3,000 feet. The composition of sage scrub in which gnatcatchers are found varies; however, California sagebrush is at least present as dominant or co-dominant species. The species is mostly absent from areas dominated by black sage, white sage, or lemonadeberry, though the species may occur more regularly in inland regions dominated by black sage.	**Low.** Suitable coastal sage scrub habitat does not occur within the project area. Further, the species was not observed during 2019 focused surveys for this species.

Species Name	Status	Habitat Associations	Potential to Occur
Least Bell's Vireo (*Vireo bellii pusillus*)	FE/SE MHCP Covered	Found in mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. Dominant species within breeding habitat includes cottonwood and willows with mule fat, oaks, and sycamore, and mesquite (*Prosopis glandulosa*) and arrowweed (*Pluchea sericea*) within desert habitats. The species can be tolerant of the presence of non-native species such as tamarisk.	**None.** No suitable riparian habitat on-site or within 500-feet of the site.
Mammals			
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	--/SSC MHCP Covered	Inhabits coastal sage scrub, grasslands, and chaparral communities, and generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates. Forage for seeds from California sagebrush, California buckwheat, lemonade berry, and grasses under shrub and tree canopies, or around rock crevices.	**Moderate.** Suitable chaparral habitat for this species exists within the study area.
Mexican long-tongued bat (*Choeronycteris mexicana*)	--/SSC	Occurs in arid habitats such as grasslands, scrub, mixed forest, and canyons in mountain ranges rising from the desert. Primarily found in urban and suburban areas in San Diego County. Roosts in caves and mines, and man-made structures such as garages, office buildings, under porches, and warehouses.	**Not Expected.** Although limited suitable habitat occurs within the project site, surrounding urban/suburban areas do offer roosting habitat.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	--/SSC	Rare in California occurring from Los Angeles County eastwards to San Bernardino County, and southwards to San Diego County. Closely associated with their preferred roosting habitats consisting of vertical cliffs, quarries, and rocky outcrops. Sometimes roosts under tiled roofs and observed utilizing bat boxes. Habitat generalists foraging in grasslands, shrublands, riparian areas, oak woodlands, forests, meadows, and ponds favoring larger water bodes for drinking.	**Not Expected.** Suitable scrubland habitat for foraging occur within the project site; however, roosting habitat does not occur within the survey area.

Species Name	Status	Habitat Associations	Potential to Occur
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE/SSC MHCP Covered	Historically occurred in coastal southern California from Los Angeles County south to San Diego County. Current distribution is within 1 mile of the coast with three known populations still present: Dana Point Headlands (Orange County, San Mateo Creek (northern San Diego County), and Camp Pendleton (northern San Diego County). Occurs on fine-grained, sandy or gravelly substrates in coastal strand, coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces.	**None.** Suitable coastal sage scrub habitat for this species does not occur within the project area. Additionally, this species is known to occur only on Camp Pendleton and northward into Orange County.

[1] Listing codes are as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare; BCC = Federal Bird of Conservation Concern; SSC = State Species of Special Concern; FP = State Fully Protected; WL = Watch List

MHCP Covered Species: Covered Species under County of San Diego Draft North County Multiple Habitat Conservation Program (MHCP).

[2] Potential to Occur is assessed as follows: **None**: Species is so limited to a particular habitat that it cannot disperse on its own, and habitat suitable for its establishment and survival does not occur in the study area; **Not Expected**: There are no present or historical records of the species occurring on or in the immediate vicinity of the study area. The species moves freely and might disperse through or across the study area, but suitable habitat for residence or breeding does not occur; **Low**: Suitable habitat is present in the study area and there is a historical record of the species in the project vicinity, but no sign of the species was observed during surveys. Existing conditions such as elevation, species composition, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation may substantially reduce the possibility that the species may occur; **Moderate:** Diagnostic habitats associated with the species occur on or adjacent to the study area, but there is not a recorded occurrence of the species within the immediate vicinity. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High**: Suitable habitat associated with the species occurs in the study area and the species has been recorded recently on or near the project, but was not observed during biological surveys; **Present**: The species was observed during biological surveys for the project and is assumed to occupy the study area.

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August 6, 2021 Project 04533.00001.001

Mr. Jon Rodrigue
Aspen Growth Properties
8799 Balboa Avenue Suite 270
San Diego, CA 92123

Subject: Tree Survey Report for the Zona Gale Estates Project (APN) 257-040-11-10

Dear Mr. Rodrigue:

At the request of Aspen Growth Properties, HELIX Environmental Planning, Inc. (HELIX) has prepared this report to document the results of a tree survey for the proposed Zona Gale Estates Project (project), located in the City of Encinitas, San Diego County, California. The purpose of the survey was to inventory all the Torrey pine (*Pinus torreyana*) trees occurring within and directly abutting the property. The survey focused on evaluating tree size and health, as well as the retention potential as it relates to the project. This letter report summarizes the methods and results of the survey. This report includes a figure that depicts the location of the trees surveyed along with recommendations for avoidance and tree protection measures to abate and/or remove potential impacts to arboricultural resources.

PROJECT LOCATION AND DESCRIPTION

The project is located approximately 1.2 miles east of Interstate (I-) 5, approximately 0.4-mile north of Encinitas Boulevard, and just west of Via Cantebria in the City of Encinitas in north San Diego County, California (Figure 1, *Regional Location*). More specifically, the site occurs immediately east and north of Zona Gale Road, and primary access to the site is provided by Zona Gale Road. The site is located within Section 11 of Township 13 South, Range 4 West of the U.S. Geological Survey (USGS) 7.5-minute topographic Encinitas quadrangle map (Figure 2, *USGS Topography*, and Figure 3, *Aerial Photograph of Project Site*). The project site occurs within Assessor's Parcel Number (APN) 257-040-11-10, which consists of approximately two acres. The project site is located within the City's Special Study Overlay Zone, within the Coastal Zone.

The proposed project consists of residential subdivision development on undeveloped land and infrastructure improvements/connections within existing developed areas. The project would generally include site grading and new construction. Specifically, the project proposes to construct nine detached residences, a biofiltration basin, landscaping, and other necessities (a paved road, private driveways, additional off-street parking areas). The project also includes connections and improvements to existing

public infrastructure off-site beyond the property such as, but not limited to, new portions of Zona Gale Road and utility improvements within Via Cantebria (Figure 5, *Site Plan*).

METHODS

HELIX International Society of Arboriculture (ISA) Certified Arborist, Alexander Walsh (WE-12997A) completed the tree survey on July 29, 2021. All Torrey pines surveyed occur within the project footprint. Each tree was located with sub-meter accuracy using a Global Positioning System unit. In addition to the location, the following data listed below was collected for each tree:

- Average tree canopy spread;
- Tree height;
- Tree trunk diameter at 54" above natural grade; diameter at breast height (DBH); and
- Tree health and vigor.

RESULTS

During the arborist survey, six Torrey pines were identified and mapped on-site. A map depicting the location, canopy dripline, and ID number assigned to each tree is included in Figure 4, *Tree Locations*. Following data collection, the overall tree health and vigor were evaluated, and each tree was rated as: Good, Fair, Poor, or Dead. All six trees were determined to be in good health. None of the trees surveyed exhibited signs of stress, such as wilting or yellowing and browning of the needles. The results of the tree survey are summarized below as well as provided in Attachment A, *Tree Survey Results*. Representative site and tree photographs are included in this report as Attachment B, *Representative Site Photos*.

Table 1
TREE SURVEY RESULTS

Tree ID #	Diameter at Breast Height (DBH) (inches)	Height (feet)	Canopy Dripline (width in feet)	Health/Vigor (Good, Fair, Poor, Dead)
1	8.5	24	30	Good
2	10.5	30	25	Good
3	1	6	6	Good
4	12	18	30	Good
5	5	15	12	Good
6	3.7	16	10	Good

IMPACTS AND RETENTION POTENTIAL

Based on aerial imagery and this on-site survey, the six Torrey pines surveyed are considered naturally occurring. Of these six trees, four are located along and near the project site boundary and may be avoided if the project design allows. Below are further descriptions of the individual trees on-site.

Trees with assigned ID numbers 1 and 2 occur in the southeastern portion of the site along the property boundary. These two trees are mature (approximately 24 to 30 feet tall, respectively) and likely serve to help screen the large water tank on the property immediately adjacent/south of the project site. According to the project site plan (Figure 5), these trees do not appear to overlap with the proposed residences or other structures, which suggests they may be retained if the project design allows. These two trees are not considered candidates for transplanting.

Torrey pine tree ID number 3 is the eastern portion of the site near the property boundary. At only six feet high and with a trunk diameter of one inch, this tree is immature and is considered suitable for transplanting, if it is determined that project-related impacts to this tree cannot be avoided.

Tree number 4 occurs on-site, along the northeastern property boundary, and may be retained if the project design allows. Due to tree maturity, this tree is not considered a candidate for transplanting.

Trees 5 and 6 occur in the northwestern portion of the site, not along the property boundary. Based on the project site plan, these two trees are located where the northernmost residence is proposed and would be impacted by the project. Because these two trees have just reached maturity, it is possible that they can also be transplanted. Although chances of successful relocation tend to lessen as trees age, these two trees are still relatively young and should have a high chance of survivorship from transplanting.

RECOMMENDATIONS FOR AVOIDANCE AND PROTECTION

It is recommended that all Torrey pine trees on-site be avoided by the project construction impacts to the extent practicable. To protect these trees, it is recommended that construction avoid the critical root zone (CRZ) of each tree. The CRZ is also known as the Tree Protection Zone (TPZ), which is typically defined as a circle on the ground corresponding to the dripline of the tree. Although the tree dripline can be irregular and hard to define, an alternative method for determining the CRZ is to multiply the diameter (DBH) of the tree (in inches) by 12. In the TPZ, the soil should be protected from compaction, critical roots should not be damaged by pruning, trenching, or excessive grade changes, and trunk or branches should not be damaged by equipment or workers. An established TPZ helps ensure that a tree is protected during construction, has enough space for root and branch growth, and will receive adequate supplies of soil nutrients, air, and water.

A common practice for construction projects with trees designated with a TPZ is to place orange snow fencing (or similar field demarcation) approximately 6 to 10 feet out from the dripline, as an additional buffer since the CRZ can actually extend well beyond the canopy dripline, depending on tree size. As part of establishing the TPZ, instead of raking up the fallen needles, allow them to lie where they fall on top of the ground surrounding the tree. This long-lasting, natural mulch helps to preserve moisture in the soil, hinders weeds, and is beneficial to the Torrey pine. If construction work needs to be conducted within the CRZ, plywood can be placed on the ground around the tree to reduce root and soil compaction. Work within the TPZ should be monitored by the project biologist or certified arborist.

Trees proposed for transplanting should be excavated and relocated according to a Tree Translocation Plan prepared by a certified arborist. Translocation activities should be conducted under the supervision of a certified arborist.

CONCLUSION

In conclusion, this tree survey evaluated six existing Torrey pine trees within the proposed Zona Gale Estates Project site. All six Torrey pines surveyed were determined to be naturally occurring (not planting or irrigated) and in good health.

Four of the trees (Tree ID 1, 2, 3, and 4) are located along the project site boundary and based on the project site plan, may be avoided by project construction if the site design allows, but this would need to be confirmed by the project engineer.

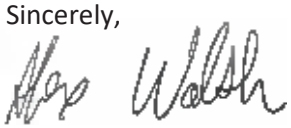
If project impacts to these four trees are determined unavoidable, then based on this survey, one of these trees (Tree ID 3) could be transplanted/relocated. Tree IDs 1, 2, and 4 are not candidates for transplanting due to maturity.

The other two trees on-site (Tree ID 5 and 6) are within the project impact footprint, but based on this survey, they could be transplanted/relocated due to their young level of maturity.

Avoidance of trees on-site should include the establishment and maintenance of a TPZ throughout construction. Translocation of trees should be conducted according to a Translocation Plan and monitored by a certified arborist.

We appreciate the opportunity to provide you with this tree survey. Should you have any questions or require additional information, please do not hesitate to contact me at (619) 730-5780 or AlexanderW@helixepi.com, or Thomas Liddicoat at (760) 525-5888 or ThomasL@helixepi.com.

Sincerely,



Alexander Walsh
ISA Certified Arborist (WE-12997A)
Biologist

Attachments:

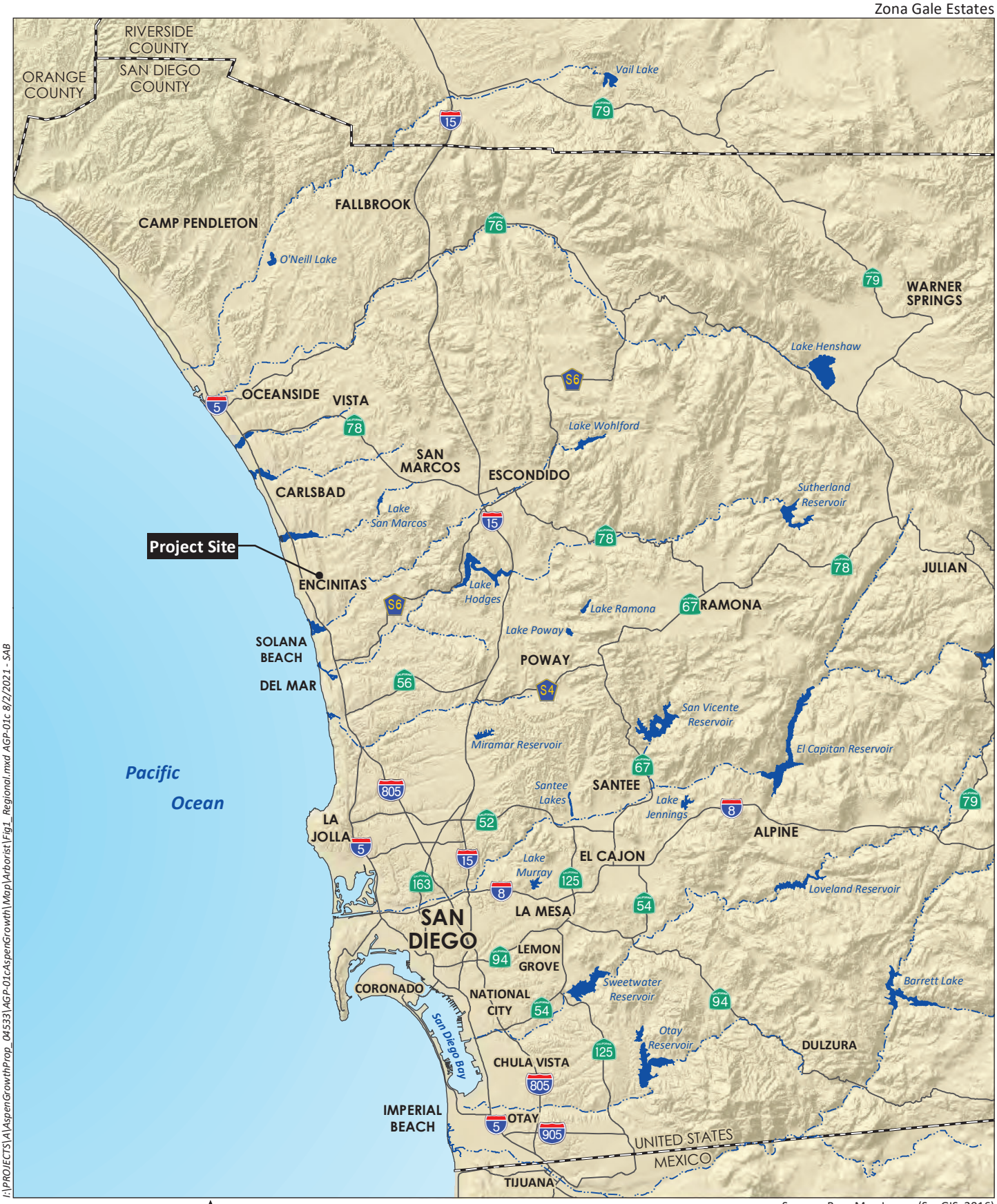
Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Photograph
Figure 4: Tree Locations
Figure 5: Site Plan
Attachment A: Tree Survey Results
Attachment B: Representative Site Photos

REFERENCES

UC Berkeley College of Natural Sciences; Forest Pathology and Mycology Lab. *What is the Critical Root Zone around a tree?*

International Society of Arboriculture. International Society of Arboriculture, P.O. Box GG, Savoy, IL 61874-9902. (217) 355-9681. 1998. *Trees in Development.* (A professional's guide to preserving trees in development.)

History and Care of the Torrey Pine. Pat Welsh, Organic and Southern California Gardening.



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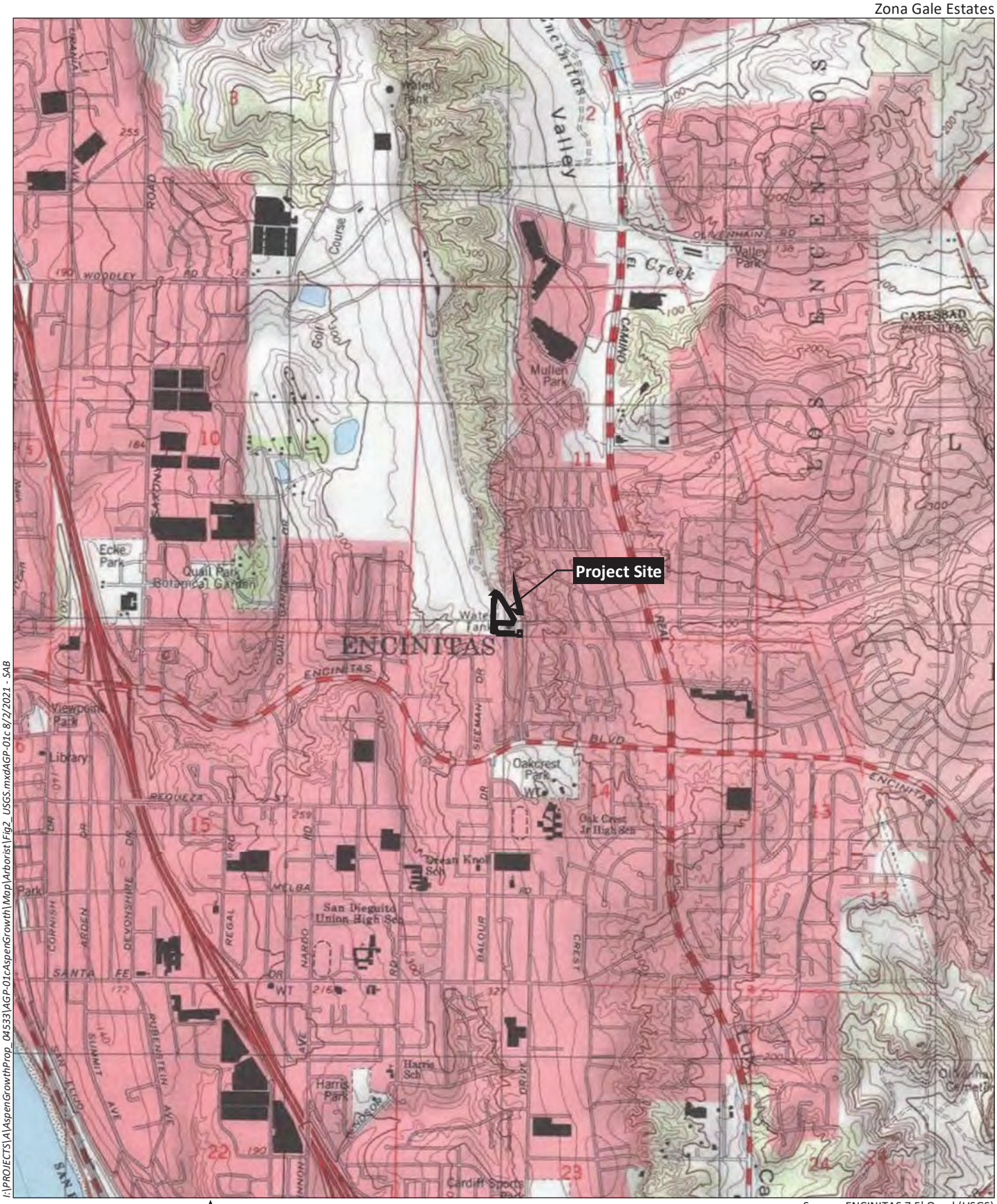
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



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0 2,000 Feet

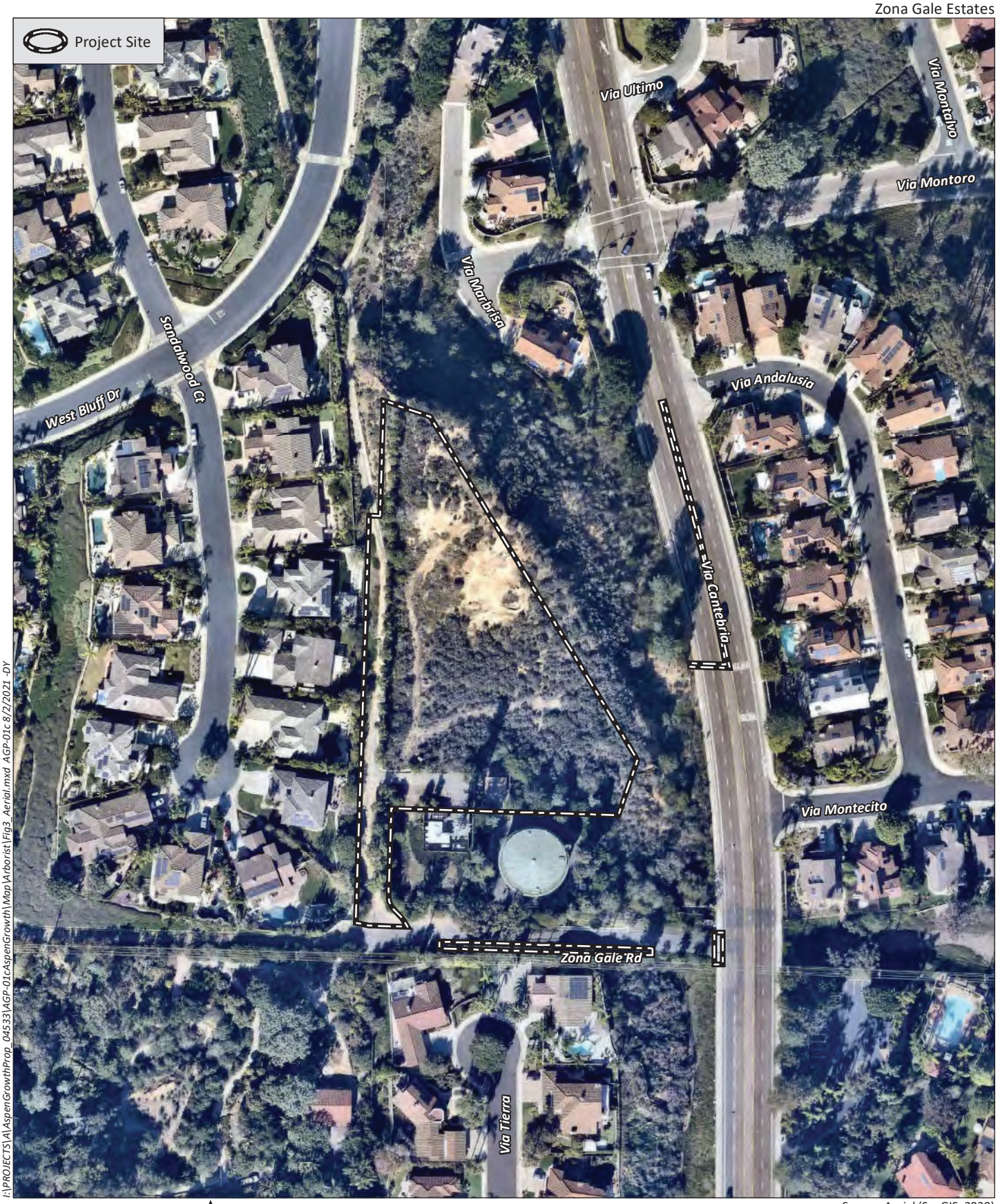
Source: ENCINITAS 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

Zona Gale Estates



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0 150 Feet

Source: Aerial (SanGIS, 2020)

HELIX Environmental Planning

Aerial Photograph

Figure 3



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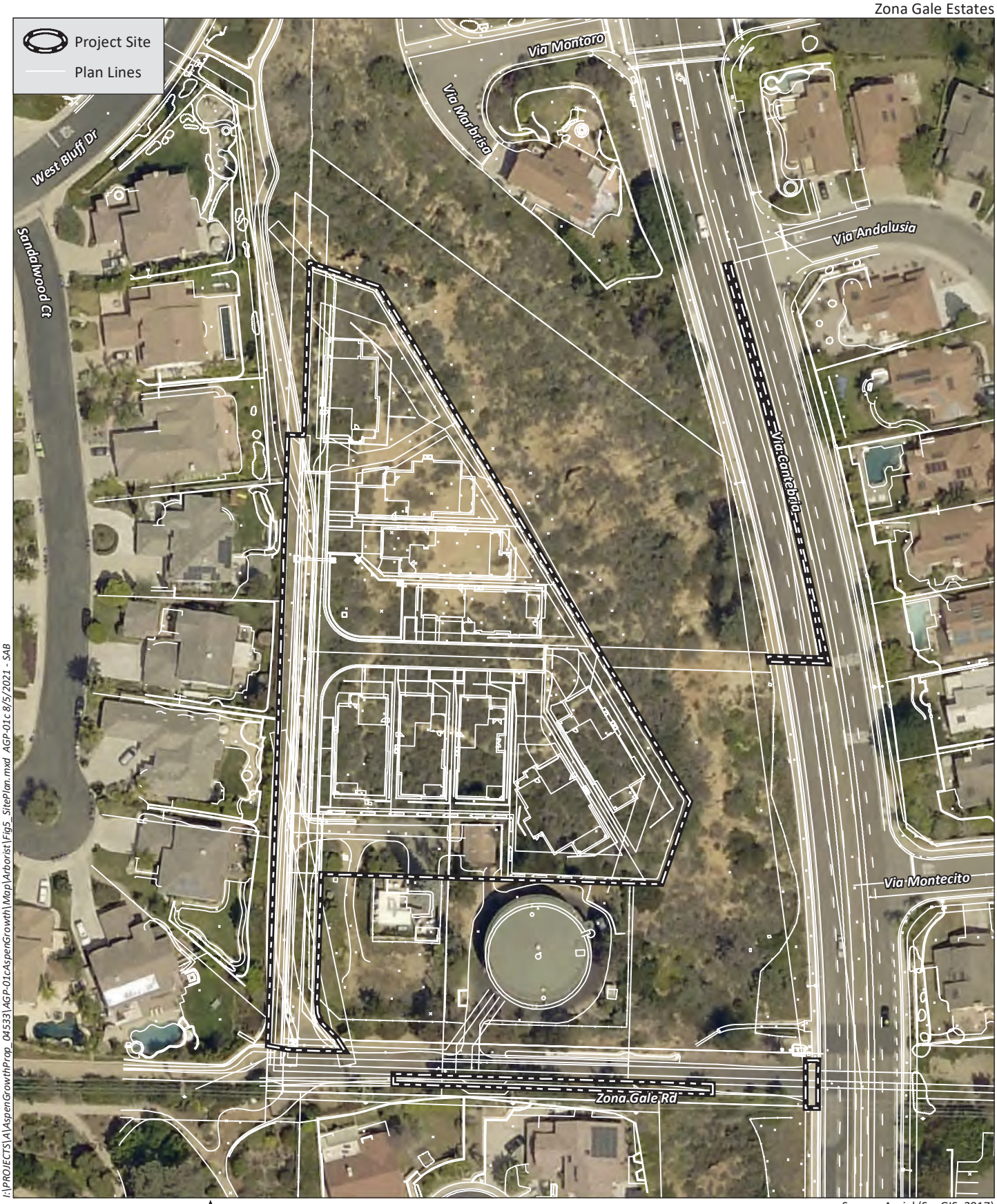
0 100 Feet

Source: Aerial (SanGIS, 2020)

HELIX Environmental Planning

Tree Locations

Figure 4



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0 100 Feet

Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Site Plan

Figure 5

Appendix A
Tree Survey Results

Tree ID #	CommonName	SciName	DateObs	DBH (inches)	Height (ft)	Dripline (canopy width)	Health/Vigor (Good, Fair, Poor, Dead)
1	Torrey pine	*Pinus Torreyana*	7/29/21	8.5	24	30	good
2	Torrey pine	*Pinus Torreyana*	7/29/21	10.5	30	25	good
3	Torrey pine	*Pinus Torreyana*	7/29/21	1	6	6	good
4	Torrey pine	*Pinus Torreyana*	7/29/21	12	18	30	good
5	Torrey pine	*Pinus Torreyana*	7/29/21	5	15	12	good
6	Torrey pine	*Pinus Torreyana*	7/29/21	3.7	16	10	good



Photograph 1: Torrey pine tree ID #1 along the southeastern portion of the site.

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Photograph 2: Tree ID #3 is still very young and suitable for transplanting off site if necessary.



Photograph 3: Torrey pine ID #4 occurs along the eastern boundary of the site and thus may be avoided.

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Photograph 4: Torrey pine ID #5 in good health and may also be suitable for translocation.

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September 22, 2023 PLSA 2897

CITY OF ENCINITAS
Development Services Department
505 So. Vulcan Avenue
Encinitas, CA 92024

RE: PLANNING CASE NO: MULTI-003289-2019; SUB-003290-2019; DR-003291-2019; CDP-003292-2019 – ZONA GALE ROAD – DIRECTIONAL DRILLING MEMO

To Whom It May Concern:

This memorandum is in regards to the proposed nine lot development located on Zona Gale Road. As a result of the width of the access road serving the proposed development and the number of utility encumbrances already located with the access road, it will not be possible to add or construct a public sewer main within the limits of Zona Gale due to required separations between public sewer and public water appurtenances.

Due to the easement constraints and constraints pertaining to utility separations, we are proposing to serve the development with sanitary sewer by directionally drilling through the open space to the east in order to connect to the existing sewer main located in Via Cantebria. Utilizing horizontal directional drilling, the installation of the proposed public sewer will not result in any disturbance or trenching within the open space. No biological resources will be affected.

The process of the horizontal directional drilling for this development involves a launching pit at the top of slope and a receiving pit at the base of the slope on Via Cantebria. The sewer main will be installed using fused HDPE pipe set on runners within a steel encasement pipe. The steel encasement will allow the sewer main to be maintained in perpetuity without ever needing access to the open space easement.

For more information, below are a few websites that outline the methodology, process of installation, and provide details associated with the installation.

https://www.trenchlesspedia.com/definition/2297/horizontal-directional-drilling-hdd

https://en.wikipedia.org/wiki/Directional_boring

https://www.sciencedirect.com/topics/engineering/horizontal-directional-drilling

Attached to this memorandum are the standard notes that will be included on the Public Improvement Plans.

If you have any questions regarding the above, please feel free to contact this office.

Sincerely,

PASCO LARET SUITER AND ASSOCIATES, INC.

Brina Ardolino, PE, QSD

HORIZONTAL DIRECTIONAL DRILLING NOTES

A. CONTRACTOR RESPONSIBILITIES

1. THE CONTRACTOR SHALL SUPPLY ALL LABOR, SUPERVISION, TOOLS AND EQUIPMENT, AND MATERIALS NECESSARY TO INSTALL CARRIER PIPE BY DIRECTIONAL BORE METHOD FOR POTABLE WATER OR WASTEWATER SYSTEMS. INSTALLATION OF THE CARRIER PIPE SYSTEM INCLUDES THE INSTALLATION OF WATER MAINS OR WASTEWATER FORCE MAINS AND/OR ANY OTHER DEVICES OR MATERIALS DEEMED NECESSARY FOR THE RESPECTIVE SYSTEMS.

2. THE CONTRACTOR SHALL PROVIDE EXPERIENCED OPERATORS TO PERFORM DIRECTIONAL BORING. THE OPERATOR SHALL HAVE PERFORMED AT LEAST THREE DIRECTIONAL BORES OF SIMILAR PIPE DIAMETER AND BORE LENGTH.

3. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PLACEMENT OF THE PIPE PER THE ENGINEER'S SPECIFICATIONS. SEE PARAGRAPH G-6 FOR TOLERANCES.

4. THE CONTRACTOR SHALL SUPPLY EXPERIENCED PERSONS WHO HAVE RECEIVED PROPER TRAINING IN THE USE OF THE FUSION EQUIPMENT ACCORDING TO THE RECOMMENDATIONS OF THE PIPE MANUFACTURER AND FUSION EQUIPMENT SUPPLIER TO PERFORM THERMAL FUSION OF THE SPECIFIC HDPE PIPE TO BE USED.

B. EQUIPMENT

1. THE DIRECTIONAL DRILLING EQUIPMENT SHALL CONSIST OF A DIRECTIONAL-DRILLING RIG OF SUFFICIENT CAPACITY TO PERFORM THE BORE AND PULLBACK THE PIPE.

2. THE STEERABLE, DIRECTIONAL-BORING EQUIPMENT SHALL PRODUCE A STABLE FLUID LINED TUNNEL WITH A MINIMUM BURIAL DEPTH OF 36 INCHES FOR THE CARRIER PIP INSTALLATION.

3. THE TUNNELING EQUIPMENT SHALL EMPLOY A FLUID CUTTING TECHNIQUE. THE SOIL SHALL BE CUT BY SMALL DIAMETER, HIGH PRESSURE JETS OF DRILLING FLUID. THE JETS SHALL CUT THE SOIL IN ADVANCE OF THE BORING TOOL, IMPREGNATING AND LINING THE TUNNEL WALL WITH DRILLING FLUID. THE DRILLING FLUID SHALL BE INERT AND POSE NO ENVIRONMENTAL RISK, SUCH AS BENTONITE OR A POLYMER-SURFACTANT MIXTURE PRODUCING A SLURRY OF PROPER CONSISTENCY.

4. THE HYDRAULIC POWER SYSTEM SHALL BE SELF-CONTAINED AND FREE OF LEAKS, WITH SUFFICIENT PRESSURE AND VOLUME TO POWER THE DRILLING OPERATION.

5. THE BORING TOOL (HEAD) SHALL BE REMOTELY STEERABLE BY MEANS OF AN ELECTRONIC DETECTION SYSTEM. THE TOLL LOCATION SHALL BE MONITORED IN THREE DIMENSIONS AND LOGGED EVERY 10 FEET FROM THE DRILLING RIG. THE BORING TOOL SHALL PULL THE CARRIER PIPE THROUGH THE FLUID LINED TUNNEL AS IT TRAVERSES THE SURFACE BEING CROSSED.

6. THE RIG SHALL HAVE MEANS TO MONITOR AND RECORD THE MAXIMUM PULLBACK FORCE DURING THE PULLBACK OPERATION. THE PULLING STRENGTH OF THE BORING EQUIPMENT SHALL NOT EXCEED THE HDPE PIPE SAFETY PULL STRENGTH AS PER THE MANUFACTURER'S RECOMMENDATION.

7. THE BUTT FUSION MACHINE USED TO JOIN SECTIONS OF HDPE PIPE SHALL HAVE CONTROLS AND GAUGES FOR SETTING PRESSURES USED FOR FACING, HEATING, AND FUSING. FACING SHOULD BE CONDUCTED AT A PRESSURE THAT PRODUCES PROPERLY FACED PIPE ENDS. HEATING PRESSURE SHOULD BE SET SO THAT THE

PIPE ENDS MAINTAIN CONTACT AGAINST THE HEATER, BUT ARE NOT FORCED AGAINST THE HEATER (ZERO CONTACT PRESSURE). FUSING PRESSURE SHALL BE AS RECOMMENDED BY THE PIPE MANUFACTURER AND FUSION EQUIPMENT SUPPLIER. HEATER SURFACES MUST BE CLEAN AND FREE OF CONTAMINANTS SUCH AS DIRT, OIL, GREASE AND MELTED OR CHARRED PLASTIC. TO CLEAN THE
HEATER, ONLY WOODEN IMPLEMENTS AND CLEAN, DRY, LINTFREE NON-SYNTHETIC CLOTHS SHOULD BE USED. THE HEATER SHOULD BE CHECKED PERIODICALLY FOR UNIFORM SURFACE TEMPERATURE USING A SURFACE PYROMETER.

C. DIRECTIONAL BORE PIPE

1. PIPE SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) AS PER AWWA C906.

2. CARRIER: HDPE PIPE SHALL BE DR 11, WORKING PRESSURE RATING OF 160 PSI. THE FOLLOWING ARE APPROVED PIPE MANUFACTURERS.

CRS, POLYPIPE PE 3408, 4" TO 24" DIAMETER.
PLEXCO PE 3408, 4" TO 24" DIAMETER
DRISCOPIPE 4000 SERIES, 4" TO 24" DIAMETER.

3. MARKING ON THE PIPE SHALL INCLUDE THE FOLLOWING:

NOMINAL SIZE AND OD BASE.
STANDARD MATERIAL CODE DESIGNATION.
DIMENSION RATIO.
PRESSURE CLASS.
AWWA DESIGNATION (AWWA C906).
MATERIAL TEST CATEGORY OF PIPE.

D. FITTINGS AND RESTRAINERS

1. PIPE FLANGE JOINTS SHALL BE MADE USING A FLANGE ADAPTER, WHICH IS BUTT FUSED TO THE HDPE PIPE.

A BACK-UP RING SHALL BE FITTED BEHIND THE FLANGE ADAPTER SEALING SURFACE FLANGE FOR BOLTING TO THE MATING FLANGE. STANDARD BACK-UP RINGS SHALL BE AWWA C207 CLASS D FOR 160 PSI AND LOWER PRESSURE
RATINGS. ONE EDGE OF THE BACK-UP RING MUST BE CHAMFERED TO FIT UP
AGAINST THE BACK OF THE SEALING SURFACE FLANGE.

2. MECHANICAL JOINTS TO POLYETHYLENE PIPE SHALL BE FULLY CONSTRAINED BY COMPRESSING THE PIPE OD AGAINST A RIGID TUBE OR STIFFENER IN THE PIPE BORE. THE STIFFENER SHALL BE STAINLESS STEEL. APPROVED JOINT RESTRAINING DEVICES ARE MEGA-LUG AND MJR.

E. FITTINGS AND RESTRAINERS

1. PIPE FLANGE JOINTS SHALL BE MADE USING A FLANGE ADAPTER, WHICH IS BUTT FUSED TO THE HDPE PIPE.

A BACK-UP RING SHALL BE FITTED BEHIND THE FLANGE ADAPTER SEALING SURFACE FLANGE FOR BOLTING TO THE MATING FLANGE. STANDARD BACK-UP RINGS SHALL BE AWWA C207 CLASS D FOR 160 PSI AND LOWER PRESSURE RATINGS. ONE EDGE OF THE BACK-UP RING MUST BE CHAMFERED TO FIT UP AGAINST THE BACK OF THE SEALING SURFACE FLANGE.

2. MECHANICAL JOINTS TO POLYETHYLENE PIPE SHALL BE FULLY CONSTRAINED BY COMPRESSING THE PIPE OD AGAINST A RIGID TUBE OR STIFFENER IN THE PIPE BORE. THE STIFFENER SHALL BE STAINLESS STEEL. APPROVED JOINT RESTRAINING DEVICES ARE MEGA-LUG AND MJR.

F. GENERAL CONSTRUCTION REQUIREMENTS

1. ALL DIRECTIONAL BORE OPERATIONS SHALL BE CONTAINED WITHIN RIGHT-OF-WAY AND/OR EASEMENTS SHOWN ON THE DRAWINGS.

2. WORK SHALL NOT START UNTIL THE COUNTY PROVIDES THE CONTRACTOR WITH NECESSARY PERMITS FROM THE APPROPRIATE GOVERNING REGULATORY AGENCIES, INCLUDING THE RSFCSD AND NOT UNTIL THE DISTRICT HAS BEEN GIVEN 48 HOURS (TWO WORKING DAYS) PRIOR NOTIFICATION.

G. CONTRACTOR CONSTRUCTION RESPONSIBILITIES

1. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING MATERIALS AND SERVICES FOR DIRECTIONAL BORE UNLESS OTHERWISE SPECIFIED BY THE OWNER/ DEVELOPER:

TRAFFIC CONTROL.
TRACER WIRE FOR CARRIER PIPE (#10 GAUGE OR LARGER, SOLID), PER STANDARDS. SITE PREPARATION AND EXCAVATION.
DEWATERING-GROUNDWATER PUMP OR WELL POINT SYSTEM AS NEEDED.
SHEETING AND SHORING, AS NECESSARY.
ALL FUSION WELDING.
PRELIMINARY SITE RESTORATION (FILL OPEN PITS, GRADING).
SITE CLEAN UP INCLUDING REMOVAL AND PROPER DISPOSAL OF ALL WASTE MATERIALS AND DRILLING FLUID.

2. THE CONTRACTOR SHALL RECORD LOCATION AND DEPTH MEASUREMENTS EVERY TEN (10) FEEL OVER THE COURSE OF THE BORE AND PROVIDE THAT DATA TO THE DISTRICT. DATA COLLECTED BY THE DISTRICT INSPECTOR DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF RECORDING HIS OWN DATA. THE CONTRACTOR SHALL LOG ALL NECESSARY DATA FROM THE LOCATOR/ TRACING SYSTEM:

POSITION
ROLL ANGLE
TILT ANGLE
DEPTH
TEMPERATURE OF DATA TRANSMITTER
REMAINING BATTERY LIFE
PULL BACK FORCE (MAXIMUM PULL BACK FORCE SHALL BE RECORDED.)

3. THE CONTRACTOR SHALL SUPPLY THE FOLLOWING MATERIALS:

ALL HDPE FITTINGS, COUPLINGS AND CARRIER PIPE (UNLESS OTHERWISE SPECIFIED).
FINAL SITE RESTORATION (SOD, SEED, MULCH, CONCRETE/ASPHALT REPAIR).

REQUIRED RIGHT-OF-WAY PERMITS.

4. AN INSPECTOR FOR THE SEWER DISTRICT SHALL WITNESS AND VERIFY THE CONTRACTOR'S LOGGING OF PERTINENT DATA. THE INSPECTOR MAY LOG HIS OWN DATA IN THE DEPARTMENT'S OWN DIRECTIONAL BORE LOG SHEET FOR THE DISTRICT'S USE.

5. THE CONTRACTOR SHALL NOTIFY ALL INVOLVED AGENCIES PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT ALL PERMITS ARE CURRENT AND NOT EXPIRED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND THE DISTRICT, IF EXPIRED.

6. THE CONTRACTOR SHALL PERFORM DIRECTIONAL BORE IN ACCORDANCE WITH THE APPROVED PROJECT DRAWINGS. IN NO CASE SHALL THE BORE EXTEND INTO PRIVATE PROPERTY UNLESS AN EASEMENT IS PROVIDED PRIOR TO START OF CONSTRUCTION. VERTICAL TOLERANCES SHALL BE PLUS OR MINUS 1 FOOT OF ELEVATIONS SHOWN ON DRAWINGS. HORIZONTAL TOLERANCES SHALL BE PLUS OR MINUS 2 FEET OF ALIGNMENT SHOWN IN DRAWINGS. THESE TOLERANCES SHALL BE MET UNLESS REQUIRED SEPARATIONS FOR OTHER UTILITIES MUST BE MET AND PUTS THE BORE IN CONFLICT. FAILURE TO MEET TOLERANCES, IF NOT PREAPPROVED BY ENGINEER, MAY BE GROUNDS FOR REJECTING THE BORE. THE CONTRACTOR MAY, AT THE DISCRETION OF THE ENGINEER, BE REQUIRED TO ABANDON THE BORE AND RE-DRILL A NEW ONE AT THE CONTRACTOR'S OWN EXPENSE.

7. THE CONTRACTOR SHALL PROVIDE ALL STRUCTURES, SAFETY EQUIPMENT AND PROFESSIONAL SERVICES REQUIRED FOR THE HEALTH AND SAFETY OF THE GENERAL PUBLIC AND OF PERSONNEL INVOLVED IN DIRECTIONAL BORING WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE FEDERAL, STATE AND LOCAL AUTHORITIES. THIS INCLUDES PROOF OF CONSTRUCTION PERSONNEL CERTIFICATES OF TRENCH SAFETY TRAINING AT THE TIME OF CONSTRUCTION.

8. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROTECT SURROUNDING PUBLIC AND PRIVATE PROPERTY, ADJACENT BUILDINGS, ROADS, DRIVES, SIDEWALKS, DRAINS, SEWERS, UTILITIES, TREES, STRUCTURES AND APPURTENANCES FROM DAMAGE DUE TO DIRECTIONAL BORE WORK.

9. THE CONTRACTOR SHALL EXERCISE DUE CARE AT ALL TIMES AND SHALL NOT APPLY MORE THAN THE SAFE PULL FORCE TO THE CARRIER PIPE RECOMMENDED BY THE ENGINEER.

10. THE CONTRACTOR SHALL GIVE 48 HOURS (TWO WORKING DAYS) ADVANCE NOTICE TO THE DISTRICT PRIOR TO THE START OF WORK. THE INSPECTOR IS REQUIRED TO INSPECT MATERIALS AND TO BE ON SITE DURING THE BORING OPERATION AND INSTALLATION OF THE PIPE.

11. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL STEERABLE, FLUID LINED DIRECTIONAL BORING OPERATION. ANY NOTICEABLE SURFACE DEFECTS RESULTING FROM OPERATION OF THIS BORING EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE. THE CONTRACTOR IS RECOMMENDED TO TAKE PRECONSTRUCTION VIDEOS OF THE CONSTRUCTION SITE TO AVOID UNWARRANTED CLAIMS FOR DAMAGES RESULTING FROM THE CONSTRUCTION.

12. THE CONTRACTOR SHALL MEET ALL COUNTY INSURANCE REQUIREMENTS, AS DEFINED BY THE COUNTY'S RISK MANAGEMENT DEPARTMENT, WHEN WORKING IN A COUNTY RIGHT OF WAY, USING A COUNTY RIGHT-OF-WAY USE PERMIT.

H. DRILLING REQUIREMENTS

1. THE HORIZONTAL ALIGNMENT SHALL BE AS SHOWN ON THE DRAWINGS, PLUS OR MINUS 2 FEET. THE VERTICAL ALIGNMENT SHALL BE AS SHOWN ON THE DRAWINGS, PLUS OR MINUS 1 FOOT. IF THE

CONTRACTOR CANNOT MEET THESE TOLERANCES FOR WHATEVER REASON, HE SHALL CONFER WITH THE ENGINEER PRIOR TO THE START OF THE BORE AND THE ENGINEER SHALL APPROVE ANY CHANGES.

2. THE PIPE SHALL HAVE A MINIMUM COVER OF 36 INCHES.

3. COMPOUND CURVATURES SHOULD BE MINIMIZED AS THE SAFE PULLING STRENGTH OF THE PIPE MAY BE SIGNIFICANTLY REDUCED BY THE ADDITIONAL TENSILE STRESSES DUE TO CURVATURES. THIS IS LIMITED BY THE MAXIMUM DEFLECTION AS SET FORTH BY THE HDPE PIPE MANUFACTURER OR AWWA STANDARDS, WHICHEVER IS MORE STRINGENT.

4. THE ENTRY ANGLE SHOULD BE 12º TO 14º IDEALLY (NOT TO EXCEED 15º). EXIT ANGLE SHOULD BE 6º TO 12º TO FACILITATE THE PULLBACK OPERATION.

5. EROSION AND SEDIMENTATION CONTROL MEASURES AND ON-SITE CONTAINERS SHALL BE INSTALLED TO PREVENT DRILLING MUD FROM SPILLING OUT OF ENTRY AND/OR EXIT PITS.

6. DRILLING MUD SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS AND/OR PERMIT CONDITIONS.

7. PILOT HOLE SHALL BE DRILLED ON BORE PATH WITH NO DEVIATION GREATER THAN PLUS OR MINUS 1 FOOT FROM THE DESIGN DEPTH OVER A LENGTH OF 100 FEET. IN THE EVENT THAT THE ALLOWABLE DEVIATION IS EXCEEDED, THE CONTRACTOR SHALL NOTIFY THE DISTRICT AND THE DISTRICT MAY REQUIRE THE CONTRACTOR TO PULLBACK AND RE-DRILL FROM A LOCATION ALONG THE BORE PATH BEFORE THE DEVIATION.

8. UPON SUCCESSFUL COMPLETION OF THE PILOT HOLE, THE BOREHOLE SHALL BE REAMED TO A MINIMUM OF 25 PERCENT GREATER THAN THE OUTSIDE DIAMETER OF THE PIPE BEING INSTALLED. FOR BORES WITH MORE THAN TWO RADII OF CURVATURE (ENTRANCE AND EXIT), THE BORE HOLE SHOULD BE REAMED UP TO 50 PERCENT LARGER THAN THE OUTSIDE DIAMETER OF THE CARRIER PIPE.

9. THE CONTRACTOR SHALL NOT ATTEMPT TO REAM AT A RATE GREATER THAN THE DRILLING EQUIPMENT AND MUD SYSTEM ARE DESIGNED TO SAFELY HANDLE.

10. IN THE EVENT OF A DRILLING HOLE BLOWOUT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL CONDITION ANY DAMAGED PROPERTY AND CLEANING UP THE ENVIRONMENT IN THE VICINITY OF THE BLOWOUT.

I. PIPE INSTALLATION

1. AFTER REAMING THE BORE HOLE TO THE REQUIRED DIAMETER, THE PIPE SHALL BE PULLED THROUGH THE HOLE. IN FRONT OF THE PIPE SHALL BE A SWIVEL AND BARREL REAMER TO COMPACT THE BORE HOLE WALLS.

2. ONCE PULLBACK OPERATIONS HAVE COMMENCED, THE OPERATION SHALL CONTINUE WITHOUT INTERRUPTION UNTIL THE PIPE IS COMPLETELY PULLED INTO THE BOREHOLE. THE FRICTIONAL RESISTANCE IS THE HIGHEST JUST PRIOR TO MOVEMENT AND DECREASES WITH MOVEMENT. WHEN PULLBACK CEASES, FRICTIONAL FORCES AND DRAG FORCES INCREASE DUE TO THE THIXOTROPIC NATURE OF DRILLING MUD. THE MUD STARTS TO GEL WHEN IT IS UNDISTURBED. THEREFORE, PULLBACK SHALL NEVER BE STOPPED, EXCEPT FOR DRILLING ROD REMOVAL, UNTIL THE PIPE IS COMPLETELY PULLED INTO ITS PERMANENT POSITION.

3. ADEQUATE LENGTHS OF PIPE SHALL BE PROVIDED AT BOTH THE LAUNCHING AND RECEIVING ENDS TO FACILITATE SERVICE CONNECTION ASSEMBLIES.

4. AFTER PULLBACK, PIPE MAY TAKE SEVERAL HOURS TO RECOVER FROM THE AXIAL STRAIN. WHEN PULLED FROM THE REAMED BOREHOLE, THE PULL-NOSE SHOULD BE PULLED OUT 3-4 PERCENT LONGER THAN THE TOTAL LENGTH OF THE PULL TO AVOID HAVING THE PULL-NOSE SUCKED BACK BELOW THE BOREHOLE EXIT LEVEL DUE TO STRETCH RECOVERY AND THERMAL CONTRACTION TO AN EQUILIBRIUM TEMPERATURE.

5. THE PIPE ENTRY AREA SHALL BE GRADED AS NEEDED TO PROVIDE SUPPORT FOR THE PIPE AND TO ALLOW FREE MOVEMENT INTO THE BOREHOLE. TH PIPE SHALL BE GUIDED INTO THE BOREHOLE TO AVOID DEFORMATION OF, OR DAMAGE TO, THE PIPE.

6. THE PIPE SHALL BE INSTALLED IN A MANNER THAT DOES NOT CAUSE UPHEAVAL, SETTLEMENT, CRACKING AND MOVEMENT OF DISTORTION OF SURFACE FEATURES. ANY DAMAGES CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR.

7. IN THE EVENT THAT UNEXPECTED SUBSURFACE CONDITIONS IMPEDING DRILLING OPERATIONS ARE ENCOUNTERED, THE PROCEDURE SHALL BE STOPPED AND NOT CONTINUED UNTIL THE DISTRICT HAS BEEN CONSULTED. THE PIPE SHALL BE PULLED BACK THROUGH THE BOREHOLE USING THE WET INSERTION CONSTRUCTION TECHNIQUE.

8. IF FINAL GRADE OF THE FINISHED BORE IS NOT SATISFACTORY TO THE DISTRICT OR ANY OTHER JURISDICTIONAL ENTITY, THE PIPE SHALL BE ABANDONED, FULL PRESSURE GROUTED IN PLACE, AND AN ALTERNATE INSTALLATION SHALL BE MADE. THE ABANDONED PIPE SHALL BE PROPERLY SHOWN ON "AS-BUILT" DRAWINGS TO BE SUBMITTED FOLLOWING CONCLUSION OF THE CONSTRUCTION WORK.

9. THE INSPECTOR SHALL INSPECT THE INSTALLED PIPE FOR ROUNDNESS AND/ OR DAMAGE. EVIDENCE OF OVER-PULLING OR SIGNIFICANT SURFACE SCRATCHING SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND THE DISTRICT. DEFORMATIONS OF MORE THAN 10 PERCENT MAY BE GROUNDS TO ABANDON THE BORE AND HAVE THE CONTRACTOR RE-DRILL ANOTHER LINE.

J. BUTT FUSION PROCEDURE

1. FUSION WELDS SHALL BE PERFORMED BY AN EXPERIENCED TECHNICIAN THAT HAS BEEN PROPERLY TRAINED TO MEET THE PIPE MANUFACTURER'S PROCEDURES. ALL WELDS SHALL MEET THE PIPE MANUFACTURER'S RECOMMENDATIONS.

2. AS THE PIPE ENDS ARE MELTED AGAINST THE HEATER DURING THE HEATING PERIOD, THE MOLTEN PLASTIC WILL SWELL AND FORM MELT BEADS AROUND THE PIPE ENDS. THE MELT BEADS SHOULD BE THE SAME SIZE ON BOTH PIPE ENDS AND UNIFORMLY SIZED ALL THE WAY AROUND.

3. AFTER MELTING HAS BEEN COMPLETED, THE ENDS SHOULD BE SEPARATED JUST ENOUGH TO REMOVE THE HEATER, OBSERVED FOR UNIFORMITY OF THE BEADS AND QUICKLY (WITHIN THREE SECONDS) BROUGHT TOGETHER WITH THE RECOMMENDED PRESSURE. IF MELTED PLASTIC STICKS TO HEATER, THE TWO ENDS SHOULD NOT BE JOINED. THE ENDS SHOULD BE ALLOWED TO COOL AND THE PROCEDURE STARTED OVER. EXCESS PRESSURES SHOULD NOT BE USED AS THIS WILL SQUEEZE TOO MUCH MELT OUT OF THE FUSION AREA AND RESULT IN A WEAKENED JOINT.

4. THE CONTRACTOR MAY DO A PRELIMINARY PRESSURE TEST ON THE COMPLETED STRING OF PIPE PRIOR TO INSTALLATION. A PRESSURE TEST SHALL BE REQUIRED ON THE COMPLETED DIRECTIONAL BORE PRIOR TO FINAL ACCEPTANCE.

K. CONNECTING TWO ADJOINING SECTIONS OF DIRECTIONALLY BORED PIPE

1. IF THE OVERALL LENGTH OF THE REQUIRED UTILITY INSTALLATION CAN NOT BE SAFELY PULLED USING A DIRECTIONAL BORE, THEN THE CONTRACTOR SHALL BE REQUIRED TO MAKE MORE THAN ONE PULL TO ACCOMPLISH THE INSTALLATION.

2. WHERE TWO ADJACENT PULLS MEET, THE CONTRACTOR SHALL DIG A PIT AND JOIN THE TWO SECTIONS TOGETHER AT THE ELEVATION OF THE TWO SEGMENTS AS IF IT WERE A CONTINUOUS PULL-IN.

3. THE TWO SECTIONS OF HDPE SHALL BE JOINED TOGETHER USING AN ELECTROFUSION COUPLING PER THE COUPLING MANUFACTURER'S RECOMMENDATIONS

L. GENERAL POST-CONSTRUCTION

1. THE AS-BUILT VARIANCE FROM THE SPECIFIED BORE PATH SHALL NOT EXCEED PLUS OR MINUS 1 FOOT IN THE VERTICAL PLANE AND PLUS OR MINUS 2 FEET IN THE HORIZONTAL PLANE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE DISTRICT PRIOR TO START OF THE BORING OPERATION IF THESE TOLERANCES CANNOT BE MET.

2. THE CONTRACTOR SHALL BE CONSIDERED AS HAVING COMPLETED THE REQUIREMENTS OF THE DIRECTIONAL BORE WHEN HE HAS SUCCESSFULLY COMPLETED THE WORK, INCLUDING PRESSURE TESTING TO THE SATISFACTION OF THE DEVELOPER/OWNER'S ENGINEER AND THE DISTRICT INSPECTOR.

3. THE COMPLETED HDPE WATER MAIN OR FORCE MAIN SHALL BE PRESSURE TESTED AT 150 PSIG FOR TWO HOURS FOR FINAL ACCEPTANCE AND THE PRESSURE SHALL NOT FALL BELOW 145 PSIG DURING THE TEST PERIOD.

M. AS-BUILTS

1. WHEN THE DIRECTIONAL BORE IS COMPLETED, THE CONTRACTOR SHALL PROVIDE DATA LOG SHEETS AND MARKED UP AS BUILT DRAWINGS TO THE INSPECTOR, AND THE DEVELOPER/OWNER'S.

HELIX Environmental Planning, Inc.
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La Mesa, CA 91942
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October 31, 2025 04533.00001.001

Recovery Permit Coordinator
U.S. Fish and Wildlife Service
2177 Salk Ave., Suite 250
Carlsbad , CA 92008

Subject: **2025 Coastal California Gnatcatcher (*Polioptila californica californica*) Survey Report for the Zona Gale Estates Project**

To whom it may concern:

This letter presents the results of a U.S. Fish and Wildlife Service (USFWS) protocol presence/absence survey for the federally listed as threatened coastal California gnatcatcher (*Polioptila californica californica*; CAGN) conducted by HELIX Environmental Planning, Inc. (HELIX) for the Zona Gale Estates Project (project). This report describes the methods used to perform the survey and the results. It is being submitted to the USFWS as a condition of HELIX's Threatened and Endangered Species Permit ES-778195-15.

PROJECT LOCATION

The approximately 2.5-acre Zona Gale Estates Project is located in the City of Encinitas, San Diego County, California (Figure 1, *Regional Location*). It is depicted within Section 11 of Township 13 South, Range 4 West on the Encinitas U.S. Geological Survey (USGS) 7.5-minute quadrangle map (Figure 2, *USGS Topography*). The site occurs north of Zona Gale Road, west of Via Cantebria, and east of Sandalwood Court (Figure 3, *Aerial Photograph*).

USFWS-designated critical habitat for CAGN occurs immediately to the east of and adjacent to the project (Figure 3).

METHODS

HELIX biologists Amanda Mathews and Angelica Grunloh (ES-778195-15) performed the surveys, consisting of nine visits between July 10 and October 30, 2025 (Table 1, *Survey Information*), in accordance with the current USFWS protocol[1]. The City of Encinitas is not within an approved Natural

[1] U.S. Fish and Wildlife Service (USFWS). 1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol. 5pp.

Communities Conservation Plan (NCCP) program area. The USFWS requires that a minimum of nine surveys be conducted, at least two weeks apart, between 6 a.m. and 12 p.m. during the non-breeding season (July 1 and March 14) for non-NCCP areas. The survey area encompassed approximately 1.4 acres of potential CAGN habitat within the proposed project site and within 100 feet from the project site (Figure 4, *2025 Coastal California Gnatcatcher Survey Results*).

The surveys were conducted by walking within and along the perimeter of suitable CAGN habitat present within the survey area. HELIX did not enter the portions of the survey area that occur on private property. The survey route was arranged to ensure complete survey coverage of habitat with potential for occupancy by CAGN. Surveys were conducted with binoculars to aid in bird detection. Recorded CAGN vocalizations were played sparingly and only if other means of detection had failed. The approximate survey route is depicted on Figure 4.

Table 1 details the survey dates, times, and conditions.

Table 1
SURVEY INFORMATION

Site Visit	Survey Date	Biologist(s)	Time (Start/Stop)	Approx. Acres Surveyed/ Acres per Hour	Weather Conditions (Start/Stop)
1	7/10/2025	Amanda Mathews[1] Olivia Brackin[2]	0915/1015	1.4 ac/ 1.4 ac/hr[*]	70°F, wind 0-1 mph, 0% cloud cover 74°F, wind 2-4 mph, 0% cloud cover
2	7/24/2025	Amanda Mathews[1]	0730/0830	1.4 ac/ 1.4 ac/hr	65°F, wind 0-2 mph, 100% cloud cover 66°F, wind 0-2 mph, 95% cloud cover
3	8/7/2025	Amanda Mathews[1]	0730/0830	1.4 ac/ 1.4 ac/hr	66°F, wind 1-2 mph, 100% cloud cover 68°F, wind 1-2 mph, 10% cloud cover
4	8/21/2025	Amanda Mathews[1]	0930/1030	1.4 ac/ 1.4 ac/hr	74°F, wind 1-2 mph, 30% cloud cover 77°F, wind 2-4 mph, 60% cloud cover
5	9/4/2025	Angelica Grunloh[1]	0845/0945	1.4 ac/ 1.4 ac/hr	69°F, wind 1-5 mph, 0% cloud cover 72°F, wind 3-5 mph, 0% cloud cover
6	9/18/2025	Amanda Mathews[1]	0830/0930	1.4 ac/ 1.4 ac/hr	71°F, wind 0-2 mph, 10% cloud cover 74°F, wind 0-2 mph, 10% cloud cover
7	10/2/2025	Amanda Mathews[1]	0700/0800	1.4 ac/ 1.4 ac/hr	68°F, wind 1-3 mph, 10% cloud cover 69°F, wind 1-3 mph, 10% cloud cover

Site Visit	Survey Date	Biologist(s)	Time (Start/Stop)	Approx. Acres Surveyed/ Acres per Hour	Weather Conditions (Start/Stop)
8	10/16/2025	Amanda Mathews[1]	1030/1130	1.4 ac/ 1.4 ac/hr	67°F, wind 3-6 mph, 0% cloud cover 68°F, wind 3-6 mph, 0% cloud cover
9	10/30/2025	Amanda Mathews[1]	1030/1130	1.4 ac/ 1.4 ac/hr	78°F, wind 1-3 mph, 0% cloud cover 80°F, wind 1-3 mph, 0% cloud cover

[1] USFWS Permit ES-778195-15
[2] Supervised Individual
*ac – acre; hr – hour

COASTAL CALIFORNIA GNATCATCHER HABITAT

Southern maritime chaparral (including disturbed) is the only vegetation community within the survey area determined to be suitable for CAGN (Figure 4).

Southern Maritime Chaparral

Southern maritime chaparral is a low-growing, fairly open chaparral community, dominated by wart-stemmed ceanothus and Del Mar Manzanita, and is found on weathered sandy soils within the coastal fog belt. Southern maritime chaparral vegetation within San Diego County is represented by a distinct species composition and distribution; signature species include: Del Mar manzanita, chamise (*Adenostoma fasciculatum*), ceanothus, Torrey pine, Indian pink (*Silene laciniata*), rein orchid (*Piperia unalascensis*), short-leaved dudleya (*Dudleya brevifolia (blochmaniae ssp. brevifolia*), Encinitas baccharis (*Baccharis vanessae*), Nuttall's scrub oak, Orcutt's spineflower (*Chorizanthe orcuttiana*), lemonade berry (*Rhus integrifolia*), summer holly, Mojave yucca (*Yucca schidigera*), and/or redberry (*Rhamnus crocea*) (Hogan 1996). There are two forms of southern maritime chaparral in San Diego County; one form is found on coastal/ocean bluffs, and the second form is found inland within four miles of the Pacific coast but may be located up to five miles inland. Inland areas beyond five miles from the coastline support other kinds of chaparral vegetation that replace southern maritime chaparral (Hogan 1996). Southern maritime chaparral is the predominant vegetation community occupying approximately 67 percent of the project site and supports wart-stemmed ceanothus, Del Mar manzanita, Torrey pine, and summer holly. Areas mapped as "disturbed" southern maritime chaparral were locations where non-native species cover was more prevalent and ranged from 25 to 50 percent.

RESULTS

The coastal California gnatcatcher was not detected during the survey effort and is presumed to be absent from the project site (Figure 4).

CERTIFICATION

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

Please contact Lindsay Willrick or Miranda Koster at (619) 462-1515 if you have any questions.

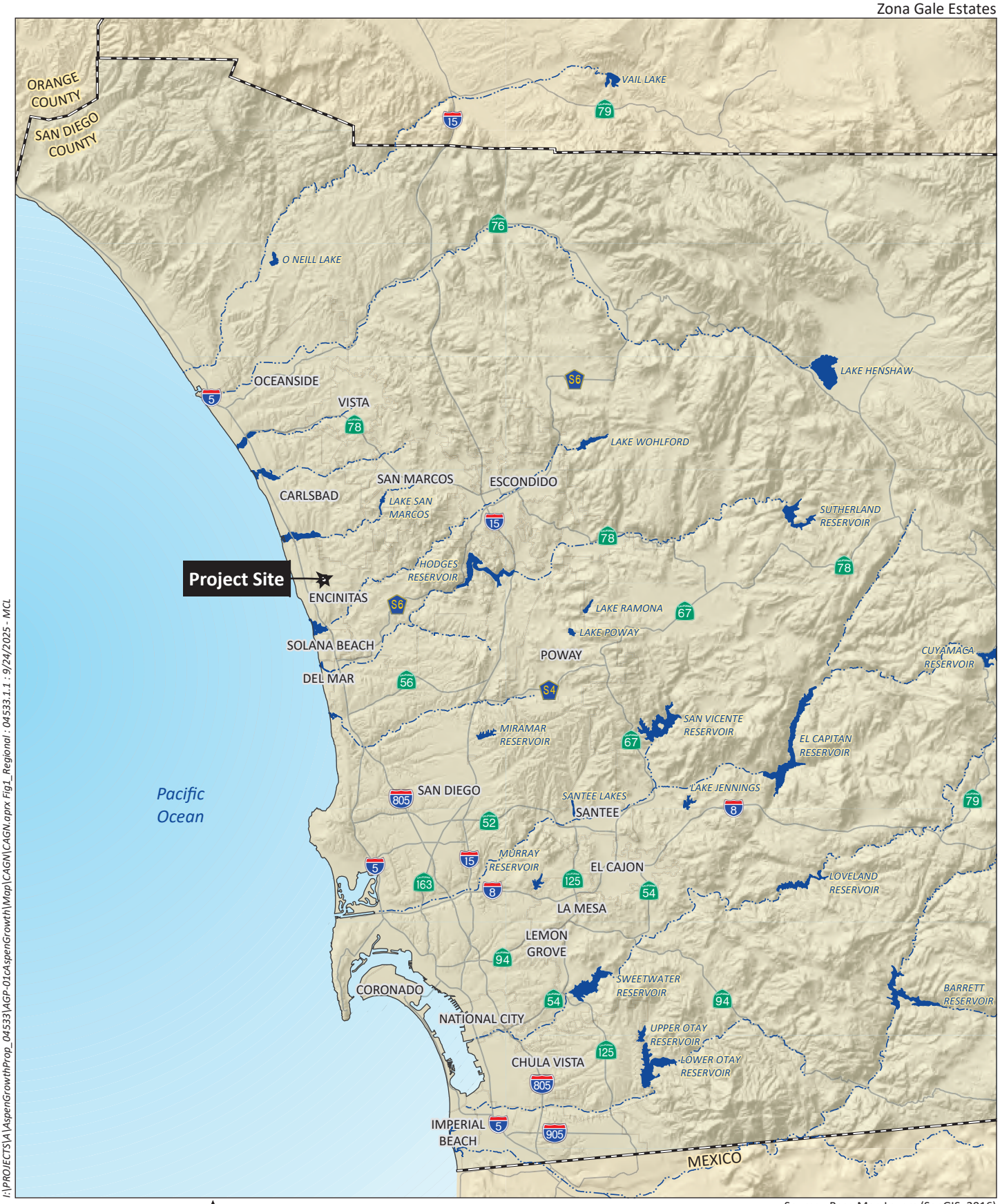
Sincerely,

Amanda Mathews
Biologist

Angelica Grunloh
Biologist

Attachments:

Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Photograph
Figure 4: 2025 Coastal California Gnatcatcher Survey Results



I:\PROJECTS\A\AspenGrowthProp_04533\AGP-01CAspenGrowth\Map\CAGN\CAGN.aprx Fig1_Regional : 04533.1.1 : 9/24/2025 - MCL

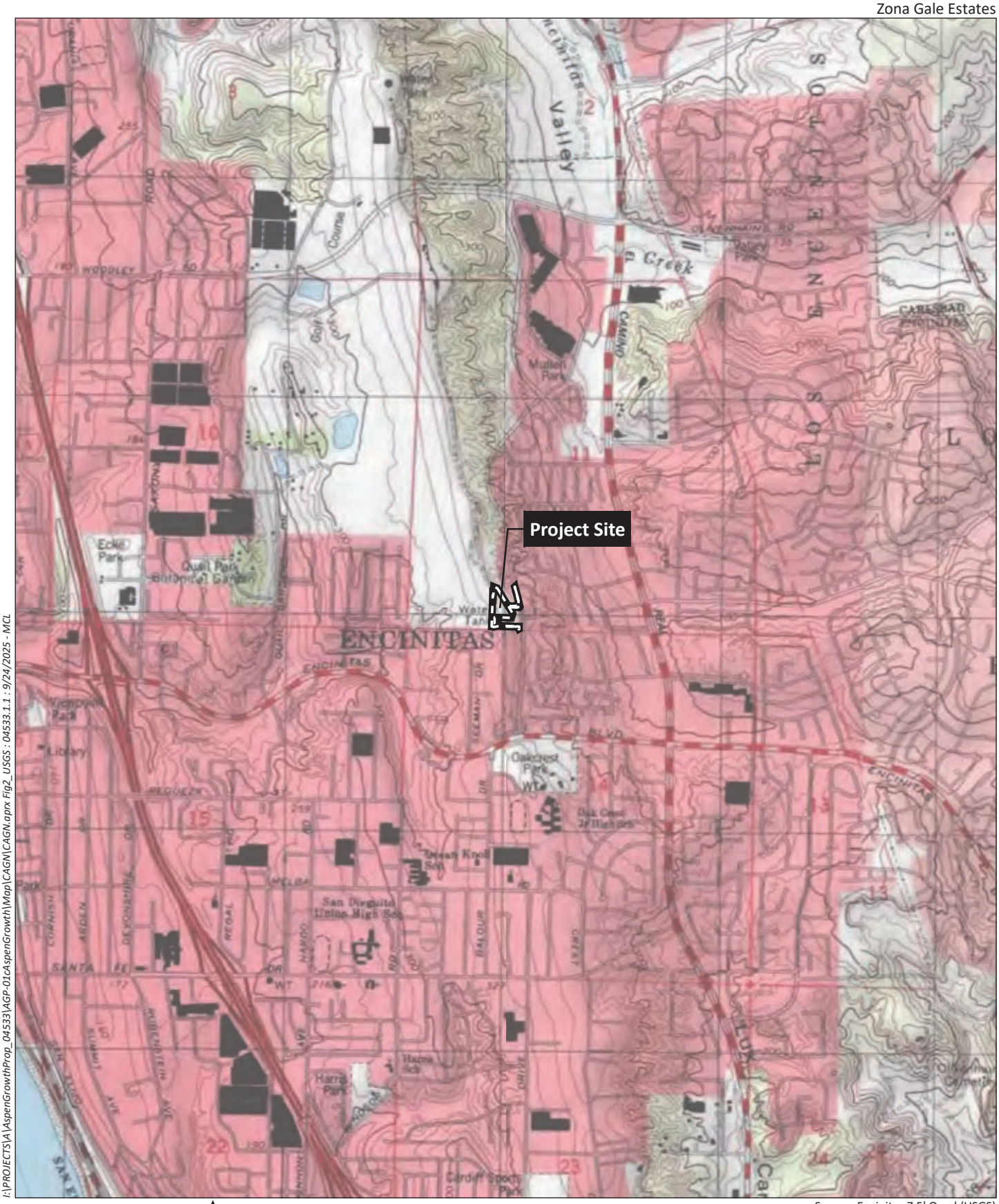
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



HELIX
Environmental Planning

USGS Topography

Figure 2



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0 100 Feet

Source: Aerial (SanGIS 2023)

HELIX Environmental Planning

Aerial Photograph

Figure 3

Zona Gale Estates



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0 60 Feet

Source: Aerial (SanGIS, 2023)

HELIX Environmental Planning

2025 Coastal California Gnatcather Survey Results

Figure 4

Appendix C: Cultural Resources Report

Cultural Resources Inventory and Evaluation Report

Zona Gale Estates Project

City of Encinitas, California

MAY 2023

Prepared for:

CITY OF ENCINITAS
505 South Vulcan Ave
Encinitas, California 92024
Contact: Todd Mierau

Prepared by:

Keshia Montifolca, M.A., RPA, Makayla Murillo, B.A., Brad Comeau M.Sc., RPA, and Micah Hale, PhD., RPA

DUDEK

605 Third Street
Encinitas, California 92024

Type of Study: Phase I Cultural Resource Inventory and Phase II Evaluation

USGS Quadrangle: Encinitas, CA 7.5', T13S, R4W, Section 11; **Area:** 2.02 acres
Key Words: Zona Gale Estates; Intensive Pedestrian Survey; Phase I Inventory; Phase II Archaeological Evaluation, Positive; City of Encinitas; Lithic scatter, Shell Scatter, Evaluation, Shovel test pit, Not eligible for CRHR, Not significant under CEQA; CA-SDI-23458; P-37-040592

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C NAHC and Tribal Correspondence

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
amsl	above meal sea level
APN	Accessor's Parcel Number
CEQA	California Environmental Quality Act
City	City of Encinitas
CHRIS	California Historical Resources Information System
cm	centimeter
CRHR	California Register of Historic Resources
DPR	California Department of Parks and Recreation
m	meter
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
PRC	Public Resources Code
Project	Zona Gale Estates Project
SDSU	San Diego State University
SCIC	South Coastal Information Center
STP	shovel test pit
TCR	tribal cultural resource
topo	topographic

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Management Summary

This report presents the results of a Phase I inventory and a Phase II evaluation performed by Dudek for the Zona Gale Estates Project (Project). The Project is located between Via Cantebria and Zona Gale Road in the City of Encinitas, California. The Project is located in Township 13 South, Range 4 West, Section 11 on the Encinitas, California U.S. Geological Survey 7.5-Minute Series Quadrangle. The Project consists of the construction of nine detached residential units, landscaping, a biofiltration basin, private road, private driveways, and additional off-street parking on an existing 2.02-acre vacant Project site. The City of Encinitas (City) contracted Dudek to conduct a cultural resources investigation that meets California Environmental Quality Act (CEQA) compliance for the Project. The City is the lead agency for compliance with the CEQA. The Project area is defined as the proposed 2.02-acre property encompassing Accessor's Parcel Number (APN) 257-401-11-00.

In accordance with CEQA, Dudek performed a Phase I inventory and Phase II evaluation of one newly identified archaeological site located within the Project area. The evaluation was conducted to determine if the site is considered significant under CEQA, and eligible for listing on the California Register of Historic Resources (CRHR).

This study consisted of a records search of the Project area and a 1-mile radius around the Project area, and an intensive pedestrian survey and evaluation of the Project area. The South Coastal Information Center (SCIC) records search did not identify cultural resources within the Project area. A Native American Heritage Commission (NAHC) Sacred Lands File search did not indicate the presence of any Native American cultural resources in or near the Project area.

The intensive pedestrian survey resulted in one newly identified archaeological site within the Project area: CA-SDI-23458 (P-37-040592), a prehistoric lithic and shell scatter that is confined to the surface. Activities indicated by the artifacts recovered from the site include lithic tool production, and procurement and processing of plant and animal resources. The quantity and variety of artifacts at the site is fairly limited; combined with the absence of subsurface deposits and features, CA-SDI-23458 is unlikely to provide information important to prehistory, other than what has been documented herein. As the result of the evaluation, CA-SDI-23458 is recommended not significant under CEQA and is not eligible for listing in the CRHR.

A new California Department of Parks and Recreation (DPR) 523 series form was prepared for the newly identified resource and will be submitted to the SCIC of the California Historical Resources Information System (CHRIS) at San Diego State University (SDSU).

Due to the positive pedestrian survey, heavy vegetation, and number of prehistoric sites within close proximity to the Project area, there is moderate potential for identifying intact subsurface cultural resources deposits within previously undisturbed areas during Project implementation. Cultural resources monitoring with a qualified archaeologist and Kumeyaay Native American monitor is recommended during all initial ground-disturbing activities within previously undisturbed deposits. Monitoring can be reduced or terminated should no discoveries be made or if documentation is provided which demonstrates that ground-disturbing activities will be occurring in sediments with no potential for cultural resources. If human remains are found, the County Coroner shall be immediately notified of the discovery in accordance with Section 7050.5 of the California Health and Safety Code.

1 Introduction

1.1 Project Location and Description

The Zona Gale Estates Project (Project) is located between Via Cantebria and Zona Gale Road in the City of Encinitas, California. The Project area falls within Section 11 of Township 13 South, Range 4 West on the Encinitas, California 7.5-minute Quadrangle (Figure 1).

The Project area consists of an approximately 2.02-acre property encompassing Accessor's Parcel Number (APN) 257-401-11-00 (Figure 2). The Project consists of a residential subdivision development on undeveloped land and necessary infrastructure improvements. Specifically, the project proposes development of nine detached residential units (eight market-rate units and one "very low" affordable unit), landscaping, a biofiltration basin, private road, private driveways, and additional off-street parking. The Project also includes connections and improvements to existing public infrastructure off-site, and widening improvements along Zona Gale Road. The Project would require the grading of the site, with 6,850 cubic yards of cut, 400 cubic yards of fill, 6,450 cubic yards of export, and 1,750 cubic yards of remediation.

1.2 Regulatory Context

The following section provides a summary of the applicable regulations, policies, and guidelines relating to the proper management of cultural resources.

1.2.1 California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP), enumerated below. According to California Public Resources Code (PRC) Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than fifty years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see CCR Title 14, Section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

1.2.2 California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource;" it also defines the circumstances when a project would materially impair the significance of an historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e): Set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4: Provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines

Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of an historical resource is materially impaired when a project (CEQA Guidelines Section 15064.5(b)(2)):

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired. If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2[a], [b], and [c]).

1.2.3 Native American Historic Cultural Sites (California Public Resources Code section 5097 et seq.)

State law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the CRHR.

1.2.4 California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, required all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

1.2.5 California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, the procedures are detailed in California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98.

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (California Health and Safety Code Section 7050.5[b]). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California Native American Heritage Commission (NAHC) within 24 hours (California Health and Safety Code Section 7050.5[c]). In accordance with California Public Resources Code Section 5097.98(a), the NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. Within 48 hours of being granted access to the site, the MLD may recommend means of treatment or disposition, with appropriate dignity, of the human remains and associated grave goods.

1.2.6 Assembly Bill 52

California Assembly Bill 52, which took effect July 1, 2015, establishes a consultation process between California Native American Tribes and lead agencies in order to address tribal concerns regarding project impacts and mitigation to “tribal cultural resources” (TCR). Public Resources Code section 21074(a) defines TCRs and states that a project that has the potential to cause a substantial adverse change to a TCR is a project that may have an adverse effect on the environment. A TCR is defined as a site, feature, place, cultural landscape, sacred place, and object with cultural value to a California Native American tribe that is either:

1. listed or eligible for listing in the CRHR or a local register of historical resources, or
2. determined by a lead agency to be a TCR.

1.2.7 Guidelines for Determining Significance

According to CEQA (Section 15064.5b), a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change:

> Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

The significance of an historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects on archaeological sites and contains the following additional provisions regarding archaeological sites:

- When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).
- If a lead agency determines that the archaeological site is a historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, and this section, Section 15126.4 of the Guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.
- If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21083.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c–f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
- If an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or Environmental Impact Report (EIR), if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) and (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

> When an initial study identifies the existence of, or the probable likelihood of, Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code SS5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the Native American Heritage Commission. Action implementing such an agreement is exempt from:

1. The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5); and
2. The requirement of CEQA and the Coastal Act.

Under CEQA, an EIR is required to evaluate any impacts on unique archaeological resources (PRC Section 21083.2). A "unique archaeological resource" is defined as (PRC Section 21083.2(g)):

> [A]n archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> 1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
> 2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
> 3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

An impact to a non-unique archaeological resource is not considered a significant environmental impact and such non-unique resources need not be further addressed in the EIR (Public Resources Code Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)).

As stated above, CEQA contains rules for mitigation of "unique archeological resources." For example (PRC Section 21083.2(b)(1)-(4)), "[i]f it can be demonstrated that a project will cause damage to a unique archeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:"

4. "Planning construction to avoid archeological sites."
5. "Deeding archeological sites into permanent conservation easements."
6. "Capping or covering archeological sites with a layer of soil before building on the sites."
7. "Planning parks, greenspace, or other open space to incorporate archeological sites."

PRC Section 21083.2(d) states that "[e]xcavation as mitigation shall be restricted to those parts of the unique archeological resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archeological resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, if this determination is documented in the environmental impact report."

The rules for mitigating impacts to archeological resources to qualify as "historic resources" are slightly different. According to CEQA Guidelines Section 15126.4(b), "[p]ublic agencies should, whenever feasible, seek to avoid damaging effects on any historic resource of an archeological nature. The following factors shall be considered and discussed in an EIR for a project involving such an archeological site:

A. Preservation in place is the preferred manner of mitigating impacts to archeological sites. Preservation in place maintains the relationship between artifacts and the archeological

context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.

B. Preservation in place may be accomplished by, but is not limited to, the following:
   1. Planning construction to avoid archeological sites;
   2. Incorporation of sites within parks, greenspace, or other open space;
   3. Covering the archeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site [; and]
   4. Deeding the site into a permanent conservation easement.

Thus, although Section 21083.2 of the Public Resources Code, in addressing "unique archeological sites," provides for specific mitigation options "in no order of preference," CEQA Guidelines Section 15126.4(b), in addressing "historical resources of an archeological nature," provides that "[p]reservation in place is the preferred manner of mitigating impacts to archeological sites."

Under CEQA, "[w]hen data recovery through excavation is the only feasible mitigation," the lead agency may cause to be prepared and adopt a "data recovery plan," prior to any excavation being undertaken. The data recovery plan must make "provision for adequately recovering the scientifically consequential information from and about the historic resource" (CEQA Guidelines Section 15126.4(b)(3)(C)). The data recovery plan also "must be deposited with the California Historical Resources Regional Information Center" (CEQA Guidelines Section 15126.4(b)(3)(C)). Further, "[i]f an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation" (CEQA Guidelines Section 15126.4(b)(3)(C)).

However, "[d]ata recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archeological or historic resource, provided that determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center" (CEQA Guidelines Section 15126.4(b)(3)(D)).

1.2.8 City of Encinitas General Plan – Resource Management Element

The Resource Management Element of the City's General Plan (adopted in 1989 and amended in 1991, 1993, 1994, and 1995) addresses archaeological and historical resources. Goal 7 in the Goals and Policies section states that "The City will make every effort to ensure significant scientific and cultural resources in the Planning Area are preserved for future generations" (City of Encinitas 2015). The Resource Management Element calls for an inventory of all historically significant sites and/or structures that require protection.

The Resource Management Element categorizes the cultural resource sensitivity of the City as Low, Moderate, and High.

> Low Sensitivity: Areas of low cultural resource sensitivity includes those lands which have been surveyed with the express purpose of identifying cultural resource sites but which provided negative results. Low sensitivity areas also include land where development or grading has resulted in the movement or relocation of massive amounts of earth.

Moderate Sensitivity: Area of moderate sensitivity include those lands which have been developed or altered by means which may not have resulted in the removal or relocation of earth on a large scale. Depending on the methods by which urbanization was accomplished, variable degrees of destruction to cultural resources can result. For example, agricultural fields represent areas where the surface has been disturbed through any buried artifacts have been preserved.

High Sensitivity: High sensitivity areas within the Encinitas planning area include those areas which have not been previously survey or have been subject to historic human disturbance other than agriculture. Based on the demonstrated prehistoric settlement pattern for coastal southern California and on the density of recorded archaeological sites within the planning area, those portions of the planning area which retain their natural character and which have not been subject to surveys specifically related to the identification of cultural resources are considered to have a high potential for the presence of cultural resource sites.

Due to the undeveloped site with vegetation, and elevations that gently slope, the Project area would be categorized as Moderate Sensitivity by City of Encinitas standards.

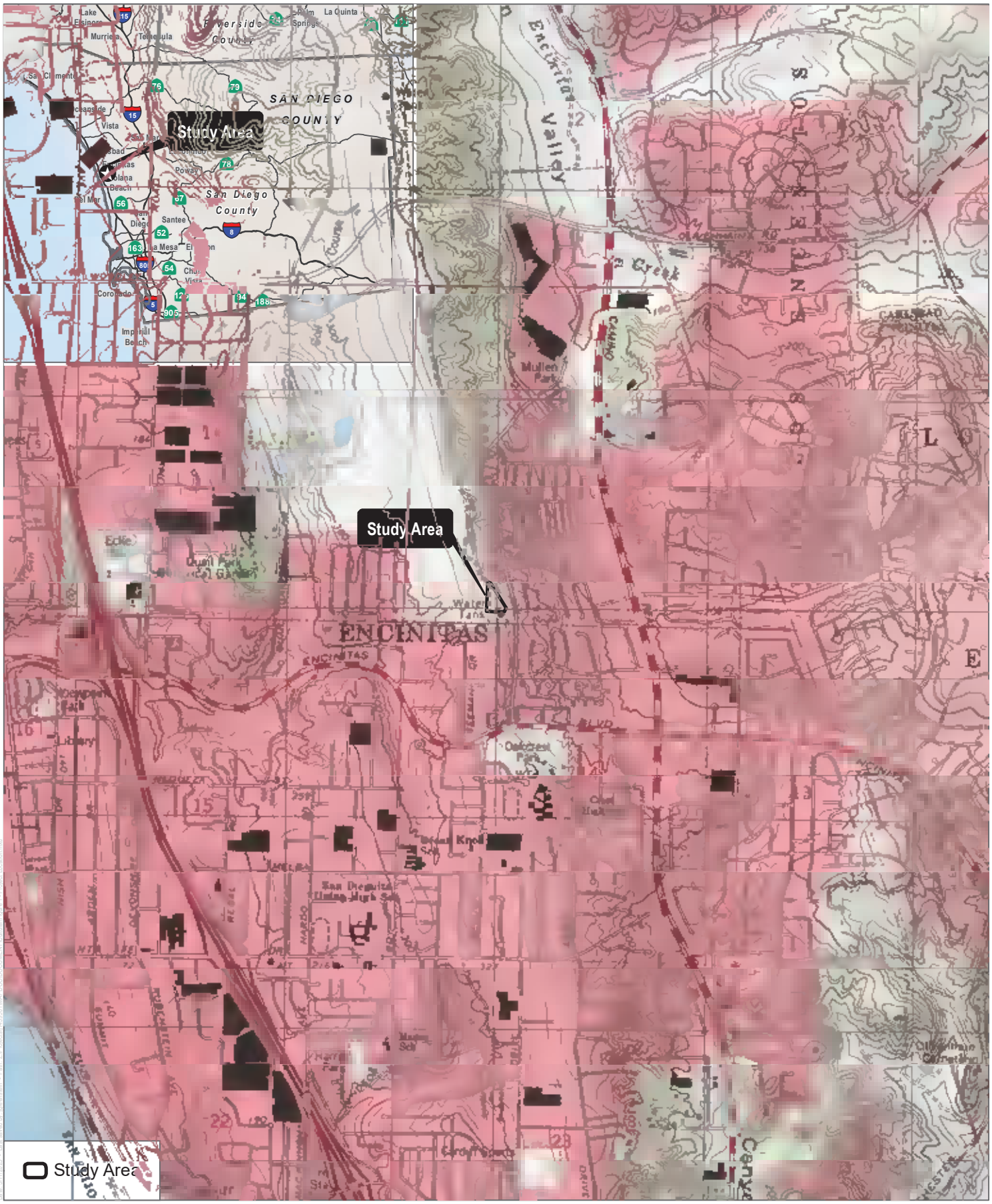
1.3 Native American Coordination

Dudek requested the Native American Heritage Commission (NAHC) search its Sacred Lands File on August 26, 2022, for the Project area. The Sacred Lands File consists of a database of known Native American resources. These resources may not be included in the South Coastal Information Center (SCIC) database. The NAHC replied on November 1, 2022, with negative results. The NAHC additionally provided a list of Native American tribes and individuals/organizations with traditional geographic associations that might have knowledge of cultural resources in this area. Outreach letters were mailed on December 21, 2022, to all Native American group representatives included on the NAHC contact list. These letters attempt to solicit additional information relating to Native American resources that may be impacted by the Project. Native American representatives were requested to define a general area where known resources intersect the Project area. Two responses have been received to date. The Rincon Band of Luiseño Indians responded on January 19, 2023, stating that the Project may impact tangible Tribal Cultural Resources (TCRs), Traditional Cultural Landscapes (TCLs), and potential Traditional Cultural Properties (TCPs), and they recommend conducting an archaeological/cultural resources study. The San Luis Rey Band of Mission Indians responded on March 16, 2023 stating that they are aware of cultural resources within close proximity to the Project and recommends the presence of a Luiseño Native American monitor during all ground disturbing activities and cultural resource assessment surveys. The letters have been forwarded to the City. The NAHC correspondence is included in Appendix C.

1.4 Report Format and Key Personnel

Following this introduction, Chapter 2 presents the environmental and historical background of the area, and the research design for site evaluations. Chapter 3 outlines the methods used to conduct this study. Chapter 4 presents the results of the records search, field survey and evaluations. Chapter 5 summarizes the results of the study, discusses interpretation of the evaluation of cultural resources, and provides recommendations for treatment of archaeological resources. Three appendices are included that contain additional information: Confidential Appendix A includes SCIC records search information, Confidential Appendix B contains a resource location map and California Department of Parks and Recreation (DPR) Series 523 form, and Appendix C includes Native American correspondence documents.

Keshia Montifolca, MA, RPA, served as principal investigator and primary author. Brad Comeau, MSc, RPA and Micah Hale, PhD, RPA, contributed to the cultural context section. Makayla Murillo led the archaeological field survey. Chris Curo participated as a Native American monitor from Red Tail Environmental during the survey. Keshia Montifolca served as field director and David Faith served as archaeological field staff for the field evaluations of the Project. Jeremy Clay participated as a Native American monitor from the San Pasqual Band of Diegueno Mission Indians during the field evaluation.



SOURCE: USGS 7.5-Minute Series Encinitas Quadrangles
Township 13S; Range 4W; Section 11

DUDEK

0 1,000 2,000 Feet
0 285 570 Meters

FIGURE 1

Project Location

Zona Gale Estates Project

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SOURCE: SanGIS 2019

0 50 100 Feet
0 10 20 Meters

FIGURE 2

Project Area

Zona Gale Estates Project

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2 Project Background

2.1 Environmental Setting

The Project area is located on a largely vacant lot, with a modern mechanical building located within the southern section of the Project area, within an urbanized area in the City of Encinitas. The Project area is surrounded by residential development to the west, south, and east, with additional residential development further to the north. There are small patches of open space and single-family residential on all sides of the Project area. The topography is generally flat, with elevations gently sloping from the west to the east. Elevations of the Project area range from approximately 378 feet above mean seal level (amsl) to 395 feet amsl. The Project is located in the coastal plains of the Peninsular Ranges Geomorphic Province (Abbott 1999). Geologically, the Project area consists of Quaternary-aged very old paralic deposits, underlain by the Tertiary-aged Santiago Formation (Kennedy and Tan 2008 cited in Leighton and Associates 2019). The Quaternary-aged very old paralic deposits are comprised of medium dense to very dense, light brown to reddish brown, moist, silty sandstone (Kennedy and Tan 2008 cited Leighton and Associates 2019, p.8). The Santiago Formation consists of very dense, brownish to yellow to light grapy, moist, micaceous silty sandstone (Leighton and Associates 2019).

According to U.S. Department of Agriculture (USDA), there are a total of two soil types mapped in the Project area: Carlsbad gravelly loamy sand, 2 to 5 percent slopes and Terrace escarpments. The Carlsbad series soils generally occur at elevations ranging from 30 to 300 ft amsl on hillslopes and are comprised of ferruginous sandstone (USDA 2023). Terrace escarpments consists of steep faces that separate terraces from lower lying land.

Vegetation in the area is comprised of non-native vegetation, disturbed habitat, and chaparral. Prior to urban development common animals within this area would have included coyote (Canis latrans), California ground squirrel (Spermophilus beecheyi), striped skunk (Mephitis mephitis), Virginia opossum (Didelphis virginica), cottontail (Sylvilagus audubonii), black-tailed jackrabbit (Lepus californicus bennettii), deer mouse (Peromyscus maniculatus) sparrow (Melospiza melodia), as well as a number of other species of birds, mammals, reptiles, and amphibians.

2.2 Prehistoric Context

Evidence for continuous human occupation in the San Diego region spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad time frame have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. Each of these reconstructions describes essentially similar trends in assemblage composition in more or less detail. This research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1769), and Ethnohistoric (post-AD 1769).

2.2.1 Paleoindian Period (pre-5500 BC)

Evidence for Paleoindian occupation in coastal Southern California is tenuous, especially considering the fact that the oldest dated archaeological assemblages look nothing like the Paleoindian artifacts from the Great Basin. One

of the earliest dated archaeological assemblages in coastal Southern California (excluding the Channel Islands) derives from CA-SDI-4669/W-12, in La Jolla. A human burial from CA-SDI-4669 was radiocarbon dated to 9,590–9,920 years before present (95.4% probability) (Hector 2007). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of groundstone, battered cobbles, and expedient flake tools). In contrast, typical Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of groundstone tools. Prime examples of this pattern are sites that were studied by Emma Lou Davis (1978) on China Lake Naval Air Weapons Station near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (CA-MNO-679)—a multicomponent fluted point site, and CA-MNO-680—a single component Great Basined Stemmed point site (Basgall et al. 2002). At CA-MNO-679 and CA-MNO-680, groundstone tools were rare while finely made projectile points were common.

Turning back to coastal Southern California, the fact that some of the earliest dated assemblages are dominated by processing tools runs counter to traditional notions of mobile hunter–gatherers traversing the landscape for highly valued prey. Evidence for the latter—that is, typical Paleoindian assemblages—may have been located along the coastal margin at one time, prior to glacial desiccation and a rapid rise in sea level during the early Holocene (pre-7500 BP) that submerged as much as 1.8 kilometer of the San Diego coastline. If this were true, however, it would also be expected that such sites would be located on older landforms near the current coastline. Some sites, such as CA-SDI-210 along Agua Hedionda Lagoon, contained stemmed points similar in form to Silver Lake and Lake Mojave projectile points (pre-8000 BP) that are commonly found at sites in California's high desert (Basgall and Hall 1990). CA-SDI-210 yielded one corrected radiocarbon date of 8520–9520 BP (Warren et al. 2004). However, sites of this nature are extremely rare and cannot be separated from large numbers of milling tools that intermingle with old projectile point forms.

Warren et al. (2004) claimed that a biface manufacturing tradition present at the Harris site complex (CA-SDI-149) is representative of typical Paleoindian occupation in the San Diego region that possibly dates between 10,365 and 8200 BC (Warren et al. 2004, p. 26). Termed San Dieguito (Rogers 1945), assemblages at the Harris site are qualitatively distinct from most others in the San Diego region because the site has large numbers of finely made bifaces (including projectile points), formal flake tools, a biface reduction trajectory, and relatively small amounts of processing tools (Warren 1964, 1968). Despite the unique assemblage composition, the definition of San Dieguito as a separate cultural tradition is hotly debated. Gallegos (1987) suggested that the San Dieguito pattern is simply an inland manifestation of a broader economic pattern. Gallegos' interpretation of San Dieguito has been widely accepted in recent years, in part because of the difficulty in distinguishing San Dieguito components from other assemblage constituents. In other words, it is easier to ignore San Dieguito as a distinct socioeconomic pattern than it is to draw it out of mixed assemblages.

The large number of finished bifaces (i.e., projectile points and non-projectile blades), along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other assemblages throughout the San Diego region, regardless of age. Warren et al. (2004) made this point, tabulating basic assemblage constituents for key early-Holocene sites. Producing finely made bifaces and formal flake tools implies that relatively large amounts of time were spent for tool manufacture. Such a strategy contrasts with the expedient flake-based tools and cobble-core reduction strategy that typifies non-San Dieguito Archaic sites. It can be inferred from the uniquely high degree of San Dieguito assemblage formality that the Harris site complex represents a distinct economic strategy from non-San Dieguito assemblages.

If San Dieguito truly represents a distinct socioeconomic strategy from the non-San Dieguito Archaic processing regime, its rarity implies that it was not only short-lived, but that it was not as economically successful as the Archaic strategy. Such a conclusion would fit with other trends in southern California deserts, wherein hunting-related tools are replaced by processing tools during the early Holocene (Basgall and Hall 1993).

2.2.2 Archaic Period (8000 BC – AD 500)

The more than 1500-year overlap between the presumed age of Paleoindian occupations and the Archaic period highlights the difficulty in defining a cultural chronology in the San Diego region. If San Dieguito is the only recognized Paleoindian component in the San Diego region, then the dominance of hunting tools implies that it derives from Great Basin adaptive strategies and is not necessarily a local adaptation. Warren et al. (2004) admitted as much, citing strong desert connections with San Dieguito. Thus, the Archaic pattern is the earliest local socioeconomic adaptation in the San Diego region (Hale 2001, 2009).

The Archaic pattern is relatively easy to define with assemblages that consist primarily of processing tools: millingstones, handstones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the San Diego region, with little variability in tool composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite enormous amounts of archaeological work at Archaic sites, little change in assemblage composition occurs until the bow and arrow is adopted at around AD 500, as well as ceramics at approximately the same time (Griset 1996; Hale 2009). Even then, assemblage formality remains low. After the bow is adopted, small arrow points appear in large quantities and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped millingstones and handstones decrease in proportion relative to expedient, unshaped groundstone tools (Hale 2009). Thus, the terminus of the Archaic period is equally as hard to define as its beginning because basic assemblage constituents and patterns of manufacturing investment remain stable, complimented only by the addition of the bow and ceramics.

2.2.3 Late Prehistoric (AD 500 – 1769)

The period of time following the Archaic and prior to Ethnohistoric times (AD 1750) is commonly referred to as the Late Prehistoric (Rogers 1945; Wallace 1955; Warren et al. 2004). However, several other subdivisions continue to be used to describe various shifts in assemblage composition, including the addition of ceramics and cremation practices. In northern San Diego County, the post-AD 1450 period is called the San Luis Rey Complex (True 1980), while the same period in southern San Diego County is called the Cuyamaca Complex and is thought to extend from AD 500 until Ethnohistoric times (Meighan 1959). Rogers (1929) also subdivided the last 1,000 years into the Yuman II and III cultures, based on the distribution of ceramics. Despite these regional complexes, each is defined by the addition of arrow points and ceramics, and the widespread use of bedrock mortars. Vagaries in the appearance of the bow and arrow and ceramics make the temporal resolution of the San Luis Rey and Cuyamaca complexes difficult. For this reason, the term Late Prehistoric is well-suited to describe the last 1,500 years of prehistory in the San Diego region.

Temporal trends in socioeconomic adaptations during the Late Prehistoric period are poorly understood. This is partly due to the fact that the fundamental Late Prehistoric assemblage is very similar to the Archaic pattern, but includes arrow points and large quantities of fine debitage from producing arrow points, ceramics, and cremations. The

appearance of mortars and pestles is difficult to place in time because most mortars are on bedrock surfaces; bowl mortars are actually rare in the San Diego region. Some argue that the Ethnohistoric intensive acorn economy extends as far back as AD 500 (Bean and Shipek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred prior to AD 1400. True (1980) argued that acorn processing and ceramic use in the northern San Diego region did not occur until the San Luis Rey pattern emerged after approximately AD 1450. For southern San Diego County, the picture is less clear. The Cuyamaca Complex is the southern counterpart to the San Luis Rey pattern, however, and is most recognizable after AD 1450 (Hector 1984). Similar to True (1980), Hale (2009) argued that an acorn economy did not appear in the southern San Diego region until just prior to Ethnohistoric times, and that when it did occur, a major shift in social organization followed.

2.2.4 Ethnographic Period

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the San Diego region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the San Diego region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century (Boscana 1846; Fages 1937; Geiger and Meighan 1976; Harrington 1934; Laylander 2000). The principal intent of these researchers was to record the precontact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach (Lightfoot 2005, p. 32) by recording languages and oral histories within the San Diego region. Kroeber's 1925 assessment of the impacts of Spanish missionization on local Native American populations supported Kumeyaay traditional cultural continuity (Kroeber 1925, p. 711):

> San Diego was the first mission founded in upper California; but the geographical limits of its influence were the narrowest of any, and its effects on the natives comparatively light. There seem to be two reasons for this: first, the stubbornly resisting temper of the natives; and second, a failure of the rigorous concentration policy enforced elsewhere.

In some ways this interpretation led to the belief that many California Native American groups simply escaped the harmful effects of contact and colonization all together. This, of course, is untrue. Ethnographic research by Dubois, Kroeber, Harrington, Spier, and others during the early twentieth century seemed to indicate that traditional cultural practices and beliefs survived among local Native American communities. These accounts supported, and were supported by, previous governmental decisions which made San Diego County the location of more federally recognized tribes than anywhere else in the United States: 18 tribes on 18 reservations that cover more than 116,000 acres (CSP 2009).

The traditional cultural boundaries between the Luiseño and Kumeyaay Native American tribal groups have been well defined by anthropologist Florence C. Shipek:

> In 1769, the Kumeyaay national territory started at the coast about 100 miles south of the Mexican border (below Santo Tomas), thence north to the coast at the drainage divide south of the San Luis Rey River including its tributaries. Using the U.S. Geological Survey topographic maps, the boundary with the Luiseño then follows that divide inland. The boundary continues on the divide separating Valley Center from Escondido and then up along Bear Ridge to the 2240 contour line and then north across the divide between Valley Center and Woods Valley up to the 1880-foot peak, then curving around east along the divide above Woods Valley. [1993 summarized by the San Diego County Board of Supervisors 2007:6]

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact (Johnson and Lorenz 2006, p. 34). The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007, p. 71). Based on the Project location, the Native American inhabitants of the region would have likely spoken both the Ipai and Tipai language subgroup of the Yuman language family. Ipai and Tipai, spoken respectively by the northern and southern Kumeyaay communities, are mutually intelligible. For this reason, these two are often treated as dialects of a larger Kumeyaay tribal group rather than as distinctive languages, though this has been debated (Luomala 1978; Laylander 2010).

Victor Golla has contended that one can interpret the amount of variability within specific language groups as being associated with the relative "time depth" of the speaking populations (Golla 2007, p. 80) A large amount of variation within the language of a group represents a greater time depth then a group's language with less internal diversity. One method that he has employed is by drawing comparisons with historically documented changes in Germanic and Romantic language groups. Golla has observed that the "absolute chronology of the internal diversification within a language family" can be correlated with archaeological dates (2007, p. 71). This type of interpretation is modeled on concepts of genetic drift and gene flows that are associated with migration and population isolation in the biological sciences.

Golla suggested that there are two language families associated with Native American groups who traditionally lived throughout the San Diego County region. The northern San Diego tribes have traditionally spoken Takic languages that may be assigned to the larger Uto–Aztecan family (Golla 2007, p. 74). These groups include the Luiseño, Cupeño, and Cahuilla. Golla has interpreted the amount of internal diversity within these language-speaking communities to reflect a time depth of approximately 2,000 years. Other researchers have contended that Takic may have diverged from Uto–Aztecan ca. 2600 BC–AD 1, which was later followed by the diversification within the Takic speaking San Diego tribes, occurring approximately 1500 BC–AD 1000 (Laylander 2010). The majority of Native American tribal groups in southern San Diego region have traditionally spoken Yuman languages, a subgroup of the Hokan Phylum. Golla has suggested that the time depth of Hokan is approximately 8,000 years (Golla 2007, p. 74). The Kumeyaay tribal communities share a common language group with the Cocopa, Quechan, Maricopa, Mojave, and others to east, and the Kiliwa to the south. The time depth for both the Ipai (north of the San Diego River, from Escondido to Lake Henshaw) and the Tipai (south of the San Diego River, the Laguna Mountains through Ensenada) is approximated to be 2,000 years at the most. Laylander has contended that previous research indicates a divergence between Ipai and Tipai to have occurred approximately AD 600–1200 (Laylander 1985). Despite the distinct linguistic differences between the Takic-speaking tribes to the north, the Ipai-speaking communities in central San Diego, and the Tipai southern Kumeyaay, attempts to illustrate the distinctions between these groups based solely on cultural material alone have had only limited success (Pigniolo 2004; True 1966).

The Kumeyaay generally lived in smaller family subgroups that would inhabit two or more locations over the course of the year. While less common, there is sufficient evidence that there were also permanently occupied villages, and that some members may have remained at these locations throughout the year (Owen 1965; Shipek 1982; Shipek 1985; Spier 1923). Each autonomous triblet was internally socially stratified, commonly including higher status individuals such as a tribal head (Kwaaypay), shaman (Kuseyaay), and general members with various responsibilities and skills (Shipek 1982). Higher-status individuals tended to have greater rights to land resources, and owned more goods, such as shell money and beads, decorative items, and clothing. To some degree, titles were passed along family lines; however, tangible goods were generally ceremonially burned or destroyed following the deaths of their owners (Luomala 1978). Remains were cremated over a pyre and then relocated to a cremation ceramic vessel that was placed in a removed or hidden location. A broken metate was commonly placed at the location of the cremated remains, with the intent of providing aid and further use after death. At maturity, tribal members often left to other bands in order to find a partner. The families formed networks of communication and exchange around such partnerships.

Areas or regions, identified by known physical landmarks, could be recognized as band-specific territories that might be violently defended against use by other members of the Kumeyaay. Other areas or resources, such as water sources and other locations that were rich in natural resources, were generally understood as communal land to be shared amongst all the Kumeyaay (Loumala 1978). The coastal Kumeyaay exchanged a number of local goods, such as seafood, coastal plants, and various types of shell for items including acorns, agave, mesquite beans, gourds, and other more interior plants of use (Luomala 1978). Shellfish would have been procured from three primary environments, including the sandy open coast, bay and lagoon, and rocky open coast. The availability of these marine resources changed with the rising sea levels, siltation of lagoon and bay environments, changing climatic conditions, and intensity of use by humans and animals (Gallegos and Kyle 1988; Pigniolo 2005; Warren and Pavesic 1963). Shellfish from sandy environments included *Donax*, *Saxidomas*, *Tivela*, and others. Rocky coast shellfish dietary contributions consisted of *Pseudochama*, *Megastraea*, *Saxidomus*, *Protothaca*, *Megathura*, and others. Lastly, the bay environment in the immediate vicinity of the project area would have provided *Argopecten*, *Chione*, *Ostrea*, *Neverita*, *Macoma*, *Tagelus*, and others. While marine resources were obviously consumed, terrestrial animals and other resources likely provided a large portion of sustenance. Game animals consisted of rabbits, hares (*Leporidae*), birds, ground squirrels, woodrats (*Neotoma*), deer, bears, mountain lions (*Puma concolor*), bobcats (*Lynx rufus)*, coyotes (*Canus latrans*), and others. In lesser numbers, reptiles and amphibians may have been consumed.

A number of local plants were used for food and medicine. These were exploited seasonally and were both traded between regional groups and gathered as a single triblet moved between habitation areas. Some of the more common of these that might have been procured locally or as higher elevation varieties would have included buckwheat (Eriogonum fasciculatum), Agave, Yucca, lemonade berry (Rhus integrifolia), sugar brush (Rhus ovata), sage scrub (Artemisia californica), yerba santa (Eriodictyon), sage (Salvia), Ephedra, prickly pear (Opuntia), mulefat (Baccharis salicifolia), chamise (Adenostoma fasciculatum), elderberry (Sambucus nigra), oak (Quercus), willow (Salix), and Juncus grass among many others (Wilken 2012).

2.3 Historic Period (post-AD 1542)

History of the greater San Diego area can be divided into the Spanish Period (1769–1821), Mexican Period (1821–1846) and American Period (1846–Present). European activity in the region began as early as AD 1542, when Juan Rodríguez Cabrillo landed in San Diego Bay. Sebastián Vizcaíno returned in 1602, and it is possible that there were

subsequent contacts that went unrecorded. These brief encounters made the local native people aware of the existence of other cultures that were technologically more complex than their own. Epidemic diseases may also have been introduced into the region at an early date, either by direct contacts with the infrequent European visitors or through waves of diffusion emanating from native peoples farther to the east or south (Preston 2002). It is possible, but as yet unproven, that the precipitous demographic decline of native peoples had already begun prior to the arrival of Gaspar de Portolá and Junípero Serra in 1769.

The Spanish colonization of Alta California began in 1769 with the founding of Mission San Diego de Alcalá by Father Junípero Serra. Concerns over Russian and English interests in California motivated the Spanish government to send an expedition of soldiers, settlers and missionaries to occupy and secure the northwestern borderlands of New Spain through the establishment of a Presidio, Mission, and Pueblo. The Spanish explorers first camped on the shore of the bay in the area that is now downtown San Diego. Lack of water at this location, however, led to moving the camp on May 14, 1769, to a small hill closer to the San Diego River and near the Kumeyaay village of Cosoy. Father Junípero Serra arrived in July of the same year to find the Presidio serving mostly as a hospital. The Spanish built a primitive mission and presidio structure on the hill near the river.

Bad feelings soon developed between the native Kumeyaay and the soldiers, resulting in construction of a stockade which, by 1772, included barracks for the soldiers, a storehouse for supplies, a house for the missionaries and the chapel, which had been improved. The log and brush huts were gradually replaced with buildings made of adobe bricks. Flat earthen roofs were eventually replaced by pitched roofs with rounded roof tiles. Clay floors were eventually lined with fired brick.

In August, 1774 the Spanish missionaries moved the Mission San Diego de Alcalá to its present location 6 miles up the San Diego River valley (modern Mission Valley) near the Kumeyaay village of Nipaguay. Begun as a thatched chapel and compound built of willow poles, logs and tules, the new Mission was sacked and burned in the Kumeyaay uprising of November 5, 1775. The first adobe chapel was completed in October 1776 and the present church was begun the following year. A succession of building programs through 1813 resulted in the final rectilinear plan that included the church, bell tower, sacristy, courtyard, residential complex, workshops, corrals, gardens and cemetery. Orchards, reservoirs and other agricultural installations were built to the south on the lower San Diego River alluvial terrace and were irrigated by a dam and aqueduct system. The initial Spanish occupation and mission system brought about profound changes in the lives of the Kumeyaay people. Substantial numbers of the coastal Kumeyaay were forcibly brought into the mission or died from introduced diseases.

As early as 1791, presidio commandants in California were given the authority to grant small house lots and garden plots to soldiers and their families and sometime after 1800, soldiers and their families began to move down the hill near the San Diego River. Historian William Smythe noted that Don Blas Aguilar, who was born in 1811, remembered at least 15 such grants below Presidio Hill by 1821, of which only five of these grant lands within the boundaries of what would become Old Town had houses in 1821. These included the retired commandant Francisco Ruiz Adobe (now known as the Carrillo Adobe), another building later owned by Henry Fitch on Calhoun Street, the Ybanes and Serrano houses on Juan Street near Washington Street, and a small adobe house on the main plaza owned by Juan Jose Maria Marron.

In 1822, the political situation changed as Mexico won its independence from Spain and San Diego became part of the Mexican Republic. The Mexican Government opened California to foreign trade; began issuing private land grants in the early 1820s, creating the rancho system of large agricultural estates; secularized the Spanish missions in 1833; and oversaw the rise of the civilian pueblo. By 1827, as many as 30 homes existed around the central

plaza and in 1835, Mexico granted San Diego official pueblo (town) status. At this time the town had a population of nearly 500 residents, later reaching a peak of roughly 600. By 1835, the presidio, once the center of life in Spanish San Diego, had been abandoned and lay in ruins. Mission San Diego de Alcalá fared little better. The town and the ship landing area at La Playa were now the centers of activity in Mexican San Diego. However, the new Pueblo of San Diego did not prosper as did some other California towns during the Mexican Period.

The secularization in San Diego County triggered increased Native American hostilities against the Californios during the late 1830s. The attacks on outlying ranchos, along with unstable political and economic factors helped San Diego's population decline to around 150 permanent residents by 1840. San Diego's official Pueblo status was removed by 1838 and it was made a subprefecture of the Los Angeles Pueblo. When the Americans took over after 1846, the situation had stabilized somewhat, and the population had increased to roughly 350 non-Native American residents. The Native American population continued to decline, as Mexican occupation brought about continued displacement and acculturation of Native American populations.

The American Period began in 1846 when United States military forces occupied San Diego and this period continues today. When United States military forces occupied San Diego in July 1846, the town's residents split on their course of action. Many of the town's leaders sided with the Americans, while other prominent families opposed the United States invasion. In December 1846, a group of Californios under Andres Pico engaged United States Army forces under General Stephen Kearney at the Battle of San Pasqual and inflicted many casualties. However, the Californio resistance was defeated in two small battles near Los Angeles and effectively ended by January 1847. The Americans assumed formal control with the Treaty of Guadalupe-Hidalgo in 1848 and introduced Anglo culture and society, American political institutions and especially American entrepreneurial commerce. In 1850, the Americanization of San Diego began to develop rapidly.

In 1842, land was granted to Andres Ybaraa by Governor Alvarado to build Las Encinitas Rancho. In 1880, the Kimball Brothers bought land outside the limits of the National Ranch, and Encinitas was included in this purchase (MacMullen 1961). A boom in real estate occurred in the 1880s that helped developed Encinitas. The first commercial structures were located around the railroad depot, and in 1883, the town was platted in a gridiron street pattern. Encinitas grew during the 1920's to 1930's when Encinitas was included in the San Dieguito Irrigation District in 1923 which expanded the agricultural production and urbanization of Encinitas.

2.4 Research Design and Questions

The objective of the evaluation portion of this Project was to obtain information from archaeological sites that could be used to evaluate the resource's significance under CEQA. Current research is typically structured in a way that links anthropologically oriented research issues to the archaeological record. The following discussion embraces this strategy and identifies potential questions and appropriate archaeological evidence within a series of broad research themes. General issues pertinent to the assessment of the sites include determination of the extent and integrity of cultural deposits, age and probable affiliation, site function, and subsistence strategies.

2.4.1 Integrity

Delineation of the horizontal distribution and vertical depth of the site is necessary for an assessment of research potential. Of particular importance is the integrity of the deposits: whether or not features or surfaces are preserved

and whether the potential exists for identifying, through analysis, horizontal and vertical spatial patterning in the evidence for past behavior.

A variety of post-depositional disturbance processes can greatly alter the original character of prehistoric sites (e.g., Gross and Robbins-Wade 2008; Schiffer 1987; Waters 1992). Formation processes such as alluvial deposition, erosion, bioturbation, and modern disturbance can considerably affect the integrity of archaeological sites. Here, attempts are made to identify and interpret the processes that formed the site, with particular attention given to the character of post-depositional processes and the extent to which they have affected the integrity of the archaeological deposits.

The results of testing at various sites have been used to address the following issues:

- Does the horizontal and vertical extent of the archaeological record within the sites represent continuous or discrete occupations?
- Is it possible to discern depositional versus post-depositional processes that have contributed to the present condition of the archaeological record at any of the sites? In other words, what are the factors, both natural and anthropogenic, that have altered the position and condition of artifacts from the prehistoric and historic occupations of the sites?
- What kinds of features are potentially preserved at the sites (e.g., structures, hearths, privies)? Are there features that are highly disrupted by post-depositional processes but that are still recognizable? Can these features be associated with particular functions?
- By examining spatial patterns in the horizontal distribution of artifacts, is it possible to discern areas that were associated with specific functions? Do patterns in the vertical distribution of artifacts tell us anything about changes in the function, materials exploited, or human activities at the sites through time?

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3 Methods

This section describes the techniques employed to identify and evaluate archaeological resources within the Project area. All methods meet the Secretary of Interior's guidelines, as do all proposed Project personnel for their respective roles.

3.1 Phase I Inventory

The Phase I inventory portion of this cultural resource investigation consisted of a records search of the Project area and a 1-mile radius around the area at the SCIC, located at SDSU; initiation of correspondence with the NAHC; and an intensive pedestrian survey of the Project area. In addition to the SCIC records, the record search also examined the NRHP, Office of Historic Preservation Archaeological Determinations of Eligibility and Historic Property Directory lists, and historic maps. Historic aerial photographs and topographic maps were also reviewed online (NETR 2022). All previously recorded cultural resources and previous cultural resources investigations were plotted on records search maps and reviewed to assess the potential for discovery of cultural resources within the Project area. Records search results are included in Confidential Appendix A.

The intensive pedestrian survey for this Project was performed by Dudek Archaeologist Makayla Murillo on August 31, 2022. Ms. Murillo was accompanied by Native American monitor Chris Curo from Red Tail Environmental. The survey was conducted using standard archaeological procedures and techniques that meet the Secretary of Interior's standards and guidelines. Survey transects were spaced 15-meters (m) wide and oriented south–north across accessible areas of the Project area. Where transects were not feasible (such as heavy vegetation coverage), transects were not utilized. Instead, a mixed approach (opportunistic survey) was utilized, selectively examining terraces, cut banks, triangles, and ridges where possible, and utilizing existing access trails.

Within each transect, the ground surface was examined for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of the current or former presence of structures or buildings (e.g., standing exterior walls, post holes, foundations), and historic artifacts (e.g., metal, glass, ceramics, building materials). Ground disturbances such as burrows, cut banks, and drainages were also visually inspected for exposed subsurface materials. All fieldwork was documented using field notes, digital photography, a GPS receiver with sub-meter accuracy, iPad technology with close-scale field maps, and aerial photographs. Location-specific photographs were taken using an Apple 11th Generation iPad equipped with 8 MP resolution and ArcGIS Field Maps. Accuracy of this device ranged between 3 m and 10 m.

For the purposes of site definition, a minimum density of three or more artifacts in a 25 square m area was used to constitute an archaeological site, as was the presence of any feature (e.g., concrete foundation). Any separation of 50 m or more between artifacts was considered justification for delineation of a site boundary. Isolated finds consisting of fewer than three artifacts within a 25 square-meter area were recorded separately from sites, including the use of a different numbering scheme. One site, CA-SDI-23458, a prehistoric surface lithic and shell scatter measuring 80 m (N/S) by 39 m (E/W), was identified during the pedestrian survey within the Project area was recorded in its entirety on a DPR 523 (Series 1/95) form, using the Instructions for Recording Historical Resources (Office of Historic Preservation 1995). The DPR form is included in Confidential Appendix B. The site would potentially be impacted by the Project and was evaluated for eligibility under CEQA and local regulations.

3.2 Phase II Archaeological Evaluations

The Phase II evaluation for the Project was conducted by Dudek for CA-SDI-23458 (Confidential Figure 3, included in Confidential Appendix B). CA-SDI-23458 consists of a prehistoric lithic and shell scatter. Dudek archaeologists Keshia Montifolca and David Faith conducted the field evaluation on April 15, 2023, and were accompanied by Native American monitor Jeremy Clay from the San Pasqual Band of Diegueno Indians. The methods used during this archaeological evaluation have been designed according to methods and procedures developed by Dudek and others over many years of archaeological study in Southern California, and they comply with federal and state guidelines regarding cultural resource evaluations and eligibility recommendations (Giambastiani and Basgall 2000; Hale and Becker 2006; Hale and Comeau 2010; Schaefer et al. 1994; Schaefer 2000. Evaluation methods are essentially sampling methods geared toward recovering a reasonable-sized assemblage to estimate the density and diversity of the cultural deposit, and to expose enough of the site deposit to determine integrity. A general approach is described below.

The first step in each site evaluation was to relocate artifact concentrations, features, and landforms as identified in the survey phase. The site was then subjected to an intensive surface survey with regular-interval sweeps of the site surface, and pin-flagging of artifacts to confirm the originally mapped items and site boundaries.

Shovel test pits (STPs) were used for field evaluations for the Project. All units were excavated with square corners to enable their expansion in order to more thoroughly explore deposits, if necessary. STPs are small; 0.5- by 0.25-m exploratory units excavated in 20 centimeters (cm) increments to depths of no more than 40–60 cm if the unit is sterile (i.e., no artifacts or subsurface deposits are encountered), and typically spaced at 10- to 20-m intervals or subjectively placed. STPs are typically used to explore the edges of cultural deposits, providing a positive-negative indication with little reliability in terms of estimating depth of cultural deposits or integrity.

All excavated matrix was screened through 1/8-in (3-mm) mesh. Sediment profiles from STPs were recorded and photographed, where appropriate, with small sediment samples taken for Munsell color and constituent classification.

The site was mapped using a GPS receiver with sub-meter accuracy, using an Apple 11th Generation iPad equipped with 8 MP resolution and ArcGIS Field Maps to plot all STPs and surface artifact locations. In addition to the mapping, a series of overview photographs were taken to show the site landscape situation and condition. Table 1 presents levels of field effort expended at each site during the evaluation.

Table 1. Level of Effort for Evaluated Resources

Site	Period	Dimensions (m)	Number of Shovel Test Pits
CA-SDI-23458	Prehistoric	80 x 39	9

4 Results

4.1 Records Search Results

This section presents the results of the records searches, field survey, and evaluation for the current study.

4.1.1 Previously Recorded Studies

Dudek requested a records search at the SCIC for the Project area with a surrounding 1-mile radius on August 15, 2022. The SCIC records search results identified that 63 previous cultural resources studies have been conducted within 1-mile of the Project area. Of the 63 previous studies, eight studies intersect the Project area and are listed in Table 2 below. These studies consist of a cultural resources overview, an archaeological resource impact report, subsurface testing and historical assessment, archaeological evaluation, draft environmental impact report, cultural and paleontological resource investigation, and cultural resource analysis. Approximately 80% of the Project area has been previously studied. None of the previous cultural resources studies identified any resources within the Project area. The studies that do not intersect the area are included in Confidential Appendix A.

Table 2. Previous Cultural Resource Studies Intersecting the Project Area

Report Number	Year	Title	Author
SD-00671	1986	A Cultural Resource Overview for the Encinitas Planning Area, Encinitas, California.	Westec Services, Inc.
SD-00728	1975	An Archaeological Resource Impact Report for Camino Park North	Recon
SD-02753	1993	Subsurface Testing and Historical Assessment of the 836 Acre Encinitas Ranch, Encinitas, San Diego County, California	Scientific Resource Surveys, Inc
SD-03028	1995	Results Of An Archaeological Evaluation of Cultural Resources Within The Proposed Corridor For The San Elijo Water Reclamation System (Project No. C-06-4155-110)	Brian F. Smith and Associates
SD-04893	1976	Draft EIR For Camino Park North	Recon
SD-08580	1988	Cultural And Paleontological Resource Investigation of Lot 163, Map 10140 City of Encinitas, San Diego County, California	Scientific Resource Surveys, Inc.
SD-01914	1978	Cultural Resources Impact Mitigation Report for Camino Park North and Deerpark Encinitas	Recon
SD-10630	2006	Cultural Resources Analysis for T-Mobile Site # SD06745: 291 Zone Gale Road, Encinitas, CA 92024	Archaeological Resources Technology

4.1.2 Previously Recorded Resources

The SCIC records search did not identify any cultural resources within the Project area. The records search did identify 25 cultural resources within 1-mile of the Project area (Table 3). Of the 25 resources identified within 1-mile of the Project area, 21 are prehistoric resources (eight campsites, six shell and lithic scatters, three lithic scatters, three shell scatters, and one isolate) and four are historic resources (one ancillary building, one foundation, and two road alignments). No historic addresses are located within the Project area. The results of the records search and all DPR forms are attached as part of Confidential Appendix A.

Table 3. Previously Recorded Cultural Resources within 1-Mile of the Project Area

Primary Number	Trinomial	Age	Resource Type	Significance Criteria	Citation	In/ Out of Project Area
P-37-002736	CA-SDI-002736	Prehistoric	Shell and lithic scatter	Not evaluated	R. Carrico and P. Ainsworth, 1976	Out
P-37-002737	CA-SDI-002737	Prehistoric	Lithic scatter	Not evaluated	R. Carrico, 1976	Out
P-37-004554	CA-SDI-004554	Prehistoric	Campsite	Not evaluated	R. May and D. Hanna, 1975	Out
P-37-004555	CA-SDI-004555	Prehistoric	Shell and lithic scatter	Not evaluated	R. Carrico, 1974	Out
P-37-004810	CA-SDI-004810	Prehistoric	Campsite	Not evaluated	R. Kaldenberg, 1975	Out
P-37-004880	CA-SDI-004880	Prehistoric	Shell scatter	Not evaluated	B. Weber, 1977	Out
P-37-004945	CA-SDI-004945	Prehistoric	Isolate: Lithic tool	Not eligible	B. Eckhardt and R. Carrico, 1977	Out
P-37-005127	CA-SDI-005127	Prehistoric	Shell and lithic scatter	Not evaluated	W. Eckhart, 1977	Out
P-37-005128	CA-SDI-005128	Prehistoric	Campsite	Not evaluated	R. Carrico, 1977	Out
P-37-005411	CA-SDI-005411	Prehistoric	Campsite	Not evaluated	R. Carrico and P. Ainsworth, 1976	Out
P-37-005412	CA-SDI-005412	Prehistoric	Shell scatter	Not evaluated	W. Eckhart, 1977	Out
P-37-005415	CA-SDI-005415	Prehistoric	Campsite	Not evaluated	W. Eckhart, 1977	Out
P-37-005954	CA-SDI-005954	Prehistoric	Campsite	Not evaluated	M. Rogers, N.D.	Out
P-37-005955	CA-SDI-005955	Prehistoric	Lithic scatter	Not evaluated	R. Carrico, 1976	Out
P-37-006142	CA-SDI-006142	Prehistoric	Campsite	Not evaluated	R. Carrico and W. Eckhardt, 1978	Out
P-37-006143	CA-SDI-006143	Prehistoric	Shell and lithic scatter	Not evaluated	R. Carrico and W. Eckhardt, 1978	Out
P-37-006148	CA-SDI-006148	Prehistoric	Shell and lithic scatter	Not evaluated	R. Carrico and W. Eckhardt, 1978	Out

P-37-011027	CA-SDI-011027	Prehistoric	Campsite	Not evaluated	T. Van Bueren, 1988	Out
P-37-012892	CA-SDI-012892	Prehistoric	Lithic scatter	Not evaluated	A. Pigniolo, S. Campbell, and M. Mealey, 1992	Out
P-37-013925	CA-SDI-013902	Prehistoric	Shell and lithic scatter	Not evaluated	B. F. Smith, 1995	Out
P-37-027115	CA-SDI-017734	Prehistoric	Shell scatter	Not evaluated	A. Giletti, M. Sivba, and S. Stroud, 2005	Out
P-37-035835	-	Historic	Ancillary building	Not eligible	S. Davis and J. Krintz, 2013	Out
P-37-036593	-	Historic	Foundation	Not evaluated	A. Pigniolo, 2017	Out
P-37-039456	-	Historic	Highway/trail: Encinitas Boulevard	Not eligible	J. O'Connor, 2020	Out
P-37-039457	-	Historic	Highway/trail: Quail Gardens Drive	Not eligible	J. O'Connor, 2020	Out

4.1.3 Historic Map Review

Dudek consulted historic maps and aerial photographs to understand the development of the Project area. Historic aerial photographs of the Project area were available from 1947 to 2020 (NETR 2023). The historic aerial from 1947 revealed that the entire Project area was undeveloped. The historic aerial from 1953 shows a partial grading in the southeastern portion of the Project area. The aerial imagery in 1964 shows the development of Zona Gale Road and portions of Via Cantebria. The areas to the north, west, and east of the Project area were graded. By 1967, the development of a water tank and agricultural structures appear immediately south of the Project area and agricultural activities are observed to the east. The 1978 aerial imagery shows the expansion of the agricultural structures within the Project vicinity and dirt trails are observed within the western and center sections of the Project area. The 1981 aerial imagery shows mass grading to the south, east and north of the Project area. By 1982, Via Cantebria to the east is paved. The 1985 aerial imagery shows increasing residential property in adjacent parcels and Zona Gale Road to the south is paved. The aerial imagery in 1987 shows grading to the north for Via Marbrisa. The 1989 aerial imagery shows a small structure is constructed to the west of the water tank, south of the Project area. On the 2002 aerial, a mechanical building is observed within the southern section of the Project area, just north of the water thank. No substantial changes are observed in the Project area from the 2003 to present day aerials. No historic structures are located in the Project area.

Historic topographic (topo) maps of the Project area were reviewed (earliest map available is 1893). From the 1893 to the 1971 topo maps, three creek features are observed within the Project's vicinity to the east, west and southwest of the Project area. A water tank appears on the 1969 topo, south of the Project area. On the 1978 topo, the southwestern creek feature is no longer observed, but the two creek features to the east and west are still present on the topo map. The creek features are no longer observed on the 2001 to 2018 topo maps. No historic structures are located in the Project area on the topo maps.

4.1.4 Geotechnical Study

Leighton and Associates, Inc. completed a geotechnical study for the Project area (May 17, 2019). The report, *Geotechnical Investigation for the Zona gale Road Property, Encinitas, California, 92024, Assessor's Parcel Number 257-407-11-00*, documents the subsurface geological conditions within the Project area (Leighton and Associates, Inc. 2019). The report details the Project background regarding previous geotechnical investigations, and the results of drilling four 8-inch diameter geotechnical borings to depths ranging between approximately 21 to 61.5 feet below the existing ground surface. Very Old Paralic Deposits which consists of medium to very dense, light brown to reddish brown silty sandstone, were encountered from the surface to ranging from 35 to 45 feet below ground surface (Leighton and Associates, Inc. 2019). Tertiary-aged Santiago Formation which consists of very dense, brownish yellow silty sandstone was encountered underlying the Very Old Paralic Deposits ranging from 35 to 45 feet and extended to the total depth explored of 61.5 feet below ground surface (Leighton and Associates, Inc. 2019).

4.2 Field Results

The Project area is situated on hill bounded by residential single-family properties to the west, a water tank to the south, and a bluff to the east. The topography of the Project area is relatively flat with a slight slope facing southwest. Ground visibility was excellent (100%) in approximately 50% of the Project area consisting of open areas that were not obscured by trees and dense vegetation (center of Project area). Visibility was poor (0-20%) in areas of dense vegetation (boundary of Project area). The soil consisted of a loosely to moderately compacted coarse-grained mixture of siltstone and sandstone. Modern debris was also observed throughout the area (lighters, cans, and bottle glass). Modern disturbances were also noted within the Project area; areas have been used for motorized bikes in the evidence of bike tire tracks and built-up areas of dirt.

The intensive pedestrian survey of the Project area resulted in one newly recorded site consisting of a prehistoric lithic and shell scatter, CA-SDI-23458. The site location can be seen on Confidential Figure 3 (included in Confidential Appendix B) and in the individual site sketch map in the site form (Confidential Appendix B).

4.2.1 Newly Recorded Site and Evaluation Results

CA-SDI-23458 (P-37-040592)

This prehistoric resource is a surface lithic and shell scatter measuring approximately 80 m (N/S) by 39 m (E/W). A total of 97 lithic artifacts and shell were identified during the field efforts (Table 4). Artifacts include 20 cores, 1 flaked stone tool, 42 flakes,1 assayed cobble, 13 pieces of shatter, 14 handstones, 5 indeterminate groundstone, 1 milling stone fragment, and 50 pieces of shell fragments (bulk weight 42.03 g). Prior to the subsurface evaluation, the surface artifacts were collected.

No features or evidence of midden are associated with this site. This site is situated on the end of a bluff, on a southwest facing slope and drainage (Figures 4 and 5). Vegetation mainly consists of non-native vegetation, disturbed habitat, and chaparral. The soil consisted of a loosely to moderately compacted coarse-grained mixture of siltstone and sandstone.

Table 4. Summary of Artifacts Recovered from CA-SDI-23458

Artifact Class	Artifact Type	Material	Count
Flaked Stone	Core	Volcanic	16
Flaked Stone	Core	Quartzite	4
Flaked Stone	Retouched flake tool	Volcanic	1
Flaked Stone	Primary decortication flake	Volcanic	12
Flaked Stone	Primary decortication flake	Quartzite	2
Flaked Stone	Secondary decortication flake	Volcanic	15
Flaked Stone	Secondary decortication flake	Quartzite	2
Flaked Stone	Simple interior percussion flake	Volcanic	9
Flaked Stone	Simple interior percussion flake	Quartzite	2
Flaked Stone	Debitage, undifferentiated	Volcanic	1
Flaked Stone	Assayed cobble	Volcanic	1
Flaked Stone	Cortical shatter	Volcanic	9
Flaked Stone	Cortical shatter	Quartzite	3
Ground Stone	Handstone	Volcanic	14
Ground Stone	Indeterminate groundstone	Volcanic	5
Ground Stone	Millingstone	Volcanic	1
Faunal	Invertebrate remains	Shell	50

Subsurface Excavation

Nine STPs were excavated at CA-SDI-23458 (Confidential Figure 3; included in Confidential Appendix B) and in the individual site sketch map in the site form (Confidential Appendix B). STP 1 was excavated in the northern section of the site where the artifacts were concentrated, and excavated to a depth of 3 cm through heavily compacted yellowish-red sand (Munsell: 5 YR 4/6). It was terminated at 3 cm at a sandstone layer which would not yield cultural material. STP 2 was excavated south of STP 1 to a depth of 20 cm through reddish sand with clay (Munsell: 2.5 YR 4/6). It was terminated at a sandstone layer which would not yield cultural material. STP 3 was excavated in the center of the site to a depth of 40 cm through damp red sand with slight clay (Munsell: 2.5 YR 5/6). It was terminated due to being sterile and there were no changes in stratigraphy. STP 4 was excavated in the southwestern section of the site to a depth of 40 cm through damp red sand with minimal clay (Munsell: 2.5 YR 4/6). It was terminated due to being sterile and there were no changes in stratigraphy. STP 5 was excavated in the southeastern section of the site to a depth of 40 cm through damp reddish brown sandy with minimal clay (Munsell: 2.5 YR 4/3). It was terminated due to being sterile and there were no changes in stratigraphy. STP 6 was excavated in the western section of the site to a depth of 40 cm through damp to wet reddish brown sand (Munsell 2.5 YR 4/4). It was terminated due to being sterile and there were no changes in stratigraphy. STP 7 was excavated in the eastern section of the site to a depth of 40 cm through slightly damp, moderately compacted reddish-brown sand (Munsell 2.5 YR 4/4). It was terminated due to being sterile and there were no changes in stratigraphy. STP 8 was excavated in the northwestern section of the site to a depth of 15 cm through heavily compacted dry reddish-brown sand (Munsell 2.5 YR 4/4). It was terminated at a sandstone layer which would not yield cultural material. STP 9 was excavated in the eastern section of the site to a depth of 40 cm through damp reddish brown sand with loose compaction (Munsell 2.5 YR 4/4). It was terminated due to being sterile and there were no changes in stratigraphy. All nine STPs were sterile.

Figure 4. Overview of CA-SDI-23458, View East



Figure 5. Overview of CA-SDI-23458, View Southwest



Lithic Artifact Analysis

Debitage accounted for the largest category of lithic artifacts, representing 78.4 percent (N=76) of the lithic artifact collection, including 20 cores, one assayed cobble, 13 pieces of shatter and 42 flakes. The remaining lithic collection consisted of 20 groundstone artifacts (20.6 percent) and 1 flaked stone tool (1.0 percent). Activities indicated by the artifacts recovered from the site include lithic tool production, and procurement and processing of plant and animal resources. The lithic material distribution of the artifact assemblage is presented in Table 4-3.

Table 4-3 Lithic Material Distribution for CA-SDI-23458

Artifact Category	Volcanic	Quartzite	Total	Percent
Ground Stone				
Handstone	14	-	14	14.4
Millingstone	1	-	1	1.0
Indeterminate Ground Stone	5	-	5	5.2

Debitage				
Core	16	4	20	20.6
Assayed Cobble	1	-	1	1.0
Shatter	10	3	13	13.4
Flake	36	6	42	43.3
Flaked Stone Tools				
Retouched Flake Tool	1	-	1	1.0
Total	84	13	97	100*
Percent	86.6	13.4	100	

**Rounded totals may not equal 100.00 percent*

Discussion and Site Summary

CA-SDI-23458 is a prehistoric lithic and shell scatter that is confined to the surface. Activities indicated by the artifacts recovered from the site include lithic tool production, and procurement and processing of plant and animal resources. The quantity and variety of artifacts at the site is fairly limited; combined with the absence of subsurface deposits and features, CA-SDI-23458 is unlikely to provide information important to prehistory, other than what has been documented herein. As the result of the evaluation, CA-SDI-23458 is recommended not significant under CEQA and is not eligible for listing in the CRHR.

5 Conclusions and Recommendations

5.1 Summary and Management Considerations

The Project consists of a residential subdivision development on undeveloped land and necessary infrastructure improvements. Specifically, the project proposes development of nine detached residential units (eight market-rate units and one “very low” affordable unit), landscaping, a biofiltration basin, private road, private driveways, and additional off-street parking. The intensive level pedestrian survey resulted in one newly identified archaeological sites within the Project area: CA-SDI-23458. CA-SDI-23458 consists of a prehistoric lithic and shell scatter. The site would be impacted by the Project was formally evaluated under CEQA.

Nine STPs were excavated at the site and all STPs were sterile. CA-SDI-23458 is a prehistoric lithic and shell scatter that is confined to the surface. Activities indicated by the artifacts recovered from the site include lithic tool production, and procurement and processing of plant and animal resources. The quantity and variety of artifacts at the site is fairly limited; combined with the absence of subsurface deposits and features, CA-SDI-23458 is unlikely to provide information important to prehistory, other than what has been documented herein. As the result of the evaluation, CA-SDI-23458 is recommended not significant under CEQA and is not eligible for listing in the CRHR.

Due to the positive pedestrian survey, heavy vegetation, and number of prehistoric sites within close proximity to the Project area, there is potential for identifying intact subsurface cultural resources deposits within previously undisturbed areas during Project implementation. Cultural resources monitoring with a qualified archaeologist and Kumeyaay Native American monitor is recommended during initial ground-disturbing activities within previously undisturbed deposits. Monitoring can be reduced or terminated should no discoveries be made or if documentation is provided which demonstrates that ground-disturbing activities will be occurring in sediments with no potential for cultural resources. If human remains are found, the County Coroner shall be immediately notified of the discovery in accordance with Section 7050.5 of the California Health and Safety Code.

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6 References

Basgall, M.E., and M.C. Hall. 1993. *Archaeology of the Awl Site, CA-SBR-4562, Fort Irwin, San Bernardino County, California*. Los Angeles, California: U.S. Army Corps of Engineers.

Basgall, M.E., L. Johnson, and M. Hale. 2002. *An Evaluation of Four Archeological Sites in the Lead Mountain Training Area, Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center, Twentynine Palms, California*. Twentynine Palms, California: Natural Resources and Environmental Affairs, Marine Corps Air Ground Combat Center.

Basgall, M.E. and K.R. McGuire. 1988. *The Archaeology of CA-INY-30: Prehistoric Culture Change in the Southern Owens Valley, California*. Sacramento, California: California Department of Transportation.

Bean, L.J., and F.C. Shipek. 1978. "Luiseño." In *California*, edited by R.F. Heizer, 550–563. *Handbook of North American Indians*, Vol. 8, edited by W.C. Sturtevant. Washington, D.C.: Smithsonian Institution.

Boscana, G. 1846. "Chinigchinich; A Historical Account of the Origin, Customs, and Traditions of the Indians at the Missionary Establishment of St. Juan Capistrano, Alta California." In *Life in California*, by Alfred Robinson, 227-341. New York: Wiley & Putnam.

Byrd, B.F. and S.N. Reddy. 2002. "Late Holocene Adaptations along the Northern San Diego Coastline: New Perspectives on Old Paradigms." In *Cultural Complexity on the California Coast: Late Holocene Archaeological and Environmental Records*, edited by J.M. Erlandson and T.L. Jones, 41–62. Los Angeles, California: University of California Los Angeles Press.

City of Encinitas. 2015. City of Encinitas General Plan. Accessed April 10, 2023. https://archive.encinitasca.gov/WebLink/DOcView.aspx?id=835470&dbid=0&repo=CityofEncnitas

Davis, E.L., ed. 1979. *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country*. Los Angeles County Museum of Natural History Science Series 29.

Fages, P. 1937. *A Historical, Political, and Natural Description of California* (1775). Translated by H.I. Priestly. Berkeley, California: University of California Press.

Gallegos, D.R. 1987. *San Dieguito-La Jolla: Chronology and Controversy*. San Diego Archaeological Society Research Paper No. 1.

Gallegos, D.R. 1991. "Patterns and Implications of Coastal Settlement in San Diego County: 9000 to 1300 Years Ago." In *Essays on the Prehistory of Maritime California*, edited by T.L. Jones, 205–216. Davis, California: Center for Archaeological Research at Davis Publications No. 10.

Giambastiani, M.A. and M.E. Basgall. 2000. *Phase II Cultural Resource Evaluation for Sites CA-KER-4773/H and CA-KER-2016 in the Bissel Basin, Edwards Air Force Base, California*. Prepared for U.S. Army Corps of Engineers, Sacramento.

Geiger, M., and C. W. Meighan. 1976. *As the Padres Saw Them: California Indian Life and Customs as Reported by the Franciscan Missionaries, 1813-1815*. Santa Barbara, California: Santa Barbara Mission Archive Library.

Griset, S. 1996. *Southern California Brown Ware*. PhD dissertation; Department of Anthropology, University of California, Davis.

Gross, T.G., and M. Robbins-Wade. 2008. "Settlement Pattern and Predictive Modeling of Site Locations." In: Prehistoric and Historic Archaeology of Metropolitan San Diego: A Historic Properties Background Study, pp. 299-331. Carlsbad, California: ASM Affiliates.

Hale, M. 2001. *Technological Organization of the Millingstone Pattern in Southern California*. Master's thesis; CSU Sacramento, California.

Hale, M. 2009. *San Diego and Santa Barbara: Socioeconomic Divergence in Southern California*. PhD dissertation; University of California, Davis.

Hale, M. and M. Becker. 2006. *From the Coast to the Inland: Prehistoric Settlement Systems Along the Las Pulgas Corridor, Camp Pendleton, California.* Prepared for the U.S. Navy, Naval Facilities Engineering Command.

Hale, M. and B. Comeau. 2010. *Archaeological Evaluation in Support of Geotechnical Boring at the University House.* Report submitted to the University of California, San Diego.

Harrington, J.P. 1934. "A New Original Version of Boscana's Historical Account of the San Juan Capistrano Indians of Southern California." *Smithsonian Miscellaneous Collections* 92(4). Washington, D.C.

Hector, S. 2007. *Archaeological Investigations at University House Meeting Center and Chancellor Residence, CA-SDI-4669 (SDM-W-12), University of California at San Diego, La Jolla, California*. Prepared by ASM Affiliates.

Kennedy, M.P., and Tan, S.S., 2008, Geologic Map of the Oceanside Quadrangle, California, California Geologic Survey, 1:100,000 scale.

Kroeber, A.L. 1925. *Handbook of the Indians of California*. Washington, D.C.: Bureau of American Ethnology Bulletin 78.

Laylander, D. 2000. *Early Ethnography of the Californias, 1533-1825*. Salinas, California: Coyote Press Archives of California Prehistory No. 47.

Leighton and Associates, Inc. 2019. *Geotechnical Investigation* Zona Gale Road Property, Encinitas, California 92024 Assessor's Parcel Number 257-401-11-00. Prepared for Aspen Growth Properties, Inc.

MacMullen, J. 1961. "Las Encinitas Rancho and "Olivenheim." *The Journal of San Diego History San Diego Historical Society Quarterly. 7(3). San Diego, CA.*

NETR (National Environmental Title Research). 2023. Address search for Zona Gale, Encinitas, California. Accessed May 2, 2023. http://www.historicaerials.com/.

Office of Historic Preservation. 1995. *Instructions for Recording Resources.* California Office of Historic Preservation, Sacramento.

Pigniolo, A.R. 2004. "Points, Patterns, and People: Distribution of the Desert Side-Notched Point in San Diego." *Proceedings of the Society for California Archaeology* 14:27–39.

Rogers, M.J. 1929. "The Stone Art of the San Dieguito Plateau." *American Anthropologist* 31:454–467.

Rogers, M.J. 1945. "An Outline of Yuman Prehistory." *Southwestern Journal of Anthropology* 1(1):167–198.

Schaefer. 2000. *Archaeological Investigations at a Protohistoric Fish Camp on the Receding Shoreline of Ancient Lake Cahuilla, Imperial County, California*. ASM Affiliates. Prepared for Imperial Irrigation District, Imperial County, California.

Schaefer, Jerry, Stephen Van Wormer, and Susan Walter. 1994. Historic Study Report of Sites CA-SDI-374H, -11383H, -12272H, -12273H for State Route 125 on Otay Mesa, San Diego County, California. ASM Affiliates, Encinitas, California, On file at the South Coastal Information Center, San Diego State University.

Schiffer, M.B. 1987. Formation Processes of the Archaeological Record. Albuquerque, New Mexico: University of New Mexico Press.

Smythe, William E. 1907. History *of San Diego, 1542-1908: An Account of the Rise and Progress of the Pioneer Settlement on the Pacific Coast of the United States. Volume I.* The History Company: San Diego.

True, D.L. 1966. "Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California." Unpublished PhD dissertation, Department of Anthropology, University of California, Los Angeles.

True, D.L. 1980. "The Pauma Complex in Northern San Diego County: 1978." *Journal of New World Archaeology* 3(4):1–39.

USDA (United States Department of Agriculture). 2023. Natural Resources Conservation Service Soil Web Survey. Accessed May 02, 2023. https://websoilsurvey.nrcs.usda.gov/

Wallace, W.J. 1955. "A Suggested Chronology for Southern California Coastal Archaeology." *Southwestern Journal of Anthropology* 11:214–230.

Warren, C.N. 1964. *Cultural Change and Continuity on the San Diego Coast*. Unpublished PhD dissertation, Department of Anthropology, University of California, Los Angeles.

Warren, C.N. 1968. "Cultural Tradition and Ecological Adaptation on the Southern California Coast." In *Archaic Prehistory in the Western United States*, edited by C. Irwin-Williams, 1–14. Portales, New Mexico: Eastern New Mexico University Contributions in Anthropology No. 1.

Warren, C.N., G. Siegler, and F. Dittmer. 2004. "Paleoindian and Early Archaic Periods." Chapter 2 in *Prehistoric and Historic Archaeology of Metropolitan San Diego: A Historic Properties Background Study*. Prepared for the Metropolitan Wastewater Department, City of San Diego. Prepared by ASM Affiliates. Encinitas, California: ASM Affiliates.

Waters, M.R. 1992. Principles of Geoarchaeology: A North American Perspective. Tucson, Arizona: University of Arizona Press.

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7 National Archaeological Database (NADB) Information

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Firm:	Dudek
Project Proponent:	City of Encinitas
Report Date:	May 2023
Report Title:	Cultural Resources Inventory and Evaluation Report for the Zona Gale Estates Project, City of Encinitas, California
Type of Study:	Cultural Resources Phase I Survey and Phase II Evaluation
New Sites:	CA-SDI-23458/P-37-040592
USGS Quads:	Encinitas, CA 7.5', T13S, R4W, Section 11
Acreage:	2.02
Keywords:	Zona Gale Estates; Intensive Pedestrian Survey; Phase I Inventory; Phase II Archaeological Evaluation, Positive; City of Encinitas; Lithic scatter, Shell Scatter, Evaluation, Shovel test pit, Not eligible for CRHR, Not significant under CEQA; CA-SDI-23458; P-37-040592

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Appendix A

(Confidential) SCIC Records Search Results

Appendix B

(Confidential) Resources Location Map and DPR Form

Appendix C
NAHC and Tribal Correspondence

From: Keshia Montifolca
Sent: Friday, August 26, 2022 11:39 AM
To: nahc@nahc.ca.gov
Cc: Angela Pham
Subject: Sacred Lands Search - Zona Gale 9-Unit Tentative Map Project (14395)
Attachments: Sacred Lands File Contact Form - Zona Gale.pdf

Hi,

Please see attached for a Sacred Lands File Search request for the Zona Gale 9-Unit Tentative Map
Project (14395). Let me know if you have any questions or need additional information.

Thank you!

Keshia Montifolca, M.A., RPA
Archaeologist

605 Third Street, Encinitas, CA 92024
O: 619.949.3082 C: 619.372.6255
www.dudek.com

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Please consider the environment before printing this email. ?

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95501
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

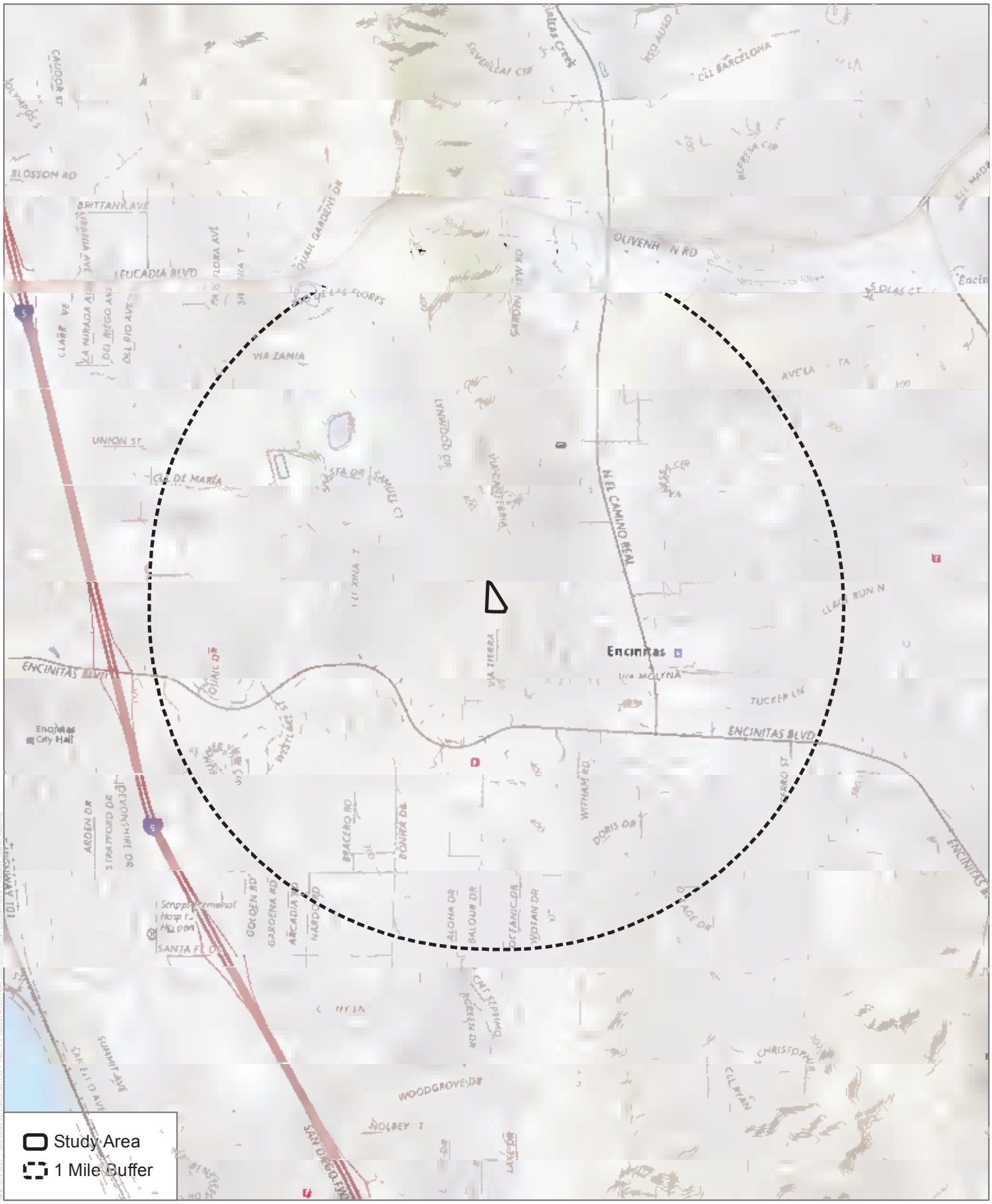
Project: Zona Gale 9-Unit Tentative Map Project (PN 14395)
County: San Diego

USGS Quadrangle
Name: Rancho Santa Fe & Encinitas
Township: 13S Range: 4W Section(s): 2, 3, 10, 11, 12, 13, 14, 15

Company/Firm/Agency:
Dudek
Contact Person: Keshia Montifolca
Street Address: 605 Third Street
City: Encinitas, CA Zip: 92024
Phone: (619) 949-3082 Extension:
Fax:
Email: kmontifolca@dudek.com

Project Description:
The proposed project would involve the development of 9 units, including associated ancillary development (utilities, circulation/roads, etc.) on approximately 2.02 acres located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa.

☑ Project Location Map is attached



SOURCE: USGS National Map 2022; USGS 7.5-Minute Series Rancho Santa Fe & Encinitas Quadrangles
Township 13S; Range 4W; Sections 2, 3, 10, 11, 12, 13, 14, 15

DUDEK

0 1,000 2,000 Feet
0 285 570 Meters
1:24,000

FIGURE 1
Records Search
Zona Gale Estates Project

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
[Vacant]

COMMISSIONER
[**Vacant**]

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok/Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

November 1, 2022

Keshia Montifolca
Dudek

Via Email to: kmontifolca@dudek.com

Re: Zona Gale 9-Unit Tentative Map (PN 14395) Project, San Diego County

Dear Ms. Montifolca:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Diego County
11/1/2022

Barona Group of the Capitan Grande
Raymond Welch, Chairperson
1095 Barona Road — Diegueno
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
counciloffice@barona-nsn.gov

Campo Band of Diegueno Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Diegueno
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 933 - 2200
Fax: (619) 445-9126
michaelg@leaningrock.net

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 368 - 4382
Fax: (619) 445-9126
ceo@ebki-nsn.gov

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
clint@redtailenvironmental.com

Inaja-Cosmit Band of Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Diegueno
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Lisa Cumper, Tribal Historic Preservation Officer
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4855
lcumper@jiv-nsn.gov

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 — Kwaaymii
Pine Valley, CA, 91962 — Diegueno
Phone: (619) 709 - 4207

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Zona Gale 9-Unit Tentative Map (PN 14395) Project, San Diego County.

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 Diegueno
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

Mesa Grande Band of Diegueno Mission Indians
Michael Linton, Chairperson
P.O Box 270 Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

Rincon Band of Luiseno Indians
Cheryl Madrigal, Tribal Historic Preservation Officer
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-nsn.gov

Rincon Band of Luiseno Indians
Bo Mazzetti, Chairperson
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com

San Luis Rey Band of Mission Indians
San Luis Rey, Tribal Council
1889 Sunset Drive Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

San Luis Rey Band of Mission Indians
1889 Sunset Drive Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

San Pasqual Band of Diegueno Mission Indians
Allen Lawson, Chairperson
P.O. Box 365 Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

San Pasqual Band of Diegueno Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org

Sycuan Band of the Kumeyaay Nation
Cody Martinez, Chairperson
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Kristie Orosco, Kumeyaay Resource Specialist
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 6917

Viejas Band of Kumeyaay Indians
Ernest Pingleton, Tribal Historic Officer, Resource Management
1 Viejas Grade Road Diegueno
Alpine, CA, 91901
Phone: (619) 659 - 2314
epingleton@viejas-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Zona Gale 9-Unit Tentative Map (PN 14395) Project, San Diego County.

Viejas Band of Kumeyaay Indians
John Christman, Chairperson
1 Viejas Grade Road Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Zona Gale 9-Unit Tentative Map (PN 14395) Project, San Diego County.

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Raymond Welch, Chairperson
Barona Group of the Capitan Grande
1095 Barona Road
Lakeside, CA 92040

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

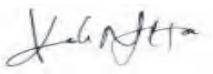
Dear Mr. Welch,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

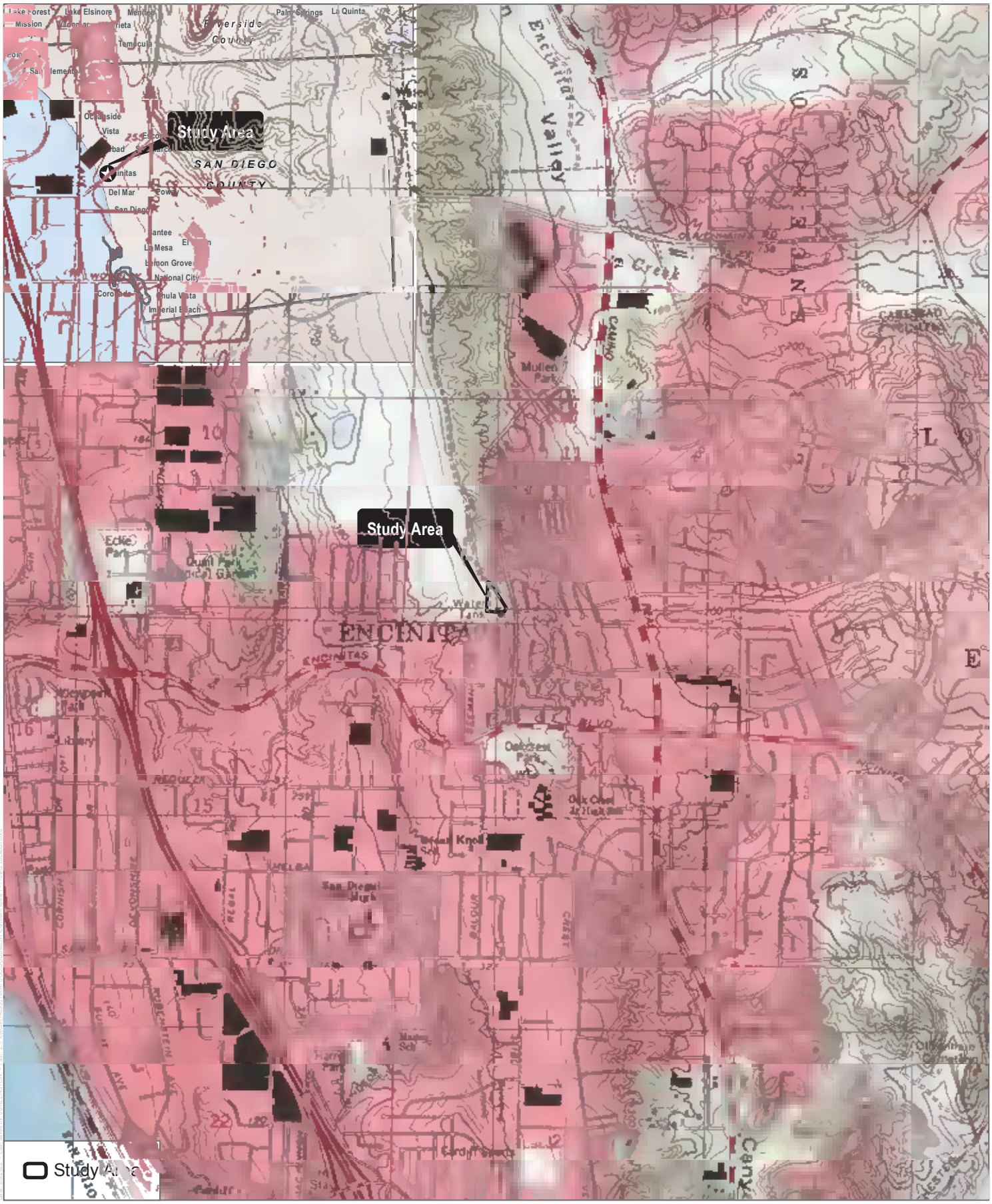
The Native American Heritage Commission conducted a Sacred Lands file search. The results were negative. I am writing as part of the cultural inventory process in order find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. This letter does not constitute formal government to government consultation pursuant to Assembly Bill 52.

If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com



SOURCE: USGS 7.5-Minute Series Encinitas Quadrangles
Township 13S; Range 4W; Section 11

FIGURE 1

Project Location

Zona Gale Estates Project

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Mr. Ralph Goff, Chairperson
Campo Band of Diegueno Mission Indians
36190 Church Road, Suite 1
Campo, CA 91906

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

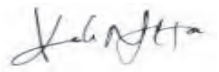
Dear Mr. Goff,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

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Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Mr. Robert Pinto, Chairperson
Ewiaapaayp Tribe
4054 Willow Rd.
Alpine, CA 91901

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

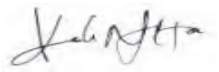
Dear Mr. Pinto,

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Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Mr. Michael Garcia, Vice Chairperson
Ewiiaapaayp Tribe
4054 Willows Road
Alpine, CA 91901

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

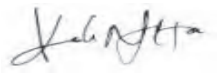
Dear Mr. Garcia,

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Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Mr. Virgil Perez, Chairperson
Iipay Nation of Santa Ysabel
P.O. Box 130
Santa Ysabel, CA 92070

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

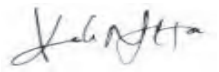
Dear Mr. Perez,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

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If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Ms. Rebecca Osuna, Chairperson
Inaja-Cosmit Band of Indians
2005 S. Escondido Blvd.
Escondido, CA 92025

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

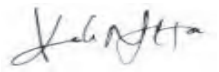
Dear Ms. Osuna,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

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If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



_____
Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Mr. Clint Linton, Director of Cultural Resources
Ipay Nation of Santa Ysabel
P.O. Box 507
Santa Ysabel, CA 92070

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

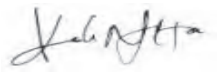
Dear Mr. Linton,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

The Native American Heritage Commission conducted a Sacred Lands file search. The results were negative. I am writing as part of the cultural inventory process in order find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. This letter does not constitute formal government to government consultation pursuant to Assembly Bill 52.

If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



_____
Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Ms. Lisa Cumper, THPO
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

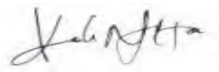
Dear Ms. Cumper,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

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If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
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T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Ms. Erica Pinto, Chairperson
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

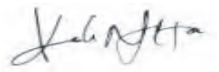
Dear Ms. Pinto,

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December 23, 2022 14395

Ms. Carmen Lucas,
Kwaaymii Laguna Band of Mission Indians
P.O. Box 775
Pine Valley, CA 91962

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

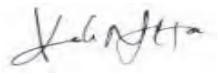
Dear Ms. Lucas,

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December 23, 2022 14395

Ms. Gwendolyn Parada, Chairperson
La Posta Band of Diegueno Mission Indians
8 Crestwood Rd.
Boulevard, CA 91905

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

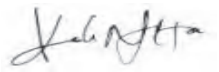
Dear Ms. Parada,

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December 23, 2022 14395

Ms. Javaughn Miller, Tribal Administrator
La Posta Band of Diegueno Mission Indians
8 Crestwood Rd.
Boulevard, CA 91905

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

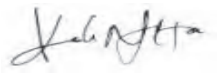
Dear Ms. Miller,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

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December 23, 2022 14395

Ms. Angela Elliott Santos, Chairperson
Manzanita Band of Kumeyaay Nation
P.O. Box 1302
Boulevard, CA 91905

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

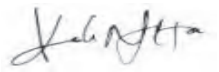
Dear Ms. Santos,

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December 23, 2022 14395

Mr. Michael Linton, Chairperson
Mesa Grande Band of Dieguneo Mission Indians
P.O. Box 270
Santa Ysabel, CA 92070

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

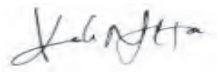
Dear Mr. Linton,

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December 23, 2022 14395

Mr. Bo Mazzetti, Chairperson
Rincon Band of Luiseño Indians
1 Government Center Lane
Valley Center, CA 92082

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

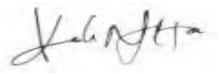
Dear Mr. Mazzetti,

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December 23, 2022 14395

Ms. Cheryl Madrigal, Tribal Historic Preservation Officer
Rincon Band of Mission Indians
One Governement Center Lane
Valley Center, CA 92082

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

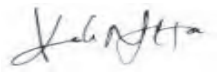
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December 23, 2022 14395

Cultural Department ,
San Luis Rey Band of Mission Indians
1889 Sunset Dr.
Vista, CA 92081

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

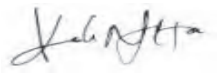
Dear San Luis Rey Cultural Department,

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December 23, 2022 14395

Tribal Council,
San Luis Rey Band of Mission Indians
1889 Sunset Dr.
Vista, CA 92081

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

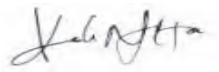
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December 23, 2022 14395

Mr. John Flores, Environmental Coordinator
San Pasqual Band of Diegueno Mission Indians
P.O. Box 365
Valley Center, CA 92082

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

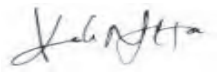
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December 23, 2022 14395

Mr. Allen E. Lawson, Chairperson
San Pasqual Band of Diegueno Mission Indians
P.O. Box 365
Valley Center, CA 92082

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

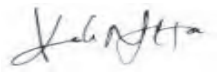
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December 23, 2022 14395

Ms. Kristie Orosco, Resource Specialist
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA 92019

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

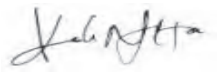
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December 23, 2022 14395

Mr. Cody Martinez, Chairperson
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA 92019

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

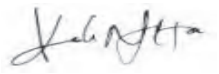
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December 23, 2022 14395

Mr. John Christman, Chairperson
Viejas Band of Kumeyaay Indians
1 Viejas Grade Rd.
Alpine, CA 91901

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

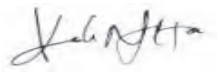
Dear Mr. Christman,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

The Native American Heritage Commission conducted a Sacred Lands file search. The results were negative. I am writing as part of the cultural inventory process in order find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. This letter does not constitute formal government to government consultation pursuant to Assembly Bill 52.

If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

December 23, 2022 14395

Mr. Ernest Pingleton, Tribal Historic Officer
Viejas Band of Kumeyaay Indians
1 Viejas Grade Rd.
Alpine, CA 91901

Subject: Information Request for the Zona Gale 9-Unit Tentative Map Project in City of Encinitas, California

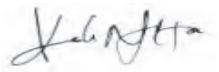
Dear Mr. Pingleton,

The proposed Zona Gale 9-Unit Tentative Map Project (Project) involves the development of 9 units, including ancillary development (utilities, circulation/roads, etc.) in the City of Encinitas, California. The Project area is approximately 2.02 acres and is located west of Via Cantebria, north and east of Zona Gale Road, and south of Via Marbrisa. The Project area falls within Section 11 of Township 13 South, Range 4 West of the Encinitas Quadrangle (Figure 1).

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If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
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Rincon Band of Luiseño Indians
CULTURAL RESOURCES DEPARTMENT

One Government Center Lane | Valley Center | CA 92082
(760) 749-1092 | Fax: (760) 749-8901 | rincon-nsn.gov

January 19, 2023

Sent via email: kmontifolca@dudek.com

Re: Zone Gale 9-Unit, Encinitas, San Diego County, California

Dear Ms. Montifolca,

This letter is written on behalf of the Rincon Band of Luiseño Indians ("Rincon Band" or "Tribe"), a federally recognized Indian Tribe and sovereign government. We have received your notification regarding the above referenced project, and we thank you for the opportunity to provide information pertaining to cultural resources. The identified location is within the Territory of the Luiseño people, and is also within Rincon Band's specific Area of Historic Interest (AHI).

After review of the provided documents and our internal information, the Rincon Band has specific concerns that the project may impact tangible Tribal Cultural Resources (TCRs), Traditional Cultural Landscapes (TCLs), and potential Traditional Cultural Properties (TCPs). Embedded in these resources and within the AHI are Rincon's history, culture, and continuing traditional identity.

Based on the information provided above, the Rincon Band recommends conducting an archaeological/cultural resources study, to include an archeological record search and complete intensive survey of the property. We ask a professional Tribal Monitor to accompany the archaeologist during the survey.

The Rincon Band further requests to consult directly with the lead agency regarding project impacts to cultural resources. While it is not the responsibility of consultants to facilitate State-mandated consultation, the request is included in this letter, so the lead agency is aware of the Tribe's concerns about the project. If you have additional questions or concerns, please do not hesitate to contact our office at your convenience at (760) 749-1092 ext. 320 or via electronic mail at slinton@rincon-nsn.gov. We look forward to working together to protect and preserve our cultural assets.

Sincerely,

Shuuluk Linton
Tribal Historic Preservation Office

Bo Mazzetti, Chairman | Tishmall Turner, Vice Chair | Laurie E. Gonzalez, Council Member | John Constantino, Council Member | Joseph Linton, Council Member

Cultural Resources Coordinator

SAN LUIS REY BAND OF MISSION INDIANS

1889 Sunset Drive • Vista, California 92081
760-724-8505 • FAX 760-724-2172
www.slrmissionindians.org

March 16, 2023

Keshia Montifolca, M.A., RPA
Archaeologist
Dudek

VIA ELECTRONIC MAIL
kmontifolca@dudek.com

RE: SLR RESPONSE REGARDING THE PROPOSED ZONA GALE 9-UNIT TENTATIVE MAP PROJECT IN ENCINITAS, CA AND ITS POTENTIAL IMPACTS TO NATIVE AMERICAN TRIBAL CULTURAL RESOURCES

Dear Ms.Montifolca:

We, the San Luis Rey Band of Mission Indians ("Tribe") have received and reviewed your letter dated December 23, 2022 (and inclusive maps) regarding the proposed Zona Gale 9-unit Tentative Map Project in Encinitas, CA ("Project" and "Project Area"). We further understand from your letter that you are inquiring whether the Tribe possesses any information and/or concerns regarding tribal cultural resources and/or Sacred Lands in the Project Area.

We are a northern San Diego County Tribe traditionally and culturally affiliated with Camp Pendleton, the current cities of Oceanside, Carlsbad, Encinitas, Vista, San Marcos and Escondido, as well as many unincorporated areas within northern San Diego County, such as the communities of Fallbrook, Bonsall and Valley Center. We are resolute in the preservation and protection of tribal cultural resources within all these jurisdictions.

Our Tribe has intimate knowledge about the many discoveries made throughout the Project Area and is aware of cultural resource sites within close proximity to the proposed Project. We strongly urge caution in assessing the land encompassing the Project for any ground disturbing purposes, as well as incorporating the presence of a Luiseño Native American monitor during all ground disturbing activities (including but not limited to any and all boring activities) and cultural resource assessment surveys.

In regards to information our Tribe can provide Dudek regarding these tribal cultural resources and sacred sites within the Project Area, we respectfully request that any further discussion be done in person. Please contact our Cultural Resource Manager Cami Mojado at (760) 917-1736 or via email at cjmojado@slrmissionindians.org to arrange a mutually acceptable meeting date and time.

Furthermore, the Tribe requests that any and all cultural resource surveys completed in the Project Area and/or for the benefit of this Project be provided to the Tribe's Cultural Department at 1889 Sunset Drive, Vista, CA 92081 as your earliest convenience. If digital copies

are available, please send them directly to cjmojado@slrmissionindians.org. If a cultural resource survey has not been completed as of today's date, then the Tribe respectfully requests that a Luiseño Native American monitor be present during any proposed survey of the Project property.

We appreciate this opportunity to provide information and/or share our concerns regarding this Project. We thank you for your assistance in protecting our invaluable Luiseño tribal cultural resources.

Sincerely,

Cami Mojado
Cultural Resource Specialist
San Luis Rey Band of Mission Indians

Appendix D: Geotechnical Investigation and Gross Slope Stability Analysis

GEOTECHNICAL INVESTIGATION
ZONA GALE ROAD PROPERTY
ENCINITAS, CALIFORNIA 92024
ASSESSOR'S PARCEL NUMBER 257-401-11-00

Prepared for:

Aspen Growth Properties, Inc.

8799 Balboa Avenue, Suite 260
San Diego, California 92123

Project No. 12313.001

May 17, 2019

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

May 17, 2019

Project No. 12313.001

Aspen Growth Properties, Inc.
8799 Balboa Avenue, Suite 260
San Diego, California 92123

Attention: Mr. Wayne George

Subject: Geotechnical Investigation
Zona Gale Road Property
Encinitas, California 92024
Assessor Parcel Numbers 257-401-11-00

In accordance with your request and authorization, we have conducted a geotechnical investigation of the subject property for the design and construction of a proposed residential development. The accompanying report presents a summary of our current investigation and provides geotechnical conclusions and recommendations relative to the proposed site development. Based on the results of our current geotechnical study, it is our professional opinion that the subject site is suitable to receive the proposed improvements.

If you have any questions regarding our report, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

LEIGHTON AND ASSOCIATES, INC.





Robert C. Stroh, CEG 2099
Associate Engineering Geologist
Extension: 4090, rstroh@leightongroup.com

William D. Olson, RCE 45283
Associate Engineer
Extension: 8491, dolson@leightongroup.com



Roy N. Butz, PG 8942
Project Geologist
Extension: 8489, rbutz@leightongroup.com

Distribution: (1) Addressee via email

Leighton

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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

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1.0 INTRODUCTION

We recommend that all individuals utilizing this report read the preceding information sheet prepared by Geoprofessional Business Association (GBA) and the Limitations, Section 7.0, located at the end of this report.

1.1 Purpose and Scope

This report presents the results of our geotechnical evaluation for the proposed residential development of the property located on Zona Gale Road in the City of Encinitas, California 92024 (Figure 1). The San Diego County Assessor's Office designates the subject property as Assessor Parcel Number (APN) 257-401-11-00. The intent of this report is to provide specific geotechnical conclusions and recommendations for the currently proposed residential development. Specifically, our scope of services included:

- Review of available pertinent, published and unpublished geotechnical literature and maps. References cited are listed in Appendix A;
- Field reconnaissance of the existing on-site geotechnical conditions;
- Subsurface exploration consisting of the excavation, logging, and sampling of four small-diameter hollow-stem borings. Additionally, two field percolation tests were performed at the site as part of the subsurface exploration. All exploration logs and field percolation test data sheets are presented in Appendix B and approximate exploration locations are shown on the Geotechnical Map (Figure 2);
- Laboratory testing of representative soil samples obtained from the subsurface exploration program. Results of these tests are presented on the exploration logs and in Appendix C;
- Assessment of geologic hazards;
- Development of seismic design parameters based on the 2016 California Building Code (CBC);
- Compilation and analysis of the geotechnical data obtained from the field investigation and laboratory testing; and

- Preparation of this report presenting our findings, conclusions, and geotechnical recommendations with respect to the proposed geotechnical design, site grading and general construction considerations.

1.2 Site Location and Description

The site is a roughly triangular shaped parcel and encompasses approximately 2 acres of land located immediately adjacent to Zona Gale Road (Figure 2). In general, the site is bounded by Zona Gale Road to the west, the Wiegland Reservoir to the south, and natural slopes which descends down to Via Marbrisa and Via Cantebria to the north and east, respectively. Currently, the site is undeveloped and existing vegetation consists of a combination of native shrubs, grasses, and trees.

Site topography is nearly level with elevations gently sloping from the west to the east, ranging from approximately 380 to 390 feet above mean sea level (msl). In addition, natural descending slopes located east of the site are approximately 45 to 70 feet in height over a horizontal distance of approximately 100 feet and are heavily vegetated with native trees, grasses and shrubs. Portions of these slopes are near vertical and bluff like in character.

Site Latitude and Longitude
33.05159º N
117.2679º W

1.3 Proposed Development

Based on our current understanding, the proposed single-family residential development will consist of nine individual lots. The proposed residential buildings are anticipated to be typical two-story wood frame structures with slab-on-grade foundations. Additionally, improvements at the site will consist of associated roadways, utilities, landscape, and hardscape.

2.0 SUBSURFACE EXPLORATION AND LABORATORY TESTING

2.1 Site Investigation

Our exploration performed on April 9 and 10, 2019, consisted of excavating four 8-inch diameter geotechnical borings (B-1 through B-4) to depths ranging between approximately 21 to 61½ feet below the existing ground surface (bgs). All geotechnical borings were drilled using a truck-mounted hollow-stem auger drill rig. The purpose of our subsurface exploration was to evaluate the underlying stratigraphy, physical characteristics, and specific engineering properties of the soils within the area of the proposed improvements.

To evaluate infiltration rates, two field percolation tests (P-1 and P-2) were performed at the site. The field percolation test locations were advanced using a truck-mounted hollow-stem auger drill rig to a depth of 5 feet bgs. In-situ field percolation testing was performed on April 10, 2019, in general accordance with County of San Diego Best Management Practice (BMP) Design Manual (County of San Diego, 2016), Section D.3.3.2. The water level in each field percolation test location was measured at 30 minute intervals using a water level sounder until readings were generally consistent.

During the exploration operations, a geologist from our firm prepared geologic logs and collected bulk and relatively undisturbed samples for laboratory testing and evaluation. Disturbed standard penetration test (SPT) and relatively undisturbed split-barrel soil sampling using a 140-pound automatic-trip hammer free falling 30-inches was performed in accordance with ASTM D 1586 and ASTM D 3550, respectively. After logging, the borings and field percolation test locations were backfilled with a mixture of excavated soil cuttings and bentonite. The boring logs and field percolation test results are provided in Appendix B, laboratory test results are included in Appendix C, and the approximate exploration locations are shown on Figure 2.

2.2 Laboratory Testing

Laboratory testing performed on representative soil samples obtained during the subsurface explorations included moisture and density, shear strength, particle size analysis, expansion index, and geochemical analysis. A discussion of the laboratory tests performed and a summary of the laboratory test results are presented in Appendix C. In-situ moisture and density test results are provided on the boring logs in Appendix B.

3.0 SUMMARY OF GEOTECHNICAL CONDITIONS

3.1 Geologic Setting

The project area is situated in the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California, and varies in width from approximately 30 to 100 miles (Norris and Webb, 1990). The province is characterized by mountainous terrain on the east composed mostly of Mesozoic igneous and metamorphic rocks, and relatively low-lying coastal terraces to the west underlain by late Cretaceous-age, Tertiary-age, and Quaternary-age sedimentary units. Most of the coastal region of the County of San Diego occurs within this coastal region and is underlain by sedimentary units. The site is located within the coastal plain section of the Peninsular Range Geomorphic Province of California, which generally consists of subdued landforms underlain by sedimentary bedrock. Specifically, the site is located in an area underlain by Quaternary-aged Very Old Paralic Deposits which in turn is underlain by the Tertiary-aged Santiago Formation (Figure 2).

3.2 Site-Specific Geology

Based on our subsurface exploration and review of pertinent geologic literature and maps (Appendix A), the geologic units underlying the site consist of Quaternary-age Very Old Paralic Deposits and the Tertiary-aged Santiago Formation. It should be noted that at this location the Santiago Formation is the same as the Torrey Sandstone, as these two Formations are arbitrarily separated at this general location. The approximate areal distribution of the geologic units is depicted on Geotechnical Map (Figure 2). A brief description of the geologic units encountered at the site is presented below. The geotechnical exploration logs with detailed soils descriptions are presented in Appendix B.

3.2.1 Very Old Paralic Deposits - Qvop

Previously, the site was mapped as being underlain by Quaternary-aged Lindavista Formation (Kennedy, 1975). More recent mapping by (Kennedy and Tan, 2008) has renamed the previously mapped geologic formation as Very Old Paralic Deposits. As encountered during our field investigation, these deposits consist of medium dense to very dense, light brown to

reddish brown, moist, well cemented, silty sandstone with regions of interbedded poorly graded sandstone.

3.2.2 Santiago Formation - Tsa

The Tertiary-aged Santiago Formation was encountered underlying the Very Old Paralic Deposits and extended to the total depth explored of 61½ feet bgs. As encountered in our boring explorations, the Santiago Formation generally consisted of very dense, brownish yellow to light gray, moist, massive, friable, micaceous silty sandstone with beds of interbedded poorly graded sandstone.

3.3 Surface Water and Groundwater

Groundwater was not encountered during our investigation. It should be noted that groundwater levels may fluctuate with seasonal variations and irrigation and local perched groundwater conditions may exist within cemented layers and sandy lenses located within the Very Old Paralic Deposits. Nevertheless, based on the above information, we do not anticipate groundwater will be a constraint to the construction of the proposed improvements.

3.4 Engineering Characteristics of On-site Soils

Based on the results of our laboratory testing of representative on-site soils, and our professional experience on similar sites with similar soils conditions, the engineering characteristics of the on-site soils are discussed below.

3.4.1 Compressible Soils

The upper weathered portions (1 to 2 feet) of the Very Old Paralic Deposits are considered compressible. Recommendations for remedial grading of these soils are provided in the following sections of this report.

3.4.2 Expansion Potential

The majority of the onsite material is expected to have a very low to low expansion potential. However, higher expansive soils may be encountered during the grading of the site. Nevertheless, expansive soils are not anticipated to significantly impact the proposed site development.

3.4.3 Soil Corrosivity

During our investigation, a preliminary screening of one representative on-site soil sample was performed to evaluate its potential corrosive effect on concrete and ferrous metals. In summary, laboratory testing on the representative soil sample that was obtained during our subsurface exploration evaluated pH, minimum electrical resistivity, and chloride and soluble sulfate content. The sample tested had a measured pH ranging of 5.21 and a measured minimum electrical resistivity of 1,200 ohm-cm. The test result also indicated that the sample had a chloride content of 180 parts per million (ppm) and a soluble sulfate content range of 225 ppm.

3.4.4 Excavation Characteristics

It is anticipated the onsite soils can be excavated with conventional heavy-duty construction equipment. Localized cemented zones located within the Very Old Paralic Deposits, if encountered, may require heavy ripping or breaking. If oversize material (larger than 8 inches in maximum dimensions) is generated, it should be placed in non-structural areas or hauled off site. Localized interbedded gravels and cobbles may be encountered within the Very Old Paralic Deposits. In addition, localized zones of friable sands may be encountered within the Very Old Paralic Deposits. Beds of friable sands, gravel, and cobble may experience caving during unsupported excavation or drilling.

3.4.5 Infiltration

Field percolation tests were performed in general accordance with the County of Riverside borehole percolation method and County of San Diego BMP Design Manual. Based on our field percolation testing, the in-situ percolation rates and calculated infiltration rates at tested locations and depths are summarized in Table 1. We have used the following equation based upon the Porchet Method to convert measured percolation rates to infiltration rates in accordance with County of San Diego Standards (County of San Diego, 2016). In addition, we have included a factor of safety of 2 for the evaluation of existing site conditions. The bioretention stormwater design factor of safety should be determined by the civil engineer and reviewed by geotechnical consultant. Also, additional field percolation tests

may be required at bioretention areas once final locations are determined by the civil engineer.

$$I_t = \frac{\Delta H * 60 * r}{\Delta t(r+2H_{AVG})}$$

Where:

I_t = calculated infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r = radius of test hole
H_{AVG} = average head over the time interval, inches

The field percolation test locations are shown on Figure 2. Field data and measured percolation rates for each field percolation test location is presented in Appendix B.

Table 1
Percolation and Infiltration Rates

Test No.	Depth (ft)	Soil Type	Measured Percolation Rate (mins/in)	Calculated Infiltration Rate (inches/hr)	Recommended Infiltration Rate w/ FS of 2 (inches/hr)
P-1	5	Very Old Paralic Deposits (Qvop)	125.0	0.034	0.017
P-2	5	Very Old Paralic Deposits (Qvop)	n/a *	0.0	0.0

* = indicates no percolation

Based on the field percolation testing and the calculated infiltration rates, the site is categorized as “No Infiltration”, as determined by the Storm Water BMP Design Manual, San Diego Region, February 2016. The Form I-8, Categorization of Infiltration Feasibility Condition, has been completed and is presented in Appendix E. The above percolation test results are

representative of the tested locations and depths where they were performed. Percolation test field head measurements are accurate to 0.01 feet. Varying subsurface conditions may exist outside of the test locations which could alter the calculated percolation rate indicated below. In addition, it is important to note that percolation rates are not equal to infiltration rates. As a result, we have made a distinction between percolation rates where water movement is considered laterally and vertically versus infiltration rates where only the vertical direction is considered.

It is possible that the long-term rate of transmissivity of permeable soil strata may be lower than the values obtained by testing. Infiltration may be influenced by a combination of factors including but not limited to: a highly variable vertical permeability and limited lateral extent of permeable soil strata; a reduction of permeability rates over time due to silting of the soil pore spaces; and other unknown factors. Accordingly, the possibility of future surface ponding of water, as well as, shallow groundwater impacts on subterranean structures or improvements should be anticipated.

4.0 SEISMIC AND GEOLOGIC HAZARDS

4.1 Regional Tectonic Setting

The site is located within the Peninsular Ranges Geomorphic Province, which is traversed by several major Holocene-active faults. The Whittier-Elsinore, San Jacinto, and the San Andreas faults are major Holocene-active fault systems located east of the site, and the Rose Canyon, Newport-Inglewood (offshore), and Coronado Bank are active faults located west to southwest of the site (Jennings, 2010). The primary seismic risk to the site area is the Rose Canyon fault zone located approximately 4 miles west of the site.

The Rose Canyon fault zone consists predominantly of right-lateral strike-slip faults that extend south-southeast bisecting the San Diego metropolitan area. Various fault strands display strike-slip, normal, oblique, or reverse components of displacement. The Rose Canyon fault zone extends offshore at La Jolla and continues north-northwest subparallel to the coastline. The offshore segments are poorly constrained regarding location and character. South of downtown, the fault zone splits into several splays that underlie San Diego Bay, Coronado, and the ocean floor south of Coronado (Treiman, 1993 and 2000; Kennedy and Clarke, 1999). Portions of the fault zone in the Mount Soledad, Rose Canyon, and downtown San Diego areas have been designated by the State of California (CGS, 2003) as being Earthquake Fault Zones.

4.2 Local Faulting

Our review of available geologic literature (Appendix A) indicates that there are no known Holocene-active or pre-Holocene faults transecting the site. The subject site is also not located within any State mapped Earthquake Fault Zones or County of San Diego mapped fault zones. The nearest Holocene-active fault is the Rose Canyon fault zone located approximately 4 miles west of the site (USGS, 2008).

4.3 Seismicity

The site is considered to lie within a seismically active region, as is all of Southern California. As previously mentioned above, the Rose Canyon fault zone located approximately 4 miles west of the site is considered the ‘active’ fault having the most significant effect at the site from a design standpoint.

4.4 Seismic Hazards

Severe ground shaking is most likely to occur during an earthquake on one of the regional active faults in Southern California. The effect of seismic shaking may be mitigated by adhering to the California Building Code or state-of-the-art seismic design parameters of the Structural Engineers Association of California.

4.4.1 Shallow Ground Rupture

As previously discussed, no active faults are mapped transecting or projecting toward the site. Therefore, surface rupture hazard due to faulting is considered very low. Ground cracking due to shaking from a seismic event is not considered a significant hazard based on the results of our slope stability analysis (Appendix D).

4.4.2 Mapped Fault Zones

The site is not located within a State mapped Earthquake Fault Zone (EFZ). As previously discussed, the subject site is not underlain by known active or potentially active faults.

4.4.3 Site Class

Utilizing 2016 California Building Code (CBC) procedures, we have characterized the site soil profile to be Site Class D based on our experience with similar sites in the project area and the results of our subsurface evaluation.

4.4.4 Building Code Mapped Spectral Acceleration Parameters

The effect of seismic shaking may be mitigated by adhering to the California Building Code and state-of-the-art seismic design practices of the Structural Engineers Association of California. Provided below in Table 2 are the spectral acceleration parameters for the project determined in accordance with the 2016 CBC (CBSC, 2016) and SEAOC/OSHPD Seismic Design Maps Web Application (2019).

Table 2 CBC Mapped Spectral Acceleration Parameters			
Site Class	D		
Site Coefficients	F_a	=	1.055
	F_v	=	1.571
Mapped MCE Spectral Accelerations	S_S	=	1.113g
	S_1	=	0.429g
Site Modified MCE Spectral Accelerations	S_{MS}	=	1.174g
	S_{M1}	=	0.674g
Design Spectral Accelerations	S_{DS}	=	0.783g
	S_{D1}	=	0.449g

Utilizing ASCE Standard 7-10, in accordance with Section 11.8.3, the following additional parameters for the peak horizontal ground acceleration are associated with the Geometric Mean Maximum Considered Earthquake (MCE_G). The mapped MCE_G peak ground acceleration (PGA) is 0.450g for the site. For a Site Class D, the F_{PGA} is 1.050 and the mapped peak ground acceleration adjusted for Site Class effects (PGA_M) is 0.472g for the site.

4.5 Secondary Seismic Hazards

In general, secondary seismic hazards can include soil liquefaction, seismically-induced settlement, lateral displacement, surface manifestations of liquefaction, landsliding, seiches, and tsunamis. The potential for secondary seismic hazards at the subject site is discussed below.

4.5.1 Liquefaction and Dynamic Settlement

Liquefaction and dynamic settlement of soils can be caused by strong vibratory motion due to earthquakes. Both research and historical data indicate that loose, saturated, granular soils are susceptible to liquefaction and dynamic settlement. Liquefaction is typified by a loss of shear strength in the affected soil layer, thereby causing the soil to behave as a viscous liquid. This effect may be manifested by excessive settlements and sand boils at the ground surface.

Based on our evaluation, the on-site soils are not considered liquefiable due to their dense condition and absence of a shallow ground water condition. Therefore, the potential for liquefaction and dynamic settlement at the site is nil.

4.5.2 Lateral Spread

Empirical relationships have been derived (Youd et al., 1999) to estimate the magnitude of lateral spread due to liquefaction. These relationships include parameters such as earthquake magnitude, distance of the earthquake from the site, slope height and angle, the thickness of liquefiable soil, and gradation characteristics of the soil. Based on the low susceptibility to liquefaction and the dense materials underlying the site, the possibility of earthquake-induced lateral spread is considered to be nil for the site.

4.5.3 Tsunamis and Seiches

Based upon the California Emergency Management Agency Tsunami Inundation Map (CalEMA, 2009), the site is not located within a tsunami inundation area. In addition, based on the distance between the site and large, open bodies of water, and the elevation of the site with respect to sea level, the possibility of seiches and/or tsunamis is considered to be nil.

4.6 Landslides

Several formations within the San Diego region are particularly prone to landsliding. These formations generally have high clay content and mobilize when they become saturated with water. Other factors, such as steeply dipping bedding that project out of the face of the slope and/or the presence of fracture planes, will also increase the potential for landsliding.

No landslides or indications of deep-seated landsliding were indicated at the subject site during our current field exploration or our review of available geologic literature, topographic maps, and stereoscopic aerial photographs (Appendix A). Furthermore, our field explorations and local geologic maps indicate the site is generally underlain by favorable oriented geologic structure, consisting of massively bedded sandstone. Therefore, the potential for significant landslides or large-scale slope instability at the site is considered low.

4.7 Slope Stability

Based on our review of the preliminary site plan by Edinger Architects (Edinger, 2017), several proposed residential lots are located in the near vicinity of the top of the natural descending slope at the site. This natural slope is approximately 45 to 70 feet in height over a horizontal distance of approximately 100 feet and is heavily vegetated with native trees, grasses and shrubs.

Slope stability for the site was originally addressed in our letter dated August 21, 2018. The results of that study provided setback recommendations that are utilized in this report (Figure 2). To further address gross slope stability of the natural slopes at the site, we performed four small-diameter hollow stem auger borings (B-1 through B-4) to depths of between approximately 21 and 61½ feet bgs. The approximate locations of the borings performed at the site are presented on Geotechnical Map (Figure 2). The purpose of the borings was to determine the geologic character of the soils located immediately behind the natural slopes and to obtain representative soil samples for laboratory testing to determine strength characteristics.

Slope stability analyses were performed on selected sections for the geotechnical study using the software program Slide v.7.014 (Rocscience, 2016). The locations of the selected geologic cross-sections (i.e., Cross-Sections A-A' and B-B') are shown on the Geotechnical Map (Figure 2). In summary, idealized models were developed using the selected cross-section profile, and soil strengths derived from laboratory test results, field observations, and professional judgments. The values used in the analysis are summarized in Table 3.

Table 3
Soil Strength Parameters for Slope Stability

Soil Type	Friction Angle (degrees)	Cohesion (psf)
Very Old Paralic Deposits	33	150
Santiago Formation	26	200

Our deep-seated stability search routines considered optimized circular and non-circular failure surfaces using Spencer's Method of limit equilibrium analysis. Surficial stability analysis was performed using the infinite slope mode. It is noted

that surficial stability is sensitive to local variations in strength that occur at the face of a slope. Where more granular materials with less cohesion are present in the slope face, the materials will be more susceptible to surficial instability.

In summary, the analyses indicated that the site has global stability factors of safety over 1.5 as long as a minimum 25 to 45-foot horizontal structural setbacks are maintained for all structural foundations, footings and other settlement-sensitive structures from the top of the descending slopes at the site. The approximate limits of the 25 to 45-foot structural setbacks are depicted on the Geotechnical Map (Figure 2).

4.8 Flood Hazard

According to a Federal Emergency Management Agency (FEMA) flood insurance rate map (FEMA, 2012); the site is not located within a floodplain. In addition, the site is not located downstream of a dam or within a dam inundation area based on our review of topographic maps. Therefore, the potential for flooding of the site is considered very low.

5.0 CONCLUSIONS

Based on the results of our geotechnical investigation of the site, it is our opinion that the proposed residential development is feasible from a geotechnical standpoint, provided the following conclusions and recommendations are incorporated into the project plans and specifications.

- As the site is located in the seismically active southern California area, all structures should be designed to tolerate the dynamic loading resulting from seismic ground motions;

- The site is not transected by pre-Holocene or Holocene-active faults;

- The existing onsite granular soils are generally suitable for use as engineered fill, provided they are free of organic material, debris, and rock fragments larger than 6 inches in maximum dimension;

- Potentially compressible upper portions (1 to 2 feet) of the Very Old Paralic Deposits at the site may settle as a result of wetting or settle under the surcharge of engineered fill and/or structural loads supported on shallow foundations. These potentially compressible materials should be removed and replaced as compacted engineered fill;

- Based on the results of our subsurface exploration, we anticipate that the onsite materials should be generally excavatable with conventional heavy-duty earthwork equipment. Localized cemented zones within the Very Old Paralic Deposits may be difficult to excavate and may require heavy ripping which can produce oversized rock fragments. Unknown objects such as buried concrete footings and debris left from previous site uses should be anticipated and are common on sites where previous structures existed;

- Based on our experience with similar sites and the results of our investigations of the site, excavations within the Very Old Paralic Deposits may encounter zones of poorly graded cohesionless and friable sands that may cave or slough during site excavation and drilling. Therefore, measures to shore excavations should consider the presence of friable soil layers that will likely tend to cave during excavation;

- The static groundwater table should not be encountered during remedial grading activities. Although not encountered during our exploration, localized seepage along cemented zones and sand lenses within the Very Old Paralic Deposits may occur;

- Based on the results of our geotechnical evaluation, it is our opinion that the proposed residential buildings can be supported on conventional reinforced concrete foundations;

- Our slope stability analyses indicated that the site has global stability factors of safety over 1.5 as long as a minimum 25 to 45-foot horizontal structural setbacks are maintained for all structural foundations, footings and other settlement-sensitive structures from the top of the descending slopes at the site;

- Although Leighton does not practice corrosion engineering, laboratory test results indicate the soils present on the site have a negligible potential for sulfate attack on normal concrete. In addition, the onsite soils are considered to be highly corrosive to buried uncoated ferrous metals. We recommend that a corrosion engineer may be retained to design corrosion protection systems and to evaluate the appropriate concrete type recommendations (see ACI 318-14); and

- The site is proposed for remedial grading of the near surface native soils and existing undocumented fill. The new compacted artificial fill will likely consist of a mixture of soils ranging from silty to poorly graded sands that will have permeable and impermeable layers that can transmit and perch ground water in unpredictable ways. Therefore, Low Impact Development (LID) measures may impact down gradient improvements and the use of some LID measures may not be appropriate for this project. Any proposed bioretention stormwater designs should be reviewed by geotechnical consultant and additional percolation tests may be required at bioretention areas once final locations are determined by the civil engineer.

6.0 RECOMMENDATIONS

6.1 Earthwork

We anticipate that earthwork at the site will consist of site preparation and remedial grading. We recommend that earthwork on the site be performed in accordance with the following recommendations and the General Earthwork and Grading Specifications for Rough Grading included in Appendix F. In case of conflict, the following recommendations supersede those in Appendix F.

6.1.1 Site Preparation

Prior to grading, all areas to receive structural fill, engineered structures, and pavements should be cleared of surface and subsurface obstructions, including any existing debris and undocumented fill, old slabs, loose, compressible, or unsuitable soils, and stripped of vegetation. Removed vegetation and debris should be properly disposed off-site. All areas to receive fill and/or other surface improvements should be scarified to a minimum depth of 8 inches, brought to optimum or above-optimum moisture conditions, and recompacted to at least 90 percent relative compaction based on ASTM Test Method D1557.

6.1.2 Excavations and Oversize Material

Excavations of the onsite materials may generally be accomplished with conventional heavy-duty earthwork equipment. However, local heavy ripping or breaking may be required if cemented zones within the Very Old Paralic Deposits is encountered. Excavation for deep utilities may also be difficult in some areas.

Due to the high-density characteristics of the Very Old Paralic Deposits, temporary shallow excavations less than 5 feet in depth with vertical sides should remain stable for the period required to construct utilities, provided the trenches are free of adverse geologic conditions. Overlying artificial fill soils and beds of friable sands within the Very Old Paralic Deposits present at the site may cave during trenching operations. In accordance with OSHA requirements, excavations deeper than 5 feet should be shored or be laid

back in accordance with Section 6.2 if workers are to enter such excavations.

6.1.3 Removal of Compressible Soils

The weathered upper portions (1 to 2 feet) of the Very Old Paralic Deposits at the site may settle as a result of wetting or settle under the surcharge of engineered fill and/or structural loads supported on shallow foundations.

All Very Old Paralic Deposits encountered within 2 feet from the bottom of the site settlement-sensitive improvements and foundations (i.e. residential structures and retaining walls) should be removed to competent material at the site. Horizontally, the lateral limits of the removal excavations should extend at least 5 feet beyond the foundation limits of the site sensitive improvements. The bottom of all removals should be evaluated by a Certified Engineering Geologist to confirm conditions are as anticipated.

In areas of proposed pavements, hardscape and landscaping features, removals should be performed to a depth of at least 2 feet below proposed subgrade surface and extend at least 2 feet beyond the limits of the proposed improvements. Isolated deeper removals may be necessary.

In general, the soil that is removed may be reused and placed as engineered fill provided the material is free of oversized rock, organic materials, and deleterious debris, and moisture conditioned to above optimum moisture content. Soil with an expansion index greater than 50 should not be used within 5 feet of finish grade in the building pad. The actual depth and extent of the required removals should be confirmed during grading operations by the geotechnical consultant.

6.1.4 Engineered Fill

The onsite soils are generally suitable for use as compacted fill provided they are free of organic material, debris, and rock fragments larger than 6 inches in maximum dimension. All fill soils should be brought to at least 3 percent optimum moisture conditions (i.e., depending on the soil types) and compacted in uniform lifts to at least 90 percent relative compaction based on laboratory standard ASTM Test Method D1557, 95 percent for

wall backfill soils or if used for structural purposes (such as to support a footing, wall, etc.). The optimum lift thickness required to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill should be placed in lifts not exceeding 8 inches in thickness.

Placement and compaction of fill should be performed in general accordance with the current City of Encinitas grading ordinances, sound construction practice, and the General Earthwork and Grading Specifications for Rough Grading presented in Appendix F.

6.1.5 Trench Backfill

Pipe bedding should consist of sand with a sand equivalent (SE) of not less than 30. Bedding should be extended the full width of the trench for the entire pipe zone, which is the zone from the bottom of the trench, to one foot above the top of the pipe. The sand should be brought up evenly on each side of the pipe to avoid unbalanced loads. Onsite materials will probably not meet bedding requirements. Except for predominantly clayey soils, the onsite soils may be used as trench backfill above the pipe zone (i.e. in the trench zone) provided they are free of organic matter and have a maximum particle size of 3-inches. Compaction by jetting or flooding may not be performed.

6.1.6 Expansive Soils and Selective Grading

Based on our laboratory testing and observations, we anticipate the onsite soil materials possess a very low to low expansion potential (Appendix C). Although not anticipated, should an abundance of highly expansive materials be encountered, selective grading may need to be performed. In addition, to accommodate conventional foundation design, the upper 5 feet of materials within the building pad and 5 feet outside the limits of the building foundation should have a very low to low expansion potential (EI<50).

6.1.7 Import Soils

If import soils are necessary to bring the site up to the proposed grades, these soils should be granular in nature, and have an expansion index less than 50 (per ASTM Test Method D4829) and have a low corrosion impact to the proposed improvements. Beneath pavements, subgrade materials should possess an R-value of 30, or greater. Import soils and/or the borrow site location should be evaluated by the geotechnical consultant prior to import.

6.2 Temporary Excavations

Sloping excavations may be utilized when adequate space allows. Based on the results of our update evaluation, we provide the following recommendations for sloped excavations in fill soils or competent Very Old Paralic Deposits without seepage conditions.

Table 4
Temporary Slope Ratios

Excavation Depth (feet)	Maximum Slope Ratio In Fill Soils	Maximum Slope Ratio In Old Paralic Deposits
0 to 5	1:1 (Horizontal to Vertical)	Vertical
5 to 20	1:1 (Horizontal to Vertical)	1:1 (Horizontal to Vertical)

The above values are based on the assumption that no surcharge loading or equipment will be placed within 10 feet of the top of slope. Care should be taken during excavation adjacent to the existing structures so that undermining does not occur. A “competent person” should observe the slope on a daily basis for signs of instability.

6.3 Foundation and Slab Considerations

At the time of drafting this report, building loads were not known. However, based on our understanding of the project, the proposed residential buildings may be constructed with conventional foundations. Foundations and slabs should be designed in accordance with structural considerations and the following recommendations. These recommendations assume that the soils encountered

within 5 feet of pad grade have a very low to low potential for expansion (EI<50). If more expansive materials are encountered and selective grading cannot be accomplished, revised foundation recommendations may be necessary. The foundation recommendations below assume that the all building foundations will be underlain by properly compacted fill.

6.3.1 Conventional Foundations

Conventionally reinforced foundations should be designed and constructed in accordance with the recommendations contained in Table 5 based on a very low to low expansion potential. These recommendations assume that the soils encountered within 5 feet of pad grade have a very low to low potential for expansion and a differential fill thickness of less than 10 feet. Additional expansion testing should be performed as part of the fine grading operations. If medium or highly expansive soils are encountered and selective grading cannot be accomplished, additional foundation design may be necessary.

Table 5

Minimum Foundation and Slab Design Recommendations for Conventional Reinforced Foundations

Design Criteria	Minimal Fill Thickness, Minimal Fill Differential, and a Very Low to Low Expansion Potential (an Expansion Potential less than 50)
1-Story Footings (See Note 1)	All footings 12 inches deep. Reinforcement for continuous footings: two No. 5 bar top and bottom.
2-Story Footings (See Note 1)	All footings 18 inches deep. Reinforcement for continuous footings: two No. 5 bar top and bottom.
Minimum Footing Width	Continuous: 12 inches for 1-story Continuous: 15 inches for 2-story Isolated column: 24 inches (18 inches deep minimum)
Garage Door Grade Beam (See Note 2)	A grade beam 12 inches wide and 18 inches deep should be provided across the garage entrance.
Living Area Floor Slabs (See Notes 3, 4 and 6)	Minimum 5-inch-thick slab with No. 3 bars @ 18 inches on center, each way (at mid-height) on 2 inches clean sand over moisture barrier over 2 inches clean sand.
Garage Floor Slabs (See Notes 4, 5 and 6)	Minimum 5-inch-thick concrete slab with No. 3 bars @ 18 inches on center, each way (at mid-height) on 2 inches sand base over moisture barrier on pad. Slab should be quarter-sawn.
Presoaking of Living Area and Garage Slabs (see note)	120 percent of the optimum moisture content to a depth of 12 inches.
Allowable Bearing Capacity	2,000 pounds per square foot (one-third increase for short term loading)
Expected Foundation Deflection:	1/2 inch in 50 feet

Notes:

(1) Depth of interior or exterior footing to be measured from lowest adjacent finish grade or drainage swale flowline elevation.

(2) The base of the grade beam should be at the same elevation as that of the adjoining footings.

(3) Living area slabs should be tied to the footings as directed by the structural engineer.

(4) 10-mil non-recycled plastic sheeting is acceptable. Equivalents are acceptable. All laps and penetrations should be sealed.

(5) Garage slabs should be isolated from stem wall footings with a minimum 3/8-inch expansion joint.

(6) Sand base should have a Sand Equivalent of 30 or greater (e.g. washed concrete sand).

(7) Where the foundation is within 3 feet (horizontally) of adjacent drainage swales, the adjacent footing should be embedded a minimum depth of 12 inches below the swale flow line.

(8) The recommendations presented above assume that proper maintenance irrigation and drainage are maintained around the structure.

The vapor barrier recommended in Table 5 should be sealed at all penetrations and laps. Moisture vapor transmission may be additionally reduced by use of concrete additives. Moisture barriers can retard but not eliminate moisture vapor movement from the underlying soils up through the slabs. We recommend that the floor covering installer test the moisture vapor flux rate prior to attempting applications of the flooring. "Breathable" floor coverings should be considered if the vapor flux rates are high. A slipsheet or equivalent should be utilized above the concrete slab if crack-sensitive floor coverings (such as ceramic tiles, etc.) are to be placed directly on the concrete slab.

Our experience indicates that use of reinforcement in slabs and foundations will generally reduce the potential for drying and shrinkage cracking. However, some cracking should be expected as the concrete cures. Minor cracking is considered normal; in addition, it is often aggravated by a high water content, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. The use of low water content concrete can reduce the potential for shrinkage cracking.

The slab subgrade soils underlying the conventional foundation systems should be presoaked as indicated in Section 6.3.5 prior to placement of the moisture barrier and slab concrete.

6.3.2 Foundation Setback

We recommend a minimum horizontal setback distance from the face of slopes for all structural foundations, footings, and other settlement-sensitive structures as indicated on the Table 6 below. This distance is measured from the outside bottom edge of the footing, horizontally to the slope face, and is based on the slope height. However, the foundation setback distance may be revised by the geotechnical consultant on a case-by-case basis if the geotechnical conditions are different than anticipated.

Table 6 Minimum Foundation Setback from Slope Faces	
Slope Height	Setback
less than 5 feet	5 feet
5 to 15 feet	7 feet
15 to 30 feet	10 feet
30 to 100 feet	25 feet

Please note that the soils within the structural setback area possess poor lateral stability, and improvements (such as retaining walls, sidewalks, fences, pavements, etc.) constructed within this setback area may be subject to lateral movement and/or differential settlement. Potential distress to such improvements may be mitigated by providing a deepened footing or a grade beam foundation system to support the improvement.

In addition, open or backfilled utility trenches that parallel or nearly parallel structure footings should not encroach within an imaginary 2:1 (horizontal to vertical) downward sloping line starting 9 inches above the bottom edge of the footing and should also not be located closer than 18 inches from the face of the footing. Deepened footings should meet the setbacks as described above. Also, over-excavation should be accomplished such that deepening of footings to accomplish the setback will not introduce a cut/fill transition bearing condition.

Where pipes may cross under footings, the footings should be specially designed. Pipe sleeves should be provided where pipes cross through footings or footing walls and sleeve clearances should provide for possible footing settlement, but not less than 1 inch around the pipe.

6.3.3 Settlement

Fill depths between 2 and 3 feet are anticipated beneath the proposed building foundations following final grading. For conventional footings, the recommended allowable-bearing capacity is based on a maximum total and differential static settlement of 3/4 inch and 1/2 inch, respectively. Since settlements are a function of footing size and contact bearing pressures,

some differential settlement can be expected where a large differential loading condition exists. However, for most cases, differential settlements are considered unlikely to exceed 1/2 inch.

6.3.4 Moisture Conditioning

With the assumption of low expansive soils, prior to the placement of slabs and site hardscape, the subgrade soils should be maintained at a moisture content at least 2 percent above optimum. If medium to highly expansive soil is present at pad grade, alternative moisture conditions and slab recommendations may be necessary.

6.5 Lateral Earth Pressures and Retaining Wall Design

Should retaining walls be added to the project, Table 7 presents the lateral earth pressure values for level or sloping backfill for walls backfilled with and bearing against fully drained soils of very low to low expansion potential (less than 50 per ASTM D4829).

Table 7
Static Equivalent Fluid Weight (pcf)

Conditions	Level	2:1 Slope
Active	35	55
At-Rest	55	65
Passive	350 (Maximum of 3 ksf)	150 (sloping down)

Walls up to 10 feet in height should be designed for the applicable equivalent fluid unit weight values provided above. If conditions other than those covered herein are anticipated, the equivalent fluid unit weight values should be provided on an individual case-by-case basis by the geotechnical engineer. A surcharge load for a restrained or unrestrained wall resulting from automobile traffic may be assumed to be equivalent to a uniform lateral pressure of 75 psf which is in addition to the equivalent fluid pressure given above. For other uniform surcharge loads, a uniform pressure equal to 0.35q should be applied to the wall. The wall pressures assume walls are backfilled with free draining materials and water is not allowed to accumulate behind walls. A typical drainage design is contained in Appendix F.

Wall backfill should be compacted by mechanical methods to at least 90 percent relative compaction (based on ASTM D1557). If foundations are planned over the backfill, the backfill should be compacted to 95 percent. Wall footings should be designed in accordance with the foundation design recommendations and reinforced in accordance with structural considerations. For all retaining walls, we recommend a minimum horizontal distance from the outside base of the footing to daylight as outlined in Section 6.3.3.

Lateral soil resistance developed against lateral structural movement can be obtained from the passive pressure value provided above. Further, for sliding resistance, the friction coefficient of 0.35 may be used at the concrete and soil interface. These values may be increased by one-third when considering loads of short duration including wind or seismic loads. The total resistance may be taken as the sum of the frictional and passive resistance provided that the passive portion does not exceed two-thirds of the total resistance.

To account for potential redistribution of forces during a seismic event, retaining walls providing lateral support where exterior grades on opposites sides differ by more than 6 feet fall under the requirements of 2016 CBC Section 1803.5.12 and/or ASCE 7-10 Section 15.6.1 and should also be analyzed for seismic loading. For that analysis, an additional uniform lateral seismic force of 8H should be considered for the design of the retaining walls with level backfill, where H is the height of the wall. This value should be increased by 150% for restrained walls.

Based on the geotechnical conditions of the Site, the recommended soil parameters presented on Table 8 should be utilized in the design of the proposed mechanically stabilized earth (MSE) retaining walls. Temporary sloping should be performed in accordance with current OSHA requirements.

Table 8
Retaining Wall Soil Parameters

Soil Parameter	Reinforced Zone	Retained Zone	Foundation Zone
Internal Friction Angle (degrees)	28	28	30
Cohesion (psf)	0	0	0
Total Unit Weight (pcf)	125	125	128

Additional details relevant to the design of the MSE wall are presented on Detail G - Segmental Retaining Walls in Appendix F - General Earthwork and Grading Specifications. In addition, we recommend that water should be prevented from infiltrating into the reinforced soil zone. All drains and swales should outlet to suitable locations as determined by the project civil engineer. In general, the project civil engineer should verify that the subdrain is connected to the proper drainage facility.

Note that we also recommend a 7-foot minimum horizontal setback distance from the face of slopes for all retaining wall footings. This distance is measured from the outside bottom edge of the footing, horizontally to the slope face and is based on the slope height and type of soil. Appropriate surcharge pressures should also be applied for walls influenced within the retained or reinforced zones by improvements or vehicular traffic. The wall design engineer should also select grid design strength based on deflections tolerable to the proposed improvements. Settlement sensitive structures should not be located within the reinforced zone or active backfill prism.

6.6 Geochemical Considerations

Concrete in direct contact with soil or water that contains a high concentration of soluble sulfates can be subject to chemical deterioration commonly known as “sulfate attack.” Soluble sulfate results (Appendix C) indicated a negligible soluble sulfate content. We recommend that concrete in contact with earth materials be designed in accordance with Section 4 of ACI 318-14 (ACI, 2014). The measured soluble sulfate content of 225 ppm is considered moderate by the American Concrete Institute.

Minimum resistivity and pH tests were performed on representative samples of subgrade soils (Appendix C). Based on laboratory test results, the site soils have a high corrosion potential to buried uncoated metal conduits (Caltrans, 2018). We recommend measures to mitigate corrosion be implemented during design and construction.

6.7 Preliminary Pavement Design

The preliminary pavement section design below is based on an assumed Traffic Index (TI), our visual classification of the subject site soils, experience with other projects in the area, and our limited laboratory testing. Actual pavement recommendations should be based on R-value tests performed on bulk samples of the soils that are exposed at the finished subgrade elevations across the site at the completion of the mass grading operations. Flexible pavement sections have been evaluated in general accordance with the Caltrans method for flexible pavement design. Based on an assumed R-value of 25, preliminary pavement sections for planning purposes is given in Table 9 below:

Table 9
Preliminary Pavement Sections

Assumed Traffic Index (TI)	Asphalt Concrete (inches)	Aggregate Base (inches)
4.5	4.0	6.0
5.0	4.0	6.0
6.0	4.0	9.0

Prior to placement of the aggregate base, the upper 12 inches of subgrade soils should be scarified, moisture-conditioned to at least optimum moisture content and compacted to a minimum 95 percent relative compaction based on American Standard of Testing and Materials (ASTM) Test Method D1557.

Class 2 Aggregate Base or Crushed Aggregate Base should then be placed and compacted at a minimum 95 percent relative compaction in accordance with ASTM Test Method D1557. The aggregate base material (AB) should be a maximum of 6 inches thick below the curb and gutter and extend a minimum of 6 inches behind the back of the curb. The AB should conform to and placed in accordance with the approved grading plans, and latest revision of the Standard Specifications Public Works Construction (Greenbook).

The Asphalt Concrete (AC) material should conform to Caltrans Standard Specifications, Sections 39 and 92, with a Performance Grade (PG) of 64-10, and the City of Encinitas requirements. The placement of the AC should be in accordance with the approved grading plans, Section 203-6 of the “Greenbook” Standard Specifications for Public Works Construction, and the City of Encinitas

requirements. AC sections greater than 3-inches thick, should be placed in two lifts. The 1st lift should be a 2-inch minimum base course consisting of a 3/4-inch maximum coarse aggregate. The 2nd lift should be a 2-inch minimum surface capping course consisting of a 1/2-inch maximum coarse aggregate. No single lift shall be greater than 3 inches.

If pavement areas are adjacent to heavily watered landscaping areas, we recommend some measures of moisture control be taken to prevent the subgrade soils from becoming saturated. It is recommended that the concrete curbing, separating the landscaping area from the pavement, extend below the aggregate base to help seal the ends of the sections where heavy landscape watering may have access to the aggregate base. Concrete swales should be designed if asphalt pavement is used for drainage of surface waters.

6.7.1 Pervious Pavements

If pervious pavements or the use of pavers are proposed, our office should review the proposed paving location and system to provide supplemental recommendations, if any.

6.8 Concrete Flatwork

Concrete sidewalks and other flatwork (including construction joints) should be designed by the project civil engineer and should have a minimum thickness of 4 inches. For all concrete flatwork, the upper 12 inches of subgrade soils should be moisture conditioned to at least 2 percent above optimum moisture content and compacted to at least 90 percent relative compaction based on ASTM Test Method D1557 prior to the concrete placement.

6.9 Control of Ground Water and Surface Waters

The measured percolation and calculated infiltration rates presented in Section 3.4.5 may be used for the planning level screening phase of design. Once the locations of proposed infiltration facilities/systems are known, additional percolation testing may be needed to verify values provided in this report for use in the design phase. During the design phase, it should be noted that an elevated factor or safety may also be used by designers in lieu of additional field testing. Based on our professional experience, sites having such low infiltration rates are best suited for LID BMPs that contain and filter surface waters by the use of flow-

through planters and bioretention areas which are fully lined with an impermeable liner and have subdrain systems that ties into an approved existing or proposed storm drain system.

Foundations, slopes and subsurface improvements (e.g., retaining walls and basements) located adjacent to proposed infiltration systems should be evaluated to ensure that they may not be adversely impacted from infiltration of surface water. Where setbacks cannot be attained, a 30-mil impermeable liner should be placed on the sides and bottom of the infiltration basins. Table 10 below, summarizes preliminary setback recommendations for the project.

Table 10
Stormwater Infiltration System Setbacks
(Measured from bottom of infiltration device)

Setback	Distance
Any Foundation, Retaining Wall, Basement Wall, or Utility Trench	10 horizontal feet from the face of the improvement
Face of any slope	1.5H, 50 feet minimum (H is height of slope)

Surface drainage should be controlled at all times and carefully taken into consideration during precise grading, landscaping, and construction of site improvements. Positive drainage (e.g., roof gutters, downspouts, area drains, etc.) should be provided to direct surface water away from structures and improvements and towards the street or suitable drainage devices. Ponding of water adjacent to structures or pavements should be avoided. Roof gutters, downspouts, and area drains should be aligned so as to transport surface water to a minimum distance of 5 feet away from structures. The performance of structural foundations is dependent upon maintaining adequate surface drainage. Where possible, surface water should be transported off the site in approved drainage devices or unobstructed swales. We recommend a minimum flow gradient for unpaved drainage within 5 feet of structures of 2 percent sloping away if feasible. All area drain inlets should be maintained and kept clear of debris in order to function properly. In addition, landscaping should not cause any obstruction to site

drainage. Rerouting of drainage patterns and/or installation of area drains should be performed, if necessary, by a qualified civil engineer or a landscape architect.

6.10 Construction Observation

The recommendations provided in this report are based on preliminary design information and subsurface conditions disclosed by widely spaced excavations. The interpolated subsurface conditions should be checked by Leighton in the field during construction. Construction observation of all onsite excavations and field density testing of all compacted fill should be performed by a representative of this office. We recommend that all excavations be mapped by the geotechnical consultant during grading to determine if any potentially adverse geologic conditions exist at the site.

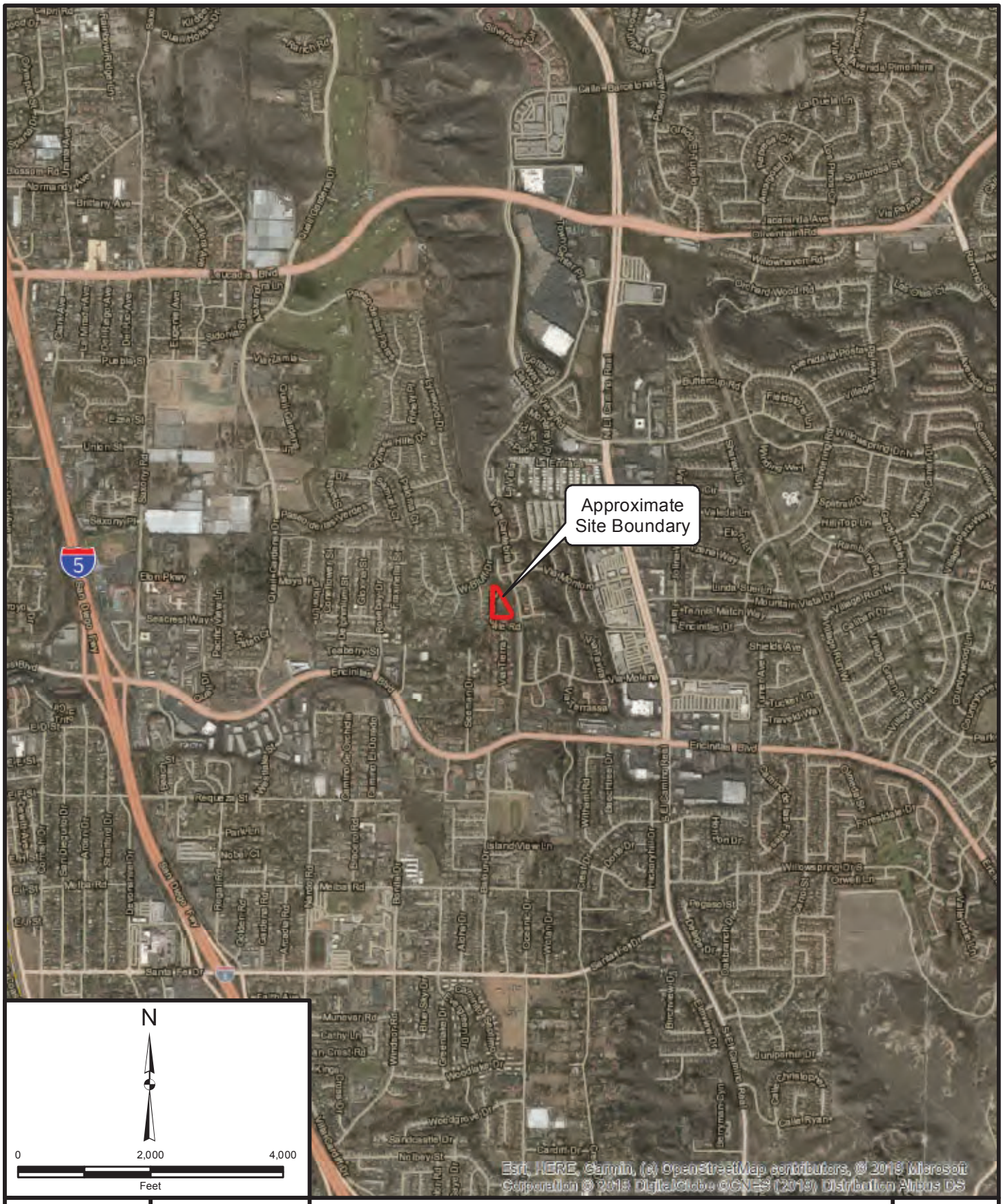
6.11 Plan Review

Final project grading and foundation plans should be reviewed by Leighton as part of the design development process to ensure that recommendations in this report are incorporated in project plans.

7.0 LIMITATIONS

The conclusions and recommendations presented in this report are based in part upon data that were obtained from a limited number of observations, site visits, excavations, samples, and tests. Such information is by necessity incomplete. The nature of many sites is such that differing geotechnical or geological conditions can occur within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. Therefore, the findings, conclusions, and recommendations presented in this report can be relied upon only if Leighton has the opportunity to observe the subsurface conditions during grading and construction of the project, in order to confirm that our preliminary findings are representative for the site.

Figures



Project: 12313.001	Eng/Geol: WDO/RCS
Scale: 1 " = 2,000 '	Date: May 2019
Base Map: Bing Maps 2019 Author: Leighton Geomatics (mmurphy)	

SITE LOCATION MAP

Zona Gale Road Property
Encinitas, California

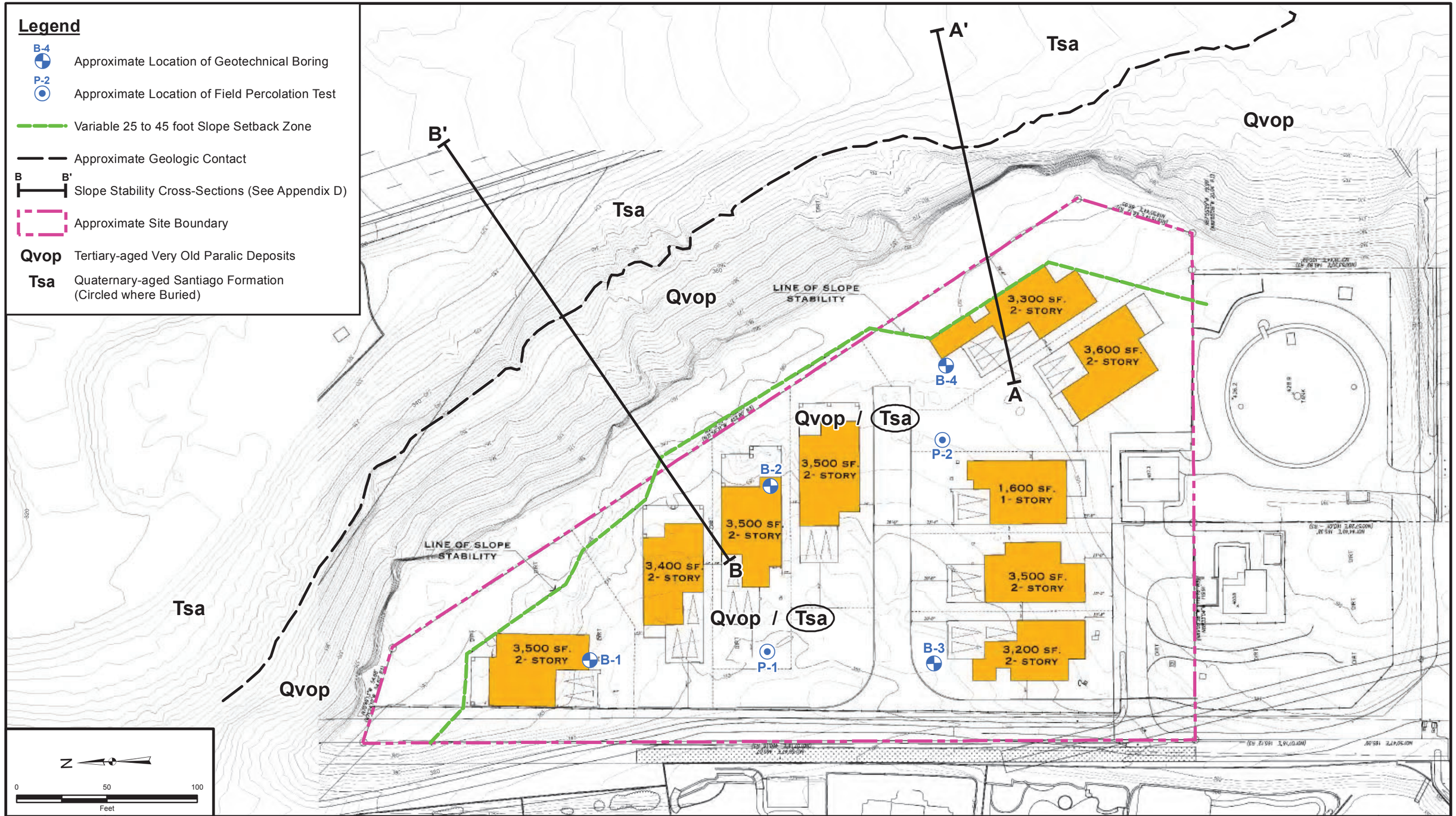
Figure 1

Leighton

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Legend

- B-4 — Approximate Location of Geotechnical Boring
- P-2 — Approximate Location of Field Percolation Test
- Variable 25 to 45 foot Slope Setback Zone
- Approximate Geologic Contact
- B — B' — Slope Stability Cross-Sections (See Appendix D)
- Approximate Site Boundary
- **Qvop** — Tertiary-aged Very Old Paralic Deposits
- **Tsa** — Quaternary-aged Santiago Formation (Circled where Buried)



N

0 50 100
Feet

Project: 12313.001	Eng/Geol: WDO/RCS
Scale: 1 " = 50 '	Date: May 2019

Base Map: Preliminary Site Plan by edinger Architects, 4/5/2017.

Author: (mmurphy)

GEOTECHNICAL MAP

Zona Gale Road Property
Encinitas, California

Figure 2

Leighton

Map Saved as V:\Drafting\12313\001\Maps\12313-001_F02_GM_2019-04-22.mxd on 5/15/2019 3:11:07 PM

Appendix A
References

APPENDIX A

REFERENCES

American Concrete Institute (ACI), 2014, Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary.

California Emergency Management Agency (CalEMA), California Geological Survey, and University of Southern California, 2009, Tsunami Inundation Map for Emergency Planning, Encinitas, Scale 1:52,000, June 1.

California Geologic Survey (CGS), 2018, Fault Rupture Hazard Zones in California, Special Publication No. 42, Revised 2018.

———————, 2003, Point Loma Quadrangle, Earthquake Fault Zones, dated May 1.

———————, 2000, Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Southern Region, DMG CD 2000-02.

California Building Standards Commission (CBSC), 2016, California Building Code, Volumes 1 and 2.

Caltrans, 2018, Corrosion Guidelines, Version 3.0, March 2018.

County of San Diego – Storm Water Standards, Part 1: BMP Design Manual – Appendix C and Appendix D, Geotechnical and Groundwater Investigation Requirements, dated January 2018.

County of San Diego - Department of Environmental Health - Land and Water Quality Division, Design Manual for Onsite Wastewater Treatment Systems, March 22, 2010 Edition (Updated November 25, 2013).

County of San Diego, 2017, Multi-Jurisdictional Hazard Mitigation Plan, County of San Hazard Mitigation Planning, October 2017.

———————, 2008, Department of Environmental Health, Land and Water Quality Division Design Manual for Onsite Wastewater Treatment Systems, dated June 26.

———————, 2007a, Low Impact Development Handbook – Stormwater Management Strategies, dated December 31, 2007.

APPENDIX A (Continued)

REFERENCES

———————, 2007b, Low Impact Development Appendices – San Diego Considerations and LID Fact Sheets, dated December 31, 2007.

———————, 2007c, Guidelines for Determining Significance, Geologic Hazards, Land Use and Environment Group, dated July 30, 2007.

Edinger Architects, 2017, Preliminary Site Plan Zona Gale Road Property, dated April 5, 2017.

FEMA, 2012, Flood Insurance Maps, Panel 1913 of 2375, dated May 16.

GeoStudio, 2016, Slide Version 8.16.1.13452.

Jennings, C.W., 2010, Fault Activity Map of California and Adjacent Areas: California Division of Mines and Geology, California Geologic Map Series, Map No. 6

Kennedy, M.P., and Tan, S.S., 2008, Geologic Map of the Oceanside Quadrangle, California, California Geologic Survey, 1:100,000 scale.

Kennedy, M.P. and Clarke, S.H., 1999, Analysis of Late Quaternary Faulting in San Diego Bay and Hazards to the Coronado Bridge: California Division of Mines and Geology, Open File Report 97 10A.

———————, 1999, Age of Faulting in San Diego Bay in the Vicinity of the Coronado Bridge – An Addendum to - Analysis of Late Quaternary Faulting in San Diego Bay and Hazards to the Coronado Bridge: California Division of Mines and Geology, Open File Report 97 10B.

Leighton and Associates, Inc., 2018, Preliminary Gross Slope Stability Analysis of Bluff Slope for the Zona Gale Property, APN 257-401-11-00, Encinitas, California, Project No. 12088.001, dated August 21, 2018.

Norris, R.M., and Webb, R.W., 1990, Geology of California, Second Edition: John Wiley & Sons, Inc.

Rocscience, 2016, Slide Version 7.014.

Appendix B
Boring Logs & Field Percolation Test Results

GEOTECHNICAL BORING LOG KEY

Date _____ Sheet 1 of 1

Project KEY TO BORING LOG GRAPHICS Project No. _____

Drilling Co. _____ Type of Rig _____

Hole Diameter _____ Drive Weight _____ Drop "

Elevation Top of Elevation ' Location _____

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
									Logged By _____ Sampled By _____	
	0								Asphaltic concrete.	
									Portland cement concrete.	
								CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay.	
								CH	Inorganic clay; high plasticity, fat clays.	
								OL	Organic clay; medium to plasticity, organic silts.	
	5							ML	Inorganic silt; clayey silt with low plasticity.	
								MH	Inorganic silt; diatomaceous fine sandy or silty soils; elastic silt.	
								ML-CL	Clayey silt to silty clay.	
								GW	Well-graded gravel; gravel-sand mixture, little or no fines.	
								GP	Poorly graded gravel; gravel-sand mixture, little or no fines.	
	10							GM	Silty gravel; gravel-sand-silt mixtures.	
								GC	Clayey gravel; gravel-sand-clay mixtures.	
								SW	Well-graded sand; gravelly sand, little or no fines.	
								SP	Poorly graded sand; gravelly sand, little or no fines.	
								SM	Silty sand; poorly graded sand-silt mixtures.	
	15							SC	Clayey sand; sand-clay mixtures.	
									Bedrock.	
									Ground water encountered at time of drilling.	
				B-1					Bulk Sample 1.	
	20			B-1					Bulk Sample 2.	
				C-1					Core Sample.	
				G-1					Grab Sample.	
				R-1					Modified California Sampler (3" O.D., 2.5 I.D.).	
				SH-1					Shelby Tube Sampler (3" O.D.).	
	25			S-1					Standard Penetration Test SPT (Sampler (2" O.D., 1.4" I.D.).	
				PUSH					Sampler Penetrates without Hammer Blow.	
									Bulk Sample 2.	
	30									

SAMPLE TYPES:

- S SPLIT SPOON
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- SH SHELBY TUBE

TYPE OF TESTS:

- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- SA SIEVE ANALYSIS
- AT ATTERBURG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE



LEIGHTON

GEOTECHNICAL BORING LOG B-1

Project No.	12313.001	**Date Drilled**	4-9-19
Project	Zona Gale Property	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	384' msl
Location	See Figure 2	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1 0-5'				SM	VERY OLD PARALIC DEPOSITS (Qvop) @ 0': Silty SANDSTONE, dense to very dense, light orangish-brown, dry, fine-grained, massively bedded, oxidation throughout	
380										
	5			R-1	22 50/6"	117	6		@ 5' Becomes very dense	
375										
	10			R-2	25 50/6"				@ 10': Becomes medium brown and fine- to medium-grained	
370										
	15			R-3	50/6"					
365										
	20			R-4	50/6"			SP	@ 20': Poorly-graded SANDSTONE, very dense, dark orangish-brown, moist, fine- to coarse-grained, iron nodules throughout, oxidation throughout, trace micas	
360										
	25			R-5	35 50/3"					
355										
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-1

Project No.	12313.001	**Date Drilled**	4-9-19
Project	Zona Gale Property	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	384' msl
Location	See Figure 2	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			R-6	35 50/3"			SM	@ 30': Silty SANDSTONE, very dense, dark olive-gray, moist, fine- to coarse-grained, iron/manganese nodules throughout, massively bedded, micaceous	
350										
	35			R-7	35 50/6"			SP-SM	SANTIAGO FORMATION (Tsa) @ 35': Poorly-graded SANDSTONE with SILT, very dense, light gray to orangish-gray, dry, medium- to coarse-grained, micaceous, friable	
345										
	40			R-8	20 25 35	90	20			
									Total Depth = 41.5 Feet (bgs) **No groundwater encountered at time of drilling** **Backfilled with cuttings/bentonite on 4/9/15**	
340										
	45									
335										
	50									
330										
	55									
325										
	60									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-2

Project No.	12313.001	**Date Drilled**	4-9-19
Project	Zona Gale Property	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	384' msl
Location	See Figure 2	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1 0-5'				SM	VERY OLD PARALIC DEPOSITS (Qvop) @ 0': Silty SANDSTONE, very dense, light orangish-brown, dry, fine- to medium-grained, massively bedded, surficial iron nodules, trace micas	CR, EI
380										
	5			R-1	50/3"				@ 5': Becomes olive-gray, cemented zone encountered at 5'-6'	
375										
	10			R-2	50/6"					
370										
	15			R-3	41 50/3"				@ 15': Becomes dark orangish-brown, moist, medium to coarse-grained massively bedded, oxidation throughout, indurated	
365										
	20			R-4	25 50/4"					
360										
	25			R-5	40 50/3"			SP	@ 25': Poorly-graded SANDSTONE, very dense, dark orangish-brown, moist, medium- to coarse-grained, oxidation throughout, indurated, micaceous	
355										
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



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GEOTECHNICAL BORING LOG B-2

Project No.	12313.001	**Date Drilled**	4-9-19
Project	Zona Gale Property	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	384' msl
Location	See Figure 2	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			R-6	32 50/4"			SP	@ 30': Poorly-graded SANDSTONE, very dense to hard, dark orangish-brown, moist, medium- to coarse-grained, oxidation throughout, indurated, micaceous	
350										
	35			R-7	23 50/4"			SM	@ 35': Silty SANDSTONE, very dense, dark organish-brown, moist, medium- to coarse-grained, micaceous indurated	
345										
	40			R-8	26 50/5"			SP	SANTIAGO FORMATION (Tsa) @ 40': Poorly-graded SANDSTONE, very dense, light gray, dry, medium- to coarse-grained, friable, micaceous, iron nodules throughout	
340										
	45			R-9	33 45 43	111	3			
335										
	50			R-10	29 39 45					
330									**Total Depth = 51.5 Feet (bgs)** **No groundwater encountered at time of drilling** **Backfilled with cutings/bentonite on 4/9/19**	
	55									
325										
	60									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-3

Project No.	12313.001	**Date Drilled**	4-9-19
Project	Zona Gale Property	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	382' msl
Location	See Figure 2	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1 0-5'				SM	VERY OLD PARALIC DEPOSITS (Qvop) @ 0': Silty SANDSTONE, medium dense, light brown, dry, fine-grained, friable	
380									@ 3': Becomes very dense	
	5			R-1	16 50/5"	111	8		@ 5': Becomes light orangnish-brown, dry, fine- to medium-grained, massively bedded, indurated, zones of cementation, micaceous	
375										
	10			R-2	50/6"					
370										
	15			R-3	33 50/4"				@ 15': Becomes dark orangish-brown and moist	
365										
	20			R-4	21 50/4"					
360									**Total Depth = 21 Feet (bgs)** **No groundwater encountered at time of drilling** **Backfilled with cuttings/bentonite on 4/9/19**	
	25									
355										
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-4

Project No.	12313.001	**Date Drilled**	4-9-19
Project	Zona Gale Property	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	390' msl
Location	See Figure 2	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
390	0			B-1 0-5'				SM	VERY OLD PARALIC DEPOSITS (Qvop) @ 0': Silty SANDSTONE, dense to very dense, light organish-brown, dry, fine-to medium-grained, cemented zones throughout, massively bedded, micaceous, surficially loose, light brown, becomes indurated at depth	
385	5			R-1	50/5"					
380	10			R-2	31 50/6"	110	9		@ 10': Becomes dark organish-brown and moist	DS, SA, H
375	15			R-3	23 50/4"					
370	20			R-4	25 50/3"	101	4		@ 20': Becomes medium organish-brown, medium- to coarse-grained, oxidation throughout, indurated iron nodules throughout, micaceous	
365	25			R-5	29 50/3"					
360	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
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- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



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GEOTECHNICAL BORING LOG B-4

Project No.	12313.001	**Date Drilled**	4-9-19
Project	Zona Gale Property	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	390' msl
Location	See Figure 2	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
360	30			R-6	28 50/5"			SP	@ 30': Poorly-graded SANDSTONE, very dense, dark orangish-brown, moist, medium- to coarse-grained, indurated, oxidation throughout, micaceous	
355	35			R-7	33 36 35					
350	40			R-8	28 50/6"			SM	@ 40': Silty SANDSTONE, very dense, dark gray to olive-gray, moist, medium- to coarse-grained, indurated, micaceous, iron nodules throughout	
345	45			R-9	28 50/6"			SP	SANTIAGO FORMATION (Tsa) @ 45': Poorly-graded SANDSTONE, very dense, light gray, dry, medium- to coarse-grained, oxidation throughout, friable, micaceous	
340	50			R-10	20 24 27					
335	55			R-11	12 15 21					DS
330	60			R-12	12 25					

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



GEOTECHNICAL BORING LOG B-4

Project No.	12313.001	**Date Drilled**	4-9-19
Project	Zona Gale Property	**Logged By**	ERB
Drilling Co.	Baja Exploration	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	390' msl
Location	See Figure 2	**Sampled By**	ERB

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
330	60				28				@ 60': Poorly-graded SANDSTONE, very dense, light gray, dry, medium- to coarse-grained, oxidation throughout, friable, micaceous	
325	65								**Total Depth = 61.5 Feet (bgs)** **No groundwater encountered at time of drilling** **Backfilled with cuttings/bentonite on 4/9/19**	
320	70									
315	75									
310	80									
305	85									
300	90									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH



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FIELD PERCOLATION TEST DATA SHEET

Project Name:	Aspen Growth - Zona Gale	Project No.:	12313.001
Proj. Address:	Zona Gale, Encinitas, CA		

SOIL TYPE / TEST LOCATION / BOREHOLE

Soil Type: Orangish-Brown Silty Sand (SM) Hole #: P-1

Location: See Map

Hole Dia: 8"

Depth 4.33

Tested by: Pre-Saturation Date: 4.9.19 Test Date: 4.10.19

Notes: Measurements in 1/100ths of feet (ft); standing water observed in hole

Time of Day	Interval / Notes	Initial Depth to Water (ft)	Final Depth of Water (ft)	Δ in Water Level (ft)	Percolation Rate (min/inch)
8:30 AM	Start	2.08	-	-	-
9:00 AM	30	2.08	2.11	0.03	83.33
9:30 AM	30	2.11	2.14	0.03	83.33
10:00 AM	30	2.14	2.17	0.03	83.33
10:30 AM	30	2.17	2.19	0.02	125.00
11:00 AM	30	2.19	2.21	0.02	125.00
11:30 AM	30	2.21	2.23	0.02	125.00
12:00 PM	30	2.23	2.25	0.02	125.00
12:30 PM	30	2.25	2.27	0.02	125.00
1:00 PM	30	2.27	2.29	0.02	125.00
1:30 PM	30	2.29	2.31	0.02	125.00
2:00 PM	30	2.31	2.33	0.02	125.00
2:30 PM	30	2.33	2.35	0.02	125.00

Final Percolation Rate: 125 min per inch

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FIELD PERCOLATION TEST DATA SHEET

Project Name:	Aspen Growth - Zona Gale	Project No.:	12313.001
Proj. Address:	Zona Gale, Encinitas, CA		

SOIL TYPE / TEST LOCATION / BOREHOLE

Soil Type: Orangish-Brown Silty Sand (SM) Hole #: P-2

Location: See Map

Hole Dia: 8"

Depth 4.26

Tested by: Pre-Saturation Date: 4.9.19 Test Date: 4.10.19

Notes: Measurements in 1/100ths of feet (ft); standing water observed in hole

Time of Day	Interval / Notes	Initial Depth to Water (ft)	Final Depth of Water (ft)	Δ in Water Level (ft)	Percolation Rate (min/inch)
8:35 AM	Start	2.51	-	-	-
9:05 AM	30	2.51	2.52	0.01	250.00
9:35 AM	30	2.52	2.53	0.01	250.00
10:05 AM	30	2.53	2.53	0.00	n/a
10:35 AM	30	2.53	2.53	0.00	n/a
11:05 AM	30	2.53	2.53	0.00	n/a
11:35 AM	30	2.53	2.53	0.00	n/a
12:05 PM	30	2.53	2.53	0.00	n/a
12:35 PM	30	2.53	2.53	0.00	n/a
1:05 PM	30	2.53	2.53	0.00	n/a
1:35 PM	30	2.53	2.53	0.00	n/a
2:05 PM	30	2.53	2.53	0.00	n/a
2:35 PM	30	2.53	2.53	0.00	n/a

Final Percolation Rate: 125 min per inch

Appendix C
Laboratory Testing Procedures and Test Results

APPENDIX A (Continued)

REFERENCES

SEAOC, 2019, USGS Seismic Design Data via SEAOC/OSHPD Seismic Design Maps Web Application, accessed March 21, 2019 at https://seismicmaps.org

Treiman, J.A., 1993, The Rose Canyon Fault Zone, Southern California: California Division of Mines and Geology, Open File Report 93-02, 45p.

Treiman, J.A., 2000, Silver Strand Fault, Coronado Fault, Spanish Bight Fault, San Diego Fault and Downtown Graben, Southern Rose Canyon Fault Zone, San Diego, California, California Division of Mines and Geology, Unpublished Fault Evaluation Report FER-245.

_____, 2008, National Seismic Hazard Maps – Source Parameters, Interactive Fault Map.

Youd, YT.L., Hanson C.M., and Bartlett, S.F., 1999, Revised MLR Equations for Predicting Lateral Spread Displacement, Proceedings of the 7TH U.S.-Japan Workshop on

Earthquake Resistant Design of Lifetime Facilities and Countermeasures Against Soil Liquefaction, November 19, 1999, pp. 99-114.

Aerial Photographs

Photo Number	Date	Source	Scale
AXN 8M 75 and 76	4/11/1953	USDA	1:24,000

APPENDIX C

Laboratory Testing Procedures and Test Results

Moisture and Density Determination Tests: Moisture content (ASTM Test Method D2937) and dry density determinations were performed on relatively undisturbed ring samples obtained from the test borings. The results of these tests are presented in the geotechnical boring logs (Appendix B).

Direct Shear Test: Direct shear tests were performed on a selected undisturbed and remolded samples which was soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box and reloading of the sample, the pore pressures set up in the sample (due to the transfer) were allowed to dissipate for a period of approximately 1 hour prior to application of shearing force. The sample was tested under various normal loads utilizing a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of less 0.05 inches per minute. The test result is presented on the attached figures.

Expansion Index Tests: The expansion potential of a selected material was evaluated by the Expansion Index Text, ASTM Test Method 4829. The specimen was molded under a given compactive energy to approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimen was loaded to an equivalent 144 psf surcharge and then was inundated with water until volumetric equilibrium was reached. The result of this test is presented in the table below:

Sample Location	Sample Description	Expansion Index	Expansion Potential
B-2 @ 0 to 5 feet	Silty SAND (SM)	0	Very Low

Particle/Grain Size Analysis: Particle size analysis was performed by mechanical sieving and wash sieving methods according to ASTM D1140. Plots of sieve results are provided on the figures in this appendix.

APPENDIX C (Continued)

Soluble Sulfates: The soluble sulfate content of a selected sample was determined by standard geochemical methods (Caltrans Test Method CT417). The test result is presented in the table below:

Sample Location	Sulfate Content (ppm)	Potential Degree of Sulfate Attack*
B-2 @ 0 to 5 feet	225	Negligible

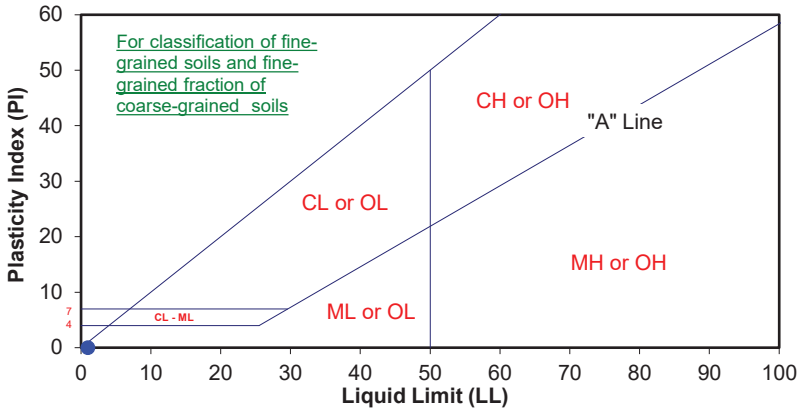
* Based on the 2008 edition of American Concrete Institute (ACI) Committee 318R, Table No. 4.2.1.

Chloride Content: Chloride content was tested in accordance with DOT Test Method No. 422. The result is presented below:

Sample Location	Chloride Content, ppm
B-2 @ 0 to 5 feet	180

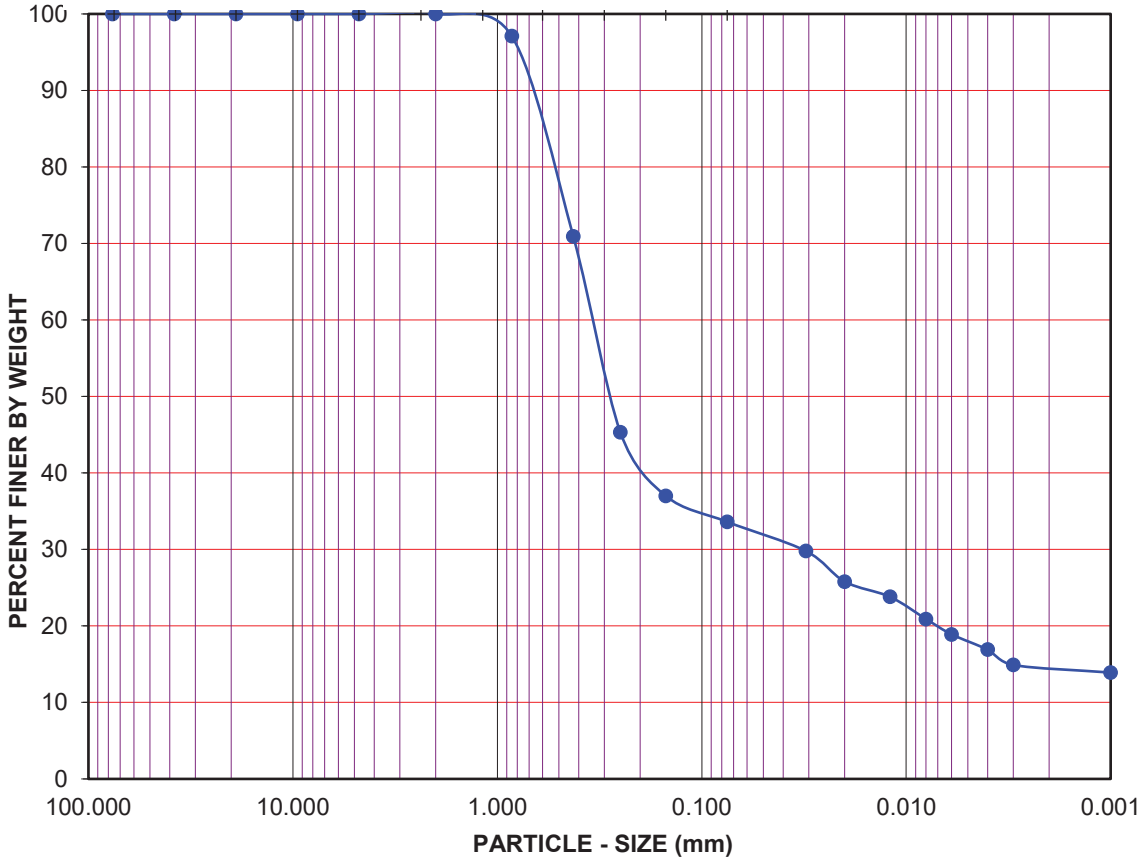
Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed in general accordance with California Test Method 643. The result is presented in the table below:

Sample Location	pH	Minimum Resistivity (ohms-cm)
B-2 @ 0 to 5 feet	5.21	1,200



GRAVEL		SAND			FINES	
COARSE	FINE	CRSE	MEDIUM	FINE	SILT	CLAY

U.S. STD. SIEVE OPENING: 3.0" 1 1/2" 3/4" 3/8" #4 | U.S. STANDARD SIEVE NUMBER: #10 #20 #40 #60 #100 #200 | HYDROMETER



Boring No.	Sample No.	Depth (ft.)	Soil Type	GR:SA:FI (%)	LL,PL,PI
B-4	R-2	10.0	SM	0:66:34	N/A

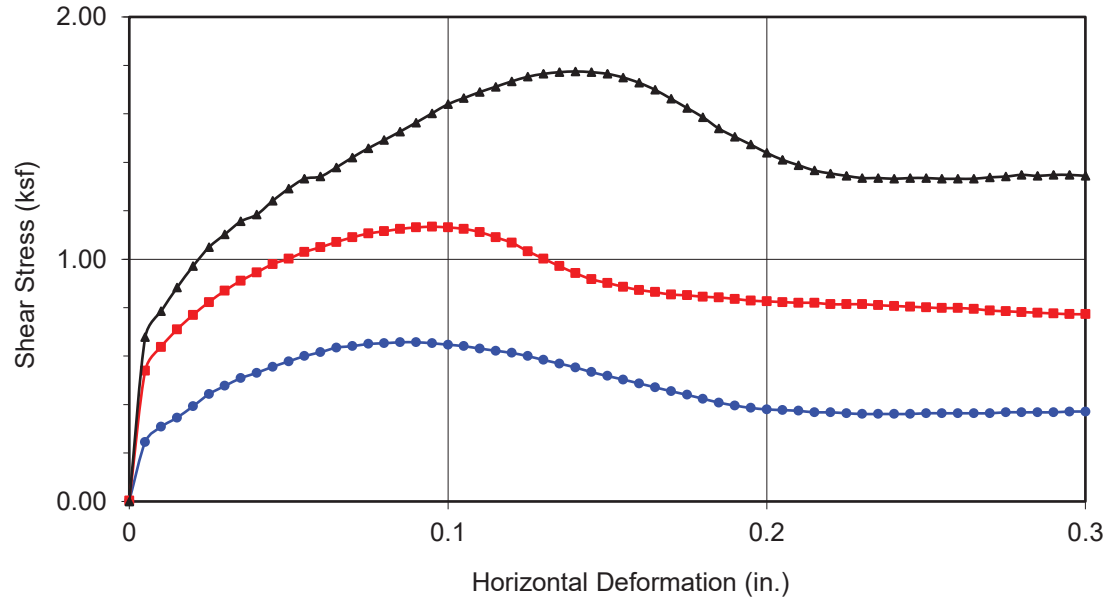
Sample Description:
Silty Sand (SM), Reddish Brown.

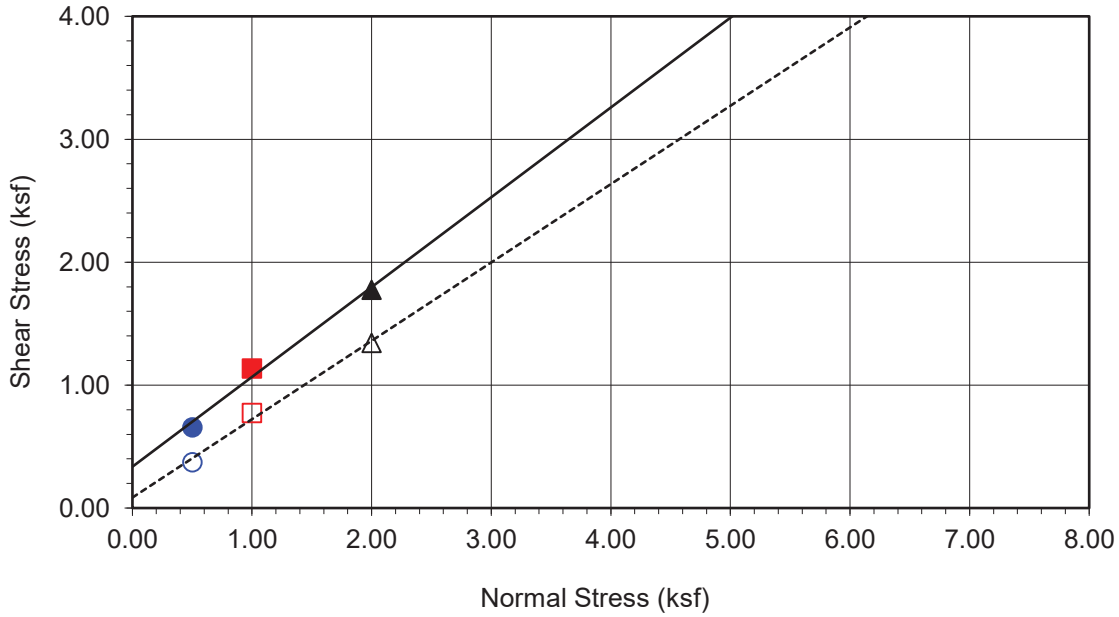
Project No.: 12313.001
Aspen Growth Properties/Zona

ATTERBERG LIMITS, PARTICLE - SIZE CURVE
ASTM D 4318, D 422

Leighton

Rev. 08-04





Boring No.	**B-4**
Sample No.	**R-2**
Depth (ft)	**10**
Sample Type:	Ring
Soil Identification:	Silty Sand (SM), Reddish Brown.

Strength Parameters

	C (psf)	ϕ (°)
Peak	337	36
Ultimate	85	33

Normal Stress (kip/ft²)	0.500	1.000	2.000
Peak Shear Stress (kip/ft²)	● 0.657	■ 1.134	▲ 1.775
Shear Stress @ End of Test (ksf)	○ 0.371	□ 0.773	△ 1.344
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	9.27	9.27	9.27
Dry Density (pcf)	116.7	117.9	106.4
Saturation (%)	56.3	58.3	42.8
Soil Height Before Shearing (in.)	0.9965	0.9939	0.9469
Final Moisture Content (%)	19.8	20.4	20.0

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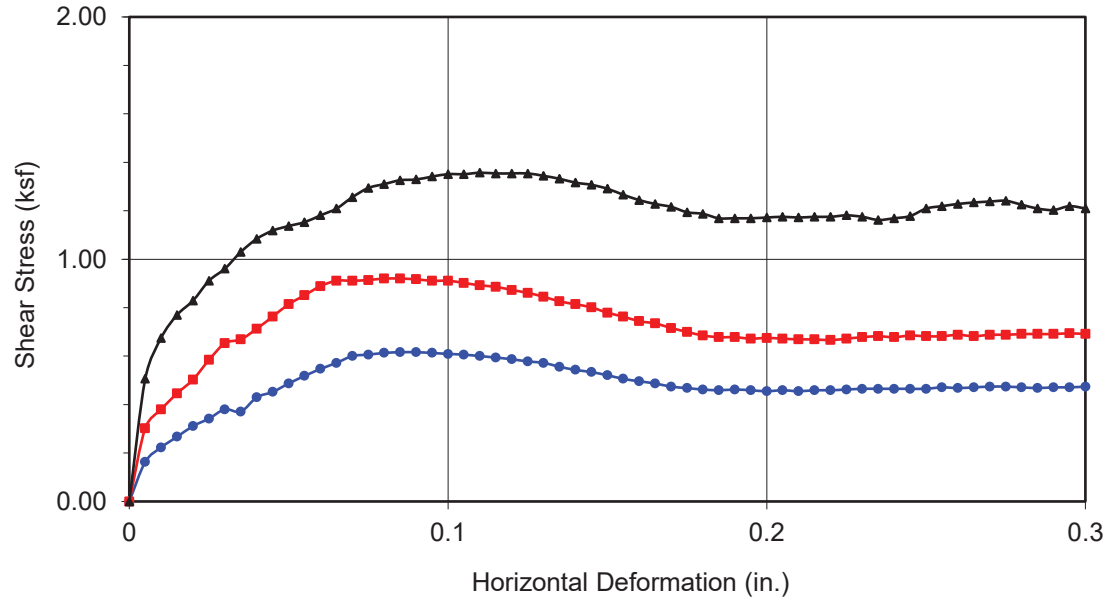
DIRECT SHEAR TEST RESULTS

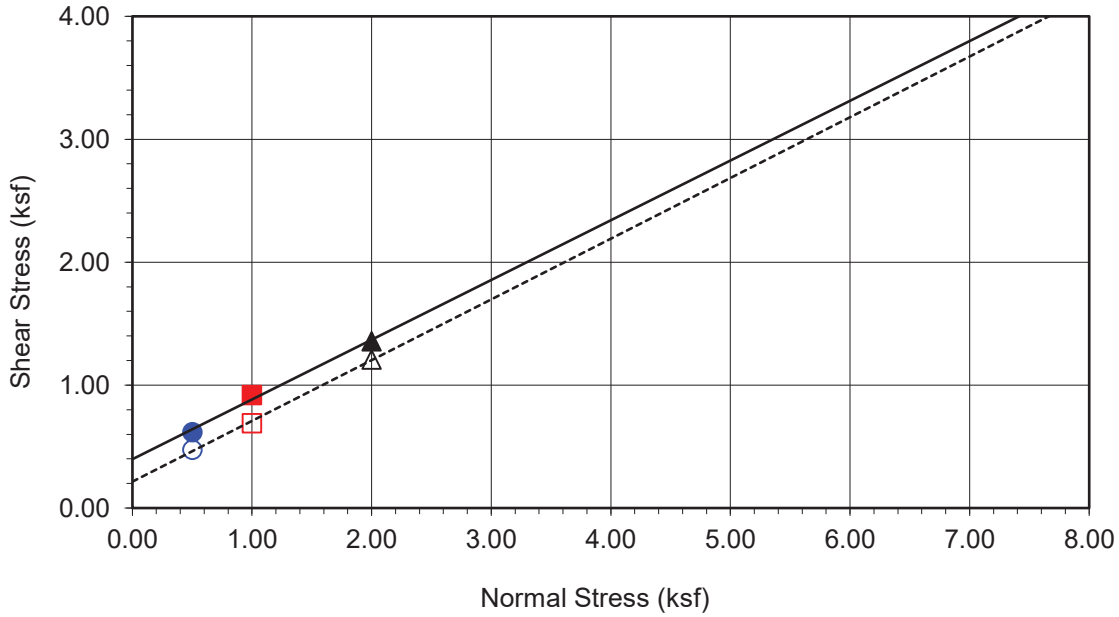
Consolidated Drained - ASTM D 3080

Project No.: 12313.001

Aspen Growth Properties/Zona Gale

04-19





Boring No.	**B-4**
Sample No.	**R-11**
Depth (ft)	**55**
Sample Type:	Ring
Soil Identification: Poorly Graded Sand with Silt (SP-SM), Gray	

Strength Parameters

	C (psf)	ϕ (°)
Peak	398	26
Ultimate	215	26

Normal Stress (kip/ft²)	0.500	1.000	2.000
Peak Shear Stress (kip/ft²)	● 0.616	■ 0.920	▲ 1.357
Shear Stress @ End of Test (ksf)	○ 0.474	□ 0.691	△ 1.209
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	3.83	3.83	3.83
Dry Density (pcf)	96.8	96.3	96.1
Saturation (%)	13.9	13.8	13.7
Soil Height Before Shearing (in.)	0.9906	0.9885	0.9805
Final Moisture Content (%)	25.5	25.6	26.3

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DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

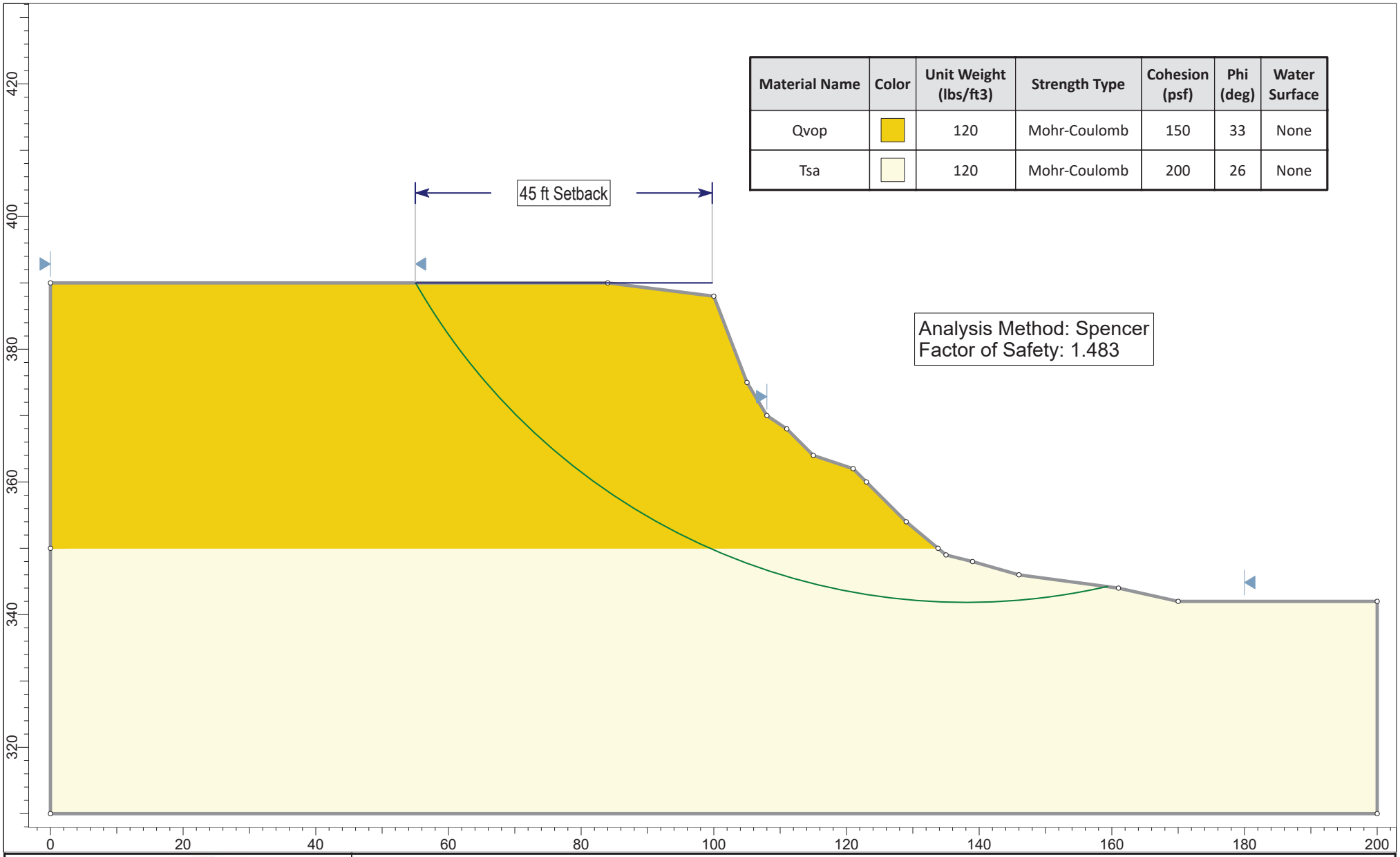
Project No.: 12313.001

Aspen Growth Properties/Zona Gale

04-19

Appendix D
Slope Stability Analysis

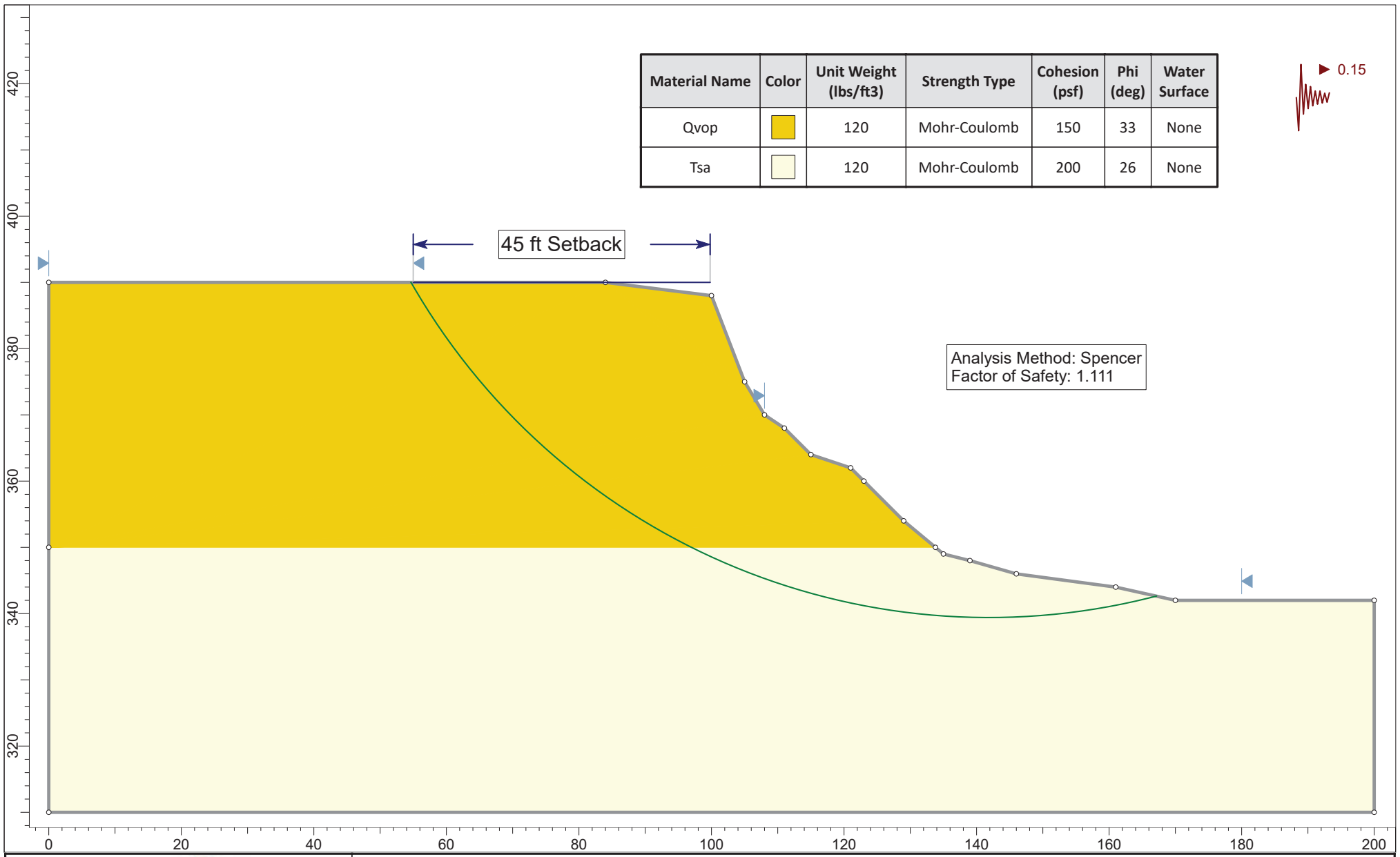
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface
Qvop		120	Mohr-Coulomb	150	33	None
Tsa		120	Mohr-Coulomb	200	26	None



SLIDEINTERPRET 8.023

Project	OMWD - Zona Gale Property		
Analysis Description	Section A-A' | Required Setback = 45 feet		
Drawn By	SMM	Scale 1:240	Company Leighton
Date	5/8/2019		File Name Section A.slmd

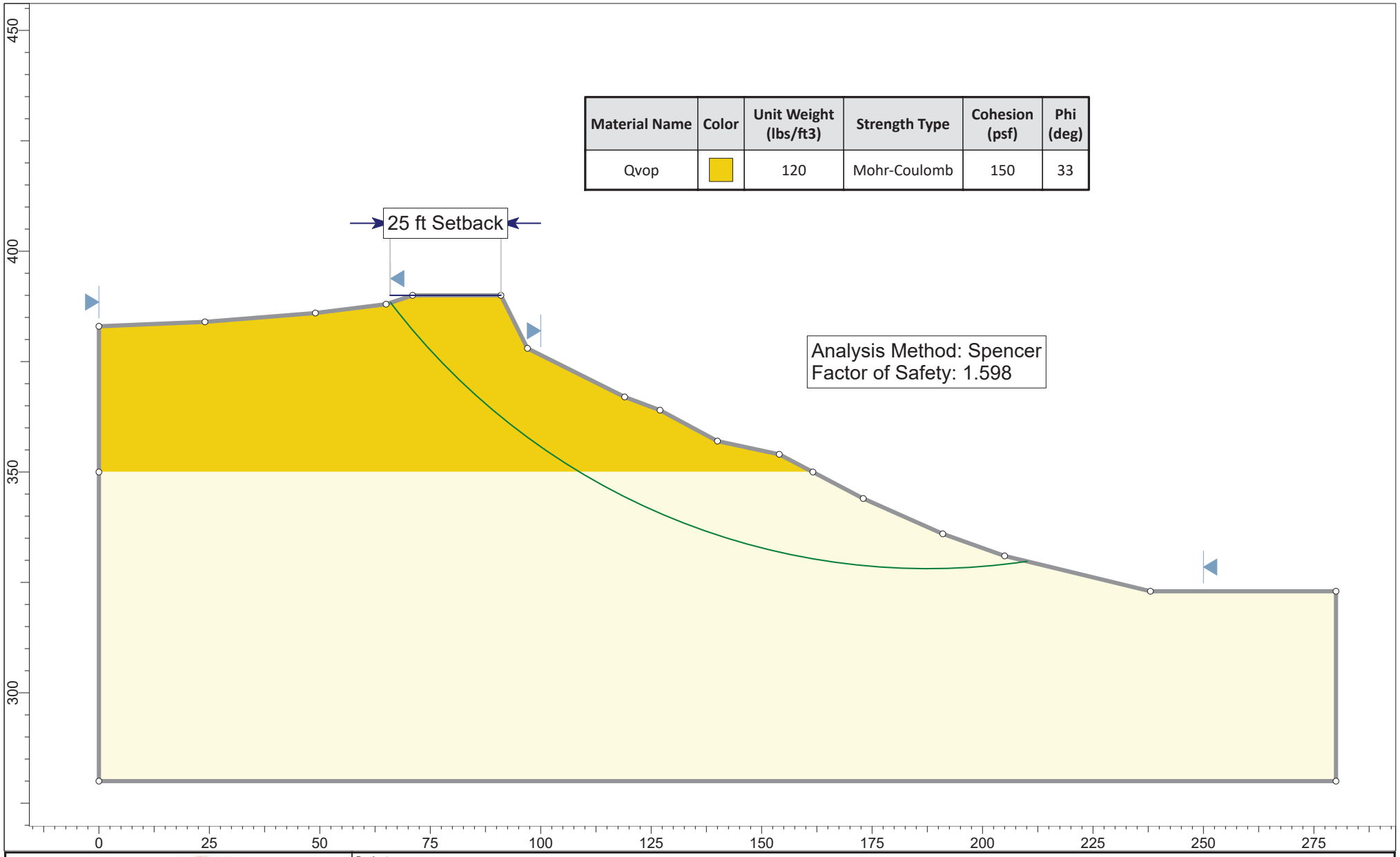
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface
Qvop		120	Mohr-Coulomb	150	33	None
Tsa		120	Mohr-Coulomb	200	26	None



SLIDEINTERPRET 8.023

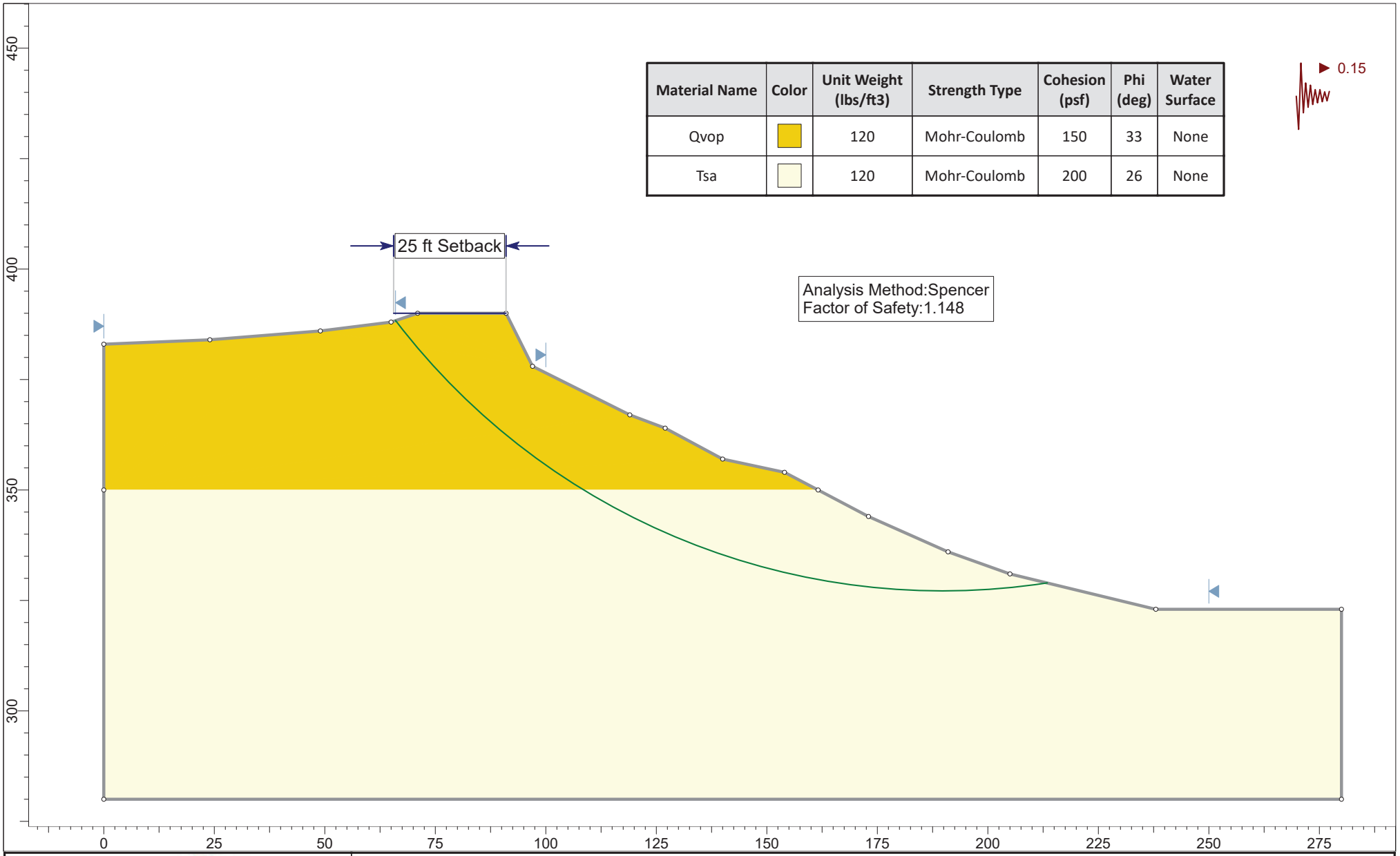
Project	OMWD - Zona Gale Property		
Analysis Description	Section A-A' | Required Setback = 45 feet		
Drawn By	SMM	Scale 1:240	Company Leighton
Date	5/8/2019		File Name Section A.slmd

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Qvop		120	Mohr-Coulomb	150	33



Project	SLIDE - An Interactive Slope Stability Program		
Analysis Description			
Drawn By	Scale 1:360	Company	
Date 7/27/2018, 4:34:00 PM		File Name	Section B.slmd

SLIDEINTERPRET 8.023



SLIDEINTERPRET 8.023

Project	SLIDE - An Interactive Slope Stability Program		
Analysis Description			
Drawn By		Scale 1:360	Company
Date	7/27/2018, 4:34:00 PM		File Name Section B.slmd

Appendix E
County of San Diego Infiltration Form I-8

Categorization of Infiltration Feasibility Condition	FORM I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis:

Based on our field percolation testing, the in-situ infiltration rates of the soils at the subject site are less than 0.5 inches per hour (Leighton, 2019). Specifically, the calculated infiltration rate via the Porchet Method and applied safety factor of 2 ranges from No Percolation to 0.02 inches per hour.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X

Provide basis:

No, infiltrating storm water into the subsurface soils at the site will increase the risk of geotechnical hazards at the site, especially slope stability.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

FORM I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: If the infiltration rates were greater than 0.5 inches per hour, it may be possible that the risk of groundwater contamination would not be increased provided there are no contaminated soil or groundwater sites within 250 feet of the proposed infiltration site. In addition, groundwater depths are anticipated to be greater than 50 feet bgs. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: If the infiltration rates were greater than 0.5 inches per hour, it may be possible that potential water balance issues would not be affected provided there are no unlined site drainages/creeks/streams within 250 feet of the proposed infiltration site. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		Go to Part 2

FORM I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis:

Based on our field percolation testing, the in-situ infiltration rates of the soils at the subject site are less than 0.5 inches per hour (Leighton, 2019). Specifically, the calculated infiltration rate via the Porchet Method and applied safety factor of 2 ranges from No Percolation to 0.02 inches per hour.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		X

Provide basis:

No, infiltrating storm water into the subsurface soils at the site will increase the risk of geotechnical hazards at the site, especially slope stability.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

FORM I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: If partial infiltration conditions (greater than 0.01 inches per hour) existed across the site, it may be possible that the risk of groundwater contamination will not be increased by partial infiltration provided there are no contaminated soil or groundwater sites within 250 feet of the proposed infiltration site. In addition, groundwater depths are anticipated to be greater than 50 feet bgs. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: If partial infiltration conditions (greater than 0.01 inches per hour) existed across the site, violation of downstream water rights is not anticipated based on the site location and that there are no unlined site drainages/creeks/streams within 250 feet of the proposed infiltration site. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		No Infiltration Feasibility

Appendix F
General Earthwork and Grading Specifications for Rough Grading

1.0 General

1.1 Intent

These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record

Prior to commencement of work, the owner shall employ the Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultants shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include natural ground after it has been cleared for receiving fill but before fill is placed, bottoms of all "remedial removal" areas, all key bottoms, and benches made on sloping ground to receive fill.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to determine the attained level of compaction. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the plans and specifications.

The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "spreads" of work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 5 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed.

2.2 Processing

Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Overexcavation

In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant

prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 General

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557).

4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557.

4.5 Compaction Testing

Field-tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing

Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than 5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 Safety

The Contractor shall follow all OSHA and Cal/OSHA requirements for safety of trench excavations.

7.2 Bedding and Backfill

All bedding and backfill of utility trenches shall be performed in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over the top of the conduit and densified. Backfill shall be placed and densified to a minimum of 90 percent of relative compaction from 1 foot above the top of the conduit to the surface.

The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

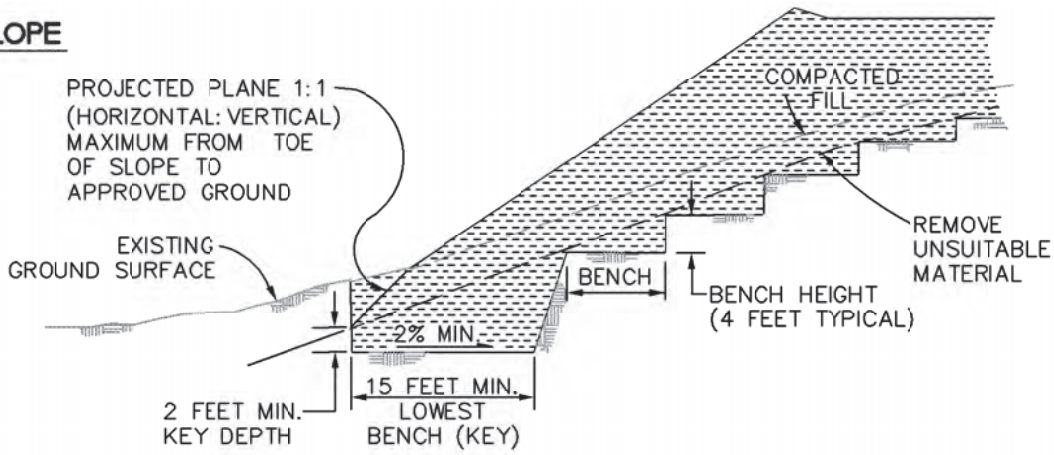
7.3 Lift Thickness

Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

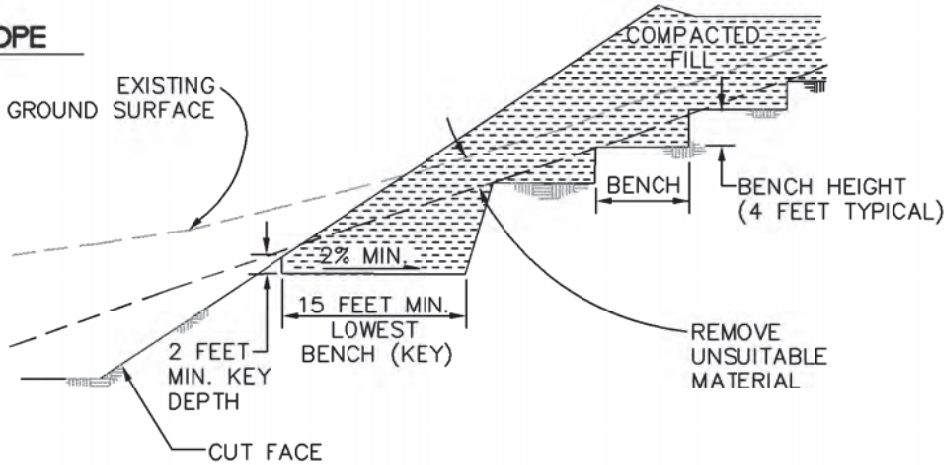
7.4 Observation and Testing

The densification of the bedding around the conduits shall be observed by the Geotechnical Consultant.

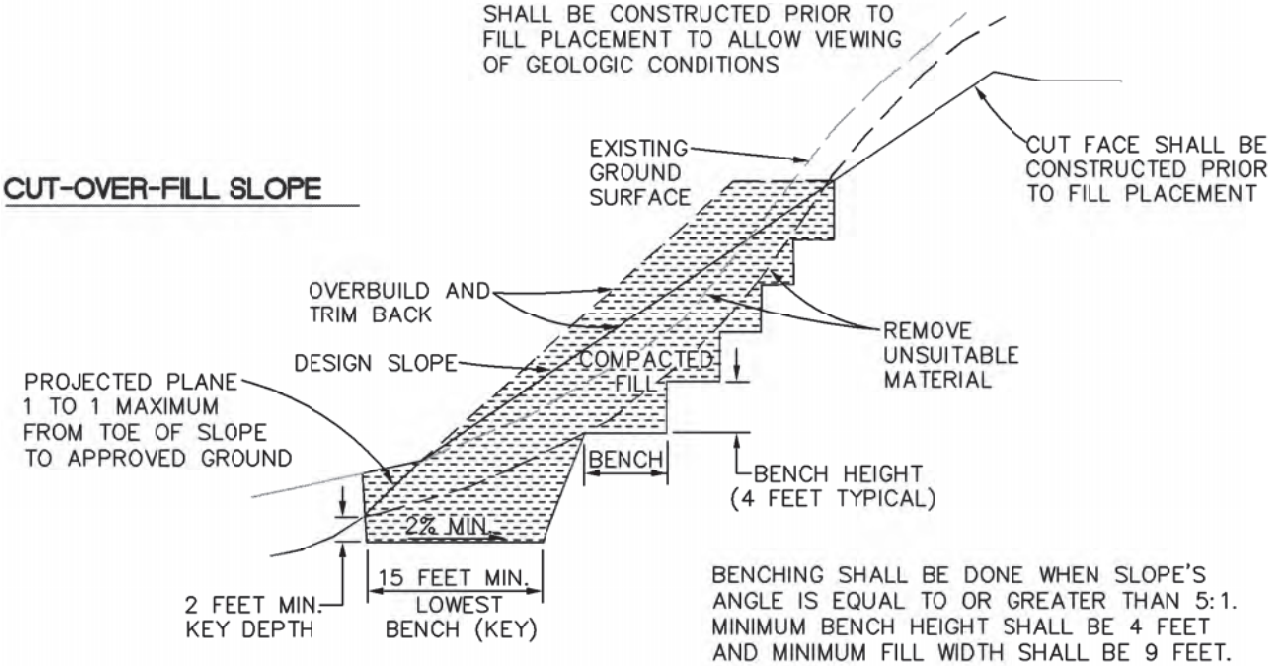
FILL SLOPE



FILL-OVER-CUT SLOPE



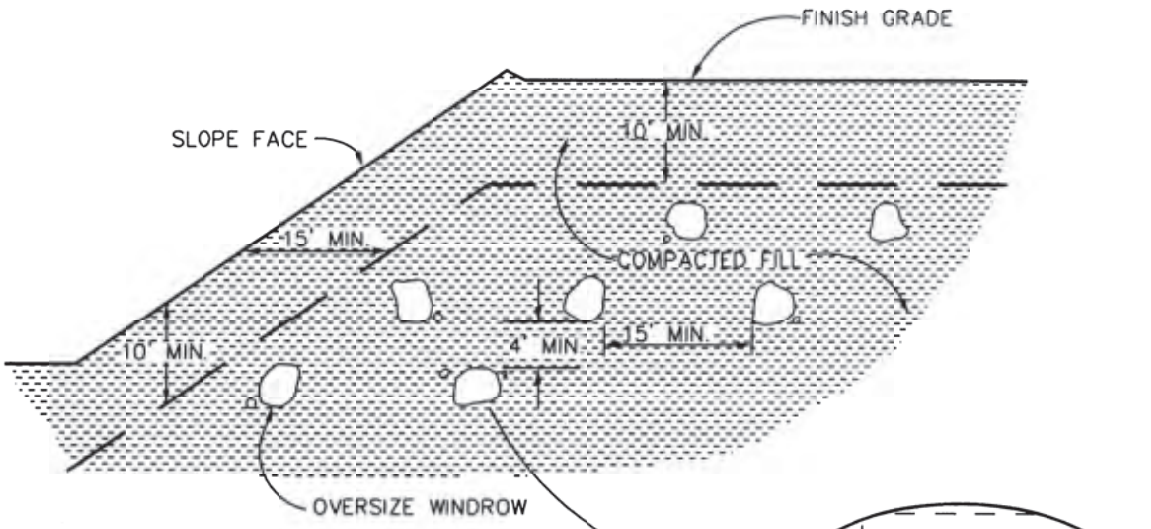
CUT-OVER-FILL SLOPE

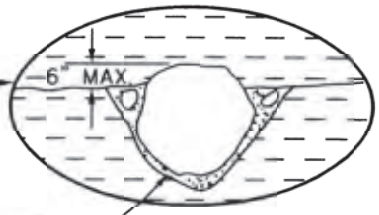


BENCHING SHALL BE DONE WHEN SLOPE'S ANGLE IS EQUAL TO OR GREATER THAN 5:1. MINIMUM BENCH HEIGHT SHALL BE 4 FEET AND MINIMUM FILL WIDTH SHALL BE 9 FEET.

KEYING AND BENCHING

GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL A

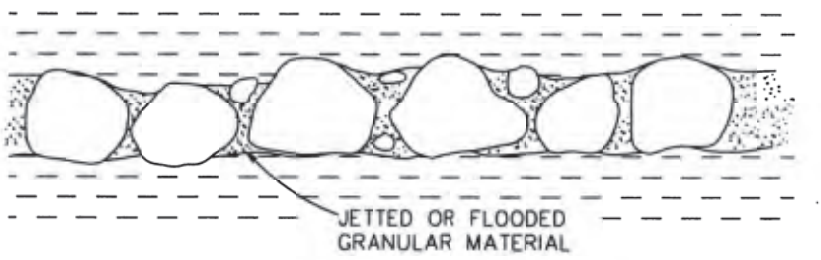




GRANULAR MATERIAL TO BE DENSIFIED IN PLACE BY FLOODING OR JETTING.

DETAIL

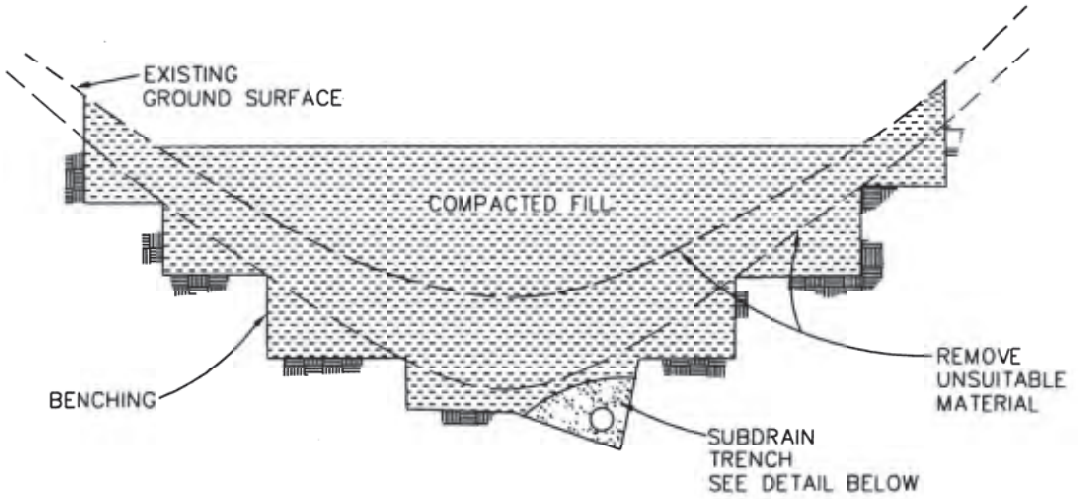
* OVERSIZE ROCK IS LARGER THAN 8 INCHES IN LARGEST DIMENSION.
* EXCAVATE A TRENCH IN THE COMPACTED FILL DEEP ENOUGH TO BURY ALL THE ROCK.
* BACKFILL WITH GRANULAR SOIL JETTED OR FLOODED IN PLACE TO FILL ALL THE VOIDS.
* DO NOT BURY ROCK WITHIN 10 FEET OF FINISH GRADE.
* WINDROW OF BURIED ROCK SHALL BE PARALLEL TO THE FINISHED SLOPE.

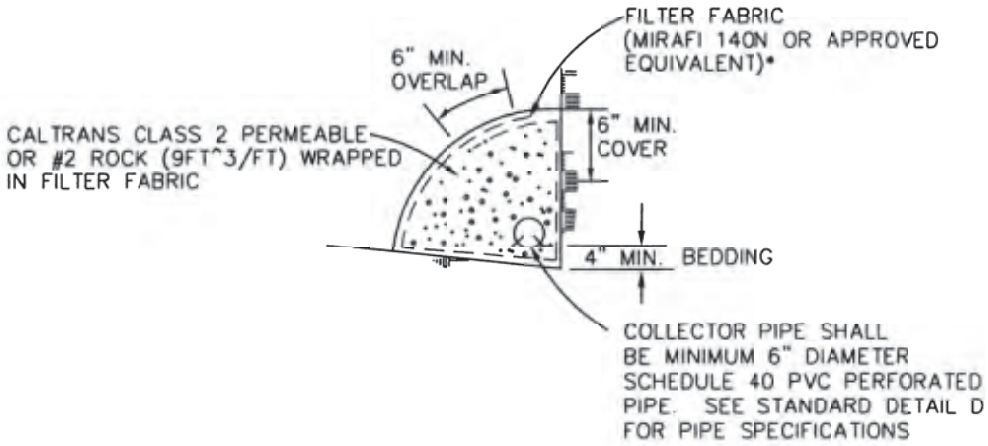


TYPICAL PROFILE ALONG WINDROW

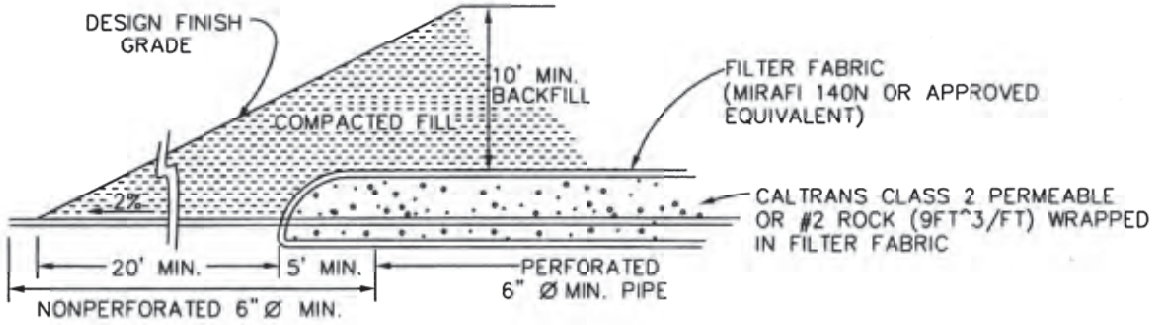
OVERSIZE ROCK DISPOSAL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAIL B





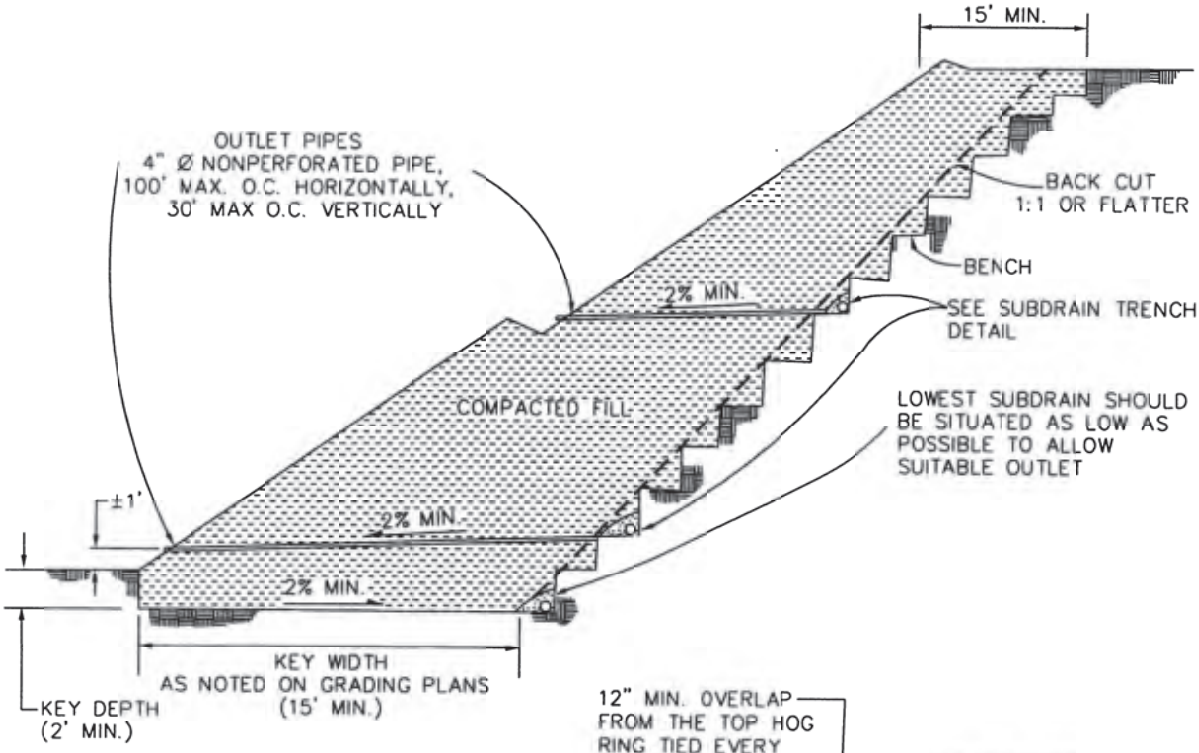
SUBDRAIN DETAIL

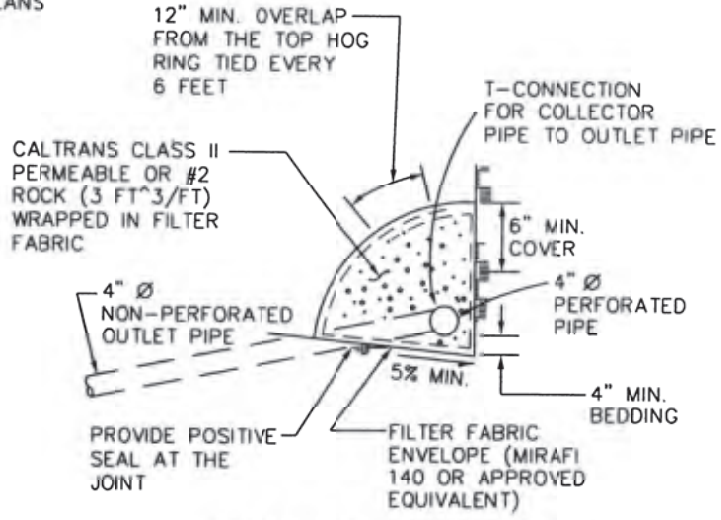


DETAIL OF CANYON SUBDRAIN OUTLET

CANYON SUBDRAINS

GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL C





SUBDRAIN TRENCH DETAIL

SUBDRAIN INSTALLATION – subdrain collector pipe shall be installed with perforation down or, unless otherwise designated by the geotechnical consultant. Outlet pipes shall be non-perforated pipe. The subdrain pipe shall have at least 8 perforations uniformly spaced per foot. Perforation shall be 1/4" to 1/2" if drill holes are used. All subdrain pipes shall have a gradient of at least 2% towards the outlet.

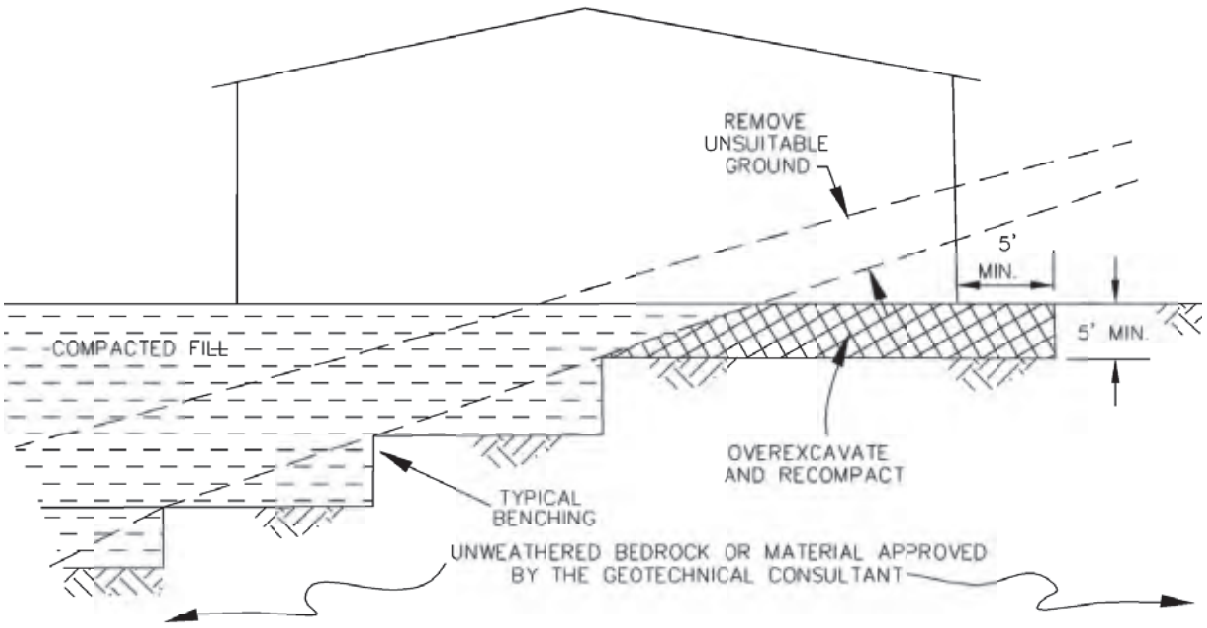
SUBDRAIN PIPE – Subdrain pipe shall be ASTM D2751, SDR 23.5 or ASTM D1527, Schedule 40, or ASTM D3034, SDR 23.5, Schedule 40 Polyvinyl Chloride Plastic (PVC) pipe.

All outlet pipe shall be placed in a trench no wider than twice the subdrain pipe.

BUTTRESS OR REPLACEMENT FILL SUBDRAINS

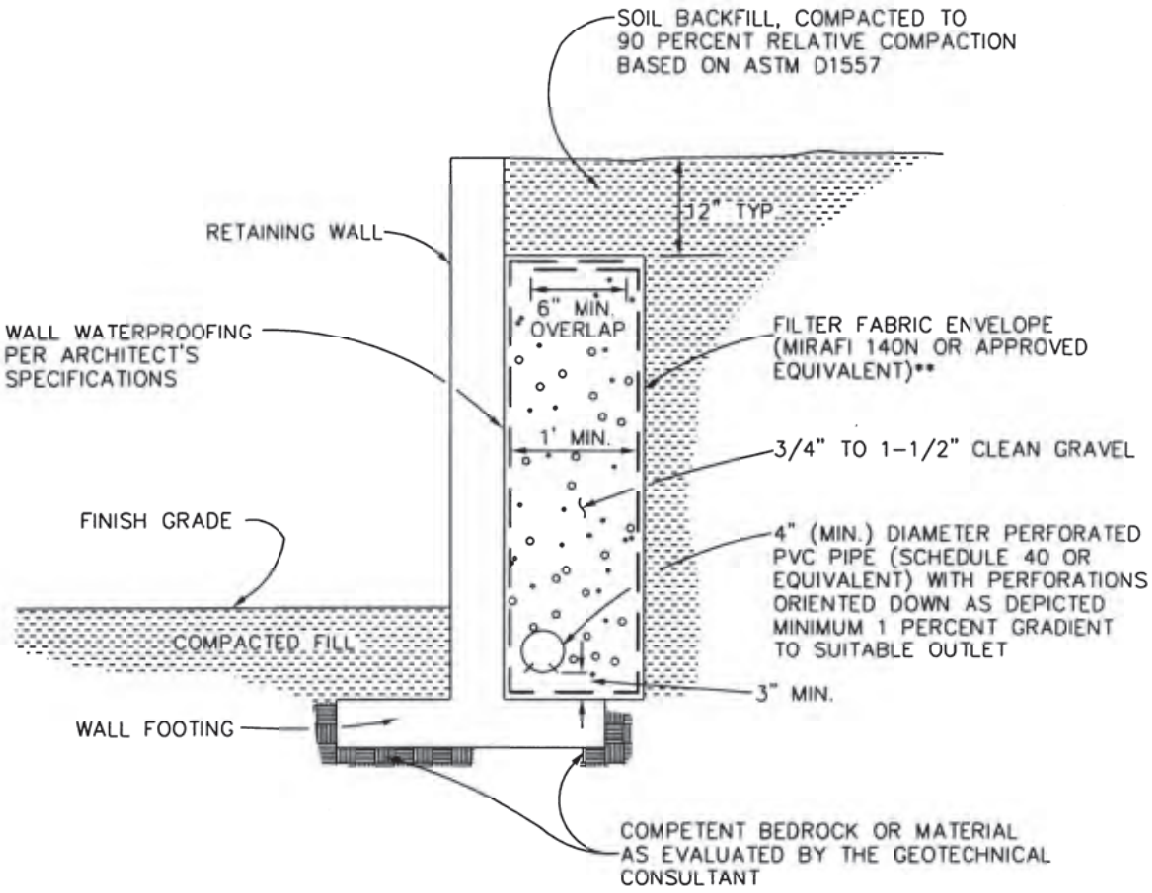
GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAIL D

CUT–FILL TRANSITION LOT OVEREXCAVATION



TRANSITION LOT FILLS

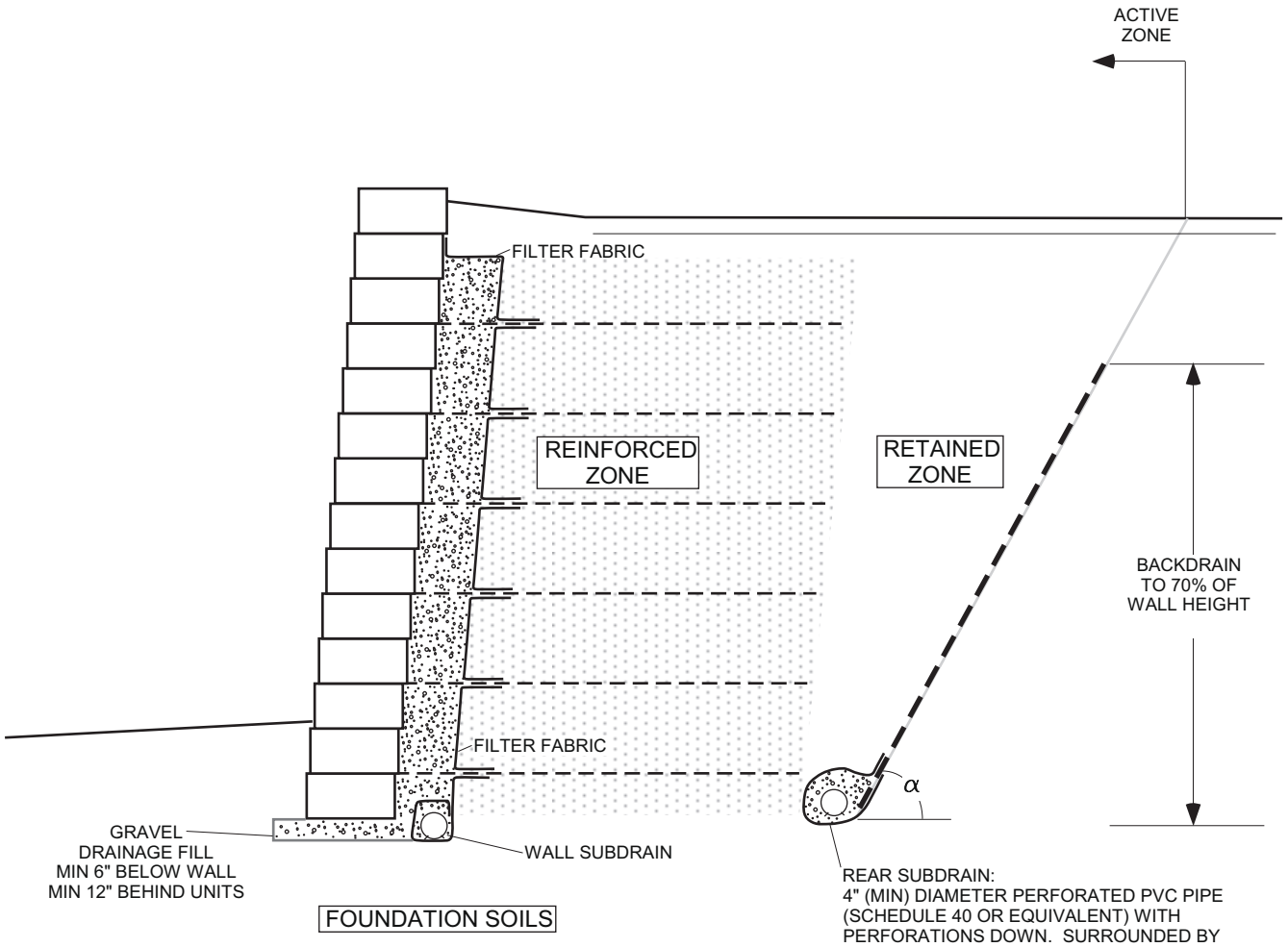
GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL E



NOTE: UPON REVIEW BY THE GEOTECHNICAL CONSULTANT, COMPOSITE DRAINAGE PRODUCTS SUCH AS MIRADRAIN OR J-DRAIN MAY BE USED AS AN ALTERNATIVE TO GRAVEL OR CLASS 2 PERMEABLE MATERIAL. INSTALLATION SHOULD BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

RETAINING WALL DRAINAGE

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAIL F



NOTES:

1) MATERIAL GRADATION AND PLASTICITY

REINFORCED ZONE:

SIEVE SIZE	% PASSING
1 INCH	100
NO. 4	20-100
NO. 40	0-60
NO. 200	0-35

GRAVEL DRAINAGE FILL:

SIEVE SIZE	% PASSING
1 INCH	100
3/4 INCH	75-100
NO. 4	0-60
NO. 40	0-50
NO. 200	0-5

FOR WALL HEIGHT < 10 FEET, PLASTICITY INDEX < 20
FOR WALL HEIGHT 10 TO 20 FEET, PLASTICITY INDEX < 10
FOR TIERED WALLS, USE COMBINED WALL HEIGHTS
WALL DESIGNER TO REQUEST SITE-SPECIFIC CRITERIA FOR WALL HEIGHT > 20 FEET

2) CONTRACTOR TO USE SOILS WITHIN THE RETAINED AND REINFORCED ZONES THAT MEET THE STRENGTH REQUIREMENTS OF WALL DESIGN.

3) GEOGRID REINFORCEMENT TO BE DESIGNED BY WALL DESIGNER CONSIDERING INTERNAL, EXTERNAL, AND COMPOUND STABILITY.

3) GEOGRID TO BE PRETENSIONED DURING INSTALLATION.

4) IMPROVEMENTS WITHIN THE ACTIVE ZONE ARE SUSCEPTIBLE TO POST-CONSTRUCTION SETTLEMENT. ANGLE $\alpha = 45+\phi/2$, WHERE ϕ IS THE FRICTION ANGLE OF THE MATERIAL IN THE RETAINED ZONE.

5) BACKDRAIN SHOULD CONSIST OF J-DRAIN 302 (OR EQUIVALENT) OR 6-INCH THICK DRAINAGE FILL WRAPPED IN FILTER FABRIC. PERCENT COVERAGE OF BACKDRAIN TO BE PER GEOTECHNICAL REVIEW.

SEGMENTAL RETAINING WALLS

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAIL G

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

August 21, 2018

Project No. 12088.001

To: Olivenhain Municipal Water District
1966 Olivenhain Road
Encinitas, California 92024

Attention: Ms. Cindy Pecile

Subject: Preliminary Gross Slope Stability Analysis of Bluff Slope for the Zona Gale Property, APN 257-401-11-00, Encinitas, California

As requested, a preliminary gross slope stability analysis has been performed on the subject property. It is our understanding that the bluff was previously identified as requiring a 25-foot structural setback from the top of the bluff. The purpose of this analysis was to assess the suitability of the 25-foot structural setback and if warranted, make new recommendations based on the results of our analysis. In preparation of this letter, a site visit was conducted, laboratory testing performed, geologic models developed, and slope stability analyses performed.

The subject property is an approximately triangular plot of land bound by Zona Gale Road to the West, the Wiegland Reservoir to the South, and a slope that descends to Via Cantebria and Via Marbisa to the Northeast, see Figure 1. A site visit was made by an Engineering Geologist from this firm. During this visit, the general geologic conditions were observed and a block sample of the slope material was collected for laboratory testing. The generally level upper pad has been subject to minor grading and the exposed slopes are comprised of Quaternary Very Old Paralic Deposits. No bedding planes were observed during our site visit. The bluff was noted as having areas of vertical faces varying from approximately 3 to 15 feet in height. Total slope height varies from approximately 45 to 65 feet.

The block sample was collected with the intent to perform direct shear testing on an intact sample of the slope material. Due to friability in the sample, intact samples could not be extracted for laboratory testing. As an alternative, the sample was disaggregated then remolded to perform direct shear tests. It should be noted that the process of

disaggregating the sample is anticipated to destroy the cementation that would be present in an intact sample. Results of direct shear testing have been attached as Appendix B. The cohesion of the intact material was estimated by back-analyzing the slope using the friction value determined from the remolded shear tests and varying the cohesion until a factor of safety of 1.0 or unity was achieved. For the pseudo-static analysis, the cohesion component was increased to a value closer to the peak remolded cohesion. Design shear strengths were selected based on the results of laboratory testing, observations of free-standing vertical faces, back-analysis, and professional judgement.

Slope stability analysis has been performed using approximate slope profiles determined from GIS topographic data, design shear strengths, and the computer program Slide 7.0 (by Rocscience). Cross section alignments were selected to represent the tallest approximately vertical face and tallest overall slope, Sections A-A' and B-B', respectively. Results of slope stability analyses indicate that the slope does not have a static factor of safety of 1.5 in its current condition, as was expected. The analyses also suggest that a non-structural slope setback of ranging from 25 feet to 45 feet may be used (See Figure 2). Behind this setback, the slope has a factor of safety of at least 1.5 for a static condition, 1.15 for a pseudo-static condition, and is suitable for consideration of future improvements. Any future improvements should be subject to slope stability analyses and incorporate the loads that will be imparted by the structure. Within the slope setback, structural improvements would require deepened foundations or other mitigation measures to achieve an acceptable factor of safety from a geotechnical standpoint. Due to the varying geometry of the vertical faces and descending slopes, we have provided a setback line with variable distance to top of slope, as depicted on Figure 2. After more is known about potential future improvements, it may be desirable to refine the non-structural setback by analyzing additional cross sections along the slope.

If you have any questions regarding this letter, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted
LEIGHTON CONSULTING, INC.



Robert C. Stroh, CEG 2099
Associate Engineering Geologist



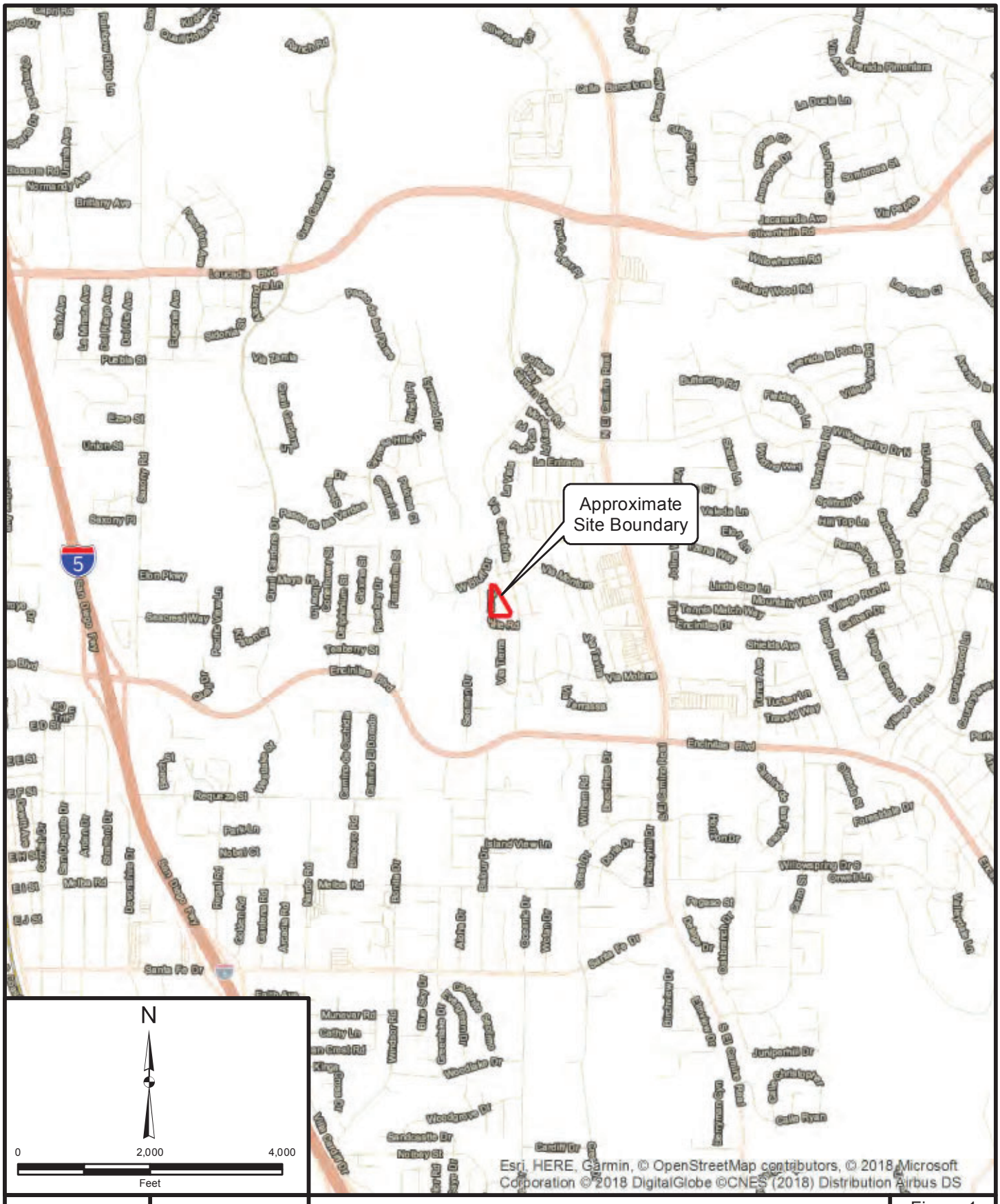
Benjamin R. Grenis, RCE 83971
Project Engineer

Distribution: (1) Addressee

Figures: Figure 1 – Site Location Map
Figure 2 – Geotechnical Map

Attachments: Appendix A – Slope Stability Analyses
Appendix B – Laboratory Testing

Leighton



Project: 12088.001	Eng/Geol: BRG/RCS
Scale: 1 " = 2,000 '	Date: August 2018

Base Map: Bing Maps 2018
Thematic Information: Leighton
Author: Leighton Geomatics (mmurphy)

SITE LOCATION MAP

OMWD - Zona Gale Property
Encinitas, California

Figure 1

Leighton

Map Saved as P:\Drafting\12088\001\Maps\12088-001_F01_SLM_2018-07-30.mxd on 7/30/2018 1:09:34 PM



Project: 12088.001	Eng/Geol: BRG/RCS
Scale: 1 " = 50 '	Date: August 2018

Base Map: ESRI ArcGIS Online 2018
Thematic Information: Leighton
Author: (mmurphy)

GEOTECHNICAL MAP

OMWD - Zona Gale Property
Encinitas, California

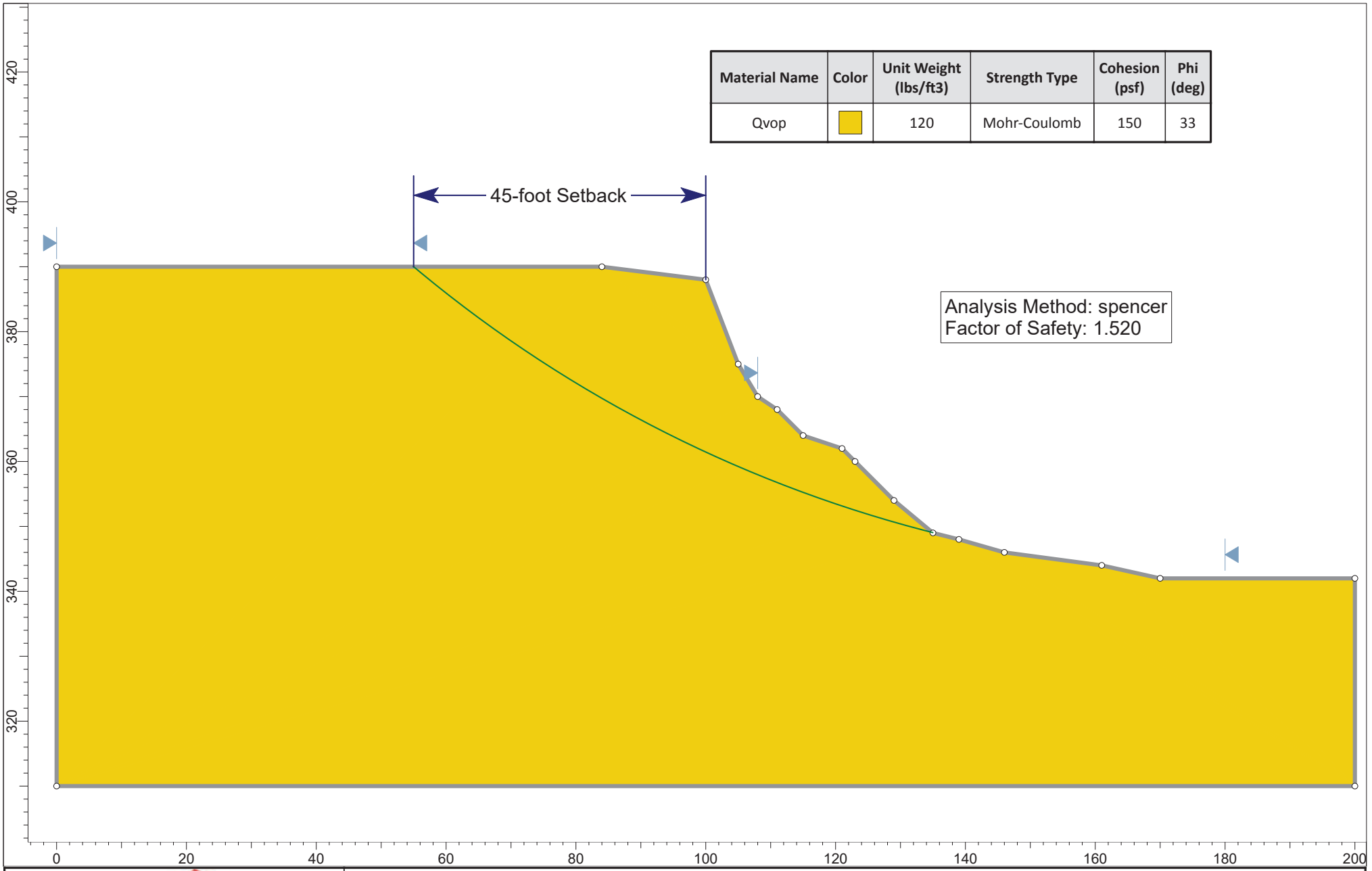
Figure 2

Leighton

Map Saved as P:\Drafting\12088\001\Maps\12088-001_F02_GM_2018-07-30.mxd on 8/8/2018 2:37:27 PM

Appendix A – Slope Stability Analyses

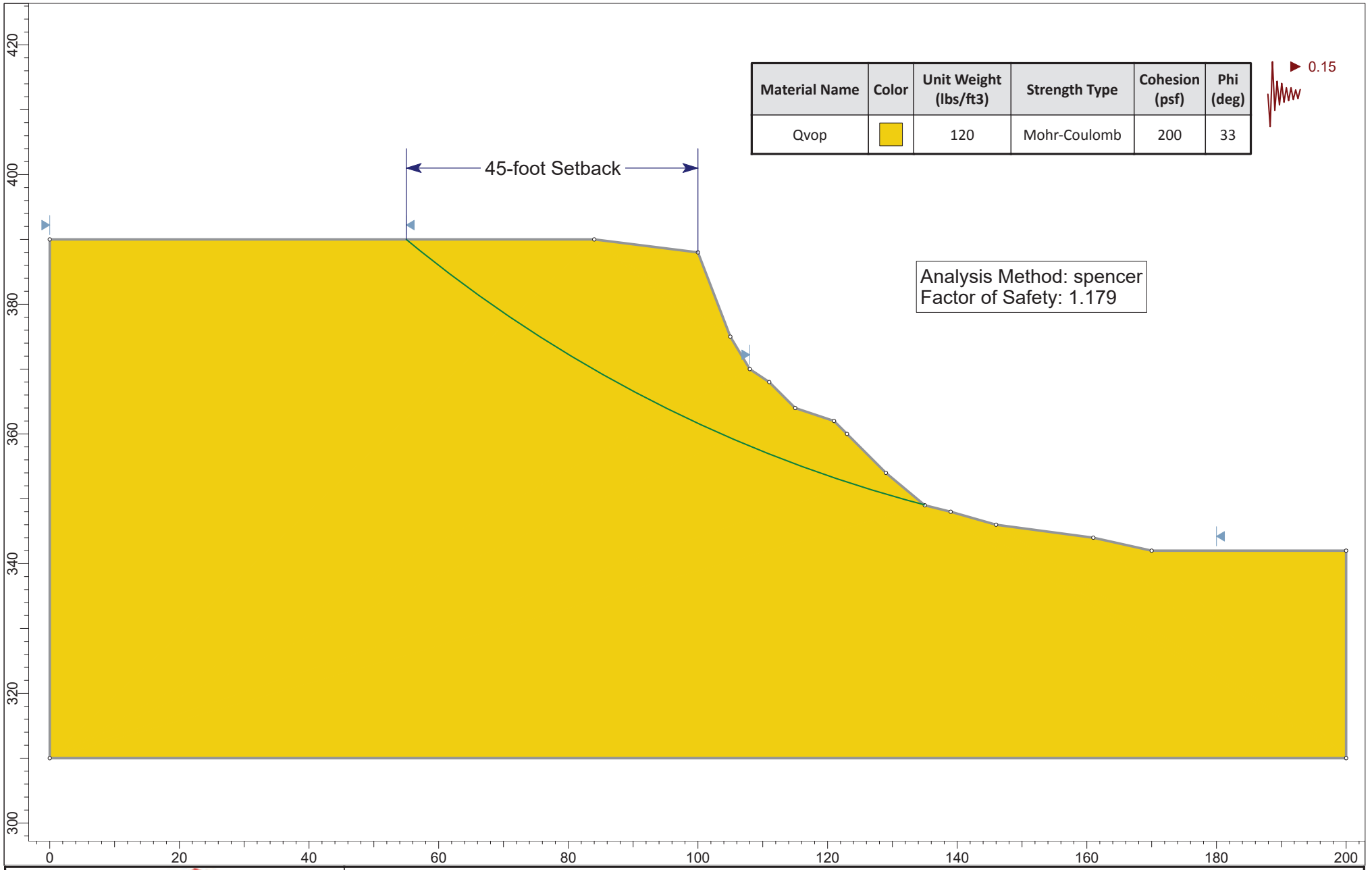
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Qvop		120	Mohr-Coulomb	150	33



Leighton

SLIDEINTERPRET 7.009

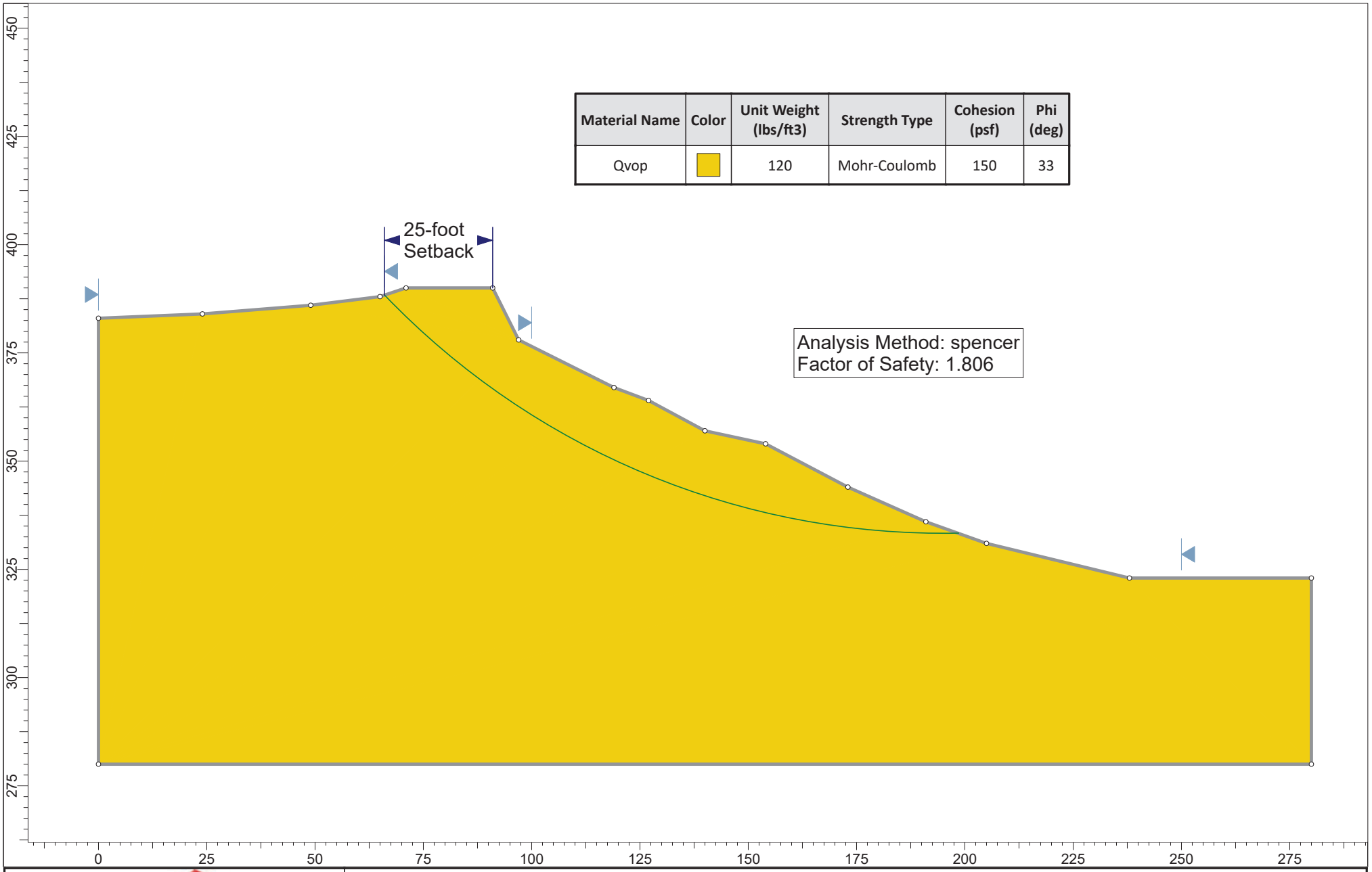
Project	OMWD - Zona Gale Property			
Analysis Description	Section A-A' | Required Setback = 45 feet			
Drawn By	BRG	Scale	1:240	Company: Leighton
Date	7/27/2018, 3:17:40 PM			File Name: 193327384.sli



Leighton	Project	OMWD - Zona Gale Property	
	Analysis Description	Section A-A' | Required Setback = 45 feet [Pseudo-Static]	
	Drawn By: BRG	Scale: 1:240	Company: Leighton
	Date: 7/27/2018, 3:17:40 PM		File Name: 193611291.sli

SLIDEINTERPRET 7.009

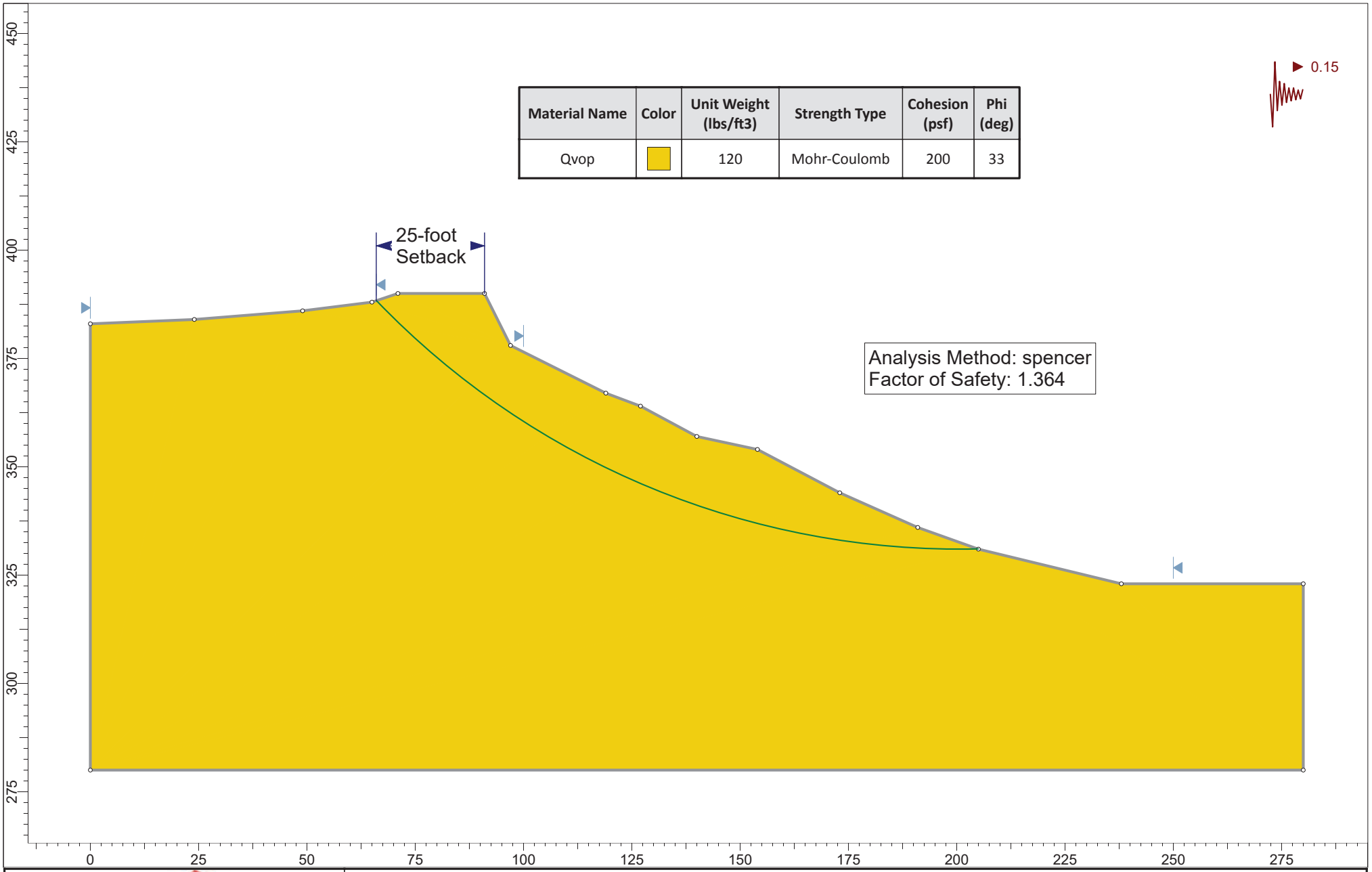
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Qvop		120	Mohr-Coulomb	150	33



Leighton

SLIDEINTERPRET 7.009

Project	OMWD - Zona Gale Property				
Analysis Description	Section B-B' | Required Setback = 25 feet				
Drawn By	BRG	*Scale*	1:360	*Company*	Leighton
Date	7/27/2018, 4:34:00 PM			*File Name*	214805589.sli



Leighton	Project	OMWD - Zona Gale Property		
	Analysis Description	Section B-B' | Required Setback = 25 feet [Pseudo-Static]		
	Drawn By: BRG	Scale: 1:360	Company: Leighton	
	Date: 7/27/2018, 4:34:00 PM		File Name: 200415479.sli	

SLIDEINTERPRET 7.009

Appendix B – Laboratory Testing

Leighton

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	OMWD/Zona Gale	Tested By:	O. Figueroa	Date:	07/27/18
Project No.:	12088.001	Input By:	A. Santos	Date:	07/30/18
Boring No.:	S-1	Depth (ft.):	2-3		
Sample No.:	07-20-18, 1				
Soil Identification:	Strong brown sandy silt s(ML)				

Preparation Method: [X] Moist [ ] Dry

[X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03330 *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	3796	3882	3932	3868		
Weight of Mold (g)	1848	1848	1848	1848		
Net Weight of Soil (g)	1948	2034	2084	2020		
Wet Weight of Soil + Cont. (g)	383.5	379.4	410.1	460.8		
Dry Weight of Soil + Cont. (g)	362.8	351.4	372.1	409.1		
Weight of Container (g)	39.0	39.7	39.2	39.3		
Moisture Content (%)	6.39	8.98	11.41	13.98		
Wet Density (pcf)	129.0	134.7	138.0	133.7		
Dry Density (pcf)	121.2	123.6	123.8	117.3		

Maximum Dry Density (pcf) **124.0** **Optimum Moisture Content (%)** **10.5**

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

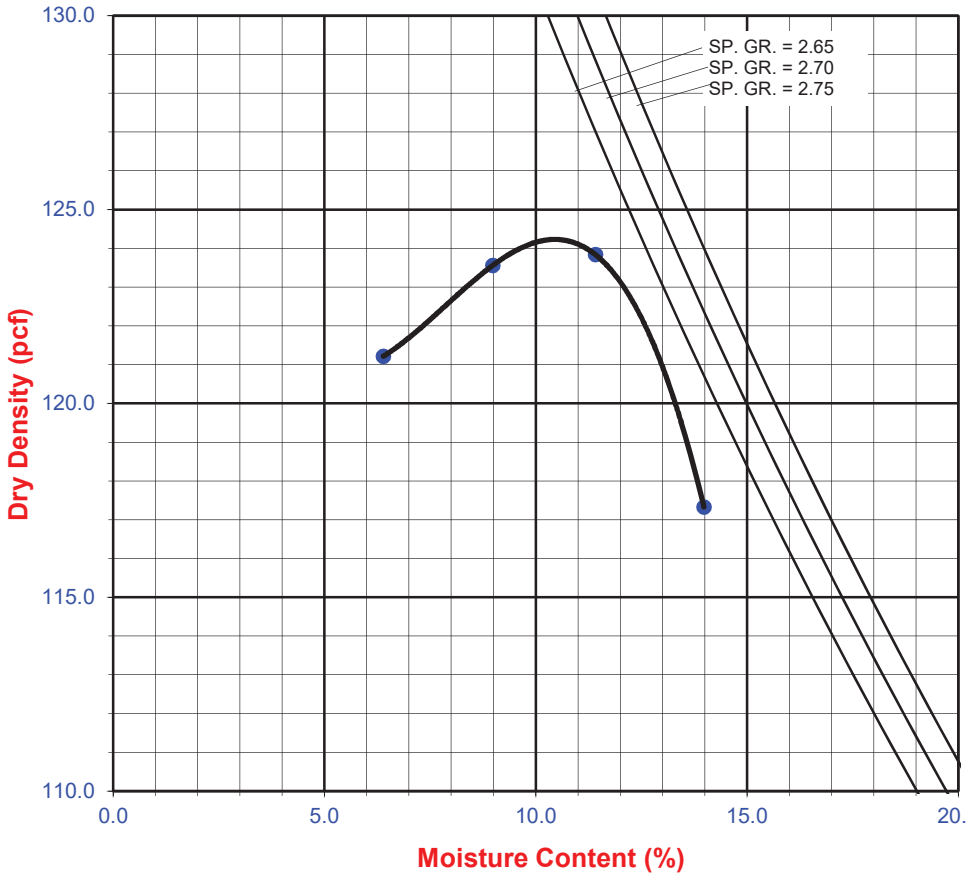
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

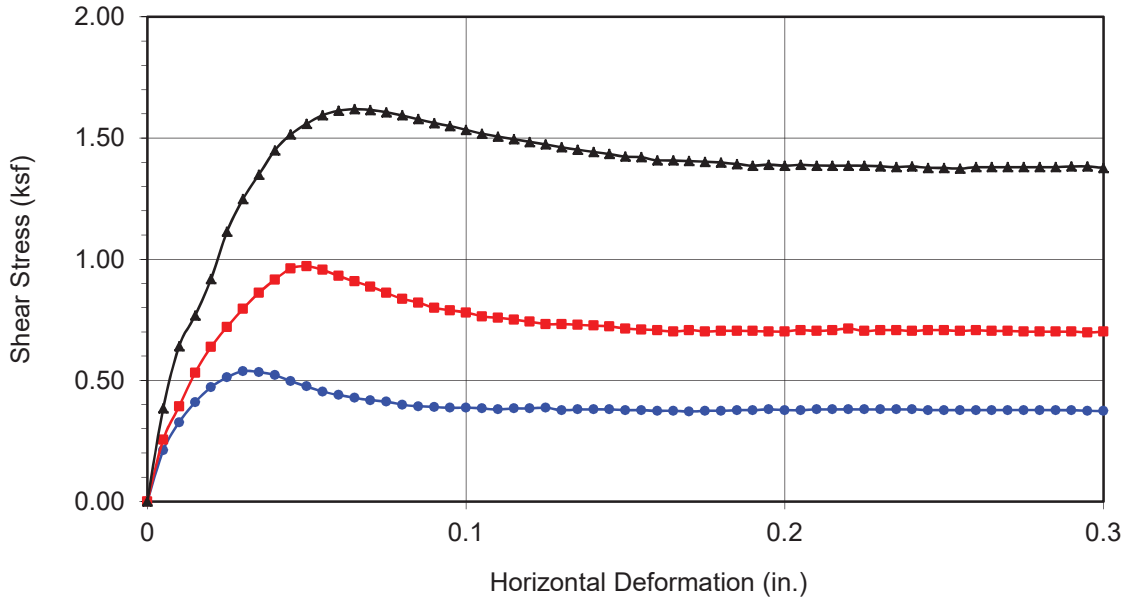
Particle-Size Distribution:

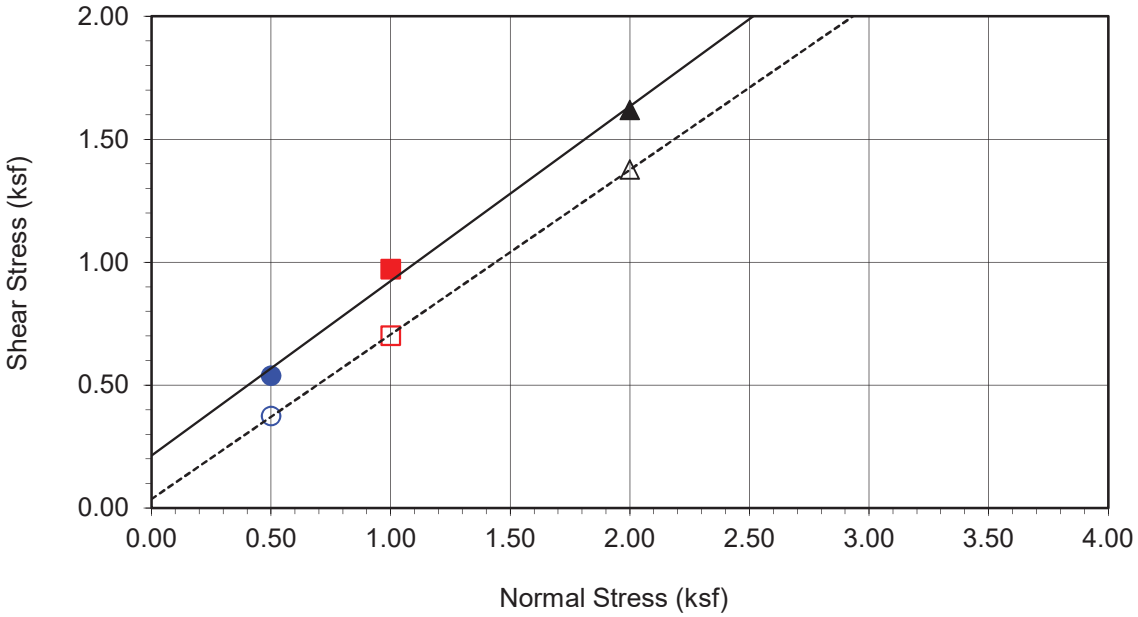
GR:SA:FI

Atterberg Limits:

LL,PL,PI







Boring No.	**S-1**
Sample No.	**1**
Depth (ft)	**2-3**
Sample Type:	90% Remlold
Soil Identification:	Strong brown sandy silt s(ML)

Strength Parameters

	C (psf)	ϕ (°)
Peak	214	35
Ultimate	36	34

Normal Stress (kip/ft²)	0.500	1.000	2.000
Peak Shear Stress (kip/ft²)	● 0.538	■ 0.971	▲ 1.619
Shear Stress @ End of Test (ksf)	○ 0.374	□ 0.701	△ 1.377
Deformation Rate (in./min.)	0.0025R	0.0025R	0.0025R
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	10.30	10.30	10.30
Dry Density (pcf)	111.9	111.9	111.9
Saturation (%)	54.9	54.9	54.9
Soil Height Before Shearing (in.)	0.9954	0.9882	0.9868
Final Moisture Content (%)	16.8	16.5	16.1

Leighton

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 12088.001

OMWD/Zona Gale

07-18

Appendix E: Preliminary Hydrology, Hydraulics, and Stormwater Treatment Study

HYDROLOGY, HYDRAULICS,
& STORMWATER TREATMENT STUDY

FOR

ZONA GALE ESTATES
11 LOT RESIDENTIAL DEVELOPMENT
MULTI-003289-2019

ZONA GALE ROAD
CITY OF ENCINITAS, CA

PREPARED FOR:
ASPEN GROWTH PROPERTIES INC
8799 BALBOA AVENUE, SUITE 260
SAN DIEGO, CA 92123

DATE:
MAY 2020

PREPARED BY:

PASCO LARET SUITER & ASSOCIATES
535 NORTH HIGHWAY 101, SUITE A
SOLANA BEACH, CA 92075

_____

BRIAN M. ARDOLINO, RCE 71651 DATE

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Basin Maps	

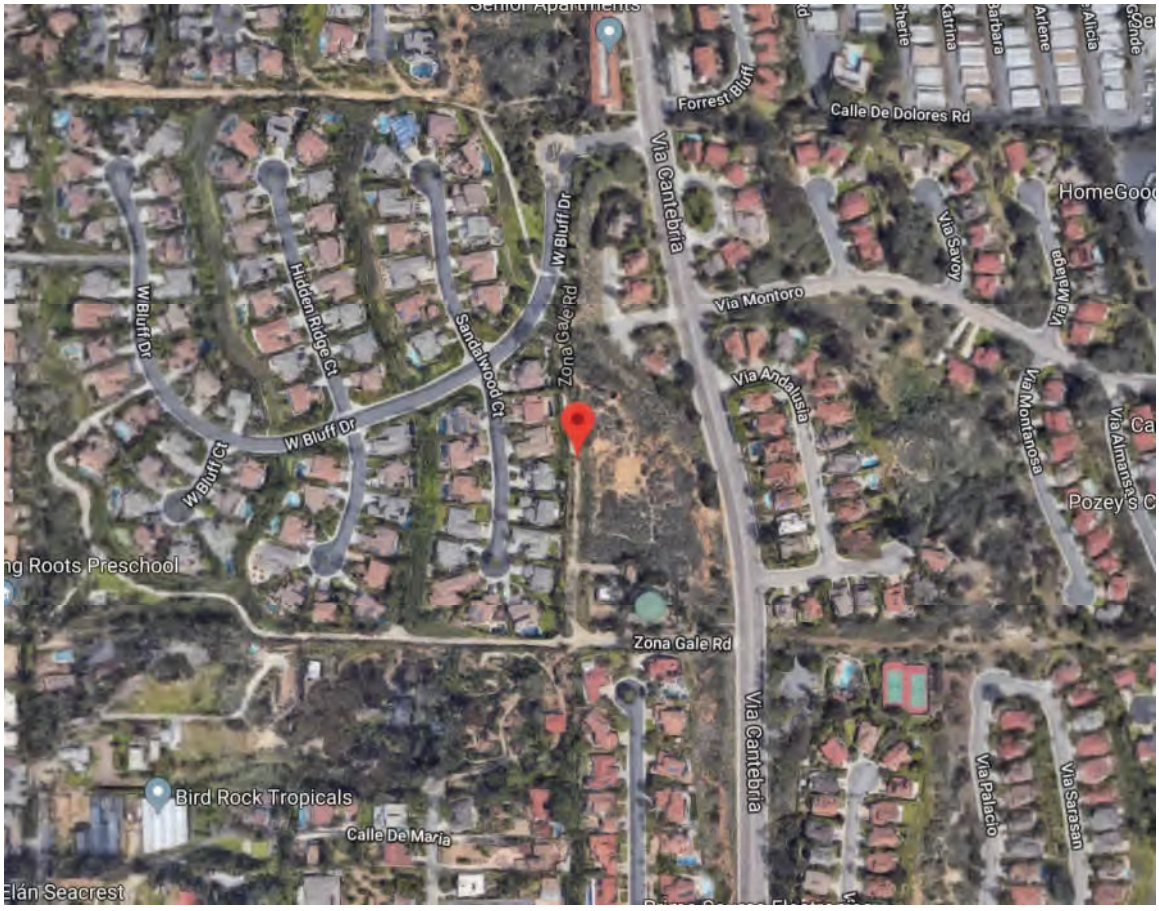
1.0 EXECUTIVE SUMMARY

1.1 Introduction

This Hydrology Study for the Zona Gale Estates project has been prepared to analyze the hydrologic and hydraulic characteristics of the existing and proposed project site. This report intends to present both the methodology and the calculations used for determining the runoff from the project site in both the pre-developed (existing) conditions and the post-developed (proposed) conditions produced by the 100 year 6 hour storm. In addition this report will propose the sizing of all necessary storm drain facilities and storm drain piping necessary for the storm drain system to safely convey the runoff from the 100-year rainfall event.

1.2 Existing Conditions

The project site is located on Zona Gale Road and is bound vacant land to the east and north, water tank to the south, and residential homes to the west as shown on the Vicinity Map below.



In general, the site slopes from the south toward the north and west toward an existing concrete drainage ditch. There is an existing steep slope off-site to the east that slopes down to Via Cantebria. Stormwater from the site drains west to the existing concrete drainage ditch, then north along the ditch and outlets onto W. Bluff Drive. From there it

sheet flows along the street toward Via Cantebria, then south toward an existing public stormdrain curb inlet near the intersection of Via Cantebria and Via Montoro where it is ultimately conveyed to the Pacific Ocean.

1.3 Proposed Project

The intent of the proposed project is to develop the existing site into 11 lots, which include 9 residential single-family home lots, 1 private road lot and 1 stormwater treatment basin lot. The proposed development consists of grading to create pads suitable for the construction of the residences, private roadway access, stormwater treatment basin, associated landscape and hardscape, and associated underground utilities.

The proposed residential lots and the proposed private access roads will drain to proposed stormwater infrastructure that will outlet into the proposed bioretention treatment basin. Stormwater will be caught in a subdrain system, or overflow into one of two proposed 36" grate inlets where it will all outlet to a proposed stormdrain pipe that flows east toward Via Cantebria, and down the existing slope and out a proposed curb outlet onto Via Cantebria, where it will sheet flow north to the existing curb inlet, as it does in the existing condition.

1.4 Hydrologic Unit Contribution

As identified by the San Diego Basin Plan, the proposed project site drains within the Carlsbad Hydrologic Unit, specifically the Batiquitos Sub Area (904.51).

According to the California 2010 USEPA 303d list published by the San Diego Regional Water Quality Control Board, there are impaired water bodies that are associated with Encinitas Creek and the Batiquitos Lagoon. The pollutants and stressors for Encinitas Creek are Benthic, phosphorus, selenium and toxicity. The pollutant and stressor listed for the Batiquitos Lagoon is toxicity.

The proposed project has a relatively low concern for toxicity pollutants and therefore will have a low impact. Any impact will be adequately handled by the proposed Biofiltration basin.

Drainage from the site ultimately discharges to the Pacific Ocean, but the site does not directly discharge into the ocean itself. The path of discharge from the pre-developed condition is as follows: initially collected and conveyed to the northwest corner of the site, conveyed north along an existing PCC drainage ditch and outlets onto W. Bluff Drive. From there it sheet flows along the street toward Via Cantebria, then south toward an existing public stormdrain curb inlet near the intersection of Via Cantebria and Via Montoro where it is ultimately conveyed to the Pacific Ocean. The path of discharge from the post-developed condition is as follows: initially collected and conveyed to the eastern edge of the site, conveyed east in a proposed PVC pipe to a proposed curb outlet along Via Cantebria, where it then sheet flows north toward the existing public

stormdrain curb inlet near the intersection of Via Cantebria and Via Montoro, where it is ultimately conveyed to the Pacific Ocean.

1.5 Preliminary Hydrology Calculations

The existing 100 year peak discharge from the site is 4.93 cfs, and is associated with a time of concentration (Tc) of 8.50 minutes and a total area of 2.6 acres. The post-developed un-mitigated condition peak discharge is 8.88 cfs, and is associated with a Tc of 6.91 minutes and a total area of 2.5 acres. The post-developed mitigated condition peak discharge is 2.56 cfs, and is associated with a time of concentration of 13.54 minutes and a total area of 2.5 acres.

1.6 Conclusions

The proposed development and proposed storm drain design will be capable of not only safely conveying the 100-year storm runoff flow, but has included many instruments into the storm drain system design to ensure that the discharge from the project site is of the best possible quality and will not pose any significant impact or threats to the water quality of the Pacific Ocean, or the public storm drain system. In addition, the proposed development and storm drain improvements will not significantly alter the existing drainage patterns. Any increase in storm water runoff will be mitigated and will not increase the potential for flooding or create an increase in erosion.

This project has been deemed a Priority Project and therefore is subject to Hydromodification criteria. Refer to project Storm Water Quality Management Plan (SWQMP) for a general cross-section of the HMP Biofiltration basin and supporting calculations.

It is with these above reasons that it can be concluded that there will be no negative impact to the downstream storm drain facilities or an increased potential of flooding. Since a major goal of this project is to ensure that all storm water quality issues are addressed to the maximum extent practical, the peak discharge for the proposed site will be utilized to adequately size the components of the storm drain system for this project.

1.7 References

"San Diego County Hydrology Manual", revised June 2003, County of San Diego, Department of Public Works, Flood Control Section.

"Drainage Design Manual", City of San Diego, April 1984, addendum March 1989.

"Grading, Erosion and Sediment Control Ordinance/Chapter", City of Encinitas, Engineering Services and Community Development Department, revised November 2002.

2.0 METHODOLOGY

2.1 Introduction

The hydrologic model used to perform the hydrologic analysis presented in this report utilizes the Ration Method (RM) equation, Q=CIA. The RM formula estimates the peak rate of runoff based on the variables of area, runoff coefficient, and rainfall intensity. The rainfall intensity (I) is equal to:

$$I = 7.44 \times P_6 \times D^{-0.645}$$

Where:

I = Intensity (in/hr)
P_6 = 6-hour precipitation (inches)
D = duration (minutes – use Tc)

Using the Time of Concentration (Tc), which is the time required for a given element of water that originates at the most remote point of the basin being analyzed to reach the point at which the runoff from the basin is being analyzed. The RM equation determines the storm water runoff rate (Q) for a given basin in terms of flow (typically in cubic feet per second (cfs) but sometimes as gallons per minute (gpm)). The RM equation is as follows:

$$Q = CIA$$

Where:

Q= flow (in cfs)
C = runoff coefficient, ratio of rainfall that produces storm water runoff (runoff vs. infiltration/evaporation/absorption/etc)
I = average rainfall intensity for a duration equal to the Tc for the area, in inches per hour.
A = drainage area contributing to the basin in acres.

The RM equation assumes that the storm event being analyzed delivers precipitation to the entire basin uniformly, and therefore the peak discharge rate will occur when a raindrop that falls at the most remote portion of the basin arrives at the point of analysis. The RM also assumes that the fraction of rainfall that becomes runoff or the runoff coefficient C is not affected by the storm intensity, I, or the precipitation zone number.

2.2 County of San Diego Criteria

As defined by the County Hydrology Manual dated June 2003, the rational method is the preferred equation for determining the hydrologic characteristics of basins up to approximately one square mile in size. The County of San Diego has developed its own tables, nomographs, and methodologies for analyzing storm water runoff for areas within the county. The County has also developed precipitation isopluvial contour maps that show even lines of rainfall anticipated from a given storm event (i.e. 100-year, 6-hour storm).

One of the variables of the RM equation is the runoff coefficient, C. The runoff coefficient is dependent only upon land use and soil type and the County of San Diego has developed a table of Runoff Coefficients for Urban Areas to be applied to basin located within the County of San Diego. The table categorizes the land use, the associated development density (dwelling units per acre) and the percentage of impervious area. Each of the categories listed has an associated runoff coefficient, C, for each soil type class.

The County has also illustrated in detail the methodology for determining the time of concentration, in particular the initial time of concentration. The County has adopted the Federal Aviation Agency's (FAA) overland time of flow equation. This equation essentially limits the flow path length for the initial time of concentration to lengths under 100 feet, and is dependent on land use and slope.

2.3 City of Encinitas Standards

The City of Encinitas has additional requirements for hydrology reports which are outlined in the Grading, Erosion and Sediment Control Ordinance. Please refer to this manual for further details.

2.4 Runoff Coefficient Determination

As stated in section 2.2, the runoff coefficient is dependent only upon land use and soil type and the County of San Diego has developed a table of Runoff Coefficients for Urban Areas to be applied to basin located within the County of San Diego. The table, included at the end of this section, categorizes the land use, the associated development density (dwelling units per acre) and the percentage of impervious area. Weighted runoff coefficients were calculated based on the existing and proposed impervious areas for each basin per the County Hydrology Manual section 3.1.2. See section 3.0 and hydrologic node maps for calculations.

3.0 HYDROLOGY MODEL OUTPUT

Rational Method Parameters

Runoff Coefficient C= 0.9 x (% Impervious) + Cp (1-% Impervious)*
Cp=0.35* for existing condition pervious type "D" soils
100 Year 6 Hour Storm Precipitation (P_6)=2.6 in (see rainfall isopluvial*)

*From San Diego County Hydrology Manual, June 2003 Revision Section 3

3.1 Pre-Developed Hydrologic Model Output (100 Year Event)

```
 **************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                            Analysis prepared by:

                       PASCO LARET SUITER & ASSOCIATES
                         535 NORTH HIGHWAY 101, STE A
                            SOLANA BEACH, CA 92075
                                 858-259-8212

 ************************** DESCRIPTION OF STUDY **************************
* ZONA GALE - ENCINITAS CA                                                *
* PRE-DEVELOPEMENT CONDITION                                              *
* 100-YEAR STORM                                                          *
 **************************************************************************

  FILE NAME: 2897E100.DAT
  TIME/DATE OF STUDY: 11:49 07/30/2019
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.600
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   3.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
```

```
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      1.20 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5600
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   160.00
  UPSTREAM ELEVATION(FEET) =    396.20
  DOWNSTREAM ELEVATION(FEET) =    387.30
  ELEVATION DIFFERENCE(FEET) =      8.90
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.486
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.452
  SUBAREA RUNOFF(CFS) =      0.27
  TOTAL AREA(ACRES) =      0.08   TOTAL RUNOFF(CFS) =      0.27

****************************************************************************
  FLOW PROCESS FROM NODE      1.20 TO NODE      1.30 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    387.30  DOWNSTREAM(FEET) =    373.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   467.00   CHANNEL SLOPE =  0.0296
  NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.27
  FLOW VELOCITY(FEET/SEC) =   2.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.02   Tc(MIN.) =    8.50
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.30 =     627.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.30 TO NODE      1.30 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.863
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3900
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3950
  SUBAREA AREA(ACRES) =    2.49   SUBAREA RUNOFF(CFS) =    4.72
  TOTAL AREA(ACRES) =       2.6   TOTAL RUNOFF(CFS) =       4.93
  TC(MIN.) =    8.50
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.6  TC(MIN.) =      8.50
  PEAK FLOW RATE(CFS)   =       4.93
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

3.2 Post-Developed Un-Mitigated Hydrologic Model Output Basin A (100 Year Event)

```
 ************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                              Analysis prepared by:

                         PASCO LARET SUITER & ASSOCIATES
                           535 NORTH HIGHWAY 101, STE A
                              SOLANA BEACH, CA 92075
                                   858-259-8212

 ************************** DESCRIPTION OF STUDY **************************
* ZONA GALE - ENCINITAS CA                                                *
* POST-DEVELOPMENT CONDITION                                              *
* 100-YEAR STORM                                                          *
 ************************************************************************

  FILE NAME: 2897P100.DAT
  TIME/DATE OF STUDY: 10:33 04/27/2020
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.600
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   3.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
  2   10.0      5.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      1.20 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   197.00
```

```
 UPSTREAM ELEVATION(FEET) =    390.20
 DOWNSTREAM ELEVATION(FEET) =    383.90
 ELEVATION DIFFERENCE(FEET) =      6.30
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.254
 WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
          THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
          (Reference: Table 3-1B of Hydrology Manual)
          THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.635
 SUBAREA RUNOFF(CFS) =      0.58
 TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.58

****************************************************************************
 FLOW PROCESS FROM NODE      1.20 TO NODE      1.30 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  383.90  DOWNSTREAM ELEVATION(FEET) =  377.60
 STREET LENGTH(FEET) =   210.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 10.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   5.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.93
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.26
   HALFSTREET FLOOD WIDTH(FEET) =    7.77
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.80
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.73
 STREET FLOW TRAVEL TIME(MIN.) =   1.25   Tc(MIN.) =    6.50
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.782
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6400
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.645
 SUBAREA AREA(ACRES) =    0.73      SUBAREA RUNOFF(CFS) =    2.70
 TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       3.20

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   9.65
 FLOW VELOCITY(FEET/SEC.) =  3.15   DEPTH*VELOCITY(FT*FT/SEC.) =   0.94
 LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.30 =     407.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      1.30 TO NODE      1.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   377.60  DOWNSTREAM(FEET) =   377.56
 FLOW LENGTH(FEET) =     4.00   MANNING'S N =  0.009
 DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.77
 ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       3.20
```

```
  PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =    6.51
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.40 =     411.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.50 TO NODE      1.50 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.776
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6476
  SUBAREA AREA(ACRES) =    1.10   SUBAREA RUNOFF(CFS) =    4.13
  TOTAL AREA(ACRES) =        2.0   TOTAL RUNOFF(CFS) =       7.33
  TC(MIN.) =    6.51

****************************************************************************
  FLOW PROCESS FROM NODE      1.50 TO NODE      1.60 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   375.00  DOWNSTREAM(FEET) =   374.80
  FLOW LENGTH(FEET) =     9.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   9.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.85
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.33
  PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =    6.53
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.60 =     420.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.60 TO NODE      1.60 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.768
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5300
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6233
  SUBAREA AREA(ACRES) =    0.51   SUBAREA RUNOFF(CFS) =    1.56
  TOTAL AREA(ACRES) =        2.5   TOTAL RUNOFF(CFS) =       8.88
  TC(MIN.) =    6.53

****************************************************************************
  FLOW PROCESS FROM NODE      1.60 TO NODE      1.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   374.80  DOWNSTREAM(FEET) =   373.00
  FLOW LENGTH(FEET) =   154.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  11.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.07
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.88
  PIPE TRAVEL TIME(MIN.) =   0.28    Tc(MIN.) =    6.81
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.70 =     574.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.70 TO NODE      1.80 IS CODE =  31
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   372.30  DOWNSTREAM(FEET) =   338.55
  FLOW LENGTH(FEET) =   136.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  28.93
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.88
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    6.89
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.80 =     710.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.80 TO NODE      1.90 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   338.55  DOWNSTREAM(FEET) =   338.35
  FLOW LENGTH(FEET) =     9.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  11.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.70
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.88
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =    6.91
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.90 =     719.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.5  TC(MIN.) =      6.91
  PEAK FLOW RATE(CFS)   =       8.88
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

3.3 Post-Developed Un-Mitigated Hydrologic Model Output Basin B (100 Year Event)

```
_____________________________________________________________________________
 ****************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
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              Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                           Analysis prepared by:




 ************************** DESCRIPTION OF STUDY **************************
* ZONA GALE - ENCINITAS CA                                                *
* POST-DEVELOPMENT CONDITION                                              *
* BASIN 2 - 100-YEAR STORM                                                *
 ****************************************************************************

  FILE NAME: 2897B100.DAT
  TIME/DATE OF STUDY: 14:19 04/24/2020
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.600
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   3.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: CONSIDER ALL CONFLUENCE STREAM COMBINATIONS
        FOR ALL DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE      2.10 TO NODE      2.20 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   408.00
```

```
  UPSTREAM ELEVATION(FEET) =    389.60
  DOWNSTREAM ELEVATION(FEET) =    389.00
  ELEVATION DIFFERENCE(FEET) =      0.60
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =   12.027
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =    50.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.889
  SUBAREA RUNOFF(CFS) =      0.22
  TOTAL AREA(ACRES) =      0.16   TOTAL RUNOFF(CFS) =      0.22

****************************************************************************
  FLOW PROCESS FROM NODE      2.20 TO NODE      2.30 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    389.00  DOWNSTREAM(FEET) =    373.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =    48.00   CHANNEL SLOPE =  0.3229
  NOTE: CHANNEL FLOW OF 1. CFS WAS ASSUMED IN VELOCITY ESTIMATION
  NOTE: CHANNEL SLOPE OF .1 WAS ASSUMED IN VELOCITY ESTIMATION
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.22
  FLOW VELOCITY(FEET/SEC) =   4.74 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   0.17   Tc(MIN.) =   12.20
  LONGEST FLOWPATH FROM NODE      2.10 TO NODE      2.30 =     456.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      2.30 TO NODE      2.30 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.854
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    0.14   SUBAREA RUNOFF(CFS) =    0.19
  TOTAL AREA(ACRES) =        0.3   TOTAL RUNOFF(CFS) =       0.40
  TC(MIN.) =   12.20
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.3  TC(MIN.) =     12.20
  PEAK FLOW RATE(CFS)   =       0.40
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

3.4 Post-Developed Mitigated Hydrologic Model Output Basin A (100 Year Event)

```
 ************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2016 Advanced Engineering Software (aes)
              Ver. 23.0 Release Date: 07/01/2016  License ID 1452

                              Analysis prepared by:

                         PASCO LARET SUITER & ASSOCIATES
                           535 NORTH HIGHWAY 101, STE A
                              SOLANA BEACH, CA 92075
                                   858-259-8212

 ************************** DESCRIPTION OF STUDY **************************
* ZONA GALE - ENCINITAS CA                                                *
* POST-DEVELOPMENT CONDITION   DETAINED                                   *
* 100-YEAR STORM                                                          *
 ************************************************************************

  FILE NAME: 2897PD00.DAT
  TIME/DATE OF STUDY: 10:40 04/27/2020
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   2.600
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   3.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
  2   10.0      5.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      1.20 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6700
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   197.00
  UPSTREAM ELEVATION(FEET) =    390.20
  DOWNSTREAM ELEVATION(FEET) =    383.90
```

```
  ELEVATION DIFFERENCE(FEET) =      6.30
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.254
  WARNING: INITIAL SUBAREA FLOW PATH LENGTH IS GREATER THAN
           THE MAXIMUM OVERLAND FLOW LENGTH =   100.00
           (Reference: Table 3-1B of Hydrology Manual)
           THE MAXIMUM OVERLAND FLOW LENGTH IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.635
  SUBAREA RUNOFF(CFS) =      0.58
  TOTAL AREA(ACRES) =      0.13   TOTAL RUNOFF(CFS) =      0.58

****************************************************************************
  FLOW PROCESS FROM NODE      1.20 TO NODE      1.30 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  383.90  DOWNSTREAM ELEVATION(FEET) =  377.60
  STREET LENGTH(FEET) =   210.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 10.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   5.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.93
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.26
    HALFSTREET FLOOD WIDTH(FEET) =    7.77
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.80
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.73
  STREET FLOW TRAVEL TIME(MIN.) =   1.25   Tc(MIN.) =    6.50
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.782
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6400
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.645
  SUBAREA AREA(ACRES) =    0.73      SUBAREA RUNOFF(CFS) =    2.70
  TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       3.20

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   9.65
  FLOW VELOCITY(FEET/SEC.) =  3.15   DEPTH*VELOCITY(FT*FT/SEC.) =   0.94
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.30 =     407.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.30 TO NODE      1.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   377.60  DOWNSTREAM(FEET) =   377.56
  FLOW LENGTH(FEET) =     4.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.77
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.20
  PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =    6.51
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.40 =     411.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE      1.50 TO NODE      1.50 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.776
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6500
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6476
 SUBAREA AREA(ACRES) =    1.10   SUBAREA RUNOFF(CFS) =    4.13
 TOTAL AREA(ACRES) =        2.0   TOTAL RUNOFF(CFS) =       7.33
 TC(MIN.) =    6.51

****************************************************************************
 FLOW PROCESS FROM NODE      1.50 TO NODE      1.50 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN) =  13.01   RAIN INTENSITY(INCH/HOUR) =  3.70
 TOTAL AREA(ACRES) =     2.00   TOTAL RUNOFF(CFS) =      1.56

****************************************************************************
 FLOW PROCESS FROM NODE      1.50 TO NODE      1.60 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   375.00  DOWNSTREAM(FEET) =   374.80
 FLOW LENGTH(FEET) =     9.00   MANNING'S N =  0.009
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.65
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.56
 PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   13.03
 LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.60 =     420.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      1.60 TO NODE      1.60 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   13.03
 RAINFALL INTENSITY(INCH/HR) =   3.69
 TOTAL STREAM AREA(ACRES) =     2.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.56

****************************************************************************
 FLOW PROCESS FROM NODE      1.60 TO NODE      1.60 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN) =   6.53   RAIN INTENSITY(INCH/HOUR) =  5.77
 TOTAL AREA(ACRES) =     0.51   TOTAL RUNOFF(CFS) =      1.56

****************************************************************************
 FLOW PROCESS FROM NODE      1.60 TO NODE      1.60 IS CODE =   1
----------------------------------------------------------------------------
```

```
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.53
  RAINFALL INTENSITY(INCH/HR) =   5.77
  TOTAL STREAM AREA(ACRES) =     0.51
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.56

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        1.56    13.03        3.693          2.00
      2        1.56     6.53        5.767          0.51

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        2.34     6.53       5.767
      2        2.56    13.03       3.693

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       2.56   Tc(MIN.) =   13.03
  TOTAL AREA(ACRES) =        2.5
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.60 =     420.00 FEET.

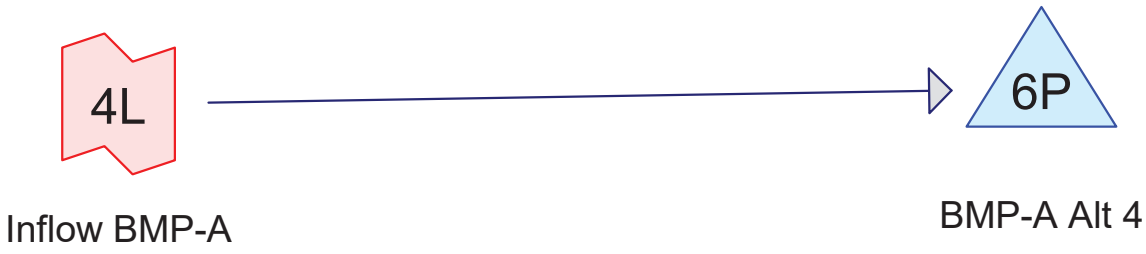
****************************************************************************
  FLOW PROCESS FROM NODE      1.60 TO NODE      1.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   374.80  DOWNSTREAM(FEET) =   373.00
  FLOW LENGTH(FEET) =   154.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   5.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.81
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.56
  PIPE TRAVEL TIME(MIN.) =   0.38    Tc(MIN.) =   13.41
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.70 =     574.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.70 TO NODE      1.80 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   372.30  DOWNSTREAM(FEET) =   338.55
  FLOW LENGTH(FEET) =   136.00   MANNING'S N =  0.009
  DEPTH OF FLOW IN   6.0 INCH PIPE IS   3.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  21.33
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.56
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =   13.51
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.80 =     710.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      1.80 TO NODE      1.90 IS CODE =  31
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   338.55  DOWNSTREAM(FEET) =   338.35
  FLOW LENGTH(FEET) =     9.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.58
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.56
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =   13.54
  LONGEST FLOWPATH FROM NODE      1.10 TO NODE      1.90 =     719.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.5  TC(MIN.) =     13.54
  PEAK FLOW RATE(CFS)   =       2.56
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

3.5 Hydraulic Output & Calculations



Subcat Reach Pond Link

Routing Diagram for 2897
Prepared by Pasco Laret Suiter & Associates, Printed 4/27/2020
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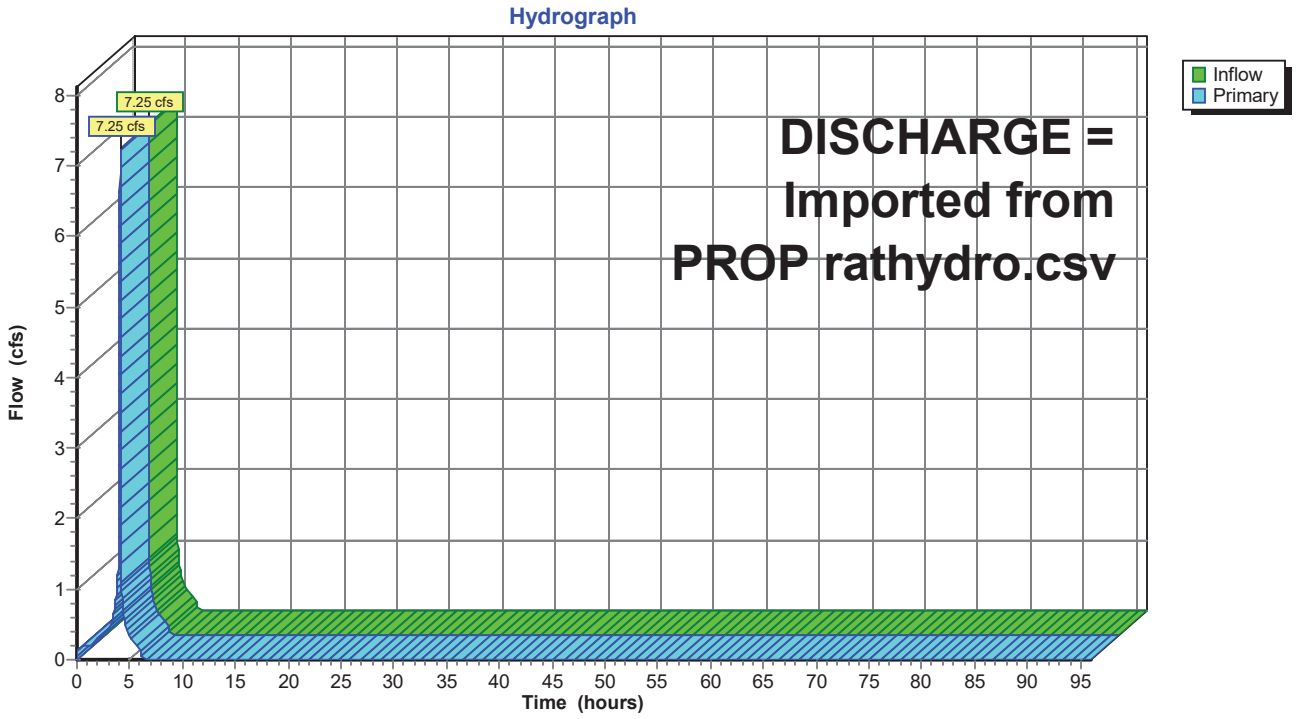
Summary for Link 4L: Inflow BMP-A

Inflow	=	7.25 cfs @	4.08 hrs, Volume=	0.263 af
Primary	=	7.25 cfs @	4.08 hrs, Volume=	0.263 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.005 hrs

DISCHARGE = Imported from PROP rathydro.csv

Link 4L: Inflow BMP-A



Summary for Pond 6P: BMP-A Alt 4

Inflow	=	7.25 cfs @	4.08 hrs,	Volume=	0.263 af
Outflow	=	1.56 cfs @	4.19 hrs,	Volume=	0.263 af, Atten= 79%, Lag= 6.5 min
Primary	=	1.56 cfs @	4.19 hrs,	Volume=	0.263 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.005 hrs
Peak Elev= 101.57' @ 4.19 hrs Surf.Area= 2,000 sf Storage= 4,540 cf

Plug-Flow detention time= 52.3 min calculated for 0.263 af (100% of inflow)
Center-of-Mass det. time= 52.4 min (265.3 - 212.8)

Volume	Invert	Avail.Storage	Storage Description
#1	97.50'	5,400 cf	**BMP-A (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.50	2,000	0.0	0	0	2,000
98.50	2,000	40.0	800	800	2,159
100.00	2,000	20.0	600	1,400	2,396
102.00	2,000	100.0	4,000	5,400	2,713

Device	Routing	Invert	Outlet Devices
#1	Primary	97.50'	**12.0" Round Culvert** L= 100.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 97.50' / 96.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	97.50'	**4.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate X 0.50** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads
#4	Device 1	101.50'	**36.0" x 36.0" Horiz. Grate X 0.50** C= 0.600 in 36.0" x 36.0" Grate (100% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.55 cfs @ 4.19 hrs HW=101.57' (Free Discharge)
└**1=Culvert** (Passes 1.55 cfs of 6.10 cfs potential flow)
  ├**2=Orifice** (Orifice Controls 0.83 cfs @ 9.51 fps)
  ├**3=Grate** (Weir Controls 0.36 cfs @ 0.43 fps)
  └**4=Grate** (Weir Controls 0.36 cfs @ 0.43 fps)

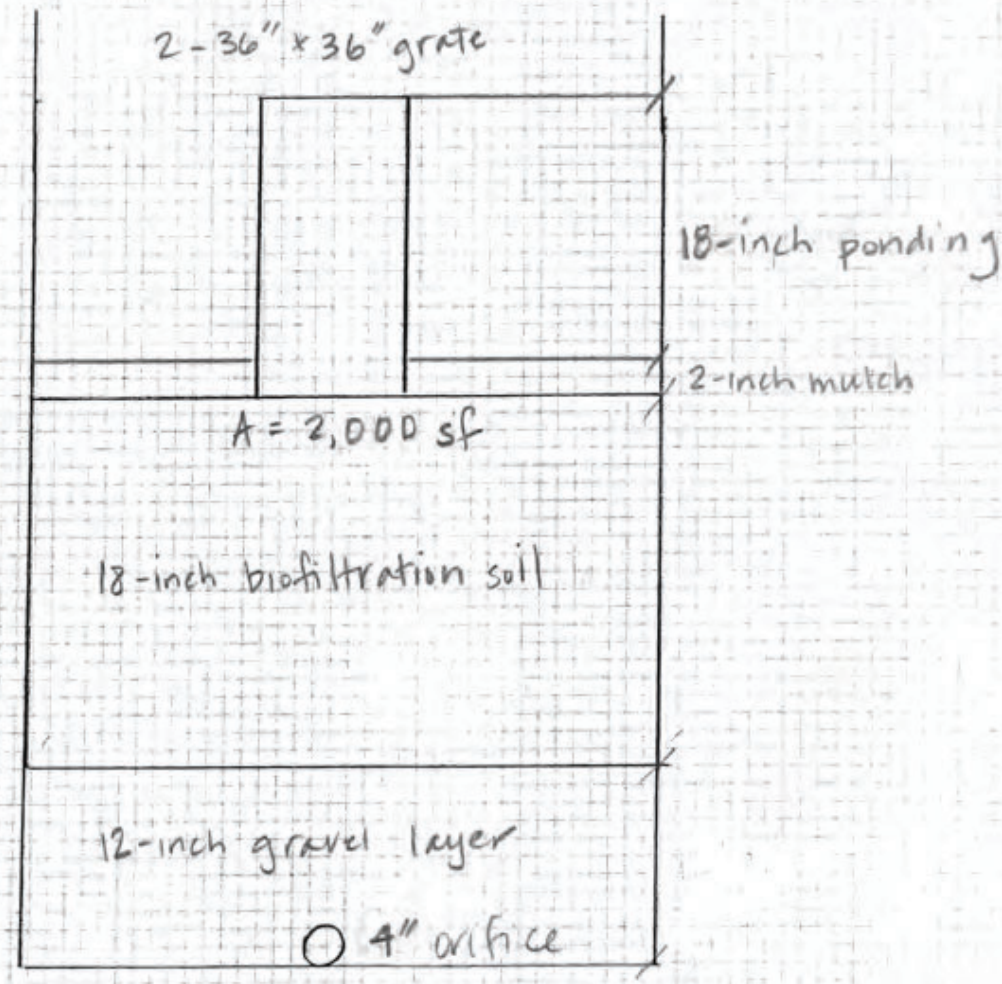
PASCO LARET SUITER
& ASSOCIATES

Zona Gale

Date 4/27/2020

Job# 2897

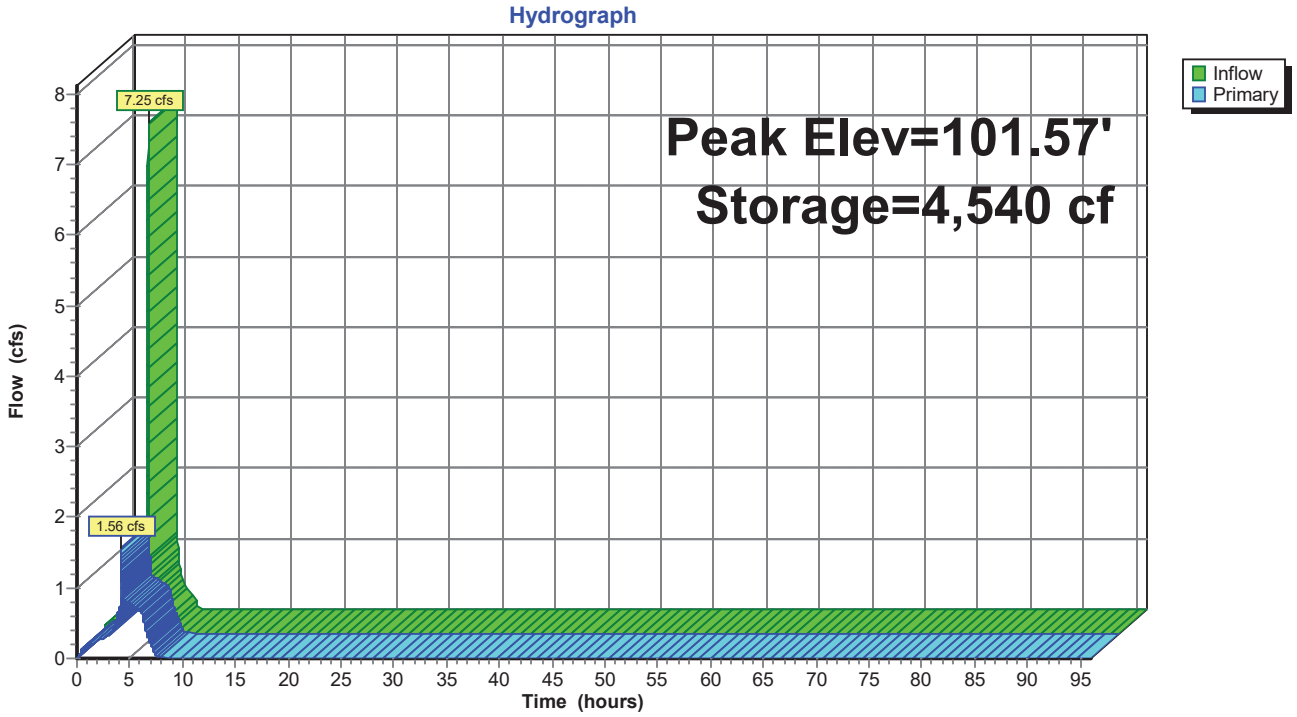
HMP Biofiltration Basin BMP-A



Not to scale

A-11 #4
D Soil

Pond 6P: BMP-A Alt 4



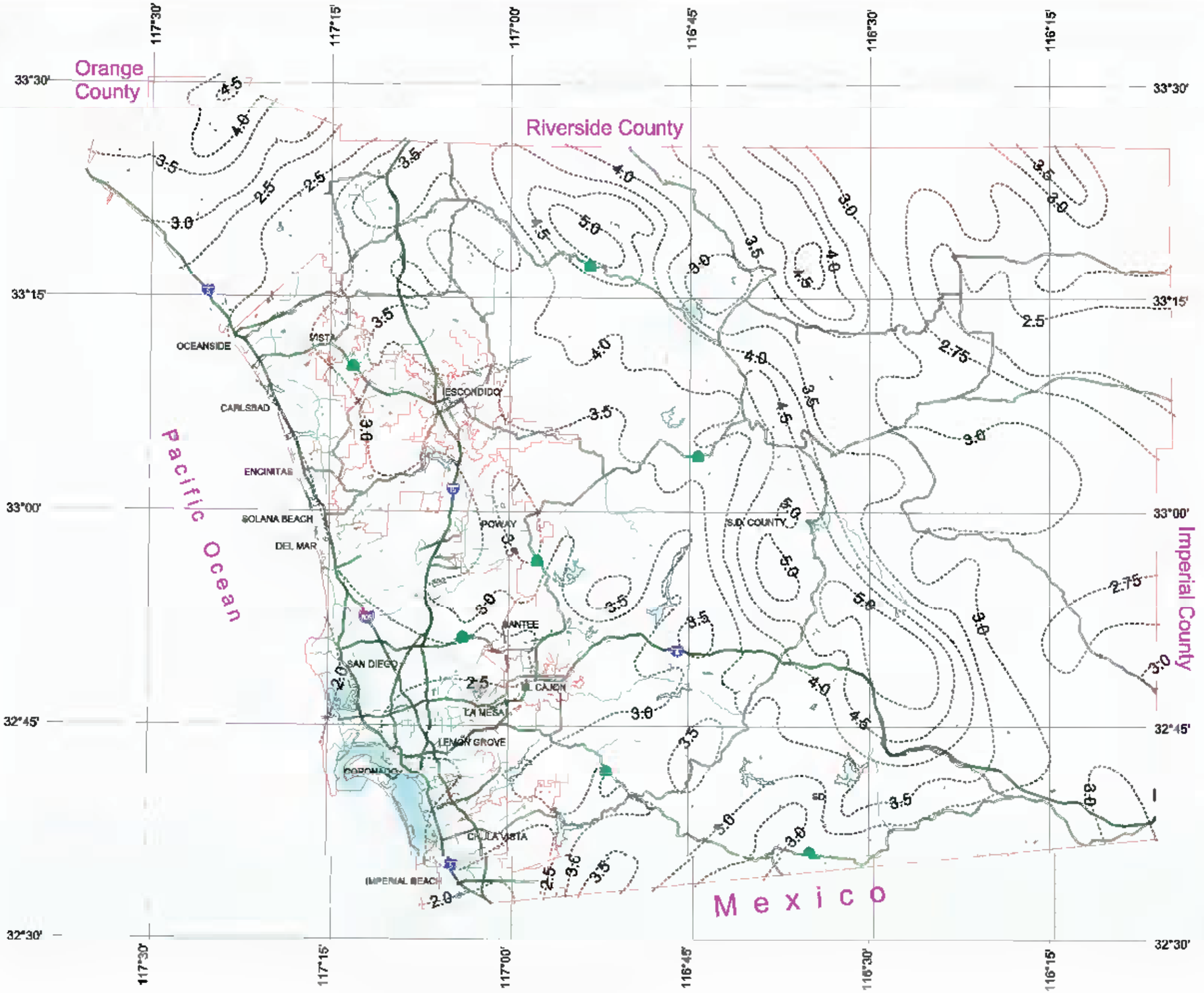
4.0 ATTACHMENTS

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)



DPW GIS — Department of Public Works Geographic Information Services

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N W E S

3 0 3 Miles

HYDROLOGIC NODE MAP
PRE-DEVELOPMENT CONDITION

'C' CALCULATIONS

PER COUNTY HYDROLOGY MANUAL 3.1.2
C=0.9 X (% IMPERVIOUS) + Cp x (1-% IMPERVIOUS)

Cp = 0.35 FOR TYPE 'D' SOIL

SUB-AREA A
C=0.9 X 0.39 + [(1-0.39)X0.35]
C=0.56

SUB-AREA B
C=0.9 X 0.08 + [(1-0.08)X0.35]
C=0.39

GRAPHIC SCALE 1"=20'
0 20 40 60

LEGEND
BASIN BOUNDARY
SUB-AREA BOUNDARY
FLOW LINE
IMPERVIOUS AREA — 9,901 SF (617 SF ON-SITE + 9,284 SF OFF-SITE)

SUB-AREA B
A= 108,626 SF (2.49 AC)
C=0.39

SUB-AREA A
A= 3,256 SF (0.075 AC)
C=0.56

NODE 1.1
EL 396.2

NODE 1.2
EL 387.3

NODE 1.3
EL 373.5

L=160'

L=467'

TANK

HYDROLOGIC NODE MAP
POST-DEVELOPMENT CONDITION

'C' CALCULATIONS

PER COUNTY HYDROLOGY MANUAL 3.1.2
C=0.9 X (% IMPERVIOUS) + Cp X (1-% IMPERVIOUS)

Cp = 0.35 FOR TYPE 'D' SOIL

SUB-AREA A
C=0.9 X 0.588 + [(1-0.588)X0.35]
C=0.67

SUB-AREA B
C=0.9 X 0.529 + [(1-0.529)X0.35]
C=0.64

SUB-AREA C
C=0.9 X 0.544 + [(1-0.544)X0.35]
C=0.65

SUB-AREA D
C=0.9 X 0.324 + [(1-0.324)X0.35]
C=0.53

BASIN 2
C=0.9 X 0.00 + [(1-0.00)X0.35]
C=0.35

GRAPHIC SCALE 1"=20'
0 20 40 60

LEGEND
BASIN BOUNDARY
SUB-AREA BOUNDARY
FLOW LINE
IMPERVIOUS AREA — 53,189 SF (46,040 SF ON-SITE + 7,149 SF OFF-SITE)

NODE 1.9
EL 338.35
L=9'
NODE 1.8
EL 338.55
L=136'
NODE 2.1
EL 389.6
NODE 1.7
EL 373.0
EL 372.3
SUB-AREA C
A= 47,741 SF (1.10 AC)
C=0.65
BASIN 2A
A= 6,927 SF (0.16 AC)
C=0.35
L=408'
L=154'
NODE 1.6
EL 374.8
9'
NODE 1.5
EL 377.55
EL 375.0
NODE 1.4
EL 377.56
L=4'
NODE 1.3
EL 377.6
SUB-AREA B
A= 31,662 SF (0.73 AC)
C=0.64
SUB-AREA D
A= 22,036 SF (0.51 AC)
C=0.53
NODE 1.1
EL 390.2
SUB-AREA A
A= 5,625 SF (0.13 AC)
C=0.67
L=210'
NODE 1.2
EL 383.9
L=197'
NODE 2.2
EL 389.0
L=48'
BASIN 2B
A= 6,220 SF (0.14 AC)
C=0.35
NODE 2.3
EL 373.5

Appendix F: Storm Water Quality Management Plan

CITY OF ENCINITAS
STORMWATER INTAKE FORM AND PRIORITY DEVELOPMENT PROJECT
STORMWATER QUALITY MANAGEMENT PLAN (SWQMP)

FOR:

ZONA GALE ESTATES

11 LOT RESIDENTIAL DEVELOPMENT

MULTI-003289-2019
ZONA GALE RAOD
ENCINITAS, CA 92024
APN 257-401-11

PREPARED BY:
BRIAN M. ARDOLINO, RCE 71651
PASCO LARET SUITER & ASSOCIATES
535 NORTH HIGHWAY 101, SUITE A
SOLANA BEACH, CA 92075
858-259-8212

PREPARED FOR:
ASPEN GROWTH PROPERTIES INC
8799 BALBOA AVENUE, SUITE 260
SAN DIEGO, CA 92123

DATE OF SWQMP:
MAY 2020

GRADING PLAN PREPARED BY:
BRIAN M. ARDOLINO, RCE 71651
PASCO LARET SUITER & ASSOCIATES
535 NORTH HIGHWAY 101, SUITE A
SOLANA BEACH, CA 92075
858-259-8212

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ATTACHMENT 2 - BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES
ATTACHMENT 3 - Structural BMP Maintenance Information
ATTACHMENT 4 - Copy of Plan Sheets Showing Permanent Storm Water BMPs

PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the Priority Development Project (PDP) requirements of the City of Encinitas BMP Design Manual, which is a design manual for compliance with local City of Encinitas and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP Storm Water Quality Management Plan (SWQMP) by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.



Engineer of Work's Signature, PE Number

Brian M. Ardolino, RCE 71651
Print Name

Pasco, Laret, Suiter & Associates
Company

5/7/2020
Date

Engineer's Seal



PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for Aspen Growth Properties Inc by Pasco Laret Suiter & Associates. The PDP SWQMP is intended to comply with the PDP requirements of the City of Encinitas BMP Design Manual, which is a design manual for compliance with local City of Encinitas and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan. Once the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

_____

Project Owner's Signature

_____

Print Name

_____

Company

_____

Date

SUBMITTAL RECORD

Use this table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In the fourth column, summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Submittal Number	Date	Project Status	Summary of Changes
1	August 2019	√ Preliminary Design / Planning/ CEQA Final Design	Initial Submittal
2	May 2020	√ Preliminary Design / Planning/ CEQA Final Design	2nd TM Submittal
3		Preliminary Design / Planning/ CEQA Final Design	
4		Preliminary Design / Planning/ CEQA Final Design	
5		Preliminary Design / Planning/ CEQA Final Design	

PROJECT IDENTIFICATION

Project/Applicant Name: Zona Gale Estates	
Permit/Application Number: MULTI-003289-2019	Date: May 2020
Site Address: Zona Gale Road	APN: 257-401-11
Scope of work/project description: The site exists as a vacant lot. The project proposes to develop the lot into 11 lots, 9 of which will be single-family residential. The proposed project consists of grading, construction of residences, private access roads, stormwater treatment basin, landscape, hardscape and associated underground utilities.	

DETERMINATION OF PROJECT STATUS AND REQUIREMENTS

This form will identify permanent, post construction BMP requirements. Refer to City of Encinitas Stormwater BMP Design Manual for guidance.

Step 1: Is the project a "development project"? Development projects are defined as "construction, rehabilitation, redevelopment, or reconstruction of any public or private projects". See Section 1.3 and Table 1-2 of the manual for guidance. For example, interior remodels, roof replacements, and electrical and plumbing work are not development projects.	√ Yes	***Go to Step 2.***
	□No	***Stop.*** Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.

If "No", provide discussion / justification explaining why the project is not a "development project":

Step 2: Complete questions below for Project Type Determination.

The project is (select one): ■ New Development □ Redevelopment

The total proposed, newly created and/or replaced impervious area is: 27,142 sf

Is the project in any of the following categories, (a) through (f) below?

Yes ■	No □	(a)	New development projects or redevelopment projects that create and/or replaced 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects.
Yes □	No ■	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects.

Yes □	No ■	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
Yes □	No ■	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharge directly to an Environmentally Sensitive Area (ESA). "Discharge directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and SDRWQCB; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and SDRWQCB; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See manual Section 1.4.2 for additional guidance.
Yes □	No ■	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets. This category includes retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic of 100 or more vehicles per day.
Yes ■	No □	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the PDP categories (a) through (f) listed above?

■ Yes – **The project is a Priority Development Project, the applicant shall provide PDP Post Construction BMPs and *continue to Step 3*.**

□ No – **The project is a Standard or Basic Project. *Stop here and complete the "City of Encinitas Stormwater Intake Form for All Developments and Standard Projects SWQMP".***

The following is for *redevelopment PDPs* only:

The area of existing (pre-project) impervious area at the project site is: ft^2 (A)
The total proposed newly created or replaced impervious area is: ft^2 (B)
Percent impervious surface created or replaced (B/A)*100:
The percent impervious surface created or replaced is (select one based on the above calculation):

□ Less than or equal to fifty percent (50%) – only new and/or replaced impervious areas are considered PDP subject to treatment and HMP criteria

OR

□ Greater than fifty percent (50%) – the entire site is a PDP; treatment and HMP criteria apply to entire site regardless of whether it is replaced

Step 3 (PDPs only): Do hydromodification control requirements apply? See Section 1.6 of the BMP Design Manual for guidance.	■ Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). ***Go to Step 4.***
	□ No	PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below. ***Go to "Site Information Checklist"***

Discussion / justification if hydromodification control requirements do not apply:

Step 4 (PDPs subject to treatment and hydromodification controls): Does protection of critical coarse sediment yield areas apply based on review of City of Encinitas Potential Critical Coarse Sediment Yield Area Map? See Section 6.2 of the BMP Design Manual for guidance.	■ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). ***Go to "Site Information Checklist"***
	□ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. ***Go to "Site Information Checklist"***

Discussion / justification if management measures not required for protection of critical coarse sediment yield areas:

Pursuant to the City of Encinitas Potential Critical Coarse Sediment Yield Area GIS layer, there are potential critical coarse sediment yield areas located on the project site. GLU Analysis performed, see Attachment 2b.

SITE INFORMATION CHECKLIST

Project's Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Carlsbad Hydrologic Unit, San Marcos Hydrologic Area, Batiquitos Sub Area, 904.51
Parcel Area (Total area of Assessor's Parcel(s) associated with the project)	1.791 Acres (78,017 Square Feet)
Area to be Disturbed by the Project (Project Area)	2.099 Acres (91,469 Square Feet)
Project Proposed Impervious Area (Subset of Project Area)	1.097 Acres (47,804 Square Feet)
Project Proposed Pervious Area (Subset of Project Area)	1.002 Acres (43,665 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

Description of Existing Site Condition

Current status of the site (select all that apply):

☐Previously graded but not built out

■ Existing development

☐Demolition completed without new construction

☐ Agricultural or other non-impervious use

■ Vacant, undeveloped/natural

Description / Additional Information:

The project site currently exists as an undeveloped site. Off-site private asphalt road improvements, public right-of-way impervious improvements also included.

Existing Land Cover includes (select all that apply):

■ Vegetative Cover

☐ Non-Vegetated Pervious Areas

■ Impervious Areas

Description / Additional Information:
Project site exists as an undeveloped site, with sparse natural vegetation. Off-site private asphalt road improvements, public right-of-way impervious improvements also included.

Underlying soil belongs to Hydrologic Soil Group (select all that apply):

☐NRCS Type A
■ NRCS Type B
☐NRCS Type C
■ NRCS Type D

According to web soil survey, the site consists of Type B soil, however per the project geotechnical report, the soil has very poor infiltration rates. See project geotechnical report.

Approximate Depth to Groundwater (GW):

☐ GW Depth < 5 feet

☐ 5 feet < GW Depth < 10 feet

□ 10 feet < GW Depth < 20 feet
■ GW Depth > 20 feet

Per project soils report, subsurface water was not encountered in project test excavations to the depths explored and is not expected to impact site development.

Existing Natural Hydrologic Features (select all that apply):

☐ Watercourses

☐ Seeps

☐ Springs

☐ Wetlands
■ None

Description / Additional Information:

Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

1) Is existing drainage conveyance natural or urban?
2) Is runoff from offsite conveyed through the site? If yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site.
3) Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels. And
4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns:

In general, the site slopes from the south toward the north and west toward an existing concrete drainage ditch. There is an existing steep slope off-site to the east that slopes down to Via Cantebria. Stormwater from the site drains west to the existing concrete drainage ditch, then north along the ditch and outlets onto W. Bluff Drive. From there it sheet flows along the street toward Via Cantebria, then south toward an existing public storm drain curb inlet near the intersection of Via Cantebria and Via Montoro where it is ultimately conveyed to the Pacific Ocean.

Drainage Basin	Area (ac)	Q100 (cfs)
Pre-project	2.6	4.93

Refer to the drainage report for the project titled " Hydrology, Hydraulics, & Stormwater Treatment Study for Zona Gale Estates" prepared by Pasco Laret Suiter & Associates dated May 2020.

Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:

The project proposes to develop the existing site into 9 single-family residences, private access road, bioretention area designed for stormwater treatment and hydromodification management, landscape, hardscape and associated utilities.

Private road widening is also proposed south of the project site to maintain fire access. Due to the location and geographical limitations, a typical basin design is not feasible. Proposed pervious pavers are proposed to minimize impervious area and provide opportunities for infiltration.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

Proposed on-site impervious features include buildings, walkways, patios and private access roads.

List/describe proposed pervious features of the project (e.g., landscape areas):

Proposed pervious features include bioretention BMP planter and landscape areas.

Off-site private road pervious paver blocks proposed for widening.

Does the project include grading and changes to site topography?

■ Yes

☐ No

Description / Additional Information:

Site grading is proposed

Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

■ Yes

□ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns:

The proposed residential lots and the proposed private access roads will drain to proposed stormwater infrastructure that will outlet into the proposed bioretention treatment basin. Stormwater will be caught in a subdrain system, or overflow into one of two proposed 36" grate inlets where it will all outlet to a proposed stormdrain pipe that flows east toward Via Cantebria, and down the existing slope and out a proposed curb outlet onto Via Cantebria, where it will sheet flow north to the existing curb inlet, as it does in the existing condition.

Drainage Basin	Area (ac)	Q100 (cfs)
Pre-project	2.6	4.93
Post-Project Undetained Basin A	2.5	8.88
Post-Project Undetained Basin B	0.3	0.40
Post-Project Detained Basin A	2.5	2.56

Refer to the drainage report for the project titled "Hydrology, Hydraulics, & Stormwater Treatment Study for Zona Gale Estates" prepared by Pasco Laret Suiter & Associates dated May 2020.

Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):

The proposed residential lots and the proposed private access roads will drain to proposed stormwater infrastructure that will outlet into the proposed bioretention treatment basin. Stormwater will be caught in a subdrain system, or overflow into one of two proposed 36" grate inlets where it will all outlet to a proposed stormdrain pipe that flows east toward Via Cantebria, and down the existing slope and out a proposed curb outlet onto Via Cantebria, where it will sheet flow north to the existing curb inlet, and ultimately out to the Pacific Ocean

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
Batiquitos Lagoon	Toxicity	TMDL Required
Encinitas Creek	Benthic Community Effects, phosphorus, selenium, Toxicity	TMDL Required

Identification of Project Site Pollutants*

***Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)**

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment			
Nutrients			
Heavy Metals			
Organic Compounds			
Trash & Debris			
Oxygen Demanding Substances			
Oil & Grease			
Bacteria & Viruses			
Pesticides			

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

■ Yes, hydromodification management flow control structural BMPs required.

☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

Critical Coarse Sediment Yield Areas*

*This section only required if hydromodification management requirements apply

Based on the maps provided within the City of Encinitas Engineering Design Manual dated January 2016, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

■ Yes

☐ No, no critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the BMP Design Manual been performed?

☐ 6.2.1 Verification of Geomorphic Landscape Units (GLUs) Onsite

☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment

■ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

☐ No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what was the final result?

☐ No critical coarse sediment yield areas to be protected based on verification of GLUs onsite

☐ Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 2.b of the SWQMP.

☐ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Pursuant to the City of Encinitas Potential Critical Coarse Sediment Yield Area GIS layer, there are potential critical coarse sediment yield areas located on the project site. A GLU Analysis was performed, see Attachment 2b.

Flow Control for Post-Project Runoff*

*This section only required if hydromodification management requirements apply

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

There is one (1) POC for the project, POC-1, located at the existing curb inlet at the intersection of Via Cantebria and Via Montoro.

Has a geomorphic assessment been performed for the receiving channel(s)?

☐ No, the low flow threshold is 0.1Q2 (default low flow threshold)

☐ Yes, the result is low flow threshold 0.1Q2

☐ Yes, the result is low flow threshold 0.3Q2

√ Yes, the result is low flow threshold 0.5Q2

If a geomorphic assessment to be performed, provide title, date, and preparer:
Erosion Susceptibility Analysis of Encinitas Creek (South Fork) for Zona Gale Estates, dated May 29, 2020 prepared by Tory R. Walker Engineering.

Discussion / Additional Information: (optional)

Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

SOURCE CONTROL BMP CHECKLIST

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	√ Yes	□No	□N/A
SC-2 Storm Drain Stenciling or Signage	□ Yes	□No	√ N/A
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	□Yes	□No	√ N/A
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	□Yes	□No	√ N/A
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	√ Yes	□No	□N/A
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
□ Onsite storm drain inlets	√ Yes	□ No	□ N/A
□ Interior floor drains and elevator shaft sump pumps drain to sewer	□ Yes	□ No	√ N/A
□ Interior parking garages drain to sewer	□ Yes	□ No	√ N/A
□ Need for future indoor & structural pest control	√ Yes	□ No	□ N/A
□ Landscape/outdoor pesticide use	√ Yes	□ No	□ N/A
□ Pools, spas, ponds, decorative fountains, and other water features	□ Yes	□ No	√ N/A
□ Food service	□ Yes	□ No	√ N/A
□ Refuse/Trash areas must be covered	√ Yes	□ No	□ N/A
□ Industrial processes	□ Yes	□ No	√ N/A
□ Outdoor storage of equipment or materials must be covered	□ Yes	□ No	√ N/A
□ Vehicle and equipment cleaning	□ Yes	□ No	√ N/A
□ Vehicle/equipment repair and maintenance	□ Yes	□ No	√ N/A
□ Fuel dispensing areas	□ Yes	□ No	√ N/A
□ Loading docks	□ Yes	□ No	√ N/A
□ Fire sprinkler test water	√ Yes	□ No	□ N/A
□ Miscellaneous drain or wash water	√ Yes	□ No	□ N/A
□ Plazas, sidewalks, and parking lots	√ Yes	□ No	□ N/A

Discussion / justification if SC-1 through SC-6 not implemented. Justification must be provided for ALL "No" answers shown above.

SITE DESIGN BMP CHECKLIST

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

Source Control Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	□Yes	□No	√ N/A
SD-2 Conserve Natural Areas, Soils, and Vegetation	√ Yes	□No	□ N/A
SD-3 Minimize Impervious Area	√ Yes	□No	□N/A
SD-4 Minimize Soil Compaction	√ Yes	□No	□N/A
SD-5 Impervious Area Dispersion - Directly Connected Impervious Areas (e.g. roof downspouts connected to street) are not allowed	√ Yes	□No	□N/A
SD-6 Runoff Collection	√ Yes	□No	□N/A
SD-7 Landscaping with Native or Drought Tolerant Species	√ Yes	□No	□N/A
SD-8 Harvesting and Using Precipitation	□Yes	√ No	□N/A

Discussion / justification if SD-1 through SD-8 not implemented. Justification must be provided for ALL "No" answers shown above.

Harvesting and using precipitation is not a feasible BMP to implement. Refer to Attachment 1c.

PDP STRUCTURAL BMPS

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the local jurisdiction at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 1.12 of the BMP Design Manual). PDP structural BMPs must be maintained into perpetuity (see Section 7 of the BMP Design Manual). The local jurisdiction will confirm the maintenance annually.

Use this section to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate.

Step 1A: The DMAs draining to the structural BMPs are not self-mitigating, de minimus, or self-retaining.

Step 1B: There are no site design BMPs proposed for the project for which the runoff factor can be adjusted.

Step 2: Harvest and use is not feasible. Refer to Attachment 1c.

Step 3: Infiltration is not feasible. Refer to Attachment 1d.

Step 3C: Bioretention BMPs have been selected and sized per the design criteria to meet pollutant control and hydromodification management requirements.

STRUCTURAL BMP SUMMARY INFORMATION

Copy this page as necessary to provide information on each individual proposed structural BMP

Structural BMP ID No: BMP-A	DMA No: 1
Construction Plan Sheet No:	
Type of structural BMP: □Retention by harvest and use (HU-1) □Retention by infiltration basin (INF-1) □Retention by bioretention (INF-2) □Retention by permeable pavement (INF-3) □Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □Biofiltration with Nutrient Sensitive Media Design (BF-2) □Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □Detention pond or vault for hydromodification management □Other (describe in discussion section below)	
Purpose: Pollutant control only □Pollutant control only □ Hydromodification control only ■ Combined pollutant control and hydromodification control □Pre-treatment/forebay for another structural BMP □Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	Brian M. Ardolino, RCE 71651 Pasco Laret Suiter & Associates 535 North Highway 101, Suite A Solana Beach, CA 92075 858-259-8212
Who will be the final owner of this BMP?	Aspen Growth Properties Inc
Who will maintain this BMP into perpetuity?	Aspen Growth Properties Inc
What is the funding mechanism for maintenance?	Aspen Growth Properties Inc

ATTACHMENT 1 - BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	√ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	√ Included on DMA Exhibit in Attachment 1a ☐Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	√ Included ☐Not included because the entire project will use infiltration BMPs
Attachment 1d	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	√ Included ☐Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines	√ Included

ATTACHMENT 1a

DMA/HMP AREA EXHIBIT
ZONA GALE ESTATES
MULTI-003289-2019

WQV SIZING

	DMA NAME	DMA AREA	PPST	DMA RF	RF * AREA	SOIL TYPE D	IMP NAME BIORETENTION
LOT 1	1	2459	BLDG	0.9	2663		
	2	50	PCC	0.9	45		
	3	471	PCC	0.9	424		
	4	7370	L	0.3	2211		
LOT 2	5	3073	BLDG	0.9	2766		
	6	149	PCC	0.9	134		
	7	360	PCC	0.9	324		
	8	3030	L	0.3	909		
LOT 3	9	3230	BLDG	0.9	2907		
	10	98	PCC	0.9	88		
	11	683	PCC	0.9	615		
	12	2130	L	0.3	639		
LOT 4	13	2924	BLDG	0.9	2632		
	14	29	PCC	0.9	26		
	15	448	PCC	0.9	403		
	16	3011	L	0.3	903		
LOT 5	17	3044	BLDG	0.9	2740		
	18	92	PCC	0.9	83		
	19	540	PCC	0.9	486		
	20	5383	L	0.3	1615		
LOT 6	21	3157	BLDG	0.9	2841		
	22	46	PCC	0.9	41		
	23	949	PCC	0.9	854		
	24	4093	L	0.3	1228		
LOT 7	25	2665	BLDG	0.9	2399		
	26	81	PCC	0.9	73		
	27	318	PCC	0.9	286		
	28	1576	L	0.3	473		
LOT 8	29	2558	BLDG	0.9	2302		
	30	143	PCC	0.9	129		
	31	312	PCC	0.9	281		
	32	1645	L	0.3	494		
LOT 9	33	2964	BLDG	0.9	2668		
	34	33	PCC	0.9	30		
	35	349	PCC	0.9	314		
	36	1580	L	0.3	474		
COMM.	37	7747	AC	0.9	6972		
	38	1524	PCC	0.9	1372		
	39	1260	AC	0.9	1134		
	40	3740	L	0.3	1122		
	41	3378	AC	0.9	3040		
	42	406	PCC	0.9	365		
	43	2698	L	0.3	809		
TOTAL		82,296		TOTAL	52,314	0.03	1,569

IMP SF	MIN AREA	PROP AREA
2,000	IMP AREA	

HMP SIZING

	DMA NAME	DMA AREA	PPST	DMA RF	RF * AREA	SOIL TYPE D	IMP NAME BIORETENTION
LOT 1	1	2459	BLDG	1.0	2459		
	2	50	PCC	1.0	50		
	3	471	PCC	1.0	471		
	4	7370	L	0.1	737		
LOT 2	5	3073	BLDG	1.0	3073		
	6	149	PCC	1.0	149		
	7	360	PCC	1.0	360		
	8	3030	L	0.1	303		
LOT 3	9	3230	BLDG	1.0	3230		
	10	98	PCC	1.0	98		
	11	683	PCC	1.0	683		
	12	2130	L	0.1	213		
LOT 4	13	2924	BLDG	1.0	2924		
	14	29	PCC	1.0	29		
	15	448	PCC	1.0	448		
	16	3011	L	0.1	301		
LOT 5	17	3044	BLDG	1.0	3044		
	18	92	PCC	1.0	92		
	19	540	PCC	1.0	540		
	20	5383	L	0.1	538		
LOT 6	21	3157	BLDG	1.0	3157		
	22	46	PCC	1.0	46		
	23	949	PCC	1.0	949		
	24	4093	L	0.1	409		
LOT 7	25	2665	BLDG	1.0	2665		
	26	81	PCC	1.0	81		
	27	318	PCC	1.0	318		
	28	1576	L	0.1	158		
LOT 8	29	2558	BLDG	1.0	2558		
	30	143	PCC	1.0	143		
	31	312	PCC	1.0	312		
	32	1645	L	0.1	165		
LOT 9	33	2964	BLDG	1.0	2964		
	34	33	PCC	1.0	33		
	35	349	PCC	1.0	349		
	36	1580	L	0.1	158		
COMM.	37	7747	AC	1.0	7747		
	38	1524	PCC	1.0	1524		
	39	1260	AC	1.0	1260		
	40	3740	L	0.1	374		
	41	3378	AC	1.0	3378		
	42	406	PCC	1.0	406		
	43	2698	L	0.1	270		
TOTAL		82,296		TOTAL	49,866		

15% CONTINGENCY

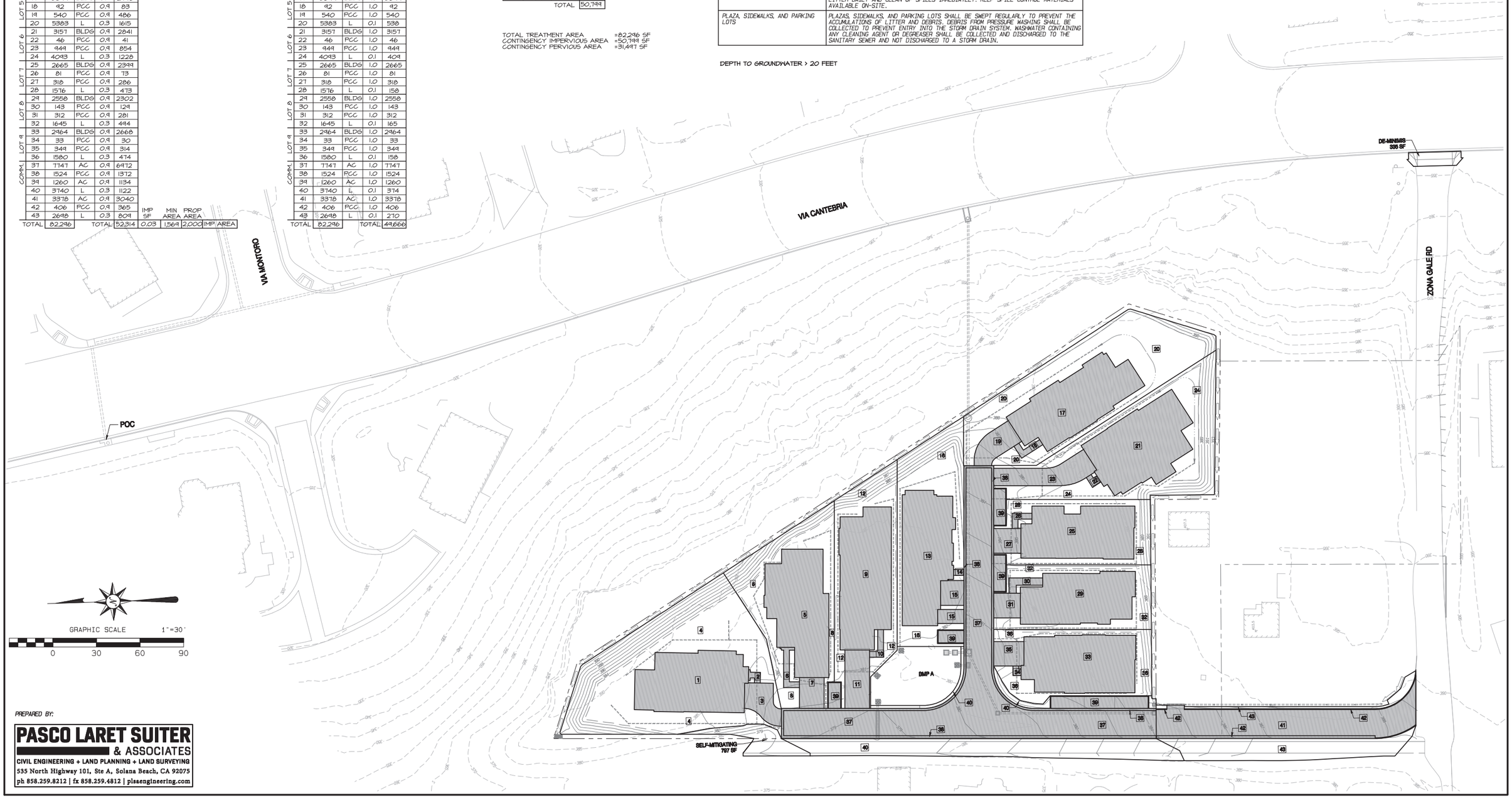
PROPOSED IMPERVIOUS SURFACE AREA

LOT	IMPERV AREA	15% CONT.	TOTAL
1	3,480	522	4,002
2	3,582	537	4,119
3	4,011	602	4,613
4	3,401	510	3,911
5	3,676	551	4,227
6	4,152	623	4,775
7	3,064	460	3,524
8	3,013	452	3,465
9	3,346	502	3,848
C	14,315		14,315
		TOTAL	50,799

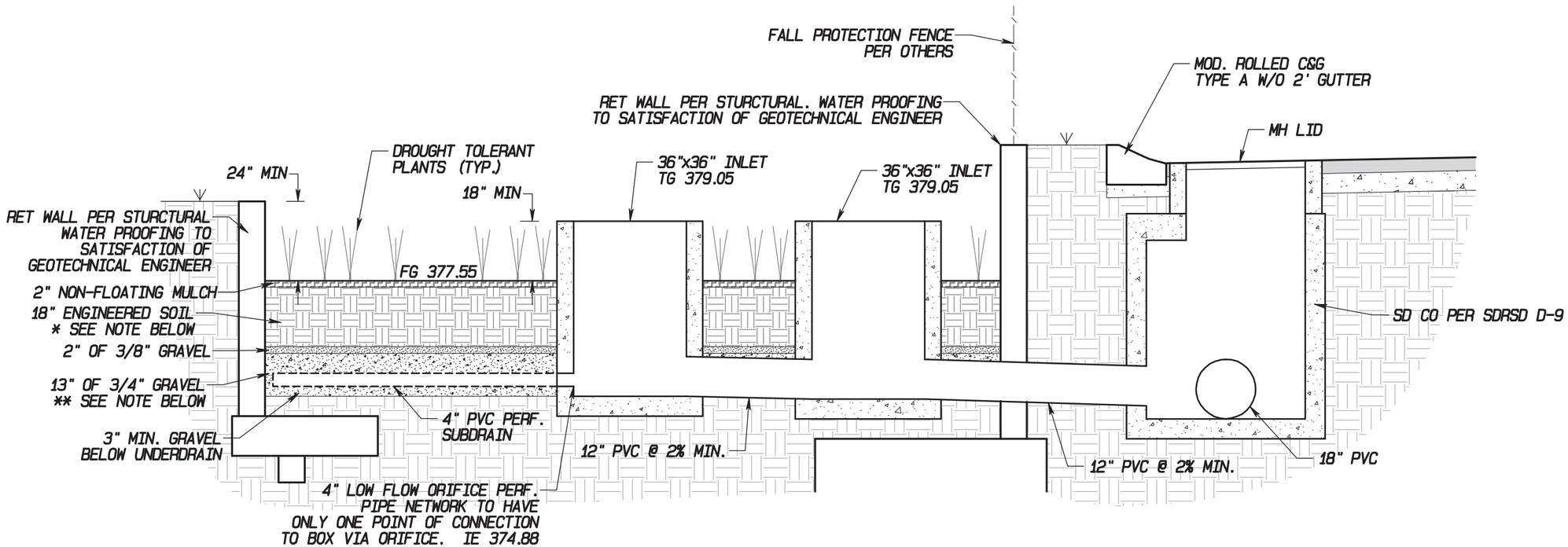
TOTAL TREATMENT AREA =82,296 SF
CONTINGENCY IMPERVIOUS AREA =50,799 SF
CONTINGENCY PERVIOUS AREA =31,497 SF

POTENTIAL POLLUTANT SOURCE	SOURCE CONTROL
INTERIOR PARKING GARAGES DRAIN TO SEWER	PARKING GARAGE FLOOR DRAINS SHALL BE PLUMBED TO THE SANITARY SEWER. INSPECT AND MAINTAIN DRAINS TO PREVENT BLOCKAGES AND OVERFLOW.
NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTROL	BUILDING DESIGN FEATURES SHALL DISCOURAGE ENTRY OF PESTS. INTEGRATED PEST MANAGEMENT INFORMATION SHALL BE PROVIDED TO OWNERS, LESSEES, AND OPERATORS.
LANDSCAPE/OUTDOOR PESTICIDE USE	FINAL LANDSCAPE PLANS SHALL: PRESERVE EXISTING DROUGHT TOLERANT TREES, SHRUBS, AND GROUND COVER TO THE MAXIMUM EXTENT POSSIBLE. BE DESIGNED TO MINIMIZE IRRIGATION AND RUNOFF, PROMOTE SURFACE INFILTRATION WHERE APPROPRIATE, AND MINIMIZE THE USE OF FERTILIZERS AND PESTICIDES. SPECIFY PLANTS THAT ARE TOLERANT OF PERIODIC SATURATED SOIL CONDITIONS FOR AREAS TO RETAIN OR DETAIN STORMWATER. CONSIDER THE USE OF PEST-RESISTANT PLANTS, ESPECIALLY ADJACENT TO HARDSCAPE. SELECT PLANTS APPROPRIATE TO SITE SOILS, SLOPES, CLIMATE, SUN, WIND, RAIN, LAND USE, AIR MOVEMENT, ECOLOGICAL CONSISTENCY, AND PLANT INTERACTIONS. MAINTAIN LANDSCAPING USING MINIMUM OR NO PESTICIDES.
REFUSE/TRASH AREAS MUST BE COVERED	OUTDOOR REFUSE RECEPTACLES SHALL BE COVERED, GRADED, AND PAVED TO PREVENT RUN-ON. ANY DRAINS FROM DUMPSTERS, COMPACTORS, AND TALLOW BIN AREAS SHALL BE CONNECTED TO A GREASE REMOVAL DEVICE BEFORE DISCHARGE TO SANITARY SEWER. SIGNS SHALL BE POSTED ON OR NEAR DUMPSTERS WITH THE WORDS "DO NOT DUMP HAZARDOUS MATERIALS HERE" OR SIMILAR. AN ADEQUATE NUMBER OF RECEPTACLES SHALL BE PROVIDED. INSPECT RECEPTACLES REGULARLY; REPAIR OR REPLACE LEAKY RECEPTACLES. KEEP RECEPTACLES COVERED. PROHIBIT/PREVENT DUMPING OF LIQUID OR HAZARDOUS WASTES. POST "NO HAZARDOUS MATERIALS" SIGNS. INSPECT AND PICK UP LITTER DAILY AND CLEAN UP SPILLS IMMEDIATELY. KEEP SPILL CONTROL MATERIALS AVAILABLE ON-SITE.
PLAZA, SIDEWALKS, AND PARKING LOTS	PLAZAS, SIDEWALKS, AND PARKING LOTS SHALL BE SWEPT REGULARLY TO PREVENT THE ACCUMULATIONS OF LITTER AND DEBRIS. DEBRIS FROM PRESSURE WASHING SHALL BE COLLECTED TO PREVENT ENTRY INTO THE STORM DRAIN SYSTEM. WASHWATER CONTAINING ANY CLEANING AGENT OR DEGREASER SHALL BE COLLECTED AND DISCHARGED TO THE SANITARY SEWER AND NOT DISCHARGED TO A STORM DRAIN.

DEPTH TO GROUNDWATER > 20 FEET



PREPARED BY:
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* BIORETENTION "ENGINEERED SOIL" LAYER SHALL BE MINIMUM 18" DEEP "SANDY LOAM" SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 65% SAND, 15% COMPOST OR HARDWOORD MULCH, AND 20% TOPSOIL, FREE OF STONES, STUMPS, ROOTS, OR SIMILAR OBJECTS, AND ALSO FREE OF NOXIOUS WEEDS.

** 3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 13" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE DETAIL

THE EFFECTIVE AREA OF THE BASIN SHALL BE LEVEL AND SHALL BE SIZED BASED ON CALCULATION.

BIORETENTION AREA DETAIL

NTS

ATTACHMENT 1c

Harvest and Use Feasibility Screening	**Worksksheet B.3-1**

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?

∨ Toilet and urinal flushing
√ Landscape irrigation
Other:_____

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.

Toilet/Urinal Flushing
(9.3 gal/person-day) x (0.13368 cuft/gal) x (1.5 days) = 1.86 cuft/person-36hr
Assume (3 people per house x 9 houses) x (1.86 cuft/person-36 hr) = **51 cuft/36hr**

Landscape Irrigation
(0.71 ac irrigated) x (1470 gal/ac-36hr) x (0.13368 cuft/gal) = **140 cuft/36hr**

Total = 51 cuft + 140 cuft = 191 cuft

3. Calculate the DCV using worksheet B-2.1.
DCV = 2,398 cuft

3a. Is the 36-hour demand greater than or equal to the DCV?	3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36-hour demand less than 0.25DCV?
Yes / ∨ No	Yes / ∨ No	∨ Yes
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	∨ Harvest and use is considered to be infeasible.

ATTACHMENT 1d

Categorization of Infiltration Feasibility Condition	FORM I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		

Provide basis:

Based on our field percolation testing, t e in-situ infiltration rates of t e soils at t e su ject site are less t an 0.5 inc es per our (Leig ton, 2019). Specifically, t e calculated infiltration rate via t e Porc et Met od and applied safety factor of 2 ranges from No Percolation to 0.02 inc es per our.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		

Provide basis:

No, infiltrating storm water into t e su surface soils at t e site will increase t e ris of geotec nical a ards at t e site, especially slope sta ility.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

FORM I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: If t e infiltration rates were greater t an 0.5 inc es per our, it may e possi le t at t e ris of groundwater contamination would not e increased provided t ere are no contaminated soil or groundwater sites wit in 250 feet of t e proposed infiltration site. In addition, groundwater dept s are anticipated to e greater t an 50 feet gs. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: If t e infiltration rates were greater t an 0.5 inc es per our, it may e possi le t at potential water alance issues would not e affected provided t ere are no unlined site drainages/cree s/streams wit in 250 feet of t e proposed infiltration site. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		Go to Part 2

FORM I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		

Provide basis:

Based on our field percolation testing, t e in-situ infiltration rates of t e soils at t e su ject site are less t an 0.5 inc es per our (Leig ton, 2019). Specifically, t e calculated infiltration rate via t e Porc et Met od and applied safety factor of 2 ranges from No Percolation to 0.02 inc es per our.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		

Provide basis:

No, infiltrating storm water into t e su surface soils at t e site will increase t e ris of geotec nical a ards at t e site, especially slope sta ility.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

FORM I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: If partial infiltration conditions (greater t an 0.01 inc es per our) existed across t e site, it may e possi le t at t e ris of groundwater contamination will not e increased y partial infiltration provided t ere are no contaminated soil or groundwater sites wit in 250 feet of t e proposed infiltration site. In addition, groundwater dept s are anticipated to e greater t an 50 feet gs. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: If partial infiltration conditions (greater t an 0.01 inc es per our) existed across t e site, violation of downstream water rig ts is not anticipated ased on t e site location and t at t ere are no unlined site drainages/cree s/streams wit in 250 feet of t e proposed infiltration site. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		No Infiltration Feasibility

ATTACHMENT 1e

Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

BF-A

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.55	inches
2	Area tributary to BMP (s)	A=	1.89	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.64	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	2398	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	46040	0.9	41436	
Landscape	36256	0.3	10877	
Pavers	0	0.1	0	
Total	82296		52313	0.64

BMP-A

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs			
1	Remaining DCV After implementing retention BMPs	2398.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	2000.0	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained pore storage	300.00	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	2098.0	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	18.0	inches
12	Media Thickness [18 in Min], also add mulch layer thicknes to this line	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	12	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet, use the outlet controlled rate which will be less than 5 in/hr.)	5.000	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	26.40	inches
19	Total Depth Treated [Line 17 + Line 18]	56.40	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	3147	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	669.6	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and poding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	1574	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	715	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	82296	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.64	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	1580	sq-ft
28	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	1580	sq-ft

ATTACHMENT 2 - BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

□Mark this box if this attachment is not included because the project is exempt from PDP hydromodification management requirements.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	√ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	√ Exhibit showing project drainage boundaries marked on City of Encinitas Potential Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination □ 6.2.1 Verification of Geomorphic Landscape Units Onsite □ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment √ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	□Not performed □Included √ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	√ Included □Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	□Included √ Not required because BMPs will drain in less than 96 hours

ATTACHMENT 2a

DMA/HMP AREA EXHIBIT
ZONA GALE ESTATES
MULTI-003289-2019

WQV SIZING

	DMA NAME	DMA AREA	PPST	DMA RF	RF * AREA	SOIL TYPE D	IMP NAME BIORETENTION
LOT 1	1	2459	BLDG	0.9	2663		
	2	50	PCC	0.9	45		
	3	471	PCC	0.9	424		
	4	7370	L	0.3	2211		
LOT 2	5	3073	BLDG	0.9	2766		
	6	149	PCC	0.9	134		
	7	360	PCC	0.9	324		
	8	3030	L	0.3	909		
LOT 3	9	3230	BLDG	0.9	2907		
	10	98	PCC	0.9	88		
	11	683	PCC	0.9	615		
	12	2130	L	0.3	639		
LOT 4	13	2924	BLDG	0.9	2632		
	14	29	PCC	0.9	26		
	15	448	PCC	0.9	403		
	16	3011	L	0.3	903		
LOT 5	17	3044	BLDG	0.9	2740		
	18	92	PCC	0.9	83		
	19	540	PCC	0.9	486		
	20	5383	L	0.3	1615		
LOT 6	21	3157	BLDG	0.9	2841		
	22	46	PCC	0.9	41		
	23	949	PCC	0.9	854		
	24	4093	L	0.3	1228		
LOT 7	25	2665	BLDG	0.9	2399		
	26	81	PCC	0.9	73		
	27	318	PCC	0.9	286		
	28	1576	L	0.3	473		
LOT 8	29	2558	BLDG	0.9	2302		
	30	143	PCC	0.9	129		
	31	312	PCC	0.9	281		
	32	1645	L	0.3	494		
LOT 9	33	2964	BLDG	0.9	2668		
	34	33	PCC	0.9	30		
	35	349	PCC	0.9	314		
	36	1580	L	0.3	474		
COMM.	37	7747	AC	0.9	6972		
	38	1524	PCC	0.9	1372		
	39	1260	AC	0.9	1134		
	40	3740	L	0.3	1122		
	41	3378	AC	0.9	3040		
	42	406	PCC	0.9	365		
	43	2698	L	0.3	809		
TOTAL		82,296		TOTAL	52,314	0.03	1,569

IMP SF	MIN AREA	PROP AREA
2,000	IMP AREA	

HMP SIZING

	DMA NAME	DMA AREA	PPST	DMA RF	RF * AREA	SOIL TYPE D	IMP NAME BIORETENTION
LOT 1	1	2459	BLDG	1.0	2459		
	2	50	PCC	1.0	50		
	3	471	PCC	1.0	471		
	4	7370	L	0.1	737		
LOT 2	5	3073	BLDG	1.0	3073		
	6	149	PCC	1.0	149		
	7	360	PCC	1.0	360		
	8	3030	L	0.1	303		
LOT 3	9	3230	BLDG	1.0	3230		
	10	98	PCC	1.0	98		
	11	683	PCC	1.0	683		
	12	2130	L	0.1	213		
LOT 4	13	2924	BLDG	1.0	2924		
	14	29	PCC	1.0	29		
	15	448	PCC	1.0	448		
	16	3011	L	0.1	301		
LOT 5	17	3044	BLDG	1.0	3044		
	18	92	PCC	1.0	92		
	19	540	PCC	1.0	540		
	20	5383	L	0.1	538		
LOT 6	21	3157	BLDG	1.0	3157		
	22	46	PCC	1.0	46		
	23	949	PCC	1.0	949		
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	27	318	PCC	1.0	318		
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LOT 8	29	2558	BLDG	1.0	2558		
	30	143	PCC	1.0	143		
	31	312	PCC	1.0	312		
	32	1645	L	0.1	165		
LOT 9	33	2964	BLDG	1.0	2964		
	34	33	PCC	1.0	33		
	35	349	PCC	1.0	349		
	36	1580	L	0.1	158		
COMM.	37	7747	AC	1.0	7747		
	38	1524	PCC	1.0	1524		
	39	1260	AC	1.0	1260		
	40	3740	L	0.1	374		
	41	3378	AC	1.0	3378		
	42	406	PCC	1.0	406		
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15% CONTINGENCY

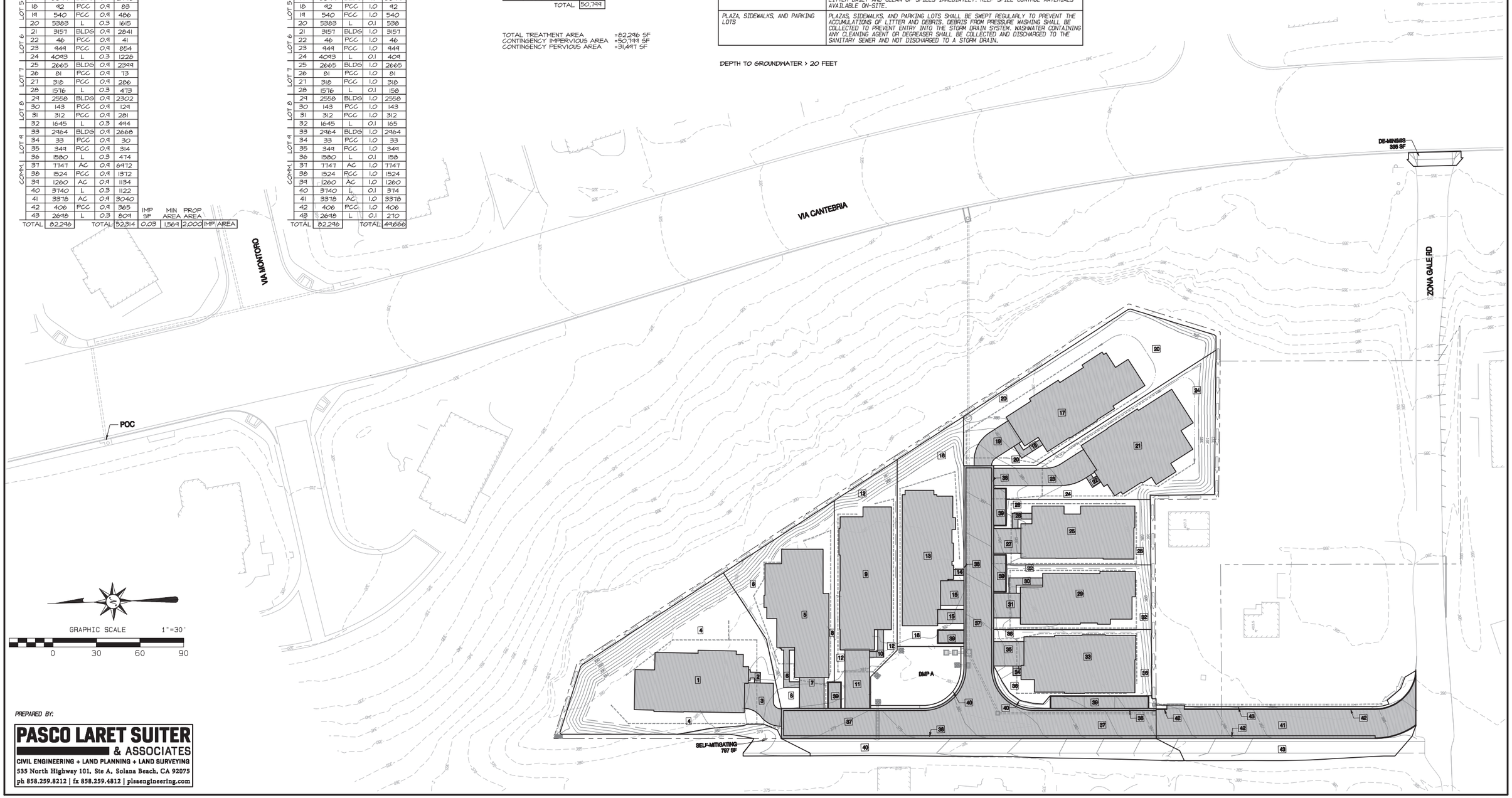
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LOT	IMPERV AREA	15% CONT.	TOTAL
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9	3,346	502	3,848
C	14,315		14,315
		TOTAL	50,799

TOTAL TREATMENT AREA =82,296 SF
CONTINGENCY IMPERVIOUS AREA =50,799 SF
CONTINGENCY PERVIOUS AREA =31,497 SF

POTENTIAL POLLUTANT SOURCE	SOURCE CONTROL
INTERIOR PARKING GARAGES DRAIN TO SEWER	PARKING GARAGE FLOOR DRAINS SHALL BE PLUMBED TO THE SANITARY SEWER. INSPECT AND MAINTAIN DRAINS TO PREVENT BLOCKAGES AND OVERFLOW.
NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTROL	BUILDING DESIGN FEATURES SHALL DISCOURAGE ENTRY OF PESTS. INTEGRATED PEST MANAGEMENT INFORMATION SHALL BE PROVIDED TO OWNERS, LESSEES, AND OPERATORS.
LANDSCAPE/OUTDOOR PESTICIDE USE	FINAL LANDSCAPE PLANS SHALL: PRESERVE EXISTING DROUGHT TOLERANT TREES, SHRUBS, AND GROUND COVER TO THE MAXIMUM EXTENT POSSIBLE. BE DESIGNED TO MINIMIZE IRRIGATION AND RUNOFF, PROMOTE SURFACE INFILTRATION WHERE APPROPRIATE, AND MINIMIZE THE USE OF FERTILIZERS AND PESTICIDES. SPECIFY PLANTS THAT ARE TOLERANT OF PERIODIC SATURATED SOIL CONDITIONS FOR AREAS TO RETAIN OR DETAIN STORMWATER. CONSIDER THE USE OF PEST-RESISTANT PLANTS, ESPECIALLY ADJACENT TO HARDSCAPE. SELECT PLANTS APPROPRIATE TO SITE SOILS, SLOPES, CLIMATE, SUN, WIND, RAIN, LAND USE, AIR MOVEMENT, ECOLOGICAL CONSISTENCY, AND PLANT INTERACTIONS. MAINTAIN LANDSCAPING USING MINIMUM OR NO PESTICIDES.
REFUSE/TRASH AREAS MUST BE COVERED	OUTDOOR REFUSE RECEPTACLES SHALL BE COVERED, GRADED, AND PAVED TO PREVENT RUN-ON. ANY DRAINS FROM DUMPSTERS, COMPACTORS, AND TALLOW BIN AREAS SHALL BE CONNECTED TO A GREASE REMOVAL DEVICE BEFORE DISCHARGE TO SANITARY SEWER. SIGNS SHALL BE POSTED ON OR NEAR DUMPSTERS WITH THE WORDS "DO NOT DUMP HAZARDOUS MATERIALS HERE" OR SIMILAR. AN ADEQUATE NUMBER OF RECEPTACLES SHALL BE PROVIDED. INSPECT RECEPTACLES REGULARLY; REPAIR OR REPLACE LEAKY RECEPTACLES. KEEP RECEPTACLES COVERED. PROHIBIT/PREVENT DUMPING OF LIQUID OR HAZARDOUS WASTES. POST "NO HAZARDOUS MATERIALS" SIGNS. INSPECT AND PICK UP LITTER DAILY AND CLEAN UP SPILLS IMMEDIATELY. KEEP SPILL CONTROL MATERIALS AVAILABLE ON-SITE.
PLAZA, SIDEWALKS, AND PARKING LOTS	PLAZAS, SIDEWALKS, AND PARKING LOTS SHALL BE SWEPT REGULARLY TO PREVENT THE ACCUMULATIONS OF LITTER AND DEBRIS. DEBRIS FROM PRESSURE WASHING SHALL BE COLLECTED TO PREVENT ENTRY INTO THE STORM DRAIN SYSTEM. WASHWATER CONTAINING ANY CLEANING AGENT OR DEGREASER SHALL BE COLLECTED AND DISCHARGED TO THE SANITARY SEWER AND NOT DISCHARGED TO A STORM DRAIN.

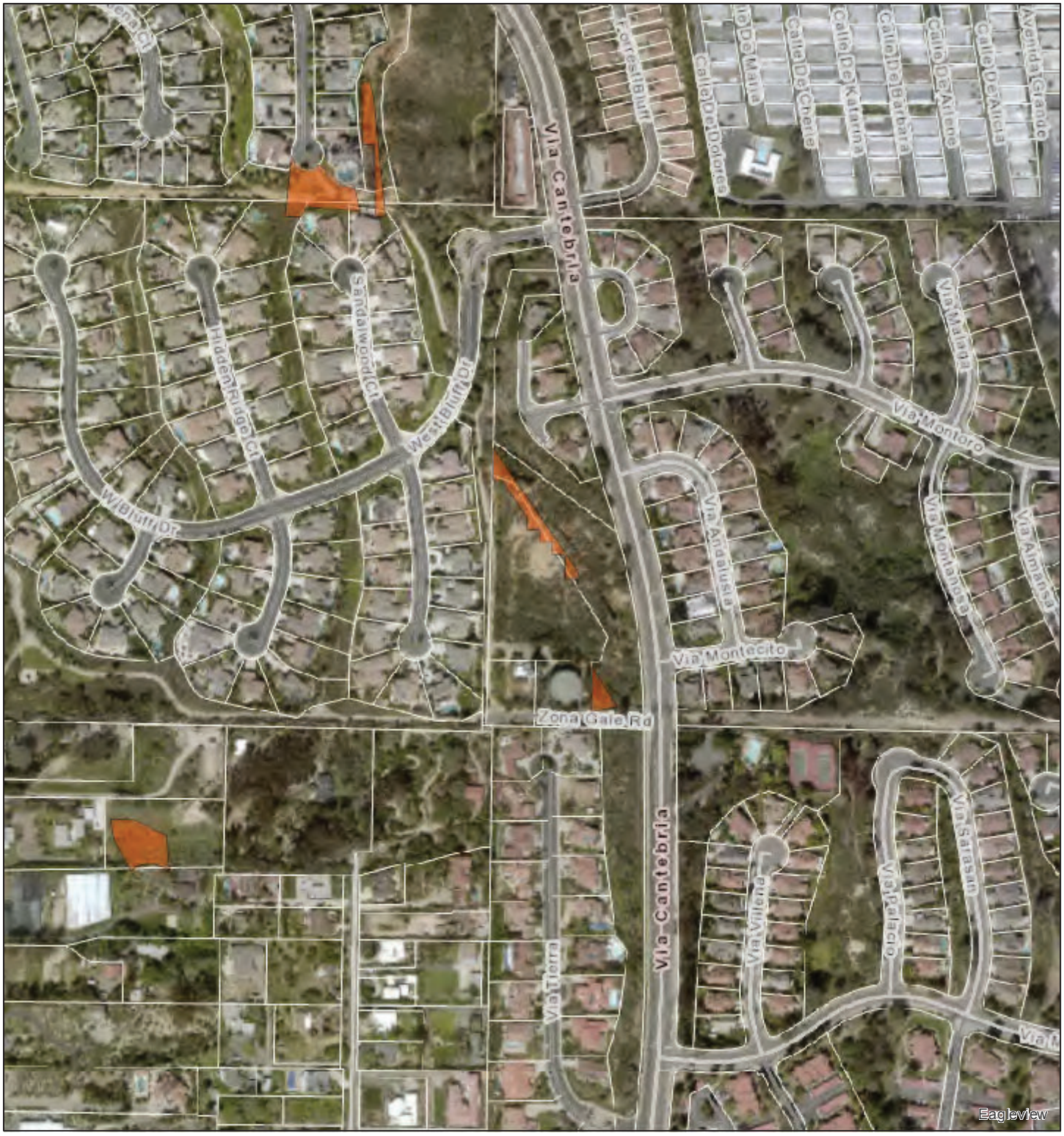
DEPTH TO GROUNDWATER > 20 FEET



PREPARED BY:
PASCO LARET SUITER & ASSOCIATES
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING
535 North Highway 101, Ste A, Solana Beach, CA 92075
ph 858.259.8212 | fx 858.259.4812 | plsaengineering.com

ATTACHMENT 2b

CCSYA



August 5, 2019

N

1 inch = 423 feet

0 230 460 Feet

Every reasonable effort has been made to assure the accuracy of the data provided; nevertheless, some information may not be accurate. The City of Encinitas assumes no liability or responsibility arising from the use of or reliance upon this information.

TECHNICAL MEMORANDUM:

Analysis for Verification of PCCSYAs for:

Zona Gale Estates

Encinitas, CA

Prepared for:

Aspen Growth Properties, Inc.
Attn: Jon P. Rodrigue, VP
8799 Balboa Ave., Suite 260
San Diego, CA 92123

May 29, 2020

Tory R. Wal er, R.C. E. 45005
President

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122 CIVIC CENTER DR, STE 206, VISTA, CA 92084 · 760-414-9212

TORY R. WALKER ENGINEERING
RELIABLE SOLUTIONS IN WATER RESOURCES

TECHNICAL MEMORANDUM

TO: Aspen Growth Properties, Inc.
Attn: Jon P. Rodrigue, VP
8799 Balboa Ave., Suite 260
San Diego, CA 92123

FROM: Tory Walker, PE, CFM, LEED GA, QISP

DATE: May 29, 2020

RE: PCCSYA Analysis for Verification of PCCSYAs at Zona Gale Estates, City of Encinitas, CA

INTRODUCTION

According to the Potential Critical Coarse Sediment Yield Area (PCCSYA) maps given in the Watershed Management Area Analysis (WMAA), PCCSYAs exist within the Zona Gale Estate project's drainage boundaries. In addition, according to the preliminary grading plans, project site runoff eventually discharges to existing un-lined channels. Based on the requirements of the *City of Encinitas BMP Design Manual*[1] (BMPDM), projects in PCCSYAs may perform additional PCCSYA refinement options to either confirm or invalidate the regional-level WMAA maps. Therefore, this Technical Memorandum seeks to investigate the project site's PCCSYAs by performing an onsite Depositional Analysis.

DEPOSITIONAL ANALYSIS

The Depositional Analysis consists of demonstrating that PCCSYAs are deposited into existing systems prior to reaching the first downstream unlined water of the state (as defined in County of San Diego BMP Design Manual[2] Section H.7.1). According to the guidance, systems resulting in deposition may include existing natural sinks, existing structural BMPs, existing hardened MS4 systems, or other existing similar features. Depositional analysis to refine PCCSYA mapping must meet the following criteria to qualify for exemption from CCSYA designation:

- The existing hardened MS4 system that is being analyzed should be upstream of the first downstream unlined waters of the state; and

- The peak velocity from the discrete 2-year, 24-hour runoff event for the existing hardened MS4 system that is being analyzed is less than three feet per second.

For this project, an existing onsite sink (depressed shallow ponding area) and sediment trapping vegetation prevents sediment from being conveyed offsite. As the sink is onsite, the first criteria is satisfied because the sink is upstream of the first downstream unlined water of the state (the unlined portion of the south fork of Encinitas Creek). The second criteria is also satisfied because the sink is a shallow ponding area which, by definition, will have flow velocities near zero feet per second. Evidence to support these findings is provided in the following sections (PCCSYA Map, Site Visit, and Hydrology Map).

PCCSYA Map

The PCCSYA Map showing the PCCSYAs overlaid onto an aerial image of the site is provided in Appendix 1. The onsite PCCSYAs are concentrated along the northeastern boundary of the property.

Site Visit

Aerial photographs from Google Earth were reviewed, and a site visit was performed to determine if sediment from PCCSYA is conveyed offsite, or retained onsite. The existing site is a natural open space area consisting of a mixture of bare earth and mostly native vegetation (see PCCSYA Map provided in Appendix 1, and site visit photos in Appendix 2). In general, it was observed that the majority of runoff from the PCCSYAs will drain to an onsite shallow ponding area (sediment sink) along the western property boundary (ponding area location shown on Hydrology Map in Appendix 1). Dry ponding areas ranging from 3 to 6 inches in depth were observed in this area, as well as a low approximately 1-foot high berm that runs along the western property line (see photos in Appendix 2). The low berm effectively creates a relatively large, shallow retention area, or sediment sink, that traps sediment onsite.

During a storm event, runoff from the PCCSYAs will drain to the ponding area and deposit sediment as the velocity approaches zero. While it is physically possible for flows to overtop the low berm if the ponding depth exceeds the top of berm, this scenario would only occur for storm events much greater than the 2-year, 24-hour event. Furthermore, any overtopping flows would drop their coarse sediment load onsite because they would still pass through the low velocity ponding area prior to spilling over the berm.

While the majority of runoff from PCCSYAs will drain to the onsite sink, a relatively small portion of the PCCSYAs mapped along the northwest corner of the property do not drain to the sink. These areas are delineated on the Hydrology Map in Appendix 1. During the site visit, we observed that these areas are stabilized by heavy vegetation, and runoff would flow as sheet flow through dense, low growing ice plant and other groundcover vegetation. As a result, any erosion of coarse sediment is greatly limited in this area. Furthermore, given the absence of concentrated flow, this type of vegetation acts as a filter strip, effectively stabilizing the underlying soil, decreasing flow velocity, and ultimately trapping sediment.

Hydrology Map

The PCCSYAs were overlaid onto the Existing Condition Hydrology Map in order to delineate conveyance paths and sediment sinks. The map shows drainage boundaries, flow direction arrows, and the location of the ponding area (sink). The observed sediment sink and observed flow pattern documented by the site visit are corroborated by the existing topography and the Hydrology Map provided in Appendix 1.

CONCLUSION

As demonstrated by this PCCSYA Analysis, the Zona Gale Estates project site does not contain CCSYAs because sediment is retained by an onsite sink and vegetated strips along the property boundary. Therefore, no measures for protection of onsite potential critical coarse sediment yield areas are necessary.

REFERENCES

1. *City of Encinitas BMP Design Manual.* February 16, 2016. City of Encinitas.

2. *County of San Diego BMP Design Manual*. Effective January 1, 2019. Minor Revision July 17, 2019. County of San Diego.

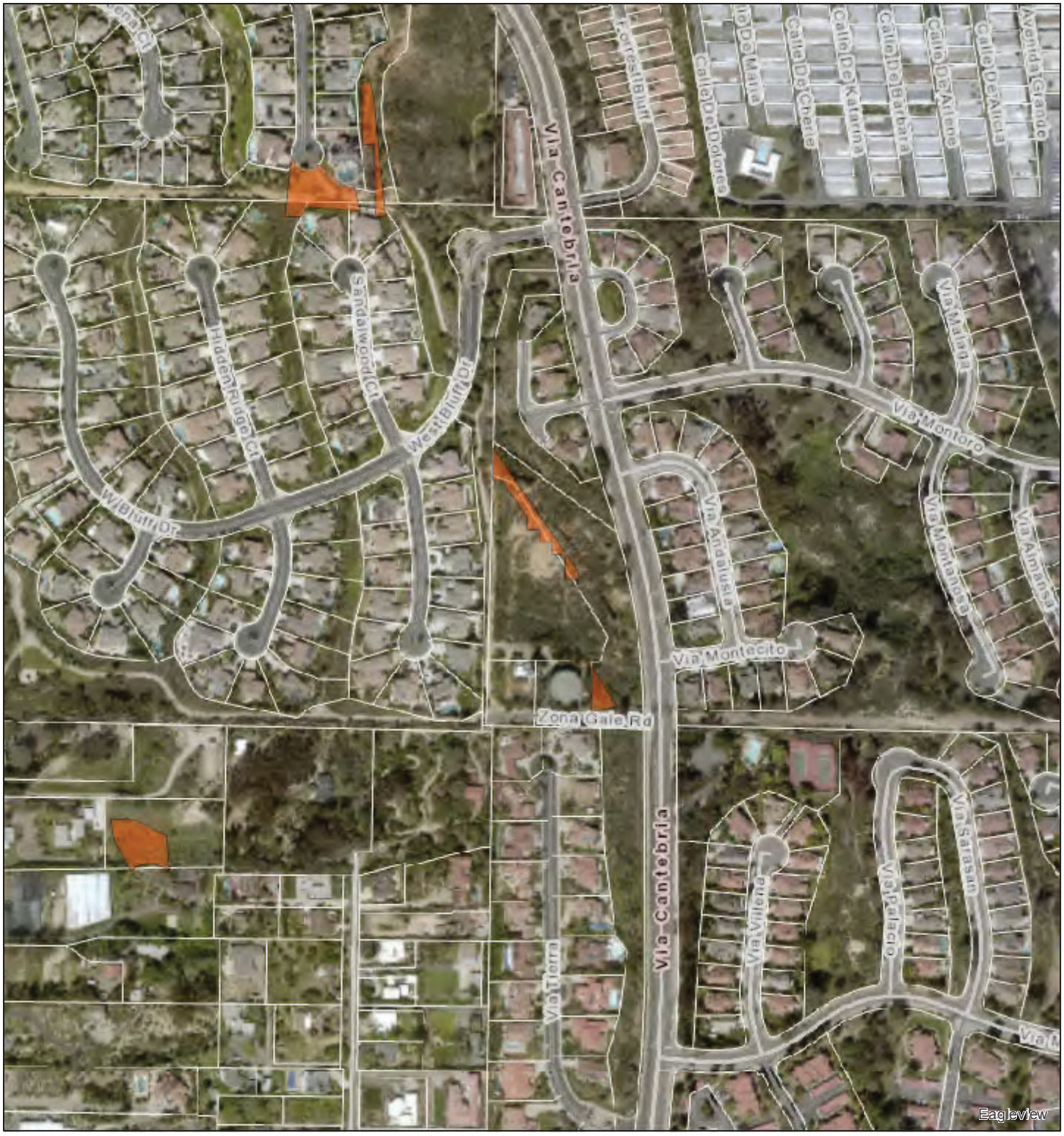
APPENDICES

1. PCCSYA Maps and Hydrology Map
2. Site Visit Photos
3. Excerpt from County of San Diego BMP Design Manual

APPENDIX 1

PCCSYA MAPS AND HYDROLOGY MAP

CCSYA



August 5, 2019

N

1 inch = 423 feet

0 230 460

Feet

Every reasonable effort has been made to assure the accuracy of the data provided; nevertheless, some information may not be accurate. The City of Encinitas assumes no liability or responsibility arising from the use of or reliance upon this information.

HYDROLOGIC NODE MAP
PRE-DEVELOPMENT CONDITION

'C' CALCULATIONS

PER COUNTY HYDROLOGY MANUAL 3.1.2
C=0.9 X (% IMPERVIOUS) + Cp X (1-% IMPERVIOUS)

Cp = 0.35 FOR TYPE 'D' SOIL

SUB-AREA A
C=0.9 X 0.39 + [(1-0.39)X0.35]
C=0.56

SUB-AREA B
C=0.9 X 0.08 + [(1-0.08)X0.35]
C=0.39

PCCSYA BOUNDARY

SUB-AREA B
A= 108,626 SF (2.49 AC)
C=0.39

ONSITE PONDING AREA (SEDIMENT SINK)
(SHADED YELLOW AREA)

~1' HIGH BERM OBSERVED DURING SITE VISIT
(CREATES RETENTION AREA AND TRAPS SEDIMENT;
BERM IS HEAVILY VEGETATED WITH GROUNDCOVER AND SHRUBS)

L=467'

L=160'

NODE 1.1
EL 396.2

NODE 1.2
EL 387.3

SUB-AREA A
A= 3,256 SF (0.075 AC)
C=0.56

NODE 1.3
EL 373.5

SHEET FLOW THROUGH
HEAVILY VEGETATED AREA
(NO EROSION OBSERVED)

TANK

LEGEND

BASIN BOUNDARY
SUB-AREA BOUNDARY
FLOW LINE
IMPERVIOUS AREA — 9,901 SF (617 SF ON-SITE + 9,284 SF OFF-SITE)

SCALE: 1"=40'

PRELIMINARY GRADING PLAN
ZONA GALE ESTATES
MULTI-003289-2019

SHEET 3 OF 7

VIA ANDALUSIA

VIA CANTEBRIA

VIA CANTEBRIA STA 19+74.30
SS STA 4+10.44
INSTALL SS MH PER LMD S-4
RIM 339.95
IE 330.21

VIA CANTEBRIA STA 22+84.74
SS STA 1+00
EX. SMH #19 PER TM 3474-2
RIM 320.0 ±
IE IN 311.35±
IE OUT 311.15±

NEW 8" PVC SEWER

CURB OUTLET PER SDRSD D-25A

(FL 338.35)

IE 338.55

8" VCP SEWER PER TM 3474-2

16" ACP PER 1982-116 WO

STATION NOTE:
VIA CANTEBRIA STATIONING PER TM 3474-2

JACK & BORE 12" PVC SD

JACK & BORE 8" PVC SEWER

15' PROPOSED PUB. SEWER & PVT. DRAINAGE EASEMENT

INSTALL SD MH PER SDRSD SM-02
RIM 388.8
IE IN 372.50
IE OUT 372.31

APN 257-401-12
SAME OWNER NOT-A-PART

NEW DRIVEWAY APRON PER SDRSD G-26

EX. GAS MAIN

ZONA GALE RD

FD 3/4" IP W/ CAP "LS 3663"

FD 1/2" REBAR

FD 3/4" IP W/ CAP "LS 4611"

LOT 1
12,121 SF GROSS/NET
FF 383.9
PAD 383.2
TWO-STORY

LOT 2
6,995 SF GROSS/NET
FF 383.2
PAD 382.5
TWO-STORY

LOT 3
6,383 SF GROSS/NET
FF 383.2
PAD 382.5
TWO-STORY

LOT 4
6,723 SF GROSS/NET
FF 383.7
PAD 383.0
TWO-STORY

LOT 5
9,687 SF GROSS/NET
FF 389.7
PAD 389.0
TWO-STORY

LOT 6
8,751 SF GROSS/NET
FF 388.7
PAD 388.0
TWO-STORY

LOT 7
4,987 SF GROSS/NET
FF 386.2
PAD 385.5
TWO-STORY

LOT 8
4,946 SF GROSS/NET
FF 384.9
PAD 384.2
TWO-STORY

LOT 9
5,864 SF GROSS/NET
FF 384.0
PAD 383.3
ONE-STORY

LOT A
9,260 SF GROSS/NET

LOT B
2,330 SF GROSS/NET

BIORETENTION BASIN
2,000 SF
FS 377.55

APN 257-401-09
SAME OWNER NOT-A-PART

APN 257-401-10

DRAINAGE DITCH PER SDRSD D-75

FUTURE SUBDIVISION BOUNDARY

REMOVE EX. DITCH

PAVER WIDENING PER DETAIL SHEET 4

RELOCATE EX. APPURTENANCES

SLOPE SETBACK

PCC DRAINAGE DITCH PER SDRSD D-75

2.5' MAX EXPOSED HT RET WALL PER SDRSD

2.1' MAX EXPOSED HT RET WALL PER SDRSD

1.7' MAX EXPOSED HT RET WALL PER SDRSD

2.9' MAX EXPOSED HT RET WALL PER SDRSD

3.2' MAX EXPOSED HT RET WALL PER SDRSD

2.4' MAX EXPOSED HT RET WALL PER SDRSD

1' MAX EXPOSED HT RET WALL PER SDRSD

2.9' MAX EXP HT RET WALL PER SDRSD D6

18" INLET
TG 384.9
IE 381.8

8" PVC SD

12" PVC SD BYPASS

24" BOX CO. W/ COVER BY BROOKS OR EQUAL
RIM 384.3
IE 381.3

18" PVC SD @ 1% MIN

3'x3' INLET
TG 379.05
IE 374.57

3'x3' INLET
TG 379.06
ORIFICE IE 374.88
IE 374.63
SD CO PER SDRSD D-9

6'-1 CB PER SDRSD D-08
RIM @ CENTER 380.44
IE IN 374.4
IE OUT 374.07
IE OUT 377.86
IE OUT 377.7

18" WIDE CONC. DIVERT W/ TRAFFIC RATED GRATE

8" PVC SEWER

INSTALL SS MH PER LMD S-4
RIM 380.2
IE 374.03

CONNECT TO EX. 8" PVC

INSTALL SS MH PER LMD S-4
RIM 384.6
IE 367.72

RET WALL PER STRUCTURAL

PARADISE WATER

MATCH EX.

EX PATH TO REMAIN

NEW DG TRAIL

APN 257-620-50

APN 257-521-35

APN 257-521-34

APN 257-521-33

APN 257-521-32

APN 257-521-31

GRAPHIC SCALE 1"=20'
0 20 40 60

5/12/2020 PLSA 2897

APPENDIX 2

SITE VISIT PHOTOS



Figure 1. Looking north at the existing concrete ditch running along western property boundary (looking downstream). Project site is on the east side of the fence (right side of photo). The grades on the east side of the ditch rise to a low approximately 1-foot high berm that retains runoff and sediment onsite. The berm is located mostly on the east side of the fence, and runs roughly parallel with the fence. Sediment in the ditch is from the adjacent path, not the onsite PCCSYAs. No concentrated discharge point to the ditch from onsite areas was observed.



Figure 2. Top of low berm that creates the onsite sink. Berm is stabilized with heavy vegetation.



Figure 3. Typical onsite vegetation within and adjacent to the PCCSYAs.



Figure 4. View of shallow ponding area and low vegetated berm (looking in downstream direction).



Figure 5. Sediment deposition in ponding area (sediment sink). Low berm and fence is visible in background.



Figure 6. Localized ponding within the ponding area, evidenced by cracked mud. Several of these localized depressions exist in the ponding area.



Figure 7. View looking upslope towards the PCCSYAs located in the background. Sediment flows through sheet flow and shallow concentrated flow paths before being deposited in the ponding area (in foreground of photo the cracked mud in the low depression is evidence of ponding and deposition).



Figure 8. View of PCCSYAs mapped along the northwest corner of the property which do not drain to the sink. This area sheet flows through heavy vegetation and no erosion was observed.

APPENDIX 3

EXCERPT FROM COUNTY OF SAN DIEGO BMP DESIGN MANUAL

H.7 PCCSYAs: Refinement Options

If an applicant has identified onsite and/or upstream PCCSYAs and elects to perform additional optional analyses to refine the PCCSYA designation, the guidance presented below should be followed. Protection of critical coarse sediment yield areas is a necessary element of hydromodification management because coarse sediment supply is as much an issue for causing erosive conditions to receiving streams as are accelerated flows. However, not all downstream systems warrant preservation of coarse sediment supply nor all source areas need to be protected. The following guidance shall be used to refine PCCSYA designations:

- Depositional Analysis (Appendix H.7.1)
- Threshold Channel Analysis (Appendix H.7.2)
- Coarse Sediment Source Area Verification (Appendix H.7.3)

H.7.1 Depositional Analysis

Areas identified as PCCSYAs may be removed from consideration if it is demonstrated that these sources are deposited into existing systems prior to reaching the first downstream unlined water of the state. Systems resulting in deposition may include existing natural sinks, existing structural BMPs, existing hardened MS4 systems, or other existing similar features. Applicants electing to perform depositional analysis to refine PCCSYA mapping must meet the following criteria to qualify for exemption from CCSYA designation:

- The existing hardened MS4 system that is being analyzed should be upstream of the first downstream unlined waters of the state; and
- The peak velocity from the discrete 2-year, 24-hour runoff event for the existing hardened MS4 system that is being analyzed is less than three feet per second.

The three feet per second criteria is consistent with the recommended minimum velocity for storm and sanitary sewers in ASCE Manual of Engineering Practice No. 37 (ASCE, 1970).

In limited scenarios, applicant may have the option to establish site specific minimum self-cleansing velocity using Equation H.7-1 or other appropriate equations instead of using the default three feet per second criteria. This site specific analysis must be documented in the SWQMP and the County has the discretion to request additional analysis prior to approving a site specific minimum self-cleansing velocity. If an applicant chooses to establish a site specific minimum self-cleansing velocity for refinement, then the applicant must design any new bypass hardened conveyance systems proposed by the project to meet the site specific criteria.

TECHNICAL MEMORANDUM:

Erosion Susceptibility Analysis of Encinitas Creek (South Fork) for Zona Gale Estates

Encinitas, CA

Prepared for:

Aspen Growth Properties, Inc.
Attn: Jon P. Rodrigue, VP
8799 Balboa Ave., Suite 260
San Diego, CA 92123

May 29, 2020

Tory R. Wal er, R.C. E. 45005
President

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TORY R. WALKER ENGINEERING
RELIABLE SOLUTIONS IN WATER RESOURCES

TECHNICAL MEMORANDUM

TO: Aspen Growth Properties, Inc.
Attn: Jon P. Rodrigue, VP
8799 Balboa Ave., Suite 260
San Diego, CA 92123

FROM: Tory Walker, PE, CFM, LEED GA

DATE: May 29, 2020

RE: Erosion Susceptibility Analysis of Encinitas Creek (South Fork), City of Encinitas, CA

EROSION SUSCEPTIBILITY ANALYSIS OF ENCINITAS CREEK

The purpose of this study is to determine the level of susceptibility to erosion for the south fork of Encinitas Creek for the reach starting at the intersection of Garden View Road and El Camino Real, proceeding downstream approximately 2,300 feet to the intersection of Town Center Drive and El Camino Real (Reach 1 (POC-1) – see aerial map in Appendix 1). The reach analyzed is long enough to include multiple grade controls to satisfy the domain of analysis criteria, as established in the Hydromodification Management Plan (HMP) methodology[1,2]. The methodology includes tools for assessing stream susceptibility to erosion developed by the Southern California Coastal Water Research Project (SCCWRP). The default low flow threshold for HMP flow control is $0.1Q_2$. For priority development projects (PDPs) intending to select $0.3Q_2$ or $0.5Q_2$ as the low flow threshold for HMP flow control, the City of Encinitas BMP Design Manual[3] (BMPDM) Section 2.3.1 requires completion of the SCCWRP screening tool.

1. GENERAL CHARACTERISTICS OF THE AREA

The south fork of Encinitas Creek originates just upstream of the intersection of Encinitas Boulevard and El Camino Real, flowing north underground until daylighting on the north side of the Garden View Road culvert (POC-1). From this point the creek continues as an engineered, semi-natural channel, eventually confluencing with the east fork of Encinitas Creek at Leucadia Boulevard. The creek proceeds as a natural channel and discharges into the Pacific Ocean via the Batiquitos Lagoon. The Encinitas Creek watershed is a mix of medium to high density residential/commercial areas with some limited natural open space (natural areas are mostly around the creek itself). Encinitas Creek is also a highly geomorphologically controlled creek in the majority of the watershed (including Reach 1 from this study). The creek is conveyed via both hardened and unlined channels and passes through multiple grade controls at drop structures and culverts before discharging into Batiquitos Lagoon. Nearby development is encroaching on the creek channel in many areas, including the domain of analysis in this study, where the creek is confined by roadway and parking lot embankments (see aerial map in Appendix 1).

2. SCCWRP APPROACH

The approved SCCWRP approach[1] is used to determine the susceptibility to erosion based on standard forms and methodologies published by the Regional Water Quality Control Board on its web page. It is self-evident that analyzing the susceptibility to erosion of riprap or a concrete culvert is unnecessary, as by definition those hardened systems are not susceptible to erosion at the low threshold value.

2.1 Basic Information

Runoff from the proposed Zona Gale Estates project leaves the site at one discharge point to the curb and gutter on Via Cantebria, which drains to a curb inlet, and is conveyed via storm drain to Reach 1 of Encinitas Creek (see Aerial Map in Appendix 1). The tributary area of Encinitas Creek at Reach 1 is estimated as 2.1 square-miles, and the mean annual precipitation is 12.2 inches according to the USGS Stream Stats website. The valley slope S_V (obtained from the channel as-builts – provided in Appendix 1) is approximately 0.6% for the area studied. The valley width W_v corresponds to an average approximation of the valley bottom width between valley walls, determined by clear breaks in hill slope (estimated from analysis of aerial images, site visit measurements, and the channel as-builts).

Within the domain of analysis, the creek is lined with dense hardwood trees and woody shrubs (see aerial photo in Appendix 1 and site visit photos in Appendix 2). Therefore, the creek was evaluated based on the typical heavy vegetation that normally exists in this reach (see Appendix 2 for vegetated conditions). Reach 1 is bounded by a concrete headwall structure and Garden View Road at the upstream end, and the Town Center Drive culvert at the downstream end, both of which act as grade control structures for the creek channel.

3. INITIAL DESKTOP ANALYSIS

Form 1 was completed with desktop information and with field information for the valley width. The average Valley Width Index (VWI) is 0.76 for Reach 1. Table 1 shows the results of the analysis, while Appendix 3 shows Form 1 for the area of study.

TABLE 1. INITIAL DESKTOP ANALYSIS SUMMARY

Reach 1 (POC-1)	
Area (mi^2)	2.1
P (in)	12.2
S_v	0.006
W_v (m)	12.2
Q_{10} (cfs)	238
Q_{10} (m^3/s)	6.74
INDEX	0.016
W_{ref} (m)	16.12
VWI	0.76

4. PEBBLE COUNT AND EQUIVALENT d_{50}

Form 2 was not completed in the field, as there was not sufficient sand, gravel, or cobble at the surface of the creek in the Domain of Analysis (see pictures in Appendix 2). Short rock and concrete drop structures that act as grade controls were observed, but these sections are not representative of the average channel bed material. Consequently, Form 2 is shown empty in Appendix 4, and the creek bed was classified as "hardpan of uncertain strength" per Form 3.

Encinitas Creek is lined with dense hardwood trees and woody shrubs (see site visit photos in Appendix 2). As discussed in Section 2.1, the creek was evaluated based on the typical heavy vegetation that exists in Reach 1. Following the shear stress recommendation of Figure 5-1 of the HMP document (shown in this document as Figure 1 on the following page), an equivalent rock size was determined for the typical vegetation observed. This same methodology was approved in San Marcos Creek by the Water Board[4], and also in the nearby north fork of Encinitas Creek (under a separate study prepared by TRWE and approved by the City of Encinitas). It can be seen that the permissible shear stress τ_P in Figure 5-1, expressed in lb/ft^2, is numerically equivalent to 1/3 of the diameter d_{50} of the gravel/cobble equivalent, expressed in inches (in other words, 1-inch gravel has a permissible shear stress of 0.33 lb/ft^2; 2-inch gravel-cobble has a permissible shear stress of 0.67 lb/ft^2; a 6-inch cobble has a permissible shear stress of 2 lb/ft^2, and a 12-inch cobble has a permissible shear stress of 4 lb/ft^2; see Figure 5-1 on the following page). Mathematically, this observation can be written as:

$$\tau_P = \frac{1}{3} d_{50} \qquad (1)$$

Consequently, as the permissible shear stress for hardwood tree plantings is between 0.41 to 2.5 lb/ft^2 and the permissible shear stress for shales and hardpan is about 0.67 lb/ft^2, a conservative value of 0.54 lb/ft^2 will be used. The lowest possible value is assumed for hardwood tree plantings (0.41 lb/ft^2) and averaged with the hardpan value (0.67 lb/ft^2) to obtain an approximate, conservative representation of the shear stress (0.54 lb/ft^2). This value translates to an equivalent 1.62-inch diameter d_{50} (41.1 mm).

Boundary Category	Boundary Type	Permissible Shear Stress (lb/sq ft)
Soils	Fine colloidal sand	0.02 - 0.03
	Sandy loam (noncolloidal)	0.03 - 0.04
	Alluvial silt (noncolloidal)	0.045 - 0.05
	Silty loam (noncolloidal)	0.045 - 0.05
	Firm loam	0.075
	Fine gravels	0.075
	Stiff clay	0.26
	Alluvial silt (colloidal)	0.26
	Graded loam to cobbles	0.38
	Graded silts to cobbles	0.43
	Shales and hardpan	0.67
Gravel/Cobble	1-in.	0.33
	2-in.	0.67
	6-in.	2.0
	12-in.	4.0
Vegetation	Class A turf	3.7
	Class B turf	2.1
	Class C turf	1.0
	Long native grasses	1.2 – 1.7
	Short native and bunch grass	0.7 - 0.95
	Reed plantings	0.1-0.6
	Hardwood tree plantings	0.41-2.5
Temporary Degradable RECPs	Jute net	0.45
	Straw with net	1.5 – 1.65
	Coconut fiber with net	2.25
	Fiberglass roving	2.00
Non-Degradable RECPs	Unvegetated	3.00
	Partially established	4.0-6.0
	Fully vegetated	8.00
Riprap	6 – in. d_{50}	2.5
	9 – in. d_{50}	3.8
	12 – in. d_{50}	5.1
	18 – in. d_{50}	7.6
	24 – in. d_{50}	10.1
Soil Bioengineering	Wattles	0.2 – 1.0
	Reed fascine	0.6-1.25
	Coir roll	3 - 5
	Vegetated coir mat	4 - 8
	Live brush mattress (initial)	0.4 – 4.1
	Live brush mattress (grown)	3.90-8.2
	Brush layering (initial/grown)	0.4 – 6.25
	Live fascine	1.25-3.10
	Live willow stakes	2.10-3.10
Hard Surfacing	Gabions	10
	Concrete	12.5

[1] Ranges of values generally reflect multiple sources of data or different t

A. Chang, H.H. (1988).
B. Florineth. (1982)
C. Gerstgraser, C. (1998).
D. Goff, K. (1999).
E. Gray, D.H., and Sotir, R.B. (1996).
F. Julien, P.Y. (1995).
G. Kouwen, N.; Li, R. M.; and Simons, D.B., (1980).
H. Norman, J. N. (1975).
I. Schiechtl, H. M. and R. Stern. (1996).
J. Schoklitsch, A. (1937).

Figure 5-1. Range of Critical Shear Stresses (τ_{cr}) for Different Materials (from Fischenich)

Figure 1. Permissible Shear Stress per the Final 2011 HMP Document[2]

5. VERTICAL SUSCEPTIBILITY FIELD SHEET

The appropriate pathway is shown in Form 3 (see Appendix 5). In this case, the conservative equivalent diameter cannot be unequivocally assigned as larger than 128 mm, and since the hardpan is of uncertain strength, then as a conservative approach, the intermediate bed path is chosen (see Form 3).

5.1 Armoring Potential, Grade Control and Screening Index Score

The armoring potential (Form 3, Checklist 1) was scored as B (hardpan of unknown resistance). The grade controls (Form 3, Checklist 2) were scored as B (based on grade controls spaced less than 4/Sv m). No evidence of failure or undermining was observed for the reach's grade controls (see aerial map in Appendix 1 and site photos in Appendix 2). The Screen Index Score is A (Form 3, Table 1) because the combination of $S_v Q_{10}^{0.5}$ (INDEX in Table 1) and the equivalent d_{50} generates a less than 50% probability of incision/braiding (see Form 3, Figure 4). The overall vertical rating is then calculated as:

$$Vertical\ rating = \sqrt{screening\ index \cdot \sqrt{armoring\ .grade\ control}} \qquad (2)$$

In Equation (2) the screening index, the armoring index, and the grade control index were assigned a valuation of A, B, or C as shown in Form 3. Using the SCCWRP equivalence of A = 3, B = 6 and C = 9, the vertical rating was obtained. The overall vertical susceptibility rating for Reach 1 is 4.2, and is therefore considered LOW (vertical rating < 4.5 = LOW per Form 3).

6. LATERAL SUSCEPTIBILITY FIELD SHEET

The lateral susceptibility was evaluated for Reach 1 by using Form 4 (see Appendix 6). The first option for Form 4 assumes that the channel is laterally adjustable, but minimal lateral adjustments are occurring, and all bank strata are consolidated. Then, following Form 6 (see Appendix 8), bank height has a less than 10% risk of failure according to the existing bank angles, and as the vertical rating is less than high, and VWI ≤ 2, the lateral susceptibility is LOW for the area being studied (see Form 4 in Appendix 6). It should be noted that Form 6 has been completed for a conservative scenario, as it evaluates the probability of mass wasting in moderately to well-consolidated banks with bank angles of approximately 2:1. Bank angles observed were primarily 2:1 (45°), but ranged from 3:1 (18°) to 2:1 (27°).

From the field observations, and taking into account the current conditions of the creek in the reach analyzed (see site visit photos in Appendix 2 showing extensive hardwood trees and shrubs, as well as the hardpan channel bottom and consolidated banks), there is strong indication that the creek is not laterally adjustable in the domain of analyses. Additionally, no indication of avulsion or chute formation can be seen, banks are stable, and properties adjacent to the creek do not display evidence of "backyard" loss to erosion.

7. FINAL EVALUATION

Encinitas Creek has a low vertical susceptibility and a low lateral susceptibility to erosion in the domain of analysis (Reach 1) spanning from the intersection of Garden View Road and El Camino Real, proceeding downstream approximately 2,300 feet to the intersection of Town Center Drive and El Camino Real. Therefore, the overall erosion susceptibility of the creek is considered LOW.

8. CONCLUSION

Encinitas Creek has a LOW susceptibility to erosion, determined by following a conservative approach based on the SCCWRP methodology approved by the HMP Document. Hydromodification design for projects draining directly into the evaluated reach of Encinitas Creek (Reach 1 as defined in this study) can be accomplished using a low-susceptibility rating; therefore, the lower threshold recommended for hydromodification analysis is $0.50 \cdot Q_2$.

9. LIST OF APPENDICES

Appendix 1: Vicinity Map, Aerial Map of Encinitas Creek, Channel As-Built Plans

Appendix 2: Site Visit Photos

Appendix 3: Form 1: Initial Desktop Analysis

Appendix 4: Form 2: Pebble Count (Empty Form)

Appendix 5: Form 3: Vertical Susceptibility Field Sheet

Appendix 6: Form 4: Lateral Susceptibility Field Sheet

Appendix 7: Form 5: Sequence of Lateral Susceptibility Questions

Appendix 8: Form 6: Probability of Mass Wasting Bank Failure

Appendix 9: USGS StreamStats Data

10. REFERENCES

[1] *SCCWRP Hydromodification Screening Tools: Field Manual for Assessing Channel Susceptibility*. Southern California Coastal Water Research Project.

[2] *Final Hydromodification Management Plan*. March 2011. County of San Diego, CA. http://www.projectcleanwater.org/html/wg_susmp.html

[3] *City of Encinitas BMP Design Manual.* February 16, 2016. City of Encinitas.

[4] City of San Marcos. Final San Marcos Creek Specific Plan: Master Water Quality and Hydromodification Management Plan. December 15, 2011. http://www.ci.san-marcos.ca.us/Modules/ShowDocument.aspx?documentid=5531

APPENDIX 1

VICINITY MAP

AERIAL MAP OF ENCINITAS CREEK (SOUTH FORK)

CHANNEL AS-BUILT PLANS


ENCINITAS CREEK
(SOUTH FORK)
PROJECT SITE
(ZONA GALE ESTATES)
S11
S21
5
11
Encinitas
1 mi
N


AERIAL MAP OF ENCINITAS CREEK REACH 1 (POC-1)
LEGEND
CREEK CHANNEL FLOWLINE
N
PROJECT'S DISCHARGE POINT TO UNLINED PORTION OF ENCINITAS CREEK (HEADWALL - GRADE CONTROL 1)
GRADE CONTROL 2 (DROP STRUCTURE)
GRADE CONTROL 3 (DROP STRUCTURE)
PONDING AREA (SEDIMENT DEPOSITION)
GRADE CONTROL 4 (DROP STRUCTURE)
GRADE CONTROL 5 (DROP STRUCTURE)
PONDING AREA (SEDIMENT DEPOSITION
GRADE CONTROL 6 (DROP STRUCTURE)
CULVERT ENTRANCE (TOWN CENTER DR) (GRADE CONTROL 7)
TOWN CENTER DRIVE
11

ENCINITAS RANCH

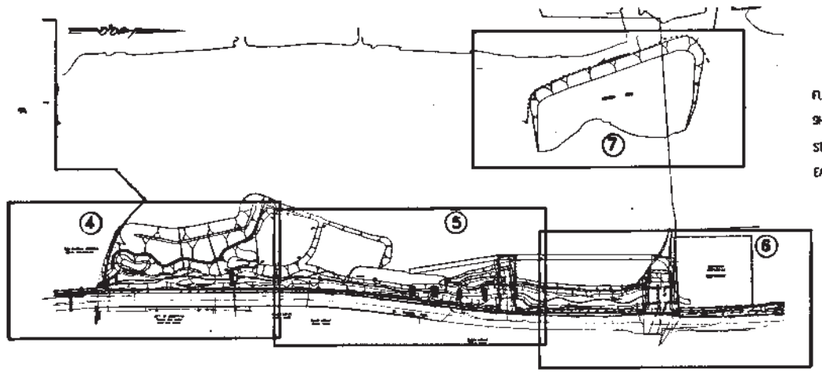
GENERAL NOTES:

1. APPROVAL OF THIS GRADING PLAN DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREON FOR COUNTY ROAD PURPOSES.
2. FINAL APPROVAL OF THESE GRADING PLANS IS SUBJECT TO FINAL APPROVAL OF THE ASSOCIATED IMPROVEMENT PLANS WHERE APPLICABLE. FINAL OUR0 GRADE ELEVATIONS MAY REQUIRE CHANGES IN THESE PLANS.
3. IMPORT MATERIAL SHALL BE OBTAINED FROM A LEGAL SITE.
4. A CONSTRUCTION, EXCAVATION OR ENCROACHMENT PERMIT FROM THE DIRECTOR OF PUBLIC WORKS WILL BE REQUIRED FOR ANY WORK IN THE COUNTY RIGHT-OF-WAY.
5. ALL SLOPES OVER 3 FEET IN HEIGHT WILL BE PLANTED IN ACCORDANCE WITH SAN DIEGO COUNTY SPECIFICATIONS.
6. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK BY CALLING UNDERGROUND SERVICE ALERT: (800) 422-4133. NOTICE OF THE PROPOSED WORK SHALL BE GIVEN FOR THE FOLLOWING AGENCIES (SEE PHONE NOS. AT LOWER RIGHT):
   - SAN DIEGO GAS & ELECTRIC
   - PACIFIC BELL TELEPHONE
   - CATV – DANIELS CABLEVISION
   - SEWER – LEUCADIA COUNTY WATER DISTRICT
   - WATER – OLIVENHAIN MUNICIPAL WATER DISTRICT
7. A SOILS REPORT MAY BE REQUIRED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
8. APPROVAL OF THESE PLANS BY THE DIRECTOR OF ENGINEERING SERVICES DOES NOT AUTHORIZE ANY WORK OR GRADING TO BE PERFORMED UNTIL THE PROPERTY OWNER'S PERMISSION HAS BEEN OBTAINED AND A VALID GRADING PERMIT HAS BEEN ISSUED.
9. THE DIRECTOR OF ENGINEERING SERVICES APPROVAL OF THESE PLANS DOES NOT CONSTITUTE BUILDING OFFICIAL APPROVAL OF ANY FOUNDATIONS FOR STRUCTURES TO BE PLACED ON THE AREA COVERED BY THESE PLANS. NO WAIVER OF THE GRADING ORDINANCE REQUIREMENTS CONCERNING MINIMUM COVER OVER EXPANSIVE SOILS IS MADE OR IMPLIED (SECTIONS 87.403 & 87.410). ANY SUCH WAIVER MUST BE OBTAINED FROM THE DIRECTOR OF DPW.
10. HOURS OF GRADING OPERATIONS. GRADING AND EQUIPMENT OPERATING WITHIN ONE-HALF MILE OF A STRUCTURE FOR HUMAN OCCUPANCY SHALL NOT BE CONDUCTED BETWEEN THE HOURS OF 5:30 P.M. AND 7:30 A.M. NOR ON SATURDAYS, SUNDAYS, AND CITY RECOGNIZED HOLIDAYS.
11. ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT OR FILL FACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.
12. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE GRADING ORDINANCE AND NOTWITHSTANDING THE APPROVAL OF THESE GRADING PLANS, THE PERMITTEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING, SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED ON THIS PLAN. THE COUNTY WILL HOLD THE PERMITTEE RESPONSIBLE FOR CORRECTION OF NON-DEDICATED IMPROVEMENTS WHICH DAMAGE ADJACENT PROPERTY.
13. SLOPE RATIOS:

    CUT – 1 1/2:1 WHERE SHOWN; 2:1 OTHERWISE

    FILL – 2:1. SLOPES DEVIATING FROM THE ABOVE WILL REQUIRE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS AFTER REVIEW OF A REPORT FROM A SOILS ENGINEER.

    EXCAVATION: 269,000 C.Y. FILL: 269,000 C.Y.
    WASTE/IMPORT: 0 C.Y. A SEPARATE PERMIT MUST BE OBTAINED FOR WASTE OR IMPORT AREA.
14. SPECIAL CONDITION: IF ANY ARCHAEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE OF THIS GRADING DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY, AND THE PERMITTEE WILL NOTIFY THE DIRECTOR OF PUBLIC WORKS OF THE DISCOVERY. GRADING OPERATIONS WILL NOT RECOMMENCE UNTIL THE PERMITTEE HAS RECEIVED WRITTEN AUTHORITY FROM THE CITY ENGINEER TO DO SO.
15. ALL GRADING DETAILS WILL BE IN ACCORDANCE WITH SAN DIEGO COUNTY STANDARD DRAWINGS DS-8, DS-10, DS-11 D-75.
16. THE ENGINEER OF DESIGN SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS NOR SHALL HE BE REQUIRED TO SUPERVISE THE CONDUCT OF THE WORK OR THE CONSTRUCTION PROCEDURES FOLLOWED BY THE CONTRACTOR OR SUBCONTRACTORS OR THEIR RESPECTIVE EMPLOYEES OR BY ANY OTHER PERSON AT THE JOB SITE OTHER THAN THAT OF THE ENGINEER'S EMPLOYEES. THE ENGINEER WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE APPROVED BY THE PREPARER OF THESE PLANS.
17. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.



KEY MAP

SCALE: 1" = 400'

KEY MAP LEGEND

FUTURE SUBDIVISION BOUNDARY

SHEET NUMBERS ④

STORM DRAINS

EASEMENTS

SOILS ENGINEER'S CERTIFICATE

I, JOSEPH G. FRANZONE A REGISTERED CIVIL ENGINEER IN THE STATE OF CALIFORNIA, PRINCIPALLY DOING BUSINESS IN THE FIELD OF APPLIED SOIL MECHANICS, HEREBY CERTIFY THAT SAMPLINGS AND STUDIES OF THE SOIL CONDITIONS PREVALENT WITHIN THIS SITE WERE MADE BY ME OR UNDER MY DIRECTION BETWEEN THE DATES FEBRUARY 22, 1994 AND MARCH 10, 1994, WITH SOILS REPORT GENERATED ENTITLED "GEOTECHNICAL INVESTIGATION, GREEN VALLEY DRAINAGE STUDY AND BRIDGE EVALUATION, ENCINITAS, CALIFORNIA", DATED APRIL 11, 1994, PROJECT No. 4940028-01; AND ON MAY 16, 1995 WITH SOILS REPORT GENERATED ENTITLED "PAVEMENT DESIGN RECOMMENDATIONS , PROPOSED WIDENING OF EL CAMINO REAL, SOUTHBOUND LANES BETWEEN GARDEN VIEW DRIVE AND WOODLEY ROAD, ENCINITAS, CALIFORNIA", DATED MAY 28, 1995, PROJECT No. 4940028-05; AND BETWEEN THE DATES APRIL 26, 1995 AND MAY 5, 1995 WITH SOILS REPORT GENERATED ENTITLED "GEOTECHNICAL UPDATE AND GEOTECHNICAL INVESTIGATION, CRODN VALLEY, ENCINITAS RANCH, ENCINITAS, CALIFORNIA", DATED JUNE 7, 1995, PROJECT No. 4940028-03. ONE COMPLETE COPY EACH OF THESE SOILS REPORTS COMPILED FROM THE RESPECTIVE STUDIES, WITH MY RECOMMENDATIONS, HAS BEEN SUBMITTED TO THE OFFICE OF THE CITY ENGINEER. FURTHERMORE, I HAVE REVIEWED THESE GRADING PLANS AND CERTIFY THAT THE RECOMMENDATIONS INCLUDED IN THE SOILS REPORT FOR THIS PROJECT HAVE BEEN INCORPORATED IN THE GRADING PLANS AND SPECIFICATIONS.

SIGNED: Joseph G. Franzone

RCE NO.: 39552

EXP. DATE: 12-31-97

REGISTERED PROFESSIONAL ENGINEER — JOSEPH G. FRANZONE — No. 39552 — Exp. 12-31-97 — CIVIL — STATE OF CALIFORNIA

LEGAL DESCRIPTION:

PORTION OF SECTIONS 2, 3, 10, 11, ALL PART OF TOWNSHIP 13 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE & MERIDIAN, IN THE CITY OF ENCINITAS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA.

TOPOGRAPHY:

TOPOGRAPHY IS BY SAN-LO AERIAL SURVEYS, INC.

OWNERS

PAUL ECKE RANCH, A CALIFORNIA CORPORATION
PAUL ECKE JR.
TRUSTEE OF THE PAUL ECKE SR. TRUST DATED SEPTEMBER 8, 1983
P.O. BOX 488
ENCINITAS, CA. 92024
(619) 753-1134

PAUL ECKE JR. AND ELIZABETH ECKE
CO-TRUSTEE UNDER TRUST AGREEMENT DATED MARCH 7, 1983
P.O. BOX 488
ENCINITAS, CA. 92024
(619) 753-1134

PAUL ECKE III
P.O. BOX 488
ENCINITAS, CA. 92024
(619) 753-1134

CHARLES & RUTH CARTER
5615 SOLEDAD RD.
LA JOLLA, CA 92037
(619) 454-1892

CARLTAS COMPANY
5600 AVENIDA ENCINAS, STE. 100
CARLSBAD, CA. 92008
(619) 431-5600

PERMITTEES

CARLTAS COMPANY
5600 AVENIDA ENCINAS, STE. 100
CARLSBAD, CA. 92008
(619) 431-5600

ZELMAN RETAIL PARTNERS
1661 HANOVER RD., SUITE 221
CITY OF INDUSTRY, CA 91748
(818) 913-0030

OWNER'S CERTIFICATE:

I (WE) HEREBY CERTIFY THAT A REGISTERED SOILS ENGINEER OR GEOLOGIST HAS BEEN OR WILL BE RETAINED TO SUPERVISE ALL GRADING ACTIVITY AND ADVISE ON THE COMPACTION AND STABILITY OF THE SITE.

SIGNATURE

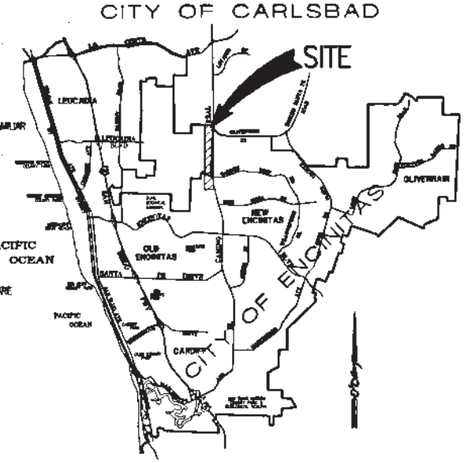
DATE: 7/21/95

NOTES:

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH AND IMPLEMENT REQUIREMENTS OUTLINED WITHIN THE FOLLOWING PROJECT PERMITS:
   - U. S. ARMY CORPS OF ENGINEERS 404 PERMIT
   - CALIFORNIA DEPT. OF FISH & GAME STREAMBED ALTERATION AGREEMENT, SEC. 1603
   - STATE WATER RESOURCES CONTROL BOARD, DIVISION OF WATER QUALITY GENERAL DONSTRUCTION ACTIVITY STORM WATER PERMIT
   - CALIFORNIA COASTAL COMMISSION COASTAL PERMIT NO. 6-94-60

   SEE SPECIAL NOTES, SHEET 2
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PREPARE DETOUR PLANS AND TO OBTAIN APPROVALS PRIOR TO COMMENCEMENT OF WORK.

CITY OF CARLSBAD



VICINITY MAP

NO SCALE

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF ENCINITAS IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

O'DAY CONSULTANTS, INC.
7220 AVENIDA ENCINAS, SUITE 204
CARLSBAD, CA 92009
(619) 931-7700

BY: Jeffrey L. Mitchell DATE: July 20, 1995

JEFFREY L. MITCHELL

RCE NO.: 35134 EXP. DATE SEPTEMBER 30, 1995

REGISTERED PROFESSIONAL ENGINEER — TIMOTHY O. CARROLL JR. — No. 55381 — Exp. 12/31/96 — CIVIL — STATE OF CALIFORNIA

AS-BUILT — 12/18/97 — RCE 55381

WORK TO BE DONE:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE PLANS, THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, THE DESIGN CONSTRUCTION STANDARDS OF THE CITY OF ENCINITAS AND THE SAN DIEGO AREA REGIONAL STANDARD DRAWINGS. ANY CHANGES OR REVISIONS THEREFROM SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO ANY REQUEST FOR INSPECTION.
2. THE SOILS REPORTS TITLED GEOTECHNICAL INVESTIGATION, CROON VALLEY DRAINAGE STUDY AND BRIDGE EVALUATION, ENCINITAS, CALIFORNIA PREPARED BY LEIGHTON AND ASSOCIATES DATED APRIL 11, 1994; GEOTECHNICAL INVESTIGATION, GREEN VALLEY PHASE 1, ENCINITAS TOWN CENTER, ENCINITAS, CALIFORNIA PREPARED BY LEIGHTON AND ASSOCIATES, INC. DATED APRIL 20, 1994; ADDENDUM TO GEOTECHNICAL INVESTIGATION, GREEN VALLEY DRAINAGE AND BRIDGE EVALUATION, ENCINITAS, CALIFORNIA PREPARED BY LEIGHTON AND ASSOCIATES DATED JUNE 16, 1994 SHALL BE CONSIDERED AS A PART OF THIS GRADING PLAN. ALL GRADING SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS AND SPECIFICATIONS CONTAINED IN SAID REPORT.
3. APPROVAL OF THIS PLAN DOES NOT CONSTITUTE APPROVAL OF SITES, LOCATION AND TYPE OF DRAINAGE FACILITIES, NOR OF IMPROVEMENTS WITHIN STREET RIGHT-OF-WAYS. SEPARATE APPROVALS AND PERMITS FOR THESE SHALL BE REQUIRED IN CONJUNCTION WITH IMPROVEMENT PLANS.
4. WRITTEN PERMISSION SHALL BE OBTAINED FOR ANY OFFSITE GRADING.
5. CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS REQUIRED TO PROTECT ADJACENT PROPERTIES DURING GRADING OPERATIONS. ANYTHING DAMAGED OR DESTROYED SHALL BE REPLACED OR REPAIRED TO CONDITION EXISTING PRIOR TO GRADING.
6. THE DEVELOPER SHALL BE RESPONSIBLE THAT ANY MONUMENT OR BENCH MARK WHICH IS DISTURBED OR DESTROYED SHALL BE RE-ESTABLISHED AND REPLACED BY A REGISTERED CIVIL ENGINEER OR A LICENSED LAND SURVEYOR.
7. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING, AND SHALL BE RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
8. GRADING AND EQUIPMENT OPERATING WITHIN ONE-HALF (1/2) MILE OF A STRUCTURE FOR HUMAN OCCUPANCY SHALL NOT BE CONDUCTED BETWEEN THE HOURS OF 5:30 P.M. AND 7:30 A.M. NOR ON SATURDAYS, SUNDAYS AND CITY RECOGNIZED HOLIDAYS.
9. NO GRADING OPERATIONS SHALL COMMENCE UNTIL A PRECONSTRUCTION MEETING HAS BEEN HELD ONSITE WITH THE FOLLOWING PEOPLE PRESENT: CITY INSPECTOR, CIVIL ENGINEER, SOILS ENGINEER, GRADING CONTRACTOR AND PERMITTEE. THE PRECONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE CITY AT LEAST 48 HOURS IN ADVANCE BY CALLING (619) 633-2770.
10. PRIOR TO HAULING DIRT OR CONSTRUCTION MATERIALS TO ANY PROPOSED CONSTRUCTION SITE WITHIN THIS PROJECT THE DEVELOPER SHALL SUBMIT TO AND RECEIVE APPROVAL FROM THE CITY ENGINEER FOR THE PROPOSED HAUL ROUTE. THE DEVELOPER SHALL COMPLY WITH ALL CONDITIONS AND REQUIREMENTS THE CITY ENGINEER MAY IMPOSE WITH REGARDS TO THE HAULING OPERATION.
11. UPON FINAL COMPLETION OF THE WORK UNDER THE GRADING PERMIT BUT PRIOR TO FINAL GRADING APPROVAL AND/OR FINAL RELEASE OF SECURITY, AN AS-GRADED CERTIFICATION SHALL BE PROVIDED STATING: "THE GRADING UNDER PERMIT NO. ### HAS BEEN PERFORMED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED GRADING PLAN OR AS SHOWN ON THE ATTACHED AS-GRADED PLAN". THIS STATEMENT SHALL BE FOLLOWED BY THE DATE AND SIGNATURE OF THE CIVIL ENGINEER WHO CERTIFIES SUCH GRADING OPERATION.

ENVIRONMENTAL DATA:

1. STEEPEST EXISTING NATURAL SLOPE ON-SITE: 1:1
2. MAXIMUM VERTICAL DEPTH OF CUT: 31'
3. MAXIMUM VERTICAL DEPTH OF FILL: 42'
4. AVERAGE DEPTH OF CUT: 16.2'
5. AVERAGE DEPTH OF FILL: 8.9'

EARTHWORK:

CUT = 269,000 C.Y.

FILL = 269,000 C.Y.

GRADING NOTES:

1. ALL GRADING SHALL BE OBSERVED AND TESTED BY A QUALIFIED SOILS ENGINEER OR UNDER THEIR DIRECTION. THEY SHALL OBSERVE AND TEST THE EXCAVATION PLACEMENT AND COMPACTION OF FILLS AND BACKFILLS AND COMPACTION OF TRENCHES. THEY SHALL SUBMIT SOILS REPORTS AS REQUIRED AND WILL DETERMINE THE SUITABILITY OF ANY FILL MATERIAL. UPON COMPLETION OF GRADING OPERATIONS THEY SHALL STATE THAT OBSERVATIONS AND TESTS WERE MADE BY THEM OR UNDER THEIR SUPERVISION AND THAT IN THEIR OPINION, ALL EMBANKMENTS AND EXCAVATIONS WERE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED GRADING PLANS AND THAT ALL EMBANKMENTS AND EXCAVATIONS ARE ACCEPTABLE FOR THEIR INTENDED USE.
2. THE CONTRACTOR SHALL PROPERLY GRADE ALL EXCAVATED SURFACES TO PROVIDE POSITIVE DRAINAGE AND PREVENT PONDING OF WATER. THEY SHALL CONTROL SURFACE WATER AND AVOID DAMAGE TO ADJOINING PROPERTIES OR TO FINISHED WORK ON THE SITE AND SHALL TAKE REMEDIAL MEASURES TO PREVENT EROSION OF FRESHLY GRADED AREAS UNTIL SUCH TIME AS PERMANENT DRAINAGE AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
3. ALL AREAS TO BE FILLED SHALL BE PREPARED TO BE FILLED AND FILL SHALL BE PLACED IN ACCORDANCE WITH THE APPROVED SOILS REPORT. ALL VEGETABLE MATTER AND OBJECTIONABLE MATERIAL SHALL BE REMOVED BY THE CONTRACTOR FROM THE SURFACE UPON WHICH THE FILL IS TO BE PLACED. LOOSE FILL AND ALLUVIAL SOILS SHALL BE REMOVED TO SUITABLE FIRM NATURAL GROUND. THE EXPOSED SOILS SHALL BE SCARIFIED TO A DEPTH OF 6" AND THEN COMPACTED TO A MINIMUM OF 90 PERCENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PLACE, SPREAD, WATER AND COMPACT THE FILL IN STRICT ACCORDANCE WITH THE APPROVED SOILS REPORT AND THE SPECIFICATIONS.
4. CUT AND FILL SLOPES SHALL BE CUT AND TRIMMED TO FINISH GRADE TO PRODUCE SMOOTH SURFACES AND UNIFORM CROSS SECTIONS. THE SLOPES OF EXCAVATIONS AND EMBANKMENTS SHALL BE SHAPED, PLANTED AND TRIMMED AS DIRECTED BY THE ENGINEER OF WORK AND LEFT IN A NEAT AND ORDERLY CONDITION. ALL STONES, ROOTS AND OTHER WASTE MATTER EXPOSED OR EXCAVATION OR EMBANKMENT SLOPES WHICH ARE LIABLE TO BECOME LOOSENED SHALL BE REMOVED AND DISPOSED OF. THE TOE AND TOP OF ALL SLOPES SHALL BE ROUNDED IN ACCORDANCE WITH THE GRADING ORDINANCE.
5. ALL TREES, BRUSH, GRASS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE COLLECTED, PILED OR OTHERWISE DISPOSED OF OFF THE SITE BY THE CONTRACTOR SO AS TO LEAVE THE AREAS THAT HAVE BEEN CLEARED WITH A NEAT AND FINISHED APPEARANCE FREE FROM UNSIGHTLY DEBRIS. APPROVAL OF LOCATION OF DEBRIS FILL SHALL BE SECURED FROM THE SOILS ENGINEER AND CITY ENGINEER PRIOR TO THE DISPOSAL OF ANY SUCH MATERIAL.
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONSTRUCT ALL OF THE DRAINAGE FACILITIES AND DRAINAGE APPURTENANCES THAT ARE REQUIRED BY THE SOILS AND / OR GEOLOGICAL REPORTS FOR THIS PROJECT WITH PRIOR APPROVAL OF THE CITY ENGINEER. THE TIME OF CONSTRUCTION AND METHOD OF CONSTRUCTION OF THESE DRAINAGE FACILITIES AND APPURTENANCES SHALL BE AS DIRECTED BY THE PROJECT SOILS ENGINEER AND / OR GEOLOGICAL REPORTS.
7. THE CONTRACTOR SHALL BE FAMILIAR WITH AND ADHERE TO ALL PALEONTOLOGICAL REQUIREMENTS/MITIGATION REQUIREMENTS DESCRIBED IN E.I.R.

NOTIFICATIONS:

1. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITY PIPES AND STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS, HOWEVER:

   THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING UTILITIES OR STRUCTURES LOCATED AT THE WORK SITE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE FOLLOWING OWNERS OF SAID UTILITIES OR STRUCTURES PRIOR TO ANY EXCAVATION, FOR VERIFICATION AND LOCATION OF UTILITIES AND NOTIFICATION OF COMMENCEMENT OF WORK:

   A. SEWER – LEUCADIA COUNTY WATER DISTRICT (619) 753-0155
   B. GAS AND ELECTRIC – SAN DIEGO GAS & ELECTRIC (800)-422-4133
   C. WATER – OLIVENHAIN MUNICIPAL WATER DISTRICT (619) 753-8466 – SAN DIEGUITO WATER DISTRICT (619) 753-1145
   D. TELEPHONE – PACIFIC BELL (800) 422-4133
   E. CABLE TV – DANIELS CABLEVISION (619) 438-7723
2. CONTRACTOR SHALL NOTIFY THE CITY ENGINEER'S OFFICE 48 HOURS PRIOR TO BEGINNING ANY WORK ON THIS PROJECT. PHONE: (619) 633-2770.
3. THE CONTRACTOR SHALL GIVE 24 HOURS NOTICE ON CALLS FOR INSPECTION. PHONE: (619) 633-2770. ALL WORK PERFORMED WITHOUT BENEFIT OF INSPECTION WILL BE SUBJECT TO REJECTION AND REMOVAL.

REGISTERED PROFESSIONAL ENGINEER — JEFFREY L. MITCHELL — EXP. 9/30/95 — No. 35134 — CIVIL — STATE OF CALIFORNIA

ZELMAN RETAIL PARTNERS
1661 HANOVER ROAD, SUITE 221
CITY OF INDUSTRY, CALIFORNIA 91748
TEL (818) 913-0030 FAX (818) 913-6169

CARLTAS DEVELOPMENT COMPANY
5600 AVENIDA ENCINAS • SUITE 100 • CARLSBAD, CALIFORNIA 92008 U.S.A.
(619) 431-5600 FAX (619) 431-9020

O'DAY CONSULTANTS
7220 Avenida Encinas, Suite 204, Carlsbad, California 92009, 619-931-7700, Fax 619-931-9580
Civil Engineering, Planning, Processing, Surveying

DESIGNED BY: J.D. DATE: JULY 1995
DRAWN BY: G.S.M., S.B., T.G. SCALE: AS SHOWN
PROJECT MGR.: J.L.M. JOB NO.: 93-1009
ENGINEER OF WORK: Jeffrey L. Mitchell DATE: 7-20-1995 RCE: 35134

REVISIONS	APPROVED	DATE
AS-BUILT	[illegible]	2-13-98

REFERENCES | DATE

BENCH MARK
DESCRIPTION: TOP OF BRASS DISK IN WELL MONUMENT
LOCATION: STA. 64+24 EL CAMINO REAL
RECORDED FROM: S.D. CO. VERT. CONTROL PG. 105
ELEVATION: 120.20 DATUM: M.S.L.

SCALE
HORIZONTAL AS SHOWN
VERTICAL AS SHOWN

SPECIAL DISTRICT

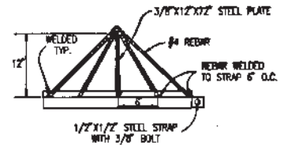
PLANS PREPARED UNDER SUPERVISION OF
JEFFREY L. MITCHELL
REGISTERED CIVIL ENGINEER
DATE: JULY 1995
R.C.E. NO: 35134
EXP: 9-30-95

APPROVALS
RECOMMENDED BY: [signature] DATE: 7-20-95
APPROVED BY: [signature] DATE: 7-20-95

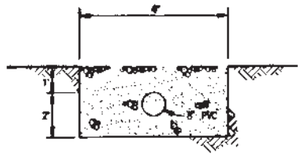
CITY OF ENCINITAS ENGINEERING DEPARTMENT
GRADING PLANS FOR:
SOUTH BRANCH ENCINITAS CREEK FLOOD CONTROL CHANNEL
ENCINITAS RANCH
CALIFORNIA COORDINATE INDEX 326-1683

DRAWING NO.
TM 94-056
4367-I
SHEET 1 OF 15

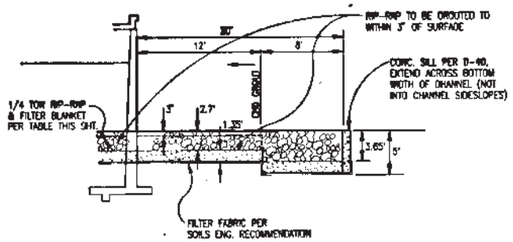
ENGINEER'S NAME: O'DAY CONSULTANTS, INC.



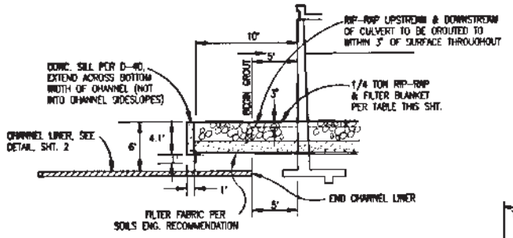
DETAIL - GRATE ASSEMBLY
NOT TO SCALE
NOTE: HOT DIP GALVANIZE ALL STEEL AFTER FABRICATION



SECTION - 8" PVC & GRAVEL
NOT TO SCALE



DOWNSTREAM



UPSTREAM

DETAILS: RIP-RAP @ WOODLEY BRIDGE
NOT TO SCALE

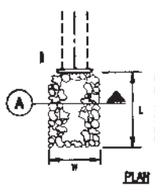
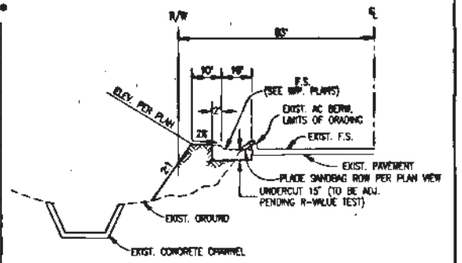


TABLE: RIP-RAP DIMENSIONS*

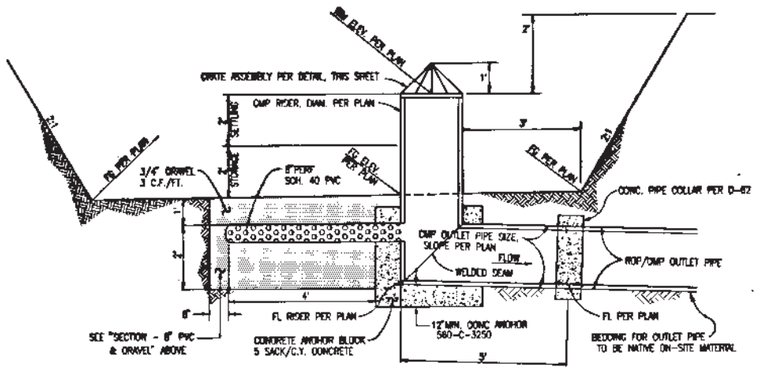
ROCK CLASS	RIP-RAP THICKNESS "T"	FILTER BLANKET UPPER LAYER	FILTER BLANKET LOWER LAYER
NO. 3 BACKING	.6	3/16"	—
NO. 2 BACKING	1.0	1/2"	—
FACING	1.0	3/8"	—
LIGHT	1.0	1/2"	—
1/4 TON	1.0	3/4"	SAND
1/2 TON	1.0	1"	SAND
1 TON	4.3	1 1/2"	SAND
2 TON	5.4	2"	SAND

*UNLESS OTHERWISE NOTED IN PLAN VIEW, DETAILS OR SECTIONS

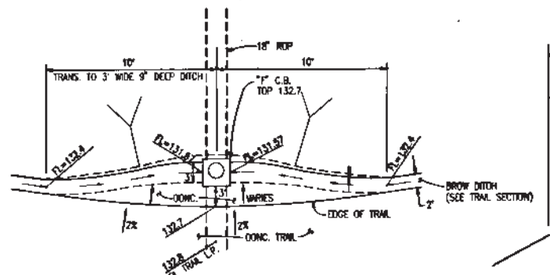
DETAIL - RIP-RAP
NOT TO SCALE



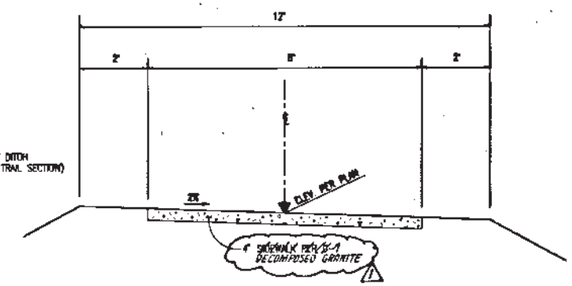
SECTION "A-A"
SEE SHEET No. 4
NOT TO SCALE



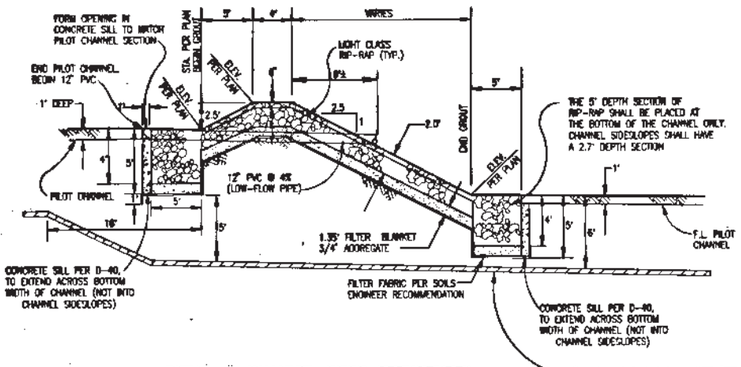
DETAIL - TYPICAL DESILTING BASIN
NOT TO SCALE



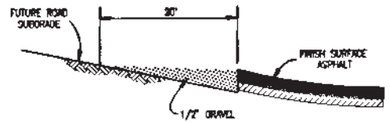
DETAIL: TYPE "F" C.B. @ TRAIL
SEE SHEET No. 4 & 6
NOT TO SCALE



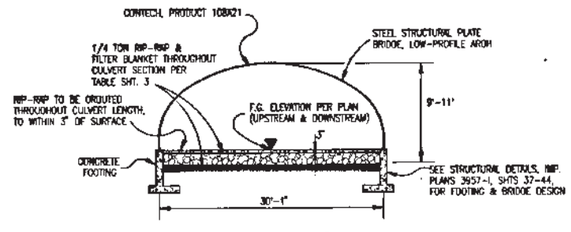
TYPICAL SECTION 'G-G'
SEE SHEET No's. 5 & 6
NO SCALE



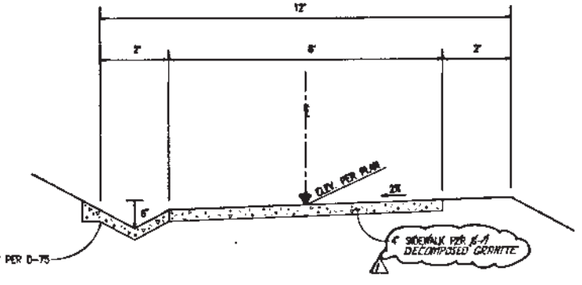
DETAIL - CHANNEL DROP STRUCTURE*
NOT TO SCALE
*SEE PLAN SHEETS FOR RIP-RAP COVERAGE ON SIDE SLOPES ADJ. TO DROP STRUCTURES (MUST EXTEND BEYOND LIMITS OF 100 YEAR FLOOD)



DETAIL - GRAVEL ENTRY RAMP
SEE SHEET Nos. 5 & 6
NOT TO SCALE



SECTION "B-B"
SEE SHEET No. 5
NOT TO SCALE



TYPICAL TRAIL SECTION 'H-H'
SEE SHEET No. 4
NO SCALE

AS-BUILT
RCE 65381

REGISTERED PROFESSIONAL ENGINEER JEFFREY L. MITCHELL EXP. 9/30/98 NO. 35134 CIVIL STATE OF CALIFORNIA

ZELMAN RETAIL PARTNERS
1061 HANOVER ROAD, SUITE 221
CITY OF INDUSTRY, CALIFORNIA 91748
TEL (818) 913-0030 FAX (818) 913-8189

CARLTAS DEVELOPMENT COMPANY
5600 AVENIDA ENCINAS • SUITE 100 • CARLSBAD, CALIFORNIA 92008 U.S.A.
(619) 431-5600 | FAX (619) 431-9020

O'Day CONSULTANTS
7220 Avenida Encinas, Suite 204, Carlsbad, California 92009, 619-931-7700, Fax-619-931-8620
Civil Engineering, Planning, Processing, Surveying

DESIGNED BY: A.D. DATE: JULY 1995
DRAWN BY: G.S.M., S.B., T.G. SCALE: AS SHOWN
PROJECT MGR.: J.J.M. JOB NO.: 93-1008
ENGINEER OF WORK: JEFFREY L. MITCHELL DATE: 8-3-95 RCE: 35134

REVISIONS	APPROVED	DATE
REVISE SECTIONS G-G & H-H	K.C.	4-18-96
AS-BUILT	G.S.M.	2-13-98

REFERENCES | DATE

BENCH MARK
DESCRIPTION: TOP OF BRASS DISK IN WELL MONUMENT
LOCATION: STA. 64+24 EL CAMINO REAL
RECORDED FROM: S.D. CO. VERT. CONTROL DG 105
ELEVATION: 120.20 DATUM: M.S.L.

SCALE
HORIZONTAL AS SHOWN
VERTICAL AS SHOWN

SPECIAL DISTRICT

DESIGNED BY	DRAWN BY	CHECKED BY
A.D. J.J.M.	G.S.M. S.B. T.G.	J.J.M.

PLANS PREPARED UNDER SUPERVISION OF
JEFFREY L. MITCHELL
REGISTERED CIVIL ENGINEER
DATE: JULY 1995
R.C.E. NO: 35134
EXP: 9-30-95

APPROVALS
RECOMMENDED BY: K.C. Jones DATE: 8-3-95
APPROVED BY: Dawn N. Ashworth DATE: 8-4-95

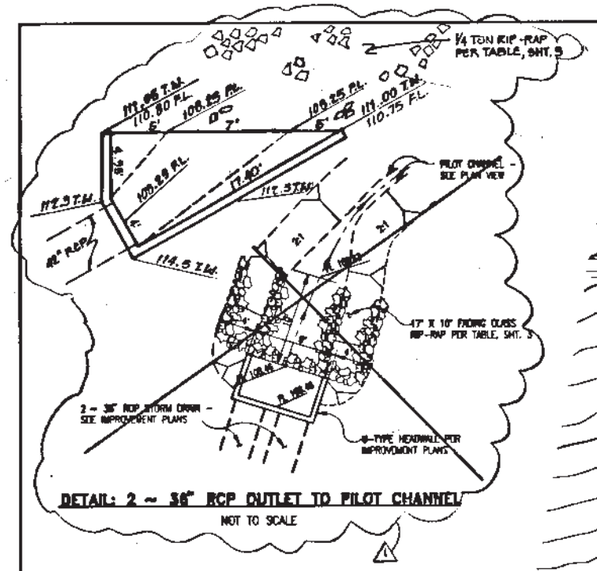
CITY OF ENCINITAS ENGINEERING DEPARTMENT
GRADING PLANS FOR: SOUTH BRANCH ENCINITAS CREEK FLOOD CONTROL CHANNEL ENCINITAS RANCH
CALIFORNIA COORDINATE INDEX 326-1883

DRAWING NO.
TM 94-066
4367-I
SHEET 3 OF 18

ENGINEER'S NAME: O'DAY CONSULTANTS, INC.
PHONE NO.: (619) 931-7700

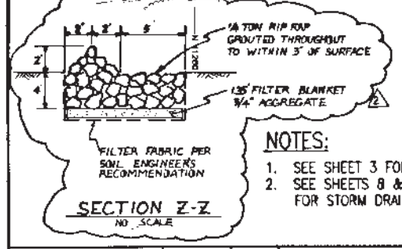
33

Date: 07/06/95 Time: 15:24 PC jt1 FILE=F:\JOBS\931008\B4GCC03.DWG



DETAIL: 2 ~ 36" RCP OUTLET TO PILOT CHANNEL

NOT TO SCALE



SECTION Z-Z

NO SCALE

NOTES:

1. SEE SHEET 3 FOR RIPRAP DETAIL
2. SEE SHEETS 8 & 9 AND DWG. 3957-I FOR STORM DRAIN PLAN & PROFILE

NOTE:
CONTRACTOR SHALL POTHOLE AND FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXIST. UTILITIES IN ADVANCE OF CONSTRUCTION AND NOTIFY ENGINEER OF WORK IN THE EVENT OF CONFLICTING UTILITY CROSSINGS TO ALLOW SUFFICIENT TIME FOR REDESIGN SO AS NOT TO CAUSE DELAYS IN CONSTRUCTION.

SEE SHEET NO. 8

SEE SHEET NO. 5

U.S. POSTAL SERVICE
A.P.N. 257-040-28

PROPERTY LINE

FUTURE SUBDIVISION BOUNDARY

SCALE: 1" = 50'

LIMITS OF DRAINAGE EASEMENT

LIMITS OF GRADING

LIMITS OF PROPOSED 100 YR. FLOOD

LIMITS OF EXIST. 100 YR. FLOOD

EXISTING PUBLIC ROAD EASEMENT TO COUNTY OF SAN DIEGO TO BE VACATED (PER LIC. SURVEY 372)

EXIST. OVERHEAD ELECTRIC TO BE RELOCATED UNDERGROUND BY OTHERS

EXIST. C.I. INLET TO BE CONVERTED

REMOVE EXIST. A.C. PVMT. & POSTS

PLACE SANDBAGS ALONG EDGE OF GRADED AREA PER EROSION CONTROL NOTE #9 (TYP.), 1 BAG HIGH

SEE DETAIL TAG SHEET FOR S.D. OUTLET/RIP-RAP/PILOT CHANNEL

HEADWALL & PORTION OF EXIST. STORM DRAIN TO BE REMOVED

SEE CHANNEL DROP STRUCTURE DETAIL, SHEET 3

SEE SHEET No. 3 FOR SECTION "A-A"

SEE SHEET No. 3 FOR SECTION "H-H"

EXISTING CONCRETE DRAINAGE CHANNEL

EXISTING SPILLWAY TO BE REMOVED

MATCH EXIST. CHANNEL SIDESLOPES

24" RCP - SEE SHEET 3

RELOCATE SIGN

POLLUTION CONTROL BASIN

EL CAMINO REAL

GARDEN VIEW ROAD

HOME DEPOT
R.O.S. 14118

CITY OF ENCINITAS
TRACT NO. 4030
MAP NO. 11909

AS-BUILT
RCE 56381

REGISTERED CIVIL ENGINEER
JEFFREY L. MITCHELL
No. 35134
CIVIL
STATE OF CALIFORNIA

ZELMAN RETAIL PARTNERS
1661 HANOVER ROAD, SUITE 221
CITY OF INDUSTRY, CALIFORNIA 91748
TEL (818) 913-0030 FAX (818) 913-6169

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O'DAY CONSULTANTS
7220 Avenida Encinas, Suite 204, Carlsbad, California 92009, 619-931-7700, Fax 619-931-8690
Civil Engineering, Planning, Processing, Surveying

DESIGNED BY: J.D. DATE: JULY 1995
DRAWN BY: G.S.M., S.B., T.G. SCALE: AS SHOWN
PROJECT MGR.: J.L.M. JOB NO.: 93-1006
ENGINEER OF WORK: DATE: 8-7-95
JEFFREY L. MITCHELL RCE: 35134

REVISIONS	APPROVED	DATE
1 COAST. CHANGE, REVISED S.D.	J.L.M.	11-20-95
2 CONST. CHANGE DROP STR.	J.L.M.	4-1-96
AS-BUILT	G.S.M.	2-13-96

REFERENCES

DATE

BENCH MARK
DESCRIPTION: TOP OF BRASS DOG IN WELL MONUMENT
LOCATION: STA. 64+24 EL CAMINO REAL
RECORDED FROM: S.D. CO. VERT. CONTROL, PG. 105
ELEVATION: 120.20 DATUM: M.S.L.

SCALE
HORIZONTAL AS SHOWN
VERTICAL AS SHOWN

SPECIAL DISTRICT

DESIGNED BY	DRAWN BY	CHECKED BY
J.D. M.A.	G.S.M., S.B., T.G.	J.L.M.

PLANS PREPARED UNDER SUPERVISION OF
JEFFREY L. MITCHELL
REGISTERED CIVIL ENGINEER
DATE: JULY 1995
R.C.E. NO: 35134
EXP: 9-30-95

APPROVALS
RECOMMENDED BY: [signature] DATE: 9-3-95
APPROVED BY: [signature] DATE: 8-4-95

CITY OF ENCINITAS ENGINEERING DEPARTMENT

GRADING PLANS FOR:
SOUTH BRANCH ENCINITAS CREEK FLOOD CONTROL CHANNEL
ENCINITAS RANCH

CALIFORNIA COORDINATE INDEX 328-1683

DRAWING NO.
TM 94-066
4367-I
SHEET 4 OF 15

ENGINEER'S NAME: O'DAY CONSULTANTS, INC.
PHONE NO.: (619) 931-7700

SEE SHEET NO. 4

SEE SHEET NO. 6

A.P.N. 257-040-33
CARLTAS

A.P.N. 257-040-04
CARLTAS

A.P.N. 257-040-17
CARLTAS

A.P.N. 256-020-33
CARLTAS

A.P.N. 256-020-18
CARTER

EL CAMINO REAL

WOODLEY ROAD

HOME DEPOT
R.O.S. 14118

SECTION "C-C"
NOT TO SCALE

AS-BUILT
R.C.E. 35134

NOTES:

1. SEE SHEET 3 FOR RIPRAP DETAIL
2. SEE SHEETS 8 & 9 AND DWG. 3957-1 FOR STORM DRAIN PLAN & PROFILE

NOTE:
CONTRACTOR SHALL POTHOLE AND FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXIST. UTILITIES IN ADVANCE OF CONSTRUCTION AND NOTIFY ENGINEER OF WORK IN THE EVENT OF CONFLICTING UTILITY CROSSINGS TO ALLOW SUFFICIENT TIME FOR REDESIGN SO AS NOT TO CAUSE DELAYS IN CONSTRUCTION.

CARLTAS DEVELOPMENT COMPANY
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ZELMAN RETAIL PARTNERS
1681 MANOVER ROAD, SUITE 221
CITY OF INDUSTRY, CALIFORNIA 91748
TEL (818) 913-0030 FAX (818) 913-6109

REGISTERED PROFESSIONAL ENGINEER — JEFFREY L. MITCHELL — No. 35134 — CIVIL — STATE OF CALIFORNIA

O'Day CONSULTANTS
7220 Avenida Encinas, Suite 204, Carlsbad, California 92008, 619-931-7700, Fax 619-931-8600
Civil Engineering, Planning, Processing, Surveying

DESIGNED BY: A.D. DATE: JULY 1995
DRAWN BY: G.S.M., S.B., T.G. SCALE: AS SHOWN
PROJECT MGR.: J.L.M. JOB NO.: 93-1009
ENGINEER OF WORK: JEFFREY L. MITCHELL DATE: 8-3-95 RCE: 35134

ENGINEER'S NAME: O'DAY CONSULTANTS, INC.
PHONE NO.: (619) 931-7700

REVISIONS	APPROVED	DATE	REFERENCES	DATE
AS-BUILT	G.M. Lee	2-12-98		

BENCH MARK
DESCRIPTION: TOP OF BRASS DISK IN WELL MONUMENT
LOCATION: STA. 64+24 EL CAMINO REAL
RECORDED FROM: S.D. CO. VERT. CONTROL PG. 105
ELEVATION: 120.20 DATUM: M.S.L.

SCALE
HORIZONTAL AS SHOWN
VERTICAL AS SHOWN

SPECIAL DISTRICT

DESIGNED BY A.D., R.R. | DRAWN BY G.S.M., S.B., T.G. | CHECKED BY J.L.M.
PLANS PREPARED UNDER SUPERVISION OF
JEFFREY L. MITCHELL
REGISTERED CIVIL ENGINEER
DATE: JULY 1995
R.C.E. NO: 35134
EXP: 9-30-95

APPROVALS
RECOMMENDED BY: _____ DATE: 9-3-95
APPROVED BY: _____ DATE: 8-4-95

CITY OF ENCINITAS ENGINEERING DEPARTMENT
GRADING PLANS FOR:
SOUTH BRANCH ENCINITAS CREEK
FLOOD CONTROL CHANNEL
ENCINITAS RANCH
CALIFORNIA COORDINATE INDEX 326-1683

DRAWING NO.
TM 94-066
4367-I
SHEET 5 OF 15

33

M-3 JAN 21 14:56:56 1998

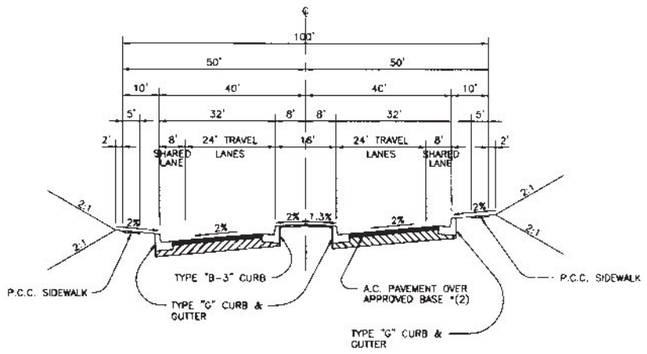
ENCINITAS MAIN POST OFFICE

GENERAL NOTES:

1. A PERMIT SHALL BE OBTAINED FROM THE ENCINITAS ENGINEERING SERVICES DEPARTMENT FOR ANY WORK WITHIN THE STREET RIGHT-OF-WAY.
2. THE STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH CITY OF ENCINITAS PUBLIC ROAD STANDARDS. R VALUE TESTS SHALL BE REQUIRED PRIOR TO CONSTRUCTION.
3. APPROVAL OF THESE IMPROVEMENT PLANS AS SHOWN DOES NOT CONSTITUTE APPROVAL OF ANY CONSTRUCTION OUTSIDE THE PROJECT BOUNDARY.
4. ALL UNDERGROUND UTILITIES WITHIN THE STREET RIGHT-OF-WAY SHALL BE CONSTRUCTED, CONNECTED AND TESTED PRIOR TO CONSTRUCTION OF BERM, CURB, CROSS GUTTER AND PAVING.
5. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND FACILITIES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO OTHER EXISTING FACILITIES EXCEPT AS SHOWN ON THESE PLANS. HOWEVER, THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING FACILITY SHOWN HEREON AND ANY OTHER WHICH IS NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
6. LOCATION AND ELEVATION OF IMPROVEMENTS TO BE MET BY WORK TO BE DONE SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF NEW WORK. CONTRACTOR WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES.
7. THE CONTRACTOR SHALL NOTIFY SAN DIEGO GAS AND ELECTRIC COMPANY PRIOR TO STARTING WORK NEAR COMPANY FACILITIES AND SHALL COORDINATE HIS/HER WORK WITH COMPANY REPRESENTATIVES.

   NOTICE: ALL ELECTRICAL AND GAS SERVICES WITHIN THIS PROJECT ARE "UNDERGROUND INSTALLATIONS". FOR LOCATION OF ELECTRICAL CABLES AND GAS PIPING AND APPURTENANCES CONTACT THE SAN DIEGO GAS & ELECTRIC COMPANY. TELEPHONE: (800) 422-4133
8. THE CONTRACTOR SHALL NOTIFY PACIFIC BELL PRIOR TO STARTING WORK NEAR COMPANY FACILITIES AND SHALL COORDINATE HIS/HER WORK WITH COMPANY REPRESENTATIVES.

   NOTICE: ALL TELEPHONE SERVICES WITHIN THIS PROJECT BOUNDARY ARE "UNDERGROUND INSTALLATIONS". FOR LOCATION OF CABLES AND APPURTENANCES CONTACT PACIFIC BELL. TELEPHONE: (800) 422-4133
9. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO CONTACT THE UTILITY AGENCIES, ADVISE THEM OF THE PROPOSED IMPROVEMENTS, AND BEAR THE COST OF RELOCATIONS, IF NEEDED.
10. ALL TELEVISION SERVICES WITHIN THIS PROJECT ARE "UNDERGROUND INSTALLATIONS". FOR LOCATION OF CABLES AND APPURTENANCES CONTACT (800) 422-4133.
11. POWER SOURCES AND RUNS SERVING STREET LIGHTS SHALL BE SHOWN ON THE "AS BUILT" IMPROVEMENT DRAWINGS. ALL SOURCES SHALL BE LOCATED WITHIN THE DEDICATED RIGHT-OF-WAY, OR WITHIN EASEMENTS DEDICATED TO THE CITY OF ENCINITAS.
12. NO PAVING SHALL BE DONE UNTIL EXISTING POWER POLES ARE RELOCATED OUTSIDE THE AREAS TO BE PAVED.
13. ALL LUMINAIRES SHALL PROVIDE TRUE 90° CUTOFF, AND ALLOW NO ESCAPE OF LIGHT ABOVE THE HORIZONTAL.
14. THE CONTRACTOR SHALL REQUEST FROM THE ENGINEERING SERVICES DEPARTMENT A PRE-CONSTRUCTION MEETING AND SHALL PROVIDE AT LEAST 48 HOURS OF NOTICE FOR SUCH A MEETING. PHONE NUMBER 633-2770.
15. THE DEVELOPER SHALL BE RESPONSIBLE THAT ANY MONUMENT OR BENCH MARK WHICH IS DISTURBED OR DESTROYED SHALL BE RE-ESTABLISHED AND REPLACED BY A REGISTERED CIVIL ENGINEER OR A LICENSED LAND SURVEYOR.
16. THE DEVELOPER SHALL MARK THE LOCATION OF EACH SEWER LATERAL AND WATER SERVICES BY CHISELING THE LETTER "S" AND "W", RESPECTIVELY, 2 INCHES HIGH INTO THE FACE OF THE CURB.
17. THE ADDRESS OF EACH LOT SHALL BE PAINTED ON THE CURB IN A MANNER AND LOCATION APPROVED BY THE INSPECTOR.
18. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION), THE SAN DIEGO STANDARD SPECIAL PROVISIONS TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (ADOPTED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE), AND THE SAN DIEGO REGIONAL STANDARD DRAWINGS (LATEST EDITION).



GARDEN VIEW ROAD

STA. 87+85.00 TO STA. 95+00.00

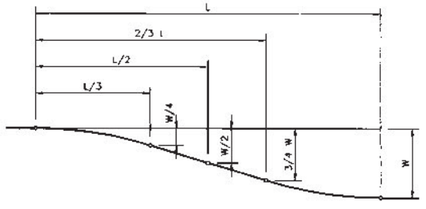
TH= 9.0

NO SCALE



KEY MAP

SCALE: 1"= 200'



TAPER DETAIL

SEE PLAN FOR ACTUAL OFFSETS

OWNER/PERMITTEE STATEMENT:

I HEREBY AGREE TO COMMENCE WORK ON ANY IMPROVEMENTS SHOWN ON THESE PLANS WITHIN EXISTING CITY RIGHT-OF-WAY WITHIN 60 DAYS AFTER ISSUANCE OF THE CONSTRUCTION PERMIT AND TO PURSUE SUCH WORK ACTIVELY ON EVERY NORMAL WORKING DAY UNTIL COMPLETED, IRRESPECTIVE AND INDEPENDENT OF ANY OTHER WORK ASSOCIATED WITH THIS PROJECT OR UNDER MY CONTROL.

OWNER: UNITED STATES POSTAL SERVICE

ASSESSORS PARCEL: 257-040--028

LEGEND:

DESCRIPTION	DWG. NO. (SDRSD UNLESS NOTED)	SYMBOL
6" TYPE "G" CURB & GUTTER	G-2	
6" TYPE "B-1" MEDIAN CURB	G-6	
P.C.C. SIDEWALK	G-7, G-9, G-10	
PEDESTRIAN RAMP	G-27 TYPE "A", G-32	
R.C.P. STORMDRAIN	D-60	
TYPE "B" CURB INLET	D-2, D-11, D-12	
TYPE "J" MEDIAN CURB INLET	D-45, D-11, D-12	
RIGHT OF WAY		
SUBDIVISION BOUNDARY		
RETAINING WALL	DETAIL PER SHEET	
LIGHTS (250 W H.P. SODIUM) W/ PULL BOXES ANCHOR BASE	F-1, F-2	

SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
3	STREET PLAN- GARDEN VIEW ROAD
3	STORM DRAIN PLAN- EL CAMINO REAL
4	STORM DRAIN PLAN- GARDEN VIEW ROAD
5	DETAILS SHEET
6	TRAFFIC SIGNAL PLAN
6	STRIPING AND SIGNING PLAN
8	LANDSCAPING PLAN
9	LANDSCAPING PLAN
10	LANDSCAPING PLAN



VICINITY MAP

NO SCALE

"AS-BUILT"

P.E. _____ EXP. _____ DATE

REVIEWED BY:

INSPECTOR _____ DATE

WORK TO BE DONE:

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION), THE SAN DIEGO STANDARD SPECIAL PROVISIONS TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (ADOPTED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE), AND THE SAN DIEGO REGIONAL STANDARD DRAWINGS (LATEST EDITION).

CONSULTANT

G.V.W. ENGINEERING, INC.

867 S. BREA CYN. RD., SUITE 27
WALNUT, CA. 91789
(909) 594-0552
(909) 594-5670 FAX NO.

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK

DESCRIPTION: ON SEWER M.H. @ INT. OF EL CAMINO REAL & GARDEN VIEW RD.
LOCATION:
RECORDED:
ELEVATION: 130.69 FT. DATUM:

SCALE

HORIZONTAL: AS SHOWN
VERTICAL: AS SHOWN

SPECIAL DISTRICT

DESIGNED BY	DRAWN BY	CHECKED BY
JD	HN	HN

PLANS PREPARED UNDER THE SUPERVISION OF

Darry M. Pierce
DARRY E. PIERCE
REGISTERED CIVIL ENGINEER

DATE: 1-23-98
R.C.E. NO: 24979
EXP: 12/31/01

APPROVALS

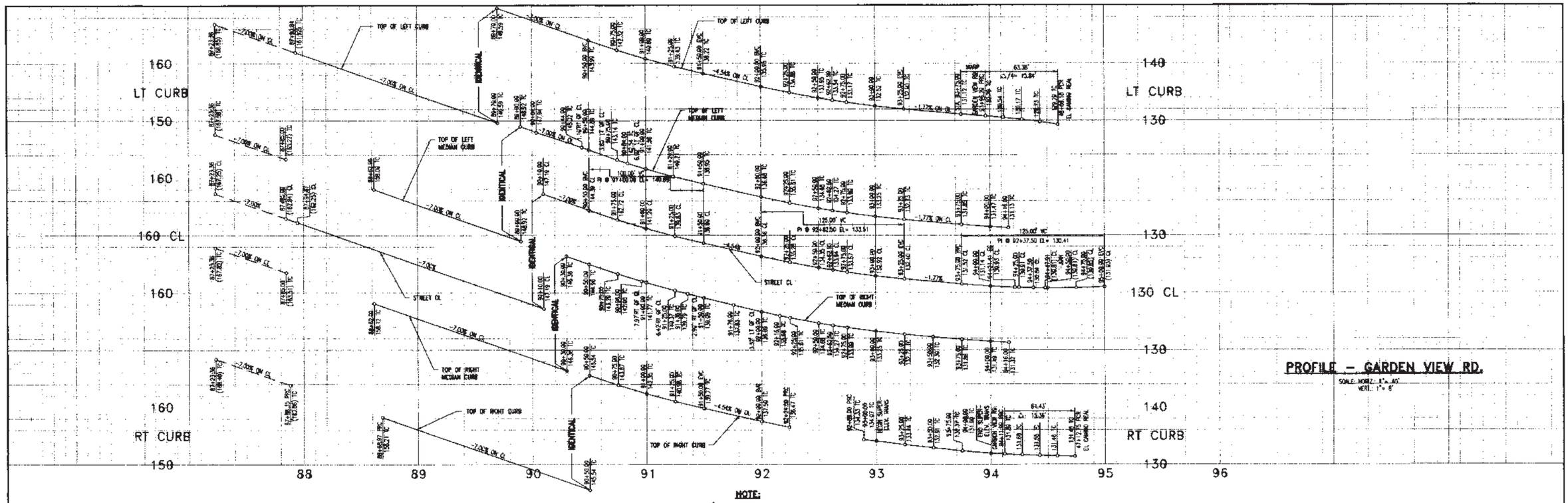
RECOMMENDED
BY: H.C. Jones
DATE: 1-26-98

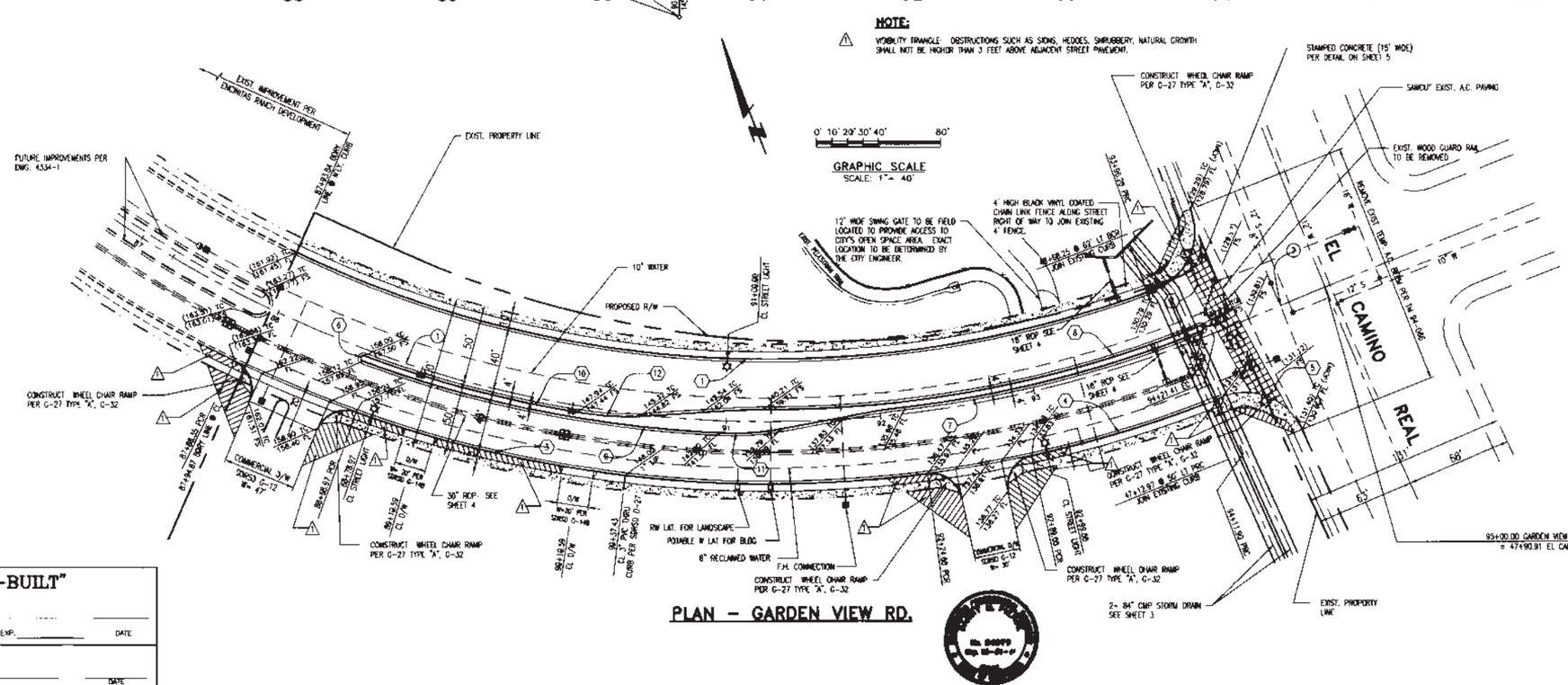
APPROVED
BY: Alan D. Archibald
DATE 1-27-98

CITY OF ENCINITAS ENGINEERING DEPARTMENT

IMPROVEMENT PLANS FOR:
UNITED STATES POST OFFICE
ENCINITAS MAIN OFFICE
STREET PLAN
TITLE SHEET

DRAWING NO.
5046-1
SHEET 1 OF 12





CURB DATA

	DELTA OR BEARING	RADIUS	LENGTH	REMARKS
1	Δ = 45°32'36"	710.00'	564.40'	TYPE "G" CURB & GUTTER
1	Δ = 90°46'43"	40.00'	63.38'	TYPE "G" CURB & GUTTER
3	Δ = 27°37'00"	790.00'	380.78'	TYPE "G" CURB
1	Δ = 8°46'40"	790.00'	121.03'	TYPE "G" CURB
5	Δ = 87°50'53"	40.00'	61.43'	TYPE "G" CURB & GUTTER
6	Δ = 180°00'00"	2.00'	6.28'	MOD. TYPE "B-1" MEDIAN CURB
7	Δ = 15°16'44"	746.00'	198.95'	TYPE "G" CURB & GUTTER
9	Δ = 22°18'26"	742.00'	288.89'	MOD. TYPE "B-1" MEDIAN CURB
9	Δ = 18°29'15"	758.00'	244.58'	TYPE "G" CURB & GUTTER
10	Δ = 11°27'33"	754.00'	150.80'	MOD. TYPE "B-1" MEDIAN CURB
11	SEE TAPER DETAIL ON SHEET NO. 1			TYPE "G" CURB & GUTTER
12	SEE TAPER DETAIL ON SHEET NO. 1			MOD. TYPE "B-1" MEDIAN CURB

CENTERLINE DATA

	DELTA OR BEARING	RADIUS	LENGTH
1	Δ = 53°19'37"	750.00'	698.05'
2	N.88°37'30"E.		78.59'

"AS-BUILT"

P.E. _____ EXP: _____ DATE _____

REVIEWED BY:

INSPECTOR _____ DATE _____

CONSULTANT

G.V.W. ENGINEERING, INC.

887 S. BREA CYN. RD., SUITE 27
WALNUT, CA. 91789
(909) 594-0552
(909) 594-5670 FAX NO.

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK
DESCRIPTION: ON SEWER M.H. @ INT. OF EL CAMINO REAL & GARDEN VIEW RD.
LOCATION:
RECORDED:
ELEVATION: 130.69 FT. DATUM:

SCALE
HORIZONTAL: 1"= 40'
VERTICAL: 1"= 8'

SPECIAL DISTRICT

DESIGNED BY JO	DRAWN BY HN	CHECKED BY DRG

PLANS PREPARED UNDER THE SUPERVISION OF
DATE: 1-23-98
DAVID M. PIERCE
REGISTERED CIVIL ENGINEER
R.C.E. NO: 24879
EXP: 12/31/01

APPROVALS

RECOMMENDED
BY: _____
DATE: 1-26-98

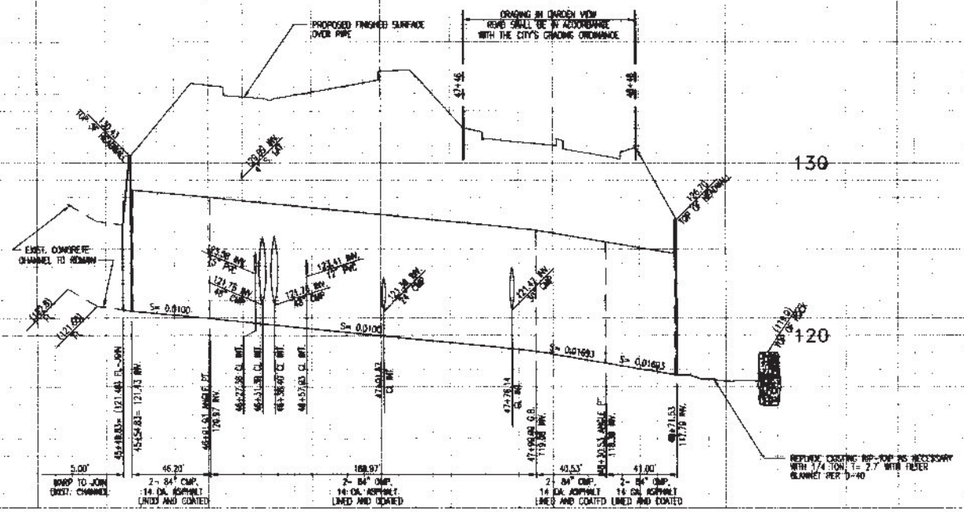
APPROVED
BY: _____
DATE: 1-27-98

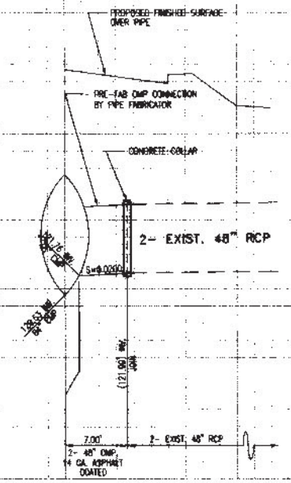
CITY OF ENCINITAS ENGINEERING DEPARTMENT

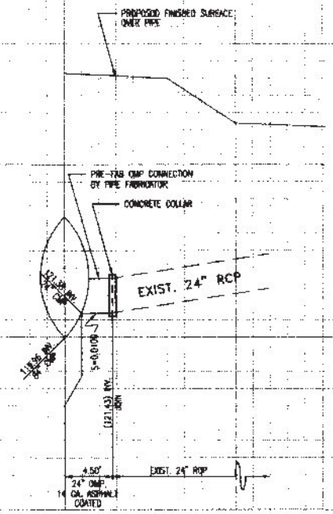
IMPROVEMENT PLANS FOR:
UNITED STATES POST OFFICE
ENCINITAS MAIN OFFICE
STREET PLAN
GARDEN VIEW ROAD

DRAWING NO.
5046-1
SHEET 2 OF 12

8661 00 74 9: 22 '98 16A



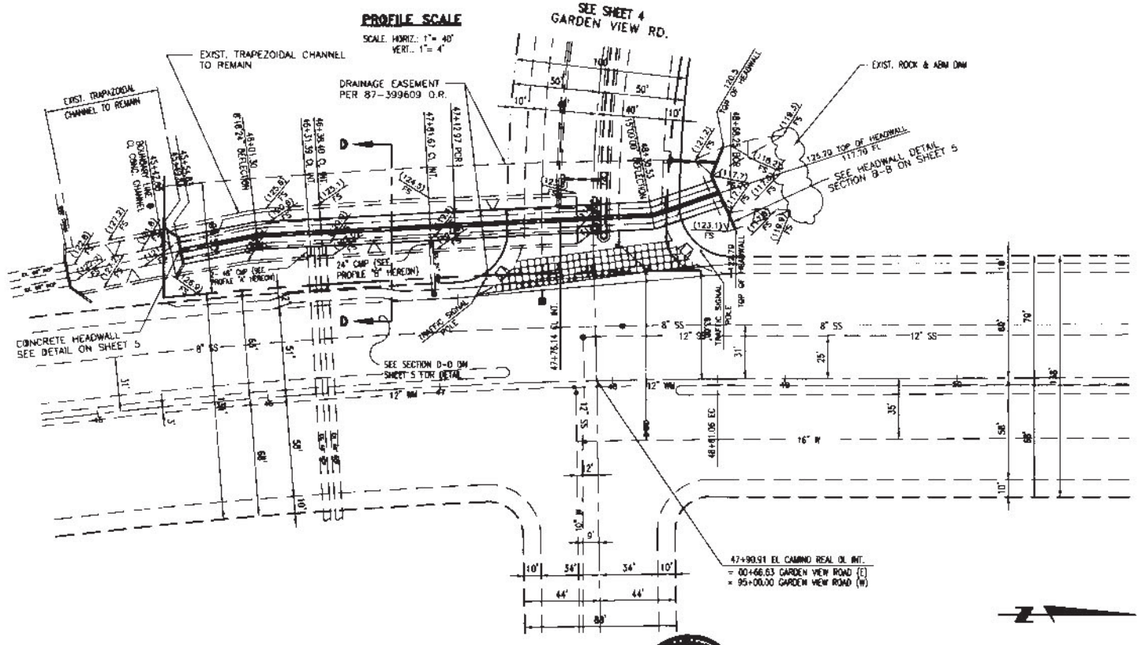




PROFILE SCALE
SCALE: HORIZ.: 1"= 40'
VERT.: 1"= 4'

PROFILE "A"
SCALE: HORIZ.: 1"= 10'
VERT.: 1"= 4'

PROFILE "B"
SCALE: HORIZ.: 1"= 10'
VERT.: 1"= 4'



NOTE: SEE TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL LOCATIONS AT GARDEN VIEW RD. AND EL CAMINO REAL.

0' 10' 20' 30' 40' 80'

GRAPHIC SCALE
SCALE: 1"= 40'

"AS-BUILT"

P.E. _____ EXP. _____ DATE

REVIEWED BY:

INSPECTOR _____ DATE

CONSULTANT

G.V.W. ENGINEERING, INC.

667 S. BREA CYN. RD., SUITE 27
WALNUT, CA. 91789
(909) 594-0552
(909) 594-5670 FAX NO.

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK
DESCRIPTION: CM SEWER M.H. @ INT. OF EL CAMINO REAL & GARDEN VIEW RD.
LOCATION:
RECORDED:
ELEVATION: 130.69 FT. DATUM:

SCALE
HORIZONTAL: 1"= 40'
VERTICAL: 1"= 4'

SPECIAL DISTRICT

DESIGNED BY JD | DRAWN BY HH | CHECKED BY DP

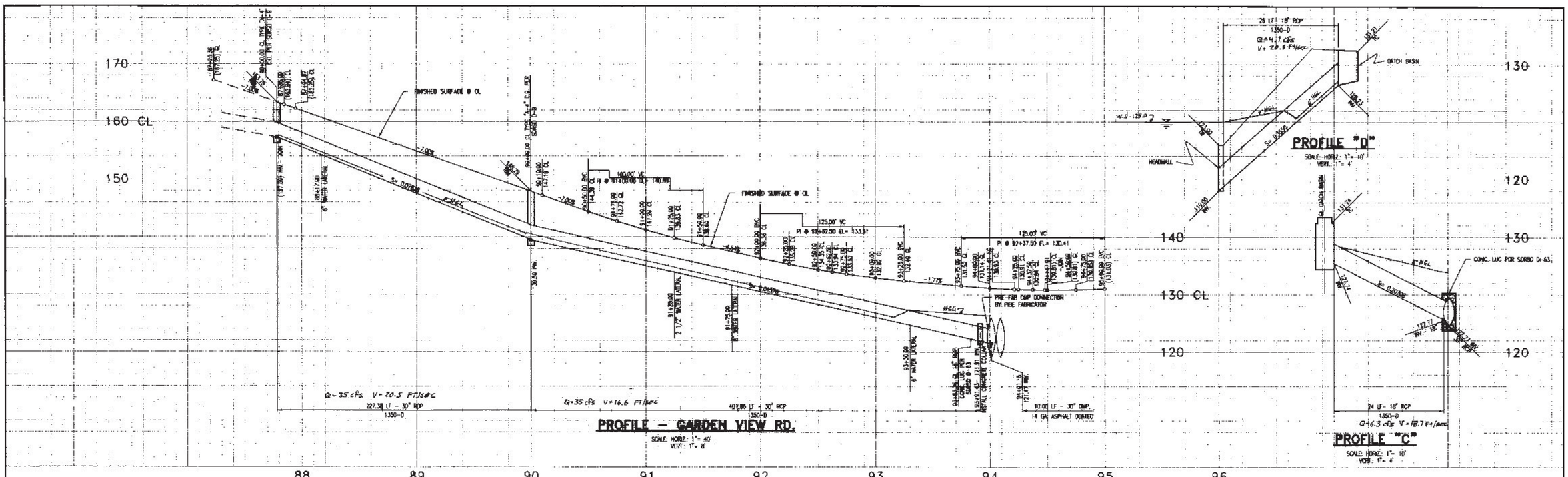
PLANS PREPARED UNDER THE SUPERVISION OF:
DANNY M. PRINCE
REGISTERED CIVIL ENGINEER
DATE: 1-27-98
R.C.E. NO: 24979
EXP: 12/31/01

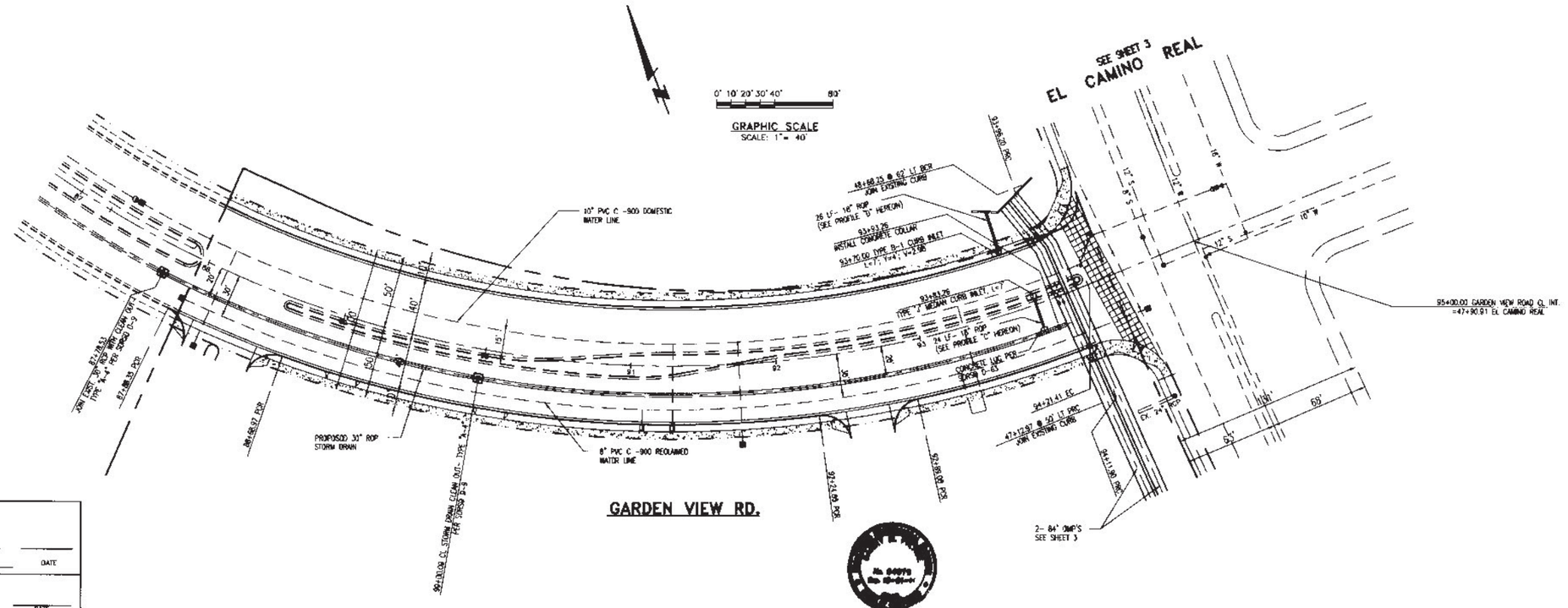
APPROVALS
RECOMMENDED BY: _____ DATE: 1-26-98
APPROVED BY: _____ DATE: 1-27-98

CITY OF ENCINITAS ENGINEERING DEPARTMENT
IMPROVEMENT PLANS FOR:
UNITED STATES POST OFFICE
ENCINITAS MAIN OFFICE
STORM DRAIN PLAN
EL CAMINO REAL

DRAWING NO.
5046-1
SHEET 3 OF 12

Jan 21, 12 09:49 1998





"AS-BUILT"

P.E. _____ EXP. _____ DATE _____

REVIEWED BY:

INSPECTOR _____ DATE _____

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK

DESCRIPTION: ON SEWER M.H. @ INT. OF EL CAMINO REAL & GARDEN VIEW RD.

LOCATION:

RECORDED:

ELEVATION: 130.89 FT. DATUM:

SCALE

HORIZONTAL: 1"= 40'

VERTICAL: 1"= 8'

SPECIAL DISTRICT

DESIGNED BY	DRAWN BY	CHECKED BY
BS	HN	DP

PLANS PREPARED UNDER THE SUPERVISION OF

DANNY M. PIERCE
REGISTERED CIVIL ENGINEER

DATE: 1-23-98

R.C.E. NO: 24879

EXP: 12/31/01

APPROVALS

RECOMMENDED BY: _____ DATE: 1-26-98

APPROVED BY: _____ DATE 1-27-98

CONSULTANT

G.V.W. ENGINEERING, INC.

887 S. BREA CYN. RD., SUITE 27
WALNUT, CA. 91789
(909) 594-0552
(909) 594-5670 FAX NO.

CITY OF ENCINITAS ENGINEERING DEPARTMENT

IMPROVEMENT PLANS FOR:

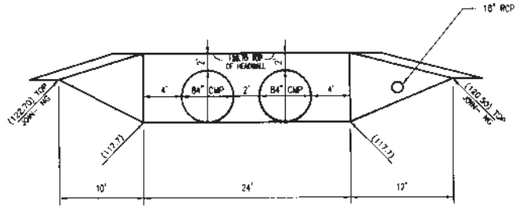
UNITED STATES POST OFFICE
ENCINITAS MAIN OFFICE

STORM DRAN PLAN

GARDEN VIEW ROAD

DRAWING NO. 5046-1

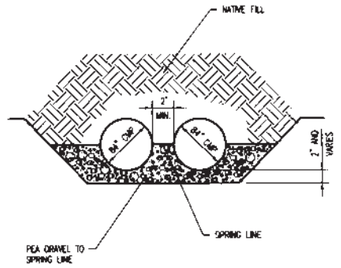
SHEET 4 OF 12



MODIFIED WING HEADWALL PER S.D.R.S.D. D-35

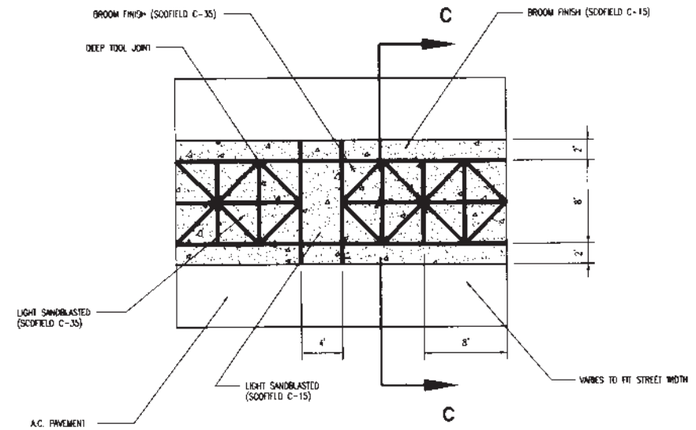
SECTION B-B

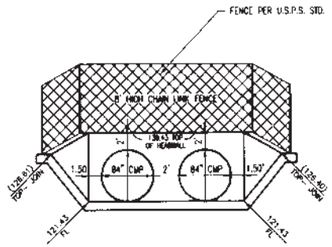
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SECTION D-D

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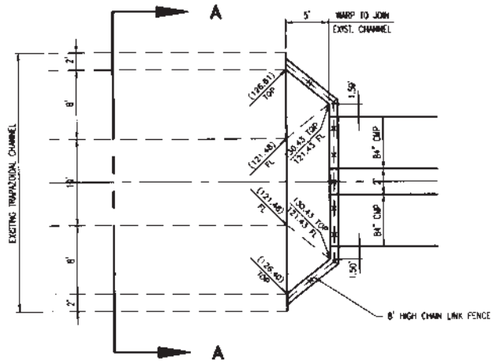




MODIFIED DOUBLE WING HEADWALLS PER S.D.R.S.D. D-35

SECTION A-A

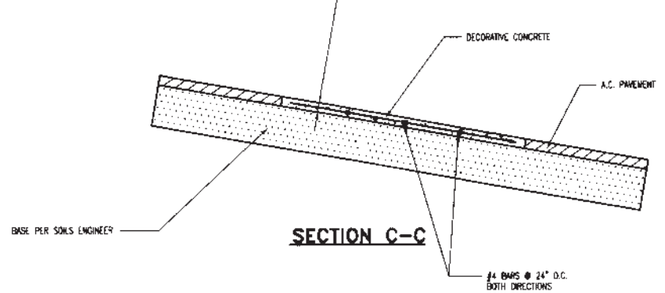
NO SCALE



MODIFIED DOUBLE WING HEADWALLS PER S.D.R.S.D. D-35

CONCRETE HEADWALL DETAIL

NO SCALE

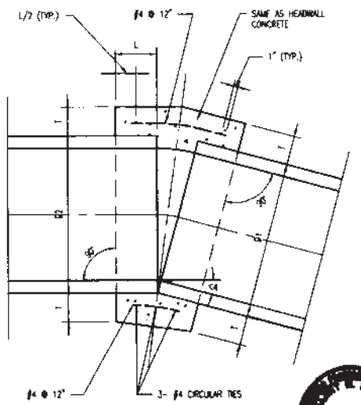


SECTION C-C

DECORATIVE CONCRETE DETAIL

NO SCALE

D	L	B
12"	12"	4"
15"	12"	5"
24"	12"	6"
30"	18"	8"
48"	18"	12"



CONCRETE COLLAR DETAIL

NO SCALE

"AS-BUILT"

P.E. _____ EXP. _____ DATE _____

REVIEWED BY:

INSPECTOR _____ DATE _____

REVISIONS	APPROVED	DATE	REFERENCES	DATE

BENCH MARK

DESCRIPTION: ON SEWER MH @ INT. OF CL CAMINO REAL & LOCATION: GARDEN VIEW RD.

RECORDED: _____

ELEVATION: 130.69 FT. DATUM: _____

SCALE

HORIZONTAL: AS SHOWN

VERTICAL: AS SHOWN

SPECIAL DISTRICT

DESIGNED BY	DRAWN BY	CHECKED BY
JO	HN	DP

PLANS PREPARED UNDER THE SUPERVISION OF

DANNY M. PRINCE
REGISTERED CIVIL ENGINEER

DATE: 1-23-98

R.C.E. NO: 24879

EXP: 12/31/01

APPROVALS

RECOMMENDED BY: _____ DATE: 1-26-98

APPROVED BY: _____ DATE: 1-27-98

CITY OF ENCINITAS ENGINEERING DEPARTMENT

IMPROVEMENT PLANS FOR:

UNITED STATES POST OFFICE
ENCINITAS MAIN OFFICE
STREET PLAN
DETAILS SHEET

DRAWING NO. 5046-1

SHEET 5 OF 12

CONSULTANT

G.V.W. ENGINEERING, INC.

667 S. BREA CYN. RD., SUITE 27
WALNUT, CA. 91789
(909) 594-0552
(909) 594-5670 FAX NO.

Wed Jan 21 14:39:22 1998

APPENDIX 2

SITE VISIT PHOTOS

REACH 1 (POC-1)



Figure 1. Beginning of domain of analysis for Reach 1 at Garden View Road and El Camino Real intersection, as seen looking downstream. A concrete headwall structure and riprap (Grade Control 1) spans across the width of the channel and is embedded into the channel banks (top of headwall is visible along bottom of photo). The headwall and riprap act as a grade control, and both are in good condition with no undermining.



Figure 2. Channel approximately halfway between Grade Control 1 and 2, as seen looking upstream. Hardpan bed and bank material is visible, as well as dense, large woody shrubs and trees (typical vegetation in the domain of analysis). Standing, ponded water shows the channel is in a backwater condition (reduced flow velocity).



Figure 3. Heavy vegetation in channel bottom and banks located approximately halfway between Grade Control 1 and 2, as seen looking upstream. The dense, large woody shrubs and trees have extensive root systems that extend into the channel banks and bottom. Flow in the majority of Reach 1 is ponded (low velocity) due to backwater conditions.



Figure 4. Grade Control 2 (drop structure), as seen looking upstream. Grade control is in good condition.



Figure 5. Heavy vegetation in channel between Grade Control 2 and 3, as seen looking upstream. The dense, large woody shrubs, reeds, water plants, and trees depicted here are representative of the vegetation in the domain of analysis. Flow is ponded due to backwater conditions.



Figure 6. Grade Control 3 (drop structure), as seen looking downstream. Grade control is in good condition. Flow is ponded due to backwater conditions.



Figure 7. Looking upstream from Grade Control 3. Channel is stable with heavy vegetation and hardpan. Top of low flow pipe inlet is visible in center of photo. Higher flows will back up behind the drop structure weir, creating a backwater condition.



Figure 8. Looking downstream from Grade Control 3. Deep, ponded water and dense bank vegetation is typical for the reaches between Grade Controls 3, 4, 5, and 6.



Figure 9. Grade Control 4 (drop structure), as seen looking across the channel. Grade control is in good condition.



Figure 10. Grade Control 5 (drop structure), as seen looking across the channel. Grade control is in good condition.



Figure 11. Grade Control 6 (drop structure), as seen looking upstream (the rock rip-rap drop structure is visible towards the upper left of the photo). Note the east bank is fortified by a concrete bank and apron. Grade control is in good condition.



Figure 12. Grade Control 7 (See Figure 13 description below).

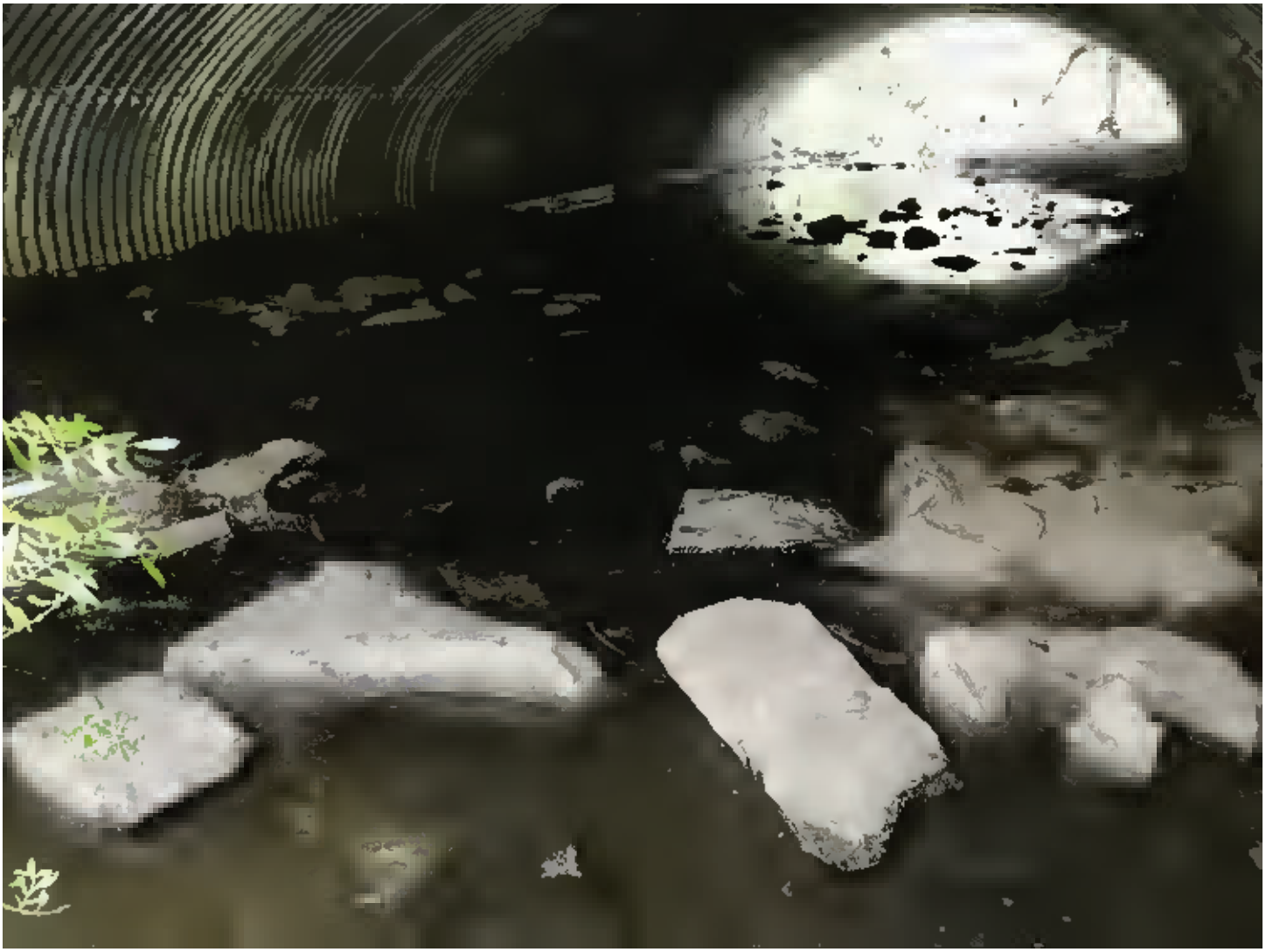


Figure 13. Description for Figures 12 and 13: End of domain of analysis looking downstream through the Town Center Drive culvert (Grade Control 7). The culvert acts as a grade control, and is in good condition with no undermining or evidence of failure observed. Channel banks approaching the culvert are fortified with riprap, concrete lined banks, and heavy vegetation (including shrubs and trees).

APPENDIX 3

FORM 1: INITIAL DESKTOP ANALYSIS (REACH 1)

S.CA Hydromodification Screening Tool version 1.0

user:

stream: **Encinitas Creek (South Fork): Reach 1, POC-1 (the reach starting at the intersection of Garden View Road and El Camino Real, proceeding downstream approximately 2,300 feet to the intersection of Town Center Drive and El Camino Real)**

latitude (decimal degrees): **33.1618**

longitude (decimal degrees): **-117.2228**

FORM 1: INITIAL DESKTOP ANALYSIS

GIS metrics and screening indices (for detailed instructions/examples see 'Field Screening Companion Document')

Symbol	Variable	units	Value	Description & Source
A	Drainage Area	mi^2	**2.1**	contributing drainage area to screening location via *published HUCs and/or 30-m (or better) National Elevation Data (NED), USGS seamless server*
P	Mean annual precipitation	inches	**12.2**	area-weighted annual precipitation via *USGS delineated polygons using records from 1900 to 1960 (which was more significant in hydrologic models than polygons delineated from shorter record lengths)*
S_v	Valley slope	m/m	**0.006**	valley slope at site *via NED, measured over a relatively homogeneous valley segment as indicated by slope, hillslope coupling/confinement, valley alignment, confluences, etc., over a distance of up to ~500 meters or 10% of the main-channel length (whatever is smaller)*
W_v	Valley width	meters	**12.19512**	valley bottom width at site *between natural valley walls as dictated by clear breaks in hillslope on NED raster, irrespective of potential armoring from floodplain encroachement, levees, etc. (imprecise measurements have negligible effect on rating in wide valleys where VWI >>2, as defined in lateral decision tree)*
Q_{10cfs}	10-year peak flow, US units	ft^3/s	**238**	$Q_{10cfs} = 18.2 * A^{0.87} * P^{0.77}$ *(Hawley and Bledsoe, In review)*
Q_{10}	10-year peak flow	m^3/s	**6.74**	$Q_{10} = 0.0283 * Q_{10cfs}$
INDEX	10-year mobility index	$m^{1.5}/s^{0.5}$	**0.016**	$INDEX = S_v * Q_{10}^{0.5}$
W_{ref}	Reference width	meters	**16.12**	$W_{ref} = 6.99 * Q_{10}^{0.438}$
VWI	Valley width index	m/m	**0.76**	$VWI = W_v / W_{ref}$

APPENDIX 4

FORM 2: PEBBLE COUNT (EMPTY FORM) (REACH 1)

FORM 2: PEBBLE COUNT

If it is necessary to estimate d_{50}, perform a pebble count, after Bunte and Abt (2001a,b), using a minimum of 100 particles and a standard half-phi template, or by measuring along the intermediate axis of each pebble. Use a grid and tape for equally spaced samples over systematic/complete transects across riffle sections (i.e., if the 100th particle is in the middle of a transect, complete the full transect before stopping the count; if more than 125 particles, record data near the bottom of Sheet 2 of 2). If the source of fines (sand/silt d <2 mm; see Form 2 Table 2 below) is less than ½ inch thick (approximately one finger width) at the sampling point, sample the coarser buried substrate; otherwise record observation of fines. Take photographs to support observations (Detailed instructions in Appendix A.3).

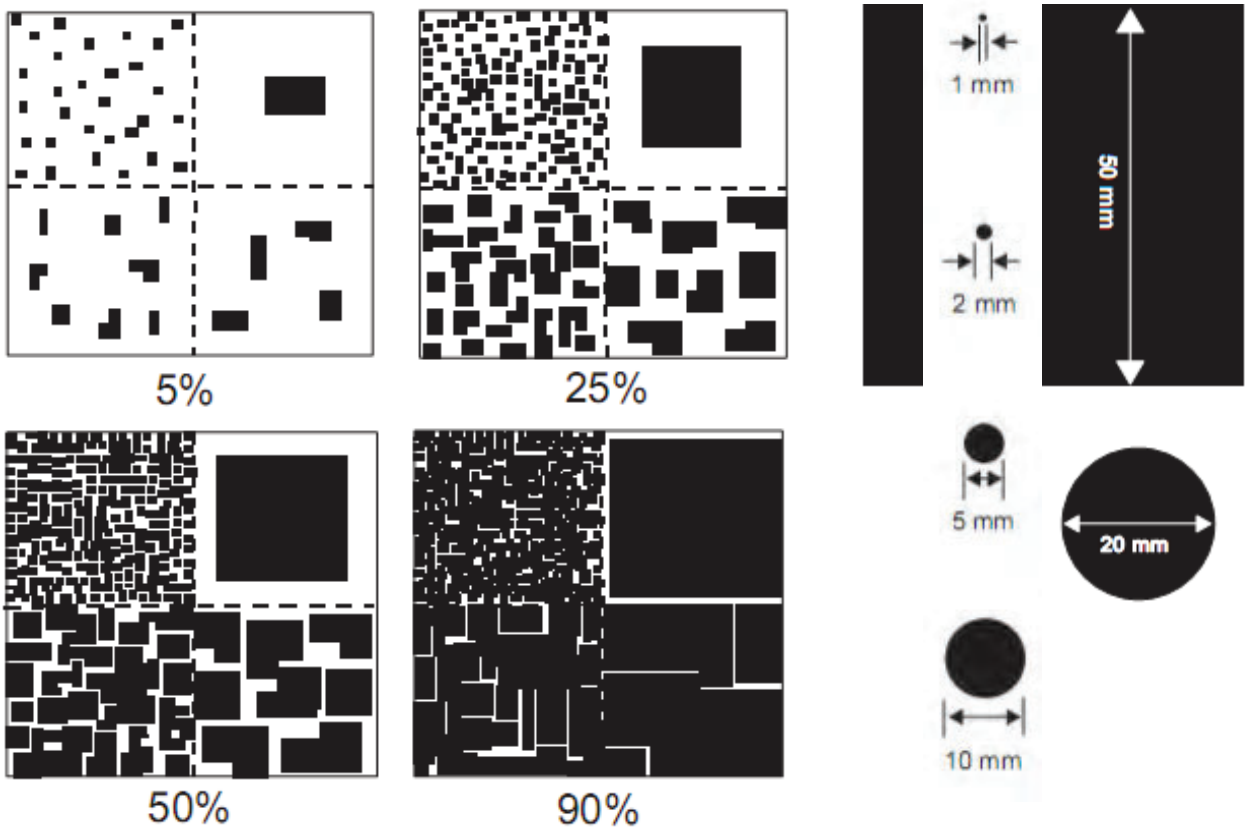
Form 2 Table 1. 100-pebble count tabulation for Vertical Susceptibility. Record station (Sta) and diameter (d) in millimeters.

#	Sta	d (mm)	#	Sta	d (mm)	#	Sta	d (mm)	#	Sta	d (mm)	#	Sta	d (mm)
1			26			51			76			101		
2			27			52			77			102		
3			28			53			78			103		
4			29			54			79			104		
5			30			55			80			105		
6			31			56			81			106		
7			32			57			82			107		
8			33	N/A		58			83			108		
9			34			59			84			109		
10			35			60			85			110		
11			36			61			86			111		
12			37			62			87			112		
13			38			63			88			113		
14			39			64			89			114		
15			40			65			90			115		
16			41			66			91			116		
17			42			67			92			117		
18			44			68			93			118		
19			44			69			94			119		
20			45			70			95			120		
21			46			71			96			121		
22			47			72			97			122		
23			48			73			98			123		
24			49			74			99			124		
25			50			75			100			125		

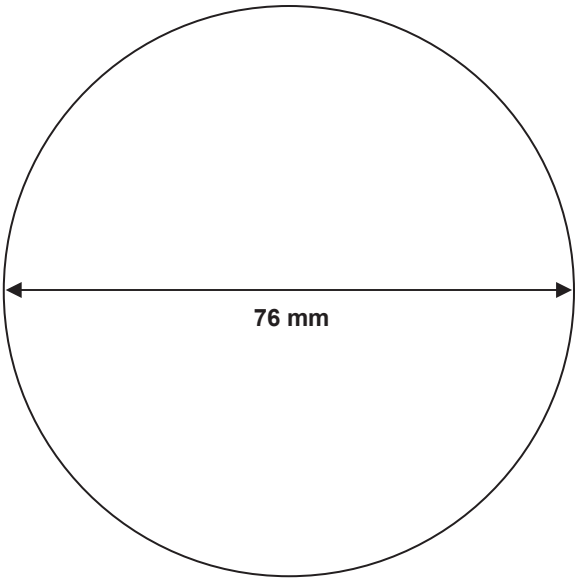
Form 2 Table 2. d_{50} for Screening Index Threshold.

Class Name	Diameter (mm)	Helpful Descriptions for Field Identification
Boulder	> 256	Difficult to lift by hand
Cobble	> 64	Typically able to lift
Gravel	> 2	Fits in one hand
Sand	> 0.0625	Can feel between fingers
Silt	> 0.004	Can feel with tongue
Clay	≤ 0.004	Can not feel individual particle

(Sheet 1 of 2)



Note: Each quadrant within each box contains the same total area covered using different sized objects.



Form 2 Figure 1. Examples of % coverage by volume and substrate sizing adapted from *NRCS Field Book for Describing and Sampling Soils* (Schoeneberger *et al.* 2002) and Julien (1998).

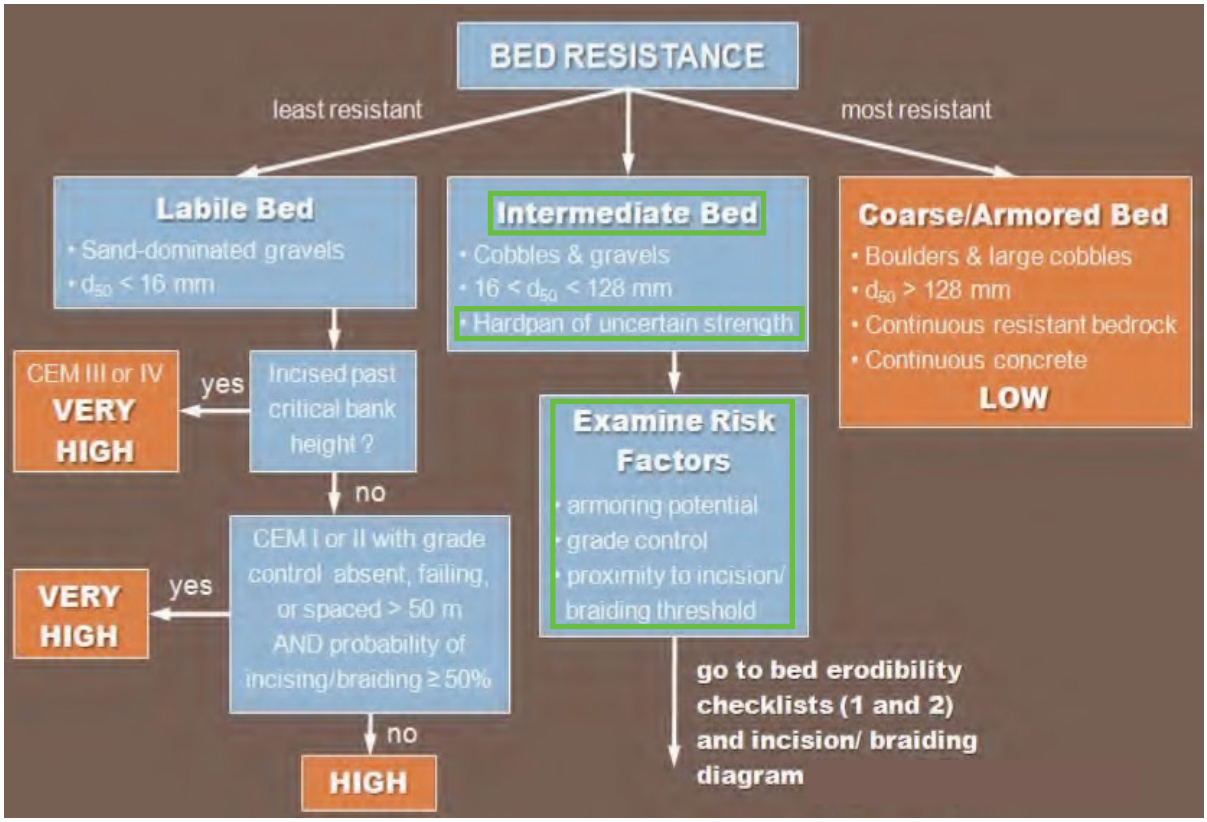
(Sheet 2 of 2)

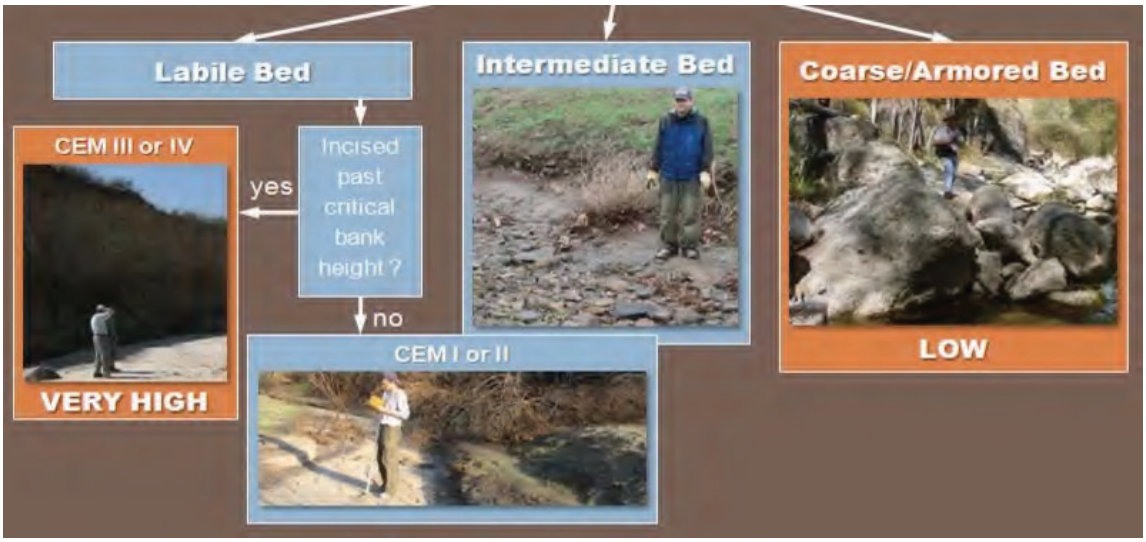
APPENDIX 5

FORM 3: VERTICAL SUSCEPTIBILITY FIELD SHEET (REACH 1)

FORM 3: VERTICAL SUSCEPTIBILITY FIELD SHEET

Circle appropriate nodes/pathway for proposed site.





Form 3 Figure 1. Vertical Susceptibility photographic supplement to be used in conjunction with Form 3 Bed Resistance above.

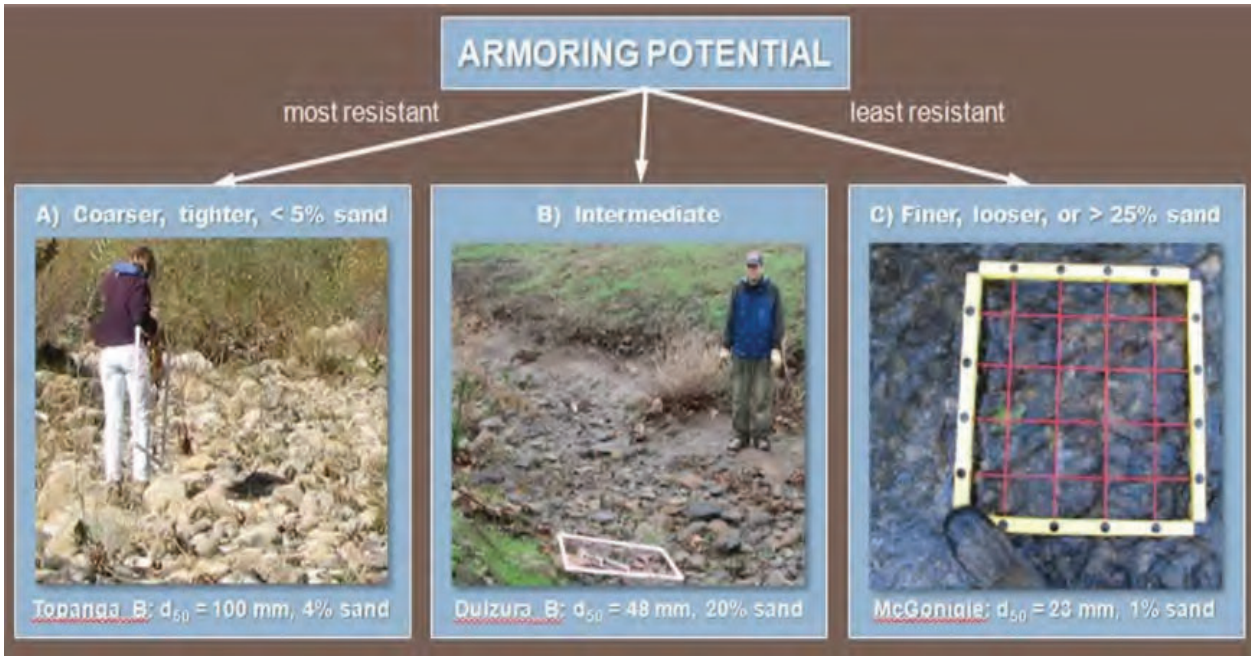
(Sheet 1 of 4)

Form 3 Support Materials

Form 3 Checklists 1 and 2, along with information recording in Form 3 Table 1, are intended to support the decisions pathways illustrated in Form 3 Overall Vertical Rating for Intermediate/Transitional Bed.

Form 3 Checklist 1: Armoring Potential

☐	A	A mix of coarse gravels and cobbles that are tightly packed with <5% surface material of diameter <2 mm
☒	B	Intermediate to A and C or hardpan of unknown resistance, spatial extent (longitudinal and depth), or unknown armoring potential due to surface veneer covering gravel or coarser layer encountered with probe
☐	C	Gravels/cobbles that are loosely packed or >25% surface material of diameter <2 mm



Form 3 Figure 2. Armoring potential photographic supplement for assessing intermediate beds (16 < d_{50} < 128 mm) to be used i**n conjunction with Form 3 Checklist 1.**

(Sheet 2 of 4)

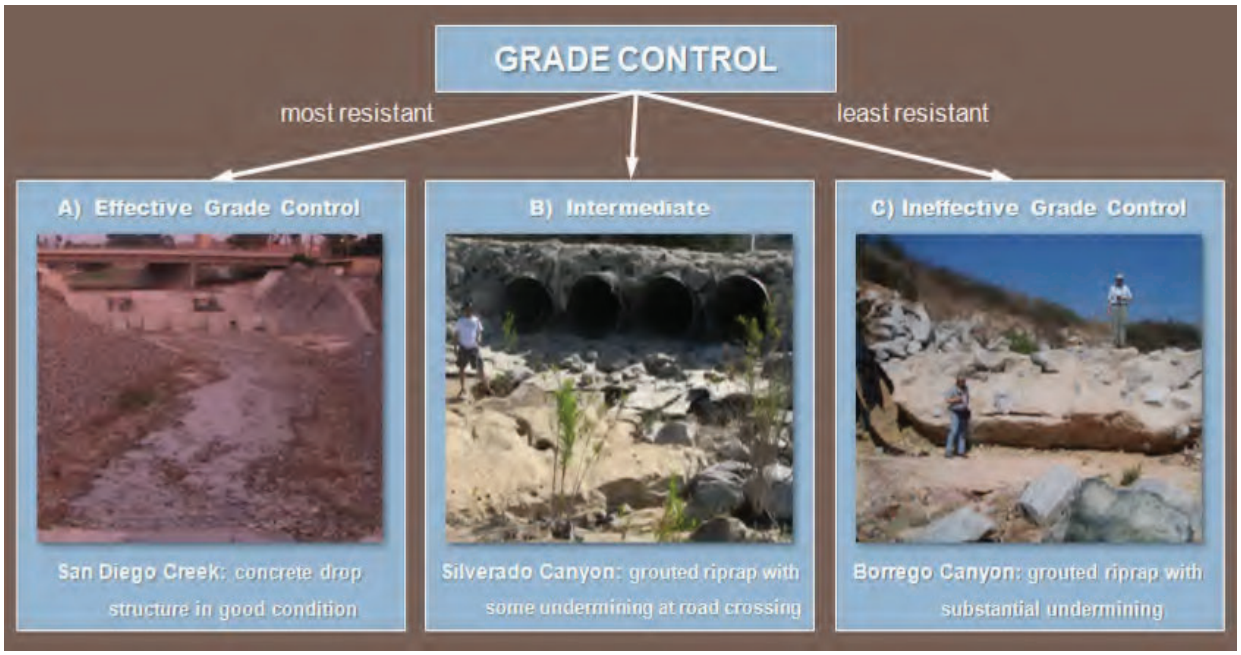
Form 3 Checklist 2: Grade Control

□ A Grade control is present with spacing <50 m or $2/S_v$ m

- No evidence of failure/ineffectiveness, e.g., no headcutting (>30 cm), no active mass wasting (analyst cannot say grade control sufficient if mass-wasting checklist indicates presence of bank failure), no exposed bridge pilings, no culverts/structures undermined
- Hard points in serviceable condition at decadal time scale, e.g., no apparent undermining, flanking, failing grout
- If geologic grade control, rock should be resistant igneous and/or metamorphic; For sedimentary/hardpan to be classified as 'grade control', it should be of demonstrable strength as indicated by field testing such as hammer test/borings and/or inspected by appropriate stakeholder

□ B Intermediate to A and C – artificial or geologic grade control present but spaced 2/Sv m to 4/Sv m or potential evidence of failure or hardpan of uncertain resistance

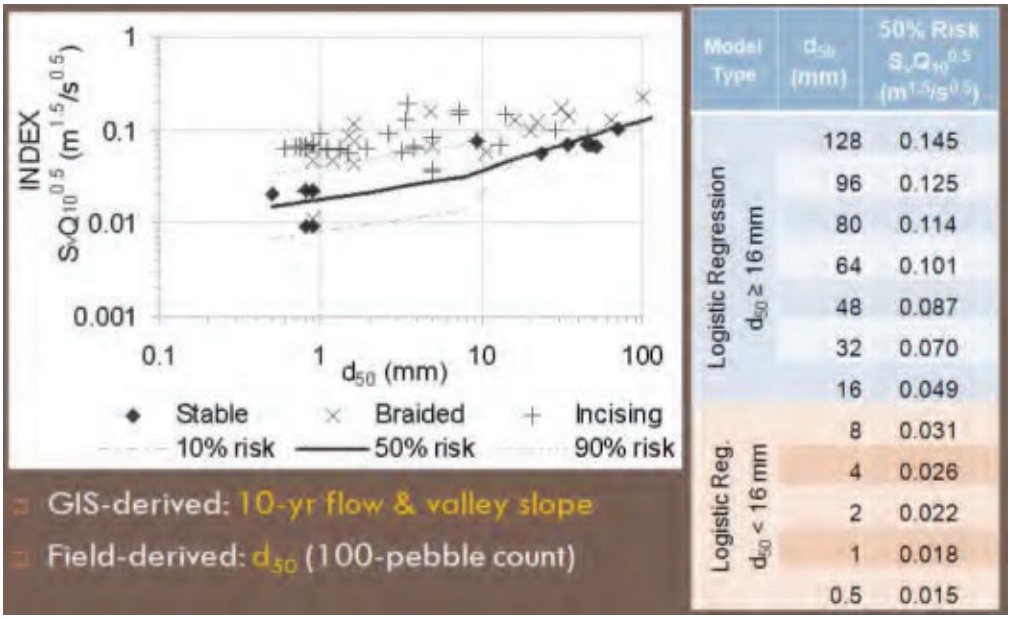
□ C Grade control absent, spaced >100 m or $>4/S_v$ m, or clear evidence of ineffectiveness



Form 3 Figure 3. Grade-control (condition) photographic supplement for assessing intermediate beds ($16 < d_{50} < 128$ mm) to be used in conjunction with Form 3 Checklist 2.

Regionally-Calibrated Screening Index Threshold for Incising/Braiding

For transitional bed channels (d_{50} between 16 and 128 mm) or labile beds (channel not incised past critical bank height), use Form 3 Figure 3 to determine Screening Index Score and complete Form 3 Table 1.



Form 3 Figure 4. Probability of incising/braiding based on logistic regression of Screening Index and d_{50} to be used in conjunction with Form 3 Table 1.

Form 3 Table 1. Values for Screening Index Threshold (probability of incising/braiding) to be used in conjunction with Form 3 Figure 4 (above) to complete Form 3 Overall Vertical Rating for Intermediate/Transitional Bed (below).. Screening Index Score: A = <50% probability of incision for current Q_{10}, valley slope, and d_{50}; B = Hardpan/d_{50} indeterminate; and C = ≥50% probability of incising/braiding for current Q_{10}, valley slope, and d_{50}.

d_{50} (mm) *From Form 2*	**$S_v*Q_{10}^{0.5}$ ($m^{1.5}/s^{0.5}$)** *From Form 1*	**$S_v*Q_{10}^{0.5}$ ($m^{1.5}/s^{0.5}$)** *50% risk of incising/braiding from table in Form 3 Figure 3 above*	**Screening Index Score (A, B, C)**
41.1	0.016	0.080	A

Overall Vertical Rating for Intermediate/Transitional Bed

Calculate the overall Vertical Rating for Transitional Bed channels using the formula below. Numeric values for responses to Form 3 Checklists and Table 1 as follows: A = 3, B = 6, C = 9.

$$Vertical\ Rating = \sqrt{\{(\sqrt{armoring * grade\ control}) * screening\ index\ score\}}$$

$=((6*6)^{0.5}*3)^{0.5}$ = **4.2**

Vertical Susceptibility based on Vertical Rating: <4.5 = LOW; 4.5 to 7 = MEDIUM; and >7 = HIGH.

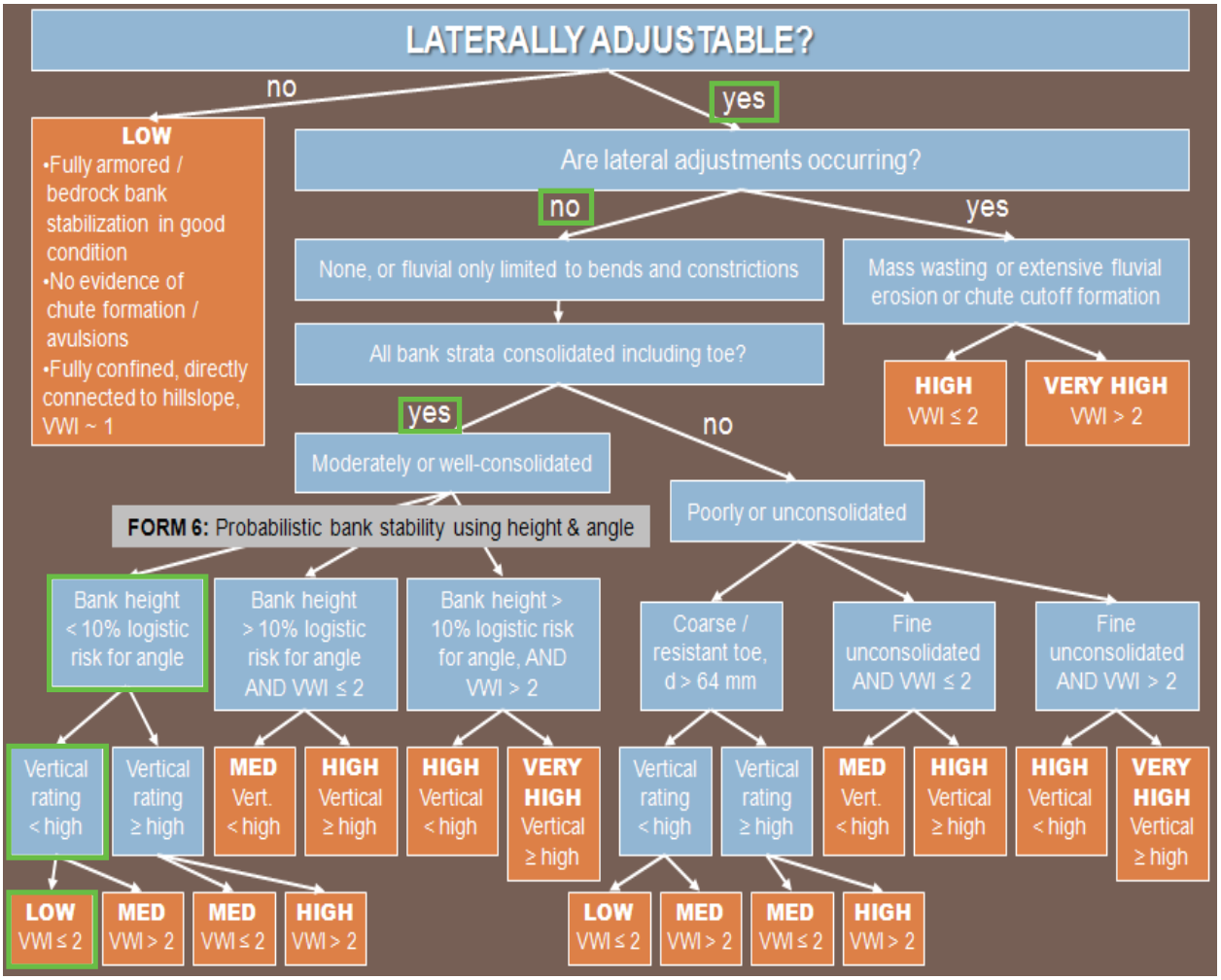
(Sheet 4 of 4)

APPENDIX 6

FORM 4: LATERAL SUSCEPTIBILITY FIELD SHEET (REACH 1)

FORM 4: LATERAL SUSCEPTIBILTY FIELD SHEET

Circle appropriate nodes/pathway for proposed site
OR use sequence of questions provided in Form 5.



(Sheet 1 of 1)

APPENDIX 7

FORM 5: SEQUENCE OF LATERAL SUSCEPTIBILITY QUESTIONS (REACH 1)

FORM 5: SEQUENCE OF LATERAL SUSCEPTIBILITY QUESTIONS OPTION

Enter Lateral Susceptibility (Very High, High, Medium, Low) in shaded column.
Mass wasting and bank instability from Form 6, VWI from Form 4, and Vertical Rating from Form 3.

			Lateral Susceptibility
Channel fully confined with VWI ~1 – connected hillslopes OR fully-armored/engineered bed and banks in good condition?	If YES, then LOW		
If NO, Is there active **mass wasting** or extensive fluvial erosion (> 50% of bank length)?	If YES, VWI ≤ 2 = HIGH, VWI > 2 = VERY HIGH		
If NO, Are both banks consolidated?	If YES, How many risk factors present? **Risk Factors:** ○ Bank instability p > 10% ○ VWI > 2 ○ Vertical rating ≥ High	• All three = VERY HIGH • Two of three = HIGH • One of three = MEDIUM • None = LOW	
If NO, Are banks either consolidated or unconsolidated with coarse toe of d > 64 mm?	If YES, How many risk factors present? **Risk Factors:** ○ VWI > 2 ○ Vertical rating ≥ High	• Two = HIGH • One = MEDIUM • None = LOW	
If NO, At least one bank is unconsolidated with toe of d < 64 mm	How many risk factors present? **Risk Factors:** ○ VWI > 2 ○ Vertical rating ≥ High	• Two = VERY HIGH • One = HIGH • None = MEDIUM	

(Sheet 1 of 1)

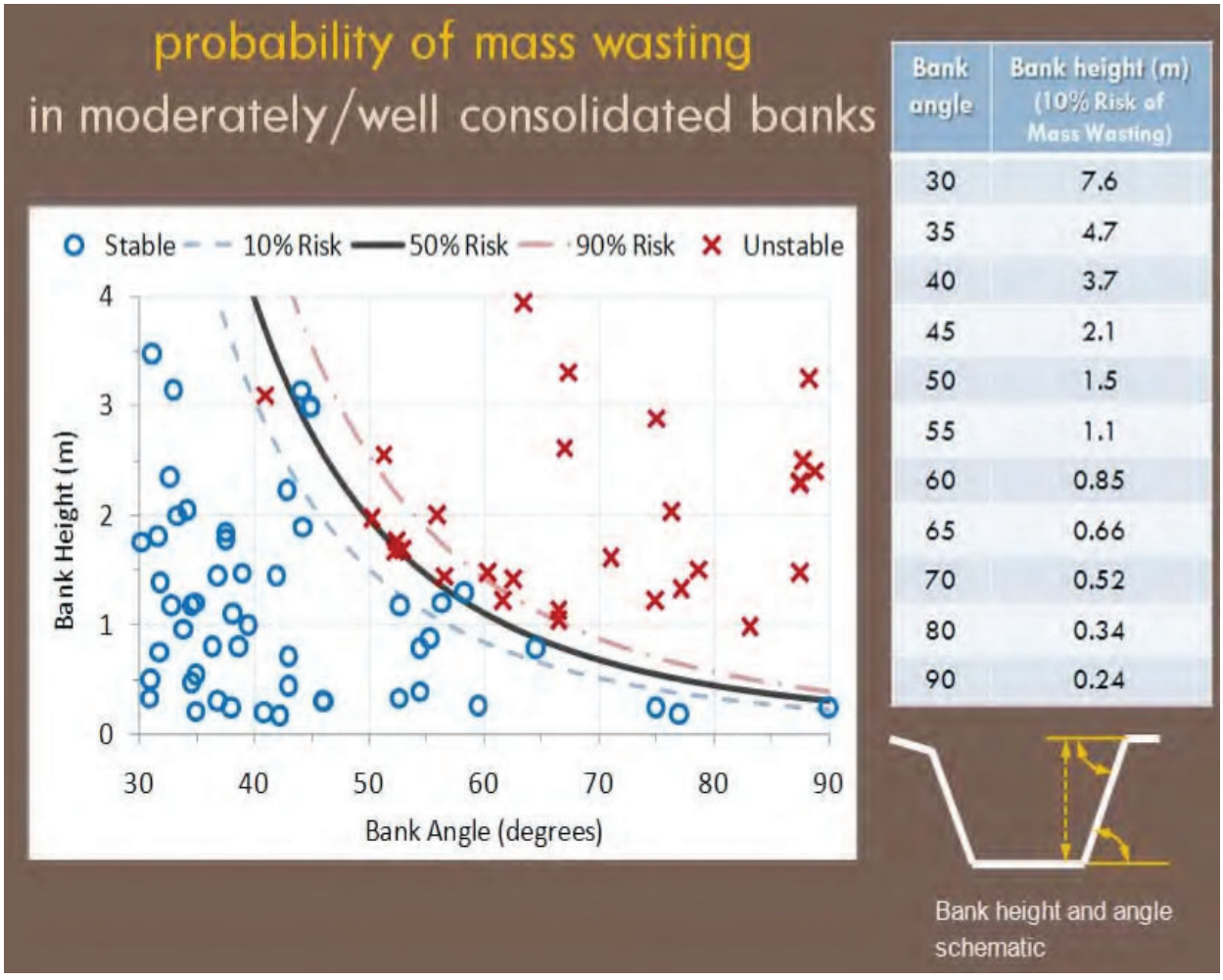
APPENDIX 8

FORM 6: PROBABILITY OF MASS WASTING BANK FAILURE (REACH 1)

FORM 6: PROBABILITY OF MASS WASTING BANK FAILURE

If mass wasting is not currently extensive and the banks are moderately- to well-consolidated, measure bank height and angle at several locations (i.e., at least three locations that capture the range of conditions present in the study reach) to estimate representative values for the reach. Use Form 6 Figure 1 below to determine if risk of bank failure is >10% and complete Form 6 Table 1. Support your results with photographs that include a protractor/rod/tape/person for scale.

	Bank Angle (degrees) *(from Field)*	**Bank Height (m)** *(from Field)*	**Corresponding Bank Height for 10% Risk of Mass Wasting (m)** *(from Form 6 Figure 1 below)*	**Bank Failure Risk** *(<10% Risk)* *(>10% Risk)*
Left Bank	27	3.0	Not within plot (low risk)	<10% Risk
Right Bank	27	3.0	Not within plot (low risk)	<10% Risk



Form 6 Figure 1. Probability Mass Wasting diagram, Bank Angle:Height/% Risk table, and Band Height:Angle schematic.

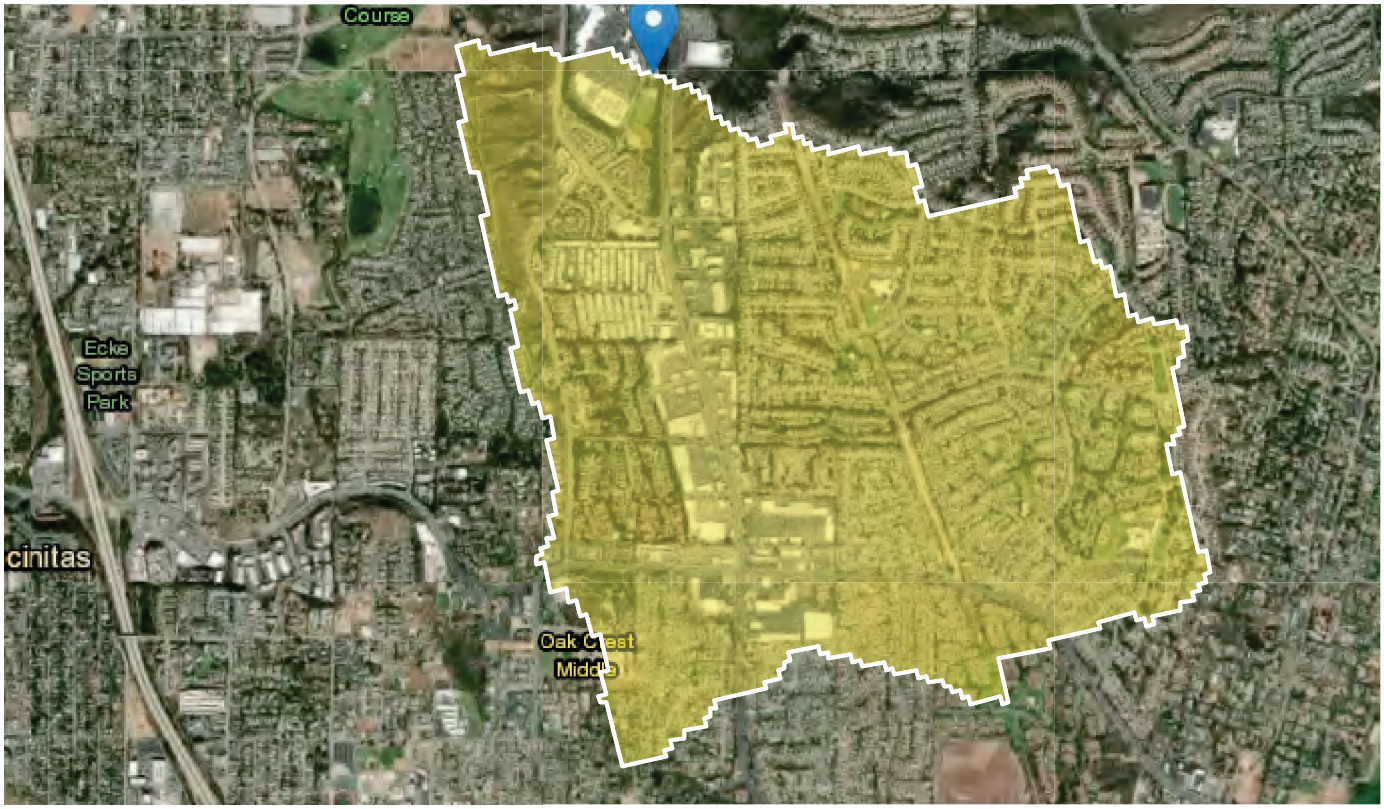
(Sheet 1 of 1)

APPENDIX 9

USGS STREAMSTATS DATA

Encinitas Creek StreamStats Report

Region ID: CA
Workspace ID: CA20200529011544248000
Clicked Point (Latitude, Longitude): 33.06376, -117.26330
Time: 2020-05-28 18:16:00 -0700



South Fork

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.1	square miles
PRECIP	Mean Annual Precipitation	12.2	inches
BASINPERIM	Perimeter of the drainage basin as defined in SIR 2004-5262	8.24	miles
BSLDEM30M	Mean basin slope computed from 30 m DEM	8.68	percent

Parameter Code	Parameter Description	Value	Unit
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	-1956356	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	1328819.8	meters
EL6000	Percent of area above 6000 ft	0	percent
ELEV	Mean Basin Elevation	259	feet
ELEVMAX	Maximum basin elevation	408	feet
FOREST	Percentage of area covered by forest	3.13	percent
JANMAXTMP	Mean Maximum January Temperature	66.14	degrees F
JANMINTMP	Mean Minimum January Temperature	43.25	degrees F
LAKEAREA	Percentage of Lakes and Ponds	0	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	96.4	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	51.7	percent
LFPLENGTH	Length of longest flow path	3	miles
MINBELEV	Minimum basin elevation	97	feet
OUTLETELEV	Elevation of the stream outlet in thousands of feet above NAVD88.	99	feet
RELIEF	Maximum - minimum elevation	310	feet
RELRELF	Basin relief divided by basin perimeter	37.6	feet per mi

Peak-Flow Statistics Parameters[2012 5113 Region 5 South Coast]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.1	square miles	0.04	850
PRECIP	Mean Annual Precipitation	12.2	inches	10	45

Peak-Flow Statistics Flow Report[2012 5113 Region 5 South Coast]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SEp
2 Year Peak Flood	39	ft^3/s	6.75	225	134
5 Year Peak Flood	114	ft^3/s	32.5	398	83.1
10 Year Peak Flood	170	ft^3/s	61.4	474	64
25 Year Peak Flood	237	ft^3/s	101	558	51.5
50 Year Peak Flood	288	ft^3/s	130	639	47.6
100 Year Peak Flood	339	ft^3/s	152	755	47.2
200 Year Peak Flood	394	ft^3/s	174	888	47.7
500 Year Peak Flood	452	ft^3/s	190	1080	52

Peak-Flow Statistics Citations

Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles,2012, Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012–5113, 38 p., 1 pl. (http://pubs.usgs.gov/sir/2012/5113/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

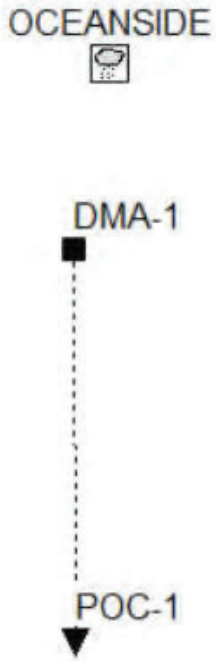
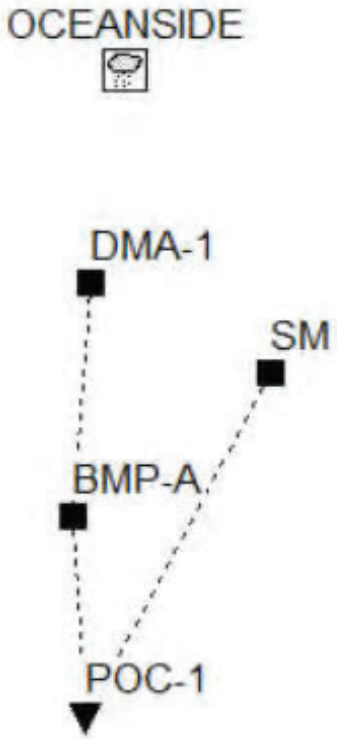
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Application Version: 4.3.11

ATTACHMENT 2d

SWMM MODEL SCHEMATICS

PRE-PROJECT MODEL	POST-PROJECT MODEL
	

2897 Zona Gale
4/27/2020

POC-1

SWMM INPUT

PRE-PROJECT

DMA	Basin	Area (ac)	Width (Area/Flow Length) (ft)	% Slope	% Impervious	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:
1	N/A	1.83	438	6.0%	0%	0%	0%	100%	0.025	9.000	0.330
	Total:	**1.83**									

POST-PROJECT

DMA	BMP	Area (ac)	Width (Area/Flow Length) (ft)	% Impervious	% Slope	% "B" Soils	% "C" Soils	% "D" Soils	Weighted Infiltration (in/hr):	Weighted Suction Head (in):	Weighted Initial Deficit:
1	A	1.83	1332	64%	3.5%	0%	0.0%	100%	0.025	9.000	0.330
SM	N/A	0.018	65	0%	50.0%	0%	0.0%	100%	0.025	9.000	0.330
BMP-A	A	0.04591	44	0%	0.0%	0%	0.0%	100%	0.025	9.000	0.330
	Total:	**1.90**									

Infiltration:		
D:	0.025	in/hr

Suction Head:		
D:	9	in

Initial Deficit	
D:	0.33

```
[TITLE]
;;Project Title/Notes
2897 Zona Gale
Pre-Project Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           08/28/1951
START_TIME           05:00:00
REPORT_START_DATE    08/28/1951
REPORT_START_TIME    05:00:00
END_DATE             05/23/2008
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    .11    .15    .17    .19    .19    .18    .15    .11    .08    .06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

```
;;-------------- --------- ------ ------ ----------
OCEANSIDE        INTENSITY 1:00     1.0      TIMESERIES OCEANSIDE

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-1            OCEANSIDE        POC-1            1.83     0        438      6        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-1            0.012      0.08       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA-1            9          0.025      0.33

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
;Basin 200
POC-1            0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Encinitas        FILE "J:\Active Jobs\2186 CLARK\CIVIL\REPORTS\SWMM\Rainfall_Data\encinitas.dat"
;
OCEANSIDE        FILE "J:\Active Jobs\2897 McKinley\CIVIL\REPORTS\SWMM\Rainfall_data\oceanside.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            1250.000           3279.703

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
```

```
[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-1            1237.624           5952.970

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
OCEANSIDE        1500.000           7200.000
```

```
[TITLE]
;;Project Title/Notes
2897 Zona Gale
Post-Project Condition

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           08/28/1951
START_TIME           05:00:00
REPORT_START_DATE    08/28/1951
REPORT_START_TIME    05:00:00
END_DATE             05/23/2008
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          .06    .08    .11    .15    .17    .19    .19    .18    .15    .11    .08    .06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
```

```
;;-------------- --------- ------ ------ ----------
OCEANSIDE        INTENSITY 1:00     1.0      TIMESERIES OCEANSIDE

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA-1            OCEANSIDE        BMP-A            1.83     64       1332     3.5      0
SM               OCEANSIDE        POC-1            0.018    0        65       50       0
BMP-A            OCEANSIDE        POC-1            0.04591  0        44       0        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-1            0.012      0.06       0.05       0.1        25         OUTLET
SM               0.012      0.06       0.05       0.1        25         OUTLET
BMP-A            0.012      0.06       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA-1            9          0.025      0.33
SM               9          0.025      0.33
BMP-A            9          0.025      0.33

[LID_CONTROLS]
;;Name           Type/Layer Parameters
;;-------------- ---------- ----------
BMP-A            BC
BMP-A            SURFACE    18         0          0          0          5
BMP-A            SOIL       18         0.4        0.2        0.1        5          5          1.5
BMP-A            STORAGE    12         0.67       0          0
BMP-A            DRAIN      2.62       0.5        0          6          0          0

[LID_USAGE]
;;Subcatchment   LID Process      Number  Area       Width      InitSat    FromImp    ToPerv     RptFile                    DrainTo
FromPerv
;;-------------- ---------------- ------- ---------- ---------- ---------- ---------- ---------- ------------------------ ------------
---- ----------
BMP-A            BMP-A            1       1999.84    0          0          100        0          *                          *
0

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
;Basin 200
POC-1            0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Encinitas        FILE "J:\Active Jobs\2186 CLARK\CIVIL\REPORTS\SWMM\Rainfall_Data\encinitas.dat"
```

```
;
OCEANSIDE        FILE "J:\Active Jobs\2897 McKinley\CIVIL\REPORTS\SWMM\Rainfall_data\oceanside.dat"

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            1250.000           3279.703

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-1            1274.752           5928.218
SM               2326.733           5383.663
BMP-A            1175.743           4504.950

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
OCEANSIDE        1500.000           7200.000
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
--------------------------------------------------------------

2897 Zona Gale
Pre-Project Condition


***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Starting Date ............ 08/28/1951 05:00:00
Ending Date .............. 05/23/2008 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00


*************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
*************************     ---------       -------
Total Precipitation ......       102.951       675.090
Evaporation Loss .........         3.639        23.861
Infiltration Loss ........        79.318       520.115
Surface Runoff ...........        22.072       144.732
Final Storage ............         0.000         0.000
Continuity Error (%) .....        -2.017


*************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        22.072         7.192
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........        22.072         7.192
Flooding Loss ............         0.000         0.000
```

```
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA-1	675.09	0.00	23.86	520.12	0.00	144.73	144.73	7.19	2.05	0.214

```
Analysis begun on:  Mon Apr 27 08:53:33 2020
Analysis ended on:  Mon Apr 27 08:54:10 2020
Total elapsed time: 00:00:37
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
--------------------------------------------------------------

2897 Zona Gale
Post-Project Condition


***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Starting Date ............ 08/28/1951 05:00:00
Ending Date .............. 05/23/2008 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00


*************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
*************************     ---------       -------
Initial LID Storage ......         0.007         0.044
Total Precipitation ......       106.547       675.090
Evaporation Loss .........        14.146        89.628
Infiltration Loss ........        28.602       181.226
Surface Runoff ...........         2.437        15.440
LID Drainage .............        63.043       399.446
Final Storage ............         0.015         0.092
Continuity Error (%) .....        -1.584


*************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        65.479        21.337
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
```

```
External Outflow .........        65.479        21.337
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Imperv Runoff in	Perv Runoff in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA-1	675.09	0.00	69.96	182.57	375.93	57.57	433.50	21.54	2.15	0.642
SM	675.09	0.00	17.17	506.79	0.00	163.36	163.36	0.08	0.02	0.242
BMP-A	675.09	17279.28	902.11	0.00	0.00	0.00	17051.08	21.26	2.20	0.950

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
BMP-A	BMP-A	17954.37	902.15	0.00	572.90	16478.80	1.80	2.76	-0.00

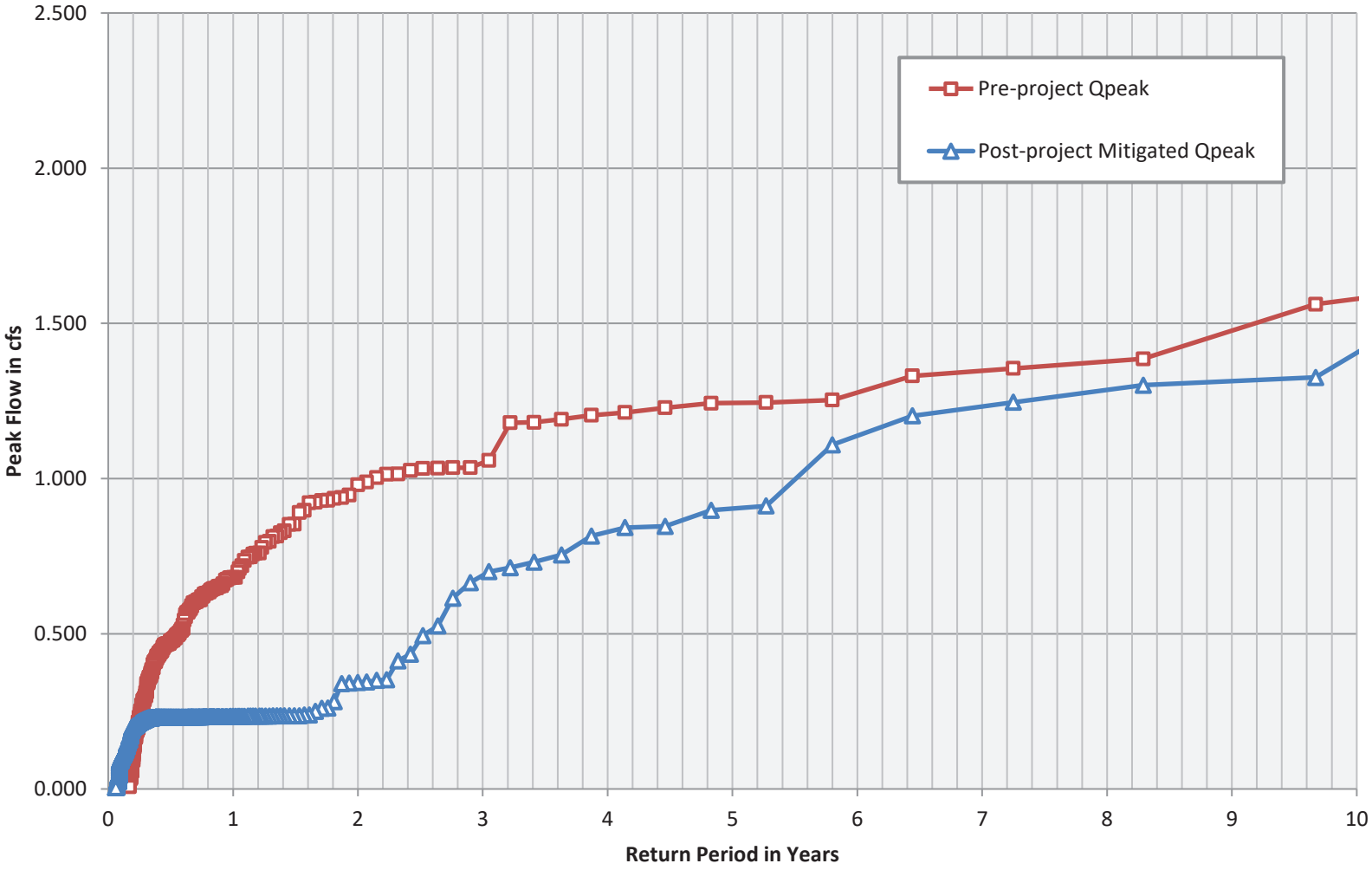
```
Analysis begun on:  Mon Apr 27 10:16:23 2020
Analysis ended on:  Mon Apr 27 10:17:01 2020
Total elapsed time: 00:00:38
```

POC-1

Peak Flow Frequency Summary

Return Period	Pre-project Qpeak (cfs)	Post-project - Mitigated Q (cfs)
LF = 0.5xQ2	0.490	0.172
2-year	0.980	0.343
5-year	1.244	0.903
10-year	1.579	1.405

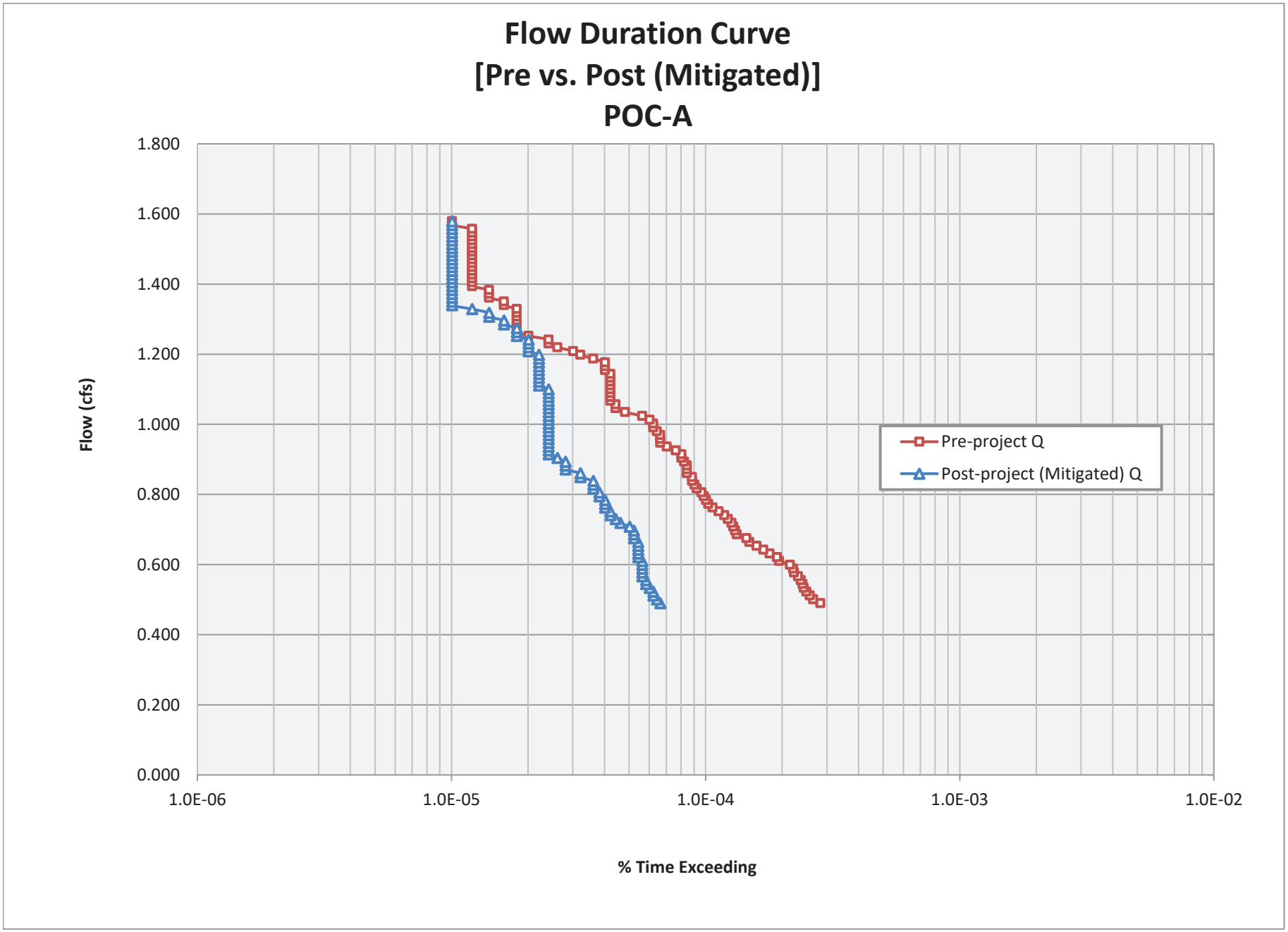
Peak Flow Frequency Curves
POC-A



Low-flow Threshold:	50%		**POC-1**
0.5xQ2 (Pre):	0.490	cfs	
Q10 (Pre):	1.579	cfs	
Ordinate #:	100		
Incremental Q (Pre):	0.01089	cfs	
Total Hourly Data:	497370	hours	**The proposed BMP:** PASSED

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
0	0.490	141	2.83E-04	33	6.63E-05	23%	Pass
1	0.501	132	2.65E-04	32	6.43E-05	24%	Pass
2	0.512	128	2.57E-04	31	6.23E-05	24%	Pass
3	0.523	124	2.49E-04	31	6.23E-05	25%	Pass
4	0.534	121	2.43E-04	30	6.03E-05	25%	Pass
5	0.544	120	2.41E-04	29	5.83E-05	24%	Pass
6	0.555	118	2.37E-04	29	5.83E-05	25%	Pass
7	0.566	115	2.31E-04	28	5.63E-05	24%	Pass
8	0.577	111	2.23E-04	28	5.63E-05	25%	Pass
9	0.588	110	2.21E-04	28	5.63E-05	25%	Pass
10	0.599	107	2.15E-04	28	5.63E-05	26%	Pass
11	0.610	97	1.95E-04	28	5.63E-05	29%	Pass
12	0.621	95	1.91E-04	27	5.43E-05	28%	Pass
13	0.632	89	1.79E-04	27	5.43E-05	30%	Pass
14	0.642	84	1.69E-04	27	5.43E-05	32%	Pass
15	0.653	79	1.59E-04	27	5.43E-05	34%	Pass
16	0.664	74	1.49E-04	27	5.43E-05	36%	Pass
17	0.675	72	1.45E-04	26	5.23E-05	36%	Pass
18	0.686	66	1.33E-04	26	5.23E-05	39%	Pass
19	0.697	65	1.31E-04	26	5.23E-05	40%	Pass
20	0.708	64	1.29E-04	25	5.03E-05	39%	Pass
21	0.719	63	1.27E-04	23	4.62E-05	37%	Pass
22	0.730	61	1.23E-04	22	4.42E-05	36%	Pass
23	0.740	59	1.19E-04	21	4.22E-05	36%	Pass
24	0.751	56	1.13E-04	21	4.22E-05	38%	Pass
25	0.762	53	1.07E-04	20	4.02E-05	38%	Pass
26	0.773	51	1.03E-04	20	4.02E-05	39%	Pass
27	0.784	50	1.01E-04	20	4.02E-05	40%	Pass
28	0.795	49	9.85E-05	19	3.82E-05	39%	Pass
29	0.806	48	9.65E-05	19	3.82E-05	40%	Pass
30	0.817	46	9.25E-05	18	3.62E-05	39%	Pass
31	0.828	45	9.05E-05	18	3.62E-05	40%	Pass
32	0.838	44	8.85E-05	18	3.62E-05	41%	Pass
33	0.849	44	8.85E-05	16	3.22E-05	36%	Pass
34	0.860	42	8.44E-05	16	3.22E-05	38%	Pass
35	0.871	42	8.44E-05	14	2.81E-05	33%	Pass
36	0.882	42	8.44E-05	14	2.81E-05	33%	Pass
37	0.893	41	8.24E-05	14	2.81E-05	34%	Pass
38	0.904	40	8.04E-05	13	2.61E-05	33%	Pass
39	0.915	40	8.04E-05	12	2.41E-05	30%	Pass
40	0.926	38	7.64E-05	12	2.41E-05	32%	Pass
41	0.936	35	7.04E-05	12	2.41E-05	34%	Pass
42	0.947	33	6.63E-05	12	2.41E-05	36%	Pass
43	0.958	33	6.63E-05	12	2.41E-05	36%	Pass
44	0.969	33	6.63E-05	12	2.41E-05	36%	Pass
45	0.980	32	6.43E-05	12	2.41E-05	38%	Pass
46	0.991	31	6.23E-05	12	2.41E-05	39%	Pass
47	1.002	31	6.23E-05	12	2.41E-05	39%	Pass
48	1.013	30	6.03E-05	12	2.41E-05	40%	Pass
49	1.024	28	5.63E-05	12	2.41E-05	43%	Pass
50	1.034	24	4.83E-05	12	2.41E-05	50%	Pass
51	1.045	22	4.42E-05	12	2.41E-05	55%	Pass
52	1.056	22	4.42E-05	12	2.41E-05	55%	Pass
53	1.067	21	4.22E-05	12	2.41E-05	57%	Pass
54	1.078	21	4.22E-05	12	2.41E-05	57%	Pass

Interval	Pre-project Flow (cfs)	Pre-project Hours	Pre-project % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
55	1.089	21	4.22E-05	12	2.41E-05	57%	Pass
56	1.100	21	4.22E-05	12	2.41E-05	57%	Pass
57	1.111	21	4.22E-05	11	2.21E-05	52%	Pass
58	1.122	21	4.22E-05	11	2.21E-05	52%	Pass
59	1.132	21	4.22E-05	11	2.21E-05	52%	Pass
60	1.143	21	4.22E-05	11	2.21E-05	52%	Pass
61	1.154	20	4.02E-05	11	2.21E-05	55%	Pass
62	1.165	20	4.02E-05	11	2.21E-05	55%	Pass
63	1.176	20	4.02E-05	11	2.21E-05	55%	Pass
64	1.187	18	3.62E-05	11	2.21E-05	61%	Pass
65	1.198	16	3.22E-05	11	2.21E-05	69%	Pass
66	1.209	15	3.02E-05	10	2.01E-05	67%	Pass
67	1.220	13	2.61E-05	10	2.01E-05	77%	Pass
68	1.230	12	2.41E-05	10	2.01E-05	83%	Pass
69	1.241	12	2.41E-05	10	2.01E-05	83%	Pass
70	1.252	10	2.01E-05	9	1.81E-05	90%	Pass
71	1.263	9	1.81E-05	9	1.81E-05	100%	Pass
72	1.274	9	1.81E-05	9	1.81E-05	100%	Pass
73	1.285	9	1.81E-05	8	1.61E-05	89%	Pass
74	1.296	9	1.81E-05	8	1.61E-05	89%	Pass
75	1.307	9	1.81E-05	7	1.41E-05	78%	Pass
76	1.318	9	1.81E-05	7	1.41E-05	78%	Pass
77	1.328	9	1.81E-05	6	1.21E-05	67%	Pass
78	1.339	8	1.61E-05	5	1.01E-05	63%	Pass
79	1.350	8	1.61E-05	5	1.01E-05	63%	Pass
80	1.361	7	1.41E-05	5	1.01E-05	71%	Pass
81	1.372	7	1.41E-05	5	1.01E-05	71%	Pass
82	1.383	7	1.41E-05	5	1.01E-05	71%	Pass
83	1.394	6	1.21E-05	5	1.01E-05	83%	Pass
84	1.405	6	1.21E-05	5	1.01E-05	83%	Pass
85	1.416	6	1.21E-05	5	1.01E-05	83%	Pass
86	1.426	6	1.21E-05	5	1.01E-05	83%	Pass
87	1.437	6	1.21E-05	5	1.01E-05	83%	Pass
88	1.448	6	1.21E-05	5	1.01E-05	83%	Pass
89	1.459	6	1.21E-05	5	1.01E-05	83%	Pass
90	1.470	6	1.21E-05	5	1.01E-05	83%	Pass
91	1.481	6	1.21E-05	5	1.01E-05	83%	Pass
92	1.492	6	1.21E-05	5	1.01E-05	83%	Pass
93	1.503	6	1.21E-05	5	1.01E-05	83%	Pass
94	1.514	6	1.21E-05	5	1.01E-05	83%	Pass
95	1.524	6	1.21E-05	5	1.01E-05	83%	Pass
96	1.535	6	1.21E-05	5	1.01E-05	83%	Pass
97	1.546	6	1.21E-05	5	1.01E-05	83%	Pass
98	1.557	6	1.21E-05	5	1.01E-05	83%	Pass
99	1.568	5	1.01E-05	5	1.01E-05	100%	Pass
100	1.579	5	1.01E-05	5	1.01E-05	100%	Pass


Flow Duration Curve
[Pre vs. Post (Mitigated)]
POC-A
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
Flow (cfs)
1.0E-06
1.0E-05
1.0E-04
1.0E-03
1.0E-02
% Time Exceeding
Pre-project Q
Post-project (Mitigated) Q

SWMM Model Flow Coefficient Calculation

BMP-A PARAMETER	ABBREV.	Bio-Retention Cell LID BMP	
Ponding Depth	PD	18	in
Bioretention Soil Layer	S	18	in
Gravel Layer	G	12	in
TOTAL		4.0	ft
		48	in
Orifice Coefficient	c_g	0.6	--
Low Flow Orifice Diameter	D	4	in
Drain exponent	n	0.5	--
Flow Rate (volumetric)	Q	0.823	cfs
Ponding Depth Surface Area	A_{PD}	2000	ft^2
Bioretention Surface Area	A_S, A_G	2000	ft^2
	A_S, A_G	0.0459	ac
Porosity of Bioretention Soil	n	1.00	-
Flow Rate (per unit area)	q	17.770	in/hr
Effective Ponding Depth	PD_{eff}	**18.00**	in
Flow Coefficient	C	**2.6200**	--

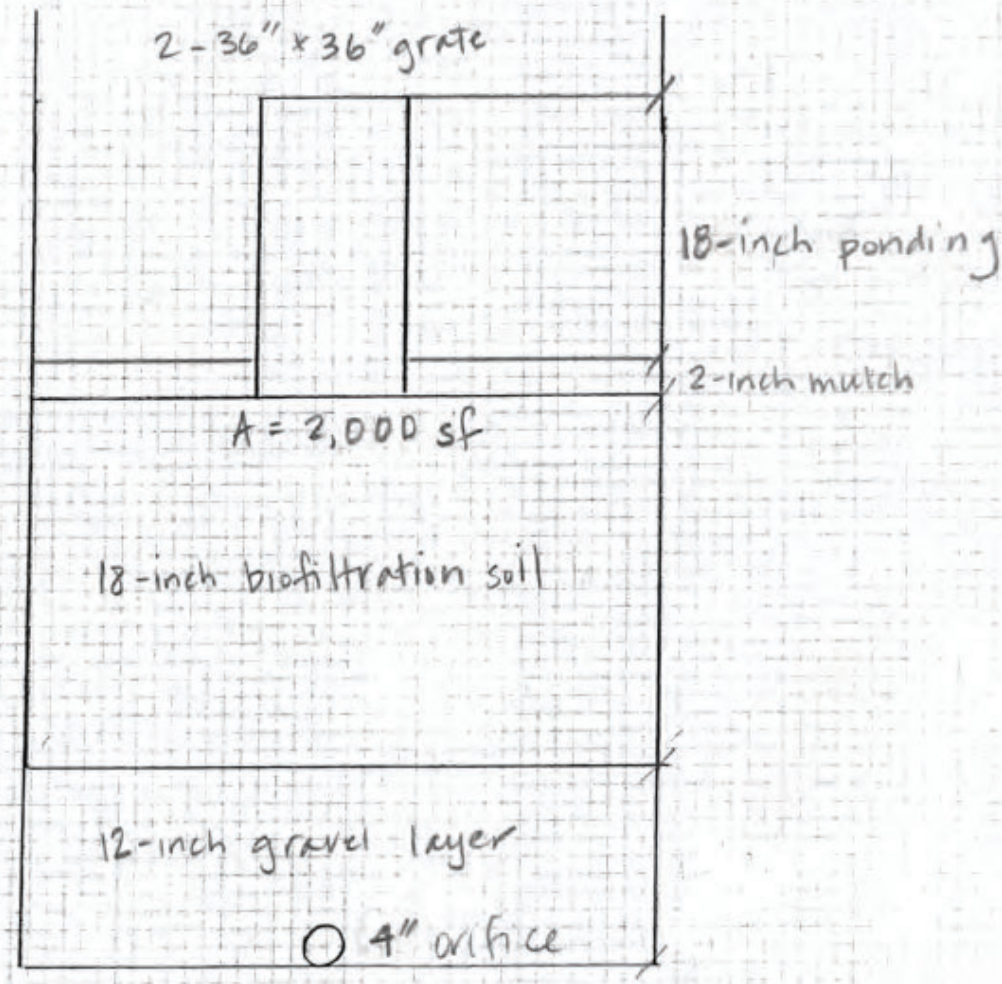
PASCO LARET SUITER
& ASSOCIATES

Zona Gale

Date 4/27/2020

Job# 2897

HMP Biofiltration Basin BMP-A



Not to scale

A-11 #4
D Soil

Drawdown Calculation for BMP-A

Project Name Zona Gale

Project No 2897

Surface Drawdown Time:	3.6	**hr**
Surface Area	**2000**	**sq ft**
Underdrain Orifice Diameter: in	**4**	in
C:	**0.6**	
Surface Ponding (to invert of lowest surface discharge opening in outlet structure):	**1.5**	ft
Amended Soil Depth:	**1.5**	ft
Gravel Depth:	**1**	ft
Orifice Q =	**0.822**	cfs
Effective Depth	26.4	in
Infiltration controlled by orifice	17.761	in/hr
Infiltration controlled by media	5.000	in/hr

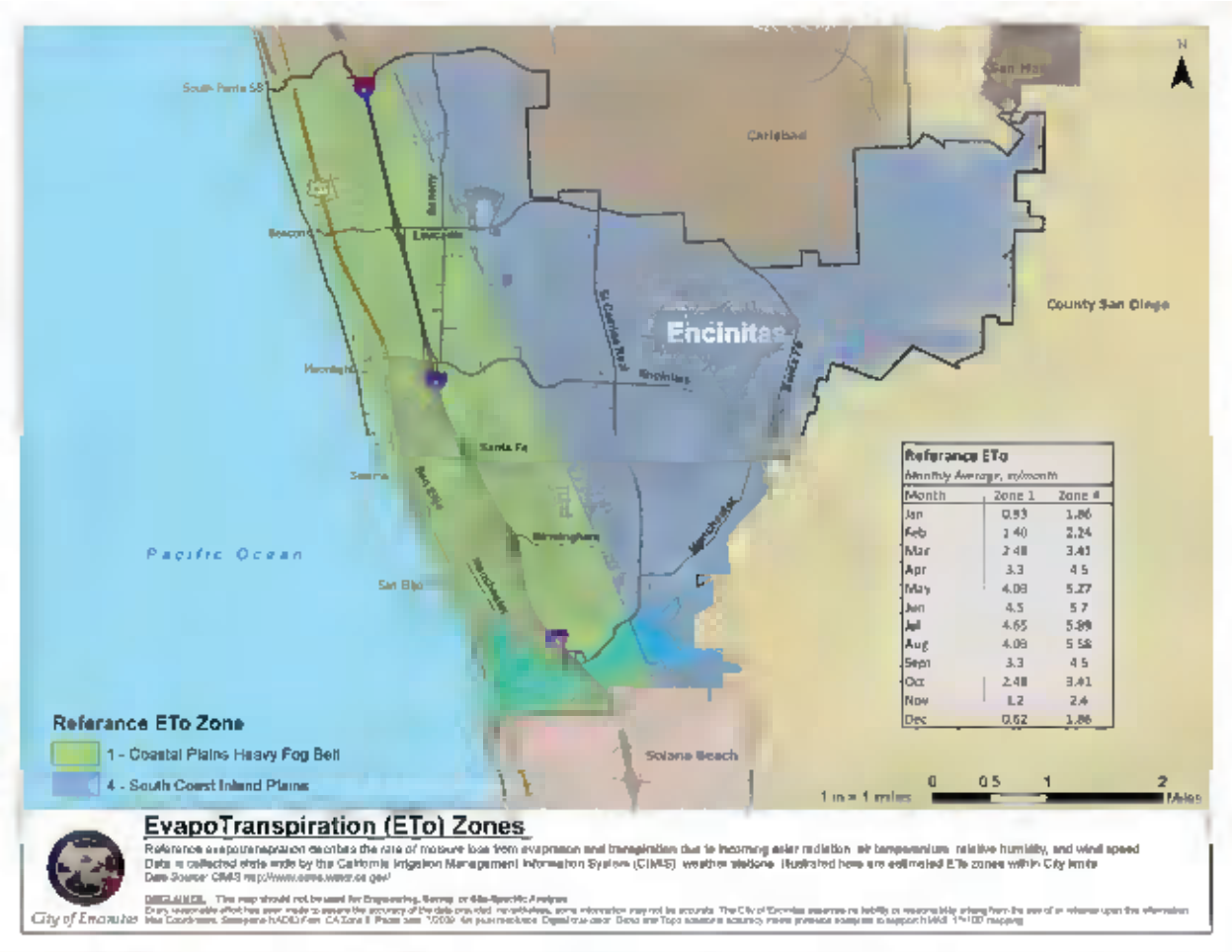


Figure G.1-2: California Irrigation Management Information System "Reference Evapotranspiration Zones"

Table G.1-1: Monthly Average Reference Evapotranspiration by ETo Zone (inches/month and inches/day) for use in SWMM Models for Hydromodification Management Studies in San Diego County CIMIS Zones 1, 4, 6, 9, and 16 (See CIMIS ETo Zone Map)

	January	February	March	April	May	June	July	August	September	October	November	December
Zone	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month	in/month
1	0.93	1.4	2.48	3.3	4.03	4.5	4.65	4.03	3.3	2.48	1.2	0.62
4	1.86	2.24	3.41	4.5	5.27	5.7	5.89	5.58	4.5	3.41	2.4	1.86
6	1.86	2.24	3.41	4.8	5.58	6.3	6.51	6.2	4.8	3.72	2.4	1.86
9	2.17	2.8	4.03	5.1	5.89	6.6	7.44	6.82	5.7	4.03	2.7	1.86
16	1.55	2.52	4.03	5.7	7.75	8.7	9.3	8.37	6.3	4.34	2.4	1.55
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Days	31	28	31	30	31	30	31	31	30	31	30	31
Zone	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day	in/day
1	0.030	0.050	0.080	0.110	0.130	0.150	0.150	0.130	0.110	0.080	0.040	0.020
4	0.060	0.080	0.110	0.150	0.170	0.190	0.190	0.180	0.150	0.110	0.080	0.060
6	0.060	0.080	0.110	0.160	0.180	0.210	0.210	0.200	0.160	0.120	0.080	0.060
9	0.070	0.100	0.130	0.170	0.190	0.220	0.240	0.220	0.190	0.130	0.090	0.060
16	0.050	0.090	0.130	0.190	0.250	0.290	0.300	0.270	0.210	0.140	0.080	0.050

ATTACHMENT 3 - STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	√ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	√ Included ☐Not Applicable

ATTACHMENT 3a

BF-1
Biofiltration

BMP MAINTENANCE FACT SHEET
FOR
STRUCTURAL BMP BF-1 BIOFILTRATION

Biofiltration facilities are vegetated surface water systems that filter water through vegetation, and soil or engineered media prior to discharge via underdrain or overflow to the downstream conveyance system. Biofiltration facilities have limited or no infiltration. They are typically designed to provide enough hydraulic head to move flows through the underdrain connection to the storm drain system. Typical biofiltration components include:

- Inflow distribution mechanisms (e.g., perimeter flow spreader or filter strips)
- Energy dissipation mechanism for concentrated inflows (e.g., splash blocks or riprap)
- Shallow surface ponding for captured flows
- Side slope and basin bottom vegetation selected based on climate and ponding depth
- Non-floating mulch layer
- Media layer (planting mix or engineered media) capable of supporting vegetation growth
- Filter course layer consisting of aggregate to prevent the migration of fines into uncompacted native soils or the aggregate storage layer
- Aggregate storage layer with underdrain(s)
- Impermeable liner or uncompacted native soils at the bottom of the facility
- Overflow structure

Normal Expected Maintenance

Biofiltration requires routine maintenance to: remove accumulated materials such as sediment, trash or debris; maintain vegetation health; maintain infiltration capacity of the media layer; replenish mulch; and maintain integrity of side slopes, inlets, energy dissipators, and outlets. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

If any of the following scenarios are observed, the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance, increased inspection and maintenance, BMP replacement, or a different BMP type will be required.

- The BMP is not drained between storm events. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.
- Sediment, trash, or debris accumulation greater than 25% of the surface ponding volume within one month. This means the load from the tributary drainage area is too high, reducing BMP function or clogging the BMP. This would require pretreatment measures within the tributary area draining to the BMP to intercept the materials. Pretreatment components, especially for sediment, will extend the life of components that are more expensive to replace such as media, filter course, and aggregate layers.
- Erosion due to concentrated storm water runoff flow that is not readily corrected by adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.

Other Special Considerations

Biofiltration is a vegetated structural BMP. Vegetated structural BMPs that are constructed in the vicinity of, or connected to, an existing jurisdictional water or wetland could inadvertently result in creation of expanded waters or wetlands. As such, vegetated structural BMPs have the potential to come under the jurisdiction of the United States Army Corps of Engineers, SDRWQCB, California Department of Fish and Wildlife, or the United States Fish and Wildlife Service. This could result in the need for specific resource agency permits and costly mitigation to perform maintenance of the structural BMP. Along with proper placement of a structural BMP, **routine maintenance is key to preventing this scenario**.

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation or compaction of the media layer.	• Inspect monthly. If the BMP is 25% full* or more in one month, increase inspection frequency to monthly plus after every 0.1-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Obstructed inlet or outlet structure	Clear blockage.	• Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable	• Inspect annually. • Maintenance when needed.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintenance when needed.
2/3 of mulch has decomposed, or mulch has been removed	Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches.	• Inspect monthly. • Replenish mulch annually, or more frequently when needed based on inspection.

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION (Continued from previous page)		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.	• Inspect monthly. • Maintenance when needed.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.	• Inspect after every 0.5-inch or larger storm event. If erosion due to storm water flow has been observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.
Standing water in BMP for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by dispersing to nearby landscaping; second, make corrective measures as applicable to restore BMP drainage to prevent standing water. If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Underdrain clogged	Clear blockage.	• Inspect if standing water is observed for longer than 24-96 hours following a storm event. • Maintenance when needed.

References

American Mosquito Control Association.
http://www.mosquito.org/
California Storm Water Quality Association (CASQA). 2003. Municipal BMP Handbook.
https://www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook
County of San Diego. 2014. Low Impact Development Handbook.
http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html
San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet BF-1.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

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BF-1
Biofiltration

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:	Responsible Party Name and Phone Number:	
Property Address of BMP:	Responsible Party Address:	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 1 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Accumulation of sediment, litter, or debris Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove and properly dispose of accumulated materials, without damage to the vegetation ☐ If sediment, litter, or debris accumulation exceeds 25% of the surface ponding volume within one month (25% full*), add a forebay or other pre-treatment measures within the tributary area draining to the BMP to intercept the materials. ☐ Other / Comments:		
Poor vegetation establishment Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 2 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Dead or diseased vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		
Overgrown vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Mow or trim as appropriate ☐ Other / Comments:		
2/3 of mulch has decomposed, or mulch has been removed Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches ☐ Other / Comments:		

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 3 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Erosion due to concentrated irrigation flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas and adjust the irrigation system ☐ Other / Comments:		
Erosion due to concentrated storm water runoff flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan ☐ If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction ☐ Other / Comments:		

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 4 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Obstructed inlet or outlet structure Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Underdrain clogged (inspect underdrain if standing water is observed for longer than 24-96 hours following a storm event) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Damage to structural components such as weirs, inlet or outlet structures Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair or replace as applicable ☐ Other / Comments:		

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 5 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Standing water in BMP for longer than 24-96 hours following a storm event* Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils ☐ Other / Comments:		
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Apply corrective measures to remove standing water in BMP when standing water occurs for longer than 24-96 hours following a storm event.** ☐ Other / Comments:		

*Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.

**If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.

SD-6B

Permeable Pavement as Site Design BMP

BMP MAINTENANCE FACT SHEET
FOR
SITE DESIGN BMP SD-6B PERMEABLE PAVEMENT AS SITE DESIGN BMP

Permeable pavement is pavement that allows for percolation through void spaces in the pavement surface into subsurface layers. When used as a site design BMP, the subsurface layers are designed to provide storage of storm water runoff so that outflow rates can be controlled via infiltration into subgrade soils. As a site design BMP, permeable pavement areas are designed to be self-retaining and are designed primarily for direct rainfall. Self-retaining permeable pavement areas have a ratio of total drainage area (including permeable pavement) to area of permeable pavement of 1.5:1 or less. Permeable pavement as structural BMP usually receives runoff from a larger tributary area than permeable pavement as site design BMP (see INF-3 for permeable pavement as structural BMP). Permeable pavement surfaces can be constructed from modular paver units or paver blocks, pervious concrete, porous asphalt, and turf pavers. Typical components include:

- Permeable surface layer
- Bedding layer for permeable surface
- Aggregate storage layer with optional underdrain(s)
- Optional final filter course layer over uncompacted existing subgrade
- Optional subsurface check dams at regular intervals when pavement is sloped (more closely spaced on steeper slopes)

Normal Expected Maintenance

Routine maintenance of permeable pavement includes: removal of materials such as trash and debris accumulated on the paving surface; vacuuming of the paving surface to prevent clogging; and flushing paving and subsurface gravel to remove fine sediment. If the BMP includes underdrains, check and clear underdrains. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

If the permeable pavement area is not drained between storm events, or if runoff sheet flows across the permeable pavement area and flows off the permeable pavement area during storm events, the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. During storm events up to the 85th percentile storm event (approximately 0.5 to 1 inch of rainfall in San Diego County), runoff should not flow off the permeable pavement area. The permeable pavement area is expected to have adequate hydraulic conductivity and storage such that rainfall landing on the permeable pavement and runoff from the surrounding drainage area will go directly into the pavement without ponding or overflow (in properly designed systems, the surrounding drainage area is not more than half as large as the permeable pavement area). Following the storm event, there should be no standing water (puddles) on the permeable pavement area.

If storm water is flowing off the permeable pavement during a storm event, or if there is standing water on the permeable pavement surface following a storm event, this is an indicator of clogging somewhere within the system. Poor drainage can result from clogging of the permeable surface layer, any of the subsurface components, or the subgrade soils. The specific cause of the drainage issue must be determined and corrected. Surface or subsurface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Corrective maintenance, increased inspection and maintenance, BMP replacement, or a different BMP type will be required. If poor drainage persists after flushing of the paving, subsurface gravel, and/or underdrain(s) when applicable, or if it is determined that the underlying soils do not have the infiltration capacity expected, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.

Other Special Considerations

Site design BMPs, such as permeable pavement, installed within a new development or redevelopment project are components of an overall storm water management strategy for the project. The presence of site design BMPs within a project is usually a factor in the determination of the amount of runoff to be managed with structural BMPs (i.e., the amount of runoff expected to reach downstream retention or biofiltration basins that process storm water runoff from the project as a whole). When site design BMPs are not maintained or are removed, this can lead to clogging or failure of downstream structural BMPs due to greater delivery of runoff and pollutants than intended for the structural BMP. Therefore, the [City Engineer] may require confirmation of maintenance of site design BMPs as part of their structural BMP maintenance documentation requirements. Site design BMPs that have been installed as part of the project should not be removed, nor should they be bypassed by re-routing roof drains or re-grading surfaces within the project. If changes are necessary, consult the [City Engineer] to determine requirements.

The runoff storage and infiltration surface area in this BMP are not readily accessible because they are subsurface. This means that clogging and poor drainage are not easily corrected. If the tributary area draining to the BMP includes unpaved areas, the sediment load from the tributary drainage area can be too high, reducing BMP function or clogging the BMP. All unpaved areas within the tributary drainage area should be stabilized with vegetation. Other pretreatment components to prevent transport of sediment to the paving surface, such as grass buffer strips, will extend the life of the subsurface components and infiltration surface. Along with proper stabilization measures and pretreatment within the tributary area, **routine maintenance, including preventive vacuum/regenerative air street sweeping, is key to preventing clogging**.

SD-6B

Permeable Pavement as Site Design BMP

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR SD-6B PERMEABLE PAVEMENT AS SITE DESIGN BMP		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Preventive vacuum/regenerative air street sweeping	Pavement should be swept with a vacuum power or regenerative air street sweeper to maintain infiltration through paving surface	• Schedule/perform this preventive action at least twice per year.
Accumulation of sediment, litter, or debris on permeable pavement surface	Remove and properly dispose of accumulated materials. Inspect tributary area for exposed soil or other sources of sediment and apply stabilization measures to sediment source areas. Apply source control measures as applicable to sources of litter or debris.	• Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Weeds growing on/through the permeable pavement surface	Remove weeds and add features as necessary to prevent weed intrusion. Use non-chemical methods (e.g., instead of pesticides, control weeds using mechanical removal, physical barriers, and/or physical changes in the surrounding area adjacent to pavement that will preclude weed intrusion into the pavement).	• Inspect monthly. • Remove any weeds found at each inspection.
Standing water in permeable paving area following a storm event, or runoff is observed overflowing off the permeable paving surface during a storm event	This condition requires investigation of why infiltration is not occurring. If feasible, corrective action shall be taken to restore infiltration (e.g., pavement should be swept with a vacuum power or regenerative air street sweeper to restore infiltration rates, clear underdrains if underdrains are present). BMP may require retrofit if infiltration cannot be restored. The [City Engineer] shall be contacted prior to any repairs or reconstruction.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR SD-6B PERMEABLE PAVEMENT AS SITE DESIGN BMP (Continued from previous page)		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by dispersing to nearby landscaping; second, make corrective measures as applicable to restore BMP drainage to prevent standing water. If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria because the underlying soils do not have the infiltration capacity expected, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Damage to permeable paving surface (e.g., cracks, settlement, misaligned paver blocks, void spaces between paver blocks need fill materials replenished)	Repair or replace damaged surface as appropriate.	• Inspect annually. • Maintenance when needed.

References

American Mosquito Control Association.
http://www.mosquito.org/
California Storm Water Quality Association (CASQA). 2003. Municipal BMP Handbook.
https://www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook
County of San Diego. 2014. Low Impact Development Handbook.
http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html
San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet SD-6.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

SD-6B

Permeable Pavement as Site Design BMP

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:	Responsible Party Name and Phone Number:	
Property Address of BMP:	Responsible Party Address:	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-6B PERMEABLE PAVEMENT AS SITE DESIGN BMP PAGE 1 of 3			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Accumulation of sediment, litter, or debris on permeable pavement surface Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove and properly dispose of accumulated materials ☐ Inspect tributary area for exposed soil or other sources of sediment and apply stabilization measures to sediment source areas. Apply source control measures as applicable to sources of litter or debris ☐ Other / Comments:		
Weeds growing on/through the permeable pavement surface Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove weeds and add features as necessary to prevent weed intrusion ☐ Use non-chemical methods (e.g., instead of pesticides, control weeds using mechanical removal, physical barriers, and/or physical changes in the surrounding area adjacent to pavement that will preclude weed intrusion into the pavement). ☐ Other / Comments:		

SD-6B

Permeable Pavement as Site Design BMP

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-6B PERMEABLE PAVEMENT AS SITE DESIGN BMP PAGE 2 of 3			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Standing water in permeable paving area following a storm event, or runoff is observed overflowing off the permeable paving surface during a storm event* Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ If feasible, take corrective action to restore infiltration (e.g., sweep pavement with a vacuum power or regenerative air street sweeper to restore infiltration rates, clear underdrains if underdrains are present). BMP may require retrofit if infiltration cannot be restored. The [City Engineer] shall be contacted prior to any repairs or reconstruction. ☐ Other / Comments:		
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Apply corrective measures to remove standing water in BMP when standing water occurs for longer than 96 hours following a storm event.** ☐ Other / Comments:		

*If storm water is flowing off the permeable pavement during a storm event, or if there is standing water on the permeable pavement surface following a storm event, this is an indicator of clogging somewhere within the system. Poor drainage can result from clogging of the permeable surface layer, any of the subsurface components, or the subgrade soils. The specific cause of the drainage issue must be determined and corrected. Surface or subsurface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. If poor drainage persists after flushing of the paving, subsurface gravel, and/or underdrain(s) when applicable, or if it is determined that the underlying soils do not have the infiltration capacity expected, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.

**If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria because the underlying soils do not have the infiltration capacity expected, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.

SD-6B

Permeable Pavement as Site Design BMP

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-6B PERMEABLE PAVEMENT AS SITE DESIGN BMP PAGE 3 of 3			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Damage to permeable paving surface (e.g., cracks, settlement, misaligned paver blocks, void spaces between paver blocks need fill materials replenished) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair or replace damaged surface as appropriate ☐ Other / Comments:		
Preventive vacuum/regenerative air street sweeping Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Pavement should be swept with a vacuum power or regenerative air street sweeper to maintain infiltration through paving surface. ☐ Schedule/perform this preventive action at least twice per year. ☐ Other / Comments:		

ATTACHMENT 4 - COPY OF PLAN SHEETS SHOWING PERMANENT STORM WATER BMPS

This is the cover sheet for Attachment 4.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

☐Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs

☐The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit

☐Details and specifications for construction of structural BMP(s)

☐Signage indicating the location and boundary of structural BMP(s) as required by the [City Engineer]

☐How to access the structural BMP(s) to inspect and perform maintenance

☐Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)

☐Manufacturer and part number for proprietary parts of structural BMP(s) when applicable

☐Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)

☐Recommended equipment to perform maintenance

☐When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

☐Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)

☐All BMPs must be fully dimensioned on the plans

☐When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number shall be provided. Photocopies of general brochures are not acceptable.

PRELIMINARY GRADING PLAN
ZONA GALE ESTATES
MULTI-003289-2019

SHEET 3 OF 7

VIA ANDALUSIA

VIA CANTEBRIA

VIA CANTEBRIA STA 19+74.30
SS STA 4+10.44
INSTALL SS MH PER LWD S-4
RIM 339.95
IE 330.21

VIA CANTEBRIA STA 22+84.74
SS STA 1+00
EX. SMH #19 PER TM 3474-2
RIM 320.0 ±
IE IN 311.35±
IE OUT 311.15±

NEW 8" PVC SEWER

CURB OUTLET PER SDRSD D-25A

(FL 338.35)

IE 338.55

JACK & BORE 12" PVC SD

JACK & BORE 8" PVC SEWER

STATION NOTE:
VIA CANTEBRIA STATIONING PER TM 3474-2

APN 257-401-12
SAME OWNER NOT-A-PART

INSTALL SD MH PER SDRSD SM-02
RIM 388.8
IE IN 372.50
IE OUT 372.31

15' PROPOSED PUB. SEWER & PVT. DRAINAGE EASEMENT

LOT 5
9,687 SF GROSS/NET
FF 389.7
PAD 389.0
TWO-STORY

LOT 6
8,751 SF GROSS/NET
FF 388.7
PAD 388.0
TWO-STORY

LOT 4
6,723 SF GROSS/NET
FF 383.7
PAD 383.0
TWO-STORY

LOT 3
6,383 SF GROSS/NET
FF 383.2
PAD 382.5
TWO-STORY

LOT 2
6,995 SF GROSS/NET
FF 383.2
PAD 382.5
TWO-STORY

LOT 1
12,121 SF GROSS/NET
FF 383.9
PAD 383.2
TWO-STORY

LOT 7
4,987 SF GROSS/NET
FF 386.2
PAD 385.5
TWO-STORY

LOT 8
4,946 SF GROSS/NET
FF 384.9
PAD 384.2
TWO-STORY

LOT 9
5,864 SF GROSS/NET
FF 384.0
PAD 383.3
ONE-STORY

LOT B
2,330 SF GROSS/NET

LOT A
9,260 SF GROSS/NET

BIORETENTION BASIN
2,000 SF
FG 377.55

5'-1 CB PER SDRSD D-08
RIM @ CENTER 380.44
IE IN 374.47
IE OUT 374.07

3'x3' INLET
TG 379.05
IE 374.57

3'x3' INLET
TG 379.06
ORIFICE IE 374.66
IE 374.63
SD CO PER SDRSD D-9

18" INLET
TG 384.9
IE 381.8

18" PVC SD @ 1% MIN

8" PVC SEWER

INSTALL SS MH PER LWD S-4
RIM 380.2
IE 374.03

CONNECT TO EX. 8" PVC

INSTALL SS MH PER LWD S-4
RIM 384.6
IE 367.72

18" WIDE CONC. DIVERT W/ TRAFFIC RATED GRATE

12" PVC SD BYPASS

24" BOX CO W/ COVER BY BROOKS OR EQUAL
RIM 380.6
IE 377.6

24" BOX CO W/ COVER BY BROOKS OR EQUAL
RIM 384.3
IE 381.3

PARADISE VALLEY WATER

RET WALL PER STRUCTURAL

2.1' MAX EXPOSED HT RET WALL PER SDRSD
TW 384.6
BW 382.5

2.5' MAX EXPOSED HT RET WALL PER SDRSD
TW 385.0
BW 382.5

1.7' MAX EXPOSED HT RET WALL PER SDRSD

2.9' MAX EXPOSED HT RET WALL PER SDRSD

3.2' MAX EXPOSED HT RET WALL PER SDRSD

2.4' MAX EXPOSED HT RET WALL PER SDRSD

1' MAX EXPOSED HT RET WALL PER SDRSD

2.9' MAX EXP HT RET WALL PER SDRSD D6

2.5' MAX EXP HT RET WALL PER SDRSD C2

SLOPE SETBACK

PCC DRAINAGE DITCH PER SDRSD D-75

DRAINAGE DITCH PER SDRSD D-75

REMOVE EX. DITCH

FUTURE SUBDIVISION BOUNDARY

NEW DRIVEWAY APRON PER SDRSD G-26

ZONA GALE RD

EX. GAS MAIN

PAVER WIDENING PER DETAIL SHEET 4

RELOCATE EX. APPURTENANCES

RELOCATE E. LEPCO OB

APN 257-401-09
SAME OWNER NOT-A-PART

APN 257-401-10

TANK

MATCH EX.

EX PATH TO REMAIN

NEW DG TRAIL

APN 257-620-50

APN 257-521-35

APN 257-521-34

APN 257-521-33

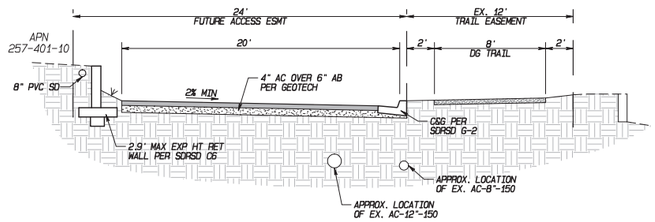
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APN 257-521-31

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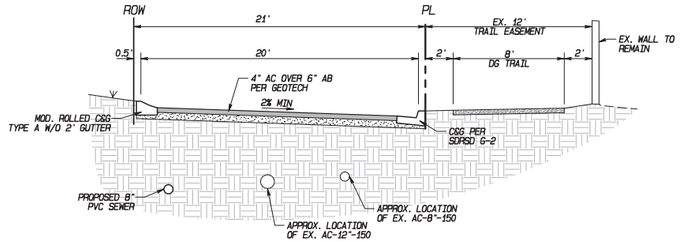
5/27/2020 PLSA 2897

SECTIONS & DETAILS
ZONA GALE ESTATES
MULTI-003289-2019



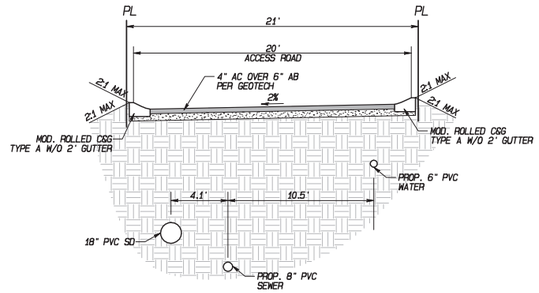
OFF-SITE ZONA GALE ROAD

NTS



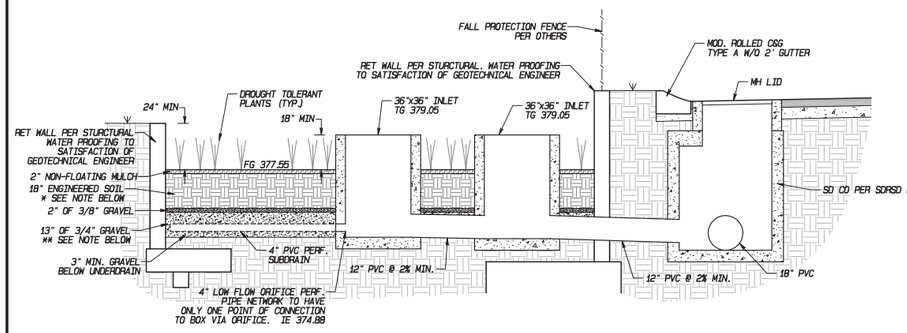
ON-SITE ZONA GALE ROAD

NTS



PRIVATE ROAD 'A'

NTS



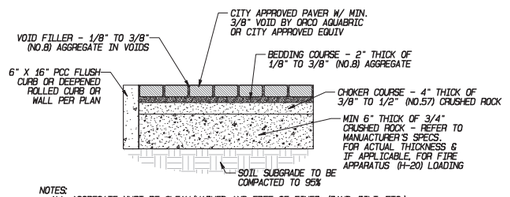
* BIORETENTION "ENGINEERED SOIL" LAYER SHALL BE MINIMUM 18" DEEP "SANDY LOAM" SOIL MIX WITH NO MORE THAN 5% CLAY CONTENT. THE MIX SHALL CONTAIN 65% SAND, 15% COMPOST OR HARDWOOD MULCH, AND 20% TOPSOIL, FREE OF STONES, STUMPS, ROOTS, OR SIMILAR OBJECTS, AND ALSO FREE OF NOXIOUS WEEDS.

** 3/4" CRUSHED ROCK LAYER SHALL BE A MINIMUM OF 13" BUT MAY BE DEEPENED TO INCREASE THE INFILTRATION AND STORAGE ABILITY OF THE DETAIL.

THE EFFECTIVE AREA OF THE BASIN SHALL BE LEVEL AND SHALL BE SIZED BASED ON CALCULATION.

BIORETENTION AREA DETAIL

NTS

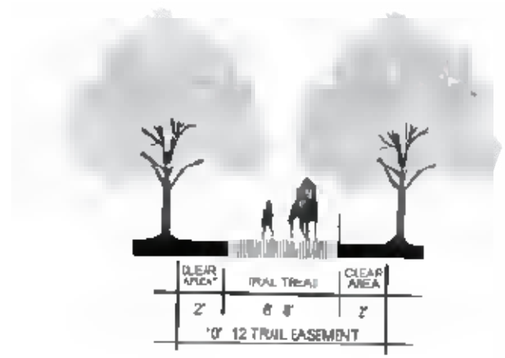


NOTES:
- ALL AGGREGATE MUST BE CLEAN/WASHED AND FREE OF FINES (SAND, SILT, ETC.)
- THE PAVERS SHALL NOT BE SEALED ONCE THE VOID FILLER HAS BEEN ADDED
- EACH COURSE SHALL BE VIBRATORY COMPACTED BEFORE PLACEMENT OF NEXT COURSE
- NO IMPERVIOUS LINER OR FILTER FABRIC IS TO BE USED
- SPECIAL APPROVAL REQUIRED FOR USE IN HIGHLY EXPANSIVE SOIL - SUBDRAIN MAY BE REQUIRED

CONSTRUCTION NOTE:
- PAVERS TO BE COVERED AND PROTECTED DURING CONSTRUCTION

PERVIOUS PAVER DETAIL

NTS

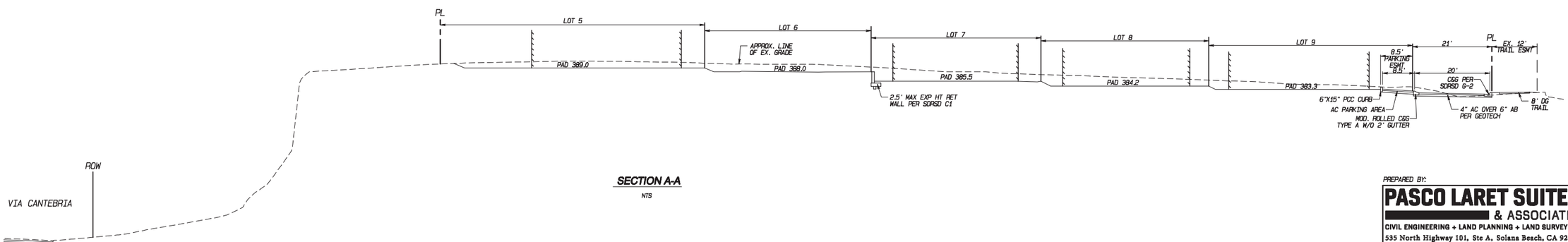


"CLEAR AREA / "RUNOUT AREA : ONE OF LOW VEGETATION (1 HR LESS)

- LOCATE ALL UTILITIES OUTSIDE OF TRAIL TREAD & EDGE OF TRAIL EASEMENT
- LOCATE FENCE BUTTING UP TRAIL TREAD & RUNOUT
- [illegible] TRAIL NO LESS THAN 8' WIDE, SEE TYPICAL DETAIL
- [illegible]

TRAIL DETAIL

NTS. SEE ENCINITAS TRAIL MASTER PLAN



SECTION A-A

NTS

PREPARED BY:
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Appendix G: Noise Impact Analysis

NOISE IMPACT ANALYSIS

Zone Gale Subdivision
Encinitas, California 92024

Prepared For

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Job # S190505

June 10, 2019

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APPENDICES

A. Project Plans
B. Pertinent Sections of the City of Encinitas Municipal Code
C. Cadna Analysis Data and Results
D. Construction Vibration Analysis Data and Results

1.0 EXECUTIVE SUMMARY

The proposed project, the Zona Gale Subdivision, consists of the subdivision of a 2.25-acre lot into nine single-family residential lots, an access driveway, and a remainder lot. The project site is located on Zona Gale Road in the City of Encinitas, California.

Noise from the anticipated HVAC equipment at on-site residences has been calculated to determine impacts at off-site receivers. Calculations show that noise levels from typical mechanical equipment will be in compliance with the City of Encinitas noise regulations found within the Municipal Code. No mitigation is deemed necessary to control project-generated noise impacts from mechanical equipment.

The proposed project is expected to add approximately 90 Average Daily Trips (ADT) to surrounding roadways. Considering the existing traffic volumes present on roadways in the vicinity of the project site, project-generated traffic noise is expected to be less than significant.

The City of Encinitas Municipal Code states that construction activity is prohibited except on Monday through Saturday between the hours of 7 a.m. and 7 p.m. Construction activity is also prohibited on Sundays and legal holidays. During permissible hours of operation, noise levels from construction activity may not exceed an eight-hour average sound level limit of 75 dBA at any time. An analysis of temporary construction noise considering typical and anticipated activity on site demonstrates that construction noise impacts are expected to be below an hourly average noise level of 75 dBA at surrounding residential properties. Provided construction is limited to the allowable hours of the City of Encinitas and equipment is maintained in proper working condition, temporary noise impacts are expected to be less than significant. No mitigation is deemed necessary for the attenuation of temporary noise impacts.

The proposed project is not expected to result in any potentially significant noise impacts by the standards of the California Environmental Quality Act (CEQA). Noise impacts to and from the project site are summarized in Section 5.3.

2.0 INTRODUCTION

This acoustical analysis report is submitted to satisfy the noise requirements of the City of Encinitas. Its purpose is to assess noise impacts from potential project-related noise sources, such as mechanical equipment and project-generated traffic, and to assess temporary construction noise. This analysis aims to determine if mitigation is necessary and feasible to reduce these noise impacts to comply with the applicable noise regulations of the City of Encinitas Municipal Code. Potential impacts will also be assessed for significance per the California Environmental Quality Act (CEQA).

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting, abbreviated "dBA," to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol "$L_{EQ.}$" Unless a different time period is specified, "L_{EQ}" is implied to mean a period of one hour. Some of the data may also be presented as octave-band-filtered and/or A-octave-band-filtered data, which are a series of sound spectra centered about each stated frequency, with half of the bandwidth above and half of the bandwidth below each stated frequency. This data is typically used for machinery noise analysis and barrier calculations.

Sound pressure is the actual noise experienced by a human or registered by a sound level instrument. When sound pressure is used to describe a noise source, the distance from the noise source must be specified in order to provide complete information. Sound power, on the other hand, is a specialized analytical metric used to provide information without the distance requirement, but it may be used to calculate the sound pressure at any desired distance.

2.1 Project Description

The proposed project, the Zona Gale Subdivision, consists of the subdivision of a 2.25-acre lot into nine single-family residential lots, an access driveway, and a remainder lot. Residential lot sizes will range from 4,806 square feet to 12,182 square feet. The project site and all immediately surrounding properties are zoned Residential 3 (R-3).

For additional project details, please refer to the project plans provided in Appendix A.

2.2 Project Location

The project site is located on the east side of Zona Gale Road, to the west of Via Cantebria, in the City of Encinitas, California. The Assessor's Parcel Number (APN) is 257-401-11-00. The site is currently vacant. For a graphical representation of the site, please refer to the Vicinity Map, Assessor's Parcel Map, Satellite Aerial Photograph, and Topographic Map, provided as Figures 1 through 4, respectively.

2.3 Applicable Noise Regulations

According to the City of Encinitas Municipal Code, Chapter 30.40, average hourly noise levels shall not exceed 50 dBA L_{EQ} between the hours of 7 a.m. and 10 p.m. and 45 dBA L_{EQ} between the hours of 10 p.m. and 7 a.m. at R-3 zones. These noise limits were applied to noise impacts generated at the project site by HVAC equipment.

Additionally, Section 9.32.410 of the City of Encinitas Municipal Code states that construction activity is prohibited except on Monday through Saturday between the hours of 7 a.m. and 7 p.m. Construction activity is also prohibited on Sundays and legal holidays. During permissible hours of operation, noise levels from construction activity may not exceed an eight-hour average sound level limit of 75 dBA at residential properties.

For pertinent sections of the City of Encinitas Municipal Code, please refer to Appendix B.

3.0 ENVIRONMENTAL SETTING

3.1 Existing Noise Environment

Long-term noise monitoring was conducted near the southwest corner of the project site, approximately 200 feet north of the centerline of the east-west segment of Zona Gale Road and approximately 400 feet west of the Via Cantebria centerline. Noise monitoring was performed beginning on the afternoon of May 29, 2019 and running through the afternoon of May 30, 2019 to establish the existing ambient noise conditions at the site. The long-term noise monitor was placed at a height of approximately four feet above the existing grade. The results of the ambient noise

monitoring are shown in Table 1. Please refer to Figure 3 for a graphical representation of the ambient noise monitoring location.

Table 1. Long-Term Ambient Noise Monitoring Results		
Date	**Time**	**Noise Level (dBA)**
May 29, 2019	3 p.m. – 4 p.m.	52.5
	4 p.m. – 5 p.m.	52.6
	5 p.m. – 6 p.m.	52.5
	6 p.m. – 7 p.m.	53.5
	7 p.m. – 8 p.m.	53.1
	8 p.m. – 9 p.m.	51.8
	9 p.m. – 10 p.m.	51.7
	10 p.m. – 11 p.m.	51.7
	11 p.m. – 12 a.m.	52.0
May 30, 2019	12 a.m. – 1 a.m.	49.5
	1 a.m. – 2 a.m.	49.2
	2 a.m. – 3 a.m.	48.5
	3 a.m. – 4 a.m.	50.4
	4 a.m. – 5 a.m.	48.7
	5 a.m. – 6 a.m.	50.1
	6 a.m. – 7 a.m.	50.8
	7 a.m. – 8 a.m.	52.9
	8 a.m. – 9 a.m.	53.1
	9 a.m. – 10 a.m.	52.9
	10 a.m. – 11 a.m.	52.7
	11 a.m. – 12 p.m.	52.8
	12 p.m. – 1 p.m.	52.8
	1 p.m. – 2 p.m.	52.7
	2 p.m. – 3 p.m.	53.4

As shown above in Table 1, the ambient noise levels on the project site ranged from 48.5 dBA between the hours of 2 a.m. and 3 a.m. on May 30 to 53.5 dBA between the hours of 6 p.m. and 7 p.m. on May 29.

3.2 Future Noise Environment

The future noise environment in the vicinity of the project site will be primarily a result of the same ambient noise sources, as well as the noise generated by the proposed uses at the project site.

3.2.1 Mechanical Equipment On-Site

Mechanical equipment on site is expected to consist of HVAC units at single-family residences on the site. As detailed mechanical equipment information was not available at the time this study was conducted, typical HVAC units were analyzed to show expected noise impact to adjacent properties. The unit used in calculations was evaluated with a sound power level of 70 dBA.

Operational mechanical noise levels were calculated for the project site using the above information. Results of this analysis are provided in Section 5.1.1.

3.2.2 Project-Generated Traffic

A traffic impact study conducted by LOS Engineering, Inc. (see reference) shows traffic volumes generated by the proposed project and the distribution of these trips on Via Cantebria. The impacts of project-generated traffic noise have been assessed using these trip generation values and the existing traffic volume for this roadway. Project traffic volumes and the analysis of project-generated traffic noise is provided in Section 5.1.2.

3.2.3 Temporary Construction Equipment

In order to evaluate anticipated temporary construction noise impacts, typical assumptions were made regarding stages of construction and equipment to be used. The expected phases on construction are shown in Table 2. Although no equipment list was provided for the site, the equipment listed in Table 3 is typical of what is expected to be used on site based on the information provided and professional experience. Unless otherwise noted, construction equipment noise levels were obtained from the DEFRA Construction Equipment Noise Database and duty cycles were obtained from the Federal Highway Administration (see references).

Table 2. Anticipated Construction Activity

Phase	Anticipated Large Equipment
1. Grading	Backhoe, Dump Truck, Excavator, Grader, Loader, Tractor
2. Utilities	Backhoe, Drill Rig, Excavator, Mounted Impact Hammer (Hoe Ram)
3. Paving	Concrete Mixer Truck, Concrete Pump Truck, Paver, Roller
4. Building Construction	Air Compressor, Forklift, Generator, Welder

Table 3. Typical Construction Equipment Noise Levels		
Equipment	**Duty Cycle (%)**	**Equipment Noise Level at 50 feet from Source (dBA)**
Air Compressor	40	61
Backhoe	40	72
Concrete Mixer	40	76
Concrete Pump	20	74
Drill Rig	20	78
Dump Truck	40	75
Excavator	40	72
Forklift	40	67
Generator	50	57
Grader	40	82
Loader	40	72
Mounted Impact Hammer (Hoe Ram)	20	84
Paver	50	73
Roller	20	69
Tractor	40	72
Welder	40	69

These noise levels were incorporated into the temporary construction noise analysis for the site, provided in Section 5.2.

4.0 METHODOLOGY AND EQUIPMENT

4.1 Methodology

4.1.1 Cadna Noise Modeling Software

Modeling of the outdoor noise environment is accomplished using Cadna Version 2019, which is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. Cadna (Computer Aided Noise Abatement) assists in the calculation, presentation, assessment, and alleviation of noise exposure. It allows for the input of project information such as noise source data, barriers, structures, and topography to create a detailed model and uses the most up-to-date calculation standards to predict outdoor noise impacts. Noise standards used by Cadna that are particularly relevant to this analysis include ISO 9613 (Attenuation of sound during propagation outdoors). Cadna provides results that are in line with basic acoustical calculations for distance attenuation and barrier insertion loss.

4.1.2 Formulas and Calculations

Decibel Addition

To determine the combined logarithmic noise level of two known noise source levels, the values are converted to the base values, added together, and then converted back to the final logarithmic value, using the following formula:

$$L_C = 10\log(10^{L1/10} + 10^{L2/10} + 10^{LN/10})$$

where L_C = the combined noise level (dB), and
L_N = the individual noise sources (dB).

This procedure is also valid when used successively for each added noise source beyond the first two. The reverse procedure can be used to estimate the contribution of one source when the contribution of another concurrent source is known and the combined noise level is known. These methods can be used for L_{EQ} or other metrics (such as L_{DN} or CNEL), as long as the same metric is used for all components.

Project-Generated Traffic Noise Impacts

Changes in traffic noise levels can be predicted by inputting the ratio of the two scenarios into the following logarithmic equation:

$$\Delta = 10\log(V2/V1)$$

where: Δ= Change in sound energy,
V1 = original or existing traffic volume, and
V2 = future or cumulative traffic volume.

Conversion of Vibration Peak Particle Velocity to Vibration Decibels

In order to convert vibration levels from peak particle velocity (PPV) results to vibration decibels (VdB), the following formula is used:

$$L_V = 20\log(V/V_{ref})$$

where L_v is the vibration level in VdB,
V is the RMS velocity amplitude (PPV divided by 4, for a cresting factor of 4), and
V_{ref} is the reference velocity amplitude ($1x10^{-6}$ inches per second).

4.2 Measurement Equipment

The following equipment was used at the site to measure existing noise levels:

- Larson Davis Model 720 Type 2 Sound Level Meter, Serial # 0312
- Larson Davis Model CA150 Calibrator, Serial # 5954
- Microphone with windscreen

The sound level meter was field-calibrated immediately prior to the noise measurement and checked afterward, to ensure accuracy. All sound level measurements conducted and presented in

this report, in accordance with the regulations, were made with a sound level meter that conforms to the American National Standards Institute specifications for sound level meters (ANSI S1.4). All instruments are maintained with National Bureau of Standards traceable calibration, per the manufacturers' standards.

5.0 NOISE IMPACTS

5.1 Permanent Project-Related Noise Impacts

5.1.1 Mechanical Equipment Noise

Noise levels of proposed permanent project-related mechanical equipment were calculated using Cadna at surrounding property lines to the east, south, and west. The air conditioning unit type is not yet proposed; therefore a typical air conditioning unit was used (see Section 3.2.1). All air conditioning units on site were evaluated as units with a sound power level of 70 dBA. Off-site receivers were calculated at a height of five feet above ground level. Noise levels were calculated considering topography and shielding that will be provided by the proposed on-site structures, but did not consider shielding from other exterior barriers.

Results of mechanical noise impact calculations are shown in Table 4. Please see Figure 5 for a graphical representation of the mechanical noise contours and noise source and receiver locations. Additional information can be found in Appendix C: Cadna Analysis Data and Results.

Table 4. Project-Related Mechanical Noise Impacts

Receiver	Description	Noise Limit (dBA)	Noise Level (dBA)
R1	West Property Line (Across Zona Gale Road)	45	20.6
R2	West Property Line (Across Zona Gale Road)	45	22.3
R3	West Property Line (Across Zona Gale Road)	45	15.7
R4	West Property Line (Across Zona Gale Road)	45	35.8
R5	South Property Line	45	43.3
R6	South Property Line	45	43.3
R7	South Property Line	45	44.4
R8	South Property Line	45	42.0
R9	East Property Line	45	39.1
R10	East Property Line	45	42.6
R11	East Property Line	45	42.3
R12	East Property Line	45	44.0
R13	East Property Line	45	41.1

As shown above, noise levels at adjacent property lines are anticipated to comply with the applicable nighttime noise limits of the City of Encinitas with typical AC units that have a maximum sound power level of 70 dBA. For these reasons, no mitigation is deemed necessary to reduce noise impacts from air conditioning equipment.

5.1.2 Project-Generated Traffic Noise

As detailed herein, the proposed project is anticipated to generate approximately 90 ADT on surrounding roadways. According to the LOS study, it is anticipated that approximately 18 ADT and 72 ADT will be added to segments of Via Cantebria north and south of Zona Gale, respectively. An analysis of the potential change in traffic noise levels to the surrounding area has been evaluated based on these traffic projections in comparison to existing traffic volumes. A significant impact is generally expected to be an increase of three decibels. Project-generated traffic noise increases are shown in Table 5.

Table 5. Anticipated Traffic Noise Increases with Project-Generated Traffic

Roadway	Traffic Volume (ADT)		Noise Level Increase (dB)
	Existing	Existing + Project	
Via Cantebria (North of Zona Gale Road)	14,661	14,679	0.0
Via Cantebria (South of Zona Gale Road)	14,867	14,939	0.0

As shown in Table 5, based on the minimal amount of traffic generated by the project, the increase in noise levels on surrounding roadways will be well below the three-decibel threshold of significance. Project-generated traffic noise levels are therefore less than significant.

5.2 Temporary Construction Noise Impacts

The City of Encinitas states that, during permissible hours of operation, noise levels from construction activity may not exceed an eight-hour average sound level limit of 75 dBA at residential properties.

Estimated construction noise impacts were calculated assuming the typical phases of construction and pieces of equipment shown in Tables 2 and 3. Noise levels were calculated at the nearest occupied receivers, located to the west of the project site, across Zona Gale Road. Noise levels were calculated using Cadna with equipment placed at the center of the project site to account for varying noise levels as equipment moves around the site. Noise calculations consider topography and typical duty cycles of equipment, to account for periods of activity and inactivity on the site. Though the property to the south is zoned residential, it does not currently have residential use, and was therefore excluded from this analysis.

Noise levels for each stage of construction are shown in Table 6. Detailed calculations can be found in Appendix C. Graphical representations of the construction noise contours and receiver locations for Phases 1 through 4 can be found in Figures 6 through 9, respectively.

Table 6. Temporary Construction Noise Levels at West Property Line			
Phase	**Equipment Used**	**Receiver**	**12-Hour Average Noise Level of Equipment (dBA)**
1. Grading	Backhoe, Dump Truck, Excavator, Grader, Loader, Tractor	C1	71.2
2. Utilities	Backhoe, Drill Rig, Excavator, Mounted Impact Hammer (Hoe Ram)	C1	69.8
3. Paving	Concrete Mixer Truck, Concrete Pump Truck, Paver, Roller	C1	66.3
4. Building Construction	Air Compressor, Forklift, Generator, Welder	C1	58.5

As shown in Table 6, based on the typical noise levels and duty cycles of construction equipment, average hourly noise levels are anticipated to remain below 75 dBA at the nearest noise-sensitive occupied receivers to the west. Any other noise-sensitive properties are located at a greater distance from on-site activity and therefore would be exposed to lesser noise levels.

Though noise impacts are expected to remain in compliance with the construction noise limit of the City of Encinitas, the following “good practice” measures should still be practiced as a courtesy to residential neighbors.

1. Staging areas should be placed as far as possible from residential receivers.

2. Place stationary equipment in locations that will have a lesser noise impact on nearby sensitive receivers.

3. Turn off equipment when not in use.

4. Limit the use of enunciators or public address systems, except for emergency notifications.

5. Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured, to prevent rattling and banging.

6. Schedule work to avoid simultaneous construction activities that both generate high noise levels.

7. Use equipment with effective mufflers.

8. Minimize the use of backup alarms.

With operating hours limited to those permitted by the City of Encinitas and adherence to the general good practice construction noise control techniques, temporary construction noise impacts are expected to be less than significant at surrounding properties.

5.3 CEQA Significance Determination

Noise impacts from the project site are summarized below and classified per the noise portion of the CEQA Environmental Checklist form. This list summarizes conclusions made within the report and classifies the level of significance as: Potentially Significant Impact, Less than Significant with Mitigation Incorporated, Less than Significant Impact, or No Impact.

Italics are used to denote language from the CEQA Environmental Checklist form.

XII. NOISE—Would the project result in:

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

Less Than Significant Impact. Operational noise impacts calculated in Section 5.1.1 are not expected to generate a substantial permanent increase in ambient noise levels in the vicinity of the project site. A substantial increase would be considered an increase of three decibels or more, which would represent a doubling of sound energy.

In order to demonstrate this fact, minimum measured ambient noise levels were compared to the calculated noise impacts of the HVAC equipment. Results are shown in Table 7. Please refer to Figure 3 for a graphic showing the noise monitoring location and to Figure 5 for the mechanical equipment noise contours and receiver locations.

Table 7. Operational Noise Impacts Compared to Minimum Ambient Noise Levels

Receiver	Description	Noise Level (dBA)			
		Minimum Existing Ambient	Operational Noise Impacts	Ambient + Operational	Increase
R1	West Property Line (Across Zona Gale Road)	48.5	20.6	48.5	0.0
R2	West Property Line (Across Zona Gale Road)	48.5	22.3	48.5	0.0
R3	West Property Line (Across Zona Gale Road)	48.5	15.7	48.5	0.0
R4	West Property Line (Across Zona Gale Road)	48.5	35.8	48.7	0.2
R5	South Property Line	48.5	43.3	49.6	1.1
R6	South Property Line	48.5	43.3	49.6	1.1
R7	South Property Line	48.5	44.4	49.9	1.4
R8	South Property Line	48.5	42.0	49.4	0.9
R9	East Property Line	48.5	39.1	49.0	0.5

Table 7. Operational Noise Impacts Compared to Minimum Ambient Noise Levels					
Receiver	Description	Noise Level (dBA)			
		Minimum Existing Ambient	Operational Noise Impacts	Ambient + Operational	Increase
R10	East Property Line	48.5	42.6	49.5	1.0
R11	East Property Line	48.5	42.3	49.4	0.9
R12	East Property Line	48.5	44.0	49.8	1.3
R13	East Property Line	48.5	41.1	49.2	0.7

As demonstrated in Table 7, the increase in ambient noise levels is not expected to exceed the three-decibel threshold of significance, and therefore, this impact is considered to be less than significant.

Additionally, as demonstrated in Section 5.1.2 of this report, noise impacts from project-generated traffic are not expected to cause a significant increase (greater than three decibels) on any surrounding roadway. This impact is also considered to be less than significant.

As shown in Section 5.2 of this report, noise from temporary construction is expected be less than significant considering the anticipated construction schedule and assuming that equipment is maintained in proper operating condition and using appropriate mufflers. While this noise impact is elevated above the typical ambient noise levels in the vicinity of the project site, construction noise impacts from anticipated construction activity are expected to remain at or below the 75 dBA construction noise limit set by the City of Encinitas. Additionally, no construction activity will take place during the more sensitive nighttime hours when ambient noise levels tend to be lower, as per City of Encinitas requirements. For these reasons, this impact is deemed to be less than significant.

As demonstrated above, the project is not expected to cause a substantial permanent or temporary increase in ambient noise levels, and therefore, this impact can be classified as less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. The proposed utilities phase of construction is expected to have the highest vibration levels of the four phases. The two heaviest pieces of equipment on site are expected to be a hoe ram and an excavator (located near the east and west property lines of the project site, respectively). According to the Federal Transit Administration Transit Noise and Vibration Assessment Manual (see reference), the daytime criteria for vibration annoyance levels at residences is 78 VdB. As construction activity is limited to daytime hours, this criteria of 78 VdB was applied to surrounding residential properties. Additionally, according to the FTA, the vibration damage criteria for non-engineered timber buildings (such as those in the vicinity of the project site) is 0.2 Peak Particle Velocity (PPV, in/sec).

Vibration annoyance calculations show that vibration levels at the surrounding residential property lines to the east and west are expected to be 61 VdB and 78 VdB, respectively. Vibration damage calculations show that vibration levels at the surrounding residential property lines to the east and west are expected to be 0.005 PPV (in/sec) and 0.032 PPV (in/sec), respectively. As vibration levels are expected to meet applicable criteria, this impact can be classified as less than significant. Please refer to Appendix D for more information.

c) *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The project site is not located within an airport land use plan nor is it located within two miles of a private airstrip, public airport, or public use airport. Therefore, the proposed project would not expose people working in the project area to excessive noise levels from such uses.

6.0 CONCLUSION

Noise from the anticipated HVAC equipment at on-site residences has been calculated to determine impacts at off-site receivers. Calculations show that noise levels from typical mechanical equipment will be in compliance with the City of Encinitas noise regulations found within the Municipal Code. No mitigation is deemed necessary to control project-generated noise impacts from mechanical equipment.

The proposed project is expected to add approximately 90 Average Daily Trips (ADT) to surrounding roadways. Considering the existing traffic volumes present on roadways in the vicinity of the project site, project-generated traffic noise is expected to be less than significant.

The City of Encinitas Municipal Code states that construction activity is prohibited except on Monday through Saturday between the hours of 7 a.m. and 7 p.m. Construction activity is also prohibited on Sundays and legal holidays. During permissible hours of operation, noise levels from construction activity may not exceed an eight-hour average sound level limit of 75 dBA at any time. An analysis of temporary construction noise considering typical and anticipated activity on site demonstrates that construction noise impacts are expected to be below an hourly average noise level of 75 dBA at surrounding residential properties. Provided construction is limited to the allowable hours of the City of Encinitas and equipment is maintained in proper working condition, temporary noise impacts are expected to be less than significant. No mitigation is deemed necessary for the attenuation of temporary noise impacts.

The proposed project is not expected to result in any potentially significant noise impacts by the standards of the California Environmental Quality Act (CEQA). Noise impacts to and from the project site are summarized in Section 5.3.

7.0 CERTIFICATION

All recommendations for noise control are based on the best information available at the time our consulting services are provided. However, as there are many factors involved in sound transmission, and Eilar Associates has no control over the construction, workmanship or materials, Eilar Associates is specifically not liable for final results of any recommendations or implementation of the recommendations.

This report is based on the related project information received and measured noise levels, and represents a true and factual analysis of the acoustical impact issues associated with the Zona Gale Subdivision, to be located in the City of Encinitas, California. This report was prepared by Mo Ouwenga, Rachael Cowell, and Amy Hool.

Mo Ouwenga, Acoustical Consultant

Amy Hool, Senior Acoustical Consultant

8.0 REFERENCES

1. City of Encinitas Municipal Code, Chapter 9.32 Noise Abatement and Control, and Chapter 30.40 Performance Standards.

2. California Environmental Quality Act (CEQA), Statute and Guidelines, 2018.

3. LOS Engineering, Inc., Draft Traffic Impact Analysis, Zona Gale Residential 9 Homes (Job #1910), 24 April 2019.

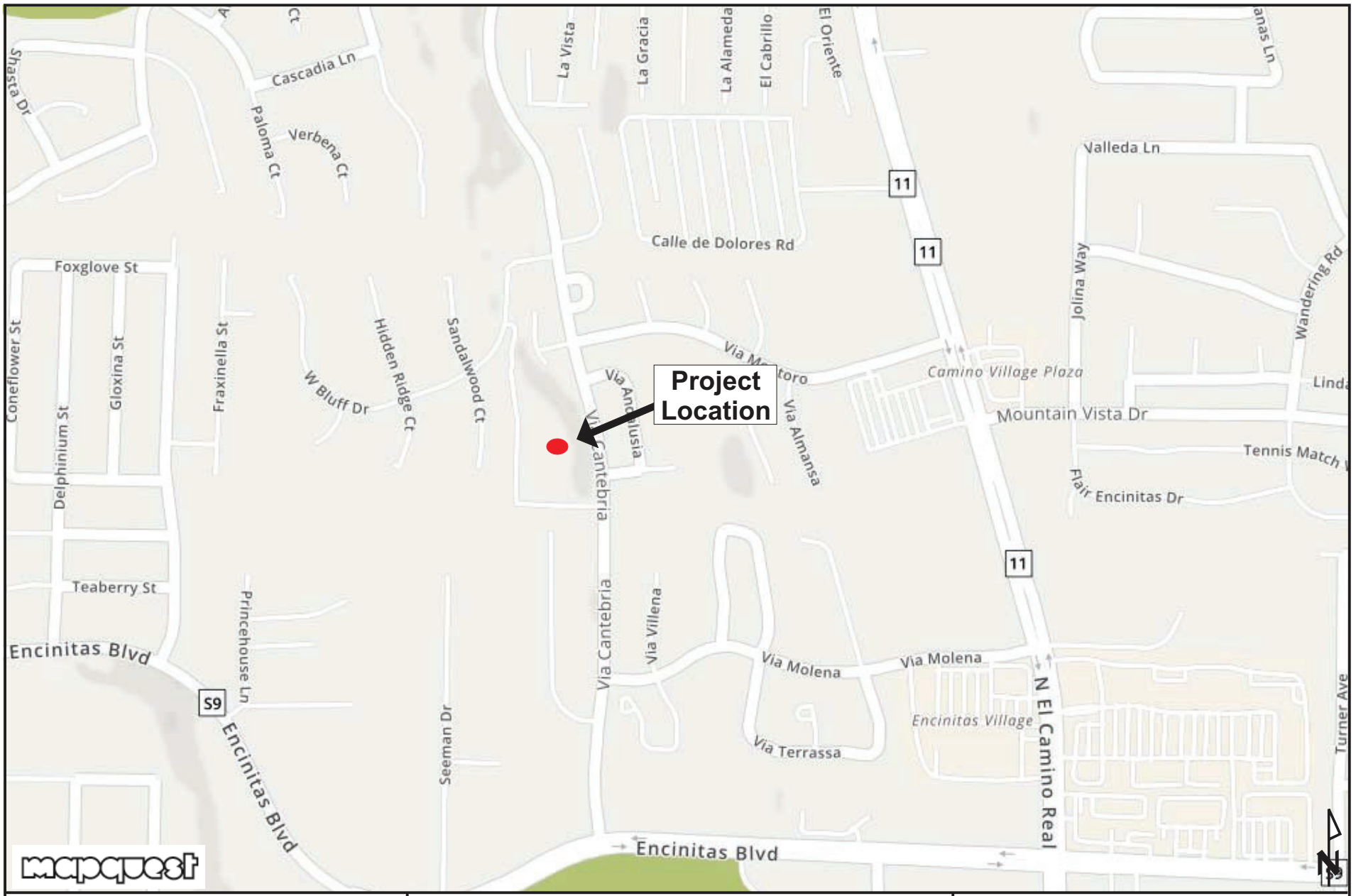
4. Department for Environment Food and Rural Affairs (DEFRA), Update of Noise Database for Prediction of Noise on Construction and Open Sites, 2005.

5. U.S. Department of Transportation Federal Highway Administration, Construction Noise Handbook, Construction Equipment Noise Levels and Ranges.

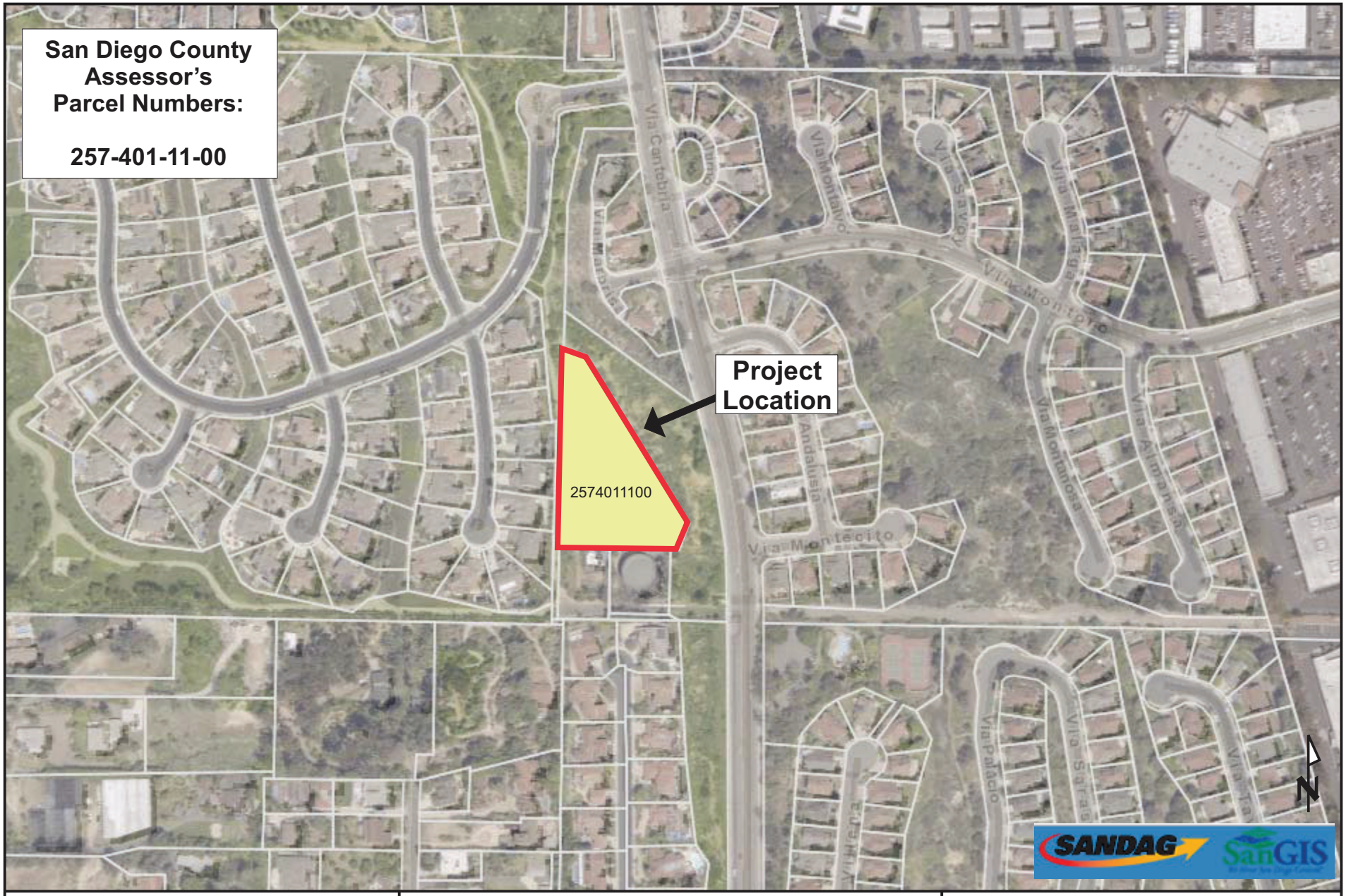
6. DataKustik, CadnaA (Computer Aided Noise Abatement), Version 2019.

7. Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, May 2006.

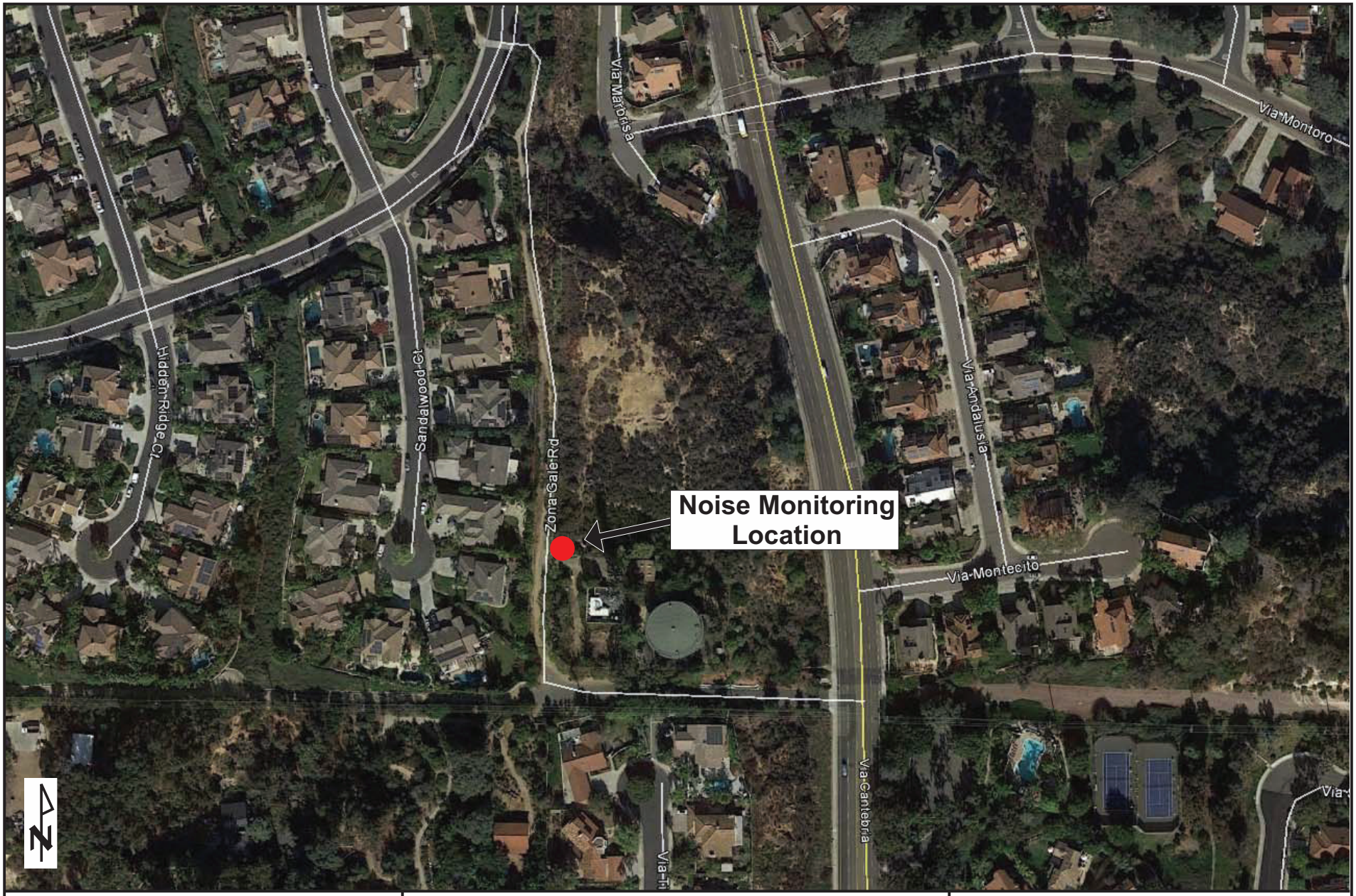
FIGURES



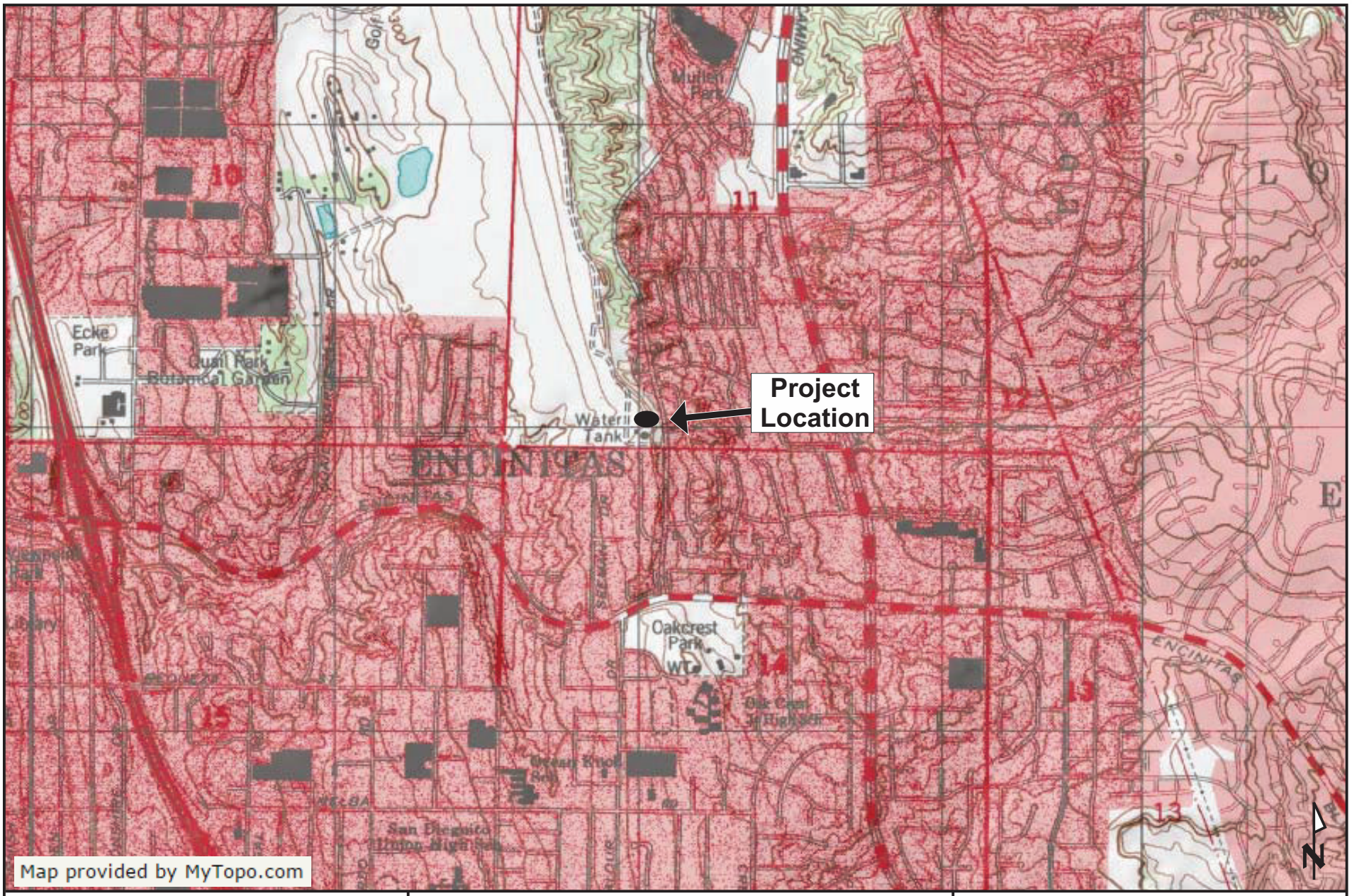
Eilar Associates, Inc. **210 South Juniper Street, Suite 100** **Escondido, California 92025** **760-738-5570**	**Vicinity Map** **Job # S190505**	**Figure 1**



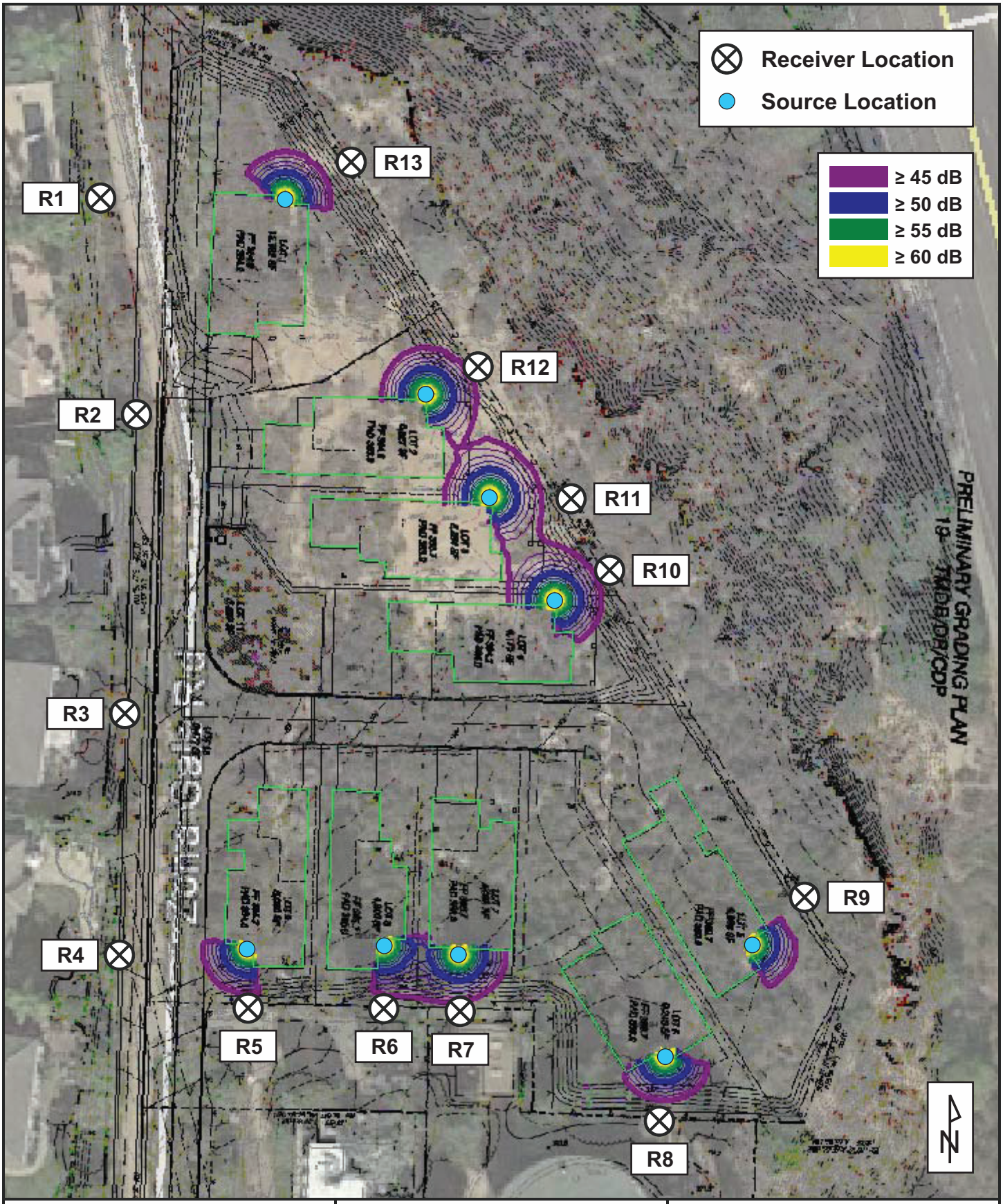
Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	Assessor's Parcel Map Job # S190505	Figure 2



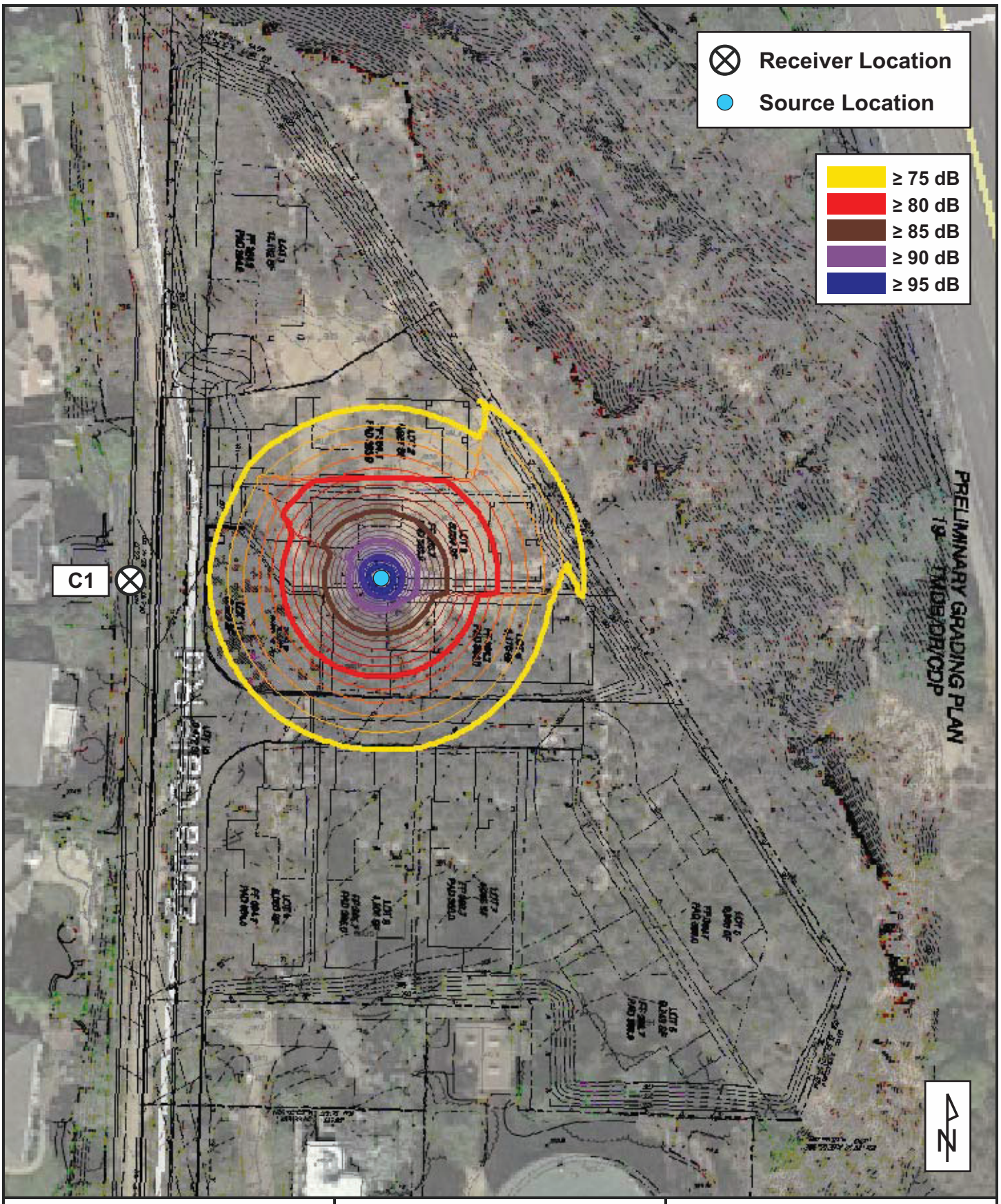
Eilar Associates, Inc. **210 South Juniper Street, Suite 100** **Escondido, California 92025** **760-738-5570**	**Satellite Aerial Photograph Showing** **Noise Monitoring Location** **Job # S190505**	**Figure 3**



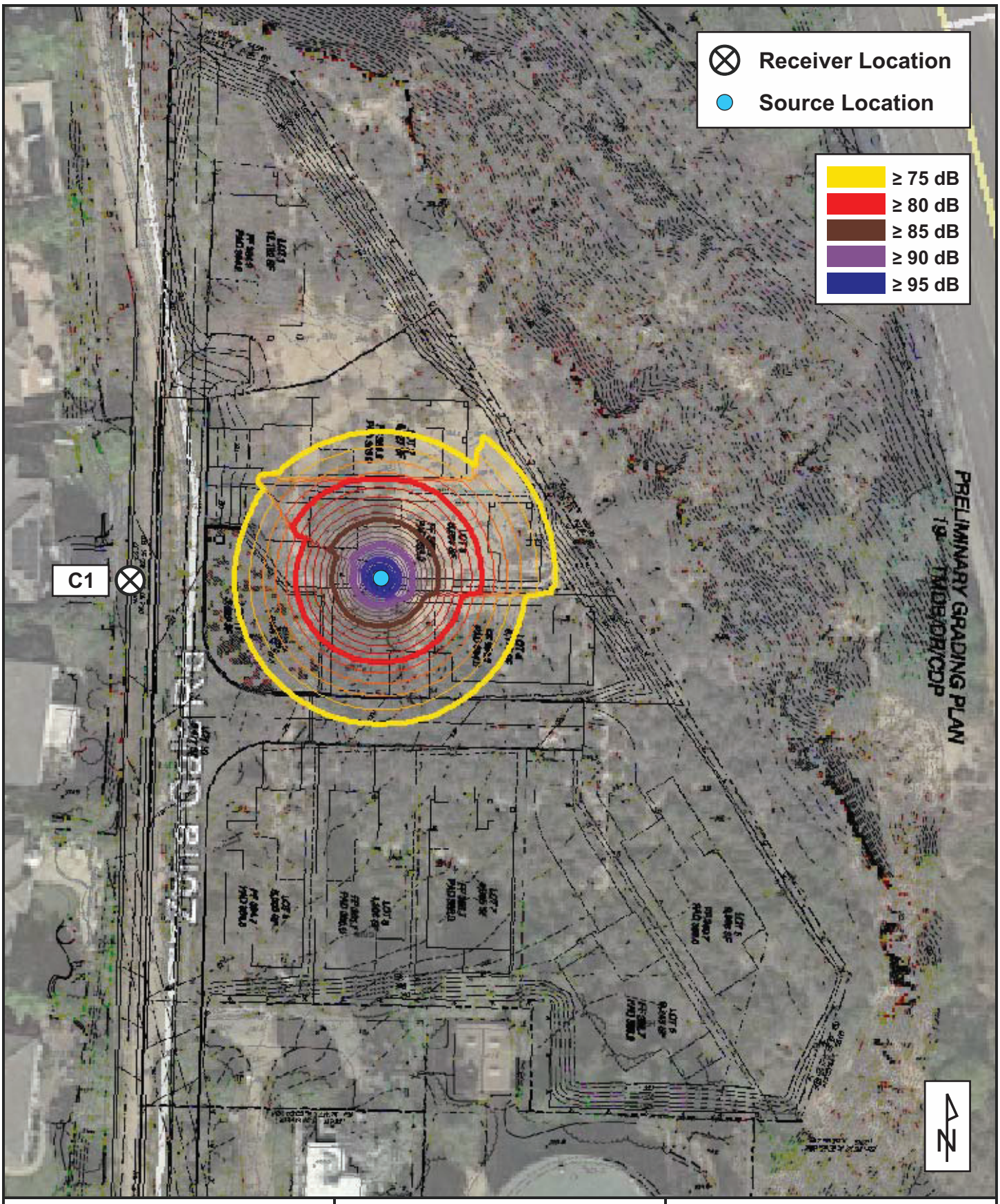
Eilar Associates, Inc. **210 South Juniper Street, Suite 100** **Escondido, California 92025** **760-738-5570**	**Topographic Map** **Job # S190505**	**Figure 4**



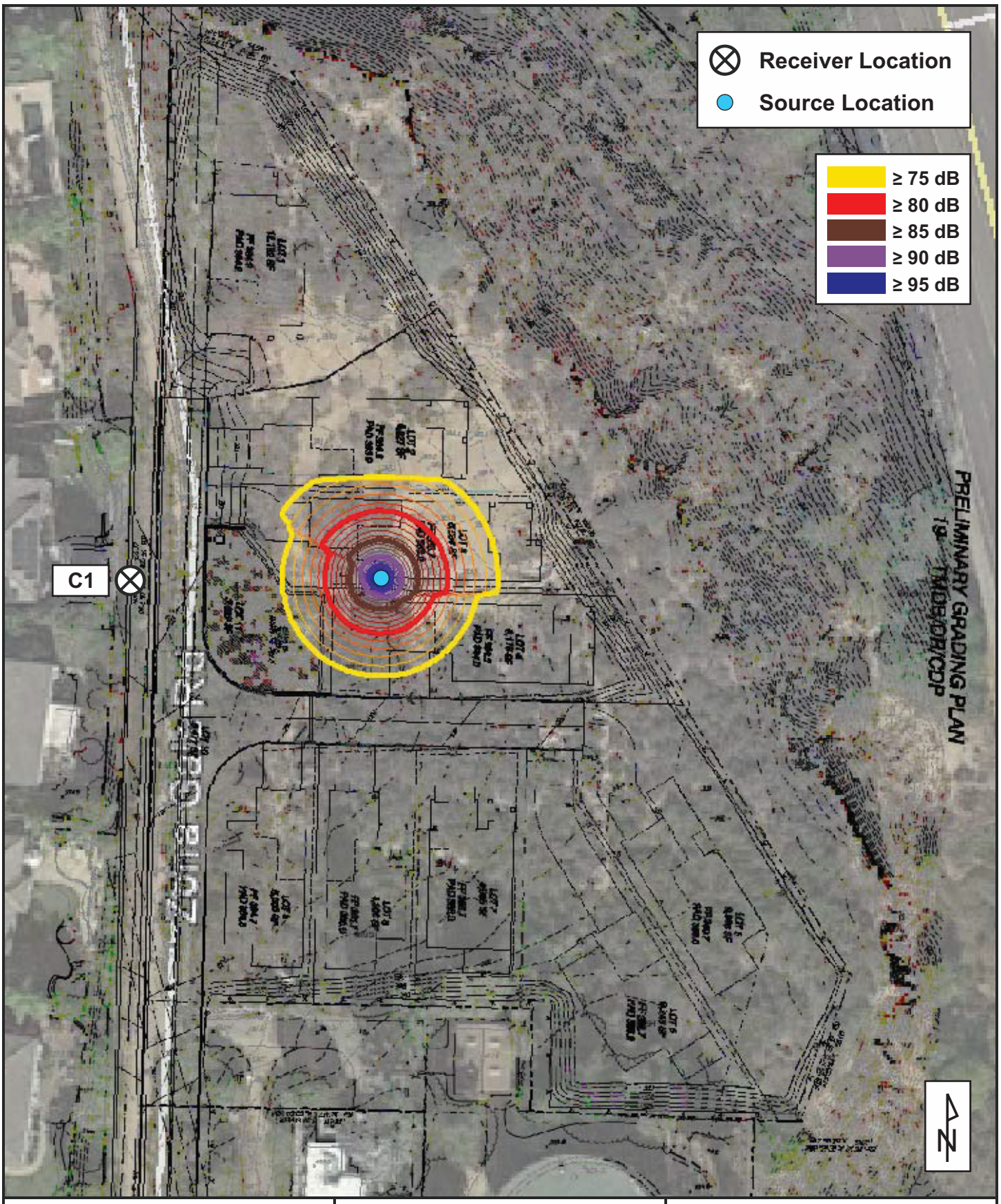
Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	Satellite Aerial Photograph Showing Mechanical Equipment Noise Contours and Receiver Locations Job # S190505	Figure 5



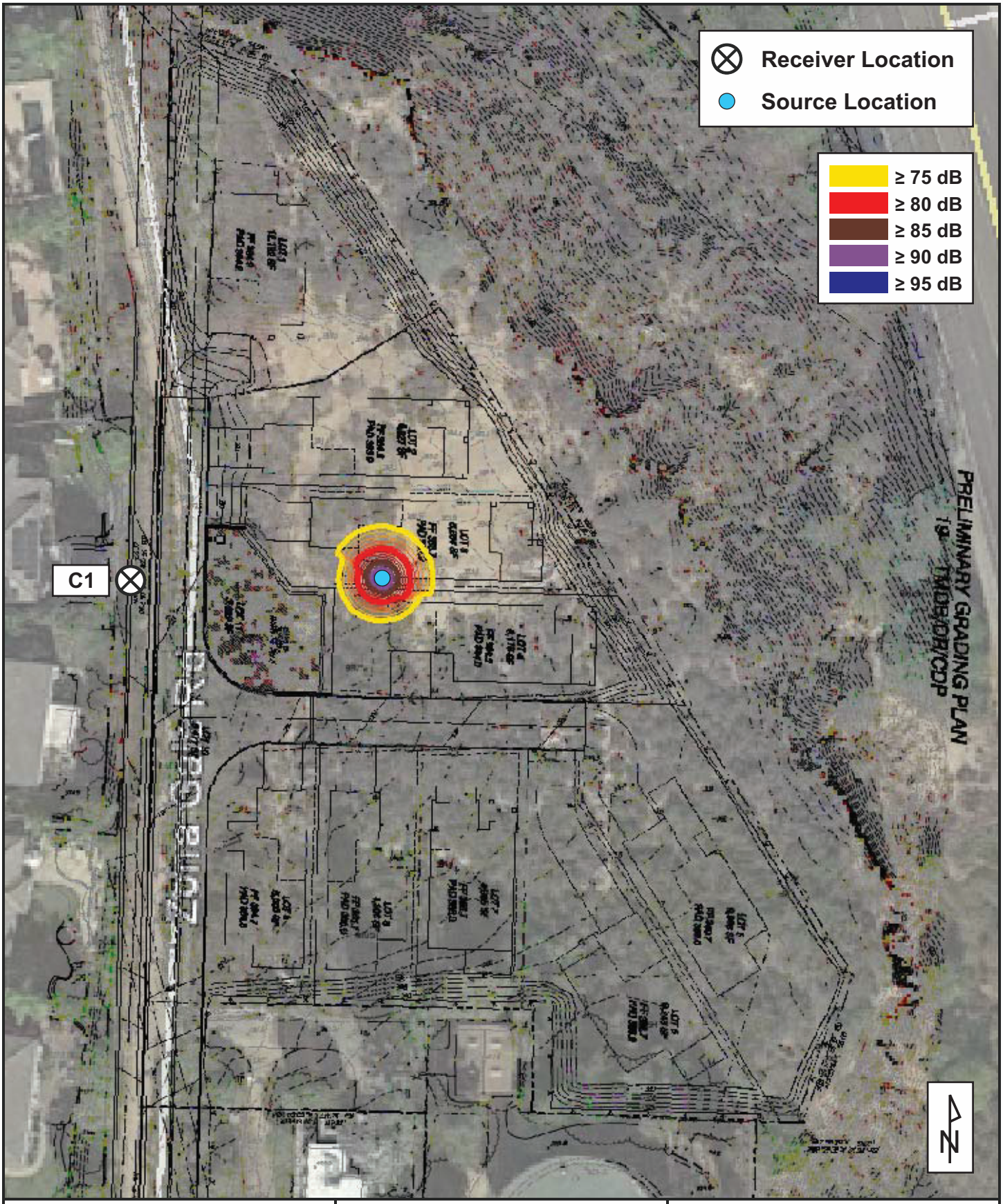
Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Satellite Aerial Photograph** **Showing Construction Noise Contours** **and Receiver Locations** **- Phase 1: Grading** **Job # S190505**	**Figure 6**



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Satellite Aerial Photograph** **Showing Construction Noise Contours** **and Receiver Locations** **- Phase 2: Utilities** **Job # S190505**	**Figure 7**



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Satellite Aerial Photograph** **Showing Construction Noise Contours and Receiver Locations** **- Phase 3: Paving** **Job # S190505**	**Figure 8**



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Satellite Aerial Photograph** **Showing Construction Noise Contours and Receiver Locations** **- Phase 4: Building Construction** **Job # S190505**	**Figure 9**

APPENDIX A

Project Plans

PRELIMINARY GRADING PLAN
19- TMDB/DR/CDP

LOT 1
12,182 SF
FF 384.9
PAD 384.2

LOT 2
6,927 SF
FF 384.6
PAD 383.9

LOT 3
6,284 SF
FF 383.7
PAD 383.0

LOT 4
6,175 SF
FF 384.7
PAD 384.0

2,135 SF
ML 383.0
BASIN FG 381.5

LOT 11
3,023 SF

LOT 10
9,477 SF

LOT 5
9,866 SF
FF 389.7
PAD 389.0

LOT 6
9,243 SF
FF 388.7
PAD 388.0

LOT 7
4,985 SF
FF 386.7
PAD 386.0

LOT 8
4,806 SF
FF 385.7
PAD 385.0

LOT 9
5,050 SF
FF 384.7
PAD 384.0

DRAFT

GRAPHIC SCALE 1"=20'
0 20 40 60

PREPARED BY:
PASCO LARET SUITER & ASSOCIATES
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING
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4/25/2019 PLSA 2697

APPENDIX B

Pertinent Sections of the City of Encinitas Municipal Code

Chapter 30.40 PERFORMANCE STANDARDS

30.40.010 Purpose.

In order to minimize the adverse impacts of certain nuisance factors and to provide methods of determining compatibility between uses of land and buildings, the following performance standards are established.

A. Noise.

1. Every use shall be so operated that the noise generated does not exceed the following levels at or beyond the lot line and does not exceed the limits of any adjacent zone.

Adjacent Zone	One Hour Average Sound Level	
	7 a.m.—10 p.m.	10 p.m.—7 a.m.
RR, RR-1, RR-2, R-3, R-5, R-8	50 dB	45 dB
R-11, RS-11, R-15, R-20, R-25, MHP	55 dB	50 dB
OP, LLC, LC, GC, L-VSC, VSC	60 dB	55 dB
L-I, BP	60 dB	55 dB

2. ER/OS/PK will be governed by the limits applicable to the source of the complaint.

3. The interior noise level as required by the State of California Noise Insulation Standards must not exceed an LDN of 45 dB in multifamily dwellings. This interior standard shall also be applied to single-family dwellings and offices in the City of Encinitas.

4. It shall be unlawful for any person on any property within the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured on any other property to exceed the following:

a. The noise standard for cumulative period of more than 30 minutes in any hour; or

b. The noise standard plus five dB for a cumulative period of more than 15 minutes in any hour; or

c. The noise standard plus up to 15 dB for a cumulative period of more than one minute in any hour; or

d. The noise standard plus 20 dB for any period of time.

5. For the purpose of this chapter, the peak decibel reading for a noise with a fluctuating noise level (such as live or recorded music) shall be considered as the noise level for the entire cumulative period of the noise. Likewise, the time between repetitive intermittent noises (such as banging, pounding, or hammering) shall be included in the cumulative of the noise.

B. Vibration. Every use shall be so operated that the ground vibration generated at any time and measured at any point along the lot line of the lot on which the use is located shall not be perceptible and shall not exceed the following:

Adjacent Zone	Vibration in Inches per Second	
	Impact	Steady-State
Residential	.006	.003
Commercial	.010	.005
Light Industrial	.040	.020
Public/Semi-Public	.010	.005

C. Radioactivity and Electrical Disturbances.

1. Except with the prior approval of the City as to specific uses, the use of radioactive materials within any zone shall be limited to measuring, gauging, and calibration devices, as tracer elements in X-ray and like apparatus, and in connection with the processing and preservation of foods. In no event shall radioactivity, when measured at each lot line, be in excess of two and seven-tenths by 10 to the 11th power microcuries per milliliter of air at any moment of time. Transportation of radioactive materials shall be only along routes approved by City Council.

2. All electrical and electronic devices and equipment shall be suitably wired, shielded, and controlled, so that in operation they shall not emit any electrical impulse or wave behind the lot lines, which will adversely affect the operation and control of any other suitably wired, shielded, and controlled electrical or electronic devices and equipment.

D. Toxic Materials, Fire, and Explosion Hazards. All storage, use, transportation and disposal of toxic, flammable, or explosive materials shall be performed in compliance with the California Hazardous Substance Act and in accordance with guidelines issued by the County of San Diego Department of Health Services, Hazardous Materials Division on Hazardous Waste Requirements. All activities involving toxic, flammable, or explosive materials shall be provided and conducted with adequate safety and fire suppression devices as specified by the Fire District and per the City's adopted fire code.

E. Drainage, Grading and Erosion Control.

1. All drainage shall be handled in a manner consistent with the Resource Management, Public Safety, and Land Use Elements of the General Plan.

2. All surface drainage from any lot in the commercial and light industrial zones shall be collected and carried to the storm sewer in accordance with the City's master drainage plan and in a manner acceptable to the City Engineer. In no case in these zones shall any surface drainage stream cross over the public sidewalk.

3. Any necessary grading shall be accomplished in a manner consistent with procedures detailed in the City of Encinitas Grading, Erosion and Sediment Control Ordinance, Chapter 23.24 of the Municipal Code.

4. All drainage courses should be maintained in natural or semi-natural vegetation utilizing existing topography as opposed to concrete ditches or pipes. Where possible, bridges should be used in lieu of pipes, box culverts or underground channels to preserve the integrity of the natural stream courses.

5. In any land use and development, grading and vegetation removal shall be limited to the minimum necessary in order to reduce erosion and sedimentation to the maximum extent possible.

F. Heat and Humidity. Heat, humidity, or other climatic influence from any source shall not be produced beyond the lot lines of the use.

G. Odors, Toxic Gases, and Other Airborne Pollutants.

1. Odors from gases or other odorous matter shall not be in such quantities as to create unreasonable odors at or beyond the lot line of the use.

2. Toxic gases or matter shall not be emitted which can cause any damage to human health, animals, vegetation, or other forms of property or which cause soiling beyond the lot lines of any use.

3. Applications for development proposals and/or use permits shall be evaluated for their potential to create odors that are offensive or inconsistent with the surrounding land use.

4. Applications for development proposals and/or use permits shall be evaluated for their potential to increase the level of air pollution and/or particulates and shall be reviewed by Air Pollution Control District (APCD) when warranted.

H. Outdoor Lighting Regulations. For what is known as the Olivenhain Community Area, the following standards shall apply:

1. The purpose of these regulations is to preserve the quality of the night sky by minimizing light and glare nuisances to adjacent properties.

2. The provision of this section shall apply to what is known as the Olivenhain Community Area.

3. "Outdoor recreational facility" shall mean any public or private facility providing recreational opportunities, including, but not limited to, tennis courts, equestrian uses, public and private parks where lighting is necessary for night time use of the facility.

4. The Illumination of outdoor recreational facilities shall be prohibited.

I. Performance Standards—Residential Lighting Standards. The following standards shall apply to all residential and commercial zones:

1. All light sources shall be shielded in such a manner that the light is directed away from streets or adjoining properties.

2. All residential zones and commercial uses adjoining residential zones shall not have a measured sustained light standard in excess of one-half foot-candle at the property line. Outdoor lighting fixtures shall be fully shielded so as to cause all emitted sustained light to be projected below an imaginary horizontal plane passing through the lowest point of the luminary, lamp or light source used in the fixture. The luminary, lamp, or light source shall not be directly visible from any adjoining residential property. The shielding requirement shall not apply to decorative landscape lighting fixtures of 50 watts or less, holiday lighting, fossil fuel lighting, or lighting within front yard areas intended to illuminate pedestrian and vehicular entries, landscaping/architectural accents, and the like. Skylights, greenhouses, and agricultural production activities are exempt. Public recreational facilities are not subject to the performance standards, but shall be reviewed through the use permit process for minimizing lighting impacts to surrounding properties, and may be subject to restrictions on operating hours and/or the number and type of lighting fixtures.

3. All interior commercial lots shall not have a measured sustained light standard in excess of one foot-candle at the property line. Outdoor lighting fixtures shall be fully shielded so as to cause all emitted sustained light to be projected below an imaginary horizontal plane passing through the lowest point of the luminary, lamp or light source used in the fixture. Skylights, greenhouses, and agricultural production activities are exempt. Permitted lighting structures and fixtures in place as of December 31, 2004 associated with commercial uses shall be considered legal nonconforming pursuant to Chapter 30.76 of the Municipal Code, and as such may remain in place as long as they are not altered in any manner increasing light trespass onto adjoining properties.

4. Street lighting is not subject to the performance standards, but shall be evaluated through proposed subdivision/projects and street design projects consistent with the modification process to street standards in order to preserve dark sky character of the community, while still maintaining the necessary lighting for safety purposes.

J. Height Regulations for Walls and Fences That Are Part of a Public Right-of-Way Design and Construction Project.

1. The height of walls/fences that are part of a public right-of-way design and construction project shall be limited to the wall/fence height permitted by the underlying zone. When the wall/fence is located within a public right-of-way, the wall/fence height shall be limited to the wall/fence height permitted by the underlying zone of property located immediately adjacent to the section of public right-of-way where the wall/fence is to be constructed.

2. The City Council may approve walls/fences up to a maximum of eight feet (measured from the highest grade adjacent to the wall) when a wall/fence is part of the right-of-way design, is an integral part of a road construction project, and is agreed to by the adjacent property owner(s). This regulation does not apply to N. & S. Coast Highway 101, La Costa Avenue and Manchester Avenue. (Ord. 90-04; Ord. 90-07; Ord. 2000-14; Ord. 2003-10)

View the mobile version.

Chapter 9.32 NOISE ABATEMENT AND CONTROL

9.32.401 Purpose and Intent.

The City Council finds and declares that:

A. Inadequately controlled noise presents a growing danger to the health and welfare of the residents of the City;

B. The making and creating of disturbing, excessive, offensive or unusually loud noises within the jurisdictional limits of the City is a condition which has persisted and the level and frequency of occurrence of such noises continue to increase;

C. The making, creation or continuance of such excessive noises which are prolonged or unusual in their time, place and use affect and are a detriment to the public health, comfort, convenience, safety, welfare, and prosperity of the residents of the City of Encinitas;

D. Every person is entitled to an environment in which the noise is not detrimental to his or her life, health and enjoyment of property;

E. The necessity in the public interest for the provisions and prohibitions hereinafter contained and enacted is declared to be a matter of legislative determination and public policy and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in the pursuance of and for the purpose of securing and promoting the public health, comfort, convenience, safety, welfare, prosperity, peace and quiet of the City and its inhabitants;

F. To administer the provisions of this chapter, the City Manager is authorized to appoint one or more noise control officers. (Ord. 90-22)

9.32.402 Definitions.

Whenever the following words and phrases are used in this chapter, unless otherwise defined herein, they shall have the meaning ascribed to them in this section:

"Aircraft" shall mean any powered vehicle which at any time of its operation is airborne, and is used to transport people or materials for whatever purpose.

"Ambient sound level" shall mean the composite noise from all sources near and far. In this context, the ambient noise level constitutes a normal or existing level of environmental noise at a given location and time.

"Average sound level" shall mean a sound level typical of the sound levels at a certain place during a given period of time, averaged by the general rule of combination for sound levels, said general rule being set forth in American National Standard Specifications for Sound Level Meters S1.4-1971. Average sound level is also called equivalent continuous sound level (Leq).

"Commercial purpose, loud speaking amplifiers for advertising" shall mean and include the use, operation or maintenance of any sound amplifying equipment for the purpose of advertising any business, or any goods, or any services, or for the purpose of attracting the attention of the public to, or advertising for, or soliciting patronage or customers to or for any performance, show, entertainment, exhibition, or event, or for the purpose of demonstrating such sound equipment.

"Construction equipment" shall mean any tools, machinery or equipment used in connection with construction operations including all types of "special construction" equipment as defined in the pertinent sections of the California Vehicle Code when used in the construction process on any construction site, regardless of whether such construction site be located on-highway or off-highway.

"Container" shall mean any receptacle, regardless of contents, manufactured from wood, metal, plastic, paper, or any other material including but not limited to any barrel, basket, box, crate, tub, bottle, can or refuse container.

"Decibel" shall mean a unit for measuring the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals.

"Disturbing, excessive or offensive noise" shall mean:

1. Any sound or noise which constitutes a nuisance involving discomfort or annoyance to persons of normal sensitivity residing in the area.

2. Any sound or noise exceeding criteria standards, or levels as set forth in this chapter.

"Emergency work" shall mean work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from imminent exposure to danger or damage or work by public or private utilities when restoring utility service.

"Motor vehicles" shall mean any and all self-propelled vehicles as defined in the California Vehicle Code and shall specifically include, but not be limited to, "mini-bikes" and "go-carts."

"Noise control officer" shall mean a person or organization appointed by the City Manager.

"Noise level" shall mean "sound level" and the terms may be used interchangeably herein.

"Noncommercial purpose, loud speaking amplifiers for advertising" shall mean the use, operation, or maintenance of any sound equipment for other than a "commercial purpose." Noncommercial purpose shall mean and include, but shall not be limited to, philanthropic, political, patriotic and charitable purposes.

"Person" shall mean a person, firm, association, co-partnership, joint venture, corporation, or any entity, public or private.

"Powered model vehicles" shall mean, but shall not be limited to airborne, waterborne, or landborne vehicles such as model airplanes, model boats and model vehicles of any type or size which are not designed for carrying persons or property and which can be propelled in any form other than manpower or windpower.

"Sound amplifying equipment" shall mean any machine or device, mobile or stationary used to amplify music, the human voice, or any sound.

"Sound level" (noise level) shall mean the weighted sound pressure level obtained by the use of a sound level meter and frequency weighing network as specified in American National Standards Institute specifications for sound level meters (ANSI S1.4-1971, or the latest revision thereof). If the frequency weighing employed is not indicated, the A-weighing is implied.

"Sound level meter" shall mean an instrument, including a microphone, an amplifier, readout and frequency weighing networks for the measurement of sound levels, which meets or exceeds the requirements pertinent for type S2A meters in the American National Standards Institute Specifications for Sound Level Meters, S1.4-1971 or the latest revision thereof.

"Sound truck" shall mean any motor vehicle or other vehicle regardless of motive power whether in motion or stationary having mounted thereon, built-in, or attached thereto any sound amplifying equipment other than a car radio or television.

"Watercraft" shall mean any boat, ship, barge, craft or floating thing designed for navigation in the water which is propelled by machinery, whether or not such machinery is the principal source of propulsion, but shall not include a vessel possessing a valid marine document issued by the United States Bureau of Customs or any federal agency successor thereto.

Supplementary Definitions of Technical Terms. Definitions of technical terms not defined herein shall be obtained from the American National Standard, "Acoustical Terminology" S1.1-1961 (R-1971) or the latest revision thereof.

9.32.403 Sound Level Measurement.

A. Any sound or noise level measurement made pursuant to the provisions of this chapter shall be measured with a sound level meter using the A-weighing and "slow" response pursuant to applicable manufacturer's instructions.

B. The sound level meter shall be appropriately calibrated and adjusted as necessary by means of an acoustical calibrator of the coupler-type to assure meter accuracy within the tolerances set forth in American National Standards ANSI-S1.4-1971.

C. For outside measurements, the microphone shall be not less than four feet above the ground, at least four feet distant from walls or other large reflecting surfaces and shall be protected from the effects of wind noises by the use of appropriate wind screens and the location selected shall be at any point on the affected property. In cases when the microphone must be located within 10 feet of walls or similar large reflecting surfaces, the actual measured distances and orientation of sources, microphone and reflecting surfaces shall be noted and recorded. In no case shall a noise measurement be taken within five feet of the noise source.

D. For inside measurements, the microphone shall be at least three feet distant from any wall, ceiling or partition, and the average measurement of at least three microphone positions throughout the room shall be determined.

9.32.404 Sound Level Limits.

See Section 30.40.010 of the Municipal Code for level limits.

9.32.405 Motor Vehicles.

A. Repairs of Motor Vehicles. It shall be unlawful for any person within the City to repair, rebuild, or test any motor vehicle in such a manner as to cause disturbing, excessive or offensive noise.

B. On-Highway. Violations for exceeding applicable noise level limits as to persons operating motor vehicles on a public street or highway in the City shall be prosecuted under applicable California Vehicle Code provisions and under federal regulation adopted pursuant to 42 U.S.C. Sections 4905(a)(1) (A), (B) and (C)(ii), (iii) for which enforcement responsibility is delegated to local governmental agencies.

C. Off-Highway. Except as otherwise provided for in this chapter, it shall be unlawful to operate any motor vehicle of any type on any site other than on a public street or highway as defined in the California Vehicle Code in a manner so as to cause noise in excess of those noise levels permitted for on-highway motor vehicles as specified in the table “35 miles per hour or less speed limits” contained in Section 23130 of the California Vehicle Code.

D. Emergency Vehicles. Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations.

E. Urban Transit Buses. Buses as defined in the California Vehicle Code shall at all times comply with the requirements of this section.

9.32.406 Powered Model Vehicles.

It shall be unlawful for any person to operate any powered model vehicle except between the hours of 7:00 a.m. and 9:00 p.m. and then only in such a manner so as not to emit noise in excess of those levels set forth in Section 9.32.404; however, if powered model vehicles are operated in public parks at a point more than 100 feet from the property line, the noise level shall be determined at a distance of 100 feet from the noise source instead of at the property line, and noises from powered model vehicles measured at that distance in excess of the noise limits specified in Section 9.32.404 are prohibited.

9.32.407 Solid Waste Management Vehicles and Parking Lot Cleaning Devices.

A. Solid Waste Management Vehicles. No person shall operate, or permit to be operated, a refuse compacting, processing, or collection vehicle between the hours of 10:00 p.m. to 6:00 a.m. in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this chapter.

B. Parking Lot and Sidewalk Cleaning Devices.

1. No person shall operate, or permit to be operated, an engine-powered parking lot or sidewalk sweeper or blower or high pressure cleaning devices between the hours of 8:00 p.m. to 7:00 a.m. in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this chapter; and

2. No person shall operate, or permit to be operated, an engine-powered parking lot and sidewalk sweeper or blower or high pressure cleaning devices on a Sunday or on a federal holiday in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this chapter.

9.32.408 Watercraft.

Violations for excessive noise of watercraft operating in waters under the jurisdiction of the City shall be prosecuted under applicable provisions of the California Harbors and Navigation Code.

9.32.409 Airports.

All noise emanating from airport activities other than that produced by aircraft shall be subject to all of the regulations contained in this chapter.

9.32.410 Construction Equipment.

Except for emergency work, it shall be unlawful for any person, including the City, to operate construction equipment at any construction site, except as outlined in subsections A and B of this section:

A. It shall be unlawful for any person, including the City, to operate construction equipment at any construction site on Sundays, and days appointed by the President, Governor or the City Council for a public fast, thanksgiving or holiday. Notwithstanding the above, a person may operate construction equipment on the above-specified days between the hours of 10:00 a.m. and 5:00 p.m. in compliance with the requirements of subsection B of this section at his or her residence or for the purpose of constructing a residence for him or herself, provided such operation of construction equipment is not carried on for profit or livelihood. In addition, it shall be unlawful for any person to operate construction equipment at any construction site on Mondays through Saturdays except between the hours of 7:00 a.m. and 7:00 p.m.

B. No such equipment, or combination of equipment regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of 75 decibels for more than eight hours during any 24-hour period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes.

In the event that lower noise limit standards are established for construction equipment pursuant to state or federal law, said lower limits shall be used as a basis for revising and amending the noise level limits specified in this subsection.

9.32.411 Containers and Construction Material.

It shall be unlawful for any person to handle or transport or cause to be handled or transported in any public place, any container or any construction material in such a way as to create a disturbing, excessive, or offensive noise.

9.32.412 Signal Device for Food Trucks.

No person shall operate or cause to have operated or used any sound signal device other than sound-amplification equipment attached to a motor vehicle wagon or manually propelled cart from which food or any other items are sold which emits a sound signal more frequently than once every 10 minutes in any one street block and with a duration of more than 10 seconds for any single emission. The sound level of this sound signal shall not exceed 90 decibels at 50 feet.

9.32.413 Multiple Family Dwelling Units.

See Section 30.40.010A for allowable interior noise levels for multiple family dwelling units.

9.32.414 General Noise Regulations.

A. General Prohibitions. In the absence of objective measurement by use of a sound level meter, additionally it shall be unlawful for any person to make, continue, or cause to be made or continued, within the limits of the City,

any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity residing in the area.

The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists, include, but are not limited to, the following:

1. The level of noise;
2. Whether the nature of the noise is usual or unusual;
3. Whether the origin of the noise is natural or unnatural;
4. The level of the background noise;
5. The proximity of the noise to sleeping facilities;
6. The nature and zoning of the area within which the noise emanates;
7. The density of the inhabitation of the area within which the noise emanates;
8. The time of the day or night the noise occurs;
9. The duration of the noise;
10. Whether the noise is recurrent, intermittent or constant; and
11. Whether the noise is produced by a commercial or noncommercial activity.

B. Disturbing, Excessive or Offensive Noises. The following acts, among others, are declared to be disturbing, excessive and offensive noises in violation of this chapter, but said enumeration shall not be deemed to be exclusive, namely:

1. Horns, Signaling Devices, etc. Violations for disturbing, excessive or offensive noises associated with the use or operation of horns, signaling devices, etc., on automobiles, motorcycles, or any other vehicle, except as provided in Section 9.32.412, shall be prosecuted under applicable provisions of the California Vehicle Code.

2. Radios, Television Sets, Phonographs and Similar Devices.

   a. Uses Restricted. The use, operation, or permitting to be played, used or operated, of any radio, musical instrument, phonograph, television set or other device for the production or reproduction of sound in such manner as to disturb the peace, quiet and comfort of neighboring residents or persons of normal sensitivity residing in the area; or in a manner to exceed those levels set forth in Section 9.32.404 when measured at a distance of 25 feet from such device operating in a public right-of-way or public space; except that, subject to a noise permit (issued by the Director of Parks and Recreation who shall serve as the noise control officer in this regard) specifying time, location and other conditions, amplified sound may be permitted within City parks provided that said sound does not exceed a level of 90 decibels 50 feet from the source or exceed those levels set forth in Section 9.32.404 at the park boundary.

   b. Prima Facie Violations. The operation of any such set, instrument, phonograph, television set, machine or similar device in such a manner as to be plainly audible at a distance of 50 feet from the building, structure or vehicle in which it is located, shall be prima facie evidence of a violation of this chapter.

3. Loud Speaking Amplifiers for Advertising. The use, operation, or the permitting to be played, used or operated of any sound production or reproduction device or machine including, but not limited to, radio receiving sets, phonographs, musical instruments, loudspeakers, and sound amplifiers, for commercial or business advertising purposes in, upon, over or across any street, alley, sidewalk, park, or public property in such a manner as to violate the provisions of this chapter is prohibited. The provisions shall not be applicable to sound amplifying equipment mounted on any sound truck or vehicle for commercial or noncommercial purposes where the owner or operator complies with the following requirements:

   a. The only sounds permitted are music or human speech.

   b. Operations are permitted between the hours of 8:00 a.m. and 9:00 p.m. or after 9:00 p.m. during public events and affairs of interest to the general public.

   c. Sound amplifying equipment shall not be operated unless the sound truck upon which such equipment is mounted is operated at a speed of at least 10 miles per hour, except when said truck is

stopped or impeded by traffic. Where stopped by traffic the said sound amplifying equipment shall not be operated for longer than one minute at each stop.

d. Sound shall not be issued within 100 yards of hospitals, schools, courthouses or places of worship.

e. The volume of sound shall be controlled so that said volume is not raucous, jarring, disturbing, or a nuisance to persons within the area of audibility and so that the volume of sound shall not exceed a sound level of 65 decibels (on the "A" scale) at a distance of 50 feet from the sound amplifying equipment as measured by a sound level meter which meets the American National Standard ANSI S1.4-1971 or the latest revision thereof.

f. No sound amplifying equipment shall be operated unless the axis of the center of any sound reproducing equipment used shall be parallel to the direction of travel of the sound truck; provided, however, that any sound reproducing equipment may be so placed upon said sound truck as to not vary more than 15 degrees either side of the axis of the center of the direction of travel.

g. No sound truck with its amplifying device in operation shall be driven on the same street past the same point more than twice in a period of one hour.

4. Yelling, Shouting, etc. Disturbing or raucous yelling, shouting, hooting, whistling or singing on the public streets, particularly between the hours of 10:00 p.m. and 8:00 a.m. or at any time or place so as to annoy or disturb the quiet, comfort, or repose of neighborhood residents or persons of normal sensitivity within the area for whatever reason, is prohibited.

5. Hawkers and Peddlers. The shouting or crying out of any peddlers, hawkers, and vendors which disturbs the peace and quiet of a neighborhood or persons of normal sensitivity is prohibited. This provision shall not be construed to prohibit the selling by outcry of merchandise, food and beverages at sporting events, parades, fairs, celebrations, festivals, circuses, carnivals, and other similar special events for public entertainment.

6. Drums, Other Instruments. The use of any drum or other instrument or device of any kind for the purpose of attracting attention by the creation of noise within the County is prohibited. This provision shall not apply to any person who is a participant in a school band or legally authorized parade or who has been otherwise duly authorized by the City to engage in such conduct.

7. Animals. The keeping or maintenance, or the permitting to be kept or maintained upon any premises owned, occupied, or controlled by any person of any animal which by any frequent or long continued noise shall cause annoyance or discomfort to persons of normal sensitivity in the vicinity; provided, however, that nothing contained herein shall be construed to apply to occasional noises emanating from legally operated dog and cat hospitals, humane societies, pounds, farm and/or agricultural facilities, or areas where keeping of animals are permitted. The written affirmation by two persons having separate residences that violation of the section disturbs the peace and quiet of said persons shall be prima facie evidence of a violation of this chapter.

8. Schools, Courts, Churches, Hospitals. The creation of any noise on any street, sidewalk, or public place adjacent to any school, institution of learning (except recreational schools), church, court or library, while the same are in use; or adjacent to a hospital, rest home, or long-term medical or mental care facility which noise interferes with the workings of such institution or which disturbs or annoys patients in the hospital, rest home, or long-term medical or mental care facility, provided conspicuous signs are displayed in such streets, sidewalks, or public places indicating the presence of a school, institution of learning, church, court, library, rest home or long-term medical or metal care facility, is prohibited.

9. Steam Whistles. The operation, use or causing to be operated or used of any steam whistle attached to any stationary boiler is prohibited except to give notice of the time to start or stop work or as a sound signal of imminent danger.

10. Engines and Motor Vehicles. Any disturbing or raucous noises caused off streets or highways by racing or accelerating the engine of any motor vehicle while moving or not moving, by the willful backfiring of any engine and exhaust from the engine tailpipe or muffler, or from the screeching of tires, is prohibited. (Ord. 2017-07)

9.32.415 Burglar Alarms.

Any building burglar alarm must have an automatic cutoff, capable of terminating its operation within 15 minutes of the time it is activated. Notwithstanding the requirements of the provision, any law enforcement official of the City shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm during the period of its activation.

No owner of a motor vehicle shall have in operation audible burglar alarm therein unless such burglar alarm shall be capable of terminating its operation within 15 minutes of the time it is activated. Notwithstanding the requirements of this provision, any law enforcement official of the City shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm installed on a motor vehicle at any time during the period of its activation.

9.32.416 Aircraft.

Violations for exceeding applicable noise level limits as to persons operating aircraft shall be prosecuted under applicable law.

9.32.417 Exemptions.

A. Emergency Work. The provisions of this chapter shall not apply to any emergency work as defined herein, provided that (1) the noise control officer has been notified in advance, if possible, or as soon as practical after said emergency, and (2) any vehicle device, apparatus, or equipment used, related to or connected with emergency work is designed, modified, or equipped to reduce sounds produced to the lowest possible level consistent with effective operation of such vehicle, device, apparatus, or equipment.

B. Sporting, Entertainment, Public Events. The provisions of this chapter shall not apply to:

1. Those reasonable sounds emanating from authorized school bands, school athletic and school entertainment events.

2. Sporting, entertainment and public events which are conducted pursuant to a license or permit issued by the County of San Diego for noise exceeding criteria, standards or levels as set forth in the chapter.

3. Those reasonable sounds emanating from a sporting, entertainment, or public event; provided, however, it shall be unlawful to exceed those levels set forth in Section 9.32.404 when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes unless a variance has been granted allowing sounds in excess of said levels.

C. Federal or State Preempted Activities. The provisions of this chapter shall not apply to an activity to the extent regulation thereof has been preempted by state or federal law.

D. Minor Maintenance to Residential Property. The provisions of Section 9.32.404 shall not apply to noise sources associated with minor maintenance to property used either in part or in whole for residential purposes provided said activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day except Sunday, or between the hours of 10:00 a.m. and 8:00 p.m. on Sunday.

E. Agricultural Operations. The provisions of Section 9.32.404 shall not apply to equipment associated with agricultural operations, provided that, all equipment and machinery powered and air intake silencer in good working order, and provided further that:

1. Operations do not take place between 7:00 p.m. and the following 7:00 a.m.; or

2. Such operations and equipment are utilized for the preparation, planting, harvesting, protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions; or

3. Such operations and equipment are associated with agricultural pest control, provided the application is made in accordance with regulations or procedures administered by the County Department of Agriculture; or

4. Such operations and equipment are associated with the application of agricultural chemicals provided the application is made in accordance with acceptable agricultural practices or upon the recommendation of an agricultural specialist.

9.32.424 Variances.

The noise control officer shall evaluate all applications for variances from the requirements of this chapter and may grant said variances with respect to time for compliance, subject to such terms, conditions, and requirements as he or she may deem reasonable to achieving compliance with the provisions of the chapter. Each such variance shall set forth in detail the approved method of achieving compliance and a time schedule for its accomplishment. If in the judgment of the noise control officer the time for compliance cannot be reasonably determined, a variance to cause the noise may be issued for a specified period of time, subject to revocation or modification after review by the noise control officer at interim times to be designated by the noise control officer in the variance. In determining the reasonableness of the terms of any proposed variance, the noise control officer shall consider the magnitude caused by the offensive noise, the uses of property within the area of impingement by the noise, operations carried under existing nonconforming rights or conditional use permits or zone variances, the time factors related to study, design, financing and construction of remedial work, the economic factors related to age and useful life of the equipment and general public interest and welfare.

9.32.425 Application for Permits and Variances.

Every applicant for a permit or variance required by this chapter shall file with the noise control officer a written application on a form prescribed by said officer. The application shall state the name and address of the applicant, the nature of the noise source involved, and such other information as the noise control officer may require. The City shall be notified of any application.

9.32.426 Application Fees.

Every applicant, except any state or local government agency or public district, shall pay a fee of $25.00 for each application for variance.

A request for a duplicate permit or variance shall be made in writing to the noise control officer within 10 days after the destruction, loss, or defacement of a permit or variance. A fee of $5.00 shall be charged, except to any state or local government agency or public district, for issuing a duplicate permit or variance.

9.32.427 Extension Fees.

If a permit or variance is to be extended beyond the original use termination on date of permit or variance, the extension fee shall be $25.00.

9.32.428 Actions on Applications.

The noise control officer shall act, within 30 days, if possible, on an application for a permit or variance and shall notify the applicant in writing by mail or in person of the action taken, namely, approval, conditional approval, or denial.

Notice of the action taken shall be deemed to have been given when the written notification has been deposited in the mail, postpaid, addressed to the address shown on the application to furnish further information or further plans or specifications. Failure of the applicant to provide such further information or further plans or specifications within 10 days shall be grounds for denial of the permit or variance.

In the event of denial of an application for a permit or variance, the noise control officer shall notify the applicant in writing of the reasons therefor. Service of the notification may be made in person or by mail, and such service may be proved by the written acknowledgment of the persons served or affidavit of the person making the service. The noise control officer shall not accept a further application unless the applicant has complied with the objections specified by the noise control officer as the reasons for denial.

9.32.429 Applications Deemed Denied.

The applicant may deem the application for permit or variance denied if the noise control officer fails to act on the application within 30 days after filing, or within 10 days after applicant furnishes the further information, plans and specifications requested by the noise control officer, whichever is later.

9.32.430 Provision of Sampling and Testing Facilities.

A person operating under a permit or variance shall provide and maintain such sampling and testing facilities as specified in the permit or variance.

9.32.431 Appeals.

Any person aggrieved by a final determination made under the authority of this chapter may seek review by filing an appeal pursuant to the procedures within the Municipal Code. A final determination by the noise control officer shall be appealed to the City Council. (See Chapter 1.12.)

View the mobile version.

APPENDIX C

Cadna Analysis Data and Results

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 06 Jun 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.40
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
R1			20.2	20.2	45.0	0.0				1.52	r	677.43	534.22	116.42
R2			21.9	21.9	45.0	0.0				1.52	r	682.06	505.76	116.58
R3			15.3	15.3	45.0	0.0				1.52	r	680.84	467.12	117.34
R4			35.4	35.4	45.0	0.0				1.52	r	679.81	435.34	118.51
R5			42.9	42.9	45.0	0.0				1.52	r	696.63	428.61	119.40
R6			42.9	42.9	45.0	0.0				1.52	r	714.35	428.36	120.48
R7			44.0	44.0	45.0	0.0				1.52	r	724.23	428.23	120.67
R8			41.6	41.6	45.0	0.0				1.52	r	750.00	413.81	121.65
R9			38.7	38.7	45.0	0.0				1.52	r	769.19	442.81	118.06
R10			42.2	42.2	45.0	0.0				1.52	r	744.19	486.00	120.26
R11			41.9	41.9	45.0	0.0				1.52	r	738.98	495.08	120.22
R12			43.6	43.6	45.0	0.0				1.52	r	726.40	511.98	119.90
R13			40.7	40.7	45.0	0.0				1.52	r	710.10	538.64	120.39

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
AC1			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	701.47	533.91	118.11
AC2			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	720.00	508.35	118.01
AC3			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	728.23	495.10	117.74
AC4			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	736.63	481.58	118.04
AC5			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	762.24	436.75	119.57
AC6			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	750.97	422.11	119.26
AC7			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	724.17	435.45	118.65
AC8			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	714.32	436.66	118.35
AC9			70.0	70.0	70.0	Lw	S1		0.0	0.0	0.0							0.0		(none)	1.00	r	696.72	436.10	118.04

Buildings

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(m)	
Building 1			x	0	0.37	4.57	r
Building 2			x	0	0.37	4.57	r
Building 3			x	0	0.37	4.57	r
Building 4			x	0	0.37	4.57	r
Building 5			x	0	0.37	4.57	r
Building 6			x	0	0.37	4.57	r
Building 7			x	0	0.37	4.57	r
Building 8			x	0	0.37	4.57	r
Building 9			x	0	0.37	4.57	r

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(m)		(m)	(m)	(m)	(m)
Building 1			x	0	0.37	4.57	r	692.37	534.59	121.68	117.11
								700.63	534.42	121.68	117.11
								700.63	533.21	121.68	117.11
								704.55	533.04	121.68	117.11
								704.00	517.41	121.68	117.11
								697.79	517.70	121.68	117.11
								697.96	516.07	121.68	117.11
								691.50	516.28	121.68	117.11
Building 2			x	0	0.37	4.57	r	698.67	498.20	121.58	117.01
								722.02	497.53	121.58	117.01
								722.23	503.91	121.58	117.01
								720.06	503.87	121.58	117.01
								719.93	507.66	121.58	117.01
								705.21	508.04	121.58	117.01
								705.17	504.37	121.58	117.01
								698.75	504.58	121.58	117.01
Building 3			x	0	0.37	4.57	r	704.91	495.03	121.31	116.74
								704.86	488.65	121.31	116.74
								711.12	488.40	121.31	116.74
								711.16	486.82	121.31	116.74
								714.54	486.48	121.31	116.74
								714.58	484.57	121.31	116.74
								729.71	484.15	121.31	116.74
								729.76	487.74	121.31	116.74
								728.21	487.78	121.31	116.74
								728.42	494.28	121.31	116.74
Building 4			x	0	0.37	4.57	r	714.86	481.28	121.61	117.04
								714.91	475.02	121.61	117.04
								723.37	474.60	121.61	117.04
								723.42	470.98	121.61	117.04

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(m)		(m)	(m)	(m)	(m)
								738.81	470.87	121.61	117.04
								738.86	477.23	121.61	117.04
								736.66	477.23	121.61	117.04
								736.71	480.91	121.61	117.04
Building 5			x	0	0.37	4.57	r	752.27	458.52	123.14	118.57
								756.31	451.64	123.14	118.57
								754.99	450.91	123.14	118.57
								756.31	448.33	123.14	118.57
								757.90	449.19	123.14	118.57
								764.38	438.73	123.14	118.57
								761.21	436.81	123.14	118.57
								763.39	433.57	123.14	118.57
								757.70	429.79	123.14	118.57
								745.45	450.11	123.14	118.57
								751.08	453.16	123.14	118.57
								748.90	456.60	123.14	118.57
Building 6			x	0	0.37	4.57	r	747.31	441.05	122.83	118.26
								741.48	438.00	122.83	118.26
								742.67	436.41	122.83	118.26
								737.58	433.37	122.83	118.26
								745.98	420.13	122.83	118.26
								751.15	423.11	122.83	118.26
								752.01	421.92	122.83	118.26
								757.17	425.16	122.83	118.26
Building 7			x	0	0.37	4.57	r	720.77	455.67	122.22	117.65
								726.92	455.47	122.22	117.65
								726.79	451.77	122.22	117.65
								728.25	451.77	122.22	117.65
								728.18	452.83	122.22	117.65
								731.62	452.63	122.22	117.65
								731.09	435.88	122.22	117.65
								720.30	436.35	122.22	117.65
Building 8			x	0	0.37	4.57	r	717.37	446.83	121.92	117.35
								717.24	437.40	121.92	117.35
								713.50	437.40	121.92	117.35
								713.50	433.53	121.92	117.35
								707.15	433.53	121.92	117.35
								707.59	456.88	121.92	117.35
								713.92	456.72	121.92	117.35
								713.90	450.39	121.92	117.35
								715.42	450.28	121.92	117.35
								715.53	446.90	121.92	117.35
Building 9			x	0	0.37	4.57	r	697.99	457.12	121.61	117.04
								704.54	457.02	121.61	117.04
								703.88	433.72	121.61	117.04
								697.36	433.79	121.61	117.04
								697.43	436.83	121.61	117.04

Name	M.	ID	RB	Residents	Absorption	Height	Coordinates			
						Begin	x	y	z	Ground
						(m)	(m)	(m)	(m)	(m)
							693.85	436.77	121.61	117.04
							693.95	446.56	121.61	117.04
							696.24	446.50	121.61	117.04
							696.10	448.85	121.61	117.04
							694.12	448.91	121.61	117.04
							694.15	452.85	121.61	117.04
							698.06	452.92	121.61	117.04

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
320				97.54		790.44	556.08	97.54
						783.61	556.24	97.54
						775.79	548.15	97.54
						775.05	551.51	97.54
						771.59	551.25	97.54
						765.76	570.26	97.54
325				99.06		789.56	529.42	99.06
						785.69	528.14	99.06
						782.60	524.51	99.06
						776.73	530.60	99.06
						769.05	535.84	99.06
						770.31	539.09	99.06
						766.89	549.00	99.06
						761.14	550.34	99.06
						751.30	556.50	99.06
						740.02	566.27	99.06
						730.20	573.04	99.06
330				100.59		728.03	570.96	100.59
						735.09	566.19	100.59
						738.37	563.69	100.59
						741.08	561.30	100.59
						747.85	554.77	100.59
						752.91	549.89	100.59
						755.06	547.11	100.59
						758.19	541.66	100.59
						759.48	540.95	100.59
						762.98	535.07	100.59
						767.77	529.11	100.59
						772.77	526.24	100.59
						773.48	523.95	100.59
						775.35	522.11	100.59
						778.79	519.93	100.59
						780.75	517.09	100.59
						782.70	511.96	100.59
						786.24	505.34	100.59
						787.72	506.37	100.59
						788.39	503.13	100.59
335				102.11		721.18	571.28	102.11
						729.68	566.07	102.11
						733.60	563.45	102.11
						745.14	551.28	102.11
						746.19	549.34	102.11
						750.60	542.72	102.11
						752.44	540.67	102.11
						752.07	538.00	102.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						754.33	537.89	102.11
						756.85	533.27	102.11
						761.60	527.84	102.11
						763.18	528.07	102.11
						767.14	524.10	102.11
						768.86	522.15	102.11
						771.68	518.28	102.11
						777.50	512.23	102.11
						777.86	510.25	102.11
						779.22	508.99	102.11
						779.28	508.23	102.11
						780.64	505.48	102.11
						782.69	500.29	102.11
						785.17	496.06	102.11
						789.88	486.18	102.11
340				103.63		711.98	571.40	103.63
						716.05	569.46	103.63
						716.52	568.23	103.63
						719.04	568.33	103.63
						725.73	563.11	103.63
						727.83	562.03	103.63
						732.65	558.37	103.63
						735.37	556.07	103.63
						739.90	551.37	103.63
						741.20	549.30	103.63
						741.31	548.24	103.63
						744.57	544.87	103.63
						748.51	538.57	103.63
						749.14	537.25	103.63
						750.45	535.76	103.63
						753.18	532.40	103.63
						753.47	530.64	103.63
						757.62	528.25	103.63
						759.93	526.44	103.63
						767.14	519.31	103.63
						768.30	517.44	103.63
						769.18	515.10	103.63
						769.81	512.66	103.63
						771.43	512.29	103.63
						771.63	510.04	103.63
						772.85	508.98	103.63
						772.95	507.27	103.63
						776.62	503.59	103.63
						779.77	498.65	103.63
						781.30	496.92	103.63
						788.64	481.57	103.63
350				106.68		701.66	571.46	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						707.15	567.32	106.68
						710.35	564.74	106.68
						717.49	560.60	106.68
						721.61	558.23	106.68
						724.68	555.95	106.68
						726.86	554.03	106.68
						728.41	553.69	106.68
						732.32	553.66	106.68
						733.61	552.30	106.68
						734.69	549.60	106.68
						737.65	546.50	106.68
						742.92	539.04	106.68
						747.15	533.03	106.68
						747.57	531.92	106.68
						749.57	529.98	106.68
						749.07	527.64	106.68
						753.11	526.73	106.68
						754.95	525.26	106.68
						756.65	522.92	106.68
						757.76	520.19	106.68
						759.31	517.41	106.68
						763.55	513.90	106.68
						763.68	512.25	106.68
						765.17	512.22	106.68
						764.97	509.93	106.68
						766.16	509.41	106.68
						766.91	507.45	106.68
						765.99	505.15	106.68
						765.87	503.36	106.68
						767.37	502.82	106.68
						768.45	501.99	106.68
						770.41	501.70	106.68
						770.28	500.86	106.68
						769.16	499.47	106.68
						769.59	498.75	106.68
						771.89	497.68	106.68
						772.74	495.65	106.68
						774.49	493.16	106.68
						774.27	491.13	106.68
						775.57	491.01	106.68
						779.09	485.41	106.68
						784.12	475.91	106.68
						785.77	467.76	106.68
						787.46	462.96	106.68
						787.16	458.10	106.68
						785.21	452.97	106.68
						785.57	447.75	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						786.56	445.07	106.68
						786.66	441.56	106.68
						787.45	440.58	106.68
360				109.73		694.46	571.82	109.73
						698.77	567.44	109.73
						702.59	564.86	109.73
						715.26	557.81	109.73
						719.07	555.96	109.73
						721.59	554.73	109.73
						723.53	552.46	109.73
						725.34	549.52	109.73
						731.96	543.20	109.73
						735.10	539.27	109.73
						736.06	536.46	109.73
						736.26	534.31	109.73
						737.15	532.16	109.73
						738.08	531.89	109.73
						740.58	529.93	109.73
						740.83	526.51	109.73
						745.16	521.89	109.73
						748.68	518.45	109.73
						750.77	516.62	109.73
						751.52	512.01	109.73
						754.00	510.39	109.73
						757.29	509.14	109.73
						757.62	506.14	109.73
						760.63	503.92	109.73
						760.87	500.94	109.73
						763.05	498.06	109.73
						763.64	495.35	109.73
						765.83	493.14	109.73
						769.80	485.40	109.73
						774.76	479.04	109.73
						775.84	476.77	109.73
						775.88	472.56	109.73
						777.59	467.63	109.73
						776.54	462.54	109.73
						777.32	461.59	109.73
						778.94	459.77	109.73
						779.18	458.61	109.73
						782.09	455.64	109.73
						781.94	452.35	109.73
						784.16	434.24	109.73
						784.95	429.14	109.73
						787.41	424.94	109.73
						784.26	416.38	109.73
						786.42	413.29	109.73

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						783.53	406.78	109.73
						784.34	405.50	109.73
						785.81	405.99	109.73
						786.60	405.23	109.73
						783.24	401.64	109.73
						783.03	399.80	109.73
						783.82	398.70	109.73
						783.57	393.93	109.73
370				112.78		674.69	567.61	112.78
						676.44	566.40	112.78
						679.98	572.35	112.78
						683.06	574.76	112.78
						688.57	572.27	112.78
						691.59	566.89	112.78
						695.24	562.82	112.78
						701.91	559.27	112.78
						708.13	556.73	112.78
						713.75	553.87	112.78
						716.19	552.95	112.78
						718.06	551.29	112.78
						718.16	549.27	112.78
						725.09	544.91	112.78
						725.96	542.97	112.78
						727.93	540.58	112.78
						729.97	536.00	112.78
						730.93	532.54	112.78
						733.40	529.41	112.78
						734.76	528.31	112.78
						735.84	524.03	112.78
						737.75	520.96	112.78
						740.20	519.07	112.78
						742.96	514.02	112.78
						744.11	512.63	112.78
						744.17	511.81	112.78
						745.64	511.34	112.78
						745.79	508.32	112.78
						746.56	507.82	112.78
						748.77	507.61	112.78
						750.78	507.58	112.78
						751.78	506.46	112.78
						751.41	503.15	112.78
						753.00	500.53	112.78
						754.89	501.16	112.78
						756.51	498.25	112.78
						759.05	492.13	112.78
						762.96	486.34	112.78
						763.42	485.02	112.78

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						765.80	482.24	112.78
						768.65	477.58	112.78
						770.01	474.90	112.78
						770.54	471.98	112.78
						772.66	471.91	112.78
						773.85	466.79	112.78
						771.80	463.29	112.78
						771.90	461.95	112.78
						772.98	459.80	112.78
						774.43	455.90	112.78
						781.05	441.74	112.78
						782.18	429.76	112.78
						781.78	425.40	112.78
						780.45	422.22	112.78
						781.51	418.91	112.78
						779.26	418.05	112.78
						778.51	409.51	112.78
						775.97	407.76	112.78
						773.97	403.84	112.78
						772.80	395.84	112.78
375				114.30		700.30	556.84	114.30
						695.88	558.89	114.30
						687.25	568.31	114.30
						683.75	569.72	114.30
						681.08	568.10	114.30
						679.37	564.89	114.30
						678.62	560.80	114.30
						678.08	553.18	114.30
						675.08	553.97	114.30
						673.87	529.39	114.30
						674.40	503.03	114.30
						675.55	496.94	114.30
						677.97	495.05	114.30
						678.49	478.03	114.30
						671.14	477.93	114.30
380				115.83		694.34	557.24	115.83
						685.04	566.08	115.83
						682.17	564.62	115.83
						681.46	550.95	115.83
						687.94	511.65	115.83
						692.64	509.53	115.83
						693.80	502.33	115.83
						693.11	491.41	115.83
						691.07	491.46	115.83
						690.59	477.13	115.83
						691.17	474.66	115.83
						692.12	472.98	115.83

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						693.59	471.51	115.83
						684.29	465.05	115.83
						684.61	469.41	115.83
						681.35	471.77	115.83
						680.27	460.14	115.83
385				117.35		691.18	558.29	117.35
						686.35	563.31	117.35
						685.35	563.23	117.35
						684.64	559.90	117.35
						684.40	550.07	117.35
						685.60	542.60	117.35
						687.18	536.94	117.35
						688.77	544.62	117.35
						689.57	549.84	117.35
						689.93	550.44	117.35
						690.69	550.54	117.35
						696.25	548.06	117.35
						698.86	547.06	117.35
						708.29	532.77	117.35
						711.92	527.65	117.35
						712.42	526.14	117.35
						715.59	521.48	117.35
						719.96	513.93	117.35
						724.88	509.18	117.35
						727.09	507.85	117.35
						729.63	504.64	117.35
						731.17	500.55	117.35
						734.76	495.51	117.35
						735.30	492.59	117.35
						735.72	489.80	117.35
						738.51	486.09	117.35
						742.71	478.64	117.35
						747.28	471.40	117.35
						747.28	470.51	117.35
						744.93	470.14	117.35
						739.37	468.36	117.35
						734.33	461.95	117.35
385				117.35		717.78	433.15	117.35
						691.18	430.81	117.35
						690.85	425.90	117.35
						683.14	422.77	117.35
						680.03	428.13	117.35
						678.44	425.75	117.35
						676.44	411.99	117.35
						675.69	398.65	117.35
390				118.87		692.75	556.42	118.87
						690.50	556.48	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						694.66	552.18	118.87
						700.65	549.73	118.87
						704.19	544.67	118.87
						711.81	533.22	118.87
						718.53	522.01	118.87
						722.44	515.65	118.87
						724.81	514.18	118.87
						725.54	515.18	118.87
						728.59	514.08	118.87
						729.16	512.56	118.87
						733.05	510.04	118.87
						735.68	509.09	118.87
						736.36	503.52	118.87
						736.32	499.21	118.87
						739.40	498.25	118.87
						741.15	495.20	118.87
						739.57	493.16	118.87
						740.78	491.33	118.87
						746.57	489.20	118.87
						745.74	484.66	118.87
						748.78	482.74	118.87
						751.95	476.65	118.87
						753.12	476.07	118.87
						755.03	479.24	118.87
						754.78	480.74	118.87
						751.95	483.99	118.87
						750.53	486.91	118.87
						749.03	490.16	118.87
						747.53	489.74	118.87
						744.86	493.87	118.87
						746.91	492.91	118.87
						748.28	493.45	118.87
						746.91	495.45	118.87
						746.91	496.41	118.87
						741.28	505.46	118.87
						736.69	512.96	118.87
						731.53	515.04	118.87
						724.74	528.05	118.87
						717.86	541.55	118.87
						717.07	548.63	118.87
						711.24	550.41	118.87
						704.56	552.60	118.87
						699.73	554.12	118.87
390				118.87		686.84	398.34	118.87
						691.80	409.76	118.87
						695.68	412.14	118.87
						696.01	413.59	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						699.18	418.06	118.87
						702.48	420.22	118.87
						706.44	421.64	118.87
						709.94	427.73	118.87
						712.86	428.81	118.87
						715.11	430.10	118.87
						723.15	430.52	118.87
						736.12	430.77	118.87
						737.82	429.64	118.87
						738.16	424.43	118.87
						738.20	418.72	118.87
						738.45	417.81	118.87
						740.66	417.39	118.87
						755.29	417.30	118.87
						759.75	416.93	118.87
						763.47	416.55	118.87
						766.17	416.22	118.87
						767.49	416.45	118.87
						768.04	417.84	118.87
						769.77	422.04	118.87
						773.13	428.82	118.87
						774.29	424.88	118.87
						773.40	418.26	118.87
						770.61	414.01	118.87
						768.04	403.87	118.87
						766.78	396.10	118.87
395				120.40		724.55	397.17	120.40
						725.72	405.51	120.40
						727.72	407.93	120.40
						727.81	416.26	120.40
						728.89	417.02	120.40
						730.97	417.02	120.40
						731.22	425.94	120.40
						732.06	425.19	120.40
						732.22	416.85	120.40
						730.31	415.60	120.40
						730.47	412.35	120.40
						733.06	411.51	120.40
						739.81	413.18	120.40
						746.56	413.43	120.40
						750.40	412.85	120.40
						751.07	411.85	120.40
						750.90	409.68	120.40
						755.98	406.84	120.40
						757.82	403.34	120.40
						757.15	396.26	120.40
Lot 1 Pad				117.11		691.69	538.57	117.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						701.14	538.47	117.11
						701.79	534.33	117.11
						705.35	533.74	117.11
						704.77	515.31	117.11
						690.69	515.36	117.11
						691.69	538.57	117.11
Lot 2 Pad				117.01		702.53	504.81	117.01
						702.53	508.54	117.01
						719.93	508.77	117.01
						725.96	507.92	117.01
						726.16	497.16	117.01
						698.13	497.53	117.01
						698.10	505.07	117.01
						702.53	504.81	117.01
Lot 3 Pad				116.74		734.07	494.43	116.74
						734.03	489.76	116.74
						735.33	489.67	116.74
						735.39	483.84	116.74
						713.95	484.17	116.74
						713.94	486.00	116.74
						710.64	486.20	116.74
						710.64	487.83	116.74
						704.36	487.98	116.74
						704.42	495.69	116.74
						728.31	495.64	116.74
						734.07	494.43	116.74
Lot 4 Pad				117.04		714.71	481.96	117.04
						714.48	474.62	117.04
						722.95	474.12	117.04
						723.02	470.68	117.04
						742.11	470.18	117.04
						742.37	478.06	117.04
						740.39	481.27	117.04
						736.43	482.21	117.04
						714.71	481.96	117.04
Lot 5 Pad				118.57		752.18	459.31	118.57
						765.02	438.64	118.57
						763.29	436.68	118.57
						764.23	433.38	118.57
						757.94	429.22	118.57
						743.09	453.39	118.57
						752.18	459.31	118.57
Lot 6 Pad				118.26		747.61	441.78	118.26
						759.74	422.18	118.26
						753.86	418.56	118.26
						750.71	421.29	118.26
						746.07	419.47	118.26

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						735.81	435.27	118.26
						747.61	441.78	118.26
Lot 7 Pad				117.65		719.79	435.90	117.65
						723.76	435.15	117.65
						724.26	432.64	117.65
						731.51	432.33	117.65
						732.08	455.86	117.65
						720.16	455.96	117.65
						719.79	435.90	117.65
Lot 8 Pad				117.35		706.61	433.27	117.35
						713.86	433.06	117.35
						714.80	436.27	117.35
						717.69	437.03	117.35
						717.96	447.41	117.35
						715.98	447.51	117.35
						715.98	450.81	117.35
						714.52	450.68	117.35
						714.44	457.31	117.35
						706.81	457.27	117.35
						706.61	433.27	117.35
Lot 9 Pad				117.04		705.00	457.36	117.04
						704.34	433.56	117.04
						697.00	433.51	117.04
						696.18	435.70	117.04
						693.33	436.39	117.04
						693.71	453.27	117.04
						697.33	453.36	117.04
						697.37	457.48	117.04
						705.00	457.36	117.04
C1						771.92	666.83	95.00
						780.13	627.91	95.00
						788.60	588.47	97.00
						797.86	559.09	99.00
						814.28	498.74	100.00
						821.16	450.03	103.00
						827.25	415.09	106.00
						828.25	367.06	108.00
						828.91	303.36	108.00
C2						799.86	447.17	103.00
						804.06	410.62	106.00
						806.16	367.76	108.00
						804.48	346.75	108.00
						804.90	303.04	108.00
C6						784.73	369.44	114.00
						763.72	369.02	118.00
						759.31	369.02	119.00
						714.77	370.70	119.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						686.19	370.85	117.00
						467.23	370.82	99.00
C4						628.95	424.34	115.00
						633.62	502.05	113.00
						620.62	571.09	111.00
						646.30	595.10	111.00
						666.64	640.46	107.00
						671.68	673.66	102.00
C5						678.07	587.39	110.00
						682.06	635.08	105.00
C7						850.84	368.69	106.00
						1039.05	364.98	72.00

Height Points

Name	M.	ID	Coordinates		
			X	Y	Z
			(m)	(m)	(m)
75			988.36	611.32	75.00
106			478.08	644.00	106.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 10 Jun 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.40
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
C1			71.2	-80.2	75.0	0.0				1.52	r	681.43	484.26	116.19

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
Source Location 1			105.3	105.3	105.3	Lw	S2		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			108.2	108.2	108.2	Lw	S6		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			105.2	105.2	105.2	Lw	S7		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			115.2	115.2	115.2	Lw	S10		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			105.3	105.3	105.3	Lw	S11		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			105.3	105.3	105.3	Lw	S15		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
320				97.54		790.44	556.08	97.54
						783.61	556.24	97.54
						775.79	548.15	97.54
						775.05	551.51	97.54
						771.59	551.25	97.54
						765.76	570.26	97.54
325				99.06		789.56	529.42	99.06
						785.69	528.14	99.06
						782.60	524.51	99.06
						776.73	530.60	99.06
						769.05	535.84	99.06
						770.31	539.09	99.06
						766.89	549.00	99.06
						761.14	550.34	99.06
						751.30	556.50	99.06
						740.02	566.27	99.06
						730.20	573.04	99.06
330				100.59		728.03	570.96	100.59
						735.09	566.19	100.59
						738.37	563.69	100.59
						741.08	561.30	100.59
						747.85	554.77	100.59
						752.91	549.89	100.59
						755.06	547.11	100.59
						758.19	541.66	100.59
						759.48	540.95	100.59
						762.98	535.07	100.59
						767.77	529.11	100.59
						772.77	526.24	100.59
						773.48	523.95	100.59
						775.35	522.11	100.59
						778.79	519.93	100.59
						780.75	517.09	100.59
						782.70	511.96	100.59
						786.24	505.34	100.59
						787.72	506.37	100.59
						788.39	503.13	100.59
335				102.11		721.18	571.28	102.11
						729.68	566.07	102.11
						733.60	563.45	102.11
						745.14	551.28	102.11
						746.19	549.34	102.11
						750.60	542.72	102.11
						752.44	540.67	102.11
						752.07	538.00	102.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						754.33	537.89	102.11
						756.85	533.27	102.11
						761.60	527.84	102.11
						763.18	528.07	102.11
						767.14	524.10	102.11
						768.86	522.15	102.11
						771.68	518.28	102.11
						777.50	512.23	102.11
						777.86	510.25	102.11
						779.22	508.99	102.11
						779.28	508.23	102.11
						780.64	505.48	102.11
						782.69	500.29	102.11
						785.17	496.06	102.11
						789.88	486.18	102.11
340				103.63		711.98	571.40	103.63
						716.05	569.46	103.63
						716.52	568.23	103.63
						719.04	568.33	103.63
						725.73	563.11	103.63
						727.83	562.03	103.63
						732.65	558.37	103.63
						735.37	556.07	103.63
						739.90	551.37	103.63
						741.20	549.30	103.63
						741.31	548.24	103.63
						744.57	544.87	103.63
						748.51	538.57	103.63
						749.14	537.25	103.63
						750.45	535.76	103.63
						753.18	532.40	103.63
						753.47	530.64	103.63
						757.62	528.25	103.63
						759.93	526.44	103.63
						767.14	519.31	103.63
						768.30	517.44	103.63
						769.18	515.10	103.63
						769.81	512.66	103.63
						771.43	512.29	103.63
						771.63	510.04	103.63
						772.85	508.98	103.63
						772.95	507.27	103.63
						776.62	503.59	103.63
						779.77	498.65	103.63
						781.30	496.92	103.63
						788.64	481.57	103.63
350				106.68		701.66	571.46	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						707.15	567.32	106.68
						710.35	564.74	106.68
						717.49	560.60	106.68
						721.61	558.23	106.68
						724.68	555.95	106.68
						726.86	554.03	106.68
						728.41	553.69	106.68
						732.32	553.66	106.68
						733.61	552.30	106.68
						734.69	549.60	106.68
						737.65	546.50	106.68
						742.92	539.04	106.68
						747.15	533.03	106.68
						747.57	531.92	106.68
						749.57	529.98	106.68
						749.07	527.64	106.68
						753.11	526.73	106.68
						754.95	525.26	106.68
						756.65	522.92	106.68
						757.76	520.19	106.68
						759.31	517.41	106.68
						763.55	513.90	106.68
						763.68	512.25	106.68
						765.17	512.22	106.68
						764.97	509.93	106.68
						766.16	509.41	106.68
						766.91	507.45	106.68
						765.99	505.15	106.68
						765.87	503.36	106.68
						767.37	502.82	106.68
						768.45	501.99	106.68
						770.41	501.70	106.68
						770.28	500.86	106.68
						769.16	499.47	106.68
						769.59	498.75	106.68
						771.89	497.68	106.68
						772.74	495.65	106.68
						774.49	493.16	106.68
						774.27	491.13	106.68
						775.57	491.01	106.68
						779.09	485.41	106.68
						784.12	475.91	106.68
						785.77	467.76	106.68
						787.46	462.96	106.68
						787.16	458.10	106.68
						785.21	452.97	106.68
						785.57	447.75	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						786.56	445.07	106.68
						786.66	441.56	106.68
						787.45	440.58	106.68
360				109.73		694.46	571.82	109.73
						698.77	567.44	109.73
						702.59	564.86	109.73
						715.26	557.81	109.73
						719.07	555.96	109.73
						721.59	554.73	109.73
						723.53	552.46	109.73
						725.34	549.52	109.73
						731.96	543.20	109.73
						735.10	539.27	109.73
						736.06	536.46	109.73
						736.26	534.31	109.73
						737.15	532.16	109.73
						738.08	531.89	109.73
						740.58	529.93	109.73
						740.83	526.51	109.73
						745.16	521.89	109.73
						748.68	518.45	109.73
						750.77	516.62	109.73
						751.52	512.01	109.73
						754.00	510.39	109.73
						757.29	509.14	109.73
						757.62	506.14	109.73
						760.63	503.92	109.73
						760.87	500.94	109.73
						763.05	498.06	109.73
						763.64	495.35	109.73
						765.83	493.14	109.73
						769.80	485.40	109.73
						774.76	479.04	109.73
						775.84	476.77	109.73
						775.88	472.56	109.73
						777.59	467.63	109.73
						776.54	462.54	109.73
						777.32	461.59	109.73
						778.94	459.77	109.73
						779.18	458.61	109.73
						782.09	455.64	109.73
						781.94	452.35	109.73
						784.16	434.24	109.73
						784.95	429.14	109.73
						787.41	424.94	109.73
						784.26	416.38	109.73
						786.42	413.29	109.73

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						783.53	406.78	109.73
						784.34	405.50	109.73
						785.81	405.99	109.73
						786.60	405.23	109.73
						783.24	401.64	109.73
						783.03	399.80	109.73
						783.82	398.70	109.73
						783.57	393.93	109.73
370				112.78		674.69	567.61	112.78
						676.44	566.40	112.78
						679.98	572.35	112.78
						683.06	574.76	112.78
						688.57	572.27	112.78
						691.59	566.89	112.78
						695.24	562.82	112.78
						701.91	559.27	112.78
						708.13	556.73	112.78
						713.75	553.87	112.78
						716.19	552.95	112.78
						718.06	551.29	112.78
						718.16	549.27	112.78
						725.09	544.91	112.78
						725.96	542.97	112.78
						727.93	540.58	112.78
						729.97	536.00	112.78
						730.93	532.54	112.78
						733.40	529.41	112.78
						734.76	528.31	112.78
						735.84	524.03	112.78
						737.75	520.96	112.78
						740.20	519.07	112.78
						742.96	514.02	112.78
						744.11	512.63	112.78
						744.17	511.81	112.78
						745.64	511.34	112.78
						745.79	508.32	112.78
						746.56	507.82	112.78
						748.77	507.61	112.78
						750.78	507.58	112.78
						751.78	506.46	112.78
						751.41	503.15	112.78
						753.00	500.53	112.78
						754.89	501.16	112.78
						756.51	498.25	112.78
						759.05	492.13	112.78
						762.96	486.34	112.78
						763.42	485.02	112.78

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						765.80	482.24	112.78
						768.65	477.58	112.78
						770.01	474.90	112.78
						770.54	471.98	112.78
						772.66	471.91	112.78
						773.85	466.79	112.78
						771.80	463.29	112.78
						771.90	461.95	112.78
						772.98	459.80	112.78
						774.43	455.90	112.78
						781.05	441.74	112.78
						782.18	429.76	112.78
						781.78	425.40	112.78
						780.45	422.22	112.78
						781.51	418.91	112.78
						779.26	418.05	112.78
						778.51	409.51	112.78
						775.97	407.76	112.78
						773.97	403.84	112.78
						772.80	395.84	112.78
375				114.30		700.30	556.84	114.30
						695.88	558.89	114.30
						687.25	568.31	114.30
						683.75	569.72	114.30
						681.08	568.10	114.30
						679.37	564.89	114.30
						678.62	560.80	114.30
						678.08	553.18	114.30
						675.08	553.97	114.30
						673.87	529.39	114.30
						674.40	503.03	114.30
						675.55	496.94	114.30
						677.97	495.05	114.30
						678.49	478.03	114.30
						671.14	477.93	114.30
380				115.83		694.34	557.24	115.83
						685.04	566.08	115.83
						682.17	564.62	115.83
						681.46	550.95	115.83
						687.94	511.65	115.83
						692.64	509.53	115.83
						693.80	502.33	115.83
						693.11	491.41	115.83
						691.07	491.46	115.83
						690.59	477.13	115.83
						691.17	474.66	115.83
						692.12	472.98	115.83

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						693.59	471.51	115.83
						684.29	465.05	115.83
						684.61	469.41	115.83
						681.35	471.77	115.83
						680.27	460.14	115.83
385				117.35		691.18	558.29	117.35
						686.35	563.31	117.35
						685.35	563.23	117.35
						684.64	559.90	117.35
						684.40	550.07	117.35
						685.60	542.60	117.35
						687.18	536.94	117.35
						688.77	544.62	117.35
						689.57	549.84	117.35
						689.93	550.44	117.35
						690.69	550.54	117.35
						696.25	548.06	117.35
						698.86	547.06	117.35
						708.29	532.77	117.35
						711.92	527.65	117.35
						712.42	526.14	117.35
						715.59	521.48	117.35
						719.96	513.93	117.35
						724.88	509.18	117.35
						727.09	507.85	117.35
						729.63	504.64	117.35
						731.17	500.55	117.35
						734.76	495.51	117.35
						735.30	492.59	117.35
						735.72	489.80	117.35
						738.51	486.09	117.35
						742.71	478.64	117.35
						747.28	471.40	117.35
						747.28	470.51	117.35
						744.93	470.14	117.35
						739.37	468.36	117.35
						734.33	461.95	117.35
385				117.35		717.78	433.15	117.35
						691.18	430.81	117.35
						690.85	425.90	117.35
						683.14	422.77	117.35
						680.03	428.13	117.35
						678.44	425.75	117.35
						676.44	411.99	117.35
						675.69	398.65	117.35
390				118.87		692.75	556.42	118.87
						690.50	556.48	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						694.66	552.18	118.87
						700.65	549.73	118.87
						704.19	544.67	118.87
						711.81	533.22	118.87
						718.53	522.01	118.87
						722.44	515.65	118.87
						724.81	514.18	118.87
						725.54	515.18	118.87
						728.59	514.08	118.87
						729.16	512.56	118.87
						733.05	510.04	118.87
						735.68	509.09	118.87
						736.36	503.52	118.87
						736.32	499.21	118.87
						739.40	498.25	118.87
						741.15	495.20	118.87
						739.57	493.16	118.87
						740.78	491.33	118.87
						746.57	489.20	118.87
						745.74	484.66	118.87
						748.78	482.74	118.87
						751.95	476.65	118.87
						753.12	476.07	118.87
						755.03	479.24	118.87
						754.78	480.74	118.87
						751.95	483.99	118.87
						750.53	486.91	118.87
						749.03	490.16	118.87
						747.53	489.74	118.87
						744.86	493.87	118.87
						746.91	492.91	118.87
						748.28	493.45	118.87
						746.91	495.45	118.87
						746.91	496.41	118.87
						741.28	505.46	118.87
						736.69	512.96	118.87
						731.53	515.04	118.87
						724.74	528.05	118.87
						717.86	541.55	118.87
						717.07	548.63	118.87
						711.24	550.41	118.87
						704.56	552.60	118.87
						699.73	554.12	118.87
390				118.87		686.84	398.34	118.87
						691.80	409.76	118.87
						695.68	412.14	118.87
						696.01	413.59	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						699.18	418.06	118.87
						702.48	420.22	118.87
						706.44	421.64	118.87
						709.94	427.73	118.87
						712.86	428.81	118.87
						715.11	430.10	118.87
						723.15	430.52	118.87
						736.12	430.77	118.87
						737.82	429.64	118.87
						738.16	424.43	118.87
						738.20	418.72	118.87
						738.45	417.81	118.87
						740.66	417.39	118.87
						755.29	417.30	118.87
						759.75	416.93	118.87
						763.47	416.55	118.87
						766.17	416.22	118.87
						767.49	416.45	118.87
						768.04	417.84	118.87
						769.77	422.04	118.87
						773.13	428.82	118.87
						774.29	424.88	118.87
						773.40	418.26	118.87
						770.61	414.01	118.87
						768.04	403.87	118.87
						766.78	396.10	118.87
395				120.40		724.55	397.17	120.40
						725.72	405.51	120.40
						727.72	407.93	120.40
						727.81	416.26	120.40
						728.89	417.02	120.40
						730.97	417.02	120.40
						731.22	425.94	120.40
						732.06	425.19	120.40
						732.22	416.85	120.40
						730.31	415.60	120.40
						730.47	412.35	120.40
						733.06	411.51	120.40
						739.81	413.18	120.40
						746.56	413.43	120.40
						750.40	412.85	120.40
						751.07	411.85	120.40
						750.90	409.68	120.40
						755.98	406.84	120.40
						757.82	403.34	120.40
						757.15	396.26	120.40
Lot 2 Pad				117.01		702.53	504.81	117.01

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						702.53	508.54	117.01
						719.93	508.77	117.01
						725.96	507.92	117.01
						726.16	497.16	117.01
						698.13	497.53	117.01
						698.10	505.07	117.01
						702.53	504.81	117.01
Lot 3 Pad				116.74		734.07	494.43	116.74
						734.03	489.76	116.74
						735.33	489.67	116.74
						735.39	483.84	116.74
						713.95	484.17	116.74
						713.94	486.00	116.74
						710.64	486.20	116.74
						710.64	487.83	116.74
						704.36	487.98	116.74
						704.42	495.69	116.74
						728.31	495.64	116.74
						734.07	494.43	116.74
Lot 4 Pad				117.04		714.71	481.96	117.04
						714.48	474.62	117.04
						722.95	474.12	117.04
						723.02	470.68	117.04
						742.11	470.18	117.04
						742.37	478.06	117.04
						740.39	481.27	117.04
						736.43	482.21	117.04
						714.71	481.96	117.04
Lot 5 Pad				118.57		752.18	459.31	118.57
						765.02	438.64	118.57
						763.29	436.68	118.57
						764.23	433.38	118.57
						757.94	429.22	118.57
						743.09	453.39	118.57
						752.18	459.31	118.57
Lot 6 Pad				118.26		747.61	441.78	118.26
						759.74	422.18	118.26
						753.86	418.56	118.26
						750.71	421.29	118.26
						746.07	419.47	118.26
						735.81	435.27	118.26
						747.61	441.78	118.26
Lot 7 Pad				117.65		719.79	435.90	117.65
						723.76	435.15	117.65
						724.26	432.64	117.65
						731.51	432.33	117.65
						732.08	455.86	117.65

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						720.16	455.96	117.65
						719.79	435.90	117.65
Lot 9 Pad				117.04		705.00	457.36	117.04
						704.34	433.56	117.04
						697.00	433.51	117.04
						696.18	435.70	117.04
						693.33	436.39	117.04
						693.71	453.27	117.04
						697.33	453.36	117.04
						697.37	457.48	117.04
						705.00	457.36	117.04
C1						771.92	666.83	95.00
						780.13	627.91	95.00
						788.60	588.47	97.00
						797.86	559.09	99.00
						814.28	498.74	100.00
						821.16	450.03	103.00
						827.25	415.09	106.00
						828.25	367.06	108.00
						828.91	303.36	108.00
C2						799.86	447.17	103.00
						804.06	410.62	106.00
						806.16	367.76	108.00
						804.48	346.75	108.00
						804.90	303.04	108.00
C6						784.73	369.44	114.00
						763.72	369.02	118.00
						759.31	369.02	119.00
						714.77	370.70	119.00
						686.19	370.85	117.00
						467.23	370.82	99.00
C4						628.95	424.34	115.00
						633.62	502.05	113.00
						620.62	571.09	111.00
						646.30	595.10	111.00
						666.64	640.46	107.00
						671.68	673.66	102.00
C5						678.07	587.39	110.00
						682.06	635.08	105.00
C7						850.84	368.69	106.00
						1039.05	364.98	72.00
Lot 1 Pad				117.11		691.69	538.57	117.11
						701.14	538.47	117.11
						701.79	534.33	117.11
						705.35	533.74	117.11
						704.77	515.31	117.11
						690.69	515.36	117.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						691.69	538.57	117.11
Lot 8 Pad				117.35		706.61	433.27	117.35
						713.86	433.06	117.35
						714.80	436.27	117.35
						717.69	437.03	117.35
						717.96	447.41	117.35
						715.98	447.51	117.35
						715.98	450.81	117.35
						714.52	450.68	117.35
						714.44	457.31	117.35
						706.81	457.27	117.35
						706.61	433.27	117.35

Height Points

Name	M.	ID	Coordinates		
			X	Y	Z
			(m)	(m)	(m)
75			988.36	611.32	75.00
106			478.08	644.00	106.00

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Air Compressor	S1	Lw			112.5	101.5	92.5	87.5	85.5	83.5	86.5	75.5	94.0	112.9	DEFRA
Backhoe	S2	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Concrete Mixer	S3	Lw			112.0	103.0	95.0	98.0	99.0	107.0	89.0	84.0	109.0	113.9	DEFRA
Concrete Pump	S4	Lw			113.3	105.3	99.3	100.3	102.3	102.3	95.3	87.3	107.1	114.8	DEFRA
Drill Rig	S5	Lw			103.5	107.5	104.5	101.5	102.5	107.5	102.5	97.5	111.2	113.4	DEFRA
Dump Truck	S6	Lw			117.0	113.0	104.0	102.0	104.0	101.0	97.0	89.0	108.2	118.9	DEFRA
Excavator	S7	Lw			106.2	114.2	99.2	102.2	99.2	97.2	92.2	86.2	105.2	115.4	DEFRA
Forklift	S8	Lw			114.6	108.6	98.6	96.6	93.6	91.6	85.6	76.6	100.1	115.8	DEFRA
Generator	S9	Lw			108.5	102.5	85.5	82.5	81.5	76.5	73.5	65.5	89.9	109.5	DEFRA
Grader	S10	Lw			116.7	115.7	111.7	107.7	112.7	106.7	102.7	93.7	115.2	121.1	DEFRA
Loader	S11	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Hoe Ram	S12	Lw			114.6	108.6	106.6	105.6	109.6	111.6	110.6	110.6	117.3	119.6	DEFRA
Paver	S13	Lw			101.7	106.7	103.7	101.7	100.7	99.7	96.7	89.7	106.2	111.0	DEFRA
Roller	S14	Lw			109.0	104.0	106.0	101.0	96.0	91.0	83.0	75.0	102.6	112.1	DEFRA
Tractor	S15	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Welder	S16	Lw			96.5	97.5	98.5	96.5	98.5	95.5	90.5	85.5	102.2	105.3	DEFRA

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 10 Jun 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.40
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
C1			69.8	-80.2	75.0	0.0				1.52	r	681.43	484.26	116.19

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
Source Location 1			105.3	105.3	105.3	Lw	S2		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			111.2	111.2	111.2	Lw	S5		0.0	0.0	0.0				12.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			105.2	105.2	105.2	Lw	S7		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			117.3	117.3	117.3	Lw	S12		0.0	0.0	0.0				12.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
320				97.54		790.44	556.08	97.54
						783.61	556.24	97.54
						775.79	548.15	97.54
						775.05	551.51	97.54
						771.59	551.25	97.54
						765.76	570.26	97.54
325				99.06		789.56	529.42	99.06
						785.69	528.14	99.06
						782.60	524.51	99.06
						776.73	530.60	99.06
						769.05	535.84	99.06
						770.31	539.09	99.06
						766.89	549.00	99.06
						761.14	550.34	99.06
						751.30	556.50	99.06
						740.02	566.27	99.06
						730.20	573.04	99.06
330				100.59		728.03	570.96	100.59
						735.09	566.19	100.59
						738.37	563.69	100.59
						741.08	561.30	100.59
						747.85	554.77	100.59
						752.91	549.89	100.59
						755.06	547.11	100.59
						758.19	541.66	100.59
						759.48	540.95	100.59
						762.98	535.07	100.59
						767.77	529.11	100.59
						772.77	526.24	100.59
						773.48	523.95	100.59
						775.35	522.11	100.59
						778.79	519.93	100.59
						780.75	517.09	100.59
						782.70	511.96	100.59
						786.24	505.34	100.59
						787.72	506.37	100.59
						788.39	503.13	100.59
335				102.11		721.18	571.28	102.11
						729.68	566.07	102.11
						733.60	563.45	102.11
						745.14	551.28	102.11
						746.19	549.34	102.11
						750.60	542.72	102.11
						752.44	540.67	102.11
						752.07	538.00	102.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						754.33	537.89	102.11
						756.85	533.27	102.11
						761.60	527.84	102.11
						763.18	528.07	102.11
						767.14	524.10	102.11
						768.86	522.15	102.11
						771.68	518.28	102.11
						777.50	512.23	102.11
						777.86	510.25	102.11
						779.22	508.99	102.11
						779.28	508.23	102.11
						780.64	505.48	102.11
						782.69	500.29	102.11
						785.17	496.06	102.11
						789.88	486.18	102.11
340				103.63		711.98	571.40	103.63
						716.05	569.46	103.63
						716.52	568.23	103.63
						719.04	568.33	103.63
						725.73	563.11	103.63
						727.83	562.03	103.63
						732.65	558.37	103.63
						735.37	556.07	103.63
						739.90	551.37	103.63
						741.20	549.30	103.63
						741.31	548.24	103.63
						744.57	544.87	103.63
						748.51	538.57	103.63
						749.14	537.25	103.63
						750.45	535.76	103.63
						753.18	532.40	103.63
						753.47	530.64	103.63
						757.62	528.25	103.63
						759.93	526.44	103.63
						767.14	519.31	103.63
						768.30	517.44	103.63
						769.18	515.10	103.63
						769.81	512.66	103.63
						771.43	512.29	103.63
						771.63	510.04	103.63
						772.85	508.98	103.63
						772.95	507.27	103.63
						776.62	503.59	103.63
						779.77	498.65	103.63
						781.30	496.92	103.63
						788.64	481.57	103.63
350				106.68		701.66	571.46	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						707.15	567.32	106.68
						710.35	564.74	106.68
						717.49	560.60	106.68
						721.61	558.23	106.68
						724.68	555.95	106.68
						726.86	554.03	106.68
						728.41	553.69	106.68
						732.32	553.66	106.68
						733.61	552.30	106.68
						734.69	549.60	106.68
						737.65	546.50	106.68
						742.92	539.04	106.68
						747.15	533.03	106.68
						747.57	531.92	106.68
						749.57	529.98	106.68
						749.07	527.64	106.68
						753.11	526.73	106.68
						754.95	525.26	106.68
						756.65	522.92	106.68
						757.76	520.19	106.68
						759.31	517.41	106.68
						763.55	513.90	106.68
						763.68	512.25	106.68
						765.17	512.22	106.68
						764.97	509.93	106.68
						766.16	509.41	106.68
						766.91	507.45	106.68
						765.99	505.15	106.68
						765.87	503.36	106.68
						767.37	502.82	106.68
						768.45	501.99	106.68
						770.41	501.70	106.68
						770.28	500.86	106.68
						769.16	499.47	106.68
						769.59	498.75	106.68
						771.89	497.68	106.68
						772.74	495.65	106.68
						774.49	493.16	106.68
						774.27	491.13	106.68
						775.57	491.01	106.68
						779.09	485.41	106.68
						784.12	475.91	106.68
						785.77	467.76	106.68
						787.46	462.96	106.68
						787.16	458.10	106.68
						785.21	452.97	106.68
						785.57	447.75	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						786.56	445.07	106.68
						786.66	441.56	106.68
						787.45	440.58	106.68
360				109.73		694.46	571.82	109.73
						698.77	567.44	109.73
						702.59	564.86	109.73
						715.26	557.81	109.73
						719.07	555.96	109.73
						721.59	554.73	109.73
						723.53	552.46	109.73
						725.34	549.52	109.73
						731.96	543.20	109.73
						735.10	539.27	109.73
						736.06	536.46	109.73
						736.26	534.31	109.73
						737.15	532.16	109.73
						738.08	531.89	109.73
						740.58	529.93	109.73
						740.83	526.51	109.73
						745.16	521.89	109.73
						748.68	518.45	109.73
						750.77	516.62	109.73
						751.52	512.01	109.73
						754.00	510.39	109.73
						757.29	509.14	109.73
						757.62	506.14	109.73
						760.63	503.92	109.73
						760.87	500.94	109.73
						763.05	498.06	109.73
						763.64	495.35	109.73
						765.83	493.14	109.73
						769.80	485.40	109.73
						774.76	479.04	109.73
						775.84	476.77	109.73
						775.88	472.56	109.73
						777.59	467.63	109.73
						776.54	462.54	109.73
						777.32	461.59	109.73
						778.94	459.77	109.73
						779.18	458.61	109.73
						782.09	455.64	109.73
						781.94	452.35	109.73
						784.16	434.24	109.73
						784.95	429.14	109.73
						787.41	424.94	109.73
						784.26	416.38	109.73
						786.42	413.29	109.73

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						783.53	406.78	109.73
						784.34	405.50	109.73
						785.81	405.99	109.73
						786.60	405.23	109.73
						783.24	401.64	109.73
						783.03	399.80	109.73
						783.82	398.70	109.73
						783.57	393.93	109.73
370				112.78		674.69	567.61	112.78
						676.44	566.40	112.78
						679.98	572.35	112.78
						683.06	574.76	112.78
						688.57	572.27	112.78
						691.59	566.89	112.78
						695.24	562.82	112.78
						701.91	559.27	112.78
						708.13	556.73	112.78
						713.75	553.87	112.78
						716.19	552.95	112.78
						718.06	551.29	112.78
						718.16	549.27	112.78
						725.09	544.91	112.78
						725.96	542.97	112.78
						727.93	540.58	112.78
						729.97	536.00	112.78
						730.93	532.54	112.78
						733.40	529.41	112.78
						734.76	528.31	112.78
						735.84	524.03	112.78
						737.75	520.96	112.78
						740.20	519.07	112.78
						742.96	514.02	112.78
						744.11	512.63	112.78
						744.17	511.81	112.78
						745.64	511.34	112.78
						745.79	508.32	112.78
						746.56	507.82	112.78
						748.77	507.61	112.78
						750.78	507.58	112.78
						751.78	506.46	112.78
						751.41	503.15	112.78
						753.00	500.53	112.78
						754.89	501.16	112.78
						756.51	498.25	112.78
						759.05	492.13	112.78
						762.96	486.34	112.78
						763.42	485.02	112.78

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						765.80	482.24	112.78
						768.65	477.58	112.78
						770.01	474.90	112.78
						770.54	471.98	112.78
						772.66	471.91	112.78
						773.85	466.79	112.78
						771.80	463.29	112.78
						771.90	461.95	112.78
						772.98	459.80	112.78
						774.43	455.90	112.78
						781.05	441.74	112.78
						782.18	429.76	112.78
						781.78	425.40	112.78
						780.45	422.22	112.78
						781.51	418.91	112.78
						779.26	418.05	112.78
						778.51	409.51	112.78
						775.97	407.76	112.78
						773.97	403.84	112.78
						772.80	395.84	112.78
375				114.30		700.30	556.84	114.30
						695.88	558.89	114.30
						687.25	568.31	114.30
						683.75	569.72	114.30
						681.08	568.10	114.30
						679.37	564.89	114.30
						678.62	560.80	114.30
						678.08	553.18	114.30
						675.08	553.97	114.30
						673.87	529.39	114.30
						674.40	503.03	114.30
						675.55	496.94	114.30
						677.97	495.05	114.30
						678.49	478.03	114.30
						671.14	477.93	114.30
380				115.83		694.34	557.24	115.83
						685.04	566.08	115.83
						682.17	564.62	115.83
						681.46	550.95	115.83
						687.94	511.65	115.83
						692.64	509.53	115.83
						693.80	502.33	115.83
						693.11	491.41	115.83
						691.07	491.46	115.83
						690.59	477.13	115.83
						691.17	474.66	115.83
						692.12	472.98	115.83

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						693.59	471.51	115.83
						684.29	465.05	115.83
						684.61	469.41	115.83
						681.35	471.77	115.83
						680.27	460.14	115.83
385				117.35		691.18	558.29	117.35
						686.35	563.31	117.35
						685.35	563.23	117.35
						684.64	559.90	117.35
						684.40	550.07	117.35
						685.60	542.60	117.35
						687.18	536.94	117.35
						688.77	544.62	117.35
						689.57	549.84	117.35
						689.93	550.44	117.35
						690.69	550.54	117.35
						696.25	548.06	117.35
						698.86	547.06	117.35
						708.29	532.77	117.35
						711.92	527.65	117.35
						712.42	526.14	117.35
						715.59	521.48	117.35
						719.96	513.93	117.35
						724.88	509.18	117.35
						727.09	507.85	117.35
						729.63	504.64	117.35
						731.17	500.55	117.35
						734.76	495.51	117.35
						735.30	492.59	117.35
						735.72	489.80	117.35
						738.51	486.09	117.35
						742.71	478.64	117.35
						747.28	471.40	117.35
						747.28	470.51	117.35
						744.93	470.14	117.35
						739.37	468.36	117.35
						734.33	461.95	117.35
385				117.35		717.78	433.15	117.35
						691.18	430.81	117.35
						690.85	425.90	117.35
						683.14	422.77	117.35
						680.03	428.13	117.35
						678.44	425.75	117.35
						676.44	411.99	117.35
						675.69	398.65	117.35
390				118.87		692.75	556.42	118.87
						690.50	556.48	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						694.66	552.18	118.87
						700.65	549.73	118.87
						704.19	544.67	118.87
						711.81	533.22	118.87
						718.53	522.01	118.87
						722.44	515.65	118.87
						724.81	514.18	118.87
						725.54	515.18	118.87
						728.59	514.08	118.87
						729.16	512.56	118.87
						733.05	510.04	118.87
						735.68	509.09	118.87
						736.36	503.52	118.87
						736.32	499.21	118.87
						739.40	498.25	118.87
						741.15	495.20	118.87
						739.57	493.16	118.87
						740.78	491.33	118.87
						746.57	489.20	118.87
						745.74	484.66	118.87
						748.78	482.74	118.87
						751.95	476.65	118.87
						753.12	476.07	118.87
						755.03	479.24	118.87
						754.78	480.74	118.87
						751.95	483.99	118.87
						750.53	486.91	118.87
						749.03	490.16	118.87
						747.53	489.74	118.87
						744.86	493.87	118.87
						746.91	492.91	118.87
						748.28	493.45	118.87
						746.91	495.45	118.87
						746.91	496.41	118.87
						741.28	505.46	118.87
						736.69	512.96	118.87
						731.53	515.04	118.87
						724.74	528.05	118.87
						717.86	541.55	118.87
						717.07	548.63	118.87
						711.24	550.41	118.87
						704.56	552.60	118.87
						699.73	554.12	118.87
390				118.87		686.84	398.34	118.87
						691.80	409.76	118.87
						695.68	412.14	118.87
						696.01	413.59	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						699.18	418.06	118.87
						702.48	420.22	118.87
						706.44	421.64	118.87
						709.94	427.73	118.87
						712.86	428.81	118.87
						715.11	430.10	118.87
						723.15	430.52	118.87
						736.12	430.77	118.87
						737.82	429.64	118.87
						738.16	424.43	118.87
						738.20	418.72	118.87
						738.45	417.81	118.87
						740.66	417.39	118.87
						755.29	417.30	118.87
						759.75	416.93	118.87
						763.47	416.55	118.87
						766.17	416.22	118.87
						767.49	416.45	118.87
						768.04	417.84	118.87
						769.77	422.04	118.87
						773.13	428.82	118.87
						774.29	424.88	118.87
						773.40	418.26	118.87
						770.61	414.01	118.87
						768.04	403.87	118.87
						766.78	396.10	118.87
395				120.40		724.55	397.17	120.40
						725.72	405.51	120.40
						727.72	407.93	120.40
						727.81	416.26	120.40
						728.89	417.02	120.40
						730.97	417.02	120.40
						731.22	425.94	120.40
						732.06	425.19	120.40
						732.22	416.85	120.40
						730.31	415.60	120.40
						730.47	412.35	120.40
						733.06	411.51	120.40
						739.81	413.18	120.40
						746.56	413.43	120.40
						750.40	412.85	120.40
						751.07	411.85	120.40
						750.90	409.68	120.40
						755.98	406.84	120.40
						757.82	403.34	120.40
						757.15	396.26	120.40
Lot 2 Pad				117.01		702.53	504.81	117.01

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						702.53	508.54	117.01
						719.93	508.77	117.01
						725.96	507.92	117.01
						726.16	497.16	117.01
						698.13	497.53	117.01
						698.10	505.07	117.01
						702.53	504.81	117.01
Lot 3 Pad				116.74		734.07	494.43	116.74
						734.03	489.76	116.74
						735.33	489.67	116.74
						735.39	483.84	116.74
						713.95	484.17	116.74
						713.94	486.00	116.74
						710.64	486.20	116.74
						710.64	487.83	116.74
						704.36	487.98	116.74
						704.42	495.69	116.74
						728.31	495.64	116.74
						734.07	494.43	116.74
Lot 4 Pad				117.04		714.71	481.96	117.04
						714.48	474.62	117.04
						722.95	474.12	117.04
						723.02	470.68	117.04
						742.11	470.18	117.04
						742.37	478.06	117.04
						740.39	481.27	117.04
						736.43	482.21	117.04
						714.71	481.96	117.04
Lot 5 Pad				118.57		752.18	459.31	118.57
						765.02	438.64	118.57
						763.29	436.68	118.57
						764.23	433.38	118.57
						757.94	429.22	118.57
						743.09	453.39	118.57
						752.18	459.31	118.57
Lot 6 Pad				118.26		747.61	441.78	118.26
						759.74	422.18	118.26
						753.86	418.56	118.26
						750.71	421.29	118.26
						746.07	419.47	118.26
						735.81	435.27	118.26
						747.61	441.78	118.26
Lot 7 Pad				117.65		719.79	435.90	117.65
						723.76	435.15	117.65
						724.26	432.64	117.65
						731.51	432.33	117.65
						732.08	455.86	117.65

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						720.16	455.96	117.65
						719.79	435.90	117.65
Lot 9 Pad				117.04		705.00	457.36	117.04
						704.34	433.56	117.04
						697.00	433.51	117.04
						696.18	435.70	117.04
						693.33	436.39	117.04
						693.71	453.27	117.04
						697.33	453.36	117.04
						697.37	457.48	117.04
						705.00	457.36	117.04
C1						771.92	666.83	95.00
						780.13	627.91	95.00
						788.60	588.47	97.00
						797.86	559.09	99.00
						814.28	498.74	100.00
						821.16	450.03	103.00
						827.25	415.09	106.00
						828.25	367.06	108.00
						828.91	303.36	108.00
C2						799.86	447.17	103.00
						804.06	410.62	106.00
						806.16	367.76	108.00
						804.48	346.75	108.00
						804.90	303.04	108.00
C6						784.73	369.44	114.00
						763.72	369.02	118.00
						759.31	369.02	119.00
						714.77	370.70	119.00
						686.19	370.85	117.00
						467.23	370.82	99.00
C4						628.95	424.34	115.00
						633.62	502.05	113.00
						620.62	571.09	111.00
						646.30	595.10	111.00
						666.64	640.46	107.00
						671.68	673.66	102.00
C5						678.07	587.39	110.00
						682.06	635.08	105.00
C7						850.84	368.69	106.00
						1039.05	364.98	72.00
Lot 1 Pad				117.11		691.69	538.57	117.11
						701.14	538.47	117.11
						701.79	534.33	117.11
						705.35	533.74	117.11
						704.77	515.31	117.11
						690.69	515.36	117.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						691.69	538.57	117.11
Lot 8 Pad				117.35		706.61	433.27	117.35
						713.86	433.06	117.35
						714.80	436.27	117.35
						717.69	437.03	117.35
						717.96	447.41	117.35
						715.98	447.51	117.35
						715.98	450.81	117.35
						714.52	450.68	117.35
						714.44	457.31	117.35
						706.81	457.27	117.35
						706.61	433.27	117.35

Height Points

Name	M.	ID	Coordinates		
			X	Y	Z
			(m)	(m)	(m)
75			988.36	611.32	75.00
106			478.08	644.00	106.00

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Air Compressor	S1	Lw			112.5	101.5	92.5	87.5	85.5	83.5	86.5	75.5	94.0	112.9	DEFRA
Backhoe	S2	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Concrete Mixer	S3	Lw			112.0	103.0	95.0	98.0	99.0	107.0	89.0	84.0	109.0	113.9	DEFRA
Concrete Pump	S4	Lw			113.3	105.3	99.3	100.3	102.3	102.3	95.3	87.3	107.1	114.8	DEFRA
Drill Rig	S5	Lw			103.5	107.5	104.5	101.5	102.5	107.5	102.5	97.5	111.2	113.4	DEFRA
Dump Truck	S6	Lw			117.0	113.0	104.0	102.0	104.0	101.0	97.0	89.0	108.2	118.9	DEFRA
Excavator	S7	Lw			106.2	114.2	99.2	102.2	99.2	97.2	92.2	86.2	105.2	115.4	DEFRA
Forklift	S8	Lw			114.6	108.6	98.6	96.6	93.6	91.6	85.6	76.6	100.1	115.8	DEFRA
Generator	S9	Lw			108.5	102.5	85.5	82.5	81.5	76.5	73.5	65.5	89.9	109.5	DEFRA
Grader	S10	Lw			116.7	115.7	111.7	107.7	112.7	106.7	102.7	93.7	115.2	121.1	DEFRA
Loader	S11	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Hoe Ram	S12	Lw			114.6	108.6	106.6	105.6	109.6	111.6	110.6	110.6	117.3	119.6	DEFRA
Paver	S13	Lw			101.7	106.7	103.7	101.7	100.7	99.7	96.7	89.7	106.2	111.0	DEFRA
Roller	S14	Lw			109.0	104.0	106.0	101.0	96.0	91.0	83.0	75.0	102.6	112.1	DEFRA
Tractor	S15	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Welder	S16	Lw			96.5	97.5	98.5	96.5	98.5	95.5	90.5	85.5	102.2	105.3	DEFRA

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Phone: (760) 738-5570

Date: 10 Jun 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.40
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
C1			66.3	-80.2	75.0	0.0				1.52	r	681.43	484.26	116.19

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
Source Location 1			109.0	109.0	109.0	Lw	S3		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			107.1	107.1	107.1	Lw	S4		0.0	0.0	0.0				12.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			106.2	106.2	106.2	Lw	S13		0.0	0.0	0.0				30.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			102.6	102.6	102.6	Lw	S14		0.0	0.0	0.0				12.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
320				97.54		790.44	556.08	97.54
						783.61	556.24	97.54
						775.79	548.15	97.54
						775.05	551.51	97.54
						771.59	551.25	97.54
						765.76	570.26	97.54
325				99.06		789.56	529.42	99.06
						785.69	528.14	99.06
						782.60	524.51	99.06
						776.73	530.60	99.06
						769.05	535.84	99.06
						770.31	539.09	99.06
						766.89	549.00	99.06
						761.14	550.34	99.06
						751.30	556.50	99.06
						740.02	566.27	99.06
						730.20	573.04	99.06
330				100.59		728.03	570.96	100.59
						735.09	566.19	100.59
						738.37	563.69	100.59
						741.08	561.30	100.59
						747.85	554.77	100.59
						752.91	549.89	100.59
						755.06	547.11	100.59
						758.19	541.66	100.59
						759.48	540.95	100.59
						762.98	535.07	100.59
						767.77	529.11	100.59
						772.77	526.24	100.59
						773.48	523.95	100.59
						775.35	522.11	100.59
						778.79	519.93	100.59
						780.75	517.09	100.59
						782.70	511.96	100.59
						786.24	505.34	100.59
						787.72	506.37	100.59
						788.39	503.13	100.59
335				102.11		721.18	571.28	102.11
						729.68	566.07	102.11
						733.60	563.45	102.11
						745.14	551.28	102.11
						746.19	549.34	102.11
						750.60	542.72	102.11
						752.44	540.67	102.11
						752.07	538.00	102.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						754.33	537.89	102.11
						756.85	533.27	102.11
						761.60	527.84	102.11
						763.18	528.07	102.11
						767.14	524.10	102.11
						768.86	522.15	102.11
						771.68	518.28	102.11
						777.50	512.23	102.11
						777.86	510.25	102.11
						779.22	508.99	102.11
						779.28	508.23	102.11
						780.64	505.48	102.11
						782.69	500.29	102.11
						785.17	496.06	102.11
						789.88	486.18	102.11
340				103.63		711.98	571.40	103.63
						716.05	569.46	103.63
						716.52	568.23	103.63
						719.04	568.33	103.63
						725.73	563.11	103.63
						727.83	562.03	103.63
						732.65	558.37	103.63
						735.37	556.07	103.63
						739.90	551.37	103.63
						741.20	549.30	103.63
						741.31	548.24	103.63
						744.57	544.87	103.63
						748.51	538.57	103.63
						749.14	537.25	103.63
						750.45	535.76	103.63
						753.18	532.40	103.63
						753.47	530.64	103.63
						757.62	528.25	103.63
						759.93	526.44	103.63
						767.14	519.31	103.63
						768.30	517.44	103.63
						769.18	515.10	103.63
						769.81	512.66	103.63
						771.43	512.29	103.63
						771.63	510.04	103.63
						772.85	508.98	103.63
						772.95	507.27	103.63
						776.62	503.59	103.63
						779.77	498.65	103.63
						781.30	496.92	103.63
						788.64	481.57	103.63
350				106.68		701.66	571.46	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						707.15	567.32	106.68
						710.35	564.74	106.68
						717.49	560.60	106.68
						721.61	558.23	106.68
						724.68	555.95	106.68
						726.86	554.03	106.68
						728.41	553.69	106.68
						732.32	553.66	106.68
						733.61	552.30	106.68
						734.69	549.60	106.68
						737.65	546.50	106.68
						742.92	539.04	106.68
						747.15	533.03	106.68
						747.57	531.92	106.68
						749.57	529.98	106.68
						749.07	527.64	106.68
						753.11	526.73	106.68
						754.95	525.26	106.68
						756.65	522.92	106.68
						757.76	520.19	106.68
						759.31	517.41	106.68
						763.55	513.90	106.68
						763.68	512.25	106.68
						765.17	512.22	106.68
						764.97	509.93	106.68
						766.16	509.41	106.68
						766.91	507.45	106.68
						765.99	505.15	106.68
						765.87	503.36	106.68
						767.37	502.82	106.68
						768.45	501.99	106.68
						770.41	501.70	106.68
						770.28	500.86	106.68
						769.16	499.47	106.68
						769.59	498.75	106.68
						771.89	497.68	106.68
						772.74	495.65	106.68
						774.49	493.16	106.68
						774.27	491.13	106.68
						775.57	491.01	106.68
						779.09	485.41	106.68
						784.12	475.91	106.68
						785.77	467.76	106.68
						787.46	462.96	106.68
						787.16	458.10	106.68
						785.21	452.97	106.68
						785.57	447.75	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						786.56	445.07	106.68
						786.66	441.56	106.68
						787.45	440.58	106.68
360				109.73		694.46	571.82	109.73
						698.77	567.44	109.73
						702.59	564.86	109.73
						715.26	557.81	109.73
						719.07	555.96	109.73
						721.59	554.73	109.73
						723.53	552.46	109.73
						725.34	549.52	109.73
						731.96	543.20	109.73
						735.10	539.27	109.73
						736.06	536.46	109.73
						736.26	534.31	109.73
						737.15	532.16	109.73
						738.08	531.89	109.73
						740.58	529.93	109.73
						740.83	526.51	109.73
						745.16	521.89	109.73
						748.68	518.45	109.73
						750.77	516.62	109.73
						751.52	512.01	109.73
						754.00	510.39	109.73
						757.29	509.14	109.73
						757.62	506.14	109.73
						760.63	503.92	109.73
						760.87	500.94	109.73
						763.05	498.06	109.73
						763.64	495.35	109.73
						765.83	493.14	109.73
						769.80	485.40	109.73
						774.76	479.04	109.73
						775.84	476.77	109.73
						775.88	472.56	109.73
						777.59	467.63	109.73
						776.54	462.54	109.73
						777.32	461.59	109.73
						778.94	459.77	109.73
						779.18	458.61	109.73
						782.09	455.64	109.73
						781.94	452.35	109.73
						784.16	434.24	109.73
						784.95	429.14	109.73
						787.41	424.94	109.73
						784.26	416.38	109.73
						786.42	413.29	109.73

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						783.53	406.78	109.73
						784.34	405.50	109.73
						785.81	405.99	109.73
						786.60	405.23	109.73
						783.24	401.64	109.73
						783.03	399.80	109.73
						783.82	398.70	109.73
						783.57	393.93	109.73
370				112.78		674.69	567.61	112.78
						676.44	566.40	112.78
						679.98	572.35	112.78
						683.06	574.76	112.78
						688.57	572.27	112.78
						691.59	566.89	112.78
						695.24	562.82	112.78
						701.91	559.27	112.78
						708.13	556.73	112.78
						713.75	553.87	112.78
						716.19	552.95	112.78
						718.06	551.29	112.78
						718.16	549.27	112.78
						725.09	544.91	112.78
						725.96	542.97	112.78
						727.93	540.58	112.78
						729.97	536.00	112.78
						730.93	532.54	112.78
						733.40	529.41	112.78
						734.76	528.31	112.78
						735.84	524.03	112.78
						737.75	520.96	112.78
						740.20	519.07	112.78
						742.96	514.02	112.78
						744.11	512.63	112.78
						744.17	511.81	112.78
						745.64	511.34	112.78
						745.79	508.32	112.78
						746.56	507.82	112.78
						748.77	507.61	112.78
						750.78	507.58	112.78
						751.78	506.46	112.78
						751.41	503.15	112.78
						753.00	500.53	112.78
						754.89	501.16	112.78
						756.51	498.25	112.78
						759.05	492.13	112.78
						762.96	486.34	112.78
						763.42	485.02	112.78

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						765.80	482.24	112.78
						768.65	477.58	112.78
						770.01	474.90	112.78
						770.54	471.98	112.78
						772.66	471.91	112.78
						773.85	466.79	112.78
						771.80	463.29	112.78
						771.90	461.95	112.78
						772.98	459.80	112.78
						774.43	455.90	112.78
						781.05	441.74	112.78
						782.18	429.76	112.78
						781.78	425.40	112.78
						780.45	422.22	112.78
						781.51	418.91	112.78
						779.26	418.05	112.78
						778.51	409.51	112.78
						775.97	407.76	112.78
						773.97	403.84	112.78
						772.80	395.84	112.78
375				114.30		700.30	556.84	114.30
						695.88	558.89	114.30
						687.25	568.31	114.30
						683.75	569.72	114.30
						681.08	568.10	114.30
						679.37	564.89	114.30
						678.62	560.80	114.30
						678.08	553.18	114.30
						675.08	553.97	114.30
						673.87	529.39	114.30
						674.40	503.03	114.30
						675.55	496.94	114.30
						677.97	495.05	114.30
						678.49	478.03	114.30
						671.14	477.93	114.30
380				115.83		694.34	557.24	115.83
						685.04	566.08	115.83
						682.17	564.62	115.83
						681.46	550.95	115.83
						687.94	511.65	115.83
						692.64	509.53	115.83
						693.80	502.33	115.83
						693.11	491.41	115.83
						691.07	491.46	115.83
						690.59	477.13	115.83
						691.17	474.66	115.83
						692.12	472.98	115.83

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						693.59	471.51	115.83
						684.29	465.05	115.83
						684.61	469.41	115.83
						681.35	471.77	115.83
						680.27	460.14	115.83
385				117.35		691.18	558.29	117.35
						686.35	563.31	117.35
						685.35	563.23	117.35
						684.64	559.90	117.35
						684.40	550.07	117.35
						685.60	542.60	117.35
						687.18	536.94	117.35
						688.77	544.62	117.35
						689.57	549.84	117.35
						689.93	550.44	117.35
						690.69	550.54	117.35
						696.25	548.06	117.35
						698.86	547.06	117.35
						708.29	532.77	117.35
						711.92	527.65	117.35
						712.42	526.14	117.35
						715.59	521.48	117.35
						719.96	513.93	117.35
						724.88	509.18	117.35
						727.09	507.85	117.35
						729.63	504.64	117.35
						731.17	500.55	117.35
						734.76	495.51	117.35
						735.30	492.59	117.35
						735.72	489.80	117.35
						738.51	486.09	117.35
						742.71	478.64	117.35
						747.28	471.40	117.35
						747.28	470.51	117.35
						744.93	470.14	117.35
						739.37	468.36	117.35
						734.33	461.95	117.35
385				117.35		717.78	433.15	117.35
						691.18	430.81	117.35
						690.85	425.90	117.35
						683.14	422.77	117.35
						680.03	428.13	117.35
						678.44	425.75	117.35
						676.44	411.99	117.35
						675.69	398.65	117.35
390				118.87		692.75	556.42	118.87
						690.50	556.48	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						694.66	552.18	118.87
						700.65	549.73	118.87
						704.19	544.67	118.87
						711.81	533.22	118.87
						718.53	522.01	118.87
						722.44	515.65	118.87
						724.81	514.18	118.87
						725.54	515.18	118.87
						728.59	514.08	118.87
						729.16	512.56	118.87
						733.05	510.04	118.87
						735.68	509.09	118.87
						736.36	503.52	118.87
						736.32	499.21	118.87
						739.40	498.25	118.87
						741.15	495.20	118.87
						739.57	493.16	118.87
						740.78	491.33	118.87
						746.57	489.20	118.87
						745.74	484.66	118.87
						748.78	482.74	118.87
						751.95	476.65	118.87
						753.12	476.07	118.87
						755.03	479.24	118.87
						754.78	480.74	118.87
						751.95	483.99	118.87
						750.53	486.91	118.87
						749.03	490.16	118.87
						747.53	489.74	118.87
						744.86	493.87	118.87
						746.91	492.91	118.87
						748.28	493.45	118.87
						746.91	495.45	118.87
						746.91	496.41	118.87
						741.28	505.46	118.87
						736.69	512.96	118.87
						731.53	515.04	118.87
						724.74	528.05	118.87
						717.86	541.55	118.87
						717.07	548.63	118.87
						711.24	550.41	118.87
						704.56	552.60	118.87
						699.73	554.12	118.87
390				118.87		686.84	398.34	118.87
						691.80	409.76	118.87
						695.68	412.14	118.87
						696.01	413.59	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						699.18	418.06	118.87
						702.48	420.22	118.87
						706.44	421.64	118.87
						709.94	427.73	118.87
						712.86	428.81	118.87
						715.11	430.10	118.87
						723.15	430.52	118.87
						736.12	430.77	118.87
						737.82	429.64	118.87
						738.16	424.43	118.87
						738.20	418.72	118.87
						738.45	417.81	118.87
						740.66	417.39	118.87
						755.29	417.30	118.87
						759.75	416.93	118.87
						763.47	416.55	118.87
						766.17	416.22	118.87
						767.49	416.45	118.87
						768.04	417.84	118.87
						769.77	422.04	118.87
						773.13	428.82	118.87
						774.29	424.88	118.87
						773.40	418.26	118.87
						770.61	414.01	118.87
						768.04	403.87	118.87
						766.78	396.10	118.87
395				120.40		724.55	397.17	120.40
						725.72	405.51	120.40
						727.72	407.93	120.40
						727.81	416.26	120.40
						728.89	417.02	120.40
						730.97	417.02	120.40
						731.22	425.94	120.40
						732.06	425.19	120.40
						732.22	416.85	120.40
						730.31	415.60	120.40
						730.47	412.35	120.40
						733.06	411.51	120.40
						739.81	413.18	120.40
						746.56	413.43	120.40
						750.40	412.85	120.40
						751.07	411.85	120.40
						750.90	409.68	120.40
						755.98	406.84	120.40
						757.82	403.34	120.40
						757.15	396.26	120.40
Lot 2 Pad				117.01		702.53	504.81	117.01

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						702.53	508.54	117.01
						719.93	508.77	117.01
						725.96	507.92	117.01
						726.16	497.16	117.01
						698.13	497.53	117.01
						698.10	505.07	117.01
						702.53	504.81	117.01
Lot 3 Pad				116.74		734.07	494.43	116.74
						734.03	489.76	116.74
						735.33	489.67	116.74
						735.39	483.84	116.74
						713.95	484.17	116.74
						713.94	486.00	116.74
						710.64	486.20	116.74
						710.64	487.83	116.74
						704.36	487.98	116.74
						704.42	495.69	116.74
						728.31	495.64	116.74
						734.07	494.43	116.74
Lot 4 Pad				117.04		714.71	481.96	117.04
						714.48	474.62	117.04
						722.95	474.12	117.04
						723.02	470.68	117.04
						742.11	470.18	117.04
						742.37	478.06	117.04
						740.39	481.27	117.04
						736.43	482.21	117.04
						714.71	481.96	117.04
Lot 5 Pad				118.57		752.18	459.31	118.57
						765.02	438.64	118.57
						763.29	436.68	118.57
						764.23	433.38	118.57
						757.94	429.22	118.57
						743.09	453.39	118.57
						752.18	459.31	118.57
Lot 6 Pad				118.26		747.61	441.78	118.26
						759.74	422.18	118.26
						753.86	418.56	118.26
						750.71	421.29	118.26
						746.07	419.47	118.26
						735.81	435.27	118.26
						747.61	441.78	118.26
Lot 7 Pad				117.65		719.79	435.90	117.65
						723.76	435.15	117.65
						724.26	432.64	117.65
						731.51	432.33	117.65
						732.08	455.86	117.65

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						720.16	455.96	117.65
						719.79	435.90	117.65
Lot 9 Pad				117.04		705.00	457.36	117.04
						704.34	433.56	117.04
						697.00	433.51	117.04
						696.18	435.70	117.04
						693.33	436.39	117.04
						693.71	453.27	117.04
						697.33	453.36	117.04
						697.37	457.48	117.04
						705.00	457.36	117.04
C1						771.92	666.83	95.00
						780.13	627.91	95.00
						788.60	588.47	97.00
						797.86	559.09	99.00
						814.28	498.74	100.00
						821.16	450.03	103.00
						827.25	415.09	106.00
						828.25	367.06	108.00
						828.91	303.36	108.00
C2						799.86	447.17	103.00
						804.06	410.62	106.00
						806.16	367.76	108.00
						804.48	346.75	108.00
						804.90	303.04	108.00
C6						784.73	369.44	114.00
						763.72	369.02	118.00
						759.31	369.02	119.00
						714.77	370.70	119.00
						686.19	370.85	117.00
						467.23	370.82	99.00
C4						628.95	424.34	115.00
						633.62	502.05	113.00
						620.62	571.09	111.00
						646.30	595.10	111.00
						666.64	640.46	107.00
						671.68	673.66	102.00
C5						678.07	587.39	110.00
						682.06	635.08	105.00
C7						850.84	368.69	106.00
						1039.05	364.98	72.00
Lot 1 Pad				117.11		691.69	538.57	117.11
						701.14	538.47	117.11
						701.79	534.33	117.11
						705.35	533.74	117.11
						704.77	515.31	117.11
						690.69	515.36	117.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						691.69	538.57	117.11
Lot 8 Pad				117.35		706.61	433.27	117.35
						713.86	433.06	117.35
						714.80	436.27	117.35
						717.69	437.03	117.35
						717.96	447.41	117.35
						715.98	447.51	117.35
						715.98	450.81	117.35
						714.52	450.68	117.35
						714.44	457.31	117.35
						706.81	457.27	117.35
						706.61	433.27	117.35

Height Points

Name	M.	ID	Coordinates		
			X	Y	Z
			(m)	(m)	(m)
75			988.36	611.32	75.00
106			478.08	644.00	106.00

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Air Compressor	S1	Lw			112.5	101.5	92.5	87.5	85.5	83.5	86.5	75.5	94.0	112.9	DEFRA
Backhoe	S2	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Concrete Mixer	S3	Lw			112.0	103.0	95.0	98.0	99.0	107.0	89.0	84.0	109.0	113.9	DEFRA
Concrete Pump	S4	Lw			113.3	105.3	99.3	100.3	102.3	102.3	95.3	87.3	107.1	114.8	DEFRA
Drill Rig	S5	Lw			103.5	107.5	104.5	101.5	102.5	107.5	102.5	97.5	111.2	113.4	DEFRA
Dump Truck	S6	Lw			117.0	113.0	104.0	102.0	104.0	101.0	97.0	89.0	108.2	118.9	DEFRA
Excavator	S7	Lw			106.2	114.2	99.2	102.2	99.2	97.2	92.2	86.2	105.2	115.4	DEFRA
Forklift	S8	Lw			114.6	108.6	98.6	96.6	93.6	91.6	85.6	76.6	100.1	115.8	DEFRA
Generator	S9	Lw			108.5	102.5	85.5	82.5	81.5	76.5	73.5	65.5	89.9	109.5	DEFRA
Grader	S10	Lw			116.7	115.7	111.7	107.7	112.7	106.7	102.7	93.7	115.2	121.1	DEFRA
Loader	S11	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Hoe Ram	S12	Lw			114.6	108.6	106.6	105.6	109.6	111.6	110.6	110.6	117.3	119.6	DEFRA
Paver	S13	Lw			101.7	106.7	103.7	101.7	100.7	99.7	96.7	89.7	106.2	111.0	DEFRA
Roller	S14	Lw			109.0	104.0	106.0	101.0	96.0	91.0	83.0	75.0	102.6	112.1	DEFRA
Tractor	S15	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Welder	S16	Lw			96.5	97.5	98.5	96.5	98.5	95.5	90.5	85.5	102.2	105.3	DEFRA

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210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 10 Jun 2019

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.40
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
C1			58.5	-80.2	75.0	0.0				1.52	r	681.43	484.26	116.19

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
Source Location 1			94.0	94.0	94.0	Lw	S1		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			100.1	100.1	100.1	Lw	S8		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			89.9	89.9	89.9	Lw	S9		0.0	0.0	0.0				30.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26
Source Location 1			102.2	102.2	102.2	Lw	S16		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	1.52	r	714.12	484.32	118.26

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
320				97.54		790.44	556.08	97.54
						783.61	556.24	97.54
						775.79	548.15	97.54
						775.05	551.51	97.54
						771.59	551.25	97.54
						765.76	570.26	97.54
325				99.06		789.56	529.42	99.06
						785.69	528.14	99.06
						782.60	524.51	99.06
						776.73	530.60	99.06
						769.05	535.84	99.06
						770.31	539.09	99.06
						766.89	549.00	99.06
						761.14	550.34	99.06
						751.30	556.50	99.06
						740.02	566.27	99.06
						730.20	573.04	99.06
330				100.59		728.03	570.96	100.59
						735.09	566.19	100.59
						738.37	563.69	100.59
						741.08	561.30	100.59
						747.85	554.77	100.59
						752.91	549.89	100.59
						755.06	547.11	100.59
						758.19	541.66	100.59
						759.48	540.95	100.59
						762.98	535.07	100.59
						767.77	529.11	100.59
						772.77	526.24	100.59
						773.48	523.95	100.59
						775.35	522.11	100.59
						778.79	519.93	100.59
						780.75	517.09	100.59
						782.70	511.96	100.59
						786.24	505.34	100.59
						787.72	506.37	100.59
						788.39	503.13	100.59
335				102.11		721.18	571.28	102.11
						729.68	566.07	102.11
						733.60	563.45	102.11
						745.14	551.28	102.11
						746.19	549.34	102.11
						750.60	542.72	102.11
						752.44	540.67	102.11
						752.07	538.00	102.11

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						754.33	537.89	102.11
						756.85	533.27	102.11
						761.60	527.84	102.11
						763.18	528.07	102.11
						767.14	524.10	102.11
						768.86	522.15	102.11
						771.68	518.28	102.11
						777.50	512.23	102.11
						777.86	510.25	102.11
						779.22	508.99	102.11
						779.28	508.23	102.11
						780.64	505.48	102.11
						782.69	500.29	102.11
						785.17	496.06	102.11
						789.88	486.18	102.11
340				103.63		711.98	571.40	103.63
						716.05	569.46	103.63
						716.52	568.23	103.63
						719.04	568.33	103.63
						725.73	563.11	103.63
						727.83	562.03	103.63
						732.65	558.37	103.63
						735.37	556.07	103.63
						739.90	551.37	103.63
						741.20	549.30	103.63
						741.31	548.24	103.63
						744.57	544.87	103.63
						748.51	538.57	103.63
						749.14	537.25	103.63
						750.45	535.76	103.63
						753.18	532.40	103.63
						753.47	530.64	103.63
						757.62	528.25	103.63
						759.93	526.44	103.63
						767.14	519.31	103.63
						768.30	517.44	103.63
						769.18	515.10	103.63
						769.81	512.66	103.63
						771.43	512.29	103.63
						771.63	510.04	103.63
						772.85	508.98	103.63
						772.95	507.27	103.63
						776.62	503.59	103.63
						779.77	498.65	103.63
						781.30	496.92	103.63
						788.64	481.57	103.63
350				106.68		701.66	571.46	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						707.15	567.32	106.68
						710.35	564.74	106.68
						717.49	560.60	106.68
						721.61	558.23	106.68
						724.68	555.95	106.68
						726.86	554.03	106.68
						728.41	553.69	106.68
						732.32	553.66	106.68
						733.61	552.30	106.68
						734.69	549.60	106.68
						737.65	546.50	106.68
						742.92	539.04	106.68
						747.15	533.03	106.68
						747.57	531.92	106.68
						749.57	529.98	106.68
						749.07	527.64	106.68
						753.11	526.73	106.68
						754.95	525.26	106.68
						756.65	522.92	106.68
						757.76	520.19	106.68
						759.31	517.41	106.68
						763.55	513.90	106.68
						763.68	512.25	106.68
						765.17	512.22	106.68
						764.97	509.93	106.68
						766.16	509.41	106.68
						766.91	507.45	106.68
						765.99	505.15	106.68
						765.87	503.36	106.68
						767.37	502.82	106.68
						768.45	501.99	106.68
						770.41	501.70	106.68
						770.28	500.86	106.68
						769.16	499.47	106.68
						769.59	498.75	106.68
						771.89	497.68	106.68
						772.74	495.65	106.68
						774.49	493.16	106.68
						774.27	491.13	106.68
						775.57	491.01	106.68
						779.09	485.41	106.68
						784.12	475.91	106.68
						785.77	467.76	106.68
						787.46	462.96	106.68
						787.16	458.10	106.68
						785.21	452.97	106.68
						785.57	447.75	106.68

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						786.56	445.07	106.68
						786.66	441.56	106.68
						787.45	440.58	106.68
360				109.73		694.46	571.82	109.73
						698.77	567.44	109.73
						702.59	564.86	109.73
						715.26	557.81	109.73
						719.07	555.96	109.73
						721.59	554.73	109.73
						723.53	552.46	109.73
						725.34	549.52	109.73
						731.96	543.20	109.73
						735.10	539.27	109.73
						736.06	536.46	109.73
						736.26	534.31	109.73
						737.15	532.16	109.73
						738.08	531.89	109.73
						740.58	529.93	109.73
						740.83	526.51	109.73
						745.16	521.89	109.73
						748.68	518.45	109.73
						750.77	516.62	109.73
						751.52	512.01	109.73
						754.00	510.39	109.73
						757.29	509.14	109.73
						757.62	506.14	109.73
						760.63	503.92	109.73
						760.87	500.94	109.73
						763.05	498.06	109.73
						763.64	495.35	109.73
						765.83	493.14	109.73
						769.80	485.40	109.73
						774.76	479.04	109.73
						775.84	476.77	109.73
						775.88	472.56	109.73
						777.59	467.63	109.73
						776.54	462.54	109.73
						777.32	461.59	109.73
						778.94	459.77	109.73
						779.18	458.61	109.73
						782.09	455.64	109.73
						781.94	452.35	109.73
						784.16	434.24	109.73
						784.95	429.14	109.73
						787.41	424.94	109.73
						784.26	416.38	109.73
						786.42	413.29	109.73

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						783.53	406.78	109.73
						784.34	405.50	109.73
						785.81	405.99	109.73
						786.60	405.23	109.73
						783.24	401.64	109.73
						783.03	399.80	109.73
						783.82	398.70	109.73
						783.57	393.93	109.73
370				112.78		674.69	567.61	112.78
						676.44	566.40	112.78
						679.98	572.35	112.78
						683.06	574.76	112.78
						688.57	572.27	112.78
						691.59	566.89	112.78
						695.24	562.82	112.78
						701.91	559.27	112.78
						708.13	556.73	112.78
						713.75	553.87	112.78
						716.19	552.95	112.78
						718.06	551.29	112.78
						718.16	549.27	112.78
						725.09	544.91	112.78
						725.96	542.97	112.78
						727.93	540.58	112.78
						729.97	536.00	112.78
						730.93	532.54	112.78
						733.40	529.41	112.78
						734.76	528.31	112.78
						735.84	524.03	112.78
						737.75	520.96	112.78
						740.20	519.07	112.78
						742.96	514.02	112.78
						744.11	512.63	112.78
						744.17	511.81	112.78
						745.64	511.34	112.78
						745.79	508.32	112.78
						746.56	507.82	112.78
						748.77	507.61	112.78
						750.78	507.58	112.78
						751.78	506.46	112.78
						751.41	503.15	112.78
						753.00	500.53	112.78
						754.89	501.16	112.78
						756.51	498.25	112.78
						759.05	492.13	112.78
						762.96	486.34	112.78
						763.42	485.02	112.78

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						765.80	482.24	112.78
						768.65	477.58	112.78
						770.01	474.90	112.78
						770.54	471.98	112.78
						772.66	471.91	112.78
						773.85	466.79	112.78
						771.80	463.29	112.78
						771.90	461.95	112.78
						772.98	459.80	112.78
						774.43	455.90	112.78
						781.05	441.74	112.78
						782.18	429.76	112.78
						781.78	425.40	112.78
						780.45	422.22	112.78
						781.51	418.91	112.78
						779.26	418.05	112.78
						778.51	409.51	112.78
						775.97	407.76	112.78
						773.97	403.84	112.78
						772.80	395.84	112.78
375				114.30		700.30	556.84	114.30
						695.88	558.89	114.30
						687.25	568.31	114.30
						683.75	569.72	114.30
						681.08	568.10	114.30
						679.37	564.89	114.30
						678.62	560.80	114.30
						678.08	553.18	114.30
						675.08	553.97	114.30
						673.87	529.39	114.30
						674.40	503.03	114.30
						675.55	496.94	114.30
						677.97	495.05	114.30
						678.49	478.03	114.30
						671.14	477.93	114.30
380				115.83		694.34	557.24	115.83
						685.04	566.08	115.83
						682.17	564.62	115.83
						681.46	550.95	115.83
						687.94	511.65	115.83
						692.64	509.53	115.83
						693.80	502.33	115.83
						693.11	491.41	115.83
						691.07	491.46	115.83
						690.59	477.13	115.83
						691.17	474.66	115.83
						692.12	472.98	115.83

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						693.59	471.51	115.83
						684.29	465.05	115.83
						684.61	469.41	115.83
						681.35	471.77	115.83
						680.27	460.14	115.83
385				117.35		691.18	558.29	117.35
						686.35	563.31	117.35
						685.35	563.23	117.35
						684.64	559.90	117.35
						684.40	550.07	117.35
						685.60	542.60	117.35
						687.18	536.94	117.35
						688.77	544.62	117.35
						689.57	549.84	117.35
						689.93	550.44	117.35
						690.69	550.54	117.35
						696.25	548.06	117.35
						698.86	547.06	117.35
						708.29	532.77	117.35
						711.92	527.65	117.35
						712.42	526.14	117.35
						715.59	521.48	117.35
						719.96	513.93	117.35
						724.88	509.18	117.35
						727.09	507.85	117.35
						729.63	504.64	117.35
						731.17	500.55	117.35
						734.76	495.51	117.35
						735.30	492.59	117.35
						735.72	489.80	117.35
						738.51	486.09	117.35
						742.71	478.64	117.35
						747.28	471.40	117.35
						747.28	470.51	117.35
						744.93	470.14	117.35
						739.37	468.36	117.35
						734.33	461.95	117.35
385				117.35		717.78	433.15	117.35
						691.18	430.81	117.35
						690.85	425.90	117.35
						683.14	422.77	117.35
						680.03	428.13	117.35
						678.44	425.75	117.35
						676.44	411.99	117.35
						675.69	398.65	117.35
390				118.87		692.75	556.42	118.87
						690.50	556.48	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						694.66	552.18	118.87
						700.65	549.73	118.87
						704.19	544.67	118.87
						711.81	533.22	118.87
						718.53	522.01	118.87
						722.44	515.65	118.87
						724.81	514.18	118.87
						725.54	515.18	118.87
						728.59	514.08	118.87
						729.16	512.56	118.87
						733.05	510.04	118.87
						735.68	509.09	118.87
						736.36	503.52	118.87
						736.32	499.21	118.87
						739.40	498.25	118.87
						741.15	495.20	118.87
						739.57	493.16	118.87
						740.78	491.33	118.87
						746.57	489.20	118.87
						745.74	484.66	118.87
						748.78	482.74	118.87
						751.95	476.65	118.87
						753.12	476.07	118.87
						755.03	479.24	118.87
						754.78	480.74	118.87
						751.95	483.99	118.87
						750.53	486.91	118.87
						749.03	490.16	118.87
						747.53	489.74	118.87
						744.86	493.87	118.87
						746.91	492.91	118.87
						748.28	493.45	118.87
						746.91	495.45	118.87
						746.91	496.41	118.87
						741.28	505.46	118.87
						736.69	512.96	118.87
						731.53	515.04	118.87
						724.74	528.05	118.87
						717.86	541.55	118.87
						717.07	548.63	118.87
						711.24	550.41	118.87
						704.56	552.60	118.87
						699.73	554.12	118.87
390				118.87		686.84	398.34	118.87
						691.80	409.76	118.87
						695.68	412.14	118.87
						696.01	413.59	118.87

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						699.18	418.06	118.87
						702.48	420.22	118.87
						706.44	421.64	118.87
						709.94	427.73	118.87
						712.86	428.81	118.87
						715.11	430.10	118.87
						723.15	430.52	118.87
						736.12	430.77	118.87
						737.82	429.64	118.87
						738.16	424.43	118.87
						738.20	418.72	118.87
						738.45	417.81	118.87
						740.66	417.39	118.87
						755.29	417.30	118.87
						759.75	416.93	118.87
						763.47	416.55	118.87
						766.17	416.22	118.87
						767.49	416.45	118.87
						768.04	417.84	118.87
						769.77	422.04	118.87
						773.13	428.82	118.87
						774.29	424.88	118.87
						773.40	418.26	118.87
						770.61	414.01	118.87
						768.04	403.87	118.87
						766.78	396.10	118.87
395				120.40		724.55	397.17	120.40
						725.72	405.51	120.40
						727.72	407.93	120.40
						727.81	416.26	120.40
						728.89	417.02	120.40
						730.97	417.02	120.40
						731.22	425.94	120.40
						732.06	425.19	120.40
						732.22	416.85	120.40
						730.31	415.60	120.40
						730.47	412.35	120.40
						733.06	411.51	120.40
						739.81	413.18	120.40
						746.56	413.43	120.40
						750.40	412.85	120.40
						751.07	411.85	120.40
						750.90	409.68	120.40
						755.98	406.84	120.40
						757.82	403.34	120.40
						757.15	396.26	120.40
Lot 2 Pad				117.01		702.53	504.81	117.01

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						702.53	508.54	117.01
						719.93	508.77	117.01
						725.96	507.92	117.01
						726.16	497.16	117.01
						698.13	497.53	117.01
						698.10	505.07	117.01
						702.53	504.81	117.01
Lot 3 Pad				116.74		734.07	494.43	116.74
						734.03	489.76	116.74
						735.33	489.67	116.74
						735.39	483.84	116.74
						713.95	484.17	116.74
						713.94	486.00	116.74
						710.64	486.20	116.74
						710.64	487.83	116.74
						704.36	487.98	116.74
						704.42	495.69	116.74
						728.31	495.64	116.74
						734.07	494.43	116.74
Lot 4 Pad				117.04		714.71	481.96	117.04
						714.48	474.62	117.04
						722.95	474.12	117.04
						723.02	470.68	117.04
						742.11	470.18	117.04
						742.37	478.06	117.04
						740.39	481.27	117.04
						736.43	482.21	117.04
						714.71	481.96	117.04
Lot 5 Pad				118.57		752.18	459.31	118.57
						765.02	438.64	118.57
						763.29	436.68	118.57
						764.23	433.38	118.57
						757.94	429.22	118.57
						743.09	453.39	118.57
						752.18	459.31	118.57
Lot 7 Pad				117.65		719.79	435.90	117.65
						723.76	435.15	117.65
						724.26	432.64	117.65
						731.51	432.33	117.65
						732.08	455.86	117.65
						720.16	455.96	117.65
						719.79	435.90	117.65
Lot 9 Pad				117.04		705.00	457.36	117.04
						704.34	433.56	117.04
						697.00	433.51	117.04
						696.18	435.70	117.04
						693.33	436.39	117.04

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						693.71	453.27	117.04
						697.33	453.36	117.04
						697.37	457.48	117.04
						705.00	457.36	117.04
C1						771.92	666.83	95.00
						780.13	627.91	95.00
						788.60	588.47	97.00
						797.86	559.09	99.00
						814.28	498.74	100.00
						821.16	450.03	103.00
						827.25	415.09	106.00
						828.25	367.06	108.00
						828.91	303.36	108.00
C2						799.86	447.17	103.00
						804.06	410.62	106.00
						806.16	367.76	108.00
						804.48	346.75	108.00
						804.90	303.04	108.00
C6						784.73	369.44	114.00
						763.72	369.02	118.00
						759.31	369.02	119.00
						714.77	370.70	119.00
						686.19	370.85	117.00
						467.23	370.82	99.00
C4						628.95	424.34	115.00
						633.62	502.05	113.00
						620.62	571.09	111.00
						646.30	595.10	111.00
						666.64	640.46	107.00
						671.68	673.66	102.00
C5						678.07	587.39	110.00
						682.06	635.08	105.00
C7						850.84	368.69	106.00
						1039.05	364.98	72.00
Lot 1 Pad				117.11		691.69	538.57	117.11
						701.14	538.47	117.11
						701.79	534.33	117.11
						705.35	533.74	117.11
						704.77	515.31	117.11
						690.69	515.36	117.11
						691.69	538.57	117.11
Lot 8 Pad				117.35		706.61	433.27	117.35
						713.86	433.06	117.35
						714.80	436.27	117.35
						717.69	437.03	117.35
						717.96	447.41	117.35
						715.98	447.51	117.35

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(m)	(m)	(m)	(m)	(m)
						715.98	450.81	117.35
						714.52	450.68	117.35
						714.44	457.31	117.35
						706.81	457.27	117.35
						706.61	433.27	117.35
Lot 6 Pad				118.26		747.61	441.78	118.26
						759.74	422.18	118.26
						753.86	418.56	118.26
						750.71	421.29	118.26
						746.07	419.47	118.26
						735.81	435.27	118.26
						747.61	441.78	118.26

Height Points

Name	M.	ID	Coordinates		
			X	Y	Z
			(m)	(m)	(m)
75			988.36	611.32	75.00
106			478.08	644.00	106.00

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Air Compressor	S1	Lw			112.5	101.5	92.5	87.5	85.5	83.5	86.5	75.5	94.0	112.9	DEFRA
Backhoe	S2	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Concrete Mixer	S3	Lw			112.0	103.0	95.0	98.0	99.0	107.0	89.0	84.0	109.0	113.9	DEFRA
Concrete Pump	S4	Lw			113.3	105.3	99.3	100.3	102.3	102.3	95.3	87.3	107.1	114.8	DEFRA
Drill Rig	S5	Lw			103.5	107.5	104.5	101.5	102.5	107.5	102.5	97.5	111.2	113.4	DEFRA
Dump Truck	S6	Lw			117.0	113.0	104.0	102.0	104.0	101.0	97.0	89.0	108.2	118.9	DEFRA
Excavator	S7	Lw			106.2	114.2	99.2	102.2	99.2	97.2	92.2	86.2	105.2	115.4	DEFRA
Forklift	S8	Lw			114.6	108.6	98.6	96.6	93.6	91.6	85.6	76.6	100.1	115.8	DEFRA
Generator	S9	Lw			108.5	102.5	85.5	82.5	81.5	76.5	73.5	65.5	89.9	109.5	DEFRA
Grader	S10	Lw			116.7	115.7	111.7	107.7	112.7	106.7	102.7	93.7	115.2	121.1	DEFRA
Loader	S11	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Hoe Ram	S12	Lw			114.6	108.6	106.6	105.6	109.6	111.6	110.6	110.6	117.3	119.6	DEFRA
Paver	S13	Lw			101.7	106.7	103.7	101.7	100.7	99.7	96.7	89.7	106.2	111.0	DEFRA
Roller	S14	Lw			109.0	104.0	106.0	101.0	96.0	91.0	83.0	75.0	102.6	112.1	DEFRA
Tractor	S15	Lw			111.8	111.8	100.8	102.8	98.8	96.8	95.8	87.8	105.3	115.4	DEFRA
Welder	S16	Lw			96.5	97.5	98.5	96.5	98.5	95.5	90.5	85.5	102.2	105.3	DEFRA

APPENDIX D

Construction Vibration Analysis Data and Results

Vibration Annoyance Calculation

Job: Zona Gale
Job #: S190505
Date: 6/7/2019
Source 1: Hoe Ram
Receiver: East (Across Via Cantebria)

Vibration Source

Vibration Level (VdB) 87 at 25 feet

Path Calculation

Source to Receiver Direct Path Distance: **181** feet

Vibration Level (VdB) **61** at 181 feet

Vibration Annoyance Calculation

Job: Zona Gale
Job #: S190505
Date: 6/7/2019
Source 1: Excavator
Receiver: West (Across Zona Gale)

Vibration Source

Vibration Level (VdB) 87 at 25 feet

Path Calculation

Source to Receiver Direct Path Distance: **49** feet

Vibration Level (VdB) **78** at 49 feet

Vibration Damage Calculation

Job: Zona Gale
Job #: S190505
Date: 6/7/2019
Source 1: Hoe Ram
Receiver: East (Across Via Cantebria)

Vibration Source

Vibration Level (PPV, i 0.089 at 25 feet

Path Calculation

Source to Receiver Direct Path Distance: **181** feet

Vibration Level (PPV, in/sec) **0.005** at 181 feet

Vibration Damage Calculation

Job: Zona Gale
Job #: S190505
Date: 6/7/2019
Source 1: Excavator
Receiver: West (Across Zona Gale)

Vibration Source

Vibration Level (PPV, i 0.089 at 25 feet

Path Calculation

Source to Receiver Direct Path Distance: **49** feet

Vibration Level (PPV, in/sec) **0.032** at 49 feet

Appendix H: Service Availability Letters

PROJECT FACILITY AVAILABILITY FORM - City of Encinitas

SCHOOL

Please type or use pen
(Two forms are needed if project is to be served by separate school districts)

KIMBERLY A. THORNER FOR OMWD (760)753-6466
Owner's Name Phone

1966 OLIVENHAIN RD
Owner's Mailing Address Street

ENCINITAS CA 92024
City State Zip

ORG _____
ACCT _____
ACT _____ ELEMENTARY X
TASK _____ HIGH SCHOOL _____
DATE _____ UNIFIED _____

Sc

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. **LEGISLATIVE ACT**
- ☐ Rezone from _____ zone density/intensity to _____ zone density/intensity.
- ☐ General Plan Amendment
- ☐ Specific Plan
- ☐ Specific Plan Amendment

B. **DEVELOPMENT PROJECT**
- ☒ Major Subdivision (TM)
- ☐ Minor Subdivision (TPM)
- ☐ Boundary Adjustment
- ☐ Major Use Permit (MUP), purpose: _____
- ☐ Time Extension... Case No. _____
- ☐ Expired Map... Case No. _____
- ☐ Other _____

C.
- ☒ Residential ..... Total number of dwelling units 9
- ☐ Commercial ..... Gross floor area _____
- ☐ Industrial ..... Gross floor area _____
- ☐ Other ..... Gross floor area _____

D. Total Project acreage 1.79 Total number of lots 11

Assessor's Parcel Number(s)
(Add extra if necessary)

257	401	11

Thomas Bros. Page 1147 Grid F6

Project address ZONA GALE ROAD
Street

NEW ENCINITAS 92024
Community Planning Area/Subregion Zip

Applicant's Signature Tina Shelley Date 7/24/19

Address 535 N. HWY 101, STE A SOLANA BEACH CA 92075 Phone (858)259-8212

(On completion of above, present to the school district to complete Section 2 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: Encinitas Union School District

If not in a unified district, which elementary or high school district must also fill out a form? _____

Indicate the location and distance of proposed schools of attendance. Elementary: Park Dale Lane miles: 2.3
Junior/Middle: _____ miles: _____ High school: _____ miles: _____

- ☒ This project will result in the overcrowding of the ☒ elementary ☐ junior/middle ☐ high school. *(check all that apply)*
- ☒ Fees will be levied either in accordance with Government Code Section 53080 or Section 65970 prior to the issuance of building permits.
- ☐ Project is located entirely within the district and is eligible for service.
- ☐ The project is not located entirely within the district and a potential boundary issue may exist with the _____ school district.

FOR LEGISLATIVE ACTS (Rezones, General Plan Amendments, Specific Plans) ONLY:
- ☐ Pursuant to County Ordinance and the Public Facility Element of the General Plan, facilities to serve the project have been committed through a binding agreement satisfactory to the school district.
- ☐ A binding agreement has not yet been signed, but one will be required prior to legislative approval.
- ☐ No binding agreement is necessary.

Authorized signature: Beth Hilton Print name: Beth Hilton

Print title: Controller Phone: (760)944-4300 x1169

On Completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning & Community Development Department, 505 S. Vulcan Ave., Encinitas, CA 92024

DPL/ZC #399Sc(Rev.4/91)

PROJECT FACILITY AVAILABILITY FORM

FIRE

Please type or use pen

KIMBERLY A. THORNER FOR OMWD (760)753-6466
Owner's name Phone

19866 OLIVENHAIN RD
Owner's mailing address Street

ENCINITAS CA 92024
City State Zip

ORG_____
ACCT_____
ACT_____
TASK_____
AMT $_____ DATE_____

F

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. ☒ Major Subdivision (TM) ☐ Specific Plan or Specific Plan Amendment
☐ Minor Subdivision (TPM) ☐ Boundary Adjustment
☐ Certificate of Compliance, purpose: _____
☐ Major Use Permit (MUP), purpose: _____
☐ Rezone (Reclassification) from _____ to _____ zone
☐ Time Extension... Case No. _____
☐ Expired Map..... Case No. _____
☐ Other _____

B. ☒ Residential.....Total number of dwelling units 9
☐ Commercial.....Gross floor area _____
☐ Industrial.....Gross floor area _____
☐ Other.....Gross floor area _____

C. Total Project acreage 1.79 Total lots 11 Smallest proposed lot 4,813 sf

Assessor's Parcel Number(s)
(Add extra if necessary)

257	401	11

Thomas Bros. Page 1147 Grid F6

Project address ZONA GALE ROAD
Street

NEW ENCINITAS 92024
Community Planning Area/Subregion Zip

OWNER/APPLICANT AGREES TO COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's signature: Tara Hollow Date: 7/24/19

Address: 535 N. HWY 101, STE A SOLANA BEACH CA 92075 Phone: (858) 259-8212

(On completion of above, present to the district that provides fire protection to complete Section 2 and 3 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: Encinitas Fire Department

Indicate the location and distance of the primary fire station that will serve the proposed project: Fire Station 5, 540 Balour Drive, +/- ½ mile

A. ☒ Project is in the District and eligible for service.
☐ Project is not in District but it is within its Sphere of Influence boundary, owner must apply for annexation.
☐ Project is not in the District and not within the District's Sphere of Influence.
☐ Project is not located entirely within the District and a potential boundary issue exists with the _____ District.

B. ☐ Based on the capacity and capability of the District's existing and planned facilities, fire protection facilities are currently adequate or will be adequate to serve the proposed project. The expected emergency travel time to the proposed project is _____ minutes.
☐ Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.

C. ☐ District conditions are attached. The number of sheets attached: _____.
☒ District will submit conditions at a later date.

SECTION 3. FUELBREAK REQUIREMENTS

Note: The fuelbreak requirements prescribed by the fire district for the proposed project do not authorize any clearing prior to project approval by the Department of Planning and Land Use.

☐ Within the proposed project _____ feet of clearing will be required around all structures.
☐ The proposed project is located in a hazardous wildland fire area, and additional fuelbreak requirements may apply. Environmental mitigation requirements should be coordinated with the fire district to ensure that these requirements will not pose fire hazards.

Date: 7/25/19 Expiration date: 7/25/20 *(One year from date of issuance unless district indicates otherwise)*

[signature] KERRI BERBERET, Sr. Deputy Fire Marshal (760)633-2820
Authorized signature *Print name and title* *Phone*

On completion of Section 2 and 3 by the District, applicant is to submit this form with application to: Zoning Counter at the Planning and Community Development Department, 505 S. Vulcan Ave., Encinitas, CA 92024

PROJECT FACILITY AVAILABILITY FORM - City of Encinitas

SCHOOL

Please type or use pen
(Two forms are needed if project is to be served by separate school districts)

KIMBERLY A THURNER FOR OMWD (760) 753-6466
Owner's Name Phone

19606 OLIVENHAIN RD
Owner's Mailing Address Street

ENCINITAS CA 92024
City State Zip

ORG _____
ACCT _____
ACT _____
TASK _____
DATE _____

Sc

ELEMENTARY _____
HIGH SCHOOL X
UNIFIED _____

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. **LEGISLATIVE ACT**
- ☐ Rezone from _____ zone density/intensity to _____ zone density/intensity.
- ☐ General Plan Amendment
- ☐ Specific Plan
- ☐ Specific Plan Amendment

B. **DEVELOPMENT PROJECT**
- ☒ Major Subdivision (TM)
- ☐ Minor Subdivision (TPM)
- ☐ Boundary Adjustment
- ☐ Major Use Permit (MUP), purpose: _____
- ☐ Time Extension... Case No. _____
- ☐ Expired Map... Case No. _____
- ☐ Other _____

C.
- ☒ Residential ..... Total number of dwelling units 9
- ☐ Commercial ..... Gross floor area _____
- ☐ Industrial ..... Gross floor area _____
- ☐ Other ..... Gross floor area _____

D. Total Project acreage 1.79 Total number of lots 11

Assessor's Parcel Number(s)
(Add extra if necessary)

257	401	11

Thomas Bros. Page 1147 Grid F6

Project address ZONA GALE ROAD
Street

NEW ENCINITAS 92024
Community Planning Area/Subregion Zip

Applicant's Signature _____ Date 7/24/19

Address 535 N HWY 101, STE A SOLANA BEACH CA 92075 Phone (858) 259-8212

(On completion of above, present to the school district to complete Section 2 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: San Dieguito Union High School District

If not in a unified district, which elementary or high school district must also fill out a form? Encinitas Union Elem

Indicate the location and distance of proposed schools of attendance. Elementary: N/A miles: _____
Junior/Middle: Diegueno miles: 2 High school: La Costa Canyon miles: 3.5

☑ This project will result in the overcrowding of the ☐ elementary ☑ junior/middle ☑ high school. *(check all that apply)*

☑ Fees will be levied either in accordance with Government Code Section 53080 or Section 65970 prior to the issuance of building permits.

☑ Project is located entirely within the district and is eligible for service.

☐ The project is not located entirely within the district and a potential boundary issue may exist with the _____ school district.

FOR LEGISLATIVE ACTS (Rezones, General Plan Amendments, Specific Plans) ONLY:

☐ Pursuant to County Ordinance and the Public Facility Element of the General Plan, facilities to serve the project have been committed through a binding agreement satisfactory to the school district.

☐ A binding agreement has not yet been signed, but one will be required prior to legislative approval.

☐ No binding agreement is necessary.

Authorized signature: John Addleman Print name: John Addleman

Print title: Director of Planning & Financial Management Phone (760) 753-6491

On Completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning & Community Development Department, 505 S. Vulcan Ave., Encinitas, CA 92024

DPL/ZC #399Sc(Rev.4/91)

PROJECT FACILITY AVAILABILITY FORM- City of Encinitas

SEWER

Please type or use pen

KIMBERLY A. THORNER FOR OMWD (760) 753-6410
Owner's Name Phone

19606 OLIVENHAIN RD
Owner's Mailing Address Street

ENCINITAS CA 92024
City State Zip

ORG _____
ACCT _____
ACT _____
TASK _____
DATE _____ AMT $ _____

S

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. ☐ Major Subdivision (TM) ☐ Certificate of Compliance: _____
☐ Minor Subdivision (TPM) ☐ Boundary Adjustment
☐ Specific Plan or Specific Plan Amendment
☐ Rezone (Reclassification) from _____ to _____ zone
☐ Major Use Permit (MUP), purpose: _____
☐ Time Extension... Case No. _____
☐ Expired Map... Case No. _____
☐ Other _____

B. ☒ Residential . . . Total number of dwelling units 9
☐ Commercial. . . Gross floor area _____
☐ Industrial. . . . . Gross floor area _____
☐ Other. . . . . Gross floor area _____

C. Total Project acreage 1.79 Total number of lots 11

D. Is the project proposing its own wastewater treatment plant? Yes ☐ No ☒
Is the project proposing the use of reclaimed water? Yes ☐ No ☒

Assessor's Parcel Number(s)
(Add extra if necessary)

257	401	11

Thomas Bros. Page 1147 Grid F6

Project address ZONA GALE ROAD
Street

NEW ENCINITAS
Comm. Advisory Board Area

Owner/Applicant agrees to pay all necessary construction costs and dedicate all district required easements to extend service to the project.
OWNER/APPLICANT MUST COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: _____ Date: 7/24/19

Address: 535 N. HWY 101, STE A SOLANA BEACH CA 92075 Phone: (858) 259-8212

(On completion of above, present to the sewer district to establish facility availability. Section 2 below)

SECTION 2. FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District name Leucadia Wastewater District Service area Encinitas, CA

A. ☒ Project is in the district.
☐ Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
☐ Project is not in the district and is **not** within its Sphere of Influence boundary.
☐ The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. ☒ Facilities to serve the project ☒ ARE ☐ ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached. Number of sheets attached: _____
☐ Project will not be served for the following reason(s): _____

C. ☐ **District conditions are attached. Number of sheets attached:** _____
☐ **District has specific water reclamation conditions which are attached. Number of sheets attached:** _____
☒ **District will submit conditions at a later date.**

D. ☒ **How far will the pipeline(s) have to be extended to serve the project?** TBD

Date: 7/25/19 Expiration date: 7/25/20 *(One year from date of issuance unless district indicates otherwise)*

Authorized signature: _____ Print name: Ian Riffel

Print title: Field Services Specialist Phone: (760) 753-0155

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF FACILITIES OR SERVICE BY THE DISTRICT. On completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning &

PROJECT FACILITY AVAILABILITY FORM - City of Encinitas

WATER

Please type or use pen

ASPEN GROWTH PROPERTIES, INC (858) 342-4663
~~Owner's~~ Name / APPLICANT — Phone

8799 BALBOA AVE, STE 200
~~Owner's~~ Mailing Address / APPLICANT — Street

SAN DIEGO — CA — 92123
City — State — Zip

ORG _____
ACCT _____
ACT _____
TASK _____
DATE _____ AMT $ _____

DISTRICT CASHIER'S USE ONLY

SECTION 1: PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A. ☒ Major Subdivision (TM) ☐ Specific Plan or Specific Plan Amendment
☐ Minor Subdivision (TPM) ☐ Certificate of Compliance: _____
☐ Boundary Adjustment
☐ Rezone (Reclassification) from _____ to _____ zone.
☐ Major Use Permit (MUP), purpose: _____
☐ Time Extension... Case No. _____
☐ Expired Map... Case No. _____
☐ Other _____

B. ☒ Residential ..... Total number of dwelling units 9
☐ Commercial ..... Gross floor area _____
☐ Industrial ..... Gross floor area _____
☐ Other ..... Gross floor area _____

C. Total Project acreage 1.79 Total number of lots 11

D. Is the project proposing the use of groundwater? ☐ Yes ☒ No
Is the project proposing the use of reclaimed water? ☐ Yes ☒ No

Assessor's Parcel Number(s)
(Add extra if necessary)

2	5	7	4	0	1	1	1

Thomas Bros. Page 1147 Grid F6

ZONA GALE ROAD
Project address — Street

NEW ENCINITAS — 92024
Community Planning Area/Subregion — Zip

Owner/Applicant agrees to pay all necessary construction costs, dedicate all district required easements to extend service to the project and COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [signature] Date: 7/25/19

Address: 535 N. HWY 101, STE A SOLANA BEACH CA 92075 Phone: (858) 259-8212

(On completion of above, present to the water district to establish facility availability, Section 2 below)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District name OMWD Service area ZONE 1

A. ☒ Project is in the district.
☐ Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
☐ Project is not in the district and is not within its Sphere of Influence boundary.
☐ The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. ☒ Facilities to serve the project ☒ ARE ☐ ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached ___. (Number of sheets)
☐ Project will not be served for the following reason(s): _____

C. ☒ **District conditions are attached. Number of sheets attached:** 4 PAGES
☐ **District has specific water reclamation conditions which are attached. Number of sheets attached:** _____
☐ **District will submit conditions at a later date.**

D. ☒ **How far will the pipeline(s) have to be extended to serve the project?** APPROX. 200 LF NEW PIPELINE

Date: 7/31/2019 Expiration date: 7/31/2020 *(One year from date of issuance unless district indicates otherwise.)*

Authorized signature: Cindy Pecile Print name: CINDY PECILE

Print title: ENGINEERING & RIGHT OF WAY COORDINATOR Phone: 760-632-4223

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT. On completion of Section 2 by the district, applicant is to submit this form with application to the Zoning Counter at the Planning & Community Development Dept., 505 S. Vulcan Ave., Encinitas, CA 92024

DPL#399W(Rev.4/12/91)

Board of Directors
Edmund K. Sprague, President
Robert F. Topolovac, Vice President
Lawrence A. Watt, Treasurer
Robert M. Kephart, Secretary
Christy Guerin, Director

OLIVENHAIN
Municipal Water District

General Manager
Kimberly A. Thorner, Esq.
General Counsel
Alfred Smith, Esq.

July 31, 2019

City of Encinitas
Planning & Development Services
505 South Vulcan Avenue
Encinitas, CA 92024

Re: Tax Assessors Parcel # 257-401-11-00
Wiegand Parcel - Zona Gale Road, District Project No. W590230

Subject: Water Availability Letter / Aspen Growth Properties, Inc.

Aspen Growth Properties, Inc.(Applicant), has requested the District to provide a Water Availability Letter for the property identified above for a proposed project Applicant has described as: Residential. This property is in the District and eligible to receive domestic service at this time.

The District has or will have adequate facilities in this area to serve the project. There is or will be capacity in these facilities to serve the proposed project at a minimum of 25 psi pressure at the District's main during normal operating conditions and upon completion of all necessary facilities, including any onsite and offsite water lines, facilities and appurtenances that are required, at the sole discretion of the District. While there is adequate water to serve the project at this time, all water received by the District is imported from other agencies. Accordingly, there is no guarantee that water will be available to serve the project when water is requested. The availability of water depends upon a number of complex factors including annual rainfall, drought periods, the amount of water remaining in storage and environmental and other constraints to the delivery of water. No final decision will be made by the District on the ability to serve water to the project until an application for water service is made by the applicant and approved by the District. At that time, the District will determine whether adequate water is available to serve the project in the District's sole discretion.

Both Water Code §350 and Water Code §71640 grant the District the right to restrict the use of water during any emergency caused by a drought or any other threatened or existing water shortage and to prohibit the use of District water during such periods as the District determines to be necessary. The District may also prohibit the use of District water during any periods for specific uses which it finds to be nonessential. Nothing contained in this water availability letter shall be construed as limiting in any way the legislative discretion of the District to declare an emergency or water shortage and to curtail or prohibit the use of water as determined necessary or appropriate by the District

to conserve water during droughts or other threatened or existing water shortages. Certain stages of water shortages may result in a prohibition on new water meters.

The District has been requested to furnish a staff estimate, based on current water service conditions, of the availability of water service in this area. This letter is issued for planning purposes and is not a representation, express or implied, that the District will provide any water service at a future date. Commitments to provide water service are made only when an application for water service is made by the applicant and approved by the District and are subject to the applicants compliance with the Districts' fees, charges, rules and regulations, the Environmental Quality Act of 1970, as amended, and the applicants' agreement to construct any required onsite and off-site facilities together with the Applicant's providing security as required by the District for construction of those facilities.

The issuance of this Water Availability Letter does not grant the Applicant any water rights. The Applicant does not secure a right to water until application for service is made and approved by the District in its sole discretion, and the Applicant has complied with all requirements of the District.

The failure of the Applicant to pay any fee or charge of the District's when due, or to comply with other requirements of the District, shall entitle the District to unilaterally terminate this Water Availability Letter, and all further rights of the Applicant to water service.

Improvement fees, when applicable, are paid to the District to reserve future water service for the project contingent upon the Applicant paying all fees and charges and complying with all requirements of the District. The payment of all improvement fees by the date they are due is an express condition precedent to any right of the Applicant to receive future water service. The failure of Applicant to make any improvement fee payment by the date it is due shall automatically terminate the right of Applicant to receive future water service and no previous improvement fee payments paid by the Applicant shall be refunded. Reinstatement of the water commitment requires Applicant to remedy any defects or deficiencies and payment of fees and charges applicable, as determined by the District, in its sole discretion.

This commitment to water service availability is conditioned on the following requirements and/or limitations:

1. The District's determination that adequate water is available to serve the project at the time the applicant submits a request for water service to the District.
2. Payment of all improvements fees, as appropriate, when due in accordance with District Ordinance 301, or successor Ordinance, not attached hereto, but incorporated herein by reference.
3. Applicant is required to have a hydraulic analysis done to determine fire flow availability as required by the Fire Department.

4. Applicant is required to provide all fee and easements as required for construction of onsite and offsite facilities as required by the District, in its sole discretion.
5. Applicant is required to construct all onsite and offsite facilities as required by the District, in its sole discretion.
6. Applicant is required to execute District Agreement for pipeline construction and furnish all necessary documents for insurance, bonding, and pay all District's charges as they are invoiced.
7. In accordance with District Assessment District 96-01, not attached hereto, but incorporated herein by reference, lots of ½ acre or less may have a ¾ inch meter installed unless owner chooses to upgrade the meter and pay the additional fees and charges. Lots greater than ½ acre but less than 3 acres require one-inch meters to be installed. Lots in excess of 3 acres require a minimum 1½ inch meter to be installed. Larger meters may be required by the District, in its sole discretion.

   If it can be demonstrated that lots of a given area are not useable in gross, a deviation in meter size may be made with the concurrence of the District Engineering Manager.
8. The District may require larger meters than the Assessment District 96-01 lot size criteria would dictate if the individual residence requires water service greater than can be accommodated by the standard ¾ inch meter irrespective of the lot size, in its sole discretion.
9. Applicant is required to comply with District Ordinance 280 for the mitigation of impacts to the District's Assessment District 96-1R. Ordinance 280 requires an executed agreement to request increased EDU's that this project requires. The Applicant is responsible for payment of all fees and charges as outlined in the executed agreement.
10. The District has not declared a water shortage that restricts water usage or prohibits new water meters. The District's Board of Directors on July 20, 2016 adopted Resolution 2016-13 returning the District to a Level 1 Water Supply Shortage per Ordinance 427 rules, rates and regulations.
11. Applicant will be required to prepare and install an approved recycled water system for irrigation.

This letter of water availability pertains solely to the proposed project as described by Applicant, is not transferable to any other project, and is not transferable to any other owner or developer without written permission of the Board of Directors of the District. Any purported transfer, sale, or assignment of this Water Availability Letter without the prior written consent of the District renders this letter null and void.

This letter automatically terminates, and is of no further force or effect, on the occurrence of: (1) July 30, 2020 without an approved tentative map; (2) termination of any tentative map; (3) termination of any final map; or (4) five years from the date of recordation of any final map.

OLIVENHAIN MUNICIPAL WATER DISTRICT

By: Cindy Pecile

Cindy Pecile
Engineering & Right of Way Coordinator

Appendix I: Local Transportation Analysis, Sight Distance Exhibit, and Vehicle Miles Traveled Analysis

CITY OF ENCINITAS
MULTI-003289-2019 (9 Single Family Homes)
Zona Gale Road
October 1, 2025

Draft Local Transportation Analysis

Prepared by Justin Rasas (RCE 60690), a principal with:

LOS Engineering, Inc.
11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253

Job #1910

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Appendix B..... Excerpts from City of Encinitas General Plan on General Plan Policy
Appendix C..... Excerpts from City of Encinitas Circulation Plan
Appendix D..... Count Data
Appendix E.....Existing Intersection LOS Worksheets
Appendix F .....Existing + Project Intersection LOS Worksheets

Executive Summary
Zona Gale Residential Project (9 Residential Lots)

This Local Transportation Analysis (LTA) determines if traffic from the proposed project will conflict with the City's General Plan Circulation Element Policies 1.2 or 1.3 on the study area roadways in the vicinity of the project. The proposed project is a residential subdivision with 9 lots for single family homes. The project site is generally located on the northwest corner of Via Cantebria and Zona Gale Road in the City of Encinitas, California. The site is currently vacant. Project access is from Zona Gale Road.

Project traffic generation was calculated using the San Diego Association of Governments (SANDAG) trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The project is calculated to generate 90 ADT, 7 AM peak hour trips and 9 PM peak hour trips. Traffic data was collected on Tuesday September 23, 2025. Near-by schools were in session during traffic data collection. The findings by study scenario are summarized below.

1) Under Existing Conditions, the study intersections and segments are calculated to operate at LOS C or better.

2) Under Existing + Project Conditions, the study intersections and segments are calculated to operate at LOS C or better. The addition of project traffic does not conflict with General Plan Circulation Element Policy 1.2 (because the project's traffic does not change the existing segment LOS C) or Policy 1.3 (because the project's traffic does not cause the study intersections to degrade to LOS E/F). Therefore, off-site roadway improvements are not required.

Each residential dwelling unit is planned with a garage and driveway area for parking. On street parking is not permitted; however, there are seven (7) on-site guest parking spaces. The project site has a hammer head/T-intersection that provides an area for cars and trucks to turn around.

1.0 Introduction

The purpose of this Local Transportation Analysis is to determine if traffic from the proposed project will conflict with the City's General Plan Circulation Element Policies 1.2 or 1.3 on the study area roadways in the vicinity of the project. The project is a 9-lot residential subdivision. The vacant project site is generally located on the northwest corner of Via Cantebria and Zona Gale Road in the City of Encinitas, California. Project access is from Zona Gale Road. The regional location of the project is shown in **Figure 1**. A site plan is shown in **Figure 2.**

This report describes the existing roadway network in the vicinity of the project site and includes a review of the existing and proposed activities for weekday daily traffic and peak AM and PM periods when the project is completed. The format of this study includes the following chapters:

1.0 Introduction
2.0 Transportation Analysis Methodology
3.0 Existing Conditions
4.0 Project Description
5.0 Existing + Project Conditions
6.0 Conclusion
7.0 References

Figure 1: Project Location

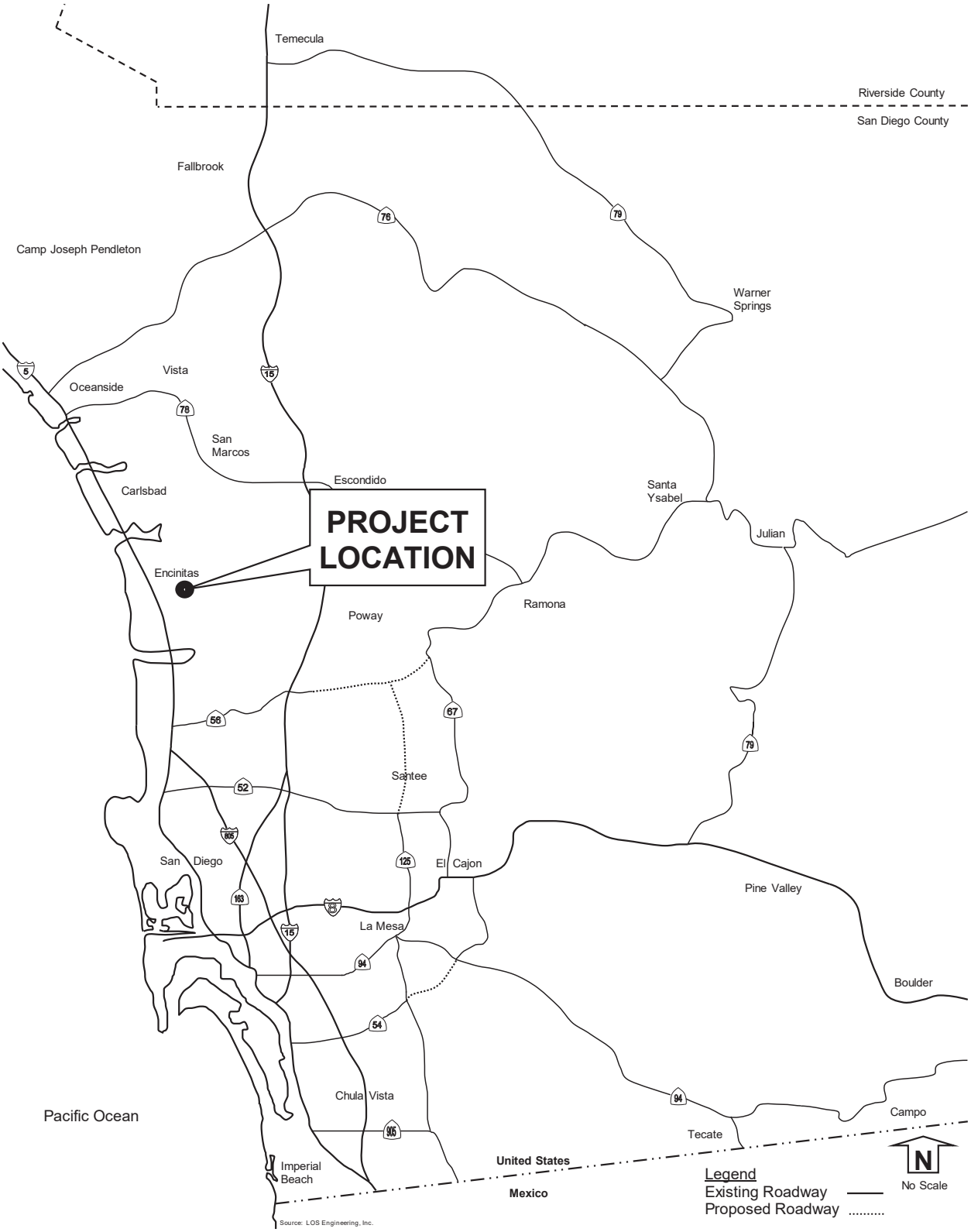
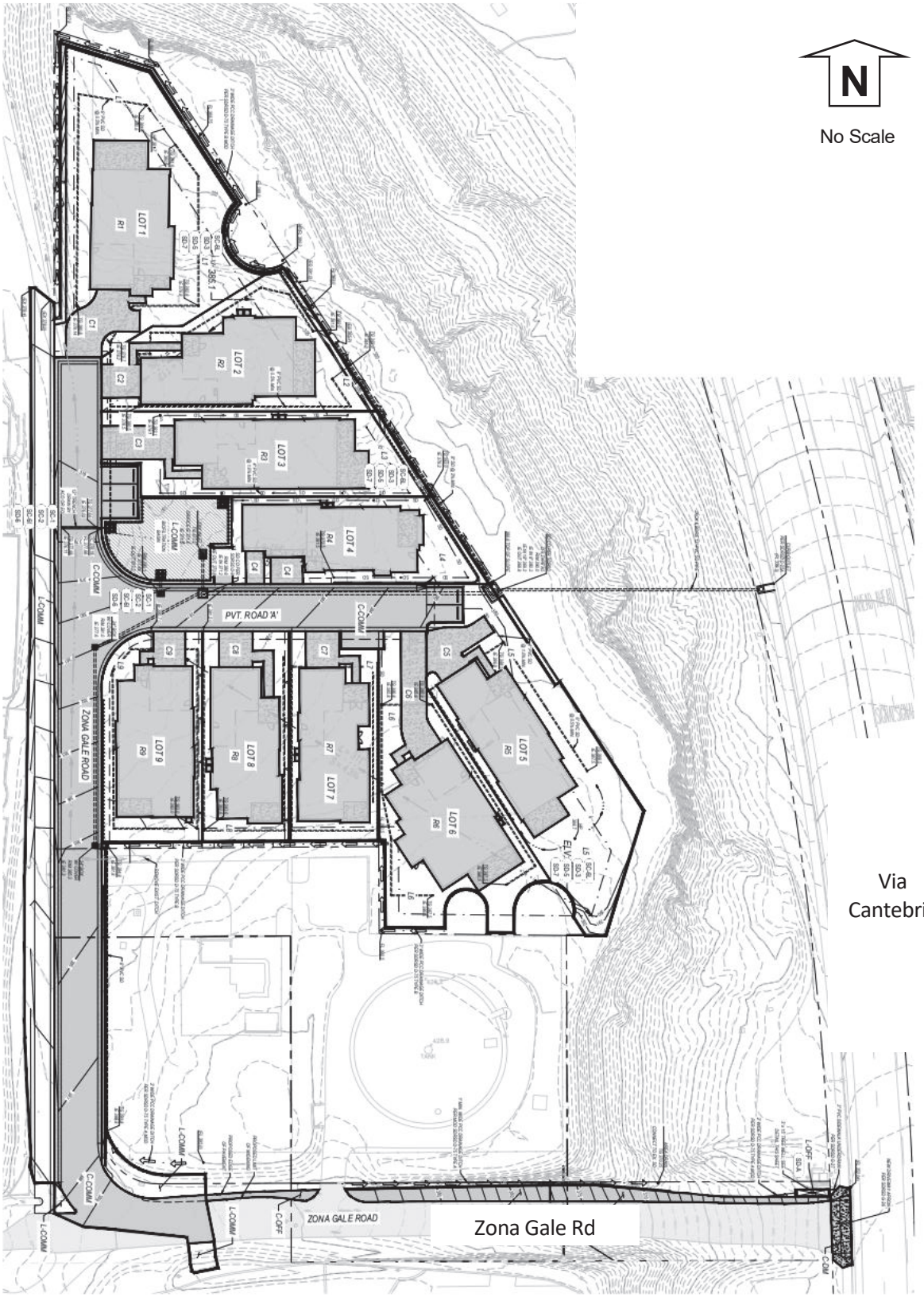


Figure 2: Site Plan



Source: PLSA

2.0 Transportation Analysis Methodology

A Local Transportation Analysis (LTA) is provided to fulfill the Encinitas Municipal Code 23.08.060 requirement of a traffic analysis for projects with more than 2,000 square feet of building area and/or any residential project with five or more units.

This LTS was prepared based on direction from City staff for the required number of study intersections and roadway segments; the scenarios to be analyzed; and the methods required for analysis. The criteria for each of these parameters are included herein.

2.1 Study Area

The following intersection was analyzed as part of this study:

1) Via Cantebria at Zona Gale Road (un-signalized)
2) Via Cantebria at Encinitas Boulevard (signalized)

The following street segments were also analyzed as part of this study:

1) Via Cantebria between Via Montoro and Zona Gale Road, and
2) Via Cantebria between Zona Gale Road and Encinitas Boulevard.

2.2 Study Scenarios

The number of scenarios to be analyzed is typically based on the size of the project. For this project, the following scenarios were included based on coordination with City staff:

1) Existing Conditions
2) Existing + Project Conditions

2.3 Traffic Analysis Methodology

The traffic analyses prepared for this study were based on the *Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria. The operating conditions of the study intersections and street segments were measured using the HCM LOS designations, which ranges from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition.

2.3.1 Intersections

The study intersections were analyzed based on the operational analysis outlined in the 7th Edition HCM. This process defines LOS in terms of control delay per vehicle, which is measured in seconds. LOS at the intersections were calculated using the computer software program Synchro 12 (Trafficware Corporation). The 7th Edition HCM LOS for the range of delay by seconds for intersections is shown in **Table 1**.

TABLE 1: INTERSECTION LEVEL OF SERVICE DEFINITIONS (7TH EDITION HCM)

Level of Service	Un-Signalized (TWSC and AWSC) Control Delay (sec/veh where v/c ≤ 1)	Signalized Control Delay (sec/veh where v/c ≤ 1)
A	0-10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

TWSC: Two Way Stop Control. AWSC: All Way Stop Control. Source: 7th Edition HCM.

2.3.2 Street Segments

The roadway segment daily capacity based on the General Plan are summarized in **Table 2**. The City of Encinitas General Plan segment capacities are included in **Appendix A**.

TABLE 2: STREET SEGMENT DAILY CAPACITY AND LOS (CITY OF ENCINITAS)

Facility Type	Number of Lanes	LOS C	LOS D	LOS E
Prime Arterial	6	<46,000	<51,200	<57,000
Prime Arterial – Augmented	6	<53,000	<60,000	<66,000
Major Roadway	4	<28,200	<31,600	<35,200
Major Roadway - Augmented	4+	<36,300	<41,000	<45,400
Collector Roadway	4	<26,000	<29,200	<32,400
Local Roadway - Augmented	2+	<16,000	<18,000	<20,000
Local Roadway	2	<11,200	<12,600	<14,000

Source: City of Encinitas *Public Road Standards* April 1991.

2.4 General Plan Policy Compliance

The City of Encinitas General Plan Circulation Element defines traffic growth policies to promote an adequate roadway circulation system. This LTA determines if Policies 1.2 and 1.3 are affected by the proposed project traffic. The Highway Capacity Manual Level of Service is used to determine compliance with Policies 1.2 and 1.3. If a project's traffic causes a conflict with Policies 1.2 or 1.3 based on the criteria shown in **Table 3**, then an overriding public need should be demonstrated if there is no existing alternative (excerpts from the General Plan are included in **Appendix B**).

TABLE 3: CITY OF ENCINITAS GENERAL PLAN CIRCUILATION ELEMENT POLICIES 1.2 AND 1.3

Circulation Element Policy	Application	Conflict Criteria
Policy 1.2: Endeavor to maintain Level of Service C as a basic design guideline for the local system of roadways understanding that the guideline may not be attainable in all cases	Segments	If project traffic causes the LOS to degrade to less than LOS C, then there is a policy conflict.
Policy 1.3: Prohibit development which results in Level of Service E or F at any intersection unless no alternatives exist and an overriding public need can be demonstrated.	Intersections	If project traffic causes the intersection LOS to degrade to E/F, then there is a policy conflict.

3.0 Existing Conditions

This section describes the study area streets, peak hour volumes, and existing LOS.

3.1 Existing Street System

In the vicinity of the project, the following circulation element roadways were analyzed for this report. The analysis is based on the street classification from the circulation plan of the City's General Plan. Excerpts from City of Encinitas Circulation Plan are included in **Appendix C**.

3.1.1 Circulation Element Roadways

Via Cantebria from Via Montoro to Encinitas Blvd is a four lane un-divided roadway with a center two way left turn lane and Class II bike lanes on each side of the roadway. On-street parking is prohibited on both sides of the roadway. There are contiguous sidewalks on both sides of the roadway. The posted speed limit is 40 Miles Per Hour (MPH). This segment of Via Cantebria is classified as a *4 Lane Collector* on the City of Encinitas Circulation Plan.

3.1.2 Roadway Conditions Summary

A summary of the study roadway is shown in **Table 4**.

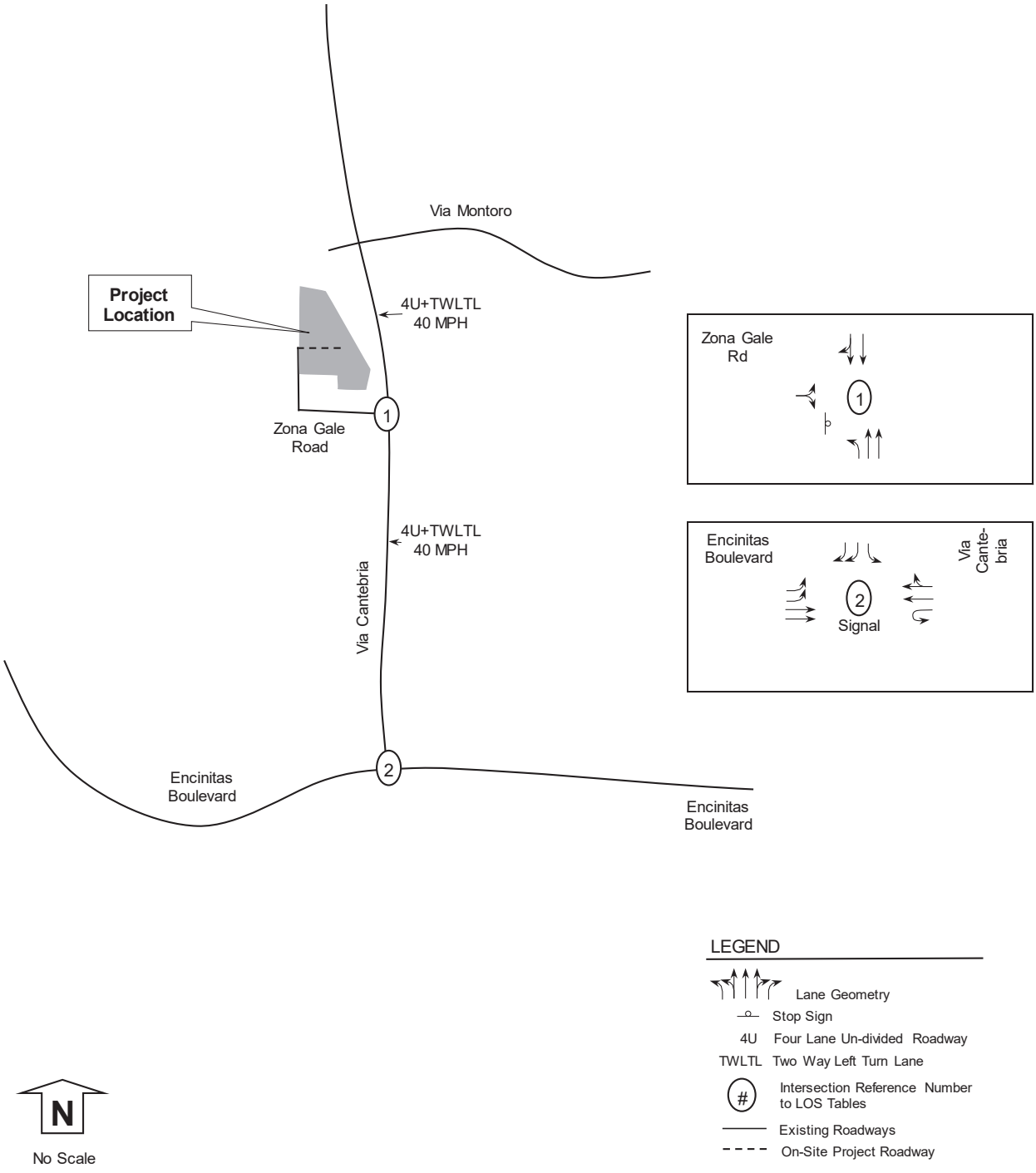
TABLE 4: YEAR 2025 ROADWAY CONDITIONS

Roadway	Travel Lanes	Median	Posted Speed Limit	Bike Lanes	Side-walk	Transit	On-street Parking
Via Cantebria (Via Montoro to Zona Gale Rd)	2 NB 2 SB	TWLTL	40 MPH	Class II	Both Sides	None	None Permitted
Via Cantebria (Zona Gale Rd to Encinitas Blvd)	2 NB 2 SB	TWLTL	40 MPH	Class II	Both Sides	None	None Permitted

Notes: NB: Northbound, SB: Southbound, TWLTL: Two Way Left Turn Lane.

The existing roadway conditions are shown in **Figure 3**.

Figure 3: Existing Roadway Conditions



3.2 Existing Traffic Volumes and LOS Analyses

Intersection counts were collected between 7:00 AM to 9:00 AM for the AM commuter period and from 4:00 PM to 6:00 PM for the PM commuter period. Traffic data was collected on Tuesday (9/23/25) when surrounding schools were in session. Count data are included in **Appendix D**.

Intersection counts included:

1) Via Cantebria at Zona Gale Road (un-signalized)
2) Via Cantebria at Encinitas Boulevard (signalized)

Daily counts (24 hours) were collected for the following segments:

1) Via Cantebria between Via Montoro and Zona Gale Road, and
2) Via Cantebria between Zona Gale Road and Encinitas Boulevard.

The existing counts are shown in **Figure 4**. The LOS calculated for the intersections are shown in **Table 5.** The daily capacity for the street segments is shown in **Table 6**. Intersection LOS worksheets are included in **Appendix E**.

TABLE 5: EXISTING INTERSECTION OPERATIONS

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing Delay[2]	Existing LOS[3]
1) Via Cantebria at Zona Gale Rd (U)	NBL	AM	0.0	A
	EB LR	AM	0.0	A
	NBL	PM	0.0	A
	EB LR	PM	0.0	A
2) Via Cantebria at Encinitas Blvd (S)	All	AM	21.4	C
	All	PM	20.5	C

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Control Delay in seconds.
3) LOS: Level of Service. NBL: Northbound Left. EB LR: Eastbound Left-right.

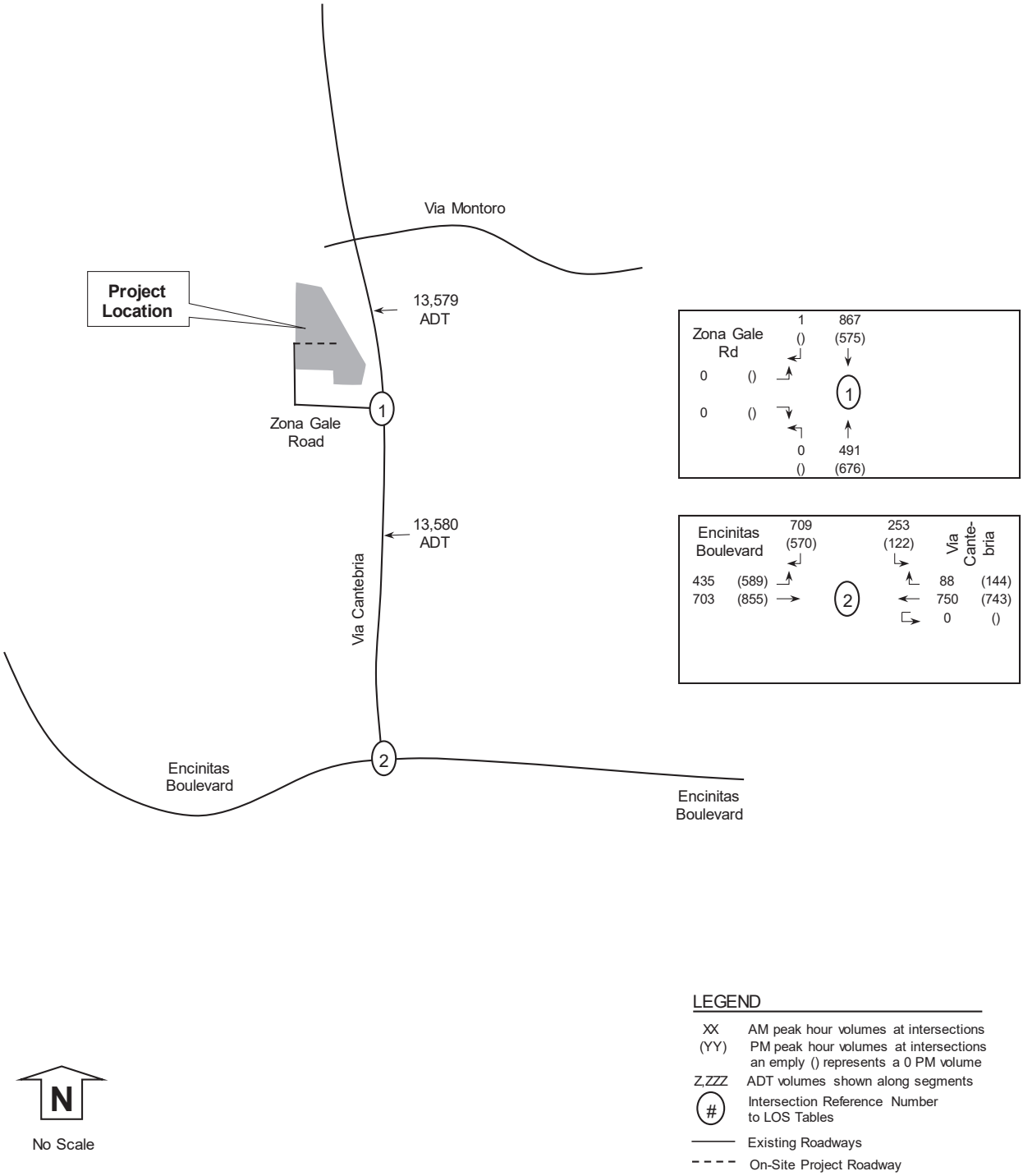
TABLE 6: EXISTING SEGMENT DAILY VOLUMES AND OPERATIONS

Segment	Roadway Classification	Existing # of lanes	Existing Daily Volume	Existing LOS E Capacity	Existing V/C	Existing LOS
Via Cantebria						
Via Montoro to Zona Gale Rd	Collector	4	13,579	32,400	0.42	C
Zona Gale Rd to Encinitas Blvd	Collector	4	13,580	32,400	0.42	C

Notes: Daily volume is an average 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity ratio.

Under Existing Conditions, the study intersections and segments are calculated to operate at LOS C or better.

Figure 4: Existing Volumes



4.0 Project Description

The proposed project is a development of 9 residential lots with project access from Zona Gale Road west of Via Cantebria in Encinitas, California. The site is currently vacant.

4.1 Project Traffic Generation

Project traffic generation was calculated using the San Diego Association of Governments (SANDAG) trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The project is calculated to generate 90 ADT, 7 AM peak hour trips (2 inbound and 5 outbound), and 9 PM peak hour trips (6 inbound and 3 outbound) as shown in **Table 7**.

TABLE 7: PROJECT TRAFFIC GENERATION

Proposed Project							AM				PM	
	Rate	Size & Units	ADT	%	Split		IN	OUT	%	Split	IN	OUT
9 Single Family Units	10 /DU	9 DU	**90**	8%	0.3	0.7	**2**	**5**	10%	0.7 0.3	**6**	**3**

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* April 2002. DU: Dwelling Unit.

ADT-Average Daily Traffic; Split-percent inbound and outbound.

4.2 Project Distribution and Assignment

Project trips were distributed to the adjacent roadway network based on background traffic patterns, commuter patterns, trips attractors, and schools. The project distribution is shown in **Figure 5** with assignment of the project volumes shown in **Figure 6.**

4.3 Project Access

Project access is from Zona Gale Road.

4.4 Project On-Site Parking and Circulation

Each residential dwelling unit is planned with a garage and driveway area for parking. On street parking is not permitted; however, there are seven (7) on-site guest parking spaces. The project site has a hammer head/T-intersection that provides an area for cars and trucks to turn around.

Figure 5: Project Distribution

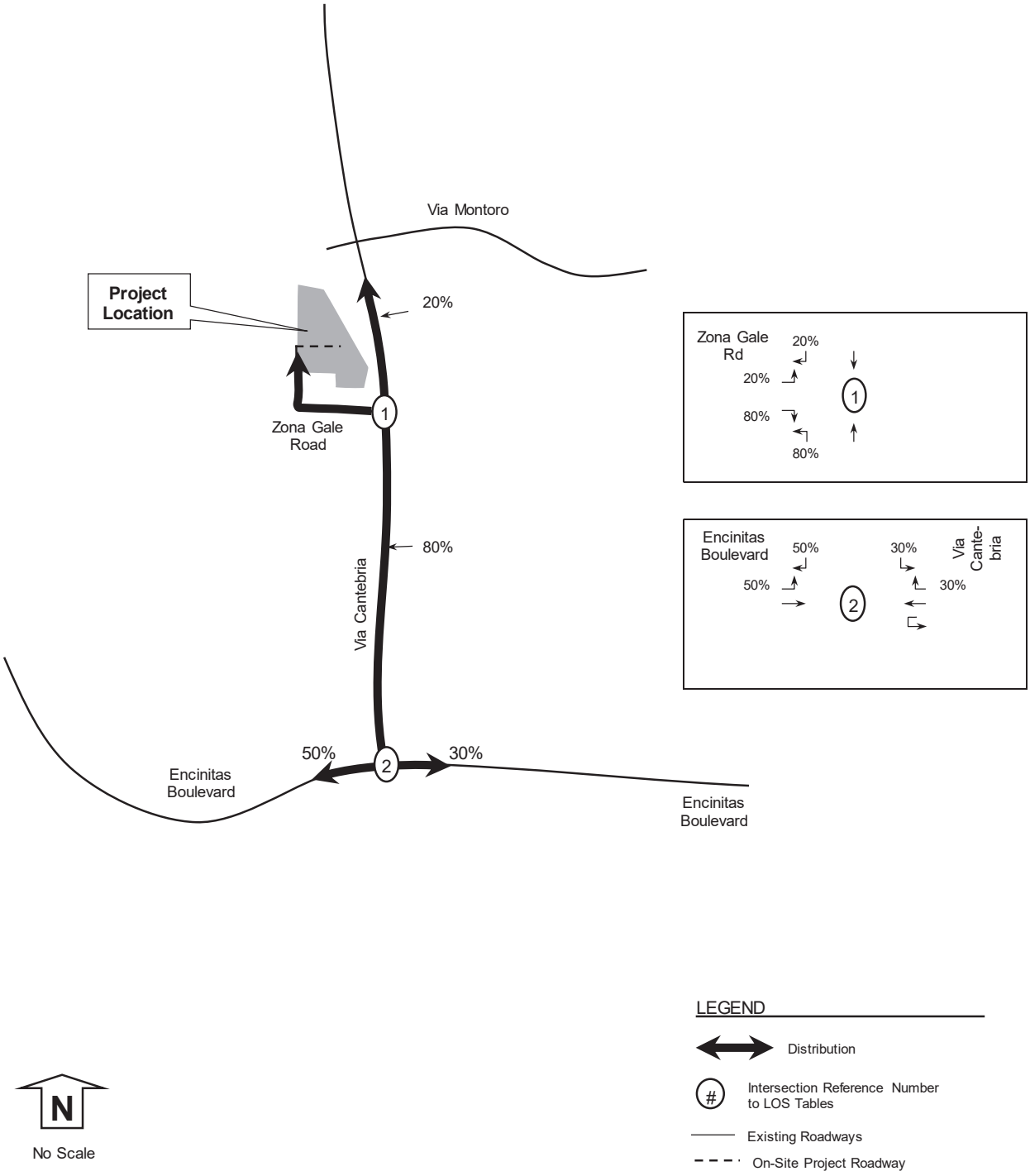
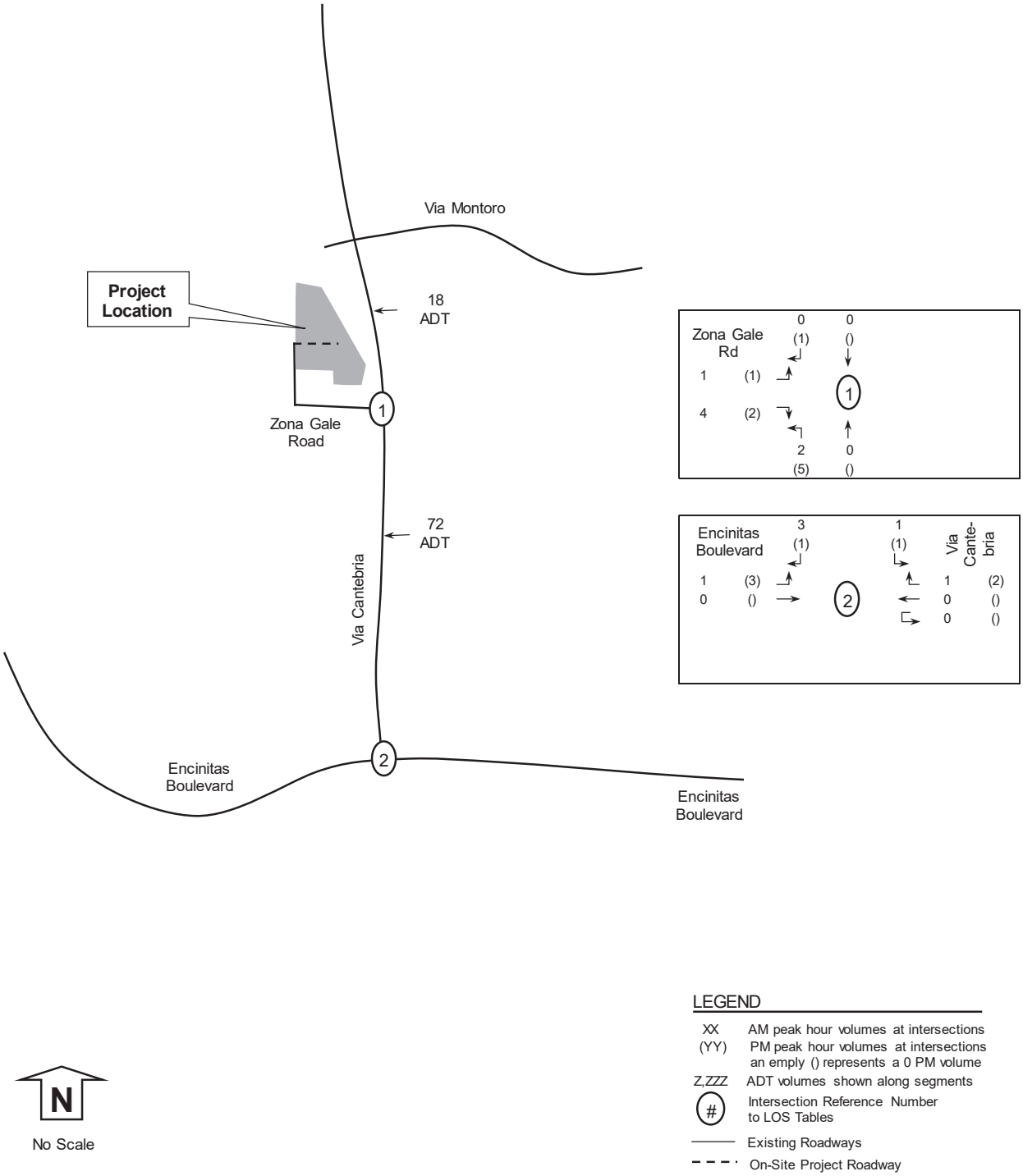


Figure 6: Project Assignment



5.0 Existing + Project Conditions

This scenario represents the addition of project traffic onto Existing volumes. The peak hour intersection volumes and daily traffic volumes are shown in **Figure 7**. The LOS calculated for the intersections are shown in **Table 8.** The daily capacity for the street segments is shown in **Table 9**. Intersection LOS worksheets are included in **Appendix F**.

TABLE 8: EXISTING + PROJECT INTERSECTION OPERATIONS

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing		Existing + Project			
			Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]	GP Conflict?[5]
1) Via Cantebria	NBL	AM	0.0	A	10.2	B	10.2	No
at Zona Gale Rd (U)	EB LR	AM	0.0	A	13.5	B	13.5	No
	NBL	PM	0.0	A	8.8	A	8.8	No
	EB LR	PM	0.0	A	11.8	B	11.8	No
2) Via Cantebria at	All	AM	21.4	C	21.6	C	0.2	No
Encinitas Blvd (S)	All	PM	20.5	C	20.7	C	0.2	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Control Delay in sec. 3) LOS: Level of Service. 4) Change in LOS delay from addition of project traffic. 5) General Plan Circulation Element Policy 1.3 conflict if project traffic causes an LOS E/F. NBL: Northbound left. EB LR: Eastbound Left-right.

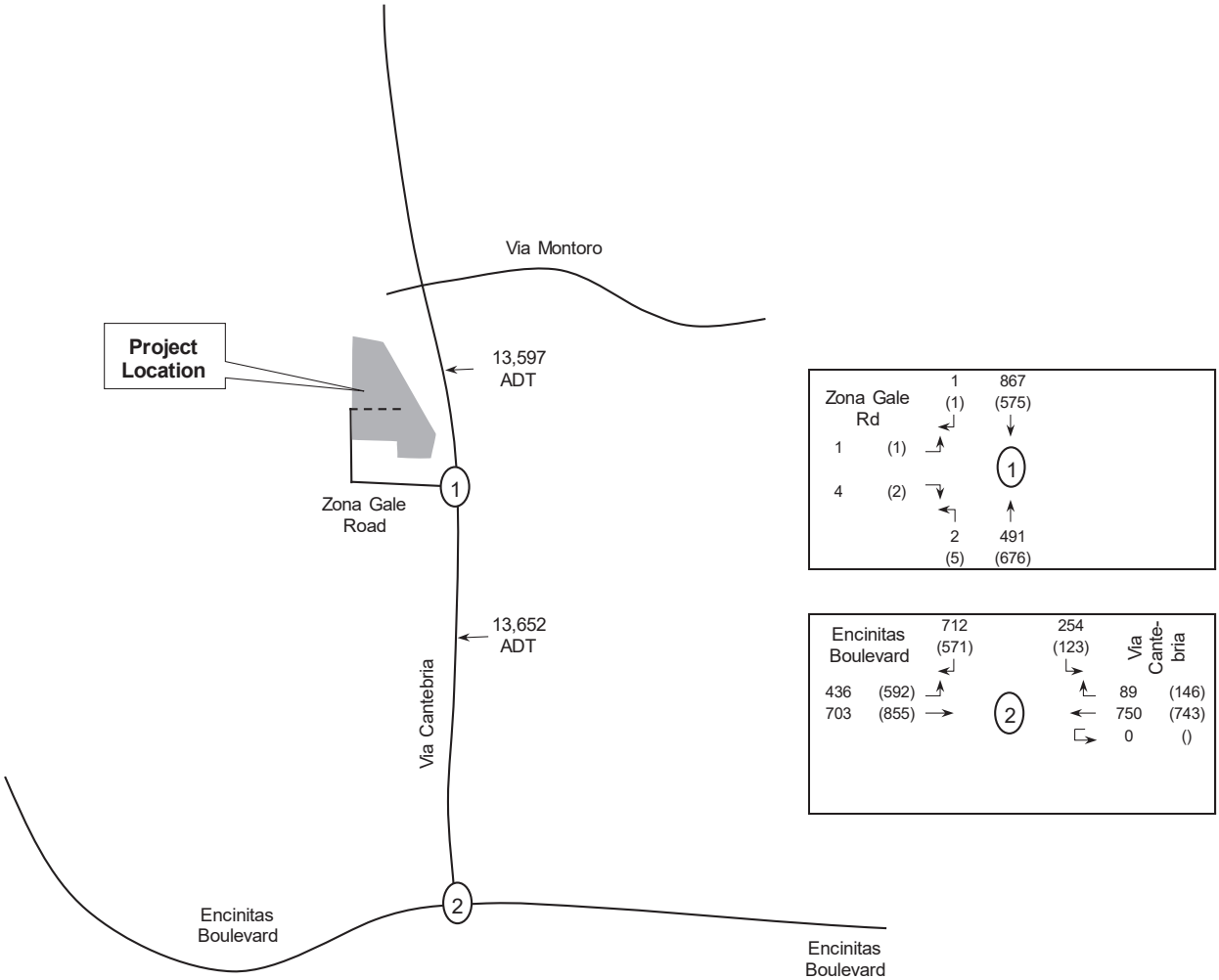
TABLE 9: EXISTING + PROJECT SEGMENT DAILY VOLUMES AND OPERATIONS

Segment	Roadway Classification	Existing				Project	Existing + Project				
		Daily Volume	LOS E Capacity	V/C	LOS	Daily Volume	Daily Volume	V/C	LOS	Change in V/C	Conflict with GP?
Via Cantebria											
Via Montoro to Zona Gale Rd	Collector	13,579	32,400	0.419	C	18	13,597	0.420	C	0.001	No
Zona Gale Rd to Encinitas Blvd	Collector	13,580	32,400	0.419	C	72	13,652	0.421	C	0.002	No

Notes: Daily volume is an average 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity ratio. GP: General Plan

Under Existing + Project Conditions, the study intersections and segments are calculated to operate at LOS C or better. The addition of project traffic does not conflict with General Plan Circulation Element Policy 1.2 (because the project's traffic does not change the existing segment LOS C) or Policy 1.3 (because the project's traffic does not cause the study intersections to degrade to LOS E/F). Therefore, off-site roadway improvements are not required.

Figure 7: Existing + Project Volumes



6.0 Conclusion

This Local Transportation Analysis (LTA) determines if traffic from the proposed project will conflict with the City's General Plan Circulation Element Policies 1.2 or 1.3 on the study area roadways in the vicinity of the project. The proposed project is a residential subdivision with 9 lots for single family homes. The project site is generally located on the northwest corner of Via Cantebria and Zona Gale Road in the City of Encinitas, California. The site is currently vacant. Project access is from Zona Gale Road.

Project traffic generation was calculated using the San Diego Association of Governments (SANDAG) trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The project is calculated to generate 90 ADT, 7 AM peak hour trips and 9 PM peak hour trips. Traffic data was collected on Tuesday September 23, 2025. Near-by schools were in session during traffic data collection. The findings by study scenario are summarized below.

1) Under Existing Conditions, the study intersections and segments are calculated to operate at LOS C or better.

2) Under Existing + Project Conditions, the study intersections and segments are calculated to operate at LOS C or better. The addition of project traffic does not conflict with General Plan Circulation Element Policy 1.2 (because the project's traffic does not change the existing segment LOS C) or Policy 1.3 (because the project's traffic does not cause the study intersections to degrade to LOS E/F). Therefore, off-site roadway improvements are not required.

Each residential dwelling unit is planned with a garage and driveway area for parking. On street parking is not permitted; however, there are seven (7) on-site guest parking spaces. The project site has a hammer head/T-intersection that provides an area for cars and trucks to turn around.

7.0 References

City of Encinitas *Circulation Element* May 11, 1995.

Highway Capacity Manual (7th Edition).

San Diego Institute of Transportation Engineers (ITE). May 2019. *Guidelines for Transportation Impact Studies in the San Diego Region*.

San Diego Association of Governments (SANDAG). April 2002. *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*.

Trafficware Corporation. Synchro 12.0 computer software.

Appendix A

Excerpts from City of Encinitas General Plan on Segment Capacity

THE CITY OF ENCINITAS
CALIFORNIA

PUBLIC ROAD STANDARDS

April, 1991

TABLE 2
GENERAL PLAN CIRCULATION ELEMENT
ROADWAY CAPACITY STANDARDS *

Facility Type	# of Lanes	ADT Capacity LOS C	LOS D	LOS E
FREEWAY	6	108,00	120,000	135,000
	8	145,000	160,000	175,000
	10	175,000	195,000	215,000
Prime Arterial	6	46,000	51,200	57,000
Prime Arterial-Augmented	6	53,000	60,000	66,000
Major Roadway	4	28,200	31,600	35,200
Major Roadway-Augmented	4+	36,300	41,000	45,400
Collector Roadway	4	26,000	29,200	32,400
Local Roadway-Augmented	2+	16,000	18,000	20,000
Local Roadway	2	11,200	12,600	14,000

NOTE: 1. Capacity means the maximum volume for the stated level of service.

2. The above Standards are not applicable to non-circulation element roadways.

* From City of Encinitas General Plan Circulation Element.

Appendix B

Excerpts from City of Encinitas General Plan on General Plan Policy

CIRCULATION ELEMENT

CITY OF ENCINITAS GENERAL PLAN

As Amended 8/25/93, 1/12/94 9/21/94 and 5/11/95

CIRCULATION ELEMENT GOALS AND POLICIES

The following goals and policies included in this Element address a wide range of issues concerning circulation in and through the City. More efficient movement of traffic on existing roadways, the establishment of standards for future roads, provision of other forms of transit, preservation of scenic highways, and improved coastal access are the major areas of concern of the following goals and policies.

Safe, Convenient, and Efficient Transportation System

The following goal and supporting policies emphasize the need to maintain a transportation system thatis capable of handling the existing and projected traffic loads in the City. To achieve this end, a number of policies have beenadopted that call for more efficient use of existing roadways by employing measures that improve the movement of traffic.

GOAL 1: Encinitas should have a transportation system that is safe, convenient and efficient, and sensitive to and compatible with surrounding community character. (Coastal Act/30252)

POLICY 1.1: Ensure that the arterial circulation system provides adequate connections across the freeway for convenient circulation and rapid emergency access.

POLICY 1.2: Endeavor to maintain Level of Service C as a basic design guideline for the local system of roadways understanding that the guideline may not be attainable in all cases.

POLICY 1.3: Prohibit development which results in Level of Service E or F at any intersection unless no alternatives exist and an overriding public need can be demonstrated.

POLICY 1.4: Require, where feasible, interconnecting Offstreet pedestrian and vehicular circulation between adjacent commercial and office land uses. This policy should be required along major transportation cooridors to minimize traffic conflicts associated with pedestrian and vehicular movement to and from these properties. (Coastal Act/30252).

POLICY 1.5: Promote maximum utilization or expansion of existing freeways and prime arterials as an alternative to new freeway or highway construction. Encourage new and/or proposed freeway construction to be outside the Encinitas sphere of influence boundaries.

Appendix C

Excerpts from City of Encinitas Circulation Plan

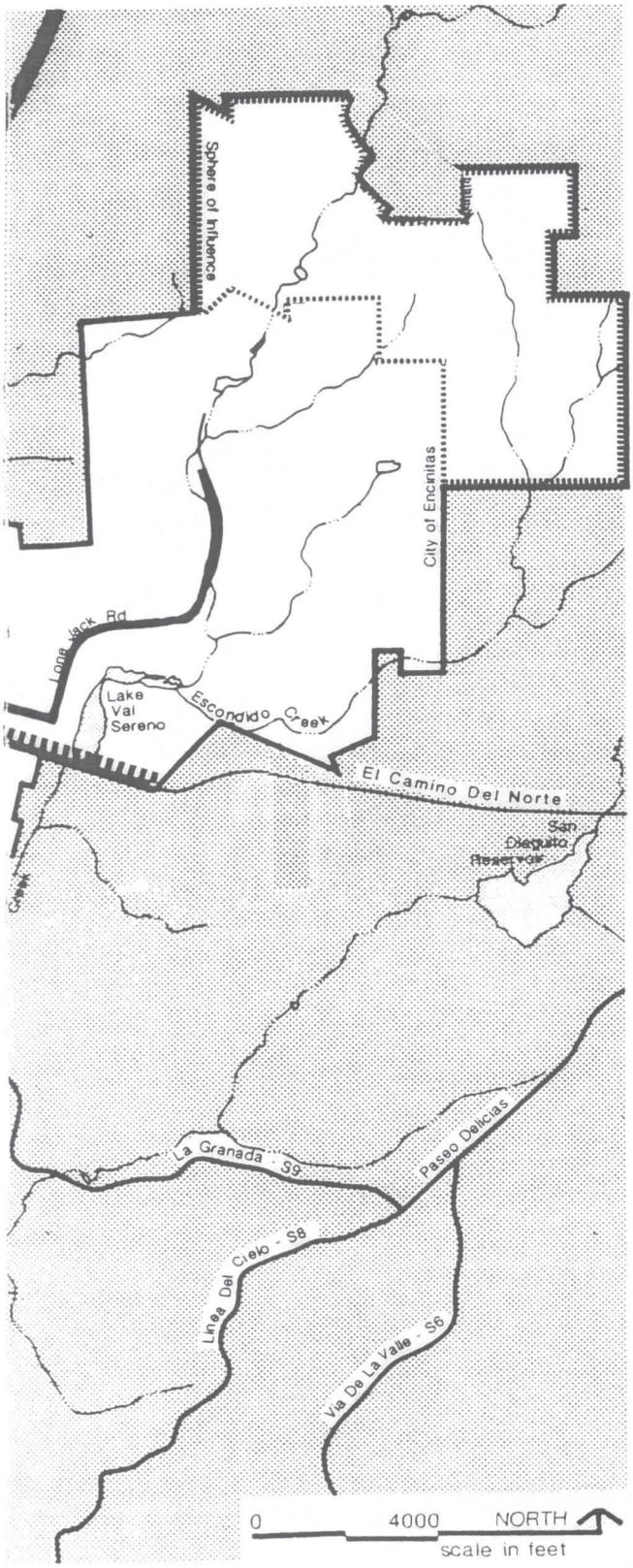
THE CITY OF ENCINITAS
CALIFORNIA

PUBLIC ROAD STANDARDS

April, 1991



SOURCE: Austin-Foust Associates, Inc.



Freeway

Prime Arterial (6 Lanes)

Major (4 Lanes)

Collector (4 Lanes)

Local Street (2 Lanes)

Augmented Facility

Limited Facility

Interchange Reconstruction

NOTE: Leucadia Blvd. between Interstate 5 and El Camino Real designated as "Scenic Roadway" with 85 foot right-of-way (ROW)

Figure 2
Circulation Plan

Encinitas
General Plan
3/29/89

Appendix D

Count Data

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Encinitas
N/S: Via Cantebria
E/W: Zona Gale Road

Date: 9/23/2025
Day: TUESDAY
Project # 143-25911

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:45 AM to 8:45 AM**

Vehicle Counts

	Via Cantebria Northbound			Via Cantebria Southbound			Zona Gale Road Eastbound			Zona Gale Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	34	0	0	63	0	0	0	0	0	0	0	97
7:15 AM	0	58	0	0	68	0	0	0	0	0	0	0	126
7:30 AM	0	65	0	0	162	0	0	0	0	0	0	0	227
7:45 AM	0	117	0	0	275	0	0	0	0	0	0	0	392
8:00 AM	0	154	0	0	229	0	0	0	0	0	0	0	383
8:15 AM	0	119	0	0	195	1	0	0	0	0	0	0	315
8:30 AM	0	101	0	0	168	0	0	0	0	0	0	0	269
8:45 AM	0	112	0	0	127	0	0	0	0	0	0	0	239
TOTAL VOLUMES:	0	760	0	0	1287	1	0	0	0	0	0	0	2048

AM Peak Hr Begins at: 745 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	491	0	0	867	1	0	0	0	0	0	0	1359

PEAK HR FACTOR:	0.797	0.789	0.000	0.000	0.867

Bicycle Counts

	Via Cantebria Northbound			Via Cantebria Southbound			Zona Gale Road Eastbound			Zona Gale Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	2	0	0	0	1	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	2	0	0	0	2
7:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
7:45 AM	0	2	0	0	3	0	0	0	3	0	0	0	8
8:00 AM	0	3	0	0	6	0	0	0	0	0	0	0	9
8:15 AM	0	0	0	0	6	0	0	0	0	0	0	0	6
8:30 AM	0	0	0	0	1	0	0	0	1	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	2	6	0	0	19	0	0	0	6	0	0	0	33

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	5	0	0	16	0	0	0	4	0	0	0	25

Pedestrian Counts

	Via Cantebria North Leg	Via Cantebria South Leg	Zona Gale Road East Leg	Zona Gale Road West Leg	TOTAL
7:00 AM	1	0	0	1	2
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	1	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	2	3

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	0	1	1

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Encinitas
N/S: Via Cantebria
E/W: Zona Gale Road

Date: 9/23/2025
Day: TUESDAY
Project # 143-25911

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:00 PM to 5:00 PM**

Vehicle Counts

	Via Cantebria Northbound			Via Cantebria Southbound			Zona Gale Road Eastbound			Zona Gale Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	192	0	0	140	0	0	0	0	0	0	0	332
4:15 PM	0	172	0	0	157	0	0	0	0	0	0	0	329
4:30 PM	0	155	0	0	134	0	0	0	0	0	0	0	289
4:45 PM	0	157	0	0	144	0	0	0	0	0	0	0	301
5:00 PM	0	166	0	0	132	0	0	0	0	0	0	0	298
5:15 PM	0	118	0	0	113	1	0	0	0	0	0	0	232
5:30 PM	0	128	0	0	131	0	1	0	0	0	0	0	260
5:45 PM	0	93	0	0	127	0	0	0	0	0	0	0	220
TOTAL VOLUMES:	0	1181	0	0	1078	1	1	0	0	0	0	0	2261

PM Peak Hr Begins at: 400 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	676	0	0	575	0	0	0	0	0	0	0	1251

PEAK HR FACTOR:	0.880	0.916	0.000	0.000	0.942

Bicycle Counts

	Via Cantebria Northbound			Via Cantebria Southbound			Zona Gale Road Eastbound			Zona Gale Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	0	3	0	0	0	0	0	0	0	4
5:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	4
5:15 PM	2	1	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
5:45 PM	0	1	0	0	4	0	0	0	0	0	0	0	5
TOTAL VOLUMES:	2	16	0	0	10	0	0	0	0	0	0	0	28

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	8	0	0	3	0	0	0	0	0	0	0	11

Pedestrian Counts

	Via Cantebria North Leg	Via Cantebria South Leg	Zona Gale Road East Leg	Zona Gale Road West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	2	0	0	0	2
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	2	0	0	0	2

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	2	0	0	0	2

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Encinitas
N/S: Via Cantebria
E/W: Encinitas Boulevard

Date: 9/23/2025
Day: TUESDAY
Project # 143-25911

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:45 AM to 8:45 AM**

Vehicle Counts

	Via Cantebria Northbound			Via Cantebria Southbound			Encinitas Boulevard Eastbound			Encinitas Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	13	0	61	31	102	0	0	77	6	290
7:15 AM	0	0	0	13	0	68	52	102	0	0	108	10	353
7:30 AM	0	0	0	26	0	155	60	127	0	0	144	6	518
7:45 AM	0	0	0	56	0	250	118	159	0	0	188	17	788
8:00 AM	0	0	0	87	0	174	117	186	0	0	187	33	784
8:15 AM	0	0	0	63	0	155	116	200	0	0	227	24	785
8:30 AM	0	0	0	47	0	130	84	158	0	0	148	14	581
8:45 AM	0	0	0	31	0	100	90	146	0	0	144	16	527
TOTAL VOLUMES:	0	0	0	336	0	1093	668	1180	0	0	1223	126	4626

AM Peak Hr Begins at: 745 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	253	0	709	435	703	0	0	750	88	2938

PEAK HR FACTOR:	0.000	0.786	0.900	0.835	0.932

Bicycle Counts

	Via Cantebria Northbound			Via Cantebria Southbound			Encinitas Boulevard Eastbound			Encinitas Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	0	0	2	1	4
7:15 AM	0	0	0	0	0	2	0	1	0	0	1	0	4
7:30 AM	0	0	0	0	0	2	0	1	0	0	1	0	4
7:45 AM	0	0	0	2	0	10	0	2	0	0	4	1	19
8:00 AM	0	0	0	0	0	10	0	3	0	0	4	1	18
8:15 AM	0	0	0	0	0	7	0	0	0	0	6	0	13
8:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	1	0	0	0	0	1	0	2
TOTAL VOLUMES:	0	0	0	2	0	36	0	7	0	0	19	3	67

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	2	0	30	0	5	0	0	14	2	53

Pedestrian Counts

	Via Cantebria North Leg	Via Cantebria South Leg	Encinitas Boulevard East Leg	Encinitas Boulevard West Leg	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	1	0	2	0	3
7:30 AM	1	0	0	0	1
7:45 AM	1	0	0	0	1
8:00 AM	0	0	1	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	3	0	3	0	6

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	0	1	0	2

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Encinitas
N/S: Via Cantebria
E/W: Encinitas Boulevard

Date: 9/23/2025
Day: TUESDAY
Project # 143-25911

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:00 PM to 5:00 PM**

Vehicle Counts

	Via Cantebria Northbound			Via Cantebria Southbound			Encinitas Boulevard Eastbound			Encinitas Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	27	0	145	154	244	0	0	183	42	795
4:15 PM	0	0	0	34	0	151	146	186	0	0	178	42	737
4:30 PM	0	0	0	27	0	124	147	214	0	0	175	31	718
4:45 PM	0	0	0	34	0	150	142	211	0	0	207	29	773
5:00 PM	0	0	0	28	0	138	129	230	0	0	188	36	749
5:15 PM	0	0	0	25	0	107	124	192	0	0	172	30	650
5:30 PM	0	0	0	26	0	120	105	176	0	0	159	23	609
5:45 PM	0	0	0	22	0	115	94	159	0	0	169	22	581
TOTAL VOLUMES:	0	0	0	223	0	1050	1041	1612	0	0	1431	255	5612

PM Peak Hr Begins at: 400 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	122	0	570	589	855	0	0	743	144	3023

PEAK HR FACTOR:	0.000	0.935	0.907	0.940	0.951

Bicycle Counts

	Via Cantebria Northbound			Via Cantebria Southbound			Encinitas Boulevard Eastbound			Encinitas Boulevard Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	2	1	0	0	1	0	4
4:15 PM	0	0	0	0	0	1	0	3	0	0	1	0	5
4:30 PM	0	0	0	0	0	2	1	1	0	0	4	1	9
4:45 PM	0	0	0	0	0	2	1	2	0	0	2	0	7
5:00 PM	0	0	0	0	0	0	4	1	0	0	2	0	7
5:15 PM	0	0	0	0	0	0	1	3	0	0	0	2	6
5:30 PM	0	0	0	1	0	2	2	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	3	1	2	0	0	3	0	9
TOTAL VOLUMES:	0	0	0	1	0	10	12	13	0	0	13	3	52

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	5	4	7	0	0	8	1	25

Pedestrian Counts

	Via Cantebria North Leg	Via Cantebria South Leg	Encinitas Boulevard East Leg	Encinitas Boulevard West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	2	0	1	0	3
4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	2	0	1	0	3
5:45 PM	1	0	0	0	1
TOTAL VOLUMES:	5	0	3	0	8

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	2	0	2	0	4

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Corona, CA 92878

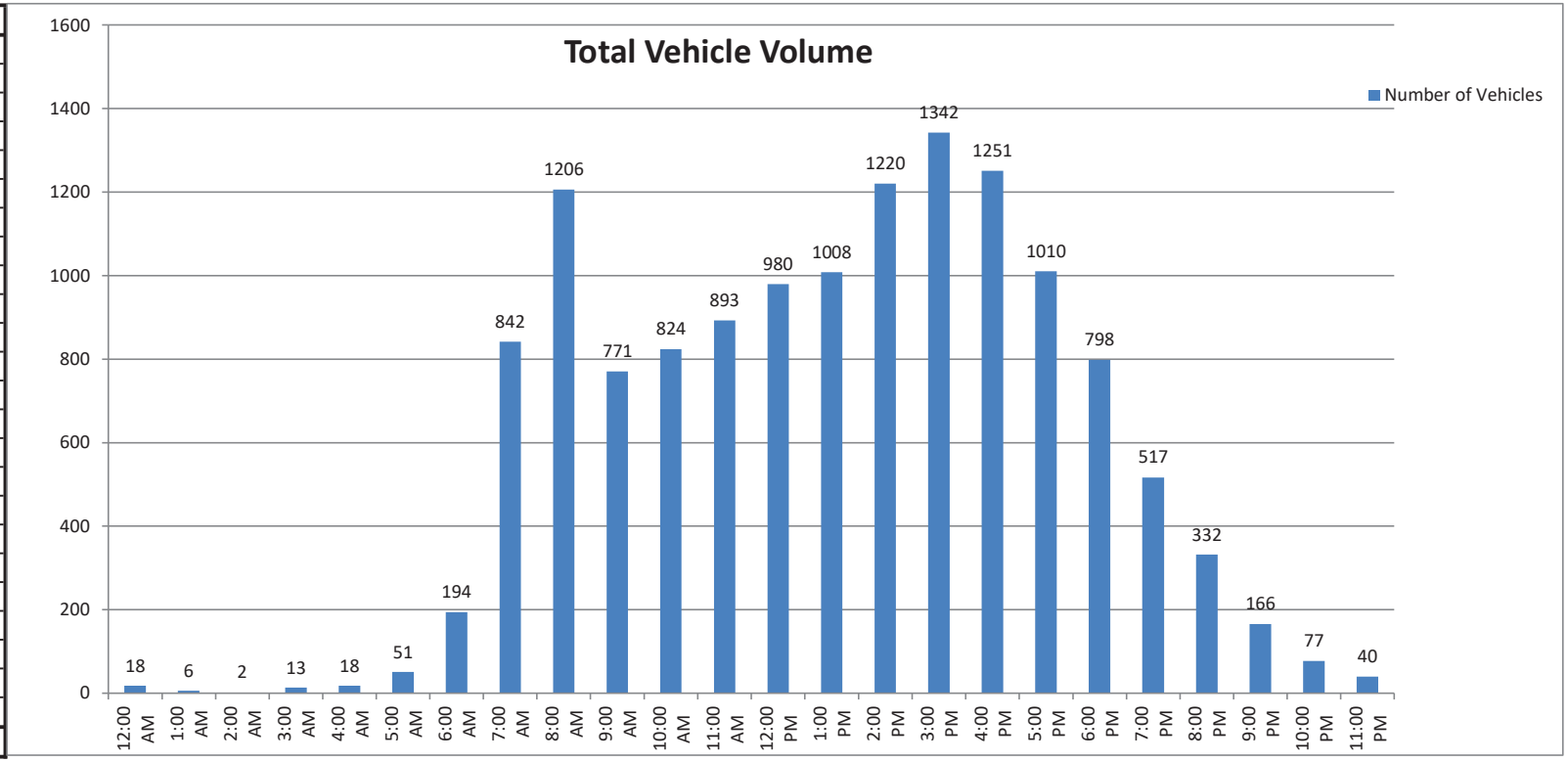
24 Hour Volume Plot

Via Cantebria

B/ Via Montoro - Zona Gale Road

9/23/2025

Start Time	9/23/2025
12:00 AM	18
1:00 AM	6
2:00 AM	2
3:00 AM	13
4:00 AM	18
5:00 AM	51
6:00 AM	194
7:00 AM	842
8:00 AM	1206
9:00 AM	771
10:00 AM	824
11:00 AM	893
12:00 PM	980
1:00 PM	1008
2:00 PM	1220
3:00 PM	1342
4:00 PM	1251
5:00 PM	1010
6:00 PM	798
7:00 PM	517
8:00 PM	332
9:00 PM	166
10:00 PM	77
11:00 PM	40
Total	13579



Volumes represent the combined totals for both directions

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Fax: 951-268-6267

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

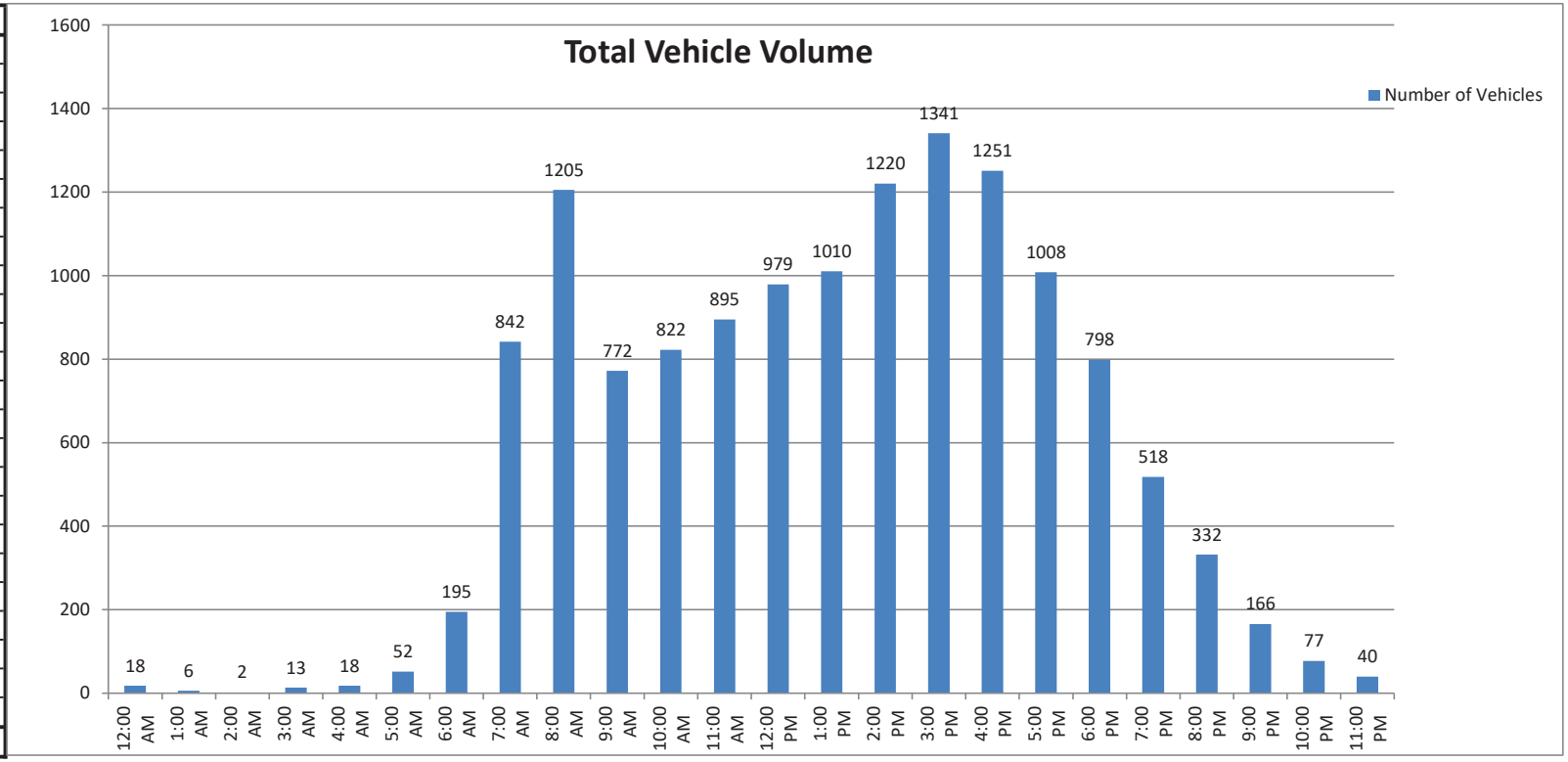
24 Hour Volume Plot

Via Cantebria

B/ Zona Gale Road - Encinitas Boulevard

9/23/2025

Start Time	9/23/2025
12:00 AM	18
1:00 AM	6
2:00 AM	2
3:00 AM	13
4:00 AM	18
5:00 AM	52
6:00 AM	195
7:00 AM	842
8:00 AM	1205
9:00 AM	772
10:00 AM	822
11:00 AM	895
12:00 PM	979
1:00 PM	1010
2:00 PM	1220
3:00 PM	1341
4:00 PM	1251
5:00 PM	1008
6:00 PM	798
7:00 PM	518
8:00 PM	332
9:00 PM	166
10:00 PM	77
11:00 PM	40
Total	13580



Volumes represent the combined totals for both directions

Phone: 951-268-6268
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Appendix E

Existing Intersection LOS Worksheets

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	491	867	1
Future Vol, veh/h	0	0	0	491	867	1
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	564	997	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1281	501	999	0	-	0
Stage 1	998	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	157	516	689	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	515	688	-	-	-
Mov Cap-2 Maneuver	258	-	-	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	739	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	688	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	435	703	0	750	88	253	709
Future Volume (veh/h)	435	703	0	750	88	253	709
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00				0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	468	756		806	95	272	762
Peak Hour Factor	0.93	0.93		0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	603	1989		1042	123	579	906
Arrive On Green	0.17	0.56		0.33	0.33	0.32	0.32
Sat Flow, veh/h	3456	3647		3279	375	1781	2790
Grp Volume(v), veh/h	468	756		449	452	272	762
Grp Sat Flow(s),veh/h/ln	1728	1777		1777	1785	1781	1395
Q Serve(g_s), s	8.9	8.2		15.8	15.8	8.4	17.6
Cycle Q Clear(g_c), s	8.9	8.2		15.8	15.8	8.4	17.6
Prop In Lane	1.00				0.21	1.00	1.00
Lane Grp Cap(c), veh/h	603	1989		581	584	579	906
V/C Ratio(X)	0.78	0.38		0.77	0.77	0.47	0.84
Avail Cap(c_a), veh/h	949	2362		796	799	721	1128
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	8.5		21.0	21.0	18.6	21.7
Incr Delay (d2), s/veh	2.2	0.1		3.2	3.2	0.6	4.8
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.7		6.6	6.6	3.3	0.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	29.5	8.6		24.2	24.2	19.2	26.5
LnGrp LOS	C	A		C	C	B	C
Approach Vol, veh/h		1224		901		1034	
Approach Delay, s/veh		16.6		24.2		24.6	
Approach LOS		B		C		C	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				42.7		26.5	16.1	26.6
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				46.0		28.0	19.0	31.0
Max Q Clear Time (g_c+I1), s				10.2		19.6	10.9	17.8
Green Ext Time (p_c), s				6.1		2.9	1.1	4.9

Intersection Summary		
HCM 7th Control Delay, s/veh	21.4	
HCM 7th LOS	C	

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	676	575	0
Future Vol, veh/h	0	0	0	676	575	0
Conflicting Peds, #/hr	2	0	0	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	719	612	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	975	308	614	0	-	0
Stage 1	614	-	-	-	-	-
Stage 2	362	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	249	688	962	-	-	-
Stage 1	503	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	248	687	960	-	-	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	674	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	960	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	589	855	0	743	144	122	570
Future Volume (veh/h)	589	855	0	743	144	122	570
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00				0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	620	900		782	152	128	600
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	753	2192		1003	195	474	743
Arrive On Green	0.22	0.62		0.34	0.34	0.27	0.27
Sat Flow, veh/h	3456	3647		3042	573	1781	2790
Grp Volume(v), veh/h	620	900		471	463	128	600
Grp Sat Flow(s),veh/h/ln	1728	1777		1777	1744	1781	1395
Q Serve(g_s), s	11.7	8.9		16.3	16.3	3.9	13.8
Cycle Q Clear(g_c), s	11.7	8.9		16.3	16.3	3.9	13.8
Prop In Lane	1.00				0.33	1.00	1.00
Lane Grp Cap(c), veh/h	753	2192		605	594	474	743
V/C Ratio(X)	0.82	0.41		0.78	0.78	0.27	0.81
Avail Cap(c_a), veh/h	960	2389		805	790	729	1142
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	6.7		20.3	20.3	19.8	23.5
Incr Delay (d2), s/veh	4.7	0.1		3.6	3.6	0.3	2.5
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	2.7		6.8	6.7	1.6	0.3
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	30.2	6.8		23.8	23.9	20.1	26.0
LnGrp LOS	C	A		C	C	C	C
Approach Vol, veh/h		1520		934		728	
Approach Delay, s/veh		16.4		23.8		25.0	
Approach LOS		B		C		C	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				46.2		22.2	18.9	27.3
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				46.0		28.0	19.0	31.0
Max Q Clear Time (g_c+I1), s				10.9		15.8	13.7	18.3
Green Ext Time (p_c), s				7.7		2.5	1.2	5.0

Intersection Summary		
HCM 7th Control Delay, s/veh	20.5	
HCM 7th LOS	C	

Appendix F

Existing + Project Intersection LOS Worksheets

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	2	491	867	1
Future Vol, veh/h	1	4	2	491	867	1
Conflicting Peds, #/hr	1	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	2	564	997	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1286	501	999	0	-	0
Stage 1	998	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	156	516	689	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	736	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	515	688	-	-	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	316	-	-	-	-	-
Stage 2	735	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.52	0.04	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	688	-	428	-	-
HCM Lane V/C Ratio	0.003	-	0.013	-	-
HCM Ctrl Dly (s/v)	10.2	-	13.5	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	436	703	0	750	89	254	712
Future Volume (veh/h)	436	703	0	750	89	254	712
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00				0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	469	756		806	96	273	766
Peak Hour Factor	0.93	0.93		0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	604	1987		1040	124	580	909
Arrive On Green	0.17	0.56		0.33	0.33	0.33	0.33
Sat Flow, veh/h	3456	3647		3275	379	1781	2790
Grp Volume(v), veh/h	469	756		450	452	273	766
Grp Sat Flow(s),veh/h/ln	1728	1777		1777	1784	1781	1395
Q Serve(g_s), s	9.0	8.3		15.9	15.9	8.5	17.7
Cycle Q Clear(g_c), s	9.0	8.3		15.9	15.9	8.5	17.7
Prop In Lane	1.00				0.21	1.00	1.00
Lane Grp Cap(c), veh/h	604	1987		581	583	580	909
V/C Ratio(X)	0.78	0.38		0.77	0.77	0.47	0.84
Avail Cap(c_a), veh/h	944	2351		792	795	717	1123
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	8.6		21.1	21.1	18.7	21.8
Incr Delay (d2), s/veh	2.2	0.1		3.3	3.3	0.6	5.0
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.7		6.6	6.7	3.4	0.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	29.6	8.7		24.4	24.4	19.3	26.8
LnGrp LOS	C	A		C	C	B	C
Approach Vol, veh/h		1225		902		1039	
Approach Delay, s/veh		16.7		24.4		24.8	
Approach LOS		B		C		C	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				42.9		26.6	16.1	26.7
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				46.0		28.0	19.0	31.0
Max Q Clear Time (g_c+I1), s				10.3		19.7	11.0	17.9
Green Ext Time (p_c), s				6.1		2.9	1.1	4.9

Intersection Summary		
HCM 7th Control Delay, s/veh	21.6	
HCM 7th LOS	C	

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	2	5	676	575	1
Future Vol, veh/h	1	2	5	676	575	1
Conflicting Peds, #/hr	2	0	0	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	2	5	719	612	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	986	308	615	0	-	0
Stage 1	614	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	245	687	961	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	242	686	959	-	-	-
Mov Cap-2 Maneuver	367	-	-	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	666	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.81	0.06	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	959	-	532	-	-
HCM Lane V/C Ratio	0.006	-	0.006	-	-
HCM Ctrl Dly (s/v)	8.8	-	11.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

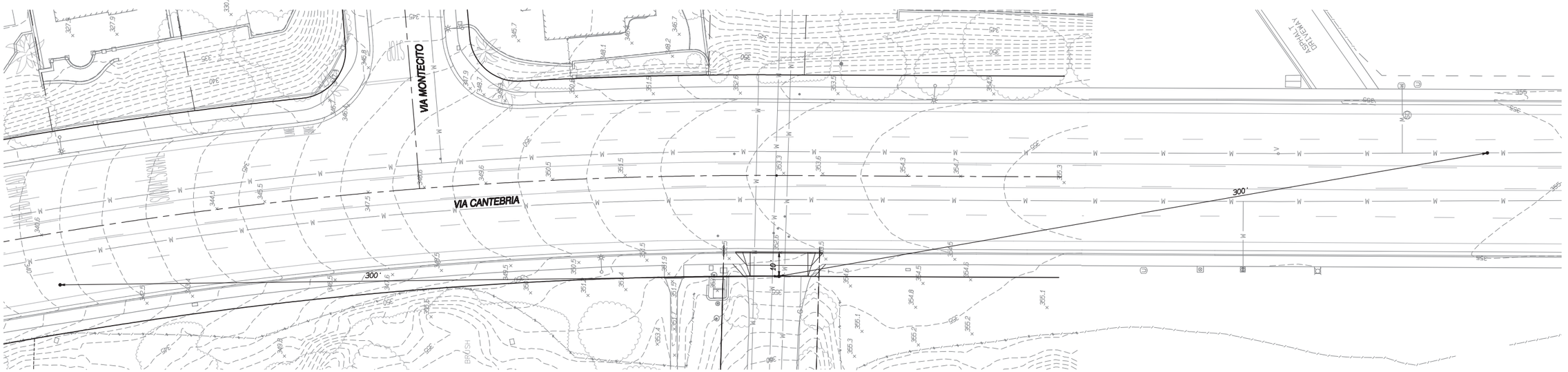


Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	592	855	0	743	146	123	571
Future Volume (veh/h)	592	855	0	743	146	123	571
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00				0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	623	900		782	154	129	601
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	755	2193		1001	197	474	743
Arrive On Green	0.22	0.62		0.34	0.34	0.27	0.27
Sat Flow, veh/h	3456	3647		3034	579	1781	2790
Grp Volume(v), veh/h	623	900		472	464	129	601
Grp Sat Flow(s),veh/h/ln	1728	1777		1777	1743	1781	1395
Q Serve(g_s), s	11.8	8.9		16.4	16.4	3.9	13.8
Cycle Q Clear(g_c), s	11.8	8.9		16.4	16.4	3.9	13.8
Prop In Lane	1.00				0.33	1.00	1.00
Lane Grp Cap(c), veh/h	755	2193		605	593	474	743
V/C Ratio(X)	0.82	0.41		0.78	0.78	0.27	0.81
Avail Cap(c_a), veh/h	956	2379		802	786	726	1137
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	6.7		20.4	20.4	19.9	23.6
Incr Delay (d2), s/veh	4.8	0.1		3.6	3.7	0.3	2.6
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	2.7		6.9	6.7	1.6	0.3
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	30.4	6.9		24.0	24.1	20.2	26.2
LnGrp LOS	C	A		C	C	C	C
Approach Vol, veh/h		1523		936		730	
Approach Delay, s/veh		16.5		24.0		25.1	
Approach LOS		B		C		C	

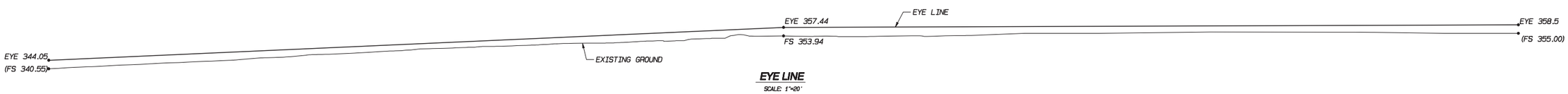
Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				46.4		22.3	19.0	27.4
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				46.0		28.0	19.0	31.0
Max Q Clear Time (g_c+I1), s				10.9		15.8	13.8	18.4
Green Ext Time (p_c), s				7.7		2.5	1.2	5.0

Intersection Summary		
HCM 7th Control Delay, s/veh	20.7	
HCM 7th LOS	C	

SIGHT DISTANCE EXHIBIT
ZONA GALE ESTATES
MULTI-003289-2019



PLAN VIEW
SCALE: 1"=20'



EYE LINE
SCALE: 1"=20'

PREPARED BY:
PASCO LARET SUITER & ASSOCIATES
CIVIL ENGINEERING + LAND PLANNING + LAND SURVEYING
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4/21/2020 PLSA 2897

CITY OF ENCINITAS
MULTI-003289-2019 (9 Single Family Homes)
Zona Gale Road
October 1, 2025

Draft Vehicle Miles Traveled Analysis

Prepared by:

LOS Engineering, Inc.
11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253

Job #1910

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Appendix B ..... City Deemed Complete Project Date
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1.0 Introduction

A VMT analysis is required to satisfy the California Environmental Quality Act (CEQA) guidelines that utilize VMT as the measure of mobility effectiveness for determining transportation impacts. The California Governor's Office of Planning and Research (OPR) Technical Advisory developed guidance on implementing Senate Bill 743 (SB 743) that shifts the transportation impact measure of effectiveness from Level of Service (LOS) to VMT.

1.1 Project Description

The proposed project is a 9-lot residential subdivision. The project site is generally located on the northwest corner of Via Cantebria and Zona Gale Road in the City of Encinitas, California. The site is currently vacant.

The regional location of the project is shown in **Figure 1**. A site plan is shown in **Figure 2.**

1.2 Project Trip Generation

Project traffic generation was calculated using the San Diego Association of Governments (SANDAG) trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The project is forecasted to have a trip generation of 90 ADT, 7 AM peak hour trips (2 inbound and 5 outbound), and 9 PM peak hour trips (6 inbound and 3 outbound) as shown in **Table 1**.

TABLE 1: PROJECT TRAFFIC GENERATION

Proposed Project							AM				PM	
	Rate	Size & Units	ADT	%	Split		IN	OUT	%	Split	IN	OUT
9 Single Family Units	10 /DU	9 DU	**90**	8%	0.3	0.7	**2**	**5**	10%	0.7 0.3	**6**	**3**

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* April 2002. DU: Dwelling Unit.

ADT-Average Daily Traffic; Split-percent inbound and outbound.

Figure 1: Project Location

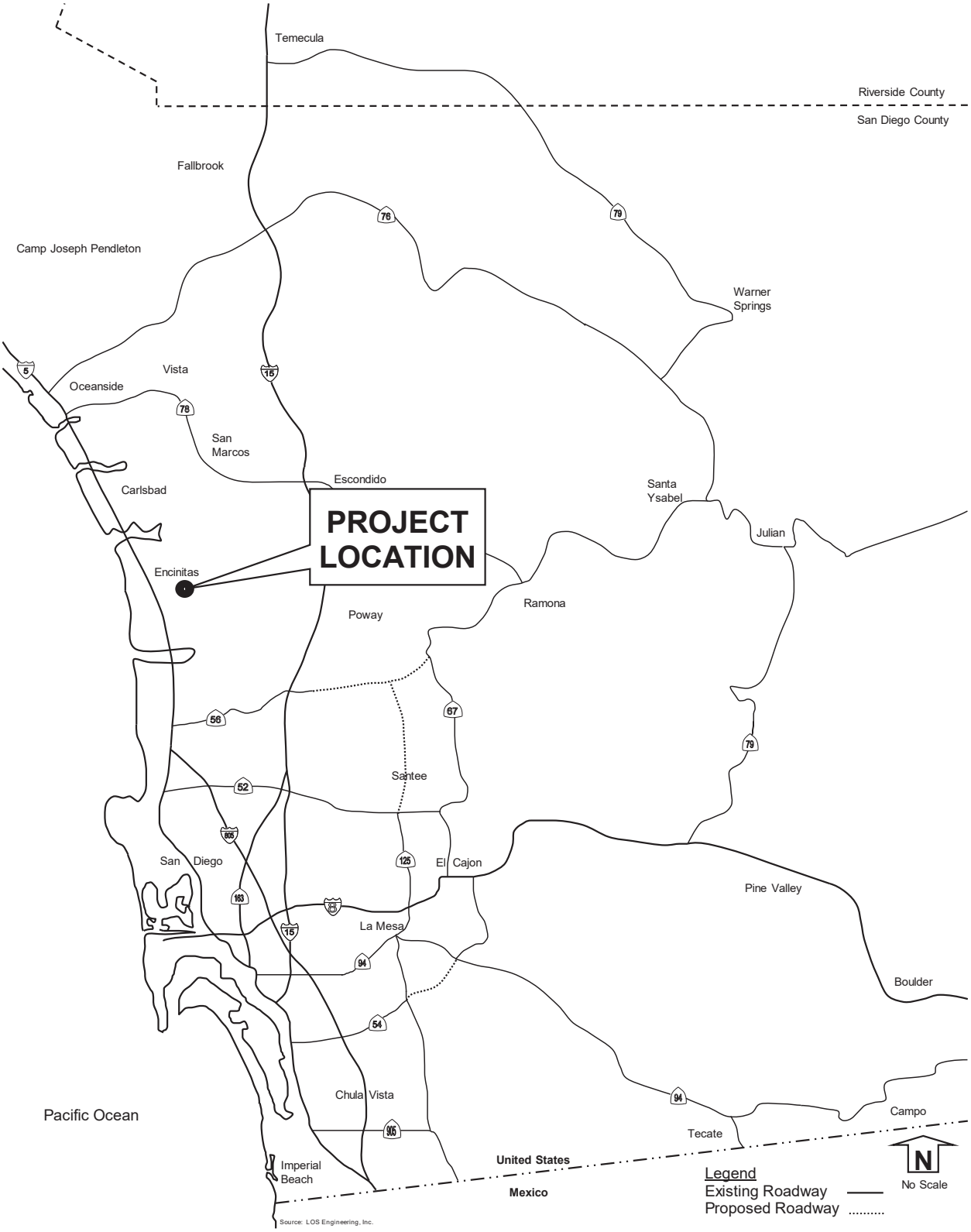
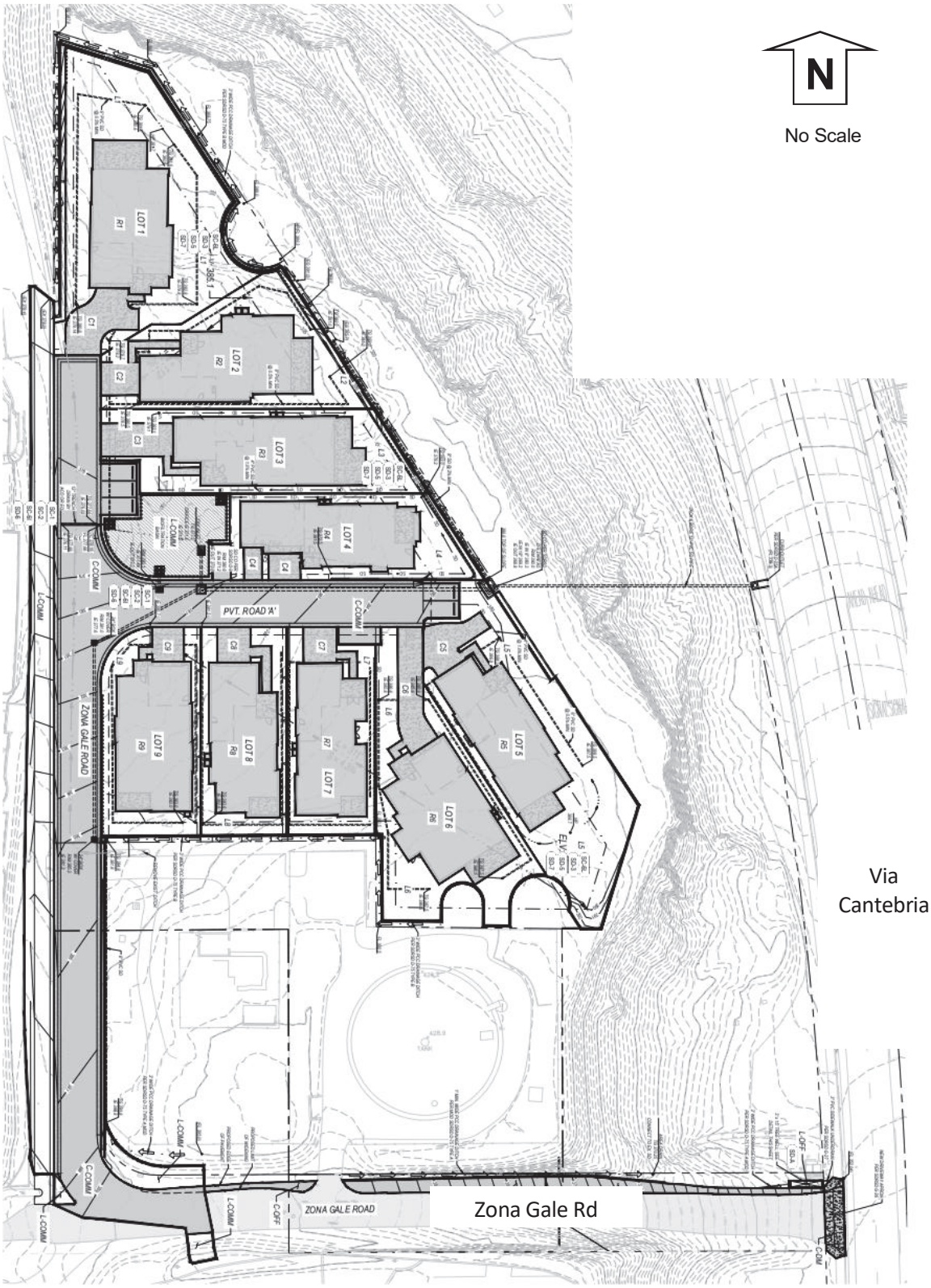


Figure 2: Site Plan



Source: PLSA

2.0 Vehicle Miles Traveled

A VMT analysis is required to satisfy CEQA guidelines that utilize VMT as the measure of effectiveness for determining transportation impacts. The California OPR Technical Advisory developed guidance on implementing Senate Bill 743 (SB 743) that shifts the transportation impact measure of effectiveness from LOS to VMT.

The OPR *Transportation Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018 states on page 8 "As noted above, lead agencies have the discretion to set or apply their own thresholds of significance". Excerpts from the OPR Technical Advisory are included in **Appendix A**.

The project was deemed complete by City staff on 8/12/2020 (**Appendix B**), which was prior to the City Council passing the current City of Encinitas SB 743 VMT Analysis Guidelines ("VMT Guidelines") on 11/8/2023. The VMT analysis requires the implementation of VMT significance thresholds when the project was deemed complete. In August 2020, the VMT significance thresholds in effect were based on the local San Diego Institute of Transportation Engineers (ITE) "Guidelines for Traffic Impact Studies in the San Diego Region", May 2019. The 2019 San Diego ITE guidelines state that projects with a trip generation of less than 1,000 Average Daily Traffic (ADT) and consistent with the zoning are presumed to have less than significant VMT impacts. Excerpts from the ITE VMT Guidelines are included in **Appendix C**.

The project with a calculated trip generation of 90 ADT is less than the ITE threshold of 1,000 ADT; therefore, according to the San Diego ITE Guidelines, the project is presumed to have a less-than-significant VMT traffic impact and VMT mitigation measures are not recommended.

3.0 Conclusion

A VMT analysis is required to satisfy the CEQA guidelines that utilize VMT as the measure of mobility effectiveness for determining transportation impacts. The California Governor's Office of Planning and Research (OPR) Technical Advisory developed guidance on implementing Senate Bill 743 (SB 743) that shifts the transportation impact measure of effectiveness from LOS to VMT. The OPR *Transportation Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018 states on page 8 "As noted above, lead agencies have the discretion to set or apply their own thresholds of significance".

City staff concluded that the project was deemed complete 8/12/2020, which was prior to the City Council passing the current City of Encinitas SB 743 VMT Guidelines on 11/8/2023. The VMT analysis requires the implementation of VMT significance thresholds when the project was deemed complete. In August 2020, the VMT significance thresholds in effect were based on the local San Diego ITE Guidelines dated May 2019. The 2019 San Diego ITE Guidelines state that projects with a trip generation of less than 1,000 ADT and consistent with the zoning are presumed to have less than significant VMT impacts.

Project traffic generation was calculated using SANDAG trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The project trip generation is calculated at 90 ADT.

The project with a calculated trip generation of 90 ADT is less than the ITE threshold of 1,000 ADT; therefore, according to the San Diego ITE Guidelines, the project is presumed to have a less-than-significant VMT traffic impact and VMT mitigation measures are not recommended.

Appendix A

Excerpts from OPR Technical Advisory

TECHNICAL ADVISORY

ON EVALUATING TRANSPORTATION IMPACTS IN CEQA

December 2018

D. General Principles to Guide Consideration of VMT

SB 743 directs OPR to establish specific "criteria for determining the significance of transportation impacts of projects[.]" (Pub. Resources Code, § 21099, subd. (b)(1).) In establishing this criterion, OPR was guided by the general principles contained within CEQA, the CEQA Guidelines, and applicable case law.

To assist in the determination of significance, many lead agencies rely on "thresholds of significance." The CEQA Guidelines define a "threshold of significance" to mean "an identifiable **quantitative, qualitative[12] or performance level** of a particular environmental effect, non-compliance with which means the effect will ***normally*** be determined to be significant by the agency and compliance with which means the effect ***normally*** will be determined to be less than significant." (CEQA Guidelines, § 15064.7, subd. (a) (emphasis added).) Lead agencies have discretion to develop and adopt their own, or rely on thresholds recommended by other agencies, "provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence." (*Id*. at subd. (c); *Save Cuyama Valley v. County of Santa Barbara* (2013) 213 Cal.App.4th 1059, 1068.) Substantial evidence means "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." (*Id*. at § 15384 (emphasis added); *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108-1109.)

Additionally, the analysis leading to the determination of significance need not be perfect. The CEQA Guidelines describe the standard for adequacy of environmental analyses:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to **make a decision which intelligently takes account of environmental consequences**. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is **reasonably feasible**. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The **courts have looked not for perfection** but for **adequacy**, **completeness**, and a **good faith effort** at full disclosure.

(CEQA Guidelines, § 15151 (emphasis added).)

These general principles guide OPR's recommendations regarding thresholds of significance for VMT set forth below.

[12] Generally, qualitative analyses should only be conducted when methods do not exist for undertaking a quantitative analysis.

E. Recommendations Regarding Significance Thresholds

As noted above, lead agencies have the discretion to set or apply their own thresholds of significance. (*Center for Biological Diversity v. California Dept. of Fish & Wildlife* (2015) 62 Cal.4th 204, 218-223 [lead agency had discretion to use compliance with AB 32's emissions goals as a significance threshold]; *Save Cuyama Valley v. County of Santa Barbara* (2013) 213 Cal.App.4th at p. 1068.) However, Section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of greenhouse gas emissions; (2) development of multimodal transportation networks; and (3) a diversity of land uses. It further directed OPR to prepare and develop criteria for determining significance. (Pub. Resources Code, § 21099, subd. (b)(1).) This section provides OPR's suggested thresholds, as well as considerations for lead agencies that choose to adopt their own

The VMT metric can support the three statutory goals: "the reduction of greenhouse gas emissions, the development of multimodal transportation networks, *and* a diversity of land uses." (Pub. Resources Code, § 21099, subd. (b)(1), emphasis added.) However, in order for it to promote and support all three, lead agencies should select a significance threshold that aligns with state law on all three. State law concerning the development of multimodal transportation networks and diversity of land uses requires planning for and prioritizing increases in complete streets and infill development, but does not mandate a particular depth of implementation that could translate into a particular threshold of significance. Meanwhile, the State has clear quantitative targets for GHG emissions reduction set forth in law and based on scientific consensus, and the depth of VMT reduction needed to achieve those targets has been quantified. Tying VMT thresholds to GHG reduction also supports the two other statutory goals. Therefore, to ensure adequate analysis of transportation impacts, OPR recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so.

Various legislative mandates and state policies establish quantitative greenhouse gas emissions reduction targets. For example:

- Assembly Bill 32 (2006) requires statewide GHG emissions reductions to 1990 levels by 2020 and continued reductions beyond 2020.

- Senate Bill 32 (2016) requires at least a 40 percent reduction in GHG emissions from 1990 levels by 2030.

- Pursuant to Senate Bill 375 (2008), the California Air Resources Board GHG emissions reduction targets for metropolitan planning organizations (MPOs) to achieve based on land use patterns and transportation systems specified in Regional Transportation Plans and Sustainable Community Strategies (RTP/SCS). Current targets for the State's largest MPOs call for a 19 percent reduction in GHG emissions from cars and light trucks from 2005 emissions levels by 2035.

- Executive Order B-30-15 (2015) sets a GHG emissions reduction target of 40 percent below 1990 levels by 2030.

Appendix B

City Deemed Complete Project Date

City of Encinitas
Development Services Department
505 S. Vulcan Avenue, Encinitas, California 92024-3633

4/11/2024 VIA EMAIL

Brian Ardolino
535 N. Coast Highway 101, Suite A
Solana Beach, CA 92075

3rd REVIEW CYCLE COMMENTS
CASE NO. MULTI-003289-2019; SUB-003290-2019; DR-003291-2019; CDP-003292-2019;
Zona Gale Road, APN: 257-401-11

Dear Brian Ardolino:

The Development Services Department (Department) has reviewed your application requesting a Density Bonus Tentative Map (DBTM), Design Review (DR) permit, Environmental Initial Assessment (EIA) and Coastal Development Permit (CDP) to subdivide 1.79 acres into 11 residential lots with the construction of nine single-family residences, one private roadway lot and one drainage lot. The attached package of information is a guide for further processing your application. The request requires approval of the following permits: Density Bonus Tentative Map, Design Review Permit, Environmental Initial Assessment and Coastal Development Permit.

Project applications are not only reviewed by the Department, but they are routed to other City departments such as Encinitas Fire Department and Public Works (Engineering and Traffic) Department for their review to ensure compliance with the codes and regulations they are charged with enforcing. This letter is intended to include a comprehensive list of the comments and corrections required by all commenting departments.

A. DETERMINATION OF COMPLETENESS

☒	The Department has reviewed your application and has determined that **it is deemed complete** pursuant to Section 65943 of the Government Code on August 12, 2020.

B. PROJECT CORRECTIONS

For ease of reference, the comments/corrections made by each department/division are attached hereto with the appropriate contact name and number/email should you require further clarification. **As the project manager, please include me in any exchanges (i.e. emails, meetings, etc.) you have with technical staff so that I'm kept informed and aware of any agreed upon changes/agreements.**

The issues/corrections discussed in this letter were identified based upon information presently available to the City and are subject to change upon submittal of further clarifying information and/or studies.

C. ENVIRONMENTAL DETERMINATION

Appendix C

Excerpts from ITE Guidelines



GUIDELINES FOR TRANSPORTATION IMPACT STUDIES IN THE SAN DIEGO REGION

May 2019

4.0 INDIVIDUAL LAND DEVELOPMENT PROJECTS AND SPECIFIC PLANS

The recommended methodology for conducting a VMT analysis is based on guidance prepared by the California Governor's Office of Planning and Research (OPR) as provided in the published Technical Advisory on Evaluating Transportation Impacts in CEQA. At the time of writing of these guidelines, the current version of OPR's technical advisory was dated December 2018. The guidance recommended by OPR has been modified to be better suited to local conditions in the San Diego region. These modifications are noted in the details described later in this chapter.

The basic process is to compare a project's estimated VMT/capita or VMT/employee to average values on a regional, citywide, or community basis. The target is to achieve a project VMT/capita or VMT/employee that is 85% or less of the appropriate average based on suggestions in these guidelines. Note that lead agencies have discretion for choosing a VMT metric and threshold. The selection should represent how VMT reduction is balanced against other objectives of the lead agency and be supported by substantial evidence.

The methodology for determining VMT/capita or VMT/employee is related to the project's expected daily trip generation. The process for determining appropriate methodology to be used for conducting a VMT analysis for individual land development projects and specific plans is summarized in Figure 4-1.

The remainder of this section of the guidelines is divided into individual components that describe different aspects of the methodology. Other methodologies for VMT analysis could be considered at the discretion of the lead agency. However, it is recommended that any VMT methodologies within a particular analysis use consistent methodologies and that VMT analysis consider the differences between trip-based VMT analysis methodologies and tour-based VMT methodologies, as described in OPR's technical advisory.

MINIMUM PROJECT SIZE

It is recommended that lead agencies determine a minimum project size, below which VMT impacts are presumed to be less than significant. Two alternative approaches for determining minimum project size are described below.

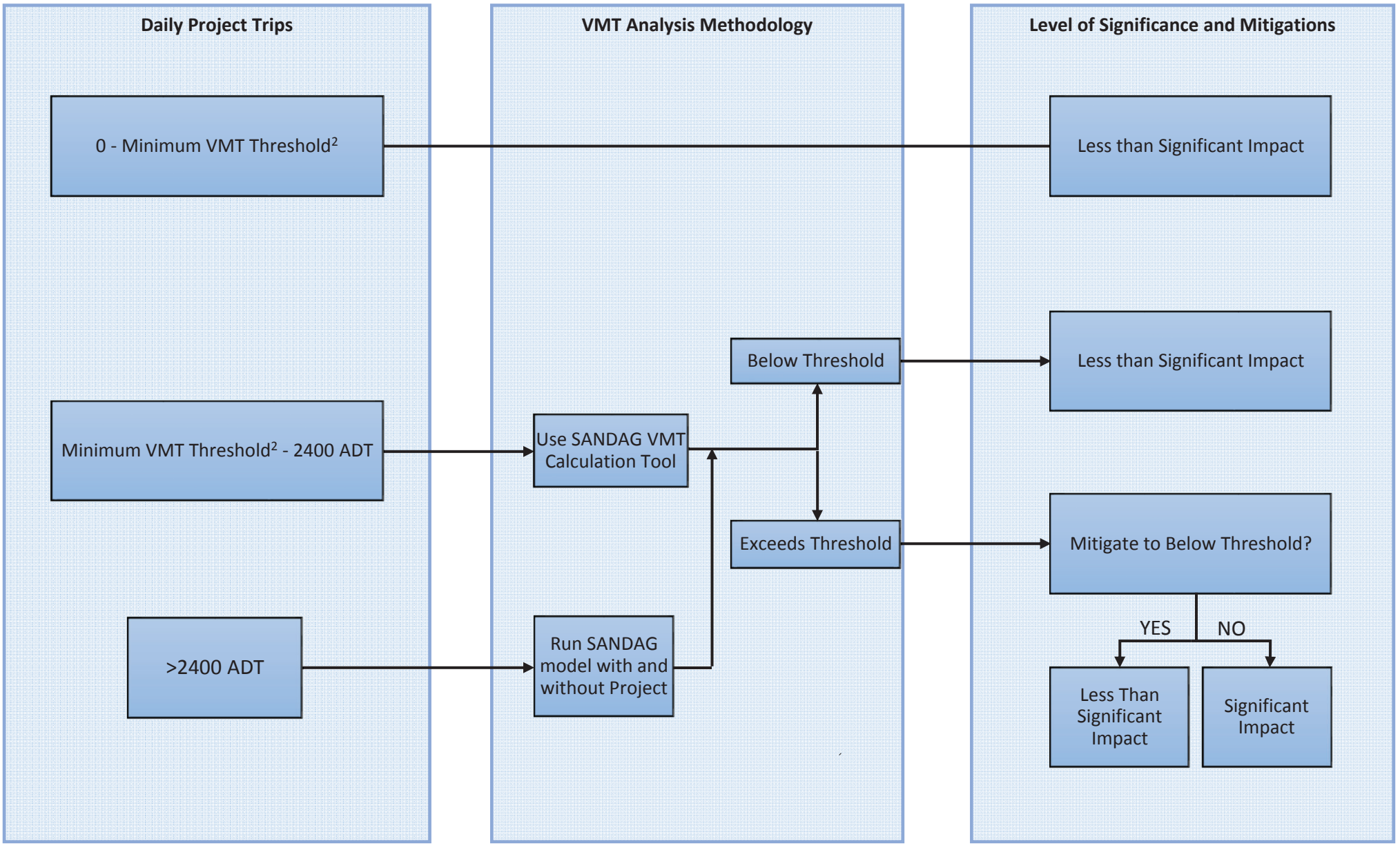
Alternative 1 – Minimum Project Size Based on Previous TIS Guidelines

Under this alternative, projects would be subjected to different levels of VMT analysis, depending on the size of the project and whether the project is consistent with the local jurisdiction's General Plan or Community Plan. Projects that are consistent with the General Plan or Community Plan are also considered to be consistent with the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

The determination of minimum project size for VMT analysis described below differs from the statewide guidance provided by OPR. It is based on regional standards for transportation analyses that were documented in the Guidelines for Traffic Impact Studies in the San Diego Region (ITE/SANTEC, 2000) and have been in use for over 19 years.

The following level of VMT analysis is recommended based on project size (expressed in terms of Average Daily Trips generated by the project; also known as ADT) and zoning:

Figure 4-1
VMT Analysis for Individual Land Development Projects[1]



Footnotes:

1. VMT impacts presumed to be less than significant for certain local-serving retail projects, affordable housing projects, and projects within transit priority areas. See text.
2. Minimum VMT threshold to be determined by lead agency.

Projects Inconsistent with General Plan or Community Plan

ADT	Level of Analysis
0 – 500	VMT Analysis Not Needed/VMT Impacts Presumed Less Than Significant
500 and Greater	VMT Analysis Recommended

Projects Consistent with General Plan or Community Plan

ADT	Level of Analysis
0 – 1,000	VMT Analysis Not Needed/VMT Impacts Presumed Less Than Significant
1,000 and Greater	VMT Analysis Recommended

The advantage of this alternative for determining minimum project size is that it is based on the engineering judgment of professionals who are experts in determining the effect of projects on the transportation system. It has been used successfully for over 19 years in the San Diego region and has received wide acceptance from the transportation profession, decision makers, and the public. Transportation engineers and planners who support this alternative for determining minimum project size consider it to be equally valid for the current LOS-based transportation analyses as well as the new VMT-based analyses taking effect on July 1, 2020.

Alternative 2 – Minimum Project Size Based on Statewide Guidance

Under this alternative, the minimum project size for VMT analysis would be based on statewide guidance provided by OPR. In OPR's technical advisory, the minimum project size is based a categorical exemption in CEQA that allows expansion of existing structures under certain circumstances. On page 12 of the December 2018 technical advisory, footnote 19, the following language describes the situation: "CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. [CEQA Guidelines, § 15301, subd. (e)(2).]"

OPR uses a general office building as the appropriate project type for the determination of minimum project size based on the exemption described above. Typical ITE trip generation rates are then applied to a 10,000 square-foot general office building which yields a minimum project size based on 110 daily trips.

If this alternative is used in the San Diego region, it is recommended that the use of regional or local trip generation rates be considered in addition to the typical trip generation rate used by OPR. For example, using the SANDAG trip generation manual (Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002), a standard commercial office would generate 20 daily trips per 1,000 square feet. Therefore, a 10,000 square-foot office would be expected to generate 200 daily trips and projects that generate less than 200 daily trips would not require a VMT analysis and would be presumed to have less than significant VMT impacts.

One advantage of this alternative is that it is based on statewide guidance with a reference to CEQA provisions. A second advantage is that it was developed in consideration of VMT as the performance measure for the determination of the transportation impacts of land development projects.

Appendix J: Fire Protection Plan

MEMORANDUM

To:	Hans Schmidt, Fire Marshal – Fire and Marine Safety, Encinitas
From:	Dudek Fire Protection Planning Team, Michael Huff Sr. Director
Subject:	Zona Gale Estates Project Letter Fire Protection Plan
Date:	5/16/2023
cc:	
Attachment(s):	Figures 1 through 5 and Attachments 1 through 3

This Fire Protection Plan is submitted pursuant to Section 4903 of the City of Encinitas 2019 Fire Code to address the potential adverse environmental effects that the proposed Project may have from wildland fire. This FPP further describes mitigation of those impacts to ensure that the above-referenced Project does not unnecessarily expose people, property, or structures to a significant risk of loss, injury, or death involving wildland fires.

This letter provides a summary of modeled fire behavior and proposed Fuel Modification Zone (FMZ) buffers for portions of this development located within open space sphere of influence. Dudek's analysis summarized herein is based on project-related information provided by the project applicant and its planning team; a field assessment, and the Project's modeled fire behavior. The Project is not able to provide FMZs that are 100 feet wide and this FPP provides justifications for proposed alternative materials and methods (AM&Ms).

Following extensive review of available digital site information, including topography, vegetation types, fire history, and the Project's site plan, Dudek fire protection planners conducted a field assessment of the Project on April 15, 2023.

1 Project Description

The Project proposes to develop 9 single-family residential lots within the City of Encinitas, San Diego County, California (Figure 1, Vicinity Map and Figure 2, Project Site Plan). The proposed project consists of residential subdivision development on 2.4 acres of undeveloped land and infrastructure improvements/connections within existing developed areas. The project would generally include site grading and new construction. Specifically, the project proposes to construct nine detached residences, a biofiltration basin, landscaping, and other necessities (a paved road, private driveways, additional off-street parking areas). The project also includes connections and improvements to existing public infrastructure off-site beyond the property such as, but not limited to new portions of Zona Gale Road and utility improvements within Via Cantebria.

2 Environmental Setting

2.1 Location

The Project occurs on Zona Gale Road in Encinitas, which intersects with Via Cantebria. The project is located approximately 1.2 miles east of Interstate (I-) 5, approximately 0.4-mile north of Encinitas Boulevard, and just west of Via Cantebria in the City of Encinitas in north San Diego County, California (Figure 1, Vicinity map). Further and more

specifically, the site occurs immediately east and north of Zona Gale Road (Figure 2, Site Plan), which provides primary access to the site. The site is depicted within Section 11 of Township 13 South, Range 4 West of the U.S. Geological Survey (USGS) 7.5-minute topographic Encinitas quadrangle map. The project site occurs within Assessor Parcel Number (APN) 257-040-11-10, which consists of approximately 2.4 acres.

The project is located within the City's Special Study Overlay Zone, within the Coastal Zone. The project site is situated amongst land zoned residential and rural residential (Figure 3). The Project is also within a CAL FIRE and City designated Very High Fire Hazard Severity Zone (VHFHSZ), occurring in the extreme southern portion of the City's northerly fire hazard area (Figure 4). CAL FIRE's Fire and Resource Assessment Program (CAL FIRE 2022) fire history data[1] indicates wildfires have occurred within a 5-mile vicinity of the Project site; however, there have been no recorded wildfires on-site. The most recent wildfire in the Project vicinity was the 2014 Cocos Fire.

The project area is surrounded by urbanized landscapes in all directions (west to the ocean, east for 2.5 miles, and south for 1 mile and to the San Elijo Lagoon) except to the north, which includes a mix of development and a linear polygon of preserved CSS.

2.2 Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower fire spread down-slope, unless downslope winds are influencing the fire. Flat terrain tends to have little effect on fire spread, resulting in fires that are primarily wind driven.

The Project site elevations range between approximately 335 to 394 feet above mean sea level (amsl). The site is highest in the southwest and decreases in elevation rapidly from west to east, with the lowest points along Via Cantebria Road. The development footprint is situated at the top of slope on a flatter portion of the site, above the rock face separating the higher and lower site elevations. The steepest terrain associated with the slope is nearly vertical in places and will be preserved to the east of the developed lots.

2.3 Climate

Inland, northern San Diego County and the Project area's weather are influenced by the Pacific Ocean and are frequently under the influence of a seasonal, migratory subtropical high-pressure cell known as the "Pacific High" (WRCC 2022a). Wet winters and dry summers with mild seasonal changes characterize the Southern California climate. This climate pattern is occasionally interrupted by extreme periods of hot weather, winter storms, or dry, easterly Santa Ana winds. The average high temperature for the project area is approximately 76°F, with average highs in the summer and early fall months (June–September) reaching 88°F. Precipitation typically occurs from December through March with annual rainfall averaging 16 inches (WRCC 2022b). The prevailing wind pattern is from the west (on-shore), but the presence of the Pacific Ocean causes a diurnal wind pattern known as the land/sea breeze system. During the day, winds are from the west–southwest (sea) and at night, winds are from the northeast (land), averaging two miles per hour (mph). During the summer season, the diurnal winds may average slightly higher (approximately 16 mph) than the winds during the winter season due to greater pressure gradient

[1] Based on polygon GIS data from CAL FIRE FRAP, which includes data from CAL FIRE, USDA Forest Service Region 5, BLM, NPS, Contract Counties and other agencies. The data set is a comprehensive fire perimeter GIS layer for public and private lands throughout the state and covers fires 10 acres and greater between 1878–2018.

forces. Surface winds can also be influenced locally by topography and slope variations. The highest wind velocities are associated with downslope, canyon, and Santa Ana winds.

The Project area's climate has a large influence on the fire risk, as drying vegetation during the summer months becomes fuel available to advancing flames should an ignition be realized. Typically, the highest fire danger is produced by the high-pressure systems that occur in the Great Basin, which result in the Santa Ana winds of Southern California. Sustained wind speeds recorded during recent major fires in San Diego County exceeded 30 mph and may exceed 65 mph during extreme conditions. The Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis during late summer and early fall. Santa Ana winds are warm and dry winds that flow from the higher desert elevations in the north through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Santa Ana winds generally coincide with the regional drought period and the period of highest fire danger. The Project site is affected by Santa Ana winds from the north and east. The slopes are generally in alignment with the extreme Santa Ana wind events, which can influence fire spread by creating downslope and down canyon wind-driven fires.

2.4 Vegetation

Vegetation on and adjacent to the Project site affects fire behavior. The Project site includes southern maritime chaparral that is uniform in the southern portion and broken in the northern portion, including substantial bare ground. Table 1 summarizes the site's Vegetation (Helix 2020). The slope above Via Cantebria includes open rock face, scattered SMC, and clustered Torrey pines adjacent to the road. SMC continues to the north offsite to W. Bluff Drive. Beyond W. Bluff Drive is continuous SMC to Leucadia Blvd, and then it continues to Batiquitos Lagoon. This roughly 2.25 mile stretch of vegetation, which is no more than 0.3 miles wide, represents the primary wildfire threat to the site.

The water tank site to the south of the planned development footprint will remain in place and includes typical screening vegetation including eucalyptus trees, along with several pine trees.

Table 1
EXISTING VEGETATION/HABITAT TYPES [1]

Vegetation Community or Land Cover Type	Project Site		TOTAL
	On-Site	Off-Site	
Upland			
Non-native Vegetation (11000)	0.3	0.1	0.4
Disturbed Habitat (11300)	0.3	0.1	0.4
Developed (12000)	0.1	0.1	0.2
Southern Maritime Chaparral (37C30)	1.2	-	1.2
Southern Maritime Chaparral-disturbed form (37C30)	0.2	-	0.2
TOTAL	**2.1**	**0.3**	**2.4**

[1] Acres rounded to the nearest 0.1 acre.

All vegetation within the development footprint will be removed. Once the Project is built, the on-site vegetation would primarily be characterized as hardscape or irrigated landscape. Offsite vegetation includes landscape plantings associated with neighboring residential properties along with remnant SMC to the east and to the north.

3 Project Exposure to Wildland Fires

The Project, once constructed, would have minimal exposure to wildland fires, with preserved, naturalized vegetation to the east, below the steep slope face and to the north along the preserved open space. The fuel loads within these areas is not anticipated to result in an extended duration wildfire event near the Project, as the fuels would be consumed rapidly and are minimal in extent adjacent to the Project's proposed footprints. The primary wildfire exposure threat is likely related to potential ember cast from a wildfire to the north under a Santa Ana wind even with winds tending more north-south than east-west. The Project would address this potential threat through application of Chapter 7-A of the 2022 California Building Code.

3.1 Water Supply

Water for the Project would be provided by the Olivenhain Municipal Water District which provided a can and will serve letter in 2019. On-site firefighting water needs will be met from on-site fire hydrants to the code specifications of the Escondido Fire and Marine Safety Department.

Automatic Fire Sprinkler Systems shall be required in accordance with National Fire Protection Association Standard (NFPA 13D) and Encinitas Fire Department requirements. The proponent will submit plans to the Fire Prevention Bureau, demonstrating the water system capable of handling firefighting and fire sprinkler operations.

3.2 Fire Access Roads

Access to the Project site would be provided via Zona Gale Road, which intersects Via Cantebria.

All streets shall be designed to the City of Encinitas and the EFD road standards. No fire apparatus access roadway or driveway shall exceed a 15% grade without mitigation. Therefore, portions of Zona Gale Road may require mitigation due to grades that may exceed 15%. If the final grade exceeds 15%, mitigation would require the entire length of the >15% grade road surface to be constructed of Portland cement concrete with a deep broom finish running perpendicular to the direction of travel to enhance traction.

All fire apparatus access roads shall be of an all-weather surface designed to the City of Encinitas standards and shall be designed to support imposed loads of fire apparatus not less than 75,000 lbs.

Fire apparatus roadways are required to have an unobstructed improved width of not less than 24 feet, curb line to curb line, or edge of pavement to edge of pavement where no curbs are proposed with an angle of departure and approach not to exceed twelve percent (12%). All fire access roadways shall be signed No Parking to maintain access. As proposed, Zona Gale would be extended to provide 24-foot-wide access into the Project's entrance, where it would be reduced in width to 21 feet. Street A within the Project would also be 21-feet wide. No parking would be allowed where the road is less than 28 feet in width.

All dead-end fire apparatus access roadways in excess of 150 feet in length shall be provided with a EFD approved turnaround. Minimum vertical clearance of 13 feet 6 inches will be maintained for the entire required width of fire access roads.

All access and internal road surfaces will consist of asphalt pavement and would be capable of supporting the imposed loads of fire apparatus (not less than 75,000 lbs.). All proposed roads would be improved with asphalt pavement to facilitate on-site circulation for emergency vehicles. Additionally, the HOA and/or private property owners adjacent to the site's roads would maintain all roadside landscape in a fire safe condition.

3.3 Gates

There are no gates planned for the Project site. Should gates be contemplated in the future, they would comply with all applicable Encinitas Fire Code requirements (Fire Code Sec 503.6).

3.4 Fire Hydrants

The Project will provide fire hydrants per Fire Code Sec 507.5.101 which requires hydrants for single family homes every 350 feet.

3.5 Fire Response

The Encinitas Fire Department (EFD) serves residents of Encinitas (New and Old), Olivenhain, Leucadia, and Cardiff. Fire protection services are also provided to the Cities of Solana Beach and Del Mar. The City of Encinitas is located within the County of San Diego's County Service Area (CSA) 17. Emergency medical services within CSA-17 are provided by the San Diego Medical Services Enterprise (SDMSE). The ambulance provider reports their compliance with this requirement on a monthly basis to the County. Ambulance transport service is provided through American Medical Response (AMR). AMR ambulances are stationed at Solana Beach Station 1, Encinitas Station 2 and Encinitas Station 5. There are six fire stations in the City, which allow firefighters and paramedics to provide timely responses to emergencies and to efficiently respond to volume demand. Five of the six stations house an engine company consisting of three fire suppression personnel who staff a Type I fire engine, as well as various other emergency apparatus for specialized responses. Fire Station 6 in Olivenhain consists of two fire suppression personnel rather than three. In 2018, the EFD's average response time for the City as a whole was 5 minutes and 45 seconds. In addition to fire suppression and prevention, the Encinitas Fire Department provides marine safety and disaster preparedness services. City lifeguards provide beach safety for 4 miles of Encinitas beaches and responds to calls for wildlife rescues, cliff rescues and other accidents in local lagoons and rivers.

The Project site is located within the City of Encinitas' responsibility area. Emergency response for the Project would be provided by EFMS, with Fire Station 5, located at 540 Balour Drive being the closest station. Fire Station 5 is staffed by a truck company. Encinitas Fire stations are staffed 24 hours per day, 7 days per week.

Station 5 is approximately 0.65 miles from the most remote portion of the Project site with a calculated travel time of approximately 1 minutes and 46 seconds[2]. Therefore, EFMS can respond to the Project site within the City's adopted performance goal.

Call Volume

The Project proposes the development of 9 single family residential lots, which would generate a population of approximately 30 residents (SANDAG 2022). In 2019, the EFMSD responded to a total of nearly 7,000 calls. The total

[2] Calculated using the nationally recognized RAND Corporation formula used by the Insurance Services Office (ISO) Public Protection Classification Program's Response Time Standard: (T=0.65 + 1.7D), where T=time and D=distance).

population within the EFD service area is 65,000 (SANDAG 2022); therefore, the estimated number of annual calls per 1,000 population is 108 (generation rate of 0.108), the Project would potentially generate up to 3.2 calls per year (roughly 0.3 calls per month or 0.009 call per day), most of which would be expected to be medical-related calls, consistent with typical emergency call statistics (Refer to Table 2 for call volume calculations).

Table 2. Calculated Call Volume Associated with the Rancho Guejito Project

Emergency Calls per 1,000 (City of Encinitas Data)	Number of Residents	Avg. No. Calls per Year (30\1,000)x108	Avg. No. Calls per Day (3.3/365)
108	30 (estimate)	3.2	0.009

Service level requirements are not expected to be significantly impacted with the increase of approximately 0.3 calls per month for the local fire response system. For example, EDF's Station 5's Engine currently responds to roughly 4 call per day (1,575 calls per year, approximately 131 calls per month or 30 calls per week) in its primary service area. For reference, a Fire Station that responds to 5 calls per day in an urban setting is considered average and 10 calls per day is considered busy. Therefore, the Project is not expected to cause a decline in the emergency response times. The requirements described in this FPP are intended to aid firefighting personnel and minimize the demand placed on the existing emergency service system.

3.6 Building Construction

Due to its location within an Encinitas Fire Hazard Severity Zone, all new structures will meet applicable Fire and Building Codes pursuant to requirements for ignition resistance (California Building Code, Chapter 7A). While the Project would not be considered a shelter-in-place development, these structures would be intended to provide temporary refuge as a contingency to evacuation should evacuation be considered less safe, particularly given the Project's location in an urbanized setting with minimal exposure to significant wildland fuels. Hardening each building against a wildfire would require building features as follows:

- Application of California Building Code Chapter 7A, ignition resistant building requirements in its entirety, including:
    a. New Class-A fire-rated roof and associated assembly. With the proposed Class-A fire-rated roof, there will be attic or void spaces above living spaces requiring ventilation to the outside environment. The attic spaces will require either ember-resistant roof vents or a minimum 1/16-inch mesh and shall not exceed 1/8-inch mesh for side ventilation (recommend BrandGuard, O'Hagin, or similar vents).
    b. Minimum 1-hour rated exterior walls and doors; one layer of 5/8-inch type X gypsum sheathing applied behind the exterior covering or cladding on the exterior side of the framing, from the foundation to the roof, for all exterior walls of each building.
    c. Multi-pane glazing with a minimum of one tempered pane, fire-resistance rating of not less than 20 minutes when tested according to NFPA 257 (such as SaftiFirst, SuperLite 20-minute rated glass product), or be tested to meet the performance requirements of State Fire Marshal Standard 12-7A-2
    d. Automatic, Interior Fire Sprinkler System to installed for all buildings on the Project site.

3.7 Fire Protection Systems

An approved, automatic fire sprinkler system will be installed in all new structures for the Project in accordance with minimum NFPA 13D[3] standards, 2022 CFC and CBC, and Fire Code or the current, adopted Code editions at the time building permits are issued.

3.8 Defensible Space

The site will be maintained free of combustible vegetation throughout the property. A Fuel Modification Zone (FMZ) will be provided that is a reduced width (less than 100 feet) and additional fire protection measures will be offered as alternative materials and methods, as described in following sections.

Where FMZ occurs within Hillside/Inland Bluff Overlay Zone, initial plant removal and annual thinning for fire buffer purposes will be completed by hand and not classified as "grading", and therefore, is not considered a steep slope encroachment. The areas to be cleared by hand tools and re-vegetated within the steep slope areas have been previously disturbed and currently retain a pervious surface and bare ground with scattered vegetation.

The California Coastal Commission limits the amount of disturbance as a distance from the grading line – no more than 30 feet into habitat. Fire hardening mitigations are proposed, as detailed in the Alternative Materials and Methods proposal below.

3.9 Fire Behavior Modeling

Dudek utilized BehavePlus software package (version 6.0) to analyze potential fire behavior for the eastern and northern edge of the project site, with assumptions made for the untreated fuel conditions. The following summarizes the inputs, data sources, and assumptions for the fire behavior modeling analysis:

Weather and Wind Analysis: Historical weather data for the Encinitas region was utilized in determining appropriate fire behavior modeling inputs for the Project area. 50th and 97th percentile moisture values were derived from Remote Automated Weather Station (RAWS) and utilized in the fire behavior modeling efforts conducted in support of this report. Weather data sets from the Wire Mountain RAWS (ID number 045749)[4] were utilized in the fire modeling runs.

RAWS fuel moisture and wind speed data were processed utilizing the Fire Family Plus software package to determine atypical (97th percentile) and typical (50th percentile) weather conditions. Data from the RAWS was evaluated from August 1 through November 30 for each year between 2016 and 2020 (extent of available data record) for 97th percentile weather conditions and from June 1 through September 30 for each year between 2016 and 2020 for 50th percentile weather conditions.

Following analysis in Fire Family Plus, fuel moisture information was incorporated into the Initial Fuel Moisture file used as an input in BehavePlus. Wind speed data resulting from the Fire Family Plus analysis was also

[3] NFPA 13D. Standard for the Installation of Sprinkler Systems in Detached Single Family Residential Occupancies. 2022 Edition.
[4] Wire Mountain RAWS Station Latitude and Longitude: 33.237988, -117.365319

determined. Initial wind direction and wind speed values for the two BehavePlus runs were manually entered during the data input phase. The input wind speed and direction is roughly an average surface wind at 20 feet above the vegetation over the analysis area. Table 3 summarizes the wind and weather input variables used in the Fire BehavePlus modeling efforts.

Table 3: Variables Used for Fire Behavior Modeling

Model Variable	Summer Weather (50th Percentile)	Peak Weather (97th Percentile)
Fuel Models	Sh2 and Sh5	Sh2 and Sh5
1 h fuel moisture	6%	2%
10 h fuel moisture	7%	3%
100 h fuel moisture	15%	5%
Live herbaceous moisture	59%	30%
Live woody moisture	118%	60%
20 ft. wind speed	14 mph (sustained winds)	18 mph (sustained winds); wind gusts of 50 mph
Wind Directions from north (degrees)	220	10, 50, 165
Wind adjustment factor	0.4	0.4
Slope (uphill)	3%	19% up to 40%

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Terrain: Slope gradients utilized in fire behavior modeling range from 3% to 40%.

Fuels: To support the fire behavior modeling efforts conducted for the Zona Gale Estates Project FPP Letter Report, the different vegetation types observed within the project areas and adjacent to the project site were classified into the aforementioned numeric fuel models. Vegetation types, which were derived from the field assessment for the project site, were classified into a fuel model. As is customary for this type of analysis, the terrain and fuels within and adjacent to the project area were used for determining flame lengths and fire spread. It is these fuels that would have the potential to affect the project's structures from a radiant and convective heat perspective as well as from direct flame impingement. The project site includes southern maritime chaparral that is uniform in the southern portion (Fuel Model Sh2 and Sh5) and broken in the northern portion, including substantial bare ground (Sh1 and Sh2). These fuel types have the potential to produce flying embers that may affect the project, but defenses will have been built into the structures to prevent ember penetration. Table 4 provides a description of the two existing fuel models observed in the vicinity of the site that were subsequently used in the analysis for this project. A total of four fire modeling scenarios were completed for the project area. These modeling scenario locations were selected based on the small possibility of fire approaching from these directions during a Santa Ana wind-driven fire event (fire scenarios 1 through 3) and an on-shore weather pattern (fire scenario 4). Dudek also conducted modeling of the site for post-Fuel Modification Zones' (FMZ) recommendations for this project (Refer to Table 5 for post-FMZ fuel model descriptions). Fuel modification includes establishment of an irrigated zone on the periphery of the single-family residential structures. For modeling the post-FMZ treatment condition, fuel model assignments were re-classified for the FMZ 1 (Fuel Model Gr1). *Attachment 1: Fuel Type Photo Series* provides representative photographs of the fuel types and plant spacing in each fire scenario.

Table 4. Existing Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
Sh1	Low-load, Dry Climate Shrubs	Represents the shrub vegetation located around the northern and western perimeter areas of the project without maintenance.	1.0 ft.
Sh2	Moderate-load, Dry Climate Shrubs	Represents the shrub vegetation located around the perimeter of the project without maintenance.	<2.0 ft.
Sh5	High-load, Dry Climate Shrubs	Represents the shrub vegetation located around the north and east perimeter areas of the project without maintenance.	>4.0 ft.

Table 5. Post-development Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
Gr1	Short, sparse, dry climate grasses	Fuel Modification Zone 1: irrigated landscape throughout the Project site	<1.0 ft.

Wildfire Potential Findings

As mentioned, the BehavePlus fire behavior modeling software package was utilized in evaluating anticipated fire behavior adjacent to the proposed project site. Four focused analyses were completed for both the existing project site conditions and the post project conditions, each assuming worst-case fire weather conditions for a fire approaching the project site from the north, northeast, southeast, and south/southwest. The results of the modeling effort included anticipated values for surface fires flame length (feet), rate of spread (mph), fireline intensity (Btu/ft/s), and spotting distance (miles). The aforementioned fire behavior variables are an important component in understanding fire risk and fire agency response capabilities. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews, Bevins, and Seli 2008). Fireline intensity is a measure of heat output from the flaming front, and also affects the potential for a surface fire to transition to a crown fire. Fire spread rate represents the speed at which the fire progresses through surface fuels and is another important variable in initial attack and fire suppression efforts (Rothermel and Rinehart 1983). Spotting distance is the distance a firebrand or ember can travel down wind and ignite receptive fuel beds. Four fire modeling scenario locations were selected to better understand the different fire behavior that may be experienced on or adjacent the site based on slope and fuel conditions; these four fire scenarios are explained in more detail below:

Fire Scenario Locations and Descriptions:

- **Scenario 1:** A fall, off-shore fire (97th percentile weather condition) burning through low- to moderate-load shrubs and chaparral dominated vegetation north of the proposed project site. The terrain is moderately steep (approximately 24% slope) with potential ignition sources from a car or structure fire originating within the existing residential community below the project site and extending up the adjacent slope towards the northern portion of the project site.

- **Scenario 2:** A fall, off-shore fire (97th percentile weather condition) burning through low- to high-load shrubs and chaparral dominated vegetation northeast of the proposed project site. The terrain is very steep (approximately 40% slope) with potential ignition sources from a car or structure fire originating within the existing residential community to the north or along Via Cantebria. This type of fire would start below the project site and extend up the adjacent slope (some locations being bare) towards the northeastern and eastern sides of the project site.
- **Scenario 3:** A fall, off-shore fire (97th percentile weather condition) burning through low- to high-load shrubs and chaparral dominated vegetation southeast of the proposed project site. The terrain is moderately steep (approximately 19% slope) with potential ignition sources from a car or structure fire originating along Zona Gale within the existing residential community to the south or along Via Cantebria. This type of fire would start below the project site and extend up the adjacent slope (some locations being bare) towards the southern and eastern sides of the project site.
- **Scenario 4:** A summer, on-shore fire (50th percentile weather condition) burning through low- to moderate-load shrubs and chaparral dominated vegetation south/southwest of the proposed project site. The terrain is flat (approximately 3% slope) with potential ignition sources from a car or structure fire originating within the existing residential community directly to the west of the project site. This type of fire would typically spread slowly towards the western portion of the development.

The results presented in Tables 6 and 7 depict values based on inputs to the BehavePlus software and are not intended to capture changing fire behavior as it moves across a landscape. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

As presented in Table 6, wildfire behavior adjacent to the project site is expected to be primarily of moderate to high intensity through the non-maintained surface shrub and chaparral dominated fuels downslope on the eastern side of the project site. Worst-case fire behavior under peak weather conditions (represented by Fall Weather, Scenario 2) is anticipated to be a wind-driven fire from the north/northeast during the fall. Under such conditions, expected surface flame length are expected to be between approximately 10 feet and up to 41 feet with wind speeds of 50+ mph. Under this scenario, fireline intensities reach 18,924 BTU/feet/second with moderate spread rates up to 6.4 mph and could have a spotting distance up to 2.4 miles away. Wildfire behavior through the non-maintained low- to moderate-load shrub and chaparral dominated fuels being fanned by 14 mph sustained, from the west/southwest and pushed by on-shore ocean breezes typically exhibit less severe fire behavior due to lower wind speeds and higher humidity. Under typical onshore weather conditions, a surface vegetation fire could have flame lengths between approximately 2 feet and 13 feet in height and spread rates between 0.1 and 0.7 mph. Spotting distances, where airborne embers can ignite new fires downwind of the initial fire range from 0.1 to 0.4 miles.

As depicted in Table 7, post development fire behavior expected in the irrigated and replanted with plants that are acceptable with the Encinitas Fire Department (FMZ Zone 1 – Gr1 under peak weather conditions experience a significant reduction in flame length and intensity. The approximately 42-foot flame lengths predicted for non-maintained chaparral vegetation during pre-treatment modeling for fire scenario 2 are reduced to approximately 3.0 feet by the time the inner portions of the FMZ (Zone 1) are reached. During on-shore weather conditions, a fire approaching from the

west/southwest towards the development footprint would be reduced from approximately 13-foot flames to less than 3 feet tall for Zone 1, with low fire intensity and spotting distances due to the higher live and dead fuel moisture contents. These reduction of flame lengths and intensities are assumed to occur within the reduced fuel modification zones that are achieved throughout the site (due to site boundary restrictions). Therefore, the FMZs proposed for the Zona Gale Estates Project along with proposed structure and property mitigations would provide adequate defensible space to augment a wildfire approaching the perimeter of the Project site.

Table 6: RAWS BehavePlus Fire Behavior Model Results – Existing Conditions

Fire Scenarios	Flame Length[1] (feet)	Fireline Intensity[1] (BTU/feet/second)	Spread Rate[1] (mph[2])	Spotting Distance[1] (miles)
Scenario 1: 24% slope; Fall off--shore extreme winds (97th percentile) – Pre-FMZ (N/NE of project site)				
Low-load shrubs (Sh1)	5.4 (9.5)[3]	221 (760)	0.4 (1.3)	0.3 (0.8)
Moderate-load shrubs (Sh2)	8.2 (15.2)	553 (2,108)	0.2 (0.9)	0.4 (1.1)
Scenario 2: 40% slope; Fall off--shore extreme winds (97th percentile) – Pre-FMZ (N/NE of project site)				
Low-load shrubs (Sh1)	5.5 (9.5)	234 (760)	0.4 (1.3)	0.3 (0.8)
Moderate-load shrubs (Sh2)	8.5 (15.3)	590 (2,144)	0.3 (1.0)	0.4 (1.1)
High-load shrubs (Sh5)	24.9 (41.7)	6,134 (18,924)	2.1 (6.4)	0.8 (2.3)
Scenario 3: 19% slope; Fall off–shore extreme winds (97th percentile) – Pre-FMZ (E of project site)				
Low-load shrubs (Sh1)	5.3 (9.5)	212 (760)	0.3 (1.3)	0.3 (0.8)
Moderate-load shrubs (Sh2)	8.0 (15.1)	528 (2,083)	0.2 (0.9)	0.4 (1.1)
High-load shrubs (Sh5)	23.8 (41.2)	5,590 (18,391)	1.9 (6.2)	0.8 (2.3)
Scenario 4: 3% slope; Summer on–shore winds (50th percentile) – Pre-FMZ (W/SW of project site)				
Moderate-load shrubs (Sh2)	1.5	14	0.0	0.1
High-load shrubs (Sh5)	13.0	1,489	0.7	0.4

Note:

1. Wind-driven surface fire.
2. MPH=miles per hour.
3. Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph

Table 7: RAWS BehavePlus Fire Behavior Model Results – Post Project Conditions

Fire Scenarios	Flame Length[1] (feet)	Fireline Intensity[1] (BTU/feet/second)	Spread Rate[1] (mph[2])	Spotting Distance[1] (miles)
Scenario 1: 24% slope; Fall off--shore extreme winds (97th percentile) – Pre-FMZ (N/NE of project site)				
Fuel modification zone 1 (Gr1)	3.1 (3.1)[3]	67 (67)	0.5 (0.5)	0.2 (0.4)
Scenario 2: 40% slope; Fall off–shore extreme winds (97th percentile) – Pre-FMZ (N/NE of project site)				
Fuel modification zone 1 (Gr1)	3.1 (3.1)	67 (67)	0.5 (0.5)	0.2 (0.4)
Scenario 3: 19% slope; Fall off–shore extreme winds (97th percentile) – Pre-FMZ (E of project site)				
Fuel modification zone 1 (Gr1)	3.1 (3.1)	67 (67)	0.5 (0.5)	0.2 (0.4)
Scenario 4: 3% slope; Summer on–shore winds (50th percentile) – Pre-FMZ (W/SW of project site)				
Fuel modification zone 1 (Gr1)	1.8	21	0.2	0.1

Note:

1. Wind-driven surface fire.
2. MPH=miles per hour.

3. Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph

Note: The results presented depict values based on inputs to the BehavePlus software and are not intended to capture changing fire behavior as it moves across a landscape. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. Model results should be used as a basis for planning only, as actual fire behavior for a given location would be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

The results of fire behavior modeling efforts are presented in further detail in Attachment 2, Fire Behavior Modeling Summary Report.

3.10 Fuel Modification Zones

Cohen (1995) performed structure ignition fire research studies that suggest, as a rule-of-thumb, larger flame lengths and widths require wider fuel modification zones to reduce structure ignition. For example, valid Structure Ignition Assessment Modeling results indicate that a 20-foot-high flame has minimal radiant heat to ignite a structure (bare wood) beyond 33 feet (horizontal distance). Whereas, a 70-foot-high flame requires about 130 feet of clearance to prevent structure ignitions from radiant heat (Cohen and Butler 1996). This fire study utilized bare wood, which is more combustible than the ignition resistant exterior walls for structures built today. For this project, assuming 45-foot flame lengths, a 100-foot-wide FMZ would be appropriate on the eastern/northeastern side of the Project and would be consistent with City of Encinitas's requirements for defensible space in areas adjacent to open space lands.

Based on the preliminary site plan, Lots 1 through 5 would require FMZ. These lots can achieve between approximately 17 and 53 feet of FMZ Zone 1, which would be irrigated and re-planted with less flammable plant material. Figure 5 presents the site's proposed Fuel Modification Zones.

Fuel Treatment

The following descriptions are the proposed treatments for the Project's FMZs. All distances in this report are measured horizontally. Normally 100 feet of treated area is required (50 feet of irrigated Zone 1 and 50 feet of non-irrigated thinning Zone 2, which is not proposed on this site), however due to open space and Coastal Commission brush management limits, 100 feet is not achievable. Therefore, fuel treatments will consist only of irrigated zones and additional fire protection construction features which have been utilized for similar projects throughout southern California and are specified to mitigate the radiant and convective heat effects of a wildland fire for the projected roughly 45-foot flame lengths under the worst case modeled scenarios.

Based on the reduced FMZs, additional construction features, which are outlined in Attachment 3, shall be required as AM&Ms. Incorporating on site building and landscape features and WUI compliant building construction, combined with the available fuel treatments, will mitigate the radiant and convective heat effects of a wildland fire for the projected flame lengths under a worst-case scenario.

Zone "0"

Zone 0 is designed to keep fire or embers from igniting materials that can spread the fire to buildings. The Zone extends from all structures to 5 feet from the structure and requires hardscape like gravel, pavers, concrete and other noncombustible mulch materials. No combustible bark or mulch is allowed. The zone requires limiting combustible items in this zone i.e. garbage and recycling containers, vehicles and other combustible items.

Irrigated Zone 1 – HOA/Property Manager Maintained

Defined

Zone 1 is commonly called the defensible space zone. It is an irrigated zone and shall be free of all combustible construction and materials. It comprises the entire area around the front, back, and side yards of the proposed structures and all the way to the Project development boundary. All FMZ areas on the Project site will be to Zone 1 standards and will range from approximately 17 to 53 feet. There will be no thinning only zone. FMZ occurs within the private yards of each of the lots and therefore, property owners will be responsible for maintenance and compliance.

Required Landscaping

FMZ directly adjacent to structures and the landscape areas will be cleared of all existing native vegetation and replanted with drought tolerant and irrigated fire-resistant lawns, ground covers and shrubs. Landscaping shall be irrigated and primarily consist of fire resistant, maintained native or ornamental plantings usually less than 18 inches in height. However, this zone may contain occasional fire-resistant trees and single well-spaced ornamental shrubs up to 48 inches in height, intermixed with ground covers and lawn. Shrubs and ground covers may be located no closer than five feet from the structures provided these plants will not carry fire to the structure. Trees must be planted so that when they reach maturity the tips of their branches are at least 10 feet away from any structure and must have a minimum of six feet of vertical separation from low growing irrigated vegetation beneath the canopy of the tree.

Plants throughout the FMZ will be restricted to fire resistant species and shall not include any pyrophytes that are high in oils and resins such as pines, eucalyptus, cedar, cypress or juniper species. Thick, succulent or leathery leaf species with high moisture content are the most "fire resistant". Non-flammable concrete patios, driveways, swimming pools, walkways, boulders, rock, and gravel can be used to break up fuel continuity within the areas immediately adjacent the buildings.

Biofiltration Basin

Planned biofiltration basin(s) will be managed and maintained according to City of Encinitas requirements. Therefore, it is considered compatible with FMZ thinning zone and does not present an unmitigated threat to the site's planned structures.

3.11 Vegetation Management

The post-construction wildfire threat to this project occurs in the open space areas to the north and east of the development area which contain flammable native and non-native vegetation. Terrain on the eastern portion of the Project site is favorable in that a steep, sparsely vegetated rock face provides vertical separation from the fuels below. This effectively provides structural discontinuity to the fuel bed and acts as a wall, minimizing fire spread and ability for fire to impact the homes above. To the north, there are fuel beds that could spread wildfire, but the extent and continuity of the fuel bed is not considered to provide a sustainable source of wildfire that would burn for a duration beyond what the Project's structures would be capable of withstanding.

Any wildfire in the area can cause firebrands to be carried a long distance (one mile or more) by fire drafts or strong winds. Any wind or topography driven wildfire burning under a northeastern (*Santa Ana*) wind pattern in the area will create a wildland fire hazard to all of the structures in the proposed development due to falling embers. The

chaparral plants in the open space areas will pose significant fire hazards annually as the plants cure or lose live and dead fuel moisture during hot, dry summer seasons. However, the structures will be built to enhanced ignition resistant status applying Chapter 7A of the CBC and additional measures described below.

Vegetation management throughout the developed portions of the site and the perimeter FMZ will be maintained by the Property owners on at least an annual basis or more often, as directed by the EFMS. Plants used anywhere on the site will be from an approved fire-resistant plant list that is maintained by the City of Encinitas.

Concern for the structures on Lots 1 through 5 adjacent the area with the minimized FMZs is that a wildfire could subject the structures to ignition from flame or heat exposure. The question is whether radiant or convective heat from a wildland fire burning outside of an FMZ would cause structure ignition. To address this issue, it is worthwhile to examine the structure ignitability modeling, independent ignition experiments, and case studies that support fuel treatments widths as low as roughly 34 feet from structures and compare them with the Zona Gale project. Cohens' (1995) structure ignitability model (SIAM) assesses ignitability of bare wood when exposed to a continuous heat source. Cohen's model assumes a worst-case condition of a constant 1,700 degrees (F). A constant, maximum heat source is typically not the case during a wildfire due to the movement of a fire, non-uniform vegetation distribution, and the lack of a uniform, constant flame front. Further, a flame temperature of 1,700 degrees (F) is likely higher than would be experienced by the fuels on this site, but is a valid temperature for testing, as Pyne et al. (1996) confirm that flaming combustion typically occurs in wildland fuels between flame temperatures of 1,466 to 2,186 degrees (F). For comparison, Dennison (2006) studied the heat signatures from a Southern California wildfire that was burning oak woodlands, dense chaparral, sparse chaparral, and grasslands. Results from this study indicate that the maximum temperature commonly observed was 2,200 degrees (F) and associated with the dense, higher fuel load oak and chaparral vegetation while cooler (980 to 1340 degrees (F)) and smaller fires were associated with the mixed chaparral and grasslands. Vegetation on the slopes adjacent the Project includes sparse southern maritime chaparral mixed with bare ground and grasslands. In general, this vegetation type has a lower fuel density and produces lower intensity fire than dense chaparral and this is particularly the case on the Project site due to the exposures and soil types that result in lower plant density and slower growth. Flame temperatures consistent with or lower than those associated with chaparral/grassland would be expected.

The analysis conducted for this report indicates that the structure setbacks of a minimum of 35 feet from non-maintained vegetation is adequate for separating the structures from the short-duration heat and flame associated with a fire burning toward the community in the fuels that occur adjacent to the Project's structures, particularly with the addition of a landscape fire wall at the property perimeter. The typical duration of large flames from burning vegetation is on the order of 1 minute and up to several minutes for larger fuels at a specific location (Cohen 1995; Butler et al. 2004, Ramsay and Rudolph 2003, Cohen and Quarles 2011)). Arguably the most vulnerable exterior feature of the Project's structures would be the windows. The walls are inclusive of at least one-hour fire exposure construction. Windows, according to Chapter 7A of the CBC meet a 20-minute fire exposure rating. The Project's glazing would include two tempered panes, increasing their durability and ratings. Tests of various glazing products indicate that single pane, tempered glass failure may occur between 120 and 185 seconds from exposure (University of California 2011; Manzello et al. 2007) but those tests include direct and constant heating that would not be experienced during a wildfire near the Project. Depending on the heat applied and the type of glass used in the various studies, the cracking/failure time varied. However, given the short duration of maximum heat (likely 60 to 90 seconds for the largest shrubs near the Sage Project), the loss of heat over distance (53 feet minimum), the sloped terrain that would tend to result in a more upright flame and heat column, and the dual pane, both panes tempered glazing specified for this project, the heat experienced by the windows from the wildland fire is not expected to be enough (in temperature or duration) to cause failure of both panes. Quarles et al. (2010) provides

strong endorsement for tempered glass performance. His research and tests conclude that multi-pane (2 to 3 panes) with at least one pane tempered is well-suited for wildfire exposures. He indicates that tempered glass is at least four times stronger and much more resistant to thermal exposures than normal annealed glass. The use of code exceeding dual pane, both panes tempered glass provides several benefits, with thermal exposure performance the most important for this study. As discussed in the next section, the exterior windows on both the first and second floors will be setback from the fuels and the slopes at distances shown to provide additional fire protection.

3.12 Alternate Materials and Methods

Alternate Materials and Methods will be incorporated in the building and site design (Attachment 3).

Dudek's Project analysis indicates that the Project's Fuel Modification Zone (FMZ) reductions for this site are justified based on several factors, including the requirement to build to levels more restrictive than Chapter 7A of the CBC standards, the site terrain which provides a vertical separation via a rock face, and the inclusion of retaining walls, additional vertical fuel separation from the structures, and additional structural enhancements. We, therefore, recommend the following additional fire protection enhancements for all apartment units that best augment the FMZs:

All Structures:

Project Offered Features:

- A 6 feet tall masonry or combination masonry/glass fire wall will be placed along the property lines of Lots 1 through 5. This wall provides a vertical separation between downslope fuels and would deflect flame and capture low-flying embers if a wildfire were to occur in these open space fuels. Glass in the view wall would be dual pane, one pane tempered and typically, these walls include the lower two feet as block or other masonry and the upper four feet as glass.
- All site landscaping and perimeter FMZ areas adjacent lots 1 through 5 will be maintained as irrigated, low fuel Zone 1
- Fuel Modification Zone "0" to be provided immediately adjacent to buildings and outward to 5 feet and to include a low flammability zone of limited plantings, no combustible mulches, and no flammable object storage.
- All buildings to comply with California Building Code Chapter 7A – Ignition Resistant Construction
- Chapter 7A consistent exterior walls with stucco on exterior and code-exceeding Type X-5/8-inch gypsum on interior.
- Provide code-exceeding multi-pane glazing in windows (and sliding glass doors, garage doors, or decorative or leaded glass doors) in all Lot 1 through 5 buildings on **all sides** to be dual pane with both panes tempered glass, exceeding the fire-building code requirement
- No eave overhangs
- Ember resistant vents will be used for any openings and will be sourced from Brandguard, Vulcan or O'Hagin, or similarly tested and SFM approved for ember protection.

The proposed project at buildout would not be expected to expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are located within a High Fire Hazard Severity Zone. The project site is located adjacent to open space areas to the east and north. However, enhanced building construction and vegetation management and fuel modification zones along with ongoing maintenance would be located around the perimeter of the proposed residential development to reduce the potential impact. The additional performance-based mitigation measures will be incorporated in the building design in compliance with the CFC, CBC and the City of Encinitas Municipal Code. Therefore, these measures are considered to provide at least the same practical effect as providing a full 100 feet of FMZ.

3.13 Emergency Pre-Planning - Evacuation

Early evacuation for any type of wildfire emergency at the Project site is the preferred method of providing for resident safety, consistent with the EFD's current approach. As such, the Project would formally adopt, practice, and implement a "Ready, Set, Go!" approach to evacuation. The "Ready, Set, Go!" concept is widely known and encouraged by the State of California and most fire agencies. Pre-planning for emergencies, including wildfire emergencies, focuses on being prepared, having a well-defined plan, minimizing the potential for errors, maintaining the Project site's fire protection systems, and implementing a conservative (evacuate as early as possible) approach to evacuation and Project area activities during periods of fire weather extremes.

Please feel free to contact me regarding this letter FPP and its conclusions.

Respectfully,

Michael Huff 3.25.2022		Michael Huff, Sr. Director
Prepared by (Signature)	Date	Printed Name, Title
Project Applicant (Signature)	Date	Printed Name, Title

Att: *Figure 1 – Project Vicinity*
Figure 2 – Project Site Plan
Figure 3 – Fire History Map
Figure 4 – Fire Behavior Analysis Map
Figure 5 – Project Fuel Modification Zone – Habitat Preservation

Attachment 1 – Photograph Log
Attachment 2 – Fire Behavior Analysis Summary Report
Attachment 3 – Alternative Materials and Methods Proposal

References

California Department of Forestry and Fire Protection (CAL FIRE). 2007. Fire and Resource Assessment Program. San Diego County Fire Hazard Severity Zones in State Responsibility Area. November 6, 2007.

CAL FIRE. 2022. Fire and Resource Assessment Program Mapping Database. Accessed February 2022. http://frap.fire.ca.gov/mapping/gis-data/.

Costello, Laura, 2022. Email communication re: EFD Call Volume. Received March 1, 2022.

County of San Diego. 2017. Guidelines for Determining Significance and Report Format and Content Requirements for Wildland Fire and Fire Protection. Department of Planning and Land Use. April 14, 2017. 65 pp.

Helix. 2020. Zona Gale Estates Project Biological Technical Report. June.

San Diego Association of Governments (SANDAG), 2022. Demographic and Socioeconomic Estimates, Escondido. Accessed February 2022. https://datasurfer.sandag.org/download/sandag_estimate_2020_jurisdiction_escondido.pdf

WRCC (Western Regional Climate Center). 2022a. "Climate of California." Western Regional Climate Center. Accessed February 2022. http://www.wrcc.dri.edu/climate/narratives/california/.

WRCC (Western Regional Climate Center). 2022b. Period of Record Monthly Climate Summary, Escondido, California (042862). Accessed February 2022. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2862

Figures 1, 2, 3, 4, and 5

Figure 1 – Vicinity Map

Figure 2 – Project Site Plan

Figure 3 - Vicinity Land Use Map

Figure 4 - Fire Behavior Modeling Locations

Figure 5 - Proposed Fuel Modification Plan – Habitat Preservation



SOURCE: Bing Maps 2020

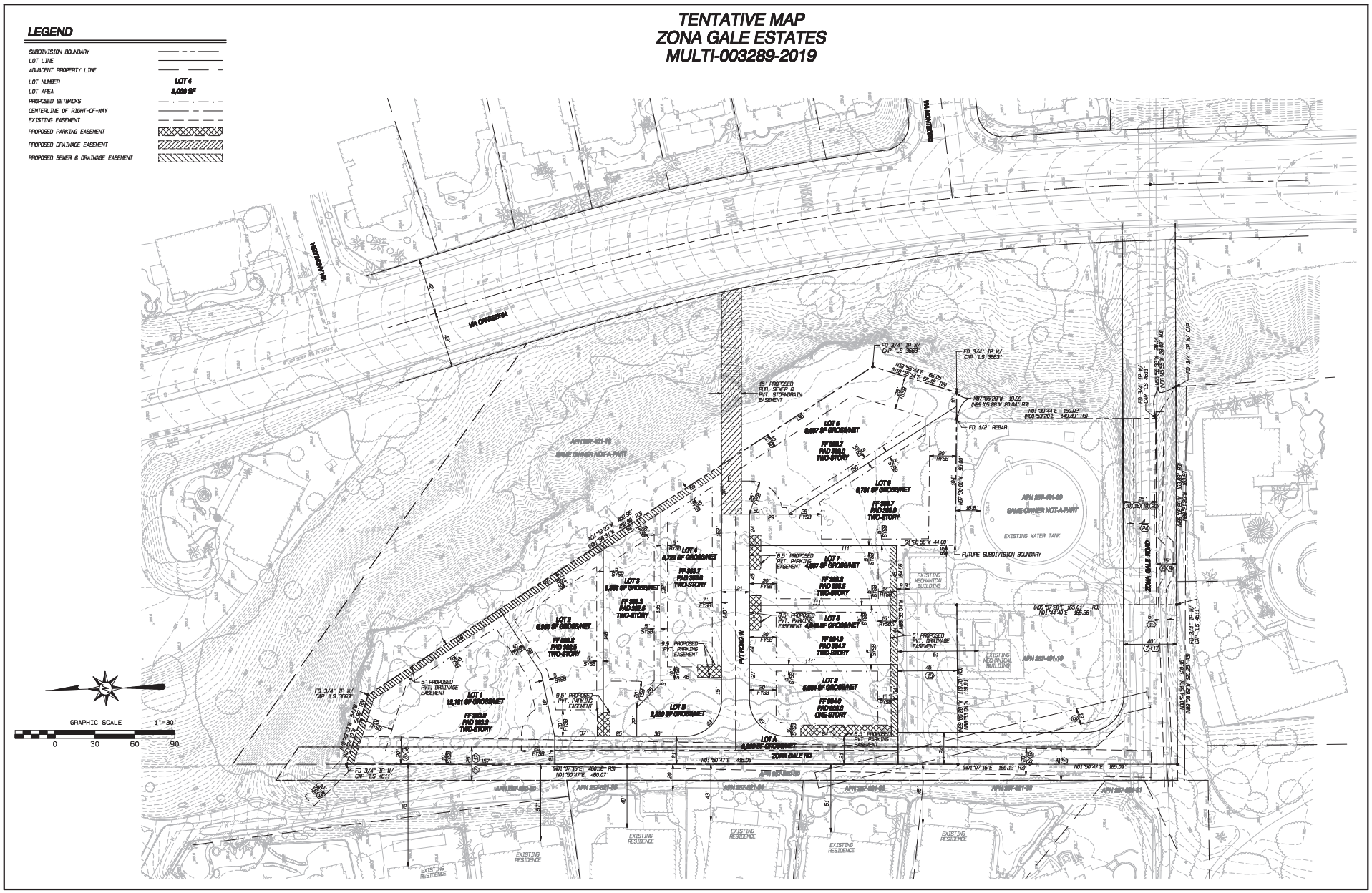
DUDEK

0 250 500 Feet

FIGURE 1

Project Location Map

Zona Gale Estates Project



SOURCE: Pasco Laret Suiter & Associates

DUDEK

FIGURE 2

Proposed Site Plan

Zona Gale Estates Project



SOURCE: Esri; City of Encinitas 2020

DUDEK

0 100 200 Feet

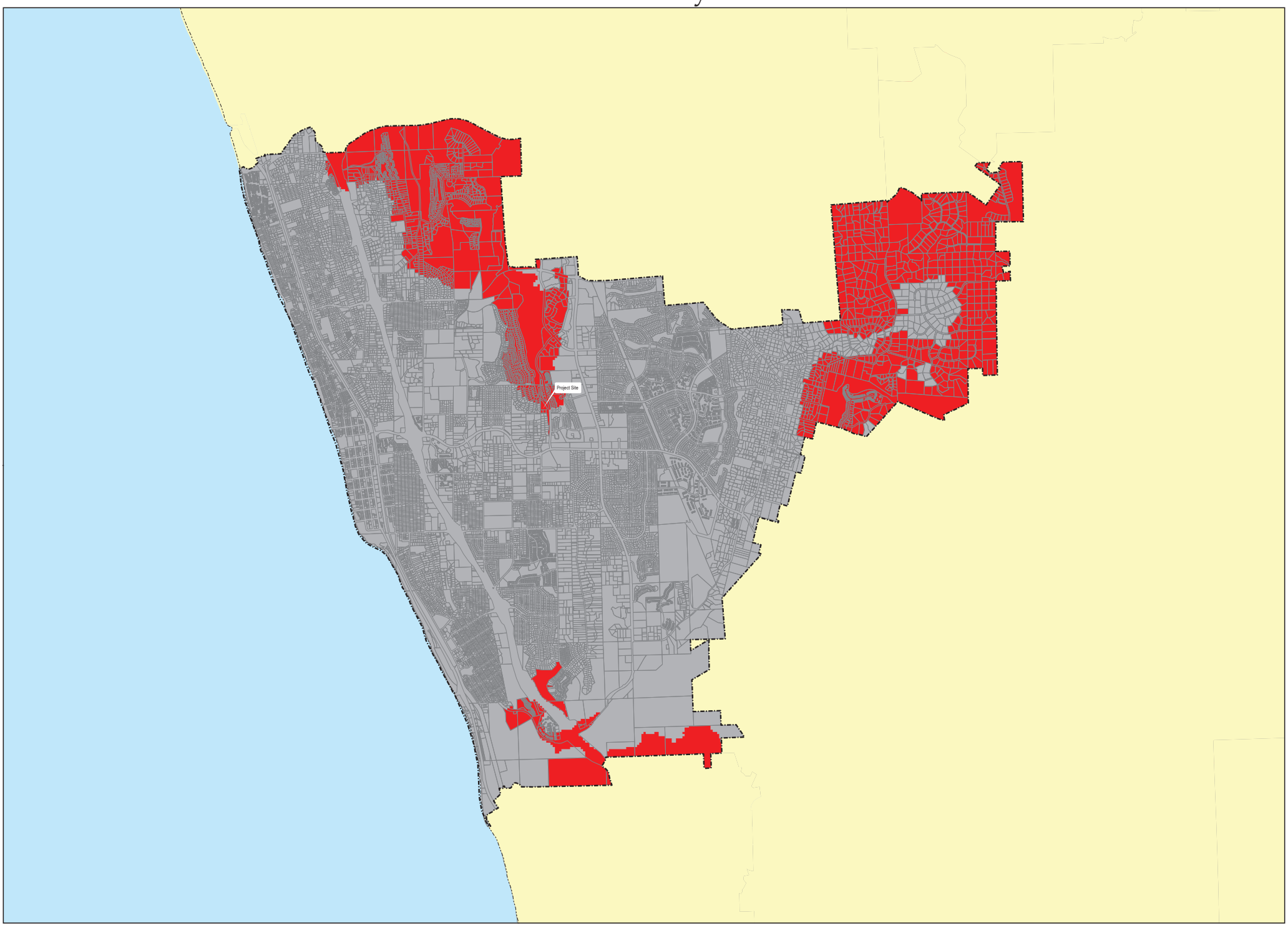
FIGURE 3

Zoning Map

Zona Gale Estates Project

Encinitas

Very High Fire Hazard Severity Zones in LRA
As Recommended by CAL FIRE



Fire Hazard Severity Zones

Local Responsibility Area	State or Federal Responsibility Areas
VHFHSZ	VHFHSZ
Non-VHFHSZ	Non-VHFHSZ

City Boundary
Parcels
County Boundary

Government Code 51175-89 directs the California Department of Forestry and Fire Protection (CAL FIRE) to identify areas of very high fire hazard severity zones within Local Responsibility Areas (LRA). Mapping of the areas, referred to as Very High Fire Hazard Severity Zones (VHFHSZ), is based on data and models of, **potential** fuels over a 30-50 year time horizon and their associated expected fire behavior, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure (including firebrands) to buildings. Details on the project and specific modeling methodology can be found at http://frap.cdf.ca.gov/projects/hazard/methods.htm. Local Responsibility Area VHFHSZ maps were initially developed in the mid-1990s and are now being updated based on improved science, mapping techniques, and data.

In late 2005 to be effective in 2008, the California Building Commission adopted California Building Code Chapter 7A requiring new buildings in VH FHSZs to use ignition resistant construction methods and materials. These new codes include provisions to improve the ignition resistance of buildings, especially from firebrands. The updated very high fire hazard severity zones will be used by building officials for new building permits in LRA. The updated zones will also be used to identify property whose owners must comply with natural hazards disclosure requirements at time of property sale and 100 foot defensible space clearance. It is likely that the fire hazard severity zones will be used for updates to the safety element of general plans.

This specific map is based on a geographic information system dataset that depicts final CAL FIRE recommendations for Very High FHSZs within the local jurisdiction. The process of finalizing these boundaries involved an extensive local review process, the details of which are available at http://frap.cdf.ca.gov/projects/hazard/dmap/ (click on "Continue as guest without logging in"). Local government has 120 days to designate, by ordinance, very high fire hazard severity zones within its jurisdiction after receiving the recommendation. Local government can add additional VHFHSZs. There is no requirement for local government to report their final action to CAL FIRE when the recommended zones are adopted. Consequently, users are directed to the appropriate local entity (county, city, fire department, or Fire Protection District) to determine the status of the local fire hazard severity zone ordinance.

This map was developed using data products such as parcel and city boundaries provided by local government agencies. In certain cases, this includes copyrighted geographic information. The maps are for display purposes only - questions and requests related to parcel or city boundary data should be directed to the appropriate local government entity.

N
W E
S

0 2 Miles

0 3 Kilometers

Projection Albers, NAD 1983
Scale 1: 20,000
at 36" x 36"
June 11, 2009

The State of California and the Department of Forestry and Fire Protection make no representations or warranties regarding the accuracy of data or maps. Neither the State nor the Department shall be liable under any circumstances for any direct, special, incidental, or consequential damages with respect to any claim by any user or third party on account of, or arising from, the use of data or maps.

Obtain FRAP maps, data, metadata and publications on the Internet at http://frap.cdf.ca.gov
For more information, contact CAL FIRE-FRAP, PO Box 944246, Sacramento, CA 94244-2460, (916) 327-3939.

Arnold Schwarzenegger, Governor,
State of California
Mike Chrisman, Secretary for Resources,
The Natural Resources Agency
Del Walters, Director,
Department of Forestry and Fire Protection

MAP ID: FHSZL_c37_Encinitas

DATA SOURCES
CAL FIRE Fire Hazard Severity Zones (FHSZL06_3)



SOURCE: AERIAL-SanGIS 2020; DEVELOPMENT-JPBLA 2021

DUDEK

0 25 50 Feet

FIGURE 5

Fuel Modification Plan

Zona Gale Estates Project

Attachment 1

Site Photograph Log

Zona Gale Estates Project
Fuels Photo Series

MAY 2023

Attachment 1

Sage Canyon Project
Fuels Photo Series



Photograph 1. View of rock face that provides vertical separation between the developed portion of the site on the top of the slope and the preserved portion of the site below the slope.



Photograph 2. View of preserved habitat consisting of southern maritime chaparral to the east of the development footprint and below the rock faced slope.

Zona Gale Estates Project
Fuels Photo Series



Photograph 3



Photograph 4

Photographs 3 and 4 provide a view of the habitat areas north of the Project. Thes fuels are relatively continuous to the Batiquitos Lagoon and represent the highest likelihood for wildfire in the Project's vicinity.

Zona Gale Estates Project
Fuels Photo Series



Photograph 5. View of the water tank along Zona Gale Road facing north. Note eucalyptus and other non-native tree species.



Photograph 6. View along the west side of the Project along the area proposed for extension of Zona Gale Road with an existing development to the west.

Attachment 2

Fire Behavior Analysis Summary Report

FIRE BEHAVIOR MODELING SUMMARY
ZONA GALE ESTATES PROJECT,
ENCINITAS, CALIFORNIA

1 BehavePlus Fire Behavior Modeling History

Fire behavior modeling has been used by researchers for approximately 50+ years to predict how a fire will move through a given landscape (Linn 2003). The models have had varied complexities and applications throughout the years. One model has become the most widely used as the industry standard for predicting fire behavior on a given landscape. That model, known as "BEHAVE", was developed by the U. S. Government (USDA Forest Service, Rocky Mountain Research Station) and has been in use since 1984. Since that time, it has undergone continued research, improvements, and refinement. The current version, BehavePlus 6.0, includes the latest updates incorporating years of research and testing. Numerous studies have been completed testing the validity of the fire behavior models' ability to predict fire behavior given site specific inputs. One of the most successful ways the model has been improved has been through post-wildfire modeling (Brown 1972, Lawson 1972, Sneeuwjagt and Frandsen 1977, Andrews 1980, Brown 1982, Rothermel and Rinehart 1983, Bushey 1985, McAlpine and Xanthopoulos 1989, Grabner, et. al. 1994, Marsden-Smedley and Catchpole 1995, Grabner 1996, Alexander 1998, Grabner et al. 2001, Arca et al. 2005). In this type of study, Behave is used to model fire behavior based on pre-fire conditions in an area that recently burned. Real-world fire behavior, documented during the wildfire, can then be compared to the prediction results of Behave and refinements to the fuel models incorporated, retested, and so on.

Fire behavior modeling conducted on this site includes a relatively high-level of detail and analysis which results in reasonably accurate representations of how wildfire may move through available fuels on and adjacent the property. Fire behavior calculations are based on site-specific fuel characteristics supported by fire science research that analyzes heat transfer related to specific fire behavior. To objectively predict flame lengths, spread rates, and fireline intensities, this analysis incorporated predominant fuel characteristics, slope percentages, and representative fuel models observed on site. The BehavePlus fire behavior modeling system was used to analyze anticipated fire behavior within and adjacent to key areas just outside of the proposed lots. Predicting wildland fire behavior is not an exact science. As such, the movement of a fire will likely never be fully predictable, especially considering the variations in weather and the limits of weather forecasting. Nevertheless, practiced and experienced judgment, coupled with a validated fire behavior modeling system, results in useful and accurate fire prevention planning information. To be used effectively, the basic assumptions and limitations of BehavePlus must be understood.

- First, it must be realized that the fire model describes fire behavior only in the flaming front. The primary driving force in the predictive calculations is dead fuels less than one-quarter inch in diameter. These are the fine fuels that carry fire. Fuels greater than one inch have little effect while fuels greater than three inches have no effect on fire behavior.
- Second, the model bases calculations and descriptions on a wildfire spreading through surface fuels that are within six feet of the ground and contiguous to the ground. Surface fuels are often classified as grass, brush, litter, or slash.
- Third, the software assumes that weather and topography are uniform. However, because wildfires almost always burn under non-uniform conditions, length of projection period and choice of fuel model must be carefully considered to obtain useful predictions.

- Fourth, the BehavePlus fire behavior computer modeling system was not intended for determining sufficient fuel modification zone/defensible space widths. However, it does provide the average length of the flames, which is a key element for determining "defensible space" distances for minimizing structure ignition.

Although BehavePlus has some limitations, it can still provide valuable fire behavior predictions which can be used as a tool in the decision-making process. In order to make reliable estimates of fire behavior, one must understand the relationship of fuels to the fire environment and be able to recognize the variations in these fuels. Natural fuels are made up of the various components of vegetation, both live and dead, that occur on a site. The type and quantity will depend upon the soil, climate, geographic features, and the fire history of the site. The major fuel groups of grass, shrub, trees, and slash are defined by their constituent types and quantities of litter and duff layers, dead woody material, grasses and forbs, shrubs, regeneration, and trees. Fire behavior can be predicted largely by analyzing the characteristics of these fuels. Fire behavior is affected by seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content, and chemical properties.

The seven fuel characteristics help define the 13 standard fire behavior fuel models[1] and the five custom fuel models developed for Southern California[2]. According to the model classifications, fuel models used in BehavePlus have been classified into four groups, based upon fuel loading (tons/acre), fuel height, and surface to volume ratio. Observation of the fuels in the field (on site) determines which fuel models should be applied in BehavePlus. The following describes the distribution of fuel models among general vegetation types for the standard 13 fuel models and the custom Southern California fuel models:

- Grasses Fuel Models 1 through 3
- Brush Fuel Models 4 through 7, SCAL 14 through 18
- Timber Fuel Models 8 through 10
- Logging Slash Fuel Models 11 through 13

In addition, the aforementioned fuel characteristics were utilized in the recent development of 40 new fire behavior fuel models[3] developed for use in BehavePlus modeling efforts. These new models attempt to improve the accuracy of the standard 13 fuel models outside of severe fire season conditions, and to allow for the simulation of fuel treatment prescriptions. The following describes the distribution of fuel models among general vegetation types for the new 40 fuel models:

- Grass Models GR1 through GR9
- Grass-shrub Models GS1 through GS4
- Shrub Models SH1 through SH9

1 Anderson, Hal E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service Gen. Tech. Report INT-122. Intermountain Forest and Range Experiment Station, Ogden, UT.

2 Weise, D.R. and J. Regelbrugge. 1997. Recent chaparral fuel modeling efforts. Prescribed Fire and Effects Research Unit, Riverside Fire Laboratory, Pacific Southwest Research Station. 5p.

3 Scott, Joe H. and Robert E. Burgan. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p.

- Timber-understory Models TU1 through TU5
- Timber litter Models TL1 through TL9
- Slash blowdown Models SB1 through SB4

BehavePlus software was used in the development of the Zona Gale Estates Project (Proposed Project) Fire Protection Plan (FPP) Letter Report in order to evaluate potential fire behavior for the project site. Existing site conditions were evaluated, and local weather data was incorporated into the BehavePlus modeling runs.

2 Fuel Models

Dudek utilized the BehavePlus software package to analyze fire behavior potential for the Proposed Project site in Encinitas, California. Refer to Figure 1, *Fire Behavior Modeling Map* for fire modeling scenario locations. As is customary for this type of analysis, four fire scenarios were evaluated, including one summer, onshore weather condition (south/southwest of the project site) and three extreme fall, offshore weather condition (north, northeast, and south/southeast of the project site). The project site is currently vacant and is situated amongst land zoned residential and rural residential, surrounded by a variety of land uses including urbanized landscapes in all directions (west to the ocean, east for 2.5 miles, and south for 1 mile and to the San Elijo Lagoon) except to the north, which includes a mix of development and a linear polygon of preserved coastal sage scrub. With that said, fuels and terrain within and adjacent to the project development area could produce flying embers that may affect the project, but defenses will have been built into the residential structures to prevent ember penetration and to extinguish fires that may result from ember penetration. It is the fuels directly adjacent to and within fuel modification zones that would have the potential to affect the project's structures from a radiant and convective heat perspective as well as from direct flame impingement. The BehavePlus software requires site-specific variables for surface fire spread analysis, including fuel type, fuel moisture, wind speed, and slope data. The output variables used in this analysis include flame length (feet), rate of spread (feet/minute), fireline intensity (BTU/feet/second), and spotting distance (miles). The following provides a description of the input variables used in processing the BehavePlus models for the proposed project site. In addition, data sources are cited and any assumptions made during the modeling process are described.

2.1 Vegetation (Fuels)

To support the fire behavior modeling efforts conducted for the Zona Gale Estates Project FPP Letter Report, the different vegetation types observed within the project areas and adjacent to the project site were classified into the aforementioned numeric fuel models. As is customary for this type of analysis, the terrain and fuels within and adjacent to the project area were used for determining flame lengths and fire spread. It is these fuels that would have the potential to affect the project's structures from a radiant and convective heat perspective as well as from direct flame impingement. The project site includes southern maritime chaparral that is uniform in the southern portion (Fuel Model Sh2 and Sh5) and broken in the northern portion, including substantial bare ground (Sh1 and Sh2). These fuel types have the potential to produce flying embers that may affect the project, but defenses will have been built into the structures to prevent ember penetration. Table 1 provides a description of the two existing fuel models observed in the vicinity of the site that were subsequently used in the analysis for this project. A total of four fire modeling scenarios were completed for the project area. These modeling scenario locations were selected based on the small possibility of fire approaching from these directions during a Santa Ana wind-driven fire event (fire

scenarios 1 through 3) and an on-shore weather pattern (fire scenario 4). Dudek also conducted modeling of the site for post-Fuel Modification Zones' (FMZ) recommendations for this project (Refer to Table 2 for post-FMZ fuel model descriptions). Fuel modification includes establishment of an irrigated zone on the periphery of the single-family residential structures. For modeling the post-FMZ treatment condition, fuel model assignments were re-classified for the FMZ 1 (Fuel Model Gr1).

Table 1. Existing Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
Sh1	Low-load, Dry Climate Shrubs	Represents the shrub vegetation located around the northern and western perimeter areas of the project without maintenance.	1.0 ft.
Sh2	Moderate-load, Dry Climate Shrubs	Represents the shrub vegetation located around the perimeter of the project without maintenance.	<2.0 ft.
Sh5	High-load, Dry Climate Shrubs	Represents the shrub vegetation located around the north and east perimeter areas of the project without maintenance.	>4.0 ft.

Table 2. Post-development Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
Gr1	Short, sparse, dry climate grasses	Fuel Modification Zone 1: irrigated landscape throughout the Project site	<1.0 ft.

2.2 Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower fire spread down-slope, unless downslope winds are influencing the fire. Flat terrain tends to have little effect on fire spread, resulting in fires that are primarily wind driven.

The project site elevations range between approximately 335 to 394 feet above mean sea level (amsl). The site is highest in the southwest and decreases in elevation rapidly from west to east, with the lowest points along Via Cantebria Road. The development footprint is situated at the top of slope on a flatter portion of the site, above the rock face separating the higher and lower site elevations. The steepest terrain associated with the slope is nearly vertical in places and will be preserved to the east of the developed lots.

2.3 Weather Analysis

Historical weather data for the Encinitas region was utilized in determining appropriate fire behavior modeling inputs for the Project area. 50th and 97th percentile moisture values were derived from Remote Automated Weather Station (RAWS) and utilized in the fire behavior modeling efforts conducted in support of this report. Weather data sets from the Wire Mountain RAWS (ID number 045749)[4] were utilized in the fire modeling runs.

[4] Wire Mountain RAWS Station Latitude and Longitude: 33.237988, -117.365319

RAWS fuel moisture and wind speed data were processed utilizing the Fire Family Plus software package to determine atypical (97th percentile) and typical (50th percentile) weather conditions. Data from the RAWS was evaluated from August 1 through November 30 for each year between 2016 and 2020 (extent of available data record) for 97th percentile weather conditions and from June 1 through September 30 for each year between 2016 and 2020 for 50th percentile weather conditions.

Following analysis in Fire Family Plus, fuel moisture information was incorporated into the Initial Fuel Moisture file used as an input in BehavePlus. Wind speed data resulting from the Fire Family Plus analysis was also determined. Initial wind direction and wind speed values for the two BehavePlus runs were manually entered during the data input phase. The input wind speed and direction is roughly an average surface wind at 20 feet above the vegetation over the analysis area. Table 3 summarizes the wind and weather input variables used in the Fire BehavePlus modeling efforts.

Table 3: Variables Used for Fire Behavior Modeling

Model Variable	Summer Weather (50th Percentile)	Peak Weather (97th Percentile)
Fuel Models	Sh2 and Sh5	Sh2 and Sh5
1 h fuel moisture	6%	2%
10 h fuel moisture	7%	3%
100 h fuel moisture	15%	5%
Live herbaceous moisture	59%	30%
Live woody moisture	118%	60%
20 ft. wind speed	14 mph (sustained winds)	18 mph (sustained winds); wind gusts of 50 mph
Wind Directions from north (degrees)	220	10, 50, 165
Wind adjustment factor	0.4	0.4
Slope (uphill)	3%	19% up to 40%

3 Fire Behavior Modeling Efforts

As mentioned, the BehavePlus fire behavior modeling software package was utilized in evaluating anticipated fire behavior adjacent to the proposed project site. Four focused analyses were completed for both the existing project site conditions and the post project conditions, each assuming worst-case fire weather conditions for a fire approaching the project site from the north, northeast, southeast, and south/southwest. The results of the modeling effort included anticipated values for surface fires flame length (feet), rate of spread (mph), fireline intensity (Btu/ft/s), and spotting distance (miles). The aforementioned fire behavior variables are an important component in understanding fire risk and fire agency response capabilities. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews, Bevins, and Seli 2008). Fireline intensity is a measure of heat output from the flaming front, and also affects the potential for a surface fire to transition to a crown fire. Fire spread rate represents the speed at which the fire progresses through surface fuels and is another important variable in initial attack and fire suppression efforts (Rothermel and Rinehart 1983). Spotting distance is the distance a firebrand or ember can travel down wind and ignite receptive fuel beds. Four fire modeling scenario locations were selected to better

understand the different fire behavior that may be experienced on or adjacent the site based on slope and fuel conditions; these four fire scenarios are explained in more detail below:

Fire Scenario Locations and Descriptions:

- **Scenario 1:** A fall, off-shore fire (97th percentile weather condition) burning through low- to moderate-load shrubs and chaparral dominated vegetation north of the proposed project site. The terrain is moderately steep (approximately 24% slope) with potential ignition sources from a car or structure fire originating within the existing residential community below the project site and extending up the adjacent slope towards the northern portion of the project site.
- **Scenario 2:** A fall, off-shore fire (97th percentile weather condition) burning through low- to high-load shrubs and chaparral dominated vegetation northeast of the proposed project site. The terrain is very steep (approximately 40% slope) with potential ignition sources from a car or structure fire originating within the existing residential community to the north or along Via Cantebria. This type of fire would start below the project site and extend up the adjacent slope (some locations being bare) towards the northeastern and eastern sides of the project site.
- **Scenario 3:** A fall, off-shore fire (97th percentile weather condition) burning through low- to high-load shrubs and chaparral dominated vegetation southeast of the proposed project site. The terrain is moderately steep (approximately 19% slope) with potential ignition sources from a car or structure fire originating along Zona Gale within the existing residential community to the south or along Via Cantebria. This type of fire would start below the project site and extend up the adjacent slope (some locations being bare) towards the southern and eastern sides of the project site.
- **Scenario 4:** A summer, on-shore fire (50th percentile weather condition) burning through low- to moderate-load shrubs and chaparral dominated vegetation south/southwest of the proposed project site. The terrain is flat (approximately 3% slope) with potential ignition sources from a car or structure fire originating within the existing residential community directly to the west of the project site. This type of fire would typically spread slowly towards the western portion of the development.

4 Fire Behavior Modeling Results

The results presented in Tables 4 and 5 depict values based on inputs to the BehavePlus software and are not intended to capture changing fire behavior as it moves across a landscape. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

As presented in Table 4, wildfire behavior adjacent to the project site is expected to be primarily of moderate to high intensity through the non-maintained surface shrub and chaparral dominated fuels downslope on the eastern side of the project site. Worst-case fire behavior under peak weather conditions (represented by Fall Weather,

Scenario 2) is anticipated to be a wind-driven fire from the north/northeast during the fall. Under such conditions, expected surface flame length are expected to be between approximately 10 feet and up to 41 feet with wind speeds of 50+ mph. Under this scenario, fireline intensities reach 18,924 BTU/feet/second with moderate spread rates up to 6.4 mph and could have a spotting distance up to 2.4 miles away. Wildfire behavior through the non-maintained low- to moderate-load shrub and chaparral dominated fuels being fanned by 14 mph sustained, from the west/southwest and pushed by on-shore ocean breezes typically exhibit less severe fire behavior due to lower wind speeds and higher humidity. Under typical onshore weather conditions, a surface vegetation fire could have flame lengths between approximately 2 feet and 13 feet in height and spread rates between 0.1 and 0.7 mph. Spotting distances, where airborne embers can ignite new fires downwind of the initial fire range from 0.1 to 0.4 miles.

As depicted in Table 5, post development fire behavior expected in the irrigated and replanted with plants that are acceptable with the Encinitas Fire Department (FMZ Zone 1 – Gr1 under peak weather conditions experience a significant reduction in flame length and intensity. The approximately 42-foot flame lengths predicted for non-maintained chaparral vegetation during pre-treatment modeling for fire scenario 2 are reduced to approximately 3.0 feet by the time the inner portions of the FMZ (Zone 1) are reached. During on-shore weather conditions, a fire approaching from the west/southwest towards the development footprint would be reduced from approximately 13-foot flames to less than 3 feet tall for Zone 1, with low fire intensity and spotting distances due to the higher live and dead fuel moisture contents. These reduction of flame lengths and intensities are assumed to occur within the reduced fuel modification zones that are achieved throughout the site (due to site boundary restrictions). Therefore, the FMZs proposed for the Zona Gale Estates Project along with proposed structure and property mitigations would provide adequate defensible space to augment a wildfire approaching the perimeter of the Project site.

Table 4: RAWS BehavePlus Fire Behavior Model Results – Existing Conditions

Fire Scenarios	Flame Length[1] (feet)	Fireline Intensity[1] (BTU/feet/second)	Spread Rate[1] (mph[2])	Spotting Distance[1] (miles)
Scenario 1: 24% slope; Fall off--shore extreme winds (97th percentile) – Pre-FMZ (N/NE of project site)				
Low-load shrubs (Sh1)	5.4 (9.5)[3]	221 (760)	0.4 (1.3)	0.3 (0.8)
Moderate-load shrubs (Sh2)	8.2 (15.2)	553 (2,108)	0.2 (0.9)	0.4 (1.1)
Scenario 2: 40% slope; Fall off--shore extreme winds (97th percentile) – Pre-FMZ (N/NE of project site)				
Low-load shrubs (Sh1)	5.5 (9.5)	234 (760)	0.4 (1.3)	0.3 (0.8)
Moderate-load shrubs (Sh2)	8.5 (15.3)	590 (2,144)	0.3 (1.0)	0.4 (1.1)
High-load shrubs (Sh5)	24.9 (41.7)	6,134 (18,924)	2.1 (6.4)	0.8 (2.3)
Scenario 3: 19% slope; Fall off–shore extreme winds (97th percentile) – Pre-FMZ (E of project site)				
Low-load shrubs (Sh1)	5.3 (9.5)	212 (760)	0.3 (1.3)	0.3 (0.8)
Moderate-load shrubs (Sh2)	8.0 (15.1)	528 (2,083)	0.2 (0.9)	0.4 (1.1)
High-load shrubs (Sh5)	23.8 (41.2)	5,590 (18,391)	1.9 (6.2)	0.8 (2.3)
Scenario 4: 3% slope; Summer on–shore winds (50th percentile) – Pre-FMZ (W/SW of project site)				
Moderate-load shrubs (Sh2)	1.5	14	0.0	0.1
High-load shrubs (Sh5)	13.0	1,489	0.7	0.4

Note:

1. Wind-driven surface fire.
2. MPH=miles per hour.
3. Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph

Table 5: RAWS BehavePlus Fire Behavior Model Results – Post Project Conditions

Fire Scenarios	Flame Length[1] (feet)	Fireline Intensity[1] (BTU/feet/second)	Spread Rate[1] (mph[2])	Spotting Distance[1] (miles)
Scenario 1: 24% slope; Fall off--shore extreme winds (97th percentile) – Pre-FMZ (N/NE of project site)				
Fuel modification zone 1 (Gr1)	3.1 (3.1)[3]	67 (67)	0.5 (0.5)	0.2 (0.4)
Scenario 2: 40% slope; Fall off–shore extreme winds (97th percentile) – Pre-FMZ (N/NE of project site)				
Fuel modification zone 1 (Gr1)	3.1 (3.1)	67 (67)	0.5 (0.5)	0.2 (0.4)
Scenario 3: 19% slope; Fall off–shore extreme winds (97th percentile) – Pre-FMZ (E of project site)				
Fuel modification zone 1 (Gr1)	3.1 (3.1)	67 (67)	0.5 (0.5)	0.2 (0.4)
Scenario 4: 3% slope; Summer on–shore winds (50th percentile) – Pre-FMZ (W/SW of project site)				
Fuel modification zone 1 (Gr1)	1.8	21	0.2	0.1

Note:

1. Wind-driven surface fire.
2. MPH=miles per hour.
3. Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph

The following describes the fire behavior variables (Heisch and Andrews 2010) as presented in Tables 4 and 5:

Surface Fire:

- Flame Length (feet): The flame length of a spreading surface fire within the flaming front is measured from midway in the active flaming combustion zone to the average tip of the flames.
- Fireline Intensity (Btu/ft/s): Fireline intensity is the heat energy release per unit time from a one-foot wide section of the fuel bed extending from the front to the rear of the flaming zone. Fireline intensity is a function of rate of spread and heat per unit area, and is directly related to flame length. Fireline intensity and the flame length are related to the heat felt by a person standing next to the flames.
- Surface Rate of Spread (mph): Surface rate of spread is the "speed" the fire travels through the surface fuels. Surface fuels include the litter, grass, brush and other dead and live vegetation within about 6 feet of the ground.

The information in Table 6 presents an interpretation of the outputs for five fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Tables 4 and 5. Identification of modeling run locations is presented graphically in Figure 1 of this Fire Behavior Modeling Summary Report.

Table 6: Fire Suppression Interpretation

Flame Length (ft)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4 feet	Under 100 BTU/ft/s	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4 to 8 feet	100-500 BTU/ft/s	Fires are too intense for direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective.
8 to 11 feet	500-1000 BTU/ft/s	Fires may present serious control problems -- torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.
Over 11 feet	Over 1000 BTU/ft/s	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.

Table 1. Existing Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
Sh1	Low-load, Dry Climate Shrubs	Represents the shrub vegetation located around the northern and western perimeter areas of the project without maintenance.	1.0 ft.
Sh2	Moderate-load, Dry Climate Shrubs	Represents the shrub vegetation located around the perimeter of the project without maintenance.	<2.0 ft.
Sh5	High-load, Dry Climate Shrubs	Represents the shrub vegetation located around the north and east perimeter areas of the project without maintenance.	>4.0 ft.

Table 2. Post-development Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
Gr1	Short, sparse, dry climate grasses	Fuel Modification Zone 1: irrigated landscape throughout the Project site	<1.0 ft.

Table 3: Variables Used for Fire Behavior Modeling

Model Variable	Summer Weather (50th Percentile)	Peak Weather (97th Percentile)
Fuel Models	Sh2 and Sh5	Sh2 and Sh5
1 h fuel moisture	6%	2%
10 h fuel moisture	7%	3%
100 h fuel moisture	15%	5%
Live herbaceous moisture	59%	30%
Live woody moisture	118%	60%
20 ft. wind speed	14 mph (sustained winds)	18 mph (sustained winds); wind gusts of 50 mph
Wind Directions from north (degrees)	220	10, 50, 165
Wind adjustment factor	0.4	0.4
Slope (uphill)	3%	19% up to 40%

SCENARIO RUN #1

Extreme Fall Off-Shore Fire
Slope: 24%
Fuel Model: Sh1 and Sh2
Wind: 18 mph sustained winds
Maximum Flame Length: 8.2 feet
Fireline Intensity: 553 Btu/ft/sec.
Spread Rate: 0.4 mph
Spot Distance: 0.4 mi

Wind: 50 mph wind gusts
Maximum Flame Length: 15.2 feet
Fireline Intensity: 2,108 Btu/ft/sec
Spread Rate: 1.3 mph
Spot Distance: 1.1 mi

SCENARIO RUN #2

Extreme Fall Off-Shore Fire
Slope: 40%
Fuel Model: Sh1, Sh2, and Sh5
Wind: 18 mph sustained winds
Maximum Flame Length: 24.9 feet
Fireline Intensity: 6,134 Btu/ft/sec.
Spread Rate: 2.1 mph
Spot Distance: 0.8 mi

Wind: 50 mph wind gusts
Maximum Flame Length: 41.7 feet
Fireline Intensity: 18,924 Btu/ft/sec
Spread Rate: 6.4 mph
Spot Distance: 2.3 mi

SCENARIO RUN #3

Extreme Fall Off-Shore Fire
Slope: 19%
Fuel Model: Sh1, Sh2, and Sh5
Wind: 18 mph sustained winds
Maximum Flame Length: 23.8 feet
Fireline Intensity: 5,590 Btu/ft/sec.
Spread Rate: 1.9 mph
Spot Distance: 0.8 mi

Wind: 50 mph wind gusts
Maximum Flame Length: 41.2 feet
Fireline Intensity: 18,391 Btu/ft/sec
Spread Rate: 6.2 mph
Spot Distance: 2.3 mi

SCENARIO RUN #4

Summer On-Shore Fire
Slope: 3%
Fuel Model: Sh2 and Sh5
Wind: 14 mph sustained winds
Maximum Flame Length: 13.0 feet
Fireline Intensity: 1,489 Btu/ft/sec.
Spread Rate: 0.7 mph
Spot Distance: 0.4 mi

Lynwood D
Calle De Dolores Rd
Joina Way
Coneflower St
Delphinium St
Gloxina St
Hidden Ridge Ct
Sandalwood Ct
Via Andalusia
Via Montanosa
Sunflower St
Delphinium St
Via Cantabria
Via Sarasan
Via Tierra
Via Molena
El Camino Real
Project Site

SOURCE: AERIAL-GOOGLE EARTH MAPPING SERVICE

DUDEK

0 125 250 500 Feet

FIGURE 1
BehavePlus Analysis Map
Zona Gale Estates, Encinitas FPP Letter Project

Attachment 3

Alternate Materials and Methods Proposal

Section I Applicant and Project Information

1. Assessor's Parcel Number: 257-040-11-10
2. Project Address: Zona Gale Road
3. Project Information: 9-Lot residential sub-division
4. Applicant Name: *Consultant* Dudek, 605 3rd St, Encinitas, California 92024

Section II Request

1. Identify the Requested Deviation:

   Code Year: 2022 California Fire Code Chapter 49
   California Government Code, Chapter 6.8 Section 51182
   City of Encinitas Municipal Code, 2022 T-10 Fire Prevention

2. Brief Description of Deviation:

   The proposed development is located in a Very High Fire Hazard Severity Zone (VHFHSZ) and is not in compliance with the hazardous vegetation, fuel management and defensible space requirements due to design features, building footprint(s) locations and environmental constraints. A reduction in defensible space from the property line to the proposed project is requested with alternate materials and methods incorporated as a form of mitigation.

The reduced distance proposed is 17 to 53 feet. Justifications for acceptance of the FMZ reductions are provided as:

Project Offered Features:

- A 6 feet tall masonry or combination masonry/glass fire wall will be placed along the property lines of Lots 1 through 5. This wall provides a vertical separation between downslope fuels and would deflect flame and capture low-flying embers if a wildfire were to occur in these open space fuels. Glass in the view wall would be dual pane, one pane tempered and typically, these walls include the lower two feet as block or other masonry and the upper four feet as glass.
- All site landscaping and perimeter FMZ areas adjacent lots 1 through 5 will be maintained as irrigated, low fuel Zone 1
- Fuel Modification Zone "0" to be provided immediately adjacent to buildings and outward to 5 feet and to include a low flammability zone of limited plantings, no combustible mulches, and no flammable object storage.
- All buildings to comply with California Building Code Chapter 7A – Ignition Resistant Construction
- Chapter 7A consistent exterior walls with stucco on exterior and code-exceeding Type X-5/8-inch gypsum on interior.
- Provide code-exceeding multi-pane glazing in windows (and sliding glass doors, garage doors, or decorative or leaded glass doors) in all Lot 1 through 5 buildings on **all sides** to be dual pane with both panes tempered glass, exceeding the fire-building code requirement
- No eave overhangs
- Ember resistant vents will be used for any openings and will be sourced from Brandguard, Vulcan or O'Hagin, or similarly tested and SFM approved for ember protection.