Appendix A

Project Plans

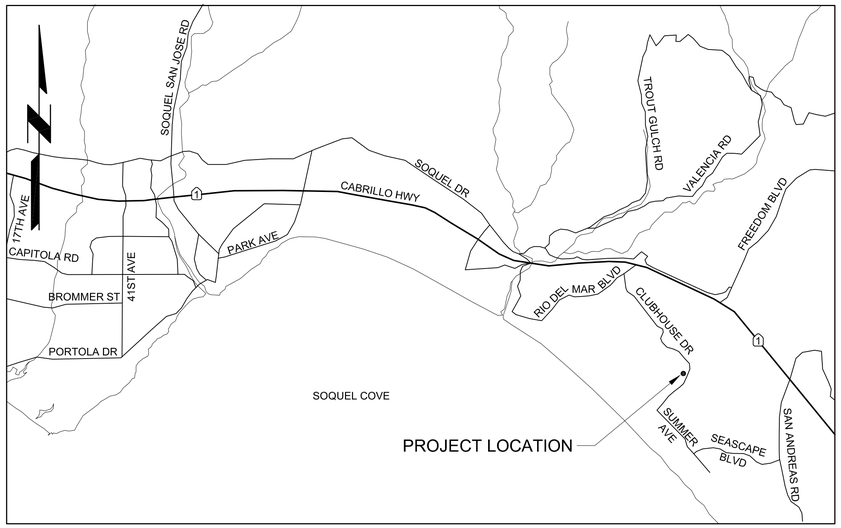
SOQUEL CREEK WATER DISTRICT

COUNTRY CLUB WELL

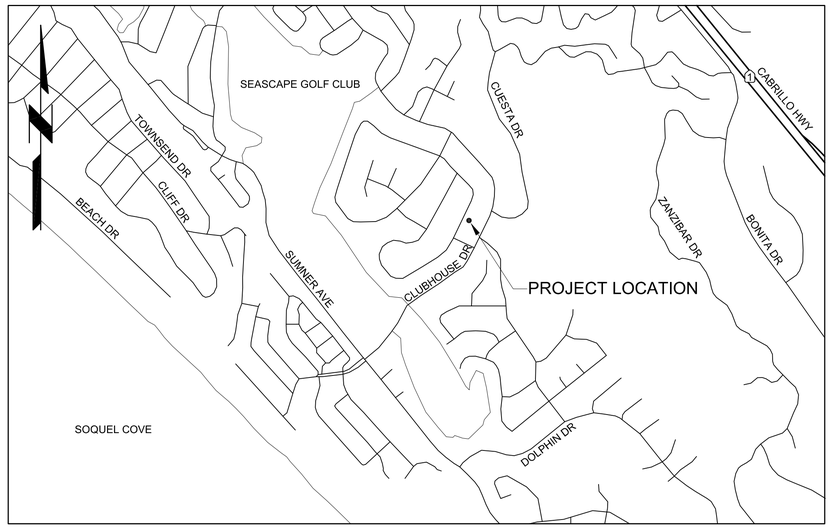
1,2,3-TCP REMOVAL PROJECT

JULY 2021

60% DESIGN



VICINITY MAP



LOCATION MAP

DRAWING LIST

		GENERAL
1	G-01	COVER SHEET, VICINITY MAP AND LOCATION MAP, DRAWING LIST
2	G-02	LEGEND AND ABBREVIATIONS SHEET 1 OF 2
3	G-03	LEGEND AND ABBREVIATIONS SHEET 2 OF 2
4	G-04	PROCESS FLOW DIAGRAM
5	G-05	HYDRAULIC PROFILE AND DESIGN CRITERIA
6	G-06	GENERAL NOTES
7	G-07	PROJECT BASELINE INFORMATION - GEOTECHNICAL BOREHOLE AND SURVEY CONTROL
		DEMOLITION
8	D-01	SITE DEMO PLAN
9	D-02	DEMOLITION PHOTOS
		CIVIL
10	C-01	SITE PLAN, YARD PIPING PLAN
11	C-02	GRADING AND PAVING PLAN
12	C-03	STORMWATER MANAGEMENT PLAN
13	C-04	EROSION CONTROL PLAN
14	C-05	SECTIONS AND DETAILS 1
15	C-06	SECTIONS AND DETAILS 2
		LANDSCAPING
16	L-01	TREE PROTECTION AND REMOVAL PLAN
17	L-02	IRRIGATION PLAN
18	L-03	IRRIGATION LEGEND & NOTES
19	L-04	IRRIGATION DETAILS
20	L-05	IRRIGATION DETAILS
21	L-06	IRRIGATION DETAILS
22	L-07	IRRIGATION DETAILS
23	L-08	IRRIGATION SCHEDULES & WATER USE CALCULATIONS
24	L-09	PLANTING PLAN
25	L-10	PLANT SCHEDULES AND NOTES
26	L-11	PLANTING DETAILS
		ARCHITECTURAL
27	A-01	TREATMENT BUILDING PERSPECTIVES
28	A-02	TREATMENT BUILDING LIFE SAFETY PLAN AND BUILDING CODE ANALYSIS
29	A-03	TREATMENT BUILDING TITLE 24 CODE FORMS
30	A-04	TREATMENT BUILDING FLOOR PLAN
31	A-05	TREATMENT BUILDING CLERESTORY PLAN
32	A-06	TREATMENT BUILDING ROOF PLAN
33	A-07	TREATMENT BUILDING BUILDING ELEVATIONS
34	A-08	TREATMENT BUILDING BUILDING ELEVATIONS
35	A-09	TREATMENT BUILDING WALL SECTIONS
36	A-10	TREATMENT BUILDING WALL SECTIONS AND DETAILS
37	A-11	TREATMENT BUILDING DOOR, WINDOW, LOUVER DETAILS
		STRUCTURAL
38	S-01	STRUCTURAL NOTES
39	S-02	STANDARD CONCRETE DETAILS AND STRUCTURAL ABBREVIATIONS
40	S-03	STRUCTURAL LOADING CRITERIA
41	S-04	TYP MASONRY WALL REINFORCEMENT DETAILS
42	S-05	TYPICAL MASONRY LINTEL & JAMB DETAILS
43	S-06	STEEL DECKING DETAILS AND SCHEDULES
44	S-07	BUILDING FOUNDATION AND OPERATING FLOOR PLAN
45	S-08	ROOF PLANS
46	S-09	BUILDING SECTIONS
47	S-10	FOOTING DETAILS AND SCHEDULE - 12" CMU WALL
48	S-11	ANCHOR DETAILS AT TOP OF MASONRY WALLS
49	S-12	BUILDING SECTIONS AND DETAILS
		MECHANICAL
50	M-01	TREATMENT AREA PLAN
51	M-02	TREATMENT AREA SECTIONS AND DETAILS 1
52	M-03	TREATMENT AREA SECTIONS AND DETAILS 2
53	M-04	TREATMENT AREA SECTIONS AND DETAILS 3
54	M-05	SUBMERSIBLE WELL PUMP PIPING PLAN AND SECTION
55	M-06	MISCELLANEOUS DETAILS SHEET 1 OF 2
56	M-07	MISCELLANEOUS DETAILS SHEET 2 OF 2
		PLUMBING
57	P-01	LEGENDS, ABBREVIATIONS AND GENERAL NOTES
58	P-02	FLOOR PLAN
59	P-03	DETAILS AND SCHEDULES
60	P-04	RISER DIAGRAMS-SANITARY AND WATER
		HVAC
61	H-01	LEGENDS, ABBREVIATIONS AND GENERAL NOTES
62	H-02	FLOOR PLAN AND SECTION
63	H-03	DETAILS, SCHEDULES AND SEQUENCE OF OPERATIONS
		ELECTRICAL
64	E-01	ELECTRICAL LEGENDS
65	E-02	ELECTRICAL ABBREVIATIONS & NOTES
66	E-03	ELECTRICAL POWER DISTRIBUTION FUNCTIONAL DIAGRAM
67	E-04	SITE PLAN AND DUCT BANK SECTIONS
68	E-05	SCHEDULES AND SCHEMATICS
69	E-06	SES AND MCC ONE-LINE DIAGRAMS
70	E-07	MISCELLANEOUS ONE-LINE DIAGRAMS
71	E-08	BUILDING POWER PLAN
72	E-09	BUILDING LIGHTING PLAN
73	E-10	DETAILS
74	E-11	TITLE 24 CALCULATIONS
		INSTRUMENTATION
75	I-01	LEGEND AND ABBREVIATIONS SHEET 1 OF 3
76	I-02	LEGEND AND ABBREVIATIONS SHEET 2 OF 3
77	I-03	LEGEND AND ABBREVIATIONS SHEET 3 OF 3
78	I-04	WELL TREATMENT P&ID
79	I-05	SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM P&ID
80	I-06	INSTRUMENT INSTALLATION DETAILS
81	I-07	CONTROL SYSTEM BLOCK DIAGRAM

* ITEMS IN BOLD ARE INCLUDED IN THIS DRAWING SET.

SOQUEL CREEK WATER DISTRICT

CWO 16-029

SOQUEL CREEK WATER DISTRICT

APPROVED BY: ENGINEERING MANAGER _____ DATE _____

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALTON
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

GENERAL
COVER SHEET, VICINITY MAP AND
LOCATION MAP, DRAWING LIST

DESIGNED: GY
DETAILED: JAD
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

G-01
SHEET
OF

FD10000
D10000
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ABBREVIATIONS

AB	ANCHOR BOLT
AC	ALTERNATING CURRENT
A/C	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
AD	ACCESS DOOR, AREA DRAIN, AIR DAMPER, ANODE
ADD	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE, ADJACENT
ADMIN	ADMINISTRATION
AF	AIR FLOW
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE, (IVE)
ALUM	ALUMINUM
AMP	AMPERE
ANOD	ANODIZED
AP	ACCESS PANEL
APPROX	APPROXIMATE, (LY)
AR	ALARM RELAY
ARCH	ARCHITECTURAL
ASSY	ASSEMBLY
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
B	BEAM
BC	BEGIN CURVE
BD	BOARD
BF	BLIND FLANGE
BHP	BRAKE HORSEPOWER
BKR	BREAKER
BLDG	BUILDING
BLK	BLOCK
BM	BENCHMARK
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRG	BEARING
BRK	BRICK
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT-HOUR
BVC	BEGIN VERTICAL CURVE
C/EJ	CONTRACTION/EXPANSION JOINT
CFM	CUBIC FEET PER MINUTE
C&G	CURB AND GUTTER
CHKD	CHECKERED
CI	CAST IRON
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CJT	CONTROL JOINT
C/L	CENTERLINE
CLG	CEILING
CLR	CLEAR, (ANCE)
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT, COMPANY
COL	COLUMN
COMP	COMPRESSOR
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS, CONTINUATION, CONTROL
CORR	CORRIDOR, CORRUGATED
CP	CONTROL PANEL
CPLG	COUPLING
CPT	CONTROL POWER TRANSFORMER
CS	CONTROL SWITCH, CONTROL STATION, CUP SINK
CT	CURRENT TRANSFORMER
CTR(S)	CENTER(S)
CU	CUBIC
CU YD	CUBIC YARD
CW	COLD WATER
D	DOOR
DBL	DOUBLE
DC	DIRECT CURRENT
DEG	DEGREE
DEPT	DEPARTMENT
DET	DETAIL
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DIST	DISTRIBUTION
DISTRICT	SOQUEL CREEK WATER DISTRICT
DIV	DIVISION
DL	DEAD LOAD
DM	DAMPER MOTOR
DR	DRAIN
DS	DOWNSPOUT
DT	DISTRIBUTION TRANSFORMER
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
E	EAST, ELECTRICAL
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EC	END CURVE
ECC	ECCENTRIC
ECC RED	ECCENTRIC REDUCER
EEW	EMERGENCY EYEWASH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELB	ELBOW
ELEC	ELECTRIC, (AL)
ELEV	ELEVATOR
ENCL	ENCLOSURE|
ENT	ENTRANCE
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EMERGENCY SHOWER
EW	EACH WAY
EW	EMERGENCY EYEWASH
EXCH	EXCHANGER
EXH	EXHAUST
EX/EXIST	EXISTING
EXP	EXPANSION, EXPOSED
EXP JT	EXPANSION JOINT
EXT	EXTENSION, EXTERIOR, EXTERNAL

F	FAN
FC	FLEXIBLE CONNECTION, FLOW CONTROL
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FDN	FOUNDATION
FDPR	FIRE DAMPER
FE	FIRE EXTINGUISHER
FE/MN	IRON/MANGANESE
FEC	FIRE EXTINGUISHER CABINET
FG	FINISHED GRADE
FH	FLAT HEAD, FIRE HYDRANT
FIG	FIGURE
FIN	FINISH
FIN GR	FINISH GRADE
FL	FLOOR, FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE, FLASHING
FM	FORCE MAIN
FOM	FACE OF MASONRY
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FAR SIDE, FLOOR SLEEVE, FLOAT SWITCH
FT	FOOT
FTG	FOOTING
FURN	FURNISH, FURNISHED
FWD	FORWARD
G	GAS
GA	GAUGE
GAC	GRANULAR ACTIVATED CARBON
GAL	GALLON
GALV	GALVANIZED
GEN	GENERAL, GENERATOR
GM	GAS METER
GPM	GALLONS PER MINUTE
GR	GRADE
GWB	GYPSUM WALLBOARD
GYP	GYPSUM
H	HIGH, HOUR, HYDROGEN
HB	HOSE BIBB
HGL	HYDRAULIC GRADE LINE
HGT	HEIGHT
HH	HANDHOLE
HLS	HIGH LEVEL SWITCH
HMD	HOLLOW METAL DOOR
HORIZ	HORIZONTAL
HP	HIGH POINT, HORSEPOWER
HS	HIGH STRENGTH
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWY	HIGHWAY
I	INDICATOR
ID	INSIDE DIAMETER
IN	INCHES
INC	INCORPORATED
INCL	INCLUDING
INCR	INCREASE
INST	INSTRUMENT, (ATION)
INSUL	INSULATE, (ED), (ING)
INT	INTERIOR, INTERNAL
INV	INVERT
IPS	IRON PIPE SIZE
JB	JUNCTION BOX
JF	JOINT FILLER
JT	JOINT
K	KIPS
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
L	LOUVER
LB(S)	POUNDS
LG	LENGTH, LONG
LIN	LINEAL, LINEAR
LL	LIVE LOAD
LO	LOUVER OPENING
LS	LEVEL SWITCH
MA	MILLIAMPERE
MAINT	MAINTENANCE
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MED	MEDIUM
MET	METAL
MFR(S)	MANUFACTURER(S)
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MO	MASONRY OPENING, MOTOR OPERATED
MP	METERING PUMP
MRD	METAL ROOF DECK
MSL	MEAN SEA LEVEL
MTL	MATERIAL
MTR	MOTOR
N	NORTH
N/A	NOT APPLICABLE
NEUT	NEUTRAL
NOM	NOMINAL
NORM	NORMAL
NPT	NATIONAL PIPE THREAD
NPW	NONPOTABLE WATER
NOCL	SODIUM HYPOCHLORITE
NTS	NOT TO SCALE

OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE, OVERFLOW
OH	OVERHEAD
OL	OVERLOAD
OPER	OPERATING
OPNG	OPENING
OPP	OPPOSITE
OZ	OUNCE
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVATURE
PCV	PUMP CONTROL VALVE
PE	PLAIN END
PF	PRESSURE FILTER
PG	PRESSURE GAUGE
PH	PIPE HANGER
PI	POINT OF INTERSECTION
PL	PLATE
PLYWD	PLYWOOD
PNL(S)	PANEL(S)
PP	POWER POLE
PROJ	PROJECTION
PRV	PRESSURE RELIEF VALVE
PS	PIPE SUPPORT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT, POINT OF TANGENCY
PTW	PUMP TO WASTE
PVC	POLYVINYL CHLORIDE, POINT ON VERTICAL CURVE
PVCP	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PW	POTABLE WATER
R	RADIUS, RISER
RD	ROOF DRAIN, ROAD
RDL	ROOF DRAIN LEADER
RECEP	RECEPTION
RECIRC	RECIRCULATING
RECP	RECEPTACLE
RED	REDUCER, REDUCING
REG	REGULATOR, REGULATING
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
RET	RETURN
REV	REVISION, REVISED, REVERSED
RFG	ROOFING
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RT	RIGHT
R/W	RIGHT OF WAY
S	SOUTH
SAN	SANITARY
SCHED	SCHEDULE
SCWD	SANTA CRUZ WATER DEPARTMENT
SD	STORM DRAIN
SEC	SECOND
SECT	SECTION
SG	SLUICE GATE
SH	SHEET
SIM	SIMILAR
SKL	SKYLIGHT
SM	SHEET METAL
SP	SUMP PUMP
SPA	SPACING, SPACES
SPEC(S)	SPECIFICATION(S)
SPL	SAMPLE
SPLY	SUPPLY
SQ	SQUARE
SQCWD	SOQUEL CREEK WATER DISTRICT
SR	SUPPLY REGISTER/SURGE RELIEF
SS	SANITARY SEWER, STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
STR	STRUCTURAL
SUP	SUPPLY
SUSP	SUSPENDED
SV	SURGE RELIEF / SHUTOFF VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
SYS	SYSTEM
T	THERMOSTAT, TELEPHONE
TB	TERMINAL BOX
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB
TC	TERMINAL CABINET
TEL	TELESCOPING
TEMP	TEMPERATURE, TEMPORARY
TERM	TERMINAL
T&G	TONGUE & GROOVE
THK	THICK, THICKNESS
TI	TOTALIZING INDICATOR, TEMPERATURE INDICATOR
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOM	TOP OF MASONRY
TRANS	TRANSFORMER, TRANSMITTER, TRANSFER
TS	TEMPERATURE SWITCH
TV	TELEVISION
TW	TREATED WATER
TYP	TYPICAL
UGND	UNDERGROUND
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
USGS	UNITED STATES GEOLOGICAL SURVEY
V	VALVE, VOLT, VENT
VAC	VACUUM
VC	VERTICAL CURVE, VICTAULIC COUPLING
VCD	VERTICAL CONTROL DAMPER
VERT	VERTICAL
VM	VOLT METER
VNR	VENEER
W	WEST, WIDE, WINDOW, WATT, WATER
W/	WITH
WB	WALLBOARD
WD	WOOD, WIDTH
WM	WATER METER, WATTMETER
W/O	WITHOUT
WTP	WATER TREATMENT PLANT
WW	WASH WATER
YH	YARD HYDRANT

NOTES:

1. REFER TO DWGS H-1, P-01, L-03, S-02, E-01, E-02, I-01, & I-03 FOR ADDITIONAL LEGENDS AND ABBREVIATIONS.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALTON
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

GENERAL
LEGEND AND ABBREVIATIONS
SHEET 1 OF 2

DESIGNED: GY
DETAILED: JAD
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

G-02
SHEET
OF

FD10000
D10000
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GENERAL LEGEND

- SURFACED STREET, ROAD OR DRIVE
- SURFACED STREET, ROAD OR DRIVE WITH CURBS
- NON-SURFACED STREET, ROAD OR DRIVE
- CONCRETE WALK
- CB — CATCH BASIN
- MANHOLE
- DRAINAGE COURSE OR FLOW LINE
- 326 — EXISTING GROUND CONTOUR
- 326 — FINISH GRADE CONTOUR
- BANK OR SLOPE LINES
- #3 OR B3 — T.H.#3 OR PH — TEST HOLE AND NUMBER; POT HOLE AND NUMBER
- SURVEY LINE WITH PI, PT, OR POT
- CONCRETE REACTION BLOCKING AT BEND, PLUG OR TEE
- DRAINS OR CULVERTS
- TUNNEL CASING - PLAN
- SMALLER THAN 24" / 24" AND LARGER — EXISTING — GENERAL LAYOUT YARD PIPING
- SMALLER THAN 24" / 24" AND LARGER — NEW
- NEW WATER LINE OR SEWER IN PROFILE
- NON-CONNECTING PIPING
- CE/L — CONSTRUCTION EASEMENT LINE
- E/L — EASEMENT LINE
- R/W — RIGHT-OF-WAY LINE
- P — PROPERTY LINE
- PE/L — PERMANENT EASEMENT LINE
- TE/L — TEMPORARY EASEMENT LINE
- UE/L — UTILITY EASEMENT LINE
- S/L — SURVEY LINE / SECTION LINE
- W — WATER LINE
- G — GAS LINE
- T — TELEPHONE (UNDERGROUND)
- E — ELECTRICAL (UNDERGROUND)
- P — T — POWER OR TELEPHONE LINES (OVERHEAD)
- (G) (W) — WATER OR GAS VALVE
- (WM) (GM) — WATER OR GAS METER
- TELEPHONE OR POWER POLE WITH GUY ANCHOR
- FIRE HYDRANT
- Y — YARD HYDRANT
- STREET LIGHT POLE
- TRAFFIC SIGNAL
- TRAFFIC SIGN
- S — STOPSIGN
- HEDGE, BRUSH, SHRUBS, WOODS
- 10" — DECIDUOUS TREE AND TRUNK DIAMETER
- CONIFEROUS TREE AND TRUNK DIAMETER
- SWAMP
- EXIST ELECT POLE

- BUILDINGS, STRUCTURES
- STRUCTURES UNDERGROUND
- FUTURE BUILDINGS, STRUCTURES
- FENCE
- CENTERLINE
- 1 / AC45 — SECTION NUMBER OR DETAIL LETTER; DRAWING NUMBER ON WHICH SECTION OR DETAIL APPEARS; OR WHERE SECTION IS CUT OR DETAIL IS NOTED
- 1 / A045 — DOOR, WINDOW AND LOUVER SCHEDULE REFERENCE; WALL ELEVATION
- D / 4 — ABBREVIATION; SCHEDULE NUMBER
- E102 — ROOM NUMBER; AREA DESIGNATION
- PV / 10 — EQUIPMENT OR VALVE IDENTIFICATION CODE; EQUIPMENT NUMBER
- PV-10 — EQUIPMENT OR VALVE IDENTIFICATION CODE; EQUIPMENT NUMBER
- EQUIP CALLOUT — EQUIPMENT REPRESENTATION WITH CALLOUT
- EXISTING FACILITY TO BE DEMOLISHED OR REMOVED

MISCELLANEOUS EQUIPMENT

- SIGHT GLASS
- PUMP
- SPRAY NOZZLES
- WEIR
- PIPE ANCHOR

MATERIALS LEGEND

- EARTH OR GRADE; SEED & MULCH WHERE INDICATED
- GRANULAR FILL (CRUSHED ROCK OR GRAVEL, CRUSHED ROCK SURFACING)
- ROCK
- NEW CONCRETE
- EXISTING CONCRETE, PRECAST OR PRESTRESSED CONCRETE
- BRICK, FACE
- BRICK, COMMON
- CONCRETE MASONRY UNITS (CMU)
- CUT STONE OR SAND FILL, GROUT, MORTAR, AND PLASTER
- WOOD, SHEATHING, PANELING, DECKING, ETC.
- WOOD, STUDS, BEAMS, JOISTS, ETC.
- RIPRAP
- CHECKERED PLATE
- STEEL (FOR 1"SCALE & LARGER)
- STEEL OR ALUMINUM (FOR 3/4" SCALE & SMALLER)
- BAR GRATING (LINES IN DIRECTION OF SPAN)
- ALUMINUM
- INSULATION (BATT)
- INSULATION (RIGID)
- AC PAVING (PLAN VIEW)
- AC PAVING (SECTION VIEW)
- SLURRY SEAL

PIPING SYSTEMS

NEW PIPING	OF — OVERFLOW
UNDERGROUND PIPING	PD — SUMP PUMP DISCHARGE
EXISTING PIPING	PTW — PUMP TO WASTE
FUTURE PIPING	RW — RAW WATER
A — AIR (COMPRESSED)	SAN — SANITARY DRAIN
BW — BACKWASH WATER	SS — SANITARY SEWER
BWW — BACKWASH WASTEWATER	SL — SOLIDS
CW — COLD WATER (POTABLE)	SR — SURGE RELIEF
FOR — FUEL OIL RETURN	ST — STORM DRAIN
FOS — FUEL OIL SUPPLY	TW — TREATED WATER
FOV — FUEL OIL VENT	V — VENT
NOCL — SODIUM HYPOCHLORITE	W — WATER
NPW — COLD WATER (NON-POTABLE)	WW — WASH WATER

VALVE LEGEND

- PLUG VALVE, ECCENTRIC
- BUTTERFLY VALVE
- GATE VALVE
- BALL VALVE
- GLOBE VALVE
- CHECK VALVE
- ANGLE VALVE
- DIAPHRAGM VALVE
- INLINE PRESSURE RELIEF VALVE
- VACUUM BREAKER
- THERMAL SHUTOFF VALVE
- HOSE FAUCET
- HOSE VALVE W/HOSE NIPPLE
- BACKFLOW PREVENTER
- SAFETY RELIEF VALVE
- V — VACUUM RELIEF CHECK VALVE
- PRESSURE VACUUM RELIEF VALVE

PIPING ACCESSORIES LEGEND

- BLIND FLANGE
- CAP OR PLUG
- CO — CLEANOUT
- CROSS
- ELBOW
- ELBOW DOWN
- ELBOW TURNING UP
- SIZE — HOSE CONNECTION
- Q — QUICK COUPLING
- REDUCER
- TEE
- TEE LINE DOWN
- TEE LINE UP
- WYE
- S — WYE STRAINER
- CALIBRATING COLUMN
- TRAP
- UNION
- WALL SLEEVE
- FLEXIBLE HOSE OR TUBING
- FLEXIBLE CONNECTOR
- HOSE REEL
- INJECTOR, EDUCTOR, BLENDER
- PIPE GUIDE
- S — STRAINER
- SUCTION DIFFUSER
- VENT - SCREENED
- VENT
- P — PRESSURE GAUGE W/SNUBBER
- SIGHT FLOW INDICATOR
- T — TEMPERATURE INDICATOR
- ELECTROMAGNETIC/ULTRASONIC FLOWMETER
- FM — FLOW METER
- PIPE DIFFUSER

NOTE :
SYMBOLS ON THIS SHEET WHICH ARE TO BE SHOWN AS EXISTING SHALL BE DELINEATED AS SCREENED
THOSE SYMBOLS WHICH ARE TO BE SHOWN AS NEW SHALL BE DELINEATED AS SOLID (HEAVY)

NOTES:

1. REFER TO DWGS H-01, P-01, L-03, S-02, E-01, E-02, I-01 & I-03 FOR ADDITIONAL LEGENDS AND ABBREVIATIONS.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP'D	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER — JESSE W. WALTON — C77408 — CIVIL — STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

GENERAL
LEGEND AND ABBREVIATIONS
SHEET 2 OF 2

DESIGNED: GY
DETAILED: JAD
CHECKED:
APPROVED:
DATE: JULY 2021

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

G-03
SHEET
OF

FD10000
D10000
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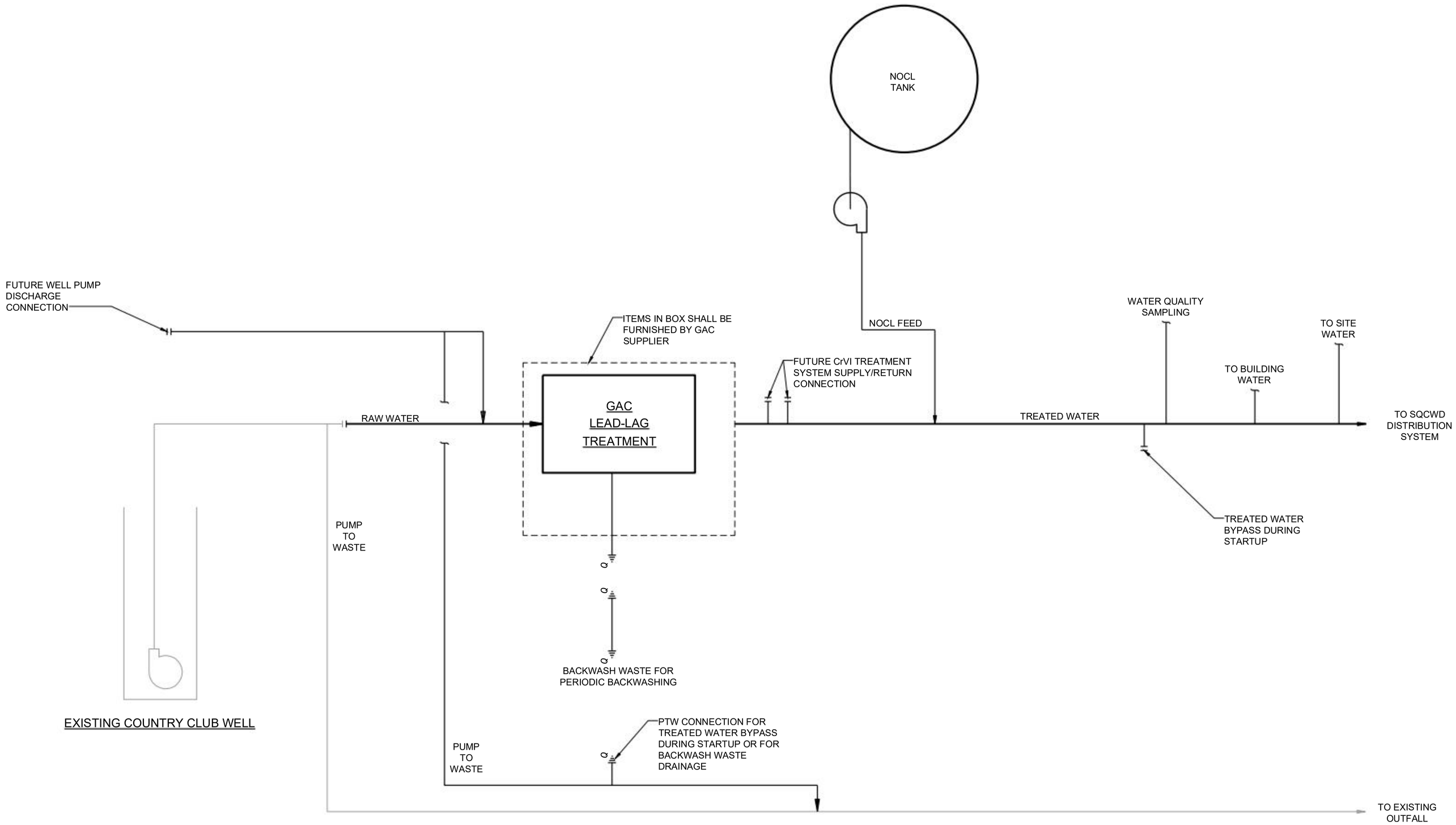

NOTES:

1. PROCESS FLOW DIAGRAM REPRESENTS A GENERAL DEPICTION OF PROCESS AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES. REFER TO THE P&IDS FOR ADDITIONAL DETAILS REGARDING THE PROCESS AND INSTRUMENTATION AND CONTROLS REQUIREMENTS.

PRELIMINARY - NOT FOR CONSTRUCTION

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REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALTON
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

GENERAL
PROCESS FLOW DIAGRAM

DESIGNED: GY
DETAILED: JAD
CHECKED:
APPROVED:
DATE: JULY 2021

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PROJECT NO.
407941

G-04
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OF

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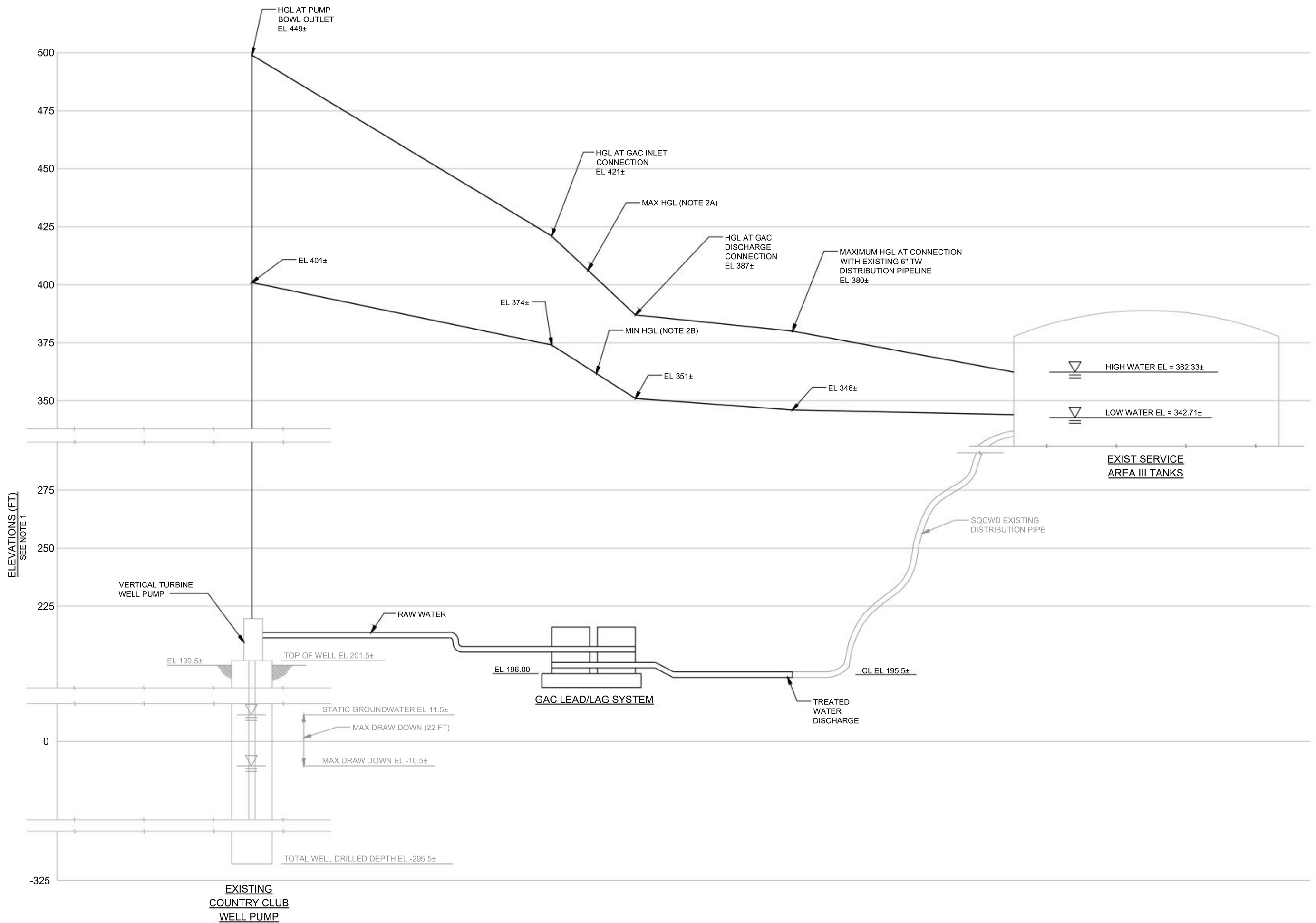

HYDRAULIC PROFILE
SCALE: NO SCALE

DESIGN CRITERIA

GAC SYSTEM

- DESIGN FILTER LOADING RATE = 6.4 GPM/FT²
- EMPTY BED CONTACT TIME = 16 MIN
- DESIGN FLOW = 500 GPM
- GAC CONFIGURATION = LEAD-LAG VERTICAL VESSELS

NOTES:

1. ALL ELEVATIONS ARE BASED ON VERTICAL DATUM NAVD88.
2. HYDRAULIC GRADE LINE (HGL) DEVELOPED BASED ON THE FOLLOWING CONDITIONS AT 500 GPM:
   A) MAX HGL: MAX DISTRIBUTION CONNECTION PRESSURE OF 80 PSI
      AGED PIPE
      SPENT GAC MEDIA: 15 PSI PRESSURE DROP
   B) MIN HGL: MIN DISTRIBUTION CONNECTION PRESSURE OF 65 PSI
      NEW PIPE
      NEW GAC MEDIA: 10 PSI PRESSURE DROP

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

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JESSE W. WALTON
C77408
CI VI L
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

GENERAL
HYDRAULIC PROFILE AND DESIGN CRITERIA

DESIGNED: GY
DETAILED: JAD
CHECKED:
APPROVED:
DATE: JULY 2021

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

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OF

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GENERAL PROJECT NOTES

1. HORIZONTAL CONTROL: ASSUMED COORDINATE SYSTEM BASED ON KNOWN NORTHING AND EASTINGS OF CONTROL POINTS. REFER TO DWG G-07 FOR ADDITIONAL INFORMATION.

2. VERTICAL CONTROL: ELEVATIONS ARE BASED ON NAVD88. BENCHMARKS AND/OR STRUCTURE ELEVATIONS FROM EXISTING SURVEYS OR REFERENCE DRAWINGS MAY RESULT IN VARIANCES WITH ELEVATIONS INDICATED ON THE DRAWINGS FOR EXISTING FACILITIES. REFER TO DWG G-07 FOR ADDITIONAL INFORMATION.

3. BASED ON FEMA MAP ITEM 06087C0359F (EFFECTIVE DATE SEPTEMBER 29, 2017), THE PROJECT SITE IS NOT LOCATED WITHIN A FEMA 100-YEAR FLOODPLAIN.

4. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. THE LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF SUBSURFACE FACILITIES AND UTILITIES ARE APPROXIMATE, AND NOT ALL UTILITIES AND FACILITIES MAY BE INDICATED. OVERHEAD UTILITIES ARE NOT INDICATED IN ARCHITECTURAL ELEVATIONS, PROFILE OR SECTION DRAWINGS. THE ENGINEERING INVESTIGATIONS, LOCATION, AND DESIGNATION OF SUBSURFACE UTILITIES INDICATED IN THESE CONTRACT DOCUMENTS HAS BEEN PERFORMED TO QUALITY LEVEL C IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES AS OUTLINED IN ASCE STANDARD AND GUIDELINE BULLETIN CI/ASCE 38-02 UNLESS OTHERWISE DESIGNATED. WHERE SUCH ACTIVITIES HAVE BEEN TO A HIGHER LEVEL OF QUALITY, THE HIGHER QUALITY LEVEL FOR THE AFFECTED AREAS IS INDICATED IN THE CONTRACT DOCUMENTS.

5. "SCREENED" (LIGHT) DELINEATION INDICATED ON THE DRAWINGS DENOTES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM EXISTING CONSTRUCTION DRAWINGS AND DATA, IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE ORDERING OF MATERIALS AND BEGINNING OF CONSTRUCTION. "BOLD" DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.

6. CONTRACTOR'S STAGING, PARKING AND MATERIAL STORAGE SHALL BE LIMITED TO THE SPACE(S) DESIGNATED ON THE DRAWINGS. PROVIDING ADDITIONAL STORAGE OR PARKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

7. CALL BEFORE YOU DIG. CONTRACTOR SHALL VERIFY PRECISE LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STRUCTURES, WHETHER INDICATED ON THE DRAWINGS OR NOT, IN THE FIELD IN ADVANCE OF EXCAVATING, BY CONTACTING ALL UTILITIES AND OTHER AGENCIES, AND BY PROSPECTING. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, DEMOLITION, RECONSTRUCTION, AND RECONNECTION OF EXISTING FACILITIES AS REQUIRED TO COMPLETE THE WORK. IF REQUIRED AFTER FIELD VERIFICATION, CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO DETERMINE ANY NECESSARY MODIFICATIONS TO PROPOSED NEW WORK.

8. BEFORE CONSTRUCTION IS STARTED, CONTRACTOR SHALL COORDINATE WITH THE OWNER OF EACH UTILITY AND DEFINE THE REQUIREMENTS AND METHODS TO ACCOMMODATE THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION OF ANY UTILITIES AFFECTED BY THE PROPOSED NEW WORK.

9. CONTRACTOR SHALL COMPLY WITH THE GOVERNING AGENCY NPDES CONSTRUCTION REQUIREMENTS, AND SHALL PROVIDE APPROPRIATE MITIGATION MEASURES OR PROTECTION AND RESTORATION AT ALL LOCATIONS AS REQUIRED BY THEIR OPERATIONS, AND AS DIRECTED BY ENGINEER. SPECIAL CONSTRUCTION REQUIREMENTS, TEMPORARY PROTECTIVE FENCING OR BARRICADES, SHEETING, SHORING, EROSION PROTECTION, AND SURFACE RESTORATION AT CERTAIN LOCATIONS ARE INDICATED ON THE DRAWINGS TO BRING CONTRACTOR'S ATTENTION TO SENSITIVE AREAS.

10. CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING MONUMENTS AND OTHER SURVEY MARKERS. MONUMENTS AND SURVEY MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY A LICENSED CALIFORNIA SURVEYOR AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL PROVIDE SURVEYORS WITH AT LEAST 48 HOURS ADVANCED NOTICE OF CONSTRUCTION STAKING REQUIREMENTS.

11. THE LOCATION OF TEST HOLES AND POT HOLES INDICATED ON THE DRAWINGS IS APPROXIMATE. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR ACTUAL TEST HOLE LOCATIONS AND THE FINDINGS OF THE GEOTECHNICAL INVESTIGATIONS.

12. CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING TREES, SHRUBS, AND PLANTS UNLESS OTHERWISE NOTED.

13. CONTRACTOR SHALL INSTALL ALL PIPELINES, PAVING, WALKWAYS, AND CURB AND GUTTER AT A UNIFORM GRADE BETWEEN ELEVATIONS DEPICTED ON THE DRAWINGS.

14. FOR ALL SITE GRADING, SMOOTH PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE. PARABOLIC ROUNDING SHALL APPLY TO ALL CUT AND FILL SECTIONS.

15. FINISHED GRADE ELEVATION AT THE BUILDING FACE, WHERE NOT ADJACENT TO PAVEMENT, SHALL BE APPROXIMATELY 6 INCHES BELOW FINISHED FLOOR ELEVATION UNLESS OTHERWISE NOTED. FINISHED GRADE ELEVATION ADJACENT TO BASINS SHALL BE APPROXIMATE AS INDICATED BY CONTOURS, OR AS REQUIRED TO MEET STAIR LANDINGS.

16. THE CONTRACTOR'S OPERATIONS SHALL CONFORM TO THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS PERTAINING TO EXCAVATION AND TRENCHING.

17. RESTRAINED JOINTS SHALL BE PROVIDED FOR BURIED PIPING AS INDICATED ON THE DRAWINGS AND/OR AS SCHEDULED IN THE SPECIFICATIONS.

18. THE DRAWINGS INDICATE TYPES OF PIPE SUPPORT SYSTEMS AT VARIOUS LOCATIONS. HOWEVER, All PIPE SUPPORTS, HANGERS, BRACKETS, INSERTS OR BRACES ARE NOT SHOWN. CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND PROVIDE A COMPLETE SUPPORT SYSTEM AS REQUIRED.

19. THE TERM "PROPOSED" AS INDICATED ON THE DRAWINGS MEANS THE ITEM IS DESIGNED OR PLANNED TO BE PROVIDED BY OWNER OR OTHERS SEPARATE FROM THIS CONTRACT. THE TERM "FUTURE" AS INDICATED ON THE DRAWINGS REFERS TO THE ENGINEER'S INTERPRETATION OF THE ITEM FOR THE FUTURE, BASED ON AVAILABLE INFORMATION.

20. THE EXISTING TREATED WATER PIPELINES SHALL REMAIN IN OPERATION CONTINUOUSLY THROUGHOUT THE CONSTRUCTION ACTIVITIES. INDIVIDUAL WATER MAINS AND SERVICE PIPE CAN BE TAKEN OUT OF SERVICE FOR LIMITED PERIODS OF TIME TO FACILITATE CONSTRUCTION AS SPECIFIED IN THE CONTRACT DOCUMENTS.

21. STRUCTURES SUCH AS CURBS AND GUTTERS, CONCRETE AND ASPHALT DRIVES AND WALKWAYS, PAVING BRICKS, FENCING, RETAINING WALLS, ETC., CROSSED BY THE PIPELINE ARE NOT ALL INDICATED IN PROFILE. CONTRACTOR SHALL RESTORE ANY EXISTING STRUCTURES THAT ARE DISTURBED, DAMAGED OR REMOVED BY CONSTRUCTION.

22. CONTRACTOR SHALL REPLACE EXISTING PIPE CULVERTS THAT ARE REMOVED TO INSTALL THE NEW PIPELINE WITH NEW PIPE CULVERTS OF THE SAME SIZE, MATERIAL AND CONSTRUCTION AT THE SAME LOCATION AND INVERT ELEVATION AS THOSE THAT WERE REMOVED, AND SHAPE THE DITCH TO DRAIN WITH THE REPLACED CULVERT. CONTRACTOR SHALL PROVIDE ANY TEMPORARY CULVERTS THAT MAY BE REQUIRED FOR CONTRACTOR'S OPERATIONS. CONTRACTOR SHALL COORDINATE REMOVAL AND REPLACEMENT OF ANY CULVERTS WITHIN PUBLIC RIGHT-OF-WAY WITH THE REGULATING AGENCY.

23. HORIZONTAL STATIONING ALONG THE PIPELINE ALIGNMENT IS FOR LEVEL LINE MEASUREMENT AND FOR PAYMENT OF THE PIPELINES. CONTRACTOR SHALL PROVIDE THE ACTUAL PIPE LENGTH TO BE DETERMINED BY THE SLOPE OR CURVE ON WHICH THE PIPE IS INSTALLED.

24. MINIMUM PIPE COVER SHALL BE FROM THE EXISTING, PROPOSED, OR FUTURE GROUND SURFACE OR ROAD PROFILE, WHICHEVER GROUND SURFACE OR ROAD PROFILE IS APPLICABLE AS INDICATED ON THE DRAWINGS. IF THE PROPOSED GROUND SURFACE IS ABOVE THE EXISTING GROUND SURFACE INDICATED ON THE DRAWINGS AND IS NOT THE ACTUAL GROUND SURFACE AT THE TIME OF PIPELINE INSTALLATION, INSTALL THE PIPELINE TO PROVIDE MINIMUM PIPE COVER FROM THE ACTUAL GROUND SURFACE IF ACCEPTABLE TO THE ENGINEER. HIGH POINTS IN THE PIPELINE WILL NOT BE PERMITTED EXCEPT AT LOCATIONS OF AIR VALVES AS INDICATED ON THE DRAWINGS. REVIEW THE PIPELINE PROFILE REQUIREMENTS WITH THE ENGINEER PRIOR TO PREPARING LAYING SCHEDULES AND PERFORMING FIELD STAKING.

25. CONTRACTOR SHALL FIELD VERIFY PRECISE LOCATION, ELEVATION, AND ARRANGEMENT OF CONNECTIONS OF NEW PIPELINES WITH EXISTING PIPELINES BASED ON FIELD CONDITIONS, INCLUDING EXPOSING EXISTING PIPING PRIOR TO FABRICATING NEW PIPING. CONTRACTOR SHALL PROVIDE FITTINGS, ADAPTERS, SOLID SLEEVE CLOSURES, AND HARNESSED MECHANICAL COUPLING; ROTATE FITTINGS; DEFLECT JOINTS; AND MODIFY EXISTING PIPING AS APPLICABLE AND AS REQUIRED TO MAKE CONNECTIONS, INCLUDING ADJUSTMENTS FOR ANY OFFSETS IN CENTERLINE ELEVATIONS BETWEEN PIPELINES. CONTRACTOR SHALL PROVIDE TEMPORARY PLUG WITH FACTORY OUTLET SIZED AS REQUIRED FOR CONTRACTOR'S TESTING AND DISINFECTION WORK BEFORE MAKING CONNECTION, WHEN APPLICABLE. CONTRACTOR SHALL COORDINATE MAKING EACH CONNECTION WITH THE OWNER.

26. ALL DIP SHALL BE PROTECTED WITH A MINIMUM OF ONE WRAP OF POLYETHYLENE ENCASEMENT. LOCATIONS WHERE DIP IS TO BE DOUBLE WRAPPED WITH POLYETHYLENE ENCASEMENT, AND PCCP IS TO BE WRAPPED (SINGLE OR DOUBLE) WITH POLYETHYLENE ENCASEMENT ARE SPECIFIED AND INDICATED ON THE DRAWINGS.

27. THE CONTRACTOR SHALL NOTIFY THE CHIEF ENGINEER OF THE SOQUEL CREEK WATER DISTRICT A MINIMUM OF 2 WORKING DAYS PRIOR TO COMMENCING THE WORK.

28. THE CONTRACTOR SHALL SCHEDULE ALL INSPECTIONS WITH THE SOQUEL CREEK WATER DISTRICT A MINIMUM OF 24 HOURS IN ADVANCE OF NEEDING SUCH INSPECTION.

29. ONLY AUTHORIZED PERSONNEL OF THE SOQUEL CREEK WATER DISTRICT SHALL OPERATE EXISTING DISTRIBUTION SYSTEM VALVES.

30. SYSTEM SHUTDOWNS FOR THE INTERCONNECTION OF NEW IMPROVEMENTS TO THE EXISTING SYSTEM SHALL BE SCHEDULED WITH THE SOQUEL CREEK WATER DISTRICT A MINIMUM OF THREE WORKING DAYS IN ADVANCE FOR RESIDENTIAL AREAS AND 5 WORKING DAYS IN ADVANCE FOR COMMERCIAL AREAS.

31. COUNTY OF SANTA CRUZ SANITATION DEPARTMENT DOES NOT LOCATE SEWER LATERALS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL LATERALS THROUGHOUT PROJECT.

32. CONTRACTOR SHALL CONFORM TO THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS PERTAINING TO EXCAVATION AND TRENCHING. CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR TRENCH SHORING DESIGN AND INSTALLATION.

33. CONTRACTOR SHALL PROVIDE PUBLIC SAFETY AND TRAFFIC CONTROL IN ACCORDANCE WITH REQUIREMENTS IN DIVISION 1 SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SAFE VEHICLE AND PEDESTRIAN ACCESS AT ALL TIMES DURING CONSTRUCTION.

34. ALL STAGING AREAS AND/OR STORAGE AREAS FROM WHICH VEHICLES AND EQUIPMENT WOULD ENTER OR LEAVE A COUNTY ROADWAY ARE REQUIRED TO HAVE A COUNTY ENCROACHMENT PERMIT IN PLACE BEFORE ANY WORK BEGINS. STAGING AREAS SHALL BE APPROVED BY SQCWD AND SANTA CRUZ COUNTY.

35. EXCEPT FOR PERMITS OBTAINED BY SQCWD FOR THIS PROJECT, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMITS NECESSARY TO PERFORM THE WORK REFERENCED ON THESE PLANS FROM THE APPROPRIATE AGENCIES.

36. REFER TO DIVISION 1 SPECIFICATIONS FOR MITIGATION MONITORING PROGRAMS.

37. CONTRACTOR SHALL CONTROL DUST ACCORDING TO THE DIVISION 1 SPECIFICATIONS.

38. ALL SURPLUS AND UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE PUBLIC RIGHT-OF-WAY AND DISPOSED OF IN ACCORDANCE WITH ALL PERTINENT LAWS.

39. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ALL TRAFFIC STRIPING AND ROAD MARKINGS - INCLUDING, BUT NOT LIMITED TO, TURN ARROWS, STOP BARS, BIKE LANES, CENTER LINES, ETC.

40. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ALL TRAFFIC SENSING LOOPS DISTURBED BY THE WORK.

41. CONTRACTOR TO VERIFY WITH ENGINEER THE FINAL LOCATION OF ALL METERS AND MAIN LINE IF DIFFERENT FROM SHOWN ON THESE PLANS.

42. CONTRACTOR SHALL ABANDON ALL EXISTING VALVES ON ABANDONED WATER MAINS IN-PLACE (UNLESS SHOWN OTHERWISE ON THESE PLANS). REMOVE VALVE BOX AND EXTENSION, BACKFILL AND REPAIR PER SQCWD S-14.

43. NO FACILITY IS TO BE BACKFILLED UNTIL INSPECTED BY THE SOQUEL CREEK WATER DISTRICT.

44. ALL WATERWORKS RELATED CONSTRUCTION AS INDICATED IN THE SPECIFICATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, STANDARD PLANS AND THE DIRECTIONS OF THE CHIEF ENGINEER OF THE SOQUEL CREEK WATER DISTRICT. A COPY OF THE SOQUEL CREEK WATER DISTRICT STANDARD SPECIFICATIONS AND STANDARD PLANS SHALL BE AVAILABLE ON THE JOBSITE AT ALL TIMES. COPIES MAY BE OBTAINED AT THE OFFICES OF THE SOQUEL CREEK WATER DISTRICT, 5180 SOQUEL DRIVE, SOQUEL, CA 95073.

45. THIS IS NOT A BOUNDARY OR TOPOGRAPHIC SURVEY. RIGHT-OF-WAY, IF SHOWN, IS COMPILED FROM RECORDED DATA AND RECONCILED TO BEST FIT RANDOM FOUND MONUMENTS. LOT LINES ARE GENERATED FROM ASSESSOR'S MAPS.

46. CONTRACTOR SHALL BEVEL ALL 10-INCH AND 12-INCH PVC ON INSIDE OF PIPE SPIGOT WHEN CONNECTING TO 10-INCH AND 12-INCH BUTTERFLY VALVES.

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CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

GENERAL
GENERAL NOTES

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DETAILED: JAD
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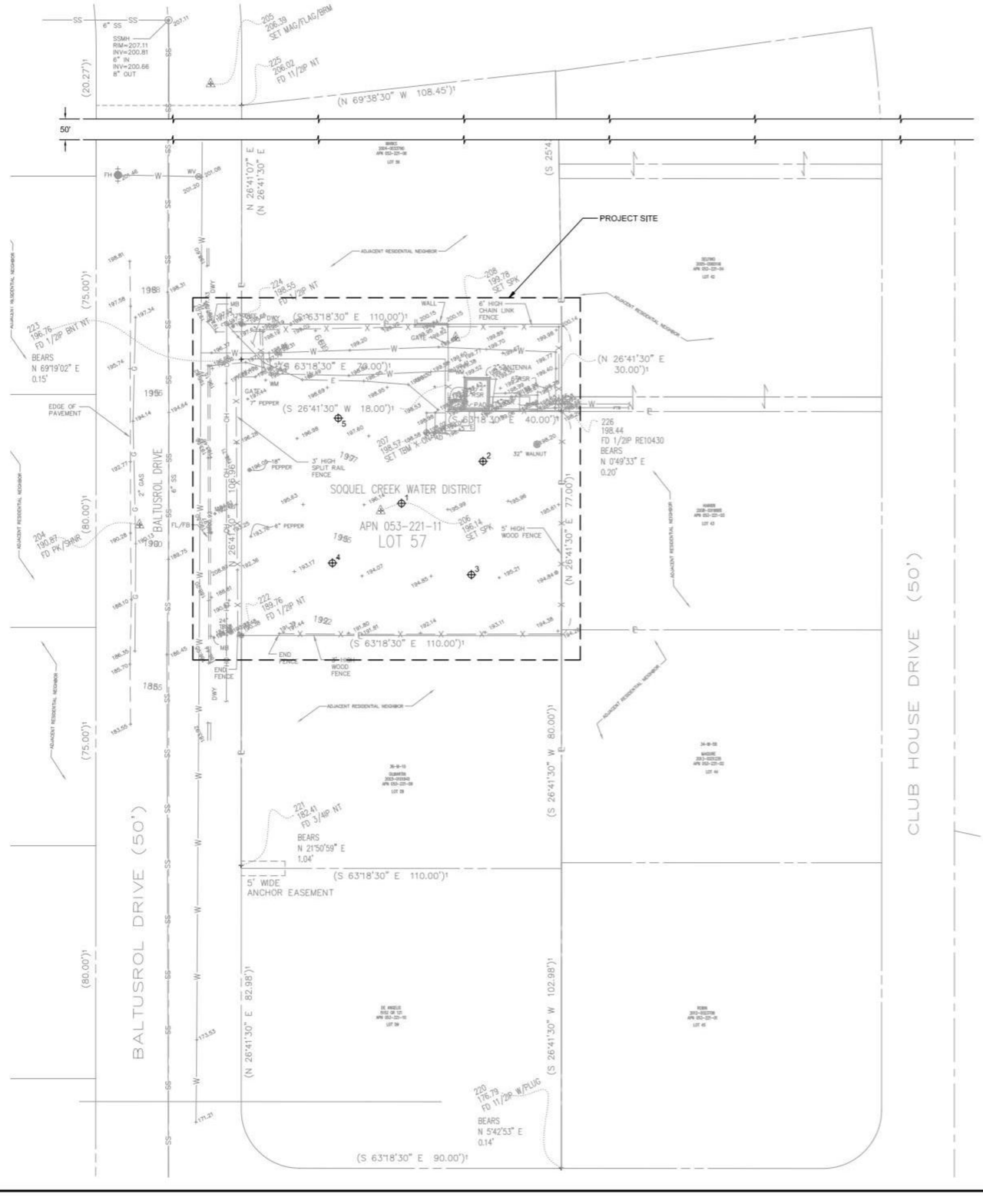

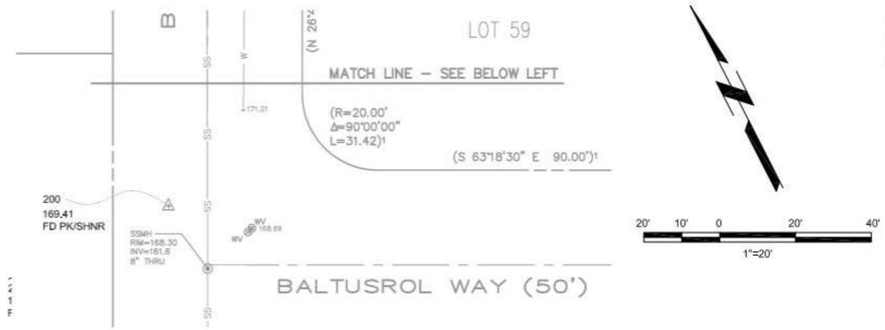

SURVEY CONTROL POINTS

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	1763.9732'	4595.4703'	169.41'	FD PK/SHNR
204	1969.6901'	4699.1908'	190.87'	FD PK/SHNR
205	2132.4698'	4808.2829'	206.39'	SET MAG/FLAG/BRM
206	1936.8294'	4775.4087'	196.14'	SET SPK
207	1953.7931'	4801.5420'	198.57'	SET TBM X ON PAD
208	1978.4067'	4825.0944'	199.78'	SET SPK
220	1707.3093'	4729.4831'	176.79'	FD 1 1/2IP W/PLUG
221	1849.5539'	4677.8355'	182.41'	FD 3/4IP NT
222	1920.1056'	4713.3836'	189.76'	FD 1/2IP NT
223	2004.8871'	4755.9139'	196.76'	FD 1/2IP BNT NT
224	2015.6624'	4761.4471'	198.55'	FD 1/2IP NT
225	2121.1479'	4814.4669'	206.02'	FD 1 1/2IP NT
226	1939.6467'	4846.2524'	198.44'	FD 1/2IP RE10430

ABBREVIATIONS (THIS DWG ONLY)

BNT	BENT
BRM	AC BERM
DWY	DRIVEWAY
FB	FACE OF BERM
FD	FOUND
FH	FIRE HYDRANT
FL	FLOWLINE
INV	INVERT
IP	IRON PIPE
JP	JOINT UTILITY POLE
LS	LAND SURVEYOR
MAG	MAGNETIC NAIL
MB	MAILBOX
NT	NO TAG
OH	OVERHEAD
PK	PARKER KALON
RE	REGISTERED ENGINEER
RSR	RISER
SHNR	SHINER (LARGE WASHER)
SPK	SPIKE
SSMH	SANITARY SEWER MANHOLE
TBM	TEMPORARY BENCHMARK
W/	WITH
WM	WATER METER
WV	WATER VALVE
X	ETCHED CROSS
+-	PLUS OR MINUS

LEGEND (THIS DWG ONLY)

- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- FENCE LINE
- FIRE HYDRANT
- FOUND MONUMENT AS NOTED
- GAS LINE
- GUY ANCHOR
- JOINT UTILITY POLE
- OVERHEAD UTILITY LINE(S)
- PROPERTY LINE
- SANITARY SEWER
- SET RANDOM NAIL
- SITE BENCHMARK
- +46.21 SPOT ELEVATION
- TREE
- WATER LINE
- WATER VALVE

⊕ APPROXIMATE LOCATION OF GEOTECHNICAL BOREHOLES. REFER TO GEOTECHNICAL INVESTIGATION REPORT FOR ADDITIONAL INFORMATION.

BASIS OF ELEVATIONS

THE BASIS OF ELEVATIONS FOR THIS SURVEY IS NATIONAL GEODETIC SURVEY BENCHMARK
DESIGNATION: G 1237
PID: GU2276
STATE/COUNTY: CA/SANTA CRUZ
USGS QUAD: SOQUEL (1994)
ELEVATION = 125.18 NAVD 88

STATION DESCRIPTION: 9.2 MI E FROM SANTA CRUZ, 9.2 MILES EAST ALONG THE SOUTHERN PACIFIC COMPANY RAILROAD FROM THE WEST CLIFF DRIVE OVERPASS AT SANTA CRUZ, AT THE CROSSING OF CLUB HOUSE DRIVE, IN THE TOP AND 0.5 FOOT NORTHWEST OF THE SOUTHEAST CORNER OF A CONCRETE CATCH BASIN WHICH IS IN THE CURB RETURN OF A CURB BETWEEN THE DRIVE AND SUMNER AVENUE, 31 FEET SOUTHEAST OF THE CENTER LINE OF THE SOUTHEAST LANES OF THE DRIVE, 109.5 FEET NORTHEAST AND ACROSS SUMNER AVENUE FROM THE NORTHEAST RAIL, 36 FEET NORTHEAST OF THE CENTER LINE OF THE AVENUE, ABOUT 1 FOOT HIGHER THAN THE TRACK AND 1/2 FOOT HIGHER THAN THE DRIVE.

RECORD DATA

(100)¹ RECORD DATA 36–M–10

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE SOUTHEAST SIDELINE OF BALTUSROL DRIVE AS SHOWN ON ON TRACT NO. 249, COUNTRY CLUB PARK UNIT NO. 4, FILED IN VOLUME 36 OF MAPS AT PAGE 10, SANTA CRUZ COUNTY RECORDS, AND ESTABLISHED FROM MONUMENTS FOUND AS SHOWN = N 26°41'30" E

SITE BENCHMARK

THE SITE BENCHMARK FOR THIS SURVEY IS PT# 207, SET TBM "X" ON TOP OF PAD ELEV=198.57, (NAVD 88)

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Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

GENERAL
PROJECT BASELINE INFORMATION - GEOTECHNICAL BOREHOLE AND SURVEY CONTROL

DESIGNED: GY
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GENERAL SHEET NOTES

SHEET KEY NOTES

1. OTHER EQUIPMENT INSIDE OF THE PUMP ENCLOSURE INCLUDE, BUT ARE NOT LIMITED TO: VFD, RTU, AND CHLORINE ANALYZER. ALL ITEMS SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE INDICATED TO BE DEMOLISHED.
2. FIELD CONFIRM LOCATION OF LOW POINT OF OVERHEAD POWER AND COMMUNICATION LINES AND COORDINATE WITH REQUIRED ACCESSIBILITY CLEARANCES.
3. REMOVE EXITING AC CURB (TYP 2). COORDINATE WITH LOCATION OF DRIVEWAY SHOWN ON C-01.

ADJACENT RESIDENTIAL NEIGHBOR

BEARS
N 69°19'02" E
0.15'

(75.00')1

EDGE OF
PAVEMENT

(80.00')1

BALTUSROL DRIVE

EXISTING
AC CURB

2" GAS

6" SS

DWY

MB

17" TREE

(S 63°18'30" E 110.00')1

EXISTING 6" TW
DISTRIBUTION PIPE

WALL

6' HIGH
CHAIN LINK
FENCE

EXISTING WELL PUMP
ENCLOSURE, PROTECT
IN PLACE. SEE NOTE 1

EXISTING 6" RW, 4" PTW, AND
SAND SEPARATOR, PROTECT IN
PLACE UNLESS OTHERWISE
SHOWN TO BE DEMOLISHED.

WV

DEMO EXISTING PUMP
ENCLOSURE FENCE

(S 63°18'30" E 70.00')1

(N 26°41'30" E
30.00')1

2" ANTENNA

WM

GATE

REMOVE
EXISTING TREE

DEMO EXISTING
CHEMICAL FEED BUILDING

(S 26°41'30" W 18.00')1

1/2"
RSR

4"RSR

PAD

DEMO 6" RW PIPE

EXISTING PG&E SERVICE
PANEL, PROTECT IN PLACE

(S 63°18'30" E 40.00')1

4" PTW

EXISTING 6" TW AND 4" PTW
IN DISTRICT EASEMENT
THAT IS ROUTED TOWARDS
CLUBHOUSE DRIVE.

226
198.44
FD 1/2IP RE10430
BEARS
N 0°49'33" E
0.20'

REMOVE
EXISTING TREE

ELECTRICAL DUCTBANK
BETWEEN SERVICE PANEL
AND EXISTING PUMP
ENCLOSURE

DEMO EXISTING FENCE
THAT SURROUNDS THE
EXISTING PUMP
STATION SITE

REMOVE TREES AND SHRUBS
BETWEEN EXISTING WELL
PUMP ENCLOSURE AND
EASTERN PROPERTY LINE

18"
PEPPER

FL/FB

6" PEPPER

CAUTION: OVERHEAD HIGH
VOLTAGE POWER LINES AND
COMMUNICATION LINES

5' HIGH
WOOD FENCE

(N 26°41'30" E 77.00')1

LOW POINT
OH LINE

24"
TREE

END
FENCE

3' HIGH
WOOD
FENCE

DEMO EXISTING
SITE FENCE

(S 63°18'30" E 110.00')1

(S 26°41'30" W 80.00')1

36-M-10
GILMARTIN
2003-0101840
APN 053-221-09
LOT 58

34
M
2013
APN 0

10' 0 10' 20'
1" = 10'

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP'D	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALLIN
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

DEMOLITION
SITE DEMO PLAN

DESIGNED: GY
DETAILED: JAD
CHECKED: HW
APPROVED:
DATE: JULY 2021

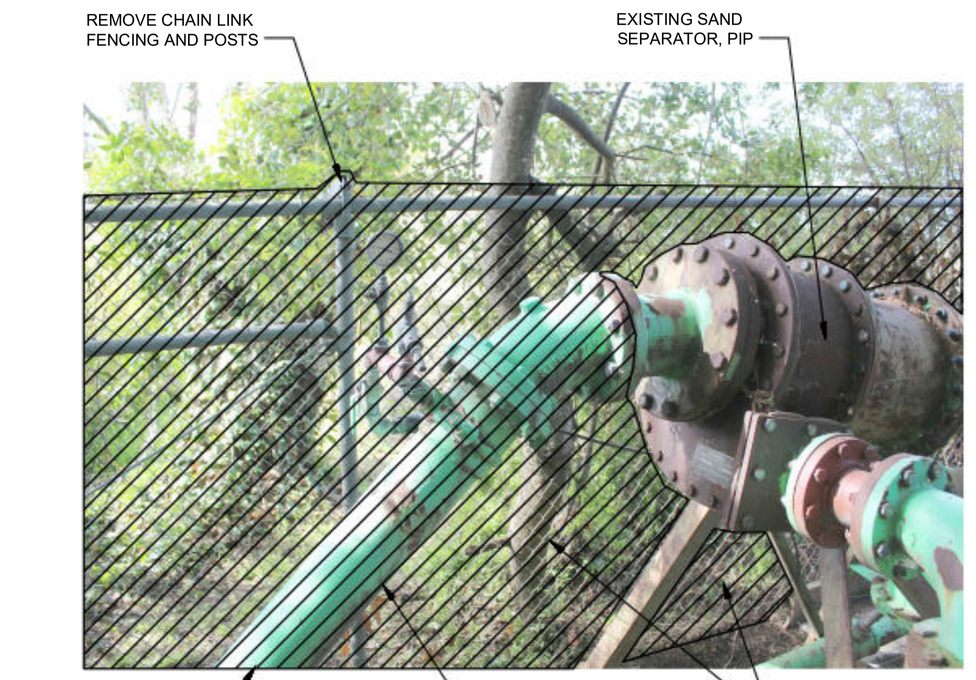
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

D-01
SHEET
OF

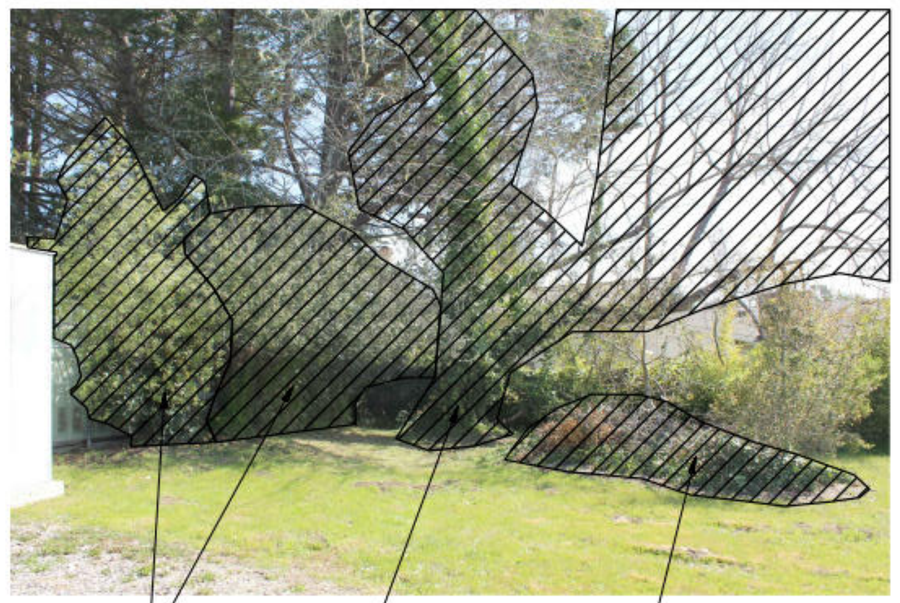
FD10000
D10000
PLOTTED: 7/15/2021 4:39 PM FILE: C:\pw_working\bvw_americas\d13220396\D-01.dwg

1 PHOTO
D-01 NO SCALE

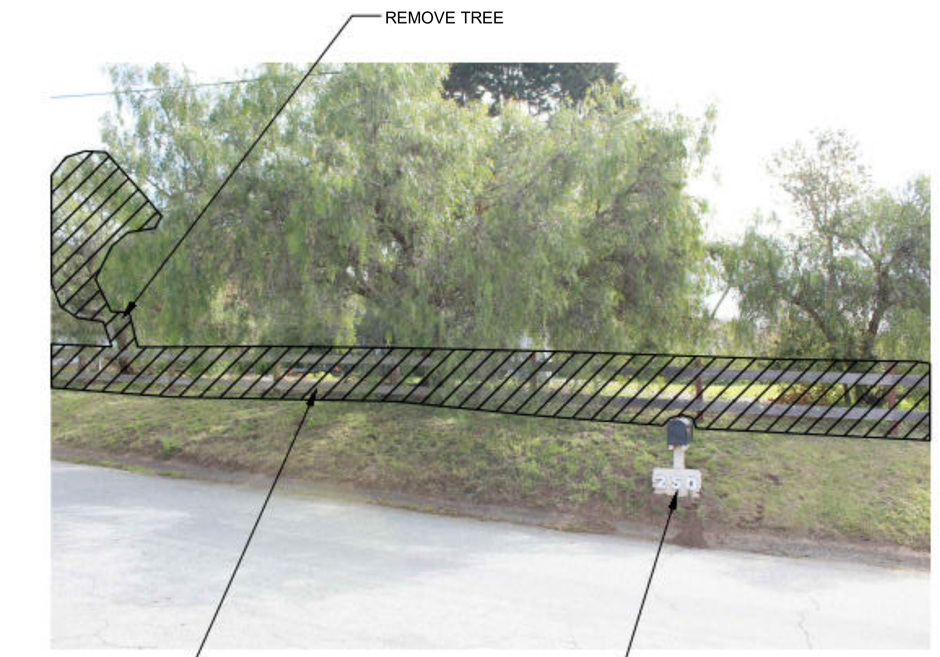


2 PHOTO
D-01 NO SCALE

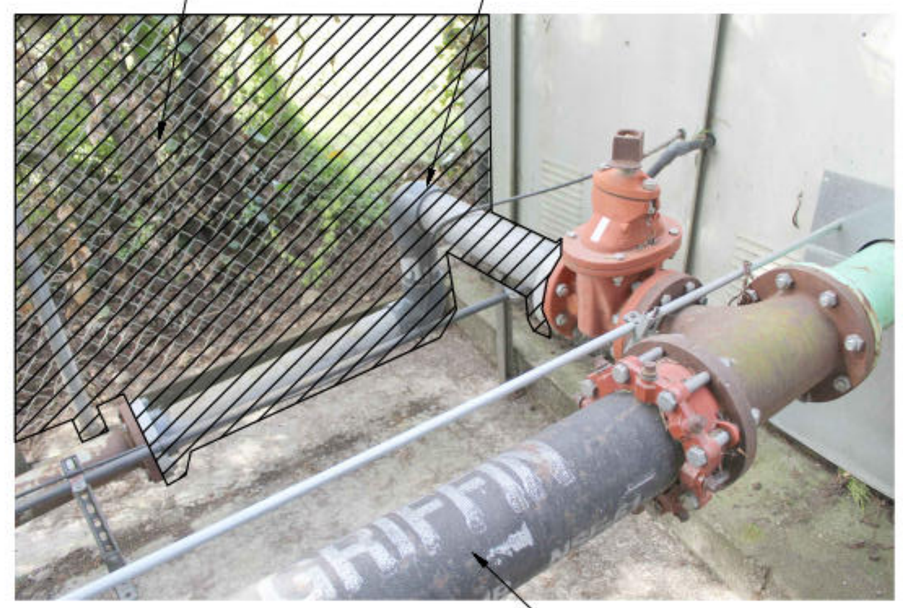
3 PHOTO
D-01 NO SCALE



4 PHOTO
D-01 NO SCALE



5 PHOTO
D-01 NO SCALE



6 PHOTO
D-01 NO SCALE

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALTON
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

DEMOLITION
DEMOLITION PHOTOS

DESIGNED: GY
DETAILED: GT
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
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PROJECT NO.
407941

D-02
SHEET
OF

FD10000
D10000
PLOTTED: 7/14/2021 2:45 PM FILE: C:\pw_working\bvw_americas\d1320396\D-02.dwg

GENERAL SHEET NOTES

1. REFER TO DWG G-06 FOR PROJECT GENERAL NOTES.

SHEET KEY NOTES

1. WELL TO BE CONSTRUCTED AS PART OF A SEPARATE CONTRACT. WORK TO BE FINISHED PRIOR TO CONTRACTOR MOBILIZING TO THE SITE.
2. IRRIGATION SUPPLY LINE OFF OF 2" NPW. REFER TO L-02 FOR CONTINUATION AND ADDITIONAL DETAILS.
3. DIMENSION IS FROM PROPERTY LINE. FIELD CONFIRM PROPERTY LINE BOUNDARY PRIOR TO SETTING BUILDING LOCATION.
4. MANHOLE COORDINATES ARE TO CENTERLINE OF MANHOLE.
5. SEWER TRENCH FOR SANITARY SEWER LINE SHALL BE PER COUNTY STD. FIG. SS-2B.
6. CONNECT SANITARY SEWER LATERAL TO THE SEWER MAIN IN THE STREET WITH EITHER A WYE OR SADDLE (AT DISCRETION OF COUNTY ENGINEER) IN ACCORDANCE WITH COUNTY STD. FIG. SS-12.C.
7. FIELD CONFIRM LIMITS OF EXISTING ELECTRICAL DUCTBANK AND LOCATE THE YARD HYDRANT TO AVOID CONFLICT.

ADJACENT RESIDENTIAL NEIGHBOR
ADJACENT RESIDENTIAL NEIGHBOR
ADJACENT RESIDENTIAL NEIGHBOR
ADJACENT RESIDENTIAL NEIGHBOR
ADJACENT RESIDENTIAL NEIGHBOR
ADJACENT RESIDENTIAL NEIGHBOR
ADJACENT RESIDENTIAL NEIGHBOR
17" TREE
18" PEPPER
6" PEPPER
12" TREE
BALTUSROL DRIVE
2" TW CONNECT TO 6" TW WITH SADDLE TAP AND ISOLATION BALL VALVE
EXISTING 6" TW DISTRIBUTION PIPE
MANUAL 18' WIDE DOUBLE LEAF SWING GATE (TYP)
CONNECT 6" TW TO EXISTING 6" TW DISTRIBUTION PIPE. REFER TO DETAIL A/C-05 FOR ADDITIONAL DETAILS
CHAIN LINK FENCING ALONG NORTHERN, EASTERN, AND SOUTHER PROPERTY LINE PERIMETER
2" WM AND BFP PER DISTRICT STD DWG S-19
6" BFV (TYP 2)
REPLACE EXIST WM BOX WITH TRAFFIC RATED BOX PER DISTRICT STDS.
4' MH RIM XXX 6" INV IN 188.75 6" INV OUT 188.52
7 A C-06 YARD HYDRANT
2
6" TW PIPE SUPPORT, TYP 2
EXISTING WELL PUMP ENCLOSURE
6" RW CONNECTION POINT
N: E: INV EL 185.9±
EXISTING PG&E SERVICE PANEL
2" TW
EXISTING 4" PTW
CAP WITH 2" BLOW-OFF AND PLUG
5
B C-06 REMOVABLE BOLLARDS (TYP)
6 CONNECT TO EXISTING COUNTY 8" SS
6" SAN
6" RW
2'-0"
6" PTW
REFER TO DETAIL A/C-05 FOR ADDITIONAL DETAILS
EXISTING 6" TW AND 4" PTW IN DISTRICT EASEMENT THAT IS ROUTED TOWARDS CLUBHOUSE DRIVE.
FUTURE WELL DISCHARGE PIPING. REFER TO DWG M-05 FOR ADDITIONAL DETAILS
5'-0"
2'-0"
REFER TO M-01 FOR ADDITIONAL DETAILS
6" PTW
3'-0"
1
20'-0" FROM BACK OF CURB
6" SAN
CAUTION: OVERHEAD HIGH VOLTAGE POWER LINES AND COMMUNICATION LINES
WROUGHT IRON FENCING AND GATES ALONG WESTERN PROPERTY LINE
10'-0"
2ND COUNTRY CLUB WELL LOCATION. NIC.
1,2,3-TCP TREATMENT BUILDING
SIDEWALK
LOW POINT OH LINE
6" SD
15'-0"
3
STORM WATER RETENTION/DETENTION SYSTEM
C C-05
12'-0"
DAYLIGHT 2" SD AT CURB. INV EL 187.25
DAYLIGHT 6" SD OF AT CURB. INV EL 187±
2" SD
6" SD INV OUT 187.7
6" SD INV IN 187.8
6" SD OF INV OUT 189.0
PERIMETER FENCE
6" SD
CLASS II AGGREGATE BASE SURFACING
6" INV OUT 188.7

10' 0 10' 20'
1" = 10'

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER JESSE W. WALTON C77408 CIVIL STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL
1,2,3-TCP REMOVAL REPLACEMENT

CIVIL
SITE PLAN, YARD PIPING PLAN

DESIGNED: GY
DETAILED: JAD
CHECKED: HW
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

C-01
SHEET
OF

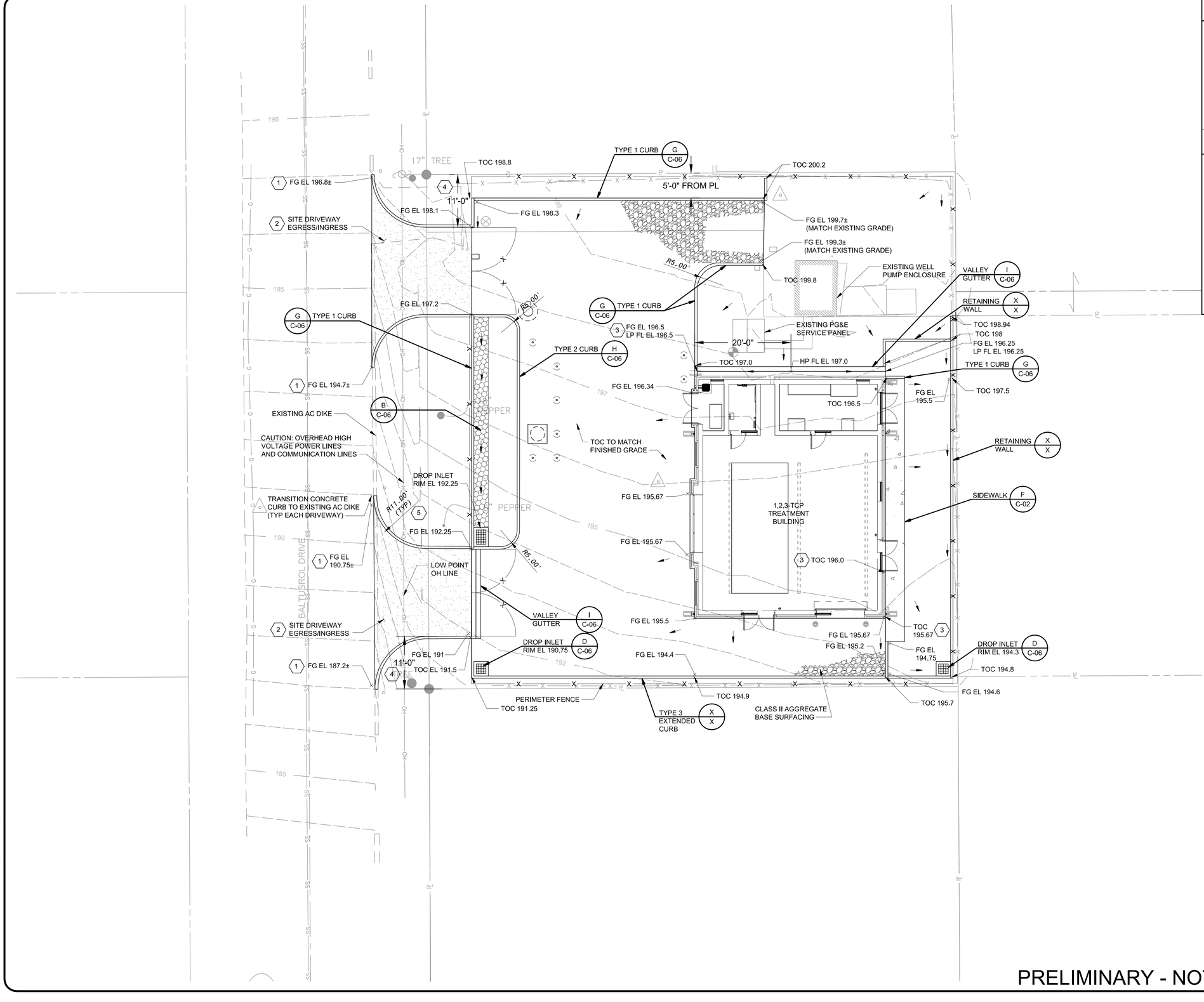
FD10000
D10000
PLOTTED: 7/16/2021 3:16 PM FILE: C:\pw_working\bvw_americas\d1320396\C-01.dwg

GENERAL SHEET NOTES

1. REFER TO DWG G-06 FOR PROJECT GENERAL NOTES.
2. FINISHED GRADES AND SLOPES SHALL BE CONSTANT BETWEEN FINISHED GRADE LOCATIONS SHOWN.
3. → REPRESENTS SLOPE TO DRAIN
4. SWALE, VALLEY GUTTERS, GUTTERS, AND SIDEWALKS SHALL HAVE CONSTANT SLOPE BETWEEN FINISHED GRADE AND TOP OF CONCRETE POINTS INDICATED.

SHEET KEY NOTES

1. FIELD CONFIRM NEW DRIVEWAY TIE-INS WITH EXISTING AC PAVEMENT.
2. PROVIDE DRIVEWAY ENTRANCE BETWEEN EXISTING ROADWAY AND SITE PER SANTA CRUZ COUNTY STD FIGURE DW-2.
3. END OF VALLEY GUTTER TO MATCH FINISHED GRADE ELEVATION.
4. LOCATE DRIVEWAYS AS SHOWN FROM PROPERTY LINE.
5. 5. RADIUS OF CURVATURE SHOWN IS BASED ON SANTA CRUZ COUNTY STD FIGURE DW-2. COUNTY STD REQUIRES A MINIMUM RADIUS OF 15-FT AND ALLOWS A REDUCTION OF 1-FT IN THE RADIUS FOR EVERY 2-FT OF DRIVEWAY WIDTH OVER 10-FT.



PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE

REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALLIN
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL
1,2,3-TCP REMOVAL REPLACEMENT

CIVIL
GRADING AND PAVING PLAN

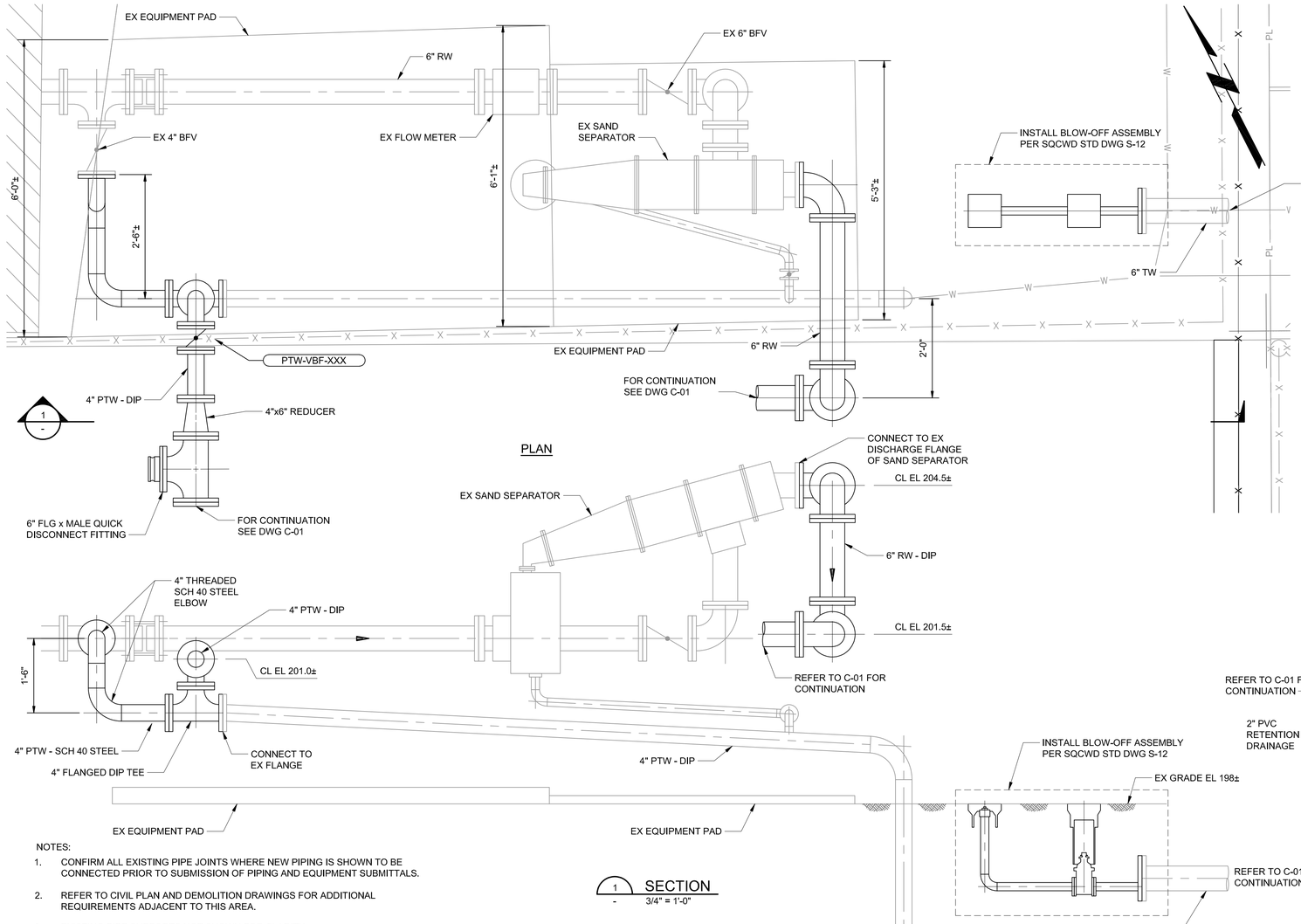
DESIGNED: GY
DETAILED: JAD
CHECKED: HW
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

C-02
SHEET
OF

FD10000
D10000
PLOTTED: 7/15/2021 4:36 PM FILE: C:\pw_working\bvw_americas\d1320396\C-02.dwg



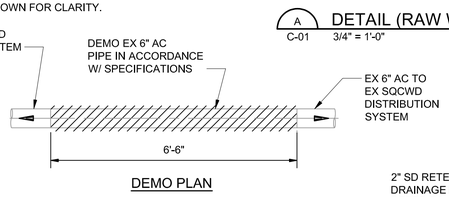
1 - PLAN

1 - SECTION
3/4" = 1'-0"

NOTES:

1. CONFIRM ALL EXISTING PIPE JOINTS WHERE NEW PIPING IS SHOWN TO BE CONNECTED PRIOR TO SUBMISSION OF PIPING AND EQUIPMENT SUBMITTALS.
2. REFER TO CIVIL PLAN AND DEMOLITION DRAWINGS FOR ADDITIONAL REQUIREMENTS ADJACENT TO THIS AREA.
3. EXISTING PIPE SUPPORTS NOT SHOWN FOR CLARITY.

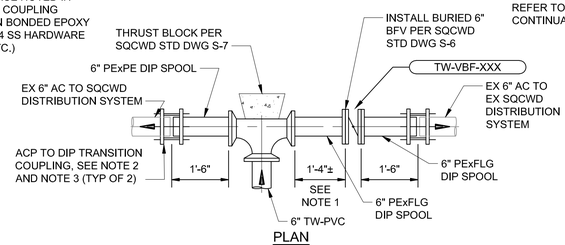
A - C-01 DETAIL (RAW WATER CONNECTION) 3/4" = 1'-0"



DEMO PLAN

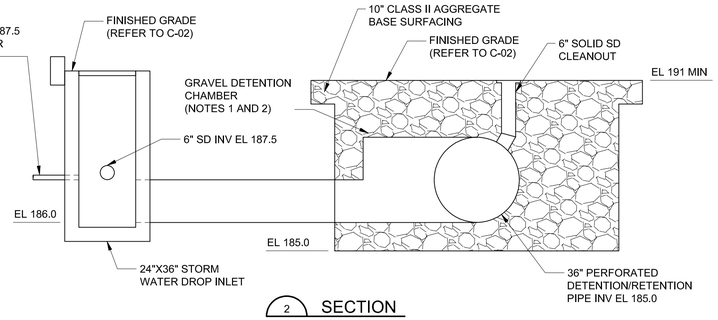
NOTES:

1. ADJUST SPOOL LENGTH SHOWN AS NEEDED TO FINALIZE CONNECTION WITH EXISTING PIPING.
2. CONFIRM OD OF EXISTING ACP BEFORE SUBMITTING TRANSITION COUPLING.
3. UNLESS OTHERWISE NOTED IN SPECIFICATIONS, COUPLING SHALL BE FUSION BONDED EPOXY COATED WITH 304 SS HARDWARE (NUTS, BOLTS, ETC.)

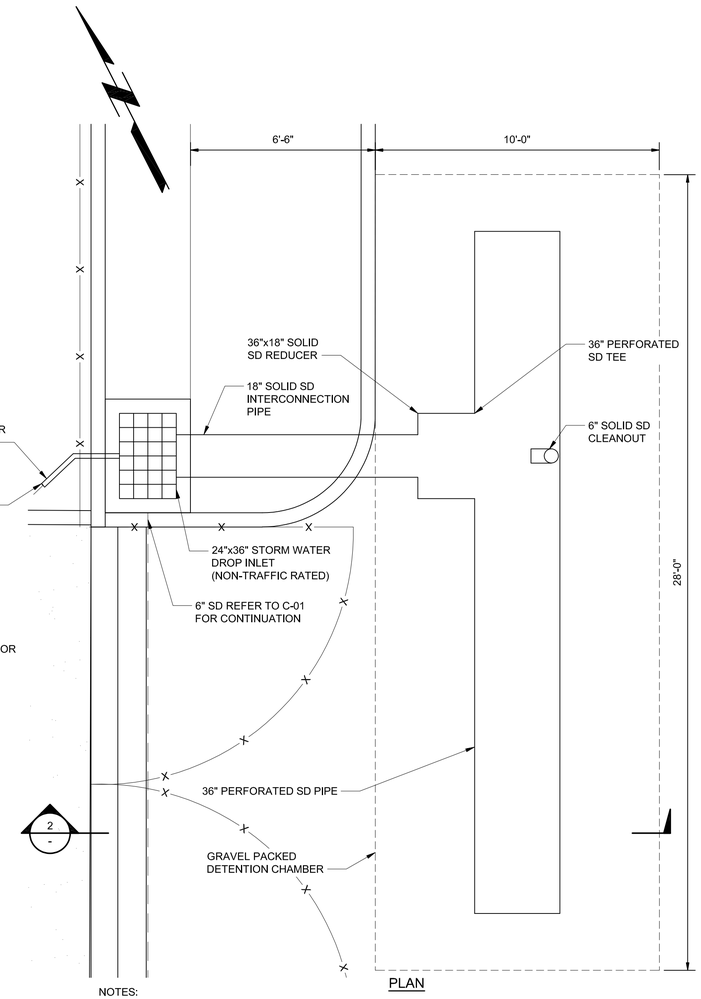


PLAN

B - C-01 DETAIL (TREATED WATER CONNECTION) 1/2" = 1'-0"



2 - SECTION
3/8" = 1'-0"



2 - PLAN

NOTES:

1. GRAVEL PACKED DETENTION CHAMBER SHALL CONSIST OF CAL TRANS CLASS 2 PERMEABLE MATERIAL. VOID SPACE OF COMPACTED GRAVEL TO BE NO LESS THAN 40%.
2. GRAVEL PACKED CHAMBERS SHALL BE SCREENED FROM SURROUNDING SOILS WITH GEOTEXTILE FILTER FABRIC TYPE A PER SPECIFICATION SECTION 31 2311 - EXCAVATION AND FILL FOR STRUCTURES.
3. RETENTION SYSTEM TO PROVIDE MINIMUM CAPACITY OF 284 CUBIC FEET. DETENTION SYSTEM TO PROVIDE MINIMUM CAPACITY OF 191 CUBIC FEET.

C - C-01 DETAIL (STORM WATER RETENTION AND DETENTION) 3/8" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

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REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALLIN
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

CIVIL
SECTIONS AND DETAILS 1

DESIGNED: GY
DETAILED: GT
CHECKED: HW
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

C-05
SHEET
OF

FD10000
D10000
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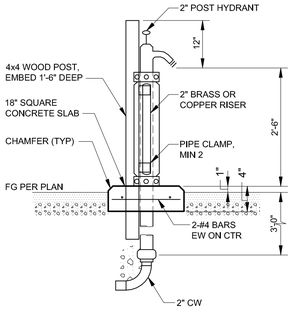
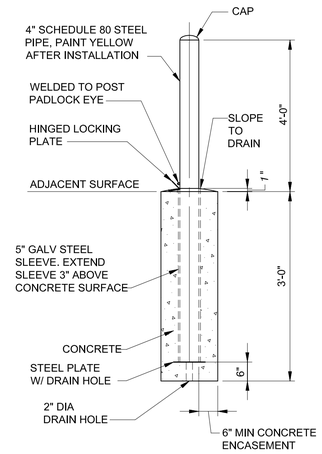
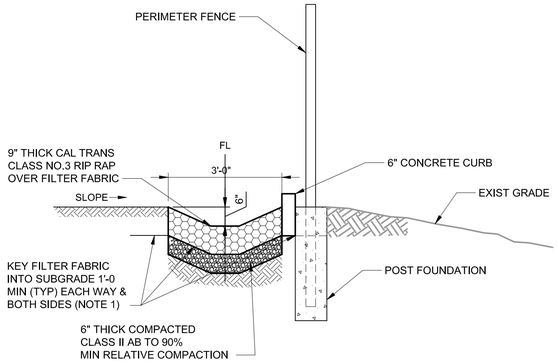


A C-01 YARD HYDRANT
NO SCALE



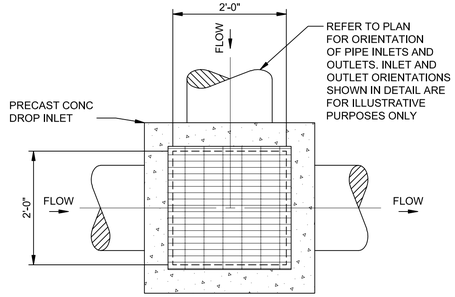
NOTE:
1. DO NOT FILL REMOVABLE STEEL PIPE WITH CONCRETE.

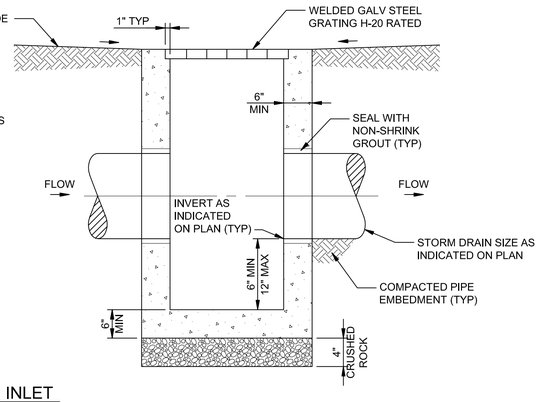
B C-01 REMOVABLE BOLLARD
NO SCALE



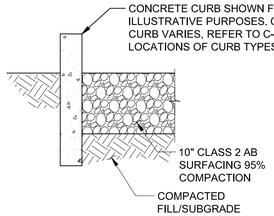
NOTE:
1. FILTER FABRIC SHALL BE PLACED BETWEEN THE RIP RAP AND THE CLASS II AB.

C C-02 GABION / ROCK SWALE DETAIL
NO SCALE

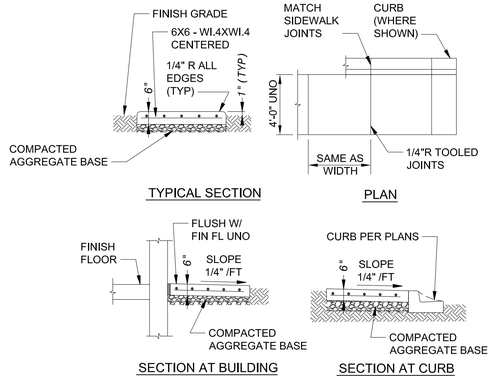




D C-02 DROP INLET
NO SCALE

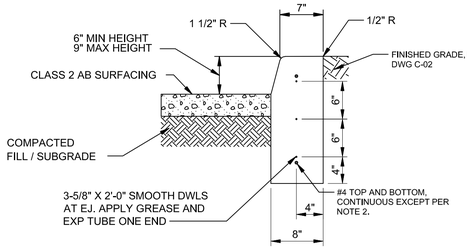


E C-02 AGGREGATE BASE SURFACING
NO SCALE



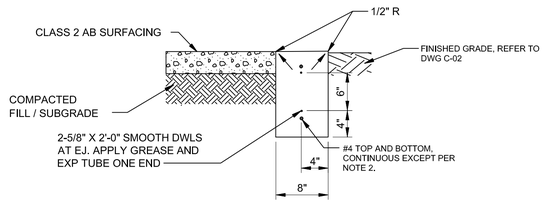
NOTES:
1. EXPANSION JOINTS SHALL BE INSTALLED IN LOCATIONS AND AS REQUIRED IN THE SPECIFICATIONS.
2. CONTRACTION JOINTS SHALL BE INSTALLED AT A MAXIMUM SPACING OF 15 FT.
3. ELEVATIONS SHALL BE AS INDICATED ON THE PLANS.

F C-02 SIDEWALK
NO SCALE



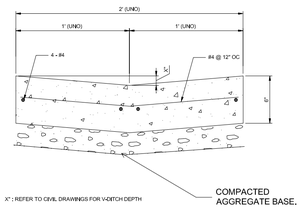
NOTES:
1. EXPANSION JOINTS SHALL BE PLACED AT END OF CONCRETE PLACEMENT, AT POINTS OF CURVATURE, AND WALKWAYS CURB RETURNS.
2. REINFORCING STEEL SHALL NOT PASS THROUGH EXPANSION JOINTS. THE REINFORCEMENT SHALL STOP PRIOR TO EXPANSION JOINT TO ALLOW PLACEMENT OF DOWELS.

G C-02 TYPE 1 - VERTICAL CURB
NO SCALE



NOTES:
1. EXPANSION JOINTS SHALL BE PLACED AT END OF CONCRETE PLACEMENT, AT POINTS OF CURVATURE, AND WALKWAYS CURB RETURNS.
2. REINFORCING STEEL SHALL NOT PASS THROUGH EXPANSION JOINTS. THE REINFORCEMENT SHALL STOP PRIOR TO EXPANSION JOINT TO ALLOW PLACEMENT OF DOWELS.

H C-02 TYPE 2 - DEPRESSED CURB
NO SCALE



I C-02 CONCRETE VALLEY GUTTER
NO SCALE

PRELIMINARY - NOT FOR CONSTRUCTION

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REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALLIN
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

CIVIL
SECTIONS AND DETAILS 2

DESIGNED: JWW
DETAILED: GT
CHECKED: HW
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

C-06
SHEET
OF

FD10000
D10000
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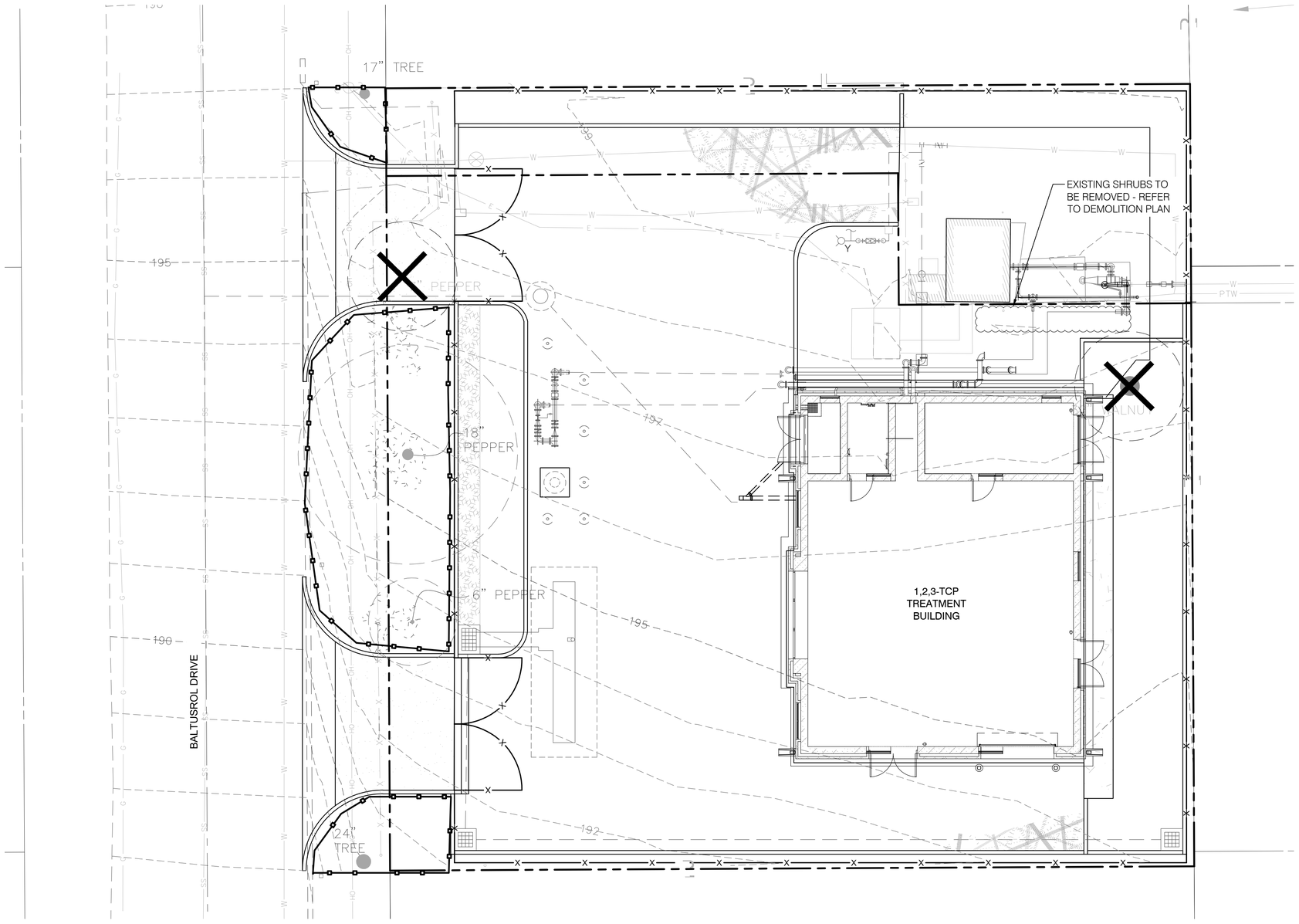

0' 2' 4' 8' 16'
SCALE: 1/8"=1'-0"

LEGEND

- PROPERTY LINE
- LIMIT OF LANDSCAPE WORK
- TREE PROTECTION FENCING (TEMPORARY)
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN

NOTES

1. INSTALL TREE PROTECTION ZONE FENCING BEFORE DEMOLITION WORK BEGINS & MAINTAIN IT IN GOOD ORDER THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. THE PROJECT ARBORIST MUST PROVIDE SUPERVISION WHENEVER ANY WORK WILL INTRUDE WITHIN THESE PROTECTION ZONES.
2. CONTRACTOR TO SUBMIT SCHEDULE OF TREE PROTECTION FENCE INSTALLATION AND REMOVAL FOR REVIEW AND APPROVAL BY OWNER'S REPRESENTATIVE PRIOR TO FENCE INSTALLATION OR REMOVAL.
3. ALL TRENCHING NEAR EXISTING TREES TO REMAIN SHALL BE HAND DUG AND REVIEWED BY OWNER'S REPRESENTATIVE OR PROJECT ARBORIST.
4. NO SOIL COMPACTION SHALL OCCUR WITHIN THE TPZ. SOIL SURFACE WITHIN THE TPZ SHALL BE MULCHED WITH A 4-INCH LAYER OF AGED WOOD CHIPS AND SET BACK 9-INCHES FROM TRUNKS AT GRADE. WOOD CHIP MULCH SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO ORDERING. SUBMIT MULCH SAMPLES TO OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
5. NATURAL GRADE AROUND TPZ SHALL BE MAINTAINED. NO ADDITIONAL FILL OR EXCAVATION WILL BE PERMITTED WITHIN AREAS OF TREE ROOT DEVELOPMENT.
6. UNAUTHORIZED PRUNING OF ANY TREE SHALL NOT BE ALLOWED. IF ANY TREE CANOPY ENCROACHES ON THE PROJECT AREA, THE REQUIRED PRUNING WILL BE DONE WITH AUTHORITY OF OWNER'S REPRESENTATIVE OR PROJECT ARBORIST AND TO INTERNATIONAL SOCIETY OF ARBORICULTURE GUIDELINES (ISA) AND AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A-300 PRUNING STANDARDS.
7. PROVIDE TEMPORARY IRRIGATION TO ALL TREES WITHIN THE FENCED AREA. CONTRACTOR TO PROVIDE WATERING SCHEDULE FOR OWNER'S REPRESENTATIVE'S REVIEW AND APPROVAL. WATERING SCHEDULE TO BE SUBMITTED FOR APPROVAL TEN (10) CALENDAR DAYS BEFORE CONSTRUCTION START DATE AND CONTINUE THROUGHOUT CONSTRUCTION UNTIL FINAL SIGN OFF BY OWNER'S REPRESENTATIVE.
8. CONTRACTOR TO REMOVE TREES AS SHOWN ON THE PLAN. PRIOR TO REMOVAL, CONTRACTOR TO CLEARLY MARK TREES AND WALK SITE WITH OWNER'S REPRESENTATIVE TO VERIFY TREES TO BE REMOVED.
9. CONTRACTOR TO FULLY REMOVE AND GRIND STUMP OF TREES TO BE REMOVED.
10. TREE PROTECTION FENCING TO BE REMOVED BY CONTRACTOR AFTER COMPLETION OF CONSTRUCTION AND AS DIRECTED BY OWNER'S REPRESENTATIVE.
11. REFER TO DEMOLITION PLAN FOR ADDITIONAL VEGETATION REMOVAL NOT SHOWN ON THIS SHEET.

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NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED LANDSCAPE ARCHITECT JONI L. JANECKI 3169 Exp 4/30/22 STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREE PROTECTION AND REMOVAL PLAN

DESIGNED: GL
DETAILED: MO
CHECKED: GL
APPROVED: JLJ
DATE: JULY 2021

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PROJECT NO.
407941

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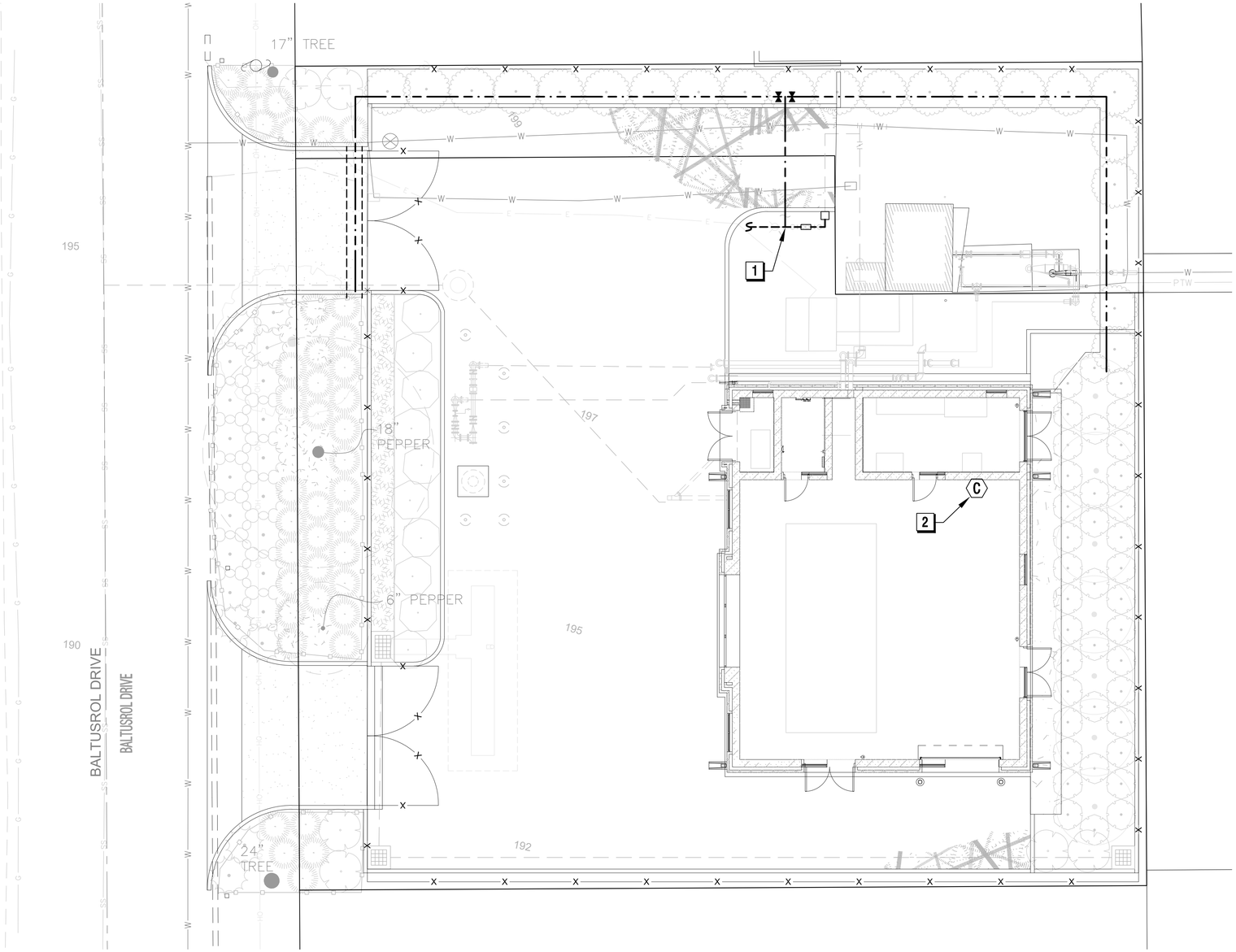

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SHEET NOTES

1 IRRIGATION POINT OF CONNECTION: CONNECT TO IRRIGATION SYSTEM POINT OF CONNECTION PROVIDED UNDER THE CIVIL WORK AT THE DISCHARGE WATER LINE FROM THE TREATED WATER DISTRIBUTION SYSTEM. IRRIGATION DEMAND: 1–15 GPM (MAXIMUM) AT 65± PSI STATIC PRESSURE AT THE POC. REFER TO THE UTILITY DRAWINGS FOR EXACT LOCATION OF IRRIGATION SERVICE CONNECTION.

2 IRRIGATION CONTROLLER (WALL MOUNT):

IRRIGATION CONTRACTOR IS TO PROVIDE AND INSTALL:

1. THE CONTROLLER, WALL MOUNTED INSIDE THE BUILDING AT LOCATION AS DIRECTED BY THE DISTRICT.
2. THE 120 VAC ELECTRICAL CONNECTIONS TO THE CONTROLLER TERMINALS.
3. THE WIRELESS RAIN SHUT–OFF DEVICE.
4. LAMINATED IRRIGATION PLANS AND SCHEDULES AS THE SPECIFICATIONS INDICATE.
5. GROUNDING OF CONTROLLER.
6. WIRE IN CONDUIT (CONDUIT PROVIDED UNDER ELECTRICAL WORK) TO EXTERIOR PLANTER. WIRE TYPE IN CONDUIT TO MATCH THE ELECTRICAL SPECIFICATIONS.

ELECTRICAL CONTRACTOR IS TO PROVIDE AND INSTALL:

1. THE 120 VAC/15 AMP/1–PH (1 AMP DEMAND) ELECTRICAL SERVICE TO CONTROLLER LOCATION.
2. THE RIGID STEEL ELECTRICAL CONDUIT, PULL BOXES AND SWEEP ELLS FROM ELECTRICAL SOURCE TO CONTROLLER LOCATION. WIRE TYPE IN CONDUIT TO MATCH THE ELECTRICAL SPECIFICATIONS.
3. THE RIGID STEEL ELECTRICAL CONDUIT WITH PULL CORD, PULL BOXES, AND SWEEP ELLS FROM CONTROLLER LOCATION TO EXTERIOR PLANTER.

WATER SOURCE NOTE: THIS PROJECT WILL BE USING A TREATED WATER DISTRIBUTION WATER SOURCE FOR IRRIGATION WATER.

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REGISTERED LANDSCAPE ARCHITECT * JONI L. JANECKI * No. 3169 Exp. 4/30/22 * STATE OF CALIFORNIA *

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

IRRIGATION PLAN

DESIGNED: JE
DETAILED: ST
CHECKED: JE
APPROVED: JLJ
DATE: JULY 2021

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IRRIGATION INSTALLATION NOTES:

1. PROVIDE INSTALLATION BY PERSONS FAMILIAR WITH IRRIGATION WORK AND UNDER THE SUPERVISION OF A QUALIFIED SUPERVISOR.
2. OBTAIN THE PERMITS REQUIRED AND PROVIDE LABOR AND MATERIALS NECESSARY TO FULLY COMPLETE THE WORK IN ACCORDANCE WITH THE DRAWINGS AND THE SPECIFICATIONS.
3. LOCATE AND PROTECT NEW AND EXISTING UTILITIES PRIOR TO EXCAVATION.
4. DO NOT DAMAGE EXISTING UTILITIES, PAVING OR STRUCTURES. PROVIDE THE NECESSARY REPAIRS AT NO ADDITIONAL COST TO THE SCWD.
5. REMOVE DEBRIS AND ACCUMULATION OF DEBRIS AS A RESULT OF IRRIGATION CONSTRUCTION FROM THE SITE AND LEAVE AREA IN A CLEAN CONDITION ACCEPTABLE TO SCWD REPRESENTATIVE.
6. MAINTAIN SITE FOR SPECIFIED CALENDAR DAYS FOLLOWING ACCEPTANCE OF THE WORK BY THE SCWD AND MAKE CORRECTIONS OR REPAIRS TO THE IRRIGATION AS DIRECTED BY SCWD AT THE COMPLETION OF THE MAINTENANCE PERIOD.
7. THE DRAWINGS ARE DIAGRAMMATIC. EQUIPMENT SHOWN IN PAVING IS FOR CLARITY ONLY – INSTALL IN PLANTING AREAS WHERE POSSIBLE. DUE TO THE SCALE OF THE DRAWINGS, ALL OFFSETS, FITTINGS, SLEEVES, ETC. WHICH MAY BE REQUIRED ARE NOT INDICATED. INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING THE CONTRACT WORK INCLUDING OBSTRUCTIONS GRADE DIFFERENCES OR AREA DIFFERENCES WHICH MAY HAVE NOT BEEN CONSIDERED IN THE ENGINEERING. WHERE FIELD CHANGES EXIST, COORDINATE THE INSTALLATION WORK ACCORDINGLY BY NOTIFICATION AND APPROVAL OF THE SCWD AUTHORIZED REPRESENTATIVE AS PER THE CONTRACT SPECIFICATIONS. COORDINATE IRRIGATION CONTRACT WORK WITH ALL APPLICABLE CONTRACTORS FOR THE LOCATION AND INSTALLATION OF PIPE, CONDUIT, OR SLEEVES OF PIPE, CONDUIT OR SLEEVES THROUGH OR UNDER WALLS, ROADWAYS, PAVING, STRUCTURE, ETC. BEFORE CONSTRUCTION. ASSUME FULL RESPONSIBILITY FOR REQUIRED REVISIONS IF THESE NOTIFICATIONS ARE NOT PERFORMED.
8. THE INTENT OF THIS IRRIGATION SYSTEM DESIGN IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.
9. PROGRAM THE CONTROLLER TO PROVIDE THE MINIMUM AMOUNT OF WATER NEEDED TO SUSTAIN GOOD PLANT HEALTH. MAKE ADJUSTMENTS TO THE PROGRAM FOR SEASONAL WEATHER CHANGES, PLANT MATERIAL, WATER REQUIREMENTS, MOUNDS AND SLOPES, SUN, SHADE AND WIND EXPOSURES.
10. 120 VOLT A.C. (1 AMP DEMAND) ELECTRICAL SERVICE TO IRRIGATION CONTROLLER LOCATION TO BE PROVIDED UNDER ELECTRICAL CONTRACT WORK. IRRIGATION CONTRACTOR TO MAKE FINAL CONNECTION FROM ELECTRICAL STUB–OUT TO CONTROLLER AND PROVIDE PROPER GROUNDING PER CONTROLLER MANUFACTURER'S INSTRUCTIONS.
11. PROVIDE GROUND ROD FOR CONTROLLER. GROUND ROD: EIGHT FOOT LONG BY 5/8" DIAMETER U.L. APPROVED COPPER CLAD ROD. NO MORE THAN 6" OF THE GROUND ROD TO BE ABOVE GRADE. CONNECT #8 AWG WIRE WITH A U.L. APPROVED GROUND ROD CLAMP TO ROD AND GROUND SCREW AT BASE OF CONTROLLER WITH APPROPRIATE CONNECTOR. PROVIDE WIRE AS SHORT AS POSSIBLE, AVOIDING ANY KINKS.
12. INSTALL NEW BATTERIES IN CONTROLLER (AS REQUIRED) TO RETAIN PROGRAM IN MEMORY DURING TEMPORARY POWER FAILURES. USE QUANTITY, TYPE, AND SIZE REQUIRED AS PER CONTROLLER MANUFACTURER'S INSTRUCTIONS.
13. SCHEDULE A MEETING WHICH INCLUDES REPRESENTATIVES OF THE IRRIGATION CONTROLLER MANUFACTURER (RAIN BIRD), THE MAINTENANCE CONTRACTOR, SCWD, AND THE IRRIGATION CONTRACTOR AT THE SITE FOR INSTRUCTION ON THE PROPER PROGRAMMING AND OPERATION OF THE IRRIGATION CONTROLLER.
14. IRRIGATION CONTROL WIRES: #14–AWG–UF UNDERGROUND FEEDER WIRE. SPLICES: 3M–DBY SEAL PACKS.
15. INSTALL TWO SPARE CONTROL WIRES OF A DIFFERENT COLOR ALONG THE ENTIRE MAIN LINE. LOOP 36" EXCESS WIRE INTO EACH SINGLE VALVE BOX OR INTO ONE VALVE BOX IN EACH GROUP OF VALVES. WEATHERPROOF UNUSED WIRE ENDS.
16. SPLICING OF 24 VOLT WIRES IS NOT PERMITTED EXCEPT IN VALVE BOXES. LEAVE A 36" LONG, 1" DIAMETER COIL OF EXCESS WIRE AT EACH SPLICE AND A 36" LONG EXPANSION LOOP EVERY 100 FEET ALONG WIRE RUN. TAPE WIRE TO MAIN LINE EVERY TEN FEET.
17. PLASTIC VALVE BOXES ARE TO BE GREEN IN COLOR WITH BOLT DOWN, NON–HINGED COVER MARKED "IRRIGATION". DO NOT SAWCUT VALVE BOXES FOR ANY REASON. MANUFACTURER: RAIN BIRD, CARSON, OR APPROVED EQUAL.
18. INSTALL REMOTE CONTROL VALVE BOXES 12" FROM WALK, CURB, BUILDING OR LANDSCAPE FEATURE. AT MULTIPLE VALVE BOX GROUPS, EACH BOX SHALL BE AN EQUAL DISTANCE FROM THE WALK, CURB, ETC. AND EACH BOX SHALL BE 12" APART. SHORT SIDE OF RECTANGULAR VALVE BOXES SHALL BE PARALLEL TO WALK, CURB, ETC., SEE BOX INSTALLATION DETAIL. DO NOT MIX DIFFERENT MANUFACTURER'S OF VALVE BOXES.
19. VALVE LOCATIONS ON DRAWINGS ARE DIAGRAMMATIC. INSTALL IN GROUND COVER/SHRUB AREAS.
20. FLUSH AND ADJUST IRRIGATION HEADS FOR EFFICIENT PERFORMANCE. PREVENT OVERSPRAY ON THE WALKS, ROADWAYS, SIGNS, OR LIGHTS.
21. SET IRRIGATION HEADS PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED UNLESS OTHERWISE NOTED ON THE DRAWINGS.
22. IRRIGATION HEAD LAYOUT AND PIPING AS SHOWN ON THE DRAWINGS IS INDICATIVE OF THE WORK TO BE INSTALLED. IRRIGATION HEADS AND PIPING AT CERTAIN LOCATIONS MAY REQUIRE FIELD ADJUSTMENT TO PREVENT HARM TO TREE AND ROOTBALLS.
23. THE IRRIGATION SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE SHOWN ON THE IRRIGATION DRAWINGS. VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE DISTRICT'S AUTHORIZED REPRESENTATIVE.
24. PIPE SIZING SHOWN ON THE DRAWINGS IS SHOWN FOR REFERENCE AND BIDDING. DURING CONSTRUCTION ADJUST THE SIZE ACCORDING TO FIELD PIPE CHANGES.
25. PIPE THREAD SEALANT COMPOUND: PERMATEX "TACK AND SEAL" OR RECTOR SEAL T+2. DO NOT USE ON PLASTIC VALVE OR SPRINKLER BODIES.
26. IRRIGATION DEMAND: 7–15 GPM (QCV) AT 13± STATIC PSI AT THE POC.
27. THE IRRIGATION SYSTEM IS DESIGNED TO BE WATER CONSERVING AND PROVIDE PRECIPITATION IN AN EFFICIENT MANNER.
28. THE IRRIGATION SYSTEM IS DESIGNED TO WATER BETWEEN 6 P.M. AND 10 A.M. TO REDUCE EVAPORATIVE LOSS.
29. UPON INSTALLATION AND COMPLETION OF THE LANDSCAPE, THE APPLICANT IS RESPONSIBLE FOR HAVING A CERTIFIED IRRIGATION AUDITOR CONDUCT AN IRRIGATION AUDIT AND SUBMIT A REPORT TO SCWD TO VERIFY THAT THE LANDSCAPE IMPROVEMENTS WERE COMPLETED IN ACCORDANCE WITH APPROVED APPLICATIONS.

IRRIGATION LEGEND

SYMBOL	NUMBER	DESCRIPTION	PSI	GPM OR GPH	RADIUS (MIN./MAX.)	PRECIP. RATE
SHRUB BUBBLER						
■	1401	RAIN BIRD BUBBLER AND PVC FLEX RISER, 12", 18", OR 24" LONG	30	0.25	ROOT WATERING	0.25 GPM
TREE BUBBLER						
	1806–SAM–PRS/5H–B	RAIN BIRD POP–UP STREAM BUBBLER FOR ABOVE GROUND TREE IRRIGATION	30	1.0 GPM	4–5	1.0 GPM
	[RWS–B–C–1401]+ [RWS–SOCK]	RAIN BIRD ROOT WATERING SYSTEM WITH BUBBLER, 2 PER TREE LOCATED ON UPHILL SIDE OF TREE	30	0.25 GPM	BUBBLER	0.25 GPM
SUBSURFACE DRIPPERLINE						
18" SPACING		SUBSURFACE IRRIGATION AT SHRUB AREAS: RAIN BIRD SUB–SURFACE DRIPPERLINE AS FOLLOWS: 5/8" XFS PRESSURE COMPENSATING DRIPLINE WITH CHECK VALVE, MODEL XFS–CV–06–18, 0.6 GPH AT 30 PSI, 18" EMITTER SPACING, WITH RAIN BIRD DRIPLINE FITTINGS. INSTALL TUBING AT A SPACING OF 16"–18" BETWEEN ROWS UNLESS OTHERWISE NOTED ON THE PLANS, 4"–6" FROM PAVEMENT OR LANDSCAPE EDGE, AND TRIANGULATE THE EMITTER PORTS BETWEEN ROWS. INSTALL EACH ZONE WITH AIR VALVE AND FLUSH VALVE AS INDICATED IN THE DRIPPERLINE CONSTRUCTION DETAILS. PROVIDE 3"–4" SOIL COVER. USE RAIN BIRD QF DRIPLINE HEADER AS NEEDED.				
	TRUE UNION BALL VALVE	EACH DRIPPERLINE TUBING ZONE SHALL INCLUDE THE FOLLOWING ITEMS: PLASTIC BALL VALVE FOR FLUSHING THE PIPING AT END RUNS OF THE DRIPPERLINE SYSTEMS. INSTALL AT ENDS OF DRIPPERLINE AREAS.				
	AVR050	RAIN BIRD DRIPPERLINE AIR VENT/VACUUM RELIEF VALVE. INSTALL IN THE MIDDLE OF DRIPPERLINE SYSTEMS TO EXHAUST AIR OR RELIEVE VACUUM.				
VALVES						
	[3200100–1"]+[FS–B100–1"]	MASTER CONTROL VALVE AND FLOW SENSOR ASSEMBLY: BUCKNER/SUPERIOR 1" MASTER CONTROL VALVE, NORMALLY CLOSED, AND IRRITROL BRASS, THREADED, FLOW SENSOR RATED FOR 2–40 GPM. FLOW SENSOR SENSES GALLONS OF WATER USED, HIGH FLOW CONDITION, AND UNEXPECTED FLOW CONDITION. FLOW SHUT OFF SHALL OCCUR WITH AN ALARM CONDITION. FLOW SENSOR CABLE: PAIGE ELECTRIC P7171D, 2–PAIR, SHIELDED OR EQUAL. INSTALL FLOW SENSOR WIRE EACH IN A 1" DIA. BURIED PVC ELECTRICAL CONDUIT FROM CONTROLLER TO INSIDE OF FLOW SENSOR BOX, 18" COVER. MASTER VALVE AND FLOW SENSOR SHALL BE WIRED TO THE CONTROLLER MASTER VALVE AND FLOW SENSOR TERMINALS.				
	100–PESB (1")	RAIN BIRD REMOTE CONTROL VALVE				
	XCZ–100–PRBR	RAIN BIRD EMITTER CONTROL VALVE WITH BASKET FILTER AND PRESSURE REGULATION RATED FOR 3–15 GPM.				
	33 DNP (3/4")	RAIN BIRD QUICK COUPLING VALVE, NON–POTABLE				
	78–137–01 (1.5") 78–138–01 (2")	APOLLO BALL VALVE WITH SQ. NUT, SIZE TO BE EQUAL TO MAIN LINE PIPE SIZE				
CONTROLLER						
C	ICA1–RB3–8/ IQ–CLOUD3.0/ IQ–GPRS–1/SP	IMPERIAL TECHNICAL SERVICES CONTROLLER ASSEMBLY CONSISTING OF THE FOLLOWING ITEMS: • RAIN BIRD ET/WEATHER BASED CONTROLLER, 8 STATION CONTROLLER ESP–8LXME • ENCLOSURE COLOR: FOREST GREEN • CALL IMPERIAL TECHNICAL SERVICES FOR AVAILABILITY.				
		CONTROLLER STATION NUMBER				
		FLOW (GPM)				
		REMOTE CONTROL VALVE SIZE				
SLEEVES AND PIPE						
		MAIN LINE: 1120–SCHEDULE 40 PVC PLASTIC PIPE WITH SCHEDULE 40 PVC PLASTIC SOLVENT WELDED FITTINGS. 18–INCH SOIL COVER: 18–INCH COVER IN PLANTED AREAS AND UNDER WALKS; 24 INCH COVER UNDER FIRES LANES AND VEHICULAR PAVEMENT				
		LATERAL LINE: 1120–SCHEDULE 40 PVC PLASTIC PIPE WITH SCHEDULE 40 PVC PLASTIC SOLVENT WELDED FITTINGS. SOIL COVER: 12 INCH COVER IN PLANTED AREAS AND UNDER WALKS; 24–INCH COVER UNDER FIRES LANES AND VEHICULAR PAVEMENT. SIZE 1–INCH UNLESS OTHERWISE NOTED.				
		SLEEVE: 1120–SCHEDULE 40 PVC PLASTIC PIPE. COVER TO BE EQUAL TO PIPE DEPTH OF COVER. SIZE 6–INCH UNLESS OTHERWISE NOTED AND/OR 2 PIPE SIZES LARGER THAN THE PIPE THE SLEEVE CONTAINS.				

LANDSCAPE AUDIT REPORT

1. PLAN FOR AND CONDUCT A LANDSCAPE IRRIGATION AUDIT BY A THIRD PARTY CERTIFIED LANDSCAPE IRRIGATION AUDITOR AFTER THE LANDSCAPING AND IRRIGATION SYSTEM HAVE BEEN INSTALLED. LANDSCAPE AUDITS SHALL NOT BE CONDUCTED BY THE PROFESSIONALS WHO DESIGNED THE LANDSCAPE OR IRRIGATION.
2. THE LANDSCAPE AUDIT REPORT SHALL INCLUDE THE FOLLOWING STATEMENT: "THE LANDSCAPE AND IRRIGATION SYSTEM HAS BEEN INSTALLED AS SPECIFIED IN THE LANDSCAPE AND IRRIGATION DESIGN PLAN AND COMPLIES WITH THE CRITERIA OF THE CITY OF BRENTWOOD ORDINANCE AND THE PERMIT."
3. LOCAL AGENCY SHALL ADMINISTER ON–GOING PROGRAMS THAT MAY INCLUDE, BUT NOT BE LIMITED TO, POST–INSTALLATION LANDSCAPE INSPECTION, IRRIGATION WATER USE ANALYSIS, IRRIGATION AUDITS, IRRIGATION SURVEYS, AND WATER BUDGET CALCULATIONS TO EVALUATE COMPLIANCE WITH THE MAWA.

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ABBREVIATIONS:

AV	AIR VALVE
CI	CAST IRON
CU	COPPER
DEG	DEGREES
DI	DUCTILE IRON
DIA	DIAMETER
ECV	EMITTER CONTROL VALVE
EFF	EFFICIENCY
ETWU	ESTIMATED TOTAL WATER USE
ETO(ET)	EVAPOTRANSPIRATION
(E)	EXISTING
FT	FEET
FIPT	FEMALE IRON PIPE THREAD
FPS	FEET PER SECOND
(F)	FUTURE
FS	FLOW SENSOR
FV	FLUSH VALVE
GI	GALVANIZED IRON
GV	GATE VALVE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
ID	INTERNAL DIAMETER
IN	INCHES
IRR	IRRIGATION
MAWA	MAXIMUM APPLIED WATER ALLOWANCE
MAX	MAXIMUM
MCV	MASTER CONTROL VALVE
MV	MASTER VALVE
MIN	MINIMUM
MIPT	MALE IRON PIPE THREAD
MPR	MATCHED PRECIPITATION RATE
MWELO	MODEL WATER EFFICIENT LANDSCAPE ORDINANCE
(N)	NEW
NIC	NOT IN CONTRACT
NPW	NON POTABLE WATER
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
PE	POLYETHYLENE
POC	POINT OF CONNECTION
PRECIP	PRECIPITATION
PRV	PRESSURE REDUCING VALVE
PVBA	PRESSURE VACUUM BREAKER ASSEMBLY
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYLCHLORIDE
PW	POTABLE WATER
QTY	QUANTITY
QCV	QUICK COUPLING VALVE
RCV	REMOTE CONTROL VALVE
RPBA	REDUCED PRESSURE BACKFLOW ASSEMBLY
RS	RIGID STEEL
RW	RECYCLED WATER
SCH	SCHEDULE
SF	SQUARE FOOT OR FEET
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
TBD	TO BE DETERMINED
TBE	THREADED BOTH ENDS
TOE	THREADED ONE END
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPC	UNIFORM PLUMBING CODE
UV	ULTRAVIOLET
UVR	ULTRAVIOLET RESISTANT
VAC	VOLTS–ALTERNATING CURRENT
VB	VALVE BOX
WM	WATER METER

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REGISTERED LANDSCAPE ARCHITECT * J. L. JANECKI * No. 3169 * Exp. 4/30/22 * STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL REPLACEMENT WELL AND 1,2,3-TCP REMOVAL WTP REPLACEMENT

IRRIGATION LEGEND & NOTES

DESIGNED: JE
DETAILED: ST
CHECKED: JE
APPROVED: JLJ
DATE: JULY 2021

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PROJECT NO. 407941

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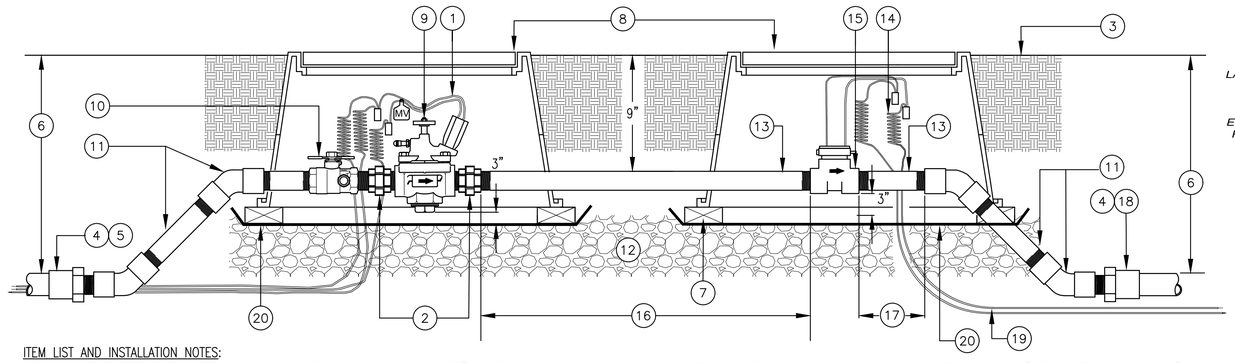
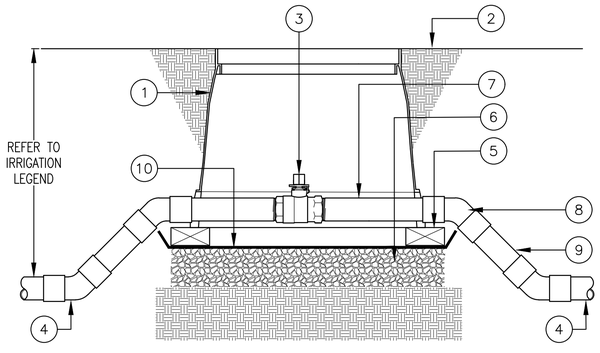


ITEM LIST AND INSTALLATION NOTES:

1. VALVE CONTROL WIRE – PROVIDE 3M DBY SEAL PACKS AT SPLICES, 36" OF EXCESS UF WIRE IN A 1" DIAMETER COIL AND VALVE TAG
2. UNION, PVC SCH 80, MIPT X THREAD, 2 TOTAL, KBI U-XXXX-TMV SERIES
3. FINISH GRADE
4. MALE ADAPTER, PVC (SCHEDULE AS SPECIFIED IN IRRIGATION LEGEND)
5. PVC MAIN LINE FROM BOOSTER PUMP DISCHARGE PIPING
6. REFER TO IRRIGATION LEGEND OR SPECIFICATIONS FOR SOIL COVER
7. COMMON BRICK, 8 TOTAL, INSTALL AT EACH CORNER OF EACH VALVE BOX
8. VALVE BOX, PLASTIC, RECTANGULAR WITH BOLT-DOWN LID. INSTALL BOX AS SHOWN IN BOX INSTALLATION DETAIL. TOP DIMENSION 11-3/4" X 17" X 12" DEEP.
9. MASTER CONTROL VALVE WITH FLOW CONTROL AND MANUAL BLEED (SIZE AS SPECIFIED IN IRRIGATION LEGEND OR SPECIFICATIONS)
10. BALL VALVE, BRASS, FULL PORT, THREADED
11. ELBOWS (45 DEG), NIPPLES (TBE), PVC SCH 80, THREADED, AS REQUIRED
12. PEA GRAVEL – 6" DEEP BELOW VALVE (NO SOIL IN VALVE BOX)
13. NIPPLE, PVC SCH 80, TOE (BETWEEN MASTER VALVE & FLOW SENSOR; AT DISCHARGE FROM FLOW SENSOR)
14. CONTROL WIRE: PROVIDE 3M DBY SEAL PACKS AT SPLICES, 36" OF EXCESS WIRE IN A 1" DIAMETER COIL (#14 AWG-UF WIRE) AND CONTROLLER I.D. TAG
15. FLOW SENSOR WITH SOLVENT WELD TEE, SIZE AS SPECIFIED IN LEGEND. INSTALL FLOW SENSOR TO ALLOW STRAIGHT-FLOW OF A MINIMUM OF TEN TIMES THE DIAMETER OF THE MAIN LINE PIPE ON THE INLET SIDE AND FIVE TIMES THE DIAMETER OF THE MAIN LINE PIPE ON THE OUTLET SIDE OF THE SENSOR. WIRE TO CONTROLLER AS DIRECTED BY MANUFACTURER'S REPRESENTATIVE. DO NOT ALLOW EXCESS SOLVENT CEMENT TO ENTER INSIDE THE TEE AND DISRUPT THE FLOW SENSOR MECHANISM.
16. PROVIDE TEN (10) X THE PIPE DIAMETER; EX: 10 X 1" PIPE = 10" MINIMUM
17. PROVIDE FIVE (5) X THE PIPE DIAMETER; EX: 5 X 1" = 5" MINIMUM
18. PVC MAIN LINE TO IRRIGATION SYSTEM
19. #14 AWG-UF FLOW SENSOR CONTROL WIRE FROM FLOW SENSOR TO CONTROLLER. PROVIDE AND INSTALL PULL BOXES EVERY 200 FEET AS NEEDED. DO NOT SPLICE SENSOR CABLE BETWEEN CONTROLLER AND FLOW SENSOR OR EXCEED 2000 FEET OF WIRE.
20. METAL WIRE MESH TO PREVENT GOPHER INTRUSION, 1/2" MESH, 19 GAUGE, GALVANIZED

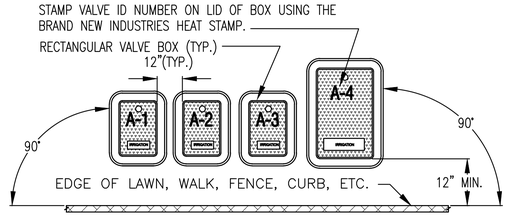
1 — 1" MASTER CONTROL VALVE & FLOW SENSOR
NOT TO SCALE



ITEM LIST AND INSTALLATION NOTES:

1. 14 X 19 RECTANGULAR PLASTIC VALVE BOX WITH PLASTIC BOLT-DOWN LID. INSTALL VALVE BOX FLUSH WITH FINISH GRADE IN TURF AND 1" ABOVE FINISH GRADE IN SHRUB AREAS.
2. FINISH GRADE
3. BALL VALVE
4. PVC MAIN LINE (SIZE AND TYPE PER SPECIFICATIONS)
5. COMMON BRICK (4 TOTAL-ONE AT EACH CORNER)-KEEP BRICKS AWAY FROM PIPE
6. PEA GRAVEL BASE (4" DEEP)
7. PVC SCH 80 TOE NIPPLE, 2 TOTAL, SIZE EQUAL TO BALL VALVE
8. PVC SCH 80 45 DEGREE ELL (4 TOTAL-SxS)-REDUCING ELL AS NEEDED
9. PVC MAIN LINE PIPE NIPPLE (2 TOTAL)
10. WIRE MESH TO PREVENT GOPHER INTRUSION, GALVANIZED STEEL, 1/2" MESH, 19 GAUGE

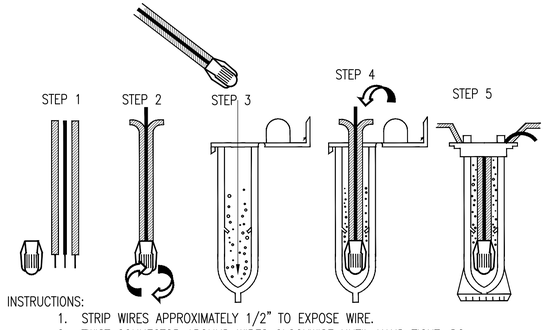
2 — F.I.P.T. BALL VALVE
NOT TO SCALE



INSTALLATION NOTES:

1. INSTALL VALVE BOXES AS SHOWN IN THE DETAIL ABOVE.
2. INSTALL VALVE BOX ASSEMBLIES IN SHRUB OR GROUND COVER ZONES. VALVE ASSEMBLIES INSTALLED IN A TURF ZONE IS PERMITTED ONLY IF A SHRUB OR GROUND COVER AREA DOES NOT EXIST IN THE PROXIMITY OF THE IRRIGATION ZONE.
3. PLACE THE CENTER OF THE VALVE BOX OVER THE CENTER OF THE REMOTE CONTROL VALVE. INSTALL VALVE BOX IN A WAY TO ENABLE EASY SERVICING OR REMOVAL OF VALVE.
4. INSTALL TOP OF BOX 1" ABOVE FINISHED GRADE IN SHRUB OR GROUND COVER AREAS OR EQUAL TO THE DEPTH OF THE MULCH AND FLUSH WITH GRADE IN TURF ZONES. INSTALL THE TOP OF BOX AT THE SAME ANGLE AS THE FINISHED GRADE.
5. PREVENT THE COLLAPSE AND DEFORMATION OF VALVE BOX SIDES. DO NOT HEAVILY COMPACT SOIL AGAINST THE SIDES OF THE VALVE BOX.
6. INSTALL EXTENSION RISERS TO VALVE BOX AS REQUIRED TO COMPLETELY ENCLOSE VALVE ASSEMBLY. PROVIDE EXTENSION RISER MANUFACTURED BY THE SAME MANUFACTURER OF THE VALVE BOX.
7. PREVENT SOIL INTRUSION INTO THE BOX. USE POLYETHYLENE TAPE AROUND PIPE CUTOUTS AS NEEDED.
8. SAWCUTTING OR MODIFYING THE VALVE BOXES BEYOND WHAT THE MANUFACTURER ALLOWS IS NOT PERMITTED.
9. WHEN ASSEMBLY IS COMPLETE INSTALL THE GRAVEL BELOW THE VALVE. FINISHED GRAVEL IS TO BE CLEAN WITHOUT DEBRIS IN THE VALVE BOX.
10. USE THE MANUFACTURER PROVIDED BOLT AND BOLT DOWN THE BOX LIDS TO PREVENT TAMPERING OR VANDALISM.

3 — BOX INSTALLATION
NOT TO SCALE



INSTRUCTIONS:

1. STRIP WIRES APPROXIMATELY 1/2" TO EXPOSE WIRE.
2. TWIST CONNECTOR AROUND WIRES CLOCKWISE UNTIL HAND TIGHT, DO NOT OVERTIGHTEN.
3. INSERT WIRE ASSEMBLY INTO PLASTIC TUBE UNTIL WIRE CONNECTOR SNAPS PAST LIP IN BOTTOM OF TUBE.
4. PLACE WIRES WHICH EXIT TUBE IN WIRE EXIT HOLES AND CLOSE CAP UNTIL IT SNAPS.
5. INSPECT FINAL SPLICE ASSEMBLY TO BE SECURE AND FINISHED.

4 — WIRE SPLICE
NOT TO SCALE

PRELIMINARY - NOT FOR CONSTRUCTION

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JDE PROJECT NO: 21020

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NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED LANDSCAPE ARCHITECT * J. L. JANECKI * No. 3169 Exp. 8/30/22 * STATE OF CALIFORNIA *

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL REPLACEMENT WELL AND 1,2,3-TCP REMOVAL WTP REPLACEMENT

IRRIGATION DETAILS

DESIGNED:	JE
DETAILED:	ST
CHECKED:	JE
APPROVED:	JLJ
DATE:	JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

L-04
SHEET
X OF X

FD10000
D10000
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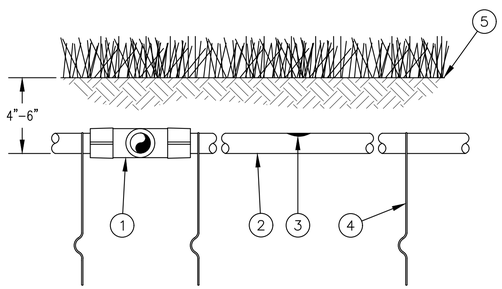
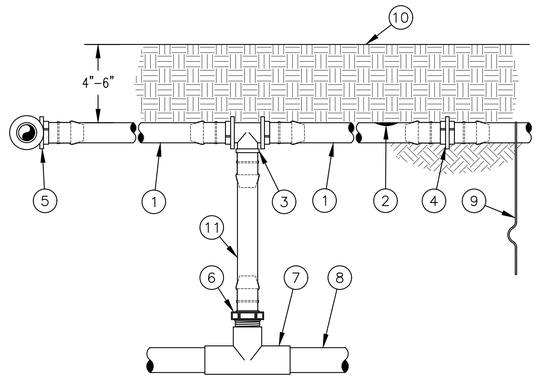


1. EASY FIT COMPRESSION TEE: RAIN BIRD MDCFTEE
2. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
3. INLINE DRIP EMITTER
4. TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)
5. TURF/FINISH GRADE OR SHRUB BED WITH MULCH

NOTES:
1. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.
3. INSERTION PLOW AND TRENCHED INSTALLATIONS DO NOT REQUIRE TIE DOWN STAKES.

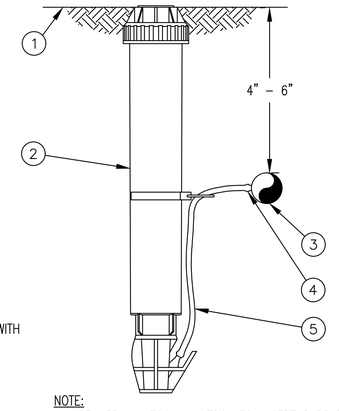
1 XFS SUB-SURFACE DRIPLINE BURIAL
N.T.S.



1. ON-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE
   - POTABLE: XFS DRIPLINE
   - NON-POTABLE: XFSP DRIPLINE
2. INLINE DRIP EMITTER OUTLET, SEE PLANS FOR DRIPLINE OUTLET SPACING.
3. BARB TEE 17x17x17mm RAIN BIRD XFF-TEE
4. BARB COUPLING 17x17mm RAIN BIRD XFF-COUP
5. BARB ELBOW 17x17mm RAIN BIRD XFF-ELBOW
6. BARB MALE ADAPTER
   - 17mm X 1/2" MPT RAIN BIRD XFF-MA-050
   - 17mm X 3/4" MPT RAIN BIRD XFF-MA-075
7. PVC TEE SxSxT
8. PVC LATERAL SUPPLY HEADER
9. TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)
10. FINISH GRADE
11. RAIN BIRD XF SERIES BLANK TUBING LENGTH AS REQUIRED

NOTES:
1. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.
3. FOR EASE OF CONSTRUCTION, USE THE RAIN BIRD FITTINGS-TOOL XF INSERTION TOOL FOR FITTING ASSEMBLY.

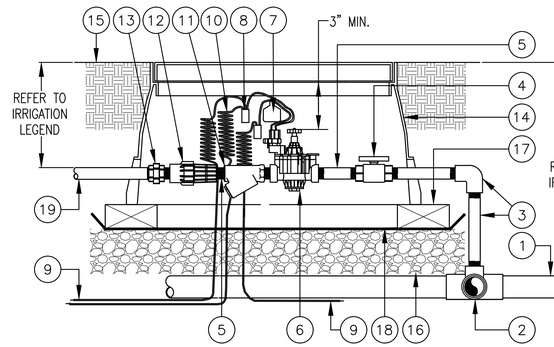
2 XFS SUB-SURFACE DRIPLINE RISER ASSEMBLY
N.T.S.



1. FINISH GRADE/TURF
2. MICRO-SPRAY POP-UP: RAIN BIRD XERI-POP XP-600X WITH 4-VAN NOZZLE (SHUT OFF)
3. SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
4. ¼" BARB TRANSFER FITTING: RAIN BIRD XBFCONN
5. ¼" DISTRIBUTION TUBING: RAIN BIRD XQ TUBING (LENGTH AS REQUIRED)

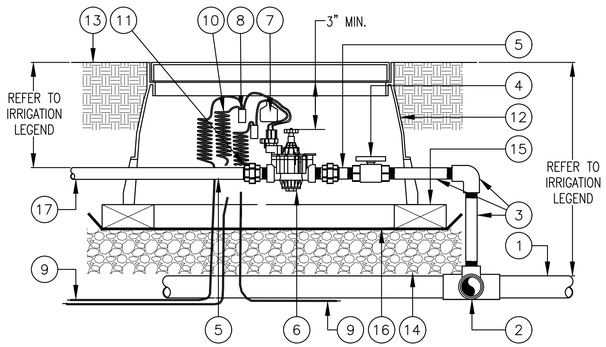
NOTE:
1. USE XERIMAN TOOL XM-TOOL TO INSERT BARB TRANSFER FITTING DIRECTLY INTO DRIPLINE TUBING.

3 XFS SUB-SURFACE DRIPLINE OPERATION INDICATOR
N.T.S. 10-27-10



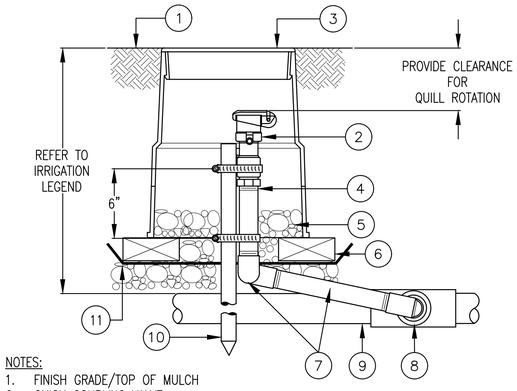
NOTES: (REFER TO BUBBLED NUMBERS)
1. PVC MAIN LINE PIPE
2. TEE OR ELL, PVC SCH 40, SxT
3. NIPPLES (2), TBE, LENGTH AS REQUIRED AND ELL, PVC SCH 80, TxT
4. BALL VALVE, KBI LT-1000-T, SCH 80
5. NIPPLES, TBE, PVC SCH 80, TxT (TYPICAL, LENGTHS AS REQUIRED)
6. EMITTER CONTROL VALVE
7. ID TAG
8. WATER PROOF CONNECTION (1 OF 2)
9. LOW VOLTAGE WIRE FROM CONTROLLER AND ON TO NEXT RCV, CONTROL AND COMMON
10. 30-INCH LINEAR LENGTH OF WIRE, COILED
11. PLASTIC WYE STRAINER WITH FLUSH VALVE
12. PRESSURE REDUCING VALVE TO PROVIDE 30-40 PSI AT ALL EMITTERS.
13. UNION, PVC SCH 80, MIPT X SOCKET, NDS (KBI) U-XXXX-SMV SERIES
14. RECTANGULAR PLASTIC VALVE BOX WITH WITH BOLT DOWN LID. 15-3/4"x25-1/4"x12" DEEP. OLD CASTLE (CARSON) 1324 OR EQUAL. INSTALL BOX AS SHOWN IN BOX INSTALLATION DETAIL.
15. FINISH GRADE/ TOP OF MULCH
16. PEA GRAVEL BASE, 6" DEEP, NO SOIL IN VALVE BOX.
17. COMMON BRICK, 1 AT EACH CORNER OF BOX
18. GALVANIZED WIRE CLOTH, 1/2" MESH, 19 GAUGE
19. PVC LATERAL LINE PIPE

4 EMITTER CONTROL VALVE
NOT TO SCALE



NOTES: (REFER TO BUBBLED NUMBERS)
1. PVC MAIN LINE PIPE
2. TEE OR ELL, PVC SCH 40, SxT
3. NIPPLES (2), TBE, LENGTH AS REQUIRED AND ELL, PVC SCH 80, TxT
4. BALL VALVE, KBI LT-1000-T, SCH 80
5. NIPPLE, TOE, PVC SCH 80, LENGTH AS REQUIRED
6. EMITTER CONTROL VALVE
7. ID TAG
8. WATER PROOF CONNECTION (1 OF 2)
9. LOW VOLTAGE WIRE FROM CONTROLLER AND ON TO NEXT RCV, CONTROL AND COMMON
10. 30-INCH LINEAR LENGTH OF WIRE, COILED
11. UNION, PVC SCH 80, MIPT X SOCKET, NDS (KBI) U-XXXX-SMV SERIES
12. RECTANGULAR PLASTIC VALVE BOX WITH WITH BOLT DOWN LID. 12"x17"x12" DEEP. OLD CASTLE (CARSON) 1419 OR EQUAL. INSTALL BOX AS SHOWN IN BOX INSTALLATION DETAIL.
13. FINISH GRADE/ TOP OF MULCH
14. PEA GRAVEL BASE, 6" DEEP, NO SOIL IN VALVE BOX.
15. COMMON BRICK, 1 AT EACH CORNER OF BOX
16. GALVANIZED WIRE CLOTH, 1/2" MESH, 19 GAUGE
17. PVC LATERAL LINE PIPE

5 REMOTE CONTROL VALVE
NOT TO SCALE



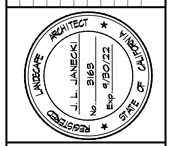
NOTES:
1. FINISH GRADE/TOP OF MULCH
2. QUICK COUPLING VALVE
3. 10" ROUND PLASTIC VALVE BOX WITH PLASTIC BOLT-DOWN LID. INSTALL VALVE BOX FLUSH WITH GRADE IN TURF AND 1" ABOVE FINISH GRADE IN SHRUB AREAS.
4. PVC SCH 80 NIPPLE, TBE, SIZED EQUAL TO VALVE, LENGTH AS REQUIRED
5. PEA GRAVEL BASE, 6" DEEP
6. COMMON BRICK-2 TOTAL, 180 DEGREES APART. KEEP BRICKS AWAY FROM PIPE.
7. RAIN BIRD TSJ SWING JOINT
8. TEE OR ELL PER MAIN LINE SPECIFICATION
9. PVC MAIN LINE PIPE
10. #4 X 30" REBAR STAKE WITH STAINLESS STEEL GEAR CLAMPS OR EQUIVALENT SUPPORT SYSTEM
11. WIRE MESH TO PREVENT GOPHER INTRUSION, GALVANIZED STEEL, 1/2" MESH, 19 GAUGE

CONSTRUCTION NOTES:
1. FURNISH THREADED FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE.
2. INSTALL VALVE IN GROUNDCOVER AREAS, NOT IN LAWN.

6 QUICK COUPLING VALVE
NOT TO SCALE

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP'D	DATE	REVISIONS AND RECORD OF USE



BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL REPLACEMENT WELL AND 1,2,3-TCP REMOVAL WTP REPLACEMENT

IRRIGATION DETAILS

DESIGNED: JE
DETAILED: ST
CHECKED: JE
APPROVED: JLJ
DATE: JULY 2021

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 407941

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X OF X

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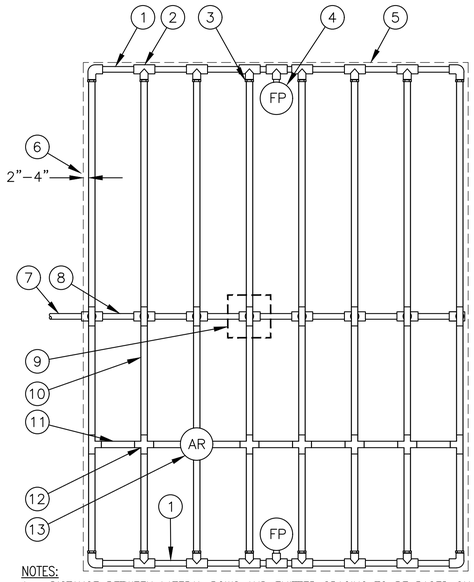
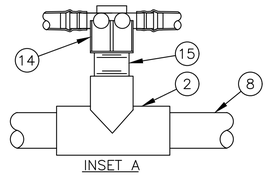


1. PVC EXHAUST HEADER
2. PVC SCH 40 TEE OR EL (TYPICAL)
3. BARB X MALE FITTING:
   RAIN BIRD XFF–MA FITTING (TYPICAL)
4. FLUSH POINT (TYPICAL)
   SEE RAIN BIRD DETAIL "XFS FLUSH POINT" OR "XFS FLUSH POINT WITH BALL VALVE"
5. PERIMETER OF AREA
6. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"–4" FROM PERIMETER OF AREA
7. PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
8. PVC SUPPLY MANIFOLD
9. CONNECTION FROM SUPPLY MANIFOLD TO DRIPLINE (TYPICAL)– SEE INSET A
10. SUB–SURFACE DRIPLINE:
    RAIN BIRD XF SERIES DRIPLINE (TYPICAL)
    POTABLE: XFS DRIPLINE
    NON–POTABLE: XFSP DRIPLINE
11. RAIN BIRD XF SERIES BLANK TUBING
12. BARB X BARB INSERT TEE OR CROSS:
    RAIN BIRD XFF–TEE OR
    RAIN BIRD XFD–CROSS (TYPICAL)
13. ½" AIR RELIEF VALVE: RAIN BIRD MODEL: ARV050
    SEE RAIN BIRD XFS DETAILS FOR AIR RELIEF INSTALLATION
14. BARB X FEMALE FITTING:
    RAIN BIRD XFD–TFA–075 FITTING
15. ¾" SCH 80 PVC NIPPLE, LENGTH AS NECESSARY TO ACHIEVE THE SPECIFIED COVER



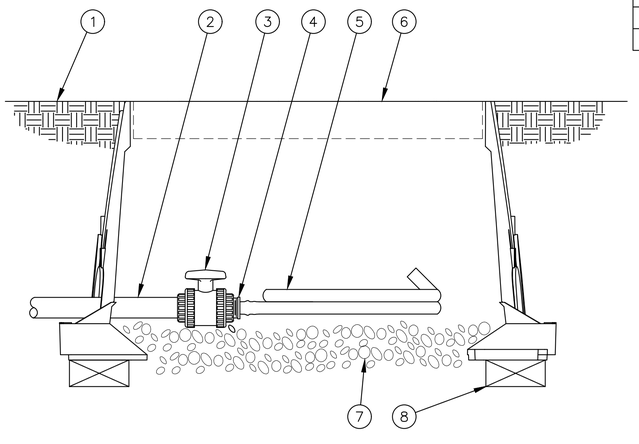
INSET A

NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE RAIN BIRD XF–SDI DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACINGS.
2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.
3. AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA.
4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

1 XFS SUB–SURFACE DRIPLINE
N.T.S. CENTER FEED LAYOUT

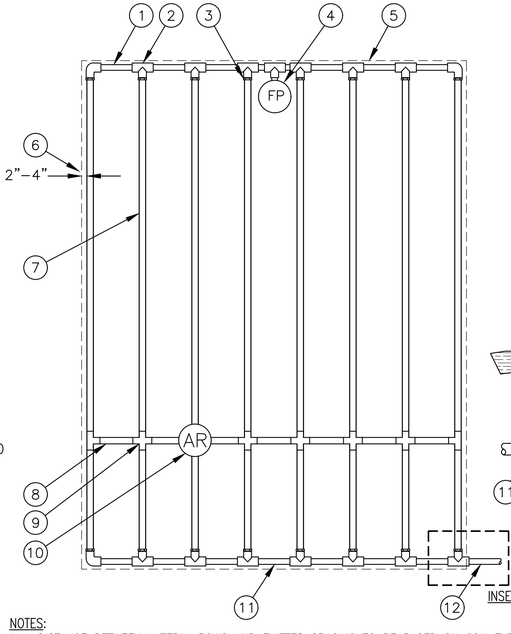
XFD Dripline Maximum Lateral Lengths (Feet)

Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (gph)		Nominal Flow (gph)		Nominal Flow (gph)	
	0.6	0.9	0.6	0.9	0.6	0.9
15	273	155	314	250	424	322
20	318	169	353	294	508	368
30	360	230	413	350	586	414
40	395	255	465	402	652	474
50	417	285	528	420	720	488
60	460	290	596	455	780	514

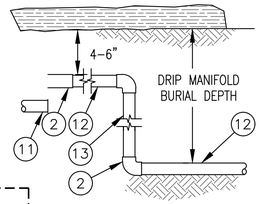


1. FINISH GRADE
2. PVC DRIP MANIFOLD PIPE
3. PVC 1" X ¾" TRUE UNION BALL VALVE
4. EASY FIT MALE X BARB ADAPTER:
   RAIN BIRD XFF–MA–075
5. SUB–SURFACE DRIPLINE:
   RAIN BIRD XF SERIES BLANK TUBING
6. 12–INCH VALVE BOX WITH COVER:
   RAIN BIRD VB–STD
7. 3–INCH MINIMUM DEPTH OF ¾" WASHED GRAVEL
8. BRICK (1 OF 2)

3 XFS SUB–SURFACE DRIPLINE
N.T.S. FLUSH POINT WITH BALL VALVE



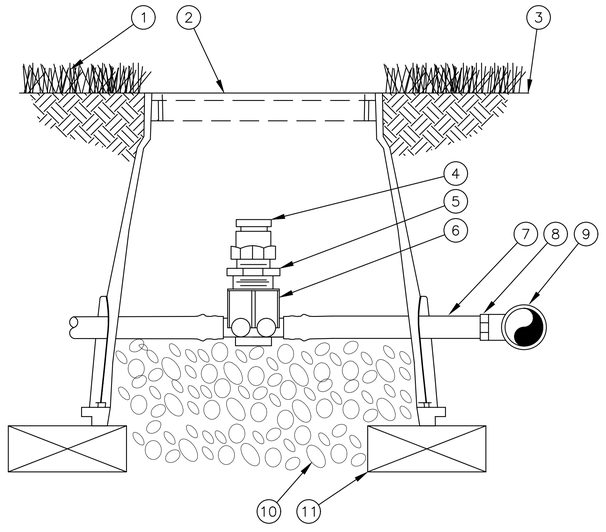
INSET A



INSET A

NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE RAIN BIRD XFS DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACINGS.
2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.
3. AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA.
4. DO NOT EXCEED 50 PSI IN ZONE WHEN USING RAIN BIRD INSERT FITTINGS.

2 XFS SUB–SURFACE DRIPLINE
N.T.S. END FEED LAYOUT



1. TURF GRASS
2. SUBTERRANEAN EMITTER BOX:
   RAIN BIRD SEB 7XB
3. FINISH GRADE
4. ½" AIR RELIEF VALVE:
   RAIN BIRD ARV050
   TO BE INSTALLED AT HIGH POINTS IN DRIP ZONE
5. ½" X ¾" PVC REDUCER BUSHING
6. BARB X FEMALE THREAD CONNECTOR:
   RAIN BIRD XFD–TFA FITTING
7. ½" BLANK DRIPLINE TUBING:
   RAIN BIRD XF SERIES
8. BARB X MALE THREAD CONNECTOR:
   RAIN BIRD XFF–MA FITTING
9. PVC TEE CONNECTED TO PVC HEADER PIPE
10. 3" MINIMUM DEPTH OF ¾" WASHED GRAVEL
11. BRICK (1 OF 2)

4 XFS SUB–SURFACE DRIPLINE
N.T.S. 1/2" AIR RELIEF VALVE IN XFS DRIPLINE

1. PVC EXHAUST HEADER
2. PVC SCH 40 TEE OR EL (TYPICAL)
3. BARB X MALE FITTING:
   RAIN BIRD XFF–MA FITTING (TYPICAL)
4. FLUSH POINT (TYPICAL) SEE RAIN BIRD DETAIL "XFS FLUSH POINT" OR "XFS FLUSH POINT WITH BALL VALVE"
5. PERIMETER OF AREA
6. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"–4" FROM PERIMETER OF AREA
7. SUB–SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE (TYPICAL)
   POTABLE: XFS DRIPLINE
   NON–POTABLE: XFSP DRIPLINE
8. RAIN BIRD XF SERIES BLANK TUBING
9. BARB X BARB INSERT TEE OR CROSS:
   RAIN BIRD XFF–TEE OR
   RAIN BIRD XFD–CROSS (TYPICAL)
10. ½" AIR RELIEF VALVE: RAIN BIRD MODEL: ARV050.
    SEE RAIN BIRD XFS DETAILS FOR AIR RELIEF INSTALLATION
11. PVC SUPPLY HEADER
12. PVC DRIP MANIFOLD FROM RAIN BIRD CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
13. PVC SCH 40 RISER PIPE

NO.	BY	CHK	APP'D	DATE
				REVISIONS AND RECORD OF USE

REGISTERED LANDSCAPE ARCHITECT J. L. JANECKI No. 3169 Exp. 4/30/22 STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL REPLACEMENT WELL AND 1,2,3-TCP REMOVAL WTP REPLACEMENT

IRRIGATION DETAILS

DESIGNED: JE
DETAILED: ST
CHECKED: JE
APPROVED: JLJ
DATE: JULY 2021

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

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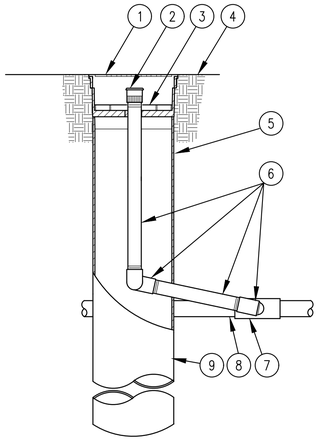
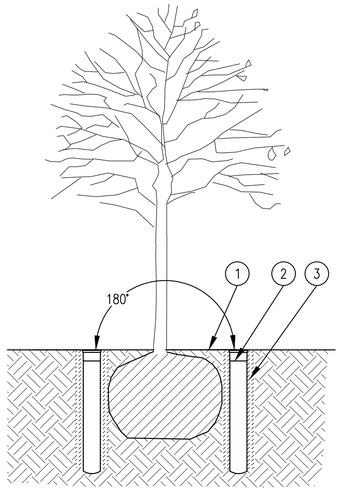


1. 4–INCH GRATE*
2. BUBBLER*
3. ROOT WATERING SYSTEM: RAIN BIRD RWS–BG (INCLUDES CANISTER, BUBBLER WITH SWING JOINT RISER AND GRATE)
4. FINISH GRADE
5. RAIN BIRD RWS SOCK*
6. RAIN BIRD SWING JOINT RISER ASSEMBLY*
7. PVC SCH 40 TEE OR EL
8. LATERAL PIPE
9. 4–INCH BASKET WEAVE CANISTER* –PLACE AGAINST TREE ROOTBALL

* RAIN BIRD ROOT WATERING SYSTEM INCLUDES CANISTER, BUBBLER, SWING JOINT RISER, SOCK AND GRATE

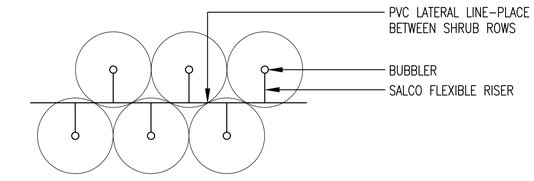
1 ROOT WATERING SYSTEM
NOT TO SCALE



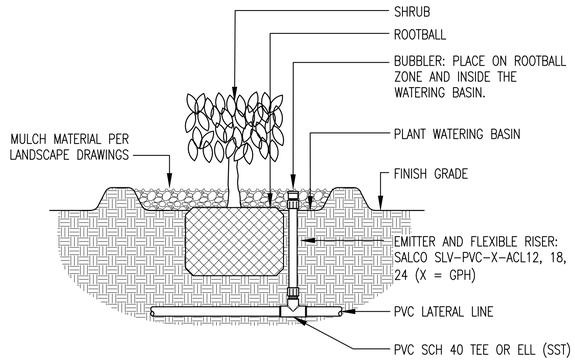
1. FINISH GRADE
2. ROOT WATERING SYSTEM: RAIN BIRD RWS–BCG (INCLUDES BUBBLER, CHECK VALVE AND GRATE)
3. RAIN BIRD RWS SOCK

NOTE:
POSITION UNITS SPACED AT 180 DEGREES AROUND ROOT BALL, 2 TOTAL. INSTALL PRODUCT WITH TOP EVEN WITH GROUND SURFACE.

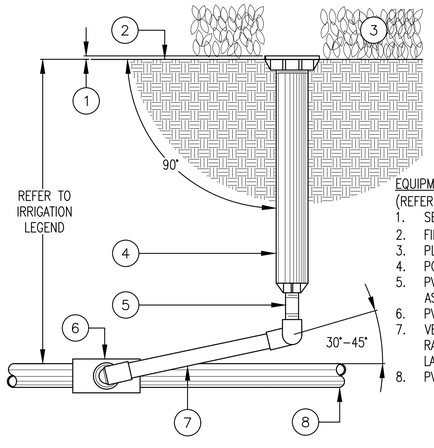
2 TREE WATERING SYSTEM
NOT TO SCALE



PLAN VIEW BUBBLER LAYOUT



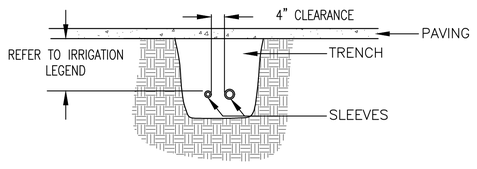
3 SHRUB BUBBLER ASSEMBLY
NOT TO SCALE

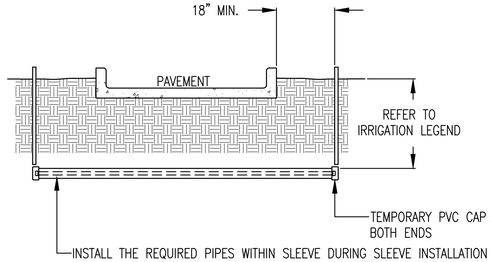


EQUIPMENT LIST:
(REFER TO BUBBLED NUMBERS)
1. SEE INSTALLATION NOTE 1
2. FINISH GRADE/TOP OF MULCH
3. PLANT MATERIAL
4. POP–UP HEAD
5. PVC SCH 80 TBE NIPPLE, LENGTH AS REQUIRED
6. PVC SCH 40 TEE OR ELL
7. VENDOR FABRICATED SWING JOINT, RAIN BIRD, TORO, DURA, OR LASCO
8. PVC LATERAL PIPE

INSTALLATION NOTES:
1. INSTALL TOP OF HEAD 1" ABOVE FINISH GRADE. SIDE INLET USE IS NOT PERMITTED.
2. INSTALL HEAD PERPENDICULAR TO FINISHED GRADE.
3. PRIOR TO NOZZLE INSTALLATION, FLUSH HEAD WITH WATER USING MANUFACTURER'S FLUSH NOZZLE TO ELIMINATE DEBRIS FROM WITHIN HEAD AND RISER.
4. INSTALL NOZZLE SCREEN. INSTALL NOZZLE, HAND TIGHT. RATCHET POP–UP RISER AND ADJUST VARIABLE ARC NOZZLES SO NOZZLE SPRAY IS WITHIN PLANTED AREA.

4 POP-UP STREAM BUBBLER AT TREES
NOT TO SCALE

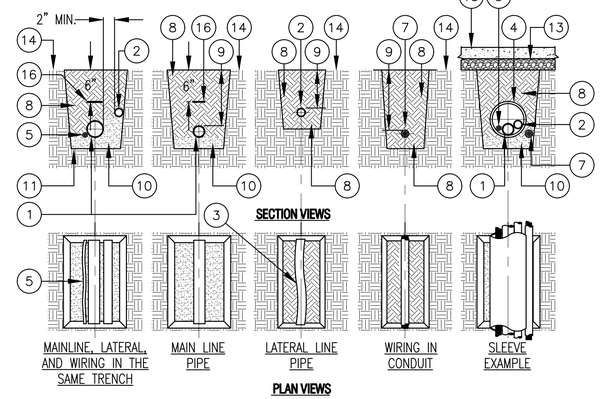




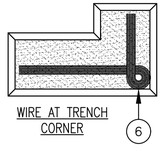
INSTALL THE REQUIRED PIPES WITHIN SLEEVE DURING SLEEVE INSTALLATION IF SLEEVE LENGTH IS GREATER THAN 17 FEET AND SLIDING OF PIPE THROUGH THE SLEEVE WILL BE HINDERED BY PIPE COUPLINGS. INSTALL PULL CORD FROM END TO END FOR LOW VOLTAGE WIRE PULL.

NOTES:
1. IRRIGATION SLEEVES TO BE PVC CLASS 200 OR SCH 40 PIPE. USE THE PIPE WITH THE THICKEST WALL DIMENSION.
2. JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. IF PIPING IS TO BE INSTALLED AFTER SLEEVING IS BACKFILLED, MARK SLEEVE LOCATION WITH A T. CHRISTY ENTERPRISES FIBERGLASS COMPOSITE MARKING POST, LABELED "IRRIGATION", EXPOSED AT GRADE, MODEL #ID–SF66–IRR.
4. MECHANICALLY TAMP BACKFILL TO 95% COMPACTION.
5. INSTALL SLEEVES LEVEL AND AFTER PIPE INSTALLATION, SEAL ENDS OF PIPE WITH GROUT TO PREVENT ROOT INTRUSION INTO THE SLEEVE.

5 SLEEVE INSTALLATION
NOT TO SCALE



PLAN VIEWS



ITEM LIST AND INSTALLATION NOTES:
1. MAIN LINE PIPE; PROVIDE A MINIMUM OF 2" BETWEEN ALL PIPES.
2. LATERAL LINE PIPE; PROVIDE A MINIMUM OF 2" BETWEEN ALL PIPES.
3. SNAKE SOLVENT WELD PLASTIC PIPING IN TRENCH AS SHOWN.
4. SLEEVE BELOW ALL HARDSCAPE ELEMENTS WITH SLEEVING TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN.
5. WIRE BUNDLE: INSTALL WIRING BENEATH AND BESIDE MAIN LINE. TAPE AND BUNDLE AT 10–FOOT INTERVALS.
6. TIE A 24–INCH LOOP IN WIRING AT CHANGES OF DIRECTION OF 30° OR GREATER. UNTIE AFTER ALL CONNECTIONS HAVE BEEN MADE.
7. LOW VOLTAGE WIRE CONDUIT (WHERE SPECIFIED).
8. CLEAN BACKFILL PER THE SPECIFICATIONS, TYPICAL.
9. FOR PIPE, SLEEVE AND WIRE BURIAL DEPTHS, REFER TO IRRIGATION LEGEND AND SPECIFICATIONS.
10. PROVIDE A SAND BED FOR PIPE (WHERE SPECIFIED).
11. TRENCH BOTTOM OF UNDISTURBED SOIL, TYPICAL.
12. WHERE BORING UNDER EXISTING PAVEMENT IS REQUIRED – REFER TO DRAWINGS FOR SPECIFIC INFORMATION.
13. PAVEMENT AND SUBGRADE
14. FINISH GRADE
15. PAVED OR CONCRETE SURFACE
16. DETECTABLE WARNING TAPE PER SPECIFICATIONS

6 TRENCH
NOT TO SCALE

PRELIMINARY - NOT FOR CONSTRUCTION

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JDE PROJECT NO: 21020

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SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL REPLACEMENT WELL AND 1,2,3-TCP REMOVAL WTP REPLACEMENT

IRRIGATION DETAILS

DESIGNED: JE
DETAILED: ST
CHECKED: JE
APPROVED: JLJ
DATE: JULY 2021

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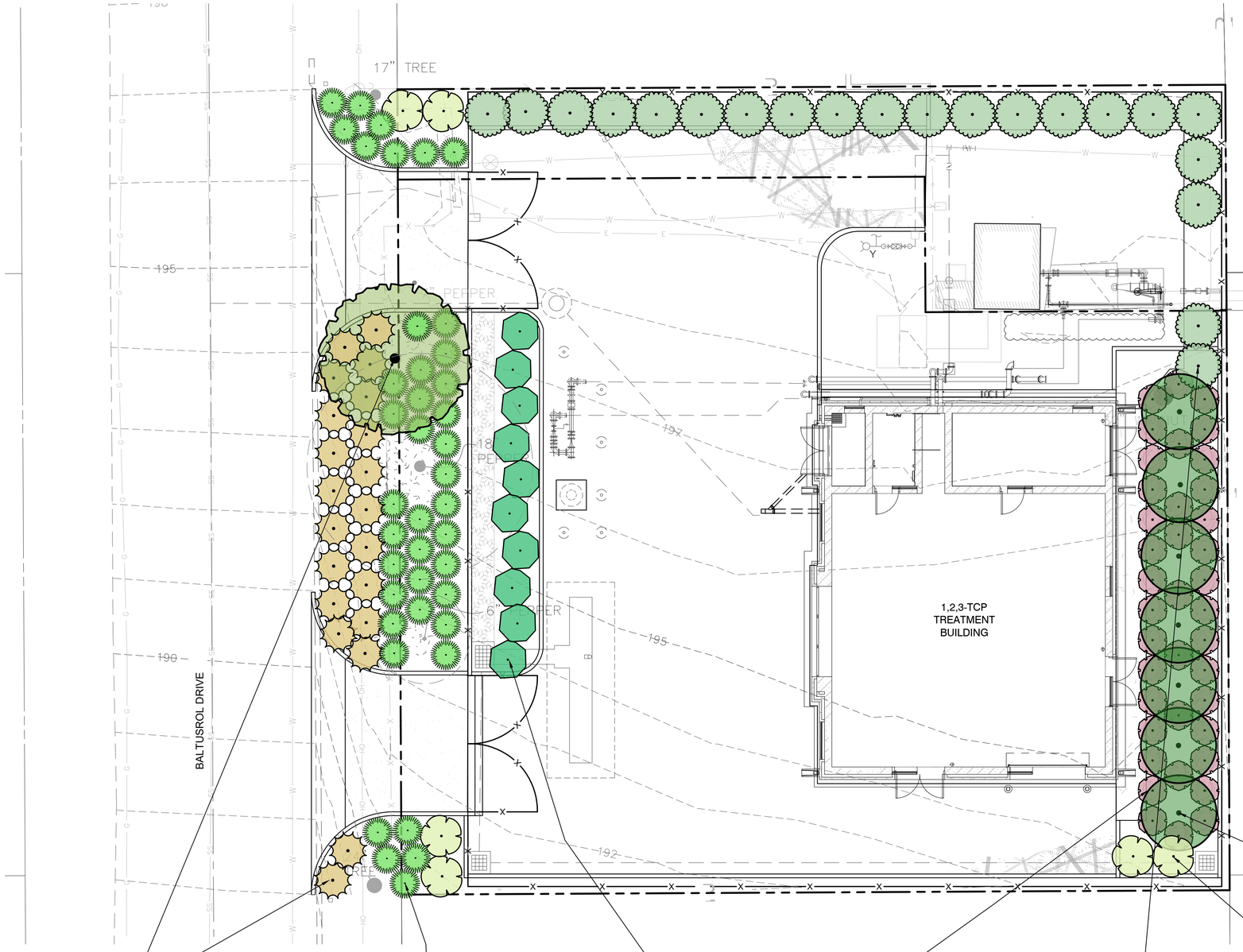

DESIGN NARRATIVE

THE SITE, TUCKED INTO A RESIDENTIAL NEIGHBORHOOD, IS ON A HILLSIDE AND CURRENTLY RESEMBLES A SMALL PARK OR OPEN SPACE. THE LANDSCAPE DESIGN FOCUSES ON SMOOTHLY FITTING THE SITE INTO THE SURROUNDING NEIGHBORHOOD AND MAINTAINING A RESIDENTIAL APPEARANCE. PERIMETER SCREENING OF THE FACILITY IS PRIORITIZED SINCE THERE ARE VIEWS INTO THE SITE ON ALL SIDES FROM THE ADJACENT RESIDENTIAL NEIGHBORS. THE PLANT PALETTE INCLUDES CALIFORNIA NATIVE AND HABITAT-PROVIDING PLANTS ADAPTED TO THE LOCAL CLIMATE. THE PLANTING INCLUDES TALL EVERGREEN SHRUBS ALONG THE SITE PERIMETER. THIS PLANTING BUFFER WILL HELP VISUALLY SCREEN AND SEPARATE THE SITE FROM NEIGHBORING PROPERTIES WHILE PRESERVING A CONSISTENT RESIDENTIAL APPEARANCE.

LEGEND

WOOD CHIP MULCH - REFER TO SPECIFICATION SECTION 32 9300

EVERGREEN TALL SHRUB/TREE
- PRUNUS ILICIFOLIA (HOLLY LEAF CHERRY)

NEW EVERGREEN TREE
- QUERCUS AGRIFOLIA (COAST LIVE OAK)
- SCHINUS MOLLE (CALIFORNIA PEPPER TREE)

FLOWERING EVERGREEN SHRUB
- CEANOTHUS X 'RAY HARTMAN' (RAY HARTMAN WILD LILAC)

EVERGREEN SCREEN PLANTING
- HETEROMELES ARBUTIFOLIA (TOYON)

TALL SHRUBS/INFORMAL HEDGE
- CEANOTHUS X 'CONCHA' (CONCHA WILD LILAC)

MEDIUM TALL SHRUBS
- ACHILLEA MILLEFOLIUM (COMMON YARROW)
- MUHLENBERGIA RIGENS (DEER GRASS)

LOW GROWING SHRUBS/GROUNDCOVER
- BACCHARIS PILULARIS 'TWIN PEAKS' (TWIN PEAKS COYOTE BRUSH)

GROUNDCOVER PLANTING
- ARCTOSTAPHYLOS UVA-URSI (KINNIKINNICK)

0' 2' 4' 8' 16'
SCALE: 1/8" = 1'-0"

PLANT IMAGES


QUERCUS AGRIFOLIA
(COAST LIVE OAK)


BACCHARIS PILULARIS 'TWIN PEAKS'
(TWIN PEAKS COYOTE BRUSH)


MUHLENBERGIA RIGENS (DEER GRASS)


CEANOTHUS X 'CONCHA'
(CONCHA WILD LILAC)


ARCTOSTAPHYLOS UVA-URSI
(KINNIKINNICK)


HETEROMELES ARBUTIFOLIA
(TOYON)


CEANOTHUS X 'RAY HARTMAN'
(RAY HARTMAN WILD LILAC)


PRUNUS ILICIFOLIA
(HOLLY LEAF CHERRY)

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BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

PLANTING PLAN

DESIGNED: GL
DETAILED: MO
CHECKED: GL
APPROVED: JLJ
DATE: JULY 2021

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CONCEPT PLANT SCHEDULE

EVERGREEN TALL SHRUB/TREE
- PRUNUS ILICIFOLIA (HOLLY LEAF CHERRY)

NEW EVERGREEN TREE
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- BACCHARIS PILULARIS 'TWIN PEAKS' (TWIN PEAKS COYOTE BRUSH)

GROUNDCOVER PLANTING
- ARCTOSTAPHYLOS UVA-URSI (KINNIKINNICK)

NOTES:
1. PLANT SCHEDULE IS FOR CONTRACTOR'S REFERENCE ONLY. EXACT QUANTITIES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. REFER TO SECTION 32 93 00, PLANTING.

PLANTING NOTES

1. REFER TO SPECIFICATION SECTION 32 93 00 FOR ADDITIONAL PLANTING REQUIREMENTS.
2. CONTRACTOR SHALL PROCURE PLANT SPECIES WITHIN THIRTY (30) DAYS OF AWARD OF THE CONTRACT. CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING REQUIRED DEPOSITS TO ENSURE TIMELY PROCUREMENT OF THE SPECIFIED PLANTS. CONTRACTOR SHALL PROVIDE OWNER'S REPRESENTATIVE WITH WRITTEN VERIFICATION (RECEIPTS) SHOWING PROCUREMENT TO MEET THE PLANTING REQUIREMENTS. . CONTRACTOR TO SUBMIT PHOTOGRAPHS OF ALL PLANTS FOR REVIEW AND APPROVAL BY OWNER'S REPRESENTATIVE. PLANTS MAY NEED TO BE CONTRACT GROWN TO ENSURE PLANT AVAILABILITY. REFER TO SPECIFICATION SECTION 32 93 00, PLANTING.
3. ALL EXISTING TREES TO REMAIN SHALL BE PROTECTED IN PLACE UNLESS NOTED OTHERWISE. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE OF ANY KIND TO EXISTING TREES DURING THE COURSE OF CONSTRUCTION.
4. HOLD FINISHED GRADES FOR SHRUB AREAS 1 1/2-INCHES BELOW TOP OF ADJACENT PAVEMENT OR WALLS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
4. GRADUALLY ROUND OFF TOPS AND TOES OF ALL PLANTED SLOPES TO PRODUCE A SMOOTH AND NATURAL TRANSITION BETWEEN EXISTING PLANTING, FINISH GRADES AND NEW PLANTING.
5. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE A MINIMUM OF FIVE (5) DAYS IN ADVANCE TO SCHEDULE PLANT DELIVERY DATES. OWNER'S REPRESENTATIVE SHALL INSPECT PLANTS UPON ARRIVAL AND RESERVES THE RIGHT TO REJECT PLANTS.
6. CONTRACTOR SHALL PLACE PLANTS AS SHOWN ON PLAN AND VERIFY LOCATION WITH OWNER'S REPRESENTATIVE. OWNER'S REPRESENTATIVE MAY REQUEST THAT CONTRACTOR ADJUST OR RELOCATE PLANTS ON-SITE AS NEEDED TO PROPERLY COMPLETE DESIGN.
7. CONTRACTOR TO PROTECT ALL NEW PLANTS FROM GOPHERS, RODENTS, DEER, AND OTHER ANIMALS. TYPE AND EXTENT OF PROTECTION MEASURES SHALL BE DETERMINED BY CONTRACTOR AND SUBMITTED TO OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
8. TYPICAL OF ALL TREES - KEEP ALL SHRUBS, GRASSES, PERENNIALS, GROUNDCOVER, VINES OR SUCCULENTS PLANTINGS 18-INCHES CLEAR FROM ANY EXISTING OR NEW TREE TRUNK.
9. IF SOIL IS LIME TREATED, PLANTING AREAS TO BE EXCAVATED WITHIN 3-INCHES OF THE EDGE OF PAVING/CURB TO A DEPTH OF MINIMUM 18-INCHES AND DISPOSED OF OFF-SITE. PLANTING AREAS TO BE FILLED WITH IMPORTED TOPSOIL AMENDED PER SOILS REPORT. PLANTING AREAS TO BE TESTED FOR PROPER DRAINAGE PRIOR TO PLANTING. REFER TO SECTION 32 91 13 FOR ADDITIONAL REQUIREMENTS.
10. COMPACTED SOILS MUST BE TRANSFORMED TO A FRIABLE CONDITION TO MAXIMIZE WATER RETENTION.
11. INCORPORATE COMPOST INTO THE SOIL TO A MINIMUM OF 8-INCHES AT A MINIMUM RATE OF 6 CUBIC YARDS PER 1000 SQUARE FEET. SOILS WITH GREATER THAN 6% ORGANIC MATTER IN THE TOP 6-INCHES OF SOIL ARE EXEMPT FROM ADDING COMPOST AND TILLING.
12. PROVIDE A MINIMUM OF 3 INCHES OF WOOD CHIP MULCH TO SOIL SURFACE AFTER PLANTING, AROUND EXISTING TREES AND SHRUBS TO REMAIN, AND OVER ALL BARE GROUND WITHIN PROJECT BOUNDARIES. MULCH SHALL NOT BE PLACED WITHIN A 12-INCH DIAMETER OF TREE TRUNKS AND SHOULD BE KEPT FREE FROM THE CROWN OF ALL SHRUBS, GRASSES, AND PERENNIALS. DO NOT MULCH SEEDED AREAS. MULCH FOR RAIN GARDENS SHALL BE GORILLA HAIR TYPE, AS ACCEPTED BY LANDSCAPE ARCHITECT. MULCH FOR ALL OTHER PLANTING AREAS SHALL BE 1/2-INCH TO 1-INCH DIAMETER COMPOSTED REDWOOD BARK, FREE OF STICKS, DIRT, AND OTHER DEBRIS, AS ACCEPTED BY LANDSCAPE ARCHITECT AS SPECIFIED IN SECTION 32 93 00.
13. SOIL AMENDMENTS MUST BE INCORPORATED ACCORDING TO RECOMMENDATIONS OF THE SOIL ANALYSIS REPORT AND WHAT IS APPROPRIATE FOR THE PLANTS SELECTED.
14. CONTRACTOR TO REVIEW ALL PLANS AND SPECIFICATIONS FOR SUBMITTALS, TESTING, AND OTHER REQUIREMENTS. CONTRACTOR TO IMMEDIATELY NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN SITE CONDITIONS AND INTENT OF THESE DRAWINGS. ANY CONFLICTS WILL BE RESOLVED PRIOR TO COMPLETING WORK.

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REGISTERED LANDSCAPE ARCHITECT * JONI L. JANECKI * 3169 * Exp 4/30/22 * STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

PLANT SCHEDULE & NOTES

DESIGNED: GL
DETAILED: MO
CHECKED: GL
APPROVED: JLJ
DATE: JULY 2021

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PROJECT NO.
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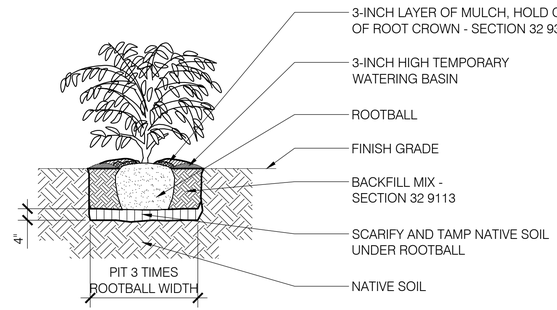
NOTE:
1. REMOVE TEMPORARY WATERING BASINS ONCE RAINY SEASON HAS COMMENCED - SECTION 32 9300.

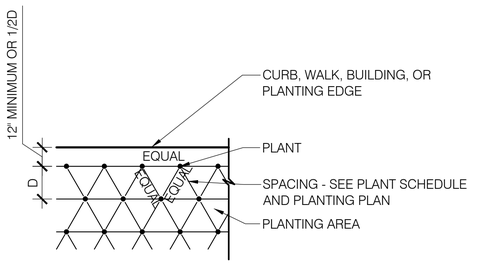


2 SHRUB PLANTING DETAIL

NOT TO SCALE

NOTES:
1. ALL TREES TO BE STAKED ON PREVAILING WIND SIDE WHEN TREE IS IN LEAF. VERIFY ALL CONNECTORS ARE SECURE AND TIGHT.
2. CONTRACTOR SHALL DOUBLE STAKE ALL 15 GALLON, 24-INCH & 36-INCH BOX TREES.
3. CONTRACTOR SHALL REMOVE NURSERY STAKE(S) AND TAGS FROM TREES UPON COMPLETION OF STAKING.
4. "WONDER TREE TIES" SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
5. REMOVE TEMPORARY WATERING BASINS ONCE RAINY SEASON HAS COMMENCED.
6. CONTRACTOR TO COORDINATE AND PROVIDE PHOTOS OF PROPOSED TREES.
7. PLANTS WITH LARGE CIRCLING ROOTS OR KINKED ROOTS ON INTERIOR OF THE ROOTBALL WILL NOT BE ACCEPTED.
8. TREES SHALL BE SUPPLIED WITH WELL TAPERED STRONG TRUNKS WHICH WILL STAND ALONE.
9. TREES SUPPLIED WITH TOPS T0O LARGE FOR TRUNKS TO SUPPORT SHALL BE PRUNED AS DIRECTED BY OWNER'S REPRESENTATIVE TO REDUCE CROWN HEIGHT. DO NOT REMOVE LATERALS ALONG TRUNK. DO NOT PRUNE TREES WITHOUT PRIOR APPROVAL FROM OWNER'S REPRESENTATIVE.

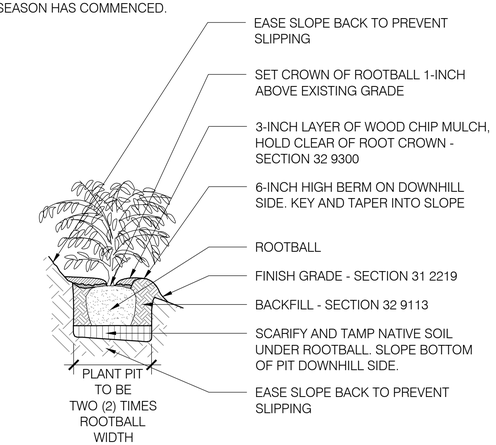
NOTE:
1. "D" REFERS TO ON-CENTER SPACING AS SHOWN ON DRAWINGS AND ON PLANT SCHEDULE.



4 TYPICAL PLANT SPACING DETAIL

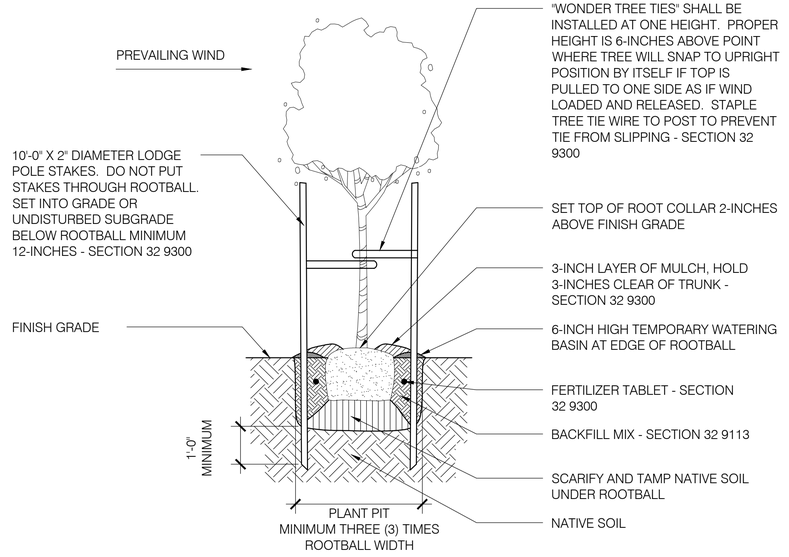
NOT TO SCALE

NOTE:
1. REMOVE TEMPORARY WATERING BASINS ONCE RAINY SEASON HAS COMMENCED.



3 SHRUB PLANTING ON SLOPE DETAIL

NOT TO SCALE



1 TREE PLANTING DETAIL

NOT TO SCALE

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1,2,3-TCP REMOVAL PROJECT

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GENERAL SHEET NOTES

1. **PERSPECTIVE VIEWS ARE FOR GENERAL REFERENCE ONLY**

NORTHWEST PERSPECTIVE

SOUTHEAST PERSPECTIVE

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT PHILIP D. RISHEL No. C-37087 REN: STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
PERSPECTIVES

DESIGNED: CA
DETAILED: ANH
CHECKED: PDR
APPROVED: -
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

A-01
SHEET
OF

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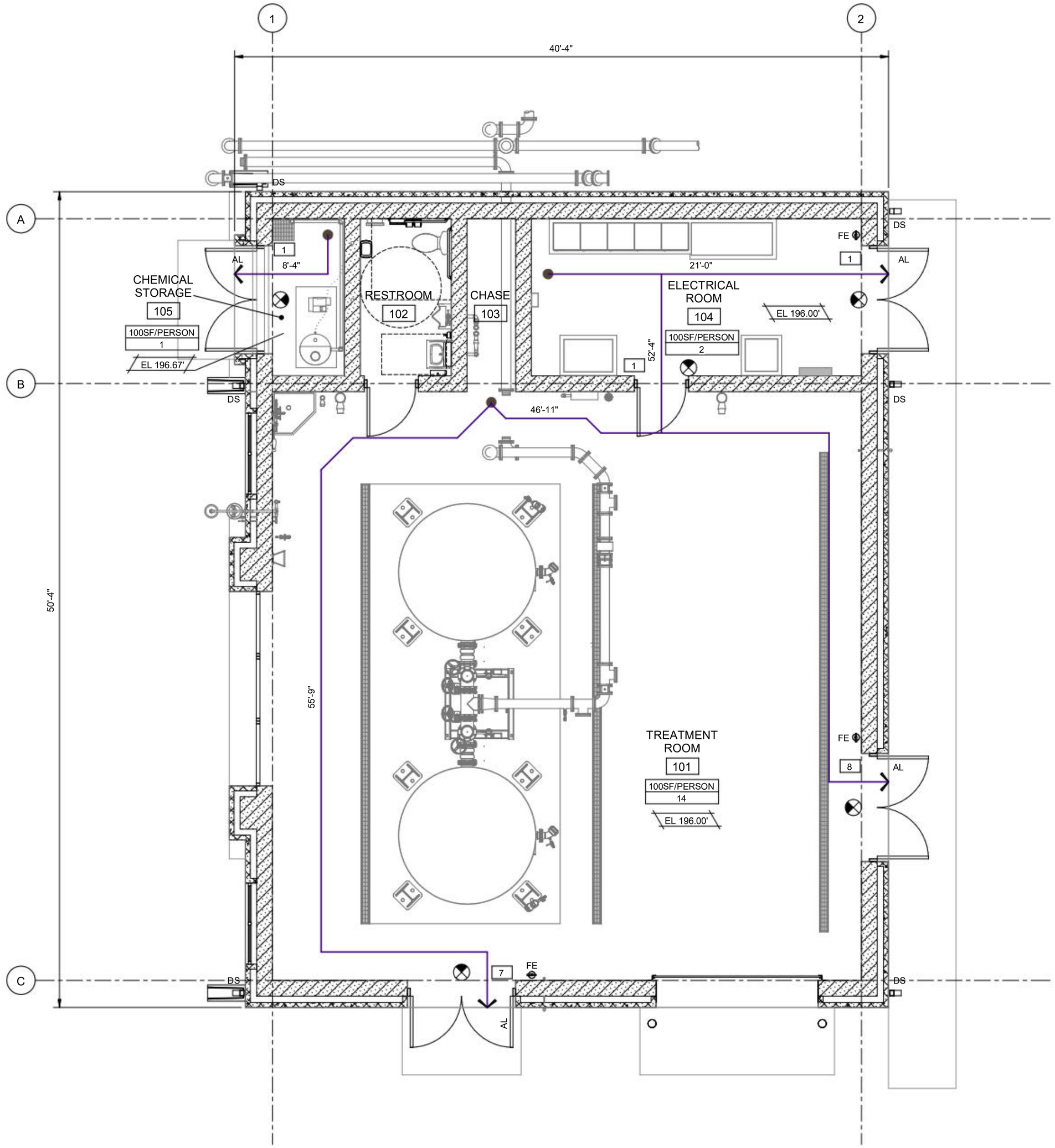

LIFE SAFETY PLAN
1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1. -

BUILDING CODE ANALYSIS

APPLICABLE BUILDING CODES: 2019 CALIFORNIA BUILDING CODE	
PUMP STATION	
OCCUPANCY	F2
ACTUAL FLOOR AREA	2,021 SF TOTAL
ACTUAL HEIGHT	1 STORY (20.33 FT)
TYPE OF CONSTRUCTION	TYPE IIB
ALLOWABLE AREA	62,000 SF
ALLOWABLE HEIGHT	2 STORIES (75 FT)
DESIGN OCCUPANT LOAD	17 PERSONS
ADA ACCESSIBILITY	NOT REQUIRED PER CBC SECTION - 11B-203.5 MACHINERY SPACES
OCCUPANCY SEPARATION	NO
FIRE SPRINKLERS	NOT REQUIRED PER CALIFORNIA BUILDING CODE AND CALIFORNIA GOVERNMENT CODE SECTION 53091(d). CENTRAL FIRE PROTECTION DISTRICT OF SANTA CRUZ COUNTY ORDINANCE NO 2019-01 DOES NOT APPLY

LIFE SAFETY LEGEND

	FIRE EXTINGUISHER (FE)
X'-X"	TRAVEL DISTANCE
100SF/PERSON / 1	OCCUPANTS PER SF OCCUPANT LOAD
1	CUMULATIVE OCCUPANT LOAD
	EXIT
AL	ACTIVE LEAF
DS	DOWN SPOUT

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

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT — PHILIP D. RISHELL — No. C-37087 — REN: — STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
LIFE SAFETY PLAN AND BUILDING CODE ANALYSIS

DESIGNED: CA
DETAILED: ANH
CHECKED: PDR
APPROVED: -
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

A-02
SHEET
OF

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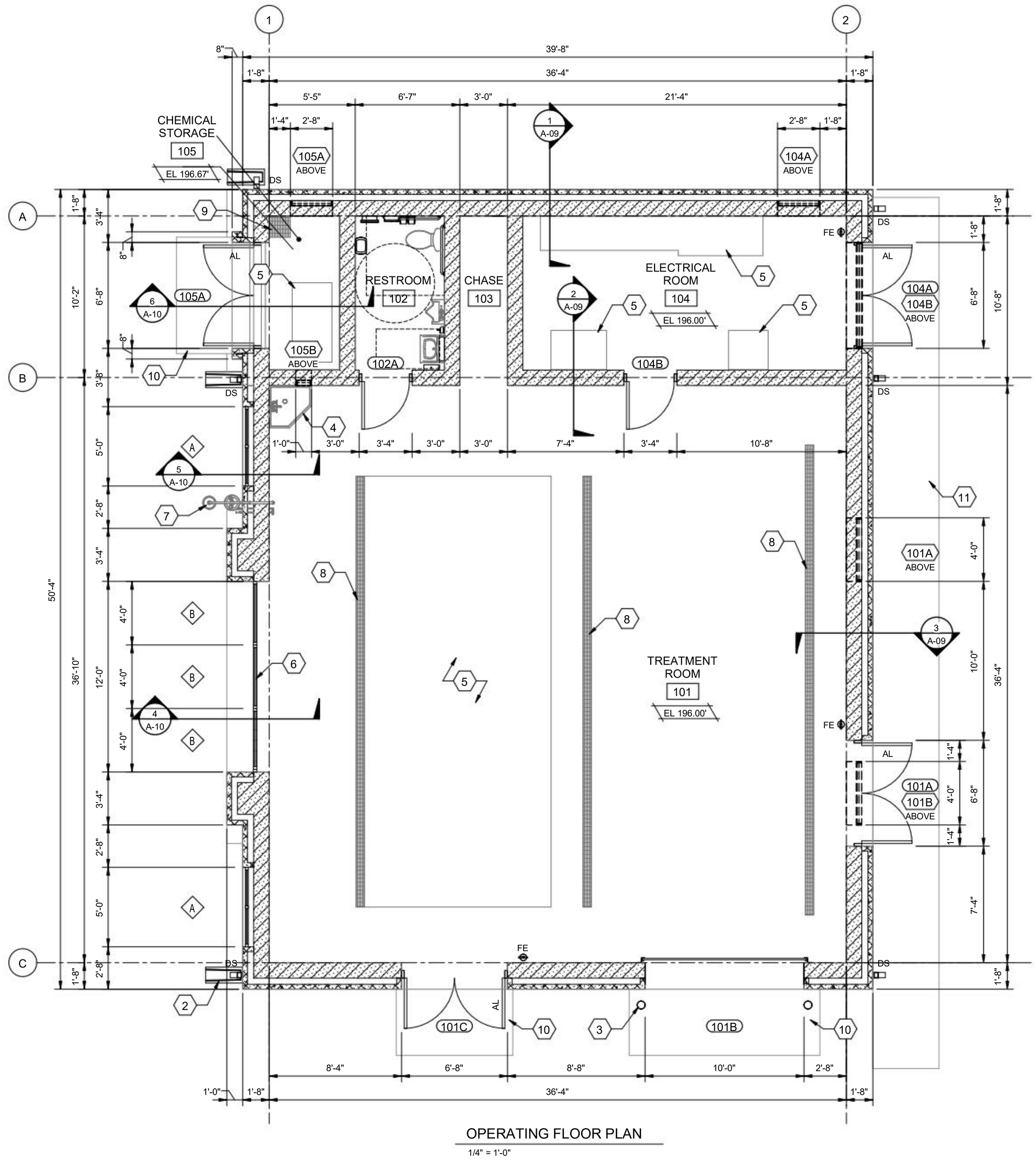

OPERATING FLOOR PLAN

1/4" = 1'-0"

GENERAL SHEET NOTES

1. -

SHEET KEYNOTES

1. NOT USED
2. PRECAST CONCRETE SPLASH BLOCK (TYP)
3. CONCRETE BOLLARD - SEE CIVIL DRAWINGS (TYP)
4. SINK - SEE PLUMBING DRAWINGS
5. CONCRETE EQUIPMENT PAD - SEE STRUCTURAL DRAWINGS
6. REMOVABLE WALL PANEL SYSTEM (x3)
7. EMERGENCY SHOWER - SEE PLUMBING DRAWINGS
8. TRENCH DRAIN - SEE PLUMBING AND STRUCTURAL DRAWINGS
9. SUMP - SEE PROCESS AND STRUCTURAL DRAWINGS
10. CONCRETE STOOP - SEE CIVIL DRAWINGS
11. CONCRETE SIDEWALK - SEE CIVIL DRAWINGS

ARCHITECTURAL SYMBOL LEGEND

(X)	ACCESSORY ITEM
101A	DOOR
101A	LOUVER
W	WINDOW
ROOM NAME 101	ROOM NAME & NUMBER

4' 2' 0' 4' 8'

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT PHILIP D. RISHEL No. C-37087 REN STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
FLOOR PLAN

DESIGNED:	CA
DETAILED:	ANH
CHECKED:	PDR
APPROVED:	-
DATE:	JULY 2021

0 1/2 1

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PROJECT NO.
407941

A-04
SHEET
OF

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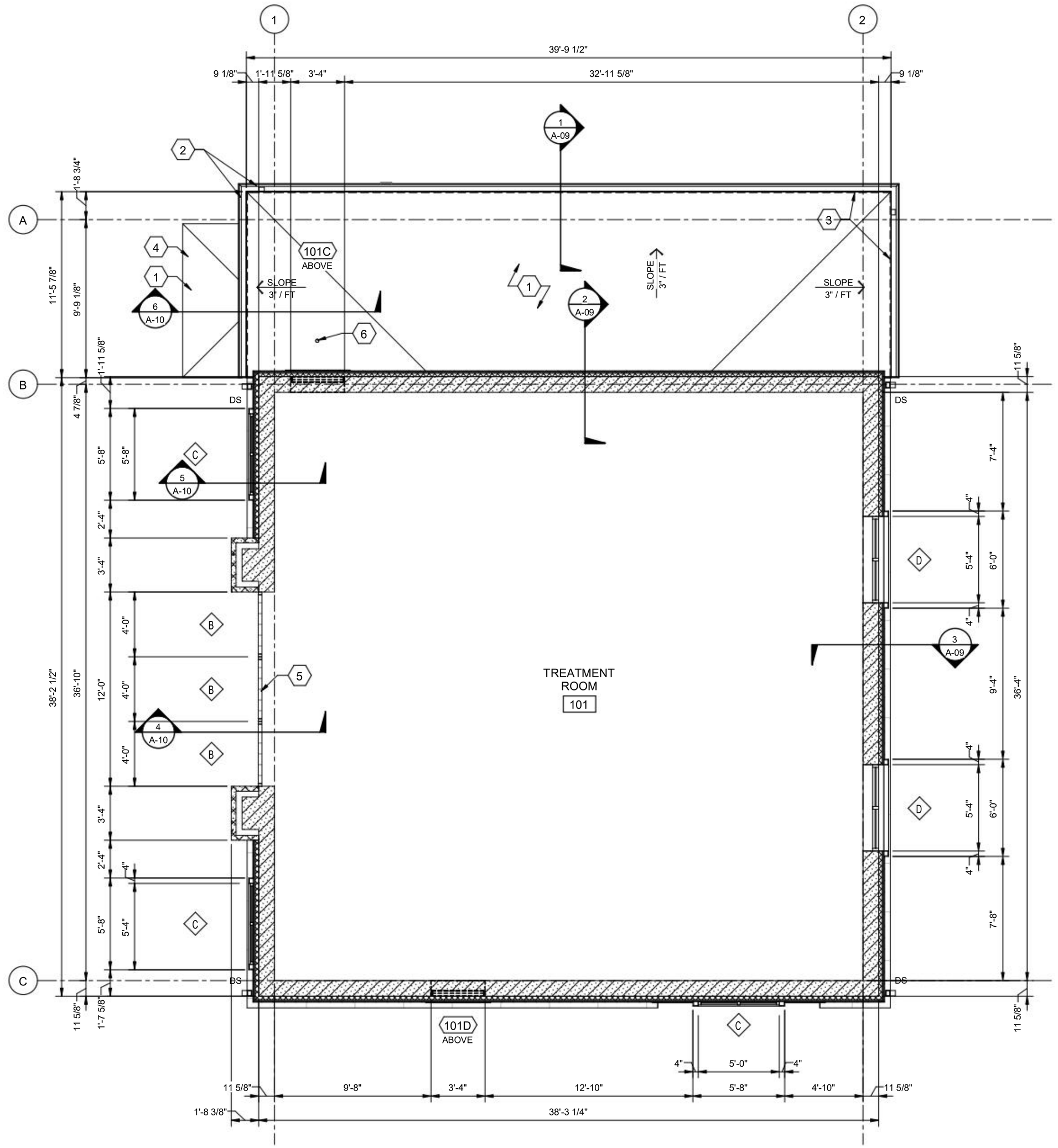


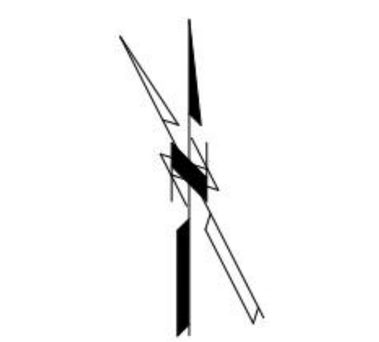
CLERESTORY PLAN

1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1. COMPOSITE SHINGLE ROOFING SYSTEM (TYP)
2. PRE-FINISHED METAL GUTTER (TYP)
3. EDGE OF BUILDING BELOW (TYP)
4. ENTRY CANOPY BELOW
5. REMOVABLE WALL PANEL SYSTEM (x3)
6. ROOF VENT - SEE PROCESS DRAWINGS



4' 2' 0' 4' 8'

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT — PHILIP D. RISHEL — No. C-37087 — STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
CLERESTORY PLAN

DESIGNED: CA
DETAILED: ANH
CHECKED: PDR
APPROVED: -
DATE: JULY 2021

0 1/2 1

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PROJECT NO.
407941

A-05
SHEET
OF

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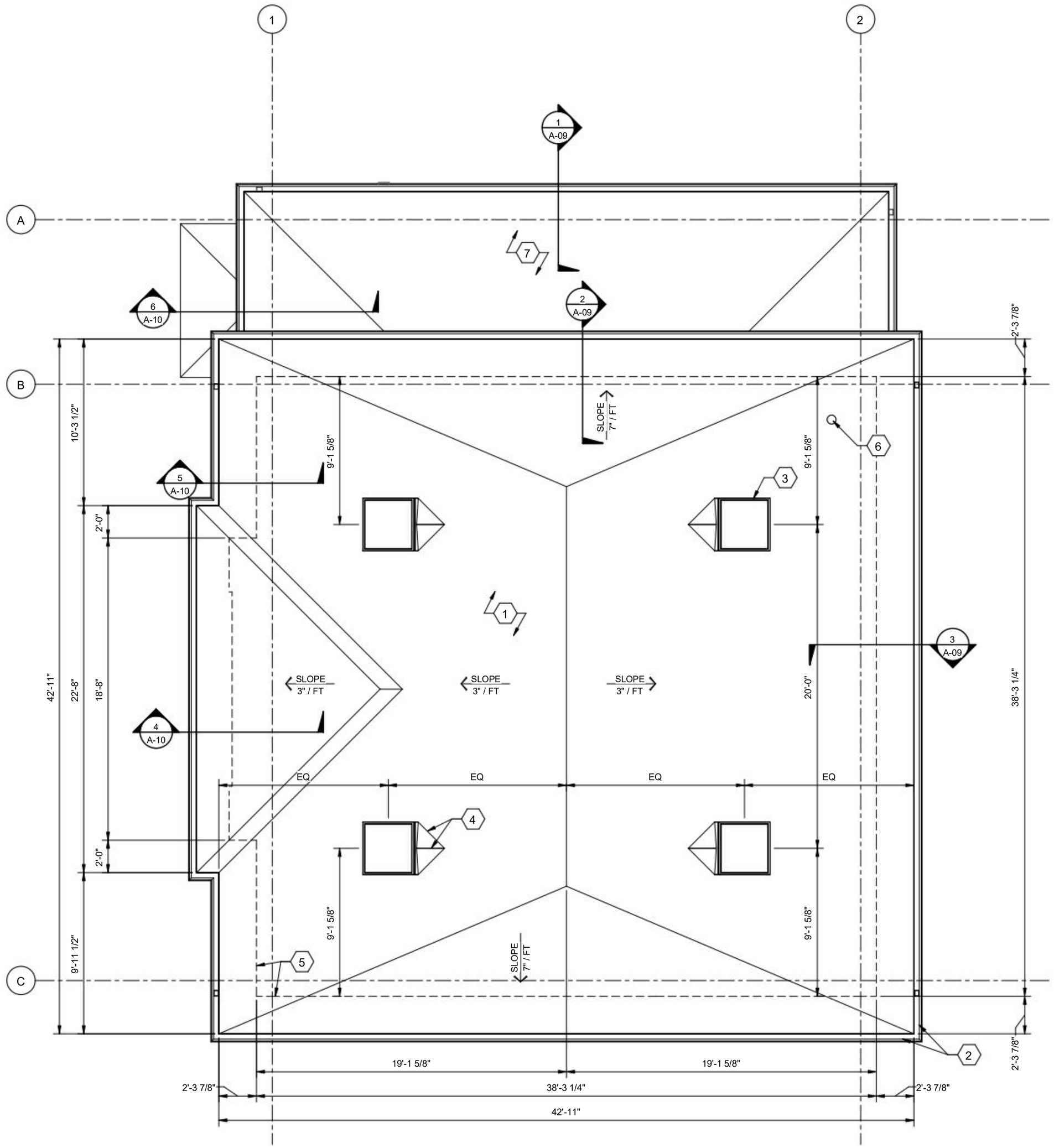


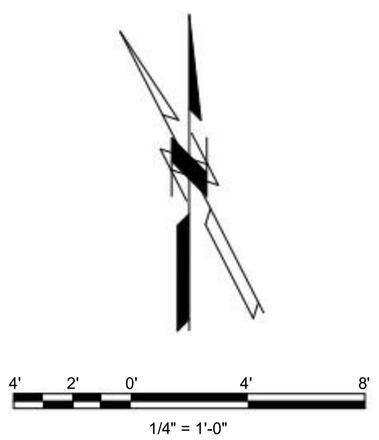
ROOF PLAN

1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1. COMPOSITE SHINGLE ROOFING SYSTEM (TYP)
2. PRE-FINISHED METAL GUTTER (TYP)
3. PRE-FINISHED METAL SKYLIGHT (TYP)
4. CRICKET DRAINAGE SYSTEM (TYP)
5. OUTSIDE EDGE OF CONCRETE BLOCK WALL BELOW (TYP)
6. ROOF VENT - SEE PLUMBING DRAWINGS
7. SEE SHEET A-05 FOR DETAILS OF ROOF BELOW



1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT — PHILIP D. RISHEL — No. C-37087 — STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
ROOF PLAN

DESIGNED: CA
DETAILED: ANH
CHECKED: PDR
APPROVED: -
DATE: JULY 2021

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

A-06
SHEET
OF

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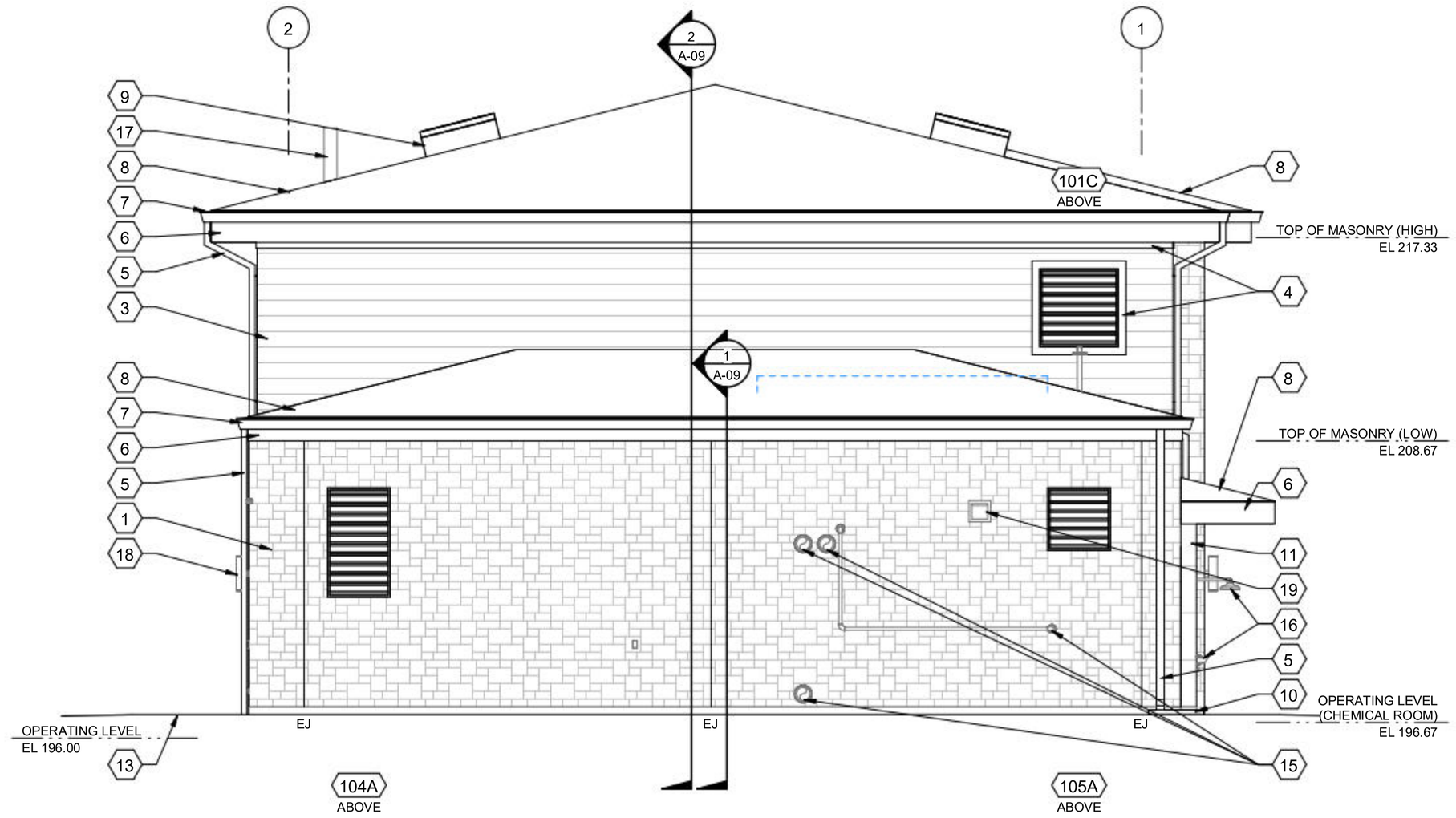

NORTH ELEVATION

1/4" = 1'-0"

EAST ELEVATION

1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1. STONE VENEER (TYP)
2. CAST STONE BANDING (TYP)
3. FIBER CEMENT LAP SIDING (TYP)
4. FIBER CEMENT BOARD TRIM (TYP)
5. PRE-FINISHED METAL DOWNSPOUT (TYP)
6. PRE-FINISHED METAL FASCIA (TYP)
7. PRE-FINISHED METAL GUTTER (TYP)
8. COMPOSITE SHINGLE ROOFING SYSTEM (TYP)
9. PRE-FINISHED METAL SKYLIGHT (TYP)
10. PRECAST CONCRETE SPLASH BLOCK (TYP)
11. CAST STONE VENEER (TYP)
12. CONCRETE BOLLARD - SEE CIVIL DRAWINGS
13. FINISH GRADE - SEE CIVIL DRAWINGS
14. METAL FLASHING AT PIPE PENETRATIONS (TYP)
15. PROCESS PIPING - SEE PROCESS DRAWINGS (TYP)
16. EMERGENCY SHOWER - SEE PLUMING DRAWINGS
17. ROOF VENT - SEE PLUMBING DRAWINGS
18. LIGHT FIXTURE - SEE ELECTRICAL DRAWINGS (TYP)
19. WALL VENT - SEE HVAC DRAWINGS
20. CONCRETE STOOP - SEE CIVIL DRAWINGS
21. CONCRETE SIDEWALK - SEE CIVIL DRAWINGS

4' 2' 0' 4' 8'

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT PHILIP D. RISHEL No. C-37087 REN STATE OF CALIFORNIA

BLACK & VEATCH

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
BUILDING ELEVATIONS

DESIGNED: CA
DETAILED: ANH
CHECKED: PDR
APPROVED: -
DATE: JULY 2021

0 1/2 1
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PROJECT NO.
407941

A-07
SHEET
OF

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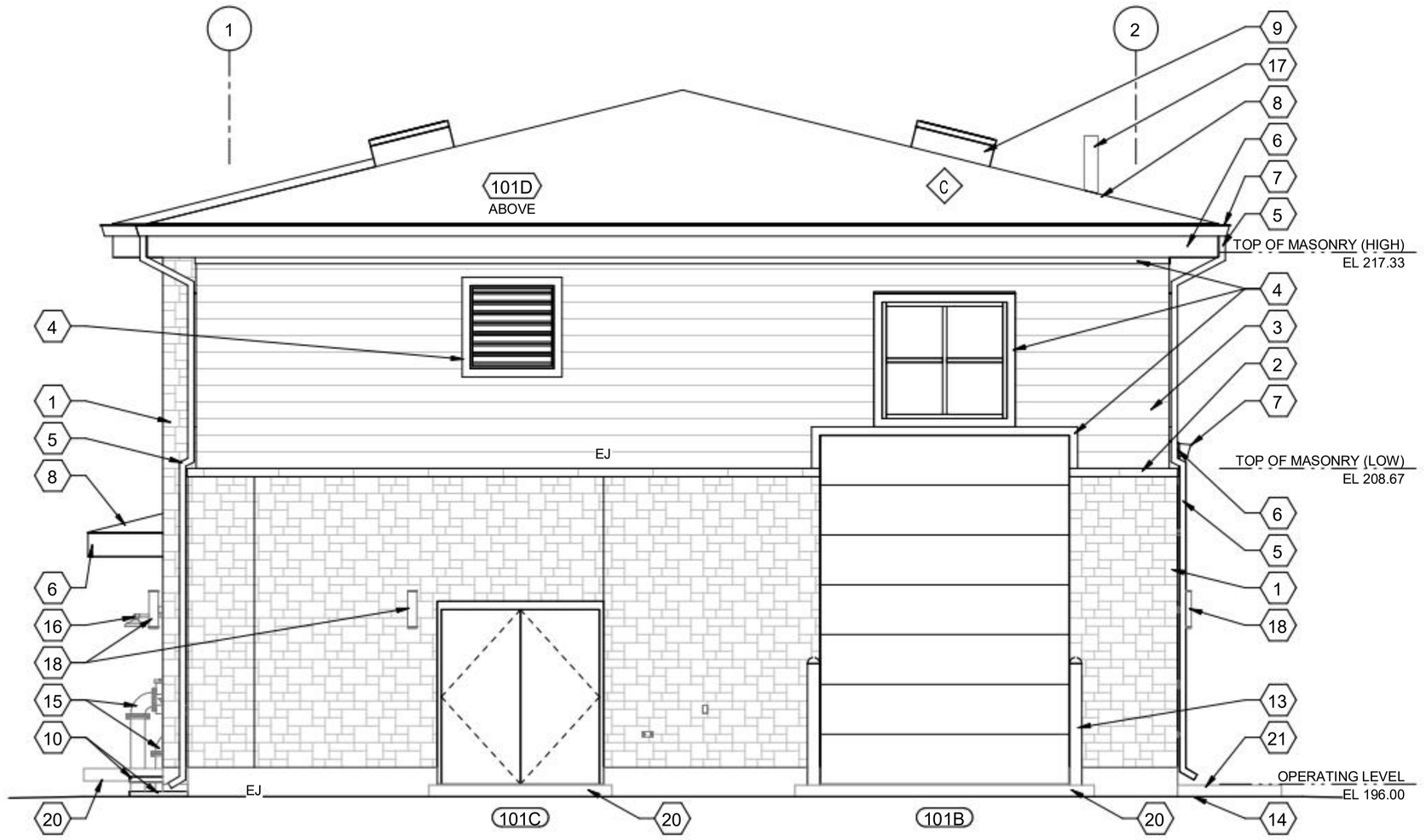

SOUTH ELEVATION

1/4" = 1'-0"

WEST ELEVATION

1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1. STONE VENEER (TYP)
2. CAST STONE BANDING (TYP)
3. FIBER CEMENT LAP SIDING (TYP)
4. FIBER CEMENT BOARD TRIM (TYP)
5. PRE-FINISHED METAL DOWNSPOUT (TYP)
6. PRE-FINISHED METAL FASCIA (TYP)
7. PRE-FINISHED METAL GUTTER (TYP)
8. COMPOSITE SHINGLE ROOFING SYSTEM (TYP)
9. PRE-FINISHED METAL SKYLIGHT (TYP)
10. PRECAST CONCRETE SPLASH BLOCK (TYP)
11. CAST STONE VENEER (TYP)
12. REMOVABLE WALL PANEL SYSTEM (x3)
13. CONCRETE BOLLARD - SEE CIVIL DRAWINGS
14. FINISH GRADE - SEE CIVIL DRAWINGS
15. PROCESS PIPING - SEE PROCESS DRAWINGS (TYP)
16. EMERGENCY SHOWER - SEE PLUMING DRAWINGS
17. ROOF VENT - SEE PLUMBING DRAWINGS
18. LIGHT FIXTURE - SEE ELECTRICAL DRAWINGS (TYP)
19. WALL VENT - SEE HVAC DRAWINGS
20. CONCRETE STOOP - SEE CIVIL DRAWINGS
21. CONCRETE SIDEWALK - SEE CIVIL DRAWINGS

4' 2' 0' 4' 8'

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT
PHILIP D. RISHELL
No. C-37087
REN
STATE OF CALIFORNIA

BLACK & VEATCH

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
BUILDING ELEVATIONS

DESIGNED: CA
DETAILED: ANH
CHECKED: PDR
APPROVED: -
DATE: JULY 2021

0 1/2 1
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PROJECT NO.
407941

A-08
SHEET
OF

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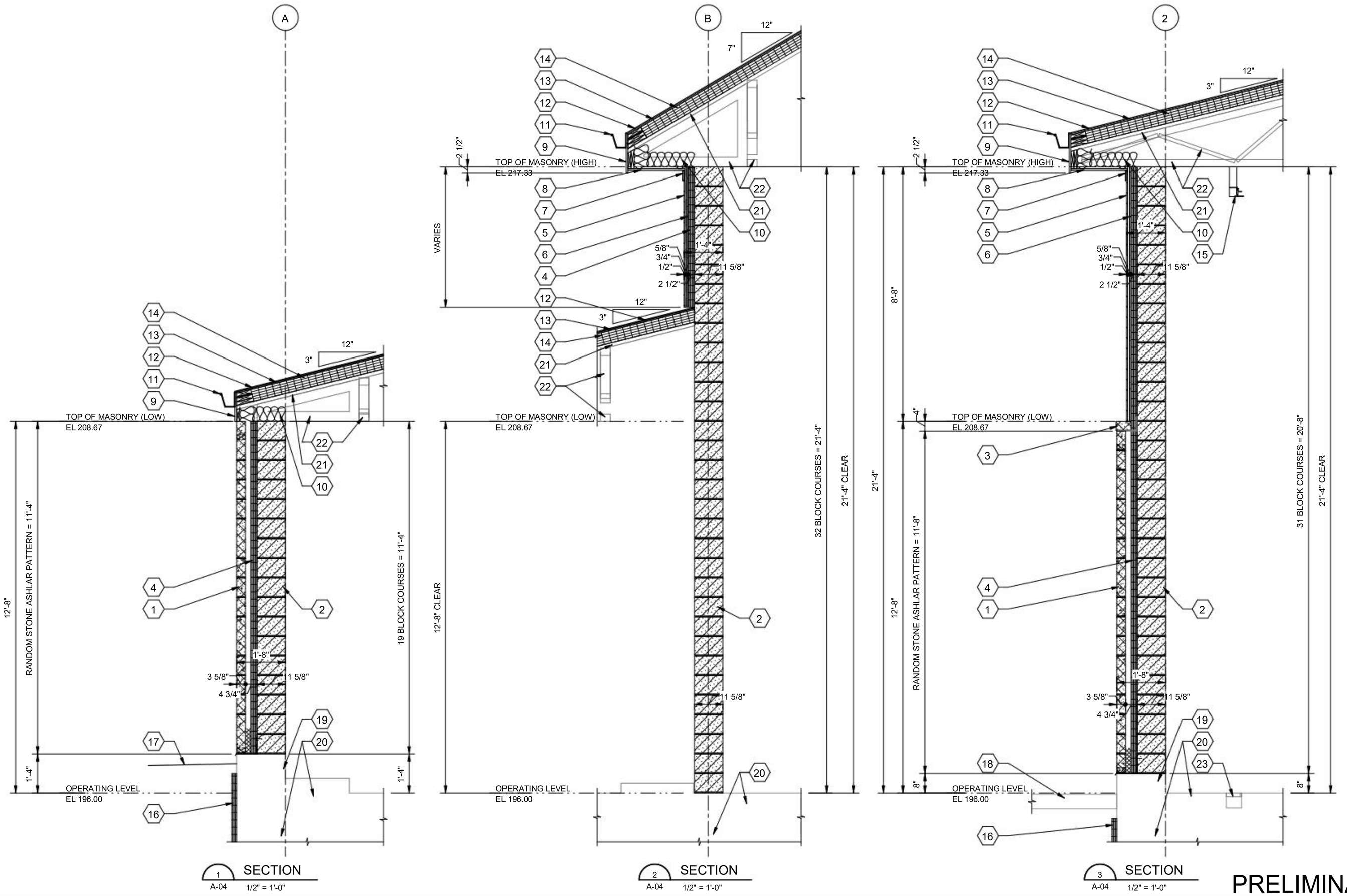

1 SECTION A-04 1/2" = 1'-0"

2 SECTION A-04 1/2" = 1'-0"

3 SECTION A-04 1/2" = 1'-0"

12' 6' 0' 1' 2' 3' 4' 5'

1/2" = 1'-0"

GENERAL SHEET NOTES

1. FOR VERTICAL REINFORCING AND BOND BEAMS IN MASONRY DESIGN, SEE STRUCTURAL DRAWINGS.
2. FOR HORIZONTAL JOINT REINFORCING, SEE SPECIFICATION SECTION 04200.

SHEET KEYNOTES

1. 4" STONE VENEER
2. 12" CONCRETE BLOCK
3. CAST STONE BANDING
4. 2 1/2" RIGID INSULATION (R-22)
5. 8" FIBER CEMENT BOARD LAP SIDING
6. 5/8" SHEATHING
7. FIBER CEMENT BOARD TRIM
8. PRE-FINISHED METAL SOFFIT
9. PRE-FINISHED METAL FASCIA
10. 6" BATT INSULATION (R-19)
11. PRE-FINISHED METAL GUTTER
12. COMPOSITE SHINGLE ROOFING SYSTEM
13. 1/2" COVERBOARD
14. 5" RIGID INSULATION (R-30)
15. OVERHEAD DOOR TRACK
16. 2" FOUNDATION INSULATION (R-10)
17. FINISH GRADE - SEE CIVIL DRAWINGS
18. CONCRETE SIDEWALK - SEE CIVIL DRAWINGS
19. CONCRETE CURB - SEE STRUCTURAL DRAWINGS
20. CONCRETE SLAB AND FOUNDATION - SEE STRUCTURAL DRAWINGS
21. METAL DECKING - SEE STRUCTURAL DRAWINGS
22. ROOF TRUSS - SEE STRUCTURAL DRAWINGS
23. TRENCH DRAIN - SEE PLUMBING AND STRUCTURAL DRAWINGS

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT PHILIP D. RISHEL No. C-37087 REN STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
WALL SECTIONS

DESIGNED: CA
DETAILED: ANH
CHECKED: PDR
APPROVED: -
DATE: JULY 2021

0 1/2 1

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PROJECT NO. 407941

A-09
SHEET OF

PRELIMINARY - NOT FOR CONSTRUCTION

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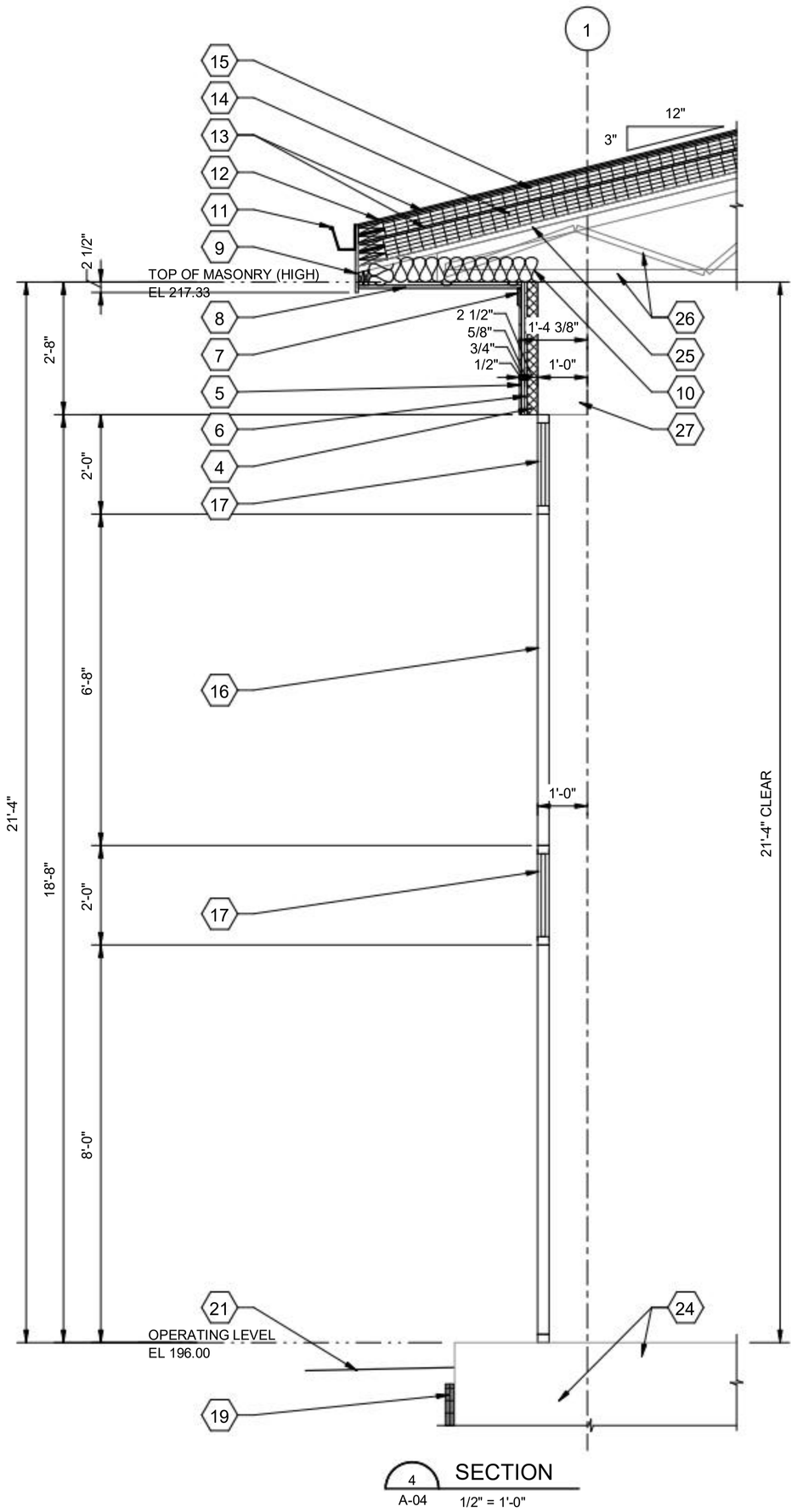
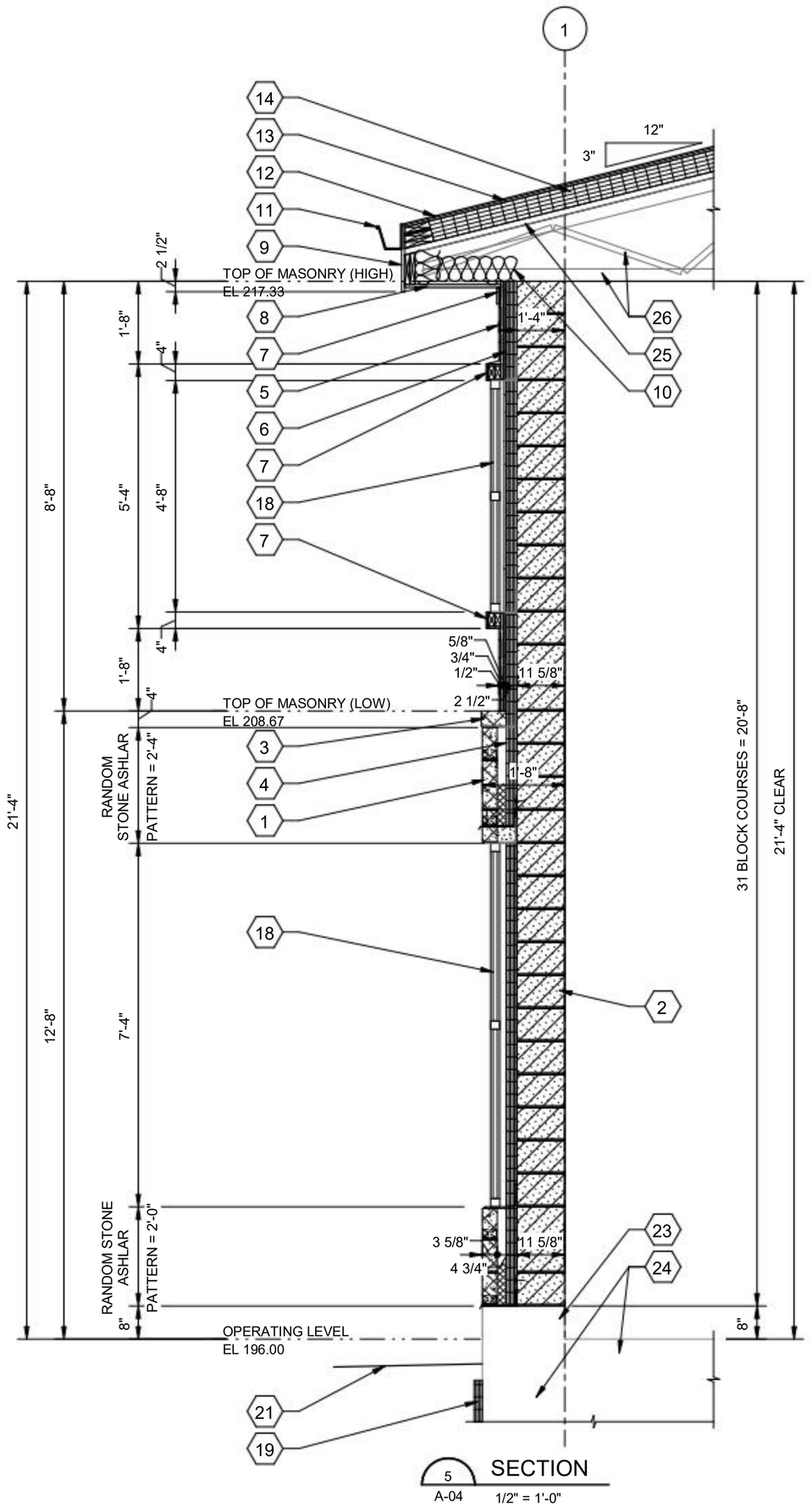
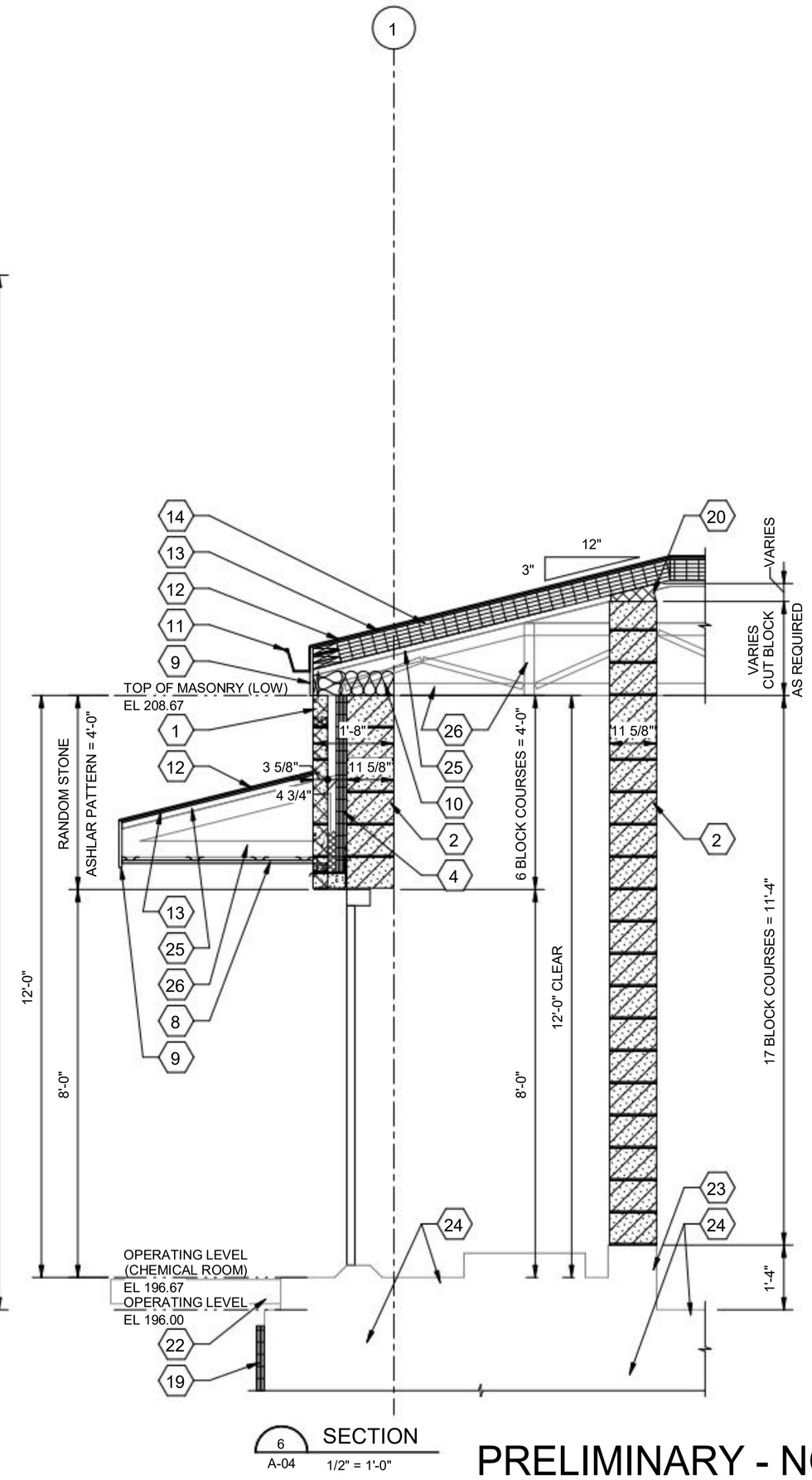


4 SECTION
A-04 1/2" = 1'-0"



5 SECTION
A-04 1/2" = 1'-0"



6 SECTION
A-04 1/2" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL SHEET NOTES

1. FOR VERTICAL REINFORCING AND BOND BEAMS IN MASONRY DESIGN, SEE STRUCTURAL DRAWINGS.
2. FOR HORIZONTAL JOINT REINFORCING, SEE SPECIFICATION SECTION 04200.

SHEET KEYNOTES

1. 4" STONE VENEER
2. 12" CONCRETE BLOCK
3. CAST STONE BANDING
4. 2 1/2" RIGID INSULATION (R-22)
5. 8" FIBER CEMENT BOARD LAP SIDING
6. 5/8" SHEATHING
7. FIBER CEMENT BOARD TRIM
8. PRE-FINISHED METAL SOFFIT
9. PRE-FINISHED METAL FASCIA
10. 6" BATT INSULATION (R-19)
11. PRE-FINISHED METAL GUTTER
12. COMPOSITE SHINGLE ROOFING SYSTEM
13. 1/2" COVERBOARD
14. 5" RIGID INSULATION (R-30)
15. RIGID INSULATION - AS REQUIRED
16. REMOVABLE WALL PANEL SYSTEM
17. FIXED WINDOW - INTEGRATED IN THE REMOVABLE WALL PANEL SYSTEM
18. WINDOW VENEER
19. 2" FOUNDATION INSULATION (R-10)
20. COMPRESSIBLE FILLER - AS REQUIRED
21. FINISH GRADE - SEE CIVIL DRAWINGS
22. CONCRETE STOOP - SEE CIVIL DRAWINGS
23. CONCRETE CURB - SEE STRUCTURAL DRAWINGS
24. CONCRETE SLAB AND FOUNDATION - SEE STRUCTURAL DRAWINGS
25. METAL DECKING - SEE STRUCTURAL DRAWINGS
26. ROOF TRUSS - SEE STRUCTURAL DRAWINGS
27. CONCRETE BEAM - SEE STRUCTURAL DRAWINGS

12' 6' 0' 1' 2' 3' 4' 5'
1/2" = 1'-0"

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

LICENSED ARCHITECT
PHILIP D. RISHEL
No. C-37087
REN: ____
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
WALL SECTIONS AND DETAILS

DESIGNED:	CA
DETAILED:	ANH
CHECKED:	PDR
APPROVED:	-
DATE:	JULY 2021

0 1/2 1
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PROJECT NO.
407941

A-10
SHEET
OF

PLOTTED: 7/16/2021 2:32:41 PM
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STRUCTURAL NOTES

GENERAL

1. THE APPLICABLE BUILDING CODE IS INDICATED ON THE LOADING CRITERIA DRAWING.
2. THE REQUIREMENTS INDICATED ON THIS SHEET ARE INTENDED AS A BASIC SUMMARY OF THE MATERIAL AND CONSTRUCTION REQUIREMENTS FOR THE PROJECT. ADDITIONAL, MORE STRINGENT REQUIREMENTS ARE GIVEN IN THE PROJECT DETAIL DRAWINGS AND SPECIFICATIONS.
3. ALL STRUCTURAL RELATED SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. STRUCTURES MAY BE BUOYANT WHEN EMPTY DURING CONSTRUCTION. CONTRACTOR SHALL PROTECT STRUCTURES AGAINST FLOTATION UNTIL CONSTRUCTION IS COMPLETE. .
5. STRUCTURES MAY BE UNSTABLE UNTIL THEY ARE CONSTRUCTED IN THIER ENTIRETY. CONTRACTOR IS RESPONSIBLE FOR DESIGNING TEMPORARY STRUCTURAL SUPPORTS TO RESIST WIND LOADS, CONSTRUCTION LOADS, AND ANY OTHER TEMPORARY CONDITIONS THAT MAY OCCUR DURING CONSTRUCTION, IN ORDER TO MAINTAIN STABILITY OF THE CONSTRUCTION WORK. ANCHORS FOR CONTRACTOR'S TEMPORARY SUPPORT SYSTEMS THAT ATTACH TO CONCRETE OR MASONRY SHALL BE LOCATED TO AVOID DAMAGING EMBEDDED REINFORCEMENT OR UTILITIES.

CAST-IN-PLACE CONCRETE

1. A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c) OF 4,000 PSI WAS UTILIZED IN THE DESIGN OF STRUCTURAL REINFORCED CONCRETE. SEE SPECIFICATIONS FOR CONSTRUCTION STRENGTH REQUIREMENTS.
2. THE LOCATION OF ALL CONSTRUCTION JOINTS AND OTHER TYPES OF JOINTS, OTHER THAN THOSE SPECIFIED OR SHOWN ON THE PLANS, SHALL BE ACCEPTABLE TO THE ENGINEER PRIOR TO PLACING CONCRETE.

REINFORCING STEEL

1. ALL REINFORCING BAR SHALL BE GRADE 60, DEFORMED, ASTM A615, UNLESS NOTED OTHERWISE.
2. DIMENSIONS TO REINFORCING BARS ARE TO BAR CENTERLINES, UNLESS NOTED OTHERWISE. BAR COVER IS THE CLEAR DISTANCE BETWEEN THE BAR AND THE CONCRETE SURFACE.
3. NO WELDING OF REINFORCING BARS SHALL BE PERMITTED UNLESS APPROVAL IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.
4. FOR CONCRETE SLABS THAT HAVE A SLOPING TOP FACE, THE TOP LAYERS OF REINFORCEMENT SHALL BE PLACED ON A SIMILAR SLOPE SO THAT SPECIFIED COVER IS MAINTAINED.

POST-INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL INCLUDE ADHESIVE ANCHORS (THREADED RODS, BOLTS OR REINFORCING BARS), EXPANSION ANCHORS, AND UNDERCUT ANCHORS INSTALLED INTO HARDENED CONCRETE OR MASONRY. SEE THE ANCHORAGE IN CONCRETE AND MASONRY SPECIFICATION SECTION FOR ADDITIONAL REQUIREMENTS.
2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE INDICATED ON THE DRAWINGS. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
3. CARE SHALL BE TAKEN TO AVOID CONFLICTS WITH EXISTING REINFORCING STEEL AND OTHER EMBEDDED ITEMS WHEN DRILLING HOLES. REINFORCING BARS SHALL NOT BE DAMAGED DURING DRILLING OR ANCHOR INSTALLATION. HOLES SHALL BE DRILLED AND CLEANED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS. ANCHORS SHALL BE INSTALLED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS AT NOT LESS THAN MINIMUM EDGE DISTANCES AND/OR SPACING INDICATED IN THE MANUFACTURER'S LITERATURE.
4. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED IN THE SPECIFICATION OR INDICATED ON THE DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL. PRODUCT ICC-ESR EVALUATION REPORTS SHALL BE INCLUDED WITH THE SUBMITTAL PACKAGE. IF REQUESTED, CALCULATIONS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER USING METHODS AND PROCEDURES REQUIRED BY THE BUILDING CODE MAY BE REQUIRED AS PART OF THE SUBMITTAL PACKAGE.
5. UNLESS NOTED OTHERWISE, THE MINIMUM EMBEDMENT PROVIDED FOR ADHESIVE ANCHORED REINFORCING BARS SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE BAR.
6. SPECIAL INSPECTION WILL BE PROVIDED FOR ALL POST-INSTALLED ANCHORS.

STAINLESS STEEL

1. STAINLESS STEEL BOLTS SHALL CONFORM TO ASTM F593, ALLOY GROUP 1 OR 2, UNLESS NOTED OTHERWISE. MINIMUM YIELD STRENGTH SHALL BE 45 KSI.
2. STAINLESS STEEL PLATES SHALL CONFORM TO ASTM A240, TYPE 316L.
3. STAINLESS STEEL STRUCTURAL SHAPES SHALL CONFORM TO ASTM A1069 OR ASTM A276, TYPE 316L.

ALUMINUM

1. UNLESS NOTED OTHERWISE, ALUMINUM ALLOY IN ALL ALUMINUM STRUCTURAL MATERIALS SHALL BE 6061-T6. PIPE AND TUBING FOR GUARDRAIL AND HANDRAIL SHALL BE ALLOY 6061-T6 OR 6005A-T61.
2. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS SHALL BE COATED OR COVERED WITH A HEAVY COAT OF BITUMINOUS PAINT TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION.

MASONRY

1. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90. THE TOTAL MASONRY ASSEMBLAGE SHALL HAVE A COMPRESSIVE STRENGTH EQUAL TO 2000 PSI AT 28 DAYS.
2. MASONRY MORTAR SHALL CONFORM TO ASTM C270, TYPE S.
3. ALL BOND BEAMS AND ANY BLOCK CELLS CONTAINING REINFORCING STEEL SHALL, ANCHORS OR OTHER EMBEDMENTS SHALL BE FILLED WITH GROUT MEETING THE REQUIREMENTS OF ASTM C476. WALLS SHALL BE FULLY GROUTED WHEN INDICATED ON THE DRAWINGS.
4. BOND BEAM REINF SHALL BE CONTINUOUS AT CORNERS, INTERSECTIONS AND CONTROL JOINTS.

STRUCTURAL STEEL

1. ROLLED WIDE FLANGE SHAPES SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI;
   CHANNELS, PLATES, AND ANGLES A MINIMUM OF 36 KSI;
   STRUCTURAL PIPES A MINIMUM OF 35 KSI;
   ROUND STRUCTURAL TUBES A MINIMUM OF 46 KSI;
   RECTANGULAR STRUCTURAL TUBES A MINIMUM OF 50 KSI.
2. WELDING SHALL BE DONE WITH A FILLER MATERIAL HAVING A MINIMUM TENSILE STRENGTH OF 70 KSI.
3. BOLTED CONNECTIONS SHALL USE 3/4" DIA ASTM F3125, GRADE A325 BOLTS OR GRADE F1852 TWIST-OFF BOLTS, WITH THE THREADS EXCLUDED FROM THE SHEAR PLANE, UNLESS NOTED OTHERWISE.
4. CARBON STEEL OR GALVANIZED STEEL ANCHOR RODS AND ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 36.
5. HOLES FOR ANCHOR RODS AND ANCHOR BOLTS IN COLUMN BASE PLATES USING ASTM F844 OR F436 FLAT CIRCULAR WASHERS SHALL BE AS FOLLOWS:

   BOLTS/RODS 3/4" TO 1" - 5/16" OVERSIZE
   BOLTS/RODS 1" TO 2" - 1/2" OVERSIZE
   BOLTS/RODS OVER 2" - 1" OVERSIZE

   AT THE CONTRACTORS OPTION, OVERSIZE HOLES LARGER THAN THOSE LISTED ABOVE MAY BE USED, PROVIDED THAT 3/8" PLATE WASHERS ARE USED WITH STANDARD HOLES AND FIELD WELDED WITH A 5/16" FILLET WELD TO THE BASE PLATE ALONG A MIN OF 3 SIDES.
6. STEEL LEGEND


INDICATES TWO BOLT ATTACHMENT OF HORIZONTAL BRACING TO UNDERSIDE OF BEAM. SHIM AS REQUIRED


INDICATES ANGLE OR PLATE TO BE WELDED ON THREE SIDES


INDICATES FOUR BOLT ATTACHMENT OF MONORAIL TO UNDERSIDE OF SUPPORT BEAM. SPACER OR STANDOFF DETAIL AS REQUIRED

INDICATES NONSTANDARD FRAMING CONNECTION

INDICATES HORIZONTAL OR VERTICAL BRACING CONNECTION DETAIL


INDICATES MOMENT CONNECTION

VERTICAL BRACING IS SHOWN ON PLAN THUS:


EXTENDING UP FROM THE ELEVATION INDICATED


EXTENDING DOWN FROM THE ELEVATION INDICATED

EXTENDING UP AND DOWN FROM THE ELEVATION INDICATED

EXCAVATION, BACKFILL, AND FOUNDATIONS

1. FOUNDATION CONSTRUCTION SHALL NOT BEGIN UNTIL ANY REQUIRED SPECIAL INSPECTION HAS BEEN COMPLETED AND THE CONTRACTOR NOTIFIED TO PROCEED.
2. TO FACILITATE SCHEDULING, AT LEAST 48 HOURS ADVANCE NOTICE SHALL BE GIVEN TO THE ENGINEER PRIOR TO THE REQUIRED INSPECTIONS.
3. UNLESS NOTED OTHERWISE, BACKFILL SHALL NOT BE PLACED AGAINST WALLS WHICH SUPPORT A CONCRETE SLAB OR WALKWAY UNTIL THE TOP SLAB OR WALKWAY HAS BEEN PLACED IN ITS ENTIRETY AND ALL CONCRETE HAS REACHED THE SPECIFIED DESIGN STRENGTH.
4. OVER-EXCAVATION OF SOIL, OR OVER-BREAKING OF ROCK, THAT WOULD RESULT IN A STRUCTURAL CONCRETE THICKNESS GREATER THAN INDICATED ON THE DRAWINGS SHALL BE CLASSIFIED AS UNAUTHORIZED EXCAVATION. CONTRACTOR SHALL SELECT ONE OF FOLLOWING METHODS TO ADDRESS UNAUTHORIZED EXCAVATION.
   - REPLACE UNAUTHORIZED EXCAVATION MATERIAL WITH LEAN CONCRETE THAT IS PLACED SEPARATELY FROM THE STRUCTURAL CONCRETE INDICATED ON THE DRAWINGS. CONTRACTOR WILL RECEIVE NO ADDITIONAL PAYMENT FOR THE LEAN CONCRETE.
   - REPLACE UNAUTHORIZED EXCAVATION MATERIAL WITH STRUCTURAL CONCRETE THAT IS PLACED MONOLITHICALLY WITH THE STRUCTURAL CONCRETE INDICATED ON THE DRAWINGS, CREATING AN ENLARGED SECTION. CONTRACTOR SHALL NOTIFY ENGINEER FOR DIRECTION PRIOR TO PERFORMING THIS WORK. THE INCREASED CONCRETE THICKNESS MAY REQUIRE ADDITIONAL REINFORCEMENT AND/OR OTHER DESIGN MODIFICATIONS. IF THE INCREASED CONCRETE THICKNESS EXCEEDS 36 INCHES, ENGINEER MAY REQUIRE CONTRACTOR TO IMPLEMENT MASS CONCRETE HEAT MITIGATION PROCEDURES. CONTRACTOR WILL RECEIVE NO ADDITIONAL PAYMENT FOR EXTRA STRUCTURAL CONCRETE, ADDITIONAL REINFORCEMENT, OTHER DESIGN MODIFICATIONS, OR MASS CONCRETING PROCEDURES.
   - ANY OTHER METHOD OF FILL AS APPROVED BY THE GEOTECHNICAL ENGINEER.
5. THE FOLLOWING NET ALLOWABLE BEARING PRESSURES WERE UTILIZED IN THE DESIGN OF THE FOUNDATIONS.

   MAT FOOTINGS.....2200 PSF

EXISTING STRUCTURES

1. THE DRAWINGS DEPICT WORK AT EXISTING STRUCTURES. ALL DIMENSIONS AND ALL DEPICTIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS, STARTING FABRICATION, OR STARTING CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, REPAIRS OR STRUCTURAL MODIFICATIONS THAT ARE REQUIRED DUE TO DEMOLITION BEYOND THE LIMITS IDENTIFIED IN THE DRAWINGS.
3. REINFORCEMENT FOR ANY EXISTING CONCRETE OR MASONRY ELEMENT SHALL NOT BE DAMAGED UNLESS THE ELEMENT IS TO BE DEMOLISHED. WHEN LOCATING EXISTING REINFORCEMENT IS REQUIRED, IT SHALL BE LOCATED USING NON-DESTRUCTIVE METHODS. REINFORCING STRANDS IN EXISTING PRESTRESSED CONCRETE SHALL NOT BE CUT UNLESS INDICATED ON THE DRAWINGS OR OTHERWISE AUTHORIZED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, REPAIRS OR STRUCTURAL MODIFICATIONS THAT ARE REQUIRED DUE TO DAMAGE OF CONCRETE, MASONRY OR REINFORCEMENT THAT HAS BEEN IDENTIFIED ON THE DRAWINGS TO REQUIRE FIELD VERIFICATION.
4. CORE DRILLING AND SAW CUTTING SHALL NOT BE PERFORMED UNLESS INDICATED ON THE DRAWINGS OR APPROVED BY ENGINEER.
5. EXPOSED CONCRETE SURFACES THAT REMAIN AFTER DEMOLITION SHALL BE REPAIRED TO MATCH ADJACENT CONCRETE SURFACES.
6. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, EXPOSED CONCRETE SURFACES WITH REINFORCEMENT, ANCHOR BOLTS, HANGER RODS, OR OTHER EXPOSED METAL EMBEDMENTS SHALL BE REPAIRED BY CUTTING OFF THE METAL AT THE FACE OF THE CONCRETE, GRINDING SMOOTH, AND COATING. COATING SHALL EXTEND A MINIMUM OF 1" BEYOND THE EDGE OF ANY EXPOSED METAL.

SPECIAL INSPECTIONS

1. CODE REQUIRED SPECIAL INSPECTIONS AND TESTS WILL BE CONDUCTED BY APPROVED AGENCIES EMPLOYED BY THE OWNER IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE.
2. THE STATEMENT OF SPECIAL INSPECTIONS WILL BE PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE DURING CONSTRUCTION.
3. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND OR SEISMIC FORCE RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND OR SEISMIC RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT.
4. SEE THE QUALITY CONTROL SECTION AND THE CODE REQUIRED SPECIAL INSPECTIONS AND PROCEDURES SECTION OF THE SPECIFICATIONS FOR FURTHER CLARIFICATION OF RESPONSIBILITIES.

DELEGATED DESIGN

1. THE FOLLOWING ITEMS ARE IDENTIFIED IN THE DRAWINGS AND SPECIFICATIONS AS BEING DESIGNED AND SEALED BY OTHERS. SUBMITTALS FOR THESE ITEMS SHALL BE PREPARED BY THE SUPPLIERS AND SUBMITTED TO ENGINEER AND CODE OFFICIAL FOR REVIEW.

   SECTION 016700 – EQUIPMENT AND NON-STRUCTURAL COMPONENTS.
   SECTION 058100 – EQUIPMENT ANCHORAGE.
   SECTION 052200 – COLD FORMED METAL ROOF TRUSSES

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
GUHA KARAREN SUBRAMANIAN
No. C66299
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
STRUCTURAL
STRUCTURAL NOTES

DESIGNED: GSS
DETAILED: SMH
CHECKED: RJR
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

S-01
SHEET
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STRUCTURAL ABBREVIATIONS

A

ADDL	ADDITIONAL
AFF	ABOVE FINISH FLOOR
AHR	ANCHOR
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
AROD	ANCHOR ROD
ASSY	ASSEMBLY
AWG	AMERICAN WIRE GAUGE

B

BLDG	BUILDING
BM	BENCHMARK, BEAM
BO	BOTTOM OF
BOT	BOTTOM
BRDG	BRIDGING
BRG	BEARING
BTWN	BETWEEN

C

C	CAMBER
CANTIL	CANTILEVER
CHKD	CHECKERED
CHKDPL	CHECKERED PLATE
CIP	CAST-IN-PLACE
CJ	CONTRACTION JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS,CONTINUATION, CONTROL
COORD	COORDINATE
COV	COVER
CRNR	CORNER
CSJ	CONSTRUCTION JOINT
CTRD	CENTERED
CTRS	CENTERS

D

db	BAR DIAMETER
DBA	DEFORMED BAR ANCHOR
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
DWA	DEFORMED WIRE ANCHOR
DWG(S)	DRAWING, DRAWINGS
DWL(S)	DOWEL, DOWELS

E

E	EAST
EA	EACH
EE	EACH END
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
EMBED	EMBEDMENT
EMER	EMERGENCY
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR

F

FAB	FABRICATE
f'c	28 DAY CONCRETE STRENGTH =
FD	FLOOR DRAIN
FDN	FOUNDATION
FIN	FINISH(ED)
FLR	FLOOR
FS	FAR SIDE
FT	FOOT
FTG	FOOTING
FUT	FUTURE
FV	FIELD VERIFY
Fy	STRUCTURAL STEEL YIELD STRENGTH =
fy	REINFORCING STEEL YIELD STRENGTH =

G

GA	GAUGE
GALV	GALVANIZED
GEN	GENERAL
GR	GRADE

H

H	HORIZONTAL REACTION
HC	HOLLOW CORE
HCA	HEADED CONCRETE ANCHOR
HEX	HEXAGONAL
HGR	HANGER
HORIZ	HORIZONTAL
HP	HIGH POINT
HSS	HOLLOW STRUCTURAL SECTION

I

ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCHES
INT	INTERIOR, INTERNAL
INV	INVERT

J

JT	JOINT

K

K	KIPS (1000 LBS)
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH

L

L	LENGTH, ANGLE
LAB	LABORATORY
LB(S)	POUND, POUNDS
ld	DEVELOPMENT LENGTH
LE	LEFT END
LIN	LINES
LLBB	LONG LEG BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LP	LOW POINT
LSH	LONG SIDE HORIZONTAL
LSHP	LONG SLOTTED HOLE PARALLEL
LSLT	LONG SLOTTED HOLE TRANSVERSE
LSV	LONG SIDE VERTICAL
LWC	LIGHTWEIGHT CONCRETE

M

M	MOMENT
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MC	MOMENT CONNECTION, MECHANICAL COUPLING
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURE(R)
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL

N

N	NORTH
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO.	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE

O

OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPER	OPERATING
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OVS	OVERSIZED HOLE
OZ	OUNCE

P

P	AXIAL LOAD
PAF	POWDER ACTUATED FASTENER
PAR	PARALLEL
PCC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PEMB	PRE-ENGINEERED METAL BUILDING
PERP	PERPENDICULAR
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PLCS	PLACES
PLF	POUNDS PER LINEAR FOOT
PR	PAIR
PRELIM	PRELIMINARY
PROJ	PROJECTION
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POST TENSIONED

Q

QTY	QUANTITY

R

R	RADIUS, RISER, REMAINDER
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RECT	RECTANGULAR
REF	REFERENCE
REINF	REINFORCEMENT
REQD	REQUIRED
REV	REVISION
RO	ROUGH OPENING

S

S	SOUTH
SC	SLIP CRITICAL, SHEAR CONNECTOR
SCHED	SCHEDULE
SECT	SECTION
SH	SHEET
SIM	SIMILAR
SJ	SAW JOINT
SLBB	SHORT LEG BACK TO BACK
SPA	SPACING
SPEC	SPECIFICATION
SPRT	SUPPORT
SQ	SQUARE
SS	STAINLESS STEEL
SSHP	SHORT SLOTTED HOLE PARALLEL
SSHT	SHORT SLOTTED HOLE TRANSVERSE
STD	STANDARD
STIF	STIFFENER
STIR	STIRRUP
STL	STEEL
STR	STRUCTURE, STRUCTURAL
SYM	SYMMETRICAL

T

T	TREAD, SCHEDULED PLATE THICKNESS, TOP
T&B	TOP & BOTTOM
TAN	TANGENT
TEMP	TEMPERATURE
THD	THREADED
THK	THICK, THICKNESS
TO	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL

U

UNO	UNLESS NOTED OTHERWISE
USGS	UNITED STATES GEOLOGICAL SURVEY

V

VERT	VERTICAL
VNR	VENEER

W

W	WEST
W/	WITH
W/O	WITHOUT
WF	WIDE FLANGE
WP	WORK POINT
WT	WEIGHT
WWR	WELDED WIRE REINFORCEMENT

X

x	BY, TIMES
XS	EXTRA STRONG
XXS	DOUBLE EXTRA STRONG

Y

NOT USED

Z

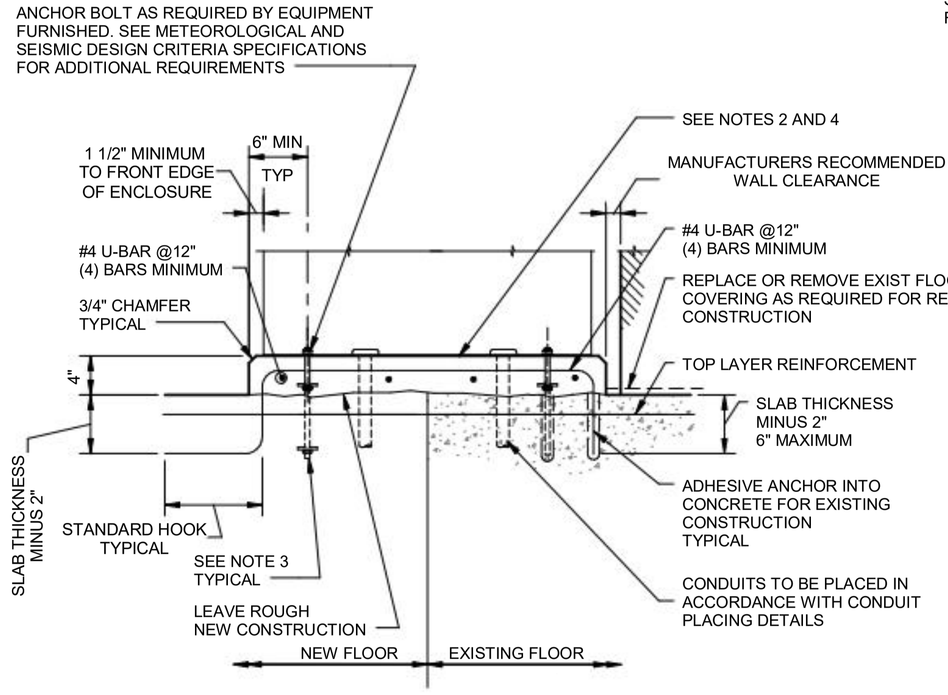
NOT USED

SPECIAL CHARACTERS

@	AT
&	AND
ø	DIAMETER
#	NUMBER
%	PERCENT

NOTES

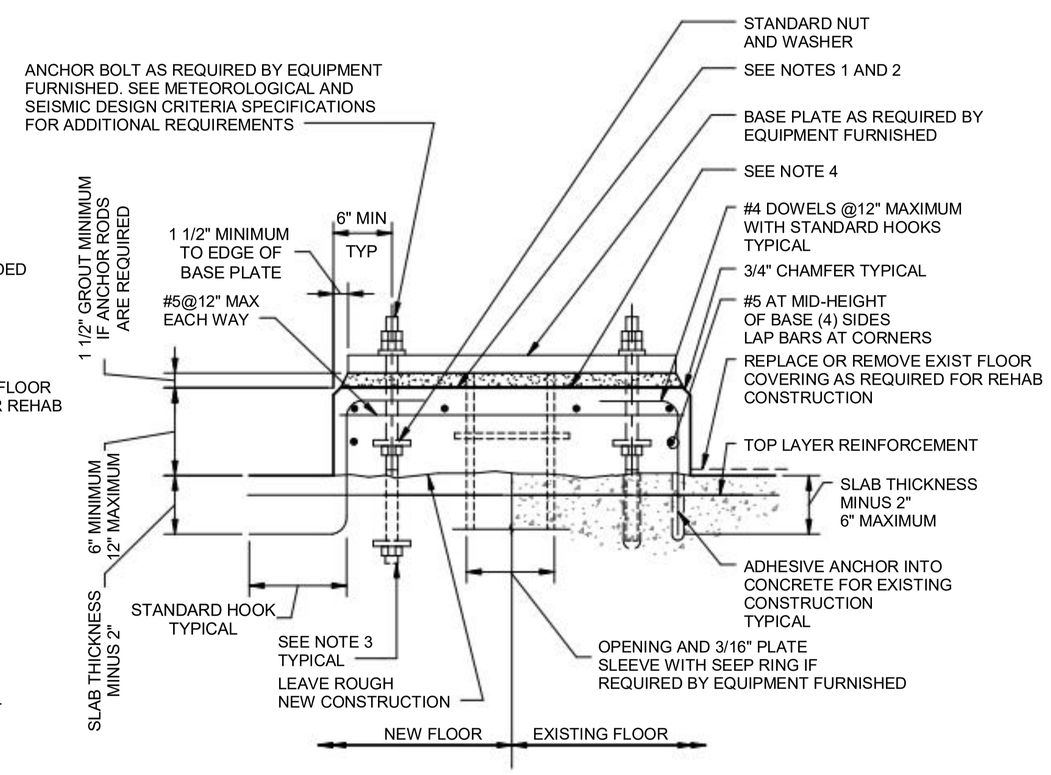
1. DETAILS ON THIS DRAWING APPLY TO ALL DRAWINGS UNLESS OTHERWISE NOTED.



NOTES:

1. UNLESS OTHERWISE NOTED, ALL INDOOR FLOOR MOUNTED ELECTRICAL EQUIPMENT, INCLUDING SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS, ADJUSTABLE FREQUENCY DRIVES, INSTRUMENT CABINETS, ECT., SHALL BE PROVIDED WITH EQUIPMENT BASES.
2. CONTRACTOR AND SUPPLIER SHALL COORDINATE FINAL LOCATION AND SIZE OF PADS WITH EQUIPMENT FURNISHED. COORDINATE ANCHOR BOLT REQUIREMENTS FOR REQUIRED EMBEDMENT DEPTHS AND CONCRETE EDGE DISTANCES.
3. WHERE THE DESIGN ANCHOR BOLT EMBEDMENT IS GREATER THAN THE CONCRETE EQUIPMENT BASE THICKNESS, THEN THE REQUIRED DEPTH OF EMBEDMENT SHALL BE MEASURED FROM THE TOP OF STRUCTURAL SLAB AND NOT THE TOP OF THE EQUIPMENT BASE.
4. EQUIPMENT BASE SHALL USE STRUCTURAL CONCRETE AS INDICATED IN THE CAST-IN-PLACE CONCRETE SPECIFICATION.
5. ANCHOR BOLTS AND REINFORCING WILL BE INSPECTED IN ACCORDANCE WITH THE LATEST CALIFORNIA BUILDING CODE.

1 ELECTRICAL EQUIPMENT BASE
1" = 1'-0"



NOTES:

1. EQUIPMENT MANUFACTURER TO INDICATE REQUIRED FLATNESS WHERE NO GROUT IS SPECIFIED. TOLERANCES SHALL BE IN CONFORMANCE WITH ACI 117 - SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION.
2. CONTRACTOR AND SUPPLIER SHALL COORDINATE FINAL LOCATION AND SIZE OF PADS WITH EQUIPMENT FURNISHED. COORDINATE ANCHOR BOLT REQUIREMENTS FOR REQUIRED EMBEDMENT DEPTHS AND CONCRETE EDGE DISTANCES.
3. WHERE THE DESIGN ANCHOR BOLT EMBEDMENT IS GREATER THAN THE CONCRETE EQUIPMENT BASE THICKNESS, THEN THE REQUIRED DEPTH OF EMBEDMENT SHALL BE MEASURED FROM THE TOP OF STRUCTURAL SLAB AND NOT THE TOP OF THE EQUIPMENT BASE.
4. EQUIPMENT BASE SHALL USE STRUCTURAL CONCRETE AS INDICATED IN THE CAST-IN-PLACE CONCRETE SPECIFICATION.
5. ANCHOR BOLTS AND REINFORCING WILL BE INSPECTED IN ACCORDANCE WITH THE LATEST CALIFORNIA BUILDING CODE.

2 EQUIPMENT BASE DETAIL
1" = 1'-0"

LENGTH OF LAPPED SPLICES FOR REINFORCEMENT (INCHES)

UNLESS NOTED OTHERWISE ON THE DRAWINGS

BAR SIZE *	BEAMS & COLUMNS		WALLS & SLABS		BAR SIZE *
	**TOP BARS	OTHERS	**TOP BARS	OTHERS	
#3	16	16	16	16	#3
#4	19	16	19	16	#4
#5	24	18	24	18	#5
#6	33	26	29	22	#6
#7	55	42	48	37	#7
#8	69	53	60	46	#8
#9	84	65	74	57	#9
#10	103	79	91	70	#10
#11	122	94	108	83	#11

* LAP SPLICE LENGTH FOR BARS OF DIFFERENT SIZES SHALL BE THE GREATER OF THE SMALL BAR LAP LENGTH OR 0.75x THE LARGER BAR LAP LENGTH.

** TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR. HORIZONTAL BARS IN WALLS ARE TO BE PROVIDED WITH LAP LENGTHS AS REQUIRED FOR TOP BARS. VERTICAL BARS MAY BE CONSIDERED AS OTHER BARS.

CONCRETE COVER FOR REINFORCEMENT

UNLESS NOTED OTHERWISE ON THE DRAWINGS

LOCATION	SPECIFIED COVER
UNFORMED SURFACES ADJACENT TO EXCAVATION	3"
FORMED SURFACES THAT ARE SUBMERGED, AND FORMED OR TOP SURFACES EXPOSED TO WEATHER, SATURATED AIR, OR EARTH	2"
OTHER LOCATIONS:	
BEAMS AND GIRDERS	1 1/2"
SLABS, WALLS AND JOISTS: #6 AND LARGER	1 1/2"
#5 AND SMALLER	1"

NOTES:

1. COVER IS MEASURED TO NEAREST BAR, STIRRUP, TIE, OR SPIRAL, AS APPLICABLE.
2. TOLERANCES FOR CONCRETE COVER AND THE FABRICATION AND PLACING OF REINFORCEMENT SHALL CONFORM TO ACI 117.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
GUNA KEKAREN SUBRAMANIAN
No. C66299
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT
TREATMENT BUILDING
STRUCTURAL
STANDARD CONCRETE DETAILS AND STRUCTURAL ABBREVIATIONS

DESIGNED: GSS
DETAILED: SMH
CHECKED: RJR
APPROVED:
DATE: JULY 2021

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

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BASIC LOADING CRITERIA

THE APPLICABLE BUILDING CODE IS THE 2019 CALIFORNIA BUILDING CODE (CBC).

1. DEAD LOAD ..... CALCULATED

2. LIVE LOADS:
   - OPERATING AND PROCESS FLOORS..... 250 PSF
   - ELECTRICAL AND CONTROL ROOM FLOORS..... 300 PSF
   - CHEMICAL STORAGE ROOMS..... 300 PSF
   - ROOF..... 20 PSF(UNREDUCED)

3. SEISMIC LOAD:
   - MAPPED MCE SHORT PERIOD SPECTRAL RESPONSE ACCELERATION (S_S)..... 2.058g
   - MAPPED MCE ONE SECOND PERIOD SPECTRAL RESPONSE ACCELERATION (S_1)..... 0.788g
   - DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (S_{DS})..... 1.372g
   - DESIGN SPECTRAL RESPONSE ACCELERATION AT ONE SECOND PERIOD (S_{D1})..... 0.893g
   - SITE CLASS..... D

4. WIND LOAD:
   - 3 SECOND GUST WIND SPEED..... 99 MPH
   - GROUND ELEVATION FACTOR (K_e)..... 1.0
   - EXPOSURE..... C

TREATMENT BUILDING

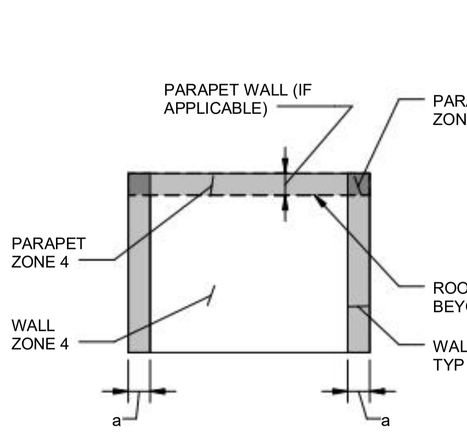
INTERNAL PRESSURE COEFFICIENT	±0.55
DIMENSION "a" FOR WALLS	3 FT
DIMENSION "h" FOR ROOF	6 FT
ROOF TYPE	4

COMPONENT AND CLADDING WIND PRESSURES, PSF

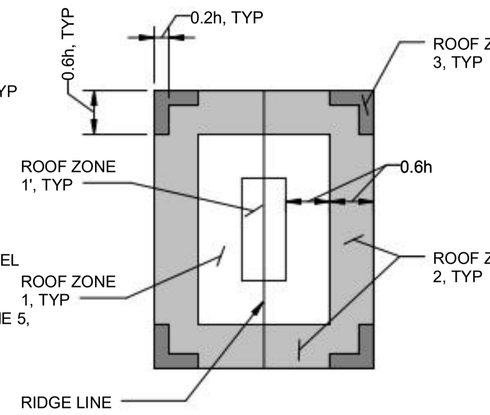
EFFECTIVE WIND AREA (SQ FT)	0 TO 2	4	10	20	50	100	150	200	250	300	500	1000+
ROOF NEG PRESSURE, ZONES 1, 2e	-62.0	-62.0	-62.0	-62.0	-50.4	-41.7	-41.7	-41.7	-41.7	-41.7	-41.7	-41.7
ROOF NEG PRESSURE, ZONES 2n, 2r	-82.3	-82.3	-82.3	-75.8	-67.1	-60.5	-56.7	-53.9	-51.8	-51.8	-51.8	-51.8
ROOF NEG PRESSURE, ZONE 3e	-94.5	-94.5	-94.5	-83.1	-68.1	-56.7	-50.1	-45.3	-41.7	-41.7	-41.7	-41.7
ROOF NEG PRESSURE, ZONE 3r	-106.7	-106.7	-106.7	-92.0	-72.6	-57.9	-57.9	-57.9	-57.9	-57.9	-57.9	-57.9
EFFECTIVE WIND AREA (SQ FT)	1 TO 10	20	30	50	75	100	150	200	400	500+	-	-
NEG PRESSURE, WALL ZONE 4	-33.5	-32.5	-31.8	-31.0	-30.4	-29.9	-29.3	-28.9	-27.8	-27.4	-	-
NEG PRESSURE, WALL ZONES 5	-39.6	-37.5	-36.2	-34.6	-33.4	-32.5	-31.2	-30.3	-28.1	-27.4	-	-
POSITIVE PRESSURE, WALL ZONES 4, 5	31.5	30.4	29.8	29.0	28.4	27.9	27.3	26.8	25.8	25.4	-	-

NOTES:

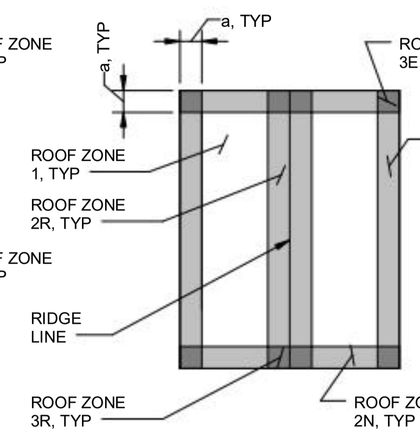
1. POSITIVE PRESSURES ACT TOWARDS THE SURFACE. NEGATIVE PRESSURES ACT AWAY FROM THE SURFACE.
2. LINEARLY INTERPOLATE PRESSURES FOR EFFECTIVE WIND AREAS BETWEEN THOSE SCHEDULED OR USE PRESSURES FOR THE SMALLER EFFECTIVE WIND AREA.
3. ALL ROOF OVERHANG PRESSURES ACT UPWARD.
4. SOFFITS BELOW ROOF OVERHANGS ARE DESIGNED FOR THE PRESSURE ON THE WALL BELOW THE SOFFIT.
5. PARAPET PRESSURES ARE THE TOTAL OF THE WINDWARD AND LEEWARD PARAPET FACE VALUES.



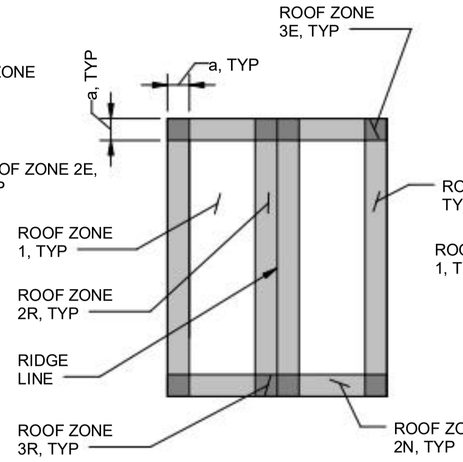
WALL ELEVATION



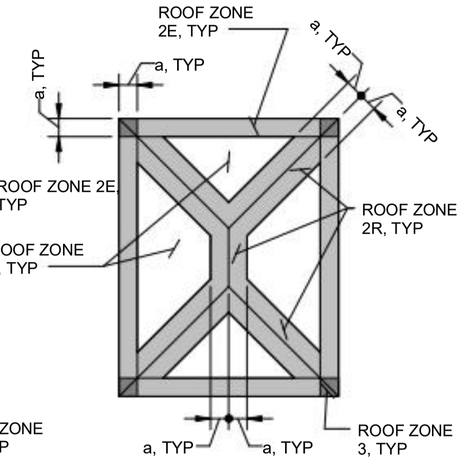
ROOF PLAN
TYPE 1 ROOF
(FLAT OR GABLE ≤7°)



ROOF PLAN
TYPE 2 ROOF
(GABLE 7°-27°)



ROOF PLAN
TYPE 3 ROOF
(GABLE 27°-45°)



ROOF PLAN
TYPE 4 ROOF
(HIP 7°-45°)

WIND ZONE DIAGRAMS

COMPONENTS AND CLADDING WIND LOAD CRITERIA FOR BUILDINGS

NO SCALE

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
GUIA KEKAREN SUBRAMANIAN
No. C66299
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
STRUCTURAL
STRUCTURAL LOADING CRITERIA

DESIGNED: GSS
DETAILED: SMH
CHECKED: RJR
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

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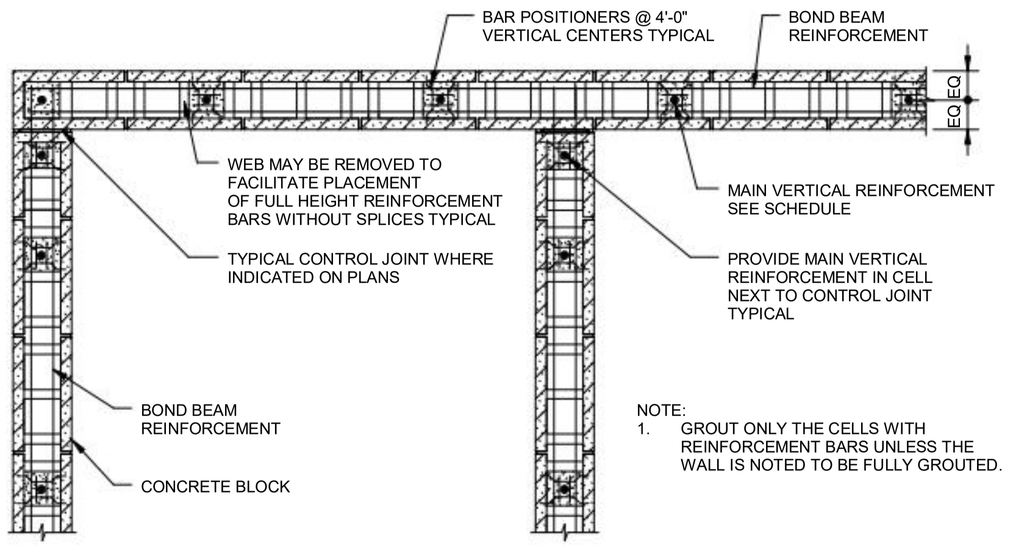
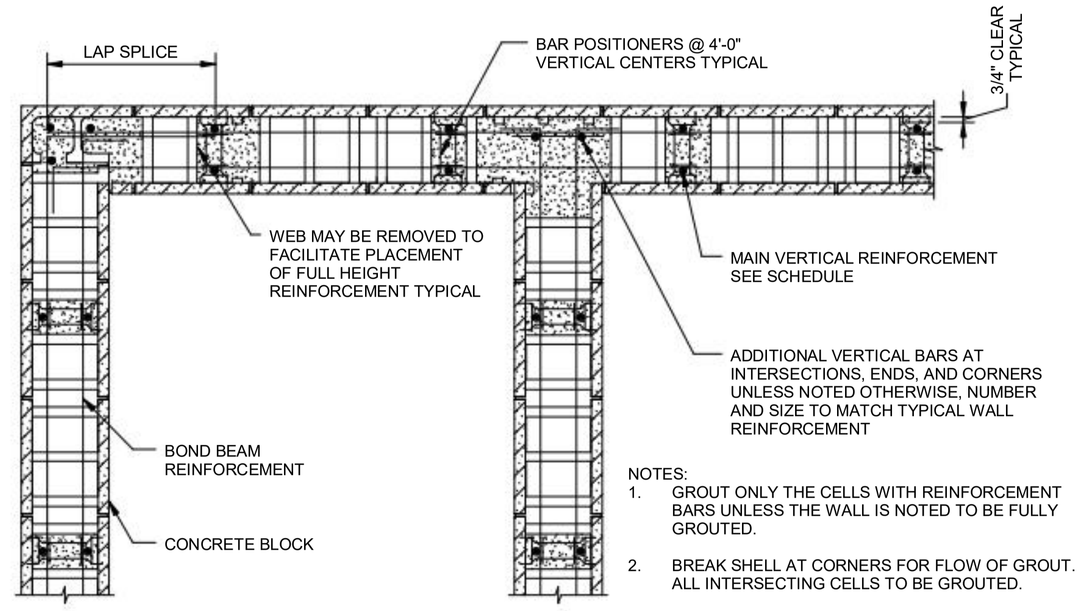


TYPICAL REINFORCEMENT WITH CORNER CONTROL JOINTS

SINGLE CURTAIN VERTICAL REINFORCEMENT SHOWN.
DOUBLE CURTAIN SIMILAR EXCEPT BARS POSITIONED EACH FACE, SEE ADJACENT DETAIL.



TYPICAL REINFORCEMENT WITHOUT CORNER CONTROL JOINTS

DOUBLE CURTAIN VERTICAL REINFORCEMENT SHOWN.
SINGLE CURTAIN SIMILAR EXCEPT BARS CENTERED IN WALL, SEE ADJACENT DETAIL.

TYPICAL MASONRY REINFORCEMENT PLANS

3/4" = 1'-0"

CMU WALL AND MAIN REINFORCEMENT SCHEDULE

BUILDING	WALL	BLOCK THICKNESS	GROUTING (NOTE 1)	MAIN VERTICAL REINFORCEMENT			MAIN HORIZONTAL REINFORCEMENT	WALL CONTROL JOINTS
				BARS PER REINFORCED CELL (NOTE 2)	BAR SIZE	MAX SPACING OF VERTICAL REINFORCEMENT		
TREATMENT BUILDING	NORTH	12"	F	1	#6	16"	#5@32"	NOT REQUIRED
	SOUTH	12"	F	1	#6	16"		
	EAST	12"	F	1	#6	16"		
	WEST	12"	F	1	#6	16"		
	INTERIOR	12"	R	1	#6	16"		

NOTES:
1. "F" INDICATES A FULLY GROUTED WALL, "R" INDICATES TO GROUT ONLY THE REINFORCED CELLS.
2. "1" INDICATES A SINGLE BAR CENTERED IN WALL, "2" INDICATES DOUBLE CURTAIN REINFORCEMENT, WITH ONE BAR EACH FACE OF CELL.
3. SEE THE OTHER STRUCTURAL DRAWINGS FOR ADDITIONAL REINFORCEMENT DETAILS AT CONNECTIONS, TOPS OF WALLS, JAMBS, LINTELS, ETC.
4. CMU = CONCRETE MASONRY UNIT

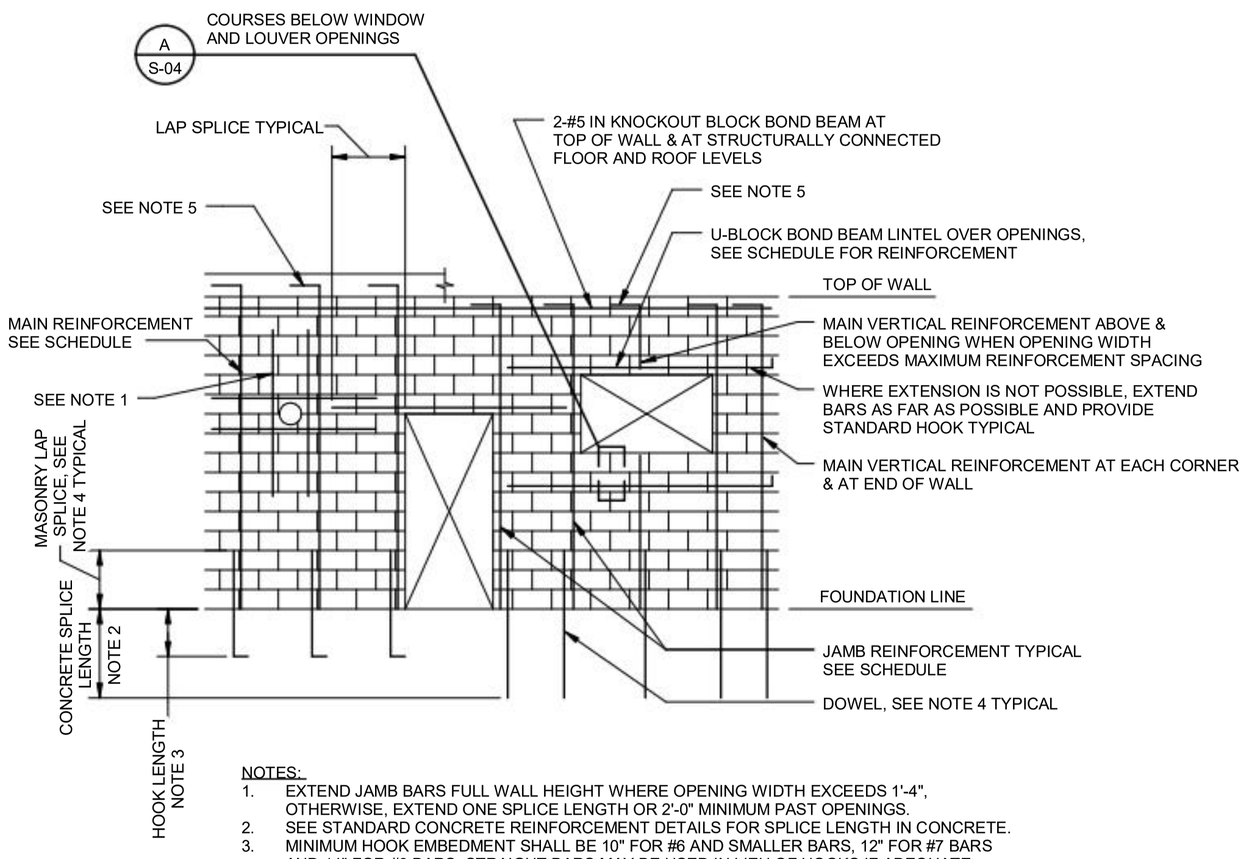
LENGTH OF LAP SPLICES FOR REINFORCEMENT (INCHES)

BAR SIZE	8" CONCRETE MASONRY UNIT		12" CONCRETE MASONRY UNIT	
	SINGLE REINFORCEMENT	DOUBLE REINFORCEMENT	SINGLE REINFORCEMENT	DOUBLE REINFORCEMENT
4	21	26	21	22
5	26	41	26	34
6	47	(85)	43	(71)
7	64	(120)	50	(99)
8	(92)	(173)	61	(142)

1. NON-CONTACT LAP SPLICES SHALL NOT BE USED.
2. ( ) BRACKETED SPLICE LENGTHS NOT RECOMMENDED. USE MECHANICAL CONNECTORS OR A FULL HEIGHT REINFORCEMENT BAR.

GENERAL NOTES

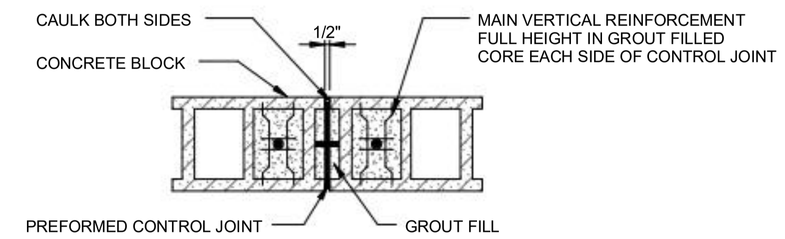
1. THE DETAILS ON THIS SHEET ARE APPLICABLE TO ALL CONCRETE MASONRY CONSTRUCTION.SPECIAL NOTES, SECTIONS AND DETAILS SPECIFICALLY NOTED ON THE DESIGN DRAWINGS SHALL BE APPLICABLE IN LIEU OF THESE TYPICAL DETAILS.
2. FOR MISCELLANEOUS APPURTENANCES INCLUDING EMBEDMENTS, BRACING, STEEL OR PRECAST LINTELS, VENEER, FLASHING, WEEPS, INSULATION, SEALING, CAULKING AND EMBEDDED PIPE AND ELECTRICAL CONDUIT, SEE THE DESIGN DRAWINGS.
3. WORK THIS DRAWING WITH THE STANDARD CONCRETE MASONRY LINTEL & JAMB REINFORCEMENT DETAILS DRAWING.



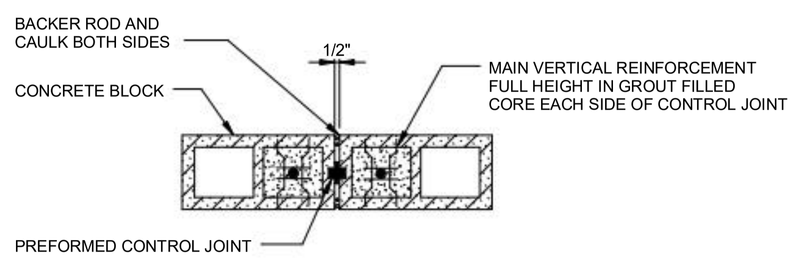
NOTES:
1. EXTEND JAMB BARS FULL WALL HEIGHT WHERE OPENING WIDTH EXCEEDS 1'-4", OTHERWISE, EXTEND ONE SPLICE LENGTH OR 2'-0" MINIMUM PAST OPENINGS.
2. SEE STANDARD CONCRETE REINFORCEMENT DETAILS FOR SPLICE LENGTH IN CONCRETE.
3. MINIMUM HOOK EMBEDMENT SHALL BE 10" FOR #6 AND SMALLER BARS, 12" FOR #7 BARS AND 14" FOR #8 BARS. STRAIGHT BARS MAY BE USED IN LIEU OF HOOKS IF ADEQUATE CONCRETE THICKNESS IS AVAILABLE.
4. THE SIZE AND QUANTITY OF DOWEL BARS PER CELL SHALL MATCH THE SIZE AND QUANTITY OF MAIN VERTICAL BARS IN THE CELL, UNLESS INDICATED OTHERWISE.
5. WHERE METAL OR PRECAST CONCRETE ROOFS ATTACH TO TOP BOND BEAM, VERTICAL WALL REINFORCEMENT SHALL TERMINATE 2 INCHES FROM THE TOP OF THE BOND BEAM WITH A STANDARD HOOK. WHERE CAST-IN-PLACE CONCRETE ROOFS ATTACH TO TOP BOND BEAM, VERTICAL WALL REINFORCEMENT SHALL TERMINATE 2 INCHES FROM THE TOP OF THE CONCRETE SLAB WITH A STANDARD HOOK. WHERE WALLS ARE NON-LOAD-BEARING, VERTICAL WALL REINFORCEMENT SHALL TERMINATE AS A STRAIGHT BAR 2 INCHES FROM TOP OF BOND BEAM.

TYPICAL MASONRY REINFORCEMENT ELEVATION

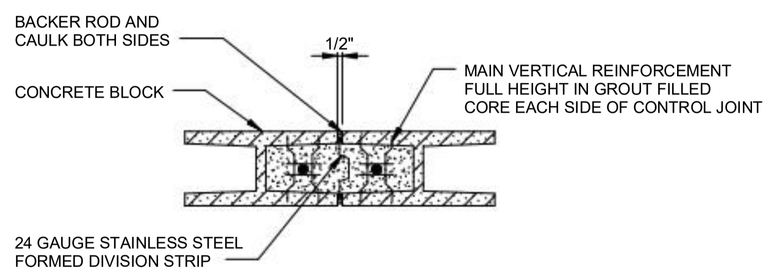
1/4" = 1'-0"



STRETCHER BLOCK TYPE



SASH BLOCK TYPE

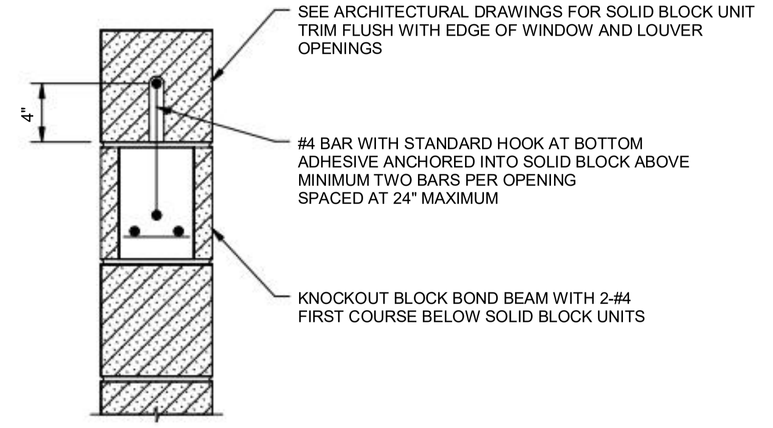


H-BLOCK TYPE

NOTES:
1. LADDER TYPE JOINT REINFORCEMENT IS DISCONTINUOUS AT CONTROL JOINT.
2. BOND BEAM REINFORCEMENT IS DISCONTINUOUS THROUGH CONTROL JOINT, EXCEPT REINFORCEMENT SHALL BE CONTINUOUS AT CONTROL JOINTS WHERE BOND BEAMS ARE LOCATED AT ROOF AND FLOOR JOIST BEARING.
3. CONTROL JOINT IS CONTINUOUS FULL WALL HEIGHT.
4. CONTROL JOINT LOCATIONS SHALL BE AS INDICATED ON THE PLANS.
5. SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF VENEER CONTROL OR EXPANSION JOINTS. CONTROL JOINTS IN CMU BACKUP AND VENEER DO NOT ALIGN.

TYPICAL CMU CONTROL JOINT

1" = 1'-0"



A S-04 COURSES BELOW WINDOW AND LOUVER OPENING

1 1/2" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

REVISIONS AND RECORD OF USE

NO.	BY	CHK	APP	DATE

REGISTERED PROFESSIONAL ENGINEER
GUHA KARAREN SUBRAMANIAN
No. C66299
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
STRUCTURAL
TYP MASONRY WALL REINFORCEMENT DETAILS

DESIGNED:	GSS
DETAILED:	SMH
CHECKED:	RJR
APPROVED:	
DATE:	JULY 2021

0 1/2 1
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PROJECT NO.
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OF

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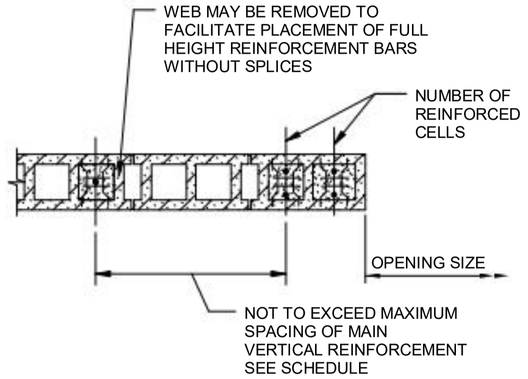
JAMB SCHEDULE

BUILDING	WALL	BLOCK THICKNESS	OPENING SIZE	JAMBS			REMARKS
				NUMBER OF REINFORCED CELLS	BARS PER REINFORCED CELL	BAR SIZE	
TREATMENT BUILDING	NORTH	12"	0 - 6'-8"	2	2 (ONE EACH FACE)	#6	
	SOUTH	12"	0 - 6'-8"	2	2 (ONE EACH FACE)	#6	
			6'-8" - 12'-0"	4	2 (ONE EACH FACE)	#6	
	EAST	12"	0 - 6'-8"	2	2 (ONE EACH FACE)	#6	
	WEST	12"	0 - 6'-8"	2	2 (ONE EACH FACE)	#6	
	INTERIOR	12"	0 - 6'-8"	2	2 (ONE EACH FACE)	#6	

NOTES:
1. AN INTERIOR WALL IS A WALL IN WHICH NO PORTION OF THE WALL IS EXPOSED TO THE EXTERIOR.
2. REINFORCE JAMBS AS INDICATED UNLESS NOTED OTHERWISE ON THE DRAWINGS.



JAMB - PLAN

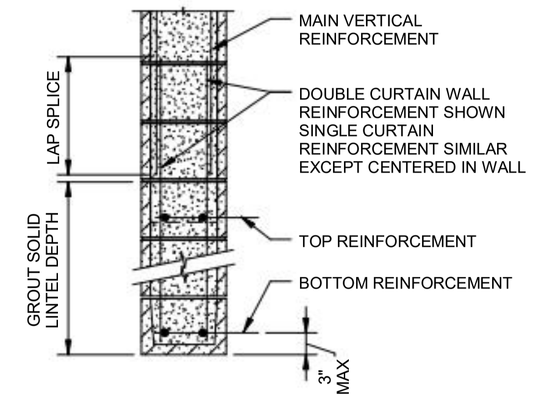
TYPICAL MASONRY JAMB SCHEDULE AND PLAN

3/4" = 1'-0"

LINTEL SCHEDULE

BUILDING	WALL	BLOCK THICKNESS	OPENING SIZE	LINTELS			REMARKS
				DEPTH	BOTTOM REINFORCEMENT	TOP REINFORCEMENT	
TREATMENT BUILDING	NORTH	12"	0 - 6'-8"	16"	2-#5	2-#5	
	SOUTH	12"	0 - 6'-8"	16"	2-#5	2-#5	
			6'-8" - 12'-0"	32"	2-#6	2-#6	
	EAST	12"	0 - 6'-8"	16"	2-#5	2-#5	
	WEST	12"	0 - 6'-8"	16"	2-#5	2-#5	
	INTERIOR	12"	0 - 6'-8"	16"	2-#5	2-#5	

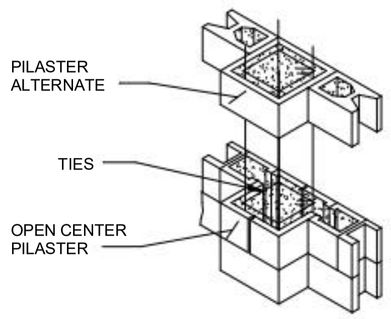
NOTES:
1. BEAR ALL LINTELS A MINIMUM 2'-0" AT EACH END.
2. REINFORCED LINTELS AS INDICATED UNLESS NOTED OTHERWISE ON THE DRAWINGS.



LINTEL - SECTION

TYPICAL MASONRY LINTEL SCHEDULE AND SECTION

3/4" = 1'-0"



TYPICAL OPEN CENTER PILASTER

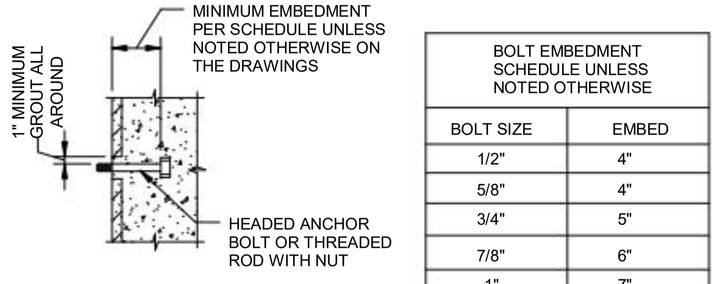
NOTES:
1. ALL VERTICAL REINFORCEMENT SHALL BE FULLY DOWELED INTO THE SUPPORTING FOUNDATION WITH DOWELS MATCHING THE VERTICAL REINFORCEMENT.
2. LAP SPLICE LENGTHS PER SCHEDULE.

PILASTER SCHEDULE

TYPE	NOMINAL SIZE	VERTICAL REINFORCEMENT	TIES	REMARKS
P1	2'-0" X 2'-0"	8-#6	#4@ 16"	

TYPICAL CONCRETE MASONRY PILASTERS

3/8" = 1'-0"

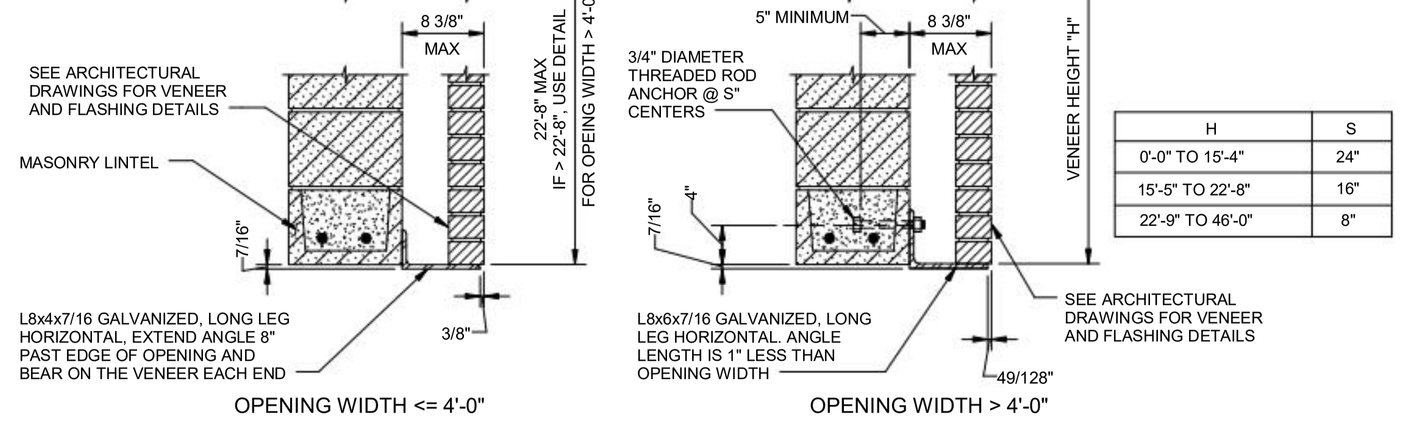


BOLT EMBEDMENT SCHEDULE UNLESS NOTED OTHERWISE	
BOLT SIZE	EMBED
1/2"	4"
5/8"	4"
3/4"	5"
7/8"	6"
1"	7"

NOTE:
MINIMUM BOLT SPACING SHALL BE (12) BOLT DIAMETERS WITH A MINIMUM EDGE DISTANCE OF (6) BOLT DIAMETERS AND WITH A MINIMUM OF 6" TO END OF WALL, UNLESS NOTED OTHERWISE.

TYPICAL MASONRY ANCHOR BOLT DETAIL

3/4" = 1'-0"

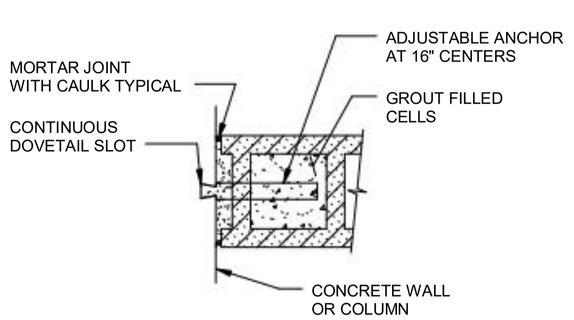


H	S
0'-0" TO 15'-4"	24"
15'-5" TO 22'-8"	16"
22'-9" TO 46'-0"	8"

NOTE:
1. WHERE DIMENSION FROM FACE OF CMU TO OUTER FACE OF VENEER IS LESS THAN 8-3/8", TRIM HORIZONTAL ANGLE LEG TO MAINTAIN 3/8" INSET FROM VENEER, AND GRIND SMOOTH. GALVANIZE AFTER HORIZONTAL LEG IS TRIMMED.

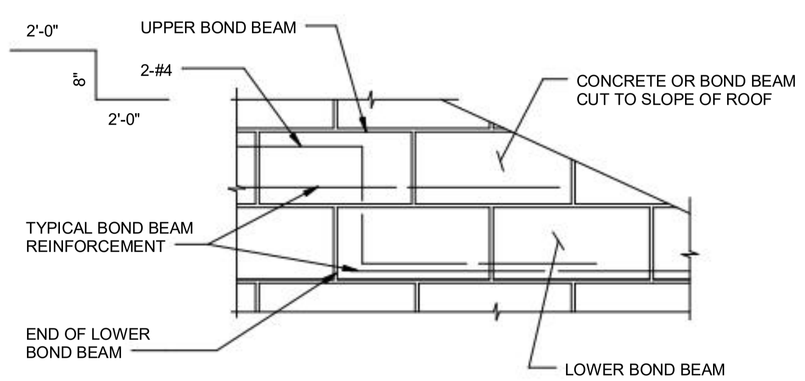
VENEER SUPPORT AT OPENING

1" = 1'-0"



TYPICAL MASONRY WALL AT CONCRETE WALL OR COLUMN

1 1/2" = 1'-0"



BOND BEAM STEP DETAIL

1" = 1'-0"

GENERAL NOTES

1. THE DETAILS ON THIS SHEET ARE APPLICABLE TO ALL CONCRETE MASONRY CONSTRUCTION. SPECIAL NOTES, SECTIONS AND DETAILS SPECIFICALLY NOTED ON THE DESIGN DRAWINGS SHALL BE APPLICABLE IN LIEU OF THESE TYPICAL DETAILS.
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3. WORK THIS DRAWING WITH THE STANDARD CONCRETE MASONRY WALL REINFORCEMENT DETAILS.

PRELIMINARY - NOT FOR CONSTRUCTION

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REGISTERED PROFESSIONAL ENGINEER
GUHA KARAREN SUBRAMANIAN
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1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
STRUCTURAL
TYPICAL MASONRY LINTEL & JAMB DETAILS

DESIGNED: GSS
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CHECKED: RJR
APPROVED:
DATE: JULY 2021

0 1/2 1
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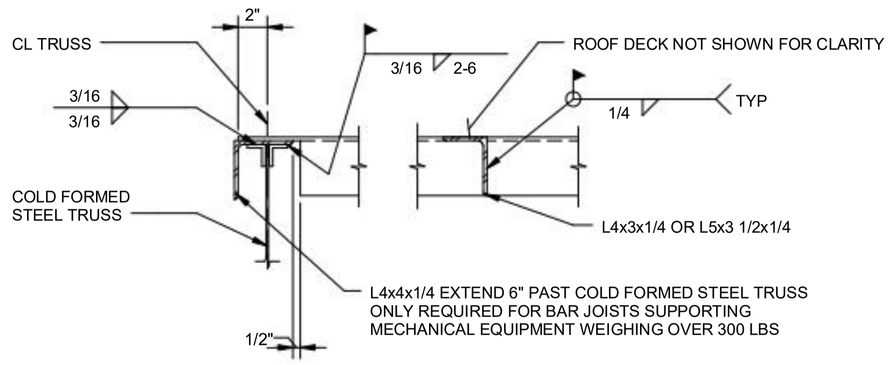
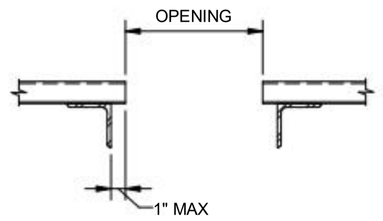


1 S-06 SECTION
1 1/2" = 1'-0"



2 S-06 SECTION
1 1/2" = 1'-0"

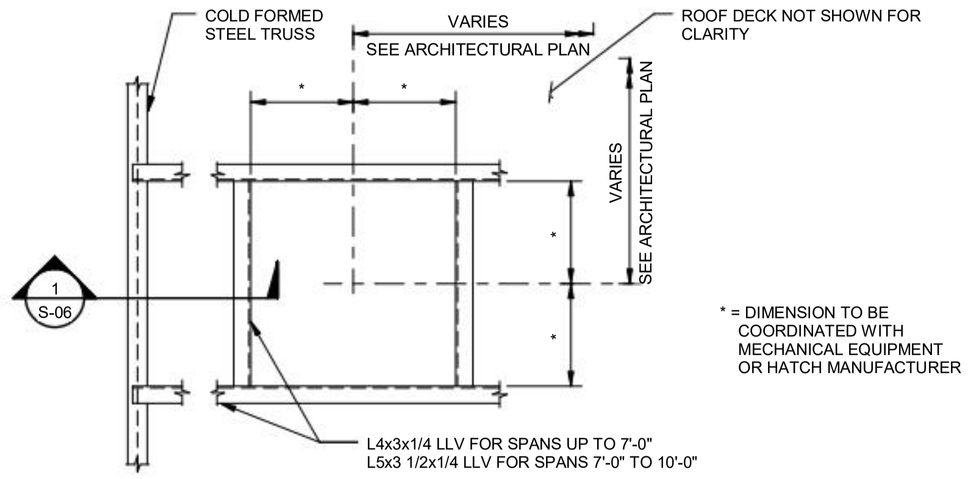
STEEL DECKING SCHEDULE

BUILDING	LOCATION	DECKING					SUPPORT FASTENERS			SIDELAP FASTENERS			EDGE ZONE WIDTH	PERIMETER ATTACHMENTS PARALLEL TO SIDELAP FASTENERS
		DEPTH	TYPE NOTE 1	GAUGE	SHOP COATING NOTE 2	MIN SPANS NOTE 3	TYPE NOTE 4	FIELD PATTERN	PERIMETER PATTERN	TYPE NOTE 4	FIELD SPACING	PERIMETER SPACING		
TREATMENT BUILDING	ROOF	1 1/2"	B	18	G90	2	SCREWS	36/7	36/7	HILTI S-MD #12 SCREWS	12" OC	6" OC	6 FT	HILTI S-MD #12 SCREWS

NOTES:

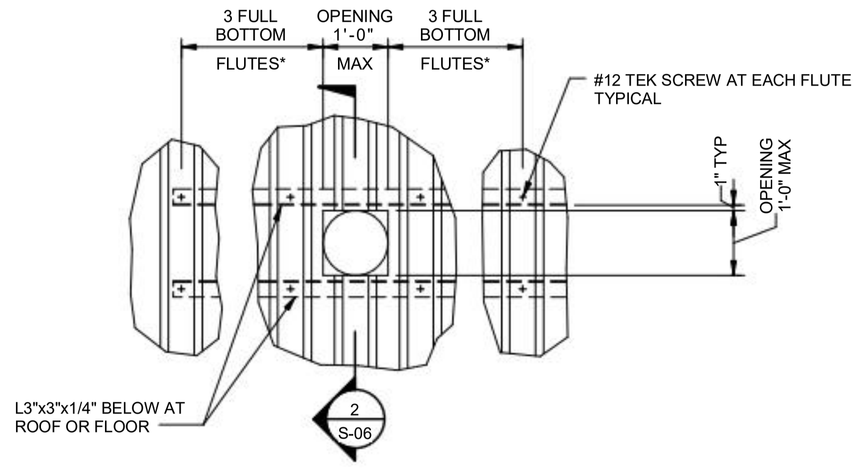
1. DECKING TYPE THAT INCLUDES "A" SHALL BE ACOUSTICAL DECKING.
2. "G60" AND "G90" INDICATE GALVANIZING THICKNESS, "PRIME" INDICATES PRIME PAINTING. SEE STEEL DECKING SPECIFICATION.
3. DECKING SHEETS SHALL BE CUT TO COVER AT LEAST THE NUMBER OF SPANS INDICATED.
4. "SCREWS", "POWER-ACTUATED", AND "PUNCHED" SHALL BE AS DESCRIBED IN THE STEEL DECKING SPECIFICATION.

STEEL DECKING SCHEDULE
NO SCALE



PLAN

A TYPICAL METAL DECK OPENING FRAMING DETAIL
1/2" = 1'-0"



PLAN VIEW

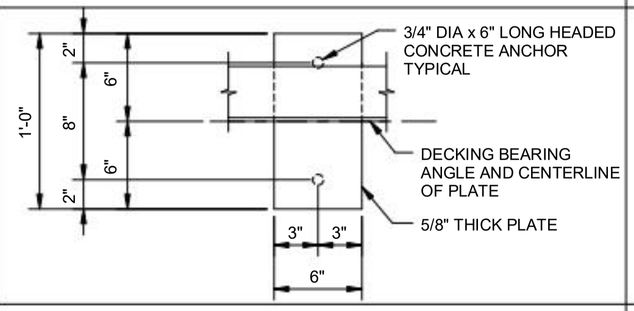
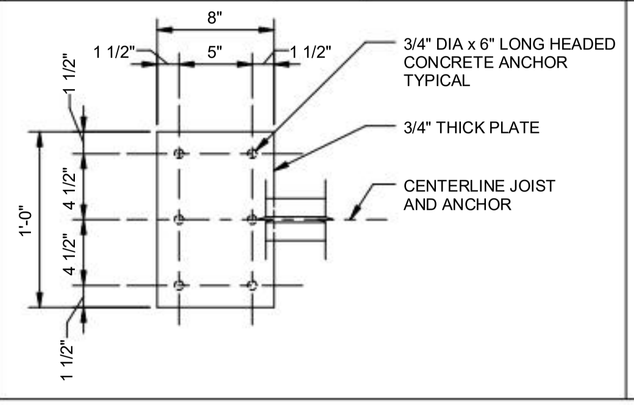
NOTES:

1. SEE ARCHITECTURAL, PROCESS MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATION OF OPENINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR FLASHING DETAILS.
3. * DENOTES TO CONNECT TO BEAM.

FRAMING FOR ROOF OPENING ≤ 1'-0"x1'-0"
WITHOUT EQUIPMENT WEIGHT

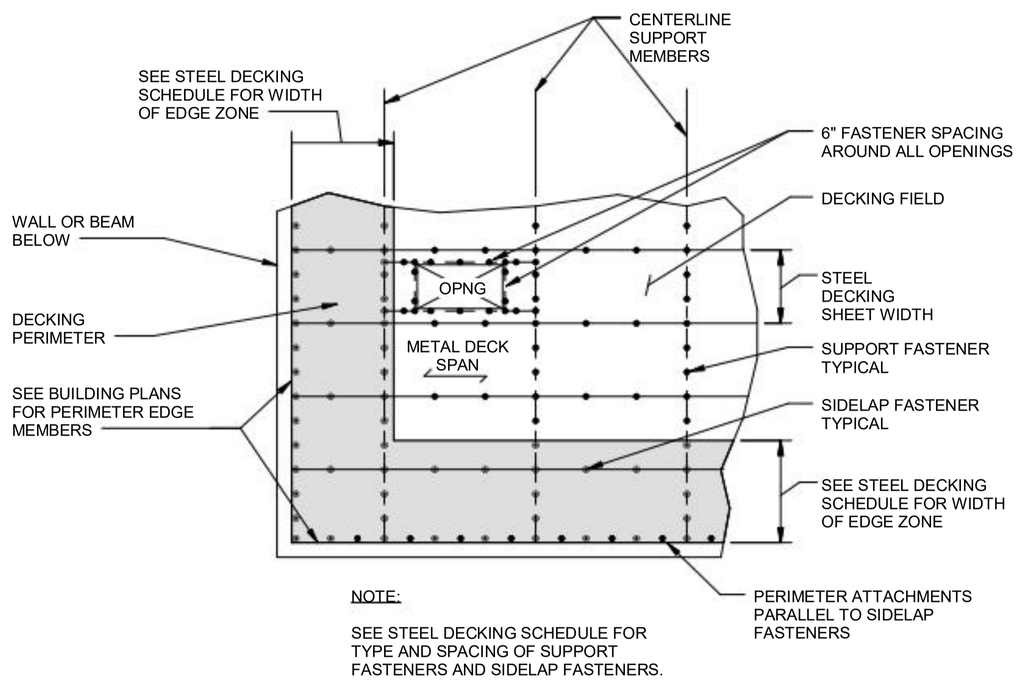
B ROOF OPENING DETAIL
12" = 1'-0"

EMBED PLATE SCHEDULE

TYPE	CMU WALL THICKNESS	PLATE DETAIL	MAXIMUM PLATE SPACING
1	12"		SEE ROOF PLANS
2	12"		SEE ROOF PLANS

SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS OF BEARING PLATES AND HEADED CONCRETE ANCHORS.

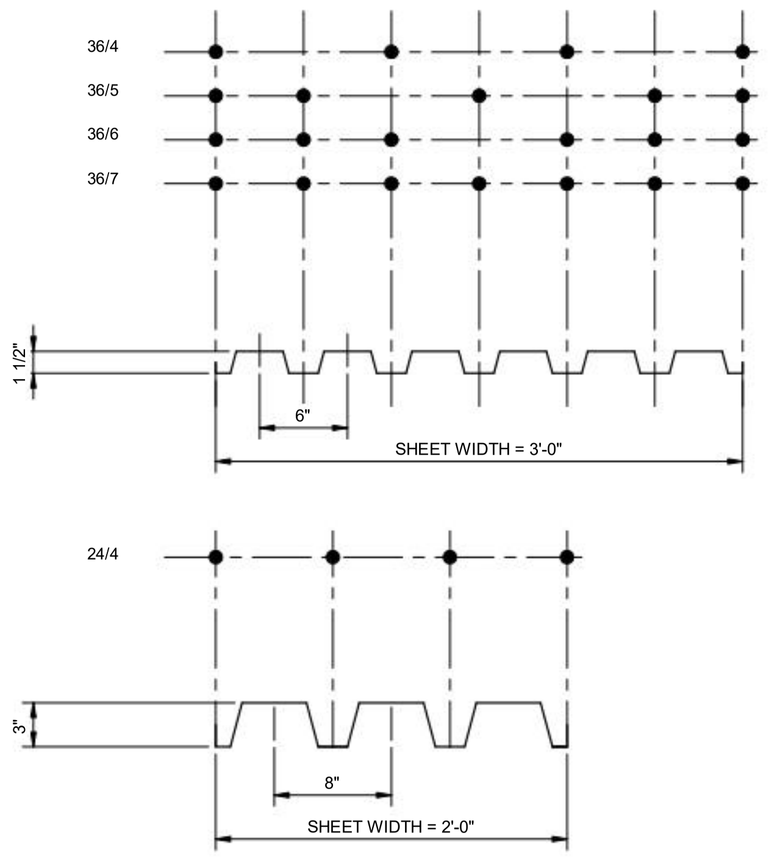
EMBED PLATE SCHEDULE
1 1/2" = 1'-0"



NOTE:

SEE STEEL DECKING SCHEDULE FOR TYPE AND SPACING OF SUPPORT FASTENERS AND SIDELAP FASTENERS.

D STEEL DECKING FASTENER DETAIL
1/2" = 1'-0"



C METAL DECK ATTACHMENT DETAIL
1 1/2" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
GUHA KARAREN SUBRAMANIAN
No. C66299
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
STRUCTURAL
STEEL DECKING DETAILS AND SCHEDULES

DESIGNED: GSS
DETAILED: SMH
CHECKED: RJR
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

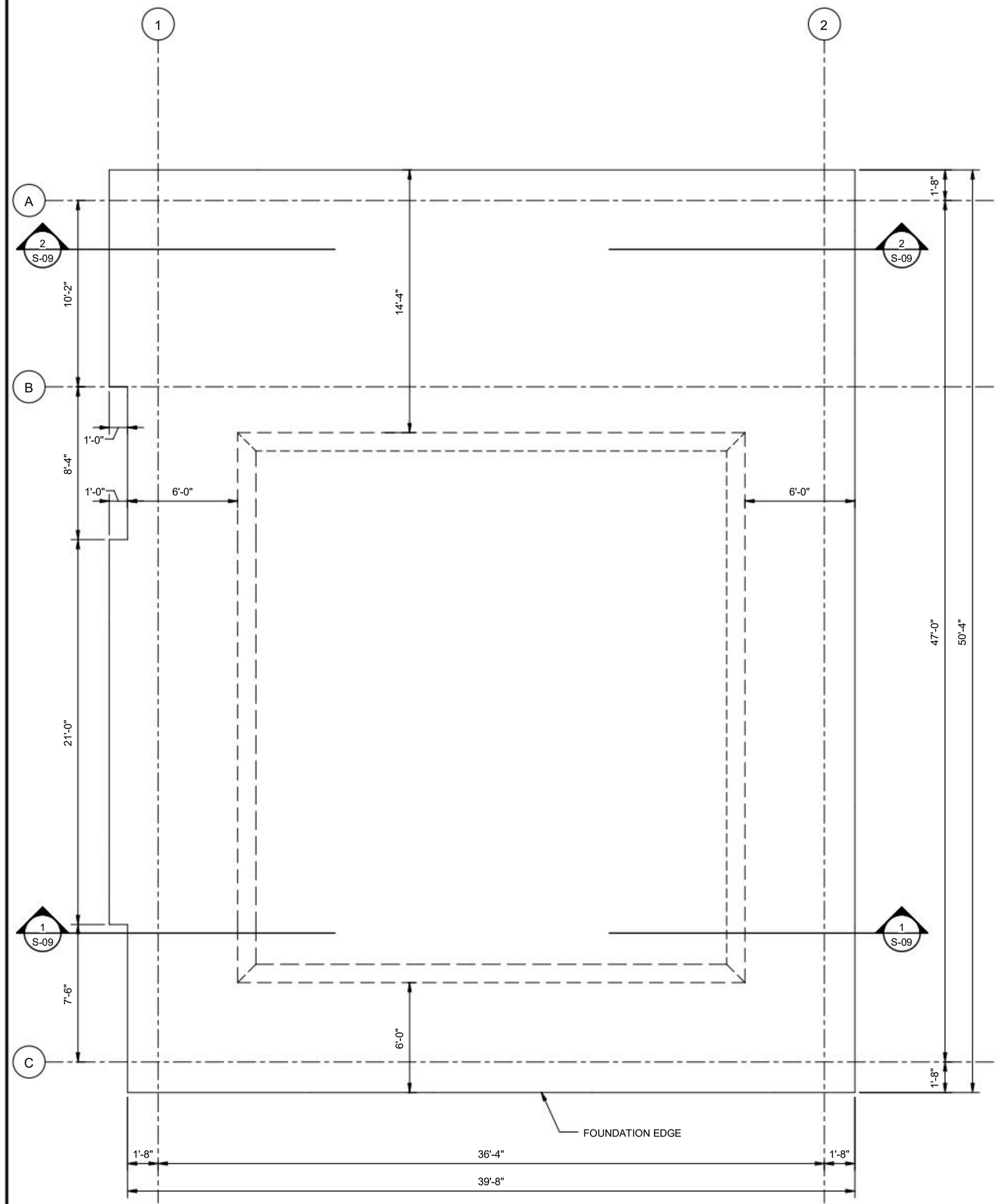
PROJECT NO.
407941

S-06
SHEET
OF

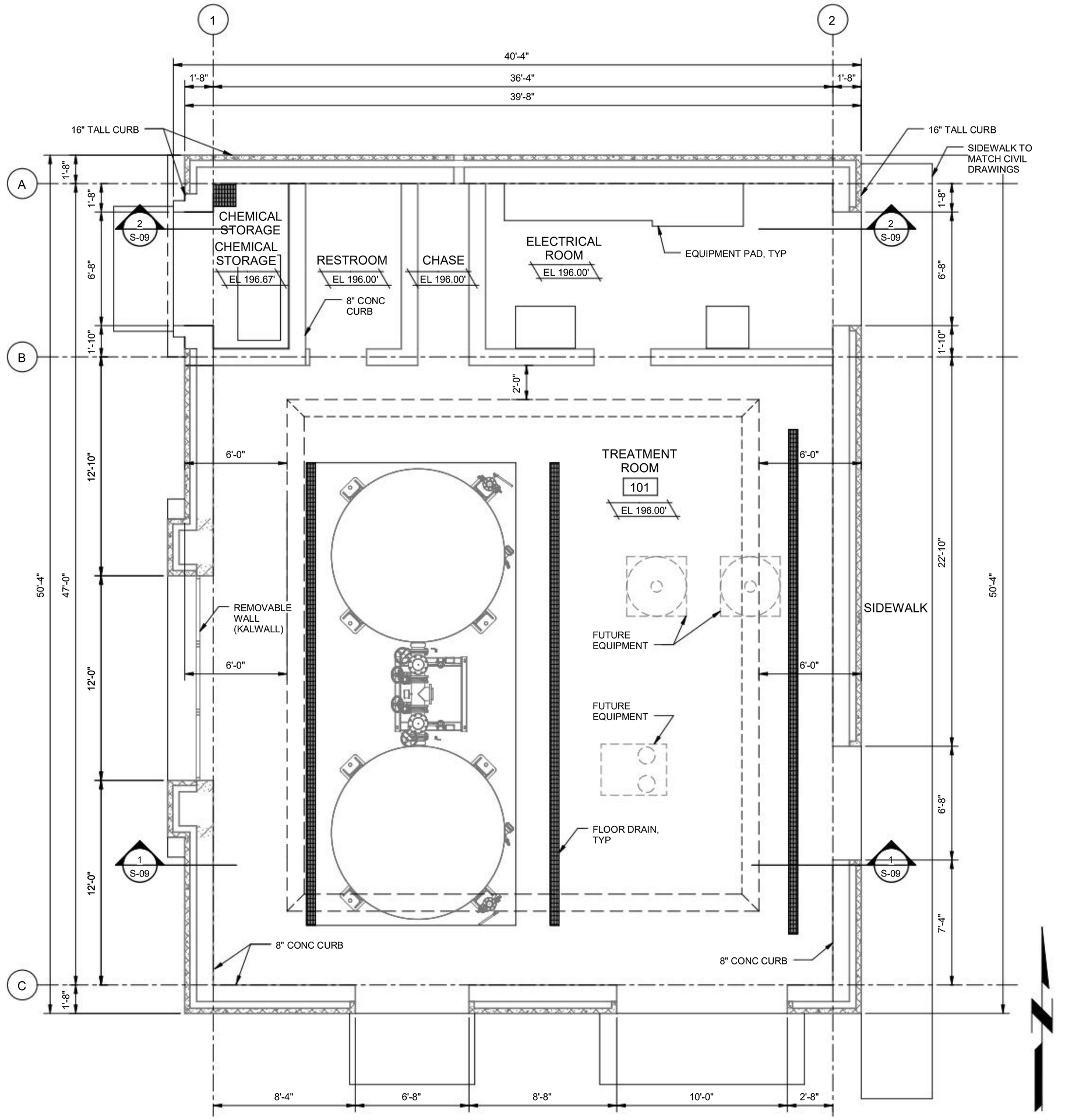
PLOTTED: 7/16/2021 3:09:29 PM
D10000

GENERAL SHEET NOTES

1. SEE SHEET S-01 AND S-02 FOR STRUCTURAL NOTES AND ABBREVIATIONS.
2. SEE SHEET S-02 FOR STANDARD CONCRETE REINFORCEMENT DETAILS.
3. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.
4. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR PIPE PENETRATIONS/CONDUITS CONCRETE PAD DIMENSIONS AND LOCATIONS.
5. SEE PLUMBING DRAWINGS FOR FLOOR DRAIN LOCATIONS AND ELEVATIONS.
6. SEE CIVIL DRAWINGS FOR FINISH GRADE ELEVATIONS AND FOUNDATION DRAIN INVERT ELEVATIONS AND ROUTING.
7. FOUNDATIONS SHALL BE PLACES ON COMPACTED STRUCTURAL FILL IN CONFORMANCE WITH THE SPECIFICATIONS.



FOUNDATION PLAN
1/4" = 1'-0"



OPERATING FLOOR PLAN
1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
GUM KEKAREN SUBRAMANIAN
No. C66299
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
STRUCTURAL
BUILDING FOUNDATION AND OPERATING FLOOR PLAN

DESIGNED:	GSS
DETAILED:	SMH
CHECKED:	RJR
APPROVED:	
DATE:	JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

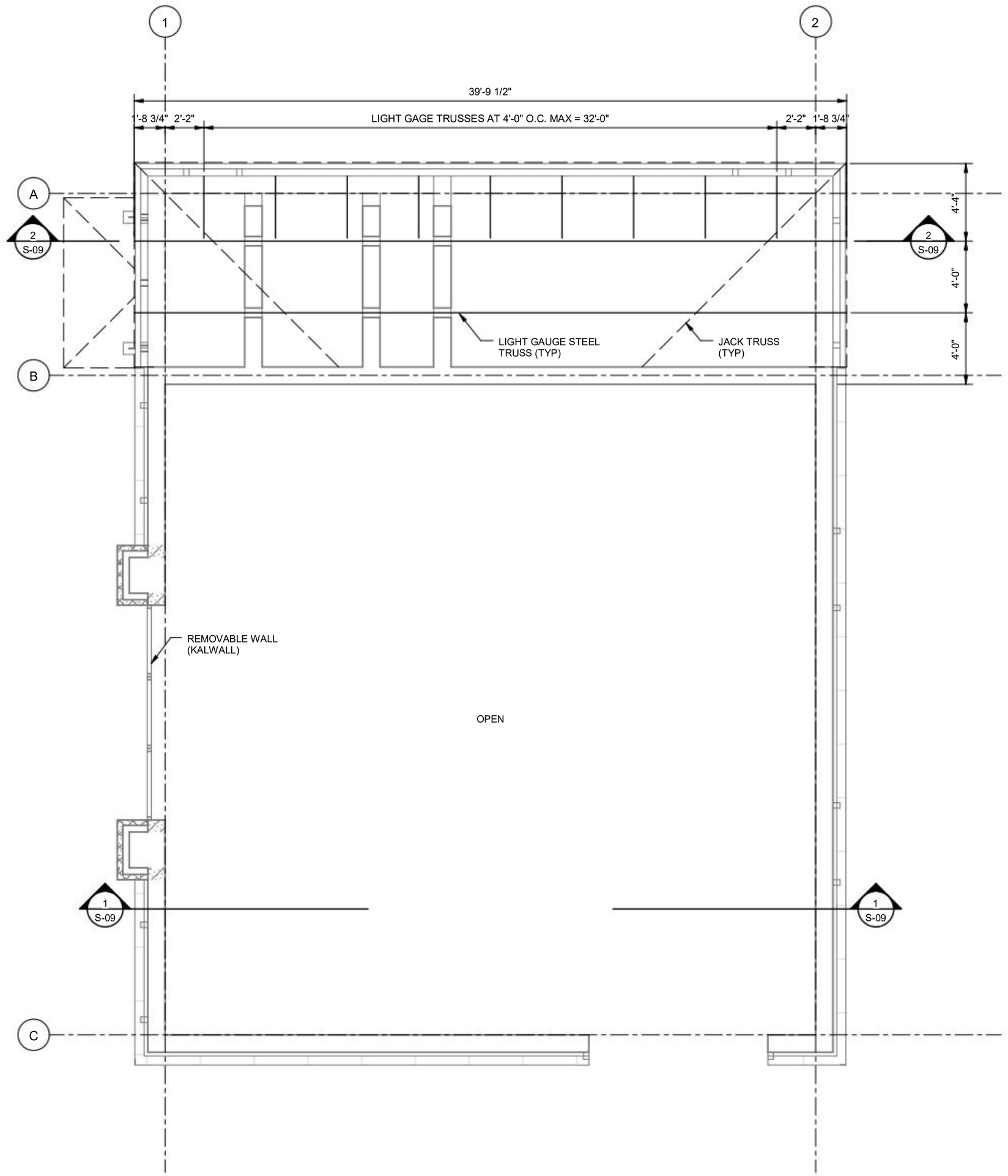
PROJECT NO.
407941

S-07
SHEET
OF

PLOTTED: 7/16/2021 3:58:55 PM
D10000

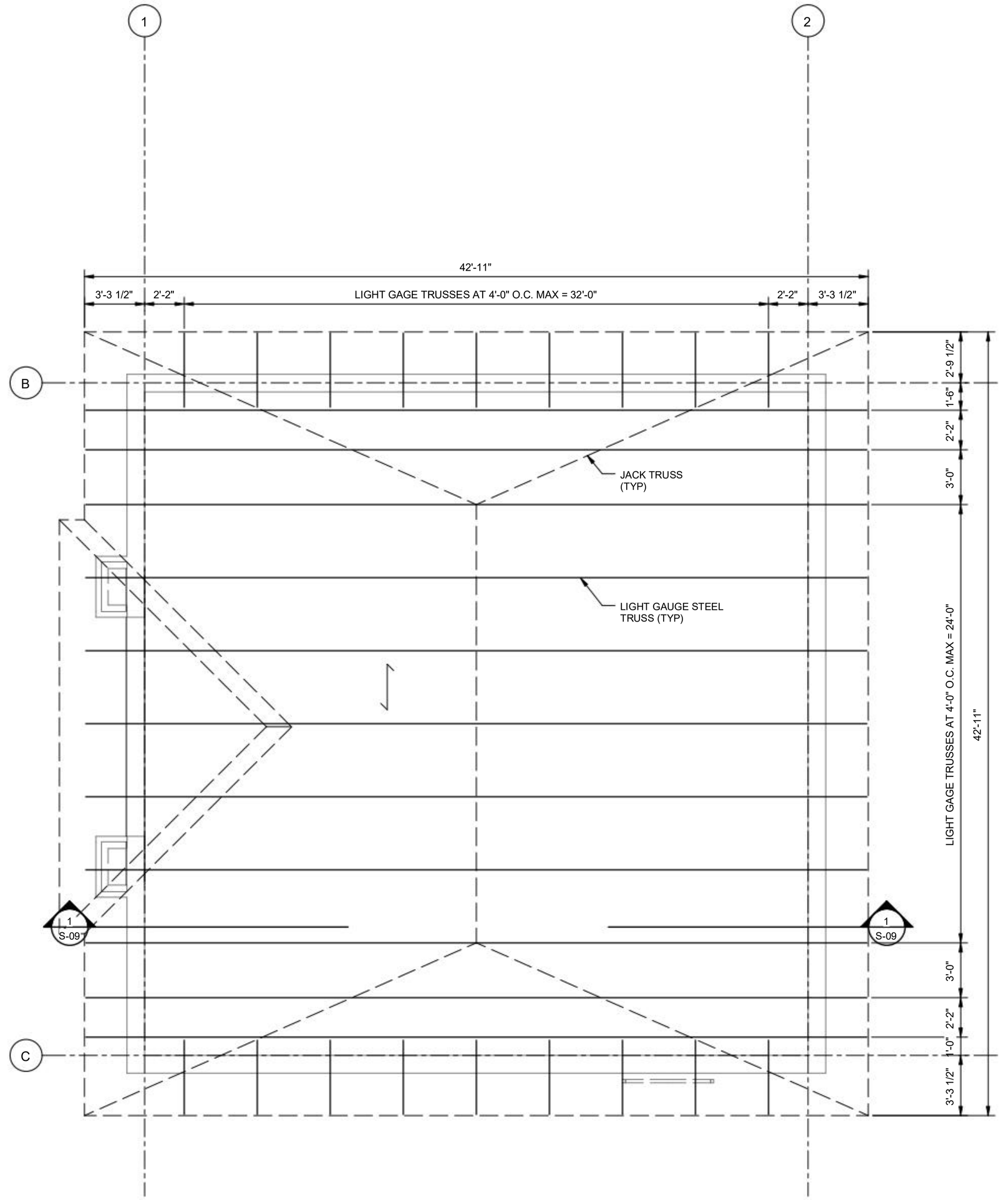
GENERAL SHEET NOTES

1. PRE-MANUFACTURED LIGHT GAUGE STEEL TRUSS ROOF SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR PER THE DRAWINGS AND SPECIFICATIONS.
2. TRUSS ROOF SYSTEM SUBMITTAL SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED FOR THE REVIEW OF THE ENGINEER BEFORE CONSTRUCTION. THE SUBMITTALS SHALL STAMPED AND SIGNED BY A CALIFORNIA LICENSED CIVIL OR STRUCTURAL ENGINEER.



LOWER ROOF PLAN

1/4" = 1'-0"



ROOF PLAN

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
GUHAN SEKAREN SUBRAMANIAN
No. C66299
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
STRUCTURAL
ROOF PLANS

DESIGNED: GSS
DETAILED: SMH
CHECKED: RJR
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

S-08
SHEET
OF

PLOTTED: 7/16/2021 3:09:32 PM
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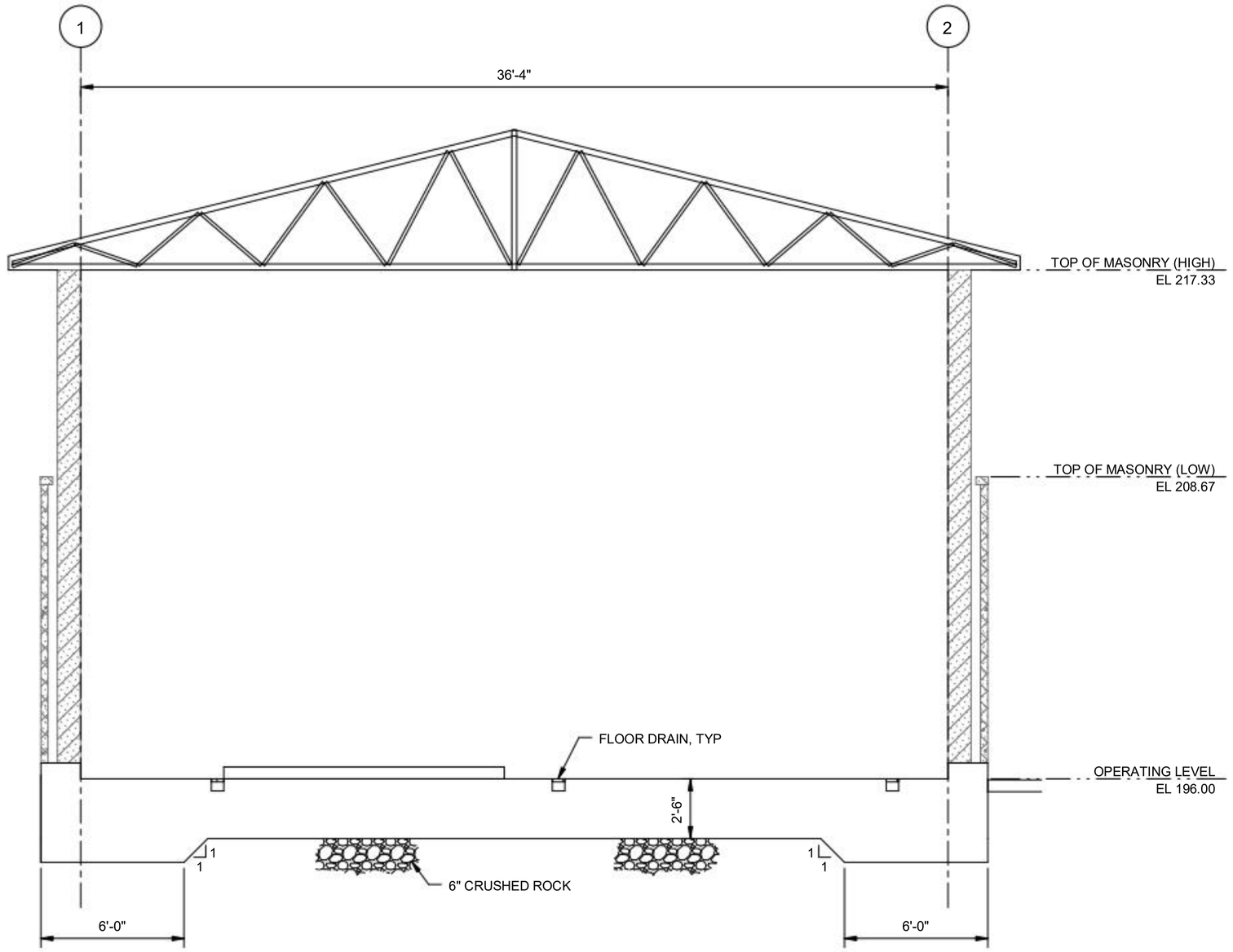
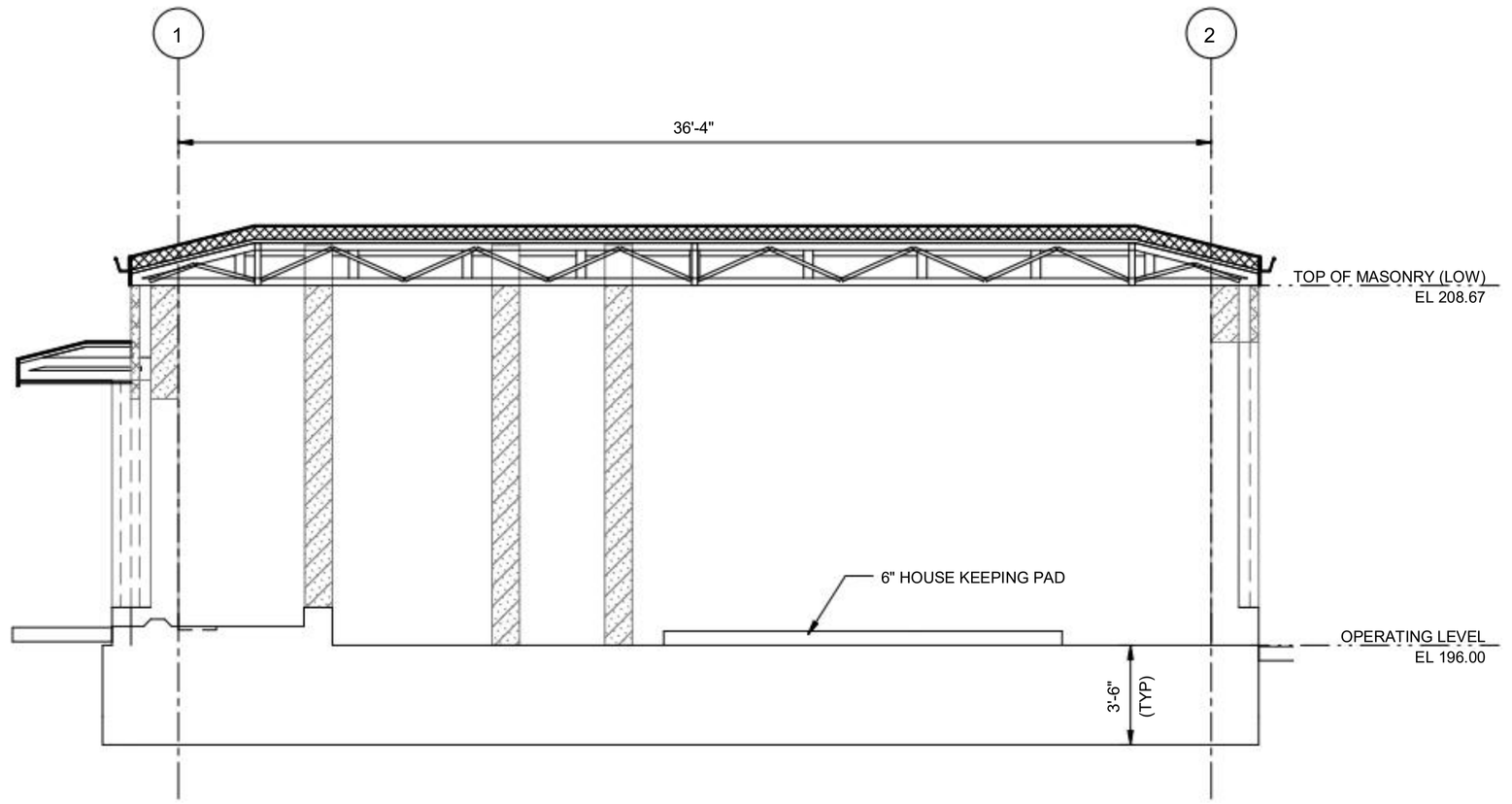


1 SECTION
S-07 1/4" = 1'-0"



2 SECTION
S-07 1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
GUHA KARREN SUBRAMANIAN
No. C66299
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
STRUCTURAL
BUILDING SECTIONS

DESIGNED: GSS
DETAILED: SMH
CHECKED: RJR
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

S-09
SHEET
OF

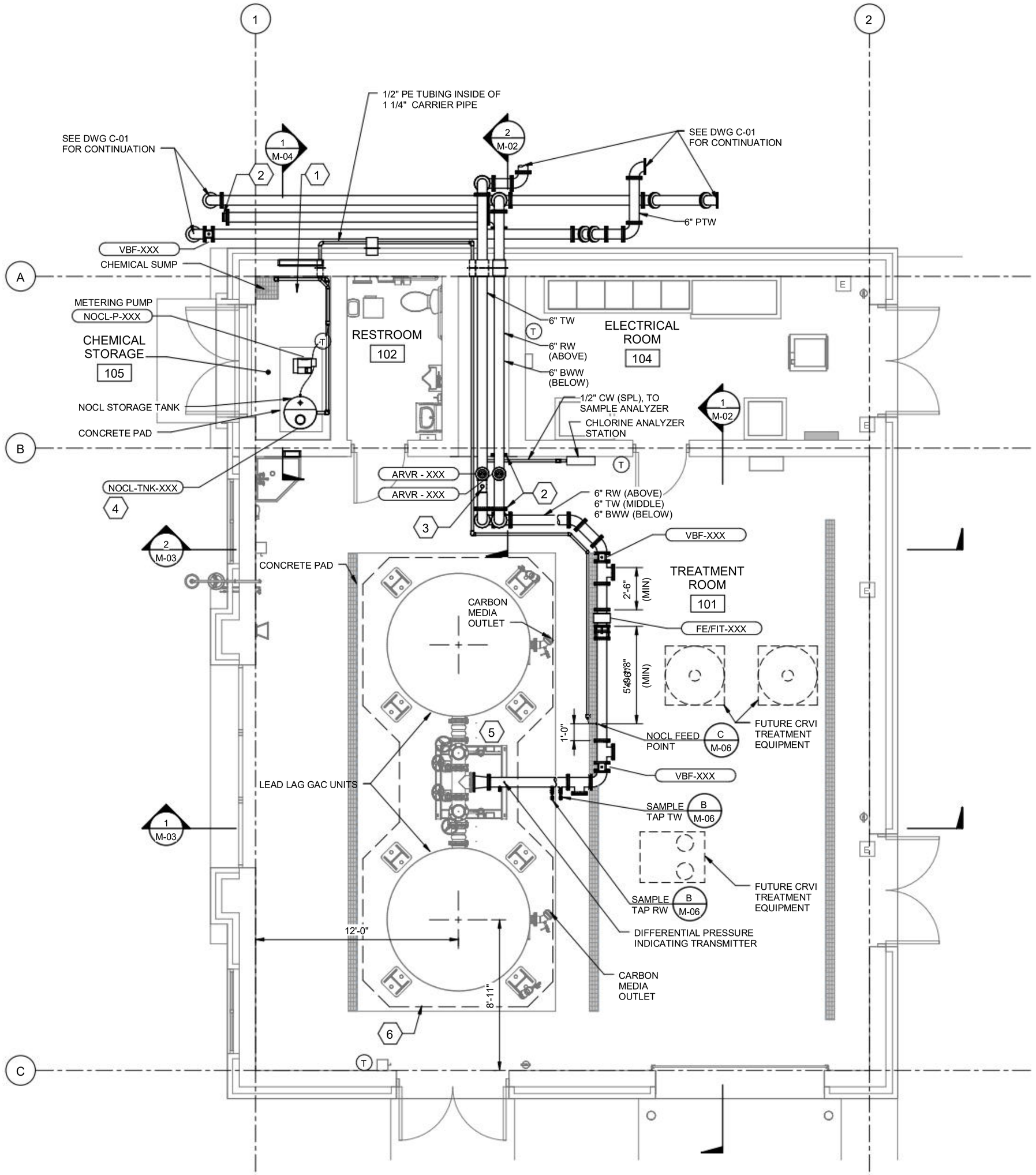
PLOTTED: 7/16/2021 4:01:08 PM
D10000

GENERAL SHEET NOTES

1. REFER TO G-06 FOR GENERAL PROJECT NOTES.
2. ALL CHEMICAL PIPING ITEMS ARE NOT SHOWN. REFER TO P&IDS FOR ADDITIONAL DETAILS.
3. PIPE SUPPORTS SHALL BE PROVIDED IN ACCORDANCE WITH THE PIPE SUPPORT SPECIFICATION.

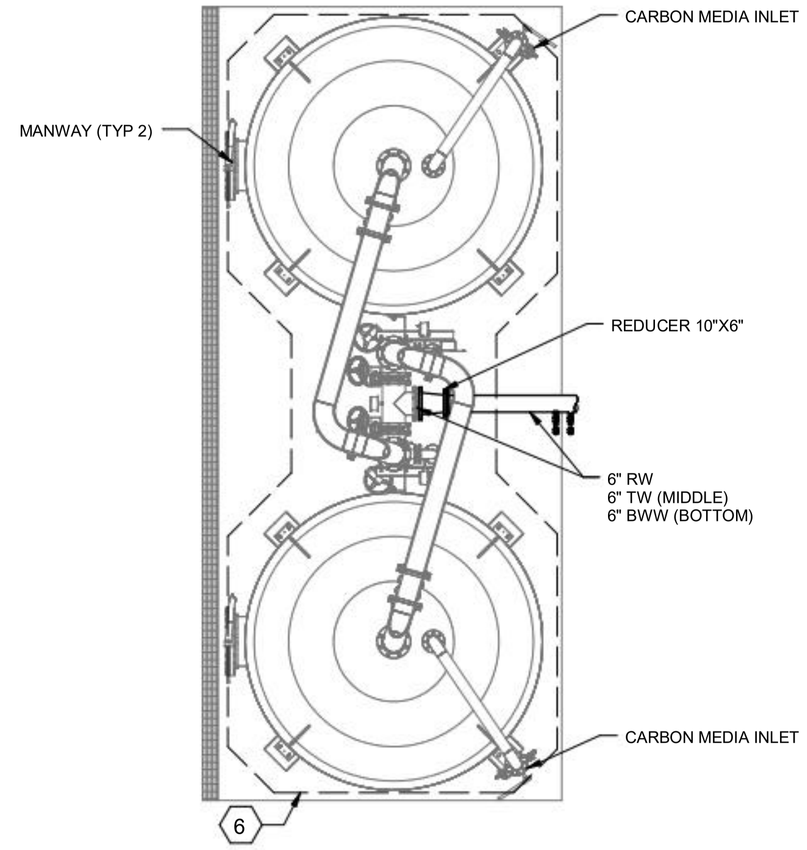
SHEET KEYNOTES

1. REFER TO STRUCTURAL DRAWINGS FOR ACTUAL FLOOR ELEVATION AND SLOPE.
2. 6" BWW DIP FLANGED BY MALE QUICK DISCONNECT.
3. REFER TO PLUMBING DRAWINGS FOR TAPPED LOCATION SHOWN. THIS CONNECTION PROVIDES BUILDING WATER SUPPLY.
4. CONTRACTOR SHALL PROVIDE A 316 SS SEISMIC RESTRAINT SYSTEM FOR NOCL TANK SIGNED AND SEALED BY A LICENSED CA CIVIL ENGINEER. SEISMIC RESTRAINT SYSTEM SHALL BE POLYPROCESSING SEISMIC RESTRAINT SYSTEM OR EQUAL. SEE SPECIFICAITON SECTION 01 6100 FOR SEISMIC DESIGN CRITERIA.
5. PROVIDED BY CONTRACTOR.
6. PIPING, VALVES, GAC VESSELS, AND APPURTENANCES SHOWN ARE THE RESPONSIBILIT OF THE GAC SYTEM SUPPLIER. REFER TO SPECIFICATION SECTION 43 3113 FOR ADDITIONAL DETAILS AND REQUIREMENTS. PIPING SHOWN IS FOR ILLUSTRATION PURPOSES ONLY AND MAY NOT REFLECT ACTUAL LAYOUT.



OPERATING LEVEL - PROCESS MECHANICAL PLAN

1/4" = 1'-0"



TOP OF GAC UNITS

1/4" = 1'-0"

4' 2' 0' 4' 8'

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE

REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER JESSE W. WALLIN C77408 STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
PROCESS MECHANICAL
TREATMENT AREA PLAN

DESIGNED: GY
DETAILED: BS
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 407941

M-01
SHEET
OF

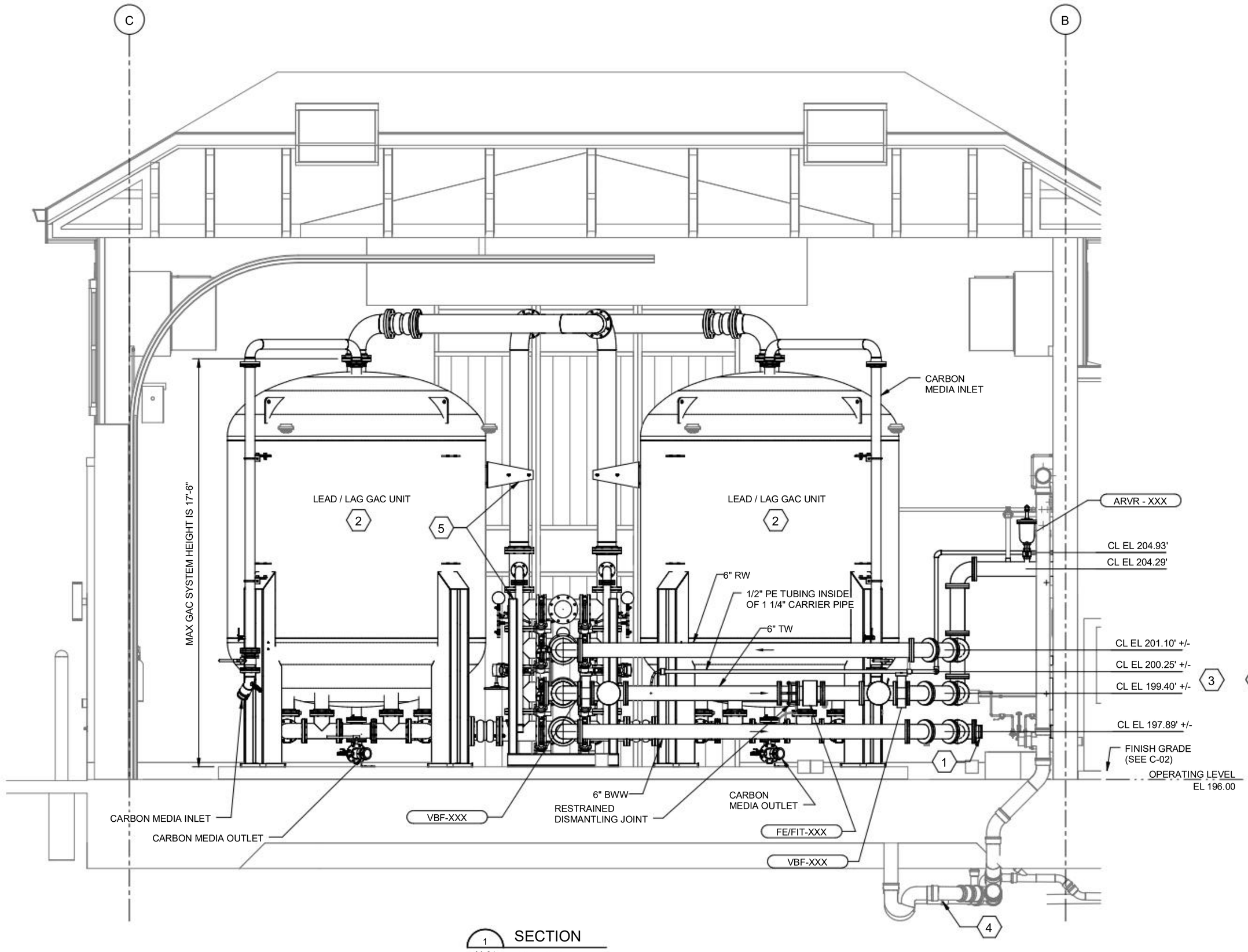
PLOTTED: 7/16/2021 3:14:14 PM
D10000

GENERAL SHEET NOTES

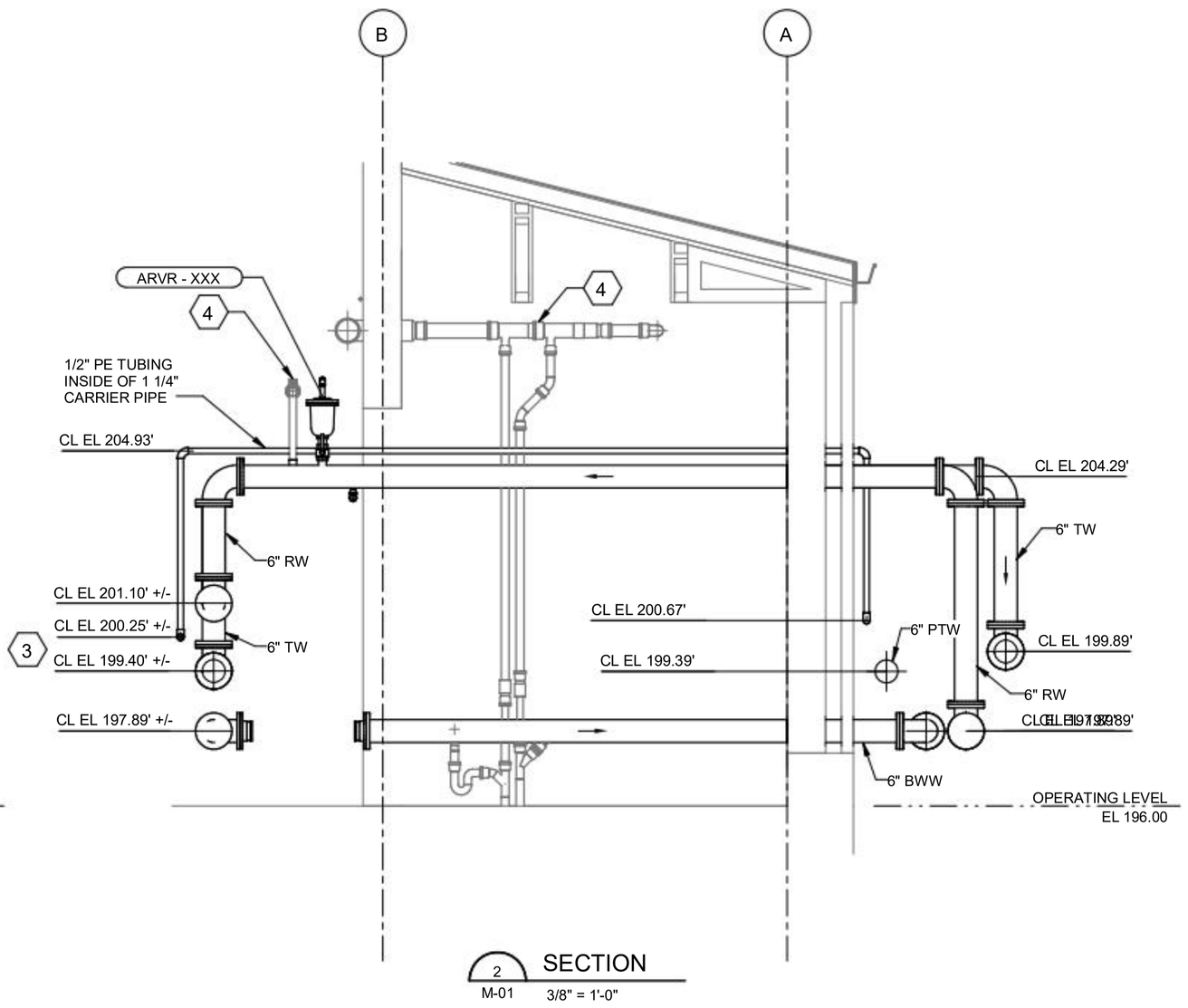
1. REFER TO G-06 FOR GENERAL PROJECT NOTES.

SHEET KEYNOTES

1. 6" BWW FLANGED BY MALE QUICK DISCONNECT.
2. SEE KEYNOTE 6 ON M-01.
3. COORDINATE CENTERLINE ELEVATION OF RW, TW, AND BWW PIPING WITH GAC SKID PIPING.
4. BUILDING PLUMBING PIPING. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL DETAILS AND REQUIREMENTS.
5. GAC SYSTEM PIPE SUPPORTS BY GAC SYSTEM SUPPLIER (TYP).



1 M-01 SECTION 3/8" = 1'-0"



2 M-01 SECTION 3/8" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER JESSE W. WALLIN C77408 STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
PROCESS MECHANICAL
TREATMENT AREA SECTIONS AND DETAILS 1

DESIGNED: GY
DETAILED: GT
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 407941

M-02
SHEET
OF

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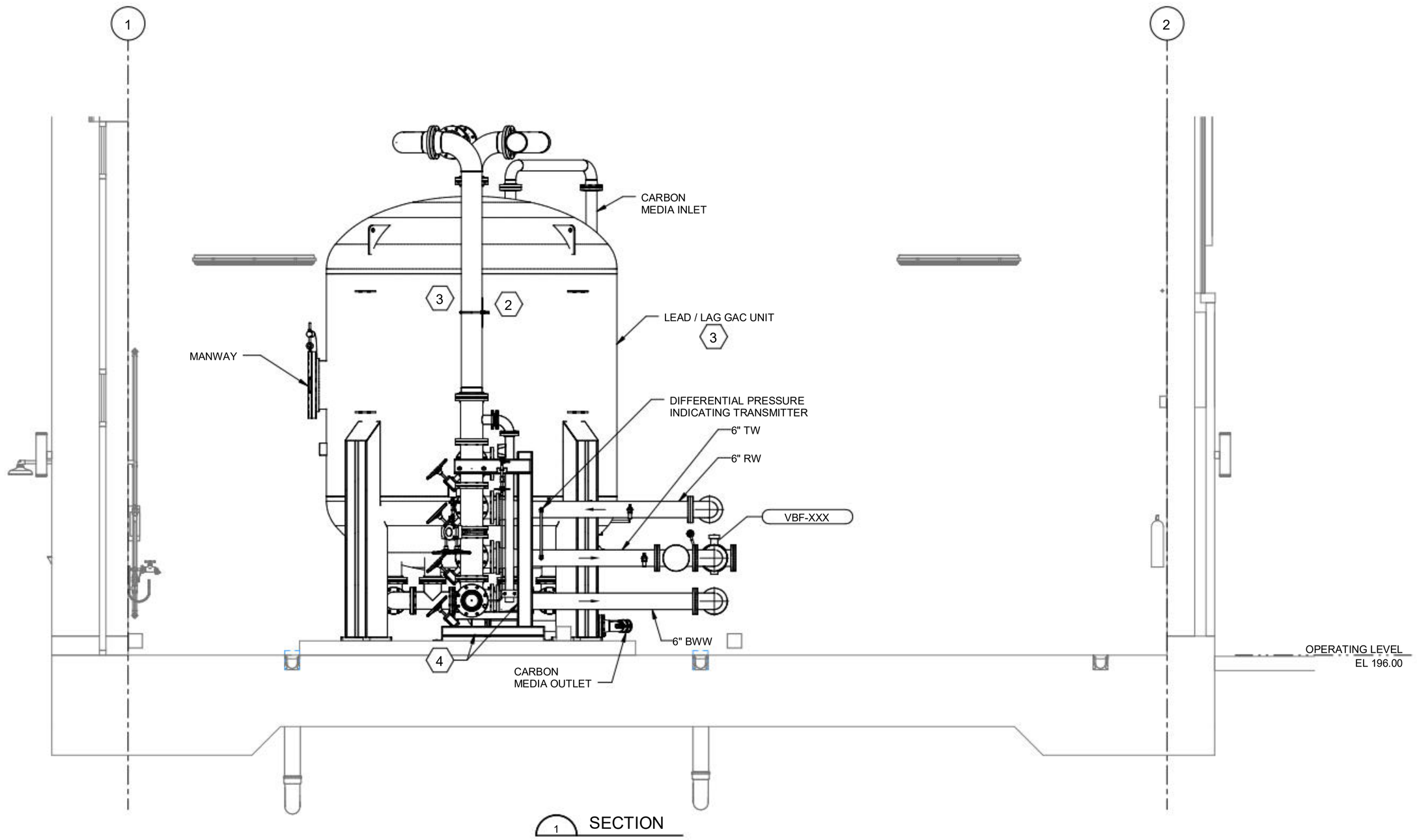
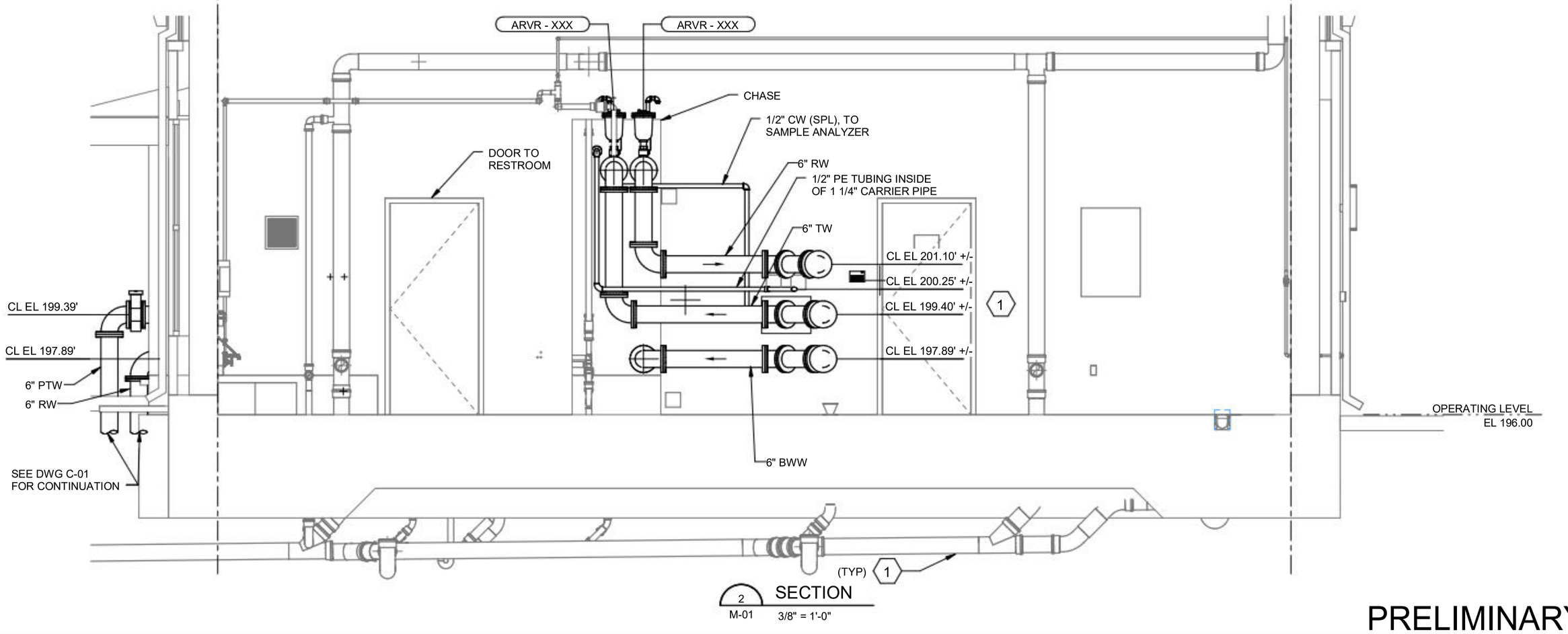


1 SECTION
M-01 3/8" = 1'-0"



2 SECTION
M-01 3/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO G-06 FOR GENERAL PROJECT NOTES.

SHEET KEYNOTES

1. COORDINATE CENTERLINE ELEVATION OF PIPING WITH GAC SKID PIPING.
2. CONTRACTOR SHALL CONNECT RW, TW, & BWW PIPING TO THE INLET/DISCHARGE CONNECTIONS OF THE GAC SKID PIPING. GAC SYSTEM PIPING SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY AND MAY NOT REFLECT ACTUAL LAYOUT. CONTRACTOR SHALL COORDINATE REQUIRED PIPING WITH GAC SYSTEM SUPPLIER.
3. SEE KEYNOTE 6 ON M-01.
4. GAC SYSTEM PIPE SUPPORT SYSTEM BY GAC SYSTEM SUPPLIER (TYP).
5. BUILDING PLUMBING PIPING. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL DETAILS AND REQUIREMENTS.

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALLEN
C77408
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
PROCESS MECHANICAL
TREATMENT AREA SECTIONS AND DETAILS 2

DESIGNED: GY
DETAILED: GT
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

M-03
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

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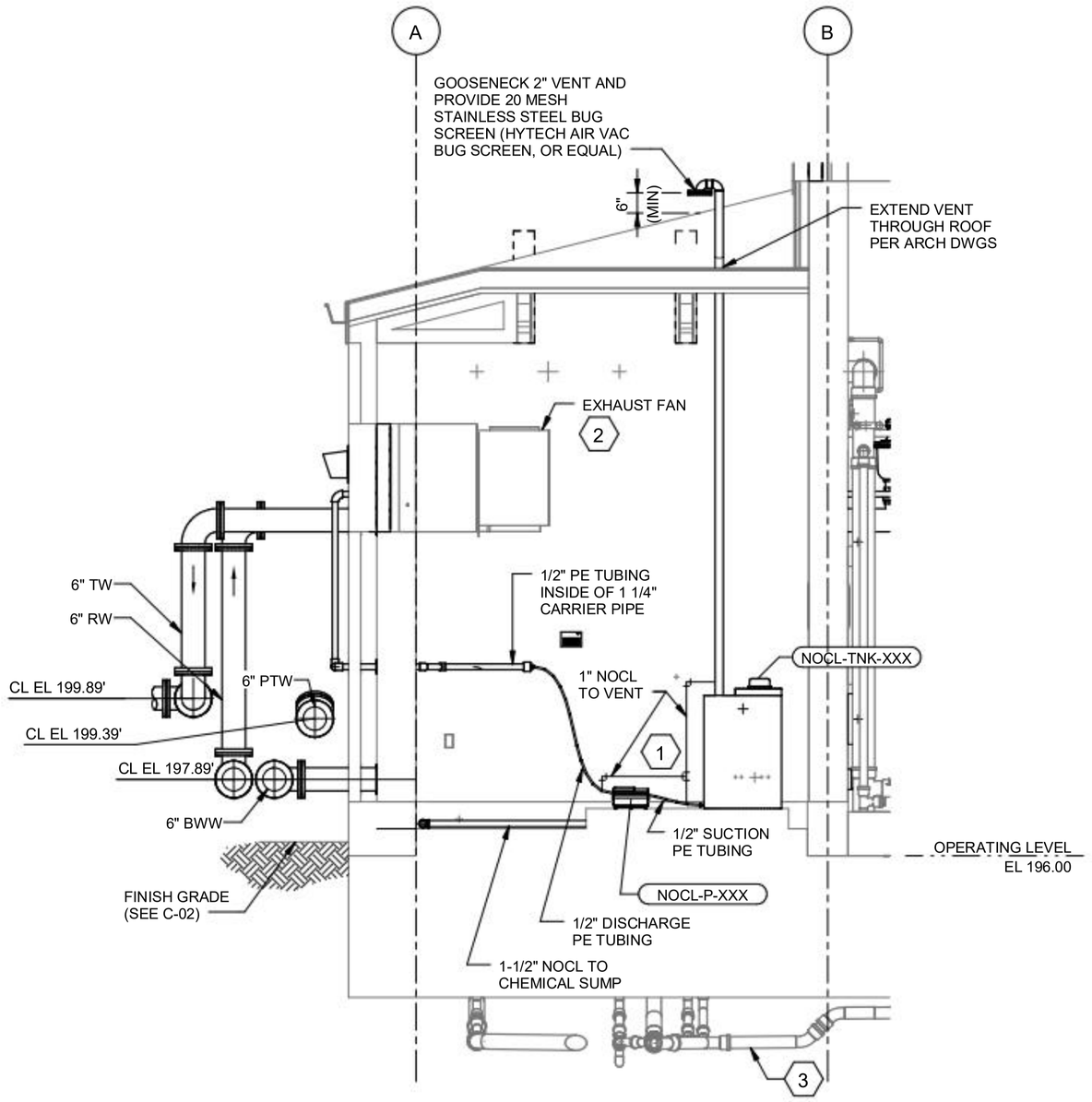
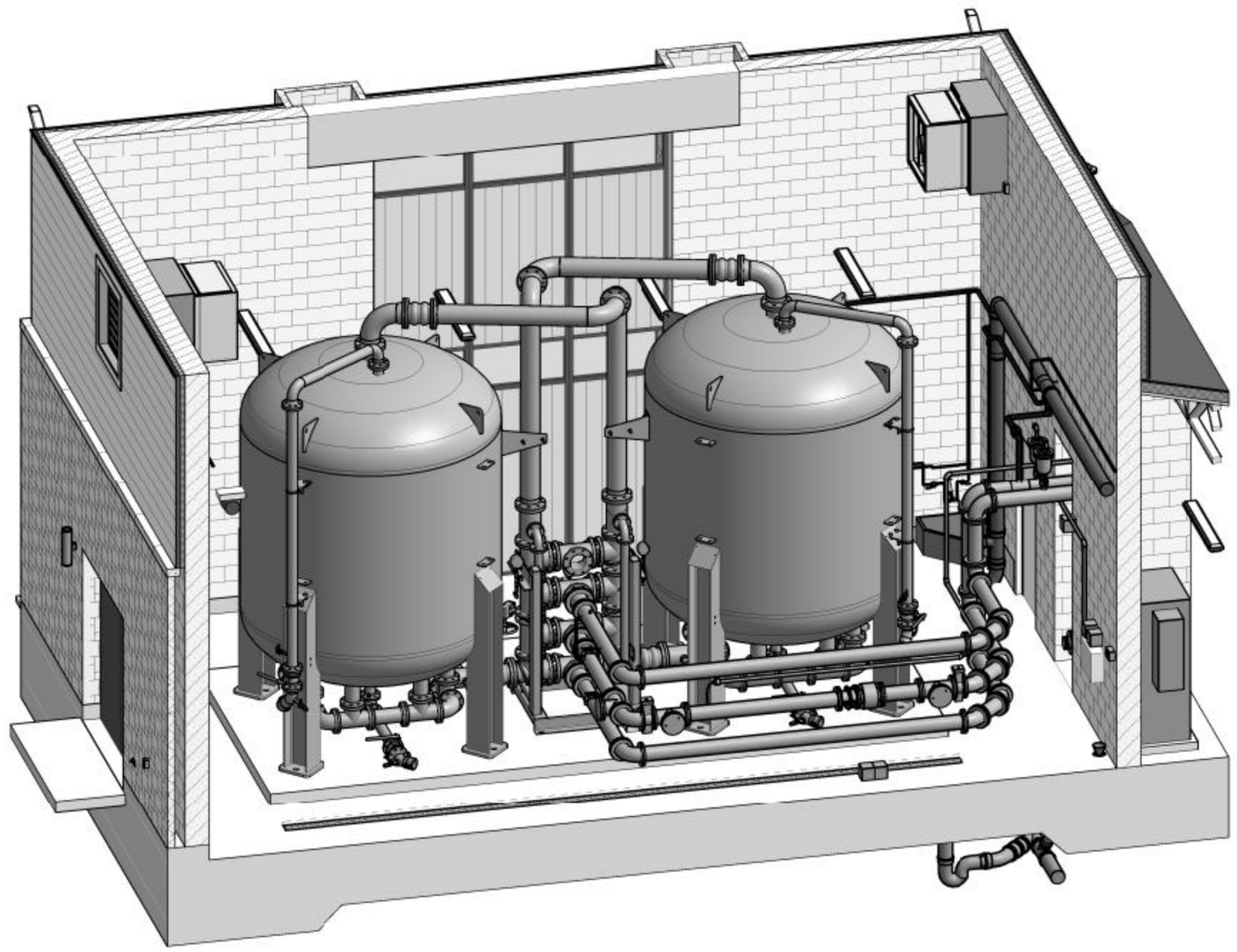


1 M-01 SECTION 3/8" = 1'-0"



TREATMENT ROOM PERSPECTIVE

GENERAL SHEET NOTES

1. REFER TO G-06 FOR GENERAL PROJECT NOTES.

SHEET KEYNOTES

1. ALL CHEMICAL PIPING ITEMS ARE NOT SHOWN. REFER TO P&IDS FOR ADITIONAL DETAILS.
2. REFER TO HVAC DRAWINGS FOR DETAILS AND REQUIREMENTS.
3. BUILDING PLUMBING PIPING. REFER TO PLUMBING DRAWINGS FOR DETAILS AND REQUIREMENTS.

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER JESSE W. WALLIN C77408 STATE OF CALIFORNIA

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
PROCESS MECHANICAL
TREATMENT AREA SECTIONS AND DETAILS 3

DESIGNED: GY
DETAILED: GT
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 407941

M-04
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

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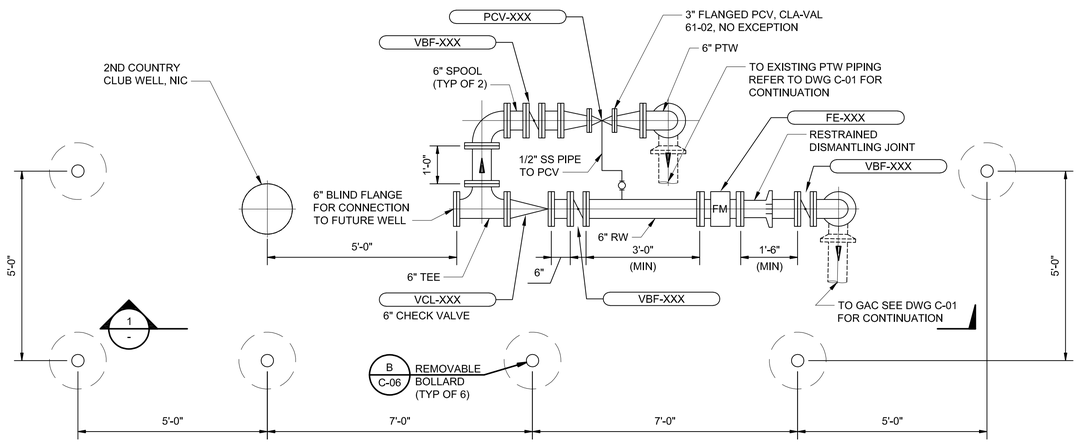
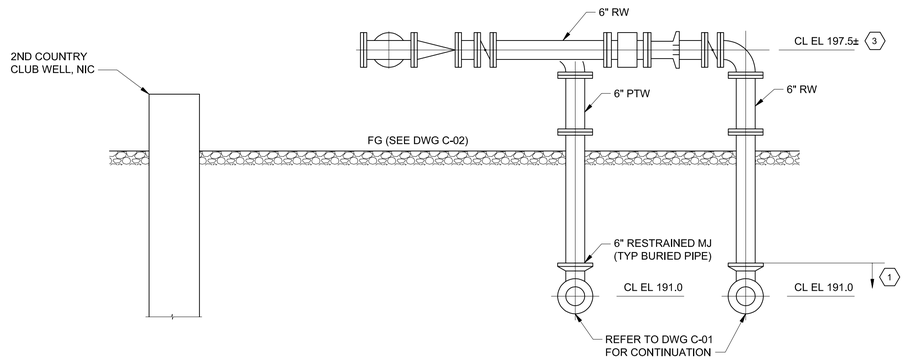


PLAN
1/2" = 1'-0"



1 SECTION
- 1/2" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO DWG G-06 FOR PROJECT GENERAL NOTES.
2. ELECTRICAL AND CONTROL CONNECTIONS TO EQUIPMENT IS NOT REQUIRED. REFER TO ELECTRICAL AND INSTRUMENTATION DRAWINGS FOR ADDITIONAL INFORMATION.

SHEET KEY NOTES

1. TRANSITION FROM DIP TO AWWA C900 PVC PIPE.
2. CONTRACTOR SHALL FIELD VERIFY TOP OF WELL ELEVATION DURING EARLY PHASE OF CONSTRUCTION AND SHARE INFORMATION WITH DISTRICT.
3. CENTERLINE ELEVATION OF RW MAY NEED TO BE ADJUSTED PENDING RESULT FROM KEYNOTE 2 ABOVE.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP'D	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALLIN
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

MECHANICAL
SUBMERSIBLE WELL PUMP PIPING PLAN AND SECTION

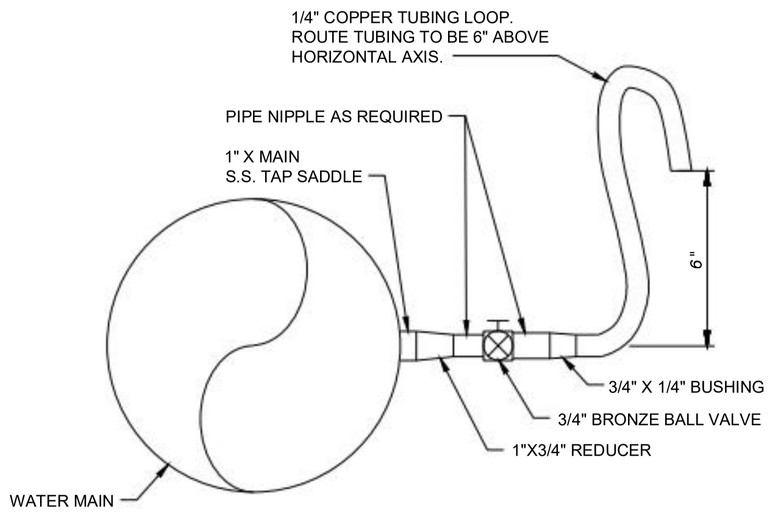
DESIGNED: GY
DETAILED: GT
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

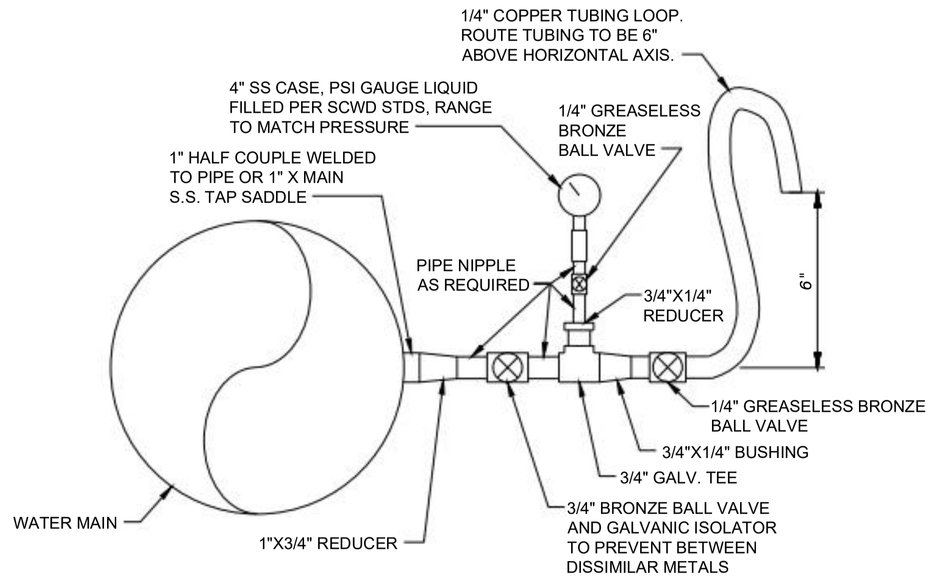
PROJECT NO.
407941

M-05
SHEET
OF

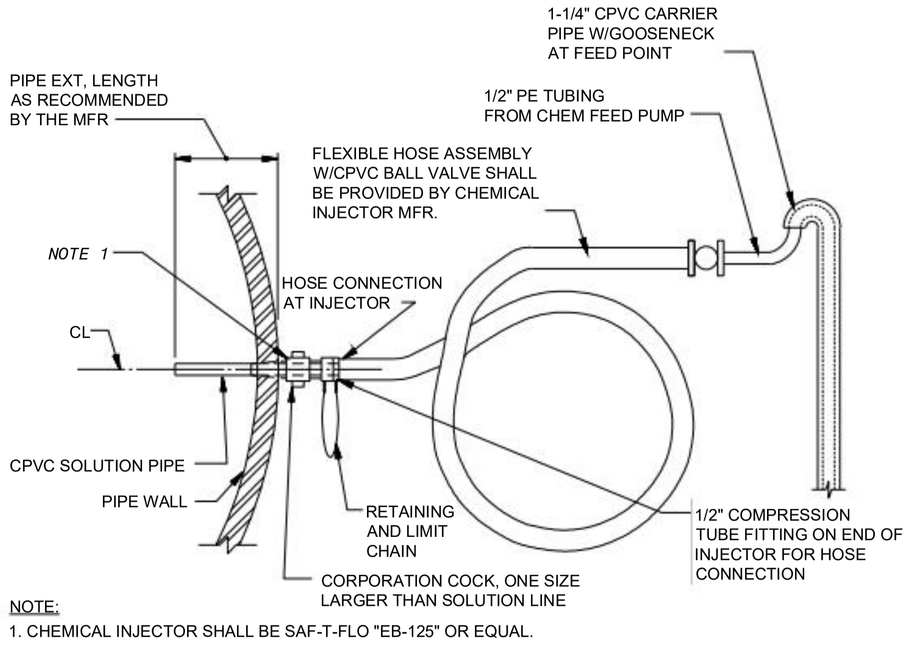
FD10000
D10000
PLOTTED: 7/16/2021 2:07 PM FILE: C:\pw_working\bvw_americas\d1320383\M-05.dwg



A HOSE BIB SAMPLE TAP
NO SCALE



B TREATED WATER SAMPLE TAP
NO SCALE



NOTE:
1. CHEMICAL INJECTOR SHALL BE SAF-T-FLO "EB-125" OR EQUAL.

C NOCL PIPE DIFFUSER
NO SCALE

GENERAL SHEET NOTES

1. REFER TO G-06 FOR GENERAL PROJECT NOTES.

SHEET KEY NOTES

1.

NO	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
JESSE W. WALTON
C77408
CIVIL
STATE OF CALIFORNIA

BLACK & VEATCH

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

PROCESS MECHANICAL
MISCELLANEOUS DETAILS SHEET 1 OF 2

DESIGNED: GY
DETAILED: JAD
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

M-06
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

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PLUMBING LEGENDS, ABBREVIATIONS, AND GENERAL NOTES

GENERAL PLUMBING ABBREVIATIONS

A

A	ALARM, COMPRESSED AIR OUTLET
AC	AIR COMPRESSOR
AD	ACCESS DOOR, AIR DRYER
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
AP	ACCESS PANEL
APPROX	APPROXIMATE
AR	AIR RECEIVER
AUTO	AUTOMATIC
AVG	AVERAGE
AVS	AUTOMATIC VALVE STATION

B

BF	BLIND FLANGE
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BOT	BOTTOM
BTUH	BRITISH THERMAL UNITS PER HOUR
BU	BELL-UP
BV	BALL VALVE

C

C	CHANNEL
CENTR	CENTRIFUGAL
CF	CABINET FAN
C/L	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUATION
CP	CIRCULATING PUMP
CS	CONTROL STATION
CV	CHECK VALVE, CONTROL VALVE
CWW	CLEAR WATER WASTE

D

D	DIRECT DRIVE
DEH	DEHUMIDIFIER
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DN	DOWN
DSN	DOWNSPOUT NOZZLE

E

E	ELECTRIC
EA	EACH
EEW	EMERGENCY EYE WASH
EFF	EFFICIENCY
EL	ELEVATION
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
ES	EMERGENCY SHOWER
ES/EEW	EMERGENCY SHOWER AND EYEWASH
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING

F

F	DEGREES FAHRENHEIT
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDB	DEGREES FAHRENHEIT DRY BULB
FLEX	FLEXIBLE
FM	FLOW METER
FPM	FEET PER MINUTE
FR	FUNNEL RECEPTOR
FS	FLOOR SINK, FLOW SWITCH
FSW	FILTER SURFACE WASH
FT	FEET

G

G	GAS OUTLET
GA	GAUGE
GALV	GALVANIZED
GCO	GRADE CLEANOUT
GD	GARBAGE DISPOSER
GIH	GAS INFRARED HEATER
GPM	GALLONS PER MINUTE
GUH	GAS UNIT HEATER
GV	GATE VALVE
GW	GLASS WASHER
GWH	GAS WATER HEATER

H

H	HAND OPERATOR, HEIGHT, HORIZONTAL
HE	HEAT EXCHANGER, HELIUM
HF	HOSE FAUCET
HO	HAND-OFF
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HR	HOUR, HOSE REEL
HUM	HUMIDIFIER
HV	HOSE VALVE
HWB	HEATING WATER BOILER
HZ	HERTZ

I

I	INTAKE
ID	INSIDE DIAMETER
IN	INCHES
INV	INVERT

J

JS	JANITOR'S SINK

K

KS	KITCHEN SINK
KW	KILOWATT

L

LAV	LAVATORY
LBS	POUNDS
LI	LEVEL INDICATOR
LS	LABORATORY SINK, LEVEL SWITCH
LWT	LEAVING WATER TEMPERATURE

M

MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTURER
MIN	MINIMUM
MOD	MODULATING
MS	MOP SINK

N

NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
NPSHR	NET POSITIVE SUCTION HEAD REQUIRED
NT	NEUTRALIZATION TANK

O

OD	OUTSIDE DIAMETER
ORD	OVERFLOW ROOF DRAIN

P

PD	PRESSURE DROP (FEET OF WATER)
PAC	PACKAGED AIR CONDITIONING UNIT
PDI	PLUMBING AND DRAINAGE INSTITUTE
PDS	PRESSURE DIFFERENTIAL SWITCH
PL	PLATE
POS	POSITION
PPM	PARTS PER MILLION
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE

R

RCS	REMOTE CONTROL STATION
RD	ROOF DRAIN
REQD	REQUIRED

S

SF	SQUARE FEET, SUPPLY FAN
SH	SHEET, SHOWER
SIM	SIMILAR
SS	STAINLESS STEEL, SERVICE SINK
SSP	SUBMERSIBLE SUMP PUMP
STD	STANDARD
SV	SERVICE VALVE, SHUTOFF VALVE, SUPPLY VALVE, SOLENOID VALVE

T

TD	TRENCH DRAIN
TP	TRAP PRIMER
TS	TAMPER SWITCH
TYP	TYPICAL
TOG	TOP OF GRATING

U

UR	URINAL

V

V	VERTICAL
VAC	VACUUM OUTLET
VB	VACUUM BREAKER
VCD	VOLUME CONTROL DAMPER
VF	VANEAXIAL FAN
VP	VACUUM PUMP
VSP	VERTICAL COLUMN SUMP PUMP
VTR	VENT THRU ROOF

W

W	WIDE FLANGE, WIDTH
WBP	WATER BOOSTER PUMP
WC	WATER CLOSET, WATER COLUMN
WCO	WALL CLEANOUT
WG	WATER GAUGE
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WM	WALL MOUNTED
WST	WATER STORAGE TANK
WT	WEIGHT

PLUMBING SYSTEM ABBREVIATIONS

WATER		WASTE		SPECIAL	
NPW	COLD WATER (NON-POTABLE)	CRV	CHEMICAL RESISTANT VENT	A	COMPRESSED AIR
CW	COLD WATER (POTABLE)	CRW	CHEMICAL RESISTANT WASTE	A	CET ACETYLENE
DE	DEIONIZED WATER	CWW	CLEAR WATER WASTE	AR	ARGON
DW	DISTILLED WATER	D	INDIRECT DRAIN	H	HYDROGEN
F	FIRE PROTECTION WATER	PD	SUMP PUMP DISCHARGE	HE	HELIUM
HWC	HOT WATER CIRCULATING (POTABLE)	SAN	SANITARY DRAIN	ME	METHANE
NPHW	HOT WATER (NON-POTABLE)	ST	STORM DRAIN	N	NITROGEN
HW	HOT WATER (POTABLE)	V	VENT	NO	NITROUS OXIDE
PEW	PLANT EFFLUENT WATER			OX	OXYGEN
SVW	SERVICE WATER	FUEL GAS		VAC	VACUUM
SW	SOFTENED WATER				
TNPW	TEMPERED NON-POTABLE WATER	G	NATURAL GAS		
TW	TEMPERED OR BLENDED WATER OR TREATED WATER	PG	PROPANE GAS		

VALVE LEGEND

PLAN	SECTION	2D SYMBOL	DESCRIPTION
			ANGLE VALVE
			BACKFLOW PREVENTER W/ STRAINER (2" AND SMALLER)
			BACKFLOW PREVENTER
			BACKWATER VALVE
			BALL VALVE
			BUTTERFLY VALVE
			CHECK VALVE
			GATE VALVE
			GLOBE VALVE
			PLUG VALVE
			PRESSURE REDUCING VALVE
			THREE WAY VALVE

PIPING ACCESSORIES LEGEND

PLAN	2D SYMBOL	DESCRIPTION
		FLEXIBLE CONNECTION
HF	HF	HOSE FAUCET W/0 VACUUM BREAKER
HFVB	HF	HOSE FAUCET W/ VACUUM BREAKER
HV		HOSE VALVE W/ HOSE NIPPLE
PRS	PRS	PRESSURE REDUCING STATION
		PRESSURE RELIEF VALVE
T		PRESSURE / TEMPERATURE RELIEF VALVE
Q	Q	QUICK COUPLING
WH	WH	WALL HYDRANT W/ VACUUM BREAKER
	M	METER
	S	WYE STRAINER
	S	WYE STRAINER W/ BLOWOFF
		VACUUM BREAKER

PIPING LEGEND

PLAN	2D SYMBOL	DESCRIPTION
		PIPING ABOVE FLOOR OR GRADE
		PIPING BELOW FLOOR OR GRADE
		PIPE TURNING UP
		PIPE TURNING DOWN

CONTROLS AND INSTRUMENTATION

2D SYMBOL	DESCRIPTION
FS	FLOW SWITCH
LS	LEVEL SWITCH
P	PRESSURE GAUGE W/ SHUTOFF VALVE
S	SOLENOID OPERATOR
	THERMOMETER - DIAL TYPE
	THERMOMETER - STEM TYPE
V	VACUUM GAUGE W/ SHUTOFF VALVE

PIPE FITTING LEGEND

PLAN	2D SYMBOL	DESCRIPTION
		BLIND FLANGE
		CAP
		REDUCER
		SLEEVE
TP	TP	TEST PLUG
		UNION
		P-TRAP
		VTR

PLUMBING LEGEND

PLAN	2D SYMBOL	DESCRIPTION
		BELL-UP DRAIN OR FUNNEL RECEPTOR W/ TRAP
	FCO	CLEANOUT (FLOOR)
	CO	CLEANOUT (PIPE)
	CW HW	BLENDING VALVE
		DOWNSPOUT NOZZLE
		EMERGENCY SHOWER / EYEWASH
		FLOOR DRAIN
		HOSE RACK
		HOSE REEL
		ROOF DRAIN
		SHOWER
		SPLASH BLOCK
	A	WATER HAMMER ARRESTOR W/ PDI SIZE DESIGNATION

SCHEMATICS

2D SYMBOL	DESCRIPTION
	AIR-GAP FITTING
	BELL-UP DRAIN OR FUNNEL RECEPTOR
	FLOOR CLEANOUT
	FLOOR DRAIN
	FLOOR DRAIN W/ FUNNEL
	VENT THROUGH ROOF

SCHEMATICS SPECALTIES

2D SYMBOL	DESCRIPTION
	AUTOMATIC VALVE STATION
S	BASKET STRAINER
	COMBINATION PUMP DISCHARGE VALVE
	FLOW CONTROL VALVE
	FLOW SENSOR METER
	AIR VENT
	ROTAMETER
	SIGHT FLOW INDICATOR
	SUCTION DIFFUSER (SCHEMATIC)
TP	TRAP PRIMER

GENERAL PLUMBING NOTES

1. THIS IS GENERAL LEGEND AND ABBREVIATION SHEET FOR THE PLUMBING DRAWINGS. SOME ITEMS CONTAINED ON THIS SHEET MAY NOT BE USED ON THIS SPECIFIC PROJECT.
2. ALL MECHANICAL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING APPLICABLE CODES:
   - 2019 CALIFORNIA BUILDING CODE
   - 2019 CALIFORNIA FIRE PROTECTION CODE
   - 2019 CALIFORNIA FUEL GAS CODE
   - 2019 CALIFORNIA PLUMBING CODE
   - 2019 CALIFORNIA ENERGY CONSERVATION CODE
3. FOR PLUMBING VENTS, FLUE FLASHING, AND ROOF DRAIN DETAILS, SEE ARCHITECTURAL DRAWINGS.
4. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL EQUIPMENT BASE DETAILS.
5. "SCREENED" DELINEATION DENOTES EXISTING AND NEW FACILITIES AND IS FOR REFERENCE ONLY. "LIGHT" LINE DELINEATION DENOTES EXISTING MECHANICAL EQUIPMENT AND SYSTEMS. EXISTING FACILITY AND MECHANICAL SYSTEMS INFORMATION WAS TAKEN FROM PREVIOUS DRAWINGS, CONSTRUCTION RECORDS, DATA, AND FIELD SURVEY INFORMATION. ACTUAL LOCATION, ARRANGEMENT, AND DIMENSIONS SHALL BE FIELD VERIFIED AND WORK INSTALLED TO MEET ACTUAL CONDITIONS AND LOCATIONS ENCOUNTERED. "BOLD" (DARK) DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
6. ALL PIPE PENETRATIONS THROUGH FIRE RESISTANCE RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRESTOP SYSTEMS, EQUIPMENT AND ACCESSORIES TO RESIST THE PASSAGE OF FIRE, SMOKE AND OTHER GASES. THE ORIGINAL FIRE RESISTANCE RATING OF THE ASSEMBLY PENETRATED SHALL BE MAINTAINED FOR ALL TYPES OF PENETRATIONS. SEE ARCHITECTURAL DRAWINGS FOR RATED ASSEMBLY LOCATIONS.
7. METAL ROOF DECKING OR BOTTOM CHORD OF BAR JOISTS SHALL NOT BE USED FOR THE SUPPORT OF EQUIPMENT OR PIPING.
8. ALL HANGERS, BRACKETS, OR BRACES FOR EQUIPMENT AND PIPING ARE NOT INDICATED ON THE DRAWINGS. REFER TO THE SPECIFICATIONS FOR SUPPORT REQUIREMENTS NOT SHOWN ON THE PLANS.
9. ALL EQUIPMENT AND PIPING FINAL LOCATIONS SHALL BE COORDINATED TO AVOID INTERFERENCES WITH STRUCTURE, OTHER PIPING, EQUIPMENT, DUCTWORK, AND CONDUIT. UNLESS SPECIFICALLY DIMENSIONED, THE PIPE ROUTING SHOWN IS INTENDED TO INDICATE GENERAL LOCATION ONLY.
10. ALL PIPING SHALL BE ROUTED AS HIGH AS POSSIBLE WITH A MINIMUM HEIGHT OF 8'-0" ABOVE THE WALKING SURFACE UNLESS OTHERWISE INDICATED BY A CENTERLINE OR INVERT ELEVATION.
11. ALL HOSE FAUCETS AND HOSE VALVES SHALL BE INSTALLED 3'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. WALL HYDRANTS SHALL BE INSTALLED 2'-0" ABOVE GRADE UNLESS OTHERWISE NOTED.
12. ALL HOSE FAUCETS AND WALL HYDRANTS SHALL BE NOMINAL 3/4" PIPE SIZE UNLESS OTHERWISE NOTED. ALL HOSE VALVES SHALL BE 1 1/2" NOMINAL PIPE SIZE UNLESS OTHERWISE NOTED.
13. ALL HOSE FAUCETS, WALL HYDRANTS, AND OTHER OUTLETS ON NON-POTABLE WATER LINES WHICH COULD BE USED FOR DRINKING OR DOMESTIC USE SHALL BE POSTED AS REQUIRED BY THE APPLICABLE CODES. IN ABSENCE OF A CODE REQUIREMENT, THE OUTLETS SHALL BE POSTED WITH A TAG IN THE SHAPE OF A 4" EQUILATERAL TRIANGLE BEARING THE LEGEND "DANGER: UNSAFE WATER" IN LETTERS NOT LESS THAN 1/2" IN HEIGHT. THIS TAG SHALL BE SECURELY ATTACHED IN A VISIBLE LOCATION DIRECTLY ABOVE OUTLET. THE TAG SHALL BE PAINTED ORANGE AND THE LETTERS BLACK.
14. ALL RELIEF VALVES SHALL BE PIPED TO FLOOR OR BELL-UP DRAINS.
15. SEISMIC RESTRAINTS/BRACING SHALL BE PROVIDED FOR ALL EQUIPMENT, DUCTWORK, AND ACCESSORIES IN ACCORDANCE WITH THE LATEST SMACNA SEISMIC RESTRAINT MANUAL AND THE 2019 CALIFORNIA BUILDING CODE, THE SPECIFICATION SECTION 01 67 00 METREOLOGICAL AND SEISMIC DESIGN CRITERIA. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEISMIC SUPPORTS AND ADDITIONAL/MISCELLANEOUS STEEL REQUIRED FOR PROPER INSTALLATION OF SUPPORTS. DESIGN SUBMITTAL CALCULATIONS SHALL BE STAMPED AND SIGNED BY A CALIFORNIA LICENSED CIVIL OR STRUCTURAL ENGINEER.
16. INSULATION SHALL BE PROVIDED FOR EQUIPMENT AND PIPING SYSTEMS AS INDICATED IN THE SPECIFICATIONS.
17. PLUMBING VENTS OUTLETS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM ANY OUTSIDE AIR INLET.
18. PIPING SIZES TO EQUIPMENT AND EQUIPMENT SUPPORTS SHALL BE VERIFIED AND ADJUSTED TO MATCH ACTUAL EQUIPMENT FURNISHED.
19. ALL MATERIALS, FITTINGS, COVERS, AND EQUIPMENT INSTALLED IN RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE AND UL LISTED FOR USE IN RETURN AIR PLENUMS.
20. REFER TO GENERAL DRAWINGS FOR ADDITIONAL ABBREVIATIONS.
21. REFER TO G-06, PROJECT GENERAL NOTES, FOR ADDITIONAL GENERAL REQUIREMENTS.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
RANDY W. CANTRELL
NO. M 36207
MECHANICAL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
PLUMBING
LEGENDS, ABBREVIATIONS, AND GENERAL NOTES

DESIGNED: KVN
DETAILED: MS
CHECKED: AEC
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

P-01
SHEET
OF

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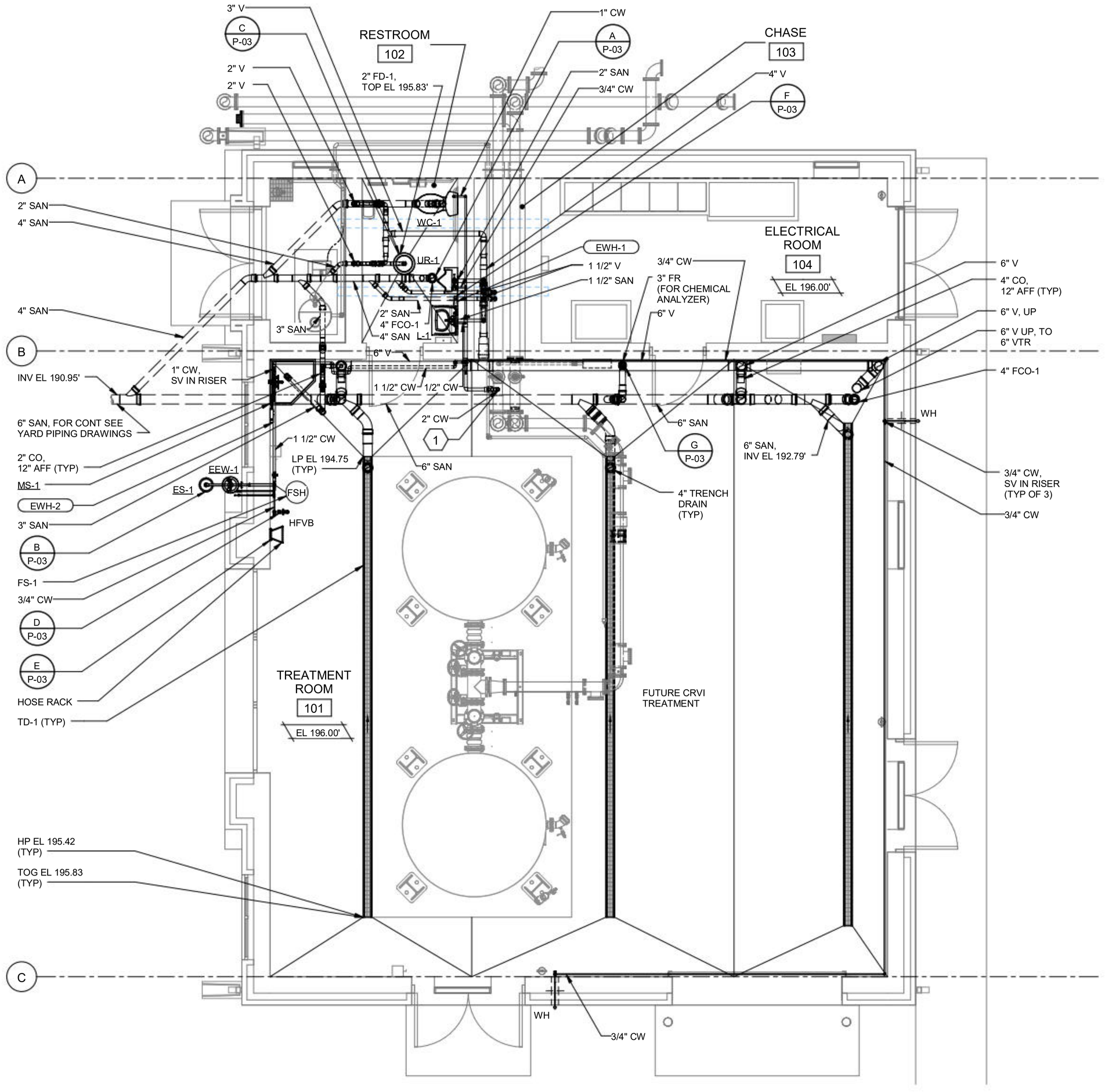


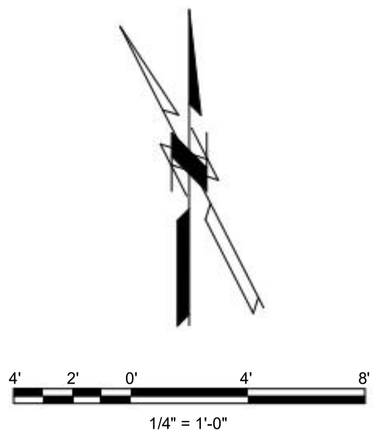
OPERATING FLOOR PLAN

1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1. 2" CW CONNECTION TO TREATED WATER PIPING, REFER MECHANICAL DRAWINGS.



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BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
PLUMBING
FLOOR PLAN

DESIGNED: KVN
DETAILED: MS
CHECKED: AEC
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

P-02
SHEET
OF

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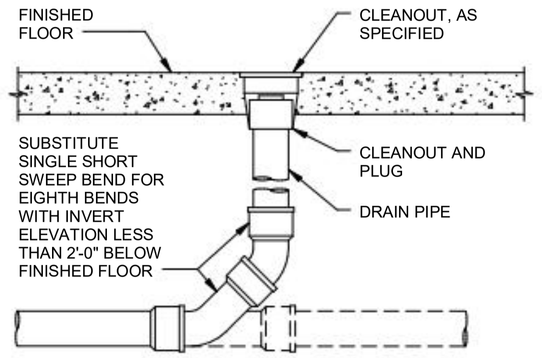
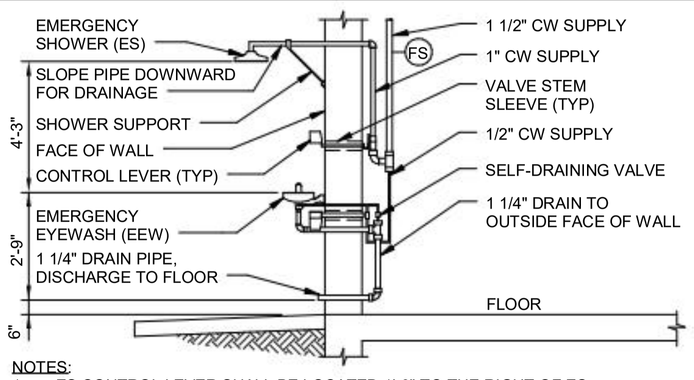


A FLOOR CLEANOUT - NEW FLOOR

NO SCALE

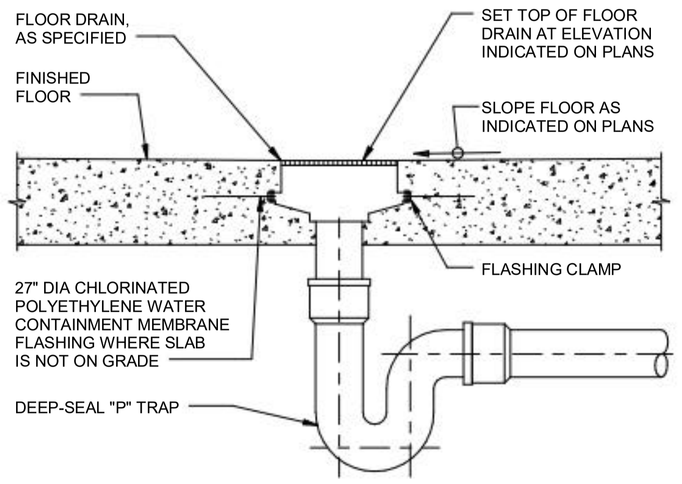


NOTES:

1. ES CONTROL LEVER SHALL BE LOCATED 1'-0" TO THE RIGHT OF ES CENTERLINE, MAX OF 5'-6" ABOVE GRADE. EEW CONTROL LEVER AND WATER SUPPLY SUPPLY LINE SHALL BE LOCATED 4 3/4" TO THE RIGHT OF EEW CENTERLINE. EEW CONTROL LEVER CONTROL LEVER SHALL BE LOCATED 5 5/8" BELOW WATER SUPPLY LINE. SUPPLY PIPING SHALL NOT INTERFERE WITH CONTROL LEVER OPERATION.
2. ANNULAR SPACE IN VALVE STEM SLEEVES SHALL BE LOOSELY PACKED WITH OAKUM TO REDUCE AIR INFILTRATION, BUT SHALL NOT HINDER VALVE OPERATION.

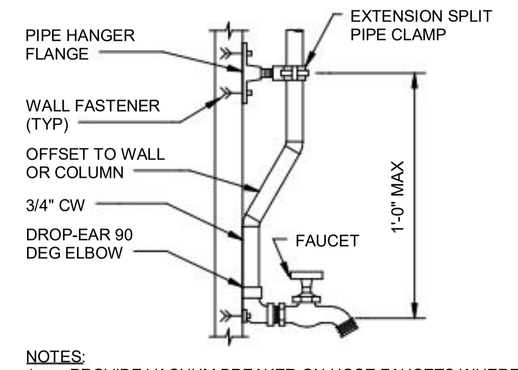
B OUTDOOR EMERGENCY SHOWER AND EYE WASH

NO SCALE



C FLOOR DRAIN - NEW FLOOR

NO SCALE

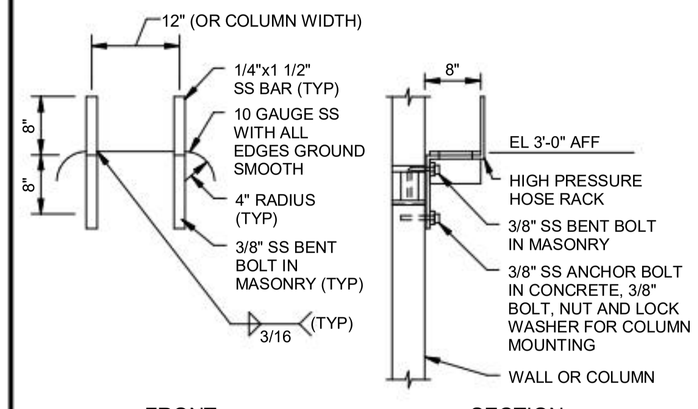


NOTES:

1. PROVIDE VACUUM BREAKER ON HOSE FAUCETS WHERE INDICATED ON THE PLANS.
2. SEE PLANS AND SPECIFICATIONS FOR PIPE DIAMETERS.

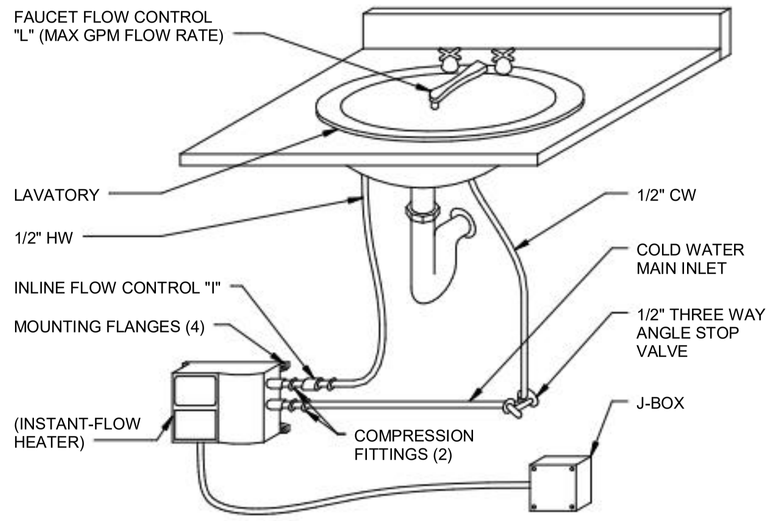
D HOSE FAUCET PIPE MOUNTING

NO SCALE



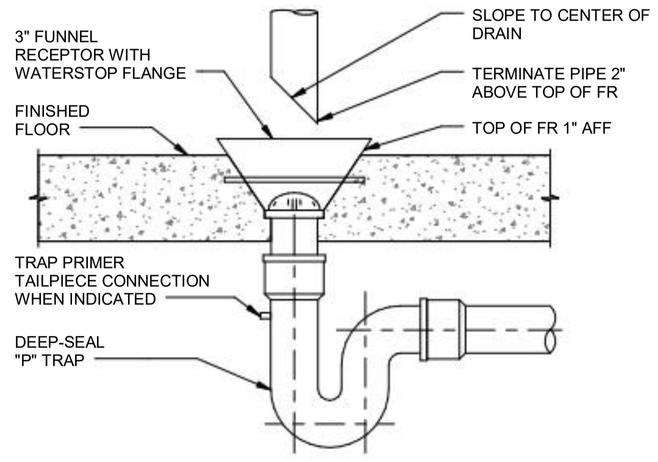
E WALL OR COLUMN MOUNTED HOSE RACK

NO SCALE



F ELECTRIC WATER HEATER-INSTANTANEOUS UNDER THE LAVATORY

NO SCALE



G FUNNEL DRAIN - NEW FLOOR

NO SCALE

PLUMBING EQUIPMENT SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	APPROX WEIGHT (LBS)	NOTES
EWH-1	CHRONOMITE	SERIES SR-30	ELECTRIC INSTANTANEOUS WATER HEATER, 0.5 GPM, 47.8 F RISE, 3.6 KW, 120 VOLT, 1 PHASE, 60 HZ.	---	---
EWH-2	CHRONOMITE	SERIES R-75SS	ELECTRIC INSTANTANEOUS WATER HEATER, 2 GPM, 57.8 F RISE, 18 KW, 240 VOLT, 1 PHASE, 60 HZ.	---	---

PLUMBING FIXTURE SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	WATER (IN)		WASTE (IN)		APPROX WEIGHT (LBS)	NOTES
				HOT	COLD	WASTE	VENT		
EEW-1	HAWS	7433FP	EMERGENCY EYE WASH, WALL MOUNTED, FROST-PROOF, REMOTE ACTUATED BALL VALVE, 1/2" IPS TEMPERED WATER SUPPLY SUPPLY.	---	1/2"	---	---	---	2,3,4
ES-1	HAWS	8111FP	EMERGENCY SHOWER, WALL MOUNTED, FROST-PROOF, REMOTE ACTUATED BALL VALVE, 1" IPS TEMPERED WATER SUPPLY.	---	1"	---	---	---	2,3,4
L-1	AMERICAN STANDARD	LAV: 0355.012 LUCERNE FAUCET: 7385-000 RELIANT 3	LAVATORY, WALL HUNG 21"x18", WITH 0.5 GPM AERATED FAUCET AND POP-UP DRAIN	1/2"	1/2"	1 1/2"	1 1/2"	---	1
MS-1	SINK: STERN-WILLIAMS FAUCET: AMERICAN STANDARD	SINK: SBC-1725-BP2 FAUCET: 8354.112	MOP SINK, 32"x32", 12" DEEP, FLOOR MOUNTED, DIAGONAL FRONT, TWO SPLASH PANELS.	1/2"	1/2"	3"	2"	---	---
UR-1	AMERICAN STANDARD	6501.010 WASHBROOK	URINAL, WALL MOUNT, FLUSH VALVE, 1.0 GALLON/FLUSH MAX.	---	3/4"	2"	1 1/2"	---	1
WC-1	AMERICAN STANDARD	3695.016 PRIOLO	WATER CLOSET, FLOOR MOUNT, FLUSH VALVE, 1.6 GALLON/FLUSH MAX.	---	1"	4"	2"	---	1

PIPING ACCESSORIES SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	NOTES
FCO-1	SMITH	4240 SERIES	HEAVY DUTY FLOOR CLEANOUT WITH ADJUSTABLE TRACTOR COVER	---
TD-1	HUBBEL	POLYCAST 600 SERIES	EXTRA HEAVY DUTY TRENCH DRAIN, POLYMER CONCRETE, PRESLOPED, HEAVY DUTY DUCTILE IRON GRATE WITH GRATE HOLD DOWN ATTACHMENT, BOTTOM OUTLET, OUTLET DEBRIS STRAINER	---

SCHEDULE NOTES

1. SEE DRAWING P-01 FOR LEGENDS, ABBREVIATIONS AND GENERAL NOTES.

PLUMBING EQUIPMENT SCHEDULE:

NONE

PLUMBING FIXTURE SCHEDULE:

1. FIXTURE AND INSTALLATION SHALL BE ADA COMPLIANT
2. POTABLE WATER SUPPLY
3. LOCAL AND REMOTE ALARM SYSTEM
4. COMMON FLOW SWITCH SERVES BOTH EEW-1 AND ES-1

PLUMBING PIPING ACCESSORIES SCHEDULE:

NONE

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
RANDY W. CANTRELL
NO. M 36207
MECHANICAL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
PLUMBING
DETAILS AND SCHEDULES

DESIGNED: KVN
DETAILED: MS
CHECKED: AEC
APPROVED:
DATE: JULY 2021

0 1/2 1
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PROJECT NO.
407941

P-03
SHEET
OF

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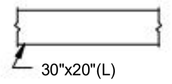
HVAC LEGENDS, ABBREVIATIONS, AND GENERAL NOTES

HVAC SYSTEM ABBREVIATIONS

CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
C	CONDENSATE DRAIN
CDWR	CONDENSER WATER RETURN
CDWS	CONDENSER WATER SUPPLY
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM (<15 PSIG)
R	REFRIGERANT

HVAC LEGEND

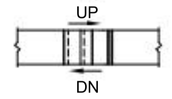

DIFFUSER FOR FLEXIBLE DUCT



DUCTWORK DIMENSIONS, THE FIRST DIMENSION IS THE SIDE SEEN OR SIDE THE LEADER LINE TOUCHES. SEE GENERAL MECHANICAL NOTES.


FLEXIBLE CONNECTION

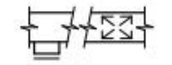

FLEXIBLE DUCTWORK



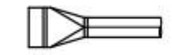
INCLINED RISE (UP) OR DROP (DN) IN RESPECT TO DIRECTION OF AIRFLOW


NEGATIVE PRESSURE DUCT


POSITIVE PRESSURE DUCT

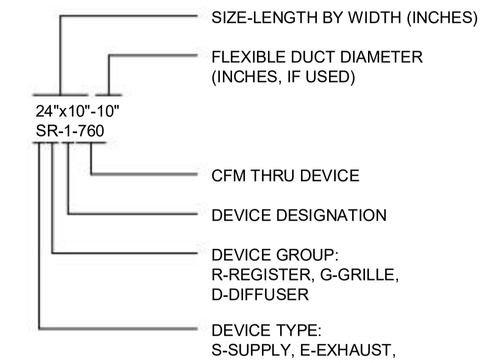

REGISTER, GRILLE OR DIFFUSER

ROUND OR FLEXIBLE DUCT TAKEOFF


ROUND TO SQUARE TRANSITION


TURNING VANES

AIR INLET & OUTLET IDENTIFICATIONS



SIZE-LENGTH BY WIDTH (INCHES)

FLEXIBLE DUCT DIAMETER (INCHES, IF USED)

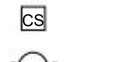
CFM THRU DEVICE

DEVICE DESIGNATION

DEVICE GROUP:
R-REGISTER, G-GRILLE,
D-DIFFUSER

DEVICE TYPE:
S-SUPPLY, E-EXHAUST,
R-RETURN, T-TRANSFER

HVAC CONTROLS & INSTRUMENTATION LEGEND



CONTROL STATION

DRAFT GAUGE

ELECTRIC OPERATOR (EXPLOSION PROOF)

ELECTRIC OPERATOR (MODULATING)

ELECTRIC OPERATOR (2 POSITION)

EMERGENCY VENTILATION SWITCH W/ NUMBER

FLOW SWITCH

GAUGE ACTIVATOR/ISOLATOR

HUMIDISTAT W/ NUMBER

LEVEL SWITCH

PRESSURE DIFFERENTIAL SWITCH W/ NUMBER

PRESSURE GAUGE W/ SHUTOFF VALVE

PRESSURE SWITCH

SMOKE DETECTOR W/ NUMBER

SOLENOID OPERATOR

THERMOMETER - DIAL TYPE

THERMOMETER - STEM TYPE

TEMPERATURE SENSOR WITH NUMBER

THERMOSTAT WITH NUMBER

VACUUM GAUGE W/ SHUTOFF VALVE

MECHANICAL ABBREVIATIONS

A

A	ALARM
AC	AIR COMPRESSOR
AD	ACCESS DOOR
AF	AIR FLOW, AIRFOIL
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
AFM	AIR FLOW MONITOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL
APPROX	APPROXIMATE
AS	AIR SEPARATOR
ATU	AIR TERMINAL UNIT
AUTO	AUTOMATIC
AVG	AVERAGE

B

B	BELT DRIVE, BLOW THROUGH
BDD	BACKDRAFT DAMPER
BF	BLIND FLANGE
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BH	BASEBOARD HEATER
BI	BACKWARD INCLINED, BUILT-IN THERMOSTAT
BL	BOTTOM LEVEL
BLDG	BUILDING
BLR	BLOWER
BOD	BOTTOM OF DUCT ELEVATION
BOT	BOTTOM
BTUH	BRITISH THERMAL UNITS PER HOUR
BU	BELL-UP
BV	BALL VALVE

C

C	CHANNEL, CONVECTOR, COOLING, COOLING (MAKE ON RISE)
CB	CENTRIFUGAL BLOWER
CBD	COUNTERBALANCE BACKDRAFT DAMPER
CC	COOLING COIL
CD	CONTROL DAMPER
CDWP	CONDENSER WATER PUMP
CENTR	CENTRIFUGAL
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
CH	CONVECTION HEATER
C/L	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUATION
CS	CONTROL STATION
CT	COOLING TOWER
CU	CONDENSING UNIT
CV	CHECK VALVE, CONTROL VALVE
CWP	CHILLED WATER PUMP

D

D	DIRECT DRIVE, DRAW-THRU
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEH	DEHUMIDIFIER
DF	DUCT FAN
DIA	DIAMETER
DM	DUCT MOUNTED
DN	DOWN
DX	DIRECT EXPANSION

E

E	ELECTRIC, ELECTRIC OPERATOR, EXHAUST
EA	EACH, EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ECONOMIZER, EVAPORATIVE COOLER
ECH	ELECTRIC CABINET HEATER
ECP	EQUIPMENT CONTROL PANEL
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EFF	EFFICIENCY
EGS	EMERGENCY GAS SCRUBBER
EIH	ELECTRIC INFRARED HEATER
EL	ELEVATION
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
ES	EMERGENCY SWITCH
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EV	EXHAUST VALVE
EVS	EMERGENCY VENTILATION SWITCH
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING

F

F	DEGREES FAHRENHEIT
FBD	FACE AND BYPASS DAMPER
FC	FORWARD CURVE, FAN COIL
FD	FIRE DAMPER
FDB	DEGREES FAHRENHEIT DRY BULB
FEF	FUME EXHAUST FAN
FLEX	FLEXIBLE
FM	FLOW METER
FPM	FEET PER MINUTE
FR	FUNNEL RECEPTOR
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
FS	FLOW SWITCH
FSD	COMBINATION FIRE/SMOKE DAMPER
FT	FEET, FIN TUBE HEATER
FUR	FURNACE
FWB	DEGREES FAHRENHEIT WET BULB

G

GA	GAUGE
GALV	GALVANIZED
GIH	GAS INFRARED HEATER
GPM	GALLONS PER MINUTE
GUH	GAS UNIT HEATER
GV	GATE VALVE

H

H	HAND OPERATOR, HEATING, HEATING (MAKE ON FALL), HEIGHT, HORIZONTAL, HUMIDISTAT
HC	HEATING COIL
HCH	HEATING WATER CABINET HEATER
HE	HEAT EXCHANGER
HO	HAND-OFF
HOA	HAND-OFF-AUTO
HP	HEAT PUMP, HORSEPOWER
HR	HEAT RECOVERY UNIT
HUH	HEATING WATER UNIT HEATER
HUM	HUMIDIFIER
HWB	HEATING WATER BOILER
HWP	HEATING WATER PUMP
HZ	HERTZ

I

I	INTAKE
ID	INSIDE DIAMETER
IN	INCHES
INV	INVERT

K

KW	KILOWATT

L

L	LINED DUCT, LOUVER
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LD	COMBINATION LOUVER/DAMPER
LI	LEVEL INDICATOR
LS	LEVEL SWITCH
LWT	LEAVING WATER TEMPERATURE

M

MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
ME	MIST ELIMINATOR
MFR	MANUFACTURER
MOCP	MAXIMUM OVERCURRENT PROTECTION
MIN	MINIMUM
MOD	MODULATING

N

NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
NPSHR	NET POSITIVE SUCTION HEAD REQUIRED

O

OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER

P

P	PNEUMATIC
PD	PRESSURE DROP (INCHES OF WATER FOR AIR, FEET OF WATER FOR FLUIDS)
PAC	PACKAGED AIR CONDITIONING UNIT
PAH	PACKAGED AIR HANDLING UNIT
PDS	PRESSURE DIFFERENTIAL SWITCH
PF	PROPELLER FAN
PHP	PACKAGED HEAT PUMP
PL	PLATE
POS	POSITION
PPM	PARTS PER MILLION
PROP	PROPELLER
PRS	PRESSURE REDUCING STATION
PRV	POWER ROOF VENTILATOR, PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER

R

RA	REACTIVATION AIR, RETURN AIR
RAC	ROOM AIR CONDITIONER
RCS	REMOTE CONTROL STATION
REQD	REQUIRED
RH	RELATIVE HUMIDITY, ROOF HOOD
RSF	ROOF SUPPLY FAN

S

SA	SUPPLY AIR
SCD	SMOKE CONTROL DAMPER
SCFM	STANDARD CUBIC FEET PER MINUTE
SF	SQUARE FEET, SUPPLY FAN
SH	SHEET
SIM	SIMILAR
SMD	SMOKE DETECTOR
SP	STATIC PRESSURE (INCHES OF WATER)
SPS	STATIC PRESSURE SENSOR
SS	STAINLESS STEEL
STD	STANDARD
SV	SERVICE VALVE, SHUTOFF VALVE, SOLENOID VALVE

T

T	THERMOSTAT
TCP	TEMPERATURE CONTROL PANEL
TCV	TEMPERATURE CONTROL VALVE
TE	TEMPERATURE ELEMENT
TL	TOP LEVEL
TS	TIP SPEED
TYP	TYPICAL

V

V	VERTICAL
VAC	VACUUM OUTLET
VANE	VANEAXIAL
VAV	VARIABLE AIR VOLUME
VCD	VOLUME CONTROL DAMPER
VF	VANEAXIAL FAN

W

W	WIDE FLANGE, WIDTH
WB	WET BULB
WC	WATER CHILLER WATER COLUMN
WF	WALL FAN
WG	WATER GAUGE
WH	WALL HEATER
WM	WALL MOUNTED
WST	WATER STORAGE TANK
WT	WEIGHT
WV	WATER CONTROL VALVE

Z

ZD	ZONE DAMPER

GENERAL HVAC NOTES

1. THIS IS GENERAL LEGEND AND ABBREVIATION SHEET FOR HVAC DRAWINGS. SOME ITEMS CONTAINED ON THIS SHEET MAY NOT BE USED ON THIS SPECIFIC PROJECT.
2. ALL MECHANICAL HVAC WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING APPLICABLE CODES:
   2019 CALIFORNIA BUILDING CODE
   2019 CALIFORNIA MECHANICAL CODE
   2019 CALIFORNIA ENERGY CONSERVATION CODE
3. FOR ROOFTOP EQUIPMENT CURBS, FLUES, AND FLASHING DETAILS, SEE ARCHITECTURAL DRAWINGS.
4. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL EQUIPMENT BASE DETAILS.
5. "SCREENED" DELINEATION DENOTES EXISTING AND NEW FACILITIES AND IS FOR REFERENCE ONLY. "LIGHT" LINE DELINEATION DENOTES EXISTING MECHANICAL EQUIPMENT AND SYSTEMS. EXISTING FACILITY AND MECHANICAL SYSTEMS INFORMATION WAS TAKEN FROM PREVIOUS DRAWINGS, CONSTRUCTION RECORDS, DATA, AND FIELD SURVEY INFORMATION. ACTUAL LOCATION, ARRANGEMENT, AND DIMENSIONS SHALL BE FIELD VERIFIED AND WORK INSTALLED TO MEET ACTUAL CONDITIONS AND LOCATIONS ENCOUNTERED. "BOLD" (DARK) DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
6. ALL MATERIALS, FITTINGS, COVERS, AND EQUIPMENT INSTALLED IN RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE AND UL LISTED FOR USE IN RETURN AIR PLENUMS.
7. ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RESISTANCE RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRESTOP SYSTEMS, EQUIPMENT AND ACCESSORIES TO RESIST THE PASSAGE OF FIRE, SMOKE AND OTHER GASES. THE ORIGINAL FIRE RESISTANCE RATING OF THE ASSEMBLY PENETRATED SHALL BE MAINTAINED FOR ALL TYPES OF PENETRATIONS. SEE ARCHITECTURAL DRAWINGS FOR RATED ASSEMBLY LOCATIONS.
8. METAL ROOF DECKING OR BOTTOM CHORD OF BAR JOISTS SHALL NOT BE USED FOR THE SUPPORT OF EQUIPMENT, PIPING, OR DUCTWORK.
9. ALL HANGERS, BRACKETS, OR BRACES FOR PIPING, DUCTWORK AND EQUIPMENT ARE NOT INDICATED ON THE DRAWINGS. REFER TO THE SPECIFICATIONS FOR SUPPORT REQUIREMENTS NOT SHOWN ON THE PLANS.
10. OUTSIDE AIR INLETS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM ANY EXHAUST AIR OR PLUMBING VENT OUTLET.
11. ALL EQUIPMENT, PIPING AND DUCTWORK FINAL LOCATIONS SHALL BE COORDINATED TO AVOID INTERFERENCES WITH STRUCTURE, OTHER PIPING, EQUIPMENT, DUCTWORK, AND CONDUIT. UNLESS SPECIFICALLY DIMENSIONED, THE PIPE AND DUCTWORK ROUTING SHOWN IS INTENDED TO INDICATE GENERAL LOCATION ONLY. INSTALL DUCTWORK TO ALLOW FOR PIPING TO BE ROUTED NEAR WALLS.
12. ALL PIPING AND DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE WITH A MINIMUM HEIGHT OF 8'-0" ABOVE THE WALKING SURFACE UNLESS OTHERWISE INDICATED BY A CENTERLINE OR BOTTOM OF DUCT ELEVATION.
13. PIPING AND DUCTWORK INSTALLED ABOVE SUSPENDED CEILINGS SHALL BE INSTALLED TO ALLOW A MINIMUM 6 INCH CLEARANCE BETWEEN THE CEILING AND PIPING OR BOTTOM OF DUCT.
14. DUCTWORK SHALL BE FABRICATED, REINFORCED, SUPPORTED AND SEALED FOR OPERATING PRESSURES INDICATED IN THE SCHEDULES FOR THE EQUIPMENT IT SERVES. ALL DUCTWORK SHALL HAVE A MINIMUM SMACNA PRESSURE CLASSIFICATION OF ONE INCH.
15. DUCT SIZES INDICATED ARE CLEAR DIMENSIONS INSIDE THE DUCT OR DUCT LINING. SHEET METAL SIZES ARE LARGER FOR INTERNALLY LINED DUCTWORK.
16. MINIMUM INSULATION THICKNESSES FOR DUCTWORK SHALL BE AS INDICATED IN THE SPECIFICATIONS UNLESS OTHERWISE INDICATED ON THE PLANS WITH A "L" OR "W" DESIGNATION. WHERE AN INSULATION THICKNESS IS INDICATED ON THE DRAWINGS, IT SHALL GOVERN. THE FOLLOWING DENOTES THE DIFFERENT INSULATION THICKNESSES INDICATED ON THE DRAWINGS:
    L,L1 - 1 INCH INTERNALLY LINED — W,W1 - 1 INCH EXTERNALLY WRAPPED
    L15 - 1.5 INCH INTERNALLY LINED — W15 - 1.5 INCH EXTERNALLY WRAPPED
    L2 - 2 INCH INTERNALLY LINED — W2 - 2 INCH EXTERNALLY WRAPPED
17. DUCT CONNECTIONS TO EQUIPMENT, PIPING SIZES TO EQUIPMENT, AND EQUIPMENT SUPPORTS SHALL BE VERIFIED AND ADJUSTED TO MATCH ACTUAL EQUIPMENT FURNISHED.
18. THE LOCATION OF PIPING AND VALVES TO THE AIR HANDLING EQUIPMENT SHALL NOT INTERFERE WITH FILTER REMOVAL OR AIR HANDLING EQUIPMENT SERVICING.
19. ROOFTOP EQUIPMENT SHALL NOT BE LOCATED SUCH THAT ACCESS TO CONTROLS AND TO PERFORM SERVICE FOR EQUIPMENT IS LOCATED WITHIN 10'-0" OF THE BUILDING EDGE.
20. CONTROL DAMPER SIZES SHALL MATCH DIMENSIONS OF ASSOCIATED LOUVER UNLESS OTHERWISE INDICATED.
21. ALL RELIEF VALVES SHALL BE PIPED TO 12" AFF.
22. SEISMIC RESTRAINTS/BRACING SHALL BE PROVIDED FOR ALL EQUIPMENT, DUCTWORK, AND ACCESSORIES IN ACCORDANCE WITH THE LATEST SMACNA SEISMIC RESTRAINT MANUAL AND THE 2019 CALIFORNIA BUILDING CODE, THE SPECIFICATION SECTION 01 67 00 METREOLOGICAL AND SEISMIC DESIGN CRITERIA. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEISMIC SUPPORTS AND ADDITIONAL/MISCELLANEOUS STEEL REQUIRED FOR PROPER INSTALLATION OF SUPPORTS. DESIGN SUBMITTAL CALCULATIONS SHALL BE STAMPED AND SIGNED BY A CALIFORNIA LICENSED CIVIL OR STRUCTURAL ENGINEER.
23. INSULATION SHALL BE PROVIDED FOR EQUIPMENT, PIPING AND DUCT SYSTEMS AS INDICATED IN THE SPECIFICATIONS.
24. REFER TO GENERAL DRAWINGS FOR ADDITIONAL ABBREVIATIONS.
25. REFER TO G-06, PROJECT GENERAL NOTES, FOR ADDITIONAL GENERAL REQUIREMENTS.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
RANDY W. CANTRELL
NO. M 36207
MECHANICAL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
HVAC
LEGENDS, ABBREVIATIONS, AND GENERAL NOTES

DESIGNED: KVN
DETAILED: MS
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

H-01
SHEET
OF

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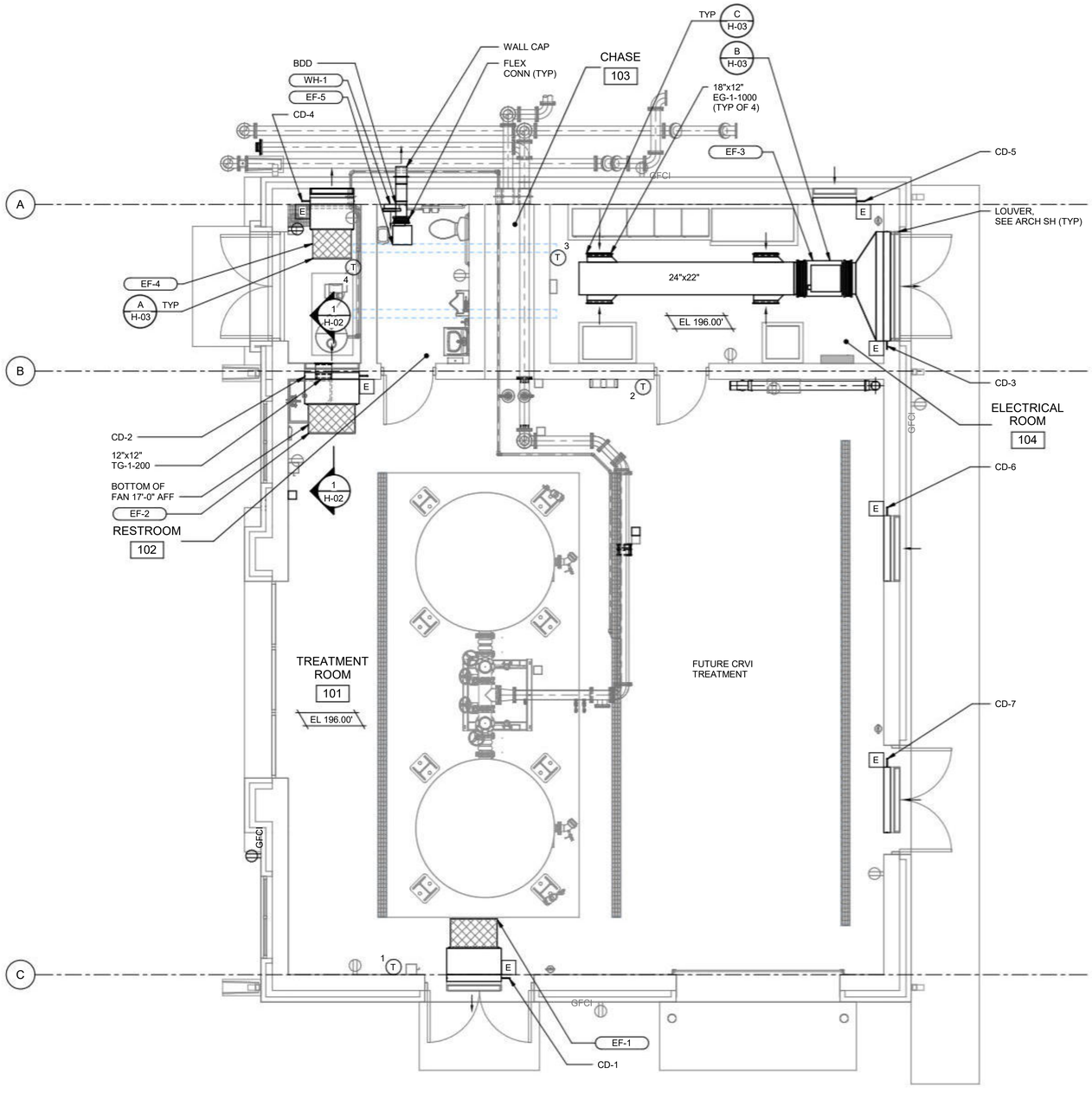
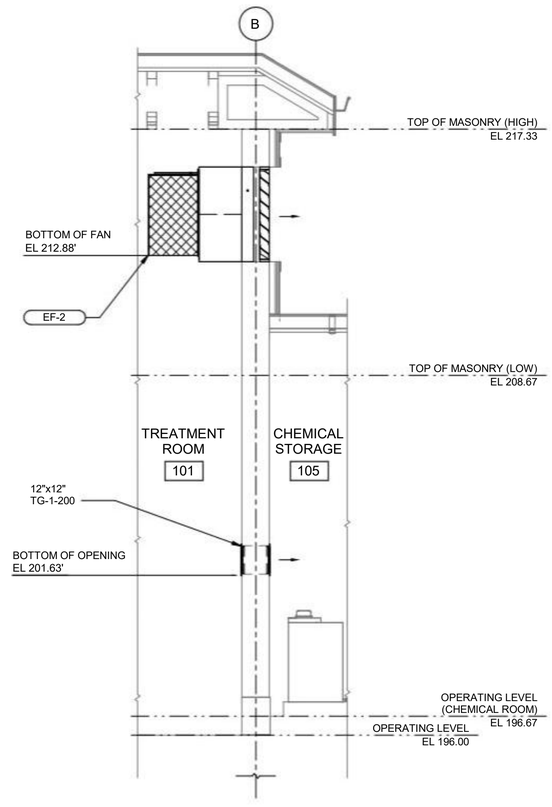


OPERATING FLOOR PLAN

1/4" = 1'-0"

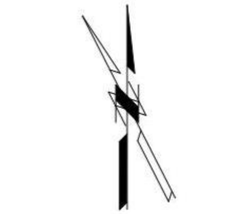


1 H-02 SECTION

3/8" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES



12" 0' 1' 2' 3' 4' 5' 6' 7'

3/8" = 1'-0"

4' 2' 0' 4' 8'

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

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REGISTERED PROFESSIONAL ENGINEER
RANDY W. CANTRELL
NO. M 36207
MECHANICAL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
HVAC
FLOOR PLAN AND SECTION

DESIGNED: KVN
DETAILED: MS
CHECKED: AEC
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

H-02
SHEET
OF

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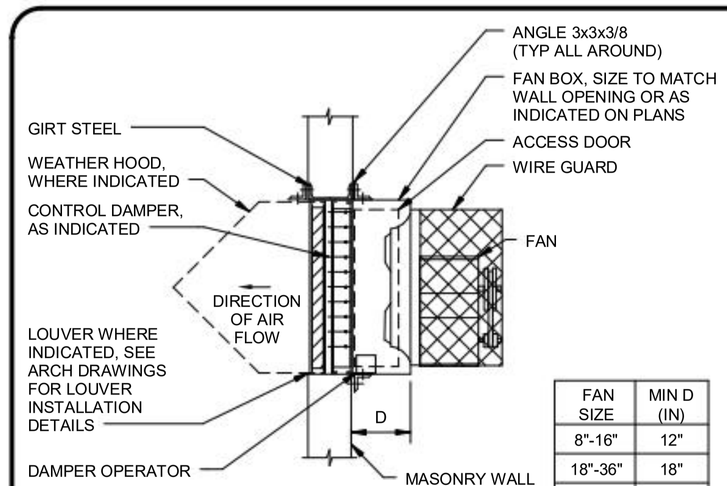
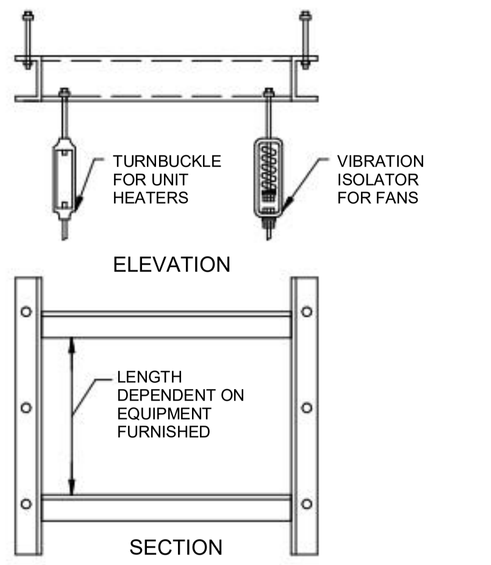


FAN SIZE	MIN D (IN)
8"-16"	12"
18"-36"	18"
42"-72"	24"

A PROPELLER FAN

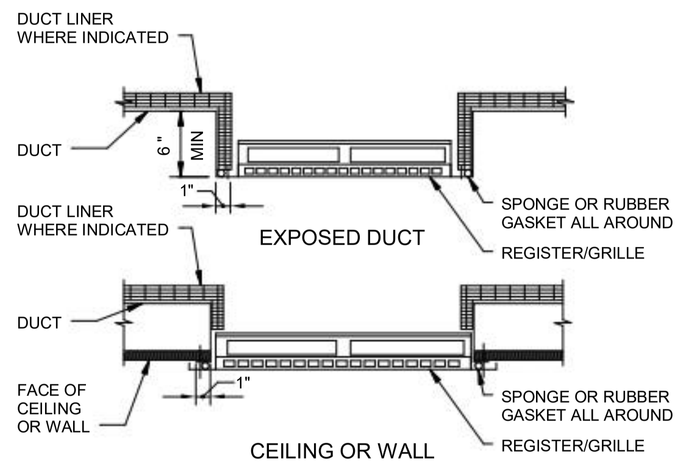
NO SCALE



B CEILING HANGER - 2 OR 4 ROD - EQUIPMENT SUPPORT - STRUCT MEMBER

NO SCALE

SUPPORT SHOWN IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR DESIGNING SUPPORT SYSTEMS AS REQUIRED BY GENERAL NOTE 22 ON DRAWING H-01



C REGISTER/GRILLE

NO SCALE

FAN SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	FAN TYPE	AIRFLOW (CFM)	ESP (IN WC)	BRAKE HP	MOTOR HP	POWER SUPPLY		MINIMUM WHEEL DIAMETER (IN)	WHEEL TYPE	DRIVE	FILTER DATA		VIBRATION ISOLATION	APPROX WEIGHT (LBS)	NOTES
									VOLTS	PHASE				TYPE	THICKNESS (IN)			
EF-1	TREATMENT ROOM 101	GREENHECK	SBCE	PF	2000	0.375	0.32	1/2	480	3	24	P	BELT	---	---	INTERNAL	100	2A
EF-2	TREATMENT ROOM 101	GREENHECK	SBCE	PF	2000	0.375	0.32	1/2	480	3	24	P	BELT	---	---	INTERNAL	100	2A
EF-3	ELECTRICAL ROOM 104	GREENHECK	BSQ-VG	DF	4000 / 2000	0.375	1.48	2	480	3	16	A	BELT	---	---	INTERNAL	150	2A,4
EF-4	CHEMICAL STORAGE 105	GREENHECK	AER	PF	200	0.375	0.06	1/4	120	1	20	P	DIRECT	---	---	INTERNAL	75	2A,5
EF-5	REST ROOM 102	GREENHECK	CSP	CF	100	0.5	---	1/25	120	1	7	A	DIRECT	---	---	INTERNAL	30	1,3

HEATER SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	TYPE	UNIT ORIENTATION	EAT (F)	EWT (F)	AIR FLOW (CFM)	AIR PD (IN WC)	OUTPUT CAPACITY		WATER FLOW (GPM)	WATER PD (FT)	MOTOR HP	POWER SUPPLY		APPROX WEIGHT (LBS)	NOTES
										(BTUH)	(KW)				VOLTS	PHASE		
WH-1	REST ROOM 102	INDEECO	WAI	WH	HORIZONTAL	---	---	---	---	---	1.5	---	---	---	120	1	24	1

AIR DEVICE SCHEDULE

SYMBOL	MANUFACTURER-EDIT	MODEL	FRAME/BORDER	MODULE SIZE	MATERIAL	FINISH	DAMPER TYPE	NOTES
EG-1	TITUS	50F	SURFACE MOUNT	---	ALUMINUM	BAKED WHITE ENAMEL	---	1
TG-1	TITUS	50F	SURFACE MOUNT	---	ALUMINUM	BAKED WHITE ENAMEL	---	1

HVAC SEQUENCE OF OPERATIONS:

1. HEATING SYSTEMS.

1.1. WALL HEATERS. WALL HEATERS SHALL BE CONTROLLED BY THEIR RESPECTIVE THERMOSTATS.

2. VENTILATING/EXHAUST SYSTEMS.

2.1. "ON-OFF-AUTO" EQUIPMENT CONTROL. EQUIPMENT INDICATED FOR "ON-OFF-AUTO" CONTROL SHALL EACH BE CONTROLLED BY AN INDIVIDUAL "ON-OFF-AUTO" FAN SELECTOR SWITCH. THE SWITCH LOCATION SHALL BE AS INDICATED BELOW. WHEN THE SWITCH IS PLACED IN THE "AUTO" POSITION, THE FAN SHALL BE INTERLOCKED AND CONTROLLED BY THE FAN INTERLOCK. WHEN THE SWITCH IS PLACED IN THE "ON" POSITION, THE FAN SHALL BE ENERGIZED. BEFORE A FAN CAN OPERATE, THE CONTROL DAMPER(S) SHALL BE PROVEN OPEN. WHEN THE FAN IS DE-ENERGIZED, THE CONTROL DAMPER(S) SHALL RETURN TO THE NORMALLY CLOSED POSITION UNLESS OTHERWISE INDICATED.

EQUIPMENT	SWITCH LOCATION	FAN INTERLOCK	CONTROL DAMPER(S)
EF-1	MCC	T-1	CD-1, CD-7
EF-2	MCC	T-2	CD-2, CD-6
EF-3	MCC	T-3 (TWO STAGE)	CD-3, CD-5
EF-4	BUILT-IN CONTROLLER	T-4	CD-4
EF-5	---	LIGHT SWITCH	---

EF-3 SHALL BE A VARIABLE SPEED FAN, T-3 SHALL ENERGIZE AT LOW SPEED AT A TEMPERATURE OF 80 F AND SWITCH TO HIGH SPEED AT A TEMPERATURE OF 90F.

3. THERMOSTAT SETPOINTS

3.1 THERMOSTAT SETPOINTS SHALL BE AS INDICATED BELOW, UNLESS THE SETPOINT HAS BE DESCRIBED PREVIOUSLY IN THIS SEQUENCE OF OPERATIONS.

HEATERS	-	54F
VENTILATING EQUIPMENT	-	90F

GENERAL NOTES

SEE DRAWINGS H-01 FOR LEGENDS, ABBREVIATIONS AND GENERAL NOTES.

SCHEDULE LEGEND:

FAN SCHEDULE:

FAN TYPE ABBREVIATIONS:
CF - CABINET FAN
PF - PROPELLER FAN
DF - DUCT FAN

WHEEL TYPE ABBREVIATIONS:
A - AXIAL
P - PROPELLER

NOTES:
1. WALL CAP
2. CONSTURCTION A) ALUMINUM FAN BLADES.
3. BACK DRAFT DAMPER.
4. VARIABLE SPEED FAN (VARIABLE FREQUENCY DRIVE/VARI GREEN MOTOR).
5. BUILT-IN CONTROLLER

HEATER SCHEDULE:

TYPE ABBREVIATIONS:
WH - WALL HEATER

NOTES:
1. SURFACE MOUNTING KIT.

AIR DEVICE SCHEDULE:

NOTES:
1. SEE HVAC PLAN DRAWINGS FOR DEVICE LENGTH, WIDTH AND SUPPLY PATTERN.

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
RANDY W. CANTRELL
NO. M 36207
MECHANICAL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
HVAC

DETAILS, SCHEDULES AND SEQUENCE OF OPERATIONS

DESIGNED: KVN
DETAILED: MS
CHECKED: AEC
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

H-03
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

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ELECTRICAL LEGENDS

ONE-LINE DIAGRAM LEGEND

1500KVA
2.4KV Δ - 480Y/277V
3%Z, 60HZ — TRANSFORMER WITH PRIMARY AND SECONDARY VOLTAGE, AND KVA RATING AS NOTED

CS, 4#14,3/4", 20, 3P - 60, 22:3#8,#10G, 4#14,2" — CIRCUIT NO.22 WITH 3#8 INSULATED CONDUCTORS AND 1#10 GROUND WIRE FOR A 20HP MOTOR WITH 3 POLE, 60A, MOTOR DISCONNECT SWITCH AND 4#14 INSULATED CONDUCTORS FOR AUXILIARY ITEM, AS FOR EXAMPLE A CONTROL STATION, ALL IN 2" CONDUIT.

AUXILIARY ITEMS MAY NOT BE COMPLETELY SHOWN
HS, 20, 3P-60, 22:3#8,#10G 4#14,2" — CONDUCTORS FOR AUXILIARY ITEM SHALL NOT PASS THROUGH MOTOR DISCONNECT SWITCH.

AUXILIARY ITEMS MAY NOT BE COMPLETELY SHOWN
15 — ONE-LINE SHOWING POWER AND CONTROL TO A PACKAGE UNIT, AS FOR EXAMPLE A STEAM GENERATOR OR AN AIR HANDLING UNIT, SHALL IMPLY THAT ANY AND ALL ASSOCIATED EQUIPMENT SHALL ALSO BE INSTALLED AND WIRED AS REQUIRED BY THE EQUIPMENT FURNISHED.

INDICATES THAT ALL OR PART OF CIRCUIT MAY BE ROUTED IN DUCT BANK OR UNDERGROUND. CONDUIT SIZE SHOWN ON ONE-LINE IS ABOVE GROUND AND/OR INSIDE OF STRUCTURE. SEE DUCT BANK SCHEDULE AND SECTIONS FOR CONDUIT SIZE OF UNDERGROUND PORTION OF CIRCUIT.

HIGH VOLTAGE DRAWOUT AIR OR VACUUM CIRCUIT BREAKER

3P-20 — LOW VOLTAGE AIR CIRCUIT BREAKER, 3 POLE, 20 AMPERE

S4 — SIZE 4 COMBINATION MAGNETIC MOTOR STARTER

LOW VOLTAGE DRAWOUT AIR CIRCUIT BREAKER

HIGH VOLTAGE DRAWOUT CONTACTOR

FUSE AND DISCONNECT SWITCH

S2 — SIZE 2 COMBINATION MAGNETIC MOTOR STARTER, REVERSING OR 2 SPEED

S1 — SIZE 1 COMBINATION REDUCED VOLTAGE AUTOTRANSFORMER

POTENTIAL TRANSFORMER

CURRENT TRANSFORMER

CURRENT OR POTENTIAL TEST SWITCH

G — GENERATOR

K — KIRK KEY INTERLOCK

E — ELECTRICAL INTERLOCK

R — RESISTOR

59G — PROTECTION RELAY WITH IEEE DEVICE FUNCTION AS SHOWN

V — SINGLE-FUNCTION METER

SURGE OR LIGHTNING ARRESTER

SURGE ARRESTER WITH SURGE CAPACITOR

GROUND CONNECTION

SCHEMATIC SYMBOLS

- WIRE CONNECTION POINT
- EXTERNAL CONNECTION POINT
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- STARTER, CONTACTOR OR RELAY COIL
- NORMALLY OPEN PUSH BUTTON
- NORMALLY CLOSED PUSH BUTTON
- MAINTAINED PUSH BUTTON
- NORMALLY CLOSED GEARED LIMIT SWITCH
- NORMALLY OPEN GEARED LIMIT SWITCH
- INDICATING LIGHT
- FUSE
- POTENTIOMETER
- CAPACITOR
- DIODE
- RESISTOR
- CONTROL POWER TRANSFORMER
- SWITCH
- MS — MANUAL STARTER
- OL — OVERLOAD
- OVERLOAD
- ELECTRODE
- FLOAT SWITCH (CLOSING ON RISING LEVEL)
- FLOAT SWITCH (OPENING ON RISING LEVEL)
- P — PRESSURE SWITCH (CLOSING ON RISING PRESSURE)
- P — PRESSURE SWITCH (OPENING ON RISING PRESSURE)
- V — VACUUM SWITCH (CLOSING ON INCREASING VACUUM)
- V — VACUUM SWITCH (OPENING ON INCREASING VACUUM)
- TEMPERATURE SWITCH (CLOSING ON RISING TEMPERATURE)
- TEMPERATURE SWITCH (OPENING ON RISING TEMPERATURE)
- FLOW ACTUATED SWITCH (CLOSING ON INCREASE IN FLOW)
- FLOW ACTUATED SWITCH (OPENING ON INCREASE IN FLOW)
- ON TIME DELAY CONTACT (NORMALLY OPEN, WHEN THE COIL IS ENERGIZED THE CONTACT WILL CLOSE AFTER A TIME DELAY)
- ON TIME DELAY CONTACT (NORMALLY CLOSED, WHEN THE COIL IS ENERGIZED THE CONTACT WILL OPEN AFTER A TIME DELAY)
- OFF TIME DELAY CONTACT (NORMALLY OPEN, WHEN THE COIL IS DE-ENERGIZED THE CONTACT WILL OPEN AFTER A TIME DELAY)
- OFF TIME DELAY CONTACT (NORMALLY CLOSED, WHEN THE COIL IS DE-ENERGIZED THE CONTACT WILL CLOSE AFTER A TIME DELAY)
- TORQUE SWITCH (NORMALLY OPEN)
- TORQUE SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY OPEN)
- LIMIT SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED, HELD OPEN)
- LIMIT SWITCH (NORMALLY OPEN, HELD CLOSED)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY OPEN, CLOSING ON INCREASING DIFF.)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY CLOSED, OPENING ON INCREASING DIFF.)

SWITCH & OUTLET SYMBOLS

- S — SINGLE POLE SWITCH
- S_2 — TWO POLE SWITCH
- S_{3A} — THREE-WAY SWITCH CONTROLLING LIGHTS WITH "A" DESIGNATION
- S_4 — FOUR-WAY SWITCH
- S_M^{C1} — MOMENTARY SWITCH CONTROLLING CONTACTOR C1
- S_A^{DM} — DIMMING WALL SWITCH CONTROLLING LIGHTS WITH "A" DESIGNATION
- S_A^{OS} — WALL SWITCH OCCUPANCY SENSOR CONTROLLING LIGHTS WITH "A" DESIGNATION
- DUPLEX RECEPTACLE 120 VOLT
- SIMPLEX RECEPTACLE
- RANGE RECEPTACLE
- TWISTLOCK RECEPTACLE
- 30 — 240V, 1Ø RECEPTACLE, TYPICAL AMPERE RATING NOTED
- 60 — 480V, 3Ø WELDING RECEPTACLE, TYPICAL AMPERE RATING NOTED
- 120 VOLT DUPLEX RECEPTACLE (UPS)
- DUPLEX FLOOR OUTLET
- TELEPHONE OUTLET
- TELEPHONE FLOOR OUTLET
- CX — COAXIAL CABLE OUTLET
- DATA NETWORK OUTLET

MISCELLANEOUS SYMBOLS

- STROBE
- HORN & STROBE
- HORN
- T — THERMOSTAT
- J — JUNCTION BOX
- GROUND ROD
- GROUND ROD WITH TEST WELL
- GROUND CONNECTION
- DISCONNECT SWITCH
- COMBINATION STARTER
- POWER PANEL
- LIGHTING PANEL
- MISCELLANEOUS PANEL
- LIGHTING CONTACTOR
- CAMERA
- PE — PHOTOELECTRIC SENSOR, PHOTOCELL
- OS — CEILING MOUNTED OCCUPANCY SENSOR
- OS — WALL MOUNTED OCCUPANCY SENSOR

BREAKER DETAILS

DETAIL A

52 — 5KV, 1200A, 49KA — A 5KV CLASS MEDIUM-VOLTAGE, DRAWOUT, VACUUM OR AIR INSULATED CIRCUIT BREAKER WITH A 1,200 AMPERE FRAME. BREAKER HAS A 49,000 AMPERE MAXIMUM FAULT CURRENT INTERRUPTING RATING.

DETAIL B

3P-50 — A LOW VOLTAGE FIXED MOUNTED MOLDED CASE CIRCUIT BREAKER WITH A 50 AMPERE TRIP RATING. TRIP UNIT IS NON-ADJUSTABLE THERMAL-MAGNETIC TYPE.

1000AT, 1200AF, SST, LSIG, AFRD — A LOW VOLTAGE FIXED MOUNTED MOLDED CASE CIRCUIT BREAKER WITH A 1200 AMPERE FRAME AND A 1000 AMPERE TRIP RATING. TRIP UNIT IS ADJUSTABLE SOLID-STATE TYPE WITH LONG-TIME, SHORT-TIME, INSTANTANEOUS, GROUND FAULT AND ARC-FLASH REDUCTION PROTECTION FEATURES.

DETAIL C

800AT, 1000AS, 1600AF, AFRD — A LOW VOLTAGE, DRAWOUT, POWER OR INSULATED CASE CIRCUIT BREAKER WITH A 1600A FRAME AND SOLID-STATE TRIP UNIT. TRIP UNIT HAS A SENSOR MODULE RATED FOR 1000 AMPERES AND WITH A TRIP RATING OF 800 AMPERES AND ARC-FLASH REDUCTION PROTECTION FEATURES.

CONDUIT & WIRING INSTALLATION LEGEND

- CONDUIT EXPOSED
- CONDUIT CONCEALED
- CONDUIT TURNING UP. CONDUIT TURNING DOWN.
- CONDUIT PLUGGED FLUSH. CONDUIT CAPPED.
- L2 - 5 — TYPICAL FOR HOME RUN TO BE ROUTED TO LIGHTING PANEL L2 & CONNECTED TO CIRCUIT #5 (MINIMUM NO. 12 AWG CONDUCTORS AND 3/4" CONDUIT)
- 1 LP1-1 A — POLE OR STANCHION MOUNTED LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1. CONTROLLED VIA FROM SWITCH A.
- 1 LP1-1 A — WALL MOUNTED LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1. CONTROLLED VIA FROM SWITCH A.
- 1 LP1-1 A — CEILING, PENDANT, OR RECESSED LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1. CONTROLLED VIA FROM SWITCH A.
- LP1-1 — RECEPTACLE POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1.
- LP1-1 A, 1 — LINEAR LIGHTING FIXTURE. REFER TO FIXTURE NUMBER IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1, VIA SWITCH A.
- LP1-1 EX — EXIT LIGHTING FIXTURE. REFER TO FIXTURE NUMBER OR LETTERS IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL 1, CIRCUIT 1.
- LP1-1 EM — EMERGENCY LIGHTING FIXTURE. REFER TO FIXTURE NUMBER OR LETTERS IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL 1, CIRCUIT 1.
- E — UNDERGROUND CONCRETE ENCASED ELECTRICAL DUCT BANK
- UNDERGROUND CONCRETE ENCASED ELECTRICAL BANK ROUTED BENEATH SLAB-ON-GRADE
- EE — DIRECT BURIED CONDUIT
- GROUND CONDUCTOR
- UE — UE — UNDERGROUND ELECTRIC
- OH — OH — OVERHEAD CIRCUIT

COMMUNICATION SYMBOLS

- HORN SPEAKER
- DUAL HORN SPEAKER
- WALL MOUNTED CONE SPEAKER
- SK — CEILING MOUNTED CONE SPEAKER

PROTECTION/RELAY DEVICE NUMBERS

25 - SYNCHRONIZING OR SYNCHRONISM-CHECK DEVICE
27 - UNDERVOLTAGE RELAY
32 - DIRECTIONAL POWER RELAY
37 - UNDERCURRENT OR UNDERPOWER RELAY
46 - REV. PHASE OR PHASE-BAL. CURRENT RELAY
47 - PHASE SEQ. OR PHASE BAL. VOLTAGE RELAY
49 - MACHINE OR TRANSFORMER THERMAL RELAY
50 - INSTANTANEOUS OVERCURRENT
51 - AC TIME OVERCURRENT RELAY
52 - AC CIRCUIT BREAKER
59 - OVERVOLTAGE RELAY
63 - PRESSURE SWITCH
64 - GROUND DETECTOR RELAY
67 - AC DIRECTIONAL OVERCURRENT RELAY
71 - LIQUID OR GAS LEVEL RELAY
81 - FREQUENCY RELAY
83 - AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY
86 - LOCKOUT RELAY
87 - DIFFERENTIAL PROTECTIVE RELAY

PRELIMINARY - NOT FOR CONSTRUCTION

D10000

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER — SHAWN D. DARBY, ASHR — E 21900 — EXPIRES 09/30/21 — ELECTRICAL — STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

ELECTRICAL LEGENDS

DESIGNED: PV
DETAILED: ELB
CHECKED: CRM
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

E-01
SHEET
OF

ELECTRICAL ABBREVIATIONS & NOTES

ELECTRICAL GENERAL NOTES

1. SOLID LINES (———————) INDICATE NEW WORK OR EQUIPMENT.
2. SCREENED LINES (———————) INDICATE EXISTING WORK OR EQUIPMENT.
3. DASHED LINES (– – – – – – – –) INDICATE FUTURE WORK OR EQUIPMENT.
4. REFER TO INDIVIDUAL DISCIPLINE CONTRACT DRAWINGS FOR ADDITIONAL ABBREVIATIONS, DETAILS, AND GENERAL DESIGN NOTES.
5. LEGEND SHEETS ARE GENERAL. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
6. INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES.
   - A. ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
   - B. FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF THE IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
   - C. SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
   - D. DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE, CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.

AREA DESIGNATIONS

THE SPECIAL AREA DESIGNATION BOXES, AS DEFINED BELOW, ARE LOCATED ON THE PLAN DRAWINGS TO DEFINE ELECTRICAL INSTALLATION REQUIREMENTS. DESIGNATION BOXES ARE LOCATED WITHIN ROOM OR BELOW ROOM NUMBER. ALL INDOOR AREAS NOT INDICATED OTHERWISE ARE AREA TYPE 1 AND MINIMUM NEMA TYPE 1 ENCLOSURES.

AREA TYPE 1A	CORROSIVE CHEMICAL FEED AND STORAGE ROOMS. CONDUIT SYSTEM SHALL BE EXPOSED SCHEDULE 80 PVC RIGID NON-METALLIC CONDUIT WITH PVC FITTINGS, BOXES AND ACCESSORIES.
AREA TYPE 4	INDOOR WET LOCATIONS SUCH AS VAULTS, HOSEDOWN AREAS, BASEMENTS, ETC. MINIMUM NEMA TYPE 4 ENCLOSURE FOR EQUIPMENT AND GASKETED FITTINGS IN A CONDUIT SYSTEM.
AREA TYPE 7A	CLASS I, DIVISION 1 AREA AS DEFINED BY NEC. ALL EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.
AREA TYPE 7B	CLASS I, DIVISION 2, GROUP C AND D (METHANE, GASOLINE) AS DEFINED BY NEC. EQUIPMENT AND CONDUITS SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.
AREA TYPE 12	INDOOR, DRY, DIRTY AREA. REQUIRES MINIMUM NEMA TYPE 12 GASKETED ENCLOSURES FOR ALL EQUIPMENT AND GASKETED FITTINGS IN CONDUIT SYSTEMS.

GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS NOT SHOWN ON THE PLANS. THIS SHALL INCLUDE ALL CONDUITS SHOWN ON THE ONE-LINES AND HOME-RUNS SHOWN ON THE PLAN DRAWINGS. CONDUITS SHALL BE ROUTED AS DEFINED IN THE SPECIFICATION.
2. SPARE WIRES SHALL BE TAPED AND COILED AND LABELED TO INDICATE WHERE OTHER END OF SPARE WIRE IS LOCATED.
3. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN VALUE SHOWN, THE CABLE CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE ENLARGED, AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
5. LIGHTING AND RECEPTACLE CIRCUITS DESIGNATED ON THE FLOOR PLANS ARE NOT SHOWN ON THE ONE-LINES. CONDUCTORS FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM NO. 12AWG. CONDUIT FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM 3/4".
6. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETC. NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT.

ELECTRICAL ABBREVIATIONS

A

A	AMBER, AMPERE, ALARM
AC	ALTERNATING CURRENT
ACB	AIR CIRCUIT BREAKER
ACR	ACCESS CARD READER
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AFRD	ARC-FLASH REDUCTION DEVICE
AM	AMMETER
ANN	ANNUNCIATOR
AR	ALARM RELAY
AS	AMMETER SWITCH, AMPERE SENSOR
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE

B

B	BUS
BC	BATTERY CHARGER
BKR	BREAKER
BR	BRAKE
BT	BEARING TEMPERATURE

C

C	CLOSE, COUNTER, CONTACTOR, CONTROL, CCTV CAMERA
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CB"A"	CIRCUIT BREAKER AUXILIARY CONTACT (OPEN WHEN BREAKER IS OPEN)
CB"B"	CIRCUIT BREAKER AUXILIARY CONTACT (CLOSED WHEN BREAKER IS OPEN)
CD	CONTROL DAMPER
CI	CELL INTERLOCK
CKT	CIRCUIT
CL2	CHLORINE
COS	CABLE OPERATED SWITCH
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CURRENT OF CONTROL RELAY, CARD READER
CS	CONTROL STATION
CT	CYCLE TIMER OR CURRENT TRANSFORMER
CTC	CYCLE TIMER CLUTCH
CTM	CYCLE TIMER MONITOR
2/C	2 CONDUCTOR
4"C	4" CONDUIT

D

DC	DIRECT CURRENT, DOOR CONTACT
DI	DOOR INTERLOCK
DM	DAMPER MOTOR, DEMAND METER, DIMMER SWITCH
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPR	DIFFERENTIAL PRESSURE REGULATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
DS	DISCONNECT SWITCH, DOOR SWITCH, DESKTOP STATION
DVLS	DISCHARGE VALVE LIMIT SWITCH

E

E	ELECTRIC OPERATOR FOR CONTROL DAMPER OR VALVE
EC	EMPTY CONDUIT
EDS	ELECTRICAL DOOR STRIKE
EL	ELEVATION, EMERGENCY LIGHT
EMH	ELECTRICAL MANHOLE
ER	ELECTRODE RELAY
ES	END SWITCH, REQUEST TO EXIT SENSOR
E-STOP	EMERGENCY STOP
ETM	ELAPSED TIME METER
EX	EXISTING
EXP	EXPLOSION PROOF

F

F	FORWARD, FIELD
FO	FIBER OPTIC
FPR	FEEDER PROTECTION RELAY
FS	FLOW SWITCH

G

G	GREEN, GROUND, GENERATOR, GROUND FAULT
GD	GROUND DETECTOR
GEN	GENERATOR
GFCI,GFI	GROUND FAULT CURRENT INTERRUPTOR, GROUND FAULT INTERRUPTOR
GLS	GEARED LIMIT SWITCH
GPR	GENERATOR PROTECTION RELAY
GND	GROUND
#8G	#8 GROUND WIRE

H

H	HIGH, HUMIDISTAT
HH	HANDHOLE
HMT	HIGH MOTOR TEMPERATURE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HS	HAND STATION
HWCO	HIGH WATER CUTOFF
HZ	HERTZ (CYCLE)

I

I/O	INPUT/OUTPUT
I	INSTANTANEOUS
IJB	INTERCOM JUNCTION BOX

J

J,JB	JUNCTION BOX

K

K	KEY INTERLOCK
KAIC	THOUSAND AMPERES INTERRUPTING CURRENT
KCMIL	THOUSAND CIRCULAR MIL
KO	KEY OPERATED
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVAR
KW	KILOWATT
KWH	KILOWATT HOUR

L

L	LOW, LEVEL, LONG-TIME
LA	LIGHTNING ARRESTER
LAN	LOCAL AREA NETWORK
LC	LIGHTING CONTRACTOR
LCE	LIGHTING CONTACTOR ENCLOSURE
	LIGHTING CONTROL ENCLOSURE
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LOA	LOCAL-OFF-AUTO
LOR	LOCAL-OFF-REMOTE
LOS	LOCK OUT STOP
LP	LIGHTING PANEL
LS	LIMIT OR LEVEL SWITCH
LTG	LIGHTING
LWCO	LOW WATER CUTOFF

M

M	MAGNETIC MOTOR STARTER
MA	MILLIAMPERE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCLU	MOTOR CONTROL LINEUP
MD	MOISTURE DETECTOR, MOTION DETECTOR
MDL	MAGNETIC DOOR LOCK
MFR	MANUFACTURER
MH	MANHOLE, MOUNTING HEIGHT
MOV	MOTOR OPERATED VALVE
MPR	MOTOR PROTECTION RELAY
MS	MANUAL MOTOR STARTER
MSH	MOTOR SPACE HEATER
MTS	MANUAL TRANSFER SWITCH
MV	MILLIVOLT, MEDIUM VOLTAGE
MVA	MEGAVOLT AMPERE

N

N	NEUTRAL
NGR	NEUTRAL GROUNDING RESISTOR
NGT	NEUTRAL GROUNDING TRANSFORMER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER

O

O	OPEN
OL	OVERLOAD
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
OS	OCCUPANCY SENSOR
O/U	OVER/UNDER

P

P	PRIMARY, POWER, POLE
PCS	PLANT CONTROL SYSTEM
PB	PUSH BUTTON, PULL BOX
PE	PHOTOELECTRIC SENSOR, PHOTOCELL
PF	POWER FACTOR
PFCC	POWER FACTOR CORRECTION CAPACITOR
PH	PHASE
PL	PILOT LIGHT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PP	POWER PANEL
PR	PAIR
PRS	PROXIMITY SWITCH
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER, PROGRAM TIMER

Q

NOT USED

R

R	RED, RAISE, RELAY, REVERSE
RECP	RECEPTACLE
RES	RESISTOR
RH	REMOTE HANDSET
RT	REPEATING TIMER
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE STARTER

S

S	SHORT-TIME, SHIELDED, STARTER
SA	SURGE ARRESTER, SPEAKER AMPLIFIER
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SF6	SULFUR HEXAFLOURIDE
SH	SPACE HEATER
SN	SOLID NEUTRAL
SO	SOLENOID OILER
SP	SINGLE POLE
SPD	SURGE PROTECTION DEVICE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SS	SELECTOR SWITCH, START/STOP, STAINLESS STEEL
SSM	SOLID-STATE METERING
SSS	SOLID STATE STARTER
SST	SOLID-STATE TRIP
SUPV	SUPERVISORY CONTROL
SV	SOLENOID VALVE
SWB,SWBD	SWITCHBOARD
SWG,SWGR	SWITCHGEAR

T

T	THERMOSTAT, TIMER, TOTALIZER, TRANSFORMER
TACH	TACHOMETER
TB	TERMINAL BLOCK
TC	TIMER CLUTCH
TD	TIME DELAY RELAY
TEMP	TEMPERATURE
TM	TIMER MOTOR
TQ	TORQUE
TR	TIMER RELAY, TRIAD
TS	TEMPERATURE SWITCH
TTB	TELEPHONE TERMINAL BOARD

U

UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY

V

V	VOLTS, VOLTAGE RESTRAINED
VA	VOLT AMPERE
VAR	VARMETER
VFD	VARIABLE FREQUENCY DRIVE
VI	VACUUM INTERRUPTER
VLS	VALVE LIMIT SWITCH
VM	VOLTMETER
VPI	VALVE POSITION INDICATOR
VS	VOLTMETER SWITCH

W

W	WHITE, WATTS
WH	WATTHOUR METER
WM	WATT METER
WP	WEATHERPROOF
WPI	WEATHERPROOF IN-USE
WS	WALL STATION

X

X	AUXILIARY RELAY
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

Y

Y	YELLOW

Z

Z	AUXILIARY RELAY, IMPEDANCE
ZS	POSITION SWITCH
ZSS	ZERO SPEED SWITCH

1-1PR#16S	ONE, SINGLE PAIR, TWISTED SHIELDED #16 CABLE
3-7/C#14	THREE, SINGLE, SEVEN CONDUCTOR #14 MULTICONDUCTOR CONTROL CABLES

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER ★ SHAWN PARRY ROHR ★ E 21900 EXPIRES 09/30/21 ELECTRICAL ★ STATE OF CALIFORNIA ★

BLACK & VEATCH

Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

ELECTRICAL
ABBREVIATIONS & NOTES

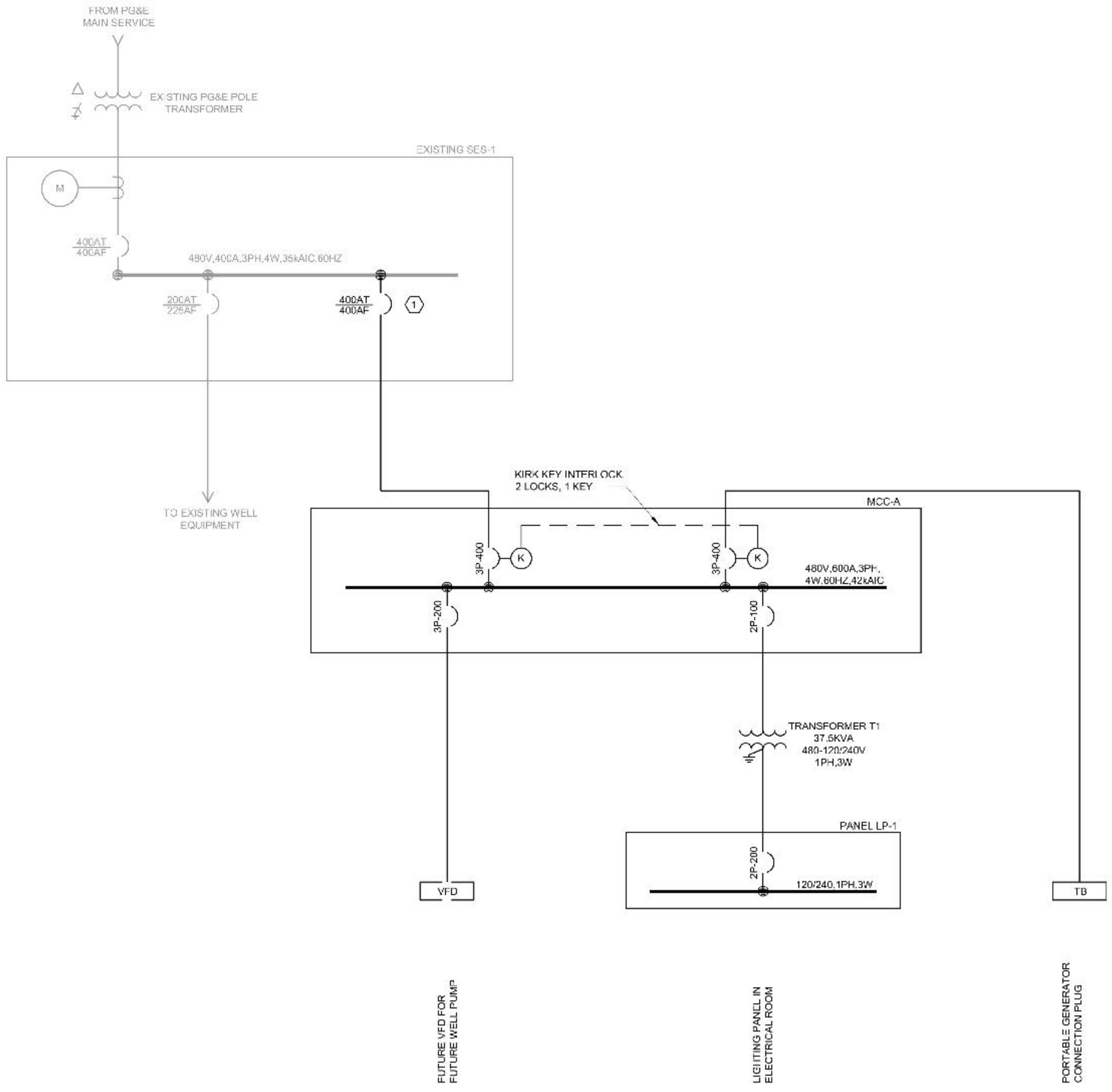
DESIGNED: PV
DETAILED: ELB
CHECKED: CRM
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

E-02
SHEET
OF

D10000



POWER DISTRIBUTION FUNCTIONAL DIAGRAM
NO SCALE

GENERAL SHEET NOTES

1. SEE DRAWINGS E-01 & E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENT.

SHEET KEYNOTES

1. PROVIDE NEW CIRCUIT BREAKER IN THE EXISTING SWITCHBOARD (SES) FOR THE MCC CONNECTION. THE CIRCUIT BREAKER SHALL MEET OR EXCEED THE RATING OF THE EXISTING SWITCHBOARD.

NO.	BY	CHK	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
SHAWN BARRY ROWE
No. 21960
EXPIRES 09/30/21
ELECTRICAL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

ELECTRICAL
POWER DISTRIBUTION FUNCTIONAL DIAGRAM

DESIGNED: RV
DETAILED: ELB
CHECKED: CRM
APPROVED:
DATE: JULY 2021

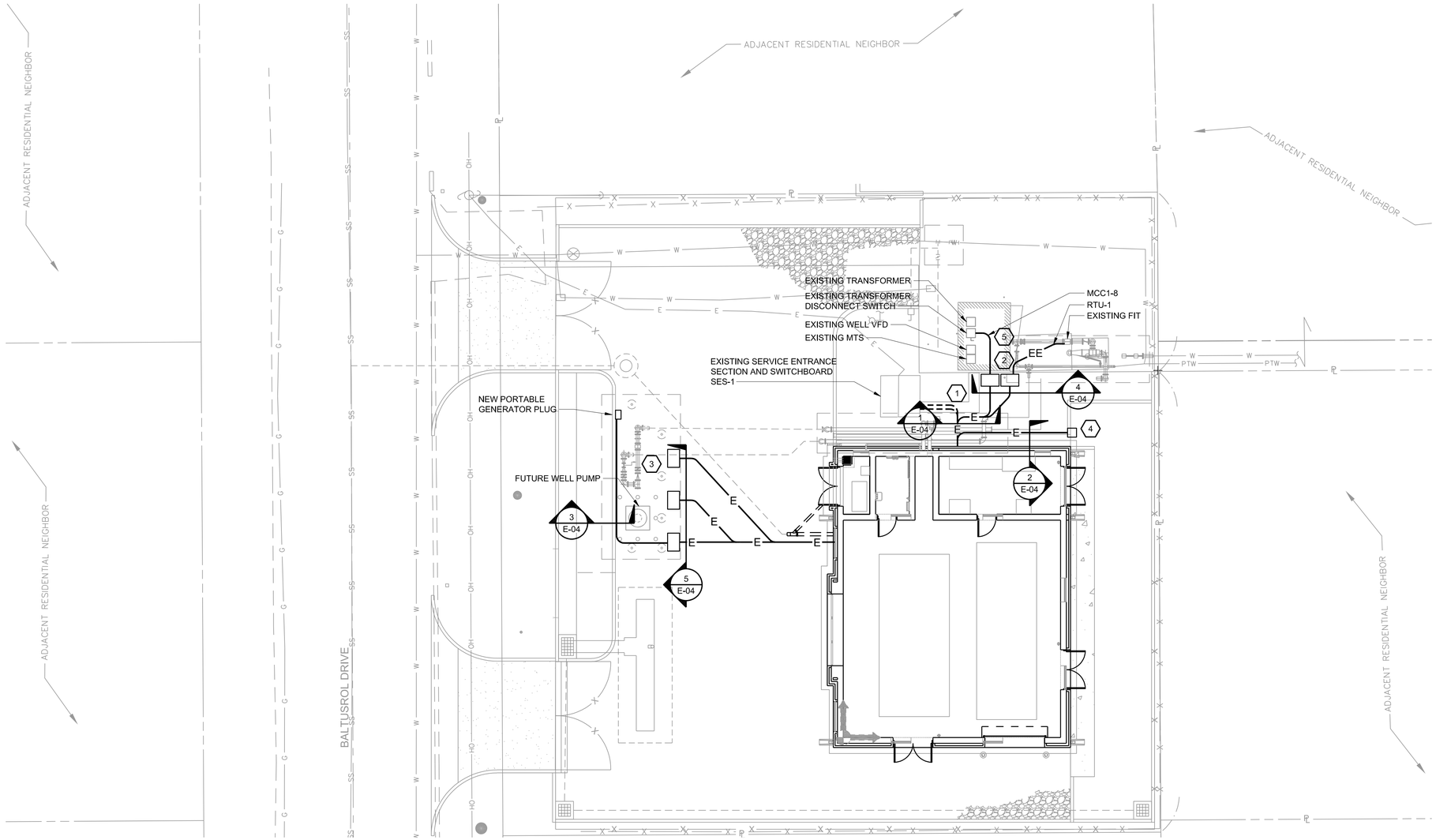
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

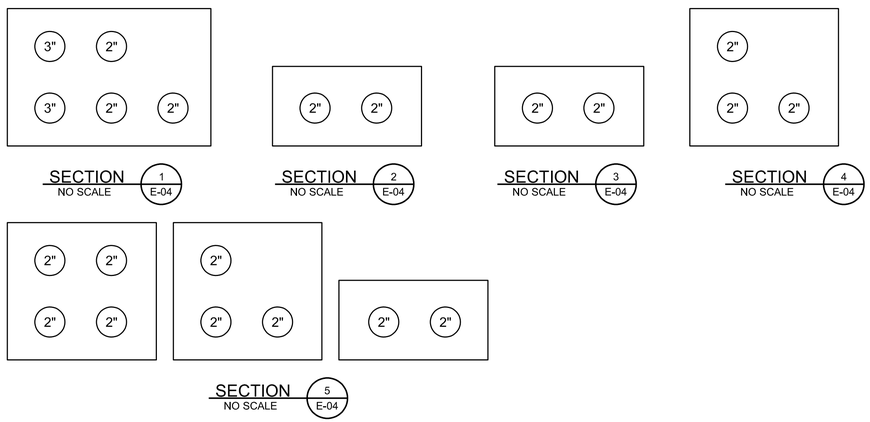
PROJECT NO.
407941

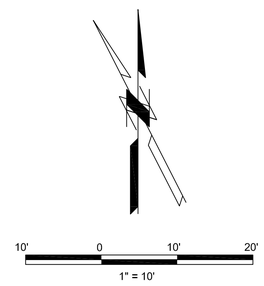
E-03
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

D10000







GENERAL SHEET NOTES

1. SEE DRAWINGS E-01 & E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.

SHEET KEY NOTES

1. CONTRACTOR SHALL INTERCEPT EXISTING 2-3" CAPPED SPARE CONDUITS AND CONNECT TO THE NEW DUCT BANK FOR MCC FEEDER CIRCUIT. EXCAVATION SHALL BE COORDINATED WITH OWNER.
2. CONTRACTOR SHALL INSTALL TWO UNDERGROUND HANDHOLES, ONE FOR POWER AND ONE FOR SIGNAL CABLES FOR THE EXISTING MISCELLANEOUS LOADS AND FLOWMETER. HANDHOLES SHALL BE MINIMUM SIZE 36"X 24", DEPTH AS REQUIRED FOR THE DUCT BANK INSTALLATION.
3. CONTRACTOR SHALL INSTALL THREE UNDERGROUND TRAFFIC RATED HANDHOLES, ONE FOR THE FUTURE WELL PUMP POWER, ASSOCIATED CONTROL AND SIGNAL WIRING. MINIMUM SIZE 36"X24", DEPTH AS REQUIRED FOR DUCT BANK INSTALLATION.
4. CONTRACTOR SHALL INSTALL UNDERGROUND HANDHOLE FOR SPARE CONDUITS. MINIMUM SIZE 36"X24", DEPTH AS REQUIRED FOR DUCT BANK INSTALLATION.
5. NEW EXPOSED CONDUIT FROM EXISTING TRANSFORMER DISCONNECT SWITCH TO HANDHOLE.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER SHAWN D. MARRY ACHR E 21900 EXPIRES 09/30/21 ELECTRICAL STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

ELECTRICAL
SITE PLAN AND DUCT BANK SECTIONS

DESIGNED: PV
DETAILED: RC
CHECKED: CRM
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

E-04
SHEET
OF

FD10000
D10000
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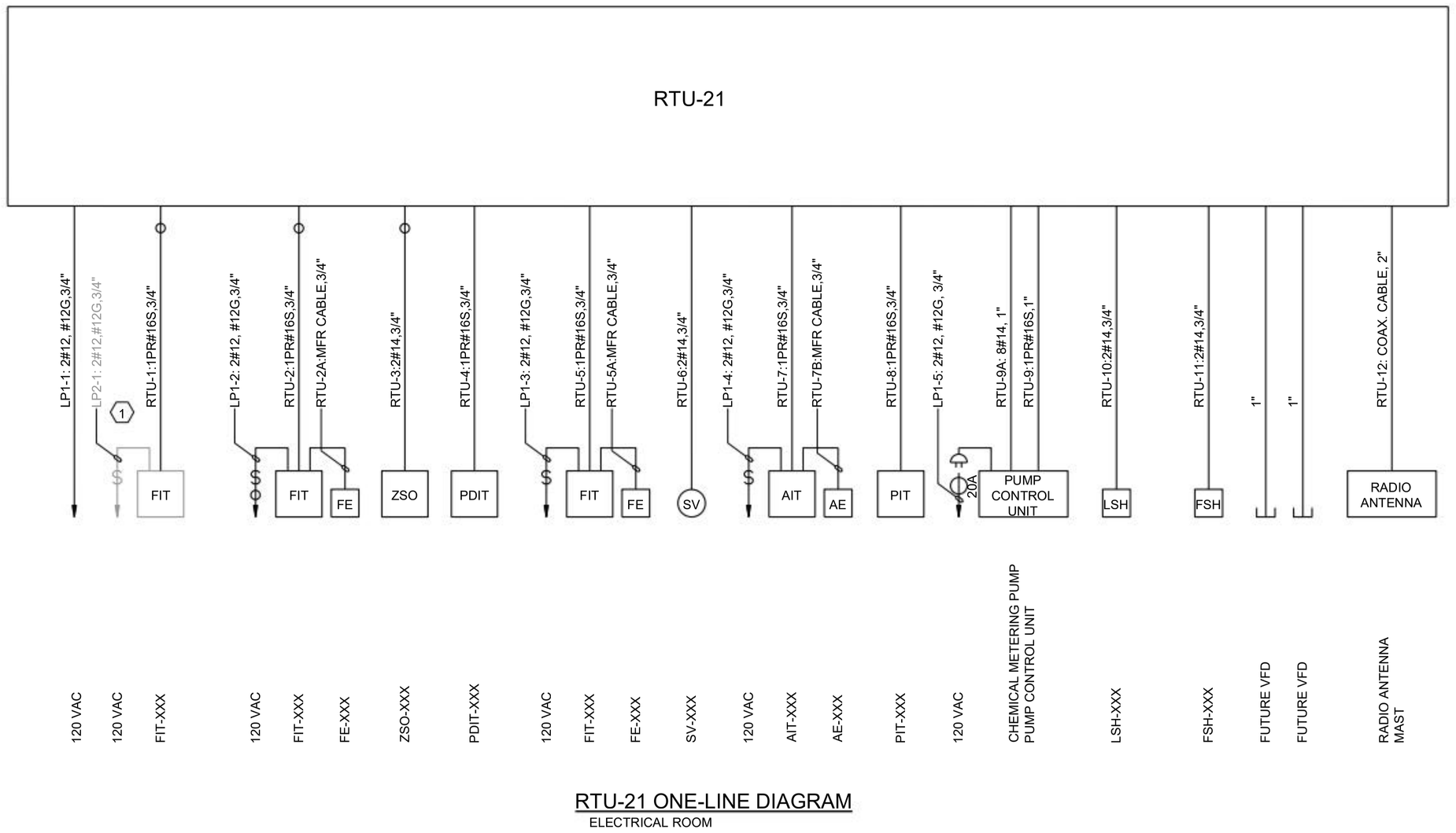

RTU-21 ONE-LINE DIAGRAM
ELECTRICAL ROOM

GENERAL SHEET NOTES

1. SEE DRAWINGS E-01 & E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENT.

SHEET KEYNOTES

1. FLOWMETER LOCATED BY THE EXISTING STRUCTURE. 120V CIRCUIT PROVIDED FROM THE EXISTING POWER CENTER IN THE STRUCTURE.

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
DARRY POHR
E 21900
EXPIRES 09/30/21
STATE OF CALIFORNIA
ELECTRICAL

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

ELECTRICAL
MISCELLANEOUS ONE-LINE DIAGRAMS

DESIGNED: PV
DETAILED: RC
CHECKED: CRM
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

E-07
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

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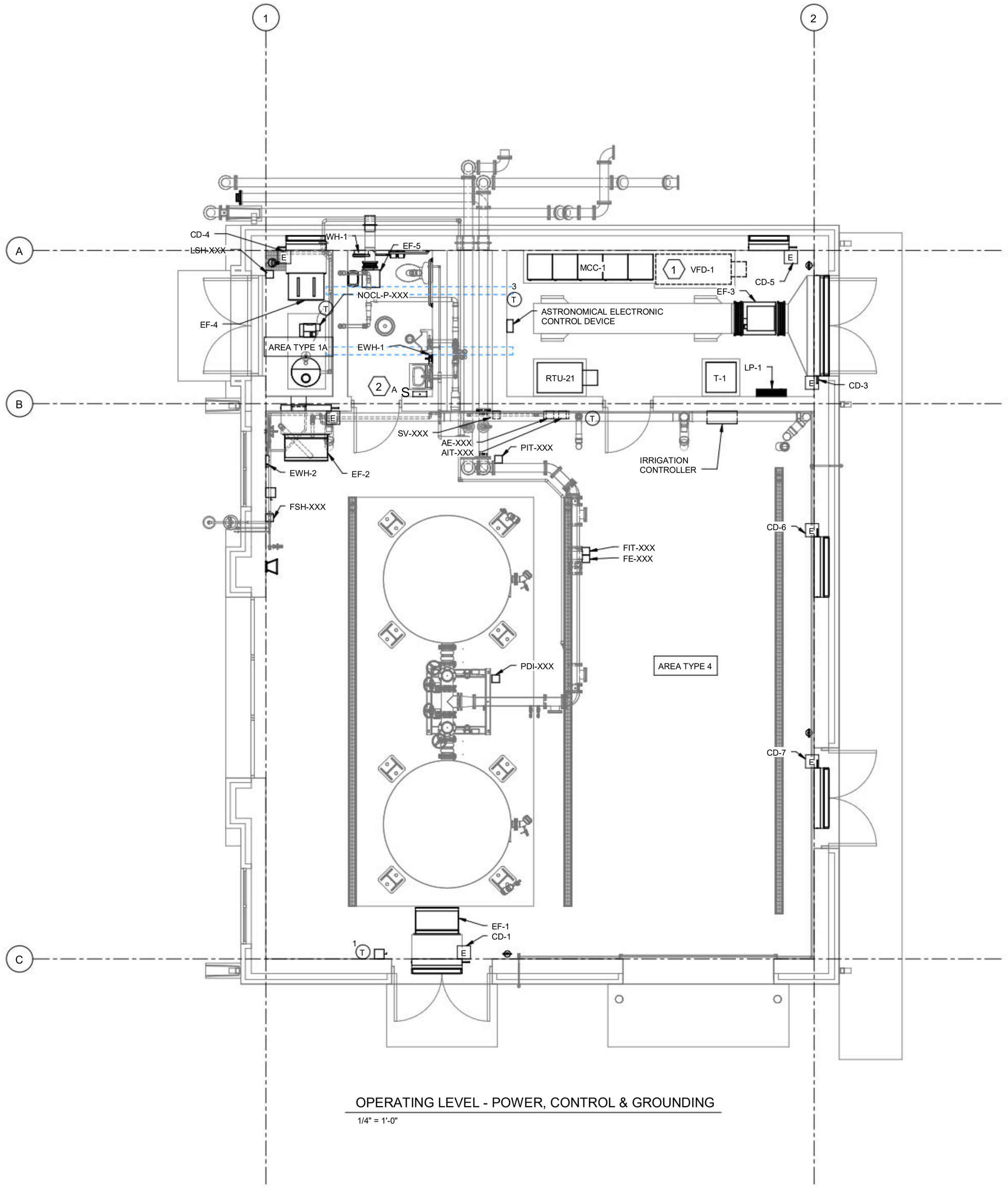

OPERATING LEVEL - POWER, CONTROL & GROUNDING

1/4" = 1'-0"

GENERAL SHEET NOTES

1. SEE DRAWINGS E-01 &E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENT.

SHEET KEYNOTES

1. SPACE FOR FUTURE VFD.
2. FAN CONTROLLED SWITCH.

4' 2' 0' 4' 8'

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
SHAWN BARRY ROHR
E 21900
EXPIRES 09/30/21
ELECTRICAL
STATE OF CALIFORNIA

BLACK & VEATCH

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ELECTRICAL
BUILDING POWER PLAN

DESIGNED: PV
DETAILED: RC
CHECKED: CRM
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

E-08
SHEET
OF

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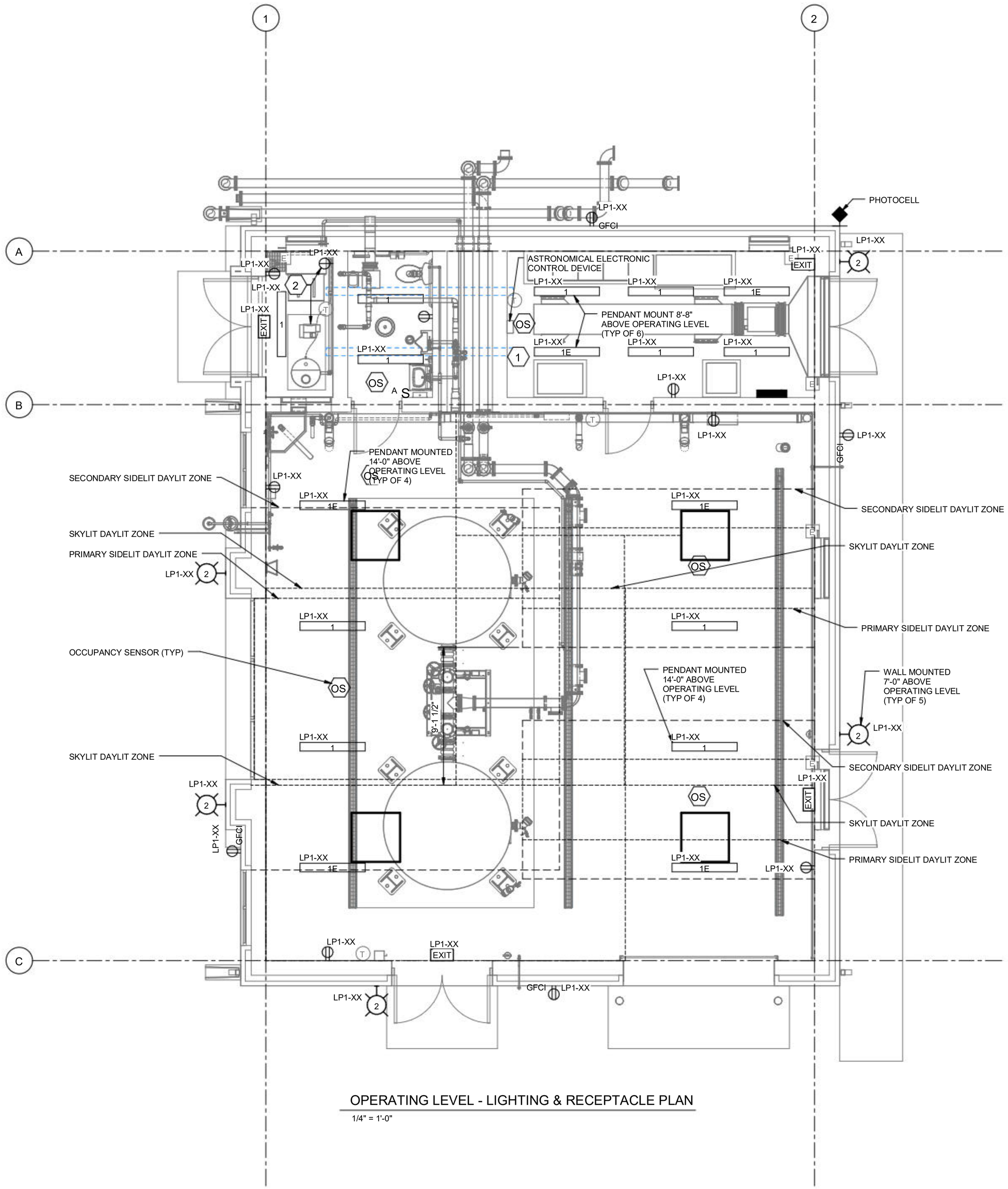

OPERATING LEVEL - LIGHTING & RECEPTACLE PLAN

1/4" = 1'-0"

GENERAL SHEET NOTES

1. SEE DRAWINGS E-01 &E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENT.

SHEET KEYNOTES

1. PROVIDE LIGHTING CONTROL PANEL FOR EXTERIOR LIGHTING.
2. PROVIDE SIMPLEX RECEPTACLE DEDICATED FOR SODIUM HYPOCHLORITE METERING PUMP. REFER TO DRAWING E-08 FOR METERING PUMP LOCATION.

4' 2' 0' 4' 8'

1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
SHAWN BARRY ROHR
E 21900
EXPIRES 09/30/21
ELECTRICAL
STATE OF CALIFORNIA

BLACK & VEATCH

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ELECTRICAL
BUILDING LIGHTING PLAN

DESIGNED: PV
DETAILED: RC
CHECKED: CRM
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

E-09
SHEET
OF

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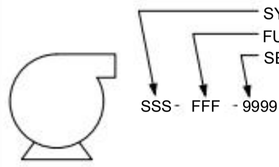
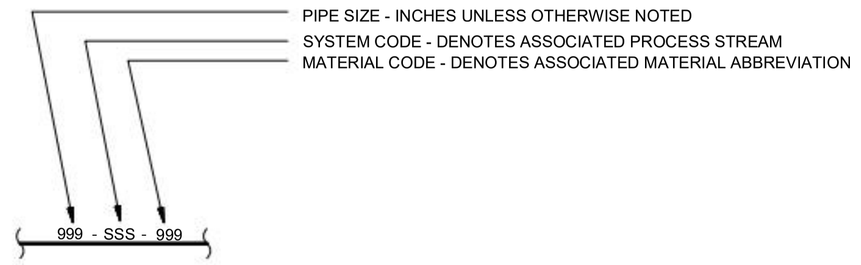
EQUIPMENT IDENTIFICATION DESCRIPTION

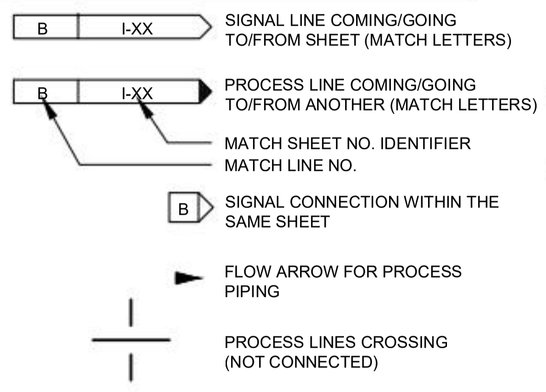


PIPELINE IDENTIFICATION DESCRIPTION



LINE SYMBOLS

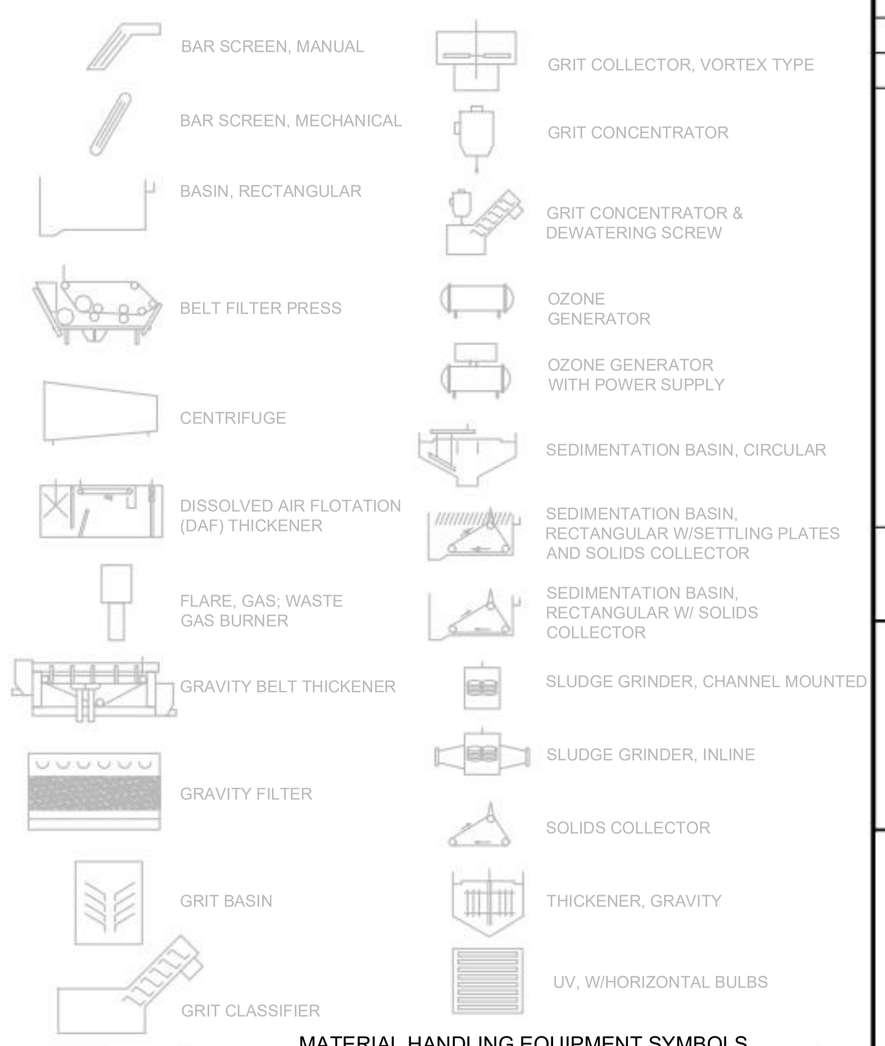
- MAJOR PROCESS PIPING OR FLOW CHANNEL
- SECONDARY PROCESS PIPING
- MISCELLANEOUS PIPING
- SCREENED LINE DENOTES EXISTING PIPE OR EQUIPMENT
- DASHED LINE DENOTES FUTURE PIPE AND EQUIPMENT
- ELECTRIC SIGNAL
- HYDRAULIC SIGNAL
- PNEUMATIC SIGNAL
- SIGNAL CONNECTION POINT
- CONTROL SYSTEM BACKBONE NETWORK SIGNAL (ETHERNET)
- FIELD DEVICE NETWORK SIGNAL (ETHERNET)
- NON-STANDARD OR INDEPENDENT CONTROL SYSTEM NETWORK SIGNAL (AS NOTED ON DRAWINGS)



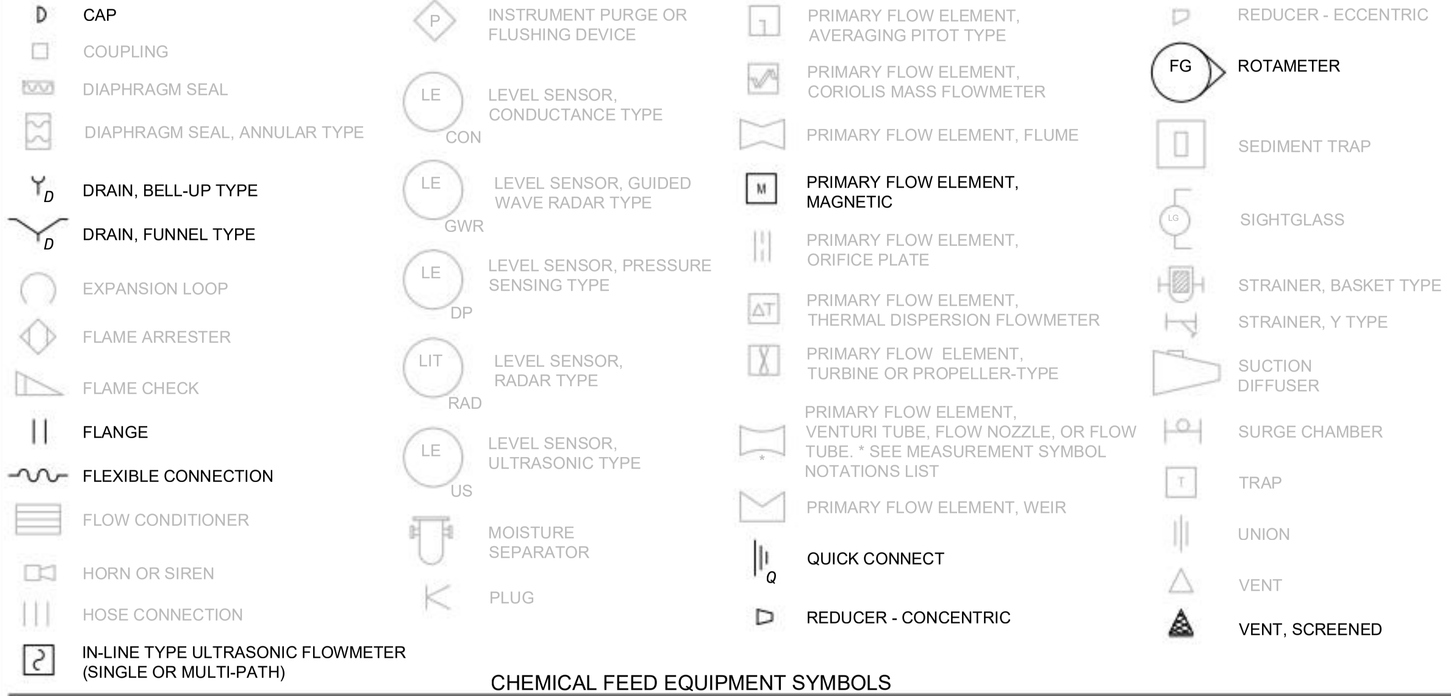
MISCELLANEOUS MECHANICAL EQUIPMENT SYMBOLS

PUMP & BLOWER SYMBOLS

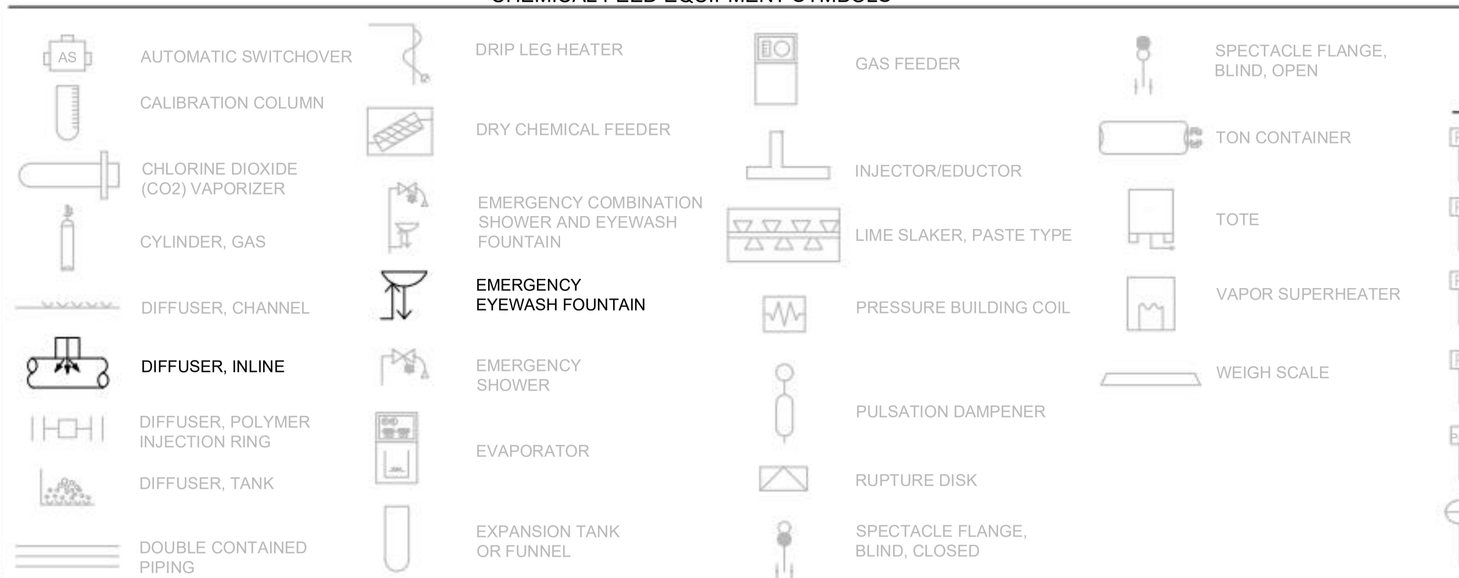
WATER & WASTEWATER MECHANICAL EQUIPMENT SYMBOLS



PRIMARY ELEMENT & FITTING SYMBOLS

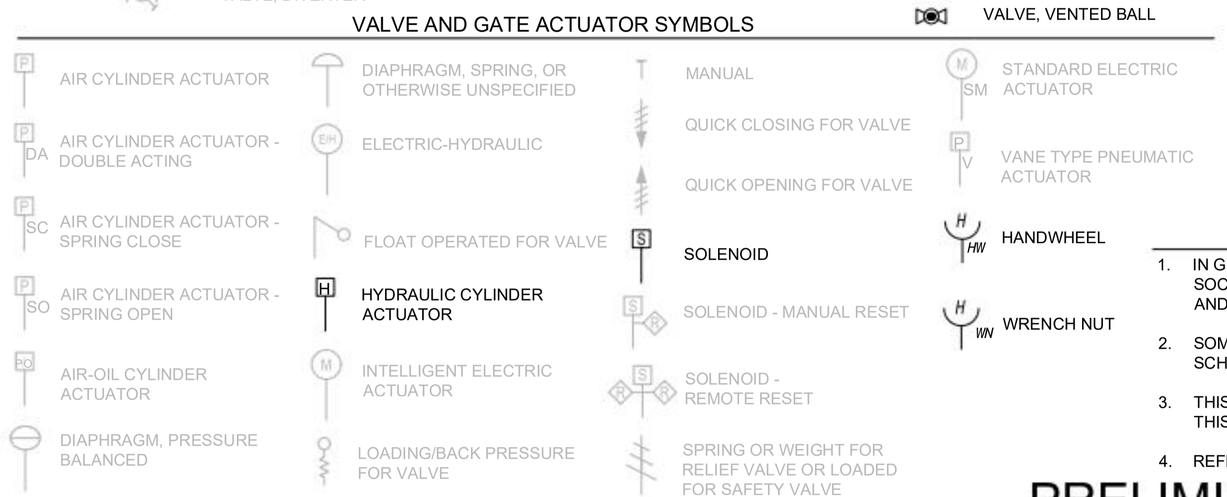


CHEMICAL FEED EQUIPMENT SYMBOLS

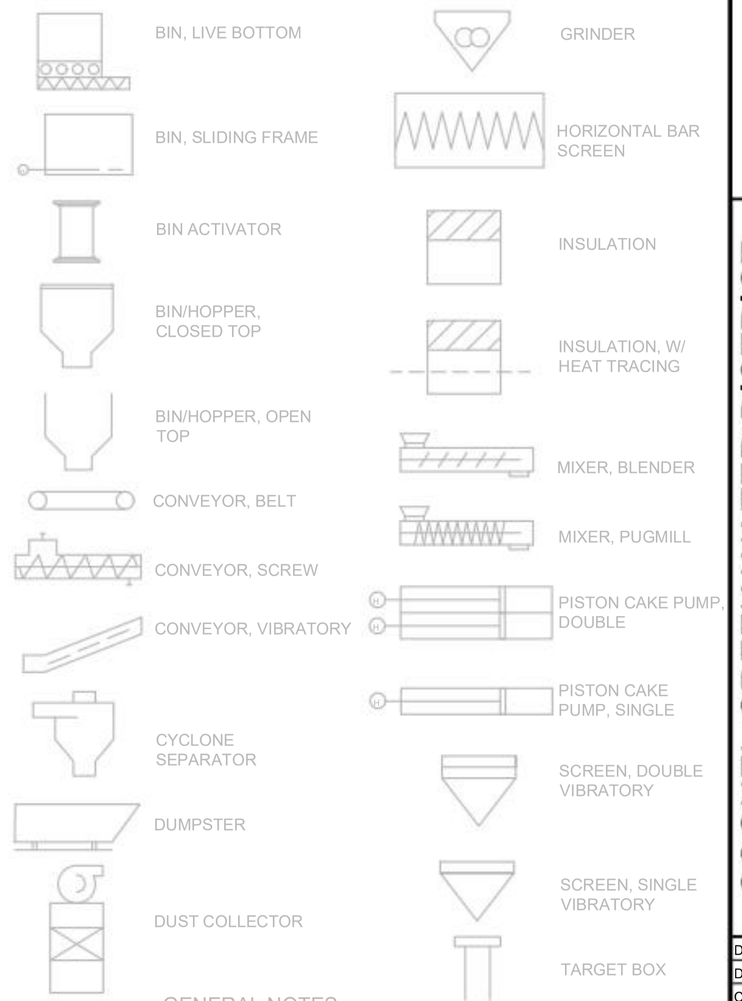


VALVE & GATE SYMBOLS

VALVE AND GATE ACTUATOR SYMBOLS



MATERIAL HANDLING EQUIPMENT SYMBOLS



GENERAL NOTES

1. IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
2. SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM THE P&ID DRAWINGS.
3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT. THE ITEMS NOT USED HAVE BEEN GENERALLY SCREENED BACK.
4. REFER TO GENERAL PROJECT NOTES DRAWING FOR ADDITIONAL REQUIREMENTS.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER — DENNIS J. SMITH — No. E 15829 — STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

INSTRUMENTATION
LEGEND AND ABBREVIATIONS
SHEET 1 OF 3

DESIGNED: RHD
DETAILED: ABA
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

I-01
SHEET
OF

FD10000
D10000
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INSTRUMENT AND I/O ABBREVIATIONS
MEANINGS OF IDENTIFICATION LETTERS

LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	VARIABLE MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT OR ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSE
D	USER'S CHOICE	DIFFERENTIAL			DEVIATION
E	VOLTAGE (EMF)		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER		SCAN		
K	TIME OR TIME-SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE	INTEGRATE OR TOTALIZE		
R	RADIATION		RECORD		RUN
S	SPEED OR FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION OR MECHANICAL ANALYSIS			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL, PROBE		
X	UNCLASSIFIED	X-AXIS	ACCESSORY DEVICES OR UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z-AXIS		DRIVE, ACTUATOR OR FINAL CTRL ELEMENT	

GENERAL NOTES

1. IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
2. SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM P&ID DRAWINGS.
3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS.
4. REFER TO GENERAL PROJECT NOTES DRAWING FOR ADDITIONAL REQUIREMENTS.

PIPELINE MATERIAL CODE ABBREVIATIONS [1]

	PIPE MATERIAL	SPECIFICATION NO.
BR	BRASS	40 05 41
CI	CAST IRON SOIL PIPE	22 13 16
CMP	CORRUGATED METAL PIPE	33 42 14
CPVC	CPVC	40 05 32
CS	MISCELLANEOUS STEEL PIPE	40 05 24.43
CSG	GALVANIZED STEEL PIPE	40 05 24.43
CSP	COMPOSITE SEWER PIPE	40 05 43
CU	COPPER TUBING	40 05 17
DIP	DUCTILE IRON PIPE	40 05 19
FP	FLUORINATED ETHYLENE PROPYLENE	40 05 32
HS	HOSE	40 05 41
PE	POLYETHYLENE	40 05 32
PP	POLYPROPYLENE	40 05 32
PVC	PVC	40 05 32
PVCFJ	PVC FUSED JOINT PIPE	40 05 31.13
PVCPP	PVC PRESSURE PIPE	40 05 31.12
PVCSP	PVC SEWER PIPE	40 05 31.16
PVDF	PVDF	40 05 32
RPT	REINFORCED PLASTIC TUBING	40 05 32
SP	STEEL PIPE	40 05 24
SS	STAINLESS STEEL PIPE	40 05 23

1. ABBREVIATION EXTENSIONS ARE ADDED AS NEEDED TO IDENTIFY THE MATERIAL SUB-CLASSIFICATION IN THE SPECIFICATION, SUCH AS "SS-1" FOR DIGESTER GAS PIPING.

INSTRUMENT AND I/O ABBREVIATION DEFINITIONS

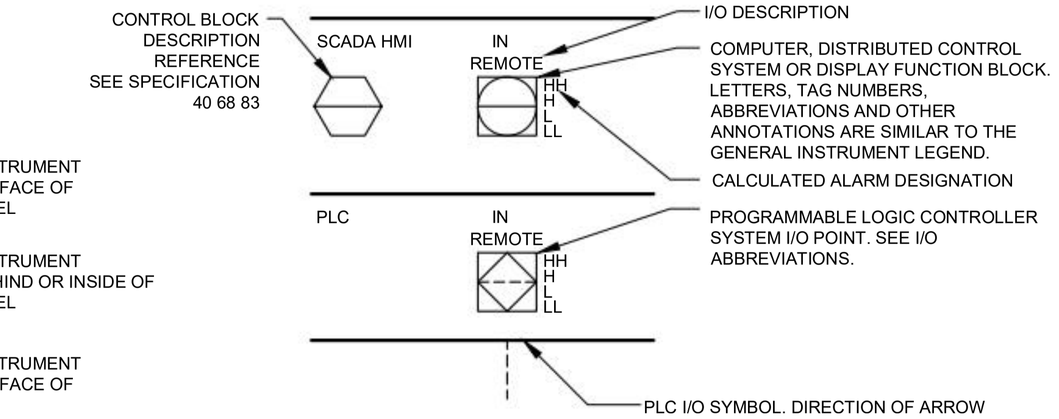
AAH	ANALYZER ALARM HIGH
AAHH	ANALYZER ALARM HIGH-HIGH
AAL	ANALYZER ALARM LOW OR STROBE ALARM LIGHT
AALL	ANALYZER ALARM LOW-LOW
AAX	ALARM HORN
AE	ANALYZER SENSOR
AI	ANALYZER INDICATION
AIT	ANALYZER INDICATING TRANSMITTER
ASH	ANALYZER SWITCH HIGH
ASHH	ANALYZER SWITCH HIGH-HIGH
CB	CONTROL BLOCK REFERENCE (SCADA LEVEL)
FAH	FLOW ALARM HIGH
FAL	FLOW ALARM LOW
FC	FLOW CONTROLLER
FE	PRIMARY FLOW ELEMENT/SENSOR
FG	FLOW SIGHT GAUGE
FI	FLOW DIGITAL INDICATOR (LED OR SCREEN)
FIC	FLOW INDICATING CONTROLLER
FIT	FLOW INDICATING TRANSMITTER
FQG	FLOW TOTALIZING GAUGE
FQIT	FLOW TOTALIZING INDICATING TRANSMITTER
FSH	FLOW SWITCH HIGH
FSL	FLOW SWITCH LOW
FY	FLOW SIGNAL CONVERTER, REPEATER, OR ISOLATOR
HIC	HAND INDICATING CONTROLLER
HMS	MOMENTARY PUSHBUTTON OR SELECTOR SWITCH
HS	HAND SWITCH
IAH	CURRENT ALARM HIGH (MOTOR OVERLOAD)
IE	CURRENT ELEMENT/SENSOR
ISH	CURRENT SWITCH HIGH USED TO DETECT HIGH TORQUE
JA	POWER FAILURE ALARM
JI	POWER INDICATOR
JIT	POWER INDICATING TRANSMITTER
JL	POWER INDICATING LIGHT
KQI	TIME TOTALIZING INDICATOR
LAH	LEVEL ALARM HIGH
LAHH	LEVEL ALARM HIGH-HIGH
LAL	LEVEL ALARM LOW
LALL	LEVEL ALARM LOW-LOW
LE	PRIMARY LEVEL ELEMENT/SENSOR
LG	LEVEL SIGHT GAUGE
LI	LEVEL INDICATOR (LED OR SCREEN)
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH-HIGH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW LOW
LY	LEVEL SIGNAL CONVERTER, ISOLATOR, OR REPEATER
OAH	TORQUE ALARM HIGH
OAHH	TORQUE ALARM HIGH HIGH
OSH	TORQUE SWITCH HIGH
OSHH	TORQUE SWITCH HIGH-HIGH
PAH	PRESSURE ALARM HIGH
PAHH	PRESSURE ALARM HIGH-HIGH
PAL	PRESSURE ALARM LOW
PALL	PRESSURE ALARM LOW-LOW
PDAH	DIFFERENTIAL PRESSURE ALARM HIGH
PDAHH	DIFFERENTIAL PRESSURE ALARM HIGH-HIGH
PDG	DIFFERENTIAL PRESSURE GAUGE
PDI	DIFFERENTIAL PRESSURE INDICATOR (LED OR SCREEN)
PDIT	DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
PDSH	DIFFERENTIAL PRESSURE SWITCH HIGH
PDSHH	DIFFERENTIAL PRESSURE SWITCH HIGH-HIGH
PDSL	DIFFERENTIAL PRESSURE SWITCH LOW
PDSLL	DIFFERENTIAL PRESSURE SWITCH LOW-LOW
PE	PRESSURE SENSOR
PG	PRESSURE GAUGE
PI	PRESSURE INDICATOR (LED OR SCREEN)
PIT	PRESSURE INDICATING TRANSMITTER
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
SC	SPEED CONTROL
SI	SPEED INDICATION (LED OR SCREEN)
SIT	SPEED INDICATING TRANSMITTER
SSL	SPEED SWITCH LOW
TAH	TEMPERATURE ALARM HIGH
TAHH	TEMPERATURE ALARM HIGH-HIGH
TAL	TEMPERATURE ALARM LOW
TDI	DIFFERENTIAL TEMPERATURE INDICATOR (LED OR SCREEN)
TDIT	DIFFERENTIAL TEMPERATURE TRANSMITTER
TE	TEMPERATURE SENSOR/RESISTANCE TEMPERATURE DETECTOR
TG	TEMPERATURE GAUGE
TI	TEMPERATURE INDICATOR (LED OR SCREEN)
TIT	TEMPERATURE INDICATING TRANSMITTER
TSH	TEMPERATURE SWITCH HIGH
TSHH	TEMPERATURE SWITCH HIGH HIGH
TSL	TEMPERATURE SWITCH LOW
UA	MULTIVARIABLE/COMMON ALARM/COMMON FAULT
UCR	RUN COMMAND
UCS	STOP COMMAND
VAH	VIBRATION ALARM HIGH
WE	PRIMARY WEIGHT SENSOR/LOAD CELL
WG	WEIGHT GAUGE
WIT	WEIGHT INDICATING TRANSMITTER
YA	GENERAL ALARM EVENT
YI	EVENT INDICATION (LED OR SCREEN)
YIR	RUNNING INDICATION
YIS	STOPPED INDICATION
YL	EVENT INDICATING LIGHT
YLR	RUNNING INDICATING LIGHT
YLS	STOPPED INDICATING LIGHT
ZI	POSITION INDICATOR
ZIC	CLOSED INDICATION
ZIO	OPEN INDICATION
ZIT	POSITION INDICATING TRANSMITTER
ZLC	CLOSED INDICATING LIGHT
ZLO	OPEN INDICATING LIGHT
ZSC	CLOSED POSITION SWITCH
ZSO	OPEN POSITION SWITCH
ZT	POSITION TRANSMITTER

GENERAL INSTRUMENT SYMBOLS

- FIELD MOUNTED DISCRETE INSTRUMENT
- PILOT LIGHT
- DISCRETE INSTRUMENT MOUNTED ON FACE OF PRIMARY PANEL
- DISCRETE INSTRUMENT MOUNTED BEHIND OR INSIDE OF PRIMARY PANEL
- DISCRETE INSTRUMENT MOUNTED ON FACE OF LOCAL PANEL
- DISCRETE INSTRUMENT MOUNTED BEHIND OR INSIDE OF LOCAL PANEL
- SINGLE INSTRUMENT HOUSING CONTAINING TWO (OR MORE) INSTRUMENTATION FUNCTIONS
- I — GENERAL CONTROL INTERLOCK FUNCTION, SEE SCHEMATICS AND SYSTEM SPECIFICATIONS FOR SPECIFIC FUNCTION

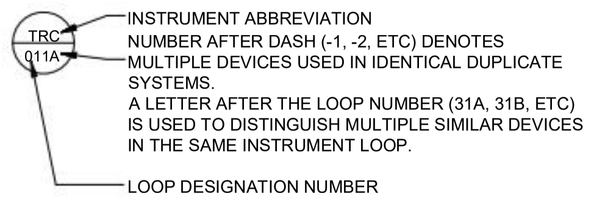
DIGITAL SYSTEMS INTERFACE SYMBOLS

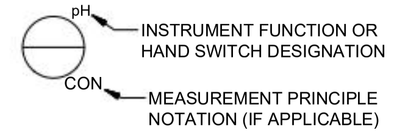
NOTE: REFER TO DETAILED SYSTEM SPECIFICATIONS FOR FUNCTIONAL DESCRIPTION. ALSO SEE I/O SCHEDULES FOR COMPLETE INPUT AND OUTPUT LISTINGS.



- △ DISCRETE INPUT
- ▽ DISCRETE OUTPUT
- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT
- ◬ PULSE INPUT

INSTRUMENTATION SYMBOLOGY AND DESIGNATIONS





FUNCTION DESIGNATIONS AND ABBREVIATIONS

MEASUREMENT PRINCIPLE NOTATIONS

CON	CONDUCTANCE
DP	DIFFERENTIAL PRESSURE SENSING
FLN	FLOW NOZZLE
FLT	FLOW TUBE
GWR	GUIDED WAVE RADAR
RAD	RADAR
US	ULTRASONIC
VENT	VENTURI TUBE

CALCULATED ALARM DESIGNATIONS

H	HIGH
HH	HIGH-HIGH
L	LOW
LL	LOW-LOW

INDICATING LIGHT/ALARM DESIGNATIONS

OVRLD	OVERLOAD
TRQ HI	TORQUE HIGH
TRQ HI-HI	TORQUE HIGH HIGH

INSTRUMENT FUNCTIONS

Δ	SUBTRACT (DIFFERENCE)
Σ	ADD OR SUM (ADD AND SUBTRACT)
√‾	EXTRACT SQUARE ROOT
÷	DIVIDE
>	HIGH-SELECT
<	LOW-SELECT
×	MULTIPLY
∫	INTEGRATE (TIME INTEGRAL)
CH4	METHANE
CL2	CHLORINE RESIDUAL
CO2	CARBON DIOXIDE
COND	CONDUCTIVITY
DO	DISSOLVED OXYGEN
DWPT	DEWPOINT
F(X)	CHARACTERIZE SIGNAL
H2S	HYDROGEN SULFIDE
K	GAIN OR ATTENUATE (INPUT:OUTPUT)
-K	GAIN AND REVERSE
LEL	LOWER EXPLOSIVE LIMIT
MCC	MOTOR CONTROL CENTER
MLSS	MIXED LIQUOR SUSPENDED SOLIDS
02	OXYGEN (PURITY)
03	OZONE
pH	pH

HAND SWITCH DESIGNATIONS

FR	FORWARD-REVERSE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
LOA	LOCAL-OFF-AUTO
LOR	LOCAL-OFF-REMOTE
LR	LOCAL REMOTE
OC	OPEN-CLOSE
OCA	OPEN-CLOSE-AUTO
OO	ON-OFF
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
OSC	OPEN-STOP-CLOSE

TRANSDUCER & CONVERTER DESIGNATION

E	VOLTAGE
FSK	FREQUENCY SHIF KEYING
H	HYDRAULIC
I	CURRENT
P	PNEUMATIC PULSE
PD	PULSE DURATION
PF	PULSE FREQUENCY
R	RESISTANCE (ELECTRICAL)

EXAMPLE: I/P = CURRENT TO PNEUMATIC TRANSDUCER

POWER SUPPLY ABBREVIATIONS

120V — POWER SUPPLY SOURCE LABEL. USED ONLY WHERE NECESSARY TO HELP CLARIFY AN INSTRUMENT OR SYSTEM FUNCTION.

120V	120VAC
AS	AIR SUPPLY
ES	ELECTRIC SUPPLY
GS	GAS SUPPLY
HS	HYDRAULIC SUPPLY
NS	NITROGEN SUPPLY
SS	STEAM SUPPLY
WS	WATER SUPPLY

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER — DUANE C. SMITH — No. E 15829 — STATE OF CALIFORNIA — ELECTRICAL

BLACK & VEATCH — Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

INSTRUMENTATION
LEGEND AND ABBREVIATIONS
SHEET 2 OF 3

DESIGNED:	RHD
DETAILED:	ABA
CHECKED:	
APPROVED:	
DATE:	JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

I-02
SHEET
OF

FD10000
D10000
PLOTTED: 7/15/2021 12:15 PM FILE: C:\Users\ara896140\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\407941\PID DWG\I-02.dwg

SYSTEM CODE ABBREVIATIONS

ACE	ACETIC ACID
ACT	ACETYLENE
AER	AERATION SYSTEM
AIR	AIR, AERATION OR PROCESS
ALS	ALUMINUM SULFATE
ARG	ARGON
ARW	AIR WASH
AS	ANTI-SEALANT
ASH	ASH
BAL	BALLASTED FLOCCULATION
BIO	BIOSOLIDS
BIT	BIOTOWER
BLS	BLENDED SLUDGE
BNR	BNR
BRN	BRINE
BWH	BACKWASH FOR MEMBRANE OR FILTER
BWW	BACKWASH WATER
CA	CITRIC ACID
CACL	CALCIUM HYPOCHLORITE
CAH	LIME, HYDRATED
CAI	COMPRESSED AIR, INSTRUMENT
CAO	LIME, QUICKLIME
CAS	CARBON SLURRY
CATS	CALCIUM THIOSULFATE
CDW	CONDENSATE WATER
CEB	CHEMICAL ENHANCED BACKWASH FOR MEMBRANE
CEN	CENTRATE
CI	CORROSION INHIBITOR
CIP	CLEAN IN PLACE
CL2	CHLORINE
CLO2	CHLORINE DIOXIDE
CMS	COMPRESSED AIR, SERVICE
C02	CARBON DIOXIDE
COA	COAGULATION
COLW	COOLING WATER
CUS	COPPER SULFATE
CW	COLD WATER (POTABLE)
DAF	DISSOLVED AIR FLOTATION
DCB	DISINFECTION CONTACT BASIN
DCL	DECHLORINATION
DEIW	DEIONIZED WATER
DET	DETERGENT
DGA	DIGESTION, AEROBIC
DGM	DIGESTER GAS MIXING
DGG	DIGESTER GAS
DGS	DIGESTER SLUDGE
DIG	DIGESTION, ANAEROBIC
DRN	DRAINAGE
DW	DISTILLED WATER
DWT	DEWATERING
EFP	EFFLUENT PUMPING
EQB	EQUALIZATION BASIN
EXH	ENGINE EXHAUST
FE	FILTER EFFLUENT
FEC	FERRIC CHLORIDE
FES	FERRIC SULFATE
FLC	FLOCCULATION
FLT	FILTRATION
FO	FUEL OIL
FRC	FERROUS CHLORIDE
FRS	FERROUS SULFATE
FUE	DIESEL FUEL
FW	FIRE WATER
GAC	GRANULAR ACTIVATED CARBON
GOX	GASEOUS OXYGEN
GRS	GREASE
GRT	GRIT
GSL	GASOLINE
HCL	HYDROCHLORIC ACID
HCO3	CARBONIC ACID
HEL	HELIUM
HFL	HYDRAULIC FLUID
HFS	HYDROFLUOSILICIC ACID (FLUORIDE)
HSO4	SULFURIC ACID
HW	HOT OR HEATING WATER
HYD	HYDROGEN
INC	INCINERATION
INFP	INFLUENT PUMPING
INT	INTAKE
IRW	IRRIGATION WATER
KMN	POTASSIUM PERMANGANATE
LAG	LAGOON STORAGE
LAP	LAND APPLICATION
LIM	LIME, STABILIZATION
LOX	LIQUID OXYGEN
LPG	LP GAS OR PROPANE GAS
MEG	METHANE GAS
MEM	MEMBRANE
MGOH	MAGNESIUM HYDROXIDE
MTH	METHANOL
MXL	MIXED LIQUOR
NAC	SODA ASH
NAF	SODIUM FLUORIDE
NAL	SODIUM ALUMINATE
NAOH	SODIUM HYDROXIDE
NAM	SODIUM ALUMINATE
NASF	SODIUM SILICOFLUORIDE
NAX	SODIUM HEXAMETAPHOSPHATE
NBC	SODIUM BICARBONATE
NCL	SODIUM CHLORIDE
NCL2	SODIUM CHLORITE
NG	NATURAL GAS
NH3	ANHYDROUS AMMONIA
NHOH	AQUA AMMONIA
NHS	SODIUM BISULFITE
NIO	NITROUS OXIDE
NIT	NITROGEN
NOCL	SODIUM HYPOCHLORITE
NPW	NON-POTABLE WATER
NSO4	AMMONIUM SULFATE
ODC	ODOR CONTROL
OIL	OIL
OZD	OZONE DESTRUCT
OZN	OZONE
OZW	OZONATED WATER
PAC	POWDERED ACTIVATE CARBON
PACL	POLYALUMINUM CHLORIDE
PAR	PRE-AERATION
PER	HYDROGEN PEROXIDE
PEW	PLANT EFFLUENT WATER
PO4	PHOSPHORIC ACID
POLY	POLYMER
PPP	PHOSPHATE
PRC	PRIMARY CLARIFICATION
PRS	PRIMARY SLUDGE
PSC	PRIMARY SCUM
PSD	PRESEDIMENTATION
PTW	PUMP TO WASTE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RCS	RECIRCULATED SLUDGE
RCW	RECLAIMED WATER
REF	REFRIGERANT
RES	RESIDUALS
ROS	REVERSE OSMOSIS
RW	RAW WATER
RWP	RAW WATER PUMPING
RWS	RAW WATER STORAGE
SCL	SECONDARY CLARIFICATION
SCR	SCREENINGS
SEP	SEPTAGE
SET	SETTLED WATER
SEW	SEWAGE
SO2	SULFUR DIOXIDE
SSC	SECONDARY SCUM
STM	STEAM
STS	STORM SEWER
STW	STORM WATER
SW	SURFACE WASH
SWT	SEAL WATER
TERT	TERTIARY TREATMENT
TF	TRICKLING FILTER
THCK	THICKENING
TPRS	THICKENED PRIMARY SLUDGE
TW	TREATED WATER
TWAS	THICKENED WASTE ACTIVATED SLUDGE
UV	ULTRAVIOLET
VAC	VACUUM
WAS	WASTE ACTIVATED SLUDGE
WW	WASH WATER
WWP	RAW WASTEWATER PUMPING
WWT	WET WEATHER TREATMENT
WWW	WASTE WASH WATER
ZOP	ZINC ORTHOPHOSPHATE

PROCESS CODE ABBREVIATIONS

ACE_X	ACETIC ACID
ACT_X	ACETYLENE
AER_X	AERATION SYSTEM
AIR_X	AIR, AERATION OR PROCESS
ALS_X	ALUMINUM SULFATE
ARG_X	ARGON
ARW_X	AIR WASH
AS_X	ANTI-SEALANT
ASH_X	ASH
BAL_X	BALLASTED FLOCCULATION
BIO_X	BIOTOWER
BIT_X	BLENDED SLUDGE
BLS_X	BNR
BNR_X	BIOSOLIDS
BRN_X	BRINE
BWH_X	BACKWASH FOR MEMBRANE OR FILTER
CA_X	CITRIC ACID
CACL_X	CALCIUM HYPOCHLORITE
CAH_X	LIME, HYDRATED
CAI_X	COMPRESSED AIR, INSTRUMENT
CAO_X	LIME, QUICKLIME
CAS_X	CARBON SLURRY
CATS_X	CALCIUM THIOSULFATE
CDW_X	CONDENSATE WATER
CEB_X	CHEMICAL ENHANCED BACKWASH FOR MEMBRANE
CEN_X	CENTRATE
CI_X	CORROSION INHIBITOR
CIP_X	CLEAN IN PLACE
CL2_X	CHLORINE
CLO2_X	CHLORINE DIOXIDE
CMS_X	COMPRESSED AIR, SERVICE
COA_X	COAGULATION
C02_X	CARBON DIOXIDE
COLW_X	COOLING WATER
CUS_X	COPPER SULFATE
DAF_X	DISSOLVED AIR FLOTATION
DCB_X	DISINFECTION CONTACT BASIN
DCL_X	DECHLORINATION
DEIW_X	DEIONIZED WATER
DET_X	DETERGENT
DGA_X	DIGESTION, AEROBIC
DGG_X	DIGESTER GAS
DGM_X	DIGESTER GAS MIXING
DGS_X	DIGESTER SLUDGE
DIG_X	DIGESTION, ANAEROBIC
DRN_X	DRAINAGE
DW_X	DISTILLED WATER
DWT_X	DEWATERING
EFP_X	EFFLUENT PUMPING
EQB_X	EQUALIZATION BASIN
EXH_X	ENGINE EXHAUST
FE_X	FILTER EFFLUENT
FEC_X	FERRIC CHLORIDE
FES_X	FERRIC SULFATE
FLC_X	FLOCCULATION
FLT_X	FILTRATION
FO_X	FUEL OIL
FRC_X	FERROUS CHLORIDE
FRS_X	FERROUS SULFATE
FUE_X	DIESEL FUEL
FW_X	FIRE WATER
GAC_X	GRANULAR ACTIVATED CARBON
GOX_X	GASEOUS OXYGEN
GRS_X	GREASE
GRT_X	GRIT
GSL_X	GASOLINE
HCL_X	HYDROCHLORIC ACID
HCO3_X	CARBONIC ACID
HEL_X	HELIUM
HFL_X	HYDRAULIC FLUID
HFS_X	HYDROFLUOSILICIC ACID (FLUORIDE)
HSO4_X	SULFURIC ACID
HW_X	HOT OR HEATING WATER
HYD_X	HYDROGEN
INC_X	INCINERATION
INFP_X	INFLUENT PUMPING
INT_X	INTAKE
IRW_X	IRRIGATION WATER
KMN_X	POTASSIUM PERMANGANATE
LAG_X	LAGOON STORAGE
LAP_X	LAND APPLICATION
LIM_X	LIME STABILIZATION
LOX_X	LIQUID OXYGEN
LPG_X	LP GAS OR PROPANE GAS
MEG_X	METHANE GAS
MEM_X	MEMBRANE
MGOH_X	MAGNESIUM HYDROXIDE
MTH_X	METHANOL
MXL_X	MIXED LIQUOR
NAC_X	SODA ASH
NAF_X	SODIUM FLUORIDE
NAL_X	SODIUM ALUMINATE
NAM_X	SODIUM ALUMINATE
NAOH_X	SODIUM HYDROXIDE
NASF_X	SODIUM SILICOFLUORIDE
NAX_X	SODIUM HEXAMETAPHOSPHATE
NBC_X	SODIUM BICARBONATE
NCL_X	SODIUM CHLORIDE
NCL2_X	SODIUM CHLORITE
NG_X	NATURAL GAS
NH3_X	ANHYDROUS AMMONIA
NHOH_X	AQUA AMMONIA
NHS_X	SODIUM BISULFITE
NIO_X	NITROUS OXIDE
NIT_X	NITROGEN
NOCL_X	SODIUM HYPOCHLORITE
NPW_X	NON-POTABLE WATER
NSO4_X	AMMONIUM SULFATE
ODC_X	ODOR CONTROL
OIL_X	OIL
OZD_X	OZONE DESTRUCT
OZN_X	OZONE
OZW_X	OZONATED WATER
PAC_X	POWDERED ACTIVATE CARBON
PACL_X	POLYALUMINUM CHLORIDE
PAR_X	PRE-AERATION
PER_X	HYDROGEN PEROXIDE
PEW_X	PLANT EFFLUENT WATER
PO4_X	PHOSPHORIC ACID
POLY_X	POLYMER
PPP_X	PHOSPHATE
PRC_X	PRIMARY CLARIFICATION
PRS_X	PRIMARY SLUDGE
PSC_X	PRIMARY SCUM
PSD_X	PRESEDIMENTATION
PW_X	POTABLE WATER
RAS_X	RETURN ACTIVATED SLUDGE
RCS_X	RECIRCULATED SLUDGE
RCW_X	RECLAIMED WATER
REF_X	REFRIGERANT
RES_X	RESIDUALS
ROS_X	REVERSE OSMOSIS
RW_X	RAW WATER
RWP_X	RAW WATER PUMPING
RWS_X	RAW WATER STORAGE
SCL_X	SECONDARY CLARIFICATION
SCR_X	SCREENINGS
SEP_X	SEPTAGE
SET_X	SETTLED WATER
SEW_X	SEWAGE
SO2_X	SULFUR DIOXIDE
SSC_X	SECONDARY SCUM
STM_X	STEAM
STS_X	STORM SEWER
STW_X	STORM WATER
SW_X	SURFACE WASH
SWT_X	SEAL WATER
TERT_X	TERTIARY TREATMENT
TF_X	TRICKLING FILTER
THCK_X	THICKENING
TPRS_X	THICKENED PRIMARY SLUDGE
TW_X	TREATED WATER
TWAS_X	THICKENED WASTE ACTIVATED SLUDGE
UV_X	ULTRAVIOLET
VAC_X	VACUUM
WAS_X	WASTE ACTIVATED SLUDGE
WW_X	WASH WATER
WWP_X	RAW WASTEWATER PUMPING
WWT_X	WET WEATHER TREATMENT
WWW_X	WASTE WASH WATER
ZOP_X	ZINC ORTHOPHOSPHATE

X = PROCESS CODE SUFFIX USED TO FURTHER SPECIFY A PROCESS STREAM (I.E. CL2_G FOR CHLORINE GAS OR CL2_S FOR CHLORINE SOLUTION)

FUNCTION CODE ABBREVIATIONS

ACD	AERATOR, COARSE BUBBLE DIFFUSED
ACMB	ACTIVATION CHAMBER
AD	AIR DRYER
AEFD	AERATOR, FINE PORE DIFFUSED
AES	AERATOR, SURFACE
AF	AIR FILTER
AFC	AFTERCOOLER
AFD	ADJUSTABLE FREQUENCY DRIVE
AFS	AERATOR, FLOATING SURFACE
AR	AIR RECEIVER OR REGULATOR
AS	AIR SEPARATOR
AST	AIR STRIPPER
B	BIN (STORAGE - ALL TYPES)
BA	BIN ACTIVATOR
BDZ	BULLDOZER
BFP	BACKFLOW PREVENTER
BFPS	BELT FILTER PRESS
BL	BLOWER, POSITIVE DISPLACEMENT
BLC	BLOWER, CENTRIFUGAL
BLR	BOILER
BNR	BASIN, BNR
BSNA	BASIN, AERATION
BSNC	BASIN, CHLORINE CONTACT
BSNO	BASIN, OXIC
BSNS	BASIN, SEDIMENTATION
BSNX	BASIN, ANOXIC/OXIC
CAB	COVER, ALUMINUM DOME BASIN
CCLM	CALIBRATION COLUMN
CDG	COVER, GAS HOLDER
CFD	COVER, FIXED DIGESTER
CFG	CENTRIFUGE
CFL	COVER, FLOATING DIGESTER
CGR	CLASSIFIER, GRIT
CGS	CHLORINE GAS SCRUBBER
CHF	CHEMICAL FEEDER
CMB	COVER, MEMBRANE
CML	COMPRESSOR, LIQUID RING
CMP	COMPRESSOR
CMPS	COMPRESSOR, STEAM
CMR	COMPRESSOR, ROTARY SCREW
COB	CONVEYOR, BELT
COS	CONVEYOR, SCREW
CRG	CRANE, GANTRY
CRJ	CRANE, JIB
CRN	CRANE
CRP	CRANE, PORTABLE GANTRY
CRT	CRANE, TRAVELING BRIDGE
CTR	CONTAINER, PROCESS
CYG	CYLINDER, GAS
CYLC	CYLINDER, CHLORINE
DAF	DISSOLVED AIR FLOTATION THICKENER
DFB	DIFFUSER BANK
DFP	DIFFUSER, PIPELINE
DFT	DIFFUSER, TANK
DGAP	DIGESTER, ANAEROBIC PRIMARY
DGAS	DIGESTER, ANAEROBIC SECONDARY
DGE	DIGESTER, AEROBIC
DIF	DIFFUSER, CHANNEL
DPS	DIAPHRAGM SEAL
DSUV	DISINFECTION UNIT, UV
DUC	DUST COLLECTOR
DWS	DEWATERING SCREW
EDC	EDUCTOR
EEWF	EMERGENCY EYE WASH FOUNTAIN
EQPB	EQUIPMENT, BUILDING SERVICES
EQPE	ELECTRICAL EQUIPMENT, GENERAL
EQPG	EQUIPMENT, GENERAL OR UNSPECIFIED
ESEW	EMERGENCY SHOWER AND EYEWASH
ESHR	EMERGENCY SHOWER
EXC	EXPANSION CHAMBER
EV	EVAPORATOR
FAN	FAN, CENTRIFUGAL
FAR	FLAME ARRESTER
FAX	FAN, AXIAL FLOW
FC	FLAME CHECK
FD	FLOOR DRAIN
FGP	FILTER, GAS PARTICULATE
FL	FORKLIFT
FLC	FILTER, CARTRIDGE TYPE
FLCH	FLOCCULATOR, HORIZONTAL
FLCV	FLOCCULATOR, VERTICAL
FLG	FLARE, GAS
FLM	FLUME, PARSHALL
FLT	FILTER, UNDERDRAINS OR PRESSURE
FMSP	FOAM SEPARATOR
FS	FLOW SPLITTER
FST	FENCE STIRRER
FSW	FILTER. SURFACE WASH EQUIPMENT
FTNG	FITTING, MISCELLANEOUS
GBT	GRAVITY BELT THICKENER
GEN	GENERATOR, ENGINE (BACKUP POWER)
GFD	GAS FEEDER
GFL	GATE, FLAP
GRB	GRIT BASIN, VORTEX TYPE
GRC	GRIT SCREW CONCENTRATOR
GRD	GRINDER PULVERIZER
GRI	GRINDER, INLINE SEWAGE
GSD	GATE, SLIDE
GSL	GATE, SLUICE
GVT	GRAVITY THICKENER
GWH	GAS WATER HEATER
GWR	GATE, WEIR
HEX	HEAT EXCHANGER
HSC	HOIST, CHAIN
HST	HOIST
HSW	HOIST, WIRE ROPE
HYC	HYDROCYCLONE
HYDF	HYDRANT, FIRE
HYDW	HYDRANT, WALL
INJ	INJECTOR, CHEMICAL
LS	LIME SLAKER
M	MOTOR
MBMF	MEMBRANE, MICROFILTRATION
MBNF	MEMBRANE, NANOFILTRATION
MBR	MEMBRANE
MBRO	MEMBRANE, REVERSE OSMOSIS
MBUF	MEMBRANE, ULTRAFILTRATION
MFL	MIXER, FLOCCULATION
MXC	MIXER, CARBON
MXI	MIXER, IN-LINE
MXP	MIXER, SUBMERSIBLE, PROP OR BLENDER
MXPG	MIXER, PUGMILL
MXR	MIXER, RAPID
MXS	MIXER, STATIC
ODU	OZONE DESTRUCT UNIT
OGEN	OZONE GENERATOR
OPSU	OZONE POWER SUPPLY UNIT
ORD	OVERFLOW ROOF DRAIN
P	PUMP, POSITIVE DISPLACEMENT, ROTARY, DRUM OR BELL MOUNTED
PAD	PUMP, AIR DIAPHRAGM
PBC	PRESSURE BUILDING COIL
PCL	PUMP, CENTRIFUGAL
PCLR	PRIMARY CLARIFIER
PCN	PARTICLE COUNTER
PCV	PUMP CONTROL VALVE
PD	PULSATION DAMPENER
PDM	PUMP, DIAPHRAGM METERING
PHE	PUMP, HORIZONTAL END SUCTION
PHW	PUMP, HOT OR HEATING WATER
PINJ	POLYMER INJECTOR RING
PIPE	PIPE
PLT	PELLETIZER
PNS	PENSTOCK
PP	PACKAGED PLANT
PPC	PUMP, PROGRESSING CAVITY
PPL	PUMP, PLUNGER
PPS	PUMP, PERISTALTIC
PSC	PUMP, HORIZONTAL SPLIT CASE
PSCH	PUMP, SUBMERSIBLE CHOPPER
PSE	PUMP, SCREW ENCLOSED
PSL	PUMP, SUBMERSIBLE
PSO	PUMP, SCREW OPEN
PSP	PUMP, SUMP
PSS	PUMP, SUBMERSIBLE SUMP
PST	PLATE SETTLER
PVD	PUMP, VERTICAL DIFFUSION VANE
PVE	PUMP, VERTICAL END SUCTION
PVW	PUMP, VERTICAL WET PIT
RCO	RESIDUAL COLLECTOR
RD	RUPTURE DISK
RM	ROTAMETER
RSV	RESERVOIR
SAMP	SAMPLER
SBL	SOLIDS BLENDER, INLINE
SC	SCALE, WEIGHT
SCB	SCRUBBER
SCC	SLUDGE COLLECTOR, CIRCULAR
SCFC	SLUDGE COLLECTOR, FLOC-CLARIFYING
SCL	SCALE
SCLC	SLUDGE COLLECTOR, CROSS
SCLR	SECONDARY CLARIFIER
SCRB	SCREEN, MANUAL OR MECH CLEANED BAR
SCRH	SCREEN, HORIZONTAL
SCRI	SCREEN, INLINE SLUDGE
SCRS	SCREEN, STEP
SCRT	SCREEN, TRAVELING WATER
SCRV	SCREEN, VIBRATORY
SCSC	SLUDGE COLLECTOR, SOLIDS CONTACT
SCSE	SLUDGE COLLECTOR, SEC CLARIFIERS
SCSL	SLUDGE COLLECTOR, STRAIGHT LINE
SCW	SCUM WEIR, ROTATING
SEP	SEPARATOR, MOISTURE OR CYCLONE
SG	SIGHT GAUGE
SGR	SLUDGE GRINDER, INLINE OR CHANNEL
SGT	SIGHT GLASS, TALL
SIL	SILENCER
SMC	SCUM COLLECTOR
SRCH	SURGE CHAMBER
STR	STRAINER
STRB	STRAINER, BASKET TYPE
STRY	STRAINER, Y TYPE
TB	TURBINE
TBC	TURBINE, COMPRESSOR
TBE	TURBINE ENGINE
TCC	TANK, CHLORINE CONTACTOR
TCN	TANK, AMMONIA STORAGE
TCP	TANK, METHANOL
TCR	TANK, CRYOGENIC STORAGE
TDW	TANK, DOUBLE WALL
TNK	TANK, GENERAL OR UNSPECIFIED
TNKC	TANK, FRP CHEMICAL STORAGE
TRK	TRUCK
TRP	TRAP, DRIP
TRPS	TRAP, SEDIMENT
TSA	TANK, STORAGE, ABOVE GROUND
TSE	TANK, ELEVATED STORAGE
TSMP	TANK, SAMPLER
TSW	TANK, STEEL WATER
TX	TANK, EXPANSION
UPS	UNINTERRUPTIBLE POWER SUPPLY
UVR	UV REACTOR
V	VALVE, GENERAL OR UNSPECIFIED
VAG	VALVE, ANGLE
VAP	VAPORIZER
VAR	VALVE, AIR RELEASE
VAVB	VALVE, AIR VACUUM BREAK
VBA	VALVE, AWWA BALL
VBF	VALVE, AWWA BUTTERFLY
VBFI	VALVE, INDUSTRIAL BUTTERFLY
VBFP	VALVE, BACKFLOW PREVENTER
VBM	VALVE, BALL MISCELLANEOUS
VCAV	VALVE, COMBINATION AIR RELEASE AND VACUUM BREAK
VCK	VALVE, CHECK
VCN	VALVE, CONE
VDG	VALVE, DIAPHRAGM OPERATED
VEX	VALVE, EXPLOSION RELIEF
VFG	VALVE, FLAP GATE
VFW	VALVE, FOUR WAY
VG	VALVE, GATE
VGD	VALVE, DOUBLE DISC GATE
VGL	VALVE, GLOBE
VGR	VALVE, RESILIENT SEATED GATE
VKG	VALVE, KNIFE GATE
VMD	VALVE, MUD
VMR	VALVE, MATERIAL HANDLING ROTARY
VND	VALVE, NEEDLE
VP	VALVE, PROCESS
VPE	VALVE, ECCENTRIC PLUG
VPL	VALVE, NON-ECCENTRIC PLUG
VPN	VALVE, PINCH
VPO	VALVE, PISTON OPERATED
VPRD	VALVE, PRESSURE REDUCING
VPRL	VALVE, PRESSURE RELIEF
VPS	VALVE, PRESSURE SUSTAINING
VPT	VALVE, PILOT
VPVR	VALVE, PRESSURE/VACUUM RELIEF
VRG	VACUUM REGULATOR
VS	VALVE, SAFETY
VSL	VALVE, SOLENOID
VSLB	VESSEL, BOOT
VSLV	VALVE, SLEEVE
VTLS	VALVE, TELESCOPING
VTS	VALVE, THERMAL SHUTOFF
VTW	VALVE, THREE WAY
VVB	VALVE, VACUUM BREAKER
VVP	VALVE, V-PORT BALL
VVR	VALVE, VACUM RELIEF
WC	WEIR, CIPOLLETTI
WLHC	WELL, HORIZONTAL COLLECTOR
WLV	WELL, VERTICAL
WR	WEIR, RECTANGULAR
WV	WEIR, V-NOTCH

GENERAL NOTES

1. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
2. REFER TO GENERAL PROJECT NOTES DRAWING FOR ADDITIONAL REQUIREMENTS.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER — DENNIS J. C. SMITH — No. E 15829 — ELECTRICAL — STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

INSTRUMENTATION
LEGEND AND ABBREVIATIONS
SHEET 3 OF 3

DESIGNED: RHD
DETAILED: ABA
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

I-03
SHEET
OF

FD10000
D10000
PLOTTED: 7/15/2021 11:56 AM FILE: C:\Users\ara99614\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\407941\PID DWG\I-03.dwg

SCADA HMI

RTU-21

FI ###
FL ### NOTE 7
FA ### NOTE 7
ZIO ### NOTE 7
PDI ###
FI ### FA ### ZCO ###
AI ###
PI ###

(FUTURE) VFD FOR FUTURE RAW WATER LINE

WM ###
EXISTING TW SITE WATER SERVICE
NOTE 5

TO EXISTING PUMP STATION

A I-05
FROM SODIUM HYPOCHLORITE FEED SYSTEM

NOTE 4

1/2"-NOCL-PE TUBING

120VAC (TYP)
FIT ### NOTE 7
FE ###

FUTURE RAW WATER CONNECTION
6"-RW-DIP
RW-VBF-###
RW-VCK-###
RW-VBF-###
6"-RW-DIP

120VAC (TYP)
FIT ###
FE ###

FROM EXISTING WELL PUMP
SAND SEPARATOR
6"-RW-DIP
RW-AVRV-###
TREATMENT BUILDING
6"-PTW-DIP

PG ###
SAMPLE TAP NOTE 2

1/2"-RW-CU
PDIT ###
1/2"-TW-CU

GRANULAR ACTIVATED CARBON SYSTEM PACKAGE

CARBON MEDIA INLET
CARBON MEDIA OUTLET
CARBON MEDIA OUTLET
CARBON MEDIA INLET
NOTE 8

PG ###
SAMPLE TAP NOTE 2
NOTE 9
NOTE 10
TW-VBF-###

120VAC (TYP)
FIT ###
FE ###

TW-VBF-###
BLIND FLANGE FOR START UP SERVICES
6" TW-DIP
RW-AVRV-###

CL2
120VAC (TYP)
AIT ###
CL2
AE ###
FG ###
YD

1/2"-SPL
VSL-###
SAMPLE TAP NOTE 2
PIT ###
YD

TREATMENT BUILDING EXIT
TW-VBF-###
TW-VBF-###
2" CW-CU
NOTE 6
TO TREATMENT BUILDING WATER SUPPLY
NOTE 11
2" NPW-PVC
TO YARD HYDRANT

2" TW-CSG
WN
TW-VBF-###
6" TW-PCV
6" TW-PCV
TO SQCWD DISTRIBUTION SYSTEM
TO SQCWD DISTRIBUTION SYSTEM

4"-PTW-DIP
4"-D-DIP
PTW-VBF-###
1/2" RW-CS
ZSO ###
3"-PTW-DIP
PTW-PCV-###
PTW-VBF-###
6"-BWM-DIP
TREATMENT BUILDING EXIT
4"-D-DIP
6"-PTW-DIP
4"-PTW-DIP
PTW-VBF-###
4"-PTW-CS
4"-PTW-DIP
TO EXISTING OUTFALL

NOTES:

1. SEE LEGEND ON DRAWINGS I-01, I-02, AND I-03.
2. ALL SAMPLE TAP DETAILS ARE NOT REPRESENTED IN P&ID. SEE DETAILS ON DRAWINGS M-6 FOR ALL SAMPLE TAP CONNECTIONS.
3. FLOW SWITCH SHALL BE INTERLOCKED WITH SODIUM HYPOCHLORITE PUMP TO REMOVE POWER TO THE PUMP WHEN NO FLOW IS MEASURED.
4. 1/2" PE TUBING INSIDE OF 1 1/4" CPVC-1 CARRIER PIPE.
5. CAP EXISTING WATER PIPE THAT SUPPLIES THE EXISTING EYE WASH. REFER TO DEMO DRAWINGS FOR ADDITIONAL DETAILS.
6. REFER TO PLUMBING DRAWINGS FOR CONTINUATION.
7. FUTURE WELL PUMP I/O.
8. REFER TO SPECIFICATION 43 31 13 GAC PRESSURE VESSEL SYSTEM FOR GAC SYSTEM PACKAGE PIPE SIZES.
9. FUTURE Cr/VI TREATMENT SYSTEM SUPPLY CONNECTION.
10. FUTURE Cr/VI TREATMENT SYSTEM RETURN CONNECTION.
11. IRRIGATION SUPPLY. REFER TO DWG L-02 SIZE AND ADDITIONAL DETAILS.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
DUNCAN C. SMITH
No. E 15829
ELECTRICAL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

INSTRUMENTATION
WELL TREATMENT
P&ID

DESIGNED: RHD
DETAILED: ABA
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

I-04
SHEET
OF

FD10000
D10000
PLOTTED: 7/15/2021 12:22 PM FILE: C:\Users\ara99614\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\407941\PID DWG\I-04.dwg

SCADA HMI

RTU-21

RUN COMMAND UCR ###
IN REMOTE ZI ###
RUNNING YIR ###
FAIL YA ###
SPEED COMMAND SC ###
LEVEL HI LAH ###
FLOW FAH ###

SCADA HMI
RTU-21
RUN COMMAND UCR ###
IN REMOTE ZI ###
RUNNING YIR ###
FAIL YA ###
SPEED COMMAND SC ###
LEVEL HI LAH ###
FLOW FAH ###

PUMP CONTROL UNIT

NOTE 6

FSH ###

?-EWSH-###

VENT TO OUTSIDE OF BUILDING

NOTE 16

3"-NOCL-CPVC-1

1"-NOCL-CPVC-1 NOTE 4

NOTE 19

1"-NOCL-CPVC-1

1"-NOCL-CPVC-1

OFF GAS VENT

PRESSURE RELIEF VENT

SODIUM HYPOCHLORITE STORAGE TANK

NOCL-TNK-###

1-1/2"-NOCL-CPVC-1

NOTE 13

TREATMENT BUILDING

NOTE 12

1/2"-NOCL-FP TUBING

NOTE 17

NOTE 18

A I-04

TO GAC FILTER EFFLUENT

S

NOCL-P-###

1"-NOCL-CPVC-1

NOTE 3

1"-NOCL-CPVC-1

NOTE 15

NOTE 14

SODIUM HYPOCHLORITE FEED PUMP

LSH ###

SODIUM HYPOCHLORITE CONTAINMENT AREA

SUMP

TO STORAGE TANK VENT

NOTE 8

METERING PUMP

NOTE 7

PUMP BASE

NOTE 10

NOTE 11

NOTE 9

FROM TANK

PUMP SUCTION DETAIL

NOTES:

1. SEE LEGEND ON DRAWINGS I-01, I-02, AND I-03.
2. SYSTEM CODE IS NOCL UNLESS OTHERWISE NOTED.
3. PROVIDE FLANGED VALVE TO CONNECT TO TANK FLANGE FOR ALL VALVES AT TANK.
4. ROUTE VENT HEADERS 12 INCHES ABOVE STORAGE/DAY TANK OVERFLOW ELEVATION.
5. NOT USED
6. CONTROL UNIT IS INTEGRAL TO THE PUMP.
7. LOCATE TEE FOR VENT AS CLOSE AS POSSIBLE TO PUMP SUCTION CONNECTION. THE VENT SHALL BE CONNECTED TO THE RUN OF THE TEE, IN THE VERTICAL POSITION, AND NOT FROM THE BRANCH OF THE TEE.
8. VALVE TO BE OPEN EXCEPT WHEN STORAGE/DAY TANK LEVEL IS BELOW PUMP CENTERLINE.
9. PUMP SUCTION PIPING IS TO SLOPE DOWNWARD FROM THE STORAGE TANK TO METERING PUMP WITHOUT HIGH POINT OR LOW POINTS.
10. MAXIMIZE THIS DIMENSION TO INCREASE RELEASE OF OFF-GAS.
11. MINIMIZE THIS DIMENSION TO REDUCE TIME FOR OFF-GAS TO BE PRODUCED.
12. FOUR FUNCTION VALVE PROVIDES PRESSURE RELIEF.
13. DUCKBILL VALVE
14. THREADED CAP TYPICAL
15. DRAIN/FLUSH VALVE TYPICAL
16. ROOF PENETRATION
17. INSTALL TUBING INSIDE OF CARRIER PIPE
18. 1/2" FP TUBING INSIDE OF 1 1/4" CPVC-1 CARRIER PIPE
19. 7" ACCESS HATCH

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER DUNCAN C. SMITH No. E 15829 ELECTRICAL STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

INSTRUMENTATION
SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM
P&ID

DESIGNED:	RHD
DETAILED:	ABA
CHECKED:	
APPROVED:	
DATE:	JULY 2021

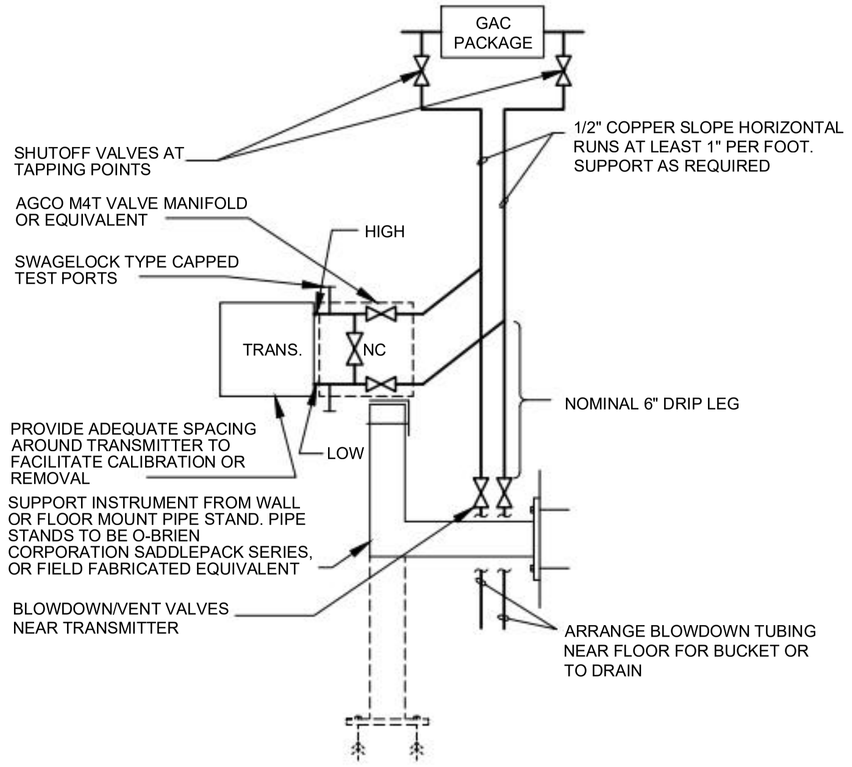
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

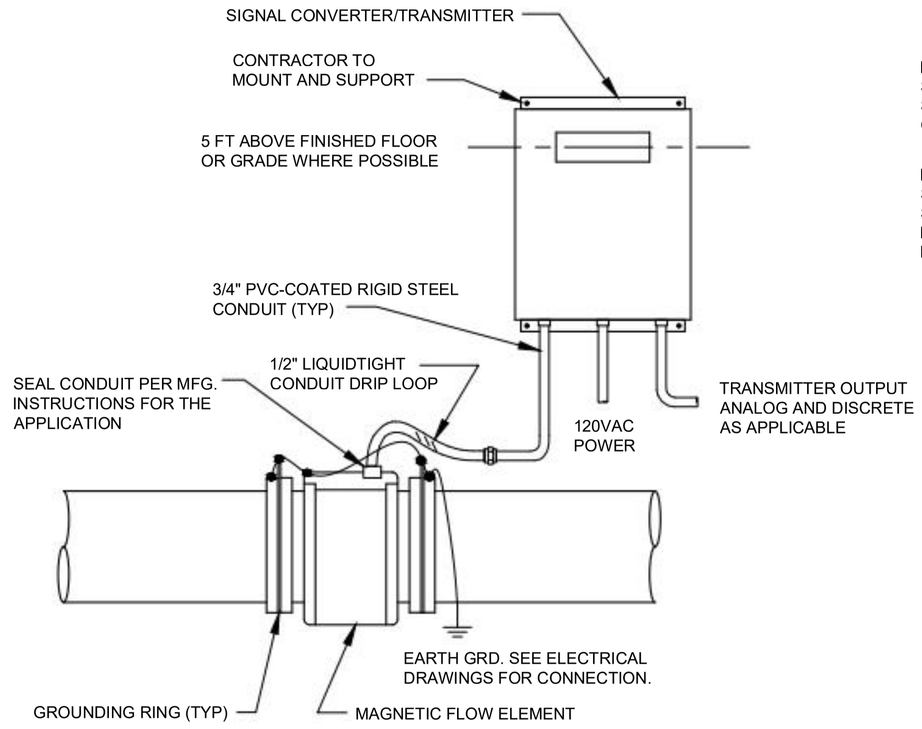
PROJECT NO.
407941

I-05
SHEET
OF

FD10000
D10000
PLOTTED: 7/14/2021 10:55 PM FILE: C:\Users\ara996\14\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\407941\PID DWG\I-05.dwg



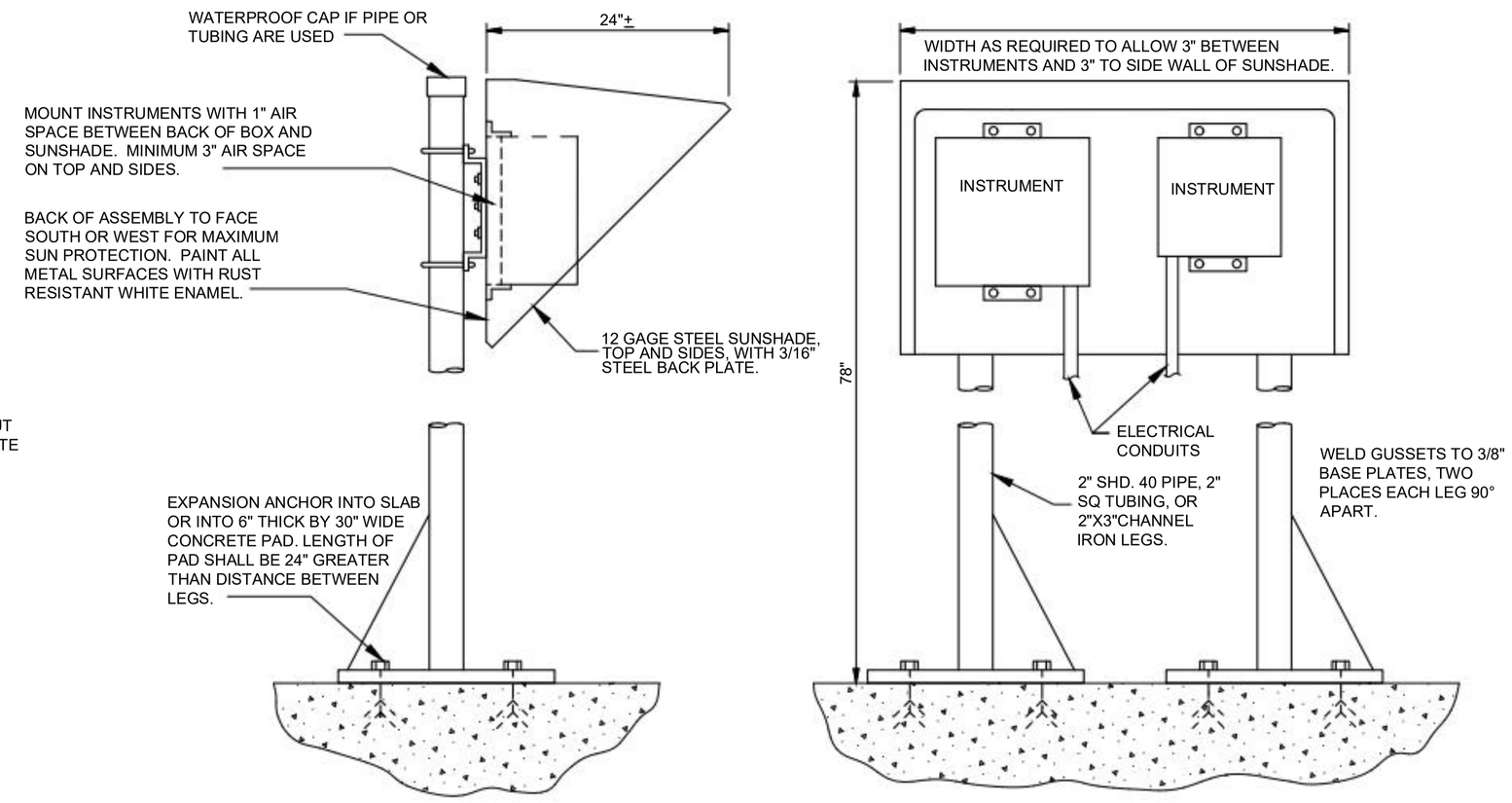
DIFFERENTIAL PRESSURE TRANSMITTER
NO SCALE



FLOW METER-MAGNETIC
NO SCALE

NOTE:

1. PIPE TO BE SUPPORTED ON BOTH SIDES OF METER.

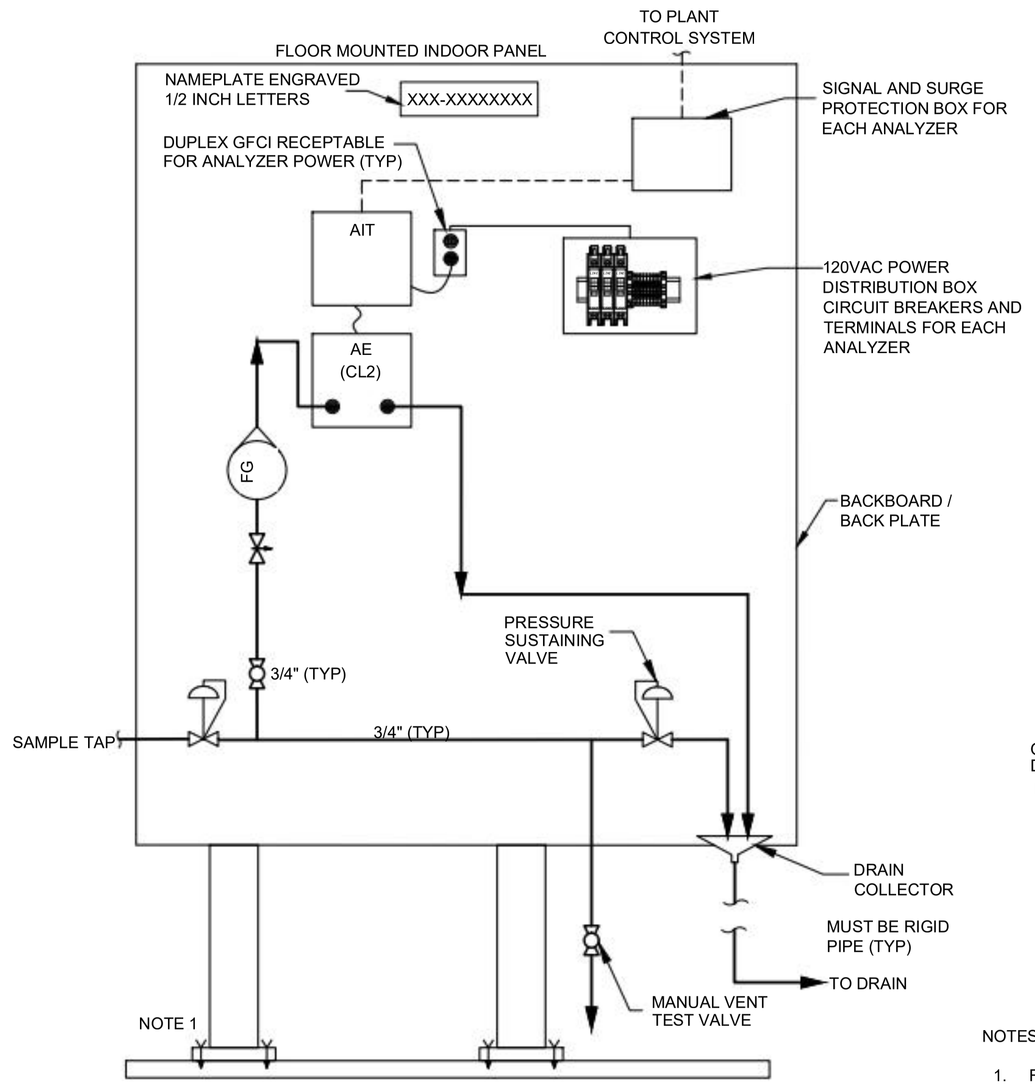


SIDE VIEW

FRONT VIEW

OUTDOOR INSTRUMENT MOUNTING DETAIL
NO SCALE

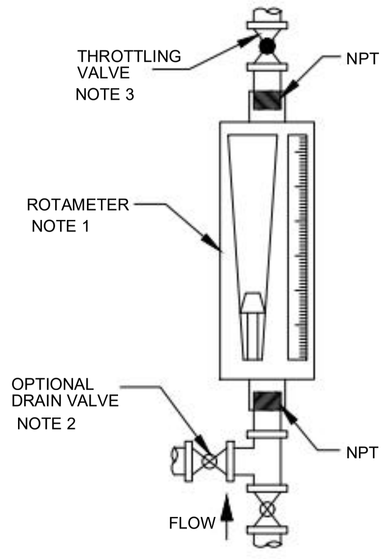
(FOR INSTRUMENTS GREATER THAN 10" WIDE OR MULTIPLE INSTRUMENTS)



CHLORINE ANALYZER SAMPLE BOARD
NO SCALE

NOTE:

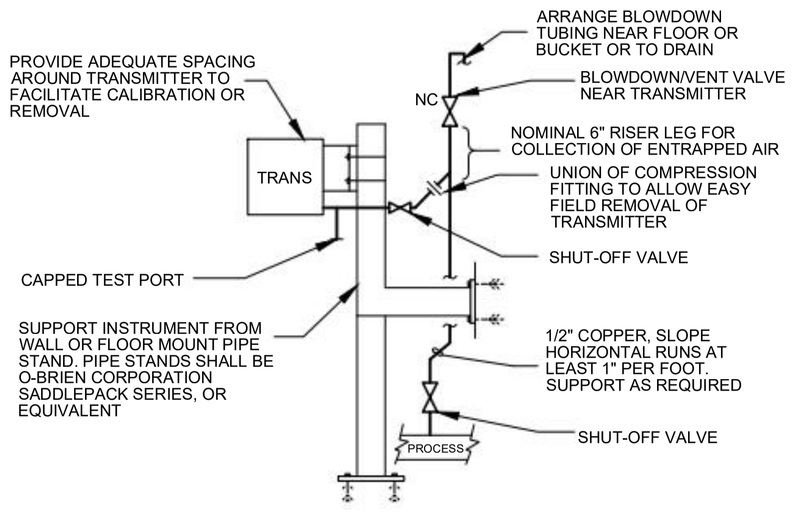
1. CONTRACTOR TO DETERMINE SIZES OF PANEL SUPPORTS BASED ON SEISMIC CALCULATIONS.



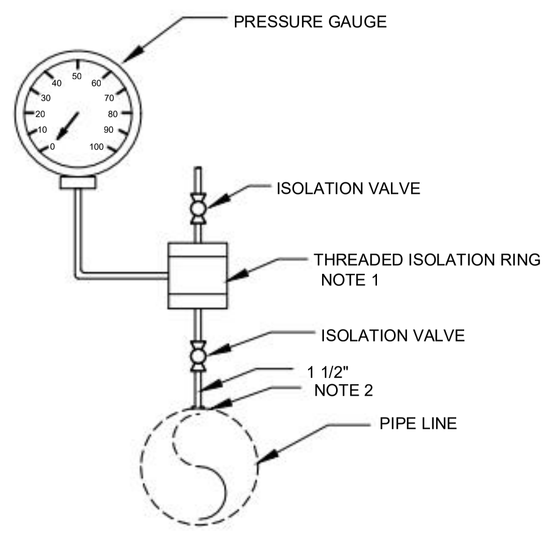
ROTAMETER
NO SCALE

NOTES:

1. FOR PROPER OPERATION, ROTAMETER MUST BE MOUNTED WITHIN 6 DEGREES OF TRUE VERTICAL.
2. FAILURE TO DRAIN THE ROTAMETER WHEN ISOLATED MAY RESULT IN TUBE BREAKAGE CAUSED BY THERMAL EXPANSION OF THE PROCESS FLUID.
3. REFER TO PIPING AND VALVE SCHEDULES FOR SPECIFIC PIPING MATERIALS, VALVE TYPES, AND SIZES TO MATCH FLOW STREAMS AND SERVICES.



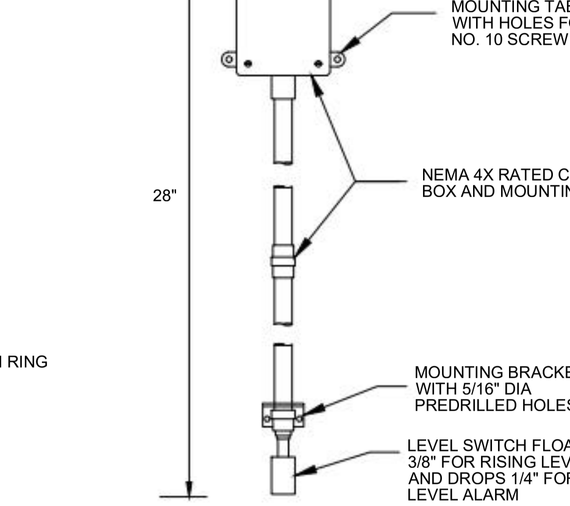
PRESSURE TRANSMITTER-PROCESS TAP (BELOW-TRANSMITTER)
NO SCALE



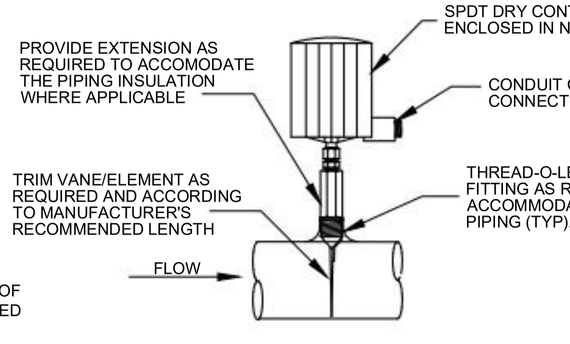
PRESSURE GAUGE WITH THREADED ISOLATION RING
NO SCALE

NOTES:

1. ISOLATION RING PRESSURE RANGE 260 PSI MAX
2. A TAPPING SADDLE CONFORMING TO THE REQUIREMENT OF THE DUCTILE IRON SPEC PIPE SECTION SHALL BE PROVIDED INSTEAD OF DIRECT TAPPING IF PIPE THICKNESS CLASS DOES NOT EQUAL OR EXCEED THE MINIMUM REQUIRED THICKNESS CLASS SPECIFIED



FLOOD LEVEL SWITCH
NO SCALE



FLOW SWITCH (TARGET-TYPE)
NO SCALE

NO.	BY	CHK	APP'D	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER — DENNIS J. SMITH — No. E 15829 — ELECTRICAL — STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

INSTRUMENTATION
INSTRUMENT INSTALLATION DETAILS

DESIGNED: RHD
DETAILED: ABA
CHECKED:
APPROVED:
DATE: JULY 2021

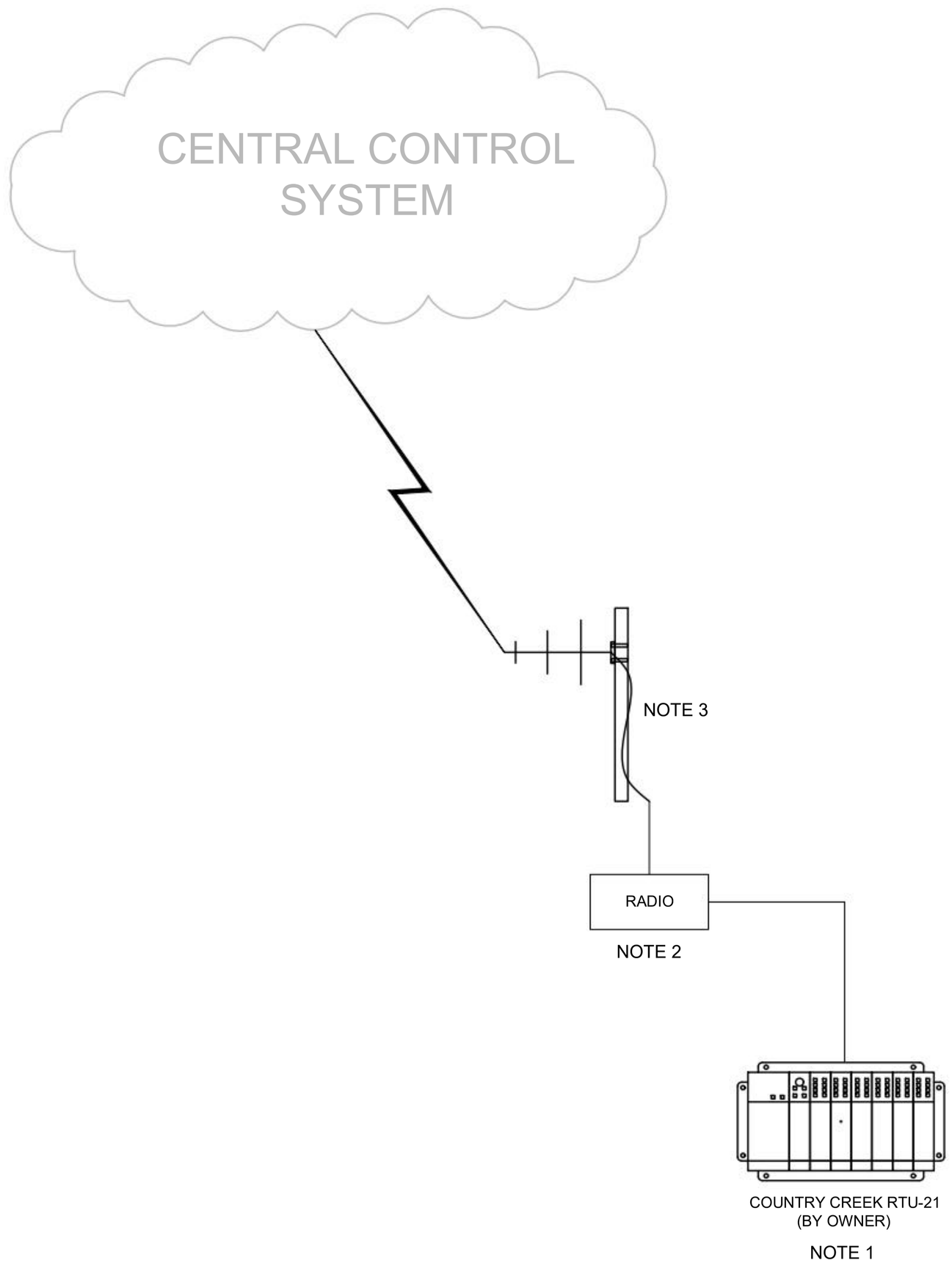
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

I-06
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

FD10000
D10000
PLOTTED: 7/15/2021 2:43 PM FILE: C:\Users\lara996\14\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\407941PID DWG\I-06.dwg



NOTES:

1. CONTRACTOR TO SUPPLY AND INSTALL NEW RTU PANEL IN NEW MCC ROOM - HOWEVER RE-USE THE EXISTING RTU HARDWARE FROM EXISTING RTU PANEL. RTU PROGRAMMING MODIFICATIONS WILL BE BY OWNER.
2. CONTRACTOR TO MOVE THE EXISTING RADIO COMMUNICATION SYSTEM TO THE NEW MCC ROOM AND CONNECT TO THE RTU SYSTEM.
3. CONTRACTOR TO SUPPLY NEW MAST AND ANTENNA CABLE (FOAM DIELECTRIC COAX - ANDREW 1/2 INCH HELIAX, "TYPE LDF4-50A") FOR EXISTING ANTENNA WHICH SHALL BE MOVED FROM EXISTING LOCATION TO THE NEW MCC ROOM BUILDING.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

REGISTERED PROFESSIONAL ENGINEER
DUANE C. SMITH
No. E 15829
ELECTRICAL
STATE OF CALIFORNIA

BLACK & VEATCH
Black & Veatch Corporation

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

INSTRUMENTATION
CONTROL SYSTEM BLOCK DIAGRAM

DESIGNED: RHD
DETAILED: ABA
CHECKED:
APPROVED:
DATE: JULY 2021

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

I-07
SHEET
OF

FD10000
D10000
PLOTTED: 7/14/2021 11:20 PM FILE: C:\Users\lara99614\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\407941\PID DWG\I-07.dwg

Appendix B

Air Quality and Greenhouse Gas Modeling

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

SqCWD Country Club Well Construction - AQ and GHG

Monterey Bay Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.27	Acre	0.27	11,761.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Size of project site (conservative)

Construction Phase - Provided by M&A

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Roller or similar equipment to final grade site

Trips and VMT - Average of four construction workers daily per M&A estimate. Assuming 2 vendor trips per day during well installation to deliver materials.

Demolition - Removal of chemical feed enclosure, pipeline, and fencing

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - Provided by M&A

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Consumer Products - Construction run only

Area Coating - Construction run only

Landscape Equipment - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Operational Off-Road Equipment - Construction run only

Stationary Sources - Emergency Generators and Fire Pumps - Construction run only

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	706	0
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	2.00	11.00
tblConstructionPhase	NumDays	2.00	12.00
tblConstructionPhase	NumDays	2.00	12.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblLandscapeEquipment	NumberSummerDays	250	0
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	38.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	28.00	8.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	3.00	8.00

2.0 Emissions Summary

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.9630	36.0875	39.5572	0.0906	0.1488	1.6164	1.7652	0.0402	1.5738	1.6141	0.0000	8,676.1227	8,676.1227	1.5262	0.0521	8,729.7939
Maximum	**3.9630**	**36.0875**	**39.5572**	**0.0906**	**0.1488**	**1.6164**	**1.7652**	**0.0402**	**1.5738**	**1.6141**	**0.0000**	**8,676.1227**	**8,676.1227**	**1.5262**	**0.0521**	**8,729.7939**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.9630	36.0875	39.5572	0.0906	0.1488	1.6164	1.7652	0.0402	1.5738	1.6141	0.0000	8,676.1227	8,676.1227	1.5262	0.0521	8,729.7939
Maximum	**3.9630**	**36.0875**	**39.5572**	**0.0906**	**0.1488**	**1.6164**	**1.7652**	**0.0402**	**1.5738**	**1.6141**	**0.0000**	**8,676.1227**	**8,676.1227**	**1.5262**	**0.0521**	**8,729.7939**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition/Removal of Components	Demolition	2/25/2022	3/10/2022	5	10	
2	Site Preparation	Site Preparation	3/11/2022	3/24/2022	5	10	
3	Pilot Borehole Drilling	Grading	3/25/2022	4/1/2022	7	8	
4	Reaming and Well Installation	Grading	4/18/2022	4/28/2022	7	11	
5	Mechanical and Chemical Development	Grading	4/29/2022	5/10/2022	7	12	
6	Pump Development and Testing	Grading	5/18/2022	6/2/2022	5	12	
7	Site Restoration	Grading	6/10/2022	6/16/2022	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.27

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition/Removal of Components	Air Compressors	1	8.00	78	0.48
Demolition/Removal of Components	Bore/Drill Rigs	1	8.00	221	0.50
Demolition/Removal of Components	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition/Removal of Components	Dumpers/Tenders	1	8.00	16	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Demolition/Removal of Components	Excavators	1	8.00	158	0.38
Demolition/Removal of Components	Forklifts	1	8.00	89	0.20
Demolition/Removal of Components	Generator Sets	1	8.00	84	0.74
Demolition/Removal of Components	Rubber Tired Dozers	1	1.00	247	0.40
Demolition/Removal of Components	Signal Boards	1	8.00	6	0.82
Demolition/Removal of Components	Sweepers/Scrubbers	1	8.00	64	0.46
Demolition/Removal of Components	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Aerial Lifts	1	8.00	63	0.31
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Rough Terrain Forklifts	1	8.00	100	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pilot Borehole Drilling	Aerial Lifts	1	4.00	63	0.31
Pilot Borehole Drilling	Air Compressors	1	8.00	78	0.48
Pilot Borehole Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Pilot Borehole Drilling	Cranes	1	8.00	231	0.29
Pilot Borehole Drilling	Generator Sets	1	24.00	84	0.74
Pilot Borehole Drilling	Pumps	1	24.00	84	0.74
Pilot Borehole Drilling	Rough Terrain Forklifts	1	8.00	100	0.40
Pilot Borehole Drilling	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Pilot Borehole Drilling	Welders	1	8.00	46	0.45
Reaming and Well Installation	Aerial Lifts	1	4.00	63	0.31
Reaming and Well Installation	Air Compressors	1	8.00	78	0.48
Reaming and Well Installation	Bore/Drill Rigs	1	24.00	221	0.50
Reaming and Well Installation	Cranes	1	8.00	231	0.29
Reaming and Well Installation	Generator Sets	1	24.00	84	0.74
Reaming and Well Installation	Pumps	1	24.00	84	0.74
Reaming and Well Installation	Rough Terrain Forklifts	1	8.00	100	0.40
Reaming and Well Installation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Reaming and Well Installation	Welders	1	8.00	46	0.45

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mechanical and Chemical Development	Aerial Lifts	1	4.00	63	0.31
Mechanical and Chemical Development	Air Compressors	1	8.00	78	0.48
Mechanical and Chemical Development	Bore/Drill Rigs	1	24.00	221	0.50
Mechanical and Chemical Development	Cranes	1	8.00	231	0.29
Mechanical and Chemical Development	Generator Sets	1	24.00	84	0.74
Mechanical and Chemical Development	Pumps	1	24.00	84	0.74
Mechanical and Chemical Development	Rough Terrain Forklifts	1	8.00	100	0.40
Mechanical and Chemical Development	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Mechanical and Chemical Development	Welders	1	8.00	46	0.45
Pump Development and Testing	Air Compressors	1	8.00	78	0.48
Pump Development and Testing	Generator Sets	1	8.00	84	0.74
Pump Development and Testing	Pumps	1	8.00	84	0.74
Site Restoration	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition/Removal of Components	11	8.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pilot Borehole Drilling	9	8.00	0.00	38.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Reaming and Well Installation	9	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mechanical and Chemical Developmen	9	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pump Development and Testing	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition/Removal of Components - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0508	0.0000	0.0508	7.6900e-003	0.0000	7.6900e-003			0.0000			0.0000
Off-Road	2.0529	17.6884	20.8038	0.0403		0.9062	0.9062		0.8687	0.8687		3,838.3092	3,838.3092	0.7892		3,858.0392
Total	**2.0529**	**17.6884**	**20.8038**	**0.0403**	**0.0508**	**0.9062**	**0.9569**	**7.6900e-003**	**0.8687**	**0.8764**		**3,838.3092**	**3,838.3092**	**0.7892**		**3,858.0392**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6000e-004	0.0345	6.5800e-003	1.2000e-004	3.5000e-003	3.2000e-004	3.8200e-003	9.6000e-004	3.1000e-004	1.2700e-003		13.3371	13.3371	1.6000e-004	2.1000e-003	13.9673
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0311**	**0.0595**	**0.2609**	**7.1000e-004**	**0.0692**	**7.6000e-004**	**0.0700**	**0.0184**	**7.2000e-004**	**0.0191**		**73.5943**	**73.5943**	**2.6100e-003**	**4.2400e-003**	**74.9249**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition/Removal of Components - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0508	0.0000	0.0508	7.6900e-003	0.0000	7.6900e-003			0.0000			0.0000
Off-Road	2.0529	17.6884	20.8038	0.0403		0.9062	0.9062		0.8687	0.8687	0.0000	3,838.3092	3,838.3092	0.7892		3,858.0392
Total	**2.0529**	**17.6884**	**20.8038**	**0.0403**	**0.0508**	**0.9062**	**0.9569**	**7.6900e-003**	**0.8687**	**0.8764**	**0.0000**	**3,838.3092**	**3,838.3092**	**0.7892**		**3,858.0392**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6000e-004	0.0345	6.5800e-003	1.2000e-004	3.5000e-003	3.2000e-004	3.8200e-003	9.6000e-004	3.1000e-004	1.2700e-003		13.3371	13.3371	1.6000e-004	2.1000e-003	13.9673
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0311**	**0.0595**	**0.2609**	**7.1000e-004**	**0.0692**	**7.6000e-004**	**0.0700**	**0.0184**	**7.2000e-004**	**0.0191**		**73.5943**	**73.5943**	**2.6100e-003**	**4.2400e-003**	**74.9249**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5368	5.9827	7.6615	0.0177		0.2249	0.2249		0.2069	0.2069		1,711.1741	1,711.1741	0.5534		1,725.0098
Total	**0.5368**	**5.9827**	**7.6615**	**0.0177**	**0.0000**	**0.2249**	**0.2249**	**0.0000**	**0.2069**	**0.2069**		**1,711.1741**	**1,711.1741**	**0.5534**		**1,725.0098**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0303**	**0.0250**	**0.2544**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**60.2572**	**60.2572**	**2.4500e-003**	**2.1400e-003**	**60.9576**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5368	5.9827	7.6615	0.0177		0.2249	0.2249		0.2069	0.2069	0.0000	1,711.1741	1,711.1741	0.5534		1,725.0098
Total	**0.5368**	**5.9827**	**7.6615**	**0.0177**	**0.0000**	**0.2249**	**0.2249**	**0.0000**	**0.2069**	**0.2069**	**0.0000**	**1,711.1741**	**1,711.1741**	**0.5534**		**1,725.0098**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0303**	**0.0250**	**0.2544**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**60.2572**	**60.2572**	**2.4500e-003**	**2.1400e-003**	**60.9576**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Pilot Borehole Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661		8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**		**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0182	0.8203	0.1562	2.9600e-003	0.0831	7.7100e-003	0.0908	0.0228	7.3800e-003	0.0302		316.7549	316.7549	3.6900e-003	0.0499	331.7244
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0485**	**0.8452**	**0.4106**	**3.5500e-003**	**0.1488**	**8.1500e-003**	**0.1570**	**0.0402**	**7.7900e-003**	**0.0480**		**377.0122**	**377.0122**	**6.1400e-003**	**0.0521**	**392.6820**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Pilot Borehole Drilling - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661	0.0000	8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**	**0.0000**	**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0182	0.8203	0.1562	2.9600e-003	0.0831	7.7100e-003	0.0908	0.0228	7.3800e-003	0.0302		316.7549	316.7549	3.6900e-003	0.0499	331.7244
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0485**	**0.8452**	**0.4106**	**3.5500e-003**	**0.1488**	**8.1500e-003**	**0.1570**	**0.0402**	**7.7900e-003**	**0.0480**		**377.0122**	**377.0122**	**6.1400e-003**	**0.0521**	**392.6820**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Reaming and Well Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661		8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**		**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6800e-003	0.1235	0.0375	4.3000e-004	0.0136	1.2800e-003	0.0148	3.9000e-003	1.2200e-003	5.1200e-003		45.3364	45.3364	4.7000e-004	6.6700e-003	47.3371
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0350**	**0.1485**	**0.2918**	**1.0200e-003**	**0.0793**	**1.7200e-003**	**0.0810**	**0.0213**	**1.6300e-003**	**0.0230**		**105.5936**	**105.5936**	**2.9200e-003**	**8.8100e-003**	**108.2947**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Reaming and Well Installation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661	0.0000	8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**	**0.0000**	**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6800e-003	0.1235	0.0375	4.3000e-004	0.0136	1.2800e-003	0.0148	3.9000e-003	1.2200e-003	5.1200e-003		45.3364	45.3364	4.7000e-004	6.6700e-003	47.3371
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0350**	**0.1485**	**0.2918**	**1.0200e-003**	**0.0793**	**1.7200e-003**	**0.0810**	**0.0213**	**1.6300e-003**	**0.0230**		**105.5936**	**105.5936**	**2.9200e-003**	**8.8100e-003**	**108.2947**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Mechanical and Chemical Development - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661		8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**		**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0303**	**0.0250**	**0.2544**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**60.2572**	**60.2572**	**2.4500e-003**	**2.1400e-003**	**60.9576**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Mechanical and Chemical Development - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661	0.0000	8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**	**0.0000**	**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0303**	**0.0250**	**0.2544**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**60.2572**	**60.2572**	**2.4500e-003**	**2.1400e-003**	**60.9576**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Pump Development and Testing - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9546	7.7751	9.8259	0.0171		0.4115	0.4115		0.4115	0.4115		1,621.3332	1,621.3332	0.0858		1,623.4789
Total	**0.9546**	**7.7751**	**9.8259**	**0.0171**	**0.0000**	**0.4115**	**0.4115**	**0.0000**	**0.4115**	**0.4115**		**1,621.3332**	**1,621.3332**	**0.0858**		**1,623.4789**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0303**	**0.0250**	**0.2544**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**60.2572**	**60.2572**	**2.4500e-003**	**2.1400e-003**	**60.9576**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Pump Development and Testing - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9546	7.7751	9.8259	0.0171		0.4115	0.4115		0.4115	0.4115	0.0000	1,621.3332	1,621.3332	0.0858		1,623.4789
Total	**0.9546**	**7.7751**	**9.8259**	**0.0171**	**0.0000**	**0.4115**	**0.4115**	**0.0000**	**0.4115**	**0.4115**	**0.0000**	**1,621.3332**	**1,621.3332**	**0.0858**		**1,623.4789**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0303**	**0.0250**	**0.2544**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**60.2572**	**60.2572**	**2.4500e-003**	**2.1400e-003**	**60.9576**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Site Restoration - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1663	1.7259	1.8604	2.6200e-003		0.0995	0.0995		0.0915	0.0915		254.1038	254.1038	0.0822		256.1584
Total	**0.1663**	**1.7259**	**1.8604**	**2.6200e-003**	**0.0000**	**0.0995**	**0.0995**	**0.0000**	**0.0915**	**0.0915**		**254.1038**	**254.1038**	**0.0822**		**256.1584**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0303**	**0.0250**	**0.2544**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**60.2572**	**60.2572**	**2.4500e-003**	**2.1400e-003**	**60.9576**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Site Restoration - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1663	1.7259	1.8604	2.6200e-003		0.0995	0.0995		0.0915	0.0915	0.0000	254.1038	254.1038	0.0822		256.1584
Total	**0.1663**	**1.7259**	**1.8604**	**2.6200e-003**	**0.0000**	**0.0995**	**0.0995**	**0.0000**	**0.0915**	**0.0915**	**0.0000**	**254.1038**	**254.1038**	**0.0822**		**256.1584**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0303	0.0250	0.2544	5.9000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		60.2572	60.2572	2.4500e-003	2.1400e-003	60.9576
Total	**0.0303**	**0.0250**	**0.2544**	**5.9000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**60.2572**	**60.2572**	**2.4500e-003**	**2.1400e-003**	**60.9576**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.499989	0.051361	0.196358	0.157917	0.031682	0.007411	0.010569	0.009076	0.001281	0.000601	0.028215	0.001359	0.004180

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Unmitigated	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**		**6.0000e-005**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**		**6.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

SqCWD Country Club Well Construction - AQ and GHG

Monterey Bay Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.27	Acre	0.27	11,761.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Size of project site (conservative)

Construction Phase - Provided by M&A

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Roller or similar equipment to final grade site

Trips and VMT - Average of four construction workers daily per M&A estimate. Assuming 2 vendor trips per day during well installation to deliver materials.

Demolition - Removal of chemical feed enclosure, pipeline, and fencing

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - Provided by M&A

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Consumer Products - Construction run only

Area Coating - Construction run only

Landscape Equipment - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Operational Off-Road Equipment - Construction run only

Stationary Sources - Emergency Generators and Fire Pumps - Construction run only

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	706	0
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	2.00	11.00
tblConstructionPhase	NumDays	2.00	12.00
tblConstructionPhase	NumDays	2.00	12.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblLandscapeEquipment	NumberSummerDays	250	0
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	38.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	28.00	8.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	3.00	8.00

2.0 Emissions Summary

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.9619	36.0397	39.5572	0.0907	0.1488	1.6164	1.7652	0.0402	1.5738	1.6140	0.0000	8,679.3343	8,679.3343	1.5260	0.0517	8,732.8995
Maximum	**3.9619**	**36.0397**	**39.5572**	**0.0907**	**0.1488**	**1.6164**	**1.7652**	**0.0402**	**1.5738**	**1.6140**	**0.0000**	**8,679.3343**	**8,679.3343**	**1.5260**	**0.0517**	**8,732.8995**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.9619	36.0397	39.5572	0.0907	0.1488	1.6164	1.7652	0.0402	1.5738	1.6140	0.0000	8,679.3343	8,679.3343	1.5260	0.0517	8,732.8995
Maximum	**3.9619**	**36.0397**	**39.5572**	**0.0907**	**0.1488**	**1.6164**	**1.7652**	**0.0402**	**1.5738**	**1.6140**	**0.0000**	**8,679.3343**	**8,679.3343**	**1.5260**	**0.0517**	**8,732.8995**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition/Removal of Components	Demolition	2/25/2022	3/10/2022	5	10	
2	Site Preparation	Site Preparation	3/11/2022	3/24/2022	5	10	
3	Pilot Borehole Drilling	Grading	3/25/2022	4/1/2022	7	8	
4	Reaming and Well Installation	Grading	4/18/2022	4/28/2022	7	11	
5	Mechanical and Chemical Development	Grading	4/29/2022	5/10/2022	7	12	
6	Pump Development and Testing	Grading	5/18/2022	6/2/2022	5	12	
7	Site Restoration	Grading	6/10/2022	6/16/2022	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.27

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition/Removal of Components	Air Compressors	1	8.00	78	0.48
Demolition/Removal of Components	Bore/Drill Rigs	1	8.00	221	0.50
Demolition/Removal of Components	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition/Removal of Components	Dumpers/Tenders	1	8.00	16	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Demolition/Removal of Components	Excavators	1	8.00	158	0.38
Demolition/Removal of Components	Forklifts	1	8.00	89	0.20
Demolition/Removal of Components	Generator Sets	1	8.00	84	0.74
Demolition/Removal of Components	Rubber Tired Dozers	1	1.00	247	0.40
Demolition/Removal of Components	Signal Boards	1	8.00	6	0.82
Demolition/Removal of Components	Sweepers/Scrubbers	1	8.00	64	0.46
Demolition/Removal of Components	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Aerial Lifts	1	8.00	63	0.31
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Rough Terrain Forklifts	1	8.00	100	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pilot Borehole Drilling	Aerial Lifts	1	4.00	63	0.31
Pilot Borehole Drilling	Air Compressors	1	8.00	78	0.48
Pilot Borehole Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Pilot Borehole Drilling	Cranes	1	8.00	231	0.29
Pilot Borehole Drilling	Generator Sets	1	24.00	84	0.74
Pilot Borehole Drilling	Pumps	1	24.00	84	0.74
Pilot Borehole Drilling	Rough Terrain Forklifts	1	8.00	100	0.40
Pilot Borehole Drilling	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Pilot Borehole Drilling	Welders	1	8.00	46	0.45
Reaming and Well Installation	Aerial Lifts	1	4.00	63	0.31
Reaming and Well Installation	Air Compressors	1	8.00	78	0.48
Reaming and Well Installation	Bore/Drill Rigs	1	24.00	221	0.50
Reaming and Well Installation	Cranes	1	8.00	231	0.29
Reaming and Well Installation	Generator Sets	1	24.00	84	0.74
Reaming and Well Installation	Pumps	1	24.00	84	0.74
Reaming and Well Installation	Rough Terrain Forklifts	1	8.00	100	0.40
Reaming and Well Installation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Reaming and Well Installation	Welders	1	8.00	46	0.45

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mechanical and Chemical Development	Aerial Lifts	1	4.00	63	0.31
Mechanical and Chemical Development	Air Compressors	1	8.00	78	0.48
Mechanical and Chemical Development	Bore/Drill Rigs	1	24.00	221	0.50
Mechanical and Chemical Development	Cranes	1	8.00	231	0.29
Mechanical and Chemical Development	Generator Sets	1	24.00	84	0.74
Mechanical and Chemical Development	Pumps	1	24.00	84	0.74
Mechanical and Chemical Development	Rough Terrain Forklifts	1	8.00	100	0.40
Mechanical and Chemical Development	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Mechanical and Chemical Development	Welders	1	8.00	46	0.45
Pump Development and Testing	Air Compressors	1	8.00	78	0.48
Pump Development and Testing	Generator Sets	1	8.00	84	0.74
Pump Development and Testing	Pumps	1	8.00	84	0.74
Site Restoration	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition/Removal of Components	11	8.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pilot Borehole Drilling	9	8.00	0.00	38.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Reaming and Well Installation	9	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mechanical and Chemical Developmen	9	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pump Development and Testing	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition/Removal of Components - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0508	0.0000	0.0508	7.6900e-003	0.0000	7.6900e-003			0.0000			0.0000
Off-Road	2.0529	17.6884	20.8038	0.0403		0.9062	0.9062		0.8687	0.8687		3,838.3092	3,838.3092	0.7892		3,858.0392
Total	**2.0529**	**17.6884**	**20.8038**	**0.0403**	**0.0508**	**0.9062**	**0.9569**	**7.6900e-003**	**0.8687**	**0.8764**		**3,838.3092**	**3,838.3092**	**0.7892**		**3,858.0392**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.9000e-004	0.0327	6.4300e-003	1.2000e-004	3.5000e-003	3.2000e-004	3.8200e-003	9.6000e-004	3.1000e-004	1.2700e-003		13.3281	13.3281	1.6000e-004	2.1000e-003	13.9580
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0294**	**0.0527**	**0.2643**	**7.5000e-004**	**0.0692**	**7.6000e-004**	**0.0700**	**0.0184**	**7.2000e-004**	**0.0191**		**77.0089**	**77.0089**	**2.3500e-003**	**3.9400e-003**	**78.2426**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition/Removal of Components - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0508	0.0000	0.0508	7.6900e-003	0.0000	7.6900e-003			0.0000			0.0000
Off-Road	2.0529	17.6884	20.8038	0.0403		0.9062	0.9062		0.8687	0.8687	0.0000	3,838.3092	3,838.3092	0.7892		3,858.0392
Total	**2.0529**	**17.6884**	**20.8038**	**0.0403**	**0.0508**	**0.9062**	**0.9569**	**7.6900e-003**	**0.8687**	**0.8764**	**0.0000**	**3,838.3092**	**3,838.3092**	**0.7892**		**3,858.0392**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.9000e-004	0.0327	6.4300e-003	1.2000e-004	3.5000e-003	3.2000e-004	3.8200e-003	9.6000e-004	3.1000e-004	1.2700e-003		13.3281	13.3281	1.6000e-004	2.1000e-003	13.9580
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0294**	**0.0527**	**0.2643**	**7.5000e-004**	**0.0692**	**7.6000e-004**	**0.0700**	**0.0184**	**7.2000e-004**	**0.0191**		**77.0089**	**77.0089**	**2.3500e-003**	**3.9400e-003**	**78.2426**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5368	5.9827	7.6615	0.0177		0.2249	0.2249		0.2069	0.2069		1,711.1741	1,711.1741	0.5534		1,725.0098
Total	**0.5368**	**5.9827**	**7.6615**	**0.0177**	**0.0000**	**0.2249**	**0.2249**	**0.0000**	**0.2069**	**0.2069**		**1,711.1741**	**1,711.1741**	**0.5534**		**1,725.0098**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0286**	**0.0199**	**0.2578**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.6808**	**63.6808**	**2.1900e-003**	**1.8400e-003**	**64.2846**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5368	5.9827	7.6615	0.0177		0.2249	0.2249		0.2069	0.2069	0.0000	1,711.1741	1,711.1741	0.5534		1,725.0098
Total	**0.5368**	**5.9827**	**7.6615**	**0.0177**	**0.0000**	**0.2249**	**0.2249**	**0.0000**	**0.2069**	**0.2069**	**0.0000**	**1,711.1741**	**1,711.1741**	**0.5534**		**1,725.0098**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0286**	**0.0199**	**0.2578**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.6808**	**63.6808**	**2.1900e-003**	**1.8400e-003**	**64.2846**

3.4 Pilot Borehole Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661		8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**		**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0188	0.7775	0.1527	2.9600e-003	0.0831	7.7000e-003	0.0908	0.0228	7.3600e-003	0.0301		316.5430	316.5430	3.7200e-003	0.0499	331.5030
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0474**	**0.7974**	**0.4105**	**3.5900e-003**	**0.1488**	**8.1400e-003**	**0.1570**	**0.0402**	**7.7700e-003**	**0.0480**		**380.2238**	**380.2238**	**5.9100e-003**	**0.0517**	**395.7876**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Pilot Borehole Drilling - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661	0.0000	8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**	**0.0000**	**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0188	0.7775	0.1527	2.9600e-003	0.0831	7.7000e-003	0.0908	0.0228	7.3600e-003	0.0301		316.5430	316.5430	3.7200e-003	0.0499	331.5030
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0474**	**0.7974**	**0.4105**	**3.5900e-003**	**0.1488**	**8.1400e-003**	**0.1570**	**0.0402**	**7.7700e-003**	**0.0480**		**380.2238**	**380.2238**	**5.9100e-003**	**0.0517**	**395.7876**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Reaming and Well Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661		8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**		**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7300e-003	0.1170	0.0363	4.3000e-004	0.0136	1.2700e-003	0.0148	3.9000e-003	1.2200e-003	5.1200e-003		45.2977	45.2977	4.8000e-004	6.6600e-003	47.2936
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0333**	**0.1369**	**0.2942**	**1.0600e-003**	**0.0793**	**1.7100e-003**	**0.0810**	**0.0213**	**1.6300e-003**	**0.0230**		**108.9785**	**108.9785**	**2.6700e-003**	**8.5000e-003**	**111.5782**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Reaming and Well Installation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661	0.0000	8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**	**0.0000**	**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7300e-003	0.1170	0.0363	4.3000e-004	0.0136	1.2700e-003	0.0148	3.9000e-003	1.2200e-003	5.1200e-003		45.2977	45.2977	4.8000e-004	6.6600e-003	47.2936
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0333**	**0.1369**	**0.2942**	**1.0600e-003**	**0.0793**	**1.7100e-003**	**0.0810**	**0.0213**	**1.6300e-003**	**0.0230**		**108.9785**	**108.9785**	**2.6700e-003**	**8.5000e-003**	**111.5782**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Mechanical and Chemical Development - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661		8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**		**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0286**	**0.0199**	**0.2578**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.6808**	**63.6808**	**2.1900e-003**	**1.8400e-003**	**64.2846**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Mechanical and Chemical Development - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.9145	35.2423	39.1467	0.0871		1.6083	1.6083		1.5661	1.5661	0.0000	8,299.1105	8,299.1105	1.5201		8,337.1119
Total	**3.9145**	**35.2423**	**39.1467**	**0.0871**	**0.0000**	**1.6083**	**1.6083**	**0.0000**	**1.5661**	**1.5661**	**0.0000**	**8,299.1105**	**8,299.1105**	**1.5201**		**8,337.1119**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0286**	**0.0199**	**0.2578**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.6808**	**63.6808**	**2.1900e-003**	**1.8400e-003**	**64.2846**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Pump Development and Testing - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9546	7.7751	9.8259	0.0171		0.4115	0.4115		0.4115	0.4115		1,621.3332	1,621.3332	0.0858		1,623.4789
Total	**0.9546**	**7.7751**	**9.8259**	**0.0171**	**0.0000**	**0.4115**	**0.4115**	**0.0000**	**0.4115**	**0.4115**		**1,621.3332**	**1,621.3332**	**0.0858**		**1,623.4789**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0286**	**0.0199**	**0.2578**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.6808**	**63.6808**	**2.1900e-003**	**1.8400e-003**	**64.2846**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Pump Development and Testing - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9546	7.7751	9.8259	0.0171		0.4115	0.4115		0.4115	0.4115	0.0000	1,621.3332	1,621.3332	0.0858		1,623.4789
Total	**0.9546**	**7.7751**	**9.8259**	**0.0171**	**0.0000**	**0.4115**	**0.4115**	**0.0000**	**0.4115**	**0.4115**	**0.0000**	**1,621.3332**	**1,621.3332**	**0.0858**		**1,623.4789**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0286**	**0.0199**	**0.2578**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.6808**	**63.6808**	**2.1900e-003**	**1.8400e-003**	**64.2846**

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Site Restoration - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1663	1.7259	1.8604	2.6200e-003		0.0995	0.0995		0.0915	0.0915		254.1038	254.1038	0.0822		256.1584
Total	**0.1663**	**1.7259**	**1.8604**	**2.6200e-003**	**0.0000**	**0.0995**	**0.0995**	**0.0000**	**0.0915**	**0.0915**		**254.1038**	**254.1038**	**0.0822**		**256.1584**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0286**	**0.0199**	**0.2578**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.6808**	**63.6808**	**2.1900e-003**	**1.8400e-003**	**64.2846**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Site Restoration - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.1663	1.7259	1.8604	2.6200e-003		0.0995	0.0995		0.0915	0.0915	0.0000	254.1038	254.1038	0.0822		256.1584
Total	**0.1663**	**1.7259**	**1.8604**	**2.6200e-003**	**0.0000**	**0.0995**	**0.0995**	**0.0000**	**0.0915**	**0.0915**	**0.0000**	**254.1038**	**254.1038**	**0.0822**		**256.1584**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0286	0.0199	0.2578	6.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.1000e-004	0.0178		63.6808	63.6808	2.1900e-003	1.8400e-003	64.2846
Total	**0.0286**	**0.0199**	**0.2578**	**6.3000e-004**	**0.0657**	**4.4000e-004**	**0.0662**	**0.0174**	**4.1000e-004**	**0.0178**		**63.6808**	**63.6808**	**2.1900e-003**	**1.8400e-003**	**64.2846**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.499989	0.051361	0.196358	0.157917	0.031682	0.007411	0.010569	0.009076	0.001281	0.000601	0.028215	0.001359	0.004180

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Unmitigated	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**		**6.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		6.0000e-005	6.0000e-005	0.0000		6.0000e-005
Total	**0.0000**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.0000e-005**	**6.0000e-005**	**0.0000**		**6.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

SqCWD Country Club Well Construction - AQ and GHG

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.27	Acre	0.27	11,761.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Size of project site (conservative)

Construction Phase - Provided by M&A

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Provided by M&A

Off-road Equipment - Roller or similar equipment to final grade site

Trips and VMT - Average of four construction workers daily per M&A estimate. Assuming 2 vendor trips per day during well installation to deliver materials.

Demolition - Removal of chemical feed enclosure, pipeline, and fencing

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading - Provided by M&A

Vehicle Trips - Construction run only

Woodstoves - Construction run only

Consumer Products - Construction run only

Area Coating - Construction run only

Landscape Equipment - Construction run only

Energy Use - Construction run only

Water And Wastewater - Construction run only

Solid Waste - Construction run only

Operational Off-Road Equipment - Construction run only

Stationary Sources - Emergency Generators and Fire Pumps - Construction run only

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	706	0
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	2.00	11.00
tblConstructionPhase	NumDays	2.00	12.00
tblConstructionPhase	NumDays	2.00	12.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblLandscapeEquipment	NumberSummerDays	250	0
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	38.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	28.00	8.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	23.00	8.00
tblTripsAndVMT	WorkerTripNumber	3.00	8.00

2.0 Emissions Summary

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0808	0.7204	0.8219	1.7800e-003	2.8300e-003	0.0334	0.0362	7.3000e-004	0.0324	0.0331	0.0000	154.5714	154.5714	0.0282	2.9000e-004	155.3617
Maximum	**0.0808**	**0.7204**	**0.8219**	**1.7800e-003**	**2.8300e-003**	**0.0334**	**0.0362**	**7.3000e-004**	**0.0324**	**0.0331**	**0.0000**	**154.5714**	**154.5714**	**0.0282**	**2.9000e-004**	**155.3617**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0808	0.7204	0.8219	1.7800e-003	2.8300e-003	0.0334	0.0362	7.3000e-004	0.0324	0.0331	0.0000	154.5712	154.5712	0.0282	2.9000e-004	155.3615
Maximum	**0.0808**	**0.7204**	**0.8219**	**1.7800e-003**	**2.8300e-003**	**0.0334**	**0.0362**	**7.3000e-004**	**0.0324**	**0.0331**	**0.0000**	**154.5712**	**154.5712**	**0.0282**	**2.9000e-004**	**155.3615**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-25-2022	5-24-2022	0.7657	0.7657
2	5-25-2022	8-24-2022	0.0331	0.0331
		Highest	0.7657	0.7657

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition/Removal of Components	Demolition	2/25/2022	3/10/2022	5	10	
2	Site Preparation	Site Preparation	3/11/2022	3/24/2022	5	10	
3	Pilot Borehole Drilling	Grading	3/25/2022	4/1/2022	7	8	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Reaming and Well Installation	Grading	4/18/2022	4/28/2022	7	11	
5	Mechanical and Chemical Development	Grading	4/29/2022	5/10/2022	7	12	
6	Pump Development and Testing	Grading	5/18/2022	6/2/2022	5	12	
7	Site Restoration	Grading	6/10/2022	6/16/2022	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.27

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition/Removal of Components	Air Compressors	1	8.00	78	0.48
Demolition/Removal of Components	Bore/Drill Rigs	1	8.00	221	0.50
Demolition/Removal of Components	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition/Removal of Components	Dumpers/Tenders	1	8.00	16	0.38
Demolition/Removal of Components	Excavators	1	8.00	158	0.38
Demolition/Removal of Components	Forklifts	1	8.00	89	0.20
Demolition/Removal of Components	Generator Sets	1	8.00	84	0.74
Demolition/Removal of Components	Rubber Tired Dozers	1	1.00	247	0.40
Demolition/Removal of Components	Signal Boards	1	8.00	6	0.82
Demolition/Removal of Components	Sweepers/Scrubbers	1	8.00	64	0.46
Demolition/Removal of Components	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Aerial Lifts	1	8.00	63	0.31
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Rough Terrain Forklifts	1	8.00	100	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Pilot Borehole Drilling	Aerial Lifts	1	4.00	63	0.31

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Pilot Borehole Drilling	Air Compressors	1	8.00	78	0.48
Pilot Borehole Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Pilot Borehole Drilling	Cranes	1	8.00	231	0.29
Pilot Borehole Drilling	Generator Sets	1	24.00	84	0.74
Pilot Borehole Drilling	Pumps	1	24.00	84	0.74
Pilot Borehole Drilling	Rough Terrain Forklifts	1	8.00	100	0.40
Pilot Borehole Drilling	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Pilot Borehole Drilling	Welders	1	8.00	46	0.45
Reaming and Well Installation	Aerial Lifts	1	4.00	63	0.31
Reaming and Well Installation	Air Compressors	1	8.00	78	0.48
Reaming and Well Installation	Bore/Drill Rigs	1	24.00	221	0.50
Reaming and Well Installation	Cranes	1	8.00	231	0.29
Reaming and Well Installation	Generator Sets	1	24.00	84	0.74
Reaming and Well Installation	Pumps	1	24.00	84	0.74
Reaming and Well Installation	Rough Terrain Forklifts	1	8.00	100	0.40
Reaming and Well Installation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Reaming and Well Installation	Welders	1	8.00	46	0.45
Mechanical and Chemical Development	Aerial Lifts	1	4.00	63	0.31
Mechanical and Chemical Development	Air Compressors	1	8.00	78	0.48
Mechanical and Chemical Development	Bore/Drill Rigs	1	24.00	221	0.50
Mechanical and Chemical Development	Cranes	1	8.00	231	0.29
Mechanical and Chemical Development	Generator Sets	1	24.00	84	0.74
Mechanical and Chemical Development	Pumps	1	24.00	84	0.74
Mechanical and Chemical Development	Rough Terrain Forklifts	1	8.00	100	0.40
Mechanical and Chemical Development	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Mechanical and Chemical Development	Welders	1	8.00	46	0.45
Pump Development and Testing	Air Compressors	1	8.00	78	0.48
Pump Development and Testing	Generator Sets	1	8.00	84	0.74
Pump Development and Testing	Pumps	1	8.00	84	0.74

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Restoration	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition/Removal of Components	11	8.00	0.00	2.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pilot Borehole Drilling	9	8.00	0.00	38.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Reaming and Well Installation	9	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mechanical and Chemical Developmen	9	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pump Development and Testing	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition/Removal of Components - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.5000e-004	0.0000	2.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.0884	0.1040	2.0000e-004		4.5300e-003	4.5300e-003		4.3400e-003	4.3400e-003	0.0000	17.4103	17.4103	3.5800e-003	0.0000	17.4998
Total	**0.0103**	**0.0884**	**0.1040**	**2.0000e-004**	**2.5000e-004**	**4.5300e-003**	**4.7800e-003**	**4.0000e-005**	**4.3400e-003**	**4.3800e-003**	**0.0000**	**17.4103**	**17.4103**	**3.5800e-003**	**0.0000**	**17.4998**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition/Removal of Components - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.7000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0605	0.0605	0.0000	1.0000e-005	0.0633
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.1000e-004	1.2200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2744	0.2744	1.0000e-005	1.0000e-005	0.2773
Total	**1.4000e-004**	**2.8000e-004**	**1.2500e-003**	**0.0000**	**3.4000e-004**	**0.0000**	**3.4000e-004**	**8.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3348**	**0.3348**	**1.0000e-005**	**2.0000e-005**	**0.3407**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.5000e-004	0.0000	2.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.0884	0.1040	2.0000e-004		4.5300e-003	4.5300e-003		4.3400e-003	4.3400e-003	0.0000	17.4103	17.4103	3.5800e-003	0.0000	17.4998
Total	**0.0103**	**0.0884**	**0.1040**	**2.0000e-004**	**2.5000e-004**	**4.5300e-003**	**4.7800e-003**	**4.0000e-005**	**4.3400e-003**	**4.3800e-003**	**0.0000**	**17.4103**	**17.4103**	**3.5800e-003**	**0.0000**	**17.4998**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition/Removal of Components - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.7000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0605	0.0605	0.0000	1.0000e-005	0.0633
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.1000e-004	1.2200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2744	0.2744	1.0000e-005	1.0000e-005	0.2773
Total	**1.4000e-004**	**2.8000e-004**	**1.2500e-003**	**0.0000**	**3.4000e-004**	**0.0000**	**3.4000e-004**	**8.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3348**	**0.3348**	**1.0000e-005**	**2.0000e-005**	**0.3407**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6800e-003	0.0299	0.0383	9.0000e-005		1.1200e-003	1.1200e-003		1.0300e-003	1.0300e-003	0.0000	7.7618	7.7618	2.5100e-003	0.0000	7.8245
Total	**2.6800e-003**	**0.0299**	**0.0383**	**9.0000e-005**	**0.0000**	**1.1200e-003**	**1.1200e-003**	**0.0000**	**1.0300e-003**	**1.0300e-003**	**0.0000**	**7.7618**	**7.7618**	**2.5100e-003**	**0.0000**	**7.8245**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.1000e-004	1.2200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2744	0.2744	1.0000e-005	1.0000e-005	0.2773
Total	**1.4000e-004**	**1.1000e-004**	**1.2200e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2744**	**0.2744**	**1.0000e-005**	**1.0000e-005**	**0.2773**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6800e-003	0.0299	0.0383	9.0000e-005		1.1200e-003	1.1200e-003		1.0300e-003	1.0300e-003	0.0000	7.7618	7.7618	2.5100e-003	0.0000	7.8245
Total	**2.6800e-003**	**0.0299**	**0.0383**	**9.0000e-005**	**0.0000**	**1.1200e-003**	**1.1200e-003**	**0.0000**	**1.0300e-003**	**1.0300e-003**	**0.0000**	**7.7618**	**7.7618**	**2.5100e-003**	**0.0000**	**7.8245**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.1000e-004	1.2200e-003	0.0000	3.2000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2744	0.2744	1.0000e-005	1.0000e-005	0.2773
Total	**1.4000e-004**	**1.1000e-004**	**1.2200e-003**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2744**	**0.2744**	**1.0000e-005**	**1.0000e-005**	**0.2773**

3.4 Pilot Borehole Drilling - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1410	0.1566	3.5000e-004		6.4300e-003	6.4300e-003		6.2600e-003	6.2600e-003	0.0000	30.1153	30.1153	5.5200e-003	0.0000	30.2532
Total	**0.0157**	**0.1410**	**0.1566**	**3.5000e-004**	**0.0000**	**6.4300e-003**	**6.4300e-003**	**0.0000**	**6.2600e-003**	**6.2600e-003**	**0.0000**	**30.1153**	**30.1153**	**5.5200e-003**	**0.0000**	**30.2532**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Pilot Borehole Drilling - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	3.2300e-003	6.2000e-004	1.0000e-005	3.2000e-004	3.0000e-005	3.5000e-004	9.0000e-005	3.0000e-005	1.2000e-004	0.0000	1.1490	1.1490	1.0000e-005	1.8000e-004	1.2033
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	9.0000e-005	9.8000e-004	0.0000	2.5000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2195	0.2195	1.0000e-005	1.0000e-005	0.2219
Total	**1.8000e-004**	**3.3200e-003**	**1.6000e-003**	**1.0000e-005**	**5.7000e-004**	**3.0000e-005**	**6.1000e-004**	**1.6000e-004**	**3.0000e-005**	**1.9000e-004**	**0.0000**	**1.3685**	**1.3685**	**2.0000e-005**	**1.9000e-004**	**1.4251**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1410	0.1566	3.5000e-004		6.4300e-003	6.4300e-003		6.2600e-003	6.2600e-003	0.0000	30.1153	30.1153	5.5200e-003	0.0000	30.2532
Total	**0.0157**	**0.1410**	**0.1566**	**3.5000e-004**	**0.0000**	**6.4300e-003**	**6.4300e-003**	**0.0000**	**6.2600e-003**	**6.2600e-003**	**0.0000**	**30.1153**	**30.1153**	**5.5200e-003**	**0.0000**	**30.2532**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Pilot Borehole Drilling - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	3.2300e-003	6.2000e-004	1.0000e-005	3.2000e-004	3.0000e-005	3.5000e-004	9.0000e-005	3.0000e-005	1.2000e-004	0.0000	1.1490	1.1490	1.0000e-005	1.8000e-004	1.2033
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	9.0000e-005	9.8000e-004	0.0000	2.5000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2195	0.2195	1.0000e-005	1.0000e-005	0.2219
Total	**1.8000e-004**	**3.3200e-003**	**1.6000e-003**	**1.0000e-005**	**5.7000e-004**	**3.0000e-005**	**6.1000e-004**	**1.6000e-004**	**3.0000e-005**	**1.9000e-004**	**0.0000**	**1.3685**	**1.3685**	**2.0000e-005**	**1.9000e-004**	**1.4251**

3.5 Reaming and Well Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0215	0.1938	0.2153	4.8000e-004		8.8500e-003	8.8500e-003		8.6100e-003	8.6100e-003	0.0000	41.4086	41.4086	7.5800e-003	0.0000	41.5982
Total	**0.0215**	**0.1938**	**0.2153**	**4.8000e-004**	**0.0000**	**8.8500e-003**	**8.8500e-003**	**0.0000**	**8.6100e-003**	**8.6100e-003**	**0.0000**	**41.4086**	**41.4086**	**7.5800e-003**	**0.0000**	**41.5982**

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3.5 Reaming and Well Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	6.7000e-004	2.0000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2261	0.2261	0.0000	3.0000e-005	0.2361
Worker	1.5000e-004	1.3000e-004	1.3500e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3018	0.3018	1.0000e-005	1.0000e-005	0.3051
Total	**1.8000e-004**	**8.0000e-004**	**1.5500e-003**	**0.0000**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.1000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**0.5279**	**0.5279**	**1.0000e-005**	**4.0000e-005**	**0.5411**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0215	0.1938	0.2153	4.8000e-004		8.8500e-003	8.8500e-003		8.6100e-003	8.6100e-003	0.0000	41.4085	41.4085	7.5800e-003	0.0000	41.5981
Total	**0.0215**	**0.1938**	**0.2153**	**4.8000e-004**	**0.0000**	**8.8500e-003**	**8.8500e-003**	**0.0000**	**8.6100e-003**	**8.6100e-003**	**0.0000**	**41.4085**	**41.4085**	**7.5800e-003**	**0.0000**	**41.5981**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Reaming and Well Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	6.7000e-004	2.0000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2261	0.2261	0.0000	3.0000e-005	0.2361
Worker	1.5000e-004	1.3000e-004	1.3500e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3018	0.3018	1.0000e-005	1.0000e-005	0.3051
Total	**1.8000e-004**	**8.0000e-004**	**1.5500e-003**	**0.0000**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.1000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**0.5279**	**0.5279**	**1.0000e-005**	**4.0000e-005**	**0.5411**

3.6 Mechanical and Chemical Development - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0235	0.2115	0.2349	5.2000e-004		9.6500e-003	9.6500e-003		9.4000e-003	9.4000e-003	0.0000	45.1730	45.1730	8.2700e-003	0.0000	45.3798
Total	**0.0235**	**0.2115**	**0.2349**	**5.2000e-004**	**0.0000**	**9.6500e-003**	**9.6500e-003**	**0.0000**	**9.4000e-003**	**9.4000e-003**	**0.0000**	**45.1730**	**45.1730**	**8.2700e-003**	**0.0000**	**45.3798**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Mechanical and Chemical Development - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.4000e-004	1.4700e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3292	0.3292	1.0000e-005	1.0000e-005	0.3328
Total	**1.7000e-004**	**1.4000e-004**	**1.4700e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3292**	**0.3292**	**1.0000e-005**	**1.0000e-005**	**0.3328**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0235	0.2115	0.2349	5.2000e-004		9.6500e-003	9.6500e-003		9.4000e-003	9.4000e-003	0.0000	45.1729	45.1729	8.2700e-003	0.0000	45.3798
Total	**0.0235**	**0.2115**	**0.2349**	**5.2000e-004**	**0.0000**	**9.6500e-003**	**9.6500e-003**	**0.0000**	**9.4000e-003**	**9.4000e-003**	**0.0000**	**45.1729**	**45.1729**	**8.2700e-003**	**0.0000**	**45.3798**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Mechanical and Chemical Development - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.4000e-004	1.4700e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3292	0.3292	1.0000e-005	1.0000e-005	0.3328
Total	**1.7000e-004**	**1.4000e-004**	**1.4700e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3292**	**0.3292**	**1.0000e-005**	**1.0000e-005**	**0.3328**

3.7 Pump Development and Testing - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7300e-003	0.0467	0.0590	1.0000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	8.8251	8.8251	4.7000e-004	0.0000	8.8368
Total	**5.7300e-003**	**0.0467**	**0.0590**	**1.0000e-004**	**0.0000**	**2.4700e-003**	**2.4700e-003**	**0.0000**	**2.4700e-003**	**2.4700e-003**	**0.0000**	**8.8251**	**8.8251**	**4.7000e-004**	**0.0000**	**8.8368**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Pump Development and Testing - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.4000e-004	1.4700e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3292	0.3292	1.0000e-005	1.0000e-005	0.3328
Total	**1.7000e-004**	**1.4000e-004**	**1.4700e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3292**	**0.3292**	**1.0000e-005**	**1.0000e-005**	**0.3328**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7300e-003	0.0467	0.0590	1.0000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	8.8251	8.8251	4.7000e-004	0.0000	8.8368
Total	**5.7300e-003**	**0.0467**	**0.0590**	**1.0000e-004**	**0.0000**	**2.4700e-003**	**2.4700e-003**	**0.0000**	**2.4700e-003**	**2.4700e-003**	**0.0000**	**8.8251**	**8.8251**	**4.7000e-004**	**0.0000**	**8.8368**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Pump Development and Testing - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.4000e-004	1.4700e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3292	0.3292	1.0000e-005	1.0000e-005	0.3328
Total	**1.7000e-004**	**1.4000e-004**	**1.4700e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3292**	**0.3292**	**1.0000e-005**	**1.0000e-005**	**0.3328**

3.8 Site Restoration - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2000e-004	4.3100e-003	4.6500e-003	1.0000e-005		2.5000e-004	2.5000e-004		2.3000e-004	2.3000e-004	0.0000	0.5763	0.5763	1.9000e-004	0.0000	0.5810
Total	**4.2000e-004**	**4.3100e-003**	**4.6500e-003**	**1.0000e-005**	**0.0000**	**2.5000e-004**	**2.5000e-004**	**0.0000**	**2.3000e-004**	**2.3000e-004**	**0.0000**	**0.5763**	**0.5763**	**1.9000e-004**	**0.0000**	**0.5810**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Site Restoration - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	6.0000e-005	6.1000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1372	0.1372	1.0000e-005	0.0000	0.1387
Total	**7.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1372**	**0.1372**	**1.0000e-005**	**0.0000**	**0.1387**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2000e-004	4.3100e-003	4.6500e-003	1.0000e-005		2.5000e-004	2.5000e-004		2.3000e-004	2.3000e-004	0.0000	0.5763	0.5763	1.9000e-004	0.0000	0.5810
Total	**4.2000e-004**	**4.3100e-003**	**4.6500e-003**	**1.0000e-005**	**0.0000**	**2.5000e-004**	**2.5000e-004**	**0.0000**	**2.3000e-004**	**2.3000e-004**	**0.0000**	**0.5763**	**0.5763**	**1.9000e-004**	**0.0000**	**0.5810**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 Site Restoration - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	6.0000e-005	6.1000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1372	0.1372	1.0000e-005	0.0000	0.1387
Total	**7.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1372**	**0.1372**	**1.0000e-005**	**0.0000**	**0.1387**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.499989	0.051361	0.196358	0.157917	0.031682	0.007411	0.010569	0.009076	0.001281	0.000601	0.028215	0.001359	0.004180

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

SqCWD Country Club Well Construction - AQ and GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ

Monterey Bay Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.86	1000sqft	0.27	1,862.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Size of project site

Construction Phase - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Trips and VMT - 20 total one-way concrete trips for paving phase (2 one-way trips per day)

Grading -

Architectural Coating - MBARD Rule 426

Vehicle Trips - Max of 12 one-way trips per day.

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Area Coating -

Energy Use - No natural gas connections. Emissions from electricity calculated separately.

Water And Wastewater - No default outdoor water use rate - used outdoor water usage estimate for gasoline/service station as a proxy due to similar level of landscaping. 100% aerobic treatment.

Fleet Mix - 66.7% passenger trucks, 33.3% trucks for sodium hypochlorite delivery and Cr6 resin replacement

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	100.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	100.00	156.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	10.00
tblEnergyUse	LightingElect	2.99	0.00
tblEnergyUse	NT24E	3.36	0.00
tblEnergyUse	NT24NG	6.90	0.00
tblEnergyUse	T24E	1.08	0.00
tblEnergyUse	T24NG	17.67	0.00
tblFleetMix	HHD	9.1760e-003	0.00
tblFleetMix	LDA	0.51	0.00
tblFleetMix	LDT1	0.05	0.67
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.2080e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.15	0.33
tblFleetMix	MH	3.9560e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.2290e-003	0.00

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblFleetMix	SBUS	1.3300e-003	0.00
tblFleetMix	UBUS	5.9400e-004	0.00
tblGrading	MaterialExported	0.00	410.00
tblGrading	MaterialImported	0.00	500.00
tblLandUse	LandUseSquareFeet	1,860.00	1,862.00
tblLandUse	LotAcreage	0.04	0.27
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	28.00	16.00
tblTripsAndVMT	WorkerTripNumber	43.00	16.00
tblTripsAndVMT	WorkerTripNumber	1.00	16.00
tblTripsAndVMT	WorkerTripNumber	33.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	6.44
tblWater	AerobicPercent	87.46	100.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	0.00	57,663.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.4658	44.3220	38.4180	0.0770	6.7174	2.1059	8.8233	2.7747	1.9739	4.7486	0.0000	7,453.9805	7,453.9805	1.6799	0.1241	7,532.9621
2023	5.3678	49.3375	46.8521	0.0954	0.2900	2.2261	2.5161	0.0775	2.1038	2.1813	0.0000	9,088.9087	9,088.9087	2.0405	0.0208	9,146.1140
Maximum	**5.3678**	**49.3375**	**46.8521**	**0.0954**	**6.7174**	**2.2261**	**8.8233**	**2.7747**	**2.1038**	**4.7486**	**0.0000**	**9,088.9087**	**9,088.9087**	**2.0405**	**0.1241**	**9,146.1140**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.4658	44.3220	38.4180	0.0770	6.7174	2.1059	8.8233	2.7747	1.9739	4.7486	0.0000	7,453.9805	7,453.9805	1.6799	0.1241	7,532.9620
2023	5.3678	49.3375	46.8521	0.0954	0.2900	2.2261	2.5161	0.0775	2.1038	2.1813	0.0000	9,088.9087	9,088.9087	2.0405	0.0208	9,146.1140
Maximum	**5.3678**	**49.3375**	**46.8521**	**0.0954**	**6.7174**	**2.2261**	**8.8233**	**2.7747**	**2.1038**	**4.7486**	**0.0000**	**9,088.9087**	**9,088.9087**	**2.0405**	**0.1241**	**9,146.1140**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0470	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0269	0.0313	0.3070	6.9000e-004	0.0664	4.7000e-004	0.0669	0.0176	4.3000e-004	0.0180		70.3933	70.3933	3.5100e-003	2.6900e-003	71.2820
Total	**0.0738**	**0.0313**	**0.3072**	**6.9000e-004**	**0.0664**	**4.7000e-004**	**0.0669**	**0.0176**	**4.3000e-004**	**0.0180**		**70.3937**	**70.3937**	**3.5100e-003**	**2.6900e-003**	**71.2824**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0470	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0269	0.0313	0.3070	6.9000e-004	0.0664	4.7000e-004	0.0669	0.0176	4.3000e-004	0.0180		70.3933	70.3933	3.5100e-003	2.6900e-003	71.2820
Total	**0.0738**	**0.0313**	**0.3072**	**6.9000e-004**	**0.0664**	**4.7000e-004**	**0.0669**	**0.0176**	**4.3000e-004**	**0.0180**		**70.3937**	**70.3937**	**3.5100e-003**	**2.6900e-003**	**71.2824**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/11/2022	8/31/2022	5	15	
2	Site Preparation and Initial Site Grading	Grading	9/1/2022	9/14/2022	5	10	
3	Building Construction and System Installation	Building Construction	9/15/2022	4/20/2023	5	156	
4	Paving and Aggregate Base Surfacing	Paving	3/1/2023	3/14/2023	5	10	
5	Architectural Coating	Architectural Coating	4/6/2023	4/19/2023	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 17.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,793; Non-Residential Outdoor: 931; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Air Compressors	1	8.00	78	0.48
Demolition	Bore/Drill Rigs	1	8.00	221	0.50
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Dumpers/Tenders	1	8.00	16	0.38
Demolition	Excavators	1	8.00	158	0.38
Demolition	Forklifts	1	8.00	89	0.20

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Demolition	Generator Sets	1	8.00	84	0.74
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Signal Boards	1	8.00	6	0.82
Demolition	Sweepers/Scrubbers	1	8.00	64	0.46
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation and Initial Site Grading	Air Compressors	1	8.00	78	0.48
Site Preparation and Initial Site Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation and Initial Site Grading	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation and Initial Site Grading	Excavators	1	8.00	158	0.38
Site Preparation and Initial Site Grading	Forklifts	1	8.00	89	0.20
Site Preparation and Initial Site Grading	Generator Sets	1	8.00	84	0.74
Site Preparation and Initial Site Grading	Graders	1	6.00	187	0.41
Site Preparation and Initial Site Grading	Plate Compactors	1	8.00	8	0.43
Site Preparation and Initial Site Grading	Rollers	1	8.00	80	0.38
Site Preparation and Initial Site Grading	Rubber Tired Dozers	1	6.00	247	0.40
Site Preparation and Initial Site Grading	Scrapers	1	8.00	367	0.48
Site Preparation and Initial Site Grading	Signal Boards	1	8.00	6	0.82
Site Preparation and Initial Site Grading	Sweepers/Scrubbers	1	8.00	64	0.46
Site Preparation and Initial Site Grading	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Site Preparation and Initial Site Grading	Trenchers	1	8.00	78	0.50
Building Construction and System Installation	Aerial Lifts	1	8.00	63	0.31
Building Construction and System Installation	Air Compressors	1	8.00	78	0.48
Building Construction and System Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction and System Installation	Cranes	1	4.00	231	0.29
Building Construction and System Installation	Dumpers/Tenders	1	8.00	16	0.38
Building Construction and System Installation	Forklifts	1	6.00	89	0.20
Building Construction and System Installation	Generator Sets	1	8.00	84	0.74

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction and System Installation	Pressure Washers	1	8.00	13	0.30
Building Construction and System Installation	Signal Boards	1	8.00	6	0.82
Building Construction and System Installation	Sweepers/Scrubbers	1	8.00	64	0.46
Building Construction and System Installation	Welders	1	8.00	46	0.45
Paving and Aggregate Base Surfacing	Air Compressors	1	8.00	78	0.48
Paving and Aggregate Base Surfacing	Forklifts	1	8.00	89	0.20
Paving and Aggregate Base Surfacing	Generator Sets	1	8.00	84	0.74
Paving and Aggregate Base Surfacing	Graders	1	8.00	187	0.41
Paving and Aggregate Base Surfacing	Paving Equipment	1	8.00	132	0.36
Paving and Aggregate Base Surfacing	Plate Compactors	1	8.00	8	0.43
Paving and Aggregate Base Surfacing	Rollers	1	8.00	80	0.38
Paving and Aggregate Base Surfacing	Rubber Tired Dozers	1	8.00	247	0.40
Paving and Aggregate Base Surfacing	Scrapers	1	8.00	367	0.48
Paving and Aggregate Base Surfacing	Signal Boards	1	8.00	6	0.82
Paving and Aggregate Base Surfacing	Surfacing Equipment	1	8.00	263	0.30
Paving and Aggregate Base Surfacing	Sweepers/Scrubbers	1	8.00	64	0.46
Paving and Aggregate Base Surfacing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Aerial Lifts	1	8.00	63	0.31
Architectural Coating	Air Compressors	1	8.00	78	0.48
Architectural Coating	Generator Sets	1	8.00	84	0.74
Architectural Coating	Pressure Washers	1	8.00	13	0.30
Architectural Coating	Signal Boards	1	8.00	6	0.82
Architectural Coating	Sweepers/Scrubbers	1	8.00	64	0.46

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	11	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation and Initial Site Grading	17	16.00	0.00	114.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction and System Installatio	11	16.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving and Aggregate Base Surfacing	13	16.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0529	17.6884	20.8038	0.0403		0.9062	0.9062		0.8687	0.8687		3,838.3092	3,838.3092	0.7892		3,858.0392
Total	**2.0529**	**17.6884**	**20.8038**	**0.0403**		**0.9062**	**0.9062**		**0.8687**	**0.8687**		**3,838.3092**	**3,838.3092**	**0.7892**		**3,858.0392**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0607	0.0499	0.5087	1.1800e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		120.5145	120.5145	4.9100e-003	4.2900e-003	121.9151
Total	**0.0607**	**0.0499**	**0.5087**	**1.1800e-003**	**0.1314**	**8.8000e-004**	**0.1323**	**0.0349**	**8.1000e-004**	**0.0357**		**120.5145**	**120.5145**	**4.9100e-003**	**4.2900e-003**	**121.9151**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0529	17.6884	20.8038	0.0403		0.9062	0.9062		0.8687	0.8687	0.0000	3,838.3092	3,838.3092	0.7892		3,858.0392
Total	**2.0529**	**17.6884**	**20.8038**	**0.0403**		**0.9062**	**0.9062**		**0.8687**	**0.8687**	**0.0000**	**3,838.3092**	**3,838.3092**	**0.7892**		**3,858.0392**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0607	0.0499	0.5087	1.1800e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		120.5145	120.5145	4.9100e-003	4.2900e-003	121.9151
Total	**0.0607**	**0.0499**	**0.5087**	**1.1800e-003**	**0.1314**	**8.8000e-004**	**0.1323**	**0.0349**	**8.1000e-004**	**0.0357**		**120.5145**	**120.5145**	**4.9100e-003**	**4.2900e-003**	**121.9151**

3.3 Site Preparation and Initial Site Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3865	0.0000	6.3865	2.6852	0.0000	2.6852			0.0000			0.0000
Off-Road	4.3615	42.3034	37.5344	0.0687		2.0865	2.0865		1.9553	1.9553		6,573.2542	6,573.2542	1.6662		6,614.9084
Total	**4.3615**	**42.3034**	**37.5344**	**0.0687**	**6.3865**	**2.0865**	**8.4730**	**2.6852**	**1.9553**	**4.6405**		**6,573.2542**	**6,573.2542**	**1.6662**		**6,614.9084**

3.3 Site Preparation and Initial Site Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0436	1.9686	0.3749	7.1100e-003	0.1994	0.0185	0.2180	0.0547	0.0177	0.0724		760.2118	760.2118	8.8600e-003	0.1198	796.1385
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0607	0.0499	0.5087	1.1800e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		120.5145	120.5145	4.9100e-003	4.2900e-003	121.9151
Total	**0.1043**	**2.0186**	**0.8836**	**8.2900e-003**	**0.3309**	**0.0194**	**0.3503**	**0.0895**	**0.0185**	**0.1081**		**880.7263**	**880.7263**	**0.0138**	**0.1241**	**918.0537**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3865	0.0000	6.3865	2.6852	0.0000	2.6852			0.0000			0.0000
Off-Road	4.3615	42.3034	37.5344	0.0687		2.0865	2.0865		1.9553	1.9553	0.0000	6,573.2542	6,573.2542	1.6662		6,614.9084
Total	**4.3615**	**42.3034**	**37.5344**	**0.0687**	**6.3865**	**2.0865**	**8.4730**	**2.6852**	**1.9553**	**4.6405**	**0.0000**	**6,573.2542**	**6,573.2542**	**1.6662**		**6,614.9084**

3.3 Site Preparation and Initial Site Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0436	1.9686	0.3749	7.1100e-003	0.1994	0.0185	0.2180	0.0547	0.0177	0.0724		760.2118	760.2118	8.8600e-003	0.1198	796.1385
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0607	0.0499	0.5087	1.1800e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		120.5145	120.5145	4.9100e-003	4.2900e-003	121.9151
Total	**0.1043**	**2.0186**	**0.8836**	**8.2900e-003**	**0.3309**	**0.0194**	**0.3503**	**0.0895**	**0.0185**	**0.1081**		**880.7263**	**880.7263**	**0.0138**	**0.1241**	**918.0537**

3.4 Building Construction and System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9122	15.4427	17.0709	0.0296		0.7847	0.7847		0.7631	0.7631		2,747.0195	2,747.0195	0.3852		2,756.6492
Total	**1.9122**	**15.4427**	**17.0709**	**0.0296**		**0.7847**	**0.7847**		**0.7631**	**0.7631**		**2,747.0195**	**2,747.0195**	**0.3852**		**2,756.6492**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6800e-003	0.1235	0.0375	4.3000e-004	0.0136	1.2800e-003	0.0148	3.9000e-003	1.2200e-003	5.1200e-003		45.3364	45.3364	4.7000e-004	6.6700e-003	47.3371
Worker	0.0607	0.0499	0.5087	1.1800e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		120.5145	120.5145	4.9100e-003	4.2900e-003	121.9151
Total	**0.0654**	**0.1734**	**0.5462**	**1.6100e-003**	**0.1450**	**2.1600e-003**	**0.1472**	**0.0388**	**2.0300e-003**	**0.0408**		**165.8509**	**165.8509**	**5.3800e-003**	**0.0110**	**169.2522**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9122	15.4427	17.0709	0.0296		0.7847	0.7847		0.7631	0.7631	0.0000	2,747.0195	2,747.0195	0.3852		2,756.6492
Total	**1.9122**	**15.4427**	**17.0709**	**0.0296**		**0.7847**	**0.7847**		**0.7631**	**0.7631**	**0.0000**	**2,747.0195**	**2,747.0195**	**0.3852**		**2,756.6492**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6800e-003	0.1235	0.0375	4.3000e-004	0.0136	1.2800e-003	0.0148	3.9000e-003	1.2200e-003	5.1200e-003		45.3364	45.3364	4.7000e-004	6.6700e-003	47.3371
Worker	0.0607	0.0499	0.5087	1.1800e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		120.5145	120.5145	4.9100e-003	4.2900e-003	121.9151
Total	**0.0654**	**0.1734**	**0.5462**	**1.6100e-003**	**0.1450**	**2.1600e-003**	**0.1472**	**0.0388**	**2.0300e-003**	**0.0408**		**165.8509**	**165.8509**	**5.3800e-003**	**0.0110**	**169.2522**

3.4 Building Construction and System Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7922	14.4471	16.9990	0.0296		0.6924	0.6924		0.6730	0.6730		2,747.0149	2,747.0149	0.3756		2,756.4056
Total	**1.7922**	**14.4471**	**16.9990**	**0.0296**		**0.6924**	**0.6924**		**0.6730**	**0.6730**		**2,747.0149**	**2,747.0149**	**0.3756**		**2,756.4056**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8100e-003	0.1038	0.0326	4.1000e-004	0.0136	6.5000e-004	0.0142	3.9000e-003	6.2000e-004	4.5200e-003		43.8897	43.8897	3.8000e-004	6.4500e-003	45.8216
Worker	0.0564	0.0440	0.4669	1.1500e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		117.5631	117.5631	4.4200e-003	3.9400e-003	118.8479
Total	**0.0592**	**0.1478**	**0.4995**	**1.5600e-003**	**0.1450**	**1.4800e-003**	**0.1465**	**0.0388**	**1.3900e-003**	**0.0402**		**161.4528**	**161.4528**	**4.8000e-003**	**0.0104**	**164.6695**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7922	14.4471	16.9990	0.0296		0.6924	0.6924		0.6730	0.6730	0.0000	2,747.0149	2,747.0149	0.3756		2,756.4056
Total	**1.7922**	**14.4471**	**16.9990**	**0.0296**		**0.6924**	**0.6924**		**0.6730**	**0.6730**	**0.0000**	**2,747.0149**	**2,747.0149**	**0.3756**		**2,756.4056**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8100e-003	0.1038	0.0326	4.1000e-004	0.0136	6.5000e-004	0.0142	3.9000e-003	6.2000e-004	4.5200e-003		43.8897	43.8897	3.8000e-004	6.4500e-003	45.8216
Worker	0.0564	0.0440	0.4669	1.1500e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		117.5631	117.5631	4.4200e-003	3.9400e-003	118.8479
Total	**0.0592**	**0.1478**	**0.4995**	**1.5600e-003**	**0.1450**	**1.4800e-003**	**0.1465**	**0.0388**	**1.3900e-003**	**0.0402**		**161.4528**	**161.4528**	**4.8000e-003**	**0.0104**	**164.6695**

3.5 Paving and Aggregate Base Surfacing - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4571	34.5948	28.8541	0.0627		1.5308	1.5308		1.4280	1.4280		6,018.9881	6,018.9881	1.6553		6,060.3694
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.4571**	**34.5948**	**28.8541**	**0.0627**		**1.5308**	**1.5308**		**1.4280**	**1.4280**		**6,018.9881**	**6,018.9881**	**1.6553**		**6,060.3694**

3.5 Paving and Aggregate Base Surfacing - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8100e-003	0.1038	0.0326	4.1000e-004	0.0136	6.5000e-004	0.0142	3.9000e-003	6.2000e-004	4.5200e-003		43.8897	43.8897	3.8000e-004	6.4500e-003	45.8216
Worker	0.0564	0.0440	0.4669	1.1500e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		117.5631	117.5631	4.4200e-003	3.9400e-003	118.8479
Total	**0.0592**	**0.1478**	**0.4995**	**1.5600e-003**	**0.1450**	**1.4800e-003**	**0.1465**	**0.0388**	**1.3900e-003**	**0.0402**		**161.4528**	**161.4528**	**4.8000e-003**	**0.0104**	**164.6695**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4571	34.5948	28.8541	0.0627		1.5308	1.5308		1.4280	1.4280	0.0000	6,018.9881	6,018.9881	1.6553		6,060.3694
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.4571**	**34.5948**	**28.8541**	**0.0627**		**1.5308**	**1.5308**		**1.4280**	**1.4280**	**0.0000**	**6,018.9881**	**6,018.9881**	**1.6553**		**6,060.3694**

3.5 Paving and Aggregate Base Surfacing - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8100e-003	0.1038	0.0326	4.1000e-004	0.0136	6.5000e-004	0.0142	3.9000e-003	6.2000e-004	4.5200e-003		43.8897	43.8897	3.8000e-004	6.4500e-003	45.8216
Worker	0.0564	0.0440	0.4669	1.1500e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		117.5631	117.5631	4.4200e-003	3.9400e-003	118.8479
Total	**0.0592**	**0.1478**	**0.4995**	**1.5600e-003**	**0.1450**	**1.4800e-003**	**0.1465**	**0.0388**	**1.3900e-003**	**0.0402**		**161.4528**	**161.4528**	**4.8000e-003**	**0.0104**	**164.6695**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7261					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8779	7.3503	9.6371	0.0160		0.3675	0.3675		0.3580	0.3580		1,495.4984	1,495.4984	0.1910		1,500.2728
Total	**2.6040**	**7.3503**	**9.6371**	**0.0160**		**0.3675**	**0.3675**		**0.3580**	**0.3580**		**1,495.4984**	**1,495.4984**	**0.1910**		**1,500.2728**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0564	0.0440	0.4669	1.1500e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		117.5631	117.5631	4.4200e-003	3.9400e-003	118.8479
Total	**0.0564**	**0.0440**	**0.4669**	**1.1500e-003**	**0.1314**	**8.3000e-004**	**0.1323**	**0.0349**	**7.7000e-004**	**0.0356**		**117.5631**	**117.5631**	**4.4200e-003**	**3.9400e-003**	**118.8479**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7261					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8779	7.3503	9.6371	0.0160		0.3675	0.3675		0.3580	0.3580	0.0000	1,495.4984	1,495.4984	0.1910		1,500.2728
Total	**2.6040**	**7.3503**	**9.6371**	**0.0160**		**0.3675**	**0.3675**		**0.3580**	**0.3580**	**0.0000**	**1,495.4984**	**1,495.4984**	**0.1910**		**1,500.2728**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0564	0.0440	0.4669	1.1500e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		117.5631	117.5631	4.4200e-003	3.9400e-003	118.8479
Total	**0.0564**	**0.0440**	**0.4669**	**1.1500e-003**	**0.1314**	**8.3000e-004**	**0.1323**	**0.0349**	**7.7000e-004**	**0.0356**		**117.5631**	**117.5631**	**4.4200e-003**	**3.9400e-003**	**118.8479**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0269	0.0313	0.3070	6.9000e-004	0.0664	4.7000e-004	0.0669	0.0176	4.3000e-004	0.0180		70.3933	70.3933	3.5100e-003	2.6900e-003	71.2820
Unmitigated	0.0269	0.0313	0.3070	6.9000e-004	0.0664	4.7000e-004	0.0669	0.0176	4.3000e-004	0.0180		70.3933	70.3933	3.5100e-003	2.6900e-003	71.2820

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	11.98	0.00	0.00	22,735	22,735
Total	11.98	0.00	0.00	22,735	22,735

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.666670	0.000000	0.333330	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0470	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Unmitigated	0.0470	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.0900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0399					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Total	**0.0470**	**0.0000**	**1.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.1000e-004**	**4.1000e-004**	**0.0000**		**4.3000e-004**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.0900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0399					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Total	**0.0470**	**0.0000**	**1.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.1000e-004**	**4.1000e-004**	**0.0000**		**4.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ

Monterey Bay Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.86	1000sqft	0.27	1,862.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Size of project site

Construction Phase - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Trips and VMT - 20 total one-way concrete trips for paving phase (2 one-way trips per day)

Grading -

Architectural Coating - MBARD Rule 426

Vehicle Trips - Max of 12 one-way trips per day.

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Area Coating -

Energy Use - No natural gas connections. Emissions from electricity calculated separately.

Water And Wastewater - No default outdoor water use rate - used outdoor water usage estimate for gasoline/service station as a proxy due to similar level of landscaping. 100% aerobic treatment.

Fleet Mix - 66.7% passenger trucks, 33.3% trucks for sodium hypochlorite delivery and Cr6 resin replacement

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	100.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	100.00	156.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	10.00
tblEnergyUse	LightingElect	2.99	0.00
tblEnergyUse	NT24E	3.36	0.00
tblEnergyUse	NT24NG	6.90	0.00
tblEnergyUse	T24E	1.08	0.00
tblEnergyUse	T24NG	17.67	0.00
tblFleetMix	HHD	9.1760e-003	0.00
tblFleetMix	LDA	0.51	0.00
tblFleetMix	LDT1	0.05	0.67
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.2080e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.15	0.33
tblFleetMix	MH	3.9560e-003	0.00
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.2290e-003	0.00

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblFleetMix	SBUS	1.3300e-003	0.00
tblFleetMix	UBUS	5.9400e-004	0.00
tblGrading	MaterialExported	0.00	410.00
tblGrading	MaterialImported	0.00	500.00
tblLandUse	LandUseSquareFeet	1,860.00	1,862.00
tblLandUse	LotAcreage	0.04	0.27
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	28.00	16.00
tblTripsAndVMT	WorkerTripNumber	43.00	16.00
tblTripsAndVMT	WorkerTripNumber	1.00	16.00
tblTripsAndVMT	WorkerTripNumber	33.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00
tblVehicleTrips	WD_TR	4.96	6.44
tblWater	AerobicPercent	87.46	100.00

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	0.00	57,663.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.4640	44.2093	38.4166	0.0770	6.7174	2.1058	8.8232	2.7747	1.9738	4.7485	0.0000	7,460.3190	7,460.3190	1.6795	0.1234	7,539.0847
2023	5.3612	49.3083	46.8594	0.0956	0.2900	2.2261	2.5161	0.0775	2.1038	2.1813	0.0000	9,102.0696	9,102.0696	2.0395	0.0196	9,158.9083
Maximum	**5.3612**	**49.3083**	**46.8594**	**0.0956**	**6.7174**	**2.2261**	**8.8232**	**2.7747**	**2.1038**	**4.7485**	**0.0000**	**9,102.0696**	**9,102.0696**	**2.0395**	**0.1234**	**9,158.9083**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.4640	44.2093	38.4166	0.0770	6.7174	2.1058	8.8232	2.7747	1.9738	4.7485	0.0000	7,460.3190	7,460.3190	1.6795	0.1234	7,539.0847
2023	5.3612	49.3083	46.8594	0.0956	0.2900	2.2261	2.5161	0.0775	2.1038	2.1813	0.0000	9,102.0696	9,102.0696	2.0395	0.0196	9,158.9083
Maximum	**5.3612**	**49.3083**	**46.8594**	**0.0956**	**6.7174**	**2.2261**	**8.8232**	**2.7747**	**2.1038**	**4.7485**	**0.0000**	**9,102.0696**	**9,102.0696**	**2.0395**	**0.1234**	**9,158.9083**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0470	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0298	0.0250	0.2991	7.2000e-004	0.0664	4.7000e-004	0.0669	0.0176	4.3000e-004	0.0180		73.7989	73.7989	3.0000e-003	2.3200e-003	74.5643
Total	**0.0767**	**0.0250**	**0.2993**	**7.2000e-004**	**0.0664**	**4.7000e-004**	**0.0669**	**0.0176**	**4.3000e-004**	**0.0180**		**73.7993**	**73.7993**	**3.0000e-003**	**2.3200e-003**	**74.5647**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0470	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0298	0.0250	0.2991	7.2000e-004	0.0664	4.7000e-004	0.0669	0.0176	4.3000e-004	0.0180		73.7989	73.7989	3.0000e-003	2.3200e-003	74.5643
Total	**0.0767**	**0.0250**	**0.2993**	**7.2000e-004**	**0.0664**	**4.7000e-004**	**0.0669**	**0.0176**	**4.3000e-004**	**0.0180**		**73.7993**	**73.7993**	**3.0000e-003**	**2.3200e-003**	**74.5647**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/11/2022	8/31/2022	5	15	
2	Site Preparation and Initial Site Grading	Grading	9/1/2022	9/14/2022	5	10	
3	Building Construction and System Installation	Building Construction	9/15/2022	4/20/2023	5	156	
4	Paving and Aggregate Base Surfacing	Paving	3/1/2023	3/14/2023	5	10	
5	Architectural Coating	Architectural Coating	4/6/2023	4/19/2023	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 17.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,793; Non-Residential Outdoor: 931; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Air Compressors	1	8.00	78	0.48
Demolition	Bore/Drill Rigs	1	8.00	221	0.50
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Dumpers/Tenders	1	8.00	16	0.38
Demolition	Excavators	1	8.00	158	0.38
Demolition	Forklifts	1	8.00	89	0.20

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Demolition	Generator Sets	1	8.00	84	0.74
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Signal Boards	1	8.00	6	0.82
Demolition	Sweepers/Scrubbers	1	8.00	64	0.46
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation and Initial Site Grading	Air Compressors	1	8.00	78	0.48
Site Preparation and Initial Site Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation and Initial Site Grading	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation and Initial Site Grading	Excavators	1	8.00	158	0.38
Site Preparation and Initial Site Grading	Forklifts	1	8.00	89	0.20
Site Preparation and Initial Site Grading	Generator Sets	1	8.00	84	0.74
Site Preparation and Initial Site Grading	Graders	1	6.00	187	0.41
Site Preparation and Initial Site Grading	Plate Compactors	1	8.00	8	0.43
Site Preparation and Initial Site Grading	Rollers	1	8.00	80	0.38
Site Preparation and Initial Site Grading	Rubber Tired Dozers	1	6.00	247	0.40
Site Preparation and Initial Site Grading	Scrapers	1	8.00	367	0.48
Site Preparation and Initial Site Grading	Signal Boards	1	8.00	6	0.82
Site Preparation and Initial Site Grading	Sweepers/Scrubbers	1	8.00	64	0.46
Site Preparation and Initial Site Grading	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Site Preparation and Initial Site Grading	Trenchers	1	8.00	78	0.50
Building Construction and System Installation	Aerial Lifts	1	8.00	63	0.31
Building Construction and System Installation	Air Compressors	1	8.00	78	0.48
Building Construction and System Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction and System Installation	Cranes	1	4.00	231	0.29
Building Construction and System Installation	Dumpers/Tenders	1	8.00	16	0.38
Building Construction and System Installation	Forklifts	1	6.00	89	0.20
Building Construction and System Installation	Generator Sets	1	8.00	84	0.74

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction and System Installation	Pressure Washers	1	8.00	13	0.30
Building Construction and System Installation	Signal Boards	1	8.00	6	0.82
Building Construction and System Installation	Sweepers/Scrubbers	1	8.00	64	0.46
Building Construction and System Installation	Welders	1	8.00	46	0.45
Paving and Aggregate Base Surfacing	Air Compressors	1	8.00	78	0.48
Paving and Aggregate Base Surfacing	Forklifts	1	8.00	89	0.20
Paving and Aggregate Base Surfacing	Generator Sets	1	8.00	84	0.74
Paving and Aggregate Base Surfacing	Graders	1	8.00	187	0.41
Paving and Aggregate Base Surfacing	Paving Equipment	1	8.00	132	0.36
Paving and Aggregate Base Surfacing	Plate Compactors	1	8.00	8	0.43
Paving and Aggregate Base Surfacing	Rollers	1	8.00	80	0.38
Paving and Aggregate Base Surfacing	Rubber Tired Dozers	1	8.00	247	0.40
Paving and Aggregate Base Surfacing	Scrapers	1	8.00	367	0.48
Paving and Aggregate Base Surfacing	Signal Boards	1	8.00	6	0.82
Paving and Aggregate Base Surfacing	Surfacing Equipment	1	8.00	263	0.30
Paving and Aggregate Base Surfacing	Sweepers/Scrubbers	1	8.00	64	0.46
Paving and Aggregate Base Surfacing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Aerial Lifts	1	8.00	63	0.31
Architectural Coating	Air Compressors	1	8.00	78	0.48
Architectural Coating	Generator Sets	1	8.00	84	0.74
Architectural Coating	Pressure Washers	1	8.00	13	0.30
Architectural Coating	Signal Boards	1	8.00	6	0.82
Architectural Coating	Sweepers/Scrubbers	1	8.00	64	0.46

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	11	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation and Initial Site Grading	17	16.00	0.00	114.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction and System Installatio	11	16.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving and Aggregate Base Surfacing	13	16.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0529	17.6884	20.8038	0.0403		0.9062	0.9062		0.8687	0.8687		3,838.3092	3,838.3092	0.7892		3,858.0392
Total	**2.0529**	**17.6884**	**20.8038**	**0.0403**		**0.9062**	**0.9062**		**0.8687**	**0.8687**		**3,838.3092**	**3,838.3092**	**0.7892**		**3,858.0392**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0572	0.0399	0.5157	1.2500e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		127.3616	127.3616	4.3800e-003	3.6900e-003	128.5692
Total	**0.0572**	**0.0399**	**0.5157**	**1.2500e-003**	**0.1314**	**8.8000e-004**	**0.1323**	**0.0349**	**8.1000e-004**	**0.0357**		**127.3616**	**127.3616**	**4.3800e-003**	**3.6900e-003**	**128.5692**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0529	17.6884	20.8038	0.0403		0.9062	0.9062		0.8687	0.8687	0.0000	3,838.3092	3,838.3092	0.7892		3,858.0392
Total	**2.0529**	**17.6884**	**20.8038**	**0.0403**		**0.9062**	**0.9062**		**0.8687**	**0.8687**	**0.0000**	**3,838.3092**	**3,838.3092**	**0.7892**		**3,858.0392**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0572	0.0399	0.5157	1.2500e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		127.3616	127.3616	4.3800e-003	3.6900e-003	128.5692
Total	**0.0572**	**0.0399**	**0.5157**	**1.2500e-003**	**0.1314**	**8.8000e-004**	**0.1323**	**0.0349**	**8.1000e-004**	**0.0357**		**127.3616**	**127.3616**	**4.3800e-003**	**3.6900e-003**	**128.5692**

3.3 Site Preparation and Initial Site Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3865	0.0000	6.3865	2.6852	0.0000	2.6852			0.0000			0.0000
Off-Road	4.3615	42.3034	37.5344	0.0687		2.0865	2.0865		1.9553	1.9553		6,573.2542	6,573.2542	1.6662		6,614.9084
Total	**4.3615**	**42.3034**	**37.5344**	**0.0687**	**6.3865**	**2.0865**	**8.4730**	**2.6852**	**1.9553**	**4.6405**		**6,573.2542**	**6,573.2542**	**1.6662**		**6,614.9084**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation and Initial Site Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0452	1.8660	0.3665	7.1100e-003	0.1994	0.0185	0.2179	0.0547	0.0177	0.0723		759.7032	759.7032	8.9400e-003	0.1197	795.6072
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0572	0.0399	0.5157	1.2500e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		127.3616	127.3616	4.3800e-003	3.6900e-003	128.5692
Total	**0.1024**	**1.9059**	**0.8822**	**8.3600e-003**	**0.3309**	**0.0194**	**0.3502**	**0.0895**	**0.0185**	**0.1080**		**887.0647**	**887.0647**	**0.0133**	**0.1234**	**924.1763**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.3865	0.0000	6.3865	2.6852	0.0000	2.6852			0.0000			0.0000
Off-Road	4.3615	42.3034	37.5344	0.0687		2.0865	2.0865		1.9553	1.9553	0.0000	6,573.2542	6,573.2542	1.6662		6,614.9084
Total	**4.3615**	**42.3034**	**37.5344**	**0.0687**	**6.3865**	**2.0865**	**8.4730**	**2.6852**	**1.9553**	**4.6405**	**0.0000**	**6,573.2542**	**6,573.2542**	**1.6662**		**6,614.9084**

3.3 Site Preparation and Initial Site Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0452	1.8660	0.3665	7.1100e-003	0.1994	0.0185	0.2179	0.0547	0.0177	0.0723		759.7032	759.7032	8.9400e-003	0.1197	795.6072
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0572	0.0399	0.5157	1.2500e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		127.3616	127.3616	4.3800e-003	3.6900e-003	128.5692
Total	**0.1024**	**1.9059**	**0.8822**	**8.3600e-003**	**0.3309**	**0.0194**	**0.3502**	**0.0895**	**0.0185**	**0.1080**		**887.0647**	**887.0647**	**0.0133**	**0.1234**	**924.1763**

3.4 Building Construction and System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9122	15.4427	17.0709	0.0296		0.7847	0.7847		0.7631	0.7631		2,747.0195	2,747.0195	0.3852		2,756.6492
Total	**1.9122**	**15.4427**	**17.0709**	**0.0296**		**0.7847**	**0.7847**		**0.7631**	**0.7631**		**2,747.0195**	**2,747.0195**	**0.3852**		**2,756.6492**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7300e-003	0.1170	0.0363	4.3000e-004	0.0136	1.2700e-003	0.0148	3.9000e-003	1.2200e-003	5.1200e-003		45.2977	45.2977	4.8000e-004	6.6600e-003	47.2936
Worker	0.0572	0.0399	0.5157	1.2500e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		127.3616	127.3616	4.3800e-003	3.6900e-003	128.5692
Total	**0.0619**	**0.1569**	**0.5520**	**1.6800e-003**	**0.1450**	**2.1500e-003**	**0.1471**	**0.0388**	**2.0300e-003**	**0.0408**		**172.6593**	**172.6593**	**4.8600e-003**	**0.0104**	**175.8627**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9122	15.4427	17.0709	0.0296		0.7847	0.7847		0.7631	0.7631	0.0000	2,747.0195	2,747.0195	0.3852		2,756.6492
Total	**1.9122**	**15.4427**	**17.0709**	**0.0296**		**0.7847**	**0.7847**		**0.7631**	**0.7631**	**0.0000**	**2,747.0195**	**2,747.0195**	**0.3852**		**2,756.6492**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7300e-003	0.1170	0.0363	4.3000e-004	0.0136	1.2700e-003	0.0148	3.9000e-003	1.2200e-003	5.1200e-003		45.2977	45.2977	4.8000e-004	6.6600e-003	47.2936
Worker	0.0572	0.0399	0.5157	1.2500e-003	0.1314	8.8000e-004	0.1323	0.0349	8.1000e-004	0.0357		127.3616	127.3616	4.3800e-003	3.6900e-003	128.5692
Total	**0.0619**	**0.1569**	**0.5520**	**1.6800e-003**	**0.1450**	**2.1500e-003**	**0.1471**	**0.0388**	**2.0300e-003**	**0.0408**		**172.6593**	**172.6593**	**4.8600e-003**	**0.0104**	**175.8627**

3.4 Building Construction and System Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7922	14.4471	16.9990	0.0296		0.6924	0.6924		0.6730	0.6730		2,747.0149	2,747.0149	0.3756		2,756.4056
Total	**1.7922**	**14.4471**	**16.9990**	**0.0296**		**0.6924**	**0.6924**		**0.6730**	**0.6730**		**2,747.0149**	**2,747.0149**	**0.3756**		**2,756.4056**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.0980	0.0317	4.1000e-004	0.0136	6.5000e-004	0.0142	3.9000e-003	6.2000e-004	4.5200e-003		43.8102	43.8102	3.9000e-004	6.4300e-003	45.7358
Worker	0.0531	0.0352	0.4715	1.2100e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		124.2231	124.2231	3.9200e-003	3.3900e-003	125.3309
Total	**0.0560**	**0.1332**	**0.5032**	**1.6200e-003**	**0.1450**	**1.4800e-003**	**0.1465**	**0.0388**	**1.3900e-003**	**0.0402**		**168.0333**	**168.0333**	**4.3100e-003**	**9.8200e-003**	**171.0667**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7922	14.4471	16.9990	0.0296		0.6924	0.6924		0.6730	0.6730	0.0000	2,747.0149	2,747.0149	0.3756		2,756.4056
Total	**1.7922**	**14.4471**	**16.9990**	**0.0296**		**0.6924**	**0.6924**		**0.6730**	**0.6730**	**0.0000**	**2,747.0149**	**2,747.0149**	**0.3756**		**2,756.4056**

3.4 Building Construction and System Installation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.0980	0.0317	4.1000e-004	0.0136	6.5000e-004	0.0142	3.9000e-003	6.2000e-004	4.5200e-003		43.8102	43.8102	3.9000e-004	6.4300e-003	45.7358
Worker	0.0531	0.0352	0.4715	1.2100e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		124.2231	124.2231	3.9200e-003	3.3900e-003	125.3309
Total	**0.0560**	**0.1332**	**0.5032**	**1.6200e-003**	**0.1450**	**1.4800e-003**	**0.1465**	**0.0388**	**1.3900e-003**	**0.0402**		**168.0333**	**168.0333**	**4.3100e-003**	**9.8200e-003**	**171.0667**

3.5 Paving and Aggregate Base Surfacing - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4571	34.5948	28.8541	0.0627		1.5308	1.5308		1.4280	1.4280		6,018.9881	6,018.9881	1.6553		6,060.3694
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.4571**	**34.5948**	**28.8541**	**0.0627**		**1.5308**	**1.5308**		**1.4280**	**1.4280**		**6,018.9881**	**6,018.9881**	**1.6553**		**6,060.3694**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving and Aggregate Base Surfacing - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.0980	0.0317	4.1000e-004	0.0136	6.5000e-004	0.0142	3.9000e-003	6.2000e-004	4.5200e-003		43.8102	43.8102	3.9000e-004	6.4300e-003	45.7358
Worker	0.0531	0.0352	0.4715	1.2100e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		124.2231	124.2231	3.9200e-003	3.3900e-003	125.3309
Total	**0.0560**	**0.1332**	**0.5032**	**1.6200e-003**	**0.1450**	**1.4800e-003**	**0.1465**	**0.0388**	**1.3900e-003**	**0.0402**		**168.0333**	**168.0333**	**4.3100e-003**	**9.8200e-003**	**171.0667**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4571	34.5948	28.8541	0.0627		1.5308	1.5308		1.4280	1.4280	0.0000	6,018.9881	6,018.9881	1.6553		6,060.3694
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.4571**	**34.5948**	**28.8541**	**0.0627**		**1.5308**	**1.5308**		**1.4280**	**1.4280**	**0.0000**	**6,018.9881**	**6,018.9881**	**1.6553**		**6,060.3694**

3.5 Paving and Aggregate Base Surfacing - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.0980	0.0317	4.1000e-004	0.0136	6.5000e-004	0.0142	3.9000e-003	6.2000e-004	4.5200e-003		43.8102	43.8102	3.9000e-004	6.4300e-003	45.7358
Worker	0.0531	0.0352	0.4715	1.2100e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		124.2231	124.2231	3.9200e-003	3.3900e-003	125.3309
Total	**0.0560**	**0.1332**	**0.5032**	**1.6200e-003**	**0.1450**	**1.4800e-003**	**0.1465**	**0.0388**	**1.3900e-003**	**0.0402**		**168.0333**	**168.0333**	**4.3100e-003**	**9.8200e-003**	**171.0667**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7261					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8779	7.3503	9.6371	0.0160		0.3675	0.3675		0.3580	0.3580		1,495.4984	1,495.4984	0.1910		1,500.2728
Total	**2.6040**	**7.3503**	**9.6371**	**0.0160**		**0.3675**	**0.3675**		**0.3580**	**0.3580**		**1,495.4984**	**1,495.4984**	**0.1910**		**1,500.2728**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0531	0.0352	0.4715	1.2100e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		124.2231	124.2231	3.9200e-003	3.3900e-003	125.3309
Total	**0.0531**	**0.0352**	**0.4715**	**1.2100e-003**	**0.1314**	**8.3000e-004**	**0.1323**	**0.0349**	**7.7000e-004**	**0.0356**		**124.2231**	**124.2231**	**3.9200e-003**	**3.3900e-003**	**125.3309**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.7261					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8779	7.3503	9.6371	0.0160		0.3675	0.3675		0.3580	0.3580	0.0000	1,495.4984	1,495.4984	0.1910		1,500.2728
Total	**2.6040**	**7.3503**	**9.6371**	**0.0160**		**0.3675**	**0.3675**		**0.3580**	**0.3580**	**0.0000**	**1,495.4984**	**1,495.4984**	**0.1910**		**1,500.2728**

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0531	0.0352	0.4715	1.2100e-003	0.1314	8.3000e-004	0.1323	0.0349	7.7000e-004	0.0356		124.2231	124.2231	3.9200e-003	3.3900e-003	125.3309
Total	**0.0531**	**0.0352**	**0.4715**	**1.2100e-003**	**0.1314**	**8.3000e-004**	**0.1323**	**0.0349**	**7.7000e-004**	**0.0356**		**124.2231**	**124.2231**	**3.9200e-003**	**3.3900e-003**	**125.3309**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0298	0.0250	0.2991	7.2000e-004	0.0664	4.7000e-004	0.0669	0.0176	4.3000e-004	0.0180		73.7989	73.7989	3.0000e-003	2.3200e-003	74.5643
Unmitigated	0.0298	0.0250	0.2991	7.2000e-004	0.0664	4.7000e-004	0.0669	0.0176	4.3000e-004	0.0180		73.7989	73.7989	3.0000e-003	2.3200e-003	74.5643

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	11.98	0.00	0.00	22,735	22,735
Total	11.98	0.00	0.00	22,735	22,735

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.666670	0.000000	0.333330	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0470	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Unmitigated	0.0470	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.0900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0399					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Total	**0.0470**	**0.0000**	**1.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.1000e-004**	**4.1000e-004**	**0.0000**		**4.3000e-004**

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.0900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0399					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	1.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.1000e-004	4.1000e-004	0.0000		4.3000e-004
Total	**0.0470**	**0.0000**	**1.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.1000e-004**	**4.1000e-004**	**0.0000**		**4.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

SqCWD 1,2,3 TCP WTP Construction and Operation - AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.86	1000sqft	0.27	1,862.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Size of project site

Construction Phase - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Off-road Equipment - Provided by Black and Veatch

Trips and VMT - 20 total one-way concrete trips for paving phase (2 one-way trips per day)

Grading -

Architectural Coating - MBARD Rule 426

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - Daily operator visits (260/yr) + weekly sodium hypochlorite deliveries (52/yr) + weekly site maintenance (52/yr) + GAC replacement (1/yr) = 1.07 trip/day

Area Coating -

Energy Use - No natural gas connections. Emissions from electricity calculated separately.

Water And Wastewater - No default outdoor water use rate - used outdoor water usage estimate for gasoline/service station as a proxy due to similar level of landscaping. 100% aerobic treatment.

Fleet Mix - 85.405% passenger trucks, 14.595% trucks for sodium hypochlorite delivery and Cr6 resin replacement

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	100.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	100.00	156.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	10.00
tblEnergyUse	LightingElect	2.99	0.00
tblEnergyUse	NT24E	3.36	0.00
tblEnergyUse	NT24NG	6.90	0.00
tblEnergyUse	T24E	1.08	0.00
tblEnergyUse	T24NG	17.67	0.00
tblFleetMix	HHD	9.1760e-003	0.00
tblFleetMix	LDA	0.51	0.00
tblFleetMix	LDT1	0.05	0.85
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.2080e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.15	0.15
tblFleetMix	MH	3.9560e-003	0.00

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	1.2290e-003	0.00
tblFleetMix	SBUS	1.3300e-003	0.00
tblFleetMix	UBUS	5.9400e-004	0.00
tblGrading	MaterialExported	0.00	410.00
tblGrading	MaterialImported	0.00	500.00
tblLandUse	LandUseSquareFeet	1,860.00	1,862.00
tblLandUse	LotAcreage	0.04	0.27
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	28.00	16.00
tblTripsAndVMT	WorkerTripNumber	43.00	16.00
tblTripsAndVMT	WorkerTripNumber	1.00	16.00
tblTripsAndVMT	WorkerTripNumber	33.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblVehicleTrips	CC_TTP	28.00	100.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.99	0.00
tblVehicleTrips	SU_TR	5.00	0.00

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	WD_TR	4.96	1.53
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	0.00	57,663.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1141	0.9554	1.0292	1.9000e-003	0.0399	0.0476	0.0875	0.0156	0.0459	0.0614	0.0000	162.5016	162.5016	0.0267	9.6000e-004	163.4546
2023	0.1038	0.7869	0.8876	1.6400e-003	6.8900e-003	0.0369	0.0438	1.8500e-003	0.0356	0.0374	0.0000	139.5902	139.5902	0.0220	4.3000e-004	140.2681
Maximum	**0.1141**	**0.9554**	**1.0292**	**1.9000e-003**	**0.0399**	**0.0476**	**0.0875**	**0.0156**	**0.0459**	**0.0614**	**0.0000**	**162.5016**	**162.5016**	**0.0267**	**9.6000e-004**	**163.4546**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1141	0.9554	1.0292	1.9000e-003	0.0399	0.0476	0.0875	0.0156	0.0459	0.0614	0.0000	162.5014	162.5014	0.0267	9.6000e-004	163.4545
2023	0.1038	0.7869	0.8876	1.6400e-003	6.8900e-003	0.0369	0.0438	1.8500e-003	0.0356	0.0374	0.0000	139.5900	139.5900	0.0220	4.3000e-004	140.2679
Maximum	**0.1141**	**0.9554**	**1.0292**	**1.9000e-003**	**0.0399**	**0.0476**	**0.0875**	**0.0156**	**0.0459**	**0.0614**	**0.0000**	**162.5014**	**162.5014**	**0.0267**	**9.6000e-004**	**163.4545**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**8-11-2022**	**11-10-2022**	0.7502	0.7502
2	**11-11-2022**	**2-10-2023**	0.5613	0.5613
3	**2-11-2023**	**5-10-2023**	0.6467	0.6467
		Highest	0.7502	0.7502

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.5700e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	8.1000e-004	8.2000e-004	8.7900e-003	2.0000e-005	1.9900e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.8594	1.8594	9.0000e-005	7.0000e-005	1.8813
Waste						0.0000	0.0000		0.0000	0.0000	0.4689	0.0000	0.4689	0.0277	0.0000	1.1617
Water						0.0000	0.0000		0.0000	0.0000	0.1522	0.2340	0.3862	5.6000e-004	3.4000e-004	0.5002
Total	**9.3800e-003**	**8.2000e-004**	**8.8100e-003**	**2.0000e-005**	**1.9900e-003**	**1.0000e-005**	**2.0000e-003**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**0.6211**	**2.0935**	**2.7145**	**0.0284**	**4.1000e-004**	**3.5432**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.5700e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	8.1000e-004	8.2000e-004	8.7900e-003	2.0000e-005	1.9900e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.8594	1.8594	9.0000e-005	7.0000e-005	1.8813
Waste						0.0000	0.0000		0.0000	0.0000	0.4689	0.0000	0.4689	0.0277	0.0000	1.1617
Water						0.0000	0.0000		0.0000	0.0000	0.1522	0.2340	0.3862	5.6000e-004	3.4000e-004	0.5002
Total	**9.3800e-003**	**8.2000e-004**	**8.8100e-003**	**2.0000e-005**	**1.9900e-003**	**1.0000e-005**	**2.0000e-003**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**0.6211**	**2.0935**	**2.7145**	**0.0284**	**4.1000e-004**	**3.5432**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/11/2022	8/31/2022	5	15	
2	Site Preparation and Initial Site Grading	Grading	9/1/2022	9/14/2022	5	10	
3	Building Construction and System Installation	Building Construction	9/15/2022	4/20/2023	5	156	

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving and Aggregate Base Surfacing	Paving	3/1/2023	3/14/2023	5	10	
5	Architectural Coating	Architectural Coating	4/6/2023	4/19/2023	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 17.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,793; Non-Residential Outdoor: 931; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Air Compressors	1	8.00	78	0.48
Demolition	Bore/Drill Rigs	1	8.00	221	0.50
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Dumpers/Tenders	1	8.00	16	0.38
Demolition	Excavators	1	8.00	158	0.38
Demolition	Forklifts	1	8.00	89	0.20
Demolition	Generator Sets	1	8.00	84	0.74
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Signal Boards	1	8.00	6	0.82
Demolition	Sweepers/Scrubbers	1	8.00	64	0.46
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation and Initial Site Grading	Air Compressors	1	8.00	78	0.48
Site Preparation and Initial Site Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation and Initial Site Grading	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation and Initial Site Grading	Excavators	1	8.00	158	0.38
Site Preparation and Initial Site Grading	Forklifts	1	8.00	89	0.20
Site Preparation and Initial Site Grading	Generator Sets	1	8.00	84	0.74
Site Preparation and Initial Site Grading	Graders	1	6.00	187	0.41

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Site Preparation and Initial Site Grading	Plate Compactors	1	8.00	8	0.43
Site Preparation and Initial Site Grading	Rollers	1	8.00	80	0.38
Site Preparation and Initial Site Grading	Rubber Tired Dozers	1	6.00	247	0.40
Site Preparation and Initial Site Grading	Scrapers	1	8.00	367	0.48
Site Preparation and Initial Site Grading	Signal Boards	1	8.00	6	0.82
Site Preparation and Initial Site Grading	Sweepers/Scrubbers	1	8.00	64	0.46
Site Preparation and Initial Site Grading	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Site Preparation and Initial Site Grading	Trenchers	1	8.00	78	0.50
Building Construction and System Installation	Aerial Lifts	1	8.00	63	0.31
Building Construction and System Installation	Air Compressors	1	8.00	78	0.48
Building Construction and System Installation	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction and System Installation	Cranes	1	4.00	231	0.29
Building Construction and System Installation	Dumpers/Tenders	1	8.00	16	0.38
Building Construction and System Installation	Forklifts	1	6.00	89	0.20
Building Construction and System Installation	Generator Sets	1	8.00	84	0.74
Building Construction and System Installation	Pressure Washers	1	8.00	13	0.30
Building Construction and System Installation	Signal Boards	1	8.00	6	0.82
Building Construction and System Installation	Sweepers/Scrubbers	1	8.00	64	0.46
Building Construction and System Installation	Welders	1	8.00	46	0.45
Paving and Aggregate Base Surfacing	Air Compressors	1	8.00	78	0.48
Paving and Aggregate Base Surfacing	Forklifts	1	8.00	89	0.20
Paving and Aggregate Base Surfacing	Generator Sets	1	8.00	84	0.74
Paving and Aggregate Base Surfacing	Graders	1	8.00	187	0.41
Paving and Aggregate Base Surfacing	Paving Equipment	1	8.00	132	0.36
Paving and Aggregate Base Surfacing	Plate Compactors	1	8.00	8	0.43
Paving and Aggregate Base Surfacing	Rollers	1	8.00	80	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving and Aggregate Base Surfacing	Rubber Tired Dozers	1	8.00	247	0.40
Paving and Aggregate Base Surfacing	Scrapers	1	8.00	367	0.48
Paving and Aggregate Base Surfacing	Signal Boards	1	8.00	6	0.82
Paving and Aggregate Base Surfacing	Surfacing Equipment	1	8.00	263	0.30
Paving and Aggregate Base Surfacing	Sweepers/Scrubbers	1	8.00	64	0.46
Paving and Aggregate Base Surfacing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Aerial Lifts	1	8.00	63	0.31
Architectural Coating	Air Compressors	1	8.00	78	0.48
Architectural Coating	Generator Sets	1	8.00	84	0.74
Architectural Coating	Pressure Washers	1	8.00	13	0.30
Architectural Coating	Signal Boards	1	8.00	6	0.82
Architectural Coating	Sweepers/Scrubbers	1	8.00	64	0.46

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	11	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation and Initial Site Grading	17	16.00	0.00	114.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction and System Installatio	11	16.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving and Aggregate Base Surfacing	13	16.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0154	0.1327	0.1560	3.0000e-004		6.8000e-003	6.8000e-003		6.5200e-003	6.5200e-003	0.0000	26.1154	26.1154	5.3700e-003	0.0000	26.2497
Total	**0.0154**	**0.1327**	**0.1560**	**3.0000e-004**		**6.8000e-003**	**6.8000e-003**		**6.5200e-003**	**6.5200e-003**	**0.0000**	**26.1154**	**26.1154**	**5.3700e-003**	**0.0000**	**26.2497**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.4000e-004	3.6700e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8231	0.8231	3.0000e-005	3.0000e-005	0.8320
Total	**4.2000e-004**	**3.4000e-004**	**3.6700e-003**	**1.0000e-005**	**9.5000e-004**	**1.0000e-005**	**9.6000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8231**	**0.8231**	**3.0000e-005**	**3.0000e-005**	**0.8320**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0154	0.1327	0.1560	3.0000e-004		6.8000e-003	6.8000e-003		6.5200e-003	6.5200e-003	0.0000	26.1154	26.1154	5.3700e-003	0.0000	26.2496
Total	**0.0154**	**0.1327**	**0.1560**	**3.0000e-004**		**6.8000e-003**	**6.8000e-003**		**6.5200e-003**	**6.5200e-003**	**0.0000**	**26.1154**	**26.1154**	**5.3700e-003**	**0.0000**	**26.2496**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.4000e-004	3.6700e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8231	0.8231	3.0000e-005	3.0000e-005	0.8320
Total	**4.2000e-004**	**3.4000e-004**	**3.6700e-003**	**1.0000e-005**	**9.5000e-004**	**1.0000e-005**	**9.6000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8231**	**0.8231**	**3.0000e-005**	**3.0000e-005**	**0.8320**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation and Initial Site Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0319	0.0000	0.0319	0.0134	0.0000	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0218	0.2115	0.1877	3.4000e-004		0.0104	0.0104		9.7800e-003	9.7800e-003	0.0000	29.8158	29.8158	7.5600e-003	0.0000	30.0047
Total	**0.0218**	**0.2115**	**0.1877**	**3.4000e-004**	**0.0319**	**0.0104**	**0.0424**	**0.0134**	**9.7800e-003**	**0.0232**	**0.0000**	**29.8158**	**29.8158**	**7.5600e-003**	**0.0000**	**30.0047**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	9.6800e-003	1.8500e-003	4.0000e-005	9.7000e-004	9.0000e-005	1.0600e-003	2.7000e-004	9.0000e-005	3.6000e-004	0.0000	3.4469	3.4469	4.0000e-005	5.4000e-004	3.6098
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.3000e-004	2.4500e-003	1.0000e-005	6.4000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5487	0.5487	2.0000e-005	2.0000e-005	0.5547
Total	**5.0000e-004**	**9.9100e-003**	**4.3000e-003**	**5.0000e-005**	**1.6100e-003**	**9.0000e-005**	**1.7000e-003**	**4.4000e-004**	**9.0000e-005**	**5.3000e-004**	**0.0000**	**3.9956**	**3.9956**	**6.0000e-005**	**5.6000e-004**	**4.1645**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation and Initial Site Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0319	0.0000	0.0319	0.0134	0.0000	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0218	0.2115	0.1877	3.4000e-004		0.0104	0.0104		9.7800e-003	9.7800e-003	0.0000	29.8157	29.8157	7.5600e-003	0.0000	30.0047
Total	**0.0218**	**0.2115**	**0.1877**	**3.4000e-004**	**0.0319**	**0.0104**	**0.0424**	**0.0134**	**9.7800e-003**	**0.0232**	**0.0000**	**29.8157**	**29.8157**	**7.5600e-003**	**0.0000**	**30.0047**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	9.6800e-003	1.8500e-003	4.0000e-005	9.7000e-004	9.0000e-005	1.0600e-003	2.7000e-004	9.0000e-005	3.6000e-004	0.0000	3.4469	3.4469	4.0000e-005	5.4000e-004	3.6098
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.3000e-004	2.4500e-003	1.0000e-005	6.4000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5487	0.5487	2.0000e-005	2.0000e-005	0.5547
Total	**5.0000e-004**	**9.9100e-003**	**4.3000e-003**	**5.0000e-005**	**1.6100e-003**	**9.0000e-005**	**1.7000e-003**	**4.4000e-004**	**9.0000e-005**	**5.3000e-004**	**0.0000**	**3.9956**	**3.9956**	**6.0000e-005**	**5.6000e-004**	**4.1645**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0736	0.5945	0.6572	1.1400e-003		0.0302	0.0302		0.0294	0.0294	0.0000	95.9441	95.9441	0.0135	0.0000	96.2804
Total	**0.0736**	**0.5945**	**0.6572**	**1.1400e-003**		**0.0302**	**0.0302**		**0.0294**	**0.0294**	**0.0000**	**95.9441**	**95.9441**	**0.0135**	**0.0000**	**96.2804**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	4.6700e-003	1.4200e-003	2.0000e-005	5.1000e-004	5.0000e-005	5.6000e-004	1.5000e-004	5.0000e-005	1.9000e-004	0.0000	1.5827	1.5827	2.0000e-005	2.3000e-004	1.6525
Worker	2.1700e-003	1.7500e-003	0.0189	5.0000e-005	4.9000e-003	3.0000e-005	4.9300e-003	1.3000e-003	3.0000e-005	1.3300e-003	0.0000	4.2250	4.2250	1.6000e-004	1.4000e-004	4.2709
Total	**2.3500e-003**	**6.4200e-003**	**0.0203**	**7.0000e-005**	**5.4100e-003**	**8.0000e-005**	**5.4900e-003**	**1.4500e-003**	**8.0000e-005**	**1.5200e-003**	**0.0000**	**5.8076**	**5.8076**	**1.8000e-004**	**3.7000e-004**	**5.9234**

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0736	0.5945	0.6572	1.1400e-003		0.0302	0.0302		0.0294	0.0294	0.0000	95.9440	95.9440	0.0135	0.0000	96.2803
Total	**0.0736**	**0.5945**	**0.6572**	**1.1400e-003**		**0.0302**	**0.0302**		**0.0294**	**0.0294**	**0.0000**	**95.9440**	**95.9440**	**0.0135**	**0.0000**	**96.2803**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	4.6700e-003	1.4200e-003	2.0000e-005	5.1000e-004	5.0000e-005	5.6000e-004	1.5000e-004	5.0000e-005	1.9000e-004	0.0000	1.5827	1.5827	2.0000e-005	2.3000e-004	1.6525
Worker	2.1700e-003	1.7500e-003	0.0189	5.0000e-005	4.9000e-003	3.0000e-005	4.9300e-003	1.3000e-003	3.0000e-005	1.3300e-003	0.0000	4.2250	4.2250	1.6000e-004	1.4000e-004	4.2709
Total	**2.3500e-003**	**6.4200e-003**	**0.0203**	**7.0000e-005**	**5.4100e-003**	**8.0000e-005**	**5.4900e-003**	**1.4500e-003**	**8.0000e-005**	**1.5200e-003**	**0.0000**	**5.8076**	**5.8076**	**1.8000e-004**	**3.7000e-004**	**5.9234**

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0708	0.5707	0.6715	1.1700e-003		0.0274	0.0274		0.0266	0.0266	0.0000	98.4360	98.4360	0.0135	0.0000	98.7725
Total	**0.0708**	**0.5707**	**0.6715**	**1.1700e-003**		**0.0274**	**0.0274**		**0.0266**	**0.0266**	**0.0000**	**98.4360**	**98.4360**	**0.0135**	**0.0000**	**98.7725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.0200e-003	1.2700e-003	2.0000e-005	5.2000e-004	3.0000e-005	5.5000e-004	1.5000e-004	2.0000e-005	1.8000e-004	0.0000	1.5711	1.5711	1.0000e-005	2.3000e-004	1.6402
Worker	2.0600e-003	1.5800e-003	0.0177	5.0000e-005	5.0300e-003	3.0000e-005	5.0600e-003	1.3400e-003	3.0000e-005	1.3700e-003	0.0000	4.2286	4.2286	1.5000e-004	1.3000e-004	4.2718
Total	**2.1700e-003**	**5.6000e-003**	**0.0190**	**7.0000e-005**	**5.5500e-003**	**6.0000e-005**	**5.6100e-003**	**1.4900e-003**	**5.0000e-005**	**1.5500e-003**	**0.0000**	**5.7997**	**5.7997**	**1.6000e-004**	**3.6000e-004**	**5.9120**

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction and System Installation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0708	0.5707	0.6715	1.1700e-003		0.0274	0.0274		0.0266	0.0266	0.0000	98.4359	98.4359	0.0135	0.0000	98.7724
Total	**0.0708**	**0.5707**	**0.6715**	**1.1700e-003**		**0.0274**	**0.0274**		**0.0266**	**0.0266**	**0.0000**	**98.4359**	**98.4359**	**0.0135**	**0.0000**	**98.7724**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	4.0200e-003	1.2700e-003	2.0000e-005	5.2000e-004	3.0000e-005	5.5000e-004	1.5000e-004	2.0000e-005	1.8000e-004	0.0000	1.5711	1.5711	1.0000e-005	2.3000e-004	1.6402
Worker	2.0600e-003	1.5800e-003	0.0177	5.0000e-005	5.0300e-003	3.0000e-005	5.0600e-003	1.3400e-003	3.0000e-005	1.3700e-003	0.0000	4.2286	4.2286	1.5000e-004	1.3000e-004	4.2718
Total	**2.1700e-003**	**5.6000e-003**	**0.0190**	**7.0000e-005**	**5.5500e-003**	**6.0000e-005**	**5.6100e-003**	**1.4900e-003**	**5.0000e-005**	**1.5500e-003**	**0.0000**	**5.7997**	**5.7997**	**1.6000e-004**	**3.6000e-004**	**5.9120**

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving and Aggregate Base Surfacing - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0173	0.1730	0.1443	3.1000e-004		7.6500e-003	7.6500e-003		7.1400e-003	7.1400e-003	0.0000	27.3017	27.3017	7.5100e-003	0.0000	27.4894
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1730**	**0.1443**	**3.1000e-004**		**7.6500e-003**	**7.6500e-003**		**7.1400e-003**	**7.1400e-003**	**0.0000**	**27.3017**	**27.3017**	**7.5100e-003**	**0.0000**	**27.4894**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	5.1000e-004	1.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1989	0.1989	0.0000	3.0000e-005	0.2076
Worker	2.6000e-004	2.0000e-004	2.2400e-003	1.0000e-005	6.4000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5353	0.5353	2.0000e-005	2.0000e-005	0.5407
Total	**2.7000e-004**	**7.1000e-004**	**2.4000e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.7341**	**0.7341**	**2.0000e-005**	**5.0000e-005**	**0.7484**

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving and Aggregate Base Surfacing - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0173	0.1730	0.1443	3.1000e-004		7.6500e-003	7.6500e-003		7.1400e-003	7.1400e-003	0.0000	27.3016	27.3016	7.5100e-003	0.0000	27.4893
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1730**	**0.1443**	**3.1000e-004**		**7.6500e-003**	**7.6500e-003**		**7.1400e-003**	**7.1400e-003**	**0.0000**	**27.3016**	**27.3016**	**7.5100e-003**	**0.0000**	**27.4893**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	5.1000e-004	1.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1989	0.1989	0.0000	3.0000e-005	0.2076
Worker	2.6000e-004	2.0000e-004	2.2400e-003	1.0000e-005	6.4000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5353	0.5353	2.0000e-005	2.0000e-005	0.5407
Total	**2.7000e-004**	**7.1000e-004**	**2.4000e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.1000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.7341**	**0.7341**	**2.0000e-005**	**5.0000e-005**	**0.7484**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.6300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3900e-003	0.0368	0.0482	8.0000e-005		1.8400e-003	1.8400e-003		1.7900e-003	1.7900e-003	0.0000	6.7835	6.7835	8.7000e-004	0.0000	6.8051
Total	**0.0130**	**0.0368**	**0.0482**	**8.0000e-005**		**1.8400e-003**	**1.8400e-003**		**1.7900e-003**	**1.7900e-003**	**0.0000**	**6.7835**	**6.7835**	**8.7000e-004**	**0.0000**	**6.8051**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	2.0000e-004	2.2400e-003	1.0000e-005	6.4000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5353	0.5353	2.0000e-005	2.0000e-005	0.5407
Total	**2.6000e-004**	**2.0000e-004**	**2.2400e-003**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5353**	**0.5353**	**2.0000e-005**	**2.0000e-005**	**0.5407**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.6300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3900e-003	0.0368	0.0482	8.0000e-005		1.8400e-003	1.8400e-003		1.7900e-003	1.7900e-003	0.0000	6.7835	6.7835	8.7000e-004	0.0000	6.8051
Total	**0.0130**	**0.0368**	**0.0482**	**8.0000e-005**		**1.8400e-003**	**1.8400e-003**		**1.7900e-003**	**1.7900e-003**	**0.0000**	**6.7835**	**6.7835**	**8.7000e-004**	**0.0000**	**6.8051**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	2.0000e-004	2.2400e-003	1.0000e-005	6.4000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5353	0.5353	2.0000e-005	2.0000e-005	0.5407
Total	**2.6000e-004**	**2.0000e-004**	**2.2400e-003**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5353**	**0.5353**	**2.0000e-005**	**2.0000e-005**	**0.5407**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.1000e-004	8.2000e-004	8.7900e-003	2.0000e-005	1.9900e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.8594	1.8594	9.0000e-005	7.0000e-005	1.8813
Unmitigated	8.1000e-004	8.2000e-004	8.7900e-003	2.0000e-005	1.9900e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.8594	1.8594	9.0000e-005	7.0000e-005	1.8813

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	2.85	0.00	0.00	5,401	5,401
Total	2.85	0.00	0.00	5,401	5,401

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.854050	0.000000	0.145950	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

SqCWD 1,2,3 TCP WTP Construction and Operation - GHG - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.5700e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Unmitigated	8.5700e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	**8.5600e-003**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	**8.5600e-003**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.3862	5.6000e-004	3.4000e-004	0.5002
Unmitigated	0.3862	5.6000e-004	3.4000e-004	0.5002

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.430125 / 0.057663	0.3862	5.6000e-004	3.4000e-004	0.5002
Total		**0.3862**	**5.6000e-004**	**3.4000e-004**	**0.5002**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.430125 / 0.057663	0.3862	5.6000e-004	3.4000e-004	0.5002
Total		**0.3862**	**5.6000e-004**	**3.4000e-004**	**0.5002**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.4689	0.0277	0.0000	1.1617
Unmitigated	0.4689	0.0277	0.0000	1.1617

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2.31	0.4689	0.0277	0.0000	1.1617
Total		**0.4689**	**0.0277**	**0.0000**	**1.1617**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2.31	0.4689	0.0277	0.0000	1.1617
Total		**0.4689**	**0.0277**	**0.0000**	**1.1617**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SqCWD Country Club Replacement Well and 1,2,3-TCP Water Treatment Plant

Electricity GHG Emissions Estimation Tool

Total Estimated Electricity Usage (MWh)
191

GHG Emission Calculations

	UTILITY		CO_2e Conversion Calculations	
	Energy Intensity Factor (lbs/MWh)	Emissions (lbs)	Total CO_2e Emissions (lbs)	Total CO_2e Emissions (MT)
CO_2	203.98	38,960	38,960	18
CH_4	0.033	6	158	0
N_2O	0.004	1	228	0
			TOTAL GHG EMISSIONS FROM ELECTRICITY	**18**

Notes

- MWh = megawatt-hours; lbs = pounds; CO_2 = carbon dioxide, CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; MT = metric tons; IPCC = Intergovernmental Panel on Climate Change; CARB = California Air Resources Board

- Energy intensity factors for EPG&E based on CalEEMod default values.

Appendix C

Biological Resources Assessment

Rincon Consultants, Inc.

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August 31, 2021
Project No. 20-10173

Michael Wilson, P.E., Associate Engineer
Soquel Creek Water District
5180 Soquel Drive
Soquel, California 95073
Via email: michaelw@soquelcreekwater.org

Subject: Biological Resources Assessment for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project at 251 Baltusrol Drive, Aptos, Santa Cruz County, California 95003

Dear Mr. Wilson:

This report documents the findings of a biological resources assessment (BRA) conducted by Rincon Consultants, Inc. (Rincon) for the Soquel Creek Water District (SqCWD) Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project) in Aptos, Santa Cruz County, California. The purpose of this report is to document existing conditions at the project site and to evaluate the potential for impacts to special-status biological resources in compliance with SqCWD's (the lead agency) and the County of Santa Cruz's (a responsible agency and land use permitting agency) California Environmental Quality Act (CEQA) environmental review requirements.

Project Location and Description

The project site consists of Assessor's Parcel Number 053-221-11 and is located at 251 Baltusrol Drive in the northeast corner of the town of Aptos in unincorporated Santa Cruz County on the northeast side of the Monterey Bay (Attachment 1, Figure 1). The study area is west of State Route (SR) 1. The study area is adjacent to single-family residences to the north, east, and south and Baltusrol Drive to the west. Additional single-family residences are located immediately to the west across Baltusrol Drive. The study area is approximately 0.27 acre. The larger community surrounding the project site consists of a single-family residential neighborhood. In the northeast corner of the site is the existing SqCWD Country Club well. The remainder of the site is undeveloped with ruderal vegetation and landscaping hedges along the chain-link fence surrounding the well.

The proposed project consists of a replacement well for the existing Country Club well, a 1,2,3-trichloropropane removal water treatment plant (hereafter referred to as "water treatment plant"), and associated on-site and off-site improvements. The replacement well would be located on the western portion of the project site and would have an aboveground discharge manifold and be surrounded by removable bollards. The replacement well would connect to the water treatment plant via piping under the on-site driveway. The water treatment plant would consist of a granular activated carbon (GAC) adsorption treatment plant located in a building that would also have space reserved for single-use anion exchange to treat hexavalent chromium, if necessary. The project would include re-paving the existing driveway on the northwestern corner of the project site and construction of a new driveway on the southwestern corner of the project site. The majority of the site would be covered with Class II aggregate base surfacing. A new perimeter fence would be installed around the entirety of the project

site, and a retaining wall would be constructed along the southern boundary of the project site if needed to raise the elevation of the site along this boundary. Additional below-grade pipelines would be installed on the site to connect the existing and replacement wells to the water treatment plant. The antenna on the existing well pump enclosure would potentially be replaced if radio transmission is working poorly, and the replacement antenna may taller in height than the existing antenna. The replacement antenna would be placed out in the open on or near the pump enclosure for the replacement well or on the proposed water treatment plant. The proposed project would also include construction of sewer lateral connections from the chorine analyzer in the replacement well pump enclosure and the restroom in the proposed water treatment plant to the Santa Cruz County Sanitation District's existing sewer main line in Baltusrol Drive immediately adjacent to the project site. A storm water retention system will retain the site's stormwater with an on-site retention pipe in the lower driveway sized in accordance with County of Santa Cruz design requirements. The remaining stormwater runoff would flow onto Baltusrol Drive and ultimately enter the existing storm drain approximately 1,000 feet south of the project site.

Construction equipment would be staged on site and potentially at the Seascape Golf Club along the western side of Clubhouse Drive, approximately 0.2 mile to the south of the project site. Construction worker parking would occur on the project site and along its frontage on Baltusrol Drive. Vehicles that cannot be accommodated on the project site or along its frontage would be parked at off-site locations, such as nearby parking lots and vacant disturbed areas, that would be secured by the construction contractor(s). Construction may require the removal of three pepper trees, one black walnut tree, and four coast live oak saplings on site. Project construction would require groundwater pumping activities during well development, which would produce approximately 1.5 million gallons of water. Produced water would be placed in baker tanks on site to settle out solids, then disposed of via the existing pump-to-waste pipeline that discharges to Bush Gulch (approximately 400 feet to the east of the project site), which eventually discharges to the Pacific Ocean at a point approximately 0.7 mile south of the project site. During start-up and testing of the water treatment plant, water used for testing and initial backwashing of the GAC vessels would be routed to on-site baker tanks to settle out solids, dechlorinate, and reduce turbidity prior to being disposed of via the existing pump-to-waste pipeline that discharges to Bush Gulch. All water discharged to Bush Gulch would comply with SqCWD's existing National Pollutant Discharge Elimination System (NPDES) permit requirements (Order WQ 2014-0194-DWQ, General Order No. CAG14001, Waste Discharge Identification Number 4DW0118).[1]

For the purposes of this report, the study area encompasses the project site, the small area in the right-of-way of Baltusrol Drive immediately adjacent to the project where the proposed sewer connection would be installed, and the potential construction staging area at the Seascape Golf Club.

Regulatory Background

Regulatory authority over biological resources is shared by federal, State, and local authorities under a variety of statutes and guidelines. Primary authority for general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the County of Santa Cruz). The California Department of Fish and Wildlife (CDFW) is a trustee agency for biological resources throughout the State under CEQA and also has direct jurisdiction under the California Fish and Game Code (CFGC). Under the California and federal Endangered Species Acts (CESA/ESA), the CDFW and the United States Fish and Wildlife Service (USFWS) also have direct regulatory authority over species

[1] The existing statewide NPDES permit under which SqCWD has coverage is formally expired; however, the SWRCB has indicated that until the statewide NPDES permit is renewed, SqCWD's existing permit is administratively extended and continues to be in effect.

formally listed as threatened or endangered and species protected by the Migratory Bird Treaty Act (MBTA). SqCWD is the designated lead agency under CEQA for this project, and the County of Santa Cruz is a responsible agency with local land use permitting authority over the project because it is located in the Coastal Zone.[2]

County of Santa Cruz General Plan and Local Coastal Program

The County of Santa Cruz General Plan and Local Coastal Program (LCP) provides the following objective and policies to protect biological resources (County of Santa Cruz 1994).

Objective 5.1 Biological Diversity

To maintain the biological diversity of the County through an integrated program of open space acquisition and protection, identification and protection of plant habitat and wildlife corridors and habitats, low-intensity and resource compatible land uses in sensitive habitats and mitigations on projects and resource extraction to reduce impacts on plant and animal life.

- **Policy 5.1.2. Definition of Sensitive Habitat.** An area is defined as a sensitive habitat if it meets one or more of the following criteria:
  - (a) Areas of special biological significance as identified by the State Water Resources Control Board.
  - (b) Areas which provide habitat for locally unique biotic species/communities, including coastal scrub, maritime chaparral, native rhododendrons and associated Elkgrass, mapped grasslands in the Coastal Zone, and sand parkland; and Special Forests including San Andreas Coast Live Oak Woodlands, Valley Oak, Santa Cruz Cypress, indigenous Ponderosa Pine, indigenous Monterey Pine and ancient forests.
  - (c) Areas adjacent to essential habitats of rare, endangered or threatened species as defined by (e) and (f) below.
  - (d) Areas which provide habitat for Species of Special Concern as listed by the California Department of Fish and Game in Special Animals list, Natural Diversity Database.
  - (e) Areas which provide habitat for rare or endangered species which meet the definition of Section 15380 of the California Environmental Quality Act.
  - (f) Areas which provide habitat for rare, endangered or threatened species as designated by the State Fish and Game Commission, United States Fish and Wildlife Service, or California Native Plant Society.
  - (g) Nearshore reefs, rocky intertidal areas, seacaves, islets, offshore rocks, kelp beds, marine mammal hauling grounds, sandy beaches, shorebird roosting, resting and nesting areas, cliff nesting areas and marine, wildlife or educational/research reserves.
  - (h) Dune plant habitats.
  - (i) All lakes, wetlands, estuaries, lagoons, streams and rivers.
  - (j) Riparian corridors.

[2] Per California Government Code 53091, building and zoning ordinances of a county or a city do not apply to the location or construction of facilities for the production, generation, storage, or transmission of water. However, because the proposed project components are located in the Coastal Zone, the land use and zoning requirements of the County's Local Coastal Program are applicable because these requirements represent the County's local authority to implement state requirements under the Coastal Act as delegated by the California Coastal Commission.

- **Policy 5.1.6. Development Within Sensitive Habitats.** Sensitive Habitats shall be protected against a significant disruption of habitat values; and any proposed development within or adjacent to these areas must maintain or enhance functional capacity of the habitat. Reduce in scale, redesign, or if no other alternative exists, deny any project which cannot sufficiently mitigate significant adverse impacts on sensitive habitats unless approval of project is legally necessary to allow a reasonable use of the land.
- **Policy 5.1.10 Species Protection.** Recognize that habitat protection is only one aspect of maintaining biodiversity and that certain wildlife species, such as migratory birds, may not utilize specific habitats. Require protection of these individual rare, endangered and threatened species and continue to update policies as new information becomes available.

Santa Cruz County Code

Chapter 16.32 (Sensitive Habitat Protection)

The County of Santa Cruz Sensitive Habitat Protection Ordinance (Santa Cruz County Code Chapter 16.32) is intended to "minimize the disturbance of biotic communities which are rare or especially valuable because of their special nature or role in an ecosystem, and which could be easily disturbed or degraded by human activity." Under the Santa Cruz County Code, sensitive habitats (as defined above under Policy 5.1.2 of the Santa Cruz General Plan and LCP) relevant to the project include areas that provide habitat for locally unique biotic species/communities, such as oak woodlands and coastal scrub; areas adjacent to essential habitats of rare, endangered or threatened species, or other rare species considered under CEQA; and dunes, wetlands, lagoons, rivers, and riparian corridors.

Santa Cruz County Code Section 16.32.090(B)(1) requires all development to mitigate significant environmental impacts to sensitive habitats. The ordinance also calls for protection of sensitive habitats that would not be disturbed by the proposed development activity and/or sensitive habitats on adjacent parcels through measures such as conservation easements or open space dedications. Additionally, restoration commensurate with the scale of the proposed development is required for degradation of sensitive habitats caused by a project. Exemptions to this ordinance may be granted concurrently with authorized riparian exceptions.

Chapter 16.34 (Significant Trees Protection)

Santa Cruz County Code Chapter 16.34 (Significant Trees Protection) requires a significant tree removal permit for the removal or pruning of more than one-third of the green foliage of a significant tree or the killing or destruction of a significant tree within the Coastal Zone. A significant tree is defined as:

- Within the urban services line or rural services line, any tree that is equal to or greater than 20 inches diameter at breast height (DBH); any sprout clump of five or more stems each of which is greater than 12 inches DBH; or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches DBH.
- Outside the urban services or rural services line, where visible from a scenic road, any beach, or within a designated scenic resource area, any tree that is equal to or greater than 40 inches DBH; any sprout clump of five or more stems, each of which is greater than 20 inches DBH; or any group consisting of 10 or more trees on one parcel, each greater than 20 inches DBH.
- Any tree located in a sensitive habitat as defined in Santa Cruz County Code Chapter 16.32.

Pursuant to Santa Cruz County Code Section 16.34.090(C), any tree removal authorized pursuant to a valid discretionary permit approved pursuant to Santa Cruz County Code Chapter 13.10 (Zoning Regulations), Chapter 13.20 (Coastal Zone Regulations), Chapter 14.01 (Subdivision Regulations), Chapter 16.20 (Grading Regulations), Chapter 16.22 (Erosion Control), Chapter 16.30 (Riparian Corridor and Wetlands Protection), Chapter 16.32 (Sensitive Habitat Protection), or Chapter 16.54 (Mining Regulations) is exempt from the provisions of Chapter 16.34 (Significant Trees Protection).

Methods

This biological resources assessment consisted of a review of relevant literature and background information, a reconnaissance-level field survey to confirm existing conditions and determine which biological resources are present or may occur in the study area, and an evaluation of the proposed project to determine potentially significant impacts to biological resources under CEQA. The potential presence of special-status species is based on the literature review and a survey designed to map vegetation communities and assess habitat suitability and presence of target species. The study area evaluated for this biological resource assessment is defined as the limits of the subject parcel as well as a small portion of Baltusrol Drive immediately adjacent to the parcel where the proposed sewer connection would be installed (Attachment 2, Figure 2).

Literature Review

The literature review included database research on special-status resource occurrences within the *Soquel, California* 7.5-minute United States Geological Survey quadrangle and six surrounding quadrangles. Sources included the CDFW California Natural Diversity Data Base (CNDDB; CDFW 2021a), Biogeographic Information and Observation System (BIOS; CDFW 2021b), USFWS Information for Planning and Consultation (IPaC; USWFS 2021a), and USFWS Critical Habitat Portal (USWFS 2021b). Other resources reviewed included the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California (CNPS 2021), CDFW's Special Animals List (CDFW 2021c), and CDFW's Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2021d). Aerial photographs, topographic maps, soil survey maps, geologic maps, and climatic data in the area were also examined.

Field Survey

A reconnaissance-level site visit was conducted to assess the habitat suitability for potential special-status species; map existing vegetation communities and evident special status biological resources currently on site; note the presence of potential jurisdictional waters or wetlands; document wildlife connectivity/movement features; and record observations of plant and wildlife species within the study area. Site photos from the survey are included as Attachment 2.

Existing Conditions

Topography and Soils

The site's elevation is roughly 135 feet above mean sea level. The topography of the study area and its immediate surroundings is generally flat and has been previously graded and compacted in conjunction with existing development. The site is located in coastal Santa Cruz County. Based on the most recent

soil survey for Santa Cruz County, the study area contains one soil map unit (United States Department of Agriculture 1980):

- **Elkhorn sandy loam, 2 to 9 percent slopes**: Occurs on old alluvial fans and marine terraces. This soil type is derived from Alluvium derived from mixed rock sources. A typical soil profile consists of a sandy loam to 12 inches. This soil type is well drained and is included on the hydric soils list.

Vegetation

No natural vegetation communities exist within the study area. Vegetation within the study area is landscaped and regularly maintained with a lawn and trees planted along the edges of the site. The lawn is comprised of largely ornamental non-native species, including wild oat (*Avena* sp.), English plantain (*Plantago lanceolata*), and foxtail barley (*Hordeum murinum*) with some native California poppy (*Eschscholzia californica*).

Trees observed within the study area include black walnut (*Juglans sp.*), Peruvian pepper (*Schinus mole*) and coast live oak (*Quercus agrifolia*) saplings with English ivy (*Hedera helix*), Bermuda buttercup (*Oxalis pes-caprae*), golden bamboo (*Phyllostachys aurea*), and periwinkle (*Vinca major*) in the understory. The parcels surrounding the study area contain ornamental plantings including magnolia (*Magnolia grandiflora*), Peruvian pepper tree, and coast live oak.

General Wildlife

The study area and its surroundings provide habitat for wildlife species that commonly occur in urban habitats such as house finch (*Haemorhous mexicanus*), Botta's pocket gopher (*Thomomys bottae*), and California scrub jay (*Aphelocoma californica*). However, the site is regularly maintained and therefore only provides marginal habitat for urban wildlife such as Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and fox squirrel (*Sciurus niger*).

Special-Status Biological Resources

This section discusses special-status biological resources observed in the study area and evaluates the potential for the study area to support special-status biological resources.

Special-Status Species

Local, State, and federal agencies regulate special-status species and may require an assessment of their presence or potential presence to be conducted prior to the approval of proposed development on a property. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB for other sites in the vicinity of the study area, and previous reports for the study area. The potential for each special-status species to occur in the study area was evaluated according to the following criteria:

- **Not Expected.** Habitat on and adjacent to the site is clearly unsuitable for the species' requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species' requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

- **Moderate Potential.** Some of the habitat components meeting the species' requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species' requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last five years).

For the purpose of this report, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS under the ESA; those listed or candidates for listing as Rare, Threatened, or Endangered under the CESA or Native Plant Protection Act; those identified as Fully Protected by CFGC Sections 3511, 4700, 5050, and 5515; those identified as Species of Special Concern (SSC) by the CDFW; and plants occurring on lists 1 and 2 of the CNPS California Rare Plant Rank (CRPR) system pursuant the following definitions:

- **Rank 1A** = Plants presumed extinct in California
- **Rank 1B.1** = Rare or endangered in California and elsewhere; seriously endangered in California (over 80 percent of occurrences are threatened and/or experience a high degree and immediacy of threat)
- **Rank 1B.2** = Rare or endangered in California and elsewhere; fairly endangered in California (20 to 80 percent of occurrences are threatened);
- **Rank 1B.3** = Rare or endangered in California and elsewhere; not very endangered in California (less than 20 percent of occurrences are threatened or no current threats are known);
- **Rank 2** = Rare, threatened or endangered in California, but more common elsewhere.

Based on a query of the CNDDB, there are 48 special-status plant species and 35 special-status wildlife species documented within the *Soquel, California* 7.5-minute United States Geological Survey quadrangle and six surrounding quadrangles. All 83 special-status species have been evaluated for potential to occur within the study area (Attachment 3).

Special-Status Plant Species

No special-status plant species were incidentally observed during the reconnaissance-level field survey. The reconnaissance survey was conducted in April 2021 during the spring blooming period when many species are identifiable. Based on the developed nature of the site, lack of natural vegetation communities, and habitat requirements of special-status plant species, none of 48 special-status plant species known to occur in the region were determined to have the potential to occur on site (see Attachment 3).

Special-Status Wildlife Species

No federal or State-listed or other special-status wildlife species were incidentally observed during the field survey. Of the 35 species evaluated, Rincon determined that pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*), both of which are SSC but are not endangered or threatened under the ESA and CESA, have a moderate potential to occur in the study area (see Attachment 3). Santa Cruz long-toed salamander, which is listed as endangered under the ESA, has a

high potential to occur in Bush Gulch, which is approximately 400 feet to the east of the project site. No other special-status species are expected to occur in the study area due to a lack of species-specific habitat requirements on site and the overall lack of suitable habitat, such as natural vegetation communities or natural wetland habitats (e.g., marshes or seeps). The study area is relatively small and isolated from any natural habitats by existing development. As such, it does not support a prey base for larger predators/raptors and lacks connectivity to regional populations of special-status species.

Nesting Birds

The study area contains suitable nesting habitat for resident and migratory birds. Birds may nest in trees, shrubs, or directly on the ground. The study area contains suitable nesting habitat for a variety of native avian species common to urban areas, including northern mockingbird (*Mimus polyglottos*), American crow (*Corvus brachyrhynchos*), house finch, and black phoebe (*Sayornis nigricans*). Native bird nests are protected by the MBTA and CFGC Section 3503. The nesting season generally extends from February through August but can vary based upon annual climatic conditions.

Roosting Bats

Pallid bat and Townsend's big-eared bat are State SSC and have a moderate potential to occur on the project site. Observances of the pallid bat and Townsend's big-eared bat have been recorded within five miles of the project site (CDFW 2021b). Pallid bats are found in grasslands, shrublands, woodlands, and forests and may roost in trees or buildings. Townsend's big-eared bat are found in a wide variety of habitats and may roost in abandoned buildings or large trees. Bats prefer open areas outside of tree canopy or open areas under a tree canopy for foraging and often roost near water. Although the project site is surrounded by existing development on all four sides, potential roosting and foraging habitat is present on and adjacent to the project site. Thus, there is a moderate potential for these two species to roost in trees and existing well pump enclosure on the project site.

Special-Status Vegetation Communities

Plant communities are also considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW classifies sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in the CNDDB. CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010, as referenced in CDFW 2020e) methodology, and those alliances ranked globally (G) or statewide (S) as 1 through 3a re considered to be sensitive. Some alliances with the ranks of 4 or 5 have also been included in the 2018 sensitive natural communities list under CDFW's revised ranking methodology (CDFW 2020e). Based on the CDFW's current list, no special-status vegetation communities are present in the study area.

Jurisdictional Waters and Wetlands

No potentially jurisdictional features occur in the study area.

Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations or those populations that are at risk of becoming isolated. Such linkages may serve a local purpose, such as

providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network. The study area is not within any Essential Connectivity Areas or Natural Landscape Blocks (CDFW 2021b). Additionally, the study area is surrounded by existing development and does not provide connectivity opportunities for local wildlife movement.

Impact Analysis and Mitigation Measures

This section discusses the potential impacts and effects to biological resources that may occur from implementation of the proposed project and recommends mitigation measures that would reduce those impacts where applicable.

Special-Status Species

The proposed project would have a significant effect on biological resources if it would:

(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Special-Status Plants

Direct impacts to special-status plant species typically occur due to removal of individuals or crushing by heavy equipment if they are present in a project's disturbance footprint. Given the developed nature of the study area and existing surrounding development and the lack of potential for special-status plant species to occur, the project would not result in adverse effects to special-status plant species. Impacts would be less than significant.

Special-Status Wildlife

Bush Gulch, located approximately 400 feet to the east of the project site, has a high potential for Santa Cruz long toed salamander. During well development and startup/testing, groundwater would be produced, which would be placed in baker tanks to settle out solids. Groundwater would then be disposed of via SqCWD's existing pump-to-waste pipeline that discharges to Bush Gulch. All water discharged to Bush Gulch would be required to comply with SqCWD's existing NPDES permit (Order WQ 2014-0194-DWQ, General Order No. CAG14001, Waste Discharge Identification Number 4DW0118), which includes requirements for effluent and receiving water limitations and implementation of best management practices to minimize sediment discharge, turbidity, and color impacts. Therefore, this groundwater discharge would not result in a significant impact to the Santa Cruz long-toed salamander.

The site and immediately surrounding area contain nesting bird habitat and has moderate potential for roosting bat habitat. If nesting birds protected by the CFGC or MBTA or bat maternity colonies protected by the CFGC are present on or near the site during construction, direct effects could include injury or mortality from construction activity, and indirect effects could include nest and roost abandonment from construction noise, dust, and other project activities. Therefore, impacts to special status bat species would be potentially significant, and implementation of Measure BIO-1 is recommended as mitigation for project impacts. The loss of active bird nests would be a violation of the MBTA and CFGC

Sections 3503 and 3513; however, the loss of common avian species does not constitute a significant impact under CEQA. Nevertheless, implementation of Measure BIO-2 is recommended to maintain compliance with federal and State laws related to all avian species.

BIO-1 Implementation of Roosting Bat Surveys and Protection Plan

Prior to tree removal or structure demolition, a qualified biologist shall conduct a focused survey of all trees within the project boundaries and the existing well pump enclosure, to determine whether active roosts of special status bats are present on site. If tree removal or structure demolition is planned for the fall or winter, the survey shall be conducted in September to ensure tree removal would have adequate time to occur outside periods of hibernation and during seasonal periods of bat activity (March 1 to April 15, September 1 to October 15, or in any month when evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs, as described below). If tree removal is planned for the spring, then the survey shall be conducted during the earliest feasible time in March to allow for suitable conditions for the detection of bats, and subsequent tree removal. Trees containing suitable potential bat roost habitat features shall be clearly marked or identified. If day roosts are found to be potentially present, the biologist shall prepare a site-specific roosting bat protection plan to be implemented by the contractor following SqCWD's approval. The plan shall incorporate the following guidance as appropriate:

- When feasible, removal of trees and structures identified as suitable roosting habitat shall be seasonally timed to avoid disturbance during the hibernation and breeding seasons, including the following:
    1. Between September 1 and about October 15, or before evening temperatures fall below 45 degrees Fahrenheit and/or more than 0.5 inch of rainfall within 24 hours occurs.
    2. Between March 1 and April 15, or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs.
- If a tree or structure must be removed during the breeding season and is identified as potentially containing a maternity roost, then a qualified bat biologist shall conduct visual or acoustic emergence surveys or implement other appropriate methods as determined by the bat biologist to further evaluate if the roost is an active maternity roost. If it is determined that an active maternity roost of a colonial roosting species is present, the roost shall not be disturbed during the breeding season (April 15 to August 31). If it is determined to not be an active maternity roost, the tree or structure may be removed under the guidance of the qualified bat biologist.
- Potential non-colonial hibernation roosts shall only be removed during seasonal periods of bat activity outside the hibernation and breeding seasons. Potential non-colonial roosts that cannot be avoided shall be removed on warm days in late morning to afternoon when any bats present are likely to be warm and able to fly. Appropriate methods as determined by the qualified bat biologist shall be used to minimize the potential harm to bats during tree or structure removal. For trees, such methods may include using a two-step tree removal process. This method is conducted over two consecutive days and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat trees using chainsaws only (i.e., no excavators or other heavy machinery) on the first day with the remainder of tree removal occurring on the second day.[3]

[3] In our experience, the noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed to not return to the roost that night.

BIO-2 Nesting Birds

To avoid disturbance of nesting and special-status birds or migratory species protected by the MBTA and CFGC Sections 3503, 3503.5, and 3513, activities related to the project, including but not limited to vegetation and/or tree removal, shall occur outside of the bird breeding season (February 1 through August 30) if feasible. If ground disturbance, vegetation removal, or heavy equipment work must begin within the breeding season, then a pre-construction nesting bird survey shall be conducted no more than 14 days prior to the start of construction. The pre-construction nesting bird survey should be conducted by a qualified biologist within the disturbance footprint and a 300-foot buffer, using binoculars where access is limited.

If nests are found, an avoidance buffer shall be established by a qualified biologist. The buffer shall be established on the project site to ensure nesting activity is not disturbed by project construction activity and shall be determined by the qualified biologist based on the species' known tolerances, the proposed work activity, and existing disturbances associated with land uses outside of the site. The buffer shall be demarcated by the biologist on the project site with bright construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No construction activities shall occur within this buffer until the qualified biologist has confirmed that breeding/nesting has completed, and the young have fledged the nest, or the nest has become otherwise inactive. Encroachment into the buffer shall occur only at the discretion of the qualified biologist. If construction activities at the project site cease for more than 14 days, an additional survey shall be conducted for the work area. If active nests are located, the aforementioned buffer zone measures shall be implemented.

Riparian Habitat and Sensitive Natural Communities

The proposed project would have a significant effect on biological resources if it would:

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

No CDFW-listed sensitive natural communities or riparian habitats are present within the study area. Groundwater would be discharged to Bush Gulch via SqCWD's existing pump-to-waste pipeline during well development and start-up/testing of the replacement well. Bush Gulch is mapped as a riverine water feature in the USFWS (2021) National Wetlands Inventory. However, all water discharged to Bush Gulch would be required to comply with SqCWD's existing NPDES permit requirements (Order WQ 2014-0194-DWQ, General Order No. CAG14001, Waste Discharge Identification Number 4DW0118). The permit includes the following requirements that would minimize the potential for adverse impacts to riparian habitats:

- Effluent and receiving water limitations;
- Requirements to implement BMPs to prevent riparian erosion and hydromodification through flow dissipation, erosion control, and hydromodification prevention measures;
- Requirements to implement BMPs to minimize sediment discharge, turbidity and color impacts; and
- Monitoring and reporting provisions to regulate compliance.

Therefore, with NPDES permit compliance, impacts to sensitive natural communities or riparian habitats would be less than significant.

Jurisdictional Waters and Wetlands

The proposed project would have a significant effect on biological resources if it would:

c) Have a substantial adverse effect on federally or state protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, and drainages) or waters of the United States, as defined by Section 404 of the federal Clean Water Act or CFGC Section 1600, et seq. through direct removal, filling, hydrological interruption, or other means.

No jurisdictional features occur within the study area. Groundwater would be discharged to Bush Gulch via SqCWD's existing pump-to-waste pipeline during well development and start-up/testing of the replacement well. Bush Gulch is mapped as a riverine water feature in the USFWS (2021) National Wetlands Inventory. However, all water discharged to Bush Gulch would comply with SqCWD's existing NPDES permit requirements (Order WQ 2014-0194-DWQ, General Order No. CAG14001, Waste Discharge Identification Number 4DW0118). The permit includes the following requirements that would minimize the potential for adverse impacts to wetlands:

- Effluent and receiving water limitations;
- Requirements to implement BMPs to prevent riparian erosion and hydromodification through flow dissipation, erosion control, and hydromodification prevention measures;
- Requirements to implement BMPs to minimize sediment discharge, turbidity and color impacts; and
- Monitoring and reporting provisions to regulate compliance.

Therefore, with NPDES permit compliance, impacts to wetlands would be less than significant.

Wildlife Movement

The proposed project would have a significant effect on biological resources if it would:

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

No corridors for wildlife movement occur within the study area, and the site is completely surrounded by existing development. In addition, Bush Gulch, where groundwater would be discharged during well development and start-up/testing of the replacement well, is an ephemeral drainage that does not serve as a wildlife movement corridor. Therefore, the project would not 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. Impacts would be less than significant.

Local Policies and Ordinance

The proposed project would have a significant effect on biological resources if it would:

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

Eight trees are located within the study area: four coast live oak saplings with stems less than four inches in diameter, three pepper trees with multiple stems ranging from four to nine inches DBH, and one black walnut tree with two stems each ranging from approximately 18 to 21 inches DBH. Construction activities may require the removal of all trees on the project site. Pursuant to Santa Cruz County Code Chapter 16.34 (Significant Trees), the black walnut tree is considered a "significant tree" for which a significant tree removal permit may be required. However, according to Section 16.34.090, any tree removal authorized pursuant to a valid discretionary permit approved pursuant to Chapter 13.10 (Zoning Regulations), Chapter 13.20 (Coastal Zone Regulations), Chapter 14.01 (Subdivision Regulations), Chapter 16.20 (Grading Regulations), Chapter 16.22 (Erosion Control), Chapter 16.30 (Riparian Corridor and Wetlands Protection), Chapter 16.32 (Sensitive Habitat Protection), or Chapter 16.54 (Mining Regulations) is exempt from the code requirements for significant tree removal permits. The County of Santa Cruz has confirmed that the project would be exempt from applying for a significant tree removal permit because the tree removal would be authorized pursuant to a valid discretionary permit approved pursuant to Santa Cruz County Code Chapter 13.20 (Ditmars 2021).

The study area is within the Coastal Zone; however, the project would not involve development within sensitive habitat areas. Therefore, the project would be consistent with Santa Cruz County Code Chapter 16.32 (Sensitive Habitat Protection) and Policies 5.1.2 and 5.1.6 of the County's General Plan and LCP, which pertain to the protection of sensitive habitats in the Coastal Zone. As discussed earlier, the project would potentially result in impacts to roosting bats; therefore, implementation of Measure BIO-1 is recommended to minimize the potential for project impacts. In addition, the project would be required to comply with the provisions of the MBTA and CFGC Sections 3503 and 3513 to protect nesting birds, and implementation of Measure BIO-2 is recommended to maintain compliance with federal and State laws related to all avian species. With implementation of Measures BIO-1 and BIO-2, the project would be consistent with Policy 5.1.10 of the County's General Plan and LCP, which requires protection of rare, endangered, and threatened species. Therefore, with the County's approval of the significant tree removal permit and coastal development permit and implementation of Measures BIO-1 and BIO-2, no conflicts with local ordinance or policies would occur. Impacts would be less than significant with mitigation incorporated.

Habitat Conservation Plan

The proposed project would have a significant effect on biological resources if it would:

g) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The study area is outside Habitat Conservation Plan and Natural Community Conservation Plan Areas. Therefore, no conflicts with state, regional, or local habitat conservation plans would occur.

Conclusion

In summary, project impacts to biological resources would be less than significant without mitigation except for project impacts to special status bat species, nesting birds, and compliance with local policies and ordinances. Impacts related to special status bat species and compliance with local policies and ordinances would be mitigated to a less-than-significant level by implementation of Measure BIO-1. In

addition, the project would be required to comply with the provisions of the MBTA and CFGC Sections 3503 and 3513 to protect nesting birds, and implementation of Measure BIO-2 is recommended to maintain compliance with federal and State laws related to all avian species.

Sincerely,
Rincon Consultants, Inc.

Christian Knowlton
Biologist

Sherri Miller
Principal

Attachments

Attachment 1 Figures

Attachment 2 Representative Site Photographs

Attachment 3 Special-Status Species Evaluation Tables

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Attachment 1

Figures

Figure 1 Regional Project Location

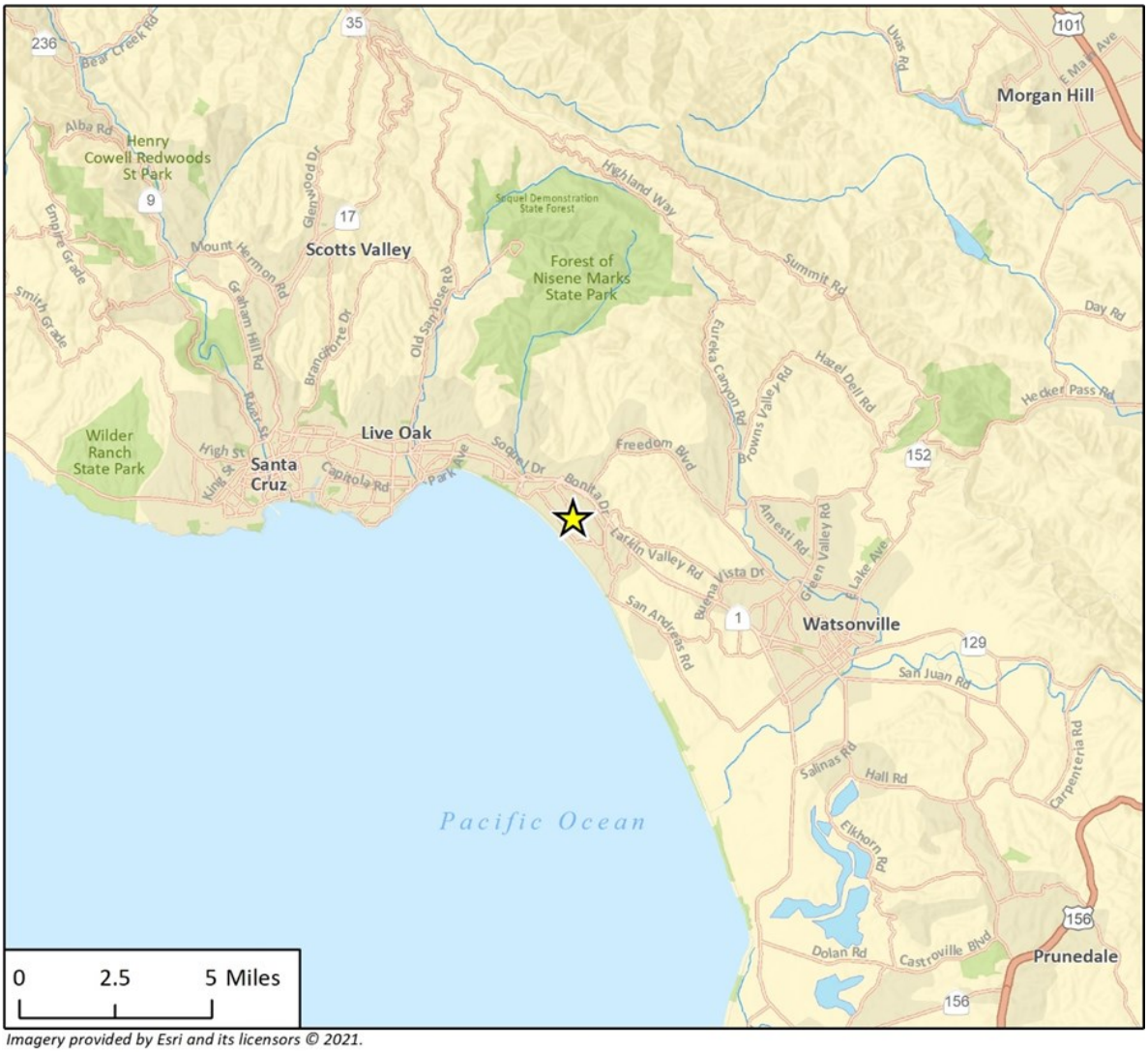

Figure 2 Study Area

Figure 3 Vegetation/Land Cover in the Study Area

Imagery provided by ESRI, Microsoft Bing and its licensors © 2021.

Attachment 2

Representative Site Photographs

Photograph 1. The southeast corner of the study area, facing southeast.

Photograph 2. The northeast corner of the study area, showing the black walnut tree and ornamental hedges along the chain link fence and existing Pacific Gas & Electric service panel.

Photograph 3. The southwest corner of the study area.

Photograph 4. The north side of the study area.

Photograph 5. The northeast side of the study area, showing the existing Country Club well pump enclosure.

Photograph 6. The black walnut tree in the northeast corner of the study area that is proposed for removal.

Photograph 7. The west side of the study area, showing the pepper trees along Baltusrol Drive, which are proposed for removal.

Attachment 3

Special-Status Species Evaluation Tables

Special-Status Species in the Regional Vicinity of the Study Area

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Plants and Lichens				
Agrostis blasdalei Blasdale's bent grass	None/None G2/S2 1B.2	Coastal dunes, coastal bluff scrub, coastal prairie. Sandy or gravelly soil close to rocks; often in nutrient-poor soil with sparse vegetation. 5 to 365 meters. Blooms May to July.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Amsinckia lunaris bent-flowered fiddleneck	None/None G3/S3 1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. 3 to 795 meters. Blooms March to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Arctostaphylos andersonii Anderson's manzanita	None/None G2/S2 1B.2	Broadleafed upland forest, chaparral, North Coast coniferous forest. Open sites, redwood forest. 95 to 765 meters. Blooms November to May.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area. Would have been observed if present.
Arctostaphylos hookeri ssp. *hookeri* Hooker's manzanita	None/None G3T2/S2 1B.2	Chaparral, coastal scrub, closed-cone coniferous forest, cismontane woodland. Sandy soils, sandy shales, sandstone outcrops. 30 to 550 meters. Blooms January to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area. Would have been observed if present.
Arctostaphylos pajaroensis Pajaro manzanita	None/None G1/S1 1B.1	Chaparral. Sandy soils. 30 to 170 meters. Blooms December to March.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area. Would have been observed if present.
Arctostaphylos silvicola Bonny Doon manzanita	None/None G1/S1 1B.2	Chaparral, closed-cone coniferous forest, lower montane coniferous forest. Only known from Zayante (inland marine) sands in Santa Cruz County. 150 to 520 meters. Blooms February to March.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area. Would have been observed if present.
Arenaria paludicola marsh sandwort	FE/SE G1/S1 1B.1	Occurs in sandy substrates and openings within freshwater or brackish marshes and swamps. This species blooms between May and August and typically occurs at elevations ranging from 3 to 170 meters.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Calyptridium parryi var. *hesseae* Santa Cruz Mountains pussypaws	None/None G3G4T2/S2 1B.1	Chaparral, cismontane woodland. Sandy or gravelly openings. 300 to 1535 meters. Blooms May to August.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Campanula californica swamp harebell	None/None G3/S3 1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marsh, North Coast coniferous forest. Bogs and marshes in a variety of habitats; uncommon where it occurs. 1 to 520 meters. Blooms June to October.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Carex comosa bristly sedge	None/None G5/S2 2B.1	Marshes and swamps, coastal prairie, valley and foothill grassland. Lake margins, wet places; occurrence below sea level is on a Delta island. -5 to 1010 meters. Blooms May to September.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Carex saliniformis deceiving sedge	None/None G2/S2 1B.2	Coastal prairie, coastal scrub, meadows and seeps, marshes and swamps (coastal salt). Mesic sites. 2 to 230 meters. Blooms June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Ceanothus ferrisiae Coyote ceanothus	FE/None G1/S1 1B.1	Evergreen shrub. Chaparral, valley and foothill grassland, coastal scrub. Serpentine sites in the Mount Hamilton range. 150 to 460 meters. Blooms March to May.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Centromadia parryi ssp. *congdonii* Congdon's tarplant	None/None G3T1T2/S1S2 1B.1	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. 0 to 245 meters. Blooms May to October.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Chorizanthe pungens var. *hartwegiana* Ben Lomond spineflower	FE/None G2T1/S1 1B.1	Lower montane coniferous forest. Zayante coarse sands in maritime ponderosa pine sandhills. 105 to 475 meters. Blooms April to July.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Chorizanthe pungens var. *pungens* Monterey spineflower	FT/None G2T2/S2 1B.2	Coastal dunes, chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Sandy soils in coastal dunes or more inland within chaparral or other habitats. 3 to 270 meters. Blooms April to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Chorizanthe robusta var. *hartwegii* Scotts Valley spineflower	FE/None G2T1/S1 1B.1	Meadows and seeps, valley and foothill grassland. In grasslands with mudstone and sandstone outcrops. 105 to 245 meters. Blooms April to July.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Chorizanthe robusta var. *robusta* robust spineflower	FE/None G2T1/S1 1B.1	Cismontane woodland, coastal dunes, coastal scrub, chaparral. Sandy terraces and bluffs or in loose sand. 5 to 245 meters. Blooms April to September.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Collinsia multicolor San Francisco collinsia	None/None G2/S2 1B.2	Annual herb. Closed-cone coniferous forest, coastal scrub. On decomposed shale (mudstone) mixed with humus. 30 to 250 meters. Blooms March to May.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Cordylanthus rigidus ssp. *littoralis* seaside bird's-beak	None/SE G5T2/S2 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, coastal dunes. Sandy, often disturbed sites, usually within chaparral or coastal scrub. 30 to 520 meters. Blooms April to October.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Dacryophyllum falcifolium tear drop moss	None/None G2/S2 1B.3	North Coast coniferous forest. Limestone substrates and rock outcrops. 50 to 520 meters.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Eriogonum nudum var. *decurrens* Ben Lomond buckwheat	None/None G5T1/S1 1B.1	Chaparral, cismontane woodland, lower montane coniferous forest. Ponderosa pine sandhills in Santa Cruz County. 180 to 505 meters. Blooms June to October.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Erysimum ammophilum sand-loving wallflower	None/None G2/S2 1B.2	Chaparral (maritime), coastal dunes, coastal scrub. Sandy openings. 3 to 320 meters. Blooms February to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Erysimum teretifolium Santa Cruz wallflower	FE/SE G1/S1 1B.1	Lower montane coniferous forest, chaparral. Inland marine sands (Zayante coarse sand). 180 to 515 meters. Blooms March to July.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Fissidens pauperculus minute pocket moss	None/None G3?/S2 1B.2	North Coast coniferous forest. Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 30 to 1025 meters.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Gilia tenuiflora ssp. *arenaria* Monterey gilia	FE/ST G3G4T2/S2 1B.2	Coastal dunes, coastal scrub, chaparral (maritime), cismontane woodland. Sandy openings in bare, wind-sheltered areas. Often near dune summit or in the hind dunes; two records from Pleistocene inland dunes. 5 to 245 meters. Blooms April to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Hesperocyparis abramsiana var. *abramsiana* Santa Cruz cypress	FT/SE G1T1/S1 1B.2	Chaparral, closed-cone coniferous forest, lower montane coniferous forest. Restricted to the Santa Cruz Mountains, on sandstone and granitic-derived soils; often with *Pinus attenuata*, redwoods. 300 to 1085 meters. Blooms October.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area. Would have been observed if present.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Hoita strobilina Loma Prieta hoita	None/None G2?/S2? 1B.1	Chaparral, cismontane woodland, riparian woodland. Serpentine; mesic sites. 60 to 975 meters. Blooms May to July.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Holocarpha macradenia Santa Cruz tarplant	FT/SE G1/S1 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. Light, sandy soil or sandy clay; often with nonnatives. 10 to 275 meters. Blooms June to October.	Not expected	No natural vegetation communities or suitable habitat occur in the study area.
Horkelia cuneata var. *sericea* Kellogg's horkelia	None/None G4T1?/S1? 1B.1	Closed-cone coniferous forest, coastal scrub, coastal dunes, chaparral. Old dunes, coastal sandhills, openings. Sandy or gravelly soils. 5 to 430 meters. Blooms February to July.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Horkelia marinensis Point Reyes horkelia	None/None G2/S2 1B.2	Coastal dunes, coastal prairie, coastal scrub. Sandy flats and dunes near coast, in grassland or scrub plant communities. 2 to 775 meters. Blooms May to September.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Lasthenia californica ssp. *macrantha* perennial goldfields	None/None G3T2/S2 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub. 5 to 185 meters. Blooms January to November.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Lessingia micradenia var. *glabrata* smooth lessingia	None/None G2T2/S2 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Serpentine; often on roadsides. 90 to 490 meters. Blooms July to November	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Malacothamnus arcuatus arcuate bush-mallow	None/None G2Q/S2 1B.2	Chaparral, cismontane woodland. Gravelly alluvium. 1 to 735 meters. Blooms April to September.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Microseris paludosa marsh microseris	None/None G2/S2 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 3 to 610 meters. Blooms April to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Monardella sinuata ssp. *nigrescens* northern curly-leaved monardella	None/None G3T2/S2 1B.2	Coastal dunes, coastal scrub, chaparral, lower montane coniferous forest. Sandy soils. 10 to 245 meters. Blooms May to July.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Monolopia gracilens woodland woollythreads	None/None G3/S3 1B.2	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, North Coast coniferous forest. Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns but may have only weak affinity to serpentine. 120 to 975 meters. Blooms March to July.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Pedicularis dudleyi Dudley's lousewort	None/SR G2/S2 1B.2	Chaparral, cismontane woodland, North Coast coniferous forest, valley and foothill grassland. Deep shady woods of older coast redwood forests, also in maritime chaparral. 60 to 330 meters. Blooms April to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Penstemon rattanii var. *kleei* Santa Cruz Mountains beardtongue	None/None G4T2/S2 1B.2	Chaparral, lower montane coniferous forest, North Coast coniferous forest. Sandy shale slopes; sometimes in the transition between forest and chaparral. 455 to 915 meters. Blooms May to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Pentachaeta bellidiflora white-rayed pentachaeta	FE/SE G1/S1 1B.1	Valley and foothill grassland, cismontane woodland. Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. 35 to 610 meters. Blooms March to May.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Piperia candida white-flowered rein orchid	None/None G3/S3 1B.2	North Coast coniferous forest, lower montane coniferous forest, broadleaved upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 20 to 1615 meters. Blooms May to September.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Piperia yadonii Yadon's rein orchid	FE/None G1/S1 1B.1	Closed to cone coniferous forest, chaparral, coastal bluff scrub. On sandstone and sandy soil but poorly drained and often dry. 10 to 505 meters. Blooms May to August	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Plagiobothrys chorisianus var. *chorisianus* Choris' popcornflower	None/None G3T1Q/S1 1B.2	Chaparral, coastal scrub, coastal prairie. Mesic sites. 5 to 705 meters. Blooms March to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Plagiobothrys diffusus San Francisco popcornflower	None/SE G1Q/S1 1B.1	Valley and foothill grassland, coastal prairie. Historically from grassy slopes with marine influence. 45 to 360 meters. Blooms March to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Polygonum hickmanii Scotts Valley polygonum	FE/SE G1/S1 1B.1	Valley and foothill grassland. Purisima sandstone or mudstone with a thin soil layer; vernally moist due to runoff. 210 to 230 meters. Blooms May to August.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Senecio aphanactis chaparral ragwort	None/None G3/S2 2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20 to 1020 meters. Blooms January to April.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Stebbinsoseris decipiens Santa Cruz microseris	None/None G2/S2 1B.2	Broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. Open areas in loose or disturbed soil, usually derived from sandstone, shale or serpentine, on seaward slopes. 90 to 750 meters. Blooms April to May.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Trifolium buckwestiorum Santa Cruz clover	None/None G2/S2 1B.1	Coastal prairie, broadleaved upland forest, cismontane woodland. Moist grassland. Gravelly margins. 30 to 805 meters. Blooms April to October.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Trifolium hydrophilum saline clover	None/None G2/S2 1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 1 to 335 meters. Blooms April to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.
Trifolium polyodon Pacific Grove clover	None/SR G1/S1 1B.1	Closed-cone coniferous forest, meadows and seeps, coastal prairie, valley and foothill grassland. Along small springs and seeps in grassy openings. 5 to 260 meters. Blooms April to June.	Not Expected	No natural vegetation communities or suitable habitat occur in the study area.

Regional Vicinity refers to within a 6-quadrangle search radius of site.

Status (Federal/State)
FE = Federal Endangered
FT = Federal Threatened
SE = State Endangered
ST = State Threatened
SR = State Rare

California Rare Plant Rank (California Native Plant Society)
1B = Rare, Threatened, or Endangered in California and elsewhere
2B= Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension
.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% of occurrences threatened/moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

Other Statuses
G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant

Additional notations may be provided as follows
T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority
? – Inexact numeric rank

Special-Status Animal Species in the Regional Vicinity of the Study Area

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Invertebrates				
Euphilotes enoptes smithi Smith's blue butterfly	FE/None G5T1T2/S1	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties. Hostplant: *Eriogonum latifolium* and *Eriogonum parvifolium* are utilized as both larval and adult foodplants.	Not Expected	No suitable coastal dune or coastal sage scrub habitat occurs in the study area, and this species' host plants were not observed.
Polyphylla barbata Mount Hermon (barbate) June beetle	FE/None G1/S1	Known only from sand hills in vicinity of Mount Hermon, Santa Cruz County.	Not Expected	No suitable sand hill habitat occurs in the study area.
Trimerotropis infantilis Zayante band-winged grasshopper	FE/None G1/S1	Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem). Mostly on sand parkland habitat but also in areas with well-developed ground cover and in sparse chaparral with grass.	Not Expected	No suitable sand hill habitat occurs in the study area.
Fish				
Eucyclogobius newberryi tidewater goby	FE/None G3/S3	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Not Expected	There are no aquatic habitats on or adjacent to the site.
Oncorhynchus kisutch pop. 4 coho salmon - central California coast evolutionarily significant unit	FE/SE G5T2T3Q/S2	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of Punta Gorda. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water, and sufficient dissolved oxygen.	Not Expected	There are no aquatic habitats on or adjacent to the site.
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast distinct population segment	FT/None G5T2T3Q/S2 S3	The distinct population segment includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek in Santa Cruz County (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	Not Expected	There are no aquatic habitats on or adjacent to the site.
Oncorhynchus mykiss irideus pop. 9 steelhead - south-central California coast distinct population segment	FT/None G5T2Q/S2	Federal listing refers to runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River.	Not Expected	There are no aquatic habitats on or adjacent to the site.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Spirinchus thaleichthys longfin smelt	FC/ST G5/S1	Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 parts per trillion, but can be found in completely freshwater to almost pure seawater.	Not Expected	There are no aquatic habitats on or adjacent to the site.
Thaleichthys pacificus eulachon	FT/None G5/S2	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	Not Expected	There are no aquatic habitats on or adjacent to the site.
Amphibians				
Ambystoma californiense California tiger salamander	FT/ST G2G3/S2S3 WL	Central California distinct population segment is federally listed as threatened. Santa Barbara and Sonoma counties distinct population segment is federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Not Expected	Suitable habitat is not present, and the site is surrounded by development.
Ambystoma macrodactylum croceum Santa Cruz long-toed salamander	FE/SE G5T1T2/S1S2 FP	Wet meadows near sea level in a few restricted locales in Santa Cruz and Monterey counties. Aquatic larvae prefer shallow (less than 12 inches) water, using clumps of vegetation or debris for cover. Adults use mammal burrows.	High	No suitable habitat is within the boundaries of the study area. However, suitable habitat is present in Bush Gulch east of the study area. During well development and start-up/testing of the well, groundwater would be produced, which would be discharged via SqCWD's existing pump-to-waste pipeline that discharges to Bush Gulch.
Aneides niger Santa Cruz black salamander	None/None G3/S3 SSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara counties. Adults found under rocks, talus, and damp woody debris.	Not Expected	Suitable habitat is not present, and the site is surrounded by development.
Dicamptodon ensatus California giant salamander	None/None G3/S2S3 SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams,	Not Expected	Suitable habitat is not present, and the site is surrounded by development.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
		occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.		
Rana boylii foothill yellow-legged frog	None/SE G3/S3 SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Not Expected	Suitable habitat is not present, and the site is surrounded by development.
Rana draytonii California red-legged frog	FT/None G2G3/S2S3 SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	Not Expected	Suitable habitat is not present, and the site is surrounded by development.
Reptiles				
Anniella pulchra Northern California legless lizard	None/None G3/S3 SSC	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Not Expected	Suitable habitat is not present, and the site is surrounded by development.
Emys marmorata western pond turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 1,830 meters in elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying.	Not Expected	Suitable habitat is not present, and the site is surrounded by development.
Birds				
Agelaius tricolor tricolored blackbird	None/ST G1G2/S1S2 SSC	ighly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Not Expected	No suitable habitat occurs in the study area.
Aquila chrysaetos golden eagle	None/None G5/S3 FP WL	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Not Expected	No suitable habitat occurs in the study area.
Asio flammeus short-eared owl	None/None G5/S3 SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Not Expected	No suitable habitat occurs in the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	Not Expected	No suitable habitat occurs in the study area.
Brachyramphus marmoratus marbled murrelet	FT/SE G3/S2	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas fir.	Not Expected	No suitable habitat occurs in the study area.
Charadrius nivosus western snowy plover	FT/None G3T3/S2 SSC	Sandy beaches, salt pond levee, and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting.	Not Expected	No suitable habitat occurs in the study area.
Coturnicops noveboracensis yellow rail	None/None G4/S1S2 SSC	Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	Not Expected	No suitable habitat occurs in the study area.
Cypseloides niger black swift	None/None G4/S2 SSC	Coastal belt of Santa Cruz and Monterey counties; central and southern Sierra Nevada; San Bernardino and San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.	Not Expected	No suitable habitat occurs in the study area.
Elanus leucurus white-tailed kite	None/None G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Not Expected	No suitable habitat occurs in the study area.
Falco peregrinus anatum American peregrine falcon	FD/SD G4T4/S3S4 FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Not Expected	No suitable habitat occurs in the study area.
Laterallus jamaicensis coturniculus California black rail	None/ST G3G4T1/S1 FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about one inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not Expected	No suitable habitat occurs in the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Rallus obsoletus California Ridgway's rail	FE/SE G3T1/S1 FP	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not Expected	No suitable habitat occurs in the study area.
Riparia bank swallow	None/ST G5/S2	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Not Expected	No suitable habitat occurs in the study area.
Mammals				
Antrozous pallidus pallid bat	None/None G4/S3 SSC	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate Potential	Potentially suitable roosting structures are present on site; however, the high disturbance may preclude the species from the study area.
Corynorhinus townsendii Townsend's big-eared bat	None/None G4/S2 SSC	Occurs throughout California in a wide variety of habitats. Most common in mesic sites, typically coniferous or deciduous forests. Roosts in the open, hanging from walls and ceilings in caves, lava tubes, bridges, and buildings. This species is extremely sensitive to human disturbance.	Moderate Potential	Potentially suitable roosting structures are present on site; however, the high disturbance may preclude the species from the study area.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	None/None G5T2T3/S2S3 SSC	Typically found in forest habitats with moderate to dense understory. Can occur in chaparral, riparian woodlands, and coniferous forests, particularly redwood. Builds middens out of grasses, leaves, and woody debris. This subspecies is found only in the San Francisco Bay region.	Not Expected	No suitable habitat occurs in the study area.
Sorex ornatus salarius Monterey shrew	None/None G5T1T2/S1S2 SSC	Riparian, wetland, and upland areas in the vicinity of the Salinas River delta. Prefers moist microhabitats. Feeds on insects and other invertebrates found under logs, rocks, and litter.	Not Expected	No suitable habitat occurs in the study area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not Expected	No suitable habitat occurs in the study area.

Regional Vicinity refers to within a six-quadrangle search radius of site.

Status (Federal/State)

FE = Federal Endangered
FT = Federal Threatened
SE = State Endangered
ST = State Threatened
SR = State Rare
SD = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant

Additional notations may be provided as follows

T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority

Appendix D

Cultural Resources Assessment

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August 31, 2021
Project No: 20-10173

Michael Wilson, P.E., Associate Engineer
Soquel Creek Water District
5180 Soquel Drive
Soquel, California 95073
Via email: michaelw@soquelcreekwater.org

Subject: Cultural Resources Assessment for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project at 251 Baltusrol Drive, Aptos, Santa Cruz County, California 95003

Dear Mr. Wilson:

This report documents the findings of a cultural resources assessment conducted by Rincon Consultants, Inc. (Rincon) for the Soquel Creek Water District (SqCWD) Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project) in Aptos, Santa Cruz County, California. The assessment includes a cultural resources records search, Native American outreach, pedestrian field survey, and a historical resources evaluation of the Country Club Well. This report is intended to support the environmental review of the proposed project by SqCWD (the lead agency) pursuant to the California Environmental Quality Act (CEQA).

Project Location and Description

The project site consists of a 0.27-acre parcel (Assessor's Parcel Number 053-221-11) located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County. The SqCWD-owned parcel is largely undeveloped, with the exception of the existing Country Club Well (including wellhead and related appurtenances) located in the northeastern corner of the project site and constructed in 1953. The project site lies within the United States Geological Survey *Soquel, Calif.* quadrangle, Township 11 South, Range 1 East, and Section 16, 17, 20, and 21 (Attachment A, Figure 1 and Figure 2).

The proposed project includes replacing the existing Country Club Well, constructing a 1,2,3-trichloropropane removal water treatment plant (herein referred to as "water treatment plant"), and installing associated on- and off-site improvements. The replacement well would be located on the western portion of the project site and have an aboveground discharge manifold surrounded by removable bollards. The replacement well would be drilled to a depth of approximately 730 feet below ground surface with borehole diameters ranging from 24 to 50 inches. The replacement well would connect to the water treatment plant via piping under the on-site driveway. The water treatment plant would consist of a granular activated carbon adsorption treatment plant located in a building that would also have space reserved for single-use anion exchange to treat hexavalent chromium, if necessary. The project would include re-paving the existing driveway on the northwestern corner of the project site and construction of a new driveway on the southwestern corner of the project site. The majority of the site would be covered with Class II aggregate base surfacing. A new perimeter fence would be installed

around the entirety of the project site, and a retaining wall would be constructed along the southern boundary of the project site, if needed to raise the elevation of the site along this boundary. Additional below-grade pipelines would be installed on the site to connect the existing and replacement wells to the water treatment plant. The antenna on the existing well pump enclosure would potentially be replaced if radio transmission is working poorly, and the replacement antenna may taller in height than the existing antenna. The replacement antenna would be placed out in the open on or near the pump enclosure for the replacement well or on the proposed water treatment plant. The proposed project would also include construction of sewer lateral connections from the chorine analyzer in the replacement well pump enclosure and the restroom in the proposed water treatment plant to the Santa Cruz County Sanitation District's existing sewer main line in Baltusrol Drive. A storm water retention system will retain the site's stormwater with an on-site retention pipe in the lower driveway sized in accordance with County of Santa Cruz design requirements. The remaining stormwater runoff would flow onto Baltusrol Drive and ultimately enter the existing storm drain approximately 1,000 feet south of the project site.

Construction activities are planned to commence around March 2022 and continue over the course of approximately 18 months, concluding around the summer of 2023. To accommodate the proposed project, the existing chemical feed enclosure, approximately 20 feet of six-inch pipeline, and approximately 485 feet of fencing would be demolished. For the replacement well, approximately 300 cubic yards of soil would be exported. For the water treatment plant, approximately 410 cubic yards of soil would be exported, and approximately 500 cubic yards of aggregate base, general fill, and compacted crushed rock would be imported. Project construction would require excavation and re-compaction of most of the project site to depths ranging from two to five feet.

Regulatory Framework

California Environmental Quality Act

California Public Resources Code (PRC) Section 21804.1 requires lead agencies determine if a project could have a significant impact on historical resources. As defined in PRC Section 21804.1 and Section 15064.5(a) of the CEQA Guidelines, a historical resource is a resource listed in, or determined eligible for listing in the California Register of Historical Resources (CRHR), included in a local register of historical resources, or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant. Resources listed in the National Register of Historic Places (NRHP) are automatically listed in the CRHR and are therefore historical resources under CEQA. Historical resources may include eligible built environment resources and archaeological resources of historic or prehistoric age.

CEQA Guidelines Section 15064.5(c) provides further guidance on the consideration of archaeological resources. If an archaeological resource does not qualify for historical resources eligibility, it may meet the definition of a "unique archaeological resource" as identified in PRC Section 21083.2. This section of the PRC also includes provisions for the treatment of unique archaeological resources. If an archaeological resource does not qualify as a unique archaeological resource or a historical resource, the effects of a project on those resources will be less than significant (CEQA Guidelines Section 15064.5[c][4]). CEQA Guidelines Section 15064.5 also provides guidance for addressing the existence of

or likelihood of Native American human remains as well as the unanticipated discovery of any human remains during the implementation of a project.

Under CEQA, impacts that adversely alter the significance of a historical resource are considered a significant effect on the environment. These impacts could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (CEQA Guidelines Section 15064.5 [b][1]). Material impairment is defined as demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR or a local register (CEQA Guidelines Section 15064.5[b][2][A]).

National Register of Historic Places

Although the project does not have a federal nexus, properties which are listed in or have been formally determined eligible for listing in the NRHP are automatically listed in the CRHR. The following is therefore presented to provide applicable regulatory context. The NRHP was authorized by Section 101 of the National Historic Preservation Act and is the nation's official list of cultural resources worthy of preservation. The NRHP recognizes the quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects. Per 36 Code of Federal Regulations Part 60.4, a property is eligible for listing in the NRHP if it meets one or more of the following criteria:

Criterion A Is associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B Is associated with the lives of persons significant in our past.

Criterion C Embodies the distinctive characteristics of a type, period, or method of installation, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction.

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

In addition to meeting at least one of the above designation criteria, resources must also retain integrity. The National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, defined in the following manner:

Location The place where the historic property was constructed or the place where the historic event occurred.

Design The combination of elements that create the form, plan, space, structure, and style of a property.

Setting The physical environment of a historic property.

Materials The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.

Workmanship The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

Feeling A property's expression of the aesthetic or historic sense of a particular period of time.

Association The direct link between an important historic event or person and a historic property.

California Register of Historical Resources

The CRHR was created by Assembly Bill 2881, which was passed in 1992. The CRHR is an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (PRC Section 5024.1[a]). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (PRC Section 5024.1[b]). Certain properties are determined by the statute to be automatically included in the CRHR by operation of law, including California properties formally determined eligible for, or listed in, the NRHP.

A property is eligible for listing in the CRHR if it meets one of more of the following criteria:

Criterion 1: Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Criterion 2: Is associated with the lives of persons important to our past.

Criterion 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.

Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history.

County of Santa Cruz Historic Resources

Chapter 16.42 of the Santa Cruz County Code (SCCC) is the County's Historic Preservation Ordinance. The ordinance provides measures for "the protection, enhancement, perpetuation and use of structures, districts, lands, and neighborhoods of historic, architectural, and engineering significance, located within the County of Santa Cruz," in order to preserve their "cultural and aesthetic benefit to the community" (SCCC Section 16.42.010). SCCC Section 16.42.050 details the process by which the County maintains a historic resources inventory, which consists of structures, objects, properties, sites, and districts as designated by the Board of Supervisors. To be eligible for listing on the County's historic resources inventory, a resource must meet one of the following criteria

Criterion A The resource is associated with a person of local, State or national historical significance.

Criterion B The resource is associated with an historic event or thematic activity of local, State or national importance.

Criterion C The resource is representative of a distinct architectural style and/or construction method of a particular historic period or way of life, or the resource represents the work of a master builder or architect or possesses high artistic values.

Criterion D The resource has yielded, or may likely yield, information important to history.

Cultural Resources Records Search

Rincon requested a cultural resources records search of the project site and a 0.5-mile radius from the California Historical Resources Information System at the Northwest Information Center (NWIC) at

Sonoma State University and received results on April 15, 2021. The purpose of the records search was to identify previously conducted cultural resources studies and previously recorded cultural resources within the search boundaries. The results of the records search are provided in Attachment B. In addition to the NWIC records search, Rincon reviewed the NRHP, the CRHR, the California Inventory of Historic Resources, the California State Parks Office of Historical Preservation Built Environment Resource Directory, and the Archaeological Determinations of Eligibility list.

As summarized in Table 1, the NWIC records search identified five previously conducted cultural resources studies within the 0.5-mile search radius, none of which addressed the project site. The NWIC search also identified one previously recorded cultural resource within the 0.5-mile radius of the project site. The resource, P-44-00377, is recorded outside of the project site and consists of historic-period, flagstone-capped concrete trestle footing (Morgan 1998).

Table 1 Previously Conducted Cultural Resources Studies within 0.5 Miles of the Project Site

Report Number	Author	Year	Title	Relationship to Project Site
S-003964	Ann S. Peak & Associates	1977	*Santa Cruz Regional Wastewater Treatment System Project, Santa Cruz County, California*	Outside
S-007106	Miley Paul Holman, Randy Wiberg, and Matthew Clark	1985	*An Archaeological Reconnaissance of the Benchlands and Uplands, Seascape Properties, Santa Cruz County, California*	Outside
S-039959	David Brunzell	2012	*Cultural Resources Assessment of the Crown Castle Seacliff Project, Santa Cruz County, California (BCR Consulting Project No. SYN1208) (letter report)*	Outside
S-048282	Jennifer Roland	2015	*FCC Form 620 New Tower Submission Packet, 26011/ Rio Del Mar Elementary SC1, 819 Pinehurst Drive, Santa Cruz, CA 95003*	Outside
S-048282a	Jennifer Roland	2015	*Phase I Investigation for the Verizon Wireless Rio Del Mar Elementary SC1 Installation Project, Aptos, Santa Cruz, California*	Outside

Source: NWIC 2021

Aerial Imagery and Historical Topographic Maps Review

Rincon completed a review of historical topographic maps and aerial imagery to ascertain the development history of the project site. Historical topographic maps from 1912 to 1932 depict the project site and surrounding area as undeveloped east of Soquel Cove (USGS 2021; NETR Online 2021). By 1940, a road (currently Clubhouse Drive) is depicted south-southeast of the project site (USGS 2021). Aerial imagery shows that, between 1953 and 1956, limited residential development began southwest of the project area (University of California, Santa Cruz 1953 and 1956; NETR Online 2021). By 1968, that development began to surround the project site, with full build-out of the residential community by 1982. However, the subject property has remained undeveloped to this day, with the exception of the existing Country Club Well (NETR Online 2021).

Sacred Lands File Search

Rincon contacted the Native American Heritage Commission (NAHC) on March 9, 2021, to request a Sacred Lands File (SLF) search of the project site and surrounding area. As part of this request, Rincon asked the NAHC to provide a list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of tribal heritage resources at the project site and/or in the vicinity. The NAHC emailed a response on March 19, 2021, stating that the SLF search was positive, and including a contact list; Attachment C contains the list of provided contacts. Rincon sent letters via email on March 25, 2021, to the seven Native American contacts provided by the NAHC to request information regarding their knowledge of tribal heritage resources in the vicinity that may be affected by the proposed project.

Kanyon Sayers-Roods, Creative Director and Tribal Monitor for the Canyon Band of Costanoan Ohlone People, responded to Rincon's outreach letter via email on March 26, 2021, stating that the project site is near and/or overlapping a previously recorded and potentially eligible cultural site. In her email to Rincon, Ms. Sayers-Roods recommended Native American and archaeological monitoring for the project, as well as cultural sensitivity training.

In addition to Rincon's outreach, SqCWD conducted consultation to address the requirements of Assembly Bill 52 (AB 52). As a result of consultation, SqCWD invited Ms. Sayers-Roods to review geotech samples taken from the project site. The geotech sample review is discussed in further detail below, and details of the AB 52 consultation process will be detailed in the Initial Study-Mitigated Negative Declaration being prepared for the project.

As of the date of this report, Rincon has not received any additional responses from the Native American contacts in response to our informal outreach.

Pedestrian Field Survey

Rincon Archaeologist Elaine Foster, MA, Register of Professional Archaeologists (RPA), conducted a pedestrian field survey of the project site on April 30, 2021. Ms. Foster walked a series of pedestrian transects across the project site oriented generally north-south and spaced no more than 10 meters apart. Exposed ground surfaces were inspected for prehistoric cultural materials (e.g., flaked stone tools, tool-making debris, stone milling tools, ecofacts [marine shell and bone]), soil discoloration that might indicate the presence of a prehistoric midden deposit, historic-period debris (e.g., metal, glass, ceramics), and features that indicate the presence of former historic-period structures or buildings (e.g., standing exterior walls, foundations). Rodent burrows and drainage banks allowed visual inspection of subsurface soils.

Ground visibility was excellent (80 to 100 percent) with the majority of the site consisting of slightly sloped, undeveloped land with patches of grass and shrubs. The northeast corner of the project site is developed with a well pump enclosure and associated water infrastructure. Other disturbances include an unpaved gravel driveway along the northern edge of the property leading from Baltusrol Drive to the well pump enclosure, a fence lining the edges of the property, and three areas of poured concrete. Soils consisted of a brownish yellow sandy loam with patches of sand. Figure 3 through Figure 6 in Attachment A document site conditions observed during the pedestrian field survey.

In addition to the pedestrian survey, on June 4, 2021, Rincon archaeologist Dustin Merrick MA, RPA, and Kanyon Sayers-Roods of the Canyon Band of Costanoan Ohlone People reviewed previously excavated soil samples collected as part of a geotechnical study conducted for the project (Garner and Chome 2021). Soils observed in the geotechnical samples generally consisted of reddish-brown silty sand with no inclusions (
Figure 7Figure 7). One sample, Bore 4 at 1 to 2 feet (30 to 76cm), contained dark, organic soils similar in color and consistency to midden soils (Figure 8), however, no cultural resources were observed in any of the samples.

The pedestrian field survey identified one historic-period built environment structure in the project site: the Country Club Well, also known as Plant No. 18-Country Club Park. The well was documented under the direction of Rincon Architectural Historian James Williams, MA. Mr. Williams subsequently recorded and evaluated the significance of the property on California Department of Parks and Recreation (DPR) 523 series forms, included in Attachment D. A brief description of the feature and its historical resources evaluation are included below under *Results*. No archaeological resources were identified in the project site by this study.

Results

Historical Resources Evaluation

The identified built-environment resource in the project site - a mechanical well and associated water distribution features - was constructed in 1953 by Capitola Berry Farms (also known as Reiter Berry Farms) as an agricultural well and improved with a mechanical pump, prefabricated pumphouse, and other well appurtenances by 1961 (MBWC 1961). Capitola Berry Farms sold water from the well to the Monterey Bay Water Company for distribution to its Aptos-Rio del Mar water distribution system (Wilson 2021; MBWC 1961). In April 1964, the recently established SqCWD municipal water utility purchased the subject well from Capitola Berry Farms and the portion of the subject property consisting of the fenced-in well area and the driveway leading to Baltusrol Drive. In addition, SqCWD was granted a 5-foot-wide easement for a pipeline running east from the well to Club House Drive. After acquiring the well, SqCWD sold water back to Capitola Berry Farms (Santa Cruz Land Title Company 1964; Western Title Insurance Company 1964; Capitola Berry Farms 1964; Wilson 2021). In 1984, SqCWD purchased from W. Gordon Eustice, a neighboring parcel, which now makes up the southern portion of the subject property located south of the well site and driveway (Eustice 1984). Two notable alterations to the pump facility were observed during field study - the addition of a chemical feed enclosure on the northwest elevation of the pump enclosure, and the apparent replacement of the pump motor.

As detailed further in the attached DPR Series 523 form, the mechanical well at 251 Baltusrol Drive is recommended ineligible for listing in the NRHP or the CRHR, or for designation as a historic resource in the County of Santa Cruz historic resource inventory because it lacks historical or architectural significance and distinction as an engineered structure. Specifically, the mechanical well is not eligible under the NRHP/CRHR/County of Santa Cruz criteria for listing/designation as a historic resource for the following reasons:

- **NRHP Criterion A/CRHR Criterion 1/County of Santa Cruz Criterion B**: The subject property is associated with the operation of the MBWC and Capitola Berry Farms in the 1950s and early 1960s, and with the early expansion of SqCWD in 1964. However, research for this study did not find

evidence suggesting the founding or expansion of either system was significant in its own right or strongly associated with any significant events in the history of the town, region, state, or nation. The subject property is therefore recommended ineligible under NRHP Criterion A/CRHR Criterion 1/County of Santa Cruz Criterion B.

- **NRHP Criterion B/CRHR Criterion 2/County of Santa Cruz Criterion A**: Research for this study also did not identify any individual directly associated with the subject property whose contributions to important historical events would make the property eligible under NRHP Criterion B/CRHR Criterion 2/County of Santa Cruz Criterion A.
- **NRHP Criterion C/CRHR Criterion 3/County of Santa Cruz Criterion C**: The pump is an example of a ubiquitous type of structure with no distinctive design characteristics. Additionally, the pump enclosure is a simple, utilitarian feature. Its functional design does not embody the distinctive characteristics of a type, period, or method of construction, and does not possess high artistic values. Although the designers of the pump and pump enclosure are not known, the undistinguished designs of these features are unlikely to be exemplary of the work of any master engineer or architect. As such, there is no evidence that the well or its appurtenances represent an important design achievement. The subject property is, therefore, recommended ineligible under NRHP Criterion C/CRHR Criterion 3/County of Santa Cruz Criterion C.
- **NRHP Criterion D/CRHR Criterion 4/County of Santa Cruz Criterion D**: A review of available evidence and the records search results did not suggest the subject property may yield important information about prehistory or history. It is therefore recommended ineligible under NRHP Criterion D/CRHR Criterion 4/County of Santa Cruz Criterion D.

Finally, no available evidence suggests the well would be eligible for designation as a contributor to any historical district, such as one representing the wider MBWC or SqCWD water distribution systems. This study concluded that neither water district is strongly associated with significant events or the important contributions of any individual, and that neither system is regarded as important for its overall design. Additional details are provided in the attached California DPR Series 523 form, included as Attachment D.

Findings and Recommendations

One historic-period structure was identified during the survey, which consisted of a well pump and associated water infrastructure in the northeast corner of the project site. Because the well pump and appurtenances lack historical significance and distinction as an engineered structure, Rincon recommends the structure as ineligible for federal, state, or local designation. Therefore, it is not considered a historical resource pursuant to Section 15064.5 of the CEQA Guidelines.

The background research did not identify archaeological resources within the project site, and no archaeological resources were identified during the pedestrian field survey. No archaeological resources were observed during review of the geotechnical samples. According to Garner and Chome (2021), the soils underlying the project site are Pleistocene-aged coastal terrace deposits. Although human occupation did occur during the terminal Pleistocene, archaeological sites dating to this period are extremely rare. The age of the underlying soils in the project site suggest that if any archaeological resources were present here, they would likely be near or at the ground surface. Given the age of soils underlying the project site, subsurface archaeological resources are unlikely. Additionally, the area has been heavily disturbed due to its cultivation as a berry farm and construction of the existing Country

Club Well in the 1950s and subsequent development of the surrounding residential community . Given the negative results of the background research, the negative results of previous cultural resources studies in the vicinity, and the negative results of the current pedestrian survey of the project site, the archaeological sensitivity of the project site is considered to be low. However, unanticipated discoveries during construction remain a possibility.

Based on the results of the study, Rincon recommends a finding of ***less than significant impacts to historical and archaeological resources*** for the purposes of CEQA and does not recommend additional cultural resources work at this time. The first of the following two measures is recommended for implementation in the unlikely case of unanticipated discoveries of archaeological resources during ground-disturbing activities. The second measure includes a summary of existing regulations regarding the discovery of human remains with which SqCWD and its contractor(s) would be required to comply in the unlikely case of unanticipated discovery of human remains during ground-disturbing activities.

Unanticipated Discovery of Archaeological Resources

In the unlikely event archaeological resources are encountered during ground-disturbing activities, work within 50 feet of the find should be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the find is prehistoric, then a local Native American representative should also be contacted to participate in the evaluation of the find. Impacts to the find should be avoided to the extent feasible; methods of avoidance may include, but should not be limited to, capping, fencing, or project redesign. If necessary, the archaeologist may be required to prepare a treatment plan for archaeological testing in consultation with the local Native American representative. If the discovery proves to be eligible for the CRHR and cannot be avoided by the proposed project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts to historical resources.

Unanticipated Discovery of Human Remains

In the unlikely event of an unanticipated discovery of human remains, all ground-disturbing activities in the vicinity of the discovery must be immediately suspended and redirected elsewhere. All steps required to comply with California Health and Safety Code Section 7050.5 and PRC Section 5097.98 must be implemented, including contacting the Santa Cruz County Office of the Sheriff-Coroner. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD must complete an inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

Conclusion

Project impacts to historical and archaeological resources would be less than significant, and the Country Club Well located on the northeast corner of the project site is not considered a historical resource pursuant to Section 15064.5 of the CEQA Guidelines. A measure addressing the unlikely case of unanticipated discoveries of archaeological resources during ground-disturbing activities is

recommended for implementation. In addition, SqCWD and its contractor(s) are required to comply with existing State regulations in the unlikely case of unanticipated discovery of human remains during ground-disturbing activities.

Please do not hesitate to contact Rincon with any questions regarding this cultural resources assessment.

Sincerely,

Rincon Consultants, Inc.

Courtney Montgomery, MA
Archaeologist

Elaine Foster, MA, RPA
Archaeologist

Hannah Haas, MA, RPA
Senior Archaeologist

Shannon Carmack
Principal/Architectural History Program Manager

James Williams, MA
Architectural Historian

Steven Treffers, MHP
Senior Architectural Historian

Attachments

Attachment A Figures

Attachment B Northwest Information Center Records Search Results

Attachment C Native American Outreach

Attachment D Department of Parks and Recreation Series 523 Forms

References

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Western Title Insurance Company

1964 Policy of Title Insurance. Policy 57888. May 13. Document on file with SqCWD.

Wilson, Michael

2021 Personal correspondence. June 17. Email messages on file with Rincon Consultants, Ventura CA.

Attachment A

Figures

Figure 1 Regional Project Location

Basemap provided by National Geographic Society, Esri and its licensors © 2021. Soquel Quadrangle. T11S R01E S20. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.

CRFig1 Proj Locn Map

Figure 2 Project Site Location

Imagery provided by ESRI, Microsoft Bing and its licensors © 2021.

Figure 3 Overview of Project Site, Facing Northwest

Figure 4 Gravel Driveway and Fence/Gate of Northwest Corner of Project Site

Figure 5 Sloped Edge of the Project Site along the Southeast Side of Baltusrol Drive, Facing Southeast

Figure 6 Well Pump Enclosure, Northwest and Northeast Elevations, Facing Southeast

Figure 7 Typical Soil Observed in the Geotechnical Samples

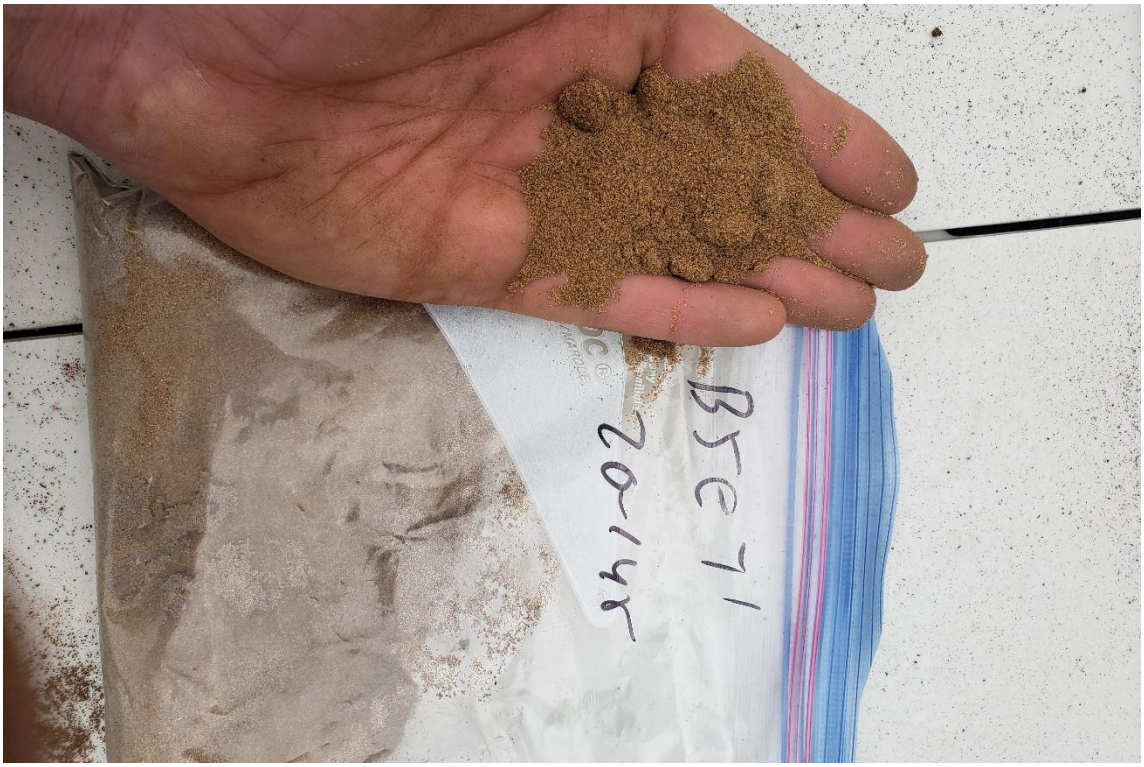

Figure 8 Dark, Organic Rich Soil

Attachment B

Northwest Information Center Records Search Results

California Historical Resources Information System

CHRIS Data Request Form

ACCESS AND USE AGREEMENT NO.: 56 **IC FILE NO.:** _____

To: Northwest Information Center

Print Name: Courtney Montgomery Date: March 9, 2021

Affiliation: Rincon Consultants, Inc.

Address: 180 N. Ashwood Avenue

City: Ventura State: CA Zip: 93003

Phone: 805-644-4455 Fax: 805-644-4455 Email: cmontgomery@rinconconsultants.com

Billing Address (if different than above): _____

Billing Email: ap@rinconconsultants.com Billing Phone: 805-644-4455

Project Name / Reference: 20-10173 SCWD Country Club Replacement Well & Treatment Plan

Project Street Address: 251 Baltusrol Drive

County or Counties: Santa Cruz

Township/Range/UTMs: T11S R01E S16,17,20,21

USGS 7.5' Quad(s): Soquel and Watsonville West

PRIORITY RESPONSE (Additional Fee): es ☐ / no ☒

TOTAL FEE NOT TO EXCEED: $ 800
(If blank, the Information Center will contact you if the fee is expected to exceed $1,000.00)

Special Instructions:

Information Center Use Only

Date of CHRIS Data Provided for this Request: _____

Confidential Data Included in Response: yes ☐ / no ☐

Notes: _____

CHRIS Data Request Form

Mark the request form as needed. Attach a PDF of your project area (with the radius if applicable) mapped on a 7.5' USGS topographic quadrangle to scale 1:24000 ratio 1:1 neither enlarged nor reduced and include a shapefile of your project area, if available. Shapefiles are the current CHRIS standard for submitting digital spatial data for your project area or radius. **Check with the appropriate IC for current availability of digital data products.**

- Documents will be provided in PDF format. Paper copies will only be provided if PDFs are not available at the time of the request or under specially arranged circumstances.
- Location information will be provided as a digital map product (Custom Maps or GIS data) unless the area has not yet been digitized. In such circumstances, the IC may provide hand drawn maps.
- In addition to the $150/hr. staff time fee, client will be charged the Custom Map fee when GIS is required to complete the request [e.g., a map printout or map image/PDF is requested and no GIS Data is requested, or an electronic product is requested (derived from GIS data) but no mapping is requested].

For product fees, see the CHRIS IC Fee Structure on the OHP website.

1. Map Format Choice:

Select One: Custom GIS Maps ☐ GIS Data ☐ Custom GIS Maps **and** GIS Data ☐ No Maps ☐

Any selection below left unmarked will be considered a "no. "

Location Information:

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Locations[1]	yes ☑ / no ☐	yes ☑ / no ☐
NON-ARCHAEOLOGICAL Resource Locations	yes ☑ / no ☐	yes ☑ / no ☐
Report Locations[1]	yes ☑ / no ☐	yes ☑ / no ☐
"Other" Report Locations[2]	yes ☐ / no ☑	yes ☐ / no ☑

3. Database Information:
(contact the IC for product examples, or visit the SSJVIC website for examples)

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Database[1]		
List (PDF format)	yes ☑ / no ☐	yes ☑ / no ☐
Detail (PDF format)	yes ☐ / no ☑	yes ☐ / no ☑
Excel Spreadsheet	yes ☐ / no ☑	yes ☐ / no ☑
NON-ARCHAEOLOGICAL Resource Database		
List (PDF format)	yes ☑ / no ☐	yes ☑ / no ☐
Detail (PDF format)	yes ☐ / no ☑	yes ☐ / no ☑
Excel Spreadsheet	yes ☐ / no ☑	yes ☐ / no ☑
Report Database[1]		
List (PDF format)	yes ☑ / no ☐	yes ☑ / no ☐
Detail (PDF format)	yes ☐ / no ☑	yes ☐ / no ☑
Excel Spreadsheet	yes ☐ / no ☑	yes ☐ / no ☑
Include "Other" Reports[2]	yes ☐ / no ☑	yes ☐ / no ☑

4. Document PDFs (paper copy only upon request)**:**

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Records[1]	yes ☑ / no ☐	yes ☑ / no ☐
NON-ARCHAEOLOGICAL Resource Records	yes ☑ / no ☐	yes ☑ / no ☐
Reports[1]	yes ☑ / no ☐	yes ☐ / no ☑
"Other" Reports[2]	yes ☐ / no ☑	yes ☐ / no ☑

CHRIS Data Request Form

5. Eligibility Listings and Documentation:

	Within project area	Within 0.5 mi. radius
OHP Built Environment Resources irectory[3]:		
Directory listing only (Excel format)	yes ☐ / no ☒	yes ☐ / no ☒
Associated documentation[4]	yes ☒ / no ☐	yes ☐ / no ☒
OHP Archaeological Resources Directory[1,5]:		
Directory listing only (Excel format)	yes ☒ / no ☐	yes ☒ / no ☐
Associated documentation[4]	yes ☒ / no ☐	yes ☒ / no ☐
***California Inventory of Historic Resources* (1976):**		
Directory listing only (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Associated documentation[4]	yes ☐ / no ☒	yes ☐ / no ☒

6. Additional Information:

The following sources of information may be available through the Information Center. However, several of these sources are now available on the OHP website and can be accessed directly. The Office of Historic Preservation makes no guarantees about the availability, completeness, or accuracy of the information provided through these sources. Indicate below if the Information Center should review and provide documentation (if available) of any of the following ources as part of this request.

Caltrans Bridge Survey	yes ☐ / no ☒
Ethnographic Information	yes ☐ / no ☒
Historical Literature	yes ☐ / no ☒
Historical Maps	yes ☐ / no ☒
Local Inventories	yes ☐ / no ☒
GLO and/or Rancho Plat Maps	yes ☐ / no ☒
Shipwreck Inventory	yes ☐ / no ☒
Soil Survey Maps	yes ☐ / no ☒

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[1] In order to receive archaeological information, requestor must meet qualifications as specified in Section III of the current version of the California Historical Resources Information System Information Center Rules of Operation Manual and be identified as an Authorized User or Conditional User under an active CHRIS Access and Use Agreement.

[2] "Other" Reports GIS layer consists of report study areas for which the report content is almost entirely non-fieldwork related (e.g., local/regional history, or overview) and/or for which the presentation of the study area boundary may or may not add value to a record search.

[3] Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Includes, but not limited to, information regarding National Register of Historic Places, California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and historic building surveys. Previously known as the HRI and then as the HPD, it is now known as the Built Environment Resources Directory (BERD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

[4] Associated documentation will vary by resource. Contact the IC for further details.

[5] Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Previously known as the Archaeological Determinations of Eligibility, now it is known as the Archaeological Resources Directory (ARD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA, COLUSA, CONTRA COSTA, DEL NORTE, HUMBOLDT, LAKE, MARIN, MENDOCINO, MONTEREY, NAPA, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLATA, SANTA CRUZ, SOLANO, SONOMA, YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
http://www.sonoma.edu/nwic

4/15/2021 NWIC File No.: 20-1750

Courtney Montgomery
Rincon Consultants, Inc.
180 N. Ashwood Avenue
Ventura, CA 93003

Re: 20-10173 SCWD Country Club Replacement Well & Treatment Plan

The Northwest Information Center received your record search request for the project area referenced above, located on the Soquel, Watsonville West USGS 7.5' quad(s). The following reflects the results of the records search for the project area and a 0.5 mi. radius:

Resources within project area:	None listed
Resources within 0.5 mi. radius:	P-44-000377
Reports within project area:	None listed
Reports within 0.5 mi. radius:	S-3964, 7106, 39959, 48282

Resource Database Printout (list):		☒ enclosed	☐ not requested	☐ nothing listed
Resource Database Printout (details):		☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:		☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):		☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):		☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:		☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies:		☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	[within]	☐ enclosed	☐ not requested	☒ nothing listed
OHP Built Environment Resources Directory:		☐ enclosed	☐ not requested	☒ nothing listed
Archaeological Determinations of Eligibility:		☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):		☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:		☐ enclosed	☐ not requested	☐ nothing listed
GLO and/or Rancho Plat Maps:		☐ enclosed	☐ not requested	☐ nothing listed

*Notes:

** Current versions of these resources are available on-line:

Caltrans Bridge Survey: http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Soil Survey: http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=CA

Shipwreck Inventory: http://www.slc.ca.gov/Info/Shipwrecks.html

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Annette Neal

Researcher

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-003964	Voided - E-218 SCR	1977		Santa Cruz Regional Wastewater Treatment System Project, Santa Cruz County, California	Ann S. Peak & Associates	27-000332, 27-000585, 44-000065, 44-000066, 44-000085, 44-000091, 44-000105, 44-000106, 44-000141, 44-000173, 44-000174
S-007106		1985	Miley Paul Holman, Randy Wiberg, and Matthew Clark	An Archaeological Reconnaissance of the Benchlands and Uplands, Seascape Properties, Santa Cruz County, California	Holman & Associates	
S-039959	Submitter - Project No. SYN1208	2012	David Brunzell	Cultural Resources Assessment of the Crown Castle Seacliff Project, Santa Cruz County, California (BCR Consulting Project No. SYN1208) (letter report)	BCR Consulting	
S-048282		2015	Jennifer Roland	FCC Form 620 New Tower Submission Packet, 26011/ Rio Del Mar Elementary SC1, 819 Pinehurst Drive, Santa Cruz, CA 95003	NWB Environmental Services	
S-048282a		2015	Jennifer Roland	Phase I Investigation for the Verizon Wireless Rio Del Mar Elementary SC1 Installation Project, Aptos, Santa Cruz, California	NWB Environmental Services, LLC	

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-44-000377		Resource Name - Southern Pacific Railroad; Other - Southern Pacific Railroad La Selva Beach Trestle; Other - Southern Pacific Railroad Structure No. 9.09; Other - Southern Pacific Railroad Harkins Slough Trestle; Other - Southern Pacific Railroad Structure No. 4.87; Other - SPRR Structure No. 105.1; Other - Harkin Slough Trestle; Other - Southern Pacific Railroad Tracks; Voided - P-44-001144; Other - Davenport Branch Line; Other - Coast Line Railway; Other - Union Pacific Railroad; Voided - P-44-000345; Other - SPRR Aptos Creek Trestle Footings	Structure	Historic	AH07; AH16; HP11; HP19	1998 (Chris Morgan, Pacific Legacy); 1999 (A. Ruby (FW), S. Mikesell (JRP), Far Western, JRP Historical Consulting Services); 2014 (Toni Webb, Garret Root, JRP Historical Consulting, LLC); 2014 (Toni Webb, Garret Root, JRP Historical Consulting, LLC); 2019 (Hannah Haas & Steven Treffers, Rincon Consultants, Inc)	S-038430, S-044312, S-044313, S-051938, S-054166, S-054246, S-054508

Attachment C

Native American Outreach

Rincon Consultants, Inc.
180 N Ashwood Avenue
Ventura, California 93003
805 644 4455 OFFICE AND FAX
info@rinconconsultants.com
www.rinconconsultants.com

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information below is required for a Sacred Lands File Search

Project Title: Country Club Well Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project

County: Santa Cruz

USGS Quadrangle Name: Soquel and Watsonville West Quadrangles

Township: 11S **Range:** 01E **Sections**: 16, 17, 20, 21

Contact Person: Courtney Montgomery

Company/Firm/Agency: Rincon Consultants, Inc.

Street Address: 7080 N. Whitney Avenue, Suite 101

City: Fresno **Zip**: 93720

Phone: (805) 644-4455, Ext 3005 **Email:** cmontgomery@rinconconsultants.com

Project Description: The proposed project consists of: (1) the construction a granular activated carbon (GAC) adsorption treatment plant; and (2) the construction a back-up well. These projects are critical components of a system to reliably provide clean water to a population of approximately 40,400 people in Santa Cruz County. The water treatment plant project also includes construction of a building or façade to reduce visual impacts to the neighborhood. The proposed back-up well is intended to replace the existing Country Club Well and will be designed with a similar capacity of 500 gallons per minute and similar flow rate of 400 gallons per minute. Following back-up well construction, a GAC water treatment plant will be constructed.

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 19, 2021

Courtney Montgomery, Archaeologist
Rincon Consultants, Inc.

Via Email to: cmontgomery@rinconconsultants.com
Cc to: yanapvoic97@gmail.com

Re: Country Club Well Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Santa Cruz County

Dear Ms. Montgomery:

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 positive. Please contact the Costanoan Ohlone Rumsen-Mutsen Tribe on the attached list for more information. 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: Sarah.Fonseca@nahc.ca.gov.

Sincerely,

Sarah Fonseca
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contacts List
March 19, 2021

Amah Mutsun Tribal Band
Valentin Lopez, Chairperson
P.O. Box 5272 Ohlone/Costanoan
Galt ,CA 95632 North Valley Yokuts
vlopez@amahmutsun.org
(916) 743-5833

Rumsen Am:a Tur:ataj Ohlone
Dee Dee Manzanares Ybarra, Chairperson
14671 Farmington Street Ohlone/Costanoan
Herperia ,CA 92345
rumsenama@gmail.com
(760) 403-1756

Amah MutsunTribal Band of Mission San Juan Bautista
Irene Zwierlein, Chairperson
789 Canada Road Ohlone/Costanoan
Woodside ,CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 332-1526 Fax

Costanoan Ohlone Rumsen-Mutsen Tribe
Patrick Orozco, Chairman
644 Peartree Drive Ohlone/Costanoan
Watsonville ,CA 95076
yanapvoic97@gmail.com
(831) 728-8471

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods
1615 Pearson Court Ohlone/Costanoan
San Jose ,CA 95122
kanyon@kanyonkonsulting.com
408-673-0626

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28 Ohlone/Costanoan
Hollister ,CA 95024
ams@indiancanyon.org
(831) 637-4238

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

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 Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans Tribes for the proposed:
Country Club Well Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Santa Cruz County.

Rincon Consultants, Inc.

437 Figueroa Street, Suite 203
Monterey, California 93940

831 333 0310 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

March 25, 2021

Muwekma Ohlone Indian Tribe of the SF Bay Area
Monica Arellano
20885 Redwood Road, Suite 232
Castro Valley, California, 94546

Subject: **Cultural Resources Study for the Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Aptos, Santa Cruz County, California**

Dear Ms. Arellano:

Rincon Consultants, Inc. (Rincon) has been retained by the Soquel Creek Water District (SqCWD) to conduct a Cultural Resources Study for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project), located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County (see attachment for project location map). The proposed project consists of: (1) the construction a granular activated carbon (GAC) adsorption treatment plant; and (2) the construction a back-up well. The water treatment plant includes construction of a building or façade around the treatment infrastructure to reduce visual impacts to the neighborhood. The proposed back-up well is intended to replace the existing Country Club Well and will be designed with a similar capacity of 500 gallons per minute and similar flow rate of 400 gallons per minute. The treatment plant and back-up well are critical components needed for the SqCWD system to reliably provide clean water to a population of approximately 40,400 people in Santa Cruz County. This project is subject to the California Environmental Quality Act (CEQA) with SqCWD serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. AB 52 consultation is being carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on March 9, 2021, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of tribal heritage resources within or near the project site. On March 19, 2021, Rincon received a response from the NAHC stating the SLF search results were positive. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the project site.

A project site location map is enclosed with this letter for your reference. Due to the circumstances surrounding COVID-19, we are submitting this letter digitally and will not be sending hard copies via U.S. mail.

If you have knowledge of cultural or tribal cultural resources that may exist within or near the proposed project that you wish to be documented in our report, please contact me at (510) 834-4455 extension 3005, or at cmontgomery@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.

Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map


Aptos
Baltusrol Dr
251 Baltusrol Drive
Aptos, California
Clubhouse Dr
Pinehurst Dr
Project Location
0
30
60
Feet
N
Imagery provided by ESRI, Microsoft Bing and its licensors © 2021.

Rincon Consultants, Inc.

437 Figueroa Street, Suite 203
Monterey, California 93940

831 333 0310 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

March 25, 2021

Amah Mutsun Tribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt, California 95632

Subject: **Cultural Resources Study for the Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Aptos, Santa Cruz County, California**

Dear Chairperson Lopez:

Rincon Consultants, Inc. (Rincon) has been retained by the Soquel Creek Water District (SqCWD) to conduct a Cultural Resources Study for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project), located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County (see attachment for project location map). The proposed project consists of: (1) the construction a granular activated carbon (GAC) adsorption treatment plant; and (2) the construction a back-up well. The water treatment plant includes construction of a building or façade around the treatment infrastructure to reduce visual impacts to the neighborhood. The proposed back-up well is intended to replace the existing Country Club Well and will be designed with a similar capacity of 500 gallons per minute and similar flow rate of 400 gallons per minute. The treatment plant and back-up well are critical components needed for the SqCWD system to reliably provide clean water to a population of approximately 40,400 people in Santa Cruz County. This project is subject to the California Environmental Quality Act (CEQA) with SqCWD serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. AB 52 consultation is being carried out separately by the lead agency.

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www.rinconconsultants.com

March 25, 2021

Rumšen Am:a Tur:ataj Ohlone
Dee Dee Manzanares Ybarra, Chairperson
14671 Farmington Street
Herperia, California 92345

Subject: **Cultural Resources Study for the Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Aptos, Santa Cruz County, California**

Dear Chairperson Manzanares Ybarra:

Rincon Consultants, Inc. (Rincon) has been retained by the Soquel Creek Water District (SqCWD) to conduct a Cultural Resources Study for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project), located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County (see attachment for project location map). The proposed project consists of: (1) the construction a granular activated carbon (GAC) adsorption treatment plant; and (2) the construction a back-up well. The water treatment plant includes construction of a building or façade around the treatment infrastructure to reduce visual impacts to the neighborhood. The proposed back-up well is intended to replace the existing Country Club Well and will be designed with a similar capacity of 500 gallons per minute and similar flow rate of 400 gallons per minute. The treatment plant and back-up well are critical components needed for the SqCWD system to reliably provide clean water to a population of approximately 40,400 people in Santa Cruz County. This project is subject to the California Environmental Quality Act (CEQA) with SqCWD serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. AB 52 consultation is being carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on March 9, 2021, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of tribal heritage resources within or near the project site. On March 19, 2021, Rincon received a response from the NAHC stating the SLF search results were positive. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the project site.

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Courtney Montgomery, M.A.
Archaeologist

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www.rinconconsultants.com

March 25, 2021

Costanoan Ohlone Rumsen-Mutsun Tribe
Patrick Orozco, Chairman
644 Peartree Drive
Watsonville, California 95076

Subject: **Cultural Resources Study for the Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Aptos, Santa Cruz County, California**

Dear Chairman Orozco:

Rincon Consultants, Inc. (Rincon) has been retained by the Soquel Creek Water District (SqCWD) to conduct a Cultural Resources Study for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project), located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County (see attachment for project location map). The proposed project consists of: (1) the construction a granular activated carbon (GAC) adsorption treatment plant; and (2) the construction a back-up well. The water treatment plant includes construction of a building or façade around the treatment infrastructure to reduce visual impacts to the neighborhood. The proposed back-up well is intended to replace the existing Country Club Well and will be designed with a similar capacity of 500 gallons per minute and similar flow rate of 400 gallons per minute. The treatment plant and back-up well are critical components needed for the SqCWD system to reliably provide clean water to a population of approximately 40,400 people in Santa Cruz County. This project is subject to the California Environmental Quality Act (CEQA) with SqCWD serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. AB 52 consultation is being carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on March 9, 2021, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of tribal heritage resources within or near the project site. On March 19, 2021, Rincon received a response from the NAHC stating the SLF search results were positive. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the project site.

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Courtney Montgomery, M.A.
Archaeologist

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437 Figueroa Street, Suite 203
Monterey, California 93940

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info@rinconconsultants.com
www.rinconconsultants.com

March 25, 2021

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, California 95024

Subject: **Cultural Resources Study for the Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Aptos, Santa Cruz County, California**

Dear Chairperson Sayers:

Rincon Consultants, Inc. (Rincon) has been retained by the Soquel Creek Water District (SqCWD) to conduct a Cultural Resources Study for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project), located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County (see attachment for project location map). The proposed project consists of: (1) the construction a granular activated carbon (GAC) adsorption treatment plant; and (2) the construction a back-up well. The water treatment plant includes construction of a building or façade around the treatment infrastructure to reduce visual impacts to the neighborhood. The proposed back-up well is intended to replace the existing Country Club Well and will be designed with a similar capacity of 500 gallons per minute and similar flow rate of 400 gallons per minute. The treatment plant and back-up well are critical components needed for the SqCWD system to reliably provide clean water to a population of approximately 40,400 people in Santa Cruz County. This project is subject to the California Environmental Quality Act (CEQA) with SqCWD serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. AB 52 consultation is being carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on March 9, 2021, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of tribal heritage resources within or near the project site. On March 19, 2021, Rincon received a response from the NAHC stating the SLF search results were positive. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the project site.

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Sincerely,
Rincon Consultants, Inc.

Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map


Aptos
Baltusrol Dr
251 Baltusrol Drive
Aptos, California
Clubhouse Dr
Pinehurst Dr
Project Location
0
30
60
Feet
N
Imagery provided by ESRI, Microsoft Bing and its licensors © 2021.

Rincon Consultants, Inc.

437 Figueroa Street, Suite 203
Monterey, California 93940

831 333 0310 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

March 25, 2021

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods
1615 Pearson Court
San Jose, California 95122

Subject: **Cultural Resources Study for the Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Aptos, Santa Cruz County, California**

Dear Ms. Sayers-Roods:

Rincon Consultants, Inc. (Rincon) has been retained by the Soquel Creek Water District (SqCWD) to conduct a Cultural Resources Study for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project), located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County (see attachment for project location map). The proposed project consists of: (1) the construction a granular activated carbon (GAC) adsorption treatment plant; and (2) the construction a back-up well. The water treatment plant includes construction of a building or façade around the treatment infrastructure to reduce visual impacts to the neighborhood. The proposed back-up well is intended to replace the existing Country Club Well and will be designed with a similar capacity of 500 gallons per minute and similar flow rate of 400 gallons per minute. The treatment plant and back-up well are critical components needed for the SqCWD system to reliably provide clean water to a population of approximately 40,400 people in Santa Cruz County. This project is subject to the California Environmental Quality Act (CEQA) with SqCWD serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. AB 52 consultation is being carried out separately by the lead agency.

As part of the process of identifying cultural resources for this project, Rincon contacted the Native American Heritage Commission (NAHC) on March 9, 2021, to request a Sacred Lands File search and a list of Native American tribal organizations and individuals who may have knowledge of tribal heritage resources within or near the project site. On March 19, 2021, Rincon received a response from the NAHC stating the SLF search results were positive. The NAHC response also included a list of Native American tribes who may have knowledge of cultural resources within or near the project site.

A project site location map is enclosed with this letter for your reference. Due to the circumstances surrounding COVID-19, we are submitting this letter digitally and will not be sending hard copies via U.S. mail.

If you have knowledge of cultural or tribal cultural resources that may exist within or near the proposed project that you wish to be documented in our report, please contact me at (510) 834-4455 extension 3005, or at cmontgomery@rinconconsultants.com. Thank you for your assistance.

Sincerely,
Rincon Consultants, Inc.

Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map


Aptos
Baltusrol Dr
251 Baltusrol Drive
Aptos, California
Clubhouse Dr
Pinehurst Dr
Project Location
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30
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Feet
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www.rinconconsultants.com

March 25, 2021

Amah Mutsun Tribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road
Woodside, California 94062

Subject: **Cultural Resources Study for the Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project, Aptos, Santa Cruz County, California**

Dear Chairperson Zwierlein:

Rincon Consultants, Inc. (Rincon) has been retained by the Soquel Creek Water District (SqCWD) to conduct a Cultural Resources Study for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project), located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County (see attachment for project location map). The proposed project consists of: (1) the construction a granular activated carbon (GAC) adsorption treatment plant; and (2) the construction a back-up well. The water treatment plant includes construction of a building or façade around the treatment infrastructure to reduce visual impacts to the neighborhood. The proposed back-up well is intended to replace the existing Country Club Well and will be designed with a similar capacity of 500 gallons per minute and similar flow rate of 400 gallons per minute. The treatment plant and back-up well are critical components needed for the SqCWD system to reliably provide clean water to a population of approximately 40,400 people in Santa Cruz County. This project is subject to the California Environmental Quality Act (CEQA) with SqCWD serving as the lead agency. This letter does not constitute notification under Assembly Bill 52 (AB 52) of 2014. AB 52 consultation is being carried out separately by the lead agency.

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Sincerely,
Rincon Consultants, Inc.

Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map


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30
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Feet
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Imagery provided by ESRI, Microsoft Bing and its licensors © 2021.

Courtney Montgomery

From: KKLLC Admin <admin@kanyonkonsulting.com>
Sent: Friday, March 26, 2021 11:38 AM
To: Courtney Montgomery
Subject: [EXT] Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant

To Whom it may concern,

My name is Kanyon Sayers-Roods. I am writing this on behalf of the Indian Canyon Band of Costanoan Ohlone People as requested, responding to your letter dated : Mar 25,2021

As this project's Area of Potential Effect (APE) overlaps or is near the management boundary of a recorded and potentially eligible cultural site, we recommend that a Native American Monitor and an Archaeologist be present on-site at all times. The presence of a monitor and archaeologist will help the project minimize potential effects on the cultural site and mitigate inadvertent issues.

Kanyon Konsulting, LLC has numerous Native Monitors available for projects such as this, if applicable, along with Cultural Sensitivity Training at the beginning of each project. This service is offered to aid those involved in the project to become more familiar with the indigenous history of the peoples of this land that is being worked on.

Kanyon Konsulting, LLC believes in having a strong proponent of honoring truth in history, when it comes to impacting cultural resources and potential ancestral remains. We have seen that projects like these tend to come into an area to consult/mitigate and move on shortly after. Doing so has the strong potential to impact cultural resources and disturb ancestral remains. Because of these possibilities, we highly recommend that you receive a specialized consultation provided by our company as the project commences.

As previously stated, our goal is to **Honor Truth in History**. And as such we want to ensure that there is an effort from the project organizer to take strategic steps in ways that **#HonorTruthinHistory**. This will make all involved aware of the history of the indigenous communities whom we acknowledge as the first stewards and land managers of these territories.

Potential Approaches to Ingenious Culture Awareness/History:
--Signs or messages to the audience or community of the territory being developed. (ex. A commerable plaque or as advantageous as an Educational/Cultural Center with information about the history of the land)

-- Commitment to consultation with the native peoples of the territory in regards to presenting messaging about the natives/Indigenous history of the land (Land Acknowledgement on website, written material about the space/org/building/business/etc)

-- Advocation of supporting indigenous lead movements and efforts. (informing one's audience and/or community about local present Indigenous community)

We look forward to working with you.
Best Regards,
Kanyon Sayers-Roods
Creative Director/Tribal Monitor
Kanyon Konsulting, LLC

Soquel Creek Water District Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project
Santa Cruz County, California
Rincon Project No: 20-10173

Native American Outreach

Local Group/Government Contact	Rincon Outreach Efforts	Response to Outreach Efforts
Amah Mutsun Tribal Band Valentin Lopez, Chairperson P.O. Box 5272 Galt, California 95632 Phone: (916) 743-5833 vlopez@amahmutsun.org	03/25/2021: Emailed letter	
Amah Mutsun Tribal Band of Mission San Juan Bautista Irenne Zwierlein, Chairperson 789 Canada Road Woodside, California 94062 Phone: (650) 400-4806 Fax: (650) 332-1526 amahmutsuntribal@gmail.com	03/25/2021: Emailed letter	
Costanoan Ohlone Rumsen-Mutsun Tribe Patrick Orozco, Chairman 644 Peartree Drive Watsonville, California 95076 Phone: (831) 728-8471 yanapvoic97@gmail.com	03/25/2021: Emailed letter	
Indian Canyon Mutsun Band of Costanoan Ann Marie Sayers, Chairperson P.O. Box 28 Hollister, California 95024 Phone: (831) 637-4238 ams@indiancanyon.org	03/25/2021: Emailed letter	
Muwekma Ohlone Indian Tribe of the SF Bay Area Monica Arellano 20885 Redwood Road, Suite 232 Castro Valley, California, 94546 Phone: (408) 205-9714 marellano@muwekma.org	03/25/2021: Emailed letter	
Rumšen Am:a Tur:ataj Ohlone Dee Dee Manzanares Ybarra, Chairperson 14671 Farmington Street Hesperia, California Phone: (760) 403-1756 rumsenama@gmail.com	03/25/2021: Emailed letter	

Local Group/Government Contact	Rincon Outreach Efforts	Response to Outreach Efforts
Indian Canyon Mutsun Band of Costanoan Kanyon Sayers-Roods 1615 Pearson Court San Jose, California 95122 Phone: (408) 673-0626 kanyon@kanyonkonsulting.com	03/25/2021: Emailed letter	03/26/2021: Ms. Sayers-Roods responded via email stating that the project is near and/or overlapping a previously recorded and potentially eligible cultural site. Ms. Sayers-Roods recommended Native American and Archaeological monitoring for the project, as well as cultural sensitivity training.

Attachment D

Department of Parks and Recreation Series 523 Forms

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code **Reviewer** **Date**

Page 1 of 4 ***Resource Name or #:** 251 Baltusrol Drive

P1. Other Identifier: Plant No. 18, Country Club Park

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County:** Santa Cruz

***b. USGS 7.5' Quad:** *Soquel* **Date:** 1994 Township 11S, Range 1E, Unsectioned M.D. **B.M.**

c. Address: 251 Baltusrol Drive City: Aptos Zip: 95003

d. UTM: Zone: mE/ mN

e. Other Locational Data: APN: 053-221-11

***P3a. Description:**

The subject property includes a mechanical well and associated water distribution features operated by the Soquel Creek Water District (SqCWD), which are situated on a largely undeveloped 0.27-acre parcel. Situated at the northeast corner of the property, the well is housed in a prefabricated steel pump enclosure, which is L-planned, sits on a concrete foundation, and is capped with a low-pitched, pent metal roof. The entrance is a metal door on the northeast elevation. Louvered vents are built into the top and bottom portions of most of the building's standing-seam metal exterior wall panels. A non-original metal-clad chemical feed enclosure extends from the northwest elevation. It contains a chemical feed consisting primarily of a plastic basin. Several components of the well are situated inside the pump enclosure. A concrete seal, measuring approximately 1 foot in height and 5 feet in width and depth, marks the location of the well bore, while a horizontally oriented pipeline is anchored with bolts to the well seal and extends to the northeast, exiting the building. A steel, pylon-shaped electrical pump motor, likely non-original, is affixed to the pipeline and aligned with the center of the well seal. Outside and immediately east of the pump enclosure is an above-ground pipework system supported by metal legs and a concrete pad. From this feature, a pipeline measuring approximately 6 inches in diameter descends into the ground at the parcel's northeast corner. The well site is secured by a chain-link fence and lined on the northwest side with tall hedgerows. A gravel-lined driveway parallels the parcel's northeast boundary, leading to vehicle gate of the fenced well site.

Except for a freestanding metal electrical service box situated immediately west of the well site, the remainder of the property is undeveloped. The gently sloping terrain is planted with a lawn, three mature pepper trees, a mature black walnut tree, and four coast live oak saplings. A split-rail fence traces the Baltusrol Drive frontage.

***P3b. Resource Attributes:** HP39. Other

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

P5a. Photo or Drawing

P5b. Description of Photo:
Overview of well house and sand separator. Camera facing southeast.

***P6. Date Constructed/Age and Sources:**
■ Historic ☐ Prehistoric ☐ Both

Between 1954 and 1961 (Monterey Bay Water Company [MBWC] 1961a)

***P7. Owner and Address:**
N/A

***P8. Recorded by:**
Elaine Foster and James Williams
Rincon Consultants
437 Figueroa St #203
Monterey, CA 93940

***P9. Date Recorded:**
April 30, 2021

***P10. Survey Type:**

***P11. Report Citation:**

Montgomery, Courtney, Elaine Foster, Hannah Haas, Andrew Pulcheon, James Williams, and Steven Treffers. 2021. *Cultural Resources Assessment for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project at 251 Baltusrol Drive, Aptos, Santa Cruz County, California 95003.* Project 20-10173. Prepared for Soquel Creek Water District by Rincon Consultants, Inc.

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

State of California X Natural Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

LOCATION MAP

Trinomial

Page 2 **of** 4 ***Resource Name or #** 251 Baltusrol Drive
***Map Name:** *Soquel; Watsonville West* ***Scale:** 1:24,000 ***Date of map:** 1994; 1995

State of California X The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** 251 Baltusrol Drive ***NRHP Status Code** 6Z
Page 3 **of** 4

B1. Historic Name: Plant No. 18, Country Club Park
B2. Common Name: N/A
B3. Original Use: Water well B4. Present Use: Water well
***B5. Architectural Style:** N/A
***B6. Construction History:**
Records on file with the SqCWD indicate the subject well was drilled in 1954 and the well machinery and a pump enclosure were installed by 1961 (MBWC 1961a). A chemical feed enclosure was added to the northeast elevation of the pump enclosure, though its date of construction is not known. The extant pump motor was likely replaced sometime within the last 30 years (Koffler Electrical Mechanical Apparatus Repair, Inc 2021). The installation date of the freestanding electrical service box is not known.

***B7. Moved?** □ **No** □ **Yes** ■ **Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:** None
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme** N/A **Area** N/A
Period of Significance N/A **Property Type** N/A **Applicable Criteria** N/A

The subject property consists of a water well that was likely originally developed in the mid-twentieth century as part of the MBWC Aptos-Rio del Mar system. MBWC records show the well was drilled in 1954, on what was then undeveloped farmland. New pumping equipment and the pump enclosure were constructed by 1961, around which time the surrounding area was first developed as a residential subdivision (MBWC 1961a; 1961b). Newspaper items show that, by 1963, the recently established SqCWD (then named the Soquel Creek County Water District) began its effort to acquire the MBWC. Mainly, the SqCWD Board of Directors made its arguments to the public on the basis of the relatively low overhead costs of municipal water districts (as compared with private firms) and the resulting opportunity to improve local water distribution, flood control, and recreational facilities in the face of a projected population boom (*Santa Cruz Sentinel* 9/24/1963; 10/3/1963). In 1964, the SqCWD purchased the MBWC, bringing the subject pump under the SqCWD's control (SqCWD 2021). *See continuation sheet, p. 4.*

B11. Additional Resource Attributes: N/A
***B12. References:**

California Department of Transportation and JRP Historical Consulting. 2000. *Water Conveyance Systems in California: Historic Context Development and Evaluation Procedures*. December

Koffler Electrical Mechanical Apparatus Repair, Inc. 2021. "Charles Koffler: Founder Hilaria Koffler: President," http://www.koffler.com/founder.html. Accessed May 25, 2021.

Monterey Bay Water Company (MWBC). 1961a. Monterey Bay Water Company Well Data, Aptos-Rio del Mar System. Document on file with the SqCWD.

_____. 1961b Monterey Bay Water Company, Aptos-Rio Del Mar Distribution System. [map]. Document on file with the SqCWD.

Santa Cruz Sentinel. 1963. "Advantages of Community-Owned Water System Told." September 24. www.newspapers.com. Accessed May 25, 2021.

_____. 1963. "Vote Yes for Water," [advertisement]. October 3. www.newspapers.com. Accessed May 25, 2021.

Soquel Creek Water District (SqCWD). 2021. "History," "https://www.soquelcreekwater.org/204/History. Accessed May 25, 2021.

B13. Remarks:
***B14. Evaluator:** James Williams, Rincon Consultants
***Date of Evaluation:** May 26, 2021

(This space reserved for official comments.)

***Recorded by:** Elaine Foster and James Williams, Rincon Consultants ***Date:** April 30, 2021 ■Continuation ☐Update

B10. Significance (continued):

The well has incurred at least two notable alterations since its initial development. First, the enclosure containing the chemical feed was added to the pump enclosure, though the date of this alteration could not be determined. Second, the existing pump motor was installed. Although the date of its installation is not known, the alteration is estimated to have occurred sometime since circa 1990, the approximate date of the establishment of its manufacturer, Koffler Electrical Mechanical Apparatus Repair, Inc. (Koffler 2021).

National Register of Historic Places, California Register of Historical Resources, and County of Santa Cruz Historic Resource Evaluation

The subject property is recommended ineligible for listing in the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), or for designation as a historic resource in the County of Santa Cruz because it lacks historical or architectural significance and distinction as an engineered structure.

The subject property is associated with the operation of the MBWC in the late 1950s and early 1960s and with the early expansion of the SqCWD in 1964. As detailed in *Water Conveyance Systems in California: Historic Context Development and Evaluation Procedures*, although the establishment of a water system is of inherent importance to a community, to be eligible for listing as a historical resource, "the system's association with [an] important event must also be an important association, not mere coexistence" (California Department of Transportation and JRP Historical Consulting 2000). Research for this evaluation did not find evidence suggesting the founding or expansion of either system were significant in their own right or strongly associated with any significant in the history of the town, region, state, or nation. The subject property is therefore recommended ineligible under NRHP Criterion A/CRHR Criterion 1/County of Santa Cruz Criterion B.

Research for this evaluation did not identify any individual directly associated with the subject property. Further, as a commonplace utilitarian structure, the well is unlikely to strongly represent a notable contribution of any individual associated with the MBWC or SqCWD or the contributions of any other figure. As such, the property is recommended ineligible under NRHP Criterion B/CRHR Criterion 2/County of Santa Cruz Criterion A.

Water Conveyance Systems in California advises that to be eligible for their design characteristics, water conveyance systems or features must have "unique values or… may be the best or good examples of a type." Additionally, a resource may be eligible it if is the "earliest, best preserved, largest, or sole surviving example" of a type (California Department of Transportation and JRP Historical Consulting 2000). Research for this evaluation did not find evidence that well or its components represent an important design achievement in the field of engineering or that it possesses any of the above-listed qualities. By all appearances, the structure is an example of a ubiquitous type of structure with no distinctive design characteristics. Additionally, the pump enclosure is a simple, utilitarian feature. Its functional design does not embody the distinctive characteristics of a type, period, or method of construction, and does not possess high artistic values. Although the designers of the pump and pump enclosure are not known, the undistinguished designs of both features are unlikely to be exemplary of the work of any master engineer or architect. The subject property is, therefore, recommended ineligible under NRHP Criterion C/CRHR Criterion 3/County of Santa Cruz Criterion C.

A review available of evidence and records search results did not suggest the subject property may yield important information about prehistory or history. It is therefore recommended ineligible under NRHP Criterion D/CRHR Criterion 4/County of Santa Cruz Criterion D.

Finally, no available evidence suggests the well would be eligible for designation as part of any historical district, such as one representing the wider MBWC or SqCWD water distribution systems. This evaluation concluded that neither district is strongly associated with significant events or the important contributions of any individual and that neither system is regarded as important for its overall design.

Left: Interior of pump enclosure, depicting the well seal, pipeline, and pump motor. Right: Overview of the subject property with the electrical service box at the right side of the frame. View to the south from the rear of the property.

Appendix E

Energy Calculations

SqCWD Country Club Well Replacement

Last Updated: August 5, 2021

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Air Compressors	1	8	78	0.48	Demolition/Removal of Components	176.01
Bore/Drill Rigs	1	8	221	0.5	Demolition/Removal of Components	467.27
Concrete/Industrial Saws	1	8	81	0.73	Demolition/Removal of Components	277.98
Dumpers/Tenders	1	8	16	0.38	Demolition/Removal of Components	28.58
Excavators	1	8	158	0.38	Demolition/Removal of Components	253.89
Forklifts	1	8	89	0.2	Demolition/Removal of Components	83.68
Generator Sets	1	8	84	0.74	Demolition/Removal of Components	292.22
Rubber Tired Dozers	1	1	247	0.4	Demolition/Removal of Components	52.22
Signal Boards	1	8	6	0.82	Demolition/Removal of Components	23.13
Sweepers/Scrubbers	1	8	64	0.46	Demolition/Removal of Components	138.40
Tractors/Loaders/Backhoes	1	8	97	0.37	Demolition/Removal of Components	168.72
Aerial Lifts	1	8	63	0.31	Site Preparation Phase	91.81
Bore/Drill Rigs	1	8	221	0.5	Site Preparation Phase	467.27
Rough Terrain Forklifts	1	8	100	0.4	Site Preparation Phase	188.05
Tractors/Loaders/Backhoes	1	8	97	0.37	Site Preparation Phase	168.72
Aerial Lifts	1	4	63	0.31	Pilot Borehole Drilling	36.73
Air Compressors	1	8	78	0.48	Pilot Borehole Drilling	140.81
Bore/Drill Rigs	1	24	221	0.5	Pilot Borehole Drilling	1,121.46
Cranes	1	8	231	0.29	Pilot Borehole Drilling	226.63
Generator Sets	1	24	84	0.74	Pilot Borehole Drilling	701.33
Pumps	1	24	84	0.74	Pilot Borehole Drilling	701.33
Rough Terrain Forklifts	1	8	100	0.4	Pilot Borehole Drilling	150.44
Tractors/Loaders/Backhoes	1	7	97	0.37	Pilot Borehole Drilling	118.11
Welders	1	8	46	0.45	Pilot Borehole Drilling	77.85
Aerial Lifts	1	4	63	0.31	Reaming and Well Installation	50.50
Air Compressors	1	8	78	0.48	Reaming and Well Installation	193.61
Bore/Drill Rigs	1	24	221	0.5	Reaming and Well Installation	1,542.00
Cranes	1	8	231	0.29	Reaming and Well Installation	311.61
Generator Sets	1	24	84	0.74	Reaming and Well Installation	964.34
Pumps	1	24	84	0.74	Reaming and Well Installation	964.34
Rough Terrain Forklifts	1	8	100	0.4	Reaming and Well Installation	206.85
Tractors/Loaders/Backhoes	1	7	97	0.37	Reaming and Well Installation	162.40
Welders	1	8	46	0.45	Reaming and Well Installation	107.04
Aerial Lifts	1	4	63	0.31	Mechanical and Chemical Development	22.95
Air Compressors	1	8	78	0.48	Mechanical and Chemical Development	88.01
Bore/Drill Rigs	1	24	221	0.5	Mechanical and Chemical Development	700.91
Cranes	1	8	231	0.29	Mechanical and Chemical Development	141.64
Generator Sets	1	24	84	0.74	Mechanical and Chemical Development	438.33
Pumps	1	24	84	0.74	Mechanical and Chemical Development	438.33
Rough Terrain Forklifts	1	8	100	0.4	Mechanical and Chemical Development	94.02
Tractors/Loaders/Backhoes	1	7	97	0.37	Mechanical and Chemical Development	73.82
Welders	1	8	46	0.45	Mechanical and Chemical Development	48.66
Air Compressors	1	8	78	0.48	Pump Development and Testing	211.21
Generator Sets	1	8	84	0.74	Pump Development and Testing	350.67
Pumps	1	8	84	0.74	Pump Development and Testing	350.67
Rollers	1	8	80	0.38	Site Restoration	171.50
					Total Fuel Used	**13,786.06**
						(Gallons)

Construction Phase	Days of Operation
Demolition/Removal of Components	10
Site Preparation Phase	10
Pilot Borehole Drilling	8
Reaming and Well Installation	11
Mechanical and Chemical Development	12
Pump Development and Testing	12
Site Restoration	5
Total Days	68

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition/Removal of Components	24.4	8	10.8	35.41
Site Preparation Phase	24.4	8	10.8	35.41
Pilot Borehole Drilling	24.4	8	10.8	28.33
Reaming and Well Installation	24.4	8	10.8	38.95
Mechanical and Chemical Development	24.4	8	10.8	42.49
Pump Development and Testing	24.4	8	10.8	42.49
Site Restoration	24.4	8	10.8	17.70
			Fuel	**240.79**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Demolition/Removal of Components	7.5	2	20.0	5.33
Site Preparation Phase	7.5	0	20.0	0.00
Pilot Borehole Drilling	7.5	38	20.0	101.33
Reaming and Well Installation	7.5	0	20.0	0.00
Mechanical and Chemical Development	7.5	0	20.0	0.00
Pump Development and Testing	7.5	0	20.0	0.00
Site Restoration	7.5	0	20.0	0.00
			Fuel	**106.67**
VENDOR TRIPS				
Demolition/Removal of Components	7.5	0	7.3	0.00
Site Preparation Phase	7.5	0	7.3	0.00
Pilot Borehole Drilling	7.5	0	7.3	0.00
Reaming and Well Installation	7.5	2	7.3	21.41
Mechanical and Chemical Development	7.5	0	7.3	0.00
Pump Development and Testing	7.5	0	7.3	0.00
Site Restoration	7.5	0	7.3	0.00
			Fuel	**21.41**

Total Gasoline Consumption (gallons)	**240.79**
Total Diesel Consumption (gallons)	**13,914.14**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2019. *National Transportation Statistics 2019* . Available at: https://www.bts.gov/topics/national-transportation-statistics.

SqCWD 1,2,3-TCP Water Treatment Plant

Last Updated: August 5, 2021

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Air Compressors	1	8	78	0.48	Demolition	264.02
Bore/Drill Rigs	1	8	221	0.5	Demolition	700.91
Concrete/Industrial Saws	1	8	81	0.73	Demolition	416.97
Dumpers/Tenders	1	8	16	0.38	Demolition	42.87
Excavators	1	8	158	0.38	Demolition	380.84
Forklifts	1	8	89	0.2	Demolition	125.52
Generator Sets	1	8	84	0.74	Demolition	438.33
Rubber Tired Dozers	1	1	247	0.4	Demolition	78.34
Signal Boards	1	8	6	0.82	Demolition	34.69
Sweepers/Scrubbers	1	8	64	0.46	Demolition	207.60
Tractors/Loaders/Backhoes	1	8	97	0.37	Demolition	253.09
Air Compressors	1	8	78	0.48	Site Preparation and Initial Site Grading	176.01
Concrete/Industrial Saws	1	8	81	0.73	Site Preparation and Initial Site Grading	277.98
Dumpers/Tenders	1	8	16	0.38	Site Preparation and Initial Site Grading	28.58
Excavators	1	8	158	0.38	Site Preparation and Initial Site Grading	253.89
Forklifts	1	8	89	0.2	Site Preparation and Initial Site Grading	83.68
Generator Sets	1	8	84	0.74	Site Preparation and Initial Site Grading	292.22
Graders	1	6	187	0.41	Site Preparation and Initial Site Grading	243.16
Plate Compactors	1	8	8	0.43	Site Preparation and Initial Site Grading	16.17
Rollers	1	8	80	0.38	Site Preparation and Initial Site Grading	142.91
Rubber Tired Dozers	1	6	247	0.4	Site Preparation and Initial Site Grading	313.35
Scrapers	1	8	367	0.48	Site Preparation and Initial Site Grading	744.93
Signal Boards	1	8	6	0.82	Site Preparation and Initial Site Grading	23.13
Sweepers/Scrubbers	1	8	64	0.46	Site Preparation and Initial Site Grading	138.40
Tractors/Loaders/Backhoes	3	7	97	0.37	Site Preparation and Initial Site Grading	442.90
Trenchers	1	8	78	0.5	Site Preparation and Initial Site Grading	183.34
Aerial Lifts	1	8	63	0.31	Building Construction and System Installation	1,432.29
Air Compressors	1	8	78	0.48	Building Construction and System Installation	2,745.77
Concrete/Industrial Saws	1	8	81	0.73	Building Construction and System Installation	4,336.46
Cranes	1	4	231	0.29	Building Construction and System Installation	2,209.60
Dumpers/Tenders	1	8	16	0.38	Building Construction and System Installation	445.89
Forklifts	1	6	89	0.2	Building Construction and System Installation	979.06
Generator Sets	1	8	84	0.74	Building Construction and System Installation	4,558.67
Pressure Washers	1	8	13	0.3	Building Construction and System Installation	286.02
Signal Boards	1	8	6	0.82	Building Construction and System Installation	360.82
Sweepers/Scrubbers	1	8	64	0.46	Building Construction and System Installation	2,159.06
Welders	1	8	46	0.45	Building Construction and System Installation	1,518.09
Air Compressors	1	8	78	0.48	Paving and Aggregate Base Surfacing	176.01
Forklifts	1	8	89	0.2	Paving and Aggregate Base Surfacing	83.68
Generator Sets	1	8	84	0.74	Paving and Aggregate Base Surfacing	292.22
Graders	1	8	187	0.41	Paving and Aggregate Base Surfacing	324.22
Paving Equipment	1	8	132	0.36	Paving and Aggregate Base Surfacing	200.95
Plate Compactors	1	8	8	0.43	Paving and Aggregate Base Surfacing	16.17
Rollers	1	8	80	0.38	Paving and Aggregate Base Surfacing	142.91
Rubber Tired Dozers	1	8	247	0.4	Paving and Aggregate Base Surfacing	417.80
Scrapers	1	8	367	0.48	Paving and Aggregate Base Surfacing	744.93
Signal Boards	1	8	6	0.82	Paving and Aggregate Base Surfacing	23.13
Surfacing Equipment	1	8	263	0.3	Paving and Aggregate Base Surfacing	333.65
Sweepers/Scrubbers	1	8	64	0.46	Paving and Aggregate Base Surfacing	138.40
Tractors/Loaders/Backhoes	1	8	97	0.37	Paving and Aggregate Base Surfacing	168.72
Aerial Lifts	1	8	63	0.31	Architectural Coating	91.81
Air Compressors	1	8	78	0.48	Architectural Coating	176.01
Generator Sets	1	8	84	0.74	Architectural Coating	292.22
Pressure Washers	1	8	13	0.3	Architectural Coating	18.33
Signal Boards	1	8	6	0.82	Architectural Coating	23.13
Sweepers/Scrubbers	1	8	64	0.46	Architectural Coating	138.40
					Total Fuel Used	**31,138.29**
						(Gallons)

Construction Phase	Days of Operation
Demolition	15
Site Preparation and Initial Site Grading	10
Building Construction and System Installation	156
Paving and Aggregate Base Surfacing	10
Architectural Coating	10
Total Days	201

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition	24.4	16	10.8	106.23
Site Preparation and Initial Site Grading	24.4	16	10.8	70.82
Building Construction and System Installation	24.4	16	10.8	1104.79
Paving and Aggregate Base Surfacing	24.4	16	10.8	70.82
Architectural Coating	24.4	16	10.8	70.82
		Total Fuel Used		**1,423.48**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Demolition	7.5	0	20.0	0.00
Site Preparation and Initial Site Grading	7.5	114	20.0	304.00
Building Construction and System Installation	7.5	0	20.0	0.00
Paving and Aggregate Base Surfacing	7.5	0	20.0	0.00
Architectural Coating	7.5	0	20.0	0.00
		Total Fuel Used		**304.00**
VENDOR TRIPS				
Demolition	7.5	0	7.3	0.00
Site Preparation and Initial Site Grading	7.5	0	7.3	0.00
Building Construction and System Installation	7.5	2	7.3	303.68
Paving and Aggregate Base Surfacing	7.5	2	7.3	19.47
Architectural Coating	7.5	0	7.3	0.00
		Total Fuel Used		**323.15**

Total Gasoline Consumption (gallons)	**1,423.48**
Total Diesel Consumption (gallons)	**31,765.44**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2019. *National Transportation Statistics 2019* . Available at: https://www.bts.gov/topics/national-transportation-statistics.

SqCWD Country Club Well Replacement and 1,2,3-TCP WTP

Last Updated: August 5, 2021

Populate one of the following tables (Leave the other blank):

Annual VMT		OR	Daily Vehicle Trips	
Annual VMT:	5,401		Daily Vehicle Trips:	
			Average Trip Distance:	

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.000000
Light Duty Truck 1 (LDT1)	0.854050
Light Duty Truck 2 (LDT2)	0.000000
Medium Duty Vehicle (MDV)	0.145950
Light Heavy Duty 1 (LHD1)	0.000000
Light Heavy Duty 2 (LHD2)	0.000000
Medium Heavy Duty (MHD)	0.000000
Heavy Heavy Duty (HHD)	0.000000
Other Bus (OBUS)	0.000000
Urban Bus (UBUS)	0.000000
Motorcycle (MCY)	0.000000
School Bus (SBUS)	0.000000
Motorhome (MH)	0.000000

Fuel Economy (MPG) [1]	
Passenger Vehicles	24.4
Light-Med Duty Trucks	17.9
Heavy Trucks/Other	7.5
Motorcycles	44

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*0.00%*	*Gasoline*	0	0.00	0.00
Light-Medium Duty Trucks	*100.00%*	*Gasoline*	5401	0.00	301.73
Heavy Trucks/Other	*0.00%*	*Diesel*	0	0.00	0.00
Motorcycle	*0.00%*	*Gasoline*	0	0.00	0.00

Total Gasoline Consumption (gallons)	**301.73**
Total Diesel Consumption (gallons)	**0.00**

Sources:

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2019. National Transportation Statistics 2019. Available at: https://www.bts.gov/topics/national-transportation-statistics.

Appendix F

Geotechnical Investigation

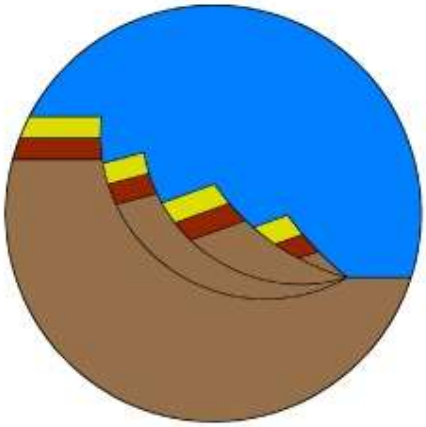
GEOTECHNICAL INVESTIGATION

251 Baltusrol Drive
Aptos, Santa Cruz County, California
APN 053-221-11

Submitted to:

Soquel Creek Water District
P.O. Box 1550
Capitola, California 95010

ATTN: Michael J. Wilson, PE



Prepared by:

CMAG ENGINEERING, INC.

Project No. 20-145-SC
April 1, 2021

CMAG ENGINEERING, INC.

P.O. BOX 640 APTOS, CALIFORNIA 95001
PHONE: 831.475.1411
WWW.CMAGENGINEERING.COM

April 1, 2021
Project No. 20-145-SC

Soquel Creek Water District
P.O. Box 1550
Capitola, California 95010

ATTN: Michael J. Wilson, PE

SUBJECT: **GEOTECHNICAL INVESTIGATION**
Granulated Activated Carbon Filter Plant
251 Baltusrol Drive
Aptos, Santa Cruz County, California
APN 053-221-11

Dear Mr. Wilson:

In accordance with your authorization, we have completed a geotechnical investigation for the subject project. This report summarizes the findings, conclusions, and recommendations from our field exploration, laboratory testing, and engineering analysis. It is a pleasure being associated with you on this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office.

Sincerely,

CMAG ENGINEERING, INC.

Adrian L.Garner, PE, GE
Principal Engineer
C 66087, GE 2814
Expires 6/30/22

Shannon Chome', PE
Senior Engineer
C 68398
Expires 9/30/21

Distribution: Addressee (4 Hard Copies; Electronic Copy)

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Figure 2: Site Map and Boring Location Plan
Figure 3: Local Geologic Map
Figure 4: Quaternary Faults

APPENDICES

APPENDIX A
Field Exploration Program

APPENDIX B
Laboratory Testing Program

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed granulated activated carbon filter plant located at 251 Baltusrol Drive in Aptos, Santa Cruz County, California.

The purpose of our investigation was to provide information regarding the surface and subsurface soil conditions, and based on our findings, provide geotechnical recommendations for the design and construction of the proposed building and associated improvements. Conclusions and recommendations related to geotechnical hazards, site grading, drainage, foundations, concrete slabs, and pavements are presented herein.

1.1 Terms of Reference

CMAG Engineering, Inc.'s (CMAG) scope of work for this phase of the project included site reconnaissance, review of relevant materials, subsurface exploration, soil sampling, laboratory testing, engineering analyses, and preparation of this geotechnical investigation report.

The work was undertaken in accordance with CMAG's *Proposal for Geotechnical Services* dated October 27, 2020.

The recommendations contained in this report are subject to the limitations presented in Section 8.0 of this report.

1.2 Site Location

The project site is situated on the southeast side of Baltusrol Drive just northeast of its intersection with Baltusrol Way, in Aptos, Santa Cruz County, California. The site location is shown on the Site Location Map, Figure 1.

1.3 Surface Conditions

The subject site consists of a vacant lot in a well developed residential neighborhood. The site slightly slopes, descending to the southwest. The site is currently vegetated with grass and sparse trees. A wood fence surrounds the site. An access road is located on the northern perimeter. An existing well is located on the northeast corner of the site. See Figure 2 for a map of the site.

1.4 Project Description

The project consists of the construction of a new well and a granulated activated carbon filter plant. The facility is to be housed in a 2,700 to 3,000 two story, light framed building with a concrete slab-on-grade. The final details of the building,

including potentially incorporating access for future replacement of the components of the system, are yet to be determined. The proposed asphalt paved driveway is to wrap around the site for ease of maintenance access. In general, the building, driveway, and landscaping are to appear similar to the neighboring residences.

A retention / detention system may be required to manage the on-site stormwater. The details, including the stormwater requirements and geotechnical design parameters have yet to be determined.

2.0 GEOLOGIC SETTING AND SEISMICITY

2.1 Geologic Setting

The local geologic map (Brabb et. al, 1997) depicts the site as underlain by Coastal Terrace deposits (Qcu, Pleistocene) described as generally consisting of semiconsolidated well sorted marine sand with thin discontinuous gravel rich layers and may be overlain by poorly sorted fluvial and colluvial silt, sand, and gravel. The thickness is variable but generally less than 20 feet. The unit may be well indurated in the upper part of the weathered zone. The Aromas Sand (Qar, Pleistocene), described as consisting of a heterogenous sequence of mainly eolian and fluvial sand, silt, clay and gravel is depicted to the north, east, and south of the site.

See Figure 3 for a local geologic map of the area.

Numerous faults are located in the region, surrounding the site, discussed in Section 2.2 below.

2.2 Regional Seismicity and Faulting

The 2014 Working Group on California Earthquake Probabilities (2014 WGCEP) in association with the U.S. Geological Survey (USGS) developed estimates of earthquake probabilities for all of California. Within the Northern California region, over the next 30 years, the 2014 WGCEP estimates a probability of 95 percent for a magnitude 6.7 or larger earthquake.

The major active faults in the area are the Zayante-Vergeles, San Andreas, Monterey Bay, and San Gregorio Fault Zones.

The USGS has published national seismic hazard maps displaying earthquake ground motions for various probability levels across the United States. The approximate distances to the active faults from the site and the corresponding estimated Mean Characteristic Moment Magnitudes are presented in Table 1. The distance to the faults and the Mean Characteristic Moment Magnitudes were determined from the USGS *2008 National Seismic Hazard Maps* (NSHMP) model.

A latitude and longitude of 36.9615 degrees and -121.8788 degrees, respectively, were used for our spatial query.

Table 1. Regional Active Faults

Fault Segment	Approximate Distance to Site (miles)	Mean Characteristic Moment Magnitude
Zayante-Vergeles	3.5	7.00
N. San Andreas; SA0+SAN+SAP+SAS	7.0	7.94
Monterey Bay-Tularcitos	12.2	7.30
San Gregorio Connected	17.1	7.50

See Figure 4 for a map depicting faults that are believed to be sources of earthquakes greater than Magnitude 6 within the Quaternary (past 1.6 million years). The faults presented in Table 1 have been labeled on Figure 4.

3.0 FIELD EXPLORATION AND LABORATORY TESTING PROGRAMS

Our field exploration program included drilling, logging, and interval sampling of 5 borings on January 15, 2021. The borings were advanced to depths ranging from 10.5± feet to 41.5± feet below the existing grades. Details of the field exploration program, including the Logs of the Borings, Figures A-1 through A-5, are presented in Appendix A.

Representative samples obtained during the field investigation were taken to the laboratory for testing to determine physical and engineering properties. Details of the laboratory testing program are presented in Appendix B. Test results are presented on the Boring Logs and in Appendix B.

4.0 SUBSURFACE CONDITIONS AND EARTH MATERIALS

4.1 General

The subsurface profile encountered in the borings consisted of coastal terrace deposits overlying the Aromas Sand within the depths explored. Complete subsurface profiles are presented on the Logs of the Borings, Appendix A, Figures A-1 through A-5. The approximate boring locations are shown on the Site Map and Boring Location Plan (Figure 2).

4.2 Coastal Terrace Deposits - Qcu

Coastal terrace deposits were encountered in all the borings, from the surface to approximately 14 to 15 feet below the existing grades. The terrace deposits generally consisted of loose to medium dense, moist, non plastic dark yellowish brown, fine to medium grained silty sand. The upper 12 to 18+ inches of the soil was very dark grayish brown and had a high organic content. Based on the results of our laboratory testing, the silty sand has a very low expansion potential.

4.3 Aromas Sand - Qar

Aromas Sand was encountered underlying the coastal terrace deposits at approximately 14 to 15 feet below the existing grades. The Aromas Sand generally consisted of medium dense to very dense, moist, olive brown and dark yellowish brown, interbedded fine to coarse grained poorly graded sand with silt.

4.4 Groundwater

Groundwater was not encountered in any of the borings within the depths explored. It should be noted that groundwater conditions may vary with location and may fluctuate with variations in rainfall, runoff, irrigation, and other changes to the conditions existing at the time our field investigation was performed.

5.0 GEOTECHNICAL HAZARDS

5.1 General

In our opinion, the geotechnical hazards that could potentially affect the proposed project are:

- Seismic Shaking

5.2 Seismic Shaking

The hazard due to seismic shaking in California is high in many areas, indicative of the number of large earthquakes that have occurred historically. Intense seismic shaking may occur at the site during the design lifetime of the proposed structure from an earthquake along one of the local fault systems. Generally, the intensity of shaking will increase the closer the site is to the epicenter of an earthquake, however, seismic shaking is a complex phenomenon and may be modified by local topography and subsurface soil and bedrock conditions. The transmission of earthquake vibrations from the ground into the structure may cause structural damage.

To characterize the ground shaking hazard at the site, we used the USGS 2014 national seismic hazard maps. We determined peak horizontal ground accelerations (PGA) from the USGS Probabilistic Seismic Hazard Analysis (PSHA) models. We determined the PGAs using the USGS *2014 NSHMP PSHA Unified Hazard Tool (UHT).* The input parameters for the online tool consist of the site latitude and longitude and a V_{S30} value. A V_{S30} of 259 m/s for the stiff soil site condition was used for the determination. The PGAs are presented in Table 2.

We also determined spectral accelerations based on the 2019 California Building Code (2019 CBC) and ASCE 7-16.

For our determination of the ground motions, we used a site latitude and longitude of 36.9615 degrees and -121.8788 degrees, respectively.

5.2.1 2014 USGS PSHA

PGAs have been established for three different return periods that correspond to 2 percent, 5 percent, and 10 percent exceedance in 50 years.

Table 2. PGA - 2014 USGS PSHA

Return Period (Chance of Exceedance)	2,475 Years (2% in 50 Years)	975 Years (5% in 50 Years)	475 Years (10% in 50 Years)
PGA - Stiff Soil Site Condition (V_{S30} = 259 m/s)	0.91g	0.70g	0.56g

5.2.2 2019 CBC

Spectral accelerations were determined in accordance with the 2019 California Building Code (2019 CBC). The County of Santa Cruz has adopted the seismic provisions set forth in the 2019 CBC to address seismic shaking. The seismic provisions in the 2019 CBC are minimum load requirements for the seismic design for the proposed structure. The provisions set forth in the 2019 CBC will not prevent structural and nonstructural damage from direct fault ground surface rupture, coseismic ground cracking, liquefaction and lateral spreading, seismically induced differential compaction, or seismically induced landsliding.

Table 3 has been constructed based on the 2019 CBC requirements for the seismic design of the proposed structure. The Site Class has been determined based on our field investigation and laboratory testing.

Table 3. Seismic Design Parameters - 2019 CBC

S_S	S_1	Site Class	F_a	F_v	S_{MS}	S_{M1}	S_{DS}	S_{D1}	PGA_M
2.058g	0.788g	D	1.0	Null*	2.058g	Null*	1.372g	Null*	0.948g

Notes: *Refer to Section 11.4.8 in ASCE 7-16.

5.3 Collateral Seismic Hazards

In addition to seismic shaking, other seismic hazards that may have an adverse affect to the site and/or the structure are: fault ground surface rupture, coseismic ground cracking, seismically induced liquefaction and lateral spreading, seismically induced differential compaction, and seismically induced landsliding. It is our opinion that the potential for collateral seismic hazards to affect the site, and to damage the proposed structure is low.

6.0 DISCUSSIONS AND CONCLUSIONS

The subsurface profile in the location of the proposed development consists of coastal terrace deposits overlying Aromas Sands within the depths explored. The coastal terrace deposits extended to a depth of approximately 14 to 15 feet below grade and generally consisted of loose to medium dense, moist, non plastic silty sand. The Aromas Sand generally consisted of medium dense to very dense, moist, poorly graded sand with silt. Groundwater was not encountered within the depths explored during our field exploration.

Based on our field investigation and laboratory testing, the near-surface soils possess a very low expansion potential and are considered moderately compressible under the anticipated loads. To help alleviate the potential for intolerable differential settlements, we have provided recommendations in Section 7 for overexcavation and recompaction of the native soils beneath the proposed improvements. In general, the on-site soils are a good candidate for use as engineered fill, however, the upper 12 to 18 inches had a high organic content and are unsuitable for use. It should be noted that moisture conditioning (drying back or adding moisture) and blending the native soils prior to use as engineered fill should be anticipated.

7.0 RECOMMENDATIONS

7.1 General

Based on the results of our field investigation, laboratory testing, and engineering analysis, it is our opinion, from the geotechnical standpoint, the subject site will be suitable for the proposed development provided the recommendations presented herein are implemented into the design and construction of the project.

We recommend that the proposed building be founded on a conventional shallow foundation system. To help alleviate the potential for differential settlements due to compressible near-surface soils, site preparation consisting of overexcavation and recompaction will be required beneath foundations, slabs-on-grade, and drive areas. Refer to Subsection 7.2.2 for earthwork recommendations and Subsection 7.3 for shallow foundation recommendations.

7.2 Site Grading

7.2.1 Site Clearing

Prior to grading, the areas to be developed for structures, pavements and other improvements, should be stripped of any vegetation and cleared of any surface or subsurface obstructions, including any existing foundations, utility lines, basements, septic tanks, pavements, stockpiled fills, and miscellaneous debris.

Surface vegetation and organically contaminated topsoil should be removed from areas to be graded. The required depth of stripping will vary with the time of year the work is done and should be observed by the Geotechnical Engineer.

Holes resulting from the removal of buried obstructions that extend below finished site grades should be backfilled with compacted engineered fill compacted to the requirements of Subsection 7.2.2.

7.2.2 Preparation of On-Site Soils

In order to ensure uniform compression characteristics and to mitigate the potential for differential settlement, site preparation consisting of overexcavation and recompaction will be required beneath conventional shallow foundations, concrete slabs-on-grade, and drive areas. The depths of overexcavation recommended herein are subject to review during grading.

For conventional shallow foundations and slabs-on-grade, the native soil should be overexcavated a minimum of 2 feet below bottom of the footings, or 4 feet below existing grades, whichever is greater. The overexcavation shall extend beneath all slabs-on-grade. The exposed surface should then be scarified, moisture

conditioned, and compacted. The excavated material should then be placed as engineered fill compacted to a minimum of 90 percent relative compaction to finished pad grades. The zone of engineered fill shall extend a minimum of 5 feet laterally beyond the foundation footprint.

In drive areas (including concrete, asphalt, and non-permeable pavers), the native soil should be overexcavated to a minimum of 1.5 feet below the bottom of the aggregate base course, or 2 foot below existing grade, whichever is greater. The exposed surface should then be scarified, moisture conditioned, and compacted. The excavated material should then be placed as engineered fill compacted to a minimum of 90 percent relative compaction. The upper 6 inches of subgrade and all aggregate base and subbase in drive areas shall be compacted to a minimum of 95 percent relative compaction. This zone of reworking should extend laterally a minimum of 2 feet beyond the driveway areas.

The on-site soils, with the exception of the near surface highly organic soils (upper 12 to 18 inches), may be considered for use as engineered fill. Note: If this work is done during or soon after the rainy season, or in the spring, the soil may require significant drying prior to use as engineered fill. Regardless of the time of year, moisture conditioning the native soils to achieve moisture requirements should be anticipated. Moisture conditioning may include adding water or drying back the soil to achieve the required moisture. It is the contractors responsibility to adequately process the soil to achieve uniform moisture conditions of the material to be used as engineered fill. The soil should be verified by a representative of CMAG in the field during grading operations. All soils, both existing on-site and imported, to be used as fill, should contain less than 3 percent organics and be free of debris and gravel over 2.5 inches in maximum dimension.

If wet, soft conditions are encountered during the overexcavation, Mirafi 600X, or approved equivalent geotextile should be placed at the base of the excavation prior to fill placement. The geotextile should be free of wrinkles and lying flat. The geotextile may be temporarily secured in-place with staples, pins, or backfill. Adjacent rolls of geotextile should have a minimum overlap of 18 inches. A minimum fill thickness of 8 inches is required prior to the operation of tracked vehicles over the geotextile. Turning of tracked vehicles should be kept to a minimum to prevent damage. Any geotextile damaged during installation shall be replaced. The manufacturers of the geotextile supply additional installation recommendations not outlined in this report. The manufacturer's installation recommendations should be adhered to.

If wet, soft conditions are present during the earthwork, care should be taken to not damage the underlying soils below the bottom of the overexcavation, or the engineered fill once it has been placed. This may require heavy equipment to not traverse the overexcavation bottom and/or traverse the engineered fill with equipment other than the compaction equipment. Light compaction equipment, thin

lifts, and lower relative compaction may be required to prevent damage to the underlying soils. If stress fractures or pumping are observed during heavy equipment activity, the equipment should be removed from the area to prevent damage of the engineered fill and/or the underlying subsurface soils. The Geotechnical Engineer should be notified if stress fractures or pumping occurs. It is the contractor's responsibility to adhere to the recommendations provided above while performing the earthwork.

The Geotechnical Engineer should observe the overexcavations and placement of engineered fill.

Imported fill material should be approved by a representative of CMAG prior to importing. Soils having a significant expansion potential should not be used as imported fill. **The Geotechnical Engineer should be notified not less than 5 working days in advance of placing any fill or base course material proposed for import.** Each proposed source of import material should be sampled, tested, and approved by the Geotechnical Engineer prior to delivery of any soils imported for use on the site.

All fill should be compacted with heavy vibratory equipment. Fill should be compacted by mechanical means in uniform horizontal loose lifts not exceeding 8 inches in thickness. The relative compaction and required moisture content shall be based on the maximum dry density and optimum moisture content obtained in accordance with ASTM D1557. **The Geotechnical Engineer should observe the overexcavations, and placement of engineered fill.**

Any surface or subsurface obstruction, or questionable material encountered during grading, should be brought immediately to the attention of the Geotechnical Engineer for proper processing as required.

7.2.3 Cut and Fill Slopes

Cut and fill slopes are not anticipated for the project at this time. Recommendations for cut and fill slopes can be supplied upon request if project requirements change.

7.2.4 Utility Trenches

Bedding material should consist of sand with SE not less than 30 which may then be jetted.

The on-site soils, with the exception of the near surface highly organic soils (upper 12 to 18 inches), may be considered for use as engineered fill. See Subsection 7.2.2 for additional information regarding the use of the native soil for engineered fill. Imported fill should be free of organic material and gravel over 2.5 inches in diameter. Backfill of all exterior and interior trenches should be placed in

thin lifts and mechanically compacted to achieve a relative compaction of not less than 95 percent in paved areas and 90 percent in other areas per ASTM D1557. Care should be taken not to damage utility lines.

Utility trenches that are parallel to the sides of a building should be placed so that they do not extend below a line sloping down and away at an inclination of 2:1 H:V (horizontal to vertical) from the bottom outside edge of all footings.

A 3 foot concrete plug should be placed in each trench where it passes under the exterior footings. Anti-seep collars (trench dams) should also be placed in utility trenches on steep slopes to prevent migration of water and sand.

Trenches should be capped with 1.5± feet of impermeable material. Import material should be approved by the Geotechnical Engineer prior to its use.

Trenches must be shored as required by the local regulatory agency, the State Of California Division of Industrial Safety Construction Safety Orders, and Federal OSHA requirements.

7.2.5 Vibration During Compaction

Neighboring residential structures are adjacent to the project site. The contractor should take all precautionary measures to minimize vibration during grading operations. This may require that the engineered fill be placed in thin lifts using a static roller or hand operated equipment. It is the contractor's responsibility to ensure that the process in which the engineered fill is placed does not adversely affect the neighboring parcels.

7.2.6 Excavating Conditions

We anticipate that excavation of the on-site soils may be accomplished with standard earthmoving and trenching equipment.

If grading commences during, or shortly after the rainy season, difficult construction due to saturated soil conditions should be anticipated.

7.2.7 Surface Drainage

Pad drainage should be designed to collect and direct surface water away from structures to approved drainage facilities. A minimum gradient of 2± percent should be maintained and drainage should be directed toward approved swales or drainage facilities. Concentrations of surface water runoff should be handled by providing the necessary structures, paved ditches, catch basins, etc.

All roof eaves should be guttered with the outlets from the downspouts provided with adequate capacity to carry the storm water away from structures to reduce the

possibility of soil saturation and erosion.

Drainage patterns approved at the time of construction should be maintained throughout the life of the structures. The building and surface drainage facilities must not be altered nor any grading, filling, or excavation conducted in the area without prior review by the Geotechnical Engineer.

Irrigation activities at the site should be controlled and reasonable. Planter areas should not be sited adjacent to walls without implementing approved measures to contain irrigation water and prevent it from seeping into walls and under foundations and slabs-on-grade.

The finished ground surface should be planted with erosion resistant landscaping and ground cover and continually maintained to minimize surface erosion.

7.3 Foundations

7.3.1 Conventional Shallow Foundations

We recommend that conventional shallow foundations be founded on compacted engineered fill per Subsection 7.2.2.

Footing widths should be based on the allowable bearing value but not less than 12 inches for 1 story structures, 15 inches for 2 story structures, and 18 inches for 3 story structures. The minimum recommended depth of embedment is 18 inches for all interior and exterior footings. Embedment depths should not be allowed to be affected adversely, such as through erosion, softening, digging, etc. Should local building codes require deeper embedment of the footings or wider footings, the codes must apply.

Footings constructed to the given criteria may be design for an allowable bearing capacity of 2,200 psf. The allowable bearing capacity may be increased by one-third for short duration loads, such as those induced by wind or seismic forces. If imported material is to be used as engineered fill beneath shallow foundations, it should be approved by a representative of CMAG prior to importing, or the allowable bearing capacity value revised based on the actual import material used.

A passive pressure of 280 psf/ft (equivalent fluid pressure) may be assumed for design purposes. Neglect passive pressure in the upper 12 inches. Passive pressures may be increased by one-third for seismic loading. A friction coefficient of 0.35, between engineered fill and rough concrete may be assumed for design purposes. Where both friction and the passive resistance are utilized for sliding resistance, either of the values indicated should be reduced by one-third.

Footing excavations should be observed by the Geotechnical Engineer before steel reinforcement is placed and concrete is poured.

7.3.2 Concrete Slabs-on-Grade

We recommend that concrete slab-on-grade floors be founded on compacted engineered fill per Subsection 7.2.2. The subgrade should be proof-rolled just prior to construction to provide a firm, relatively unyielding surface, especially if the surface has been loosened by the passage of construction traffic.

The slab-on-grade should be underlain by a minimum 4 inch thick capillary break of clean crushed rock. It is recommended that neither Class II baserock nor sand be employed as the capillary break material. Where moisture sensitive floor coverings are anticipated or vapor transmission may be a problem, a vapor retarder should be placed between the granular layer and the floor slab in order to reduce moisture condensation under the floor coverings. The vapor retarder should be specified by the slab designer. It should be noted that conventional slab-on-grade construction is not waterproof. Under-slab construction consisting of a capillary break and vapor retarder will not prevent moisture transmission through the slab-on-grade. CMAG does not practice in the field of moisture vapor transmission evaluation or mitigation. Where moisture sensitive floor coverings are to be installed, a waterproofing expert should be consulted for their recommended moisture and vapor protection measures.

7.3.3 Settlements

Total and differential settlements beneath the recommended conventional shallow foundation systems are expected to be within tolerable limits. Vertical movements are not expected to exceed 1 inch. Differential movements are expected to be within the normal range (½ inch) for the anticipated loads and spacings. These preliminary estimates should be reviewed by the Geotechnical Engineer when foundation plans for the proposed structures become available.

7.4 Corrosivity

Corrosivity testing was performed on representative samples of the on-site soils likely to come in contact with concrete and metallic structures. The samples were tested for concentrations of sulfate (SO_4) and chloride (Cl), as well as pH and minimum resistivity. The test results are presented in Appendix B.

Caltrans considers a site to be corrosive if one or more of the following conditions exist:

a. Sulfate concentration is 1500 ppm or greater.
b. Chloride concentration is 500 ppm or greater.
c. The pH is 5.5 or less.
d. Minimum resistivity is less than 1100 ohms-cm.

The test results indicate that the on-site soils are considered to be non-corrosive per the referenced *Corrosion Guidelines* (Caltrans, 2018).

7.5 Plan Review

The recommendations presented in this report are based on preliminary design information for the proposed project and on the findings of our geotechnical investigation. When completed, the Grading Plans, Foundation Plans and design loads should be reviewed by CMAG prior to submitting the plans and contract bidding. Additional field exploration and laboratory testing may be required upon review of the final project design plans.

7.6 Observation and Testing

Field observation and testing must be provided by a representative of CMAG to enable them to form an opinion regarding the adequacy of the site preparation, the adequacy of fill materials, and the extent to which the earthwork is performed in accordance with the geotechnical conditions present, the requirements of the regulating agencies, the project specifications, and the recommendations presented in this report. Any earthwork performed in connection with the subject project without the full knowledge of, and not under the direct observation of CMAG will render the recommendations of this report invalid.

CMAG should be notified **at least 5 working days** prior to any site clearing or other earthwork operations on the subject project in order to observe the stripping and disposal of unsuitable materials and to ensure coordination with the grading contractor. During this period, a preconstruction meeting should be held on the site to discuss project specifications, observation and testing requirements and responsibilities, and scheduling.

8.0 LIMITATIONS

The recommendations contained in this report are based on our field explorations, laboratory testing, and our understanding of the proposed construction. The subsurface data used in the preparation of this report was obtained from the borings drilled during our field investigation. Variation in soil, geologic, and groundwater conditions can vary significantly between sample locations. As in most projects, conditions revealed during construction excavation may be at variance with preliminary findings. If this occurs, the changed conditions must be evaluated by the Project Geotechnical Engineer and the Geologist, and revised recommendations be provided as required. In addition, if the scope of the proposed construction changes from the described in this report, our firm should also be notified.

Our investigation was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in this report.

This report is issued with the understanding that it is the responsibility of the Owner, or of his Representative, to ensure that the information and recommendations contained herein are brought to the attention of the Architect and Engineer for the project and incorporated into the plans, and that it is ensured that the Contractor and Subcontractors implement such recommendations in the field. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

This firm does not practice or consult in the field of safety engineering. We do not direct the Contractor's operations, and we are not responsible for other than our own personnel on the site; therefore, the safety of others is the responsibility of the Contractor. The Contractor should notify the Owner if he considers any of the recommended actions presented herein to be unsafe.

The findings of this report are considered valid as of the present date. However, changes in the conditions of a site can occur with the passage of time, whether they be due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

The scope of our services mutually agreed upon did not include any environmental assessment or study for the presence of hazardous to toxic materials in the soil, surface water, or air, on or below or around the site.

REFERENCES

American Society of Civil Engineers (2016). *Minimum Design Loads for Buildings and Other Structures*. ASCE Standard 7-16.

ASTM International (2014). *Annual Book of ASTM Standards, Section Four, Construction*. Volume 4.08, Soil and Rock (I): D 420 - D 5876.

Bowman & Williams (2014). *Topographic Map of the Baltusrol Drive Site.* Sheet TP-1, Scale 1" = 20'.

Brabb, E.E. (1997). *Geologic Map of Santa Cruz County, California*: A Digital Database: U.S. Geological Survey Miscellaneous Investigation Series, Map I-1905, scale 1:62500.

California Department of Transportation (March 2018). *Corrosion Guidelines*. Version 3.0.

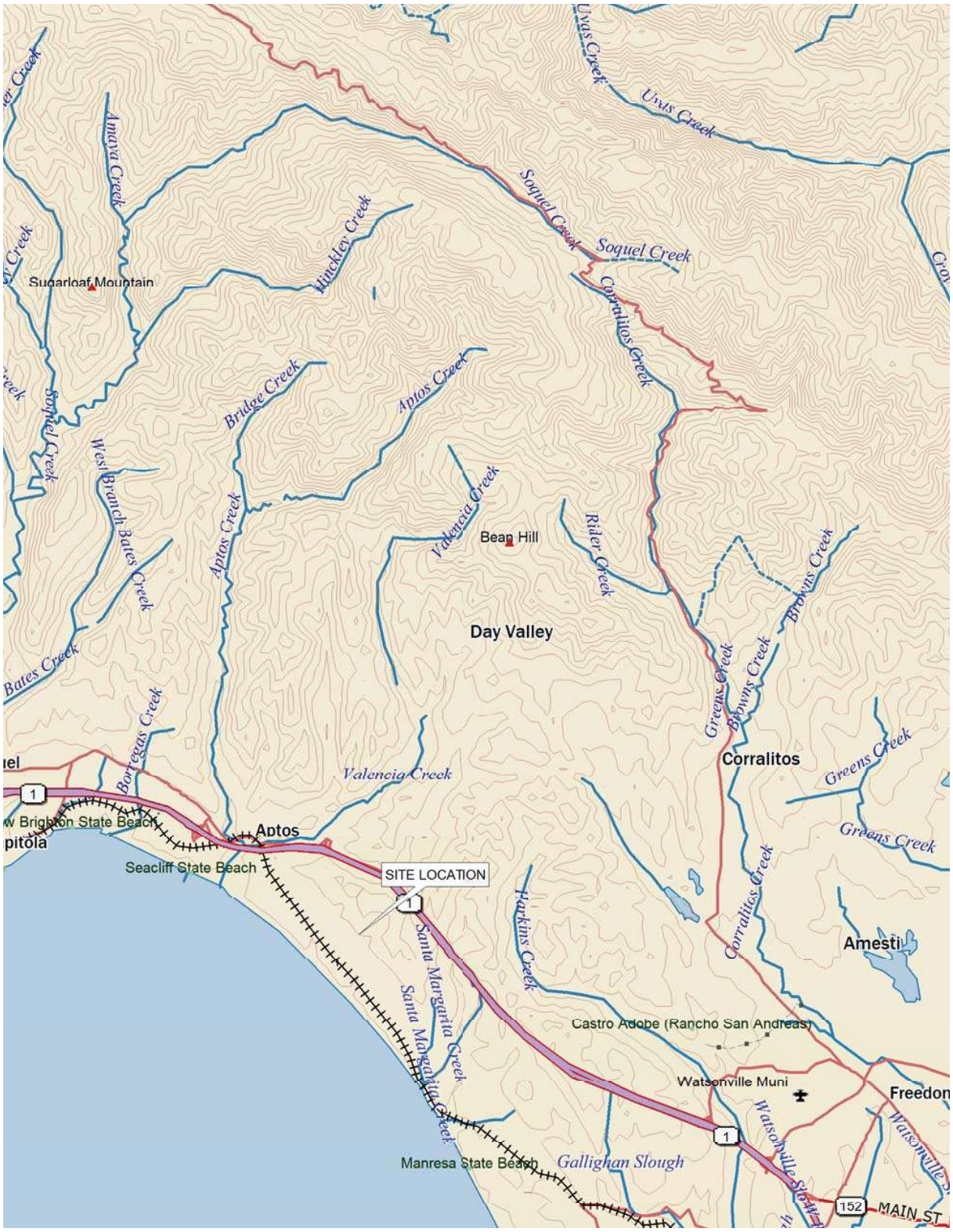
CMAG Engineering, Inc. (October 27, 2020). *Proposal for Geotechnical Services, Geotechnical Investigation, Granulated Activated Carbon Filter Plant, 251 Baltusrol Drive, Aptos, Santa Cruz County, California.* Proposal No. P20-71.

International Code Council (2019). *California Building Code.* Volume 2.

U.S. Geological Survey (2008). *USGS 2008 National Seismic Hazard Maps - Source Parameters.*(https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_main.cfm).

U.S. Geological Survey. *Unified Hazard Tool. (*https://earthquake.usgs.gov/hazards/interactive/).

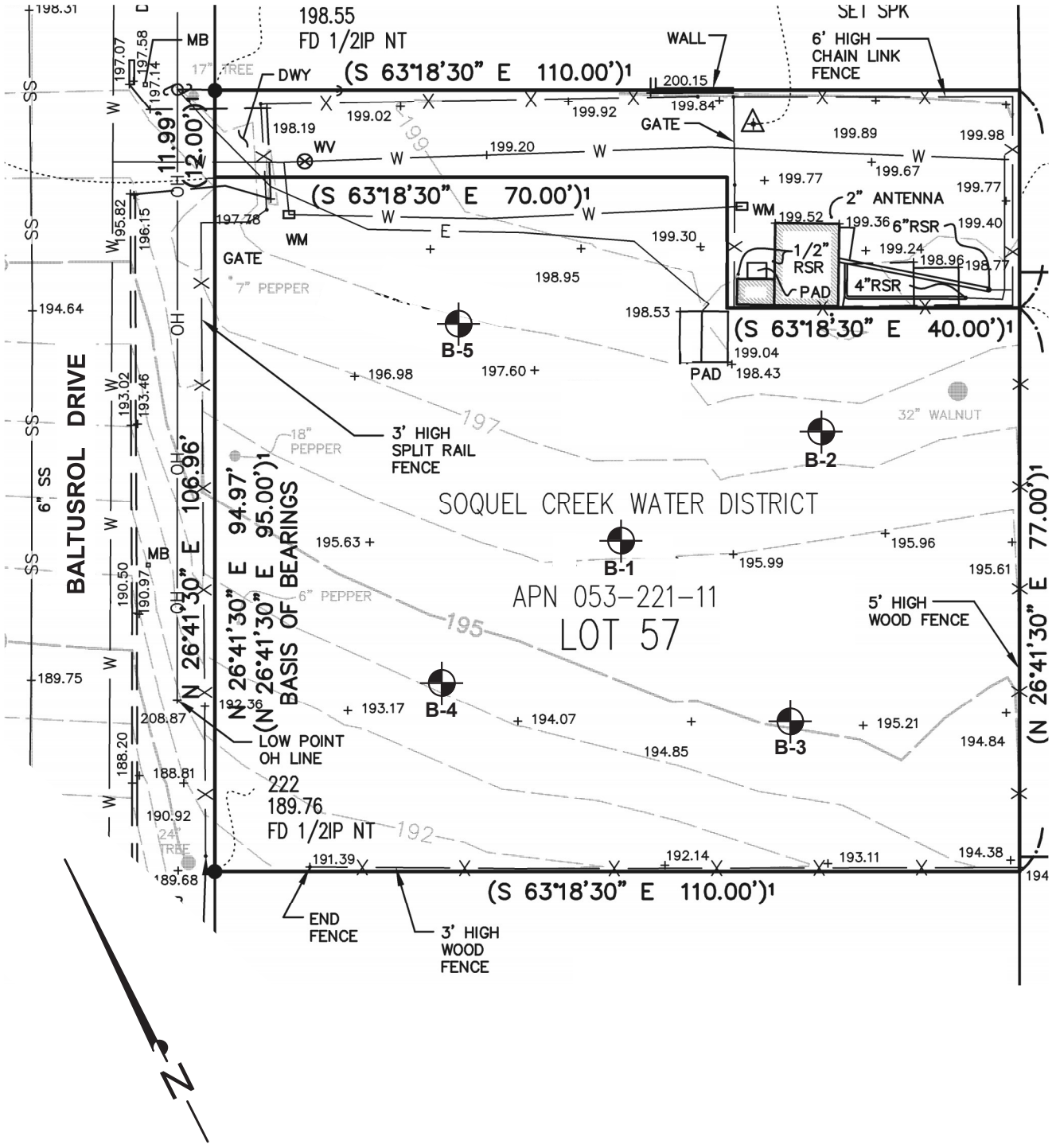
U.S. Geological Survey and California Geological Survey. *Quaternary Fault and Fold Database for the United States.* (https://www.usgs.gov/natural-hazards/earthquake-hazards/faults).



SCALE: 1:100,000

BASEMAP: DeLorme Topo USA®

CMAG ENGINEERING	SITE LOCATION MAP	FIGURE
	251 Baltusrol Drive	1



SCALE: 1 INCH = 20 FEET

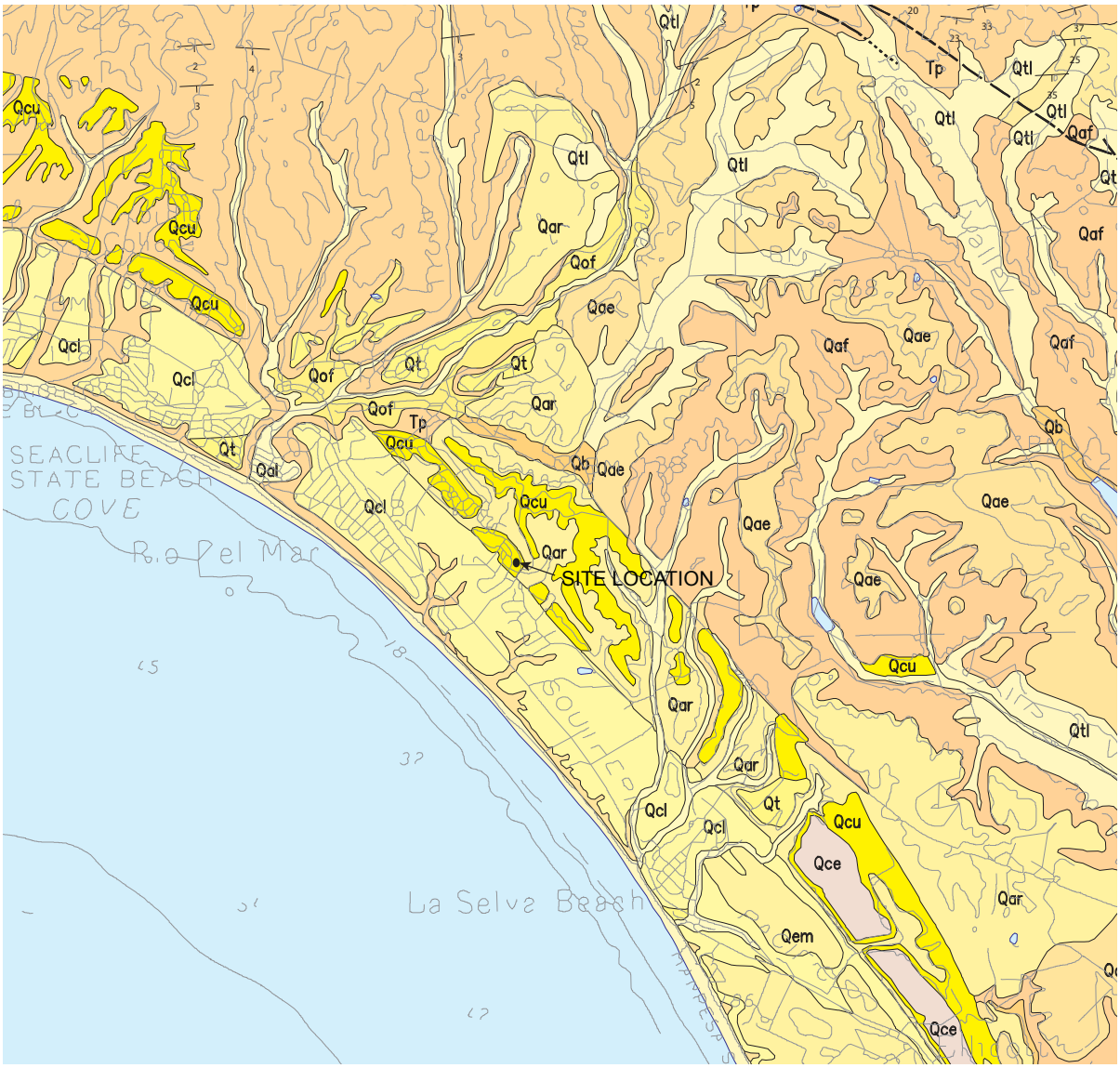
10 0 10 20 FEET

EXPLANATION OF SYMBOLS

B-1 APPROXIMATE LOCATION OF BORING

BASEMAP: Bowman & Williams (May 12, 2014). *Topographic Map of the Baltusrol Drive Site, Soquel Creek Water District, 5180 Soquel Drive, Soquel, California, 95073.* Sheet TP-1. Job No 25575. Original Scale 1" = 20'.

CMAG ENGINEERING	SITE MAP AND BORING LOCATION PLAN 251 Baltusrol Drive	FIGURE 2



EXPLANATION

UNITS

Qtl	Colluvium (Holocene)
Qal	Alluvial Deposits, Undifferentiated (Holocene)
Qof	Older Flood Plaine Deposits (Holocene)
Qb	Basin Deposits (Holocene)
Qt	Terrace Deposits, Undifferentiated (Pleistocene)
Qem	Eolian Deposits of Manresa Beach (Pleistocene)
Qcu	Coastal Terrace Deposits, Undifferentiated (Pleistocene)
Qce	Terrace Deposits of Watsonville - Eolian Facies (Pleistocene)
Qcl	Lowest Emergent Coastal Terrace Deposits (Pleistocene)
Qar	Aromas Sand, Undivided (Pleistocene)
Qae	Aromas Sand - Eolian Lithofacies (Pleistocene)
Qaf	Aromas Sand - Fluvial Lithofacies (Pleistocene)
Tp	Purisima Formation (Pliocene and upper Miocene)

SYMBOLS

GEOLOGIC CONTACT - Dashed where approximate, dotted where concealed, queried where uncertain

FAULT - Dashed where approximate, dotted where concealed, queried where uncertain. U and D denote upthrown and downthrown blocks

BEDDING - Strike and dip

ANTICLINE - Dashed where approximate, dotted where concealed, queried where uncertain

SYNCLINE - Dashed where approximate, dotted where concealed, queried where uncertain

N

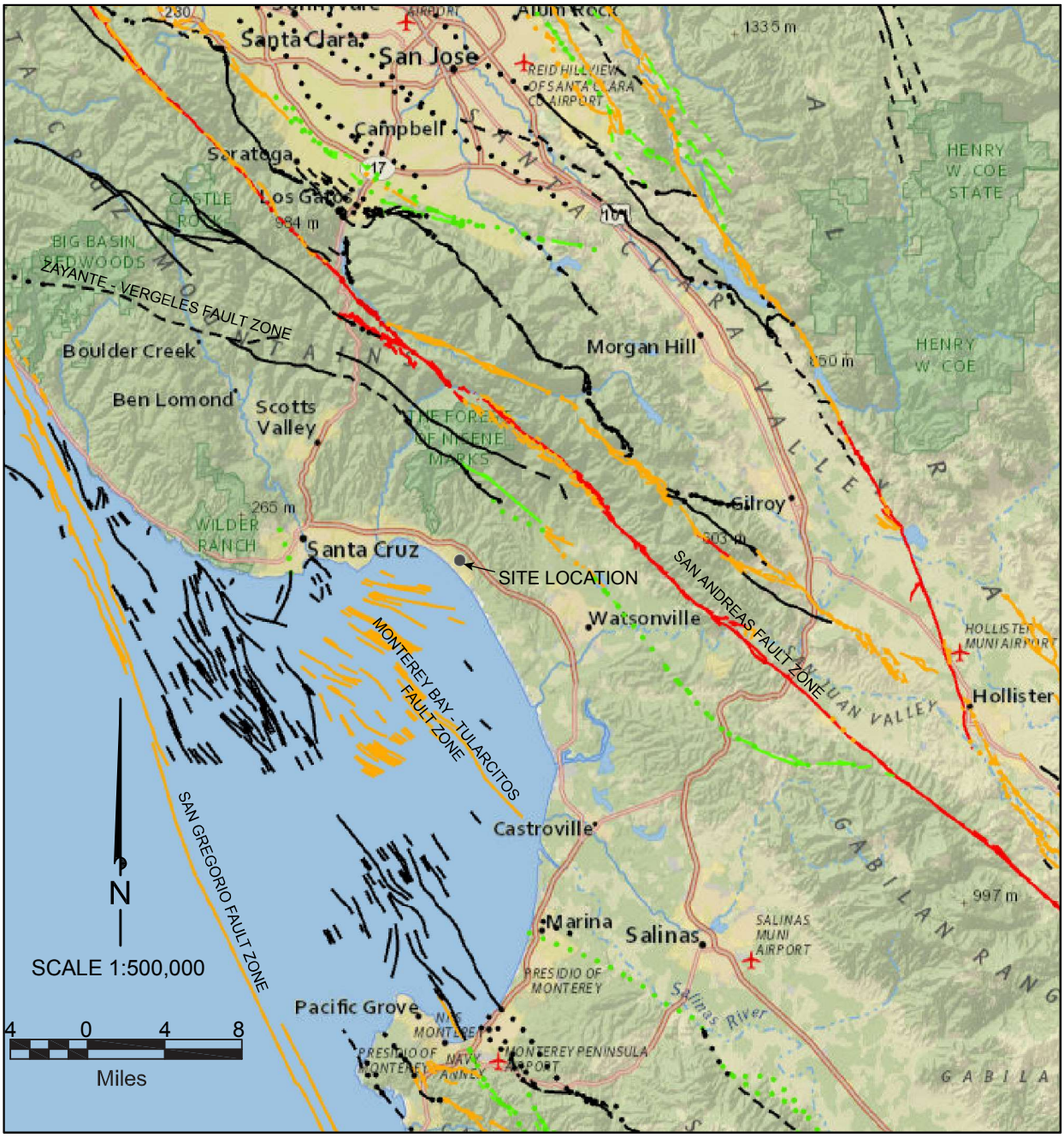
SCALE: 1:62,500

1/2 0 1/2 1

Miles

BASEMAP: Brabb, E.E. (1997). *Geologic Map of Santa Cruz County, California*: A digital Database: U.S. Geological Survey Open File Report 97-489-2373, Scale 1:62,500.

CMAG ENGINEERING	**LOCAL GEOLOGIC MAP**	FIGURE
	251 Baltusrol Drive	3



EXPLANATION

- HISTORIC (<150 Years)
- LATEST QUATERNARY (<15,000 Years)
- LATE QUATERNARY (<130,000 Years)
- MIDDLE AND LATE QUATERNARY (<750,000 Years)
- UNDIFFERENTIATED QUATERNARY (<1,600,000 Years)

BASEMAP: U.S. Geological Survey and California Geological Survey, Quaternary Fault and Fold Database for the United States, Assessed February 2021, at: http://www.usgs.gov/natural-hazards/earthquake-hazards/faults.

CMAG ENGINEERING	QUATERNARY FAULTS	FIGURE
	251 Baltusrol Drive	4

APPENDIX A

FIELD EXPLORATION PROGRAM

Field Exploration Procedures	Page A-1
Logs of the Borings	Figures A-1 through A-5
Key to the Logs	Figure A-6

FIELD EXPLORATION PROCEDURES

Subsurface conditions were explored by drilling 5 borings to depths between 10.5± and 41.5± feet below the existing grades. The borings were drilled with a track mounted CME 55 drill rig equipped with 6 inch diameter solid stem augers. The Key to The Logs and the Logs of the Borings are included in Appendix A, Figures A-1 through A-6. The approximate location of the borings are shown on the Site Map and Boring Location Plan, Figure 2.

The earth materials encountered in the borings were continuously logged in the field by a representative of CMAG. Bulk and relatively undisturbed samples for identification and laboratory testing were obtained in the field. These samples were classified based on field observations and laboratory tests. The classification is in accordance with the Unified Soil Classification System (Figure A-6).

Representative samples were obtained by means of a drive sampler, the hammer weight and drop being 140 lb and 30 inches, respectively. These samples were recovered using a 3 inch outside diameter Modified California Sampler or a 2 inch outside diameter Terzaghi Sampler. The number of blows required to drive the samplers 12 inches are indicated on the Boring Logs. The penetration test data for the Terzaghi driven samples has been presented as N_{60} values. The N_{60} values are also indicated on the Boring Logs.

LOG OF EXPLORATORY BORING

Project No.:	20-145-SC	Boring:	B-1
Project:	251 Baltusrol Drive	Location:	See Figure 2
	Santa Cruz County, California	Elevation:	196± ft.
Date:	January 15, 2021	Method of Drilling:	Track Mounted Drill Rig, 6in. Solid Stem
Logged By:	ALG		Auger, 140lb. Automatic Trip Hammer

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Groundwater | 3" Shelby Tube (S)

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Other Tests
	SM			**Qcu:** Very Dark Grayish Brown Silty SAND. Moist, Non Plastic. Sand - Fine to Medium Grained. High Organics.					
	SM			Dark Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained.	9	10		5.7	F.C. = 30.0% Sulfate
5	SM			Material Consistent.	12	14		6.2	Corrosivity
10	SM-SC			Dark Yellowish Brown Silty SAND to Clayey SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained.	15	18		12.3	
15	SP-SM			**Qar:** Dark Yellowish Brown Poorly Graded SAND with Silt. Dense, Moist, Non Plastic. Sand - Fine Grained Beds and Fine to Coarse Grained Beds.	24	31		13.0	F.C. = 9.5%
20	SP-SM			Olive Brown and Dark Yellowish Brown Poorly Graded SAND with Silt. Medium Dense, Moist, Non Plastic. Sand - Fine Grained Beds and Fine to Coarse Grained Beds.	17	23		14.7	
25	SP-SM			Olive Brown Poorly Graded SAND with Silt. Dense, Moist, Non Plastic. Sand - Fine Grained Beds and Fine to Coarse Grained Beds.	28	38		12.1	
30	SM			Light Olive Brown Silty SAND. Dense, Moist, Non Plastic. Sand - Fine Grained.	28	39		18.9	
35									

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FIGURE A-1.0

LOG OF EXPLORATORY BORING

Project No.:	20-145-SC	Boring:	B-1 (Continued)
Project:	251 Baltusrol Drive	Location:	See Figure 2
	Santa Cruz County, California	Elevation:	196± ft.
Date:	January 15, 2021	Method of Drilling:	Track Mounted Drill Rig, 6in. Solid Stem
Logged By:	ALG		Auger, 140lb. Automatic Trip Hammer

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Groundwater | 3" Shelby Tube (S)

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Other Tests
	SM			Light Olive Brown Silty SAND. Very Dense, Moist, Non Plastic. Sand - Fine Grained.	37	51		12.7	
40	SP-SM			Dark Yellowish Brown Poorly Graded SAND with Silt. Very Dense, Moist, Non Plastic. Sand - Fine Grained.	49	68		8.9	
				Boring Terminated at 41.5± ft. Groundwater Not Encountered. Boring Backfilled With Cuttings And Capped With Grout.					
45									
50									
55									
60									
65									
70									

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FIGURE A-1.1

LOG OF EXPLORATORY BORING

Project No.:	20-145-SC	Boring:	B-2
Project:	251 Baltusrol Drive	Location:	See Figure 2
	Santa Cruz County, California	Elevation:	197.5± ft.
Date:	January 15, 2021	Method of Drilling:	Track Mounted Drill Rig, 6in. Solid Stem
Logged By:	ALG		Auger, 140lb. Automatic Trip Hammer

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Groundwater | 3" Shelby Tube (S)

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Other Tests
	SM			**Qcu:** Dark Grayish Brown Silty SAND. Moist, Non Plastic. High Organics.					
	SM			Dark Yellowish Brown Silty SAND. Loose, Moist, Non Plastic.	13		96.2	9.4	Corrosivity
				Sand - Fine to Medium Grained.					
					7	8		5.8	F.C. = 28.2%
5									
	SM			Material Consistent - Medium Dense.	13	15		6.1	
	SM			Dark Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic.					
10				Sand - Fine to Medium Grained.	10	12		9.8	
				Boring Terminated at 10.5± ft.					
				Groundwater Not Encountered.					
				Boring Backfilled With Cuttings And Capped With Grout.					
15									
20									
25									
30									
35									

CMAG ENGINEERING

FIGURE A-2

LOG OF EXPLORATORY BORING

Project No.:	20-145-SC	Boring:	B-3
Project:	251 Baltusrol Drive	Location:	See Figure 2
	Santa Cruz County, California	Elevation:	195± ft.
Date:	January 15, 2021	Method of Drilling:	Track Mounted Drill Rig, 6in. Solid Stem
Logged By:	ALG		Auger, 140lb. Automatic Trip Hammer

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Groundwater | 3" Shelby Tube (S)

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Other Tests
	SM			**Qcu:** Very Dark Grayish Brown Silty SAND. Medium Dense, Moist, Slightly Plastic. Sand - Fine Grained. High Organics.	9	10		9.5	
	SM			Dark Yellowish Brown Silty SAND. Loose, Moist, Non Plastic. Sand - Fine Grained.	8	9		5.8	
5	SM			Dark Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained.	25 13	 15	106.1	6.7 5.4	 F.C. = 15.7%
10	SM			Material Consistent - Dense.	24	30		12.7	
15				Boring Terminated at 11.5± ft. Groundwater Not Encountered. Boring Backfilled With Cuttings And Capped With Grout.					
20									
25									
30									
35									

CMAG ENGINEERING

FIGURE A-3

LOG OF EXPLORATORY BORING

Project No.:	20-145-SC	Boring:	B-4
Project:	251 Baltusrol Drive	Location:	See Figure 2
	Santa Cruz County, California	Elevation:	194± ft.
Date:	January 15, 2021	Method of Drilling:	Track Mounted Drill Rig, 6in. Solid Stem
Logged By:	ALG		Auger, 140lb. Automatic Trip Hammer

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Groundwater | 3" Shelby Tube (S)

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Other Tests
	SM			**Qcu:** Very Dark Grayish Brown Silty SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained. High Organics.	11	12		6.3	Sulfate F.C. = 33.2% E.I. = 2
5	SM			Dark Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained.	23		100.2	5.9	c' = 0 psf Φ' = 31°
10	SM			Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained.	16	19		6.0	F.C. = 15.7%
	SP-SM			Dark Yellowish Brown Poorly Graded SAND with Silt. Medium Dense, Moist, Non Plastic. Sand - Fine to Coarse Grained.	30		110.7	12.2	
15	SP-SM			**Qar:** Light Olive Brown Poorly Graded SAND with Silt. Medium Dense, Moist, Non Plastic. Sand - Fine Grained Beds and Fine to Coarse Grained Beds.	16	21		16.5	
20				Boring Terminated at 19.5± ft. Groundwater Not Encountered. Boring Backfilled With Cuttings And Capped With Grout.					
25									
30									
35									

CMAG ENGINEERING

FIGURE A-4

LOG OF EXPLORATORY BORING

Project No.:	20-145-SC	Boring:	B-5
Project:	251 Baltusrol Drive	Location:	See Figure 2
	Santa Cruz County, California	Elevation:	198± ft.
Date:	January 15, 2021	Method of Drilling:	Track Mounted Drill Rig, 6in. Solid Stem
Logged By:	ALG		Auger, 140lb. Automatic Trip Hammer

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Groundwater | 3" Shelby Tube (S)

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Other Tests
	SM			**Qcu:** Very Dark Grayish Brown Silty SAND. Moist, Non Plastic. Sand - Fine Grained. High Organics.					c' = 0 psf
	SM			Dark Yellowish Brown Silty SAND. Loose, Moist, Non Plastic. Sand - Fine to Medium Grained.	9		93.1	4.7	Φ' = 30°
					11	12		5.7	F.C. = 28.3%
5									
	SP-SM			Dark Yellowish Brown Poorly Graded SAND with Silt. Medium Dense, Moist, Non Plastic. Sand - Fine Grained.	19		102.8	4.8	
10									
	SM			Dark Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained.	18	23		15.9	
15									
	SP-SM			**Qar:** Olive Brown and Dark Yellowish Brown Poorly Graded SAND with Silt. Medium Dense to Very Dense, Moist to Wet, Non Plastic. Sand - Fine Grained Beds and Fine to Coarse Grained Beds.	36		98.6	14.7	
					41	54		11.1	
20				Boring Terminated at 19.5± ft. Groundwater Not Encountered. Boring Backfilled With Cuttings And Capped With Grout.					
25									
30									
35									

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FIGURE A-5

KEY TO LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS More than half of the material is larger than the No. 200 sieve	GRAVELS More than half of the coarse fraction is larger than the No. 4 sieve	CLEAN GRAVELS (Less than 5% fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines
	SANDS More than half of the coarse fraction is smaller than the No. 4 sieve	CLEAN SANDS (Less than 5% fines)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands, gravelly sands, little or no fines
		SAND WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines
			SC	Clayey sands, sand-clay mixtures, plastic fines
FINE GRAINED SOILS More than half of the material is smaller than the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50		ML	Inorganic silts and very fine sands, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomacaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils

GRAIN SIZE LIMITS

SILT AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
	No. 200	No. 40	No. 10	No. 4	3/4 in.	3 in.	12 in.

US STANDARD SIEVE SIZE

RELATIVE DENSITY	
SAND AND GRAVEL	BLOWS/FT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

CONSISTENCY	
SILT AND CLAY	BLOWS/FT*
VERY SOFT	0 - 2
SOFT	2 - 4
FIRM	4 - 8
STIFF	8 - 16
VERY STIFF	16 - 32
HARD	OVER 32

MOISTURE CONDITION
DRY
MOIST
WET

BEDROCK
(GROUP SYMBOL)
Brackets Denote Bedrock

* Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 inch I.D.) split spoon (ASTM D-1586).

APPENDIX B

LABORATORY TESTING PROGRAM

Laboratory Testing Procedures	Page B-1
Direct Shear Test Results	Figures B-1 and B-2
Particle Size Distribution Test Results	Figures B-3 through B-9
Expansion Index Test Results	Table B-1
Soluble Sulfate Test Results	Table B-2
pH Test Results	Table B-2
Resistivity Test Results	Table B-2
Chloride Test Results	Table B-2

LABORATORY TESTING PROCEDURES

Classification

Soils were classified according to the Unified Soil Classification System in accordance with ASTM D 2487 and D 2488. See Figure A-6. Moisture content and dry density determinations were made for representative, relatively undisturbed samples in accordance with ASTM D 2216. Results of the moisture-density determinations, together with classifications, are shown on the Boring Logs in Appendix A.

Direct Shear

Consolidated drained direct shear tests were performed in accordance with ASTM D 3080 on representative, relatively undisturbed samples of the on-site soils. To simulate possible adverse field conditions the sample was saturated prior to shearing. A saturating device was used which permitted the sample to absorb moisture while preventing volume change. The direct shear test results are presented on the Boring Logs and Figures B-1 and B-2.

Particle Size Distribution

Particle size distribution tests were performed on representative samples of the on-site soils in accordance with ASTM D 422. The test results are presented on the Boring Logs and Figures B-3 through B-9.

Expansion

An expansion index test was performed on a representative remolded sample of the on-site soils in accordance with the ASTM D 4829. The test results are presented on the Boring Logs and in Table B-1.

Table B-1. Expansion Index Test Results

Boring	Depth (ft)	Soil Type	Expansion Index	Expansion Potential
B-4	1 to 2.5	SM	2	Very Low

Soluble Sulfates

The soluble sulfate content was determined for samples considered representative of the on-site soils in accordance with Caltrans 417. The test results are presented in Table B-2.

pH

The pH was determined for samples considered representative of the on-site soils in accordance with Caltrans, California Test 643. The test results are presented in Table B-2.

Resistivity

The resistivity for representative samples of the on-site soils was determined in accordance with Caltrans, California Test 643. The test results are presented in Table B-2.

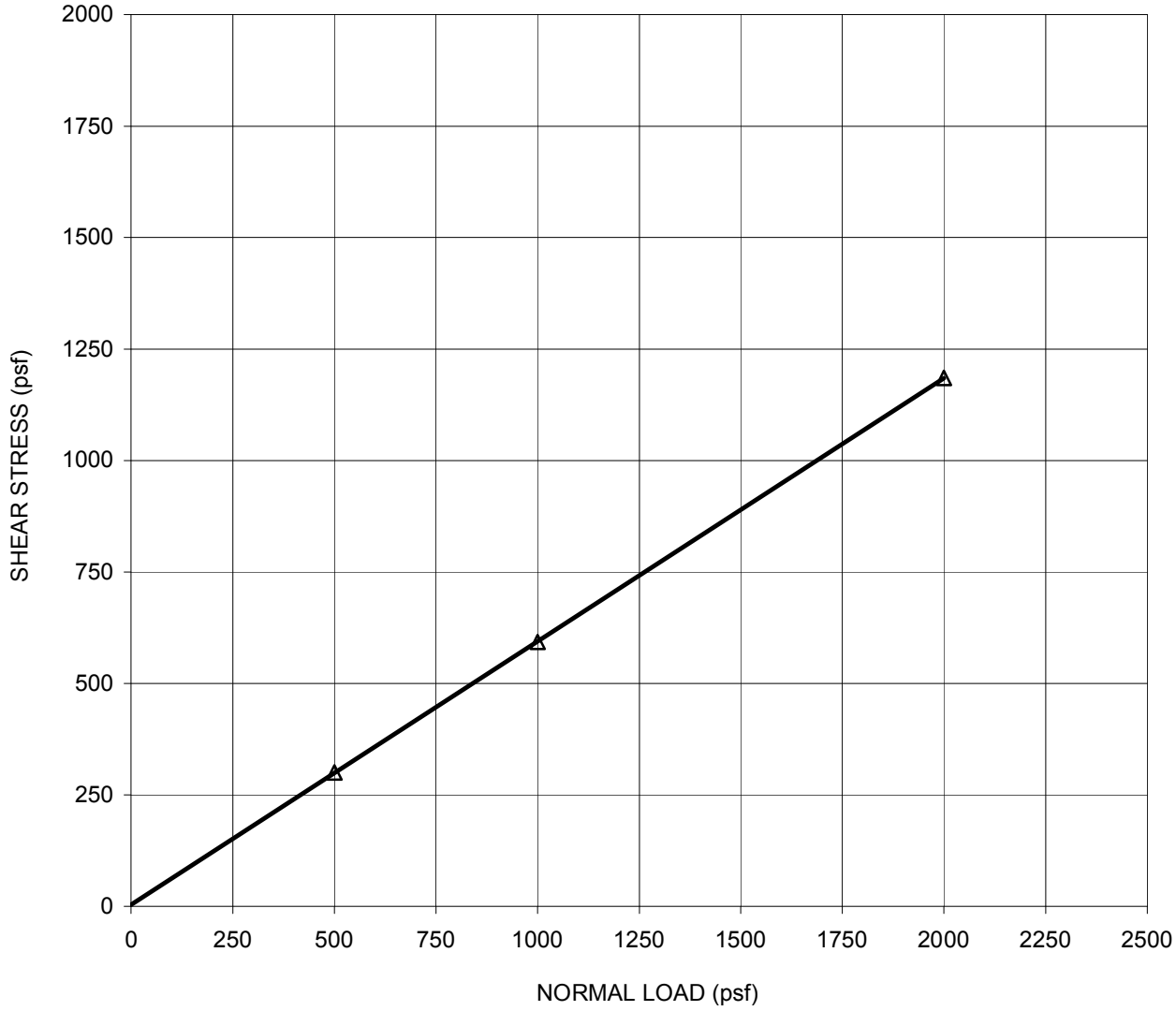
Chlorides

The chloride content was determined for representative samples of the on-site soils in accordance with Caltrans, California Test 422. The test results are presented in Table B-2.

Table B-2. Corrosivity Test Results

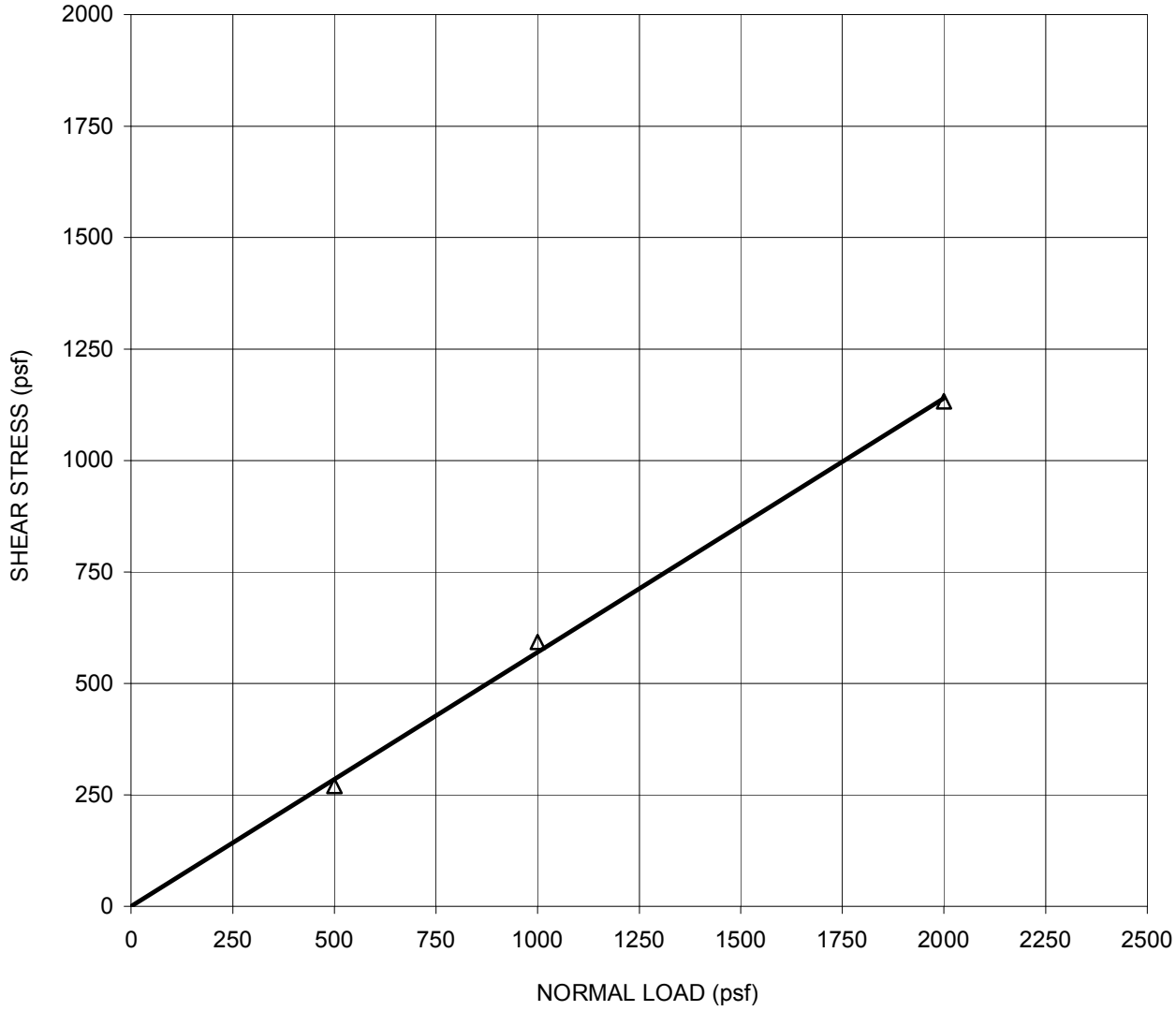
Boring	Depth (ft)	Soil Type	Sulfates (ppm)	pH	Resistivity (ohm-cm)	Chlorides (ppm)
B-1	2.5	SM	6.2	--	--	--
B-1	5	SM	22	5.8	2500	5.7
B-2	2	SM	4.1	6.0	4000	6.1
B-4	1.5	SM	4.8	--	--	--

BORING:	B-4		COHESION (psf)	FRICTION ANGLE
DEPTH (ft):	4			
SOIL TYPE (USCS):	SM	PEAK	0	31
		ULTIMATE		
MOISTURE: **SATURATED**		TEST TYPE: **CONSOLIDATED - DRAINED**		



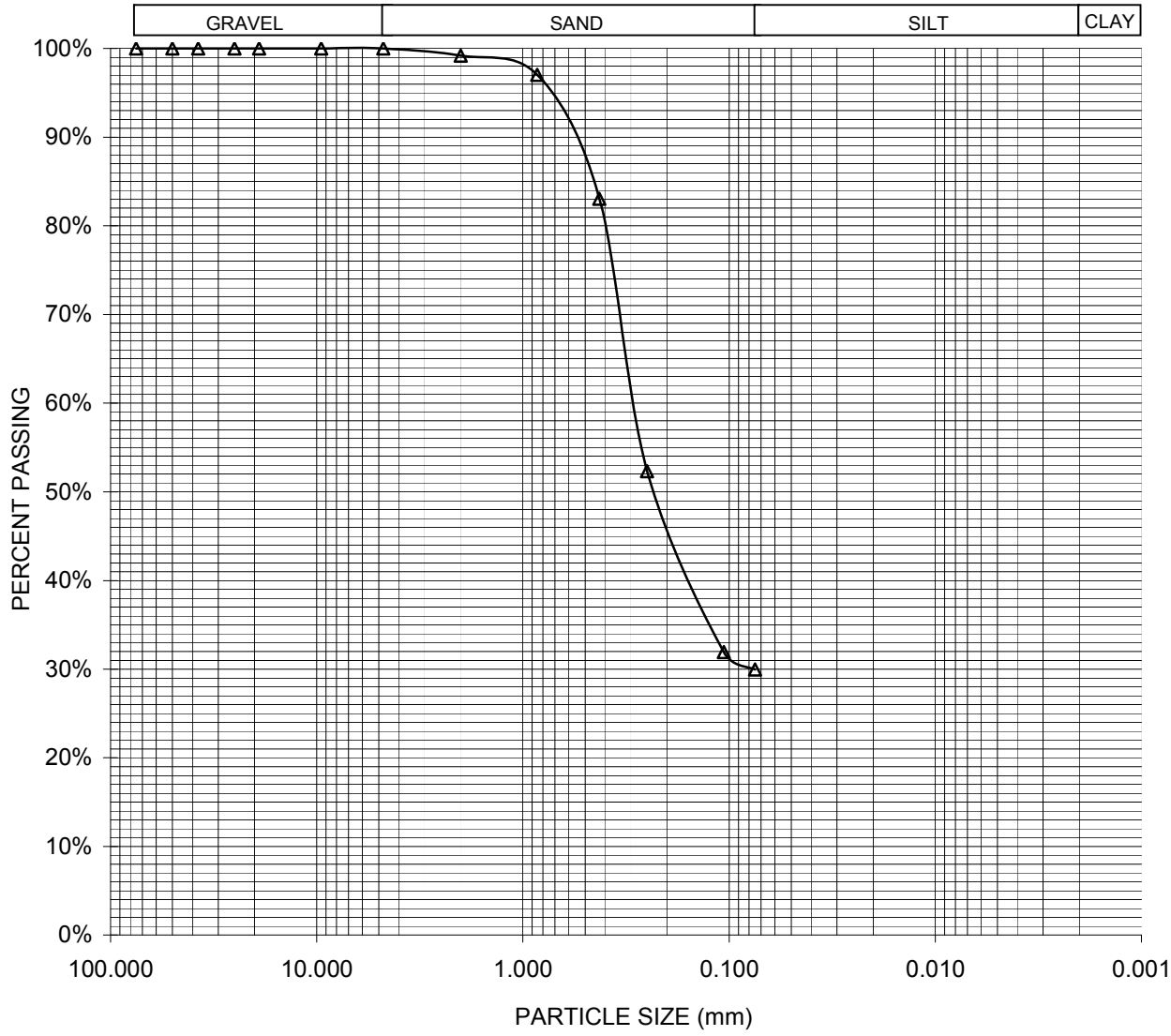
CMAG ENGINEERING	**DIRECT SHEAR TEST RESULTS**	FIGURE
	251 Baltusrol Drive	B-1

			COHESION (psf)	FRICTION ANGLE
BORING:	B-5			
DEPTH (ft):	2			
SOIL TYPE (USCS):	SM	PEAK	0	30
		ULTIMATE		
MOISTURE: **SATURATED**		TEST TYPE: **CONSOLIDATED - DRAINED**		



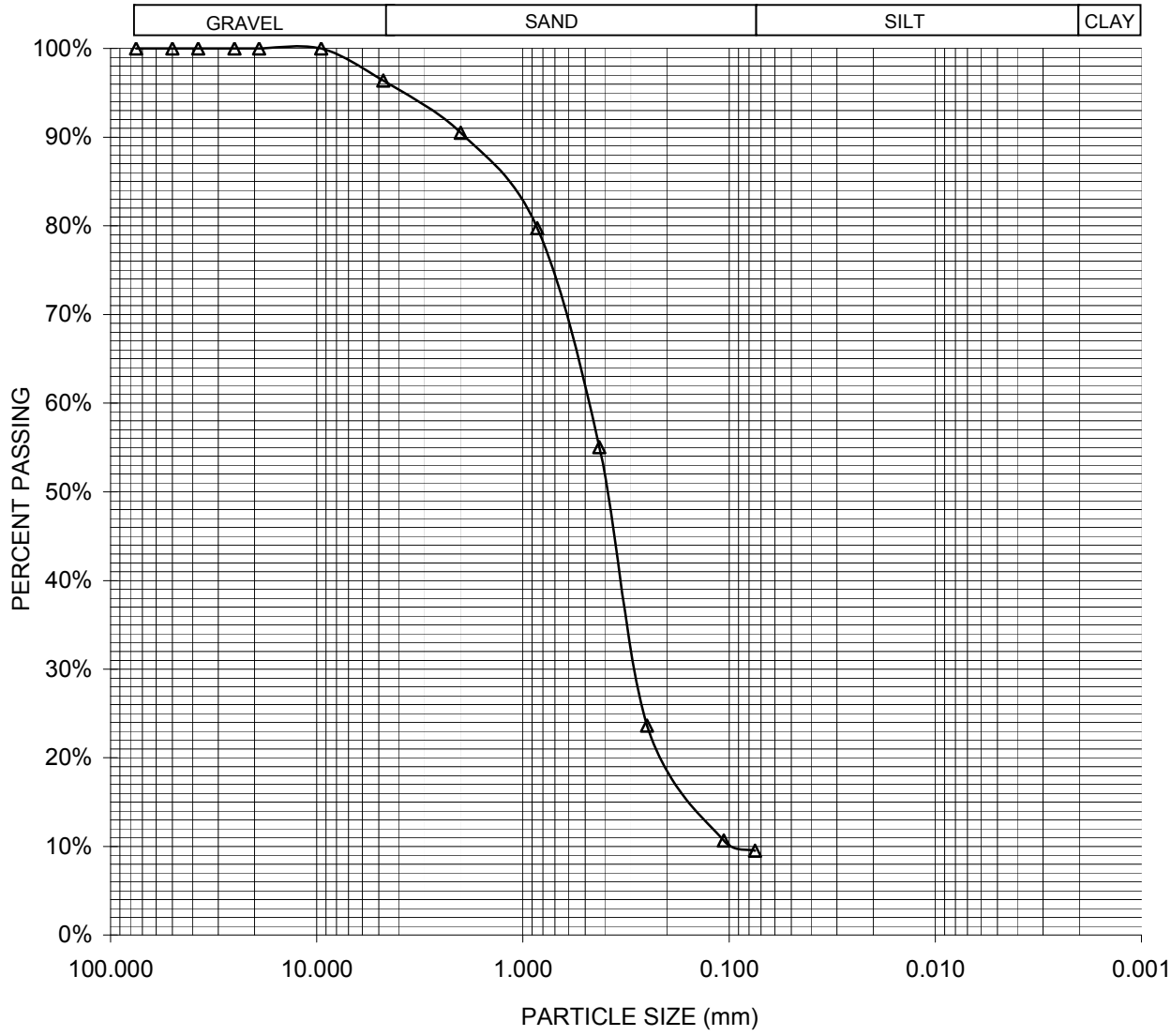
CMAG ENGINEERING	**DIRECT SHEAR TEST RESULTS**	FIGURE
	251 Baltusrol Drive	B-2

BORING:	B-1	PERCENT	PERCENT
DEPTH (ft):	2	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	100.0%	30.0%



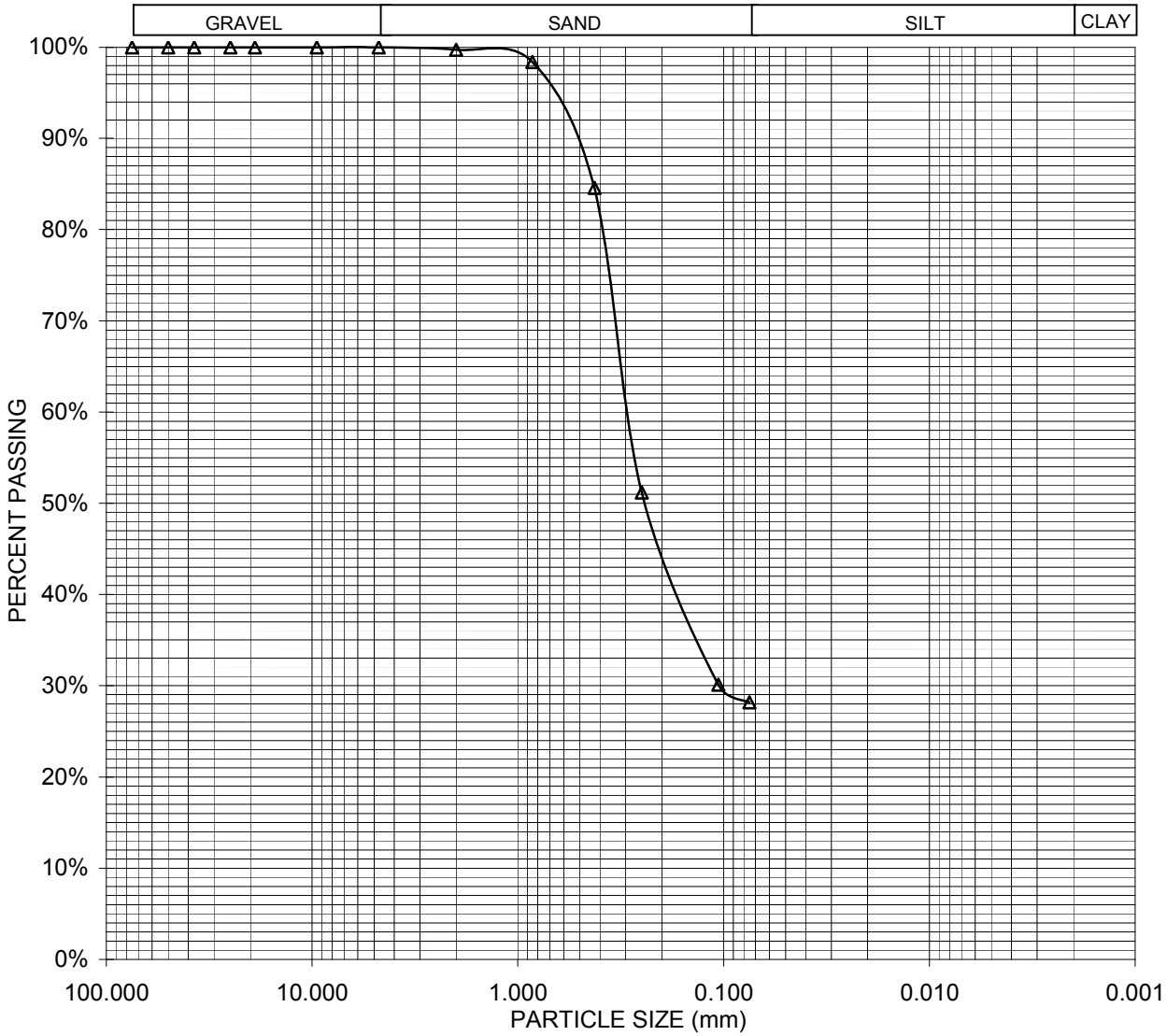
CMAG ENGINEERING	PARTICLE SIZE DISTRIBUTION	FIGURE
	251 Baltusrol Drive	B-3

BORING:	B-1	PERCENT	PERCENT
DEPTH (ft):	15	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SP-SM	96.4%	9.5%



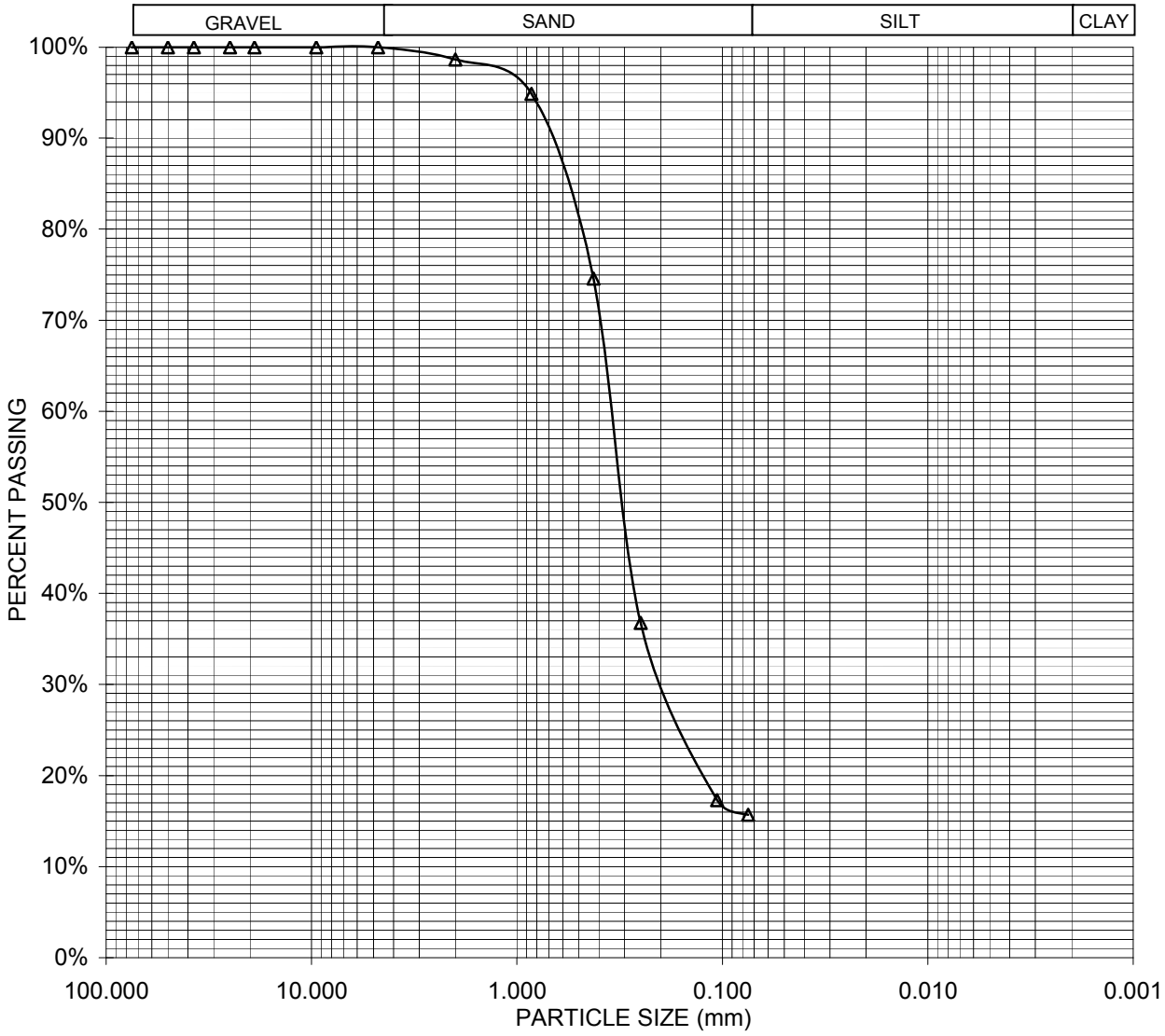
CMAG ENGINEERING	PARTICLE SIZE DISTRIBUTION	FIGURE
	251 Baltusrol Drive	B-4

BORING:	B-2	PERCENT	PERCENT
DEPTH (ft):	2.5	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	100.0%	28.2%



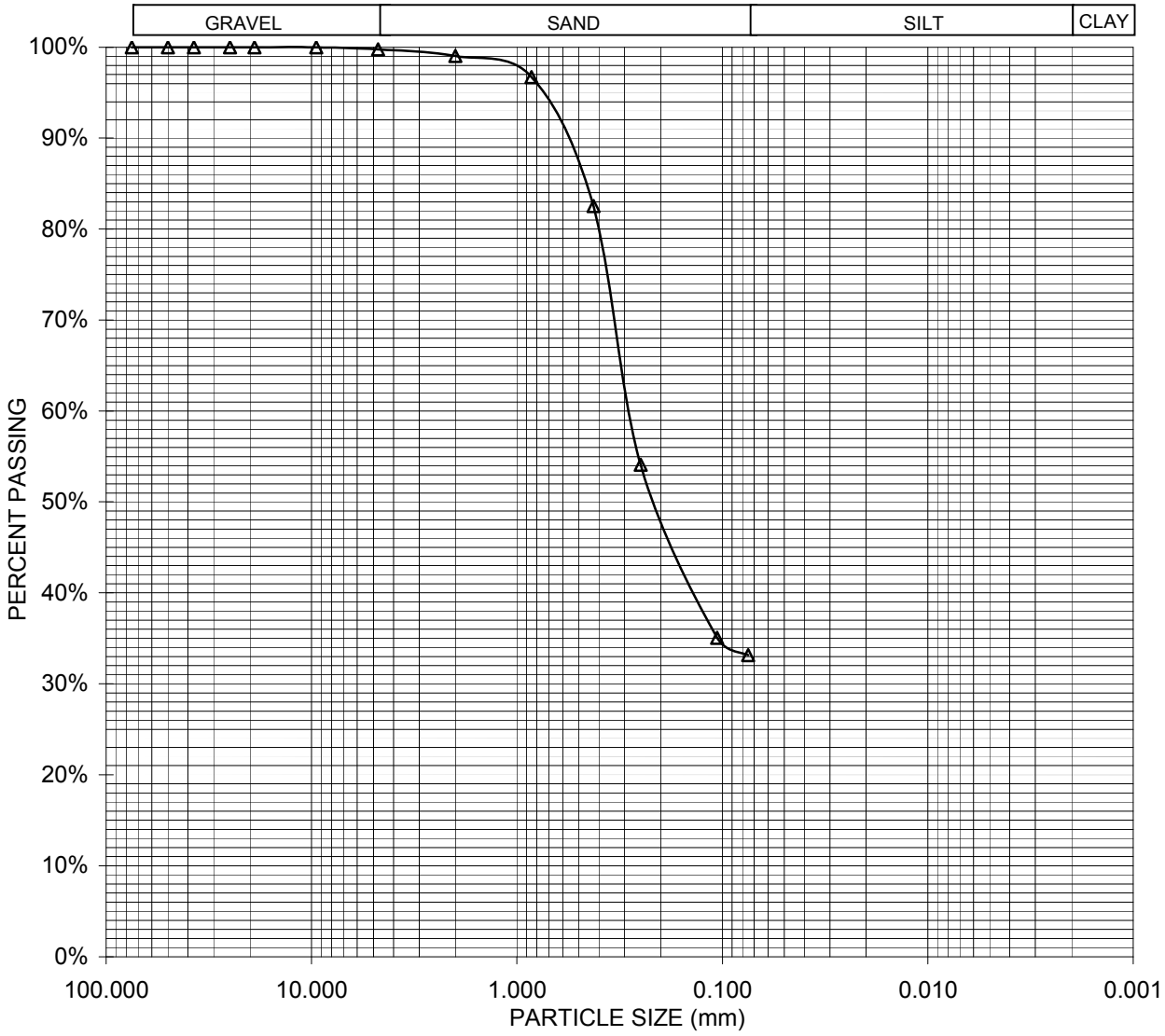
CMAG ENGINEERING	PARTICLE SIZE DISTRIBUTION	FIGURE
	251 Baltusrol Drive	B-5

BORING:	B-3	PERCENT	PERCENT
DEPTH (ft):	6.5	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	100.0%	15.7%



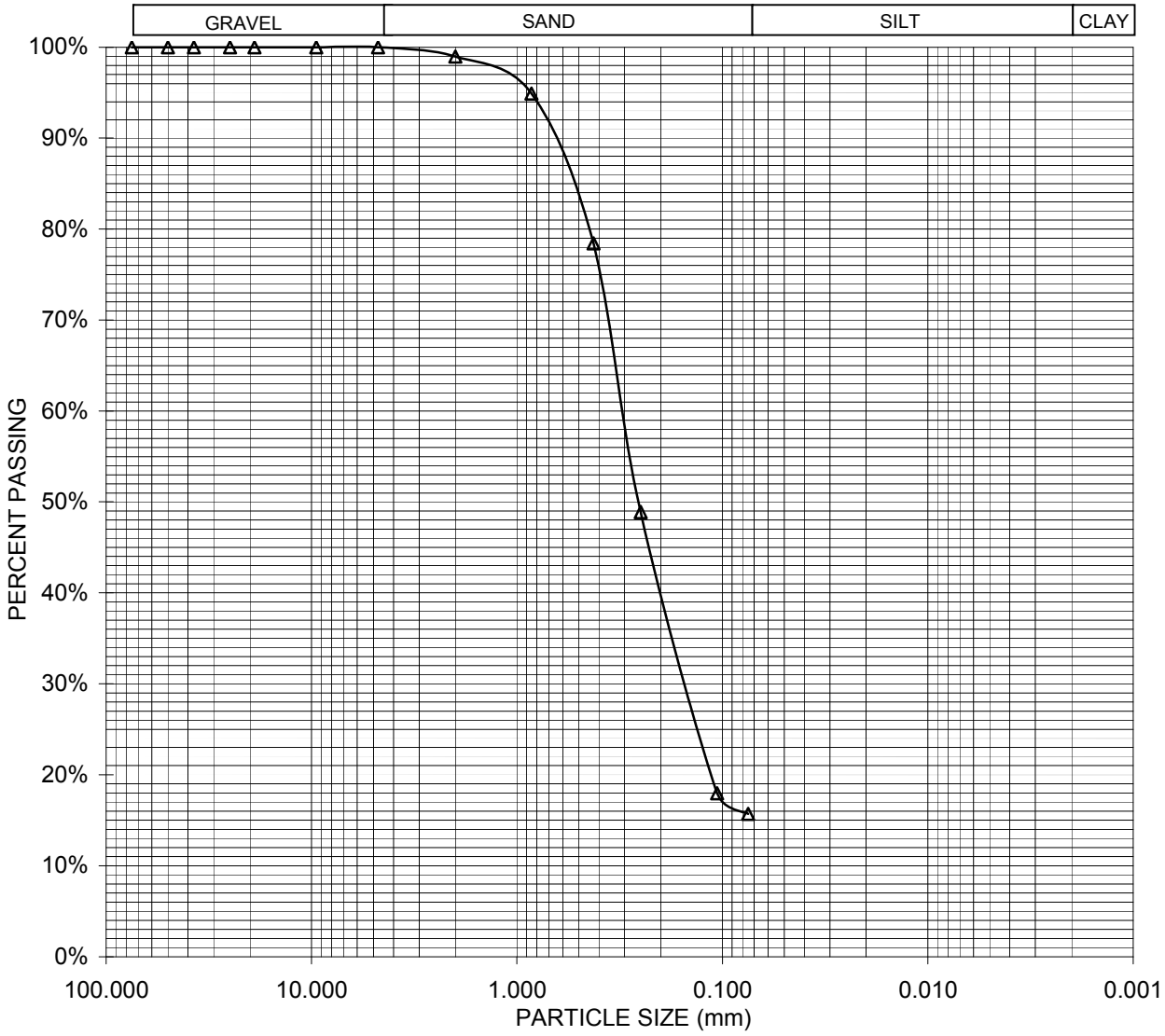
CMAG ENGINEERING	PARTICLE SIZE DISTRIBUTION	FIGURE
	251 Baltusrol Drive	B-6

BORING:	B-4	PERCENT	PERCENT
DEPTH (ft):	1	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	99.8%	33.2%



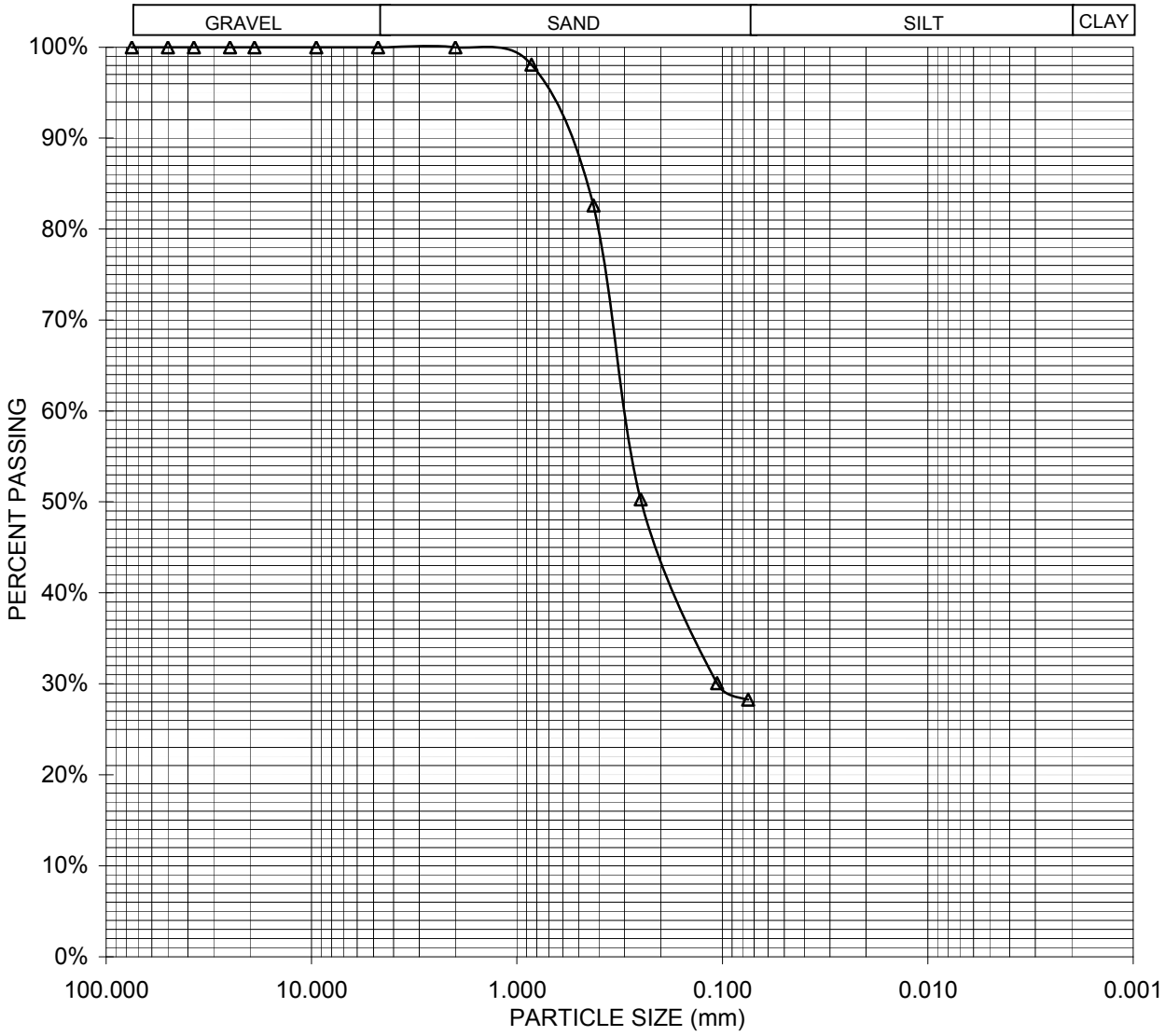
CMAG ENGINEERING	PARTICLE SIZE DISTRIBUTION	FIGURE
	251 Baltusrol Drive	B-7

BORING:	B-4	PERCENT	PERCENT
DEPTH (ft):	8	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	100.0%	15.7%



CMAG ENGINEERING	PARTICLE SIZE DISTRIBUTION	FIGURE
	251 Baltusrol Drive	B-8

BORING:	B-5	PERCENT	PERCENT
DEPTH (ft):	3.5	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	100.0%	28.3%



CMAG ENGINEERING	PARTICLE SIZE DISTRIBUTION	FIGURE
	251 Baltusrol Drive	B-9

CMAG ENGINEERING, INC.

P.O. BOX 640, APTOS, CALIFORNIA 95001
PH: 831.475.1411
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May 19, 2021
Project No. 20-145-SC

Soquel Creek Water District
P.O. Box 1550
Capitola, California 95010

ATTN: Michael J. Wilson, PE

SUBJECT: **ADDENDUM TO GEOTECHNICAL REPORT**
Granulated Activated Carbon Filter Plant
251 Baltusrol Drive
Aptos, Santa Cruz County, California
APN 053-221-11

REFERENCES: See the Attached List of References

Dear Mr. Wilson:

1.0 INTRODUCTION

Per our discussions with the project Civil Engineer, Black & Veatch, we have prepared this addendum to provide additional geotechnical recommendations for the design and construction of the proposed Granulated Activated Carbon Filter Plant.

The geotechnical recommendations presented herein are based on the field exploration and laboratory testing presented in the referenced report (CMAG, April 1, 2021). The recommendations presented in this addendum supersede the recommendations in the referenced report. All other recommendations presented in the report, not included in this addendum, should be adhered to.

1.1 Project Description

As outlined in the referenced geotechnical report, the project consists of the construction of a new well and a granulated activated carbon filter plant. The facility is to be housed in a 2,700 to 3,000 two story, light framed building with a concrete slab-on-grade. The final details of the building, including potentially incorporating access for future replacement of the components of the system, are yet to be determined. The proposed driveway is to wrap around the site for ease of maintenance access. In general, the building, driveway, and landscaping are to appear similar to the neighboring residences.

A retention / detention system is required to manage the on-site stormwater and is currently proposed to be located on the southwest portion of the site. We have performed infiltration testing at the site and prepared the referenced letter (CMAG, May 18, 2021) providing the results of our testing and geotechnical parameters to aid in the design of the retention / detention system.

The existing well site, located on the northeast corner of the site, is to remain.

2.0 RECOMMENDATIONS

2.1 2019 California Building Code and ASCE 7-16 Seismic Provisions

Per our conversations with Black & Veatch, it is our understanding that the exception, for performing a ground motion hazard analysis as outlined in Section 11.4.8 of ASCE 7-16, has been met. Based on that assumption, we have updated the Seismic Design Parameters (Table 1).

Table 1. Seismic Design Parameters - 2019 CBC and ASCE 7-16

S_S	S_1	Site Class	F_a	F_v	S_{MS}	S_{M1}	S_{DS}	S_{D1}	PGA_M
2.058g	0.788g	D	1.0	1.7	2.058g	1.340g	1.372g	0.893g	0.948g

2.2 GAC Vessel Foundations

It is our understanding that the Granulated Activated Carbon Filter (GAC) vessels are to be founded on a poured-in-place concrete slab foundation. The weight of the vessels are approximately 214,000 lbs and the concrete slab foundation will be approximately 15 feet by 30 feet.

Beneath the concrete slab, the native soil should be overexcavated to a minimum of 5 feet below the bottom of the slab, or 5 feet below existing grades, whichever is greater. The exposed surface should then be scarified, moisture conditioned, and compacted. The excavated material should then be placed as engineered fill compacted to a minimum of 90 percent relative compaction to finished pad grades. The zone of engineered fill shall extend a minimum of 5 feet laterally beyond the foundation footprint. See Section 7.2.2 of the referenced report (CMAG, 2021) for additional recommendations pertaining to preparation of on-site soils. The subgrade should be proof-rolled just prior to construction to provide a firm, relatively unyielding surface, especially if the surface has been loosened by the passage of construction traffic.

For a slab foundation designed with the flexible method, a unit coefficient of subgrade reaction, k_{V1} = 200 kcf, may be assumed for design purposes. This value is for a 1 foot wide footing and should be reduced for the effective width. For the underlying sandy soils, recompacted as outlined above:

$$k_S = k_{V1} ((B + 1) / 2B)^2$$

where:

k_S = coefficient of subgrade reaction (kcf)
k_{V1}= unit coefficient of subgrade reaction (kcf)
B = effective footing width (feet)

The subgrade reaction value may be increased by a factor of four for seismic loading.

For a slab foundation designed with the conventional rigid method, the allowable bearing pressure should not exceed 600 psf. The allowable bearing capacity may be increased by 1/3 for seismic loading.

Total settlements beneath the slab foundation are expected to be within tolerable limits. Vertical movements are not expected to exceed 1 inch. Differential movements are dependent on the rigidity of the slab. For a rigid slab with a Kr >0.5, differential settlements are not expected. This estimate should be reviewed by the Geotechnical Engineer when foundation plans for the proposed structures become available.

The slab foundation should be underlain by a minimum 4 inch thick capillary break such as 3/4 inch or 3/8 inch clean crushed rock. It is recommended that neither Class II baserock nor sand be employed as the capillary break material. Where moisture sensitive floor coverings are anticipated or vapor transmission may be a problem, a vapor retarder should be placed between the granular layer and the mat in order to reduce moisture condensation under the floor coverings. The vapor retarder should be specified by the mat designer. It should be noted that conventional slab-on-grade construction is not waterproof. Under-slab construction consisting of a capillary break and vapor retarder will not prevent moisture transmission through the mat. CMAG does not practice in the field of moisture vapor transmission evaluation or mitigation. Where moisture sensitive floor coverings are to be installed, a waterproofing expert should be consulted for their recommended moisture and vapor protection measures.

The Geotechnical Engineer should observe the overexcavations and placement of engineered fill. The slab subgrade should be observed by the Geotechnical Engineer before steel reinforcement is placed and concrete is poured.

2.3 Building Concrete Slab-on-Grade

It is our understanding that the building concrete slab-on-grade is to be designed assuming a live load of 250 psf.

For a slab foundation designed with the flexible method, a unit coefficient of subgrade reaction, k_{V1} = 200 kcf, may be assumed for design purposes. This value is for a 1 foot wide footing and should be reduced for the effective width. For the underlying sandy soils, recompacted per Subsection 7.2.2 of the referenced report:

$$k_S = k_{V1} ((B + 1) / 2B)^2$$

where:

k_S = coefficient of subgrade reaction (kcf)
k_{V1}= unit coefficient of subgrade reaction (kcf)

B = effective footing width (feet)

The subgrade reaction value may be increased by a factor of four for seismic loading.

See Section 7.3.2 and 7.2.2 of the referenced report for additional recommendations.

2.4 Import Engineered Fill Specifications

All soils, both existing on-site and imported, to be used as engineered fill, should meet the requirements of Table 2.

Table 2. Engineered Fill Specifications

Less than 3 Percent Organics
Free of Debris, Gravel, and Clods over 2.5 Inches in Maximum Dimension
10 percent $\leq$ Fines (Passing #200) $\leq$ 35 percent
Fines (Passing #200) have a Low Expansion Potential
Non Corrosive (Caltrans, 2018)
No Sod, Brush, Roots, or Other Perishable or Unsuitable Material

3.0 LIMITATIONS

Our addendum was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in this report.

Soil and geologic conditions can vary significantly between sample locations.

As in most projects, conditions revealed during construction excavation may be at variance with preliminary findings. If this occurs, the changed conditions must be evaluated by the Project Geotechnical Engineer and the Geologist, and revised recommendations be provided as required.

This addendum is issued with the understanding that it is the responsibility of the Owner, or of his Representative, to ensure that the information and recommendations contained herein are brought to the attention of the Architect and Engineer for the project and incorporated into the plans, and that it is ensured that the Contractor and Subcontractors implement such recommendations in the field.

This firm does not practice or consult in the field of safety engineering. We do not direct the Contractor's operations, and we are not responsible for other than our own personnel on the site; therefore, the safety of others is the responsibility of the Contractor. The Contractor should notify the Owner if he considers any of the recommended actions presented herein to be unsafe.

The findings of this addendum are considered valid as of the present date. However, changes in the conditions of a site can occur with the passage of time, whether they be due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge.

Accordingly, this addendum may become invalidated wholly or partially by changes outside our control. Therefore, this addendum is subject to review and revision as changed conditions are identified.

It is a pleasure being associated with you on this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office.

Sincerely,

CMAG ENGINEERING, INC.

Adrian L. Garner, PE, GE
Principal Engineer
C 66087, GE 2814
Expires 6/30/22

Attachments: References
Distribution: Addressee (4 Hard Copies; Electronic Copy)

REFERENCES

American Society of Civil Engineers (2016). *Minimum Design Loads for Buildings and Other Structures*. ASCE Standard 7-16.

California Department of Transportation (March 2018). *Corrosion Guidelines*. Version 3.0.

CMAG Engineering, Inc. (April 1, 2021). *Geotechnical Investigation, Granulated Activated Carbon Filter Plant, 251 Baltusrol Drive, Aptos, Santa Cruz County, California*, *APN 053-221-11.* Project No. 20-145-SC.

CMAG Engineering, Inc. (May 18, 2021). *Infiltration Testing, Granulated Activated Carbon Filter Plant, 251 Baltusrol Drive, Aptos, Santa Cruz County, California*, *APN 053-221-11.* Project No. 20-145-SC.

International Code Council (2019). *California Building Code.* Volume 2.

Appendix G

Paleontological Resources Assessment

Rincon Consultants, Inc.

200 Washington Street
Suite 207
Santa Cruz, California 95060

831 440 3899

info@rinconconsultants.com
www.rinconconsultants.com

July 13, 2021
Project No: 20-10173

Michael Wilson, P.E., Associate Engineer
5180 Soquel Drive
Soquel, California 95073
Via email: michaelw@soquelcreekwater.org

Subject: Paleontological Resource Assessment for the Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project at 251 Baltusrol Drive, Aptos, Santa Cruz County, California

Dear Mr. Wilson,

Rincon Consultants, Inc. (Rincon) conducted a paleontological resource assessment for the proposed Soquel Creek Water District (SqCWD) Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant Project (project) located in Aptos, Santa Cruz County, California. The goals of this assessment are to identify the geologic units that may be impacted by development of the project, determine the paleontological sensitivity of geologic units underlying the project site, assess the potential for impacts to paleontological resources to result from development of the project, and recommend mitigation measures to reduce impacts to scientifically significant paleontological resources pursuant to the California Environmental Quality Act (CEQA).

This paleontological resource assessment consists of a review of online databases containing paleontological collections, a review of existing geologic maps and paleontological locality data[1], and a review of primary literature regarding fossiliferous geologic units within the project site and vicinity. Following the literature review and records search, the paleontological sensitivity of the geologic units underlying the project site is assessed, the potential for impacts to significant paleontological resources is determined, and mitigation measures are proposed to reduce impacts to less than significant levels.

Project Location and Description

The proposed project site consists of a 0.27-acre parcel (Assessor's Parcel Number 053-221-11) located at 251 Baltusrol Drive in the town of Aptos in unincorporated Santa Cruz County (see Figure 1 and Figure 2). The parcel is largely undeveloped with the exception of the existing Country Club Well (including wellhead and related appurtenances) located in the northeastern corner of the project site, which is owned by SqCWD. The project site lies within the United States Geological Survey *Soquel* quadrangle, Township 11 South, Range 1 East, and Section 16, 17, 20, and 21.

The proposed project includes replacing the existing Country Club well, constructing a 1,2,3-trichloropropane (TCP) removal water treatment plant (herein referred to as "water treatment plant"),

[1] A locality is a spatially defined area that may include either *in situ* fossils or a site from which fossils have been previously collected and curated into a museum repository.

Figure 1 Regional Project Location

Basemap provided by National Geographic Society, Esri and its licensors © 2021. Soquel Quadrangle. T11S R01E S20. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.

GRFig 1 Proj Locn Map

Figure 2 Project Site Location

Imagery provided by ESRI, Microsoft Bing and its licensors © 2021.

and installing associated on-site and off-site improvements. The replacement well would be located on the western portion of the project site and would have an aboveground discharge manifold and be surrounded by removable bollards. The replacement well would be drilled to a depth of approximately 730 feet below ground surface with borehole diameters ranging from 24 to 50 inches. The replacement well would connect to the water treatment plant via piping under the on-site driveway. The water treatment plant would consist of a granular activated carbon (GAC) adsorption treatment plant located in a building that would also have space reserved for single-use anion exchange to treat hexavalent chromium if necessary. The project would include re-paving the existing driveway on the northwestern corner of the project site and construction of a new driveway on the southwestern corner of the project site. The majority of the site would be covered with Class II aggregate base surfacing. A new perimeter fence would be installed around the entirety of the project site, and a retaining wall would be constructed along the southern boundary of the project site if needed to raise the elevation of the site along this boundary. Additional below-grade pipelines would be installed on the site to connect the existing and replacement wells to the water treatment plant. The antenna on the existing well pump enclosure would potentially be replaced if radio transmission is working poorly, and the replacement antenna may taller in height than the existing antenna. The replacement antenna would be placed out in the open on or near the pump enclosure for the replacement well or on the proposed water treatment plant. The proposed project would also include construction of sewer lateral connections from the chorine analyzer in the replacement well pump enclosure and the restroom in the proposed water treatment plant to the Santa Cruz County Sanitation District's existing sewer main line in Baltusrol Drive. A storm water retention system will retain the site's stormwater with an on-site retention pipe in the lower driveway sized in accordance with County of Santa Cruz design requirements. The remaining stormwater runoff would flow onto Baltusrol Drive and ultimately enter the existing storm drain approximately 1,000 feet south of the project site. Project construction would require excavation and recompaction of most of the project site to depths ranging from two to five feet.

Regulatory Setting

Fossils are remains of ancient, commonly extinct organisms and, as such, are nonrenewable resources. The fossil record is a document of the evolutionary history of life on earth, and fossils can be used to understand evolutionary pattern and process, rates of evolutionary change, past environmental conditions, and the relationships among modern species (i.e., systematics). The fossil record is a valuable scientific and educational resource, and individual fossils are afforded protection under federal, state, and local environmental laws, where applicable.

State Regulations

California Environmental Quality Act

Section VII(f) of Appendix G of the State CEQA Guidelines (Environmental Checklist Form) poses the question: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" For projects that would result in a significant adverse impact to paleontological resources, Public Resources Code Section 21002 require implementation of feasible mitigation measures to avoid, minimize, rectify, reduce, eliminate, and/or compensate for the impact. To determine the uniqueness of a given paleontological resource, it must first be identified or recovered

(i.e., salvaged). Therefore, CEQA mandates mitigation of significant adverse impacts, to the extent feasible, to paleontological resources.

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has defined a "significant paleontological resource" in the context of environmental review as follows:

> Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are typically to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years; SVP 2010).

The loss of significant paleontological resources meeting the criteria outlined above would constitute a significant impact under CEQA, and the CEQA lead agency (in this case, SqCWD) is responsible for ensuring that impacts to paleontological resources are mitigated, where feasible, in compliance with CEQA and other applicable statutes.

California Public Resources Code

Section 5097.5 of the Public Resources Code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Here "public lands" means those owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with Public Resources Code Section 5097.5 for their own activities, including construction and maintenance, and for permit actions (e.g., encroachment permits) undertaken by others.

Local Regulations

County of Santa Cruz

The County of Santa Cruz's General Plan and Local Coastal Program addresses paleontological resources within the Conservation and Open Space Element. The Conservation and Open Space Element contains the following goal and policies relating to paleontological resources that are relevant to the proposed project (County of Santa Cruz 1994):

- **Goal 5.9 Hydrological, Geological, and Paleontological Resources.** To protect hydrological, geological and paleontological resources which stand out as rare or unique and representative in Santa Cruz County because of their scarcity, scientific or educational value, aesthetic quality or cultural significance.
- **Policy 5.9.1 Protection and Designation of Significant Resources**. Protect significant geological features such as caves, large rock outcrops, inland cliffs and special formations of scenic or scientific

value, hydrological features such as major waterfalls or springs, and paleontological features, through the environmental review process. Designate such sites on the General Plan and Local Coastal Program Resources and Constraints Maps where identified. Currently identified sites of Significant Hydrological, Geological and Paleontological Features are as follows:

Bonny Doon Planning Area:

(a) Majors Creek Canyon: The cliffs and exposed rocks of this canyon to the east of Highway 1 are outstanding scenic features.

(b) Martin Road: East and west of Martin Road, encompassed in the botanical sites, are unusual sandhill outcroppings.

(c) Wilder Creek: This area contains a concentration of limestone caves worth protecting.

(d) Table Rock: Highly scenic coastal rock formations (sedimentary intrusive bodies) can be found in the vicinity of Table Rock and Yellow Bank Creek.

- **Policy 5.9.2 Protecting Significant Resources Through Easements and Land Dedications.** Encourage and obtain where possible Open Space Easements or other forms of land dedication to conserve as open space those areas containing hydrological, geological or paleontological features of significant scenic or scientific value.

Methods

Rincon evaluated the paleontological sensitivity of the geologic units that underlie the project site using the results of the paleontological locality search and a review of existing information in the scientific literature concerning known fossils in those geologic units. Rincon reviewed the paleontological collections of online databases, including the University of California Museum of Paleontology (UCMP) and Paleobiology Database, to identify known fossil localities in Santa Cruz County from the formations and geologic units identified in the project site.

Rincon assigned paleontological sensitivities to the geologic units underlying the project site, consistent with the guidelines of the SVP. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The SVP (2010) has defined paleontological sensitivity and developed a system for assessing paleontological sensitivity, as discussed below.

Paleontological Sensitivity

Significant paleontological resources are fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or could improve our understanding of chronology, ecology, geography, or depositional histories of past life. New or unique specimens can provide new insights into evolutionary history; however, even additional specimens of well-represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Unidentifiable material can also provide useful data for dating geologic units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important and therefore considered highly significant.

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units in

which significant fossils have been determined by previous studies to be present or likely to be present. While these standards were written specifically to protect vertebrate paleontological resources, all fields of paleontology have adopted the following guidelines:

I. **High Potential (Sensitivity).** Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered have a high potential for containing significant nonrenewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent,[2] including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

II. **Low Potential (Sensitivity).** Sedimentary rock units that are potentially fossiliferous but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well-documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.

III. **Undetermined Potential (Sensitivity).** Specific areas underlain by sedimentary rock units for which little information is available have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

IV. **No Potential.** Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

Geologic Setting

The project site is situated within the Coast Ranges, one of eleven major geomorphic provinces in California (California Geological Survey 2002). A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and diastrophic history. The Coast Ranges extend about 600 miles from the Oregon border south to the Santa Ynez River in Santa Barbara County and are characterized by numerous north-south-trending peaks and valleys that range in elevation from approximately 500 feet above mean sea level (amsl) to 7,581 feet amsl at the highest summit. The basement rocks of the Coast Ranges include the Jurassic to Cretaceous rocks of the Franciscan Assemblage, which consist of over 55,000 feet in thickness of greywacke, greenstone, bluestone, metasedimentary rocks, and ophiolite sequences. During the Mesozoic era and into the

[2] Recent refers to the Holocene epoch.

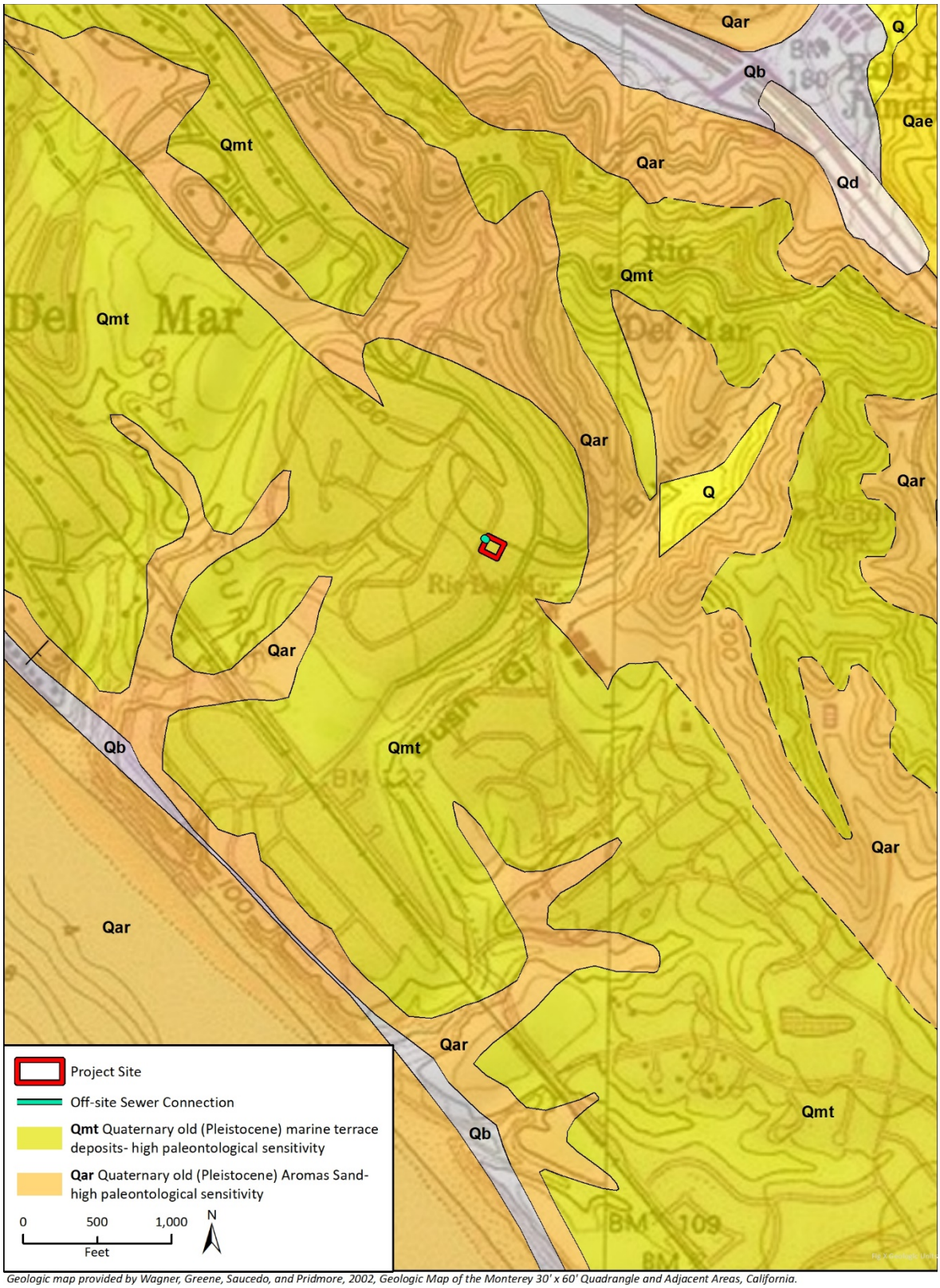
Cenozoic era, the area of the present-day Coast Ranges was covered by marine waters, resulting in the thick accumulation of marine and nonmarine shale, sandstone, and conglomerate on the Franciscan basement rock (Bartow and Nilsen 1990). Later, these deposits were unconformably overlain by Paleocene- to Pliocene-epoch continental shelf marine sedimentary rocks (Barron 1989). During the Late Miocene epoch to the Late Pliocene epoch, a mountain-building episode occurred in the vicinity of the present-day Coast Ranges, resulting in their uplift above sea level. Subsequently, from the Late Pliocene epoch to the Pleistocene epoch, extensive deposits of terrestrial material, including alluvial fans and fluvial sediments, were deposited in the Coast Ranges (Norris and Webb 1990). Ongoing tectonic deformation and sea level change related to Pleistocene climate fluctuations continued through the Quaternary Period, resulting in the formation of marine terrace platforms along the Coast Ranges, including Monterey Bay (Jefferson 2010; Norris and Webb 1990).

The project site is situated within a tectonically active region on the northern edge of Monterey Bay and south of the Santa Cruz Mountains. The project site includes a single geologic unit mapped at the ground surface: Quaternary old (Pleistocene) marine terrace deposits (Qmt), consisting of marine sediments and terrestrial alluvium that accumulated on a series of wave-cut platforms formed during the late Pleistocene (Clark and et. al 1997; Wagner et. al 2002). Based on the findings of the site-specific geotechnical investigation prepared by CMAG Engineering, Inc. (CMAG), Pleistocene marine terrace deposits (Qmt) composed of loose to medium dense, moist, non-plastic dark yellowish brown, fine to medium-grained silty sand were encountered in all boring locations from the surface to approximately 15 feet below ground surface (CMAG 2021). Pleistocene marine terrace deposits (Qmt) have a record of vertebrate fossil preservation throughout California and have yielded scientifically significant specimens from multiple localities. In coastal California, Pleistocene marine terrace deposits have yielded vertebrate fossil specimens of camel, horse, ground sloth, whale, dolphin, shark, and fish (Jefferson 2010; Woodring et al. 1946). Quaternary old (Pleistocene) Aromas Sand (Qar), consisting of medium dense to very dense, moist, olive brown and dark yellowish brown, interbedded fine to coarse-grained poorly-graded sand with silt, was also documented during subsurface explorations at depths exceeding 14 to 15 feet below ground surface to depths of approximately 310 feet (CMAG 2021). Because of the age of these lagoonal and windblown sediments, it is possible they can preserve fossil resources, particularly at depth (Woodring et al. 1946). In addition, Pliocene Purisima Formation (Ppu), consisting of blue-gray marine siltstone and sandstone, was encountered at depths below approximately 310 feet (CMAG 2021; Wagner et. al 2002). The Purisima Formation, which was deposited at shallow, near-shore conditions, has produced several specimens of cetacean (whale), pinniped (seal), mollusk, and other invertebrates (Paleobiology Database 2021). Figure 3 depicts the surficial geologic units at the project site and in the surrounding area as well as the corresponding paleontological sensitivities.

Results

The paleontological sensitivity of the geologic units underlying the project site were determined in accordance with criteria set forth by the SVP (2010) based on the geologic map review, literature

Figure 3 Geologic Units and Paleontological Sensitivity of the Project Site



Geologic map provided by Wagner, Greene, Saucedo, and Pridmore, 2002, Geologic Map of the Monterey 30' x 60' Quadrangle and Adjacent Areas, California.

review, and review of online databases containing paleontological collections (i.e., UCMP and Paleobiology Databases). Quaternary old (Pleistocene) sedimentary deposits (e.g., Qmt, Qar) have a well-documented record of abundant and diverse vertebrate fauna throughout California, including Santa Cruz County. Localities have produced fossil specimens of mammoth (*Mammuthus columbi*), horse (*Equus*), camel (*Camelops*), and bison (*Bison*) as well as various birds, rodents, and reptiles (Agenbroad 2003; Jefferson 1985 and 2010; Merriam 1911; Paleobiology Database 2021; Savage 1951; UCMP 2021). Pleistocene marine terrace deposits (Qmt), which underlie the project site from the surface to approximately 15 feet below ground surface, are assigned a high paleontological sensitivity due to their potential to preserve scientifically significant fossils (Jefferson 1985 and 2010; Woodring et al. 1946). Pleistocene Aromas Sand (Qar), which underlies the project from approximately 15 to 310 feet below ground surface, also has the potential to contain buried intact paleontological resources at moderate depths because of the age of these aeolian sediments (Paleobiology Database 2021; UCMP 2021). Consequently, Pleistocene Aromas Sand (Qar) is also assigned a high paleontological sensitivity. Pliocene Purisima Formation (Ppu), which underlies the project site from approximately 310 to 750 feet below ground surface, has also yielded scientifically important paleontological resources within Santa Cruz County; therefore, this unit is assigned a high paleontological sensitivity.

Findings and Recommendations

Project impacts to paleontological resources would be significant under CEQA if construction activities result in the destruction, damage, or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data. Project activities with the potential to impact significant paleontological resources would include well drilling, grading, excavation, and other activities that disturb substantial quantities of the subsurface geologic units with a high paleontological sensitivity. Ground disturbance associated with the proposed replacement well would reach a maximum depth of approximately 730 feet below ground surface with borehole diameters ranging from approximately 24 to 50 inches. In addition, grading and excavation at the site would extend to depths of approximately two to five feet. These ground-disturbing activities would occur in portions of the project site underlain by previously undisturbed (intact/native) geologic units with a high paleontological sensitivity (i.e., Pleistocene marine terrace deposits [Qmt] and Aromas Sand [Qar] and Pliocene Purisima Formation [Ppu]). Therefore, based on the nature of the proposed project, the depths of project-related ground disturbance, and existing site conditions, the proposed project would involve extensive excavations within intact geologic formations of Pleistocene and Pliocene age, which could potentially encounter fossiliferous deposits and result in significant impacts to paleontological resources, if present.

The following recommended measures would address the project's potentially significant impacts to paleontological resources during project ground disturbance. These recommendations were developed in accordance with SVP (2010) standard guidelines and would apply to all phases of project construction to ensure any significant fossils present on site are preserved. Implementation of these mitigation measures would reduce potential impacts to paleontological resources to a less-than-significant level under CEQA.

Recommended Measures

GEO-1 Prepare and Implement a Paleontological Mitigation and Monitoring Plan

Prior to initial ground-disturbing construction activity, SqCWD shall retain a Qualified Paleontologist to design a Paleontological Mitigation and Monitoring Program (PMMP). The PMMP shall include Worker Environmental Awareness Program (WEAP) training to be delivered at a preconstruction meeting for all on-site construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction personnel. A qualified professional paleontologist is defined by the SVP (2010) standards as an individual preferably with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least two years.

The PMMP shall include the requirement for monitoring by a qualified paleontological monitor for excavations that have the potential to impact intact (native) Quaternary old (Pleistocene) marine terrace deposits (Qmt), Aromas Sand (Qar), and Pliocene Purisima Formation (Ppu). Ground disturbing activities less than five feet in depth or into previously disturbed sediments (i.e., fill) do not require paleontological monitoring. The duration and timing of the monitoring shall be determined by the Qualified Paleontologist in consideration of the location and extent of ground disturbance. If the Qualified Paleontologist determines that full-time monitoring is not warranted based on the specific geologic conditions at the surface or at depth, the Qualified Paleontologist may recommend that monitoring be reduced to periodic spot-checking or cease entirely. A qualified paleontological monitor is defined as an individual who meets the minimum qualifications per standards set forth by the SVP (2010), which includes a Bachelor of Science or Bachelor of Arts degree in geology or paleontology with one year of monitoring experience and knowledge of collection and salvage of paleontological resources. If no resources are discovered during construction, no further mitigation is required. If a paleontological resource is discovered, Mitigation Measure GEO-2 shall be implemented.

GEO-2 Fossil Discovery, Preparation, Curation, and Reporting

If a paleontological resource is discovered, the monitor shall have the authority to temporarily divert construction equipment around the find, when doing so is safe and does not compromise the structural integrity of the construction work, until the find is assessed for scientific significance and collected in a safe and timely manner.

Once salvaged, significant fossils shall be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in an approved scientific institution with a permanent paleontological collection along with all pertinent field notes, photos, data, and maps.

At the conclusion of laboratory work and museum curation for scientifically significant fossils discovered at the site, a positive findings report shall be prepared describing the results of the paleontological mitigation monitoring efforts associated with the project. The report shall include a summary of the field and laboratory methods, an overview of the project geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If no fossils are discovered during the course of the project, a negative findings report shall be prepared to describe the results of the paleontological mitigation monitoring efforts. The final report shall be submitted to SqCWD and responsible agencies (e.g., the County of Santa Cruz). If the monitoring efforts

produced fossils, then a copy of the report shall also be submitted to the designated museum repository.

Conclusion

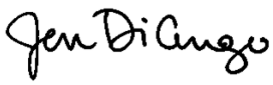
Project impacts to paleontological resources would be significant due to the potential for well drilling activities to impact subsurface geologic units of high paleontological sensitivity. Impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures GEO-1 through GEO-2.

If you have any questions regarding this paleontological resource assessment, please contact us.

Sincerely,

Rincon Consultants, Inc.

Jorge Mendieta
Associate Paleontologist



Jennifer DiCenzo
Senior Paleontologist/Program Manager

Jennifer Haddow, PhD
Principal Environmental Scientist

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Appendix H

Noise Data and Modeling

Noise Measurement 1 - 225 Baltusrol Drive

Data Logger 2		
Duration (seconds)		15
Weighting	A	
Response	SLOW	
Range	40-100	
L05		52.0
L10		48.3
L50		41.2
L90		39.6
L95		39.3
Lmax		70.2
Time	8/16/2021	16:54
SEL		79.1
Leq		**52.7**

No.s	Date Time	Time	dB	Sound Energy
1	8/16/2021 16:50	4:50 PM	46.6	685632.2844
2	8/16/2021 16:51	4:51 PM	51.9	2323224.928
3	8/16/2021 16:51	4:51 PM	45.9	583567.7175
4	8/16/2021 16:51	4:51 PM	44	376782.9647
5	8/16/2021 16:51	4:51 PM	43.4	328164.2436
6	8/16/2021 16:52	4:52 PM	46.1	611070.4167
7	8/16/2021 16:52	4:52 PM	41.1	193237.4328
8	8/16/2021 16:52	4:52 PM	41.1	193237.4328
9	8/16/2021 16:52	4:52 PM	43.7	351634.3223
10	8/16/2021 16:53	4:53 PM	40.8	180339.6652
11	8/16/2021 16:53	4:53 PM	42.1	243271.5146
12	8/16/2021 16:53	4:53 PM	40.5	168302.7681
13	8/16/2021 16:53	4:53 PM	40.5	168302.7681
14	8/16/2021 16:54	4:54 PM	44.8	452992.7581
15	8/16/2021 16:54	4:54 PM	68.1	96848134.36
16	8/16/2021 16:54	4:54 PM	41.3	202344.4324
17	8/16/2021 16:54	4:54 PM	43.4	328164.2436
18	8/16/2021 16:55	4:55 PM	39.6	136801.6259
19	8/16/2021 16:55	4:55 PM	38.3	101412.4463
20	8/16/2021 16:55	4:55 PM	39.4	130644.5385
21	8/16/2021 16:55	4:55 PM	39.1	121924.5774
22	8/16/2021 16:56	4:56 PM	40.8	180339.6652
23	8/16/2021 16:56	4:56 PM	39.8	143248.8879
24	8/16/2021 16:56	4:56 PM	38.9	116437.0675
25	8/16/2021 16:56	4:56 PM	48.3	1014124.463
26	8/16/2021 16:57	4:57 PM	48	946436.0167
27	8/16/2021 16:57	4:57 PM	39.4	130644.5385
28	8/16/2021 16:57	4:57 PM	64.1	38555936.74

29	8/16/2021 16:57	4:57 PM	42.5	266741.9115
30	8/16/2021 16:58	4:58 PM	41.5	211880.6317
31	8/16/2021 16:58	4:58 PM	42.3	254736.5479
32	8/16/2021 16:58	4:58 PM	40.5	168302.7681
33	8/16/2021 16:58	4:58 PM	39.3	127670.7057
34	8/16/2021 16:59	4:59 PM	41.2	197738.5108
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36	8/16/2021 16:59	4:59 PM	40.7	176234.6332
37	8/16/2021 16:59	4:59 PM	41	188838.8118
38	8/16/2021 17:00	5:00 PM	40.2	157069.2822
39	8/16/2021 17:00	5:00 PM	40.3	160727.8958
40	8/16/2021 17:00	5:00 PM	40.8	180339.6652
41	8/16/2021 17:00	5:00 PM	40.2	157069.2822
42	8/16/2021 17:01	5:01 PM	41	188838.8118
43	8/16/2021 17:01	5:01 PM	40.7	176234.6332
44	8/16/2021 17:01	5:01 PM	40.4	164471.7294
45	8/16/2021 17:01	5:01 PM	42	237733.9789
46	8/16/2021 17:02	5:02 PM	39.6	136801.6259
47	8/16/2021 17:02	5:02 PM	39.8	143248.8879
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49	8/16/2021 17:02	5:02 PM	58.3	10141244.63
50	8/16/2021 17:03	5:03 PM	40.3	160727.8958
51	8/16/2021 17:03	5:03 PM	41.7	221866.2582
52	8/16/2021 17:03	5:03 PM	40.9	184540.3156
53	8/16/2021 17:03	5:03 PM	40.4	164471.7294
54	8/16/2021 17:04	5:04 PM	40.7	176234.6332
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58	8/16/2021 17:05	5:05 PM	42.7	279313.0705
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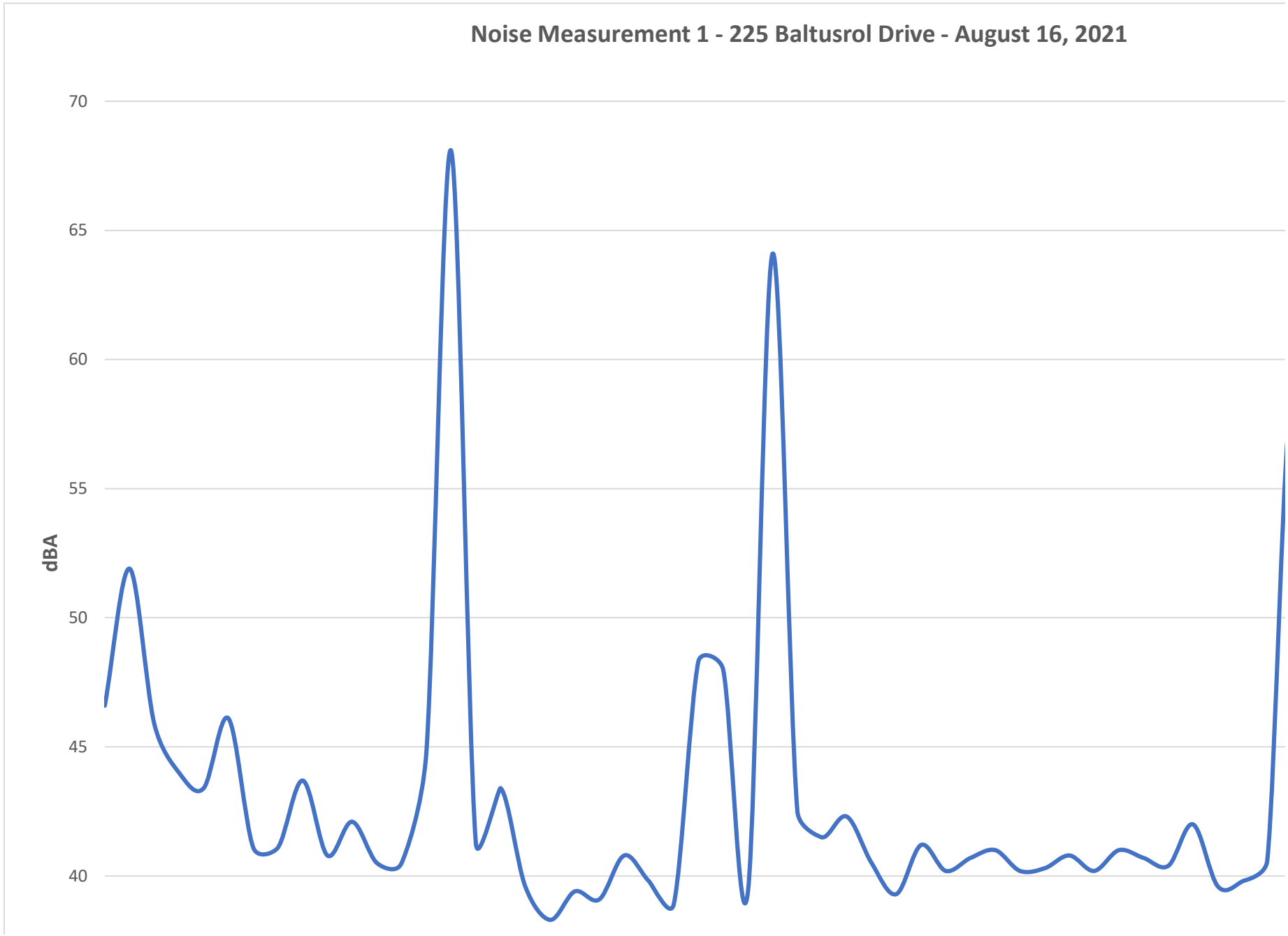
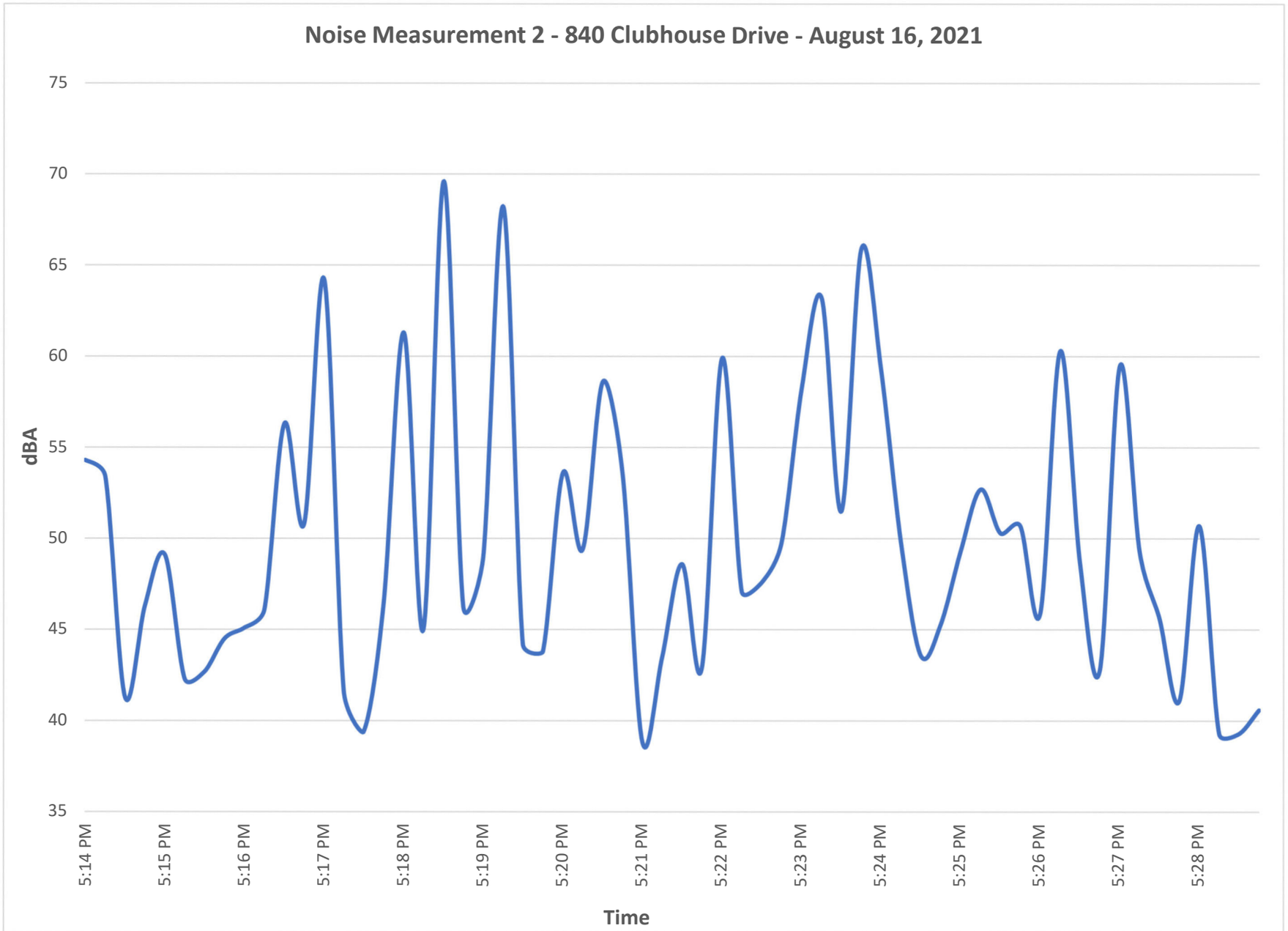

Noise Measurement 1 - 225 Baltusrol Drive - August 16, 2021
70
65
60
55
50
45
40
dBA

Noise Measurement 2 - 840 Clubhouse Drive

Data Logger 2	
Duration (seconds)	15
Weighting	A
Response	SLOW
Range	40-100
L05	65.0
L10	62.7
L50	48.3
L90	41.2
L95	40.1
Lmax	81.5
Time	8/16/2021 17:24
SEL	90.2
Leq	**57.6**

No.s	Date Time	Time	dB	Sound Energy
1	8/16/2021 17:14	5:14 PM	54.3	4037302.206
2	8/16/2021 17:14	5:14 PM	53.4	3281642.436
3	8/16/2021 17:14	5:14 PM	41.3	202344.4324
4	8/16/2021 17:14	5:14 PM	46.3	639869.2782
5	8/16/2021 17:15	5:15 PM	49.1	1219245.774
6	8/16/2021 17:15	5:15 PM	42.3	254736.5479
7	8/16/2021 17:15	5:15 PM	42.7	279313.0705
8	8/16/2021 17:15	5:15 PM	44.5	422757.4397
9	8/16/2021 17:16	5:16 PM	45.1	485390.4854
10	8/16/2021 17:16	5:16 PM	46.1	611070.4167
11	8/16/2021 17:16	5:16 PM	56.3	6398692.782
12	8/16/2021 17:16	5:16 PM	50.8	1803396.652
13	8/16/2021 17:17	5:17 PM	64.2	39454019.88
14	8/16/2021 17:17	5:17 PM	41.6	216815.9656
15	8/16/2021 17:17	5:17 PM	39.4	130644.5385
16	8/16/2021 17:17	5:17 PM	46.5	670025.3882
17	8/16/2021 17:18	5:18 PM	61.3	20234443.24
18	8/16/2021 17:18	5:18 PM	45	474341.649
19	8/16/2021 17:18	5:18 PM	69.6	136801625.9
20	8/16/2021 17:18	5:18 PM	46.3	639869.2782
21	8/16/2021 17:19	5:19 PM	49	1191492.352
22	8/16/2021 17:19	5:19 PM	68.2	99104017.2
23	8/16/2021 17:19	5:19 PM	44.2	394540.1988
24	8/16/2021 17:19	5:19 PM	43.8	359824.9379
25	8/16/2021 17:20	5:20 PM	53.6	3436301.479
26	8/16/2021 17:20	5:20 PM	49.4	1306445.385
27	8/16/2021 17:20	5:20 PM	58.6	10866539.4
28	8/16/2021 17:20	5:20 PM	53.6	3436301.479

29	8/16/2021 17:21	5:21 PM	38.9	116437.0675
30	8/16/2021 17:21	5:21 PM	43.5	335808.1708
31	8/16/2021 17:21	5:21 PM	48.6	1086653.94
32	8/16/2021 17:21	5:21 PM	42.9	292476.69
33	8/16/2021 17:22	5:22 PM	59.9	14658558.31
34	8/16/2021 17:22	5:22 PM	47.1	769292.076
35	8/16/2021 17:22	5:22 PM	47.6	863159.906
36	8/16/2021 17:22	5:22 PM	49.8	1432488.879
37	8/16/2021 17:23	5:23 PM	58.2	9910401.72
38	8/16/2021 17:23	5:23 PM	63.2	31339441.96
39	8/16/2021 17:23	5:23 PM	51.5	2118806.317
40	8/16/2021 17:23	5:23 PM	65.9	58356771.75
41	8/16/2021 17:24	5:24 PM	59.2	12476456.57
42	8/16/2021 17:24	5:24 PM	49.8	1432488.879
43	8/16/2021 17:24	5:24 PM	43.6	343630.1479
44	8/16/2021 17:24	5:24 PM	45.3	508266.2342
45	8/16/2021 17:25	5:25 PM	49.3	1276707.057
46	8/16/2021 17:25	5:25 PM	52.7	2793130.705
47	8/16/2021 17:25	5:25 PM	50.3	1607278.958
48	8/16/2021 17:25	5:25 PM	50.7	1762346.332
49	8/16/2021 17:26	5:26 PM	45.9	583567.7175
50	8/16/2021 17:26	5:26 PM	60.3	16072789.58
51	8/16/2021 17:26	5:26 PM	48.7	1111965.362
52	8/16/2021 17:26	5:26 PM	42.8	285819.1077
53	8/16/2021 17:27	5:27 PM	59.5	13368764.07
54	8/16/2021 17:27	5:27 PM	49.3	1276707.057
55	8/16/2021 17:27	5:27 PM	45.6	544617.0822
56	8/16/2021 17:27	5:27 PM	41.1	193237.4328
57	8/16/2021 17:28	5:28 PM	50.7	1762346.332
58	8/16/2021 17:28	5:28 PM	39.3	127670.7057
59	8/16/2021 17:28	5:28 PM	39.3	127670.7057
60	8/16/2021 17:28	5:28 PM	40.6	172223.0432


Noise Measurement 2 - 840 Clubhouse Drive - August 16, 2021
75
70
65
60
55
50
45
40
35
dBA
5:14 PM
5:15 PM
5:16 PM
5:17 PM
5:18 PM
5:19 PM
5:20 PM
5:21 PM
5:22 PM
5:23 PM
5:24 PM
5:25 PM
5:26 PM
5:27 PM
5:28 PM
Time

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/05/2021
Case Description: SqCWD Country Club Well - Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Auger Drill Rig	No	20		84.4	25.0	0.0
Concrete Saw	No	20		89.6	25.0	0.0
Dozer	No	40		81.7	25.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Auger Drill Rig	90.4	83.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	95.6	88.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	87.7	83.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	95.6	90.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/05/2021
Case Description: SqCWD Country Club Well - Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Auger Drill Rig	No	20		84.4	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Man Lift	No	20		74.7	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Auger Drill Rig	84.4	77.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	74.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84.4	79.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/05/2021
Case Description: SqCWD Country Club Well - Well Drilling

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Auger Drill Rig	No	20		84.4	50.0	0.0
Generator	No	50		80.6	50.0	0.0
Pumps	No	50		80.9	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Night	Day	Calculated (dBA) Evening	Night	Day Evening	Night

Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Auger Drill Rig	84.4	77.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	80.9	77.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84.4	82.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/05/2021
Case Description: SqCWD Country Club Well - Site Restoration

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Roller	No	20		80.0	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Roller	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/05/2021
Case Description: SqCWD Country Club WTP - Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Scraper	No	40		83.6	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Grader	No	40	85.0		50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Scraper	83.6	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	84.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/05/2021
Case Description: SqCWD Country Club WTP - Building Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	50.0	0.0
Crane	No	16		80.6	50.0	0.0
Generator	No	50		80.6	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)	Day		Evening		Night					
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	89.6	84.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 08/05/2021
Case Description: SqCWD Country Club WTP - Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	50.0	0.0
Compressor (air)	No	40		77.7	50.0	0.0
Man Lift	No	20		74.7	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	74.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.6	79.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Groundborne Noise and Vibration Modeling

Notes
The reference distance is measured from the nearest anticipated point of construction equipment to the nearest structure.

	Reference Level Inputs			
Equipment	**PPV_{ref} (in/sec)**	**Lv_{ref} (VdB)**	**RMS_{ref} (in/sec)**	**Reference Distance**
Caisson drilling	0.089	87	0.022	25
Loaded trucks	0.076	83	0.014	25
Small bulldozer	0.003	58	0.001	25

	Vibration Level at Receiver			
Equipment	**Distance (feet)**	**PPV_x (in/sec)**	**Lv_x (VdB)**	**RMS_x (in/sec)**
Caisson drilling	75	0.0266	77	0.007
Loaded trucks	45	0.0398	77	0.007
Small bulldozer	15	0.0053	63	0.001

Source
California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Guidance Manual (CT-HWANP-RT-20-365.01.01). April. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf. Last Updated: 10/19/2020

Addition - Exhaust Fan Noise

Addition						
	dBA_1	dBA_2	dBA_3	dBA_4	dBA_5	Total Summed Noise Level (dBA)
1	54.0	54.0	54.0	54.0	54.0	61.0

Barrier Calculations

Input Variables	
Reference Noise Level (dBA)	81
Reference Distance (ft)	25
Site Conditions *(Choice: Hard or Soft)*	Hard

Output Calculations

Distance from Barrier to Source (ft)	Distance from Barrier to Receiver (ft)	Distance from Source to Receiver (ft)	Height of Source (ft)	Height of Wall (ft)	Height of Receiver (ft)	Noise Level Reduction (dBA)	Unabated Noise Level (dBA)	Resultant Noise Level (dBA)
15	10	25	10	11	5	13.50	81	67.50

Appendix I

Sewer Availability Letter

SANTA CRUZ COUNTY SANITATION DISTRICT

701 OCEAN STREET, SUITE 410 · SANTA CRUZ, CA · 95060-4073
(831) 454-2160 · FAX (831) 454-2089 · TDD: (831) 454-2123 · WWW.SCCSD.US
MATT MACHADO, DISTRICT ENGINEER

AUGUST 13, 2021

MICHAEL J. WILSON
5180 SOQUEL DR.
SOQUEL, CA 95073

SUBJECT: SEWER AVAILABILITY AND DISTRICT'S CONDITIONS OF SERVICE FOR THE FOLLOWING PROPOSED DEVELOPMENT
APN: 053-221-11
APPLICATION NO.: N/A
PARCEL ADDRESS: 251 BALTUSROL DR.
PROJECT DESCRIPTION: SOQUEL CREEK PUBLIC WORKS PROJECT TO CONSTRUCT A WATER TREATMENT PLANT SITE AT THE SUBJECT PARCEL

Dear Mr. Wilson:

The Santa Cruz County Sanitation District (District) has received your inquiry regarding sewer service availability for the subject parcel(s). Sewer service is available in Baltusrol for the subject development.

No downstream capacity problem or other issue is known at this time. Note, however, that downstream sewer requirements will again be evaluated at time of Planning Permit review. At that time, the District reserves the right to add or modify downstream sewer requirements, though none are currently anticipated.

This notice is valid for one year from the date of this letter. If, after this time frame, this project has not yet received approval from the Planning Department, then this determination of availability will be considered to have expired. If that occurs or is likely to occur prior to an upcoming submittal or public hearing, please call us ahead of time for a new letter. At that time, we can evaluate the then proposed use, improvements and downstream capacity, and provide a new letter.

Also, for your reference, we have attached a list of common items required during the review of sanitation projects. Thank you for your inquiry. If you have any questions, please call Forrest Revere at (831) 454-2160.

Yours truly,

MATT MACHADO
District Engineer

By: DocuSigned by:
528D647137C44D4...
Ashleigh Trujillo
Sanitation Engineer

FR/arg:21-095.docx
Attachments
Cc: Soquel Creek Water District
5180 Soquel Dr.
Soquel, CA 95073

Common Items Required During the Review of Sanitation Projects

What to show on the drawings: When you begin the design process, please show:

On the plot/site/utility plan:

1. Location of any **existing** on-site sewer lateral(s), clean-out(s), and connection(s) to existing public sewer on the site (plot) plan.

2. Location of any **proposed** on-site sewer lateral(s), clean-out(s), and connection(s) to existing public sewer on the site (plot) plan.

Place a note, *"Existing" or "(E)"*, on each existing item that is to be removed.
Place a note, *"To be removed"*, on each existing item that is to be removed.
Place a note, *"New" or "(N)"*, on each item that is to be new.

On a floor plan:

1. All plumbing fixtures both existing and new (label *"(E)" or "(N)"* on a floor plan of the entire building. Completely describe all plumbing fixtures according to table T-702.1 of the California Plumbing Code. (Sanitation District Code sections 7.04.040 and 7.04.430)

Design and Construction Standards
The project sewer design and connection of the project to the Santa Cruz County Sanitation District system will be required to conform to the County of Santa Cruz Design Criteria (CDC) Part 4, Sanitary Sewer Design, February 2017 edition. Reference for County Design Criteria: http://www.dpw.co.santa-cruz.ca.us/Portals/19/pdfs/Design%20Crit/DESIGNCRITERIA.pdf

Tentative, parcel, or final map required
When any new tentative, parcel, or final map is required, please show the following on the improvement plans:

1. All adjacent or impacted roads and easements,

2. All on- and off-site sewer improvements needed to provide service to each lot or unit proposed.
   The plans must conform to the County's "Design Criteria."

If a tentative, parcel, or final map is NOT required, please provide to the District written proof of recordation (in the form of copies of the recorded documents) of any and all existing or proposed easement(s).

New Connection
If the proposed plans will involve one or more new sewer connections, we must issue a new sewer connection permit for each new connection. The final connection charges can be determined only after the District and, as needed, other Department of Public Works divisions have reviewed and approved the final engineered sewer improvement plans. Individual, separate, sewer laterals shall serve each lot with their own connection to the District main. (Sanitation District Code section 7.04.410)

Inspection of existing lateral for new or remodel construction

If the development will involve the reuse of an existing sewer lateral for a new or remodeled structure, then, before the approval of the building permit, the applicant shall have the sanitary sewer system inspected and certified by a licensed plumber to be in good working order and free of obstructions and breaks. Repairs shall be made to any damaged or deteriorated pipe, misalignment of pipe segments, leaking pipes, root intrusion, open joints, cracks or breaks, sags, damaged or defective cleanout, inflow and infiltration of extraneous water, older pipe materials that are known to be inadequate, inadequate lift or pump stations, inadequate alarm systems for overflows, and inadequate maintenance of lift stations. You must obtain a sewer repair permit (no charge) from the District and shall have repairs inspected by the District inspector (no charge) prior to backfilling of pipe or structure. (Sanitation District Code section 7.04.375.A.3 Private Sanitary Sewer System Repair)

Backflow prevention device

A backflow preventive device may be required. While this determination is often made "in the field" at the time of installation, if you are engaging a surveyor, civil engineer, or knowledgeable contractor, there is nothing to prevent you from making that determination while in the design process. (Sanitation District Code section 7.04.100 and 7.04.375.A.4)