

Appendix A

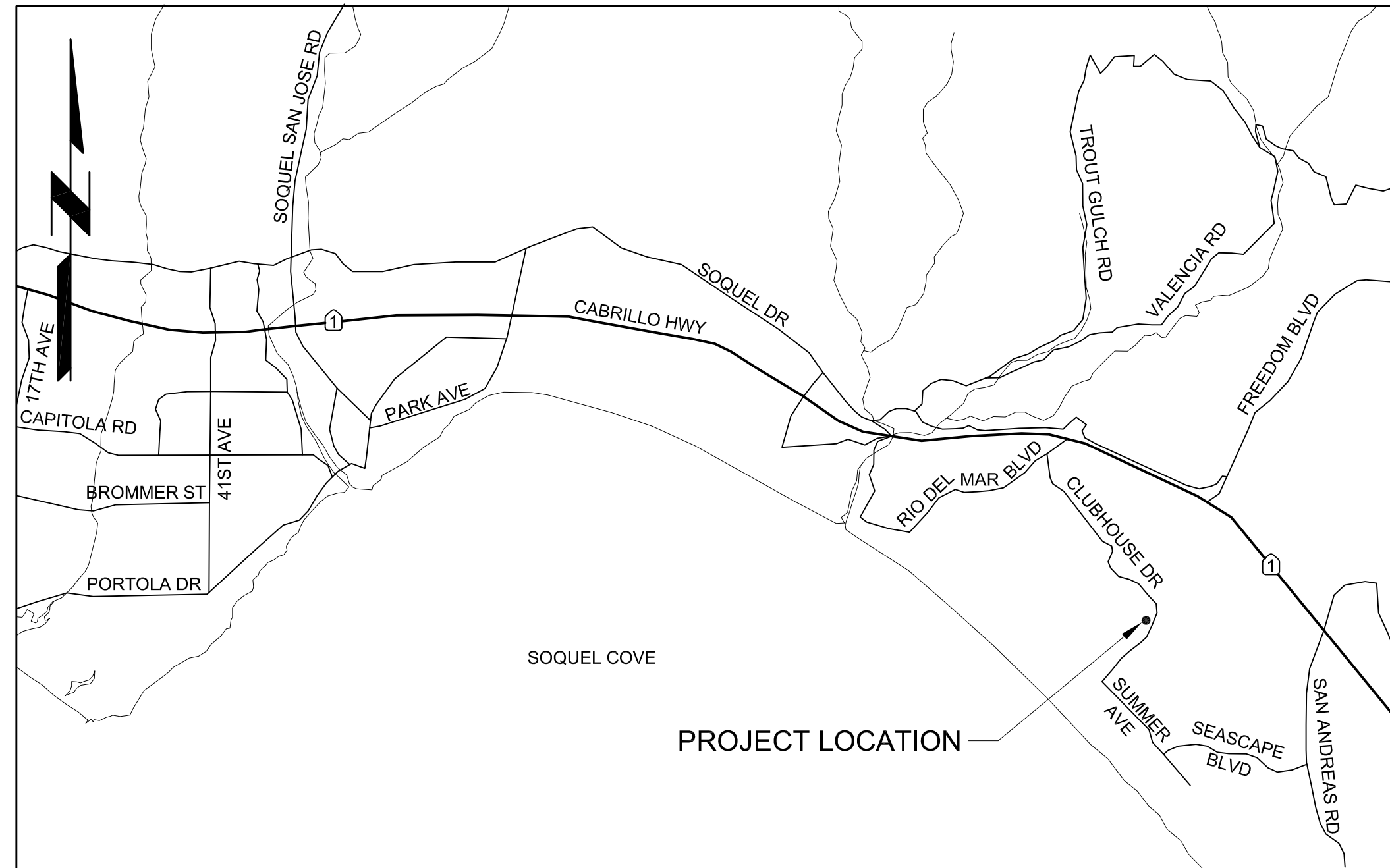
Project Plans

SOQUEL CREEK WATER DISTRICT

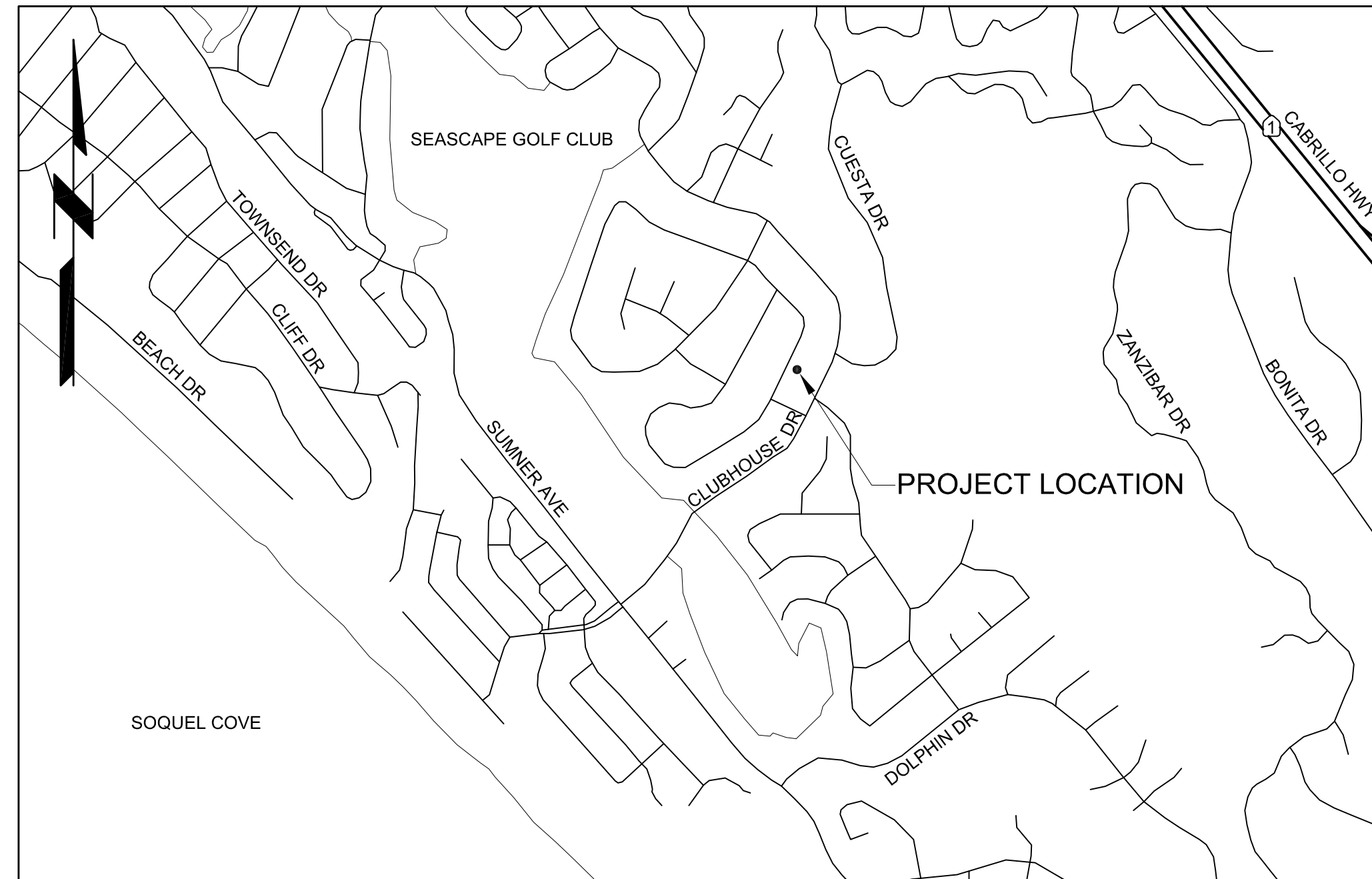
COUNTRY CLUB WELL

1,2,3-TCP REMOVAL PROJECT

JULY 2021
60% DESIGN



VICINITY MAP



LOCATION MAP



SOQUEL CREEK WATER DISTRICT

APPROVED BY: ENGINEERING MANAGER _____ DATE _____

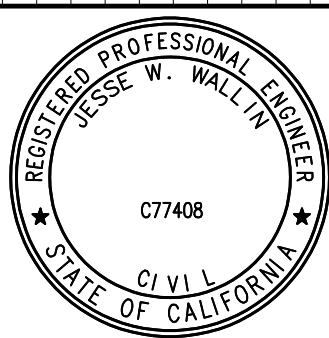
CWO 16-029

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* ITEMS IN BOLD ARE INCLUDED IN THIS DRAWING SET.

PRELIMINARY - NOT FOR CONSTRUCTION



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

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

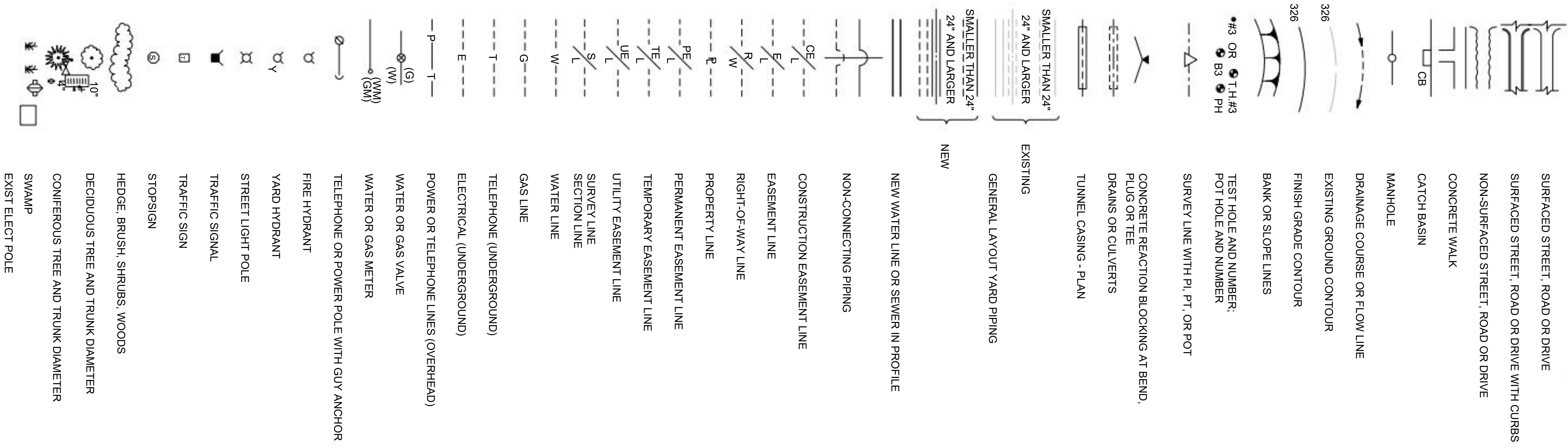
PROJECT NO.
407941

G-01
SHEET
OF

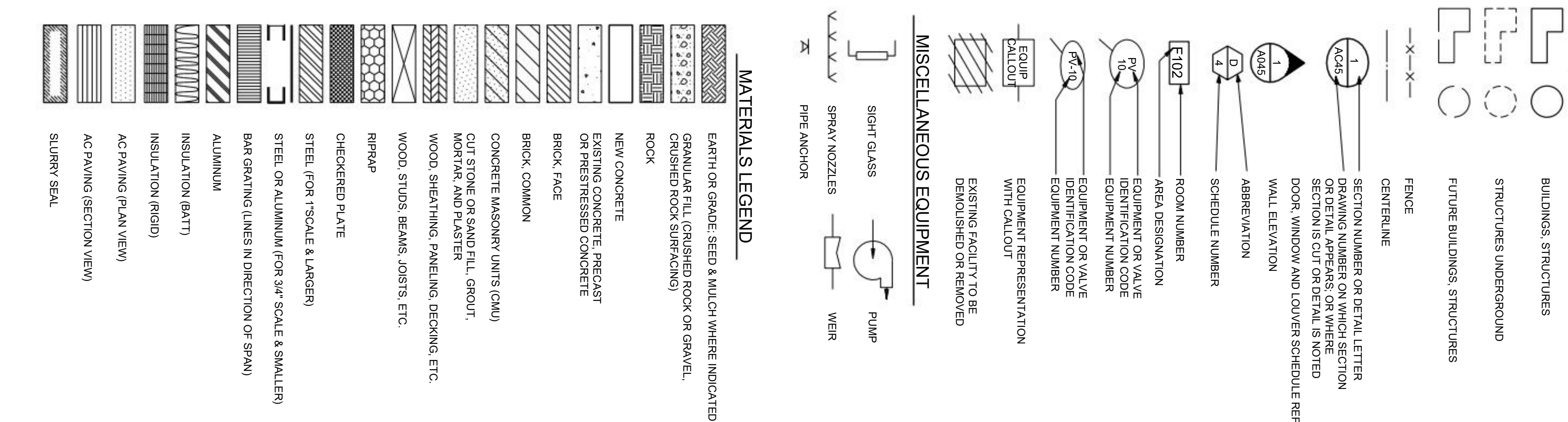
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 DATE

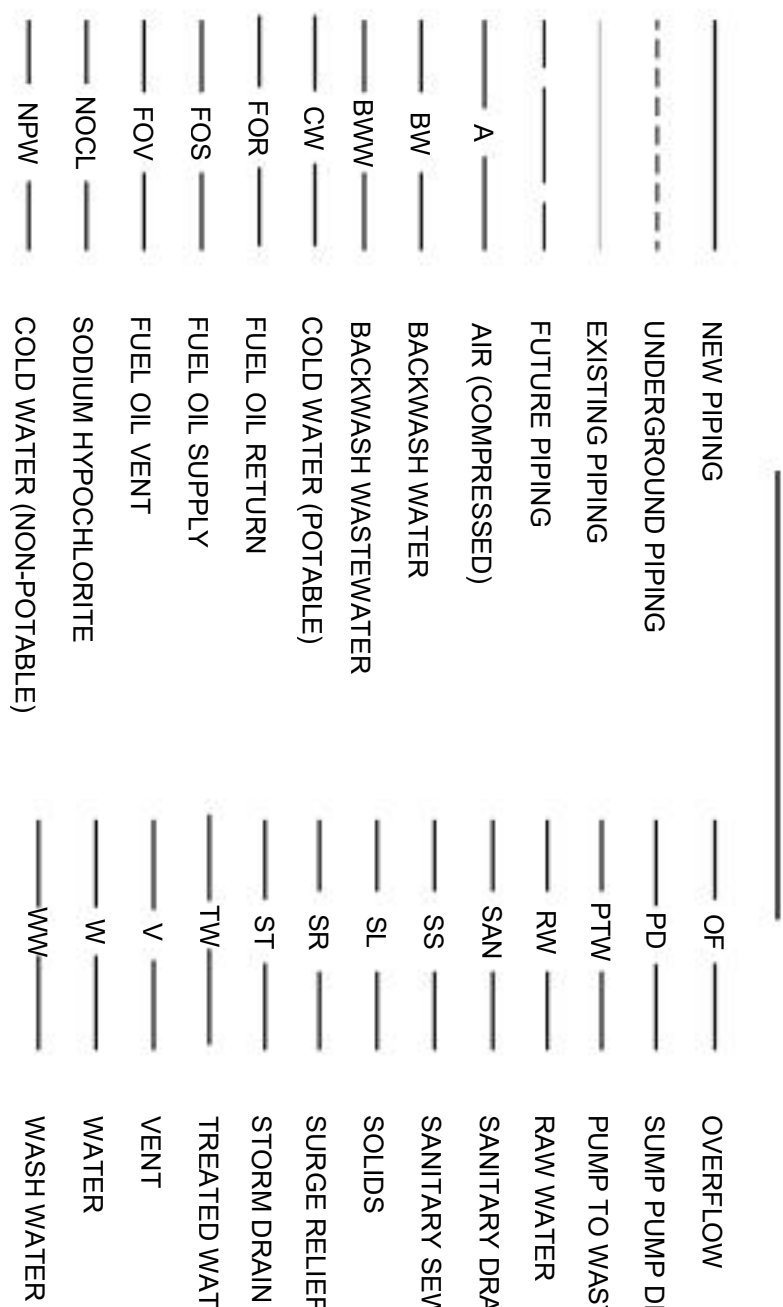
GENERAL LEGEND



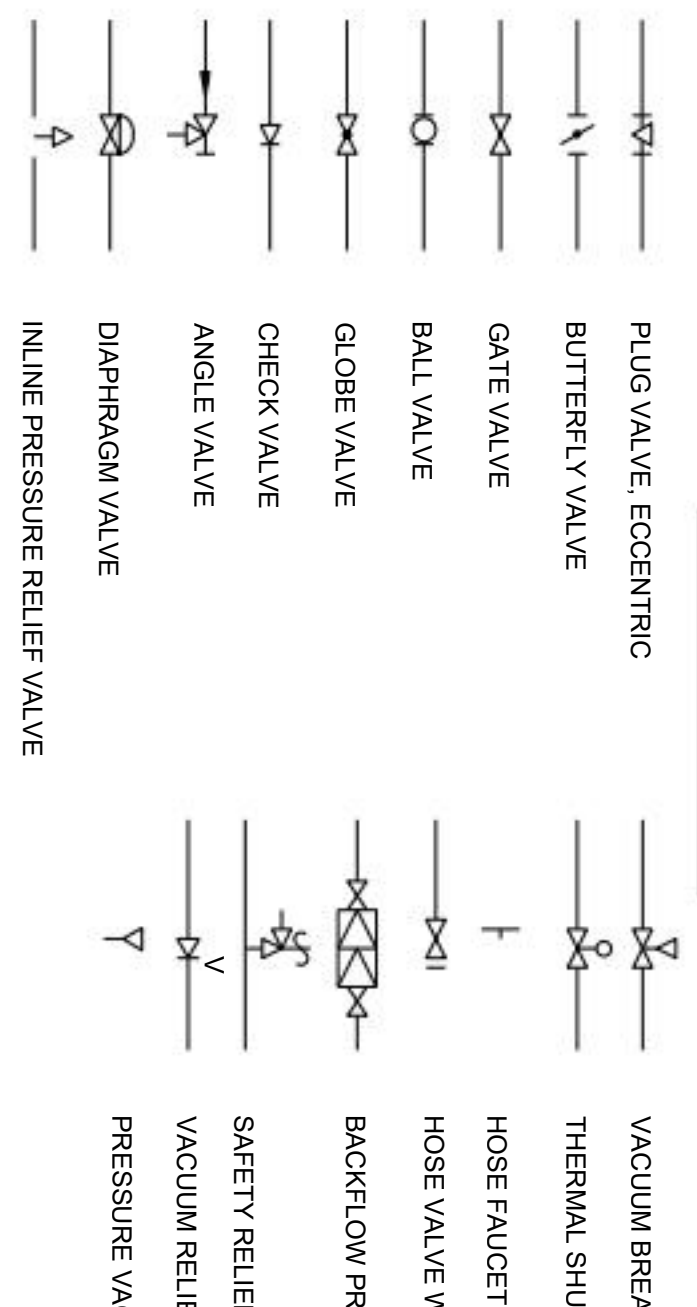
MATERIALS LEGEND



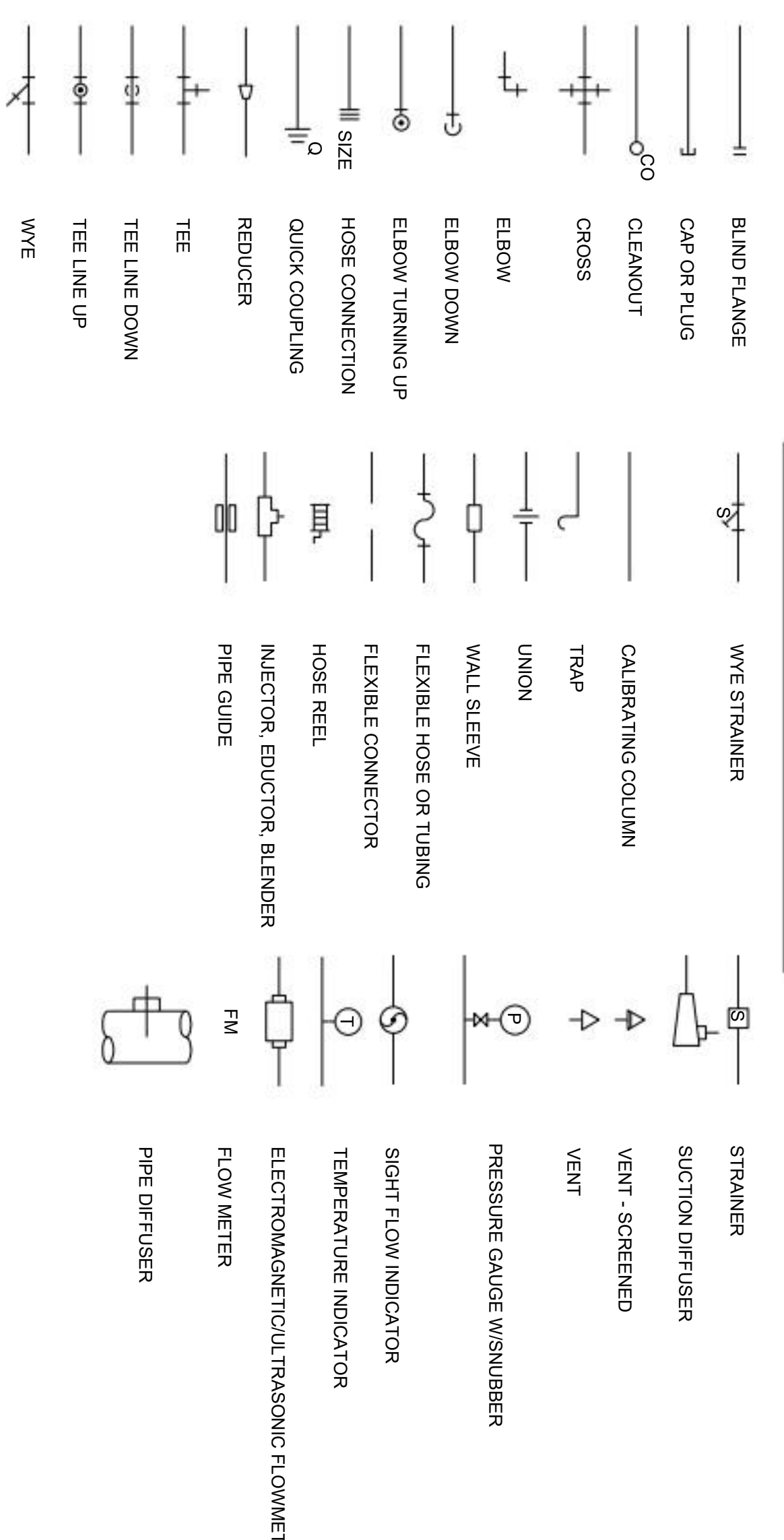
PIPING SYSTEMS



VALVE LEGEND



PIPING ACCESSORIES LEGEND

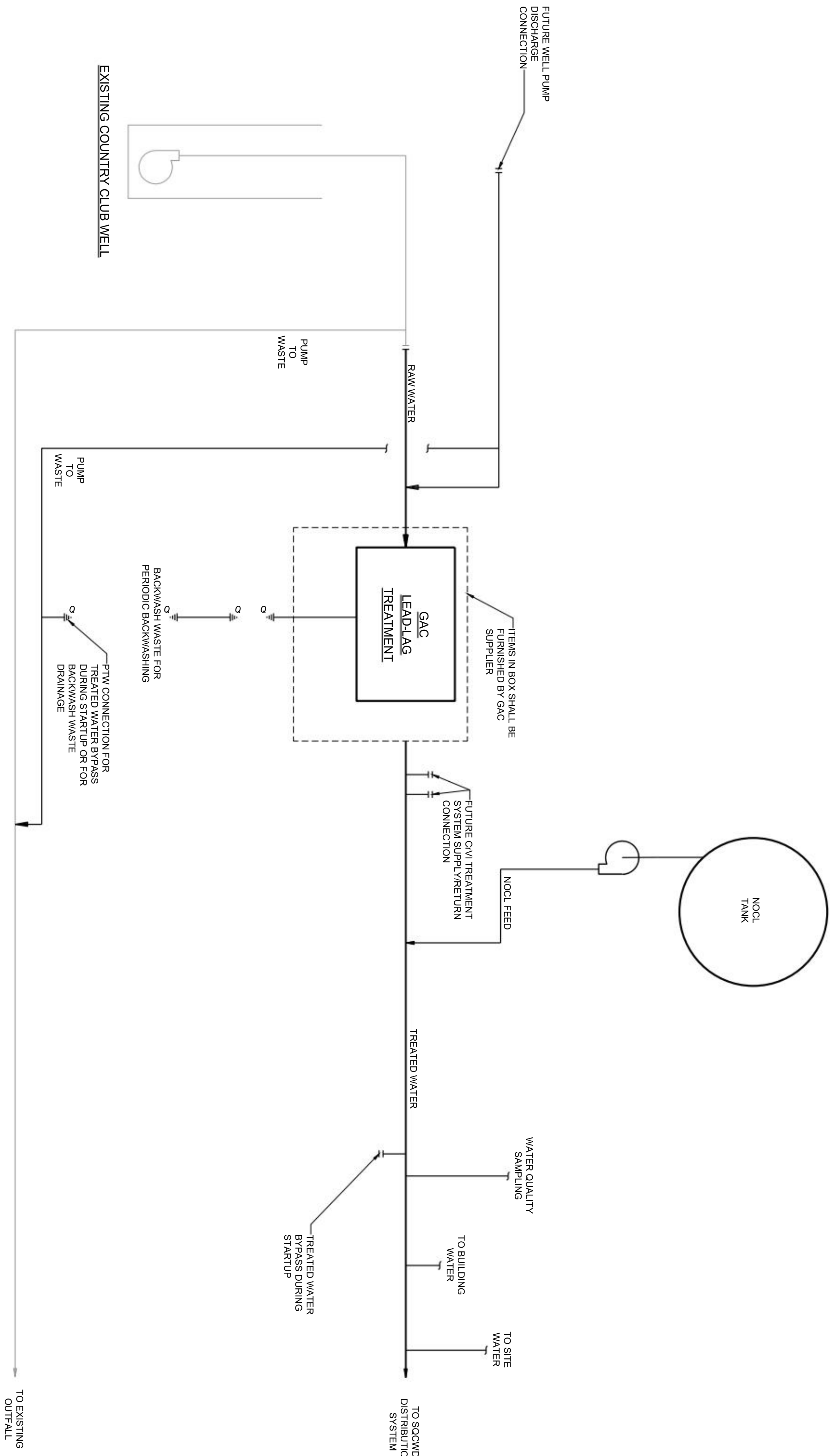


NOTES:

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

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)
PRELIMINARY - NOT FOR CONSTRUCTION

SOQUEL CREEK WATER DISTRICT COUNTRY CLUB WELL 1,2,3-TCP REMOVAL PROJECT GENERAL LEGEND AND ABBREVIATIONS SHEET 2 OF 2		<p>BLACK & VEATCH Black & Veatch Corporation</p>		REVISIONS AND RECORD OF USE NO. BY CHK APP DATE
DESIGNED BY CHECKED: JMO APPROVED: DATE: JULY 2021	PROJECT NO. 407941	SHEET G-03 OF	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	DATE

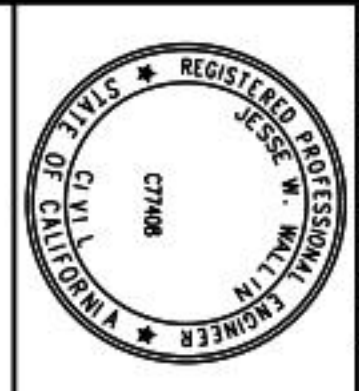


- NOTES:
1. PROCESS FLOW DIAGRAM REPRESENTS A GENERAL DEPICTION OF PROCESS AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES. REFER TO THE P&IDs FOR ADDITIONAL DETAILS REGARDING THE PROCESS AND INSTRUMENTATION AND CONTROL REQUIREMENTS.

PRELIMINARY - NOT FOR CONSTRUCTION

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

GENERAL
PROCESS FLOW DIAGRAM



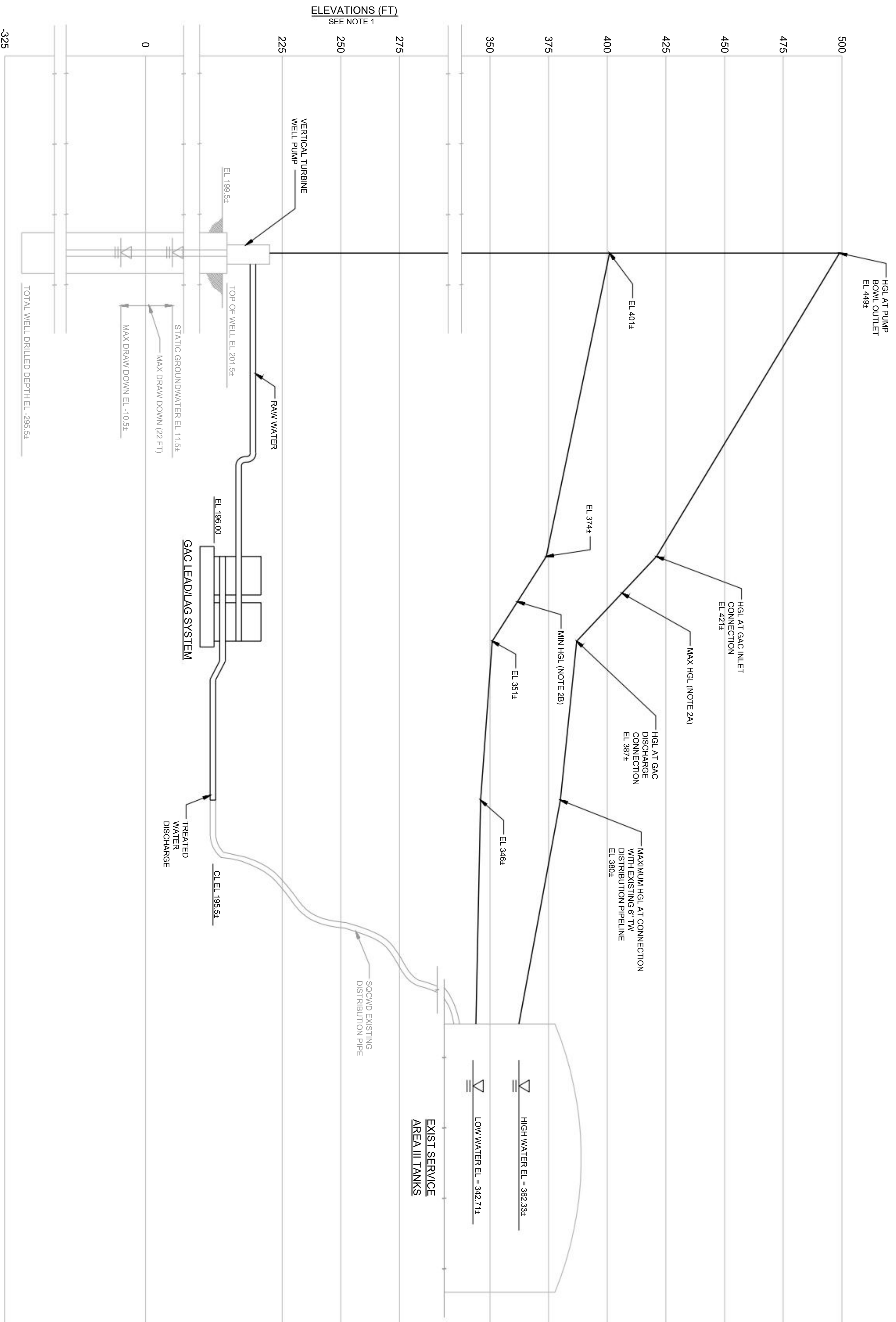
DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNED BY: _____
CHECKED: JMO
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-04
SHEET
OF



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

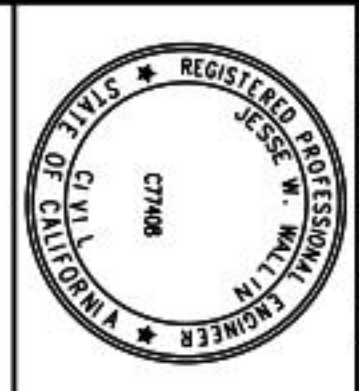
HYDRAULIC PROFILE
 SCALE: NO SCALE

- 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
 - B) MIN HGL: MIN DISTRIBUTION CONNECTION PRESSURE OF 65 PSI NEW PIPE
 - C) NEW GAC MEDIA: 10 PSI PRESSURE DROP

PRELIMINARY - NOT FOR CONSTRUCTION

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

GENERAL
 HYDRAULIC PROFILE AND DESIGN CRITERIA



NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

DESIGNED BY: _____
 CHECKED: JMO
 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

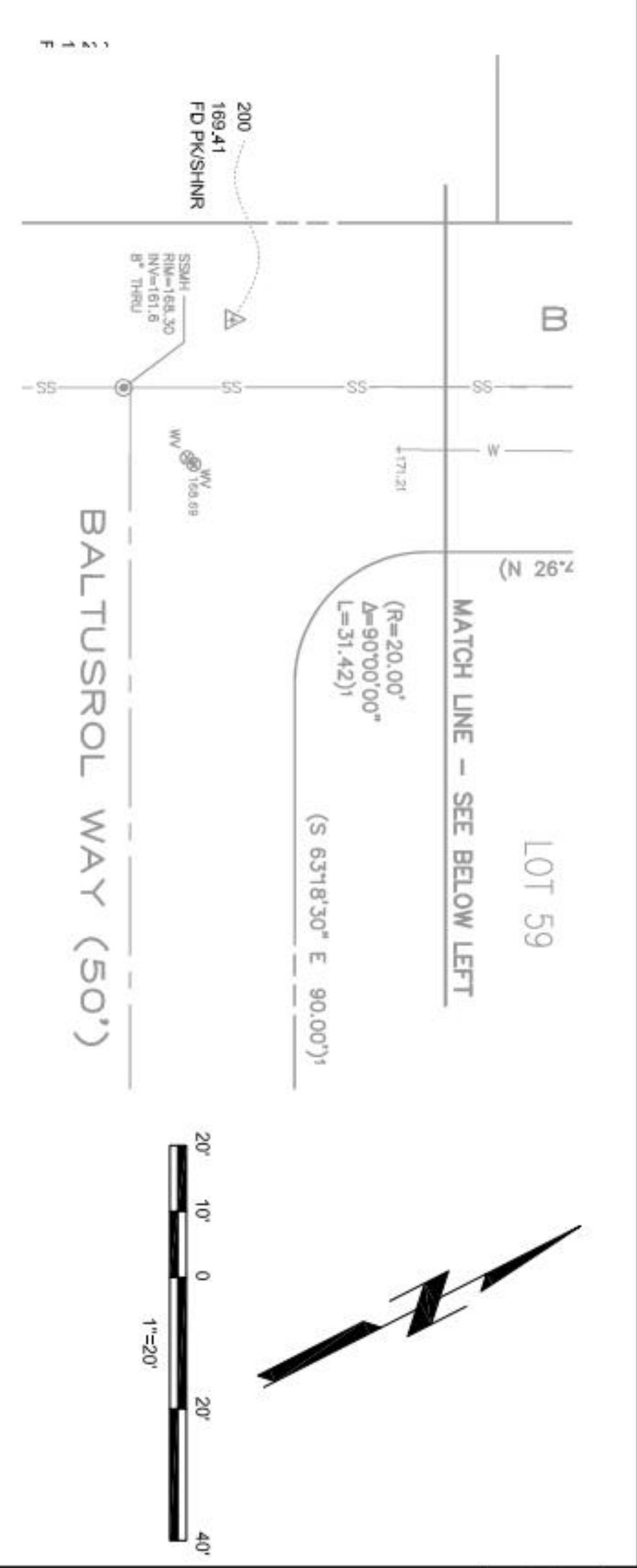
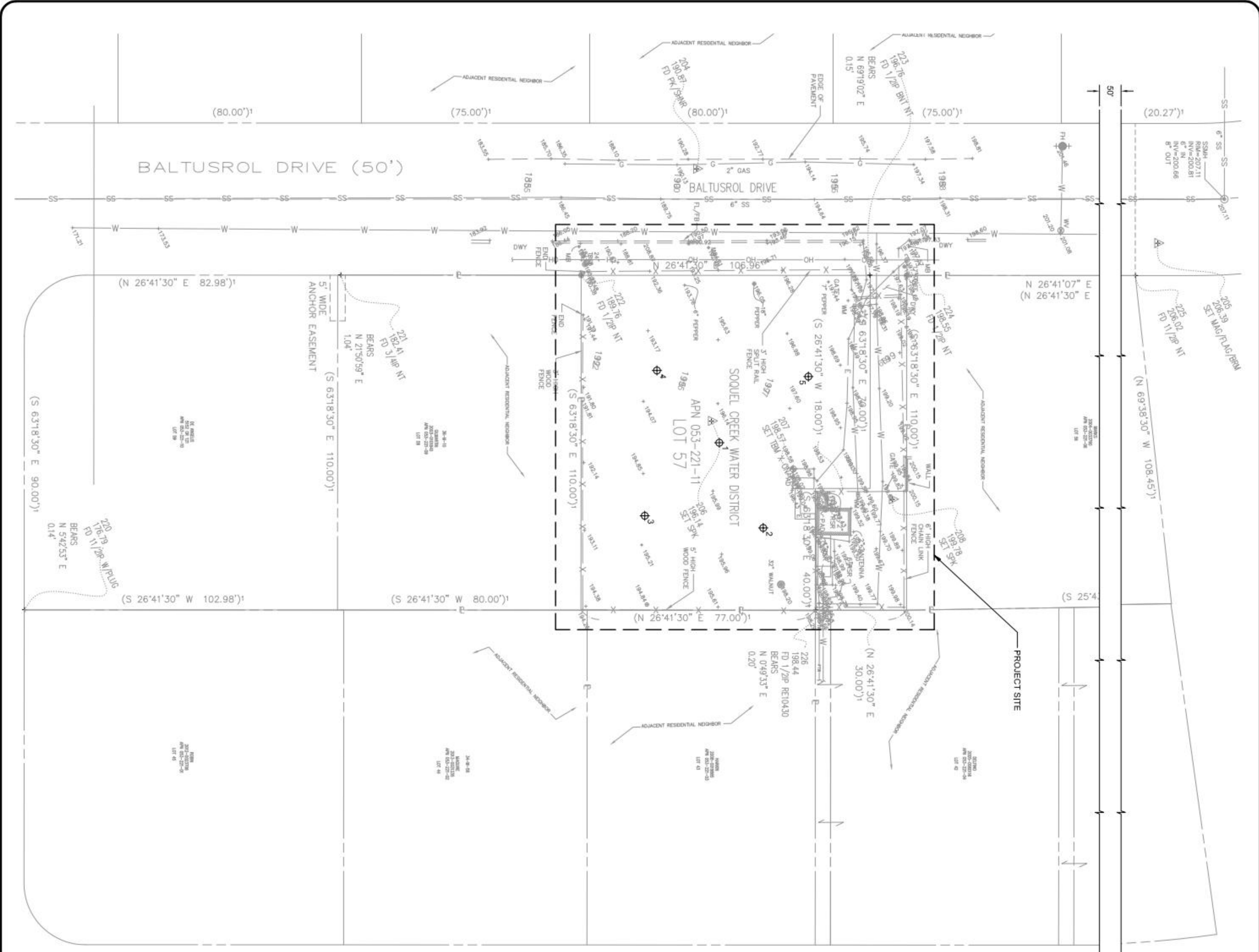
G-05
 SHEET OF

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.
3. BASED ON FEMA MAP ITEM 0608970309#F (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.
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.
6. CONTRACTORS STAGING, PARKING AND MATERIAL STORAGE SHALL BE LIMITED TO THE SPACE(S) DESIGNATED ON THE DRAWINGS.
7. CALL BEFORE YOU DIG. CONTRACTOR SHALL VERIFY PRECISE LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STRUCTURES.
8. BEFORE CONSTRUCTION IS STARTED CONTRACTOR SHALL COORDINATE WITH THE OWNER OF EACH UTILITY AND DETERMINE THE REQUIREMENTS AND METHODS TO ACCOMMODATE THE PROTECTION, THE LOCATION, PROTECT, 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 CONTRACTORS 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 CONTRACTORS EXPENSE.
11. THE LOCATION OF TEST HOLES AND POT HOLES INDICATED ON THE DRAWINGS IS APPROXIMATE.
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 DERIVED 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.
16. THE CONTRACTORS 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.
19. THE TERM 'PROPOSED' AS INDICATED ON THE DRAWINGS MEANS THE ITEMS DESCRIBED OR PLANNED TO BE PROVIDED BY THE CONTRACTOR.
20. THE EXISTING TREATED WATER PIPELINES SHALL REMAIN IN OPERATION CONTINUOUSLY THROUGHOUT THE CONSTRUCTION ACTIVITIES.
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.
22. CONTRACTOR SHALL REPLACE EXISTING PIPE CULVERTS THAT ARE REMOVED TO INSTALL THE NEW PIPELINE WITH NEW PIPE CULVERTS OF THE SAME SIZE.
23. HORIZONTAL STATIONING ALONG THE PIPELINE ALIGNMENT IS FOR LEVEL LINE MEASUREMENT AND FOR PAYMENT OF THE PIPELINES.
24. MINIMUM PIPE COVER SHALL BE FROM THE EXISTING, PROPOSED, OR FUTURE GROUND SURFACE OR ROAD PROFILE.
25. CONTRACTOR SHALL FIELD VERIFY PRECISE LOCATION, ELEVATION, AND ARRANGEMENT OF CONNECTIONS WITH EXISTING PIPELINES BASED ON FIELD CONDITIONS.
26. ALL DIP SHALL BE PROTECTED WITH A MINIMUM OF ONE WRAP OF POLYETHYLENE ENCASEMENT.
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.
32. CONTRACTOR SHALL CONFORM TO THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS PERTAINING TO EXCAVATION AND TRENCHING.
33. CONTRACTOR SHALL PROVIDE PUBLIC SAFETY AND TRAFFIC CONTROL, IN ACCORDANCE WITH REQUIREMENTS IN DIVISION 1 SPECIFICATIONS.
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.
35. EXCEPT FOR PERMITS OBTAINED BY SOQWD 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 SOQWD 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.
45. THIS IS NOT A BOUNDARY OR TOPOGRAPHIC SURVEY.
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.

PRELIMINARY - NOT FOR CONSTRUCTION

SOQUEL CREEK WATER DISTRICT COUNTRY CLUB WELL 1,2,3-TCP REMOVAL PROJECT. Includes logos for Black & Veatch and a professional engineer seal for Jesse M. Wallin, License No. 07198. A table for revisions and record of use is also present.



SURVEY CONTROL POINTS

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	1783.9732	4595.4707	169.41	FD PK/SNHR
204	1969.6901	4699.1908	190.87	FD PK/SNHR
205	2132.4686	4808.2829	206.39	SET MAG/FLAG/BRM
206	1936.8294	4775.4087	186.14	SET SPK
207	1963.7931	4801.5420	186.57	SET TBM X ON PAD
208	1978.4067	4825.0844	189.76	SET SPK
220	1707.3093	4729.4831	176.79	FD 1 1/2" IP W/PLUG
221	1849.5539	4677.8355	182.41	FD 3/4" IP NT
222	1920.1056	4713.3836	188.76	FD 1/2" IP NT
223	2004.8871	4755.9139	196.76	FD 1/2" IP NT
224	2015.6624	4761.4471	198.55	FD 1/2" IP NT
225	2121.1479	4814.4669	208.02	FD 1/2" IP NT
226	1939.6467	4946.2524	198.44	FD 1/2" IP RE 10430

ABBREVIATIONS (THIS DWG ONLY)

BNT	BENT
BNM	AC BERM
DWY	DRIVEWAY
FB	FACE OF BERM
FH	FOUND
FL	FLOWLINE
INV	INVERT
IP	IRON PIPE
JP	JOINT UTILITY POLE
LS	LAND SURVEYOR
MAG	MAGNETIC NAIL
MS	MAILBOX
NT	NO TAG
OH	OVERHEAD
PK	PARKER KALON
RER	REGISTERED ENGINEER
RISR	RISER
SHNR	SHINER (LARGE WASHER)
SPK	SPINER
SSMH	SANITARY SEWER MANHOLE
TBM	TEMPORARY BENCHMARK
WM	WITH
WM	WATER METER
WV	WATER VALVE
WV	ETCHED CROSS
X	PLUS OR MINUS

LEGEND (THIS DWG ONLY)

—	CONTOUR (MAJOR)
—	CONTOUR (MINOR)
—	FENCE LINE
+	FIRE HYDRANT
●	FOUND MONUMENT AS NOTED
—	GAS LINE
—	JOINT UTILITY POLE
—	JOINT UTILITY POLE (S)
—	OVERHEAD UTILITY LINE(S)
—	PROPERTY LINE
—	SANITARY SEWER
—	SET RANDOM NAIL
△	SITE BENCHMARK
+	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 STATE/COUNTY: CA/SANTA CRUZ USGS QUAD: SOQUEL (1994) ELEVATION = 125.18 NAVD 88

RECORD DATA
 (100)' RECORD DATA 36-M-10

BASIS OF BEARINGS
 THE BASIS OF BEARINGS FOR THIS SURVEY IS THE SOUTHEAST SUTURE OF BALTUSROL DRIVE AS SHOWN ON TRACT NO. 249, COUNTY 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 28°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)

PRELIMINARY - NOT FOR CONSTRUCTION

<p>SOQUEL CREEK WATER DISTRICT COUNTRY CLUB WELL 1,2,3-TCP REMOVAL PROJECT</p> <p>GENERAL PROJECT BASELINE INFORMATION - GEOTECHNICAL BOREHOLE AND SURVEY CONTROL</p>	<p>BLACK & VEATCH Black & Veatch Corporation</p>	<p>REGISTERED PROFESSIONAL ENGINEER JESSE W. WALTON CIVIL 07108 STATE OF CALIFORNIA</p>	DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

GENERAL SHEET NOTES

SHEET KEY NOTES

- 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.
- FIELD CONFIRM LOCATION OF LOW POINT OF OVERHEAD POWER AND COMMUNICATION LINES AND COORDINATE WITH REQUIRED ACCESSIBILITY CLEARANCES.
- REMOVE EXITING AC CURB (TYP 2). COORDINATE WITH LOCATION OF DRIVEWAY SHOWN ON C-01.

DEL
2005-
APN 05
LC

NO.	BY	CHK/APP

DATE



BLACK & VEATCH
Black & Veatch Corporation

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

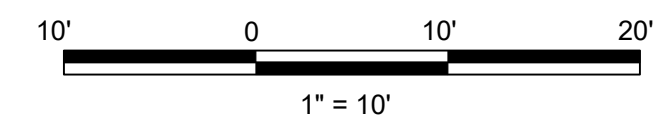
DEMOLITION
SITE DEMO PLAN

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

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2013
APN 0

PROJECT NO.
407941

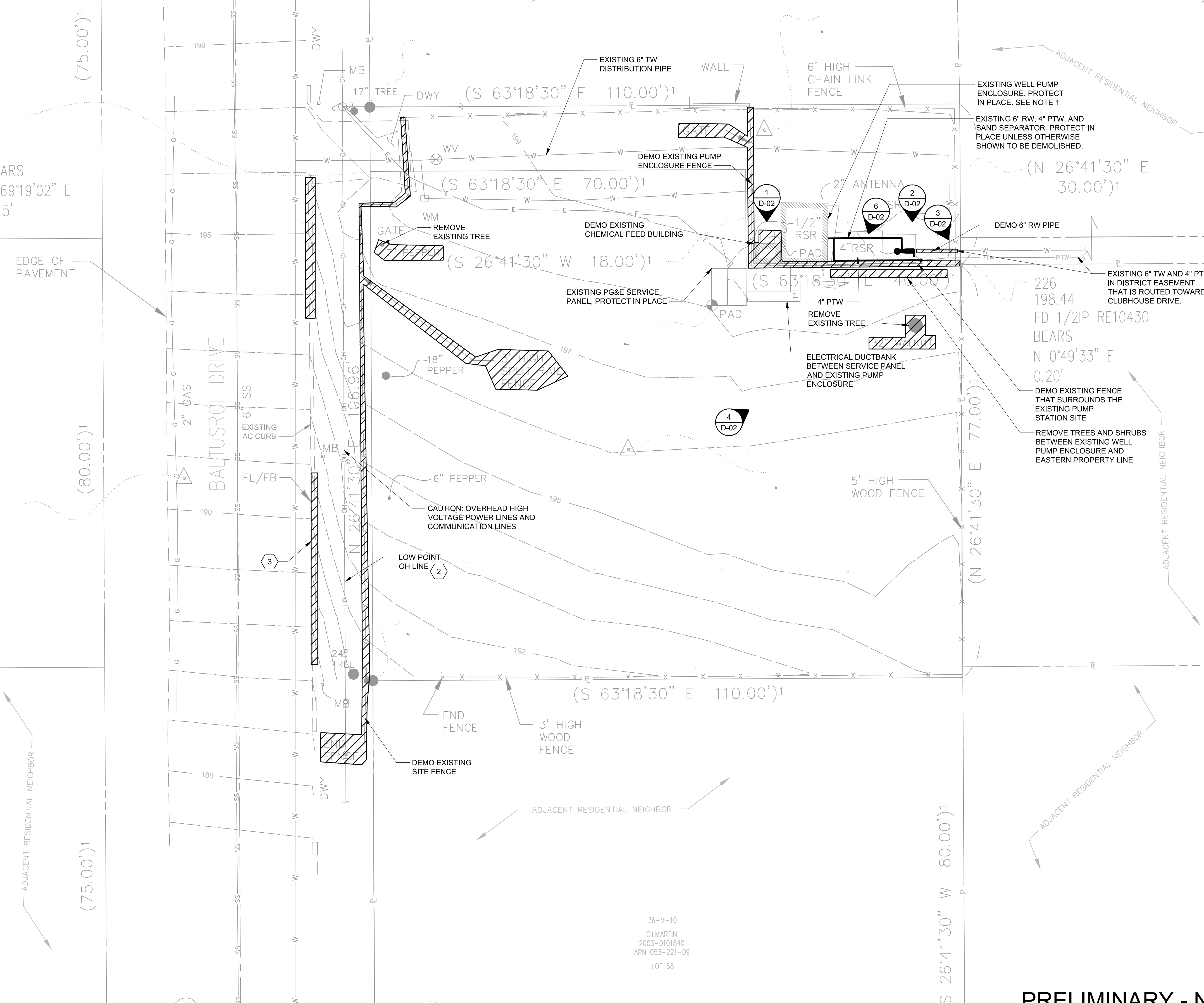
D-01
SHEET
OF



1" = 10'

PRELIMINARY - NOT FOR CONSTRUCTION

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



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 D:\0000
 F:\0000



REMOVE CONCRETE FOUNDATION

1 PHOTO
D-01 NO SCALE

REMOVE SHED
REMOVE CHEMICAL PUMP, CHEMICAL TANK, AND SECONDARY CONTAINMENT AND PROVIDE TO DISTRICT.
REMOVE EYE WASH
REMOVE 1" DRAIN PIPING
REMOVE 1/2" EYE WASH SUPPLY PIPING & CAP AT TEE ADJACENT TO WATER METER SHOWN ON D-01 LOCATED 10 FEET AWAY TO THE NORTH



4 PHOTO
D-01 NO SCALE

REMOVE TREES AND SHRUBS
REMOVE TREE
REMOVE BUSH/SHRUBS



REMOVE CHAIN LINK FENCING AND POSTS

EXISTING SAND SEPARATOR, PIP

REFER TO PHOTO 3 FOR CONTINUATION
REMOVE 6" DIP PRESSURE GAUGE AND APPURTENANCES
REMOVE CHAIN LINK FENCING AND POSTS

2 PHOTO
D-01 NO SCALE



REMOVE TREE

REMOVE WOODEN FENCE
EXISTING MAILBOX, PIP

5 PHOTO
D-01 NO SCALE

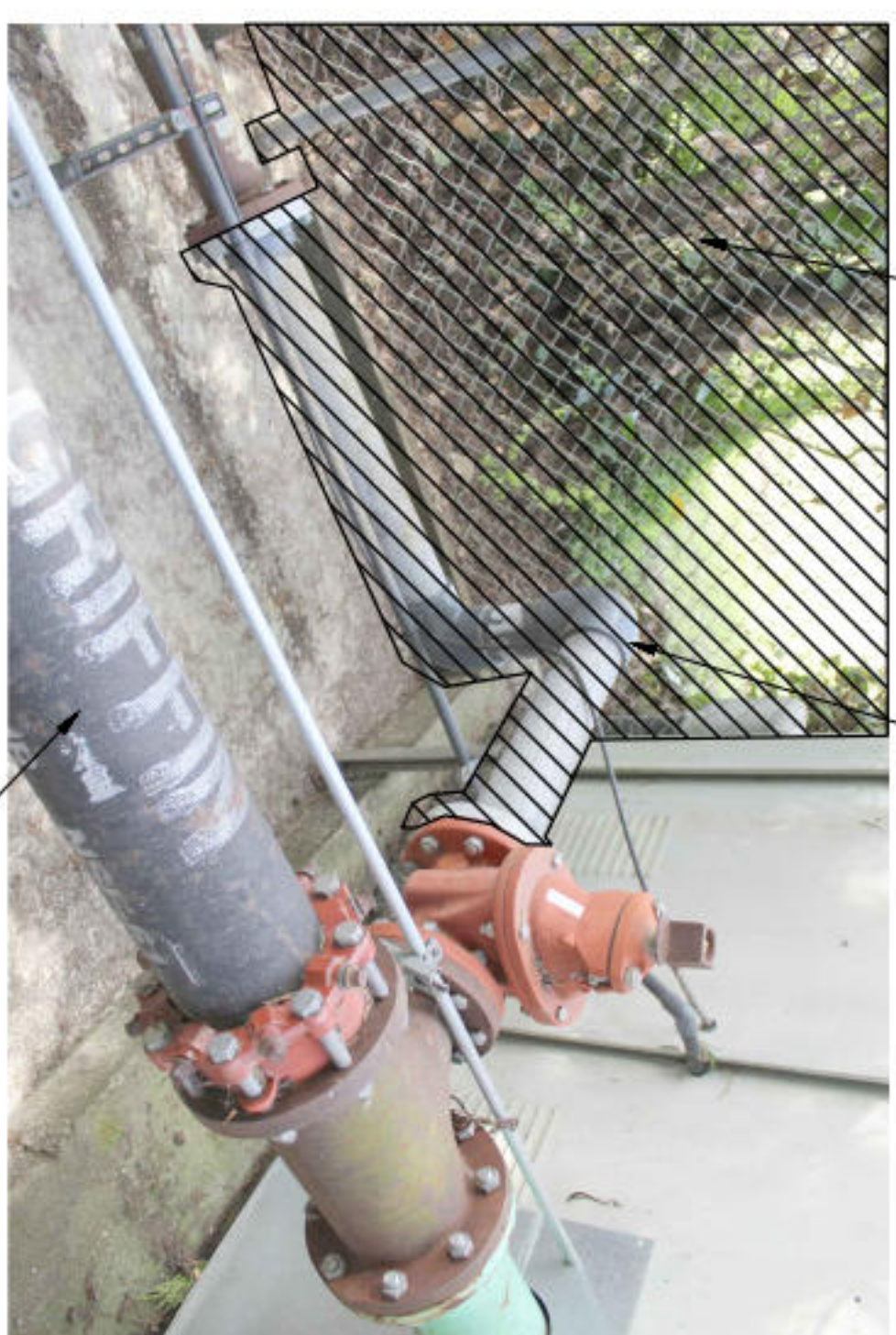


REMOVE CHAIN LINK FENCING

FIELD CONFIRM LOCATION OF BURIED JOINTS AND REMOVE PIPING TO BURIED JOINT SHOWN IN DETAIL B-C-05

REMOVE 6" DIP
REMOVE CHAIN LINK FENCING

3 PHOTO
D-01 NO SCALE



REMOVE CHAIN LINK FENCING

REMOVE 4" PVC PTV PIPING FROM FLANGE TO FLANGE SHOWN

EXISTING 6" RW

6 PHOTO
D-01 NO SCALE

DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK APP



BLACK & VEATCH
Black & Veatch Corporation

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

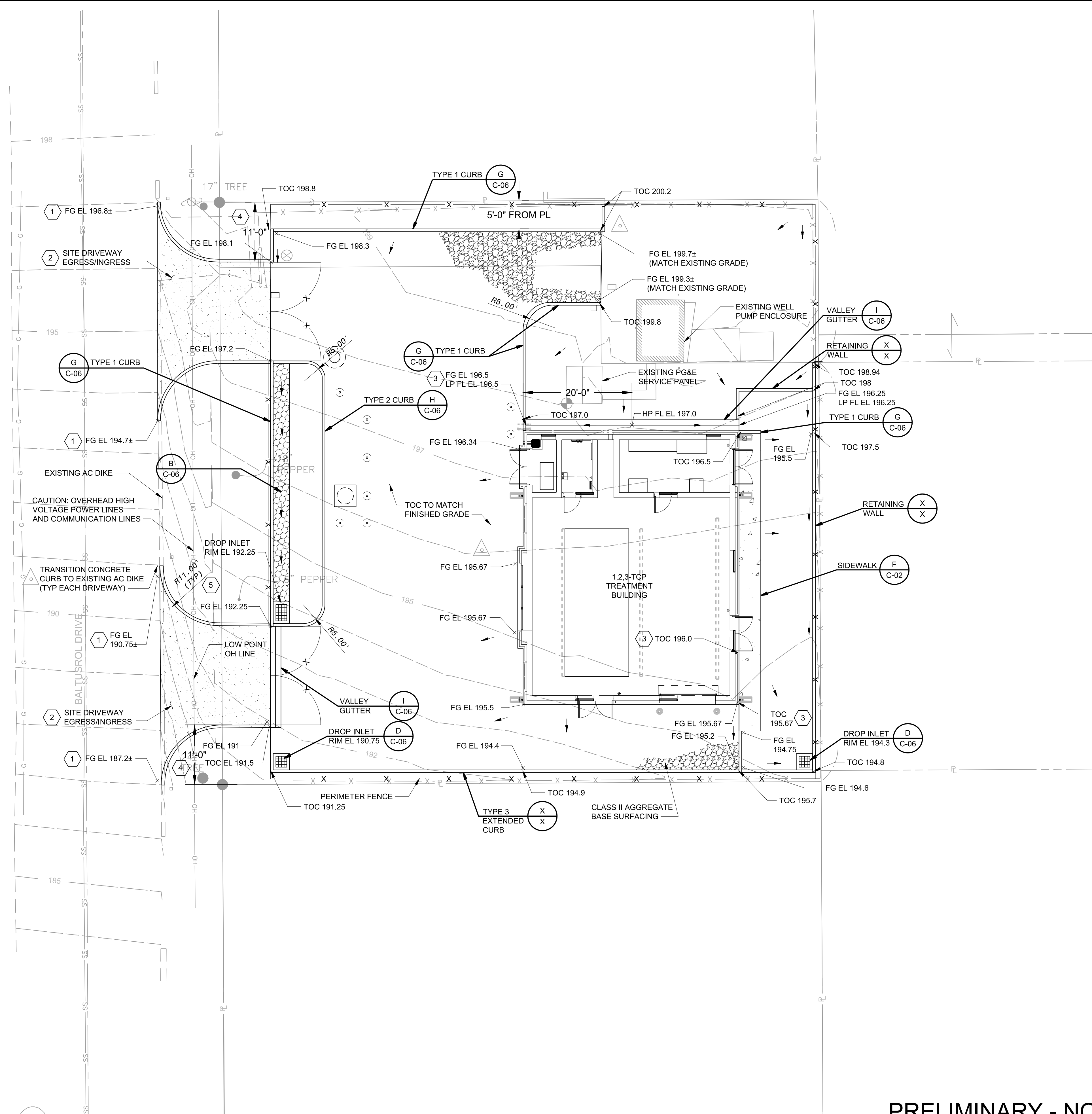
DEMOLITION
DEMOLITION PHOTOS

DESIGNED BY
CHECKED
APPROVED
DATE: JULY 2021

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
PROJECT NO.
407941

D-02
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION



GENERAL SHEET NOTES

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

SHEET KEY NOTES

- FIELD CONFIRM NEW DRIVEWAY TIE-INS WITH EXISTING AC PAVEMENT.
- PROVIDE DRIVEWAY ENTRANCE BETWEEN EXISTING ROADWAY AND SITE PER SANTA CRUZ COUNTY STD FIGURE DW-2.
- END OF VALLEY GUTTER TO MATCH FINISHED GRADE ELEVATION.
- LOCATE DRIVEWAYS AS SHOWN FROM PROPERTY LINE.
- 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.

REVISIONS AND RECORD OF USE	
NO.	BY

REGISTERED PROFESSIONAL ENGINEER
 JESSE W. WALL JR.
 CIVIL
 STATE OF CALIFORNIA
 C77408

BLACK & VEATCH
 Black & Veatch Corporation

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

CIVIL
 GRADING AND PAVING PLAN

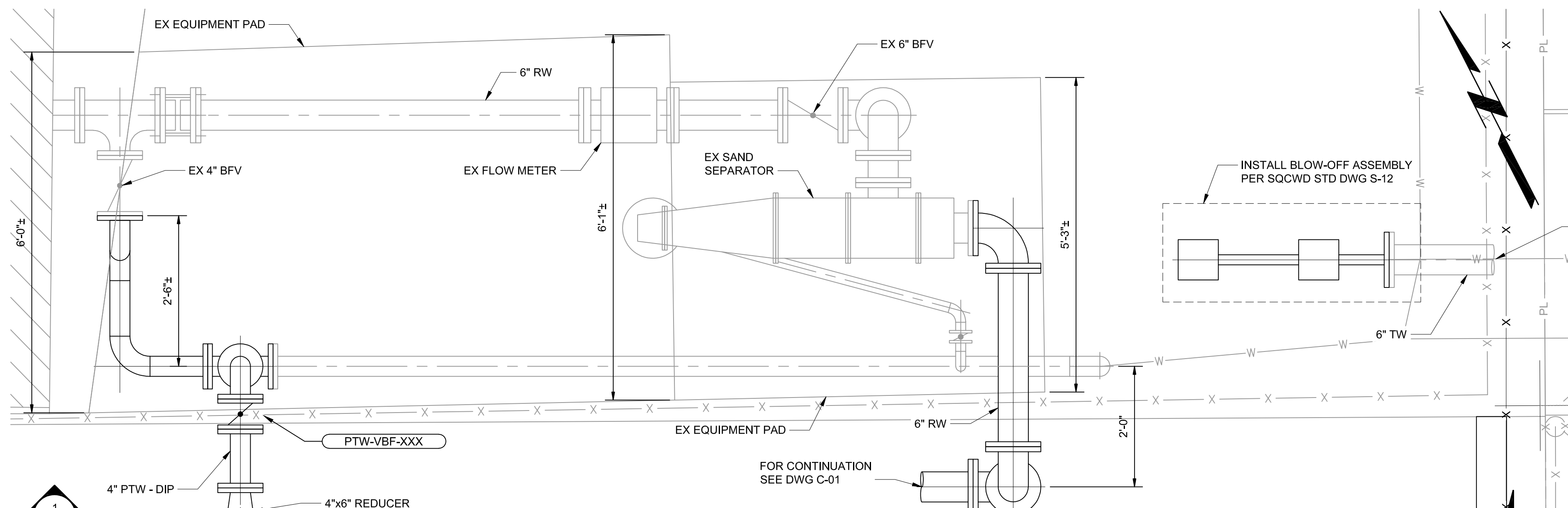
DESIGNED: GY
 DETAILED: JAD
 CHECKED: HW
 APPROVED:
 DATE: JULY 2021

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

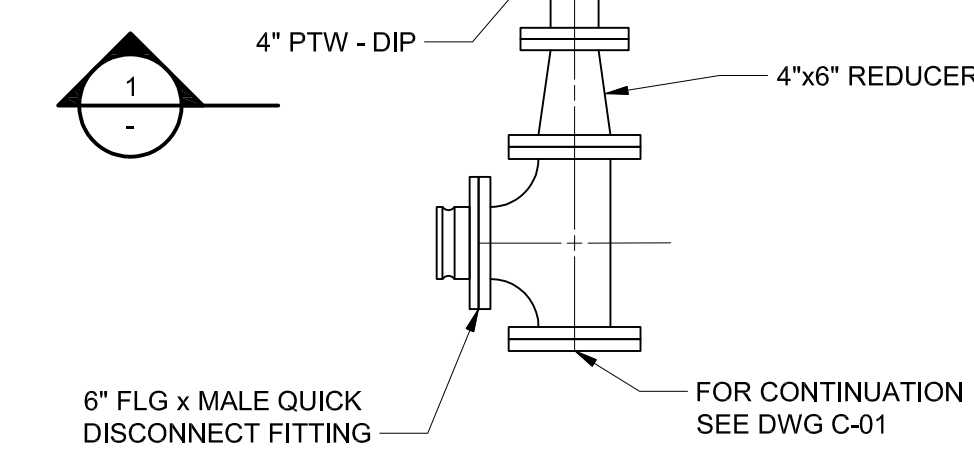
PROJECT NO.
407941

C-02
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION



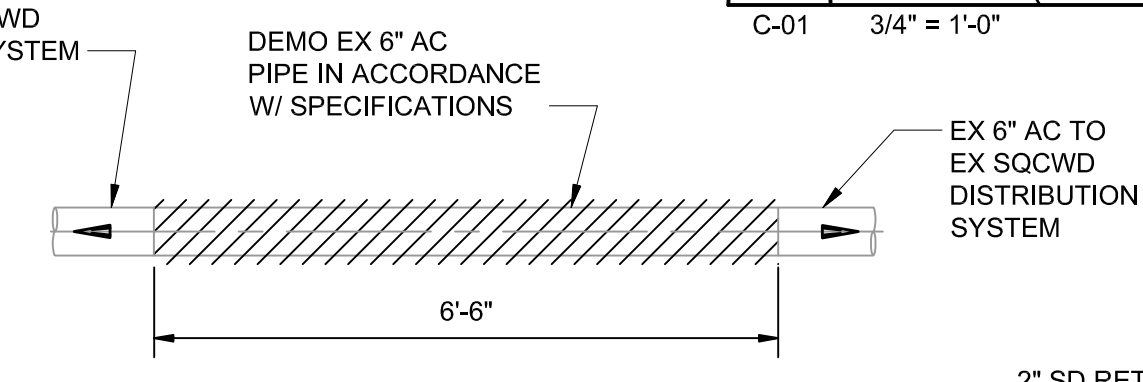
PLAN



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

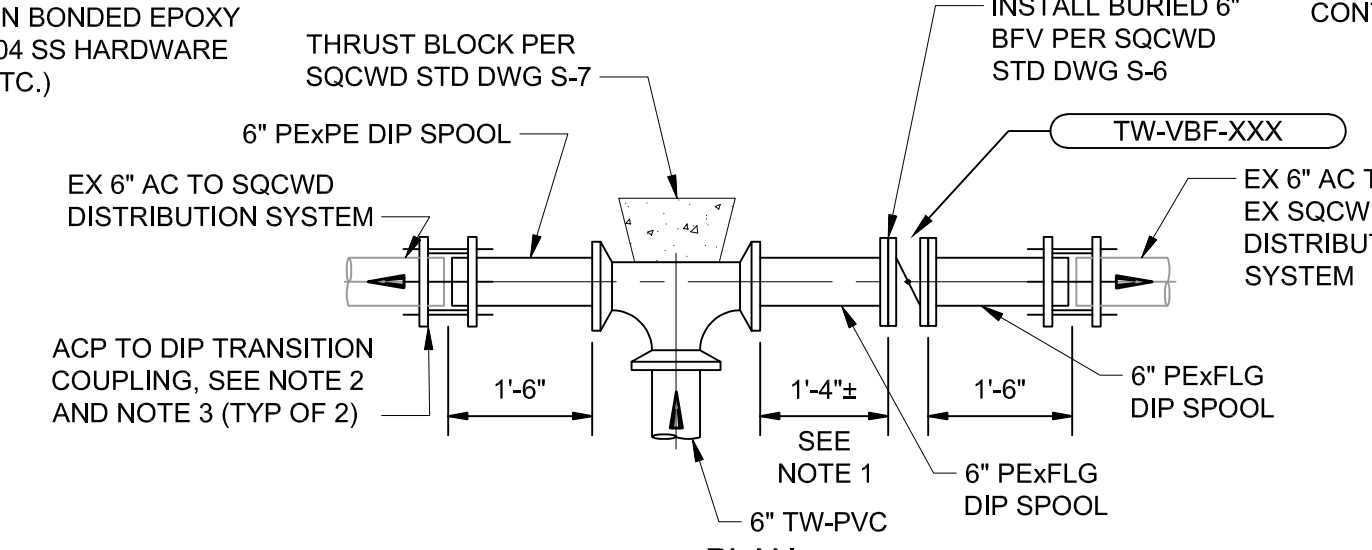
- NOTES:
- CONFIRM ALL EXISTING PIPE JOINTS WHERE NEW PIPING IS SHOWN TO BE CONNECTED PRIOR TO SUBMISSION OF PIPING AND EQUIPMENT SUBMITTALS.
 - REFER TO CIVIL PLAN AND DEMOLITION DRAWINGS FOR ADDITIONAL REQUIREMENTS ADJACENT TO THIS AREA.
 - EXISTING PIPE SUPPORTS NOT SHOWN FOR CLARITY.

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

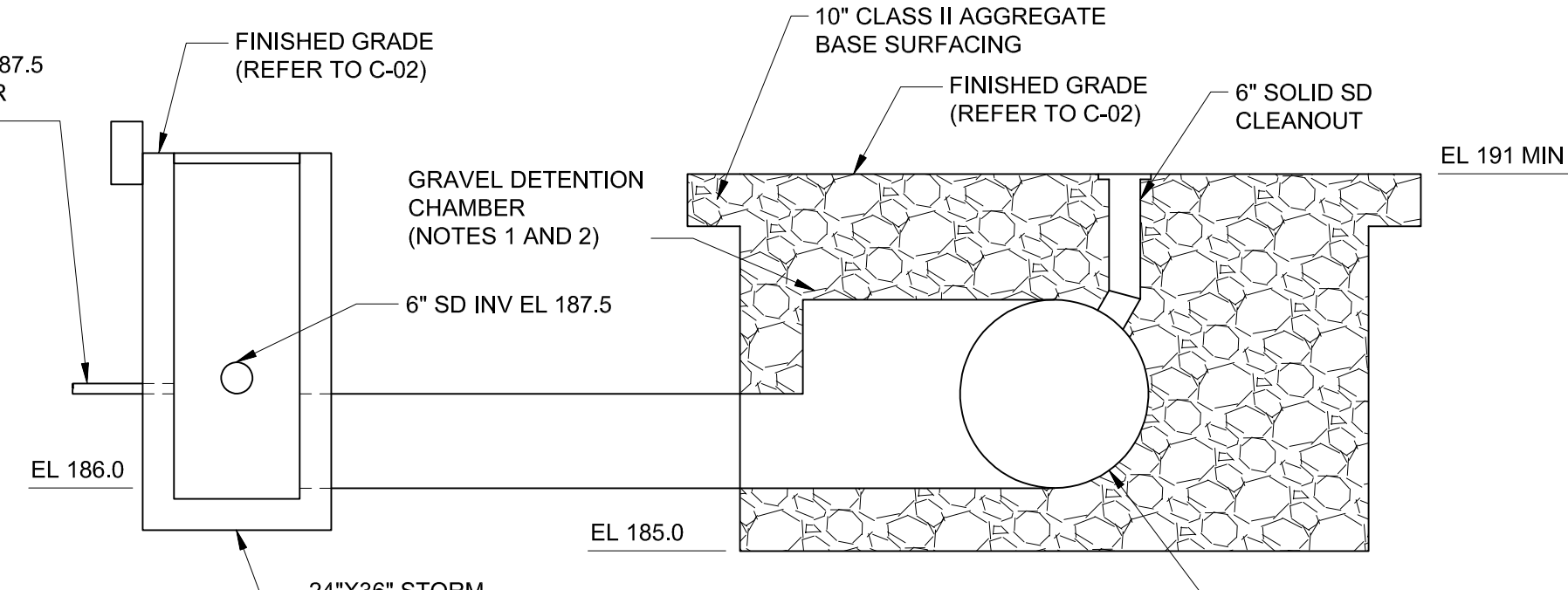


DEMO PLAN

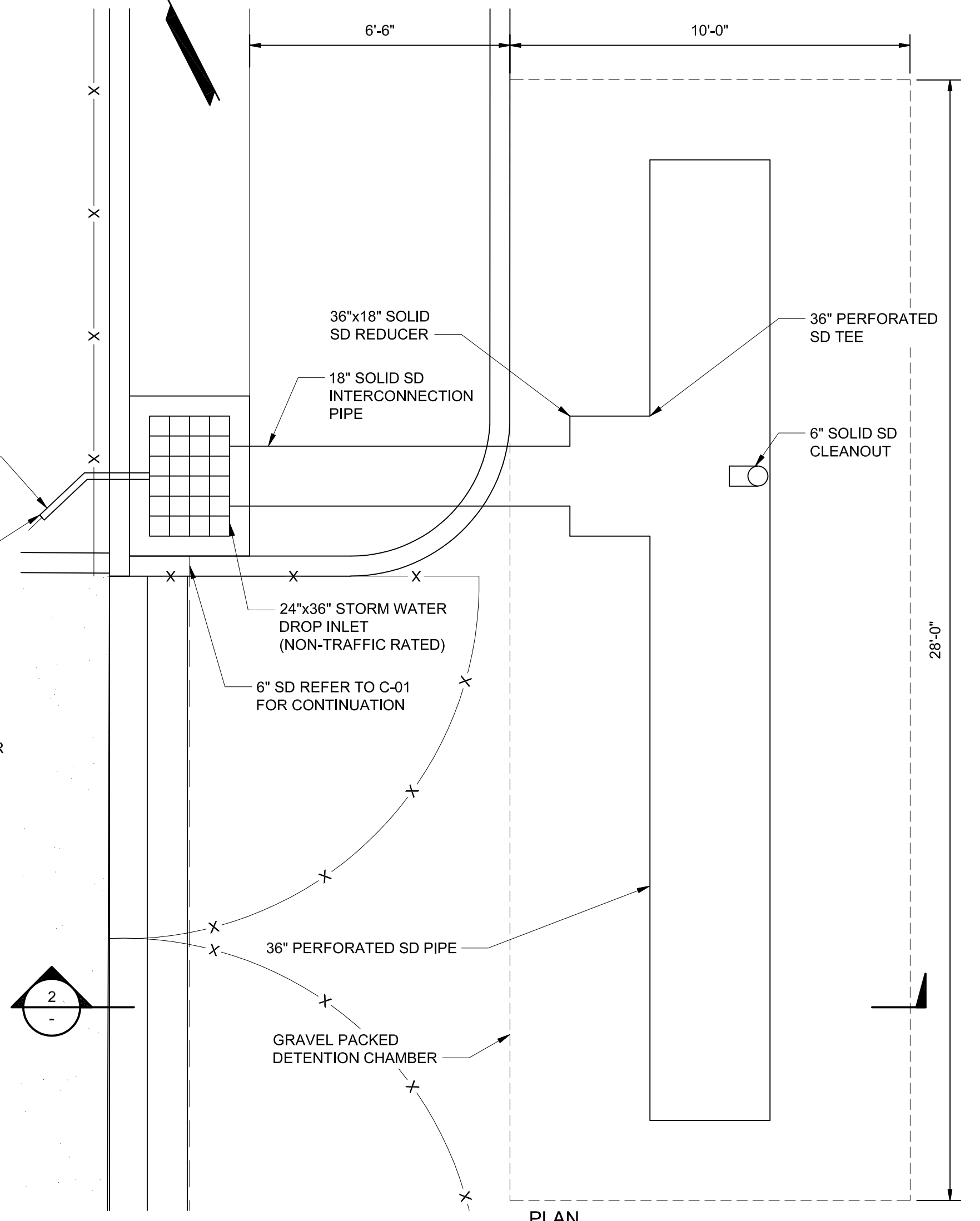
- NOTES:
- ADJUST SPOOL LENGTH SHOWN AS NEEDED TO FINALIZE CONNECTION WITH EXISTING PIPING.
 - CONFIRM OD OF EXISTING ACP BEFORE SUBMITTING TRANSITION COUPLING.
 - UNLESS OTHERWISE NOTED IN SPECIFICATIONS, COUPLING SHALL BE FUSION BONDED EPOXY COATED WITH 304 SS HARDWARE (NUTS, BOLTS, ETC.)



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



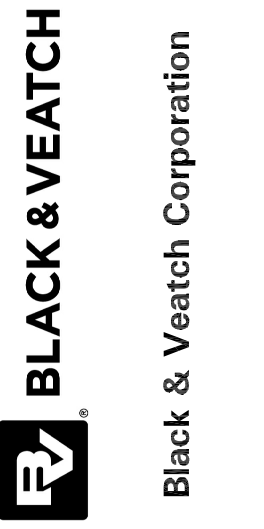
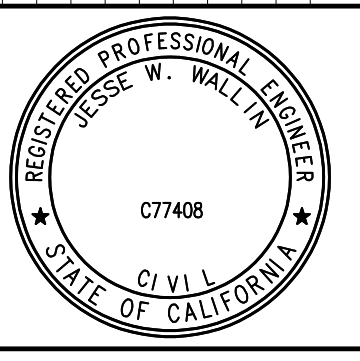
SECTION 2
3/8" = 1'-0"



PLAN

- NOTES:
- GRAVEL PACKED DETENTION CHAMBER SHALL CONSIST OF CAL TRANS CLASS 2 PERMEABLE MATERIAL. VOID SPACE OF COMPACTED GRAVEL TO BE NO LESS THAN 40%.
 - 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.
 - RETENTION SYSTEM TO PROVIDE MINIMUM CAPACITY OF 284 CUBIC FEET. DETENTION SYSTEM TO PROVIDE MINIMUM CAPACITY OF 191 CUBIC FEET.

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



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

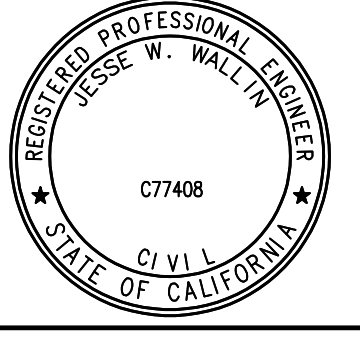
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

C-05
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

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 PLT: 1320396.ctb
 PLOTTER: HP DesignJet T1300



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

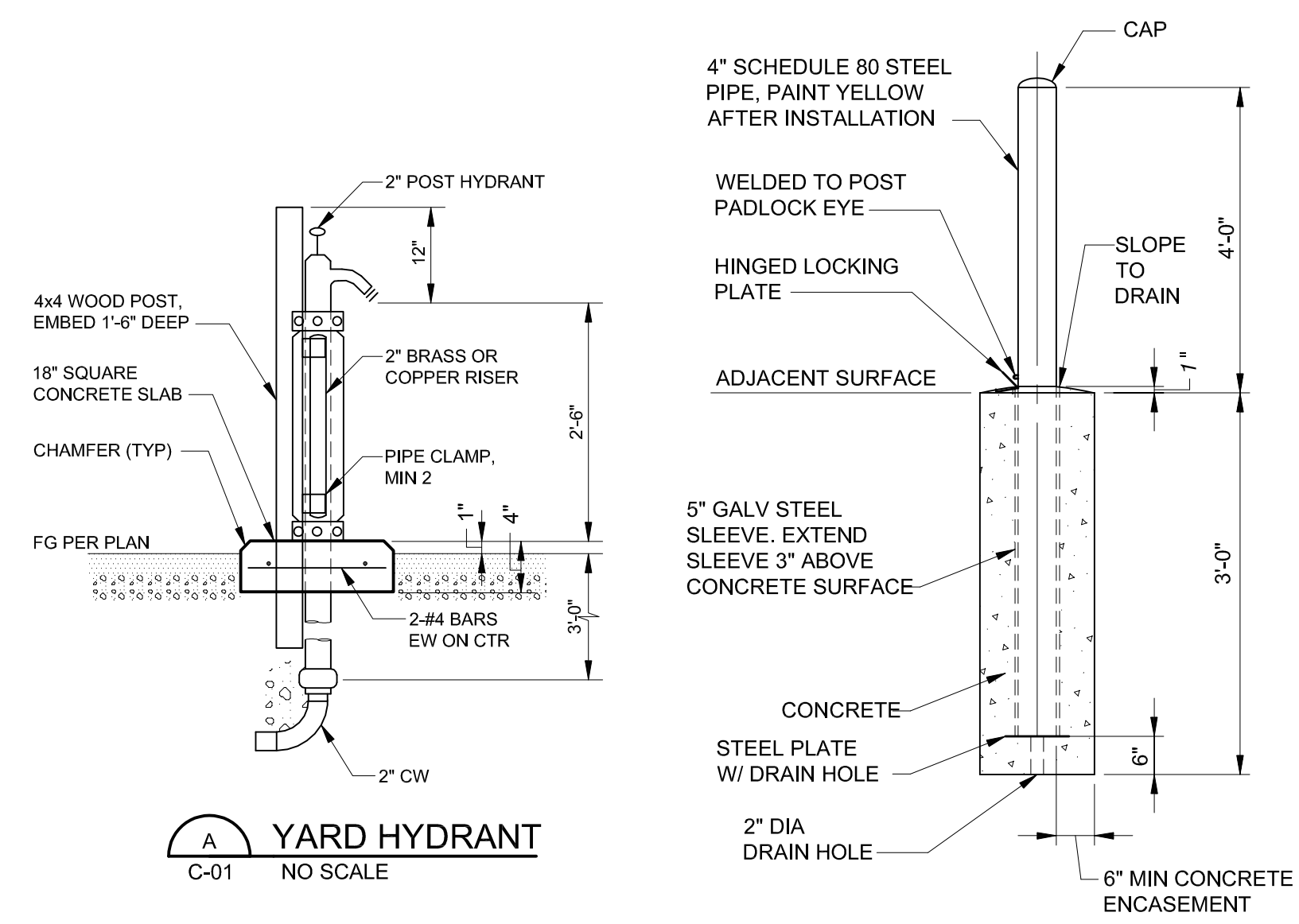
CIVIL
SECTIONS AND DETAILS 2

DESIGNED: JMW
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

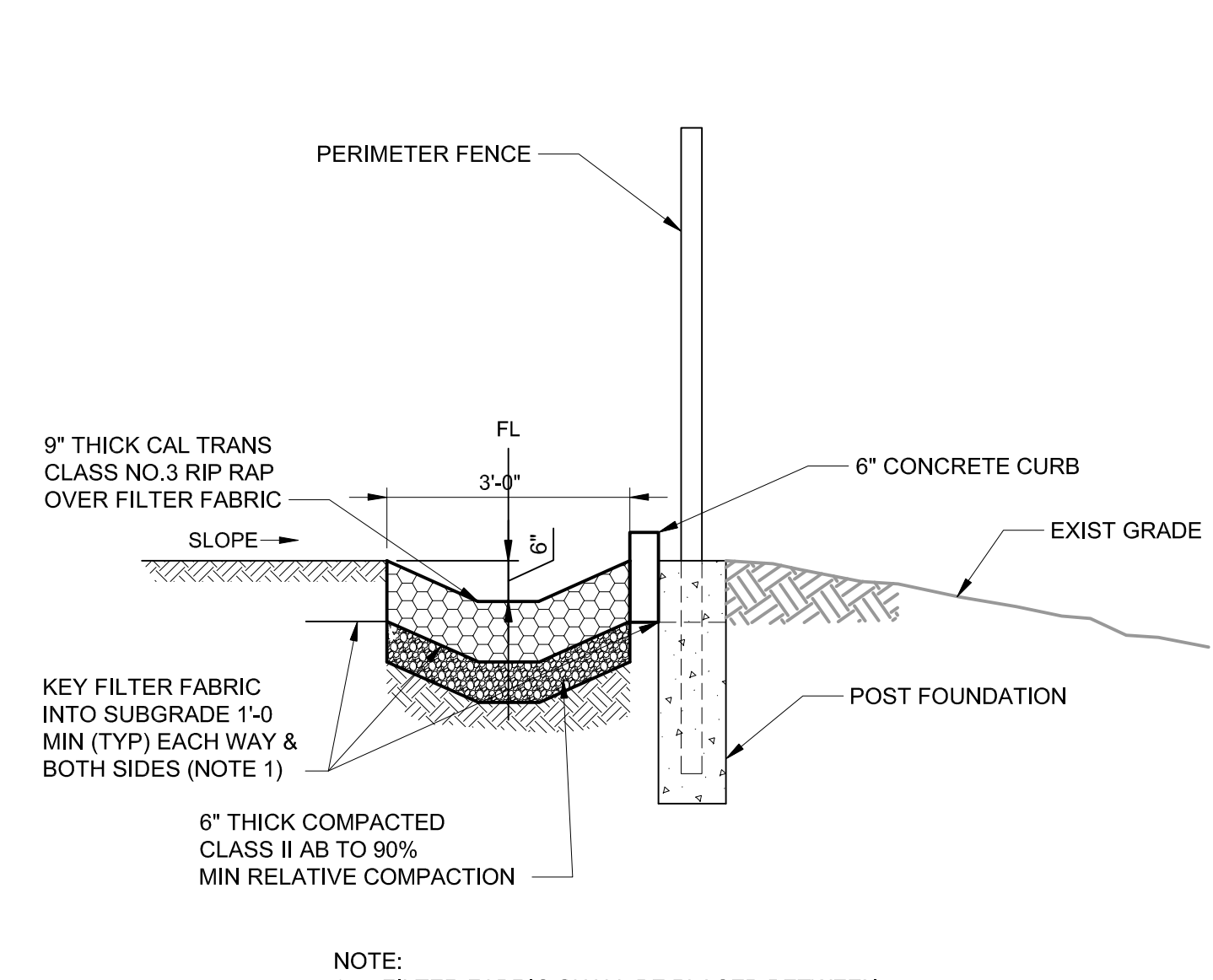


A YARD HYDRANT
C-01 NO SCALE

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

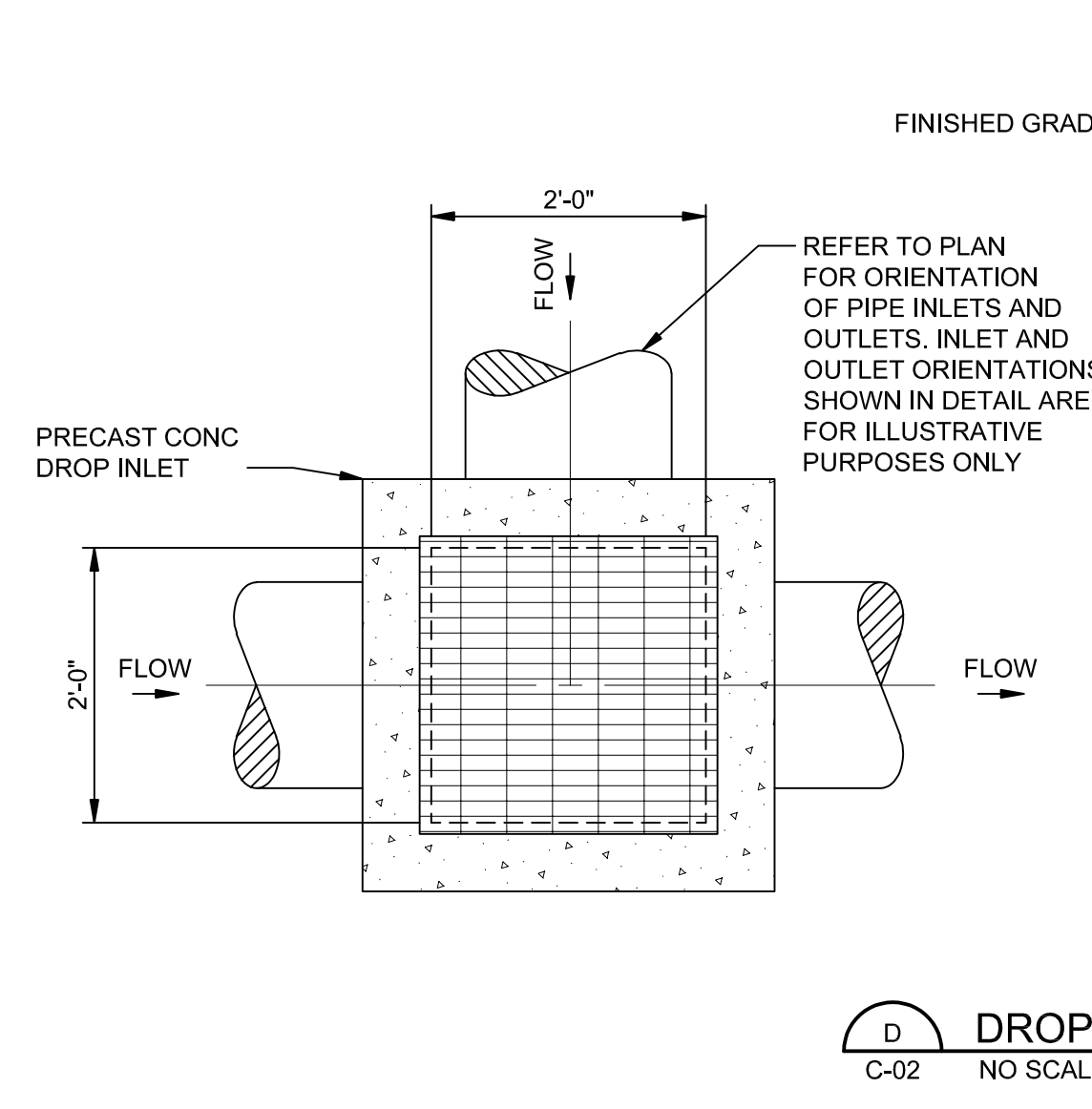


B REMOVABLE BOLLARD
C-01 NO SCALE

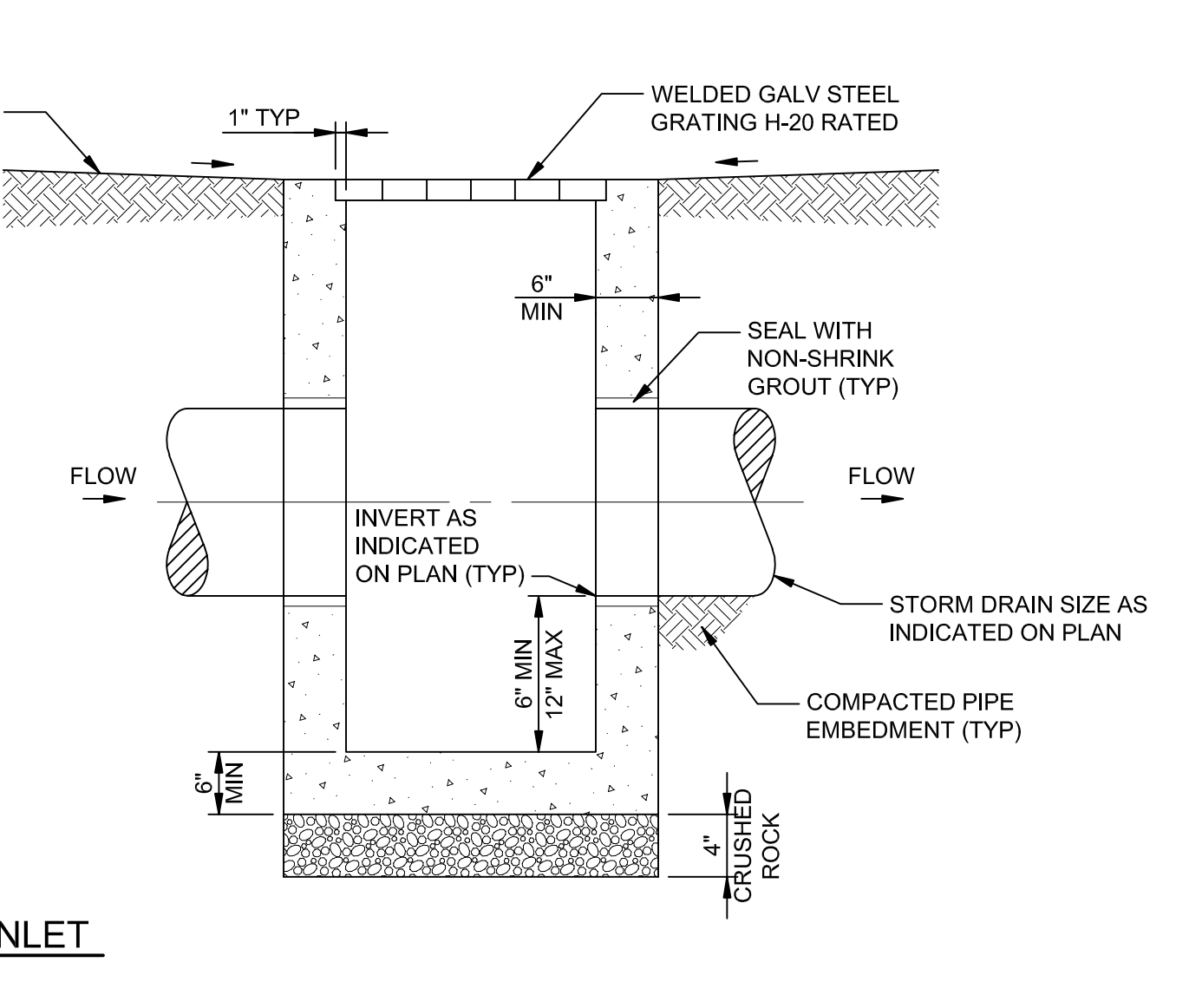


C GABION / ROCK SWALE DETAIL
C-02 NO SCALE

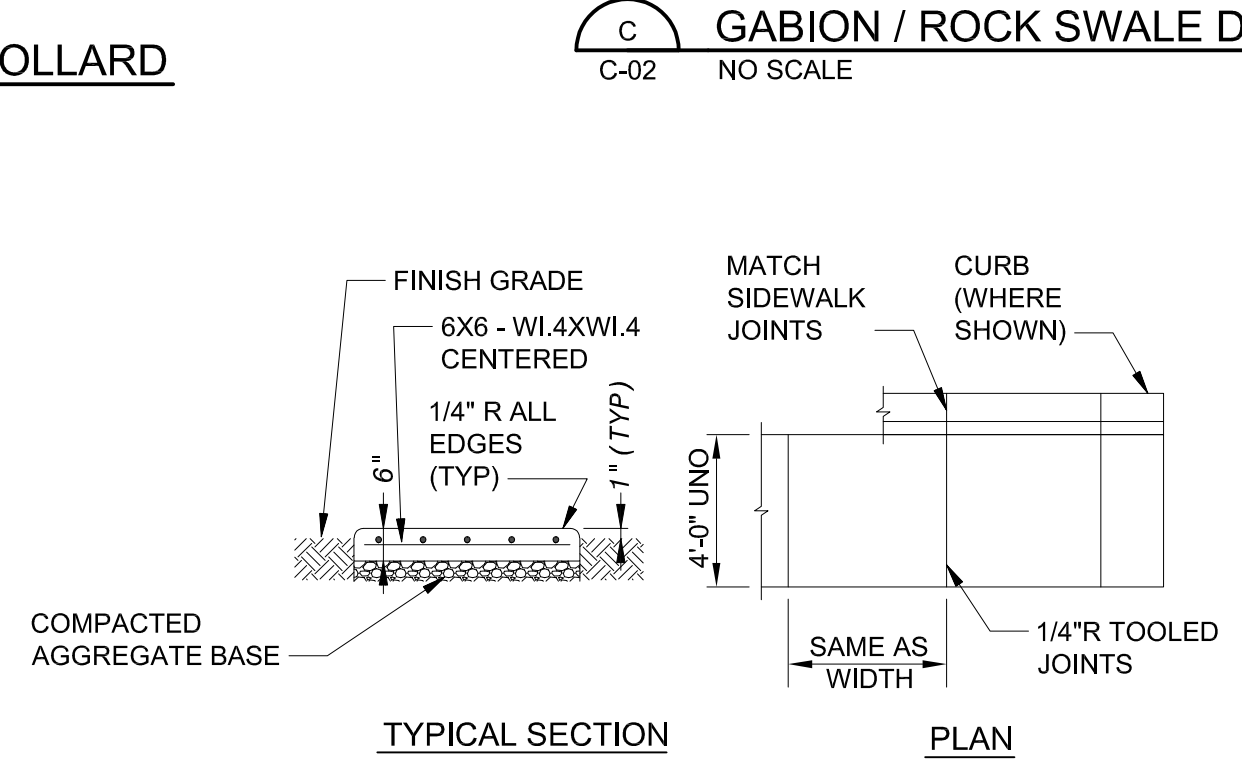
NOTE:
1. FILTER FABRIC SHALL BE PLACED BETWEEN THE RIP RAP AND THE CLASS II AB.



D DROP INLET
C-02 NO SCALE

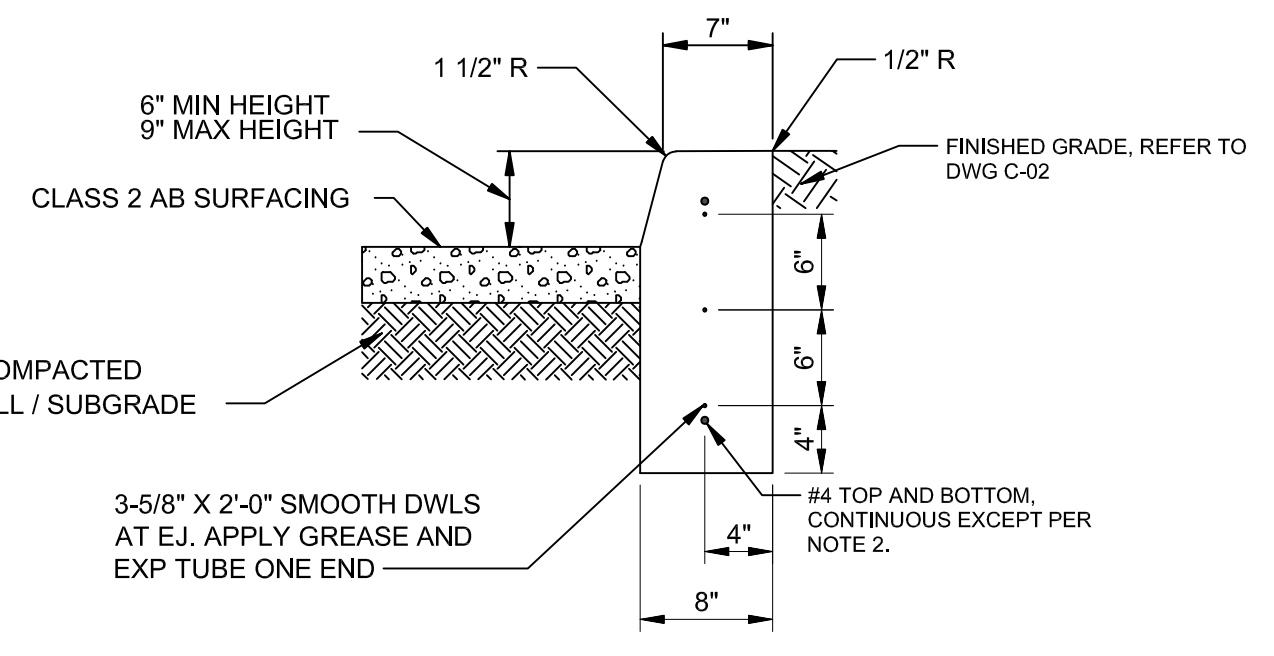


E AGGREGATE BASE SURFACING
C-02 NO SCALE



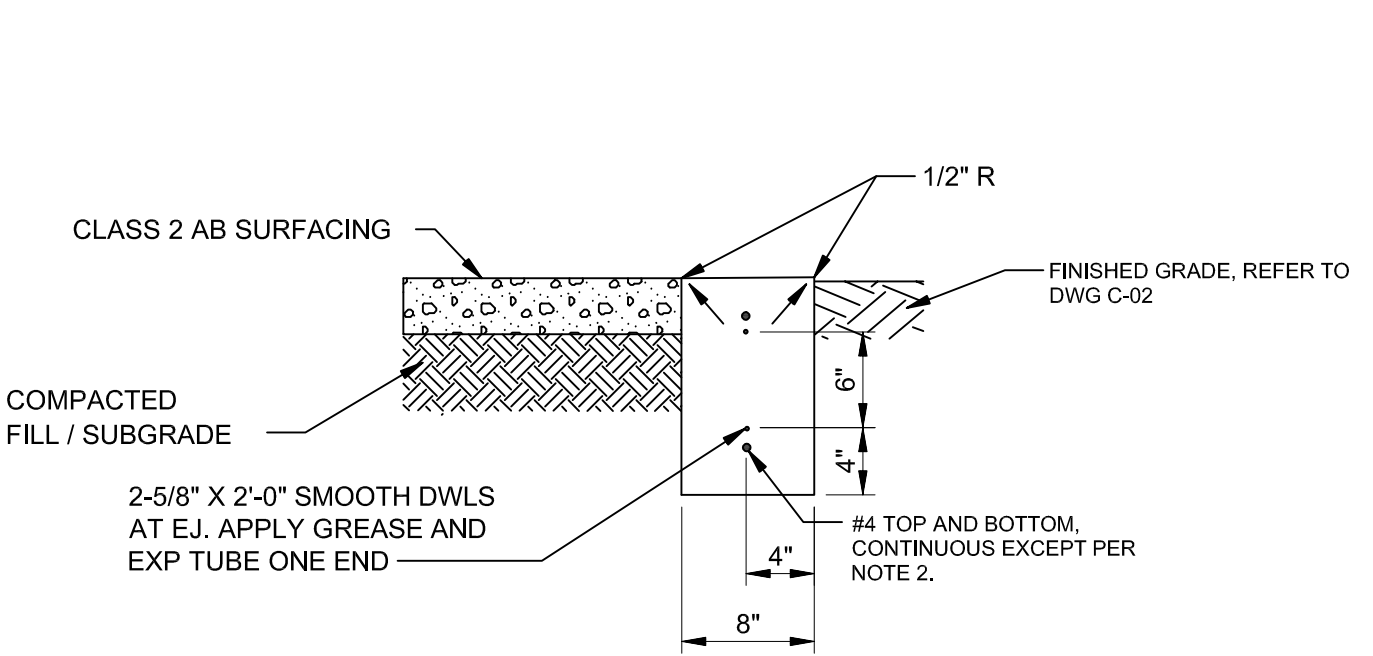
F SIDEWALK
C-02 NO SCALE

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.



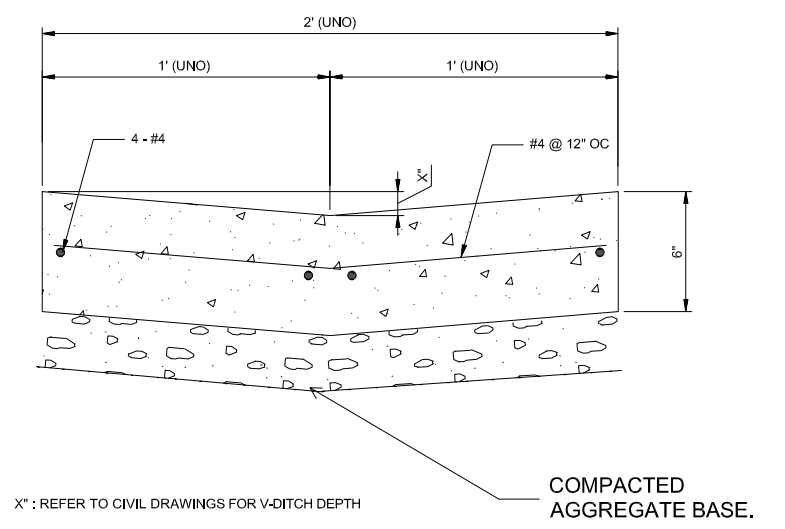
G TYPE 1 - VERTICAL CURB
C-02 NO SCALE

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 TYPE 2 - DEPRESSED CURB
C-02 NO SCALE

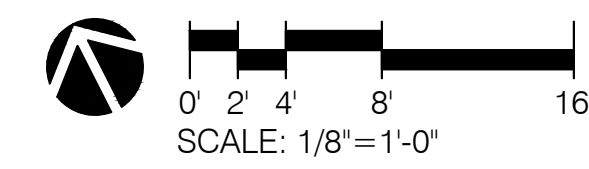
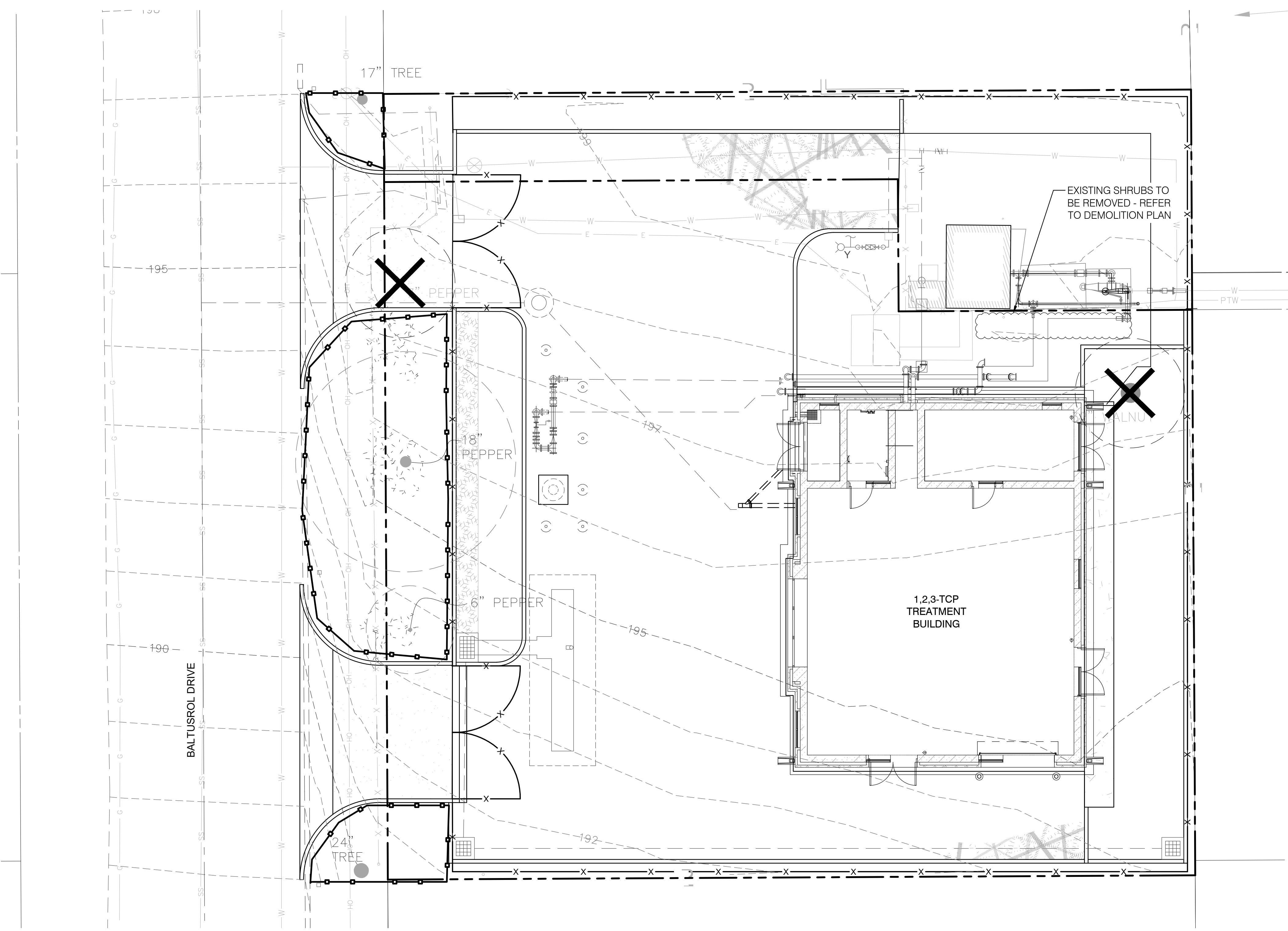
NOTES:
1. EXPANSION JOINTS SHALL BE PLACED AT END OF CONCRETE PLACEMENT, AT POINTS OF CURVATURE, AND WALKWAYS CURB RETURNS.
2. REINFORCING STEEL SHALL NOT PASS THROUGH EXPANSION JOINTS. THE REINFORCEMENT SHALL STOP PRIOR TO EXPANSION JOINT TO ALLOW PLACEMENT OF DOWELS.



I CONCRETE VALLEY GUTTER
C-02 NO SCALE

T:\PROJECTS\21-170-B&V-123 TCP Treatment Landscapes.dwg, L-01, 7/15/2021 5:01:07 PM, DWG To PDF.pc3, ANSI (full bleed D (34.00 x 22.00 inches), 1:1

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01/000
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LEGEND

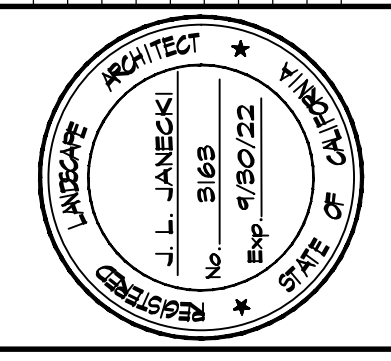
- PROPERTY LINE
- LIMIT OF LANDSCAPE WORK
- TREE PROTECTION FENCING (TEMPORARY)
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN

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 ENDOACHES 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.

JONI L. JANECKI & ASSOCIATES
 515 SWIFT ST. SANTA CRUZ CA 95060
 PHONE 831.423.6040 | WWW.JLJA.COM
 California Landscape Architect License 3163

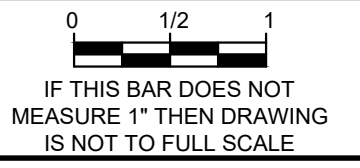
NO.	BY	CHK/APP
DATE	REVISIONS AND RECORD OF USE	



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: JJJ
 DATE: JULY 2021



PROJECT NO.
 407941

L-01
 SHEET
 X OF X

PRELIMINARY - NOT FOR CONSTRUCTION



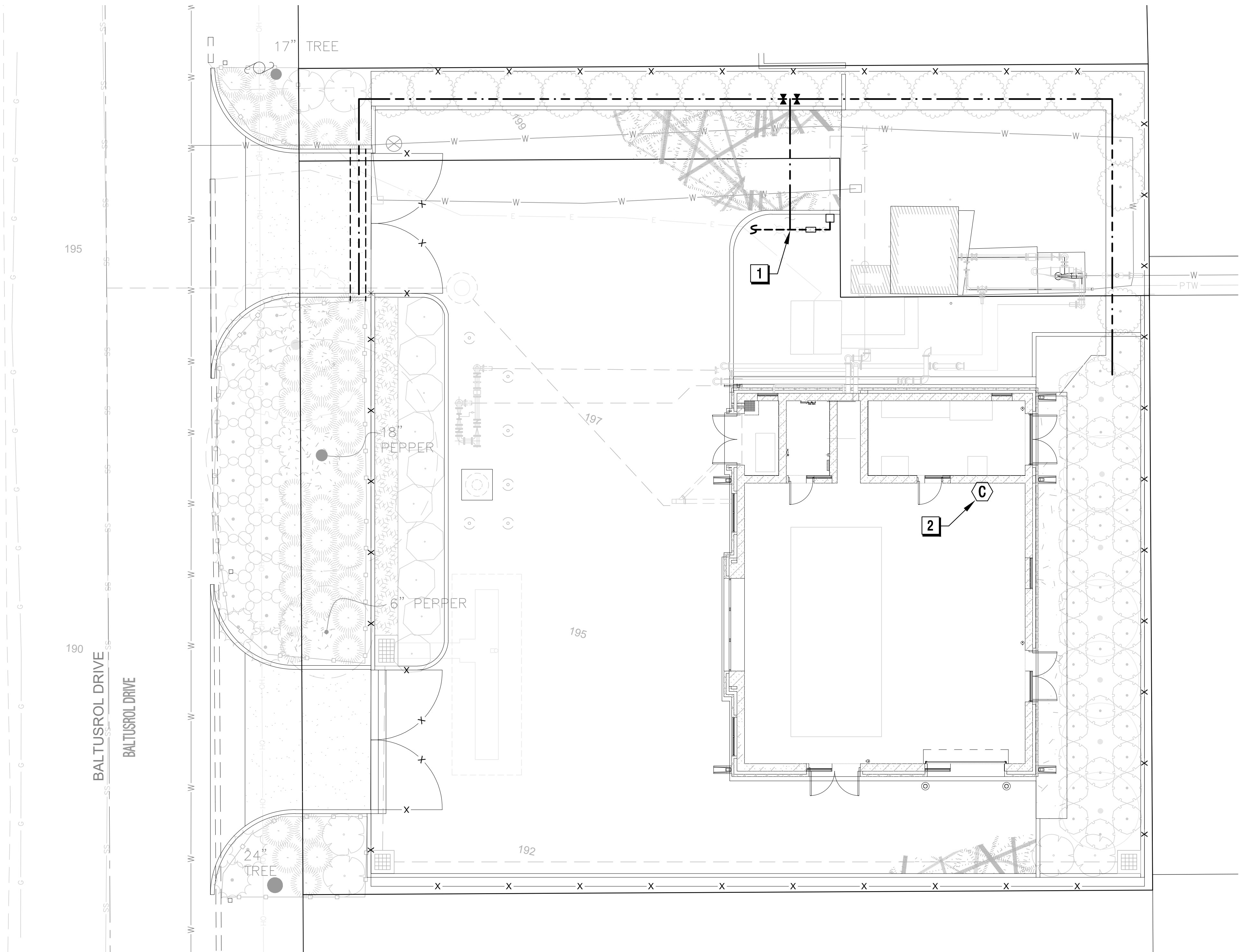
JAMES D. EDDY ASSOCIATES
 LANDSCAPE IRRIGATION ENGINEERS
 P.O. BOX 2291
 DANVILLE, CALIFORNIA 94526
 P: (925) 867-3339
 EMAIL: JDE@EDDYASSOCIATES.COM
 PLANNING-DESIGN-MANAGEMENT
 JDE PROJECT NO: 21020

JONI L. JANECKI
 & ASSOCIATES

515 SWIFT ST. SANTA CRUZ CA 95060
 PHONE 831.423.6040 | WWW.JLJA.COM
 California Landscape Architect License 3163

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 CPM (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.

PRELIMINARY - NOT FOR CONSTRUCTION

 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	
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
PROJECT NO. 407941	
L-02 SHEET X OF X	

IRRIGATION INSTALLATION NOTES:

- PROVIDE INSTALLATION BY PERSONS FAMILIAR WITH IRRIGATION WORK AND UNDER THE SUPERVISION OF A QUALIFIED SUPERVISOR.
- OBTAIN THE PERMITS REQUIRED AND PROVIDE LABOR AND MATERIALS NECESSARY TO FULLY COMPLETE THE WORK IN ACCORDANCE WITH THE DRAWINGS AND THE SPECIFICATIONS.
- LOCATE AND PROTECT NEW AND EXISTING UTILITIES PRIOR TO EXCAVATION.
- DO NOT DAMAGE EXISTING UTILITIES, PAVING OR STRUCTURES. PROVIDE THE NECESSARY REPAIRS AT NO ADDITIONAL COST TO THE SCWD.
- 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.
- 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.
- 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.
- THE INTENT OF THIS IRRIGATION SYSTEM DESIGN IS TO PROVIDE THE MINIMUM AMOUNT OF WATER REQUIRED TO SUSTAIN GOOD PLANT HEALTH.
- 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.
- 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.
- 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.
- 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.
- 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.
- IRRIGATION CONTROL WIRES: #14-AWG-UF UNDERGROUND FEEDER WIRE. SPLICES: 3M-DBY SEAL PACKS.
- 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.
- 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.
- 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.
- 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.
- VALVE LOCATIONS ON DRAWINGS ARE DIAGRAMMATIC. INSTALL IN GROUND COVER/SHRUB AREAS.
- FLUSH AND ADJUST IRRIGATION HEADS FOR EFFICIENT PERFORMANCE. PREVENT OVERSPRAY ON THE WALKS, ROADWAYS, SIGNS, OR LIGHTS.
- SET IRRIGATION HEADS PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 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.
- 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.
- PIPE SIZING SHOWN ON THE DRAWINGS IS SHOWN FOR REFERENCE AND BIDDING. DURING CONSTRUCTION ADJUST THE SIZE ACCORDING TO FIELD PIPE CHANGES.
- PIPE THREAD SEALANT COMPOUND: PERMATEX "TACK AND SEAL" OR RECTOR SEAL T+2. DO NOT USE ON PLASTIC VALVE OR SPRINKLER BODIES.
- IRRIGATION DEMAND: 7-15 GPM (QCV) AT 13± STATIC PSI AT THE POC.
- THE IRRIGATION SYSTEM IS DESIGNED TO BE WATER CONSERVING AND PROVIDE PRECIPITATION IN AN EFFICIENT MANNER.
- THE IRRIGATION SYSTEM IS DESIGNED TO WATER BETWEEN 6 P.M. AND 10 A.M. TO REDUCE EVAPORATIVE LOSS.
- 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.				
VALVES						
●*		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.				
●	[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						
Ⓢ	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)				
FLOW (GPM)		REMOTE CONTROL VALVE SIZE				
REMOTE CONTROL VALVE SIZE		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

- 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.
- 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."
- 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.



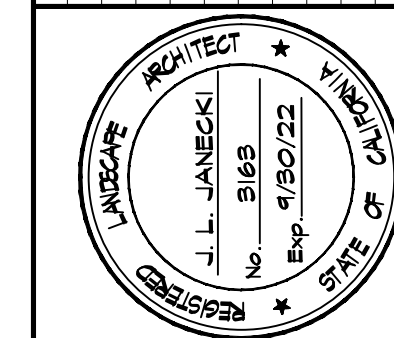
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ABBREVIATIONS:

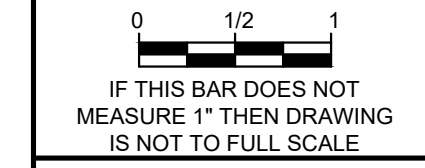
AV	AIR VALVE
CI	CAST IRON
CU	COPPER
DEG	DEGREES
DI	DUCTILE IRON
DIA	DIAMETER
ECV	EMITTER CONTROL VALVE
EFF	EFFICIENCY
ETWU	ESTIMATED TOTAL WATER USE
ETO(ET)	EVAPOTRANSPIRATION EXISTING
(E)	EXISTING
FT	FEET
FIPT	FEMALE IRON PIPE THREAD
FPS	FEET PER SECOND
(F)	FUTURE
FS	FLOW SENSOR
FV	FLUSH VALVE
GI	GALVANIZED 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
MWEL0	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



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

IRRIGATION LEGEND & NOTES

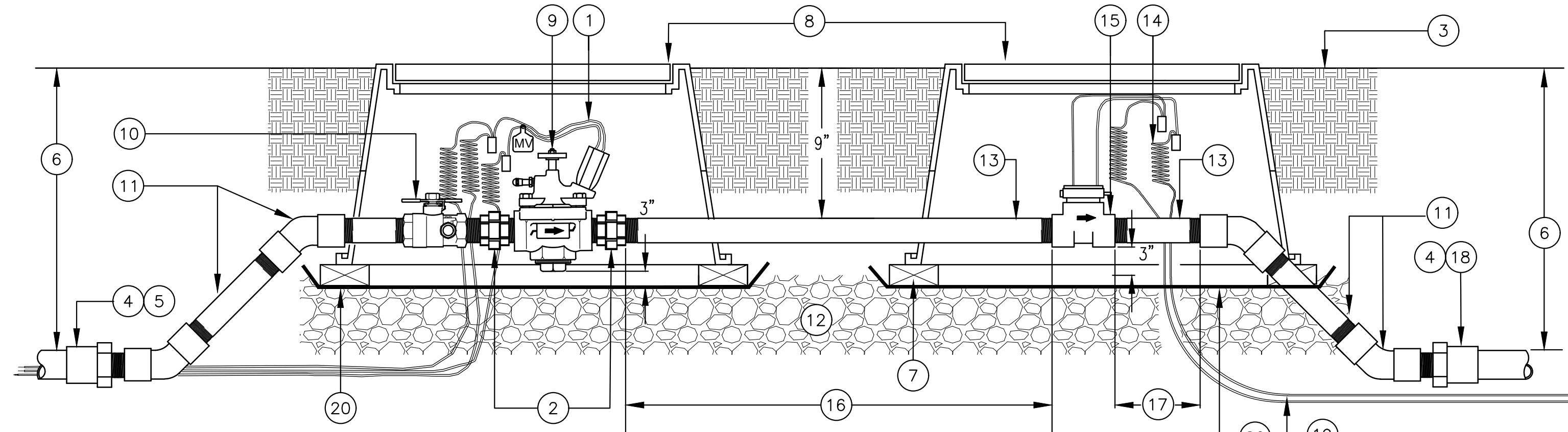
DESIGNED: JE
DETAILED: ST
CHECKED: JE
APPROVED: JJJ
DATE: JULY 2021



PROJECT NO.
407941

L-03
SHEET
X OF X

PRELIMINARY - NOT FOR CONSTRUCTION

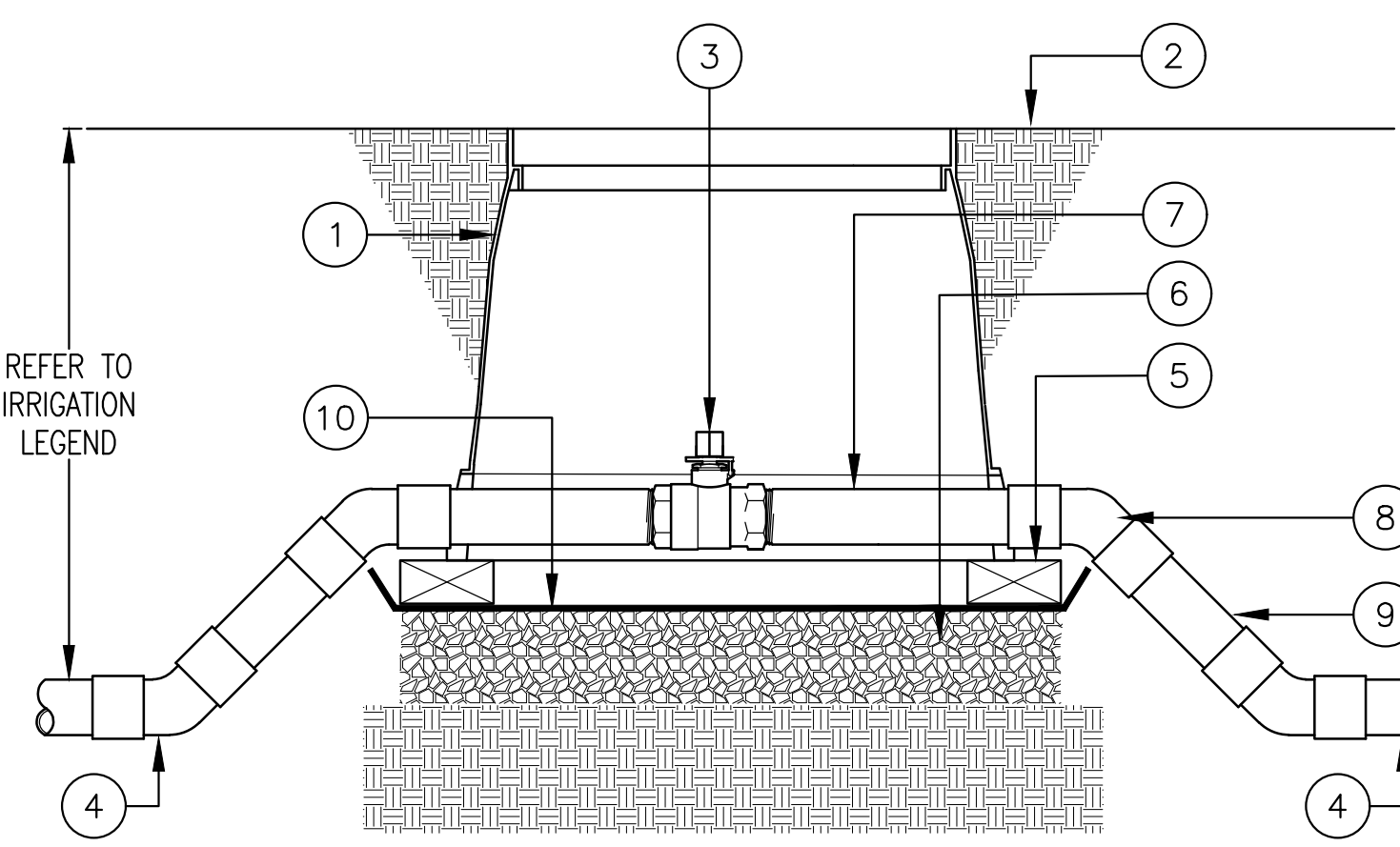


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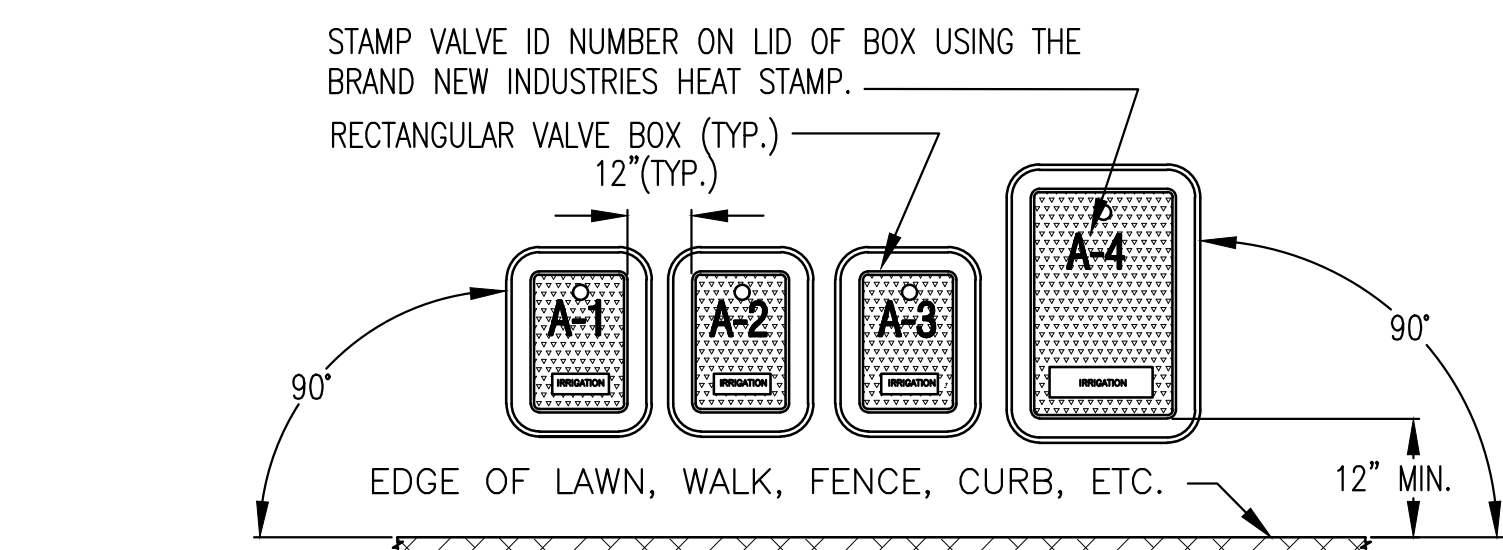
- ITEM LIST AND INSTALLATION NOTES:**
1. VALVE CONTROL WIRE - PROVIDE 3M DBY SEAL PACKS AT SPLICES, 36" OF EXCESS UF WIRE IN A 1" DIAMETER COIL AND VALVE TAG
 2. UNION, PVC SCH 80, MIPT X THREAD, 2 TOTAL, KBI U-XXXX-TMV SERIES
 3. FINISH GRADE
 4. MALE ADAPTER, PVC (SCHEDULE AS SPECIFIED IN IRRIGATION 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



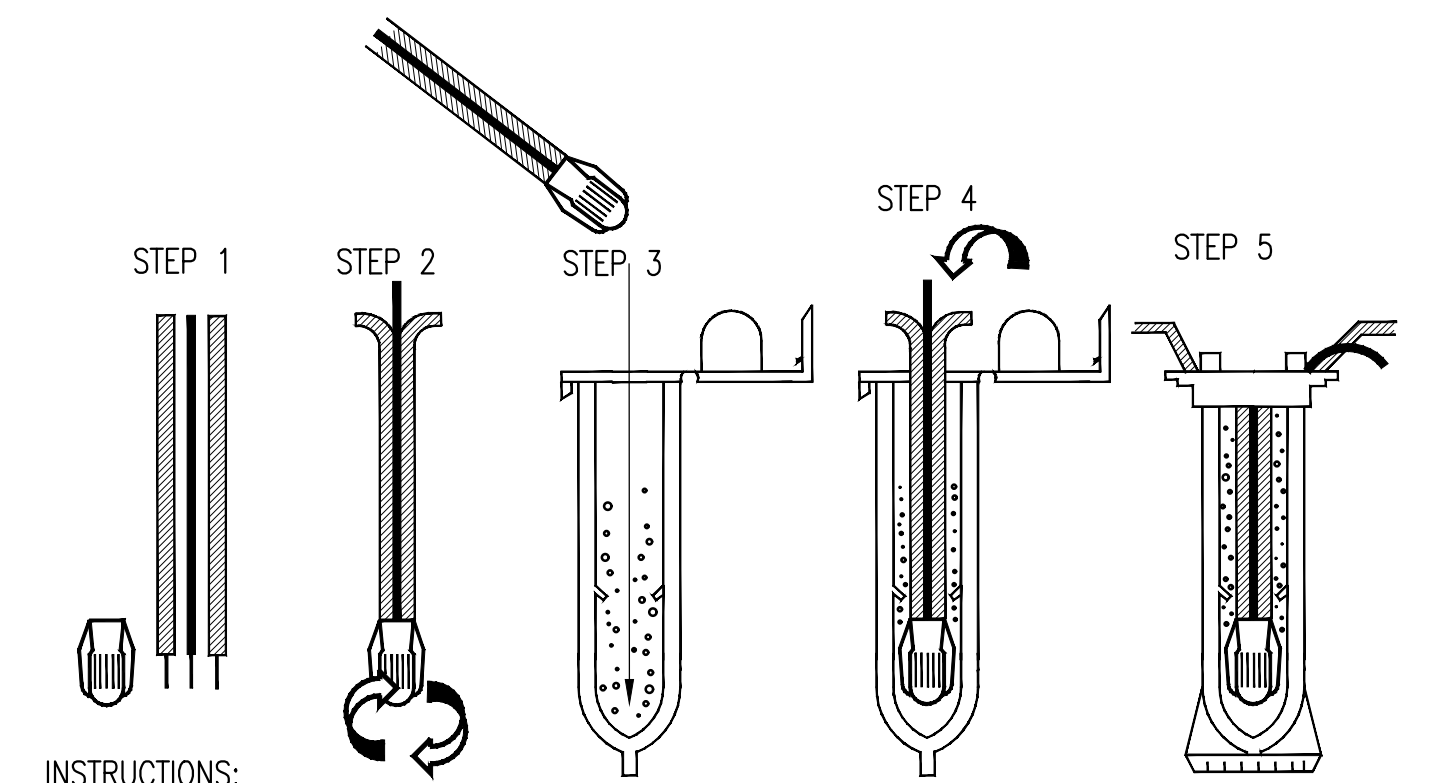
- ITEM LIST AND INSTALLATION NOTES:**
1. 14 X 19 RECTANGULAR PLASTIC VALVE BOX WITH PLASTIC BOLT-DOWN LID. INSTALL VALVE BOX FLUSH WITH FINISH GRADE IN TURF AND 1" ABOVE FINISH GRADE IN SHRUB AREAS.
 2. FINISH GRADE
 3. BALL VALVE
 4. PVC MAIN LINE (SIZE AND TYPE PER SPECIFICATIONS)
 5. COMMON BRICK (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. STAMP VALVE ID NUMBER ON LID OF BOX USING THE BRAND NEW INDUSTRIES HEAT STAMP.
 2. RECTANGULAR VALVE BOX (TYP.) 12"(TYP.)
 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.

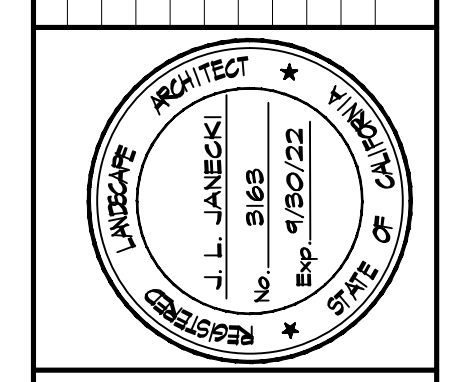
3 BOX INSTALLATION
 NOT TO SCALE



- 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

NO.	BY	CHK/APP



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: JJJ
 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

PRELIMINARY - NOT FOR CONSTRUCTION

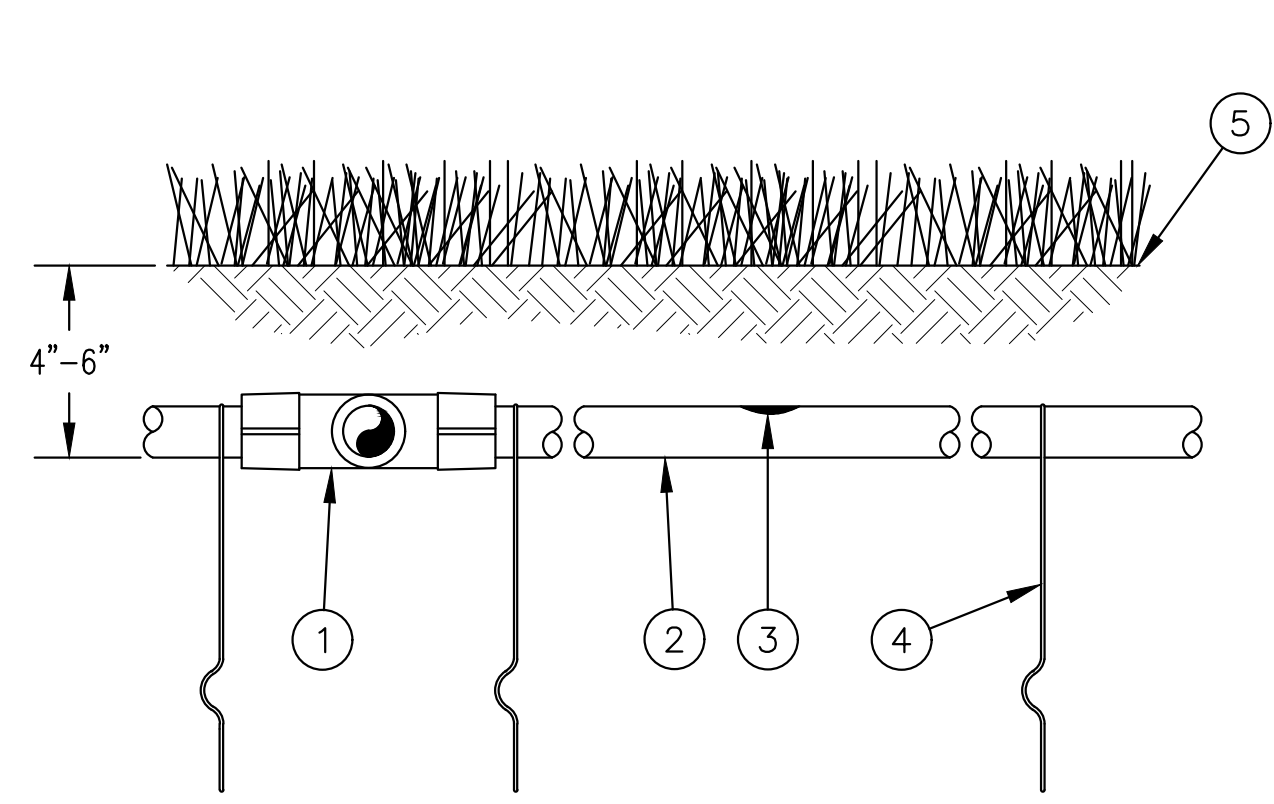
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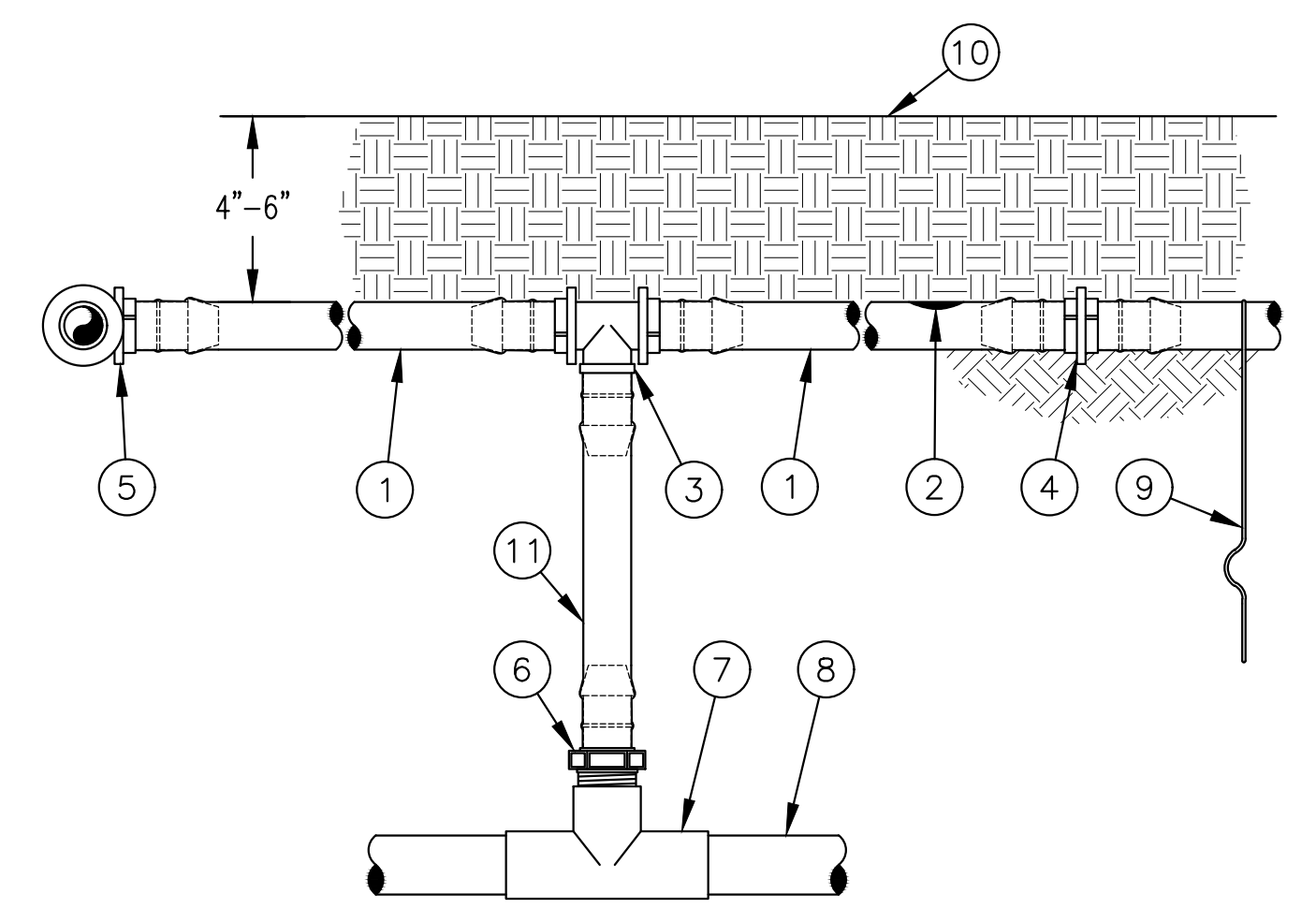
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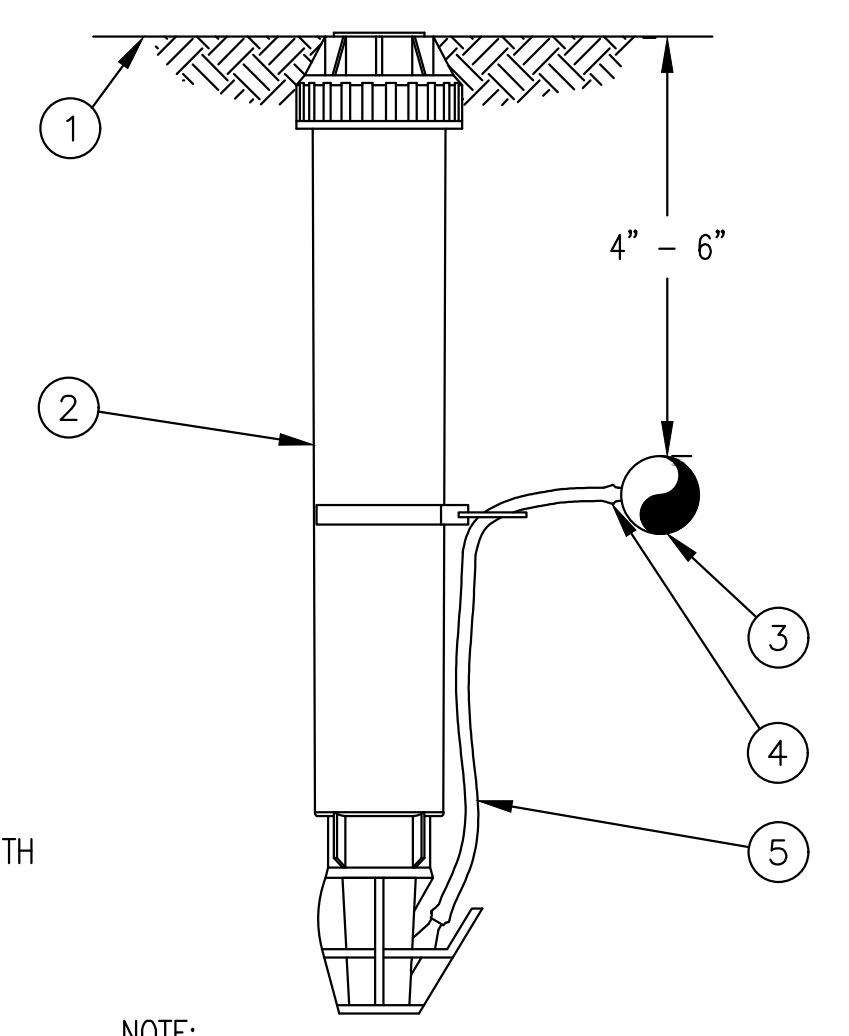
- ① EASY FIT COMPRESSION TEE: RAIN BIRD MDCFTTEE
- ② SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
- ③ INLINE DRIP EMITTER
- ④ TIE DOWN STAKE: RAIN BIRD TDS-050 WITH BEND (TYPICAL)
- ⑤ TURF/FINISH GRADE OR SHRUB BED WITH MULCH

- NOTES:
- PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
 - 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.
 - INSERTION PLOW AND TRENCHED INSTALLATIONS DO NOT REQUIRE TIE DOWN STAKES.



- 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:
- PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
 - 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.
 - FOR EASE OF CONSTRUCTION, USE THE RAIN BIRD FITTINGS-TOOL XF INSERTION TOOL FOR FITTING ASSEMBLY.



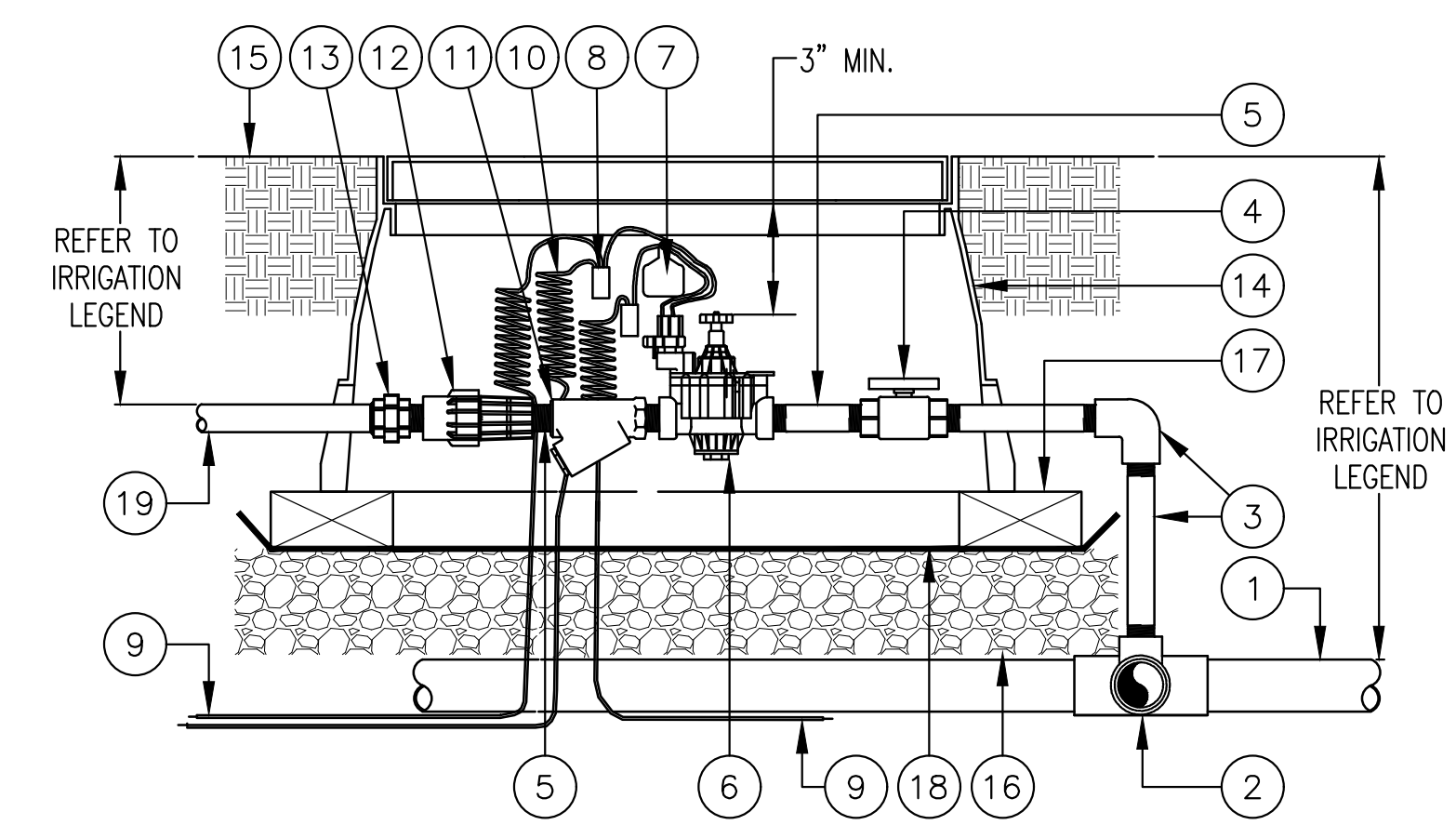
- ① FINISH GRADE/TURF
- ② MICRO-SPRAY POP-UP: RAIN BIRD XERI-POP XP-600X WITH 4-VAN NOZZLE (SHUT OFF)
- ③ SUB-SURFACE DRIPLINE: RAIN BIRD XF SERIES DRIPLINE POTABLE: XFS DRIPLINE NON-POTABLE: XFSP DRIPLINE
- ④ 1/4" BARB TRANSFER FITTING: RAIN BIRD XBFCNN
- ⑤ 1/4" DISTRIBUTION TUBING: RAIN BIRD XQ TUBING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

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

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

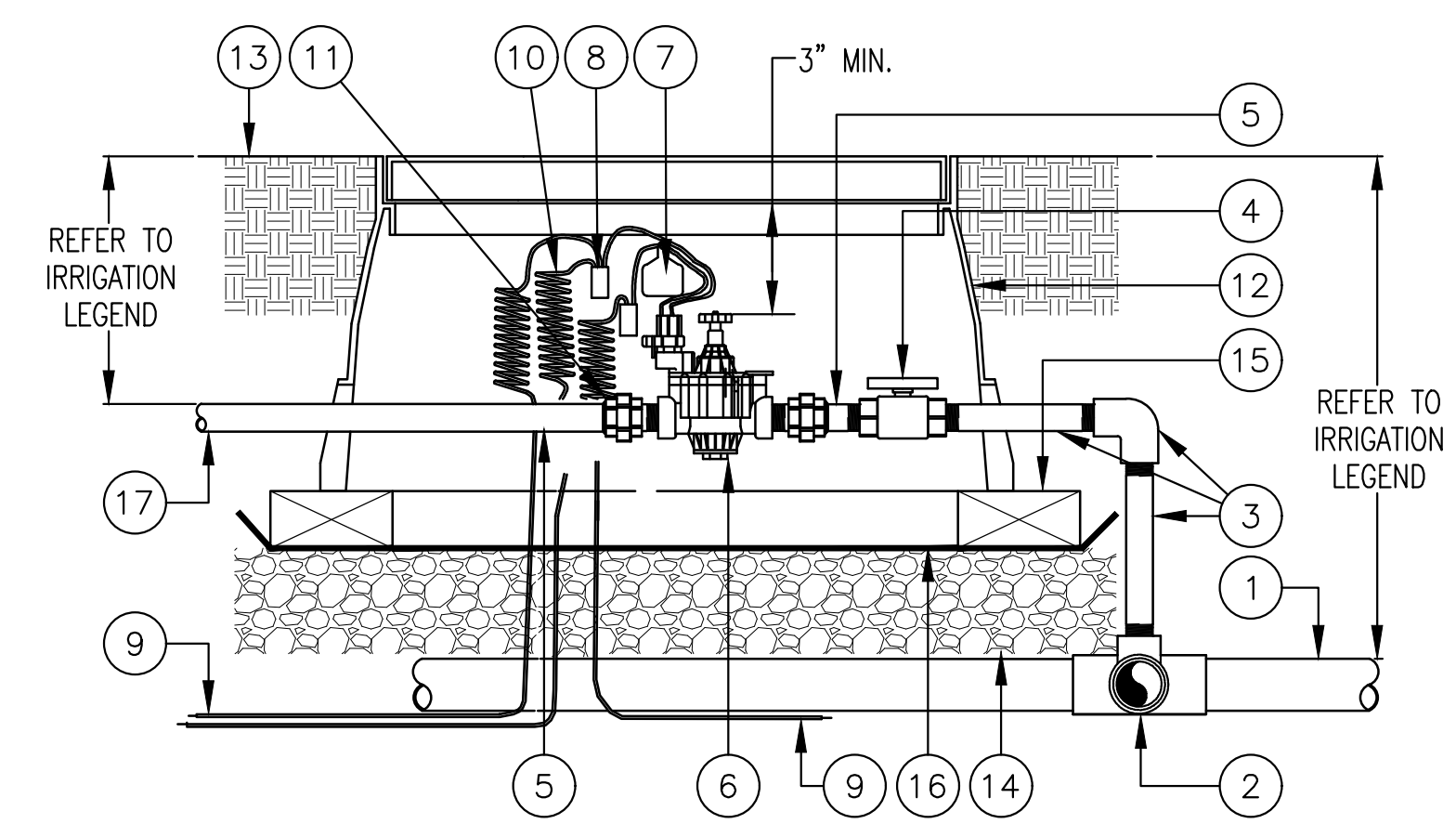
2 XFS SUB-SURFACE DRIPLINE RISER ASSEMBLY
 N.T.S.

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



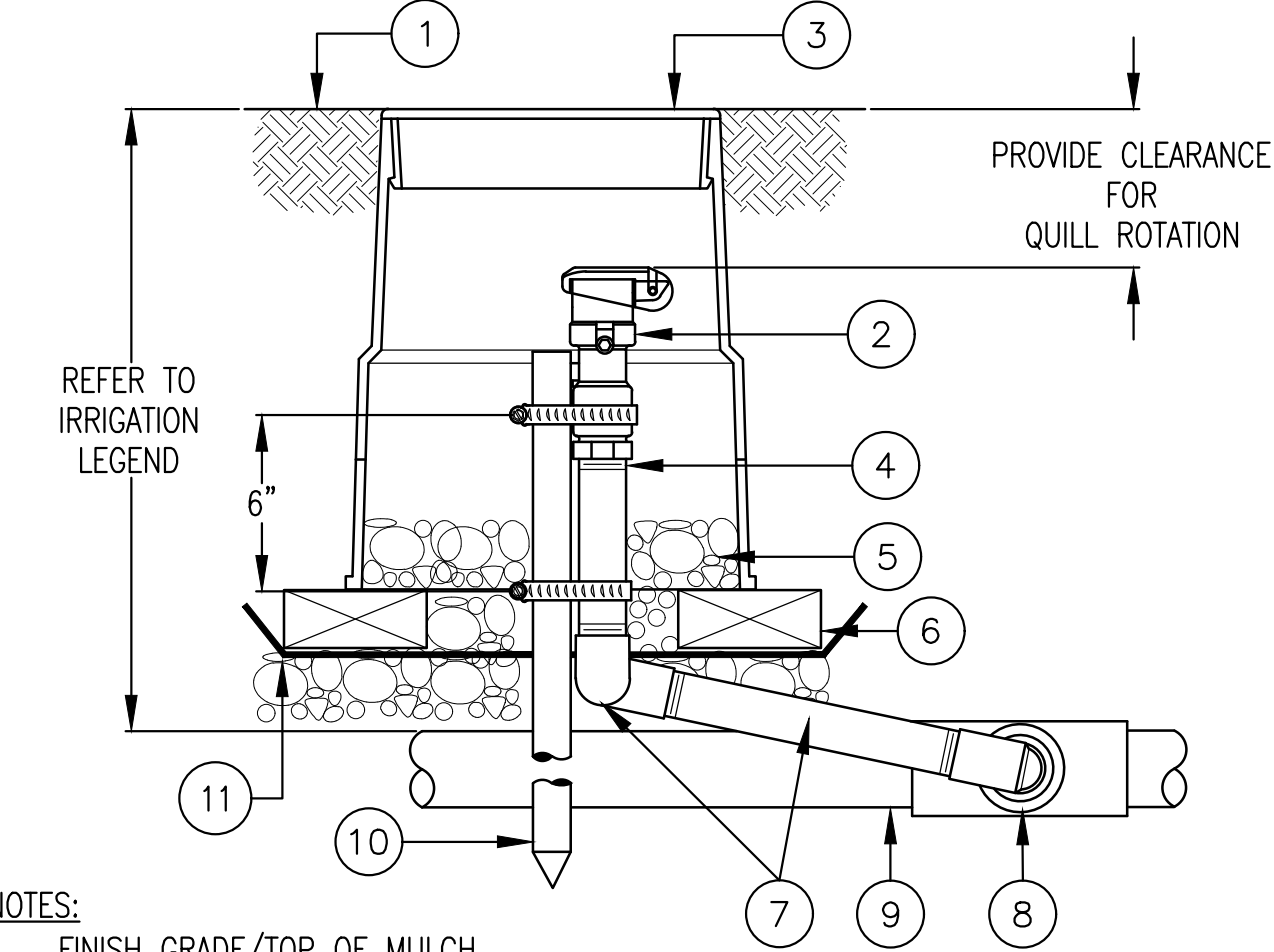
- NOTES: (REFER TO BUBBLED NUMBERS)
- PVC MAIN LINE PIPE
 - TEE OR ELL, PVC SCH 40, SxT
 - NIPPLES (2), TBE, LENGTH AS REQUIRED AND ELL, PVC SCH 80, TxT
 - BALL VALVE, KBI LT-1000-T, SCH 80
 - NIPPLES, TBE, PVC SCH 80, TxT (TYPICAL, LENGTHS AS REQUIRED)
 - EMITTER CONTROL VALVE
 - ID TAG
 - WATER PROOF CONNECTION (1 OF 2)
 - LOW VOLTAGE WIRE FROM CONTROLLER AND ON TO NEXT RCV, CONTROL AND COMMON
 - 30-INCH LINEAR LENGTH OF WIRE, COILED
 - PLASTIC WYE STRAINER WITH FLUSH VALVE
 - PRESSURE REDUCING VALVE TO PROVIDE 30-40 PSI AT ALL EMITTERS.
 - UNION, PVC SCH 80, MIPT X SOCKET, NDS (KBI) U-XXXX-SMV SERIES
 - RECTANGULAR PLASTIC VALVE BOX 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.
 - FINISH GRADE/ TOP OF MULCH
 - PEA GRAVEL BASE, 6" DEEP, NO SOIL IN VALVE BOX.
 - COMMON BRICK, 1 AT EACH CORNER OF BOX
 - GALVANIZED WIRE CLOTH, 1/2" MESH, 19 GAUGE
 - PVC LATERAL LINE PIPE

4 EMITTER CONTROL VALVE
 NOT TO SCALE



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

5 REMOTE CONTROL VALVE
 NOT TO SCALE

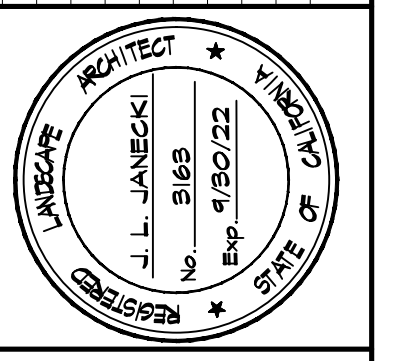


- NOTES:
- FINISH GRADE/TOP OF MULCH
 - QUICK COUPLING VALVE
 - 10" ROUND PLASTIC VALVE BOX WITH PLASTIC BOLT-DOWN LID. INSTALL VALVE BOX FLUSH WITH GRADE IN TURF AND 1" ABOVE FINISH GRADE IN SHRUB AREAS.
 - PVC SCH 80 NIPPLE, TBE, SIZED EQUAL TO VALVE, LENGTH AS REQUIRED
 - PEA GRAVEL BASE, 6" DEEP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

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

6 QUICK COUPLING VALVE
 NOT TO SCALE

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DATE	REVISIONS AND RECORD OF USE	

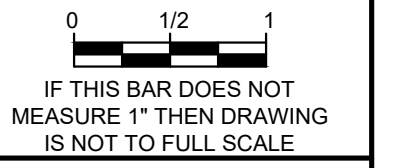


BLACK & VEATCH
 Black & Veatch Corporation

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: JJJ
 DATE: JULY 2021



PROJECT NO.
 407941

L-05
 SHEET
 X OF X

PRELIMINARY - NOT FOR CONSTRUCTION

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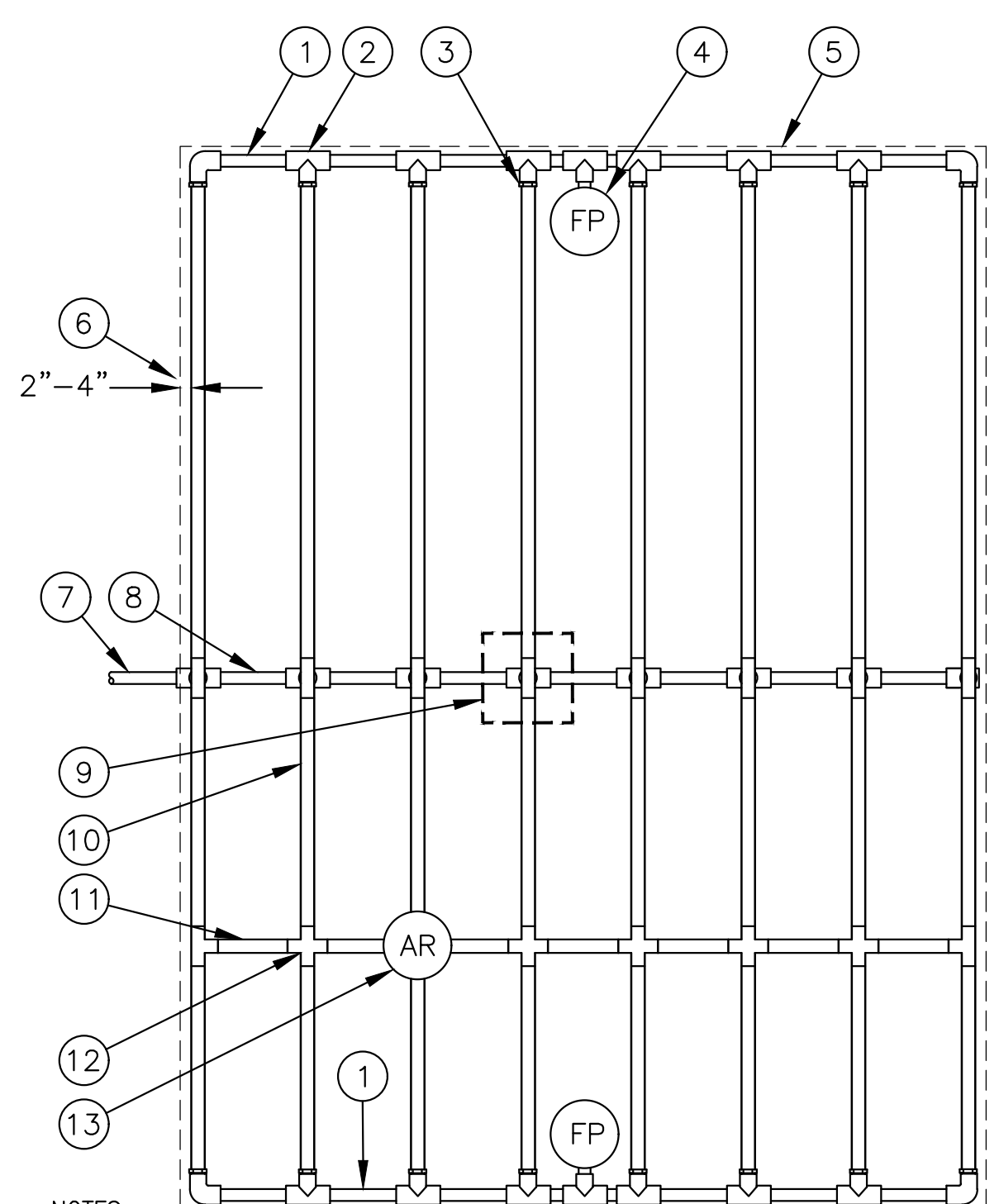


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 JDE PROJECT NO: 21020

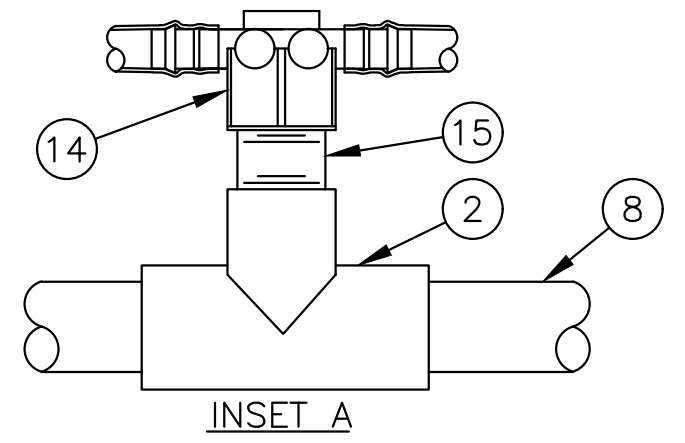
JONI L. JANECKI & ASSOCIATES

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 California Landscape Architect License 3163

NO. BY CHK/APP
 REVISIONS AND RECORD OF USE
 DATE

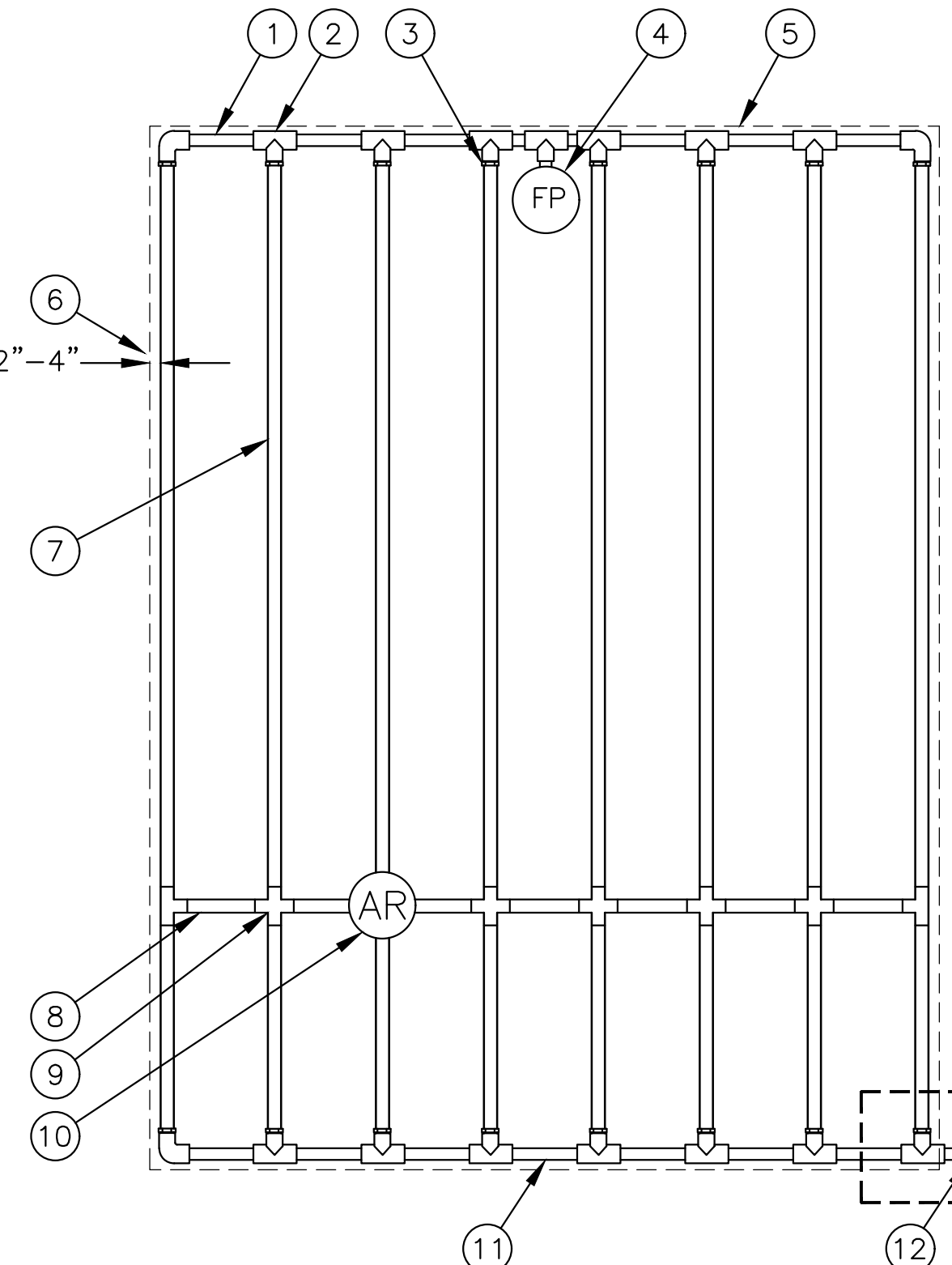


- 1 PVC EXHAUST HEADER
- 2 PVC SCH 40 TEE OR EL (TYPICAL)
- 3 BARB X MALE FITTING: RAIN BIRD XFF-MA FITTING (TYPICAL)
- 4 FLUSH POINT (TYPICAL) SEE RAIN BIRD DETAIL "XFS FLUSH POINT" OR "XFS FLUSH POINT WITH BALL VALVE"
- 5 PERIMETER OF AREA
- 6 PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
- 7 PVC SUPPLY PIPE FROM RAIN BIRD CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)

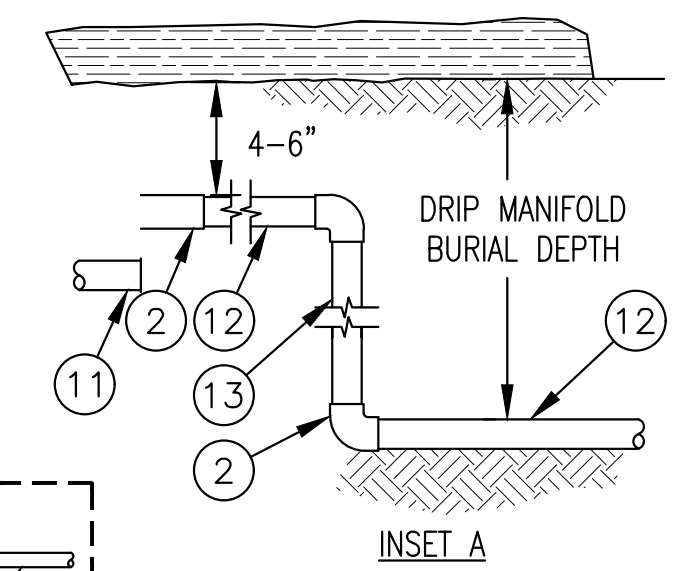


- NOTES:
- DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE RAIN BIRD XF-SDI DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACINGS.
 - LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING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

- 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 1/2" 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 3/4" SCH 80 PVC NIPPLE, LENGTH AS NECESSARY TO ACHIEVE THE SPECIFIED COVER

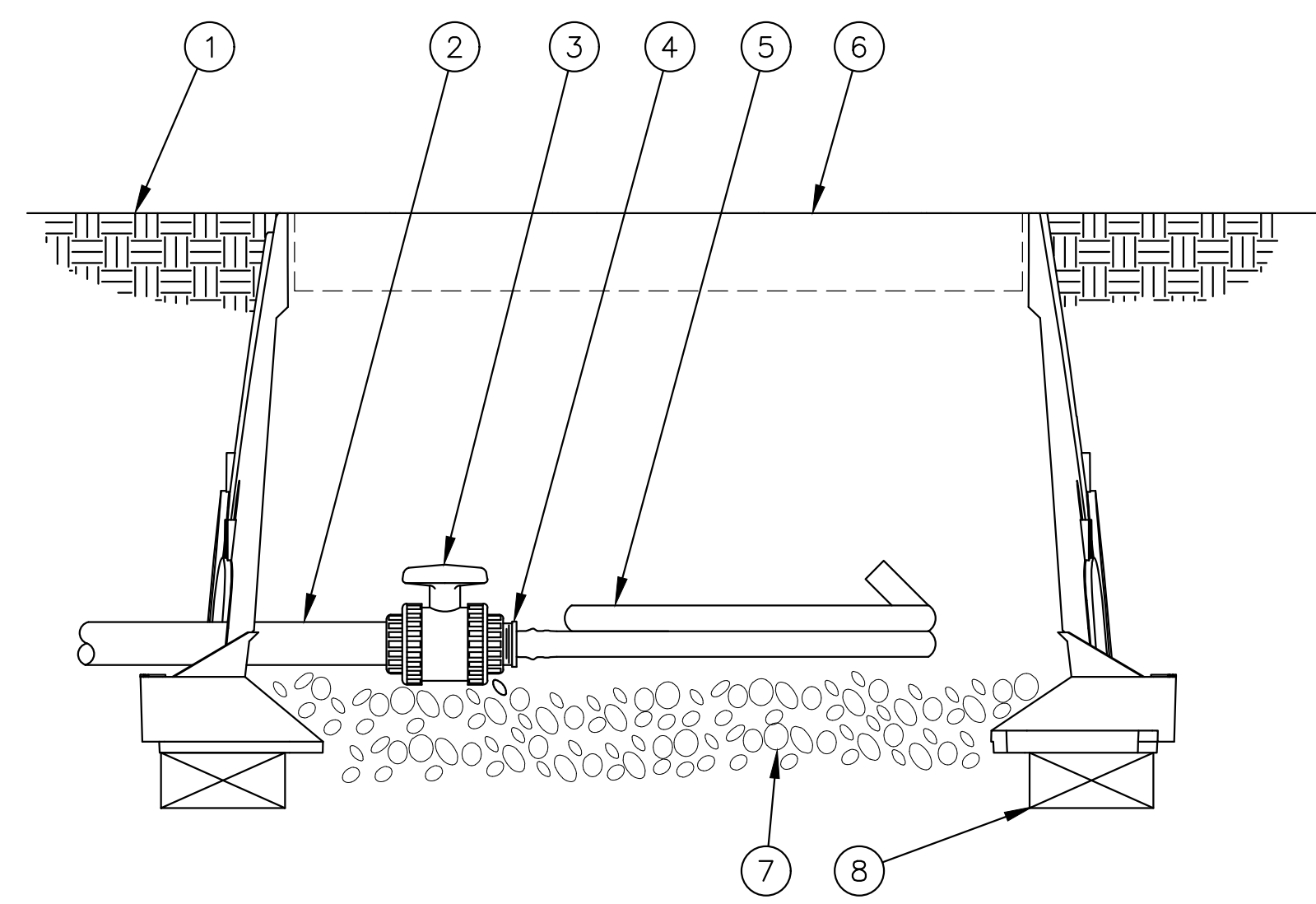


- NOTES:
- DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE RAIN BIRD XFS DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACINGS.
 - LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.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



- 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 1/2" 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

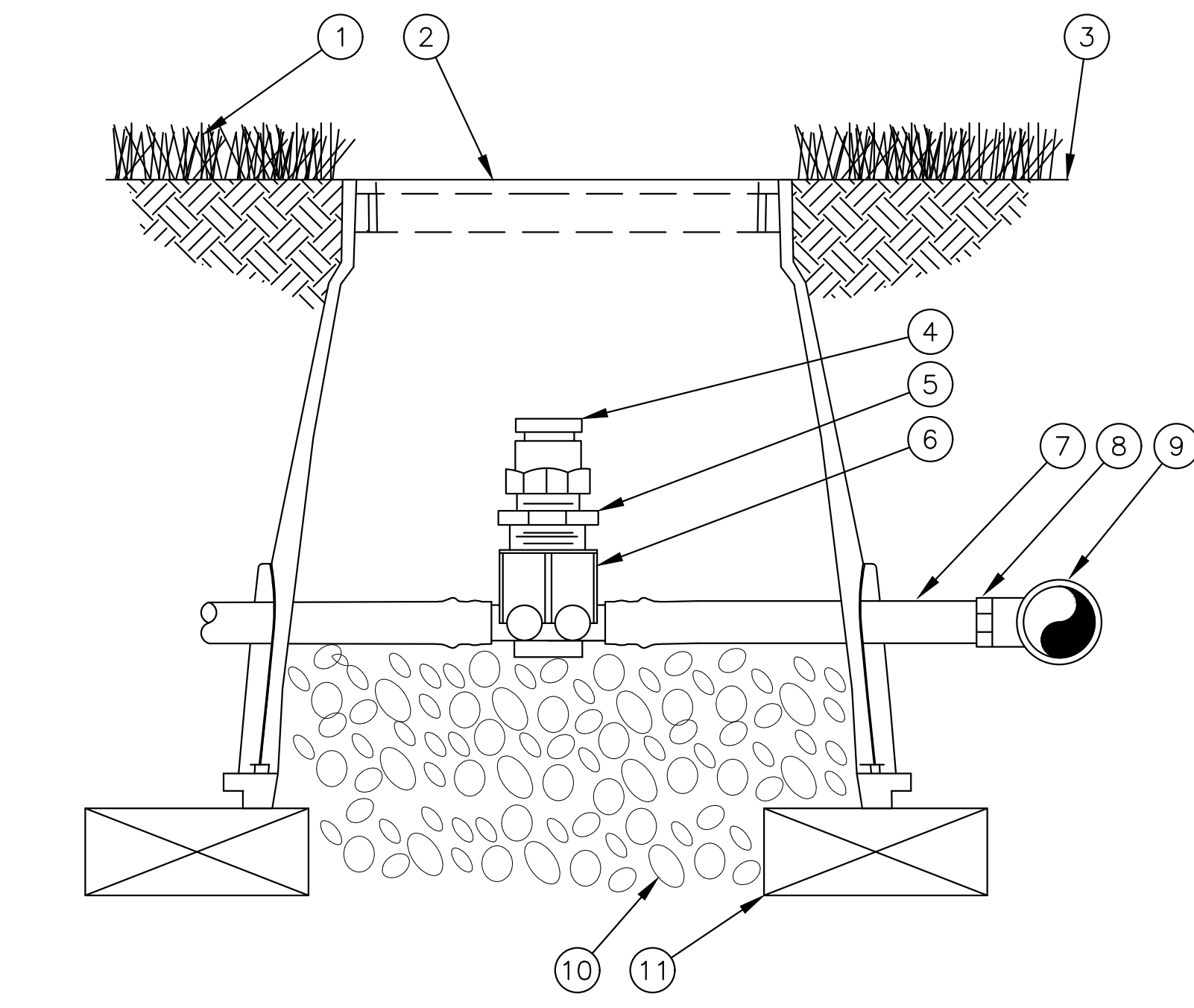
1 XFS SUB-SURFACE DRIPLINE CENTER FEED LAYOUT



- 1 FINISH GRADE
- 2 PVC DRIP MANIFOLD PIPE
- 3 PVC 1" X 3/4" 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 3/4" WASHED GRAVEL
- 8 BRICK (1 OF 2)

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

2 XFS SUB-SURFACE DRIPLINE END FEED LAYOUT

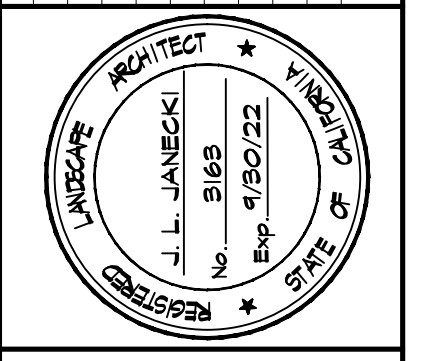


- 1 TURF GRASS
- 2 SUBTERRANEAN EMITTER BOX: RAIN BIRD SEB 7XB
- 3 FINISH GRADE
- 4 1/2" AIR RELIEF VALVE: RAIN BIRD ARV050 TO BE INSTALLED AT HIGH POINTS IN DRIP ZONE
- 5 1/2" X 3/4" PVC REDUCER BUSHING
- 6 BARB X FEMALE THREAD CONNECTOR: RAIN BIRD XFD-TFA FITTING
- 7 1/2" BLANK DRIPLINE TUBING: RAIN 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 3/4" WASHED GRAVEL
- 11 BRICK (1 OF 2)

3 XFS SUB-SURFACE DRIPLINE FLUSH POINT WITH BALL VALVE

4 XFS SUB-SURFACE DRIPLINE 1/2" AIR RELIEF VALVE IN XFS DRIPLINE

PRELIMINARY - NOT FOR CONSTRUCTION



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
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 X OF X

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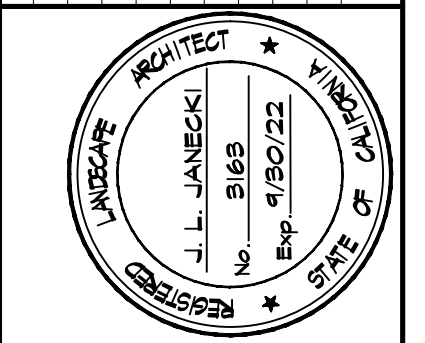


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BLACK & VEATCH
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**SOQUEL CREEK WATER DISTRICT
 COUNTY CLUB WELL REPLACEMENT WELL
 AND 1,2,3-TCP REMOVAL WTP REPLACEMENT**

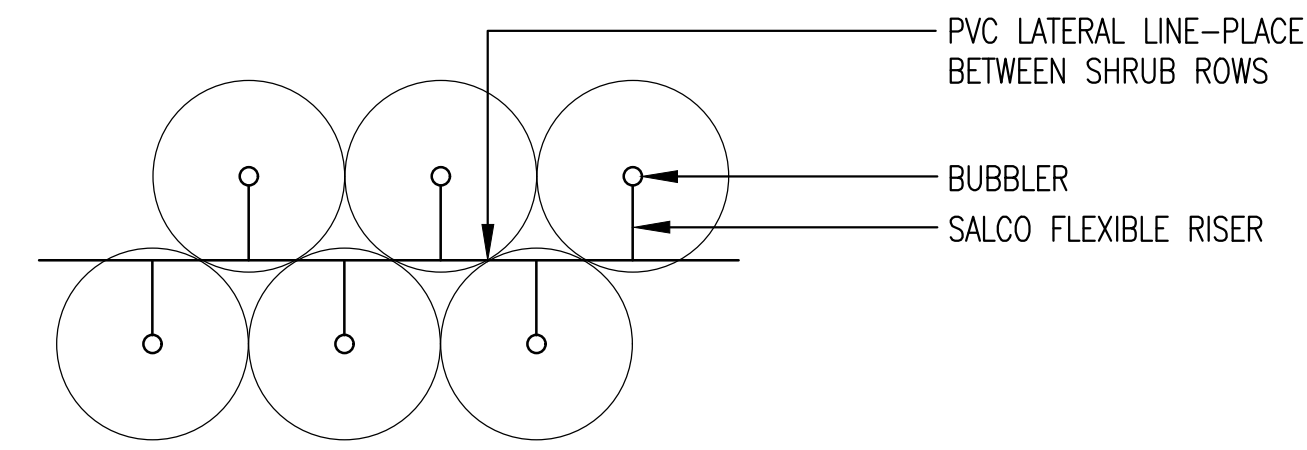
IRRIGATION DETAILS

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

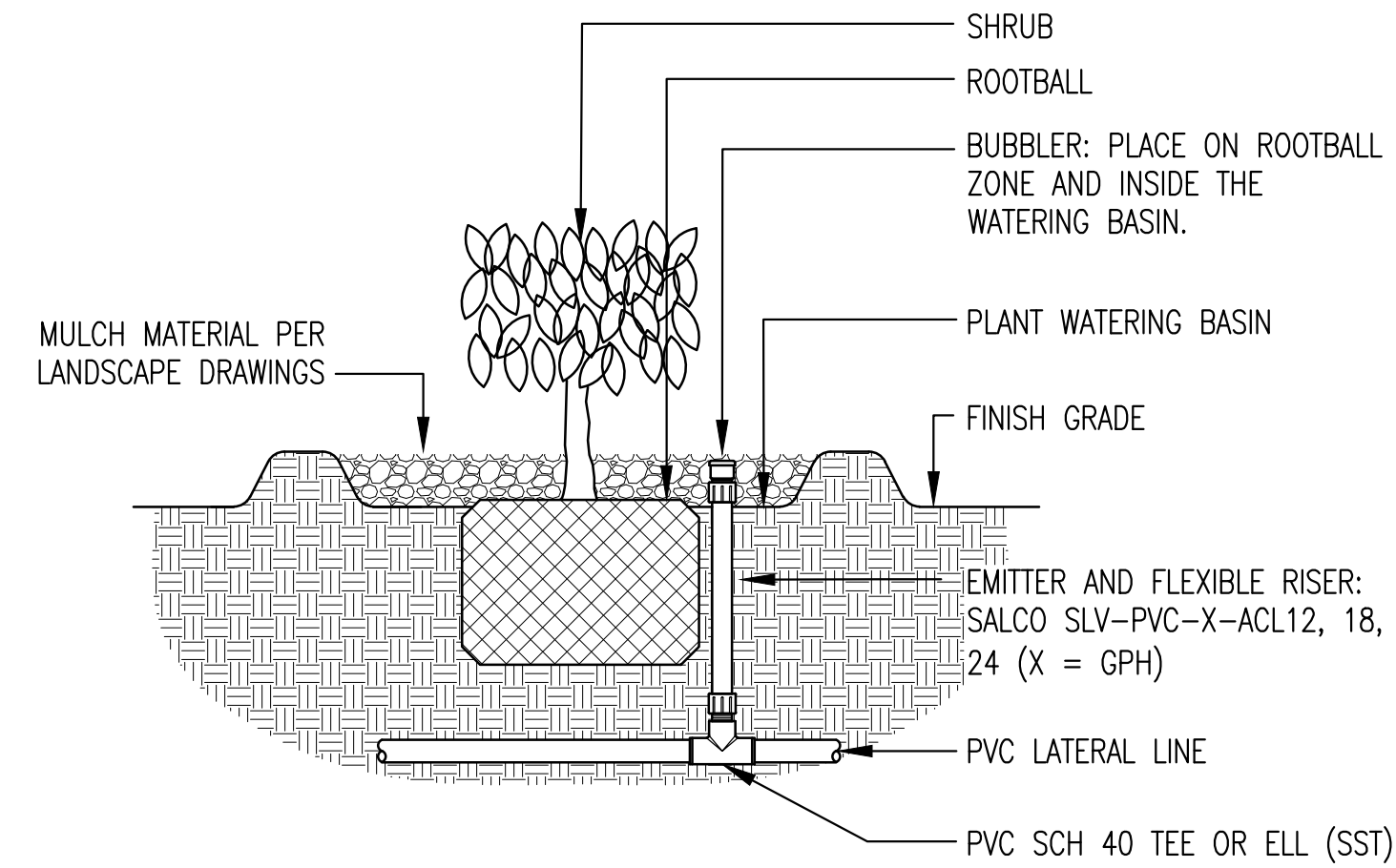
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PROJECT NO.
 407941

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 X OF X



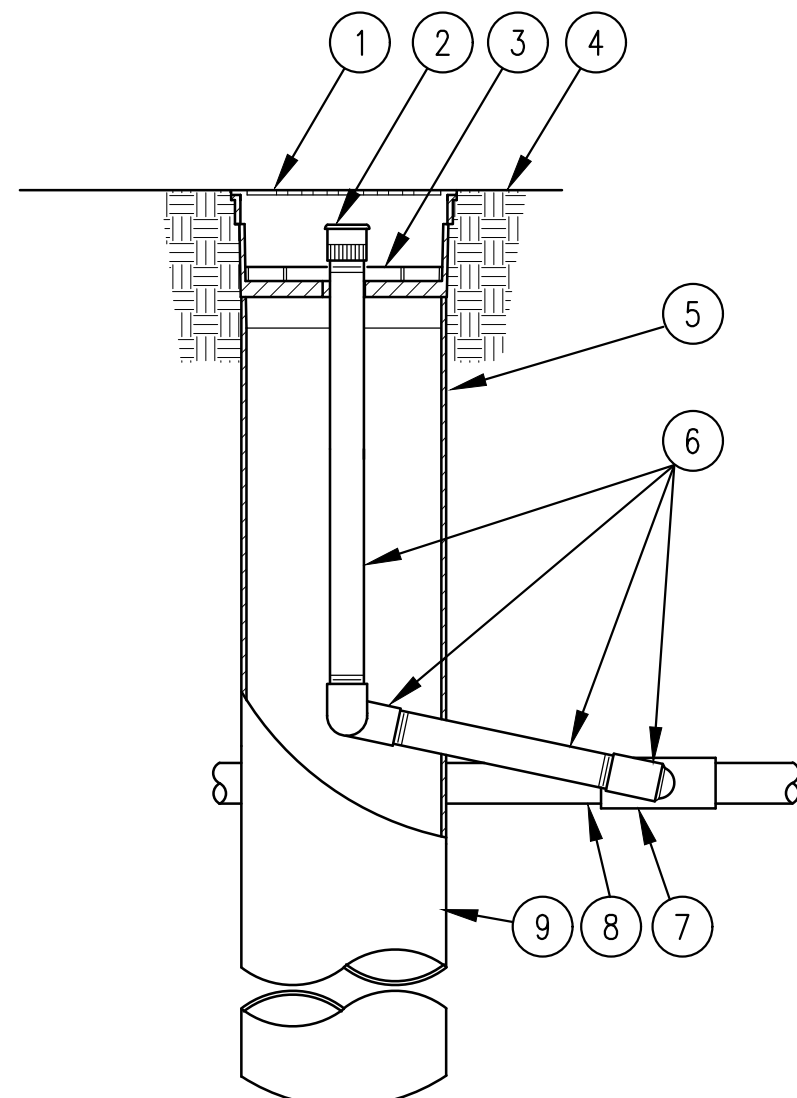
PLAN VIEW BUBBLER LAYOUT



**3 SHRUB BUBBLER ASSEMBLY
 NOT TO SCALE**

- 4-INCH GRATE*
- BUBBLER*
- ROOT WATERING SYSTEM: RAIN BIRD RWS-BG (INCLUDES CANISTER, BUBBLER WITH SWING JOINT RISER AND GRATE)
- FINISH GRADE
- RAIN BIRD RWS SOCK*
- RAIN BIRD SWING JOINT RISER ASSEMBLY*
- PVC SCH 40 TEE OR EL
- LATERAL PIPE
- 4-INCH BASKET WEAVE CANISTER* -PLACE AGAINST TREE ROOTBALL

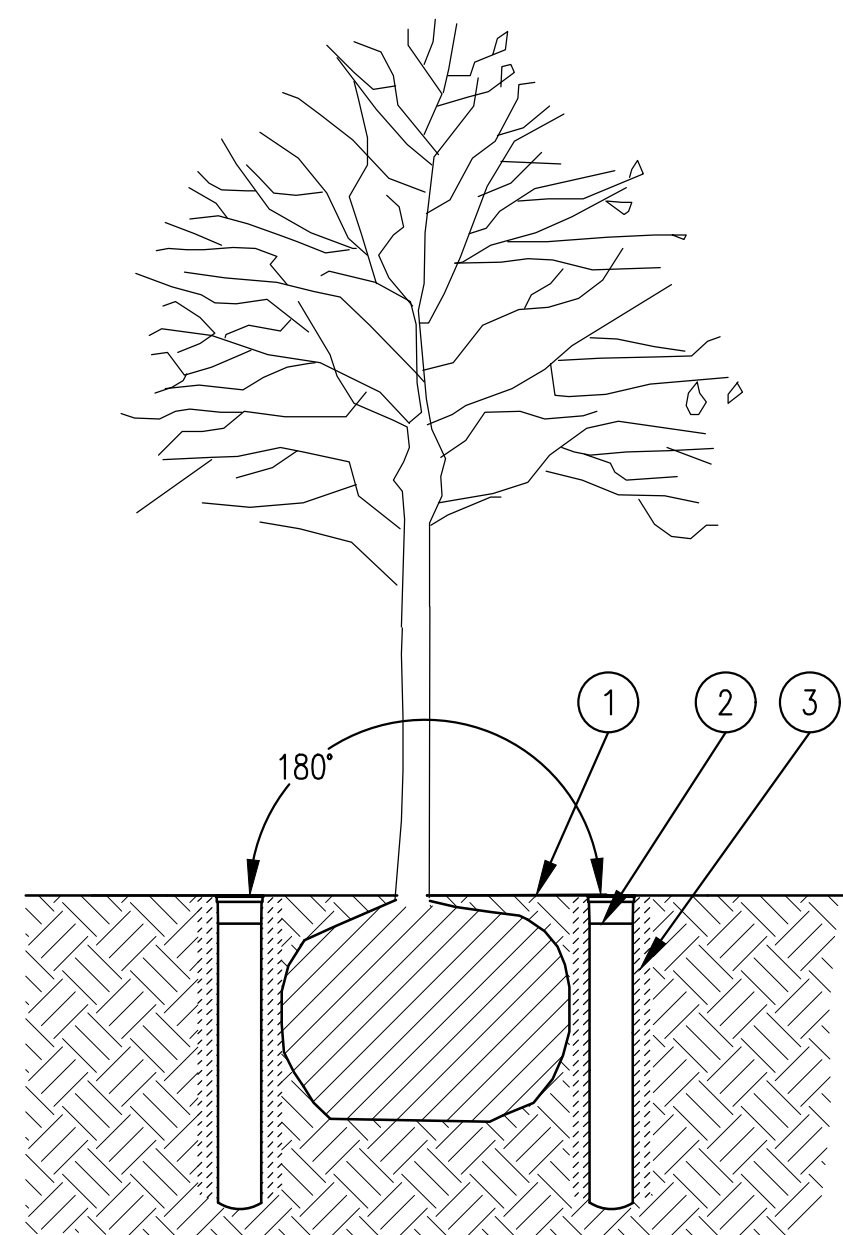
* RAIN BIRD ROOT WATERING SYSTEM INCLUDES CANISTER, BUBBLER, SWING JOINT RISER, SOCK AND GRATE



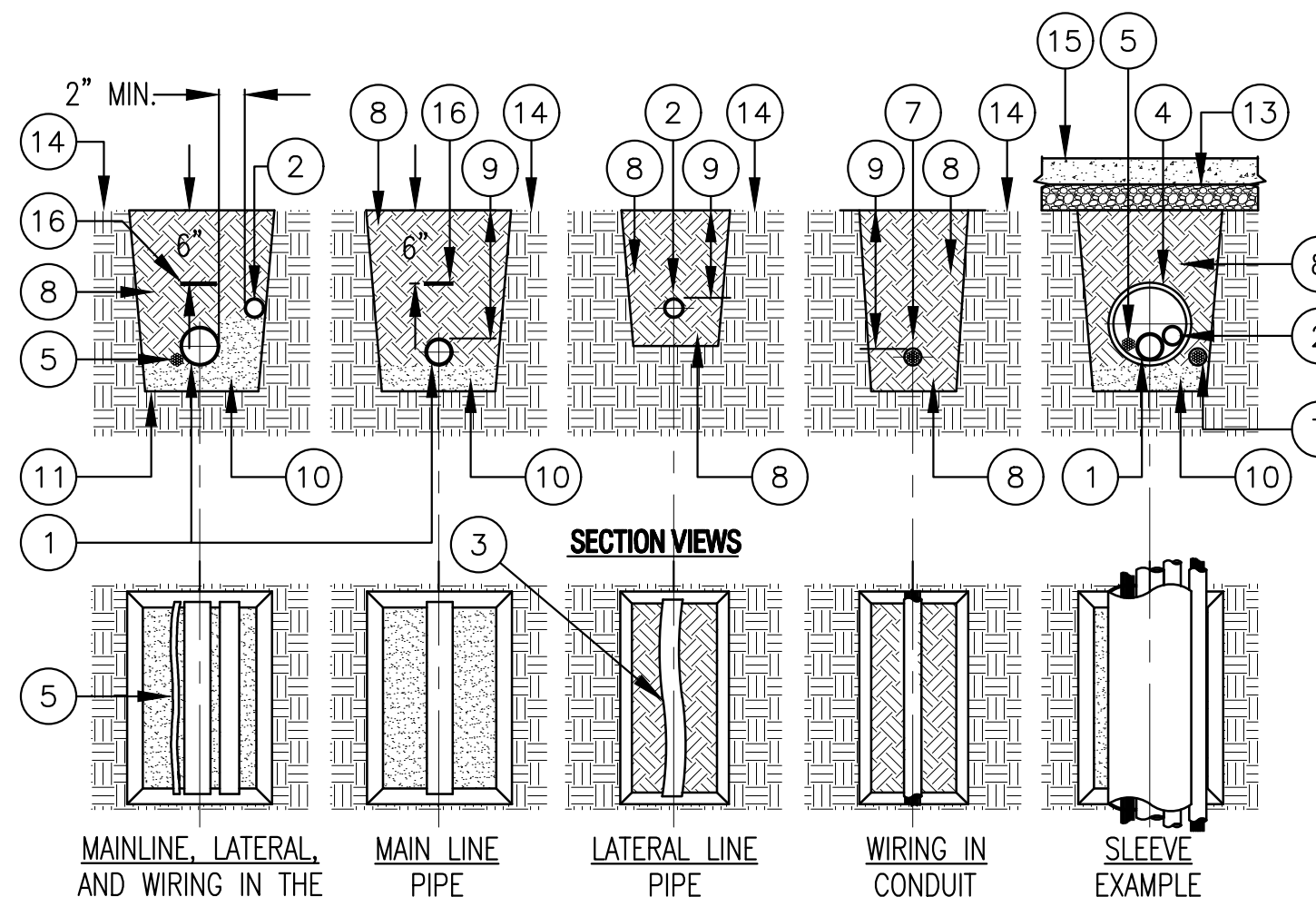
**1 ROOT WATERING SYSTEM
 NOT TO SCALE**

- FINISH GRADE
- ROOT WATERING SYSTEM: RAIN BIRD RWS-BCG (INCLUDES BUBBLER, CHECK VALVE AND GRATE)
- RAIN BIRD RWS SOCK

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



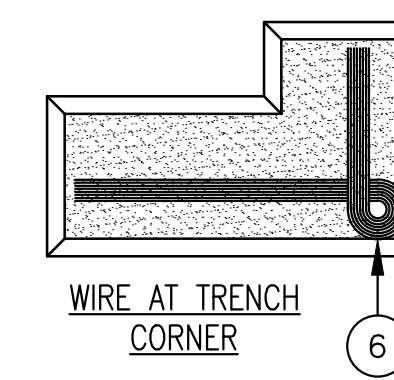
**2 TREE WATERING SYSTEM
 NOT TO SCALE**



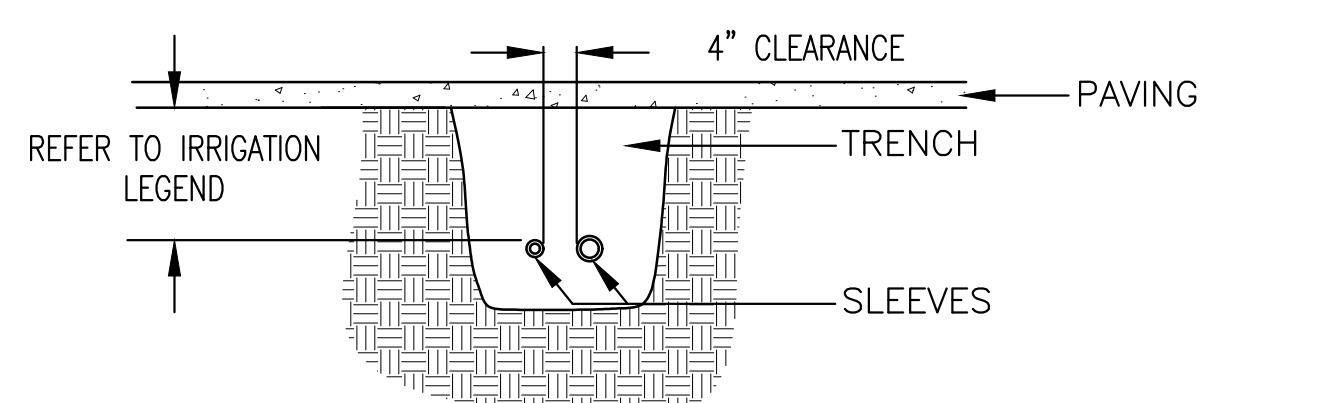
SECTION VIEWS

PLAN VIEWS

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

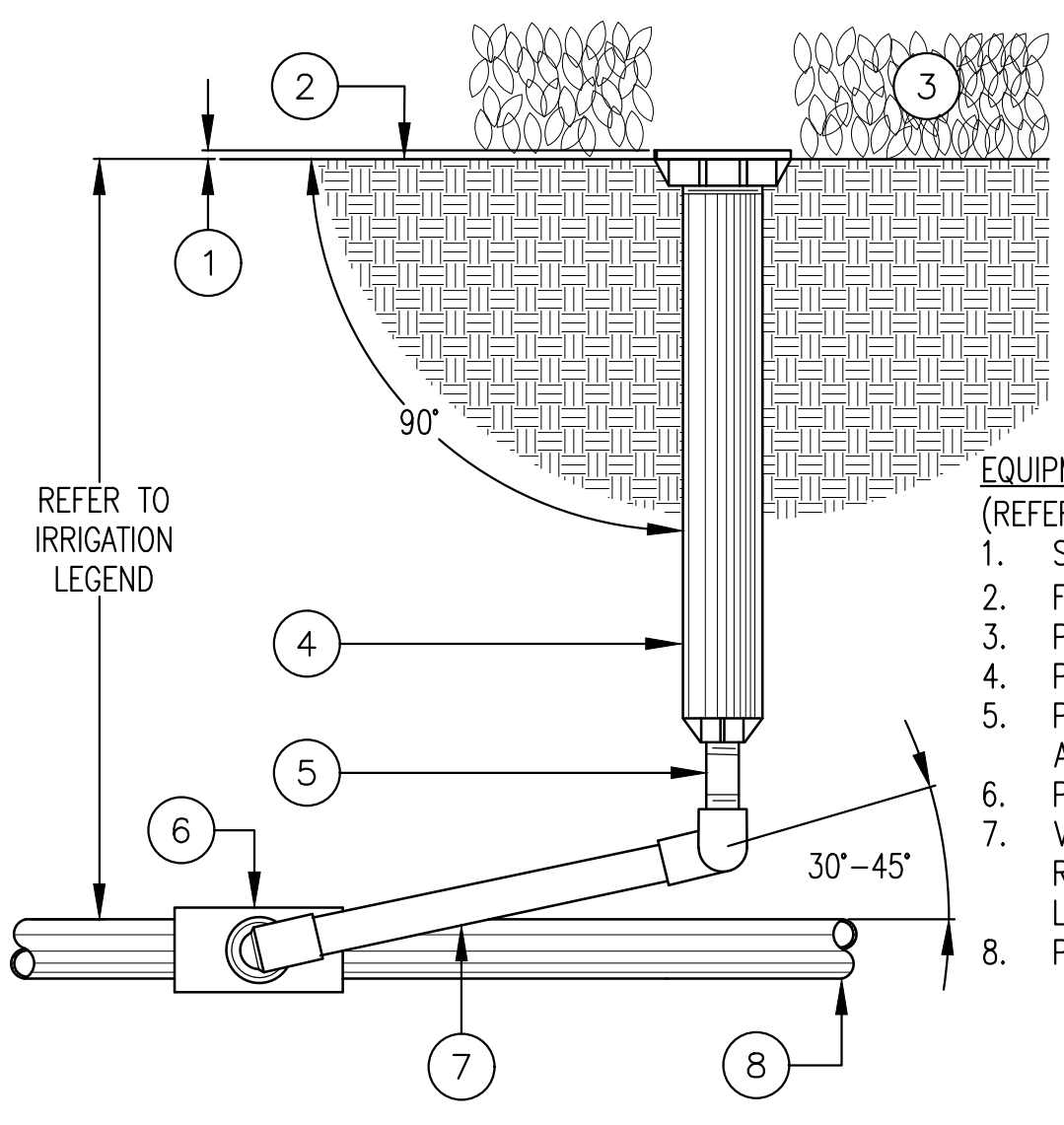


WIRE AT TRENCH CORNER



- NOTES:
- IRRIGATION SLEEVES TO BE PVC CLASS 200 OR SCH 40 PIPE. USE THE PIPE WITH THE THICKEST WALL DIMENSION.
 - JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
 - 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.
 - MECHANICALLY TAMP BACKFILL TO 95% COMPACTION.
 - 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**

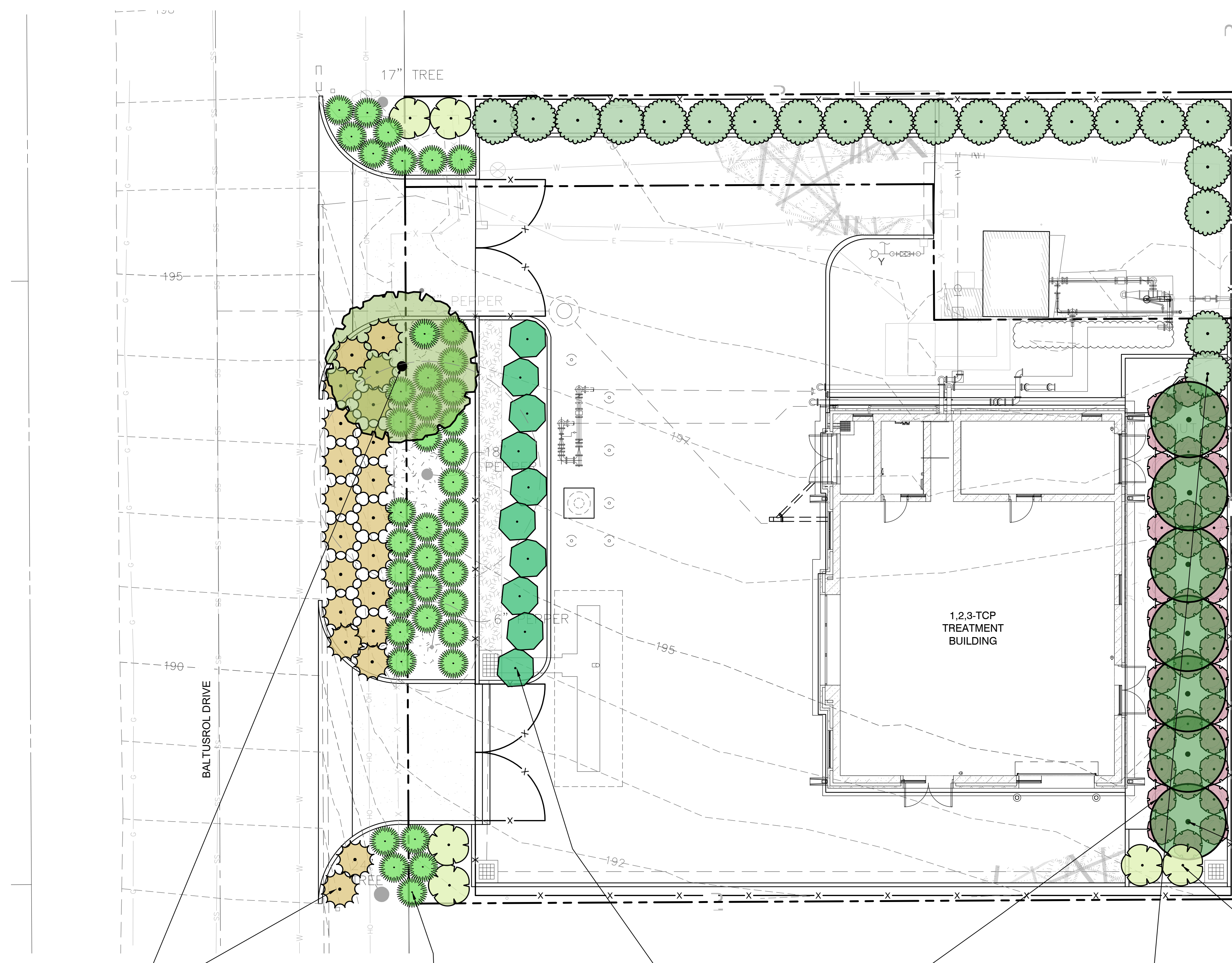


- EQUIPMENT LIST:
 (REFER TO BUBBLED NUMBERS)
- SEE INSTALLATION NOTE 1
 - FINISH GRADE/TOP OF MULCH
 - PLANT MATERIAL
 - POP-UP HEAD
 - PVC SCH 80 TBE NIPPLE, LENGTH AS REQUIRED
 - PVC SCH 40 TEE OR ELL
 - VENDOR FABRICATED SWING JOINT, RAIN BIRD, TORO, DURA, OR LASCO
 - PVC LATERAL PIPE

- INSTALLATION NOTES:
- INSTALL TOP OF HEAD 1" ABOVE FINISH GRADE. SIDE INLET USE IS NOT PERMITTED.
 - INSTALL HEAD PERPENDICULAR TO FINISHED GRADE.
 - PRIOR TO NOZZLE INSTALLATION, FLUSH HEAD WITH WATER USING MANUFACTURER'S FLUSH NOZZLE TO ELIMINATE DEBRIS FROM WITHIN HEAD AND RISER.
 - 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**










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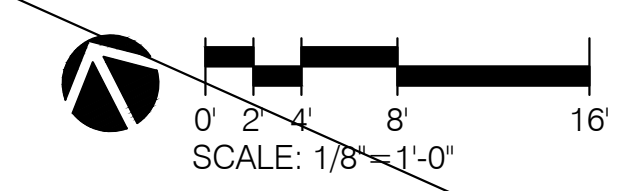


DESIGN NARRATIVE

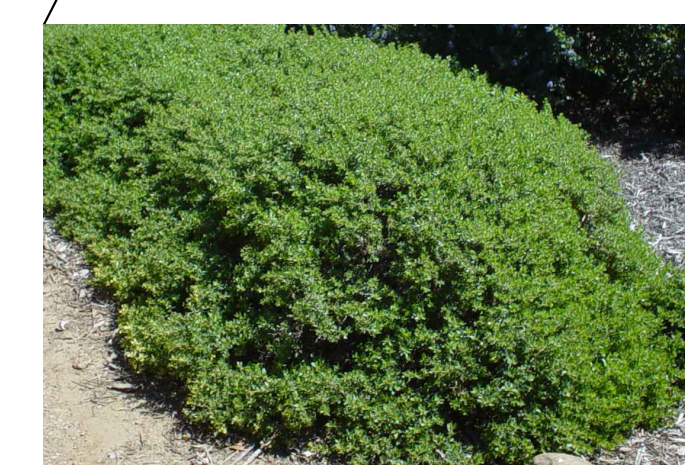
THE SITE, TUCKED INTO A RESIDENTIAL NEIGHBORHOOD, IS ON A HILLSIDE AND CURRENTLY RESEMBLES A SMALL PARK OR OPEN SPACE. THE LANDSCAPE DESIGN FOCUSES ON SMOOTHLY FITTING THE SITE INTO THE SURROUNDING NEIGHBORHOOD AND MAINTAINING A RESIDENTIAL APPEARANCE. PERIMETER SCREENING OF THE FACILITY IS PRIORITIZED 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)



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)



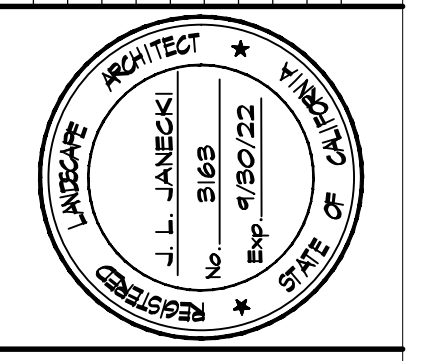
PRUNUS ILICIFOLIA
(HOLLY LEAF CHERRY)

PLANT IMAGES

PRELIMINARY - NOT FOR CONSTRUCTION

JONI L. JANECKI & ASSOCIATES
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 PHONE 831.423.6040 | WWW.JLJA.COM
 California Landscape Architect License 3163

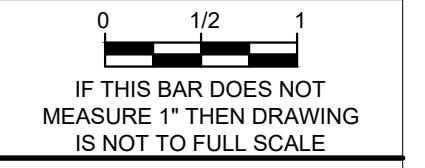
NO.	BY	CHK./APP.
REVISIONS AND RECORD OF USE		
DATE		



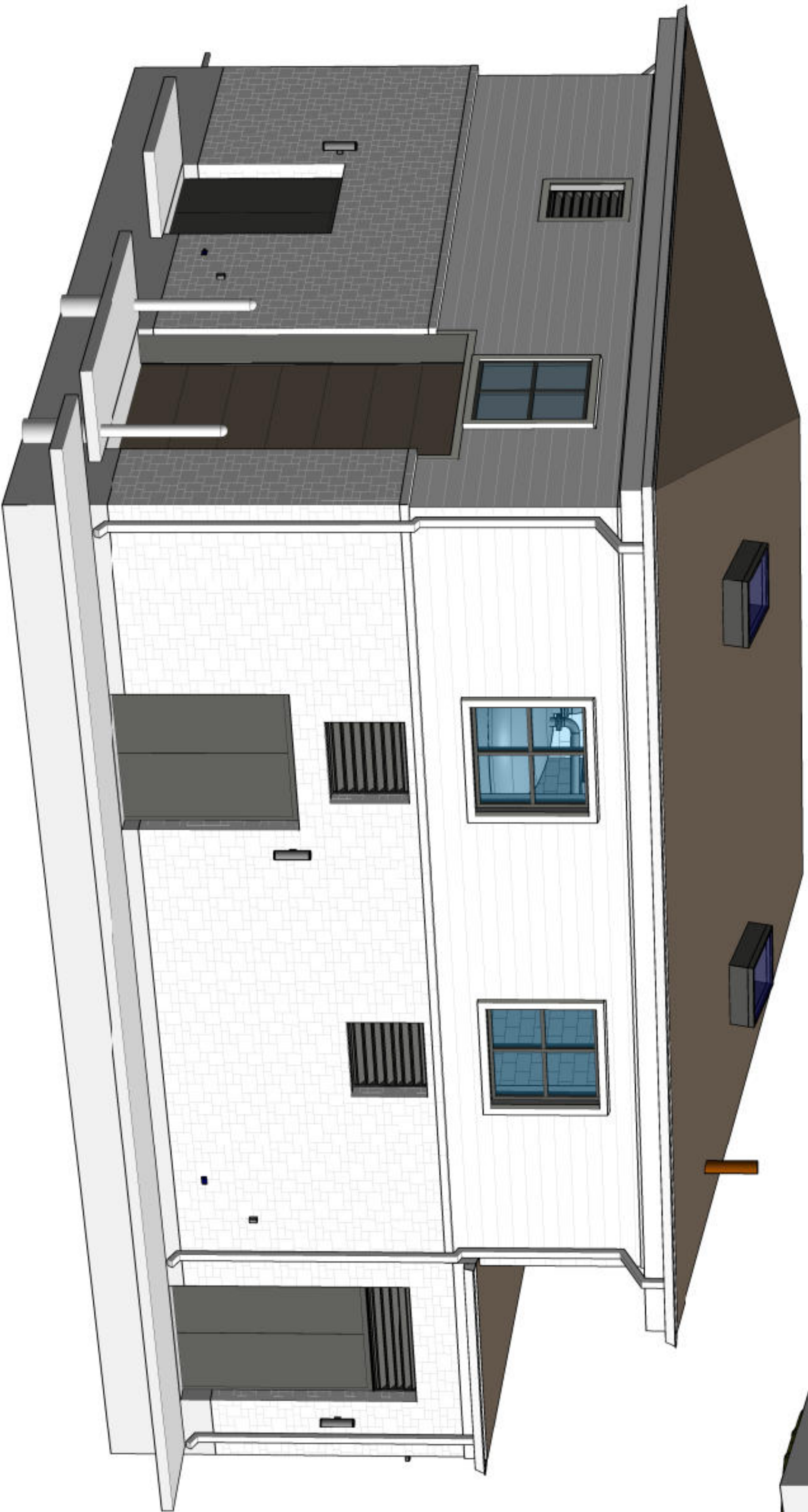
BLACK & VEATCH
 Black & Veatch Corporation

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

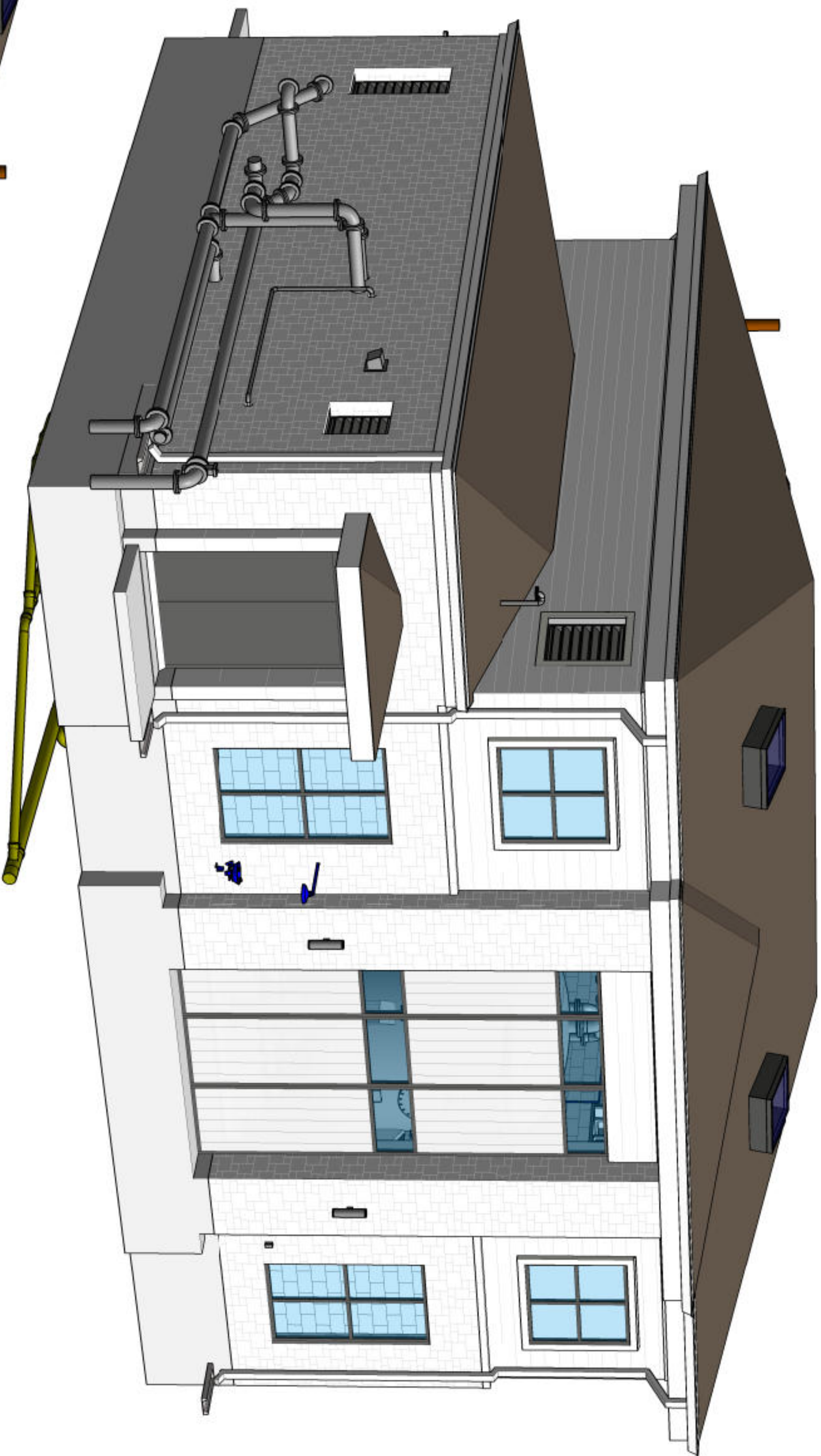
DESIGNED: GL
 DETAILED: MO
 CHECKED: GL
 APPROVED: JLJ
 DATE: JULY 2021



PROJECT NO.
 407941
 L-09
 SHEET
 X OF X



SOUTHEAST PERSPECTIVE



NORTHWEST PERSPECTIVE

GENERAL SHEET NOTES

1. PERSPECTIVE VIEWS ARE FOR GENERAL REFERENCE ONLY

PRELIMINARY - NOT FOR CONSTRUCTION

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

TREATMENT BUILDING
ARCHITECTURAL
PERSPECTIVES



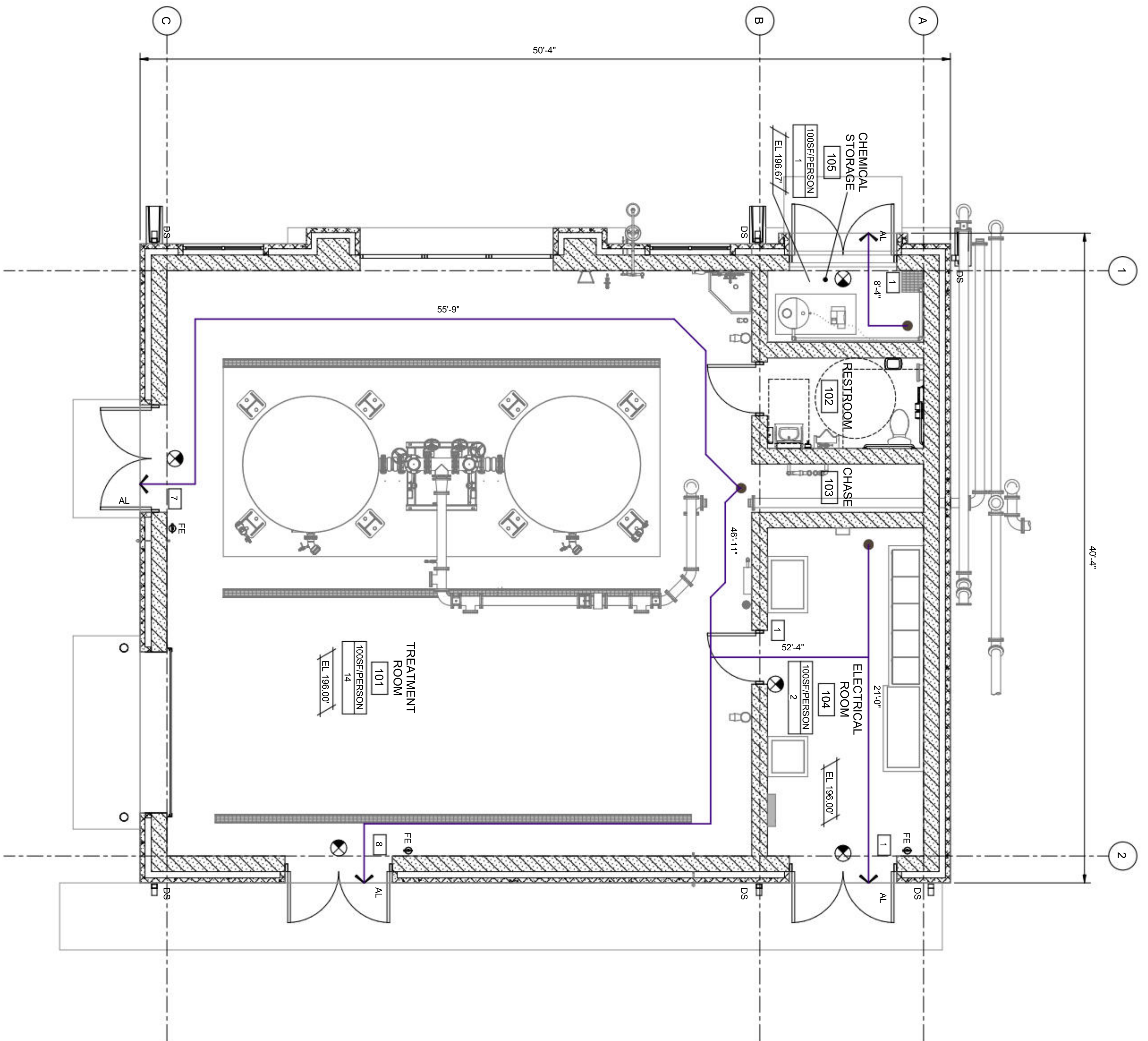
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DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNER: CA
DETAILED: ANH
CHECKED: PDR
APPROVED: -
DATE: JULY 2021
PROJECT NO: 407941
A-01 SHEET OF

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



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

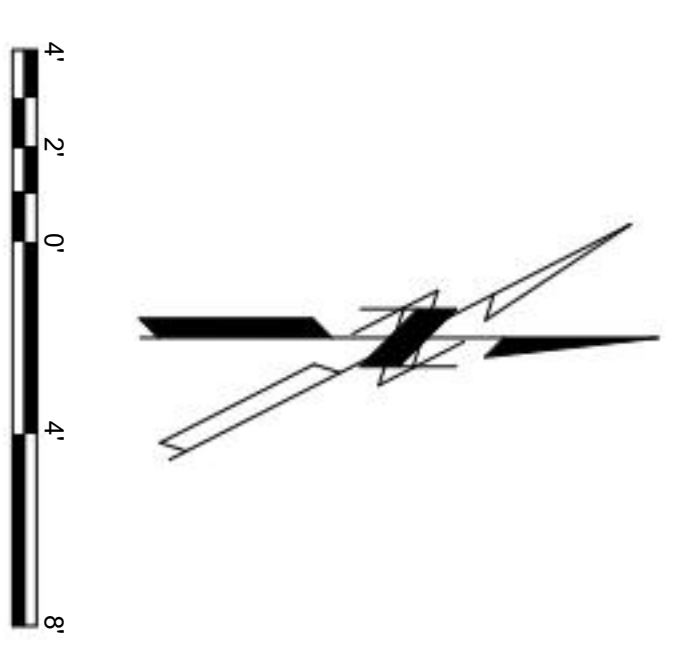
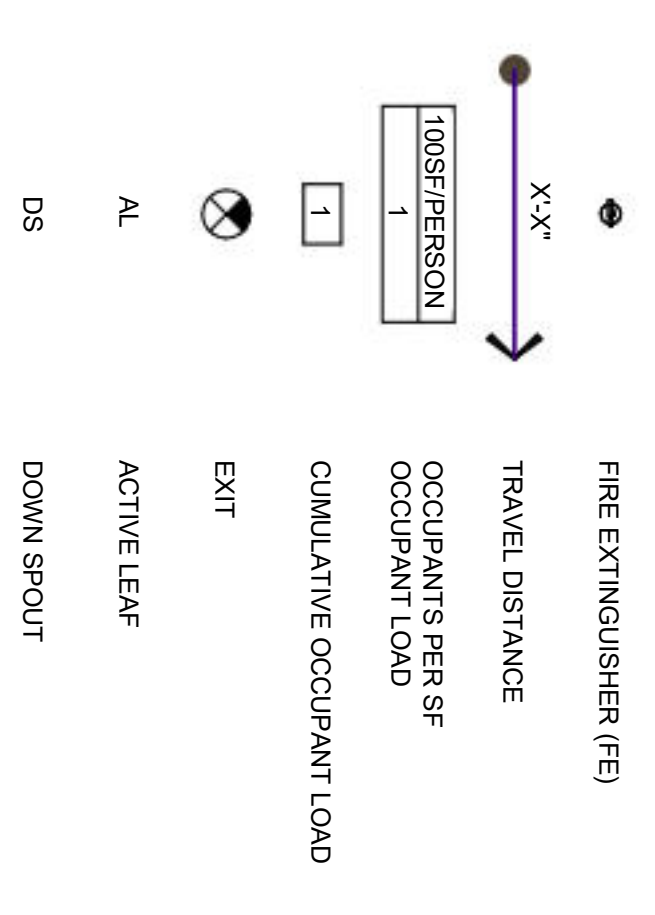
GENERAL SHEET NOTES

SHEET KEYNOTES

BUILDING CODE ANALYSIS

APPLICABLE BUILDING CODES: 2019 CALIFORNIA BUILDING CODE	
PUMP STATION	F2
OCCUPANCY	2021 SF TOTAL
ACTUAL FLOOR AREA	1 STORY (20.33 FT)
ACTUAL HEIGHT	TYPE IIB
TYPE OF CONSTRUCTION	62,000 SF
ALLOWABLE AREA	2 STORIES (75 FT)
ALLOWABLE HEIGHT	17 PERSONS
DESIGN OCCUPANT LOAD	NOT REQUIRED PER CBC SECTION - 11B-203.3 MACHINERY SPACES
ADA ACCESSIBILITY	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
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

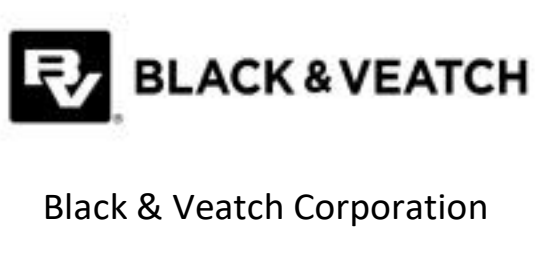
LIFE SAFETY LEGEND



PRELIMINARY - NOT FOR CONSTRUCTION

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

TREATMENT BUILDING
ARCHITECTURAL
LIFE SAFETY PLAN AND BUILDING CODE ANALYSIS

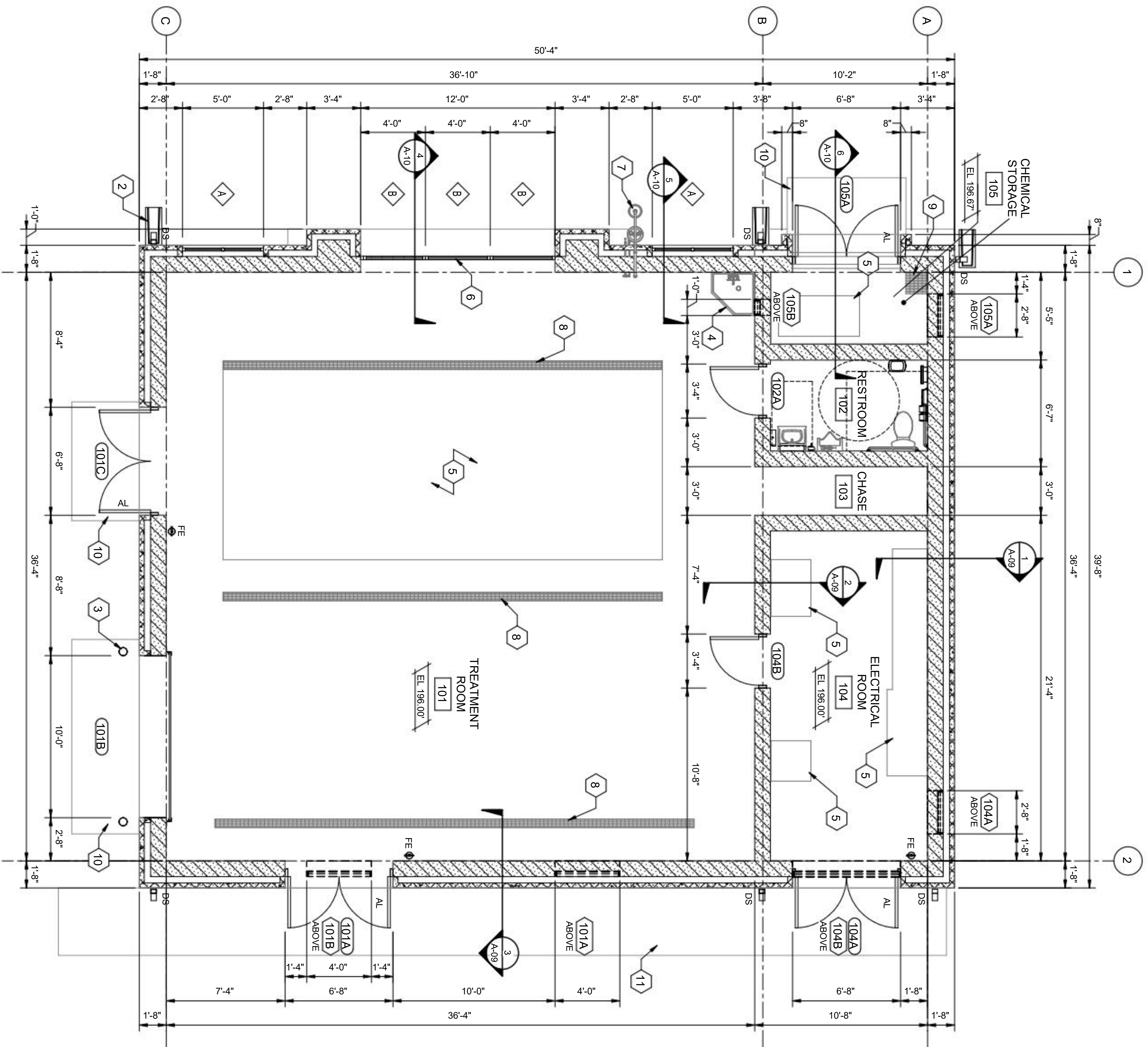


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DESIGNED: CA
 DETAILED: ANH
 CHECKED: PDR
 APPROVED: -
 DATE: JULY 2021

PROJECT NO.
407941

A-02
SHEET
OF



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

GENERAL SHEET NOTES

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 (K3)
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

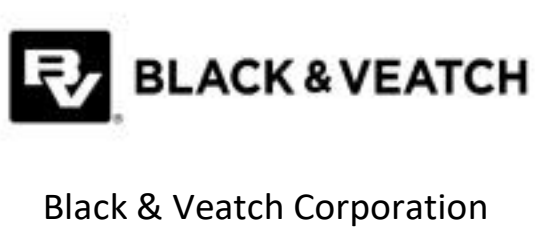
SHEET KEYNOTES

ARCHITECTURAL SYMBOL LEGEND

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

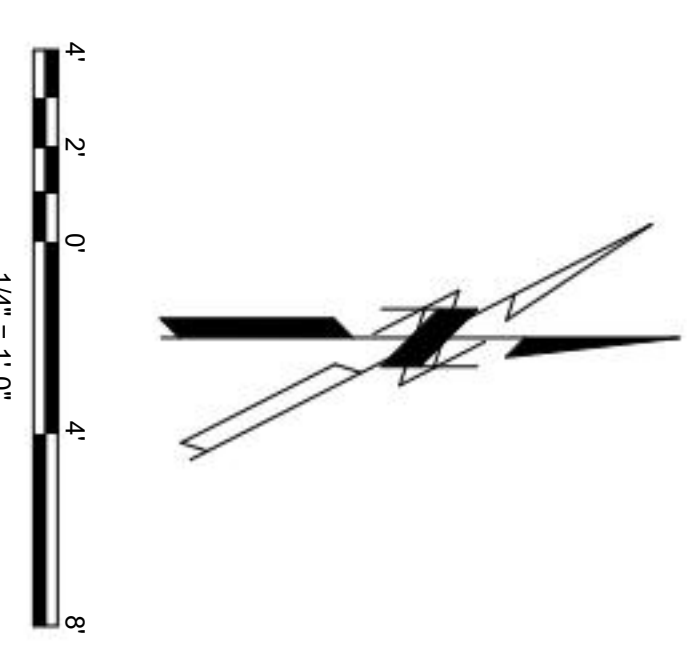
SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
FLOOR PLAN



DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

PRELIMINARY - NOT FOR CONSTRUCTION

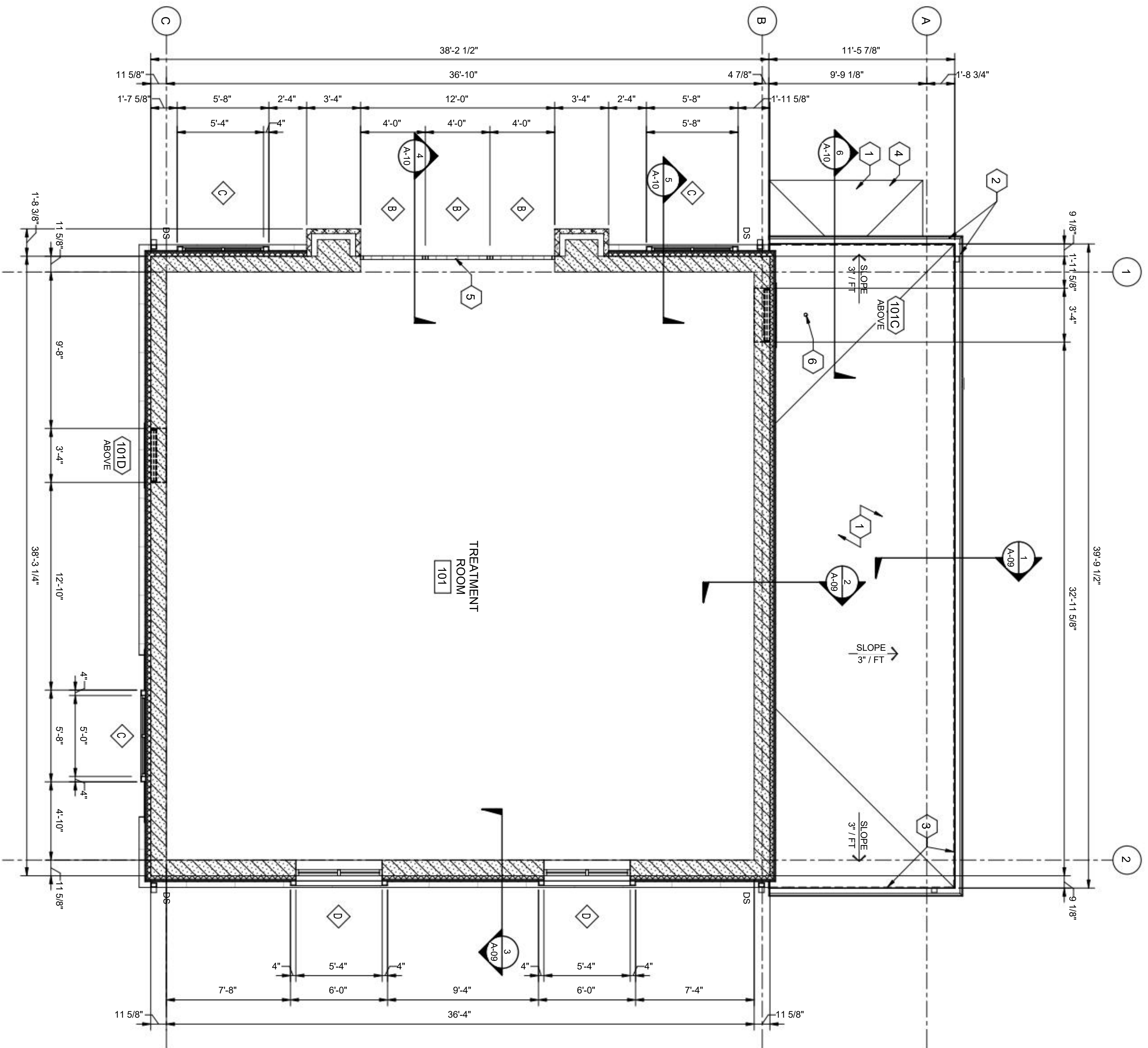


DESIGNED: CA
 DETAILED: ANH
 CHECKED: PDR
 APPROVED: -
 DATE: JULY 2021

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

PROJECT NO.
407941

A-04
SHEET
OF



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

GENERAL SHEET NOTES

SHEET KEYNOTES

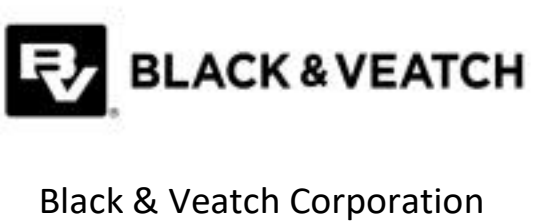
1. COMPOSITE SHINGLE ROOFING SYSTEM (TYP)
2. PRE-FINISHED METAL GUTTER (TYP)
3. EDGE OF BUILDING BELOW (TYP)
4. ENTRY CANOPY BELOW
5. REMOVABLE WALL PANEL SYSTEM (K3)
6. ROOF VENT - SEE PROCESS DRAWINGS

PRELIMINARY - NOT FOR CONSTRUCTION



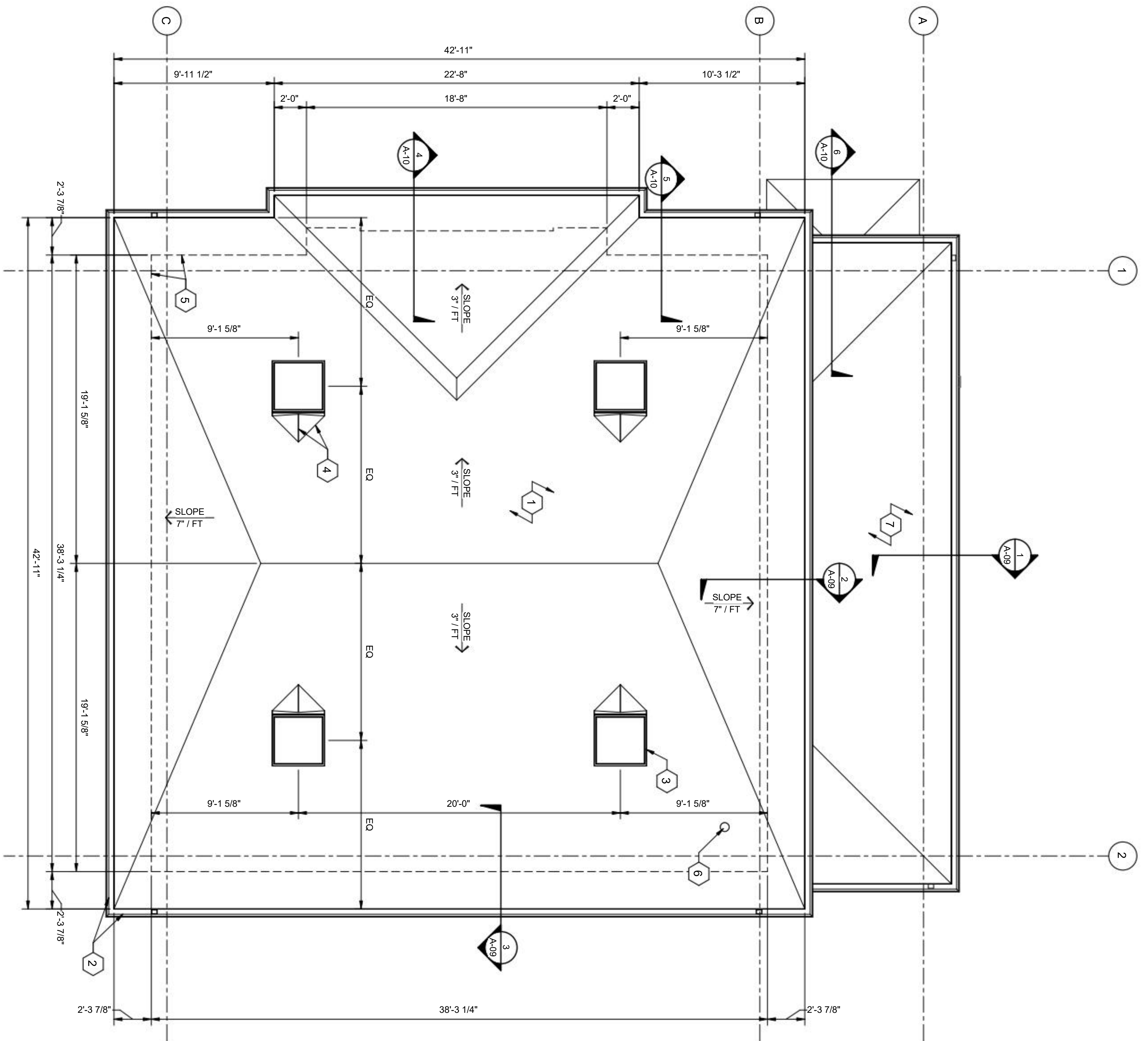
SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ARCHITECTURAL
CLERESTORY PLAN



DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNED: CA	0	12
DETAILED: ANH	1	1
CHECKED: PDR		
APPROVED: -		
DATE: JULY 2021		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE		
PROJECT NO. 407941	A-05 SHEET OF	



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-06 FOR DETAILS OF ROOF BELOW

DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP



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

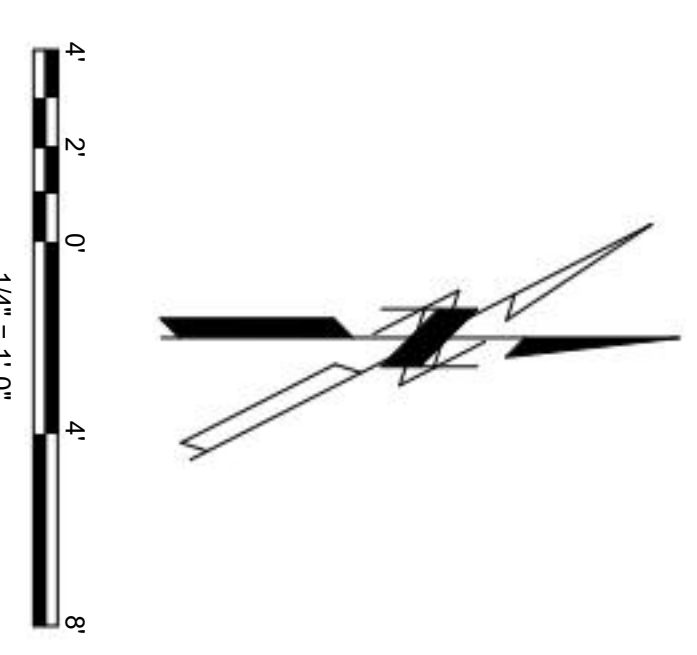
TREATMENT BUILDING
ARCHITECTURAL
ROOF PLAN

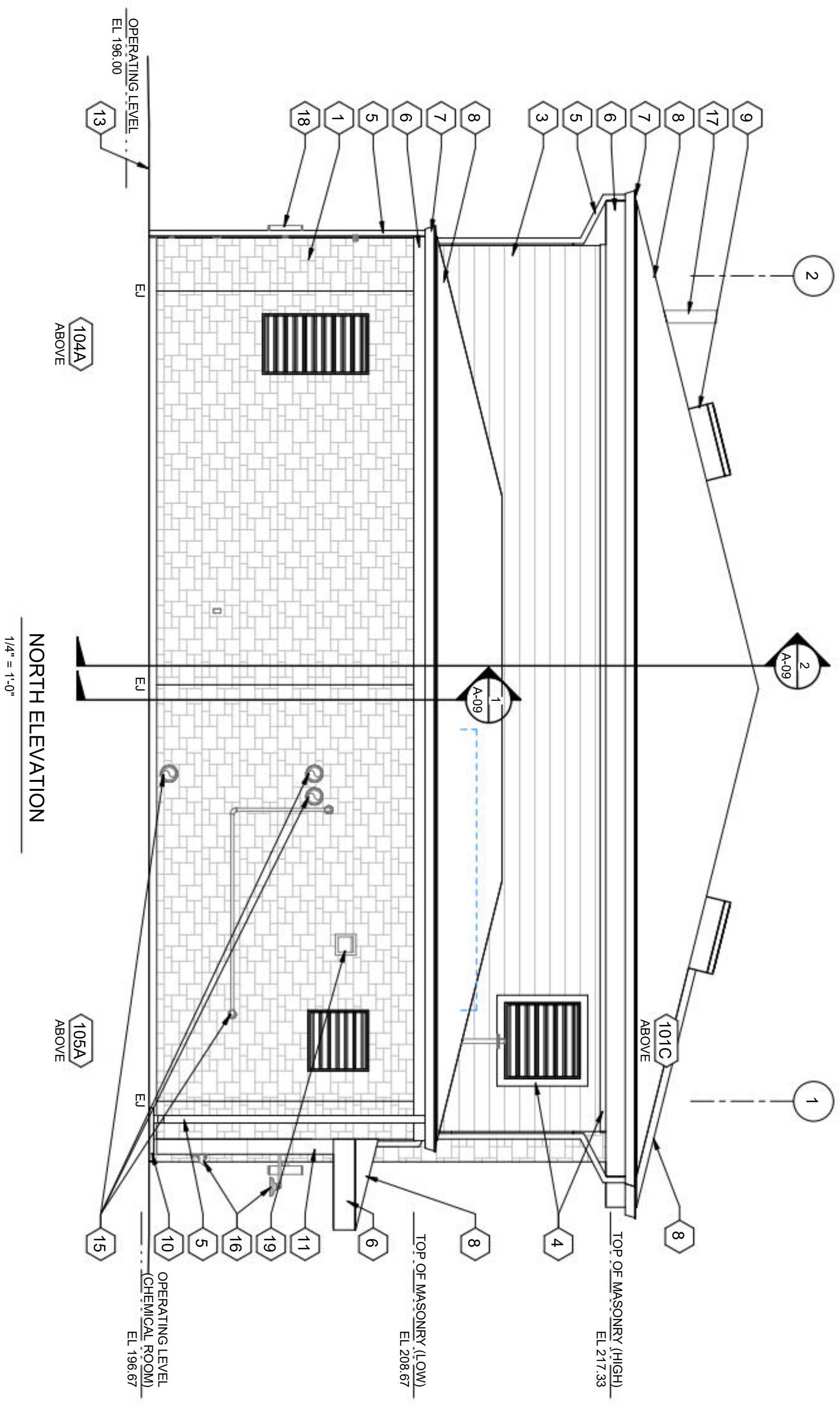
DESIGNED: CA
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PROJECT NO.
407941

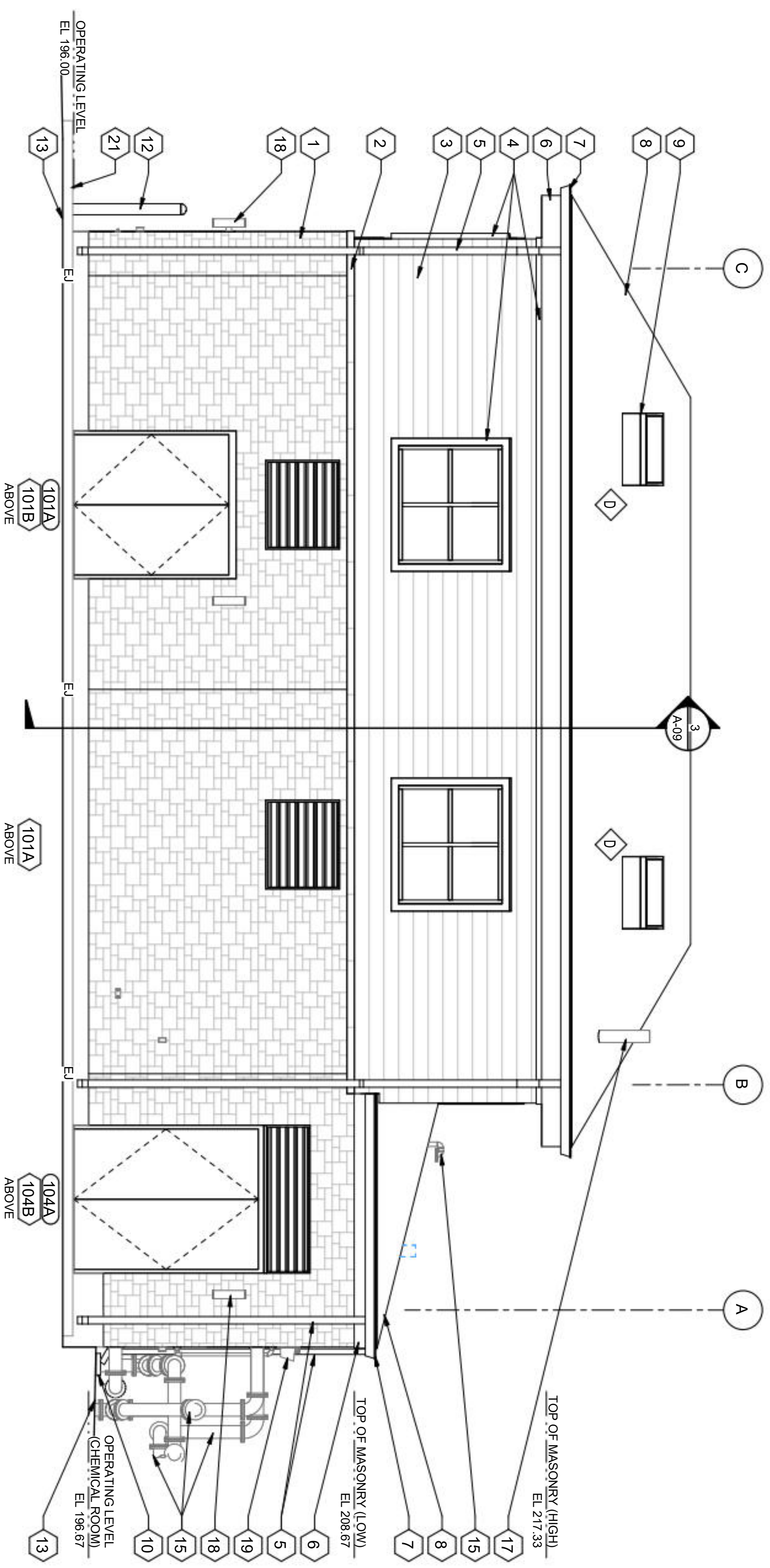
A-06
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION





NORTH ELEVATION
1/4" = 1'-0"



EAST ELEVATION
1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

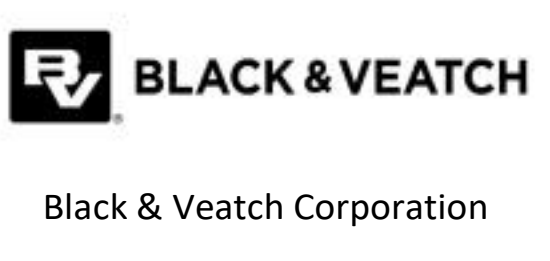
1. STONE VENEER (TYP)
2. CAST STONE BANDING (TYP)
3. FIBER CEMENT LAP SIDING (TYP)
4. FIBER CEMENT BOARD TRIM (TYP)
5. PRE-FINISHED METAL DOWNSPOUT (TYP)
6. PRE-FINISHED METAL FASCIA (TYP)
7. PRE-FINISHED METAL GUTTER (TYP)
8. COMPOSITE SHINGLE ROOFING SYSTEM (TYP)
9. PRE-FINISHED METAL SKYLIGHT (TYP)
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 PLUMBING 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



PRELIMINARY - NOT FOR CONSTRUCTION

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

TREATMENT BUILDING
ARCHITECTURAL
BUILDING ELEVATIONS



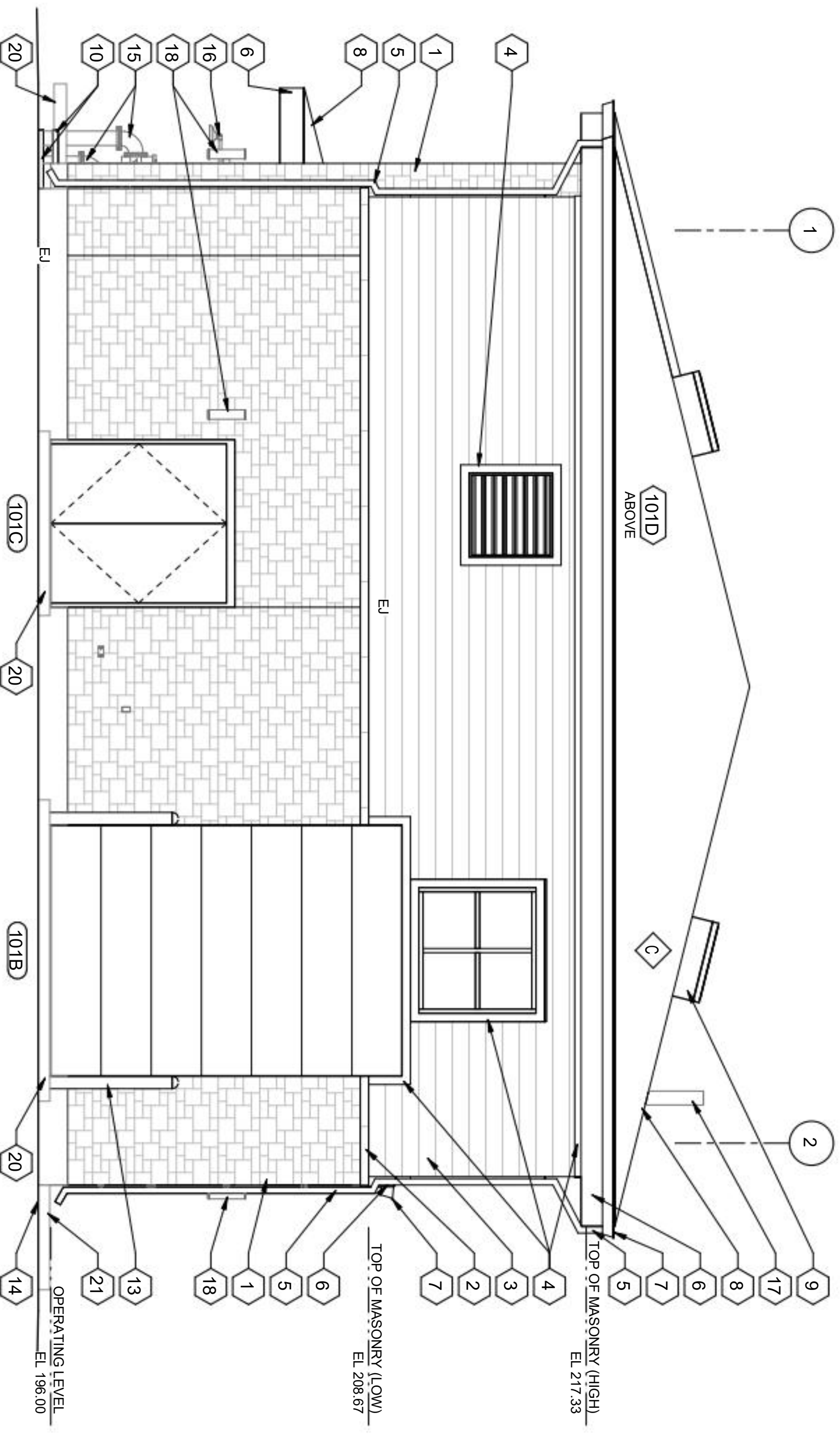
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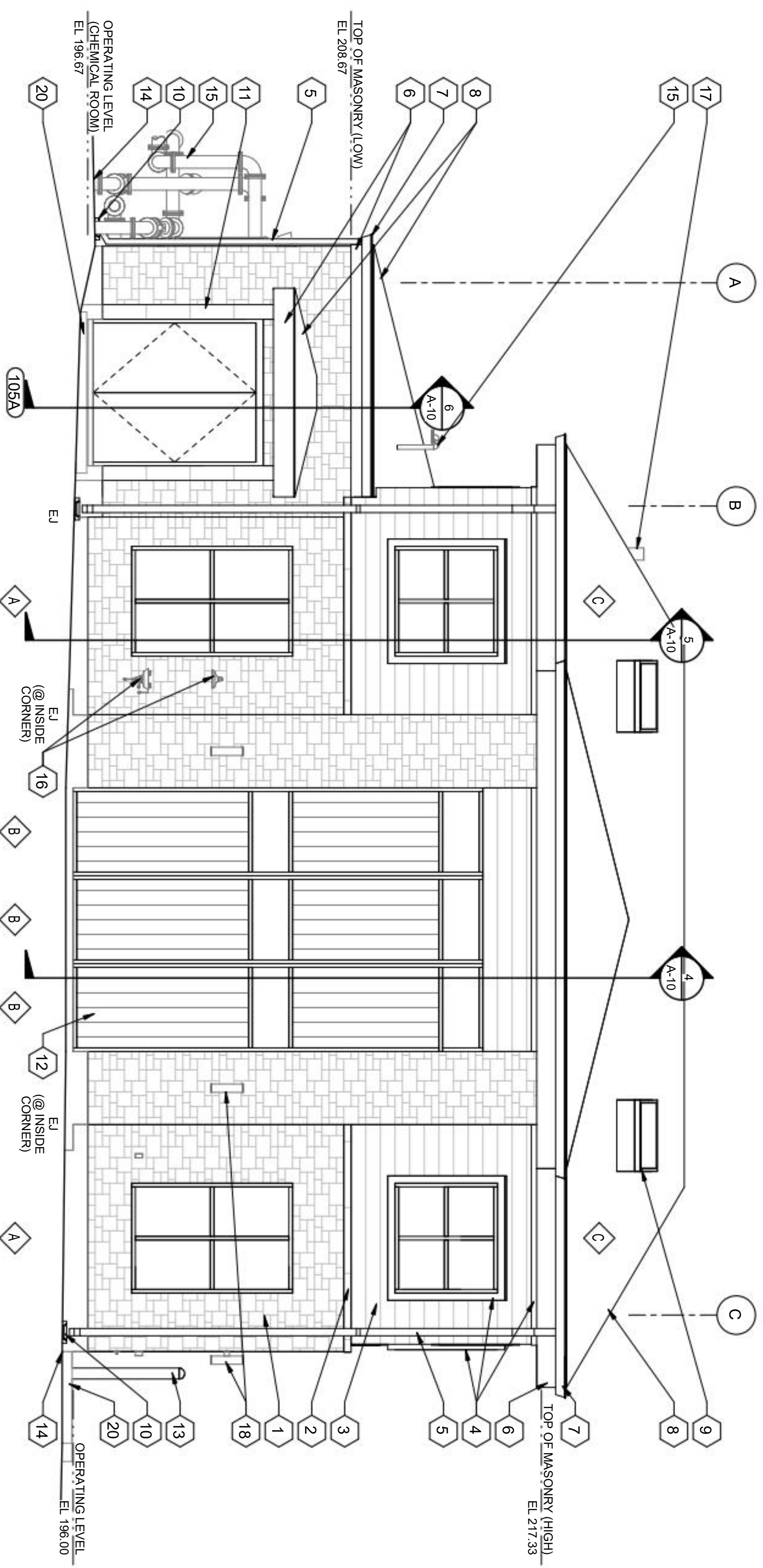
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

A-07
SHEET
OF



SOUTH ELEVATION
1/4" = 1'-0"



WEST ELEVATION
1/4" = 1'-0"

GENERAL SHEET NOTES

1. SHEET KEYNOTES
2. STONE VENEER (TYP)
3. CAST STONE BANDING (TYP)
4. FIBER CEMENT LAP SIDING (TYP)
5. FIBER CEMENT BOARD TRIM (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 (K3)
13. CONCRETE BOLLARD - SEE CIVIL DRAWINGS
14. FINISH GRADE - SEE CIVIL DRAWINGS
15. PROCESS PIPING - SEE PROCESS DRAWINGS (TYP)
16. EMERGENCY SHOWER - SEE PLUMBING 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

DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP



BLACK & VEATCH
Black & Veatch Corporation

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

TREATMENT BUILDING
ARCHITECTURAL
BUILDING ELEVATIONS

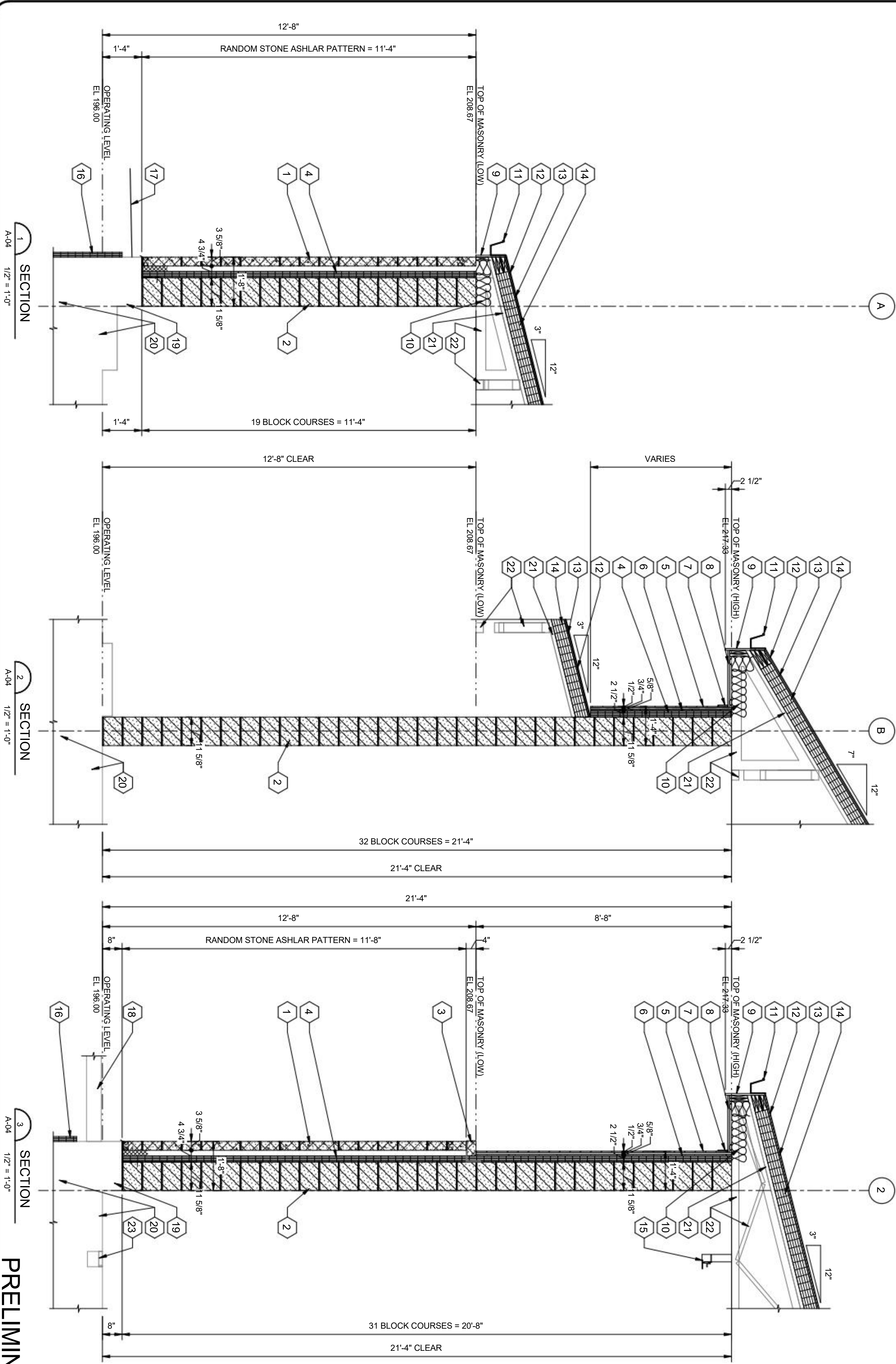
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PRELIMINARY - NOT FOR CONSTRUCTION

A-08
SHEET
OF

IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING
IS NOT TO FULL SCALE
PROJECT NO.
407941

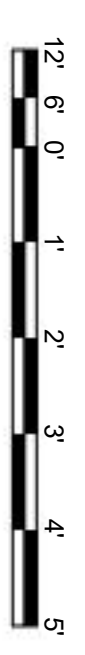


GENERAL SHEET NOTES

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 TRUSSES - SEE STRUCTURAL DRAWINGS
23. TRENCH DRAIN - SEE PLUMBING AND STRUCTURAL DRAWINGS

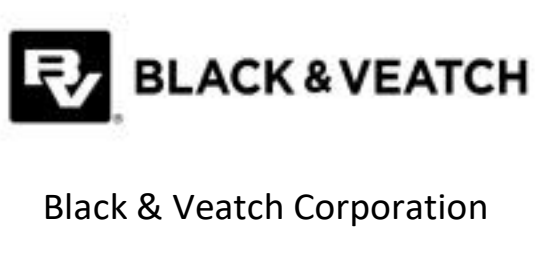


PRELIMINARY - NOT FOR CONSTRUCTION

A-09
SHEET

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

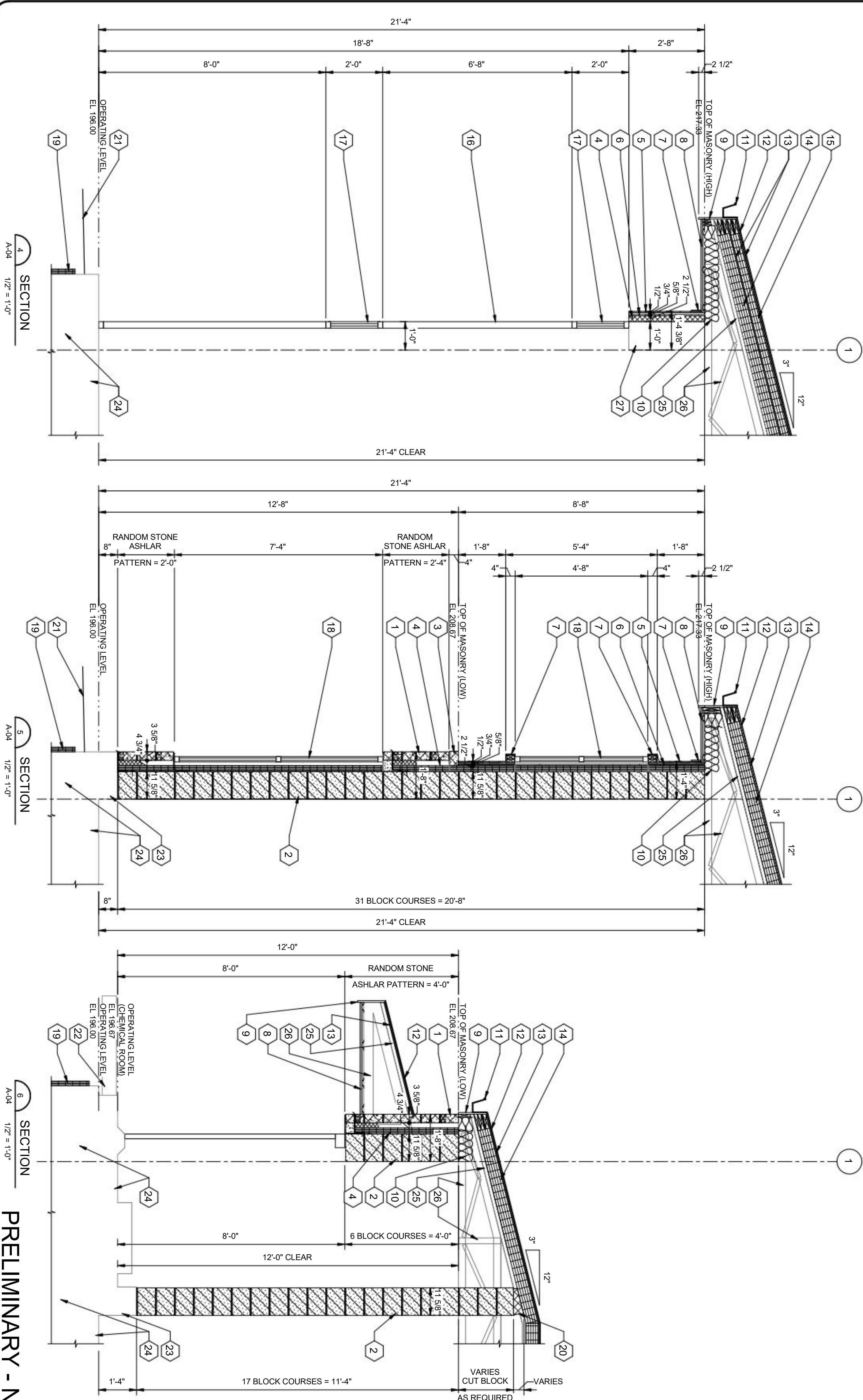
TREATMENT BUILDING
ARCHITECTURAL
WALL SECTIONS



DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

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

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
 PROJECT NO. 407941



- GENERAL SHEET NOTES**
- FOR VERTICAL REINFORCING AND BOND BEAMS IN MASONRY DESIGN, SEE STRUCTURAL DRAWINGS.
 - FOR HORIZONTAL JOINT REINFORCING, SEE SPECIFICATION SECTION 04200.

SHEET KEYNOTES

- 4" STONE VENEER
- 12" CONCRETE BLOCK
- CAST STONE BANDING
- 2 1/2" RIGID INSULATION (R-22)
- 8" FIBER CEMENT BOARD LAP SIDING
- 5/8" SHEATHING
- FIBER CEMENT BOARD TRIM
- PRE-FINISHED METAL SOFFIT
- PRE-FINISHED METAL FASCIA
- 6" BATT INSULATION (R-19)
- PRE-FINISHED METAL GUTTER
- COMPOSITE SHINGLE ROOFING SYSTEM
- 1 1/2" COVERBOARD
- 5" RIGID INSULATION (R-30)
- RIGID INSULATION - AS REQUIRED
- REMOVABLE WALL PANEL SYSTEM
- FIXED WINDOW - INTEGRATED IN THE REMOVABLE WALL PANEL SYSTEM
- WINDOW VENEER
- 2" FOUNDATION INSULATION (R-10)
- COMPRESSIBLE FILLER - AS REQUIRED
- FINISH GRADE - SEE CIVIL DRAWINGS
- CONCRETE STOOP - SEE CIVIL DRAWINGS
- CONCRETE CURB - SEE STRUCTURAL DRAWINGS
- CONCRETE SLAB AND FOUNDATION - SEE STRUCTURAL DRAWINGS
- METAL DECKING - SEE STRUCTURAL DRAWINGS
- ROOF TRUSS - SEE STRUCTURAL DRAWINGS
- CONCRETE BEAM - SEE STRUCTURAL DRAWINGS

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE



**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

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PROJECT NO.
407941

A-10
SHEET OF

PRELIMINARY - NOT FOR CONSTRUCTION

BASIC LOADING CRITERIA

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

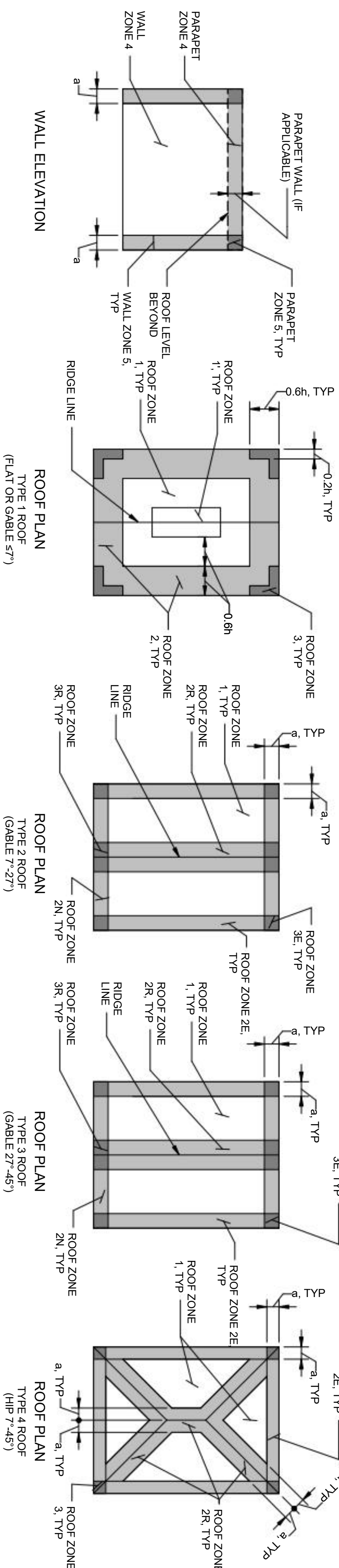
1. DEAD LOAD	.....	CALCULATED
2. LIVE LOADS:	.....
OPERATING AND PROCESS FLOORS	.....	250 PSF
ELECTRICAL AND CONTROL ROOM FLOORS	.....	300 PSF
CHEMICAL STORAGE ROOMS	.....	300 PSF
ROOF	.....	20 PSF (UNREDUCED)
3. SEISMIC LOAD:	.....
MAPPED MCE SHORT PERIOD SPECTRAL RESPONSE ACCELERATION (S ₁)	.....	2.058g
MAPPED MCE ONE SECOND PERIOD SPECTRAL RESPONSE ACCELERATION (S ₂)	.....	0.789g
DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (S _{s1})	.....	1.372g
DESIGN SPECTRAL RESPONSE ACCELERATION AT ONE SECOND PERIOD (S _{s1})	.....	0.893g
SITE CLASS	.....	D
4. WIND LOAD:	.....
3 SECOND GUST WIND SPEED	.....	99 MPH
GROUND ELEVATION FACTOR (K _z)	.....	1.0
EXPOSURE	.....	C

TREATMENT BUILDING

INTERNAL PRESSURE COEFFICIENT	.....	40.55										
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	-82.0	-82.0	-82.0	-82.0	-50.4	-41.7	-41.7	-41.7	-41.7	-41.7	-41.7	-41.7
ROOF NEG PRESSURE, ZONES 2n, 2i	-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:

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



WIND ZONE DIAGRAMS

COMPONENTS AND CLADDING WIND LOAD CRITERIA FOR BUILDINGS

NO SCALE

NO.	BY	CHK	APP

REVISIONS AND RECORD OF USE

DATE



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

TREATMENT BUILDING
STRUCTURAL
STRUCTURAL LOADING CRITERIA

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

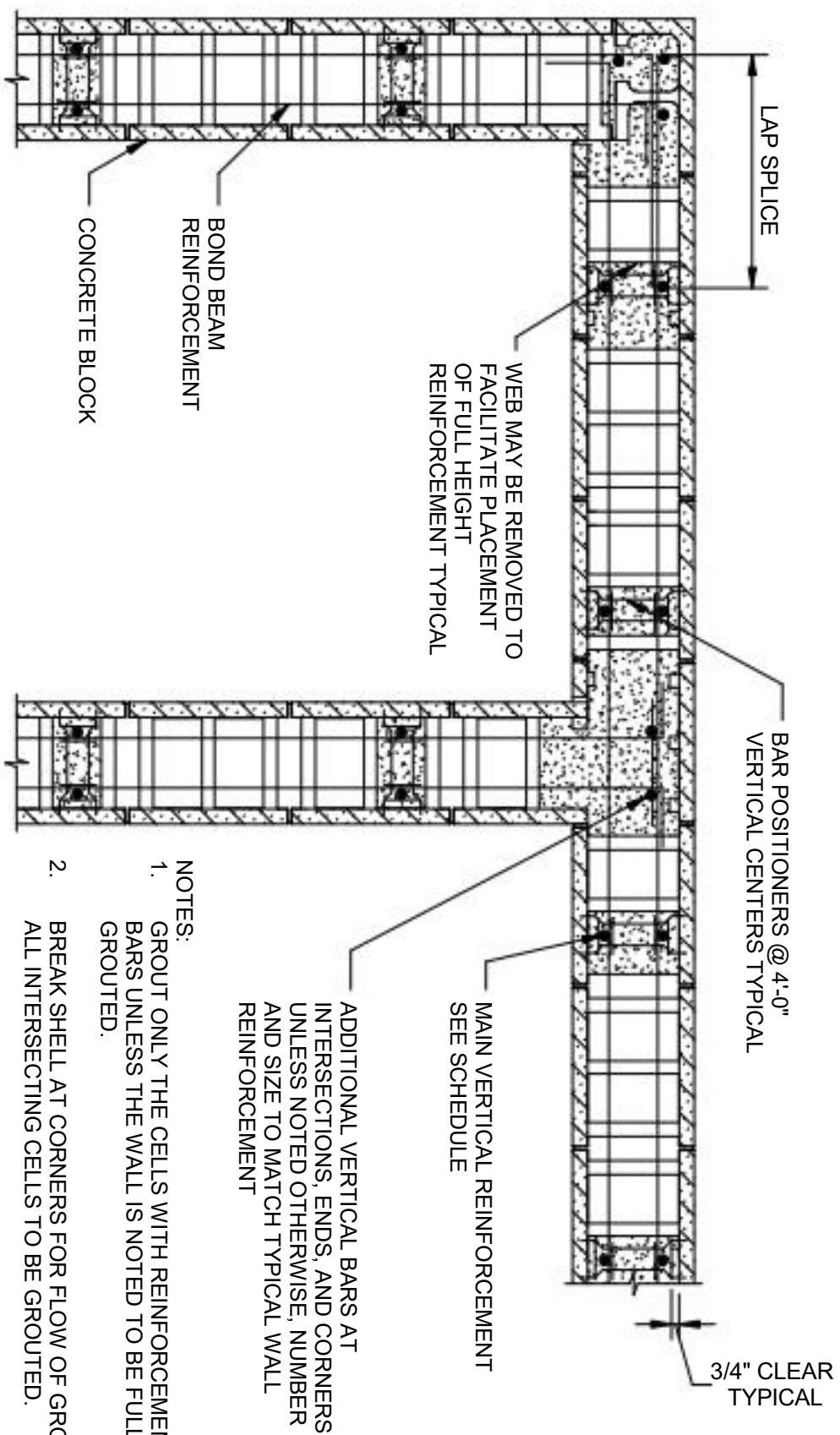
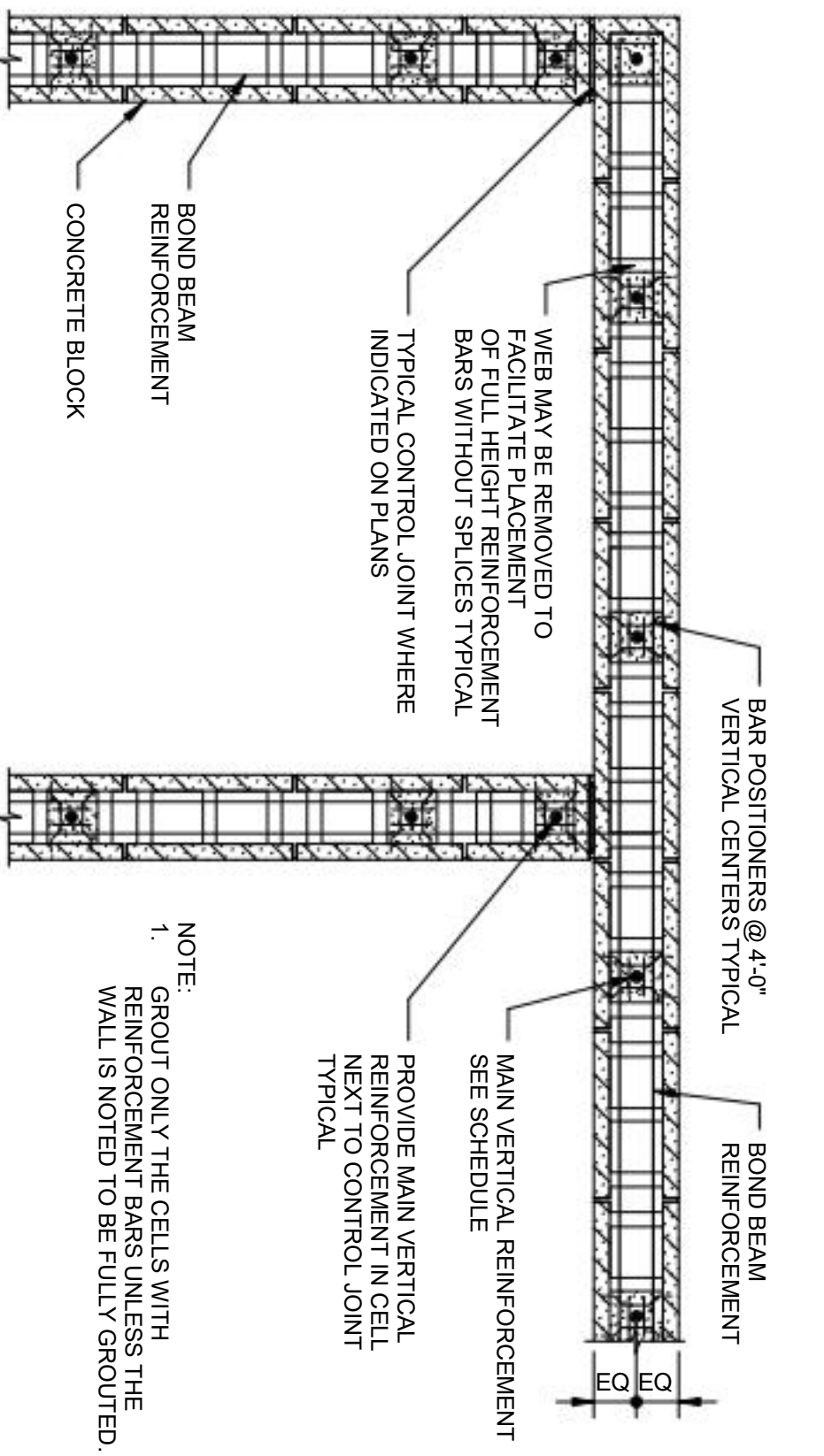
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

S-03
SHEET
OF

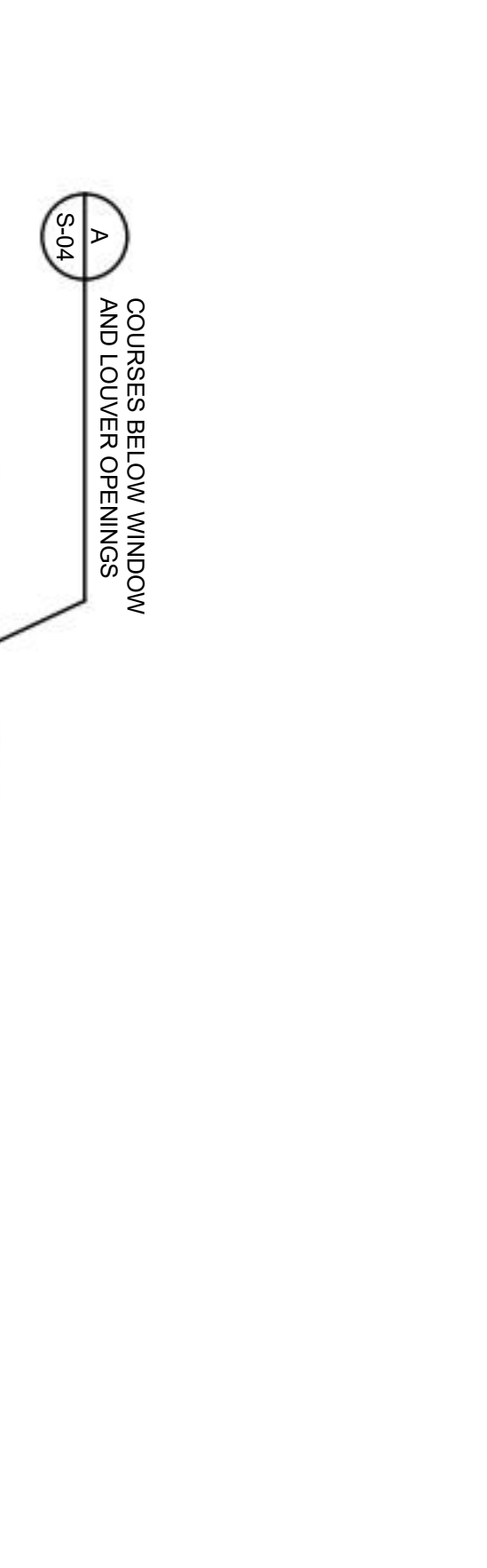
PRELIMINARY - NOT FOR CONSTRUCTION



TYPICAL REINFORCEMENT WITH CORNER CONTROL JOINTS
SINGLE CURTAIN VERTICAL REINFORCEMENT SHOWN.
DOUBLE CURTAIN SIMILAR EXCEPT BARS POSITIONED EACH FACE. SEE ADJACENT DETAIL.

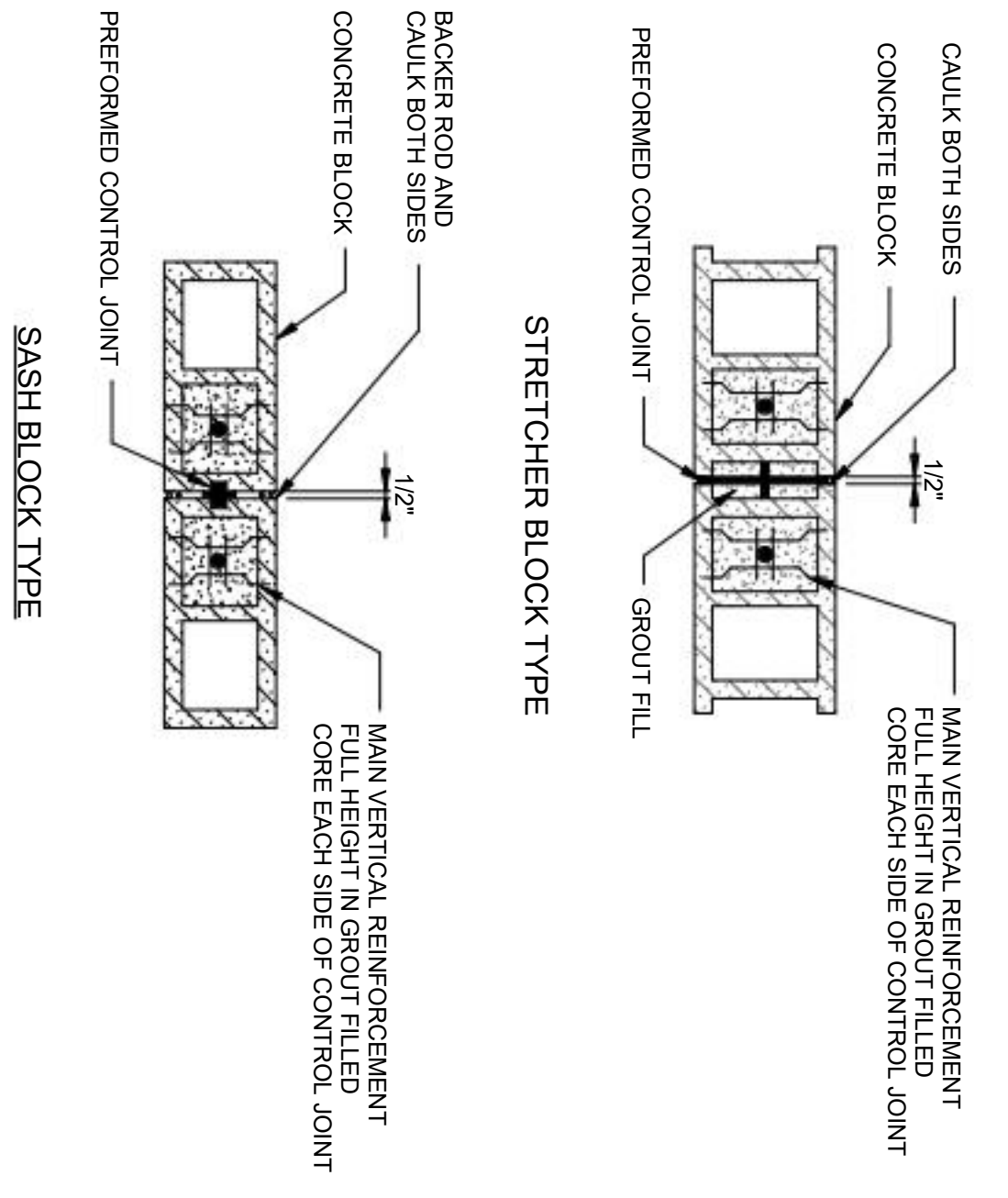
TYPICAL REINFORCEMENT WITHOUT CORNER CONTROL JOINTS
DOUBLE CURTAIN VERTICAL REINFORCEMENT SHOWN.
SINGLE CURTAIN SIMILAR EXCEPT BARS CENTERED IN WALL. SEE ADJACENT DETAIL.

TYPICAL MASONRY REINFORCEMENT PLANS
3/4" = 1'-0"



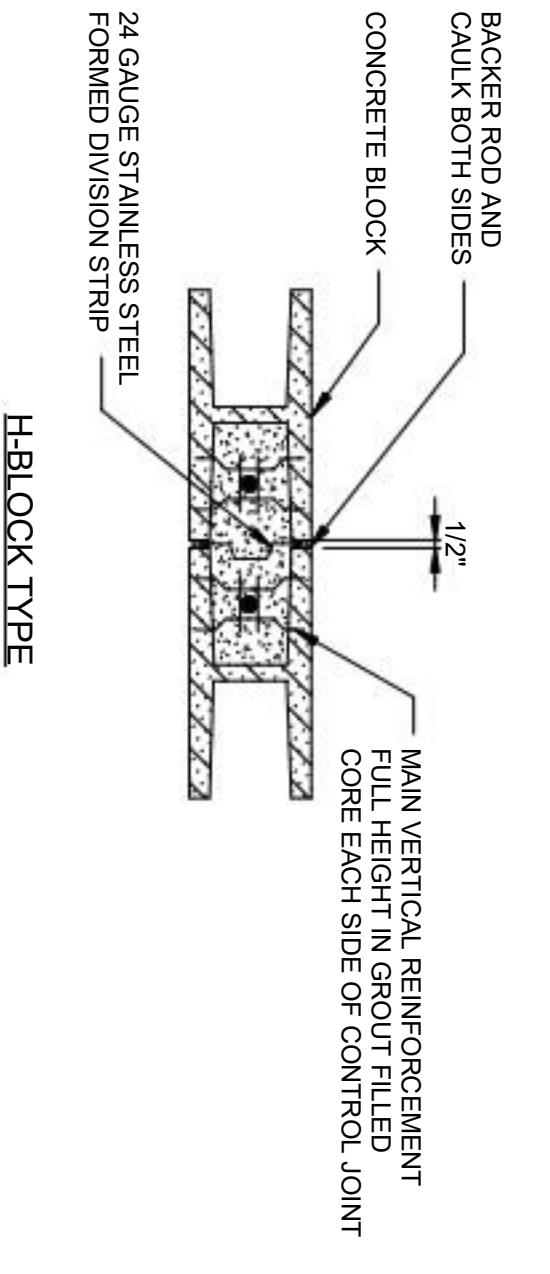
- NOTES:**
1. EXTEND JAMB BARS FULL WALL HEIGHT WHERE OPENINGS WIDTH EXCEEDS 1'-4".
 2. REINFORCEMENT SHALL BE FULLY GROUTED UNLESS OTHERWISE NOTED.
 3. MINIMUM HOOK EMBEDMENT SHALL BE 10" FOR #6 AND SMALLER BARS, 12" FOR #7 BARS AND 14" FOR #8 BARS. STRAIGHT BARS MAY BE USED IN LIEU OF HOOKS IF ADEQUATE 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 AS A STRAIGHT BAR 2 INCHES FROM THE CONCRETE SLAB WITH A STANDARD HOOK. WHERE WALLS ARE NONLOAD-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"



- 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 JOINT BEARING.
 3. CONTROL JOINT IS CONTINUOUS FULL WALL HEIGHT.
 4. CONTROL JOINT LOCATIONS SHALL BE AS INDICATED ON THE PLANS.
 5. EXPANSION JOINTS SHALL BE AS INDICATED ON THE PLANS. EXPANSION JOINTS, CONTROL JOINTS IN CMU BACKUP AND VENEER DO NOT ALIGN.

TYPICAL CMU CONTROL JOINT
1" = 1'-0"



CMU WALL AND MAIN REINFORCEMENT SCHEDULE

BUILDING	WALL	BLOCK THICKNESS	GROUTING (NOTE 1)	MAIN VERTICAL REINFORCEMENT		MAX SPACING OF VERTICAL REINFORCEMENT	MAIN HORIZONTAL REINFORCEMENT	WALL CONTROL JOINTS
				CELL (NOTE 2)	BAR SIZE			
TREATMENT BUILDING	NORTH	12"	F	1	#6	16"	#3@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"		

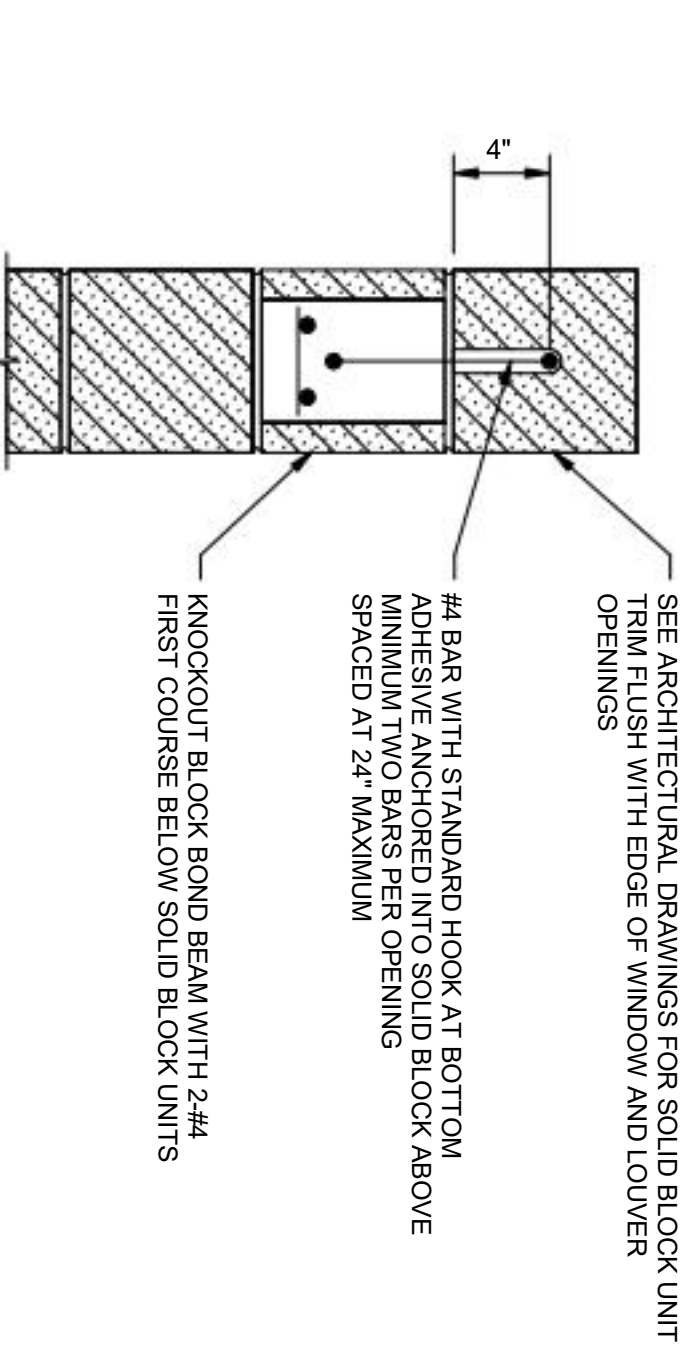
- NOTES:**
1. INDICATES A FULLY GROUTED WALL. "R" INDICATES TO GROUT ONLY THE REINFORCED CELL.
 2. "F" INDICATES A SINGLE BAR CENTERED IN WALL. "R" INDICATES DOUBLE CURTAIN REINFORCEMENT WITH ONE BAR EACH FACE OF CELL.
 3. SEE THE OTHER STRUCTURAL DRAWINGS FOR ADDITIONAL REINFORCEMENT DETAILS AT CONNECTIONS, 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	(65)	43	(71)
7	64	(120)	50	(99)
8	(92)	(173)	61	(142)

1. NON-CONTACT LAP SPLICES SHALL NOT BE USED.
2. BRACKETED SPLICES ARE 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.



COURSES BELOW WINDOW AND LOUVER OPENING
S-04 1 1/2" = 1'-0"

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

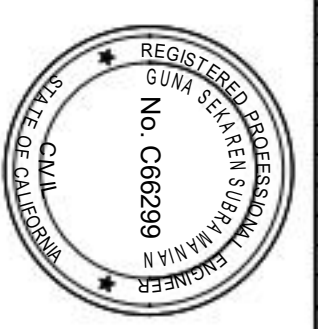
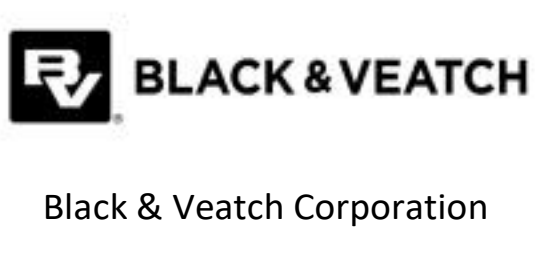
TREATMENT BUILDING
STRUCTURAL
TYP MASONRY WALL REINFORCEMENT DETAILS

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

0 12 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 407941

S-04
SHEET
OF

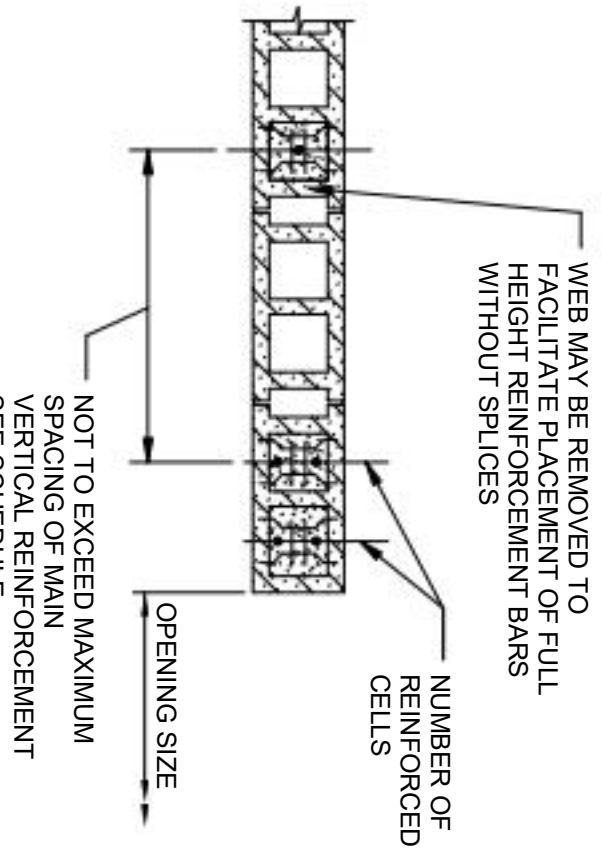


DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

PRELIMINARY - NOT FOR CONSTRUCTION

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

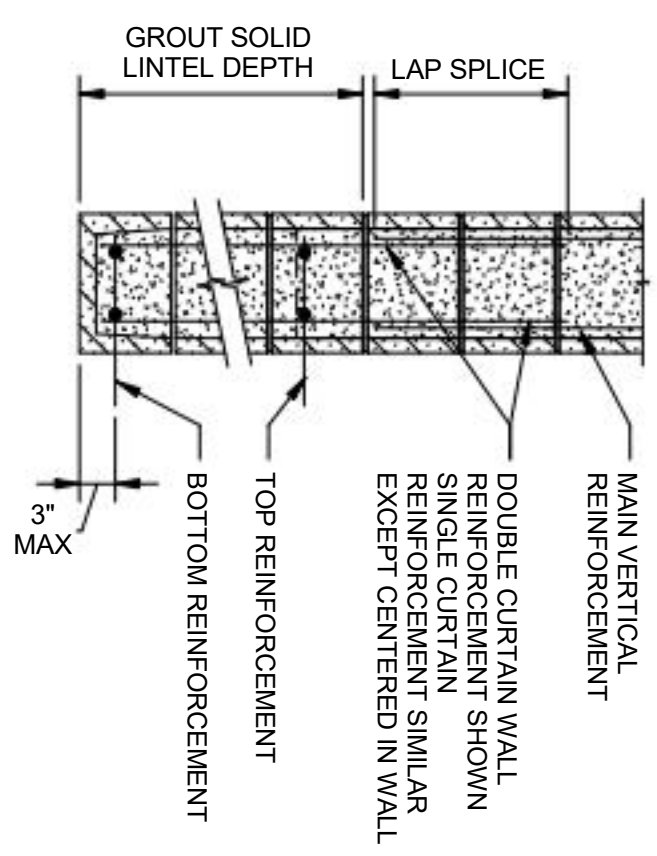
- NOTES:
1. AN INTERIOR WALL IS A WALL IN WHICH NO PORTION OF THE WALL IS EXPOSED TO THE EXTERIOR.
2. REINFORCE JAMBS AS INDICATED UNLESS NOTED OTHERWISE ON THE DRAWINGS.



JAMB - PLAN

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	
	EAST	12"	6'-8" - 12'-0"	32"	2 #6	2 #6	
	WEST	12"	0 - 6'-8"	16"	2 #5	2 #5	
	INTERIOR	12"	0 - 6'-8"	16"	2 #5	2 #5	

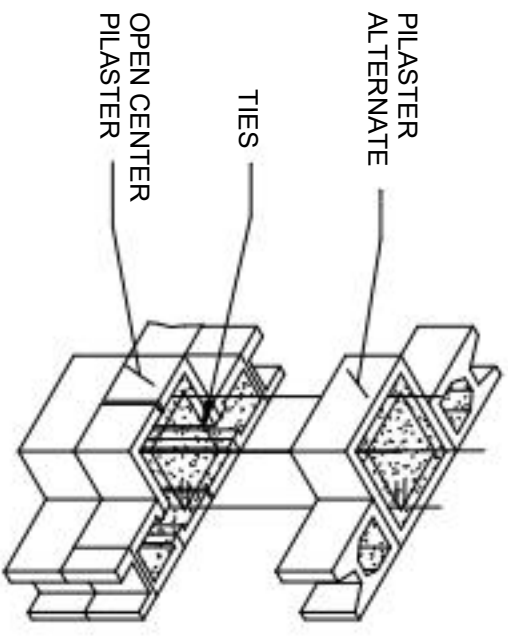
- NOTES:
1. BEAR ALL LINTELS A MINIMUM 2'-0" AT EACH END.
2. REINFORCED LINTELS AS INDICATED UNLESS NOTED OTHERWISE ON THE DRAWINGS.



LINTEL - SECTION

TYPICAL MASONRY JAMB SCHEDULE AND PLAN
3/4" = 1'-0"

TYPICAL MASONRY LINTEL SCHEDULE AND SECTION
3/4" = 1'-0"

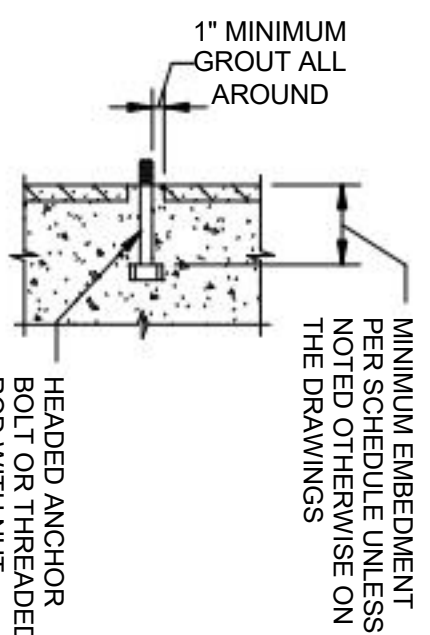


TYPICAL OPEN CENTER PLASTER

- NOTES:
1. ALL VERTICAL REINFORCEMENT SHALL BE FULLY DEVELOPED WITH SUPPORTING FOUNDATION WITH DOWNIES MATCHING THE VERTICAL REINFORCEMENT.
2. LAP SPLICE LENGTHS PER SCHEDULE.

PLASTER SCHEDULE

TYPE	NOMINAL SIZE	VERTICAL REINFORCEMENT	TIRES	REMARKS
[F1]	2'-0" X 2'-0"	8-#6	#4@ 16"	

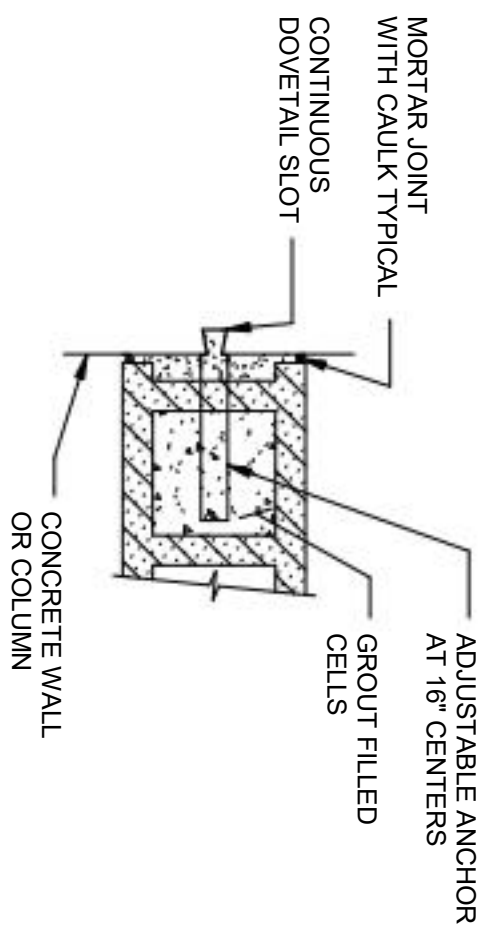


- NOTE:
MINIMUM BOLT SPACING SHALL BE (1) BOLT DIAMETERS AND WITH A MINIMUM OF 6" TO END OF WALL UNLESS NOTED OTHERWISE.

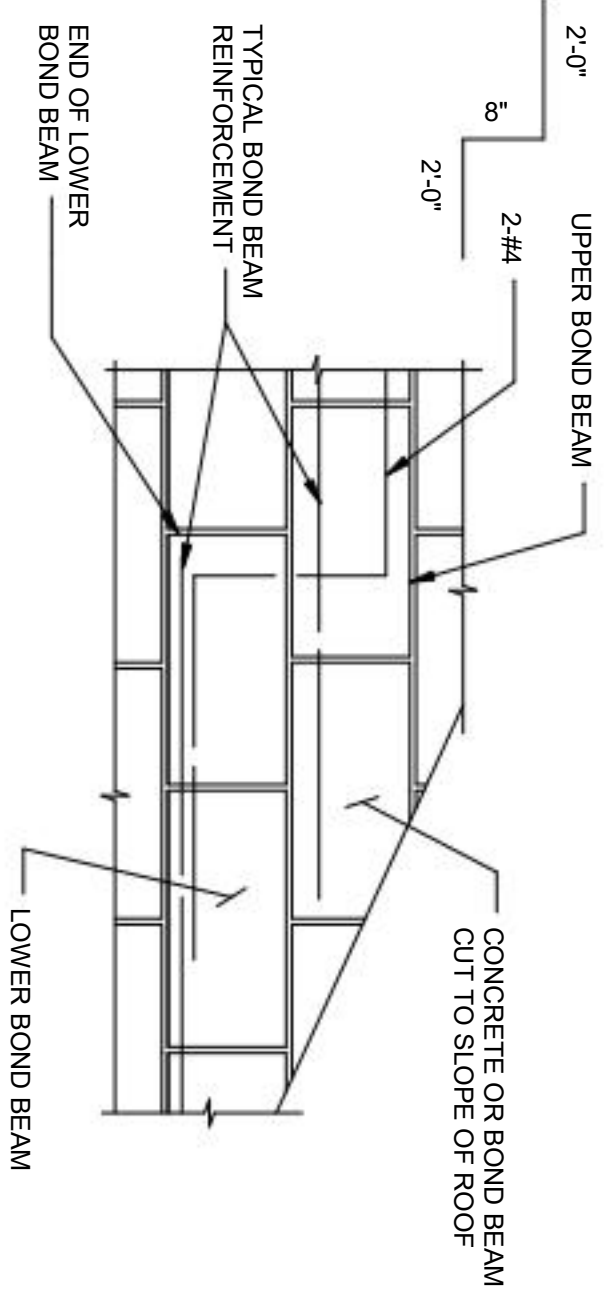
BOLT SIZE	EMBED	BOLT EMBEDMENT SCHEDULE UNLESS NOTED OTHERWISE
1/2"	4"	
5/8"	4"	
3/4"	5"	
7/8"	6"	
1"	7"	

TYPICAL CONCRETE MASONRY PLASTERS
3/8" = 1'-0"

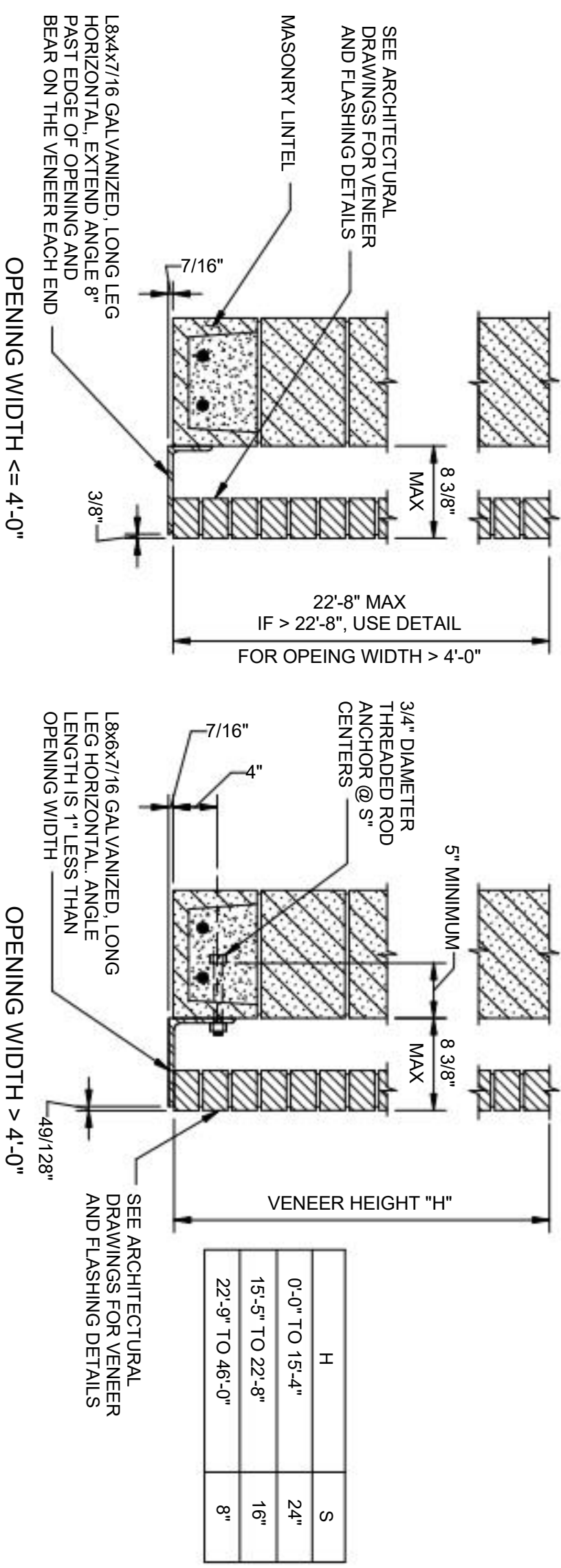
TYPICAL MASONRY ANCHOR BOLT DETAIL
3/4" = 1'-0"



TYPICAL MASONRY WALL AT CONCRETE WALL OR COLUMN
1 1/2" = 1'-0"



BOND BEAM STEP DETAIL
1" = 1'-0"



- NOTE:
1. WHERE DIMENSION FROM FACE OF CMU TO OUTER FACE OF VENEER IS LESS THAN 8'-3/8", TRIM HORIZONTAL ANGLE TO MAINTAIN 3/8" INSET FROM VENEER AND GRIND SMOOTH. GALVANIZE AFTER HORIZONTAL LEG IS TRIMMED.
2. FOR MISCELLANEOUS APPURTENANCES INCLUDING EMBEDMENTS, BRACING, STEEL OR PRECAST LINTELS, VENEER FLASHING, WEBS, INSULATION, SEALING, CALKING AND EMBEDDED PIPE AND ELECTRICAL CONDUIT, SEE THE DESIGN DRAWINGS.
3. WORK THIS DRAWING WITH THE STANDARD CONCRETE MASONRY WALL REINFORCEMENT DETAILS.

VENEER SUPPORT AT OPENING
1" = 1'-0"

GENERAL NOTES

- 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.
- FOR MISCELLANEOUS APPURTENANCES INCLUDING EMBEDMENTS, BRACING, STEEL OR PRECAST LINTELS, VENEER FLASHING, WEBS, INSULATION, SEALING, CALKING AND EMBEDDED PIPE AND ELECTRICAL CONDUIT, SEE THE DESIGN DRAWINGS.
- WORK THIS DRAWING WITH THE STANDARD CONCRETE MASONRY WALL REINFORCEMENT DETAILS.

SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT
TREATMENT BUILDING
STRUCTURAL
TYPICAL MASONRY LINTEL & JAMB DETAILS

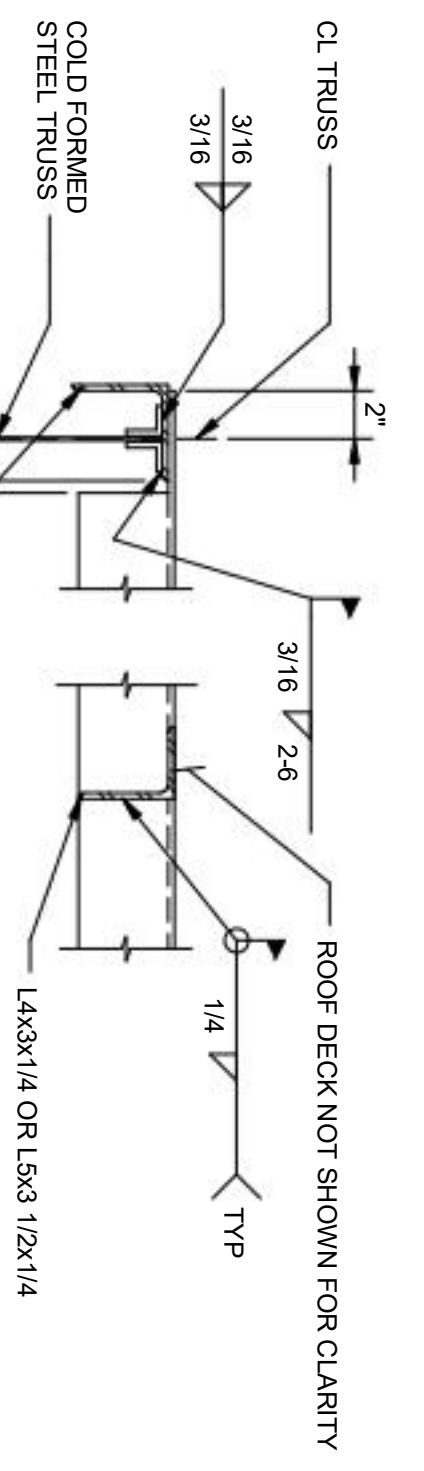
BLACK & VEATCH
Black & Veatch Corporation



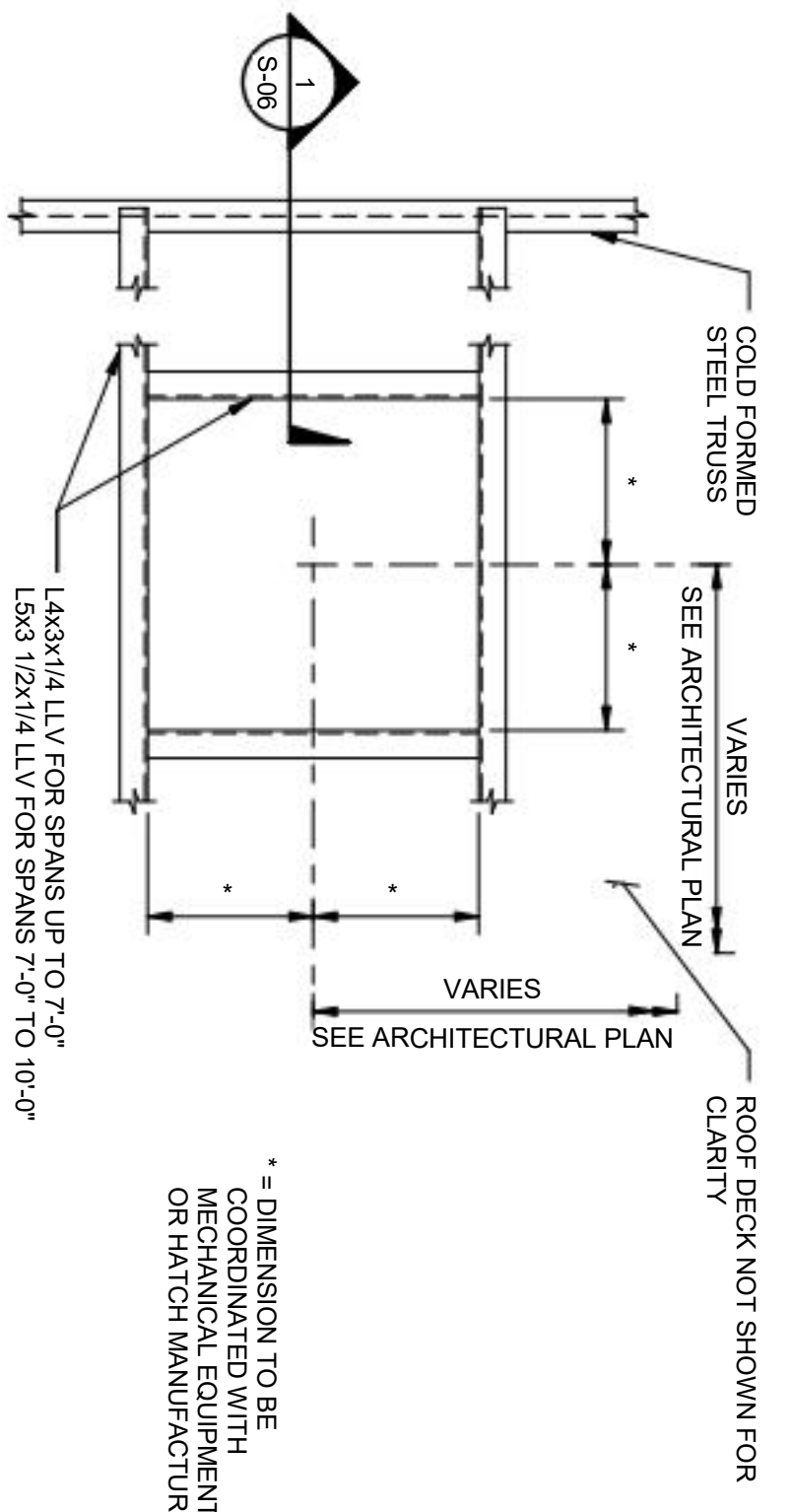
DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

PRELIMINARY - NOT FOR CONSTRUCTION

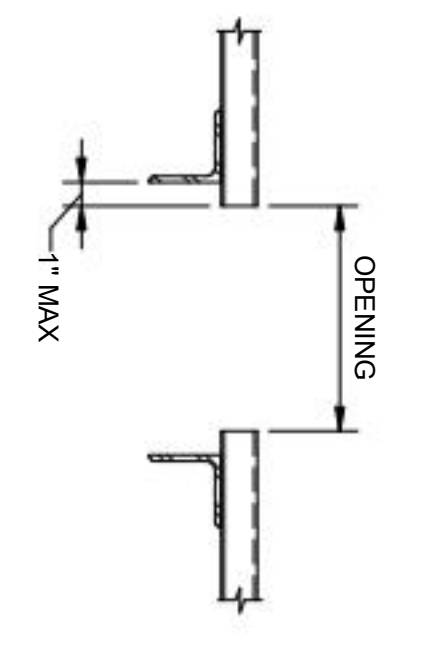
DESIGNED: GSS
CHECKED: SMH
APPROVED: RJR
DATE: JULY 2021
PROJECT NO. 407941
SHEET 05 OF 12
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE



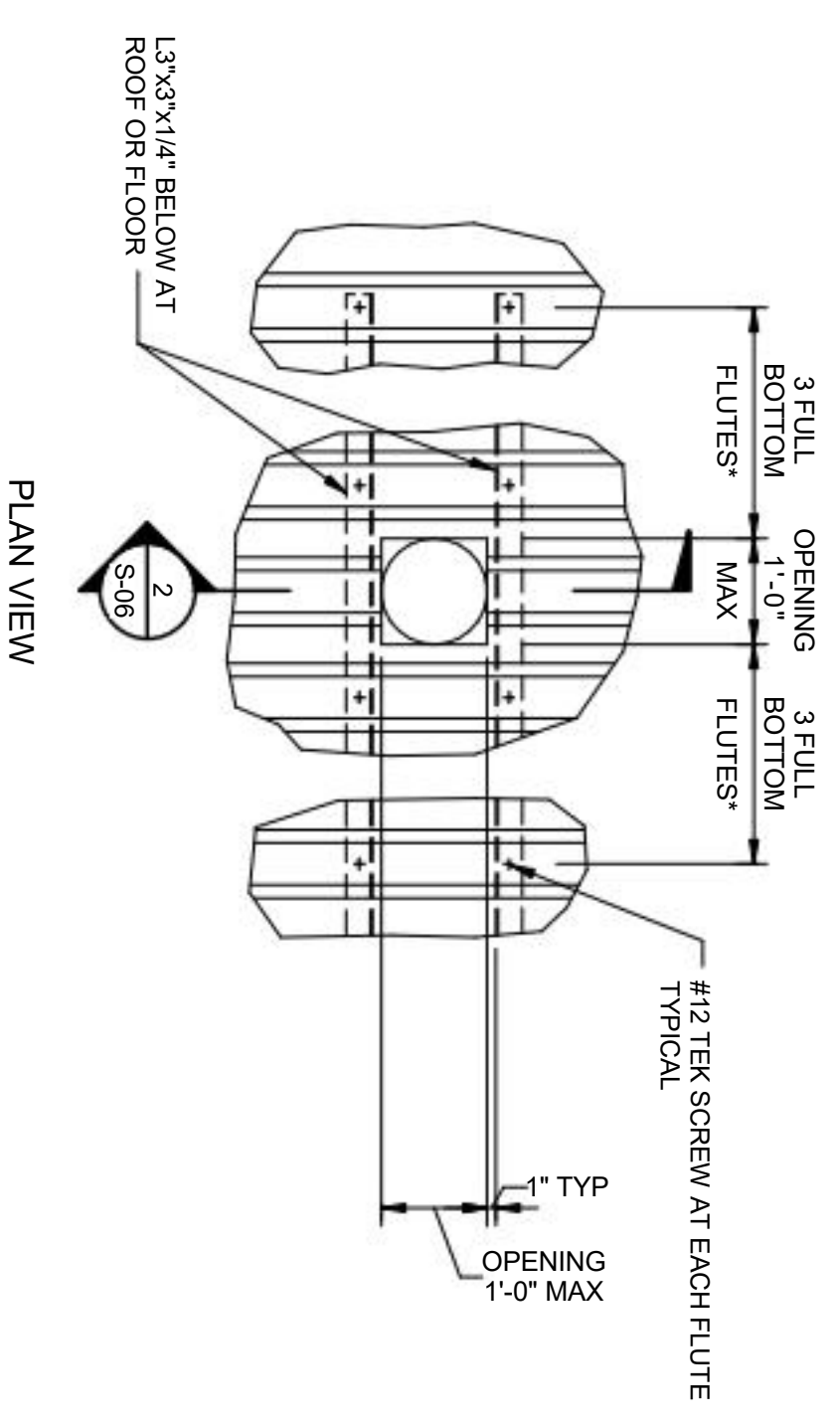
SECTION 1
1 1/2" = 1'-0"



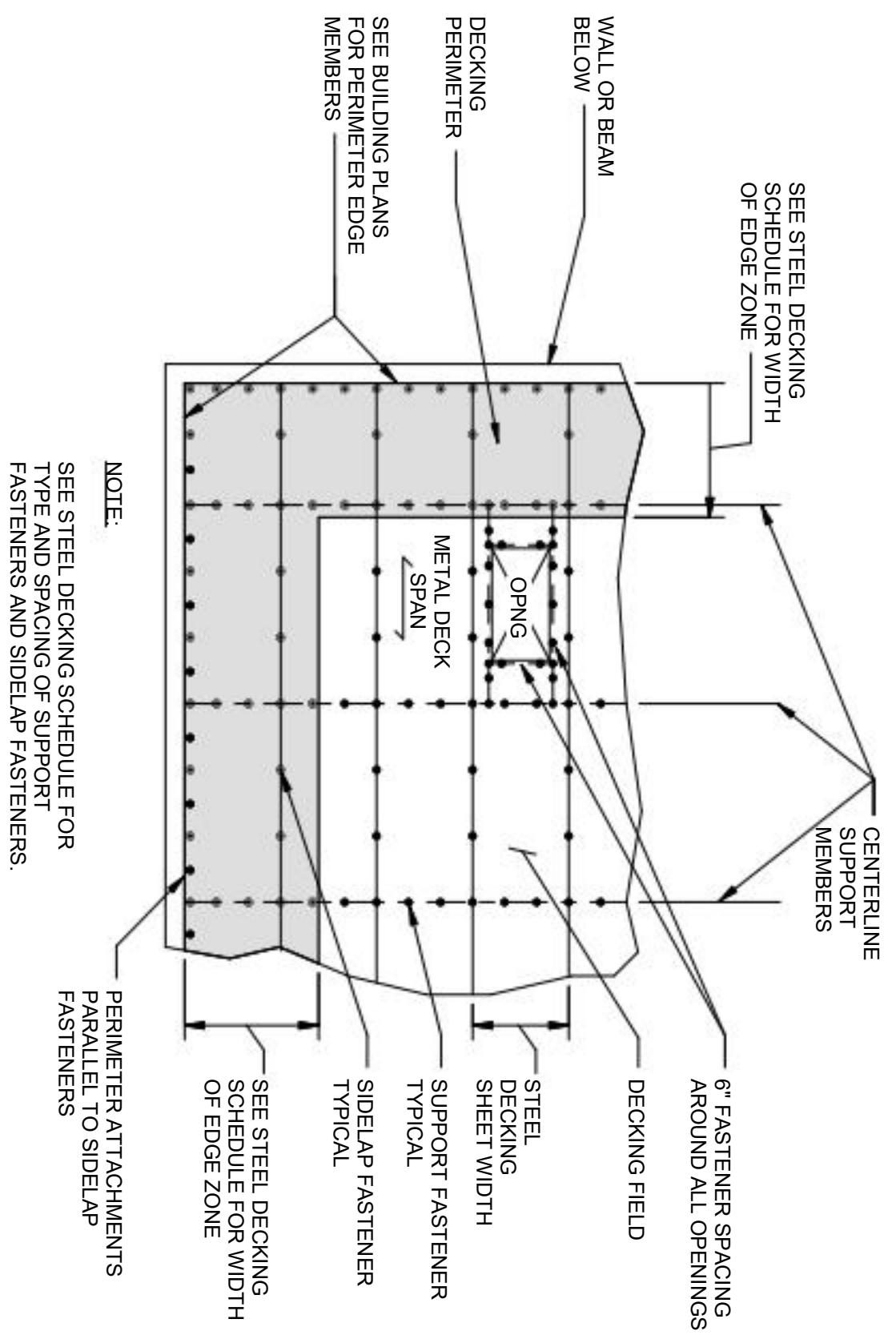
A TYPICAL METAL DECK OPENING FRAMING DETAIL
1/2" = 1'-0"



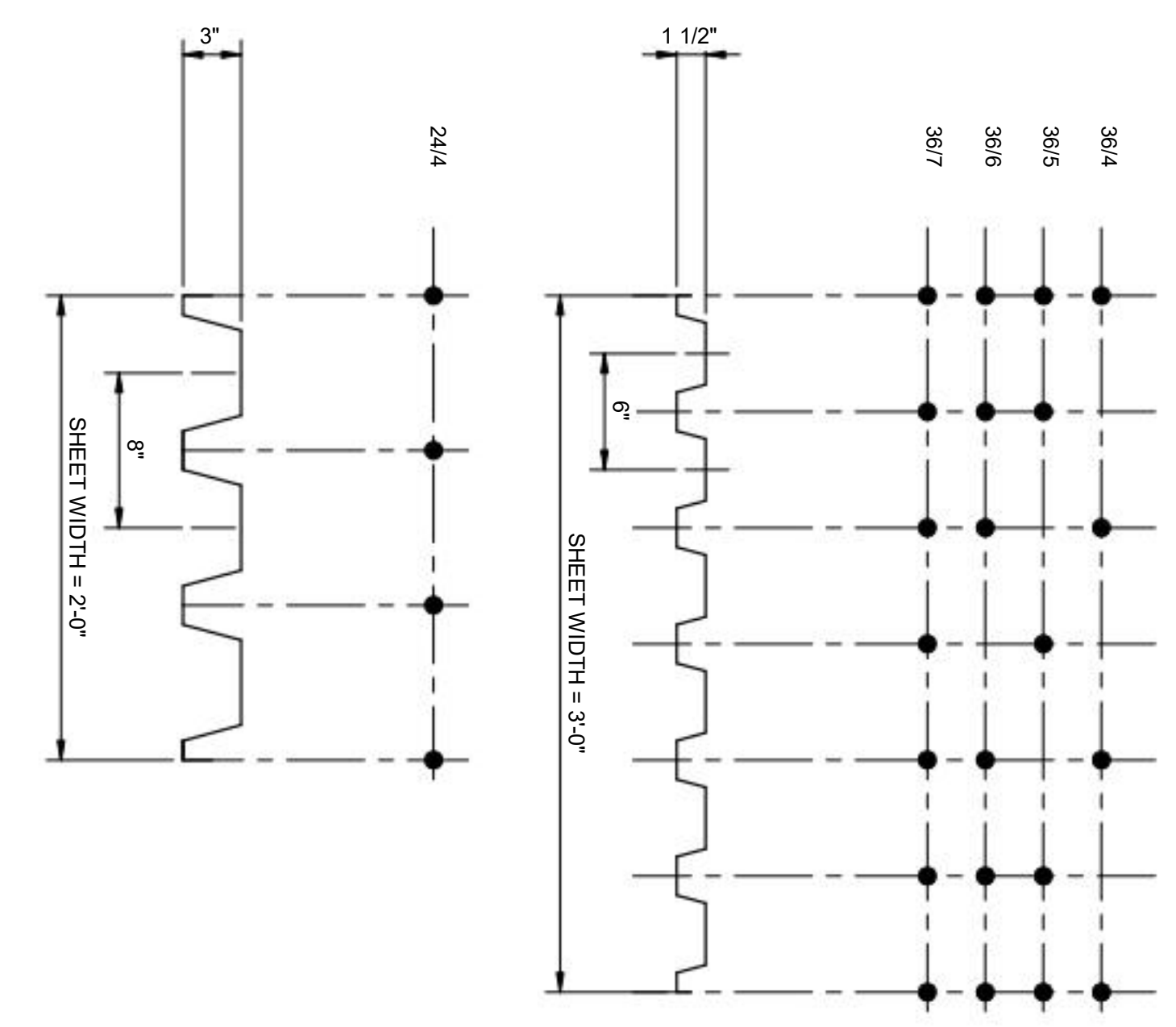
SECTION 2
1 1/2" = 1'-0"



B ROOF OPENING DETAIL
1/2" = 1'-0"



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



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

STEEL DECKING SCHEDULE													
BUILDING	LOCATION	DEPTH	DECKING			SUPPORT FASTENERS			SIDELAP FASTENERS		PERIMETER ATTACHMENTS PER LAP		
			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	EDGE ZONE WIDTH
TREATMENT BUILDING	ROOF	1 1/2"	B	18	G90	2	36/7	36/7	#12 S-MID	12" OC	6" OC	6 FT	HILTI S-MID #12 SCREWS

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

STEEL DECKING SCHEDULE
NO SCALE

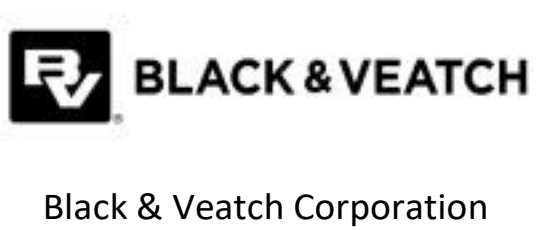
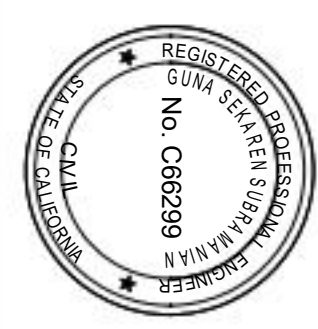
TYPE	CMU WALL THICKNESS	PLATE DETAIL	MAXIMUM PLATE SPACING
1	12"		SEE ROOF PLANS
2	12"		SEE ROOF PLANS

SEE SPECIFICATIONS FOR MATERIAL HEADERS AND BEARING PLATES AND HEADED CONCRETE ANCHORS.

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

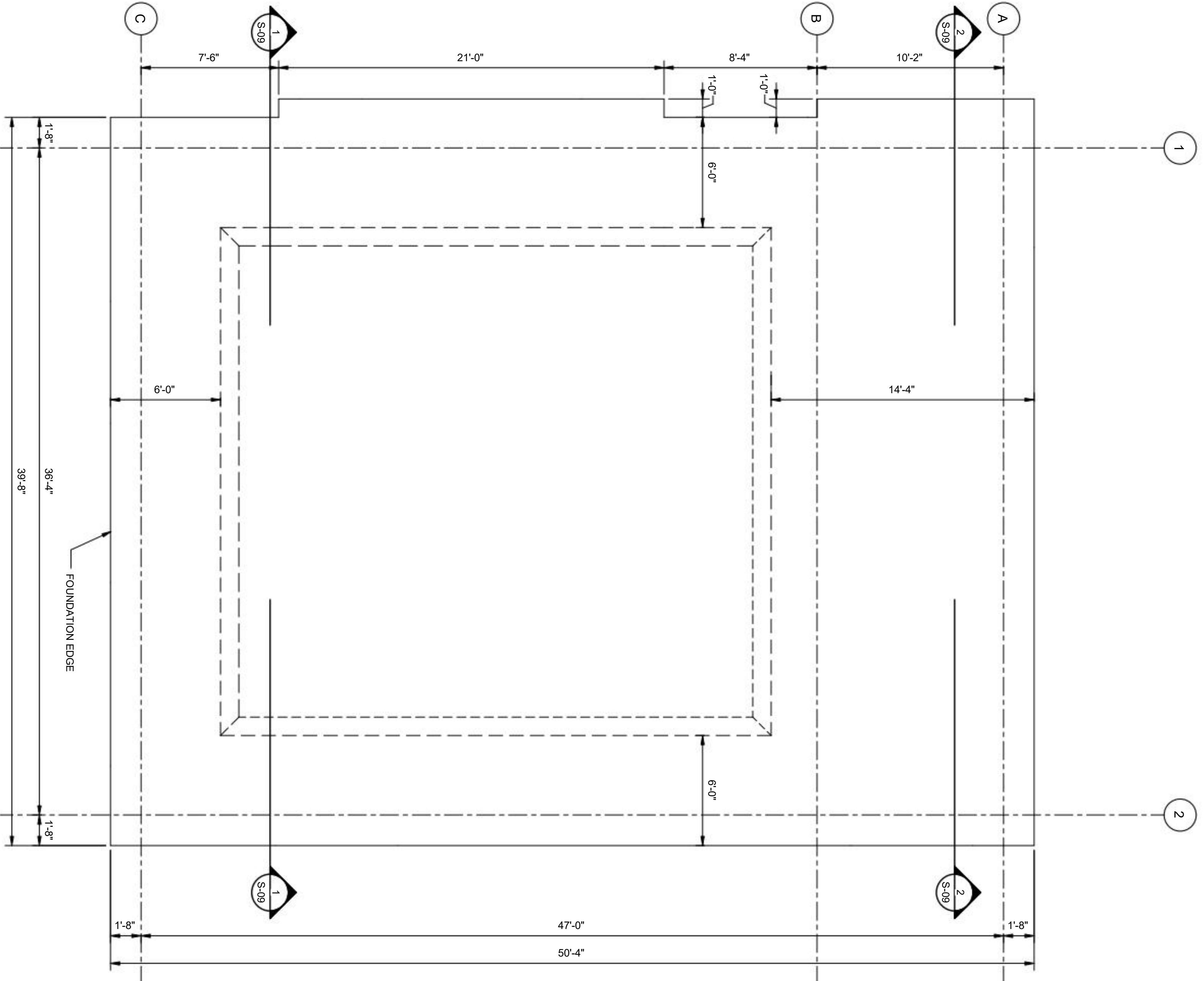
PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE

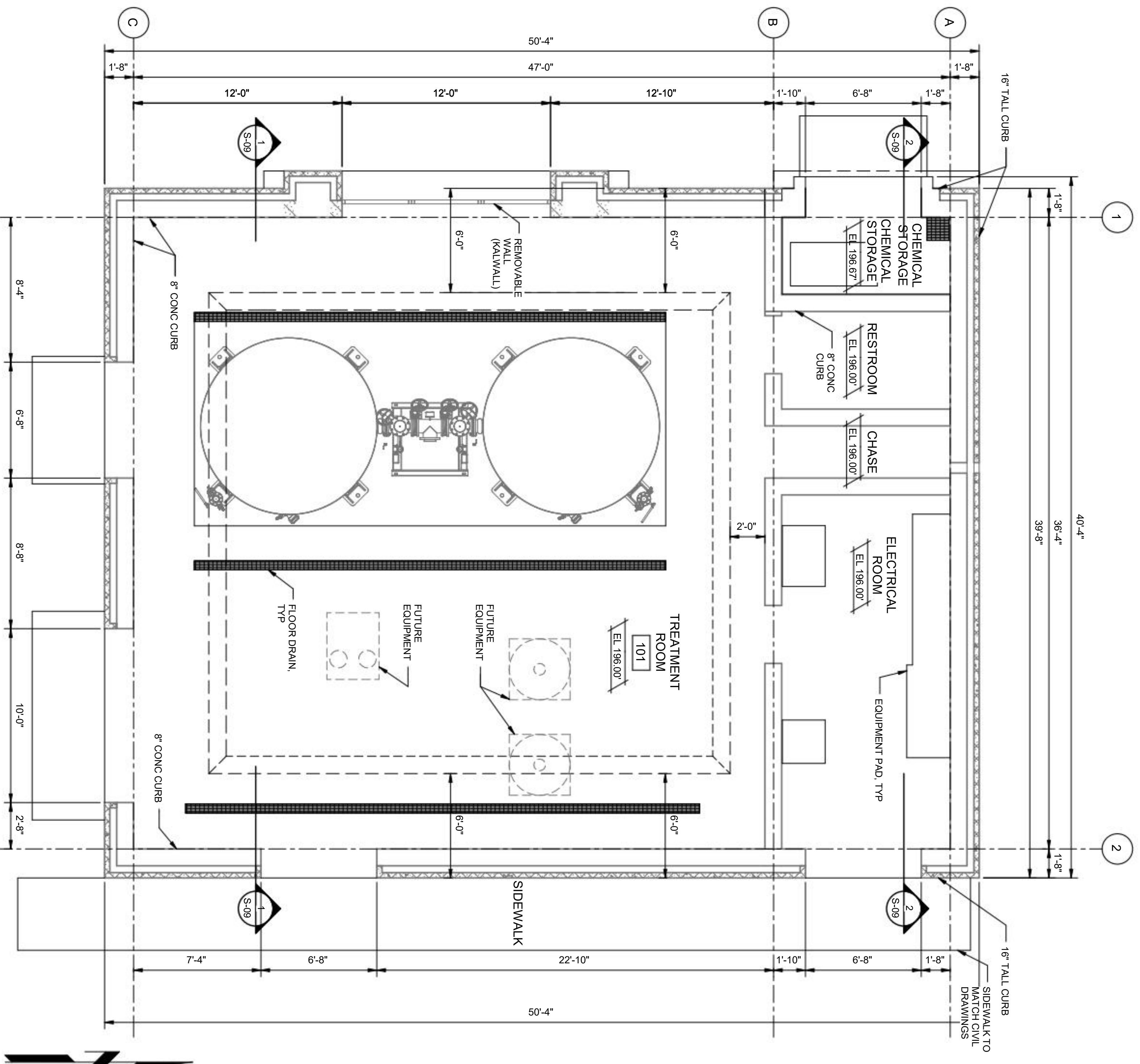


SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT
TREATMENT BUILDING
STRUCTURAL
STEEL DECKING DETAILS AND SCHEDULES

DESIGNED: GSS	DATE: JULY 2021
DETAILED: SMH	
CHECKED: R/R	
APPROVED:	
PROJECT NO. 407941	
SHEET 06 OF 12	



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



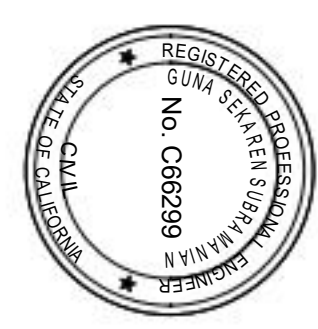
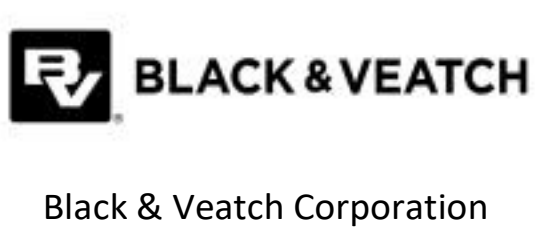
OPERATING FLOOR PLAN
1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

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

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

TREATMENT BUILDING
STRUCTURAL
BUILDING FOUNDATION AND OPERATING FLOOR PLAN

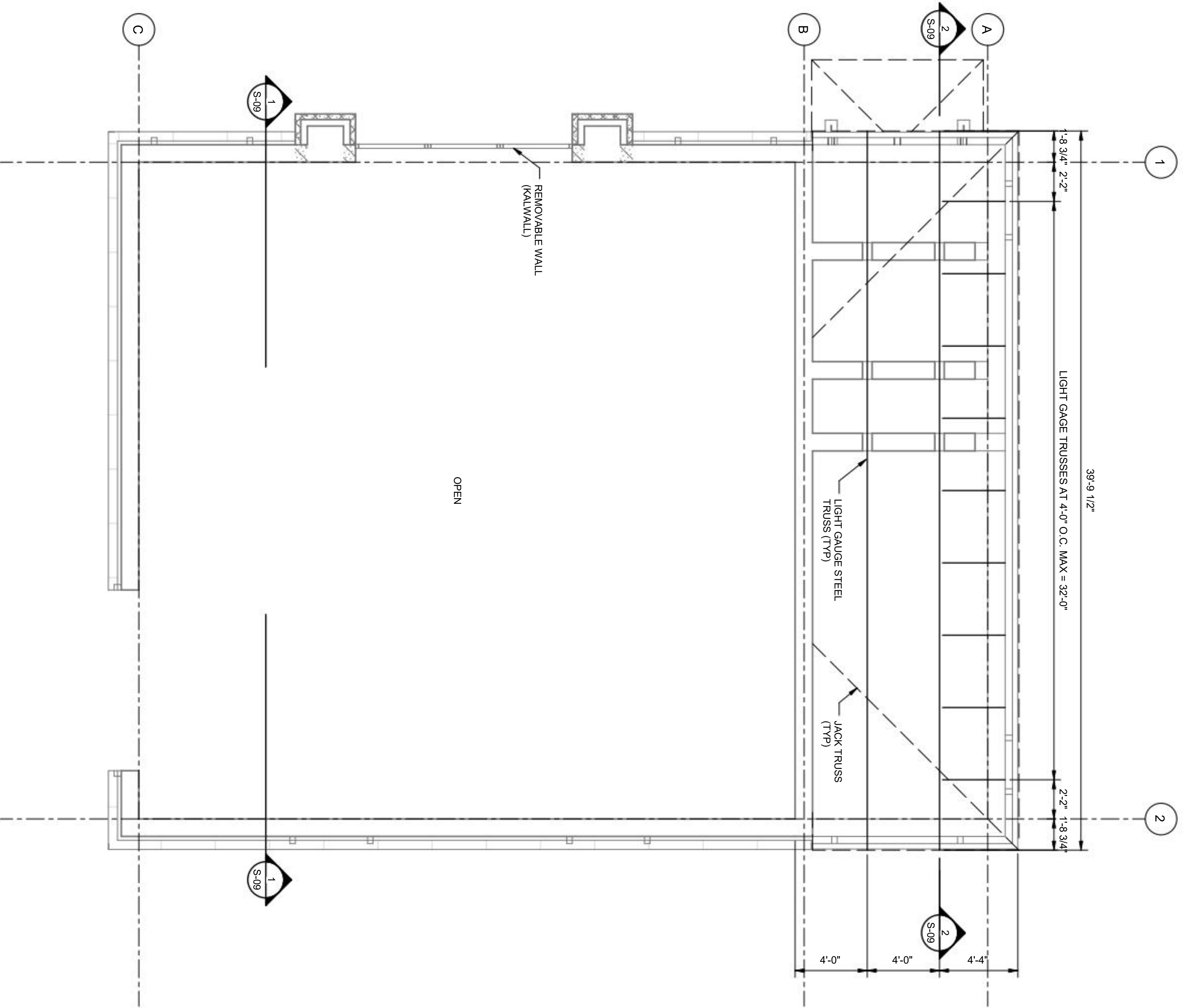


DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

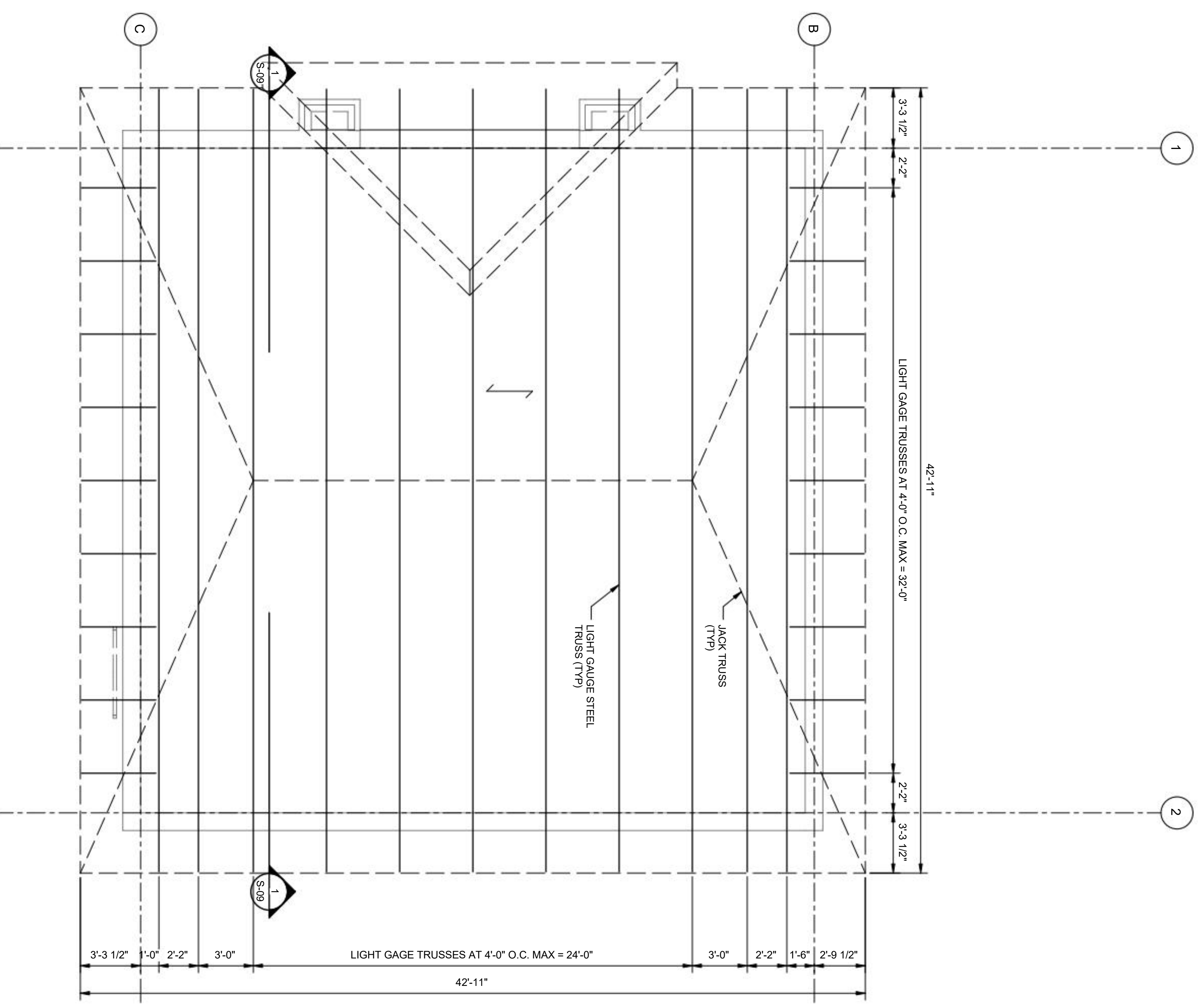
DESIGNED: GSS
 CHECKED: SMH
 APPROVED: RLR
 DATE: JULY 2021

PROJECT NO.
407941

S-07
SHEET
OF



LOWER ROOF PLAN
1/4" = 1'-0"



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

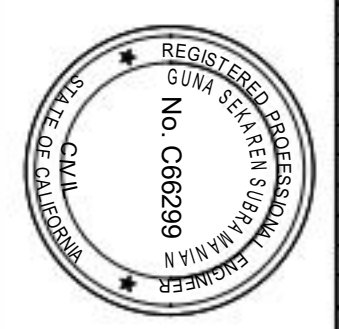
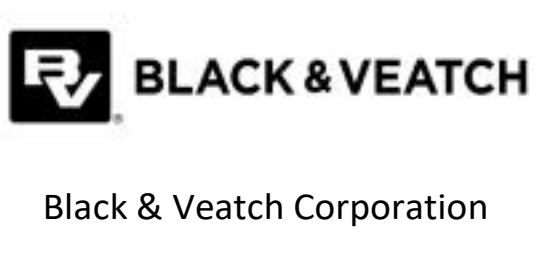
PRELIMINARY - NOT FOR CONSTRUCTION

- 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 CONNECTIONS SHALL BE SUBMITTED TO THE ENGINEER BEFORE CONSTRUCTION. THE SUBMITTALS SHALL BE STAMPED AND SIGNED BY A CALIFORNIA LICENSED CIVIL OR STRUCTURAL ENGINEER.



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

TREATMENT BUILDING
STRUCTURAL
ROOF PLANS



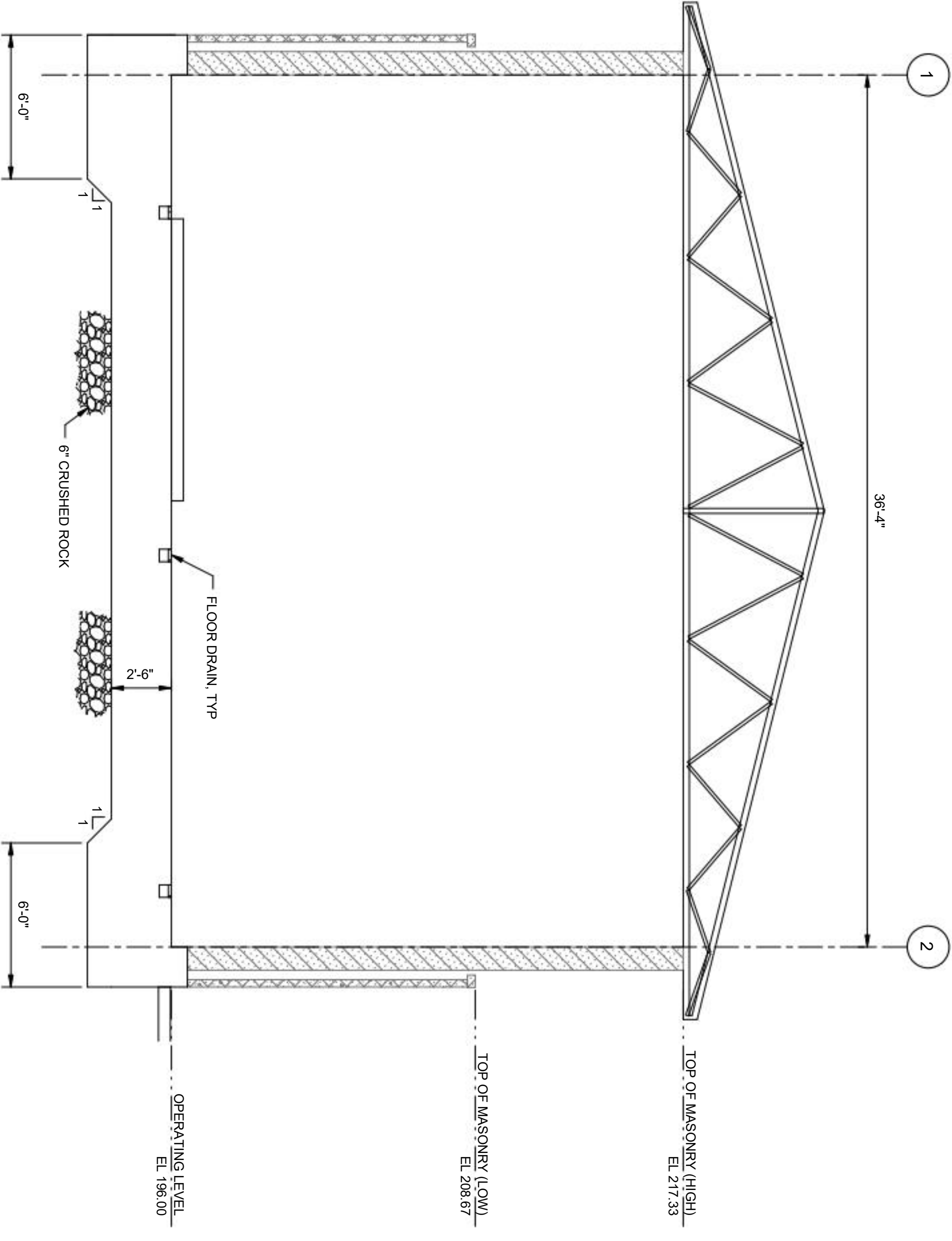
DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNED: GSS
 CHECKED: SMH
 APPROVED: R/R
 DATE: JULY 2021

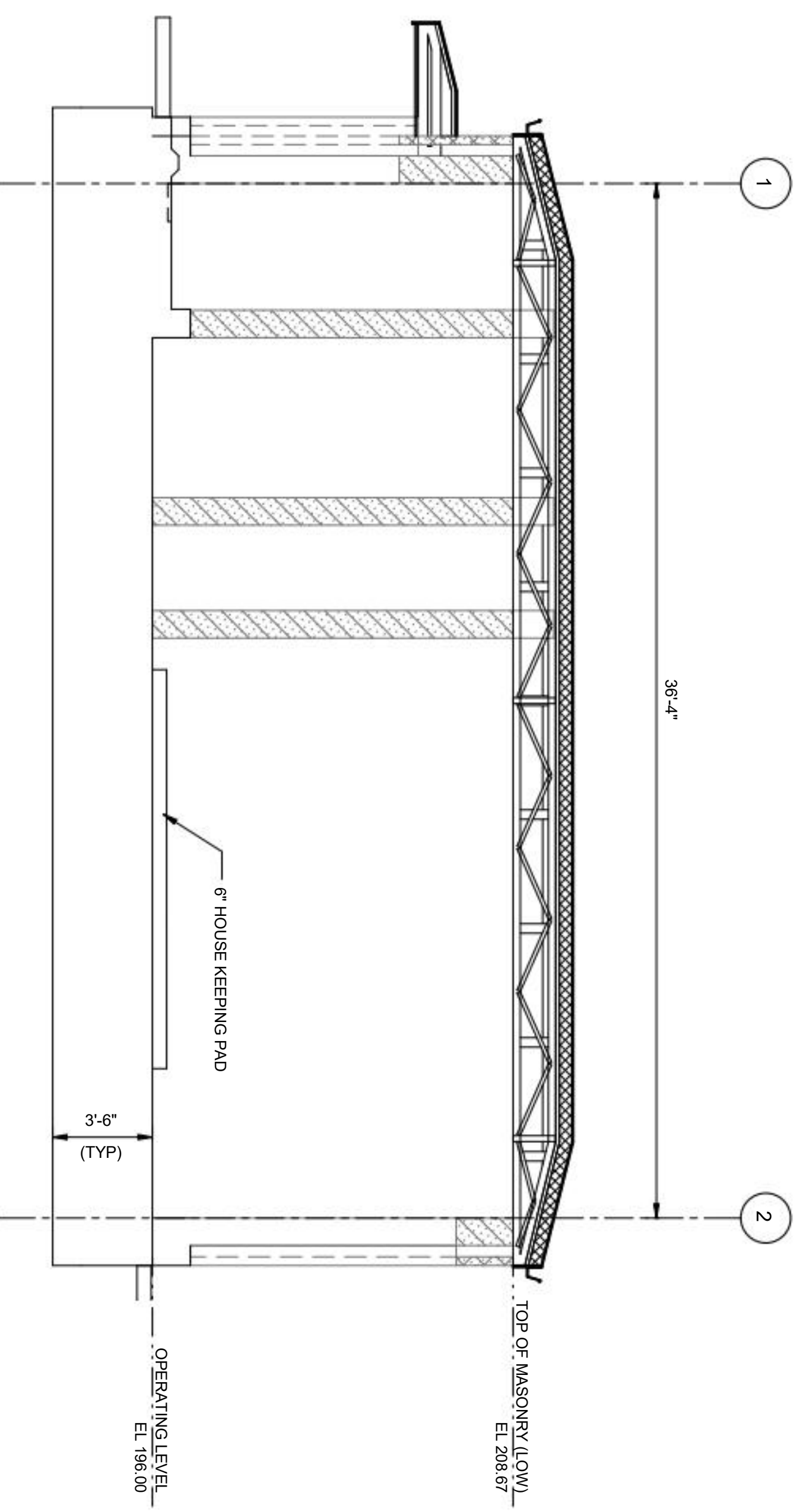
PROJECT NO.
407941

S-08
SHEET OF

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



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

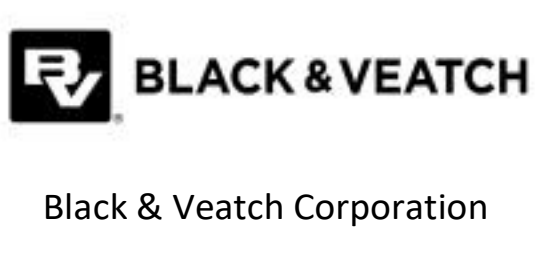


SECTION 2
S-07 1/4" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

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

TREATMENT BUILDING
STRUCTURAL
BUILDING SECTIONS



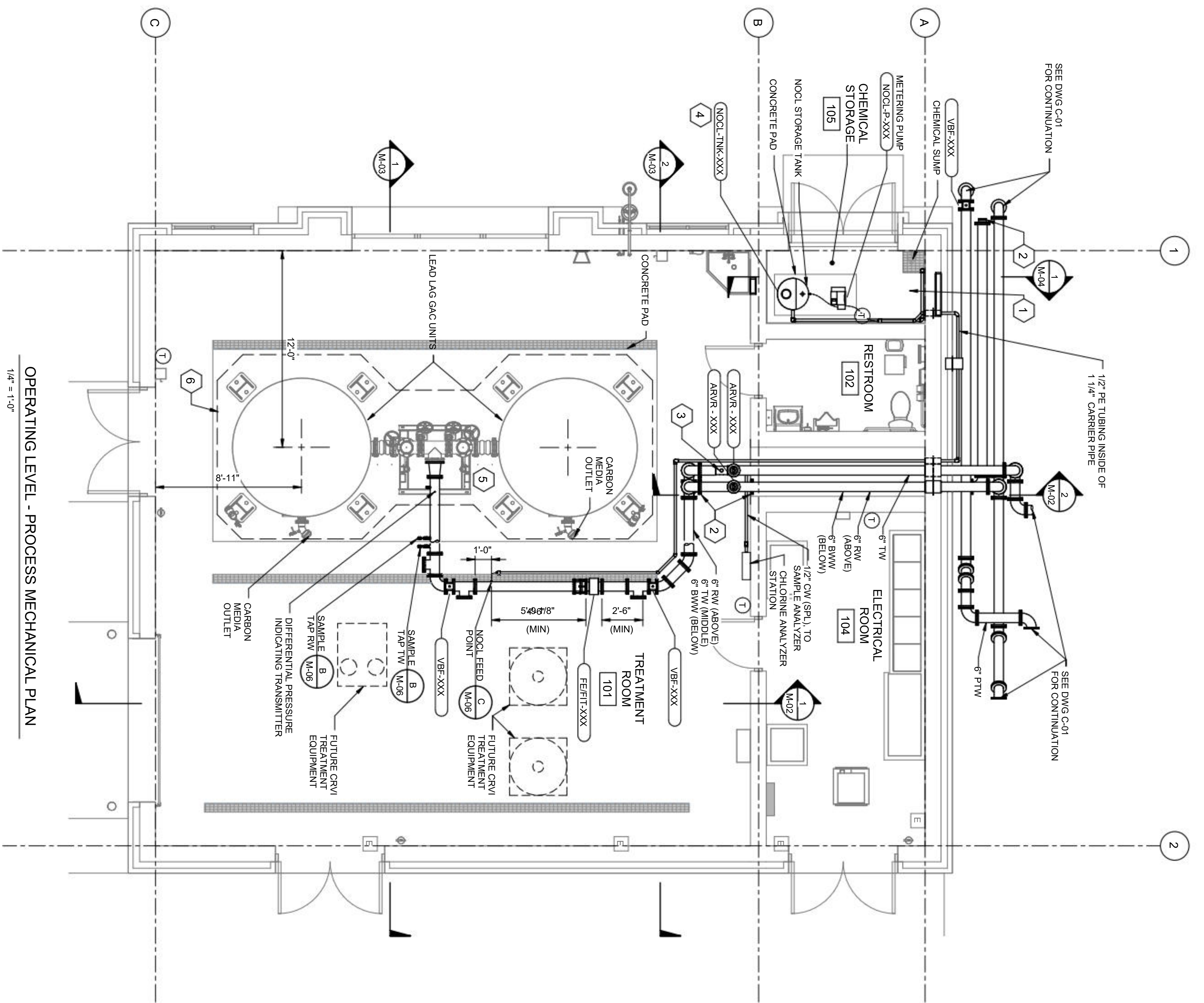
DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNER: GSS
 DETAILED: SMH
 CHECKED: R/R
 APPROVED: _____
 DATE: JULY 2021

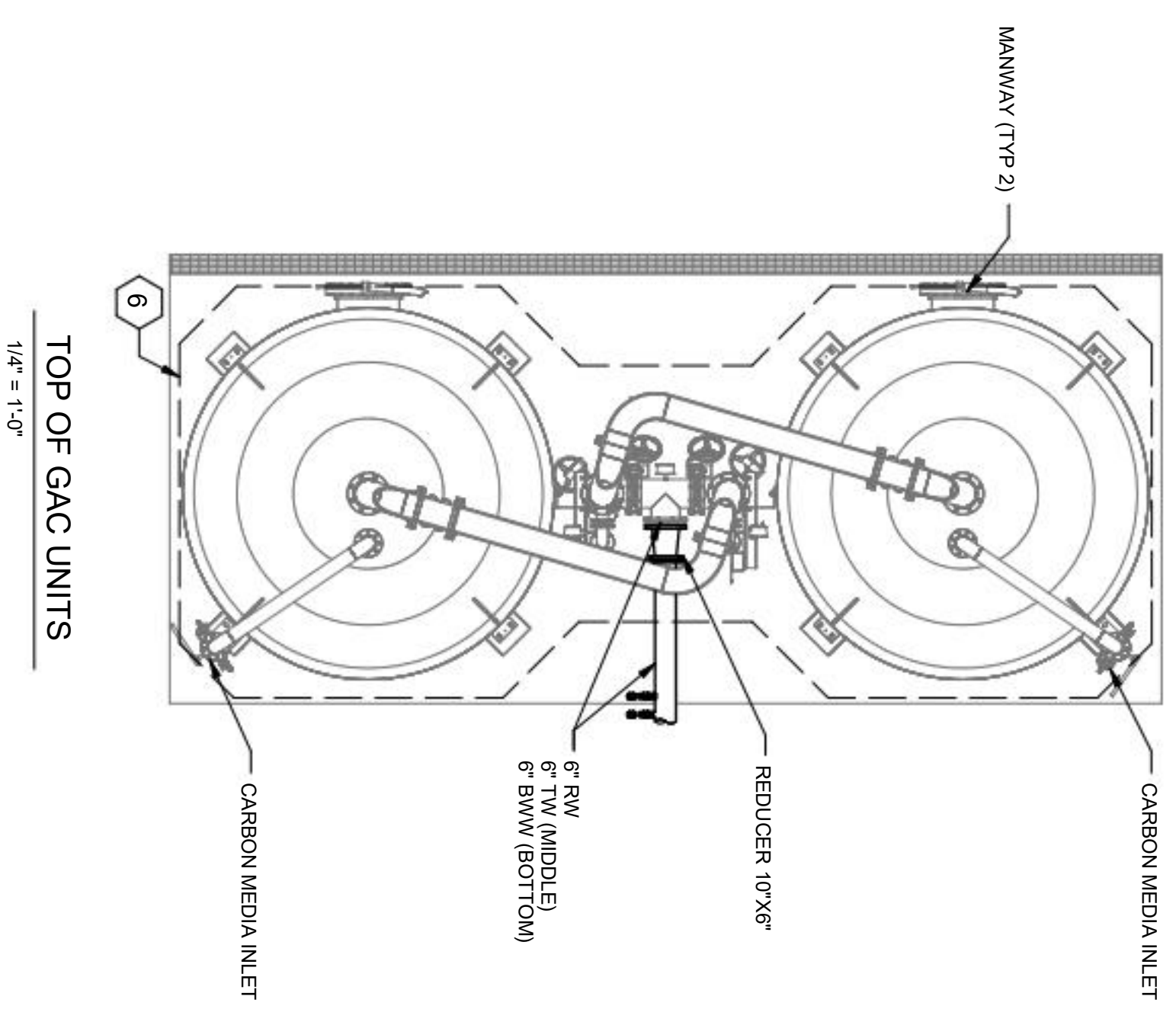
0 12 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
407941

S-09
SHEET
OF

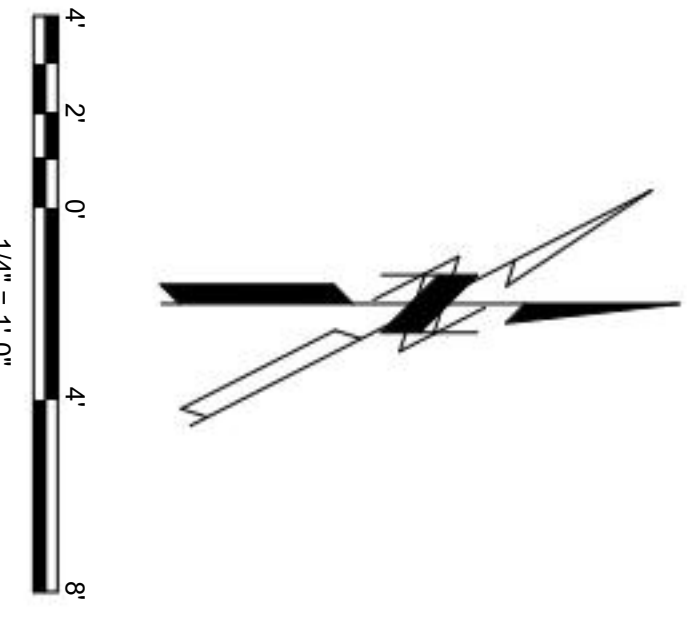


OPERATING LEVEL - PROCESS MECHANICAL PLAN
1/4" = 1'-0"



TOP OF GAC UNITS
1/4" = 1'-0"

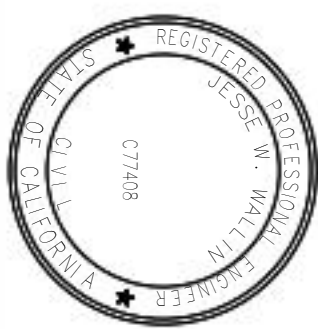
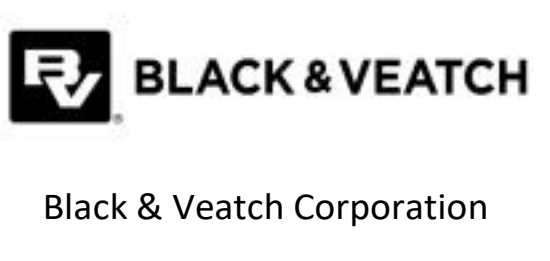
- GENERAL SHEET NOTES**
- REFER TO G-06 FOR GENERAL PROJECT NOTES.
 - ALL CHEMICAL PIPING ITEMS ARE NOT SHOWN. REFER TO P&IDS FOR ADDITIONAL DETAILS.
 - PIPE SUPPORTS SHALL BE PROVIDED IN ACCORDANCE WITH THE PIPE SUPPORT SPECIFICATION.
- SHEET KEYNOTES**
- REFER TO STRUCTURAL DRAWINGS FOR ACTUAL FLOOR ELEVATION AND SLOPE.
 - 6" BMW DIP FLANGED BY MALE QUICK DISCONNECT.
 - REFER TO PLUMBING DRAWINGS FOR TAPPED LOCATION SHOWN. THIS CONNECTION PROVIDES BUILDING WATER SUPPLY.
 - CONTRACTOR SHALL PROVIDE A 3/8" 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 SPECIFICATION SECTION 01 6100 FOR SEISMIC DESIGN CRITERIA.
 - PROVIDED BY CONTRACTOR.
 - PIPING, VALVES, GAC VESSELS, AND APPURTENANCES SHALL BE INSTALLED AND SUPPORTED BY THE SYSTEM 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.



PRELIMINARY - NOT FOR CONSTRUCTION

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

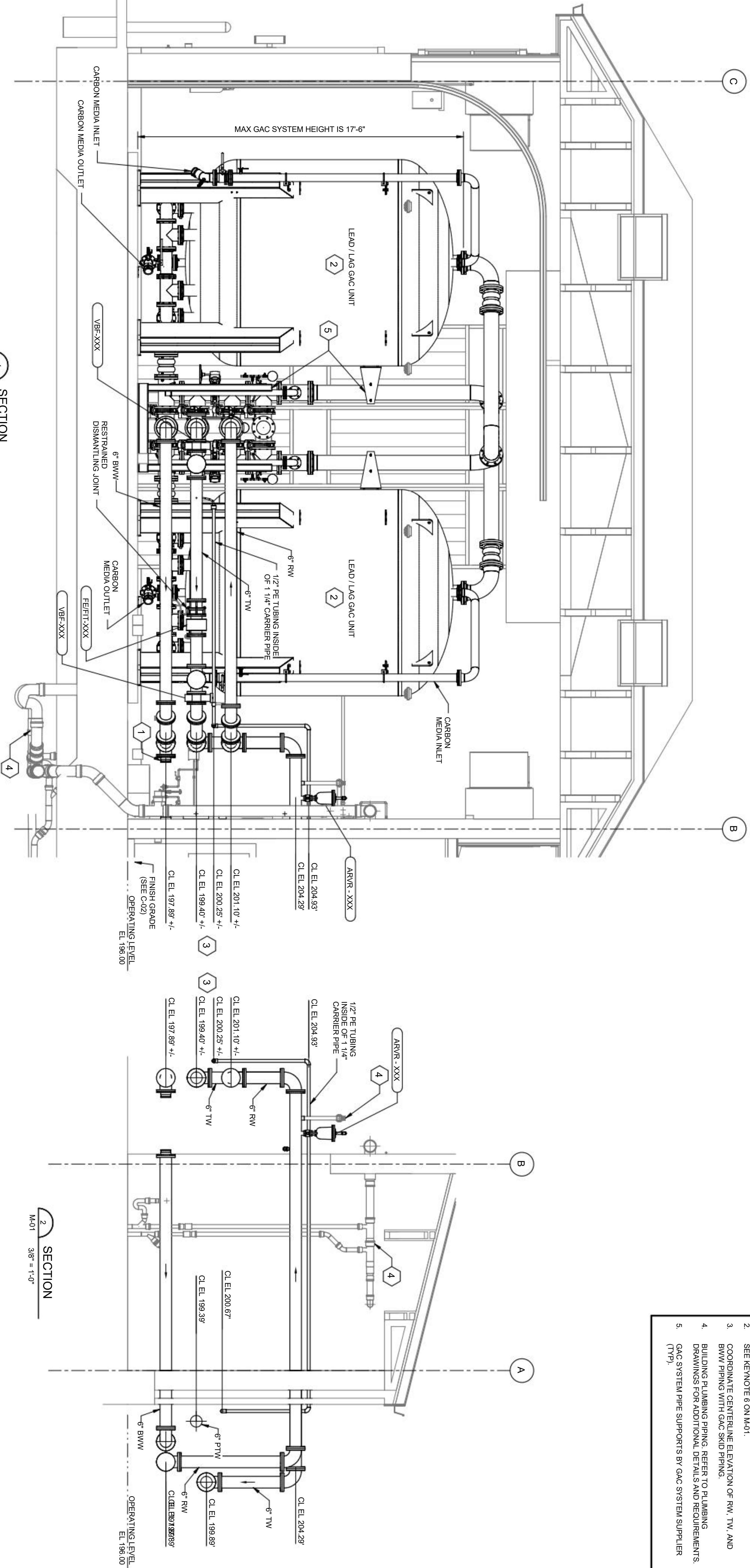
TREATMENT BUILDING
PROCESS MECHANICAL
TREATMENT AREA PLAN



REVISIONS AND RECORD OF USE		NO.	BY	CHK	APP
DATE					

DESIGNED BY	0
DETAILS BY	12
CHECKED BY	1
APPROVED BY	
DATE	JULY 2021
PROJECT NO.	407941
SHEET NO.	M-01
TOTAL SHEETS	OF

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



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

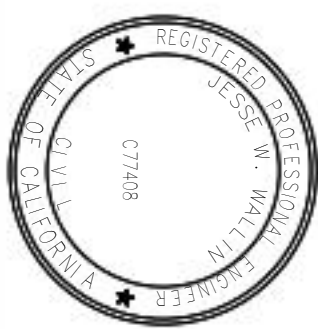
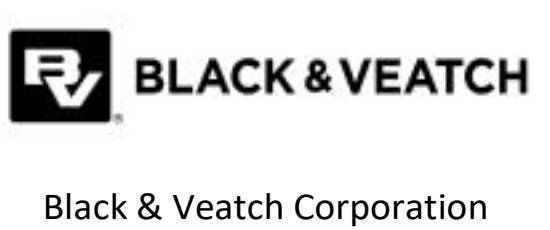
2 SECTION
M-01 3/8" = 1'-0"

GENERAL SHEET NOTES	
1.	REFER TO G-06 FOR GENERAL PROJECT NOTES.
SHEET KEYNOTES	
1.	6" BWV FLANGED BY MALE QUICK DISCONNECT.
2.	SEE KEYNOTE 6 ON M-01.
3.	COORDINATE CENTERLINE ELEVATION OF RW, TW, AND BWV 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).

PRELIMINARY - NOT FOR CONSTRUCTION

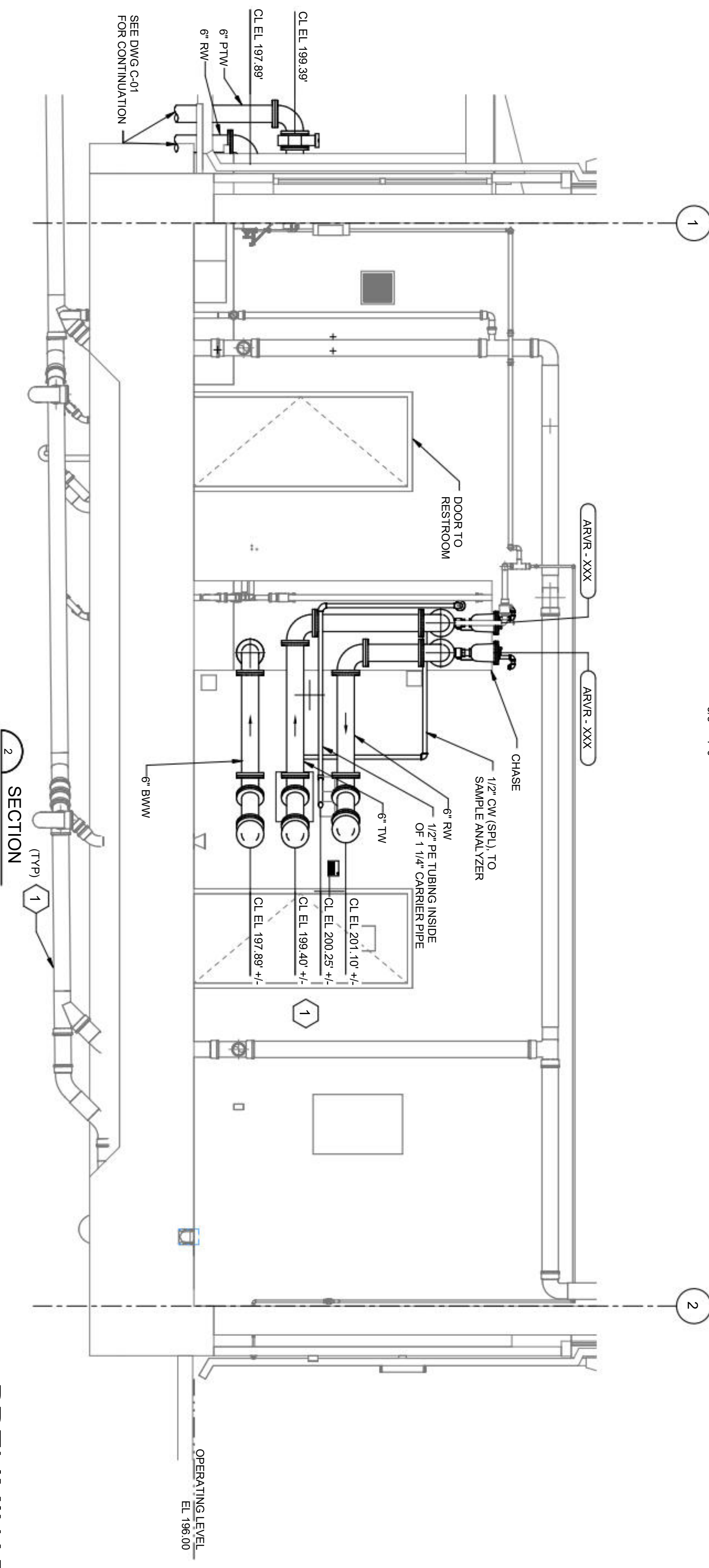
**SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT**

TREATMENT BUILDING
PROCESS MECHANICAL
TREATMENT AREA SECTIONS AND DETAILS 1

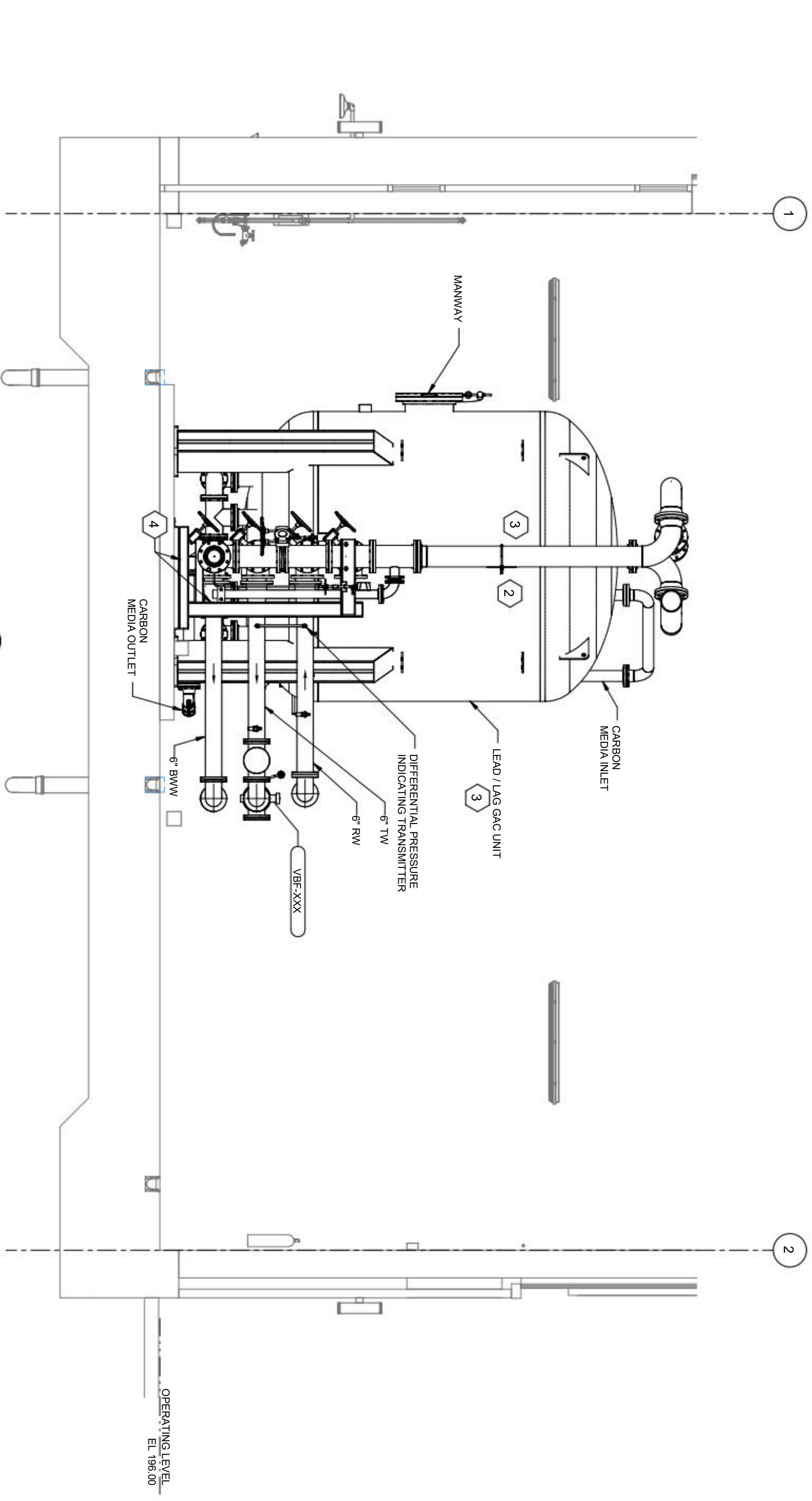


DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNED: GT
DETAILED: GT
CHECKED: GT
APPROVED: _____
DATE: JULY 2021
PROJECT NO: 407941
M-02 SHEET OF



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



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

GENERAL SHEET NOTES

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

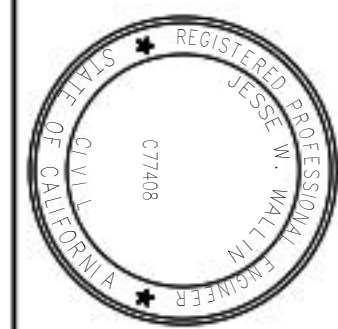
SHEET KEYNOTES

1. COORDINATE CENTERLINE ELEVATION OF PIPING WITH GAC SKID PIPING.
2. CONTRACTOR SHALL CONNECT RW, TW, & BW W/ 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.

PRELIMINARY - NOT FOR CONSTRUCTION

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

TREATMENT BUILDING
PROCESS MECHANICAL
TREATMENT AREA SECTIONS AND DETAILS 2



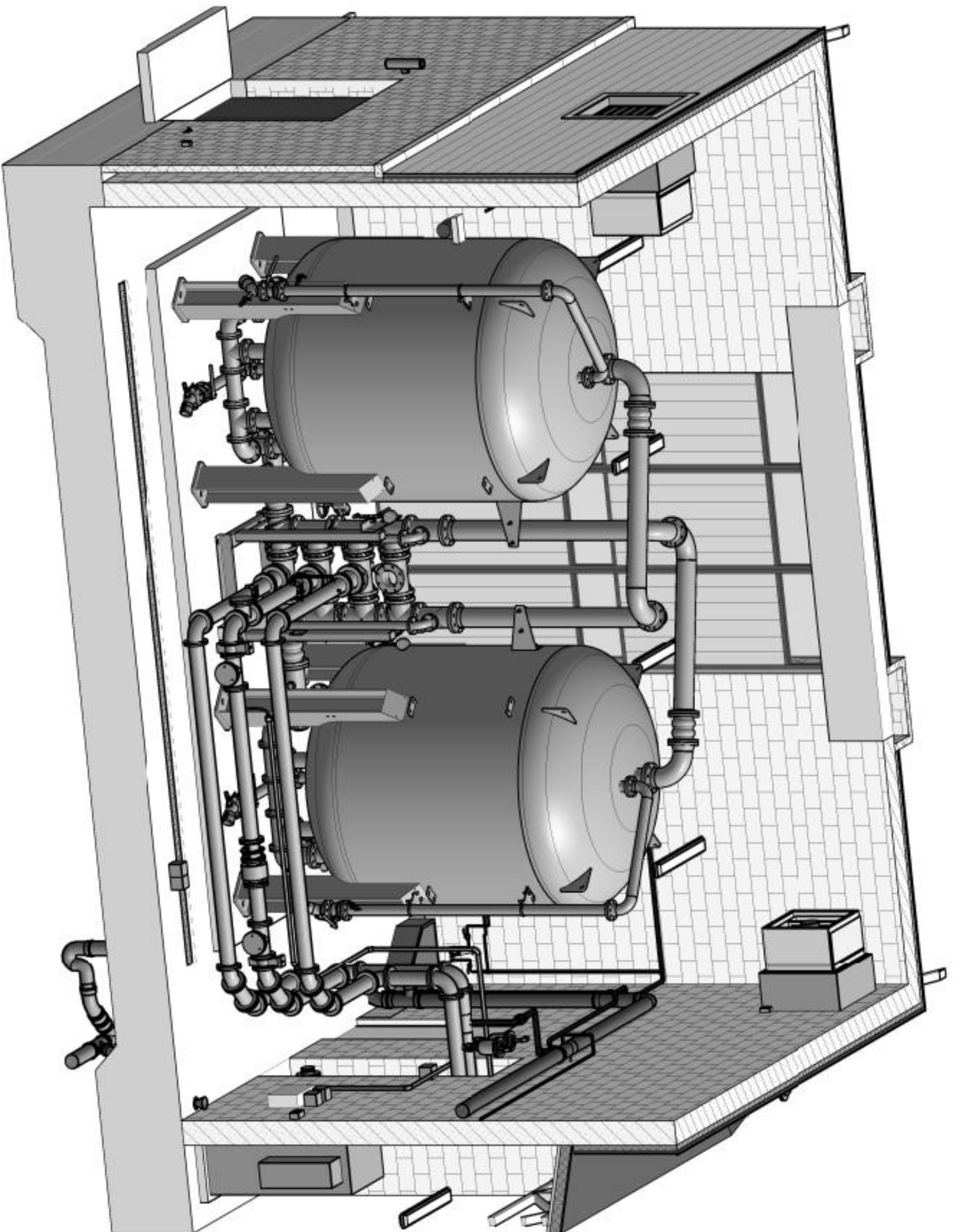
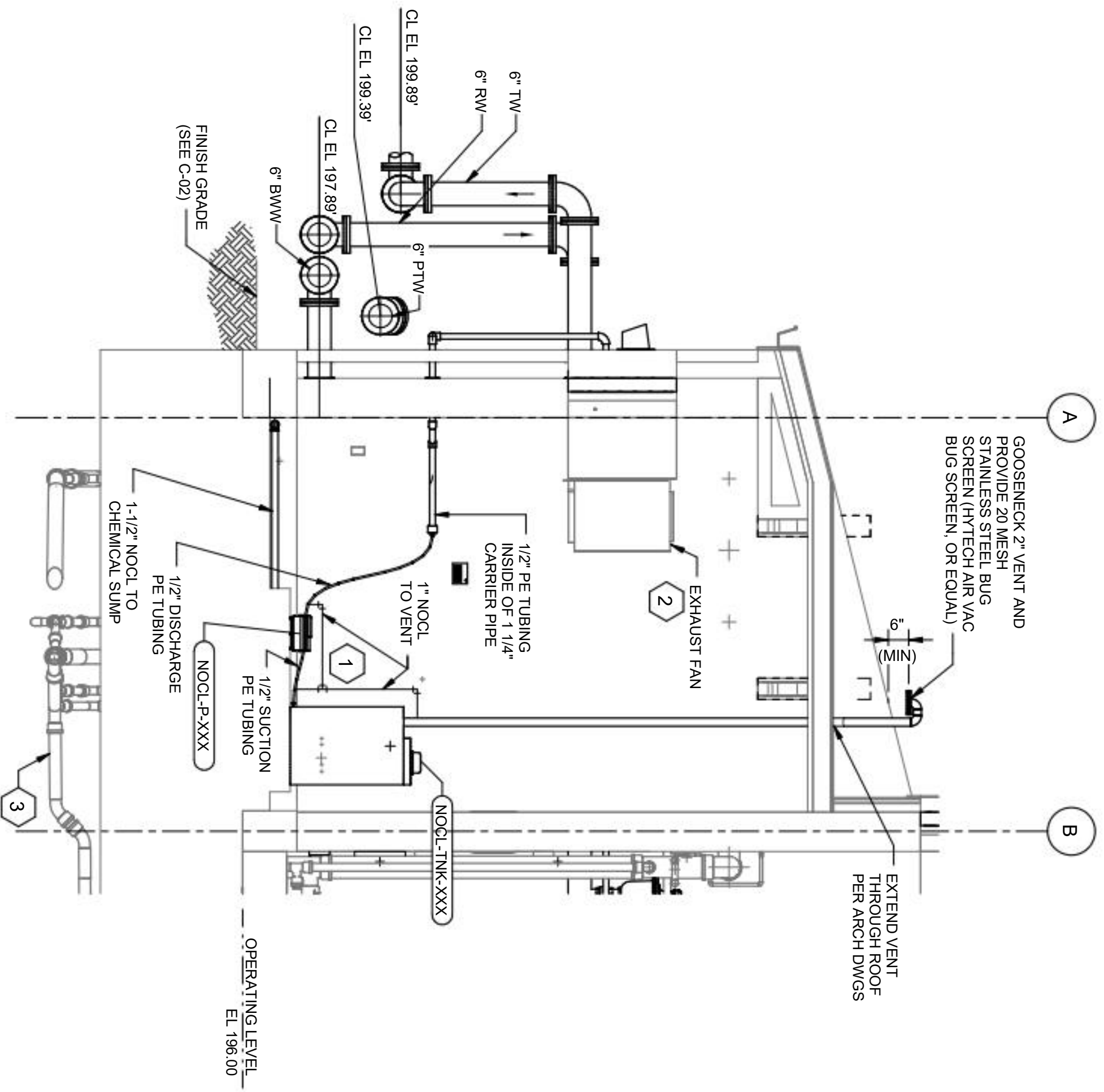
REVISIONS AND RECORD OF USE		NO.	BY	CHK	APP

DESIGNED BY: _____
 CHECKED BY: GT
 APPROVED: _____
 DATE: JULY 2021

0 12 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 407941

M-03 SHEET OF



GENERAL SHEET NOTES

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

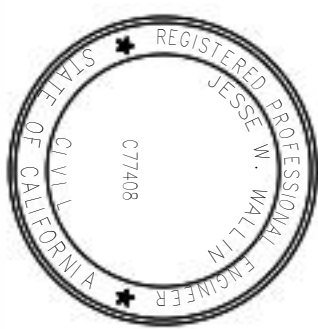
SHEET KEYNOTES

1. ALL CHEMICAL PIPING ITEMS ARE NOT SHOWN. REFER TO P&IDs FOR ADDITIONAL 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

REVISIONS AND RECORD OF USE

DATE



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

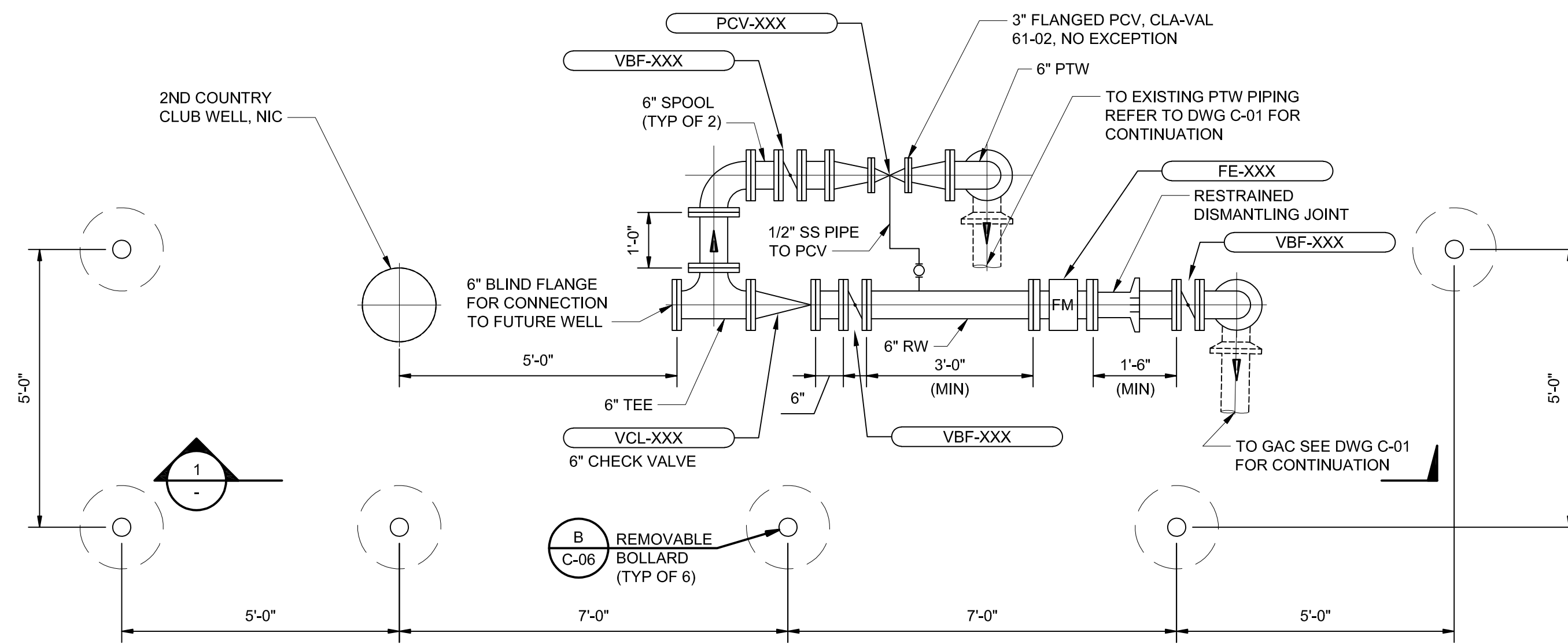
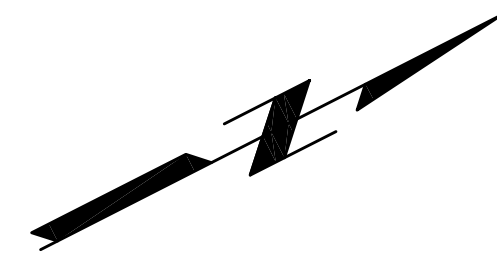
TREATMENT BUILDING
PROCESS MECHANICAL
TREATMENT AREA SECTIONS AND DETAILS 3

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

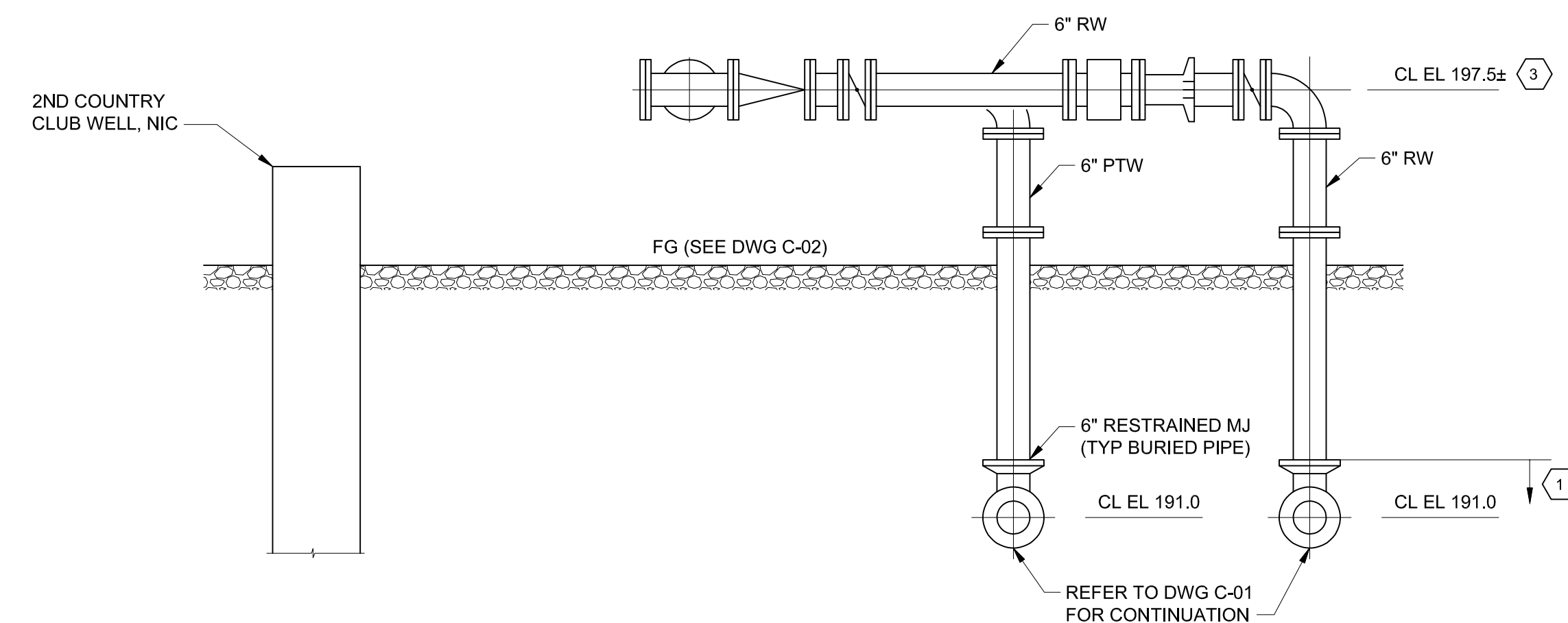
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
PROJECT NO. 407941

PRELIMINARY - NOT FOR CONSTRUCTION

M-04
SHEET OF



PLAN
1/2" = 1'-0"



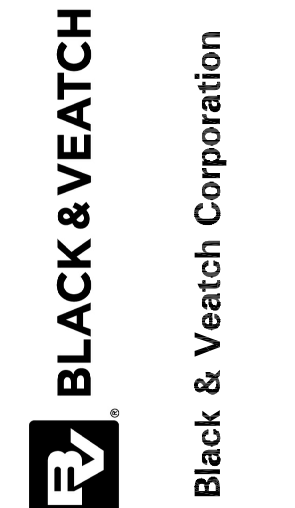
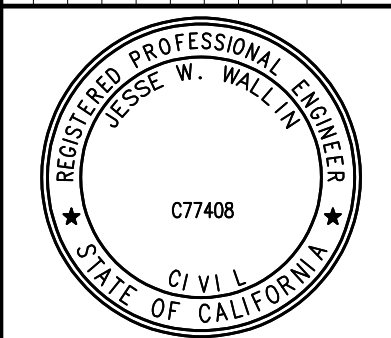
SECTION
1/2" = 1'-0"

GENERAL SHEET NOTES

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

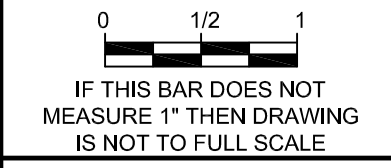
SHEET KEY NOTES

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



SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT
MECHANICAL
SUBMERSIBLE WELL PUMP PIPING PLAN AND SECTION

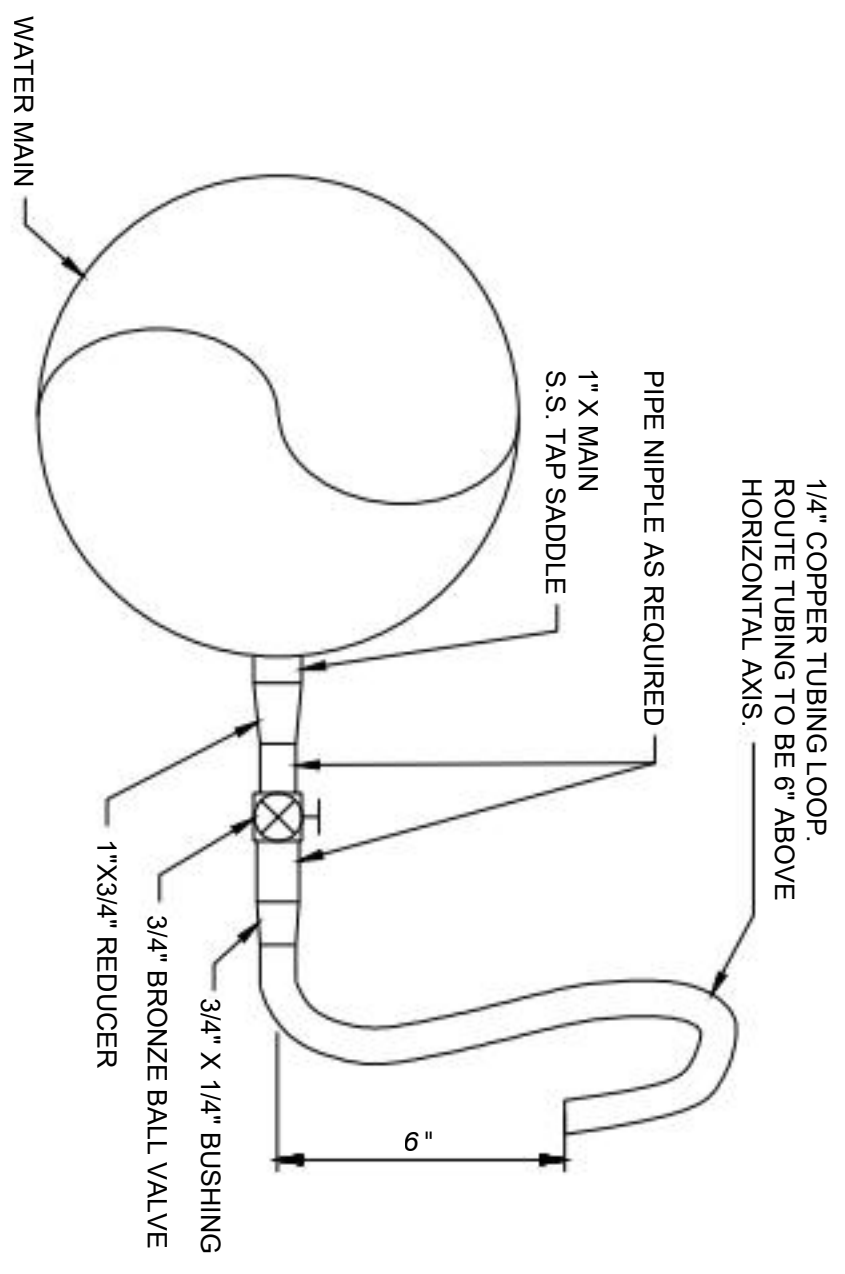
DESIGNED: GY
DETAILED: GT
CHECKED:
APPROVED:
DATE: JULY 2021



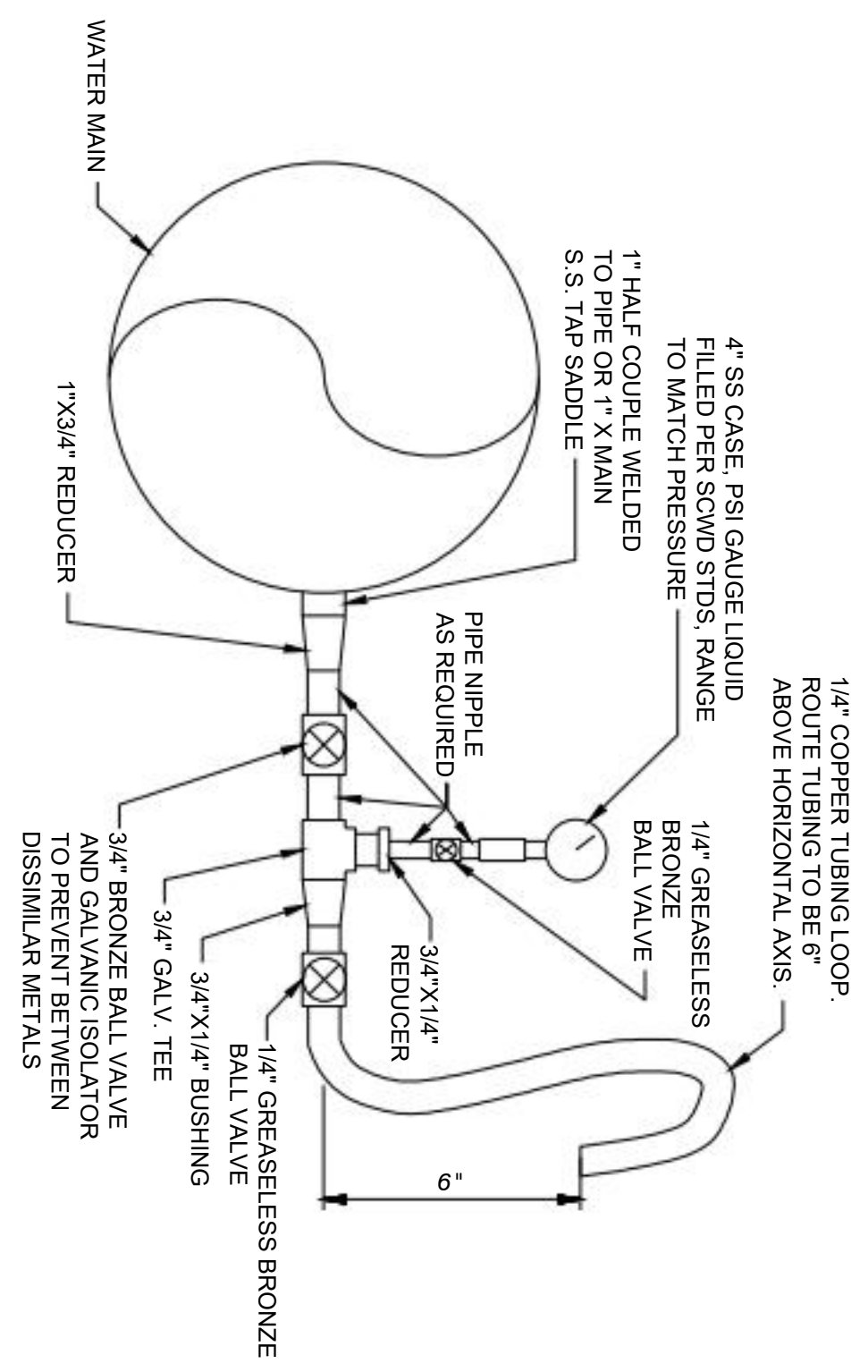
PROJECT NO.
407941

M-05
SHEET
OF

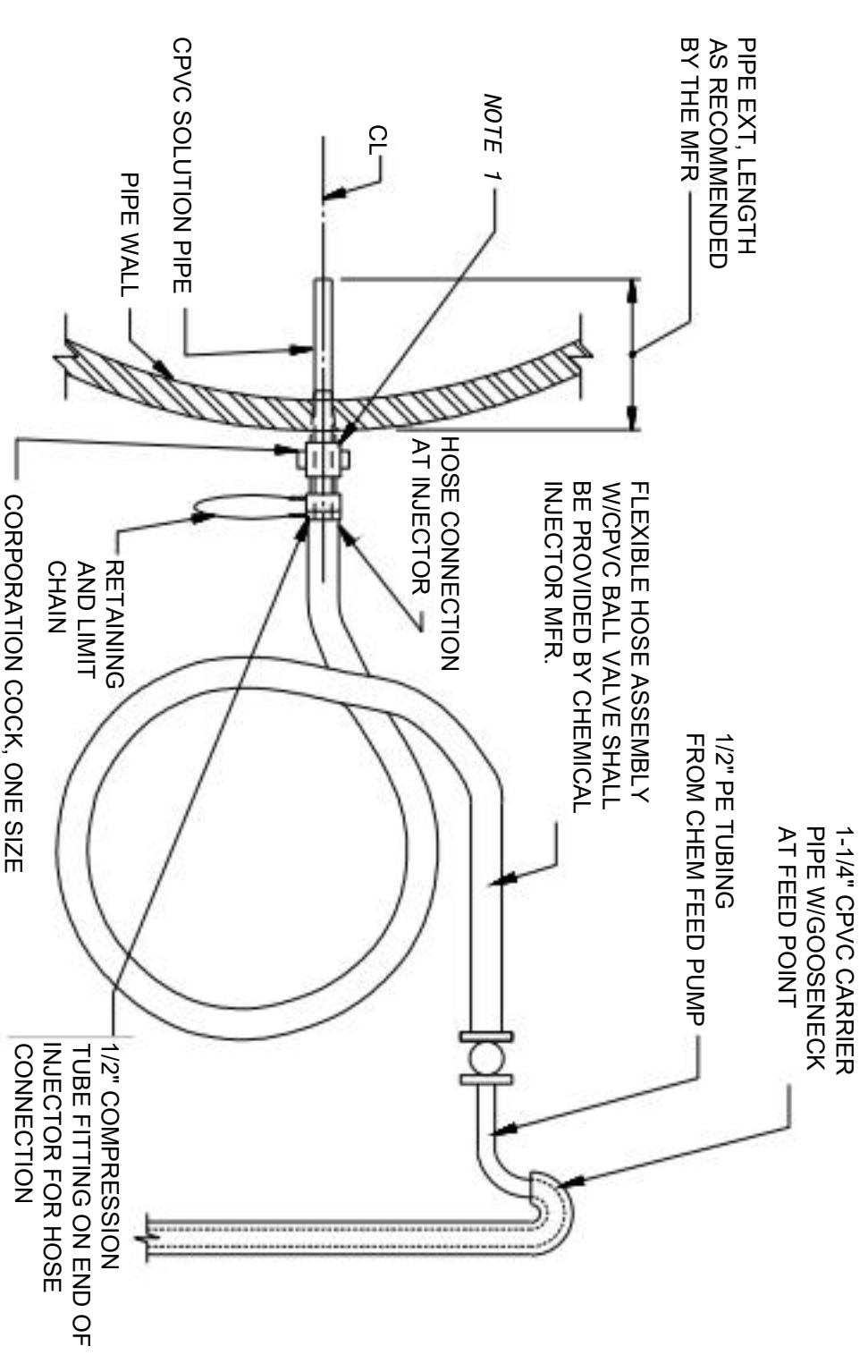
PRELIMINARY - NOT FOR CONSTRUCTION



A HOSE BIB SAMPLE TAP
 NO SCALE



B TREATED WATER SAMPLE TAP
 NO SCALE



C NOCL PIPE DIFFUSER
 NO SCALE

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

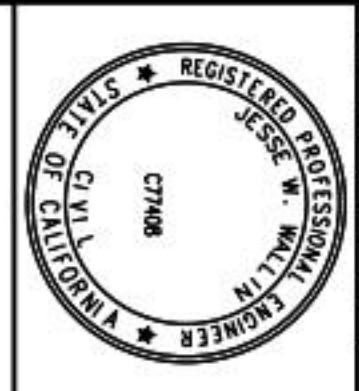
GENERAL SHEET NOTES

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

SHEET KEY NOTES

1.

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE



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

PROCESS MECHANICAL
 MISCELLANEOUS DETAILS SHEET 1 OF 2

DESIGNED BY: [Blank]
 CHECKED: JMO
 APPROVED: [Blank]
 DATE: JULY 2021

0 12 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

PLUMBING LEGENDS, ABBREVIATIONS, AND GENERAL NOTES

GENERAL PLUMBING ABBREVIATIONS

Table with columns for Abbreviation, Description, and Special. Includes categories like WATER, WASTE, and SPECIAL.

VALVE LEGEND

Table showing valve symbols and descriptions: PLAN, SECTION, 2D SYMBOL, DESCRIPTION.

PIPING ACCESSORIES LEGEND

Table showing piping accessories symbols and descriptions: PLAN, 2D SYMBOL, DESCRIPTION.

PIPING LEGEND

Table showing piping symbols and descriptions: PLAN, 2D SYMBOL, DESCRIPTION.

CONTROLS AND INSTRUMENTATION

Table showing control symbols and descriptions: 2D SYMBOL, DESCRIPTION.

PIPE FITTING LEGEND

Table showing pipe fitting symbols and descriptions: PLAN, 2D SYMBOL, DESCRIPTION.

PLUMBING LEGEND

Table showing plumbing symbols and descriptions: PLAN, 2D SYMBOL, DESCRIPTION.

SCHEMATICS

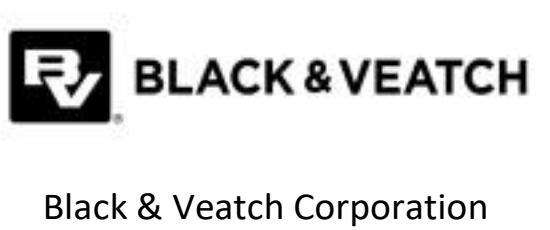
Table showing schematic symbols and descriptions: 2D SYMBOL, DESCRIPTION.

SCHEMATICS SPECIALTIES

Table showing specialty schematic symbols and descriptions: 2D SYMBOL, DESCRIPTION.

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...



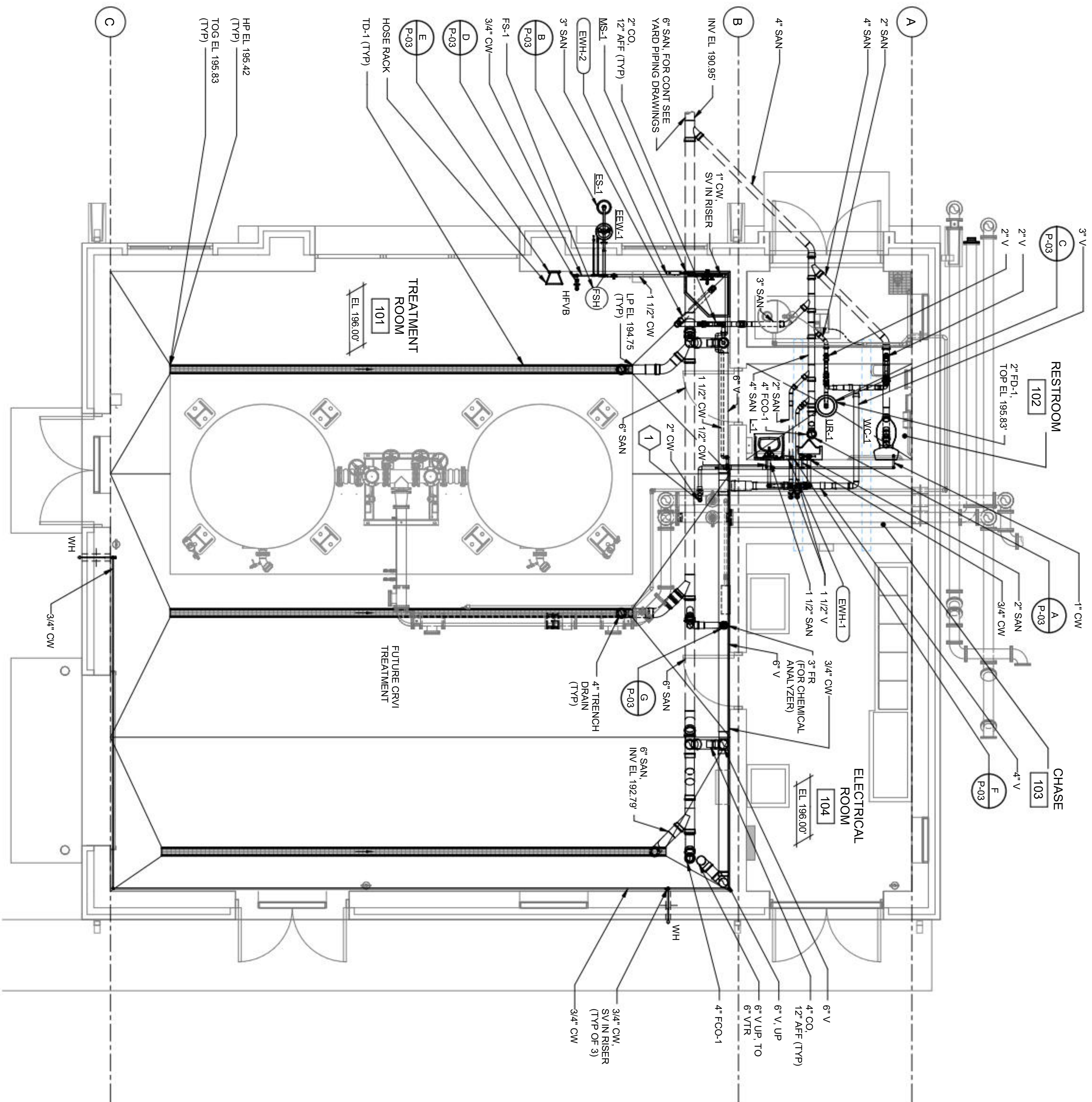
Black & Veatch Corporation



SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT
TREATMENT BUILDING
PLUMBING
LEGENDS, ABBREVIATIONS, AND GENERAL NOTES

DESIGNED: RYN
CHECKED: AEC
DATE: JULY 2021
PROJECT NO: 407941
P-01 SHEET OF

Table with columns: NO, BY, CHK, APP, DATE, REVISIONS AND RECORD OF USE.



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

GENERAL SHEET NOTES

SHEET KEYNOTES

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

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE



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

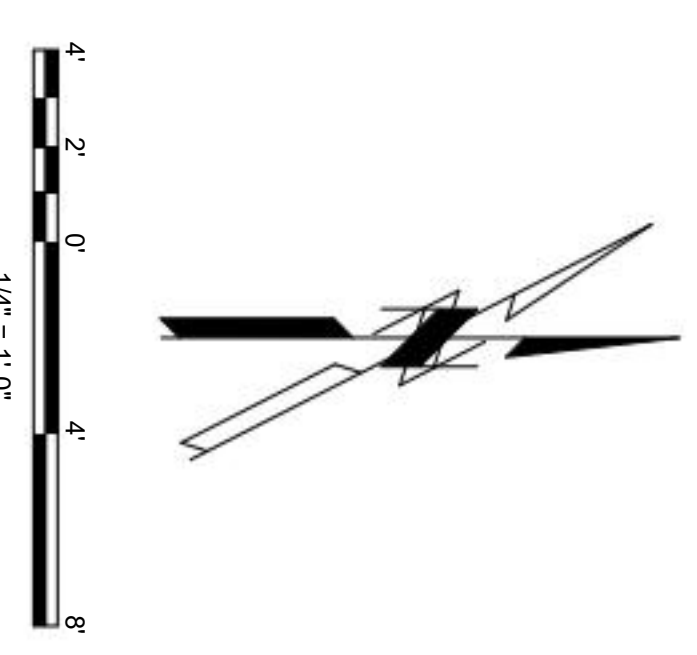
TREATMENT BUILDING
PLUMBING
FLOOR PLAN

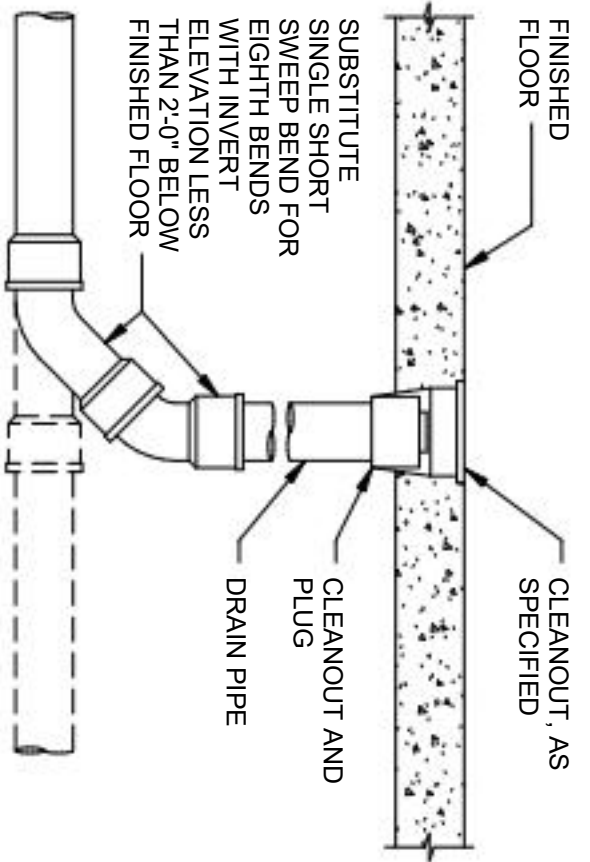
DESIGNED: RWN
 DETAILED: MS
 CHECKED: AEC
 APPROVED:
 DATE: JULY 2021

PROJECT NO.
407941

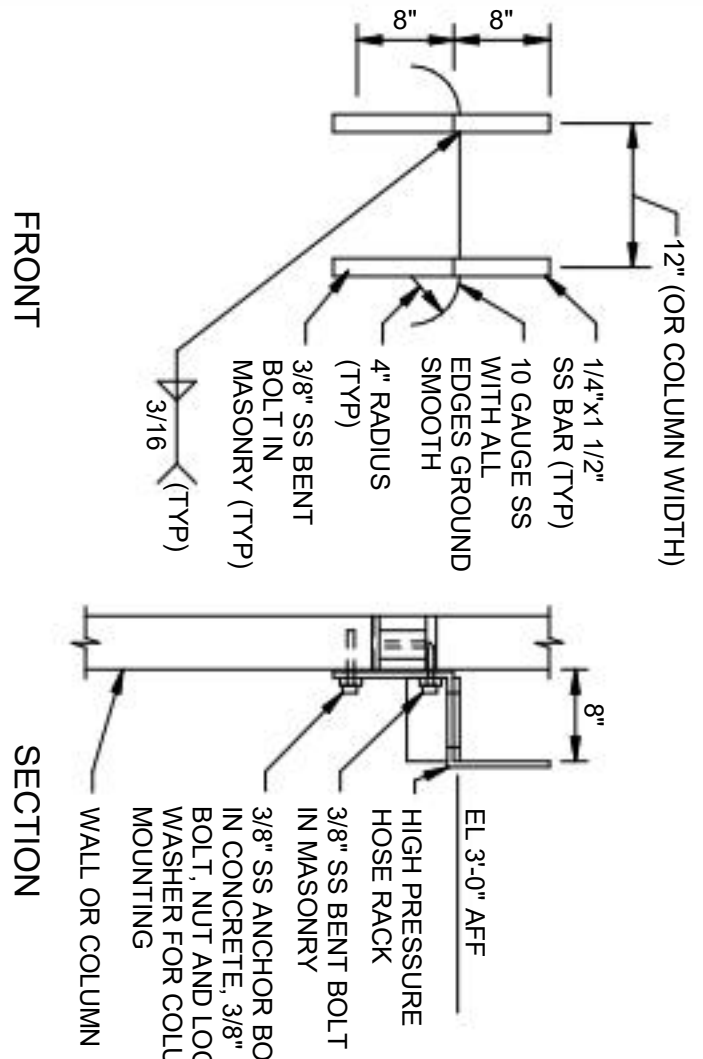
P-02
SHEET OF

PRELIMINARY - NOT FOR CONSTRUCTION

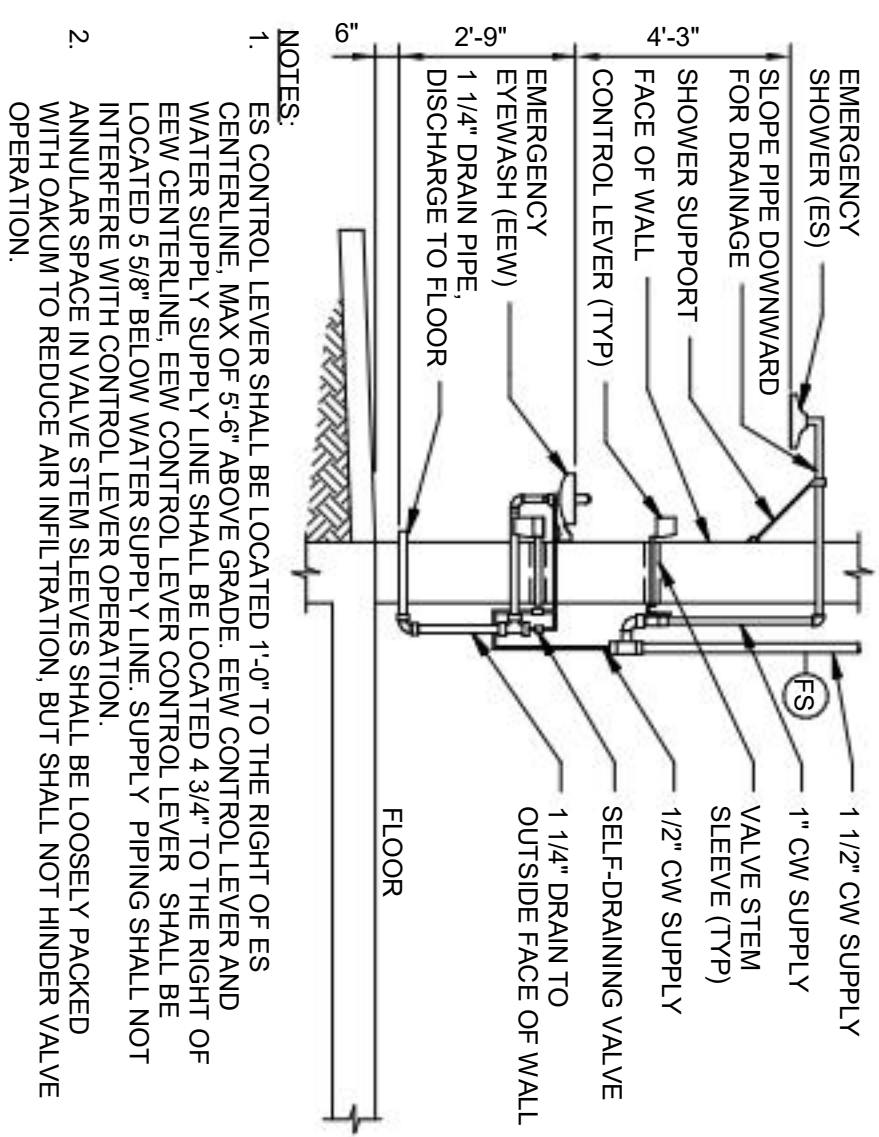




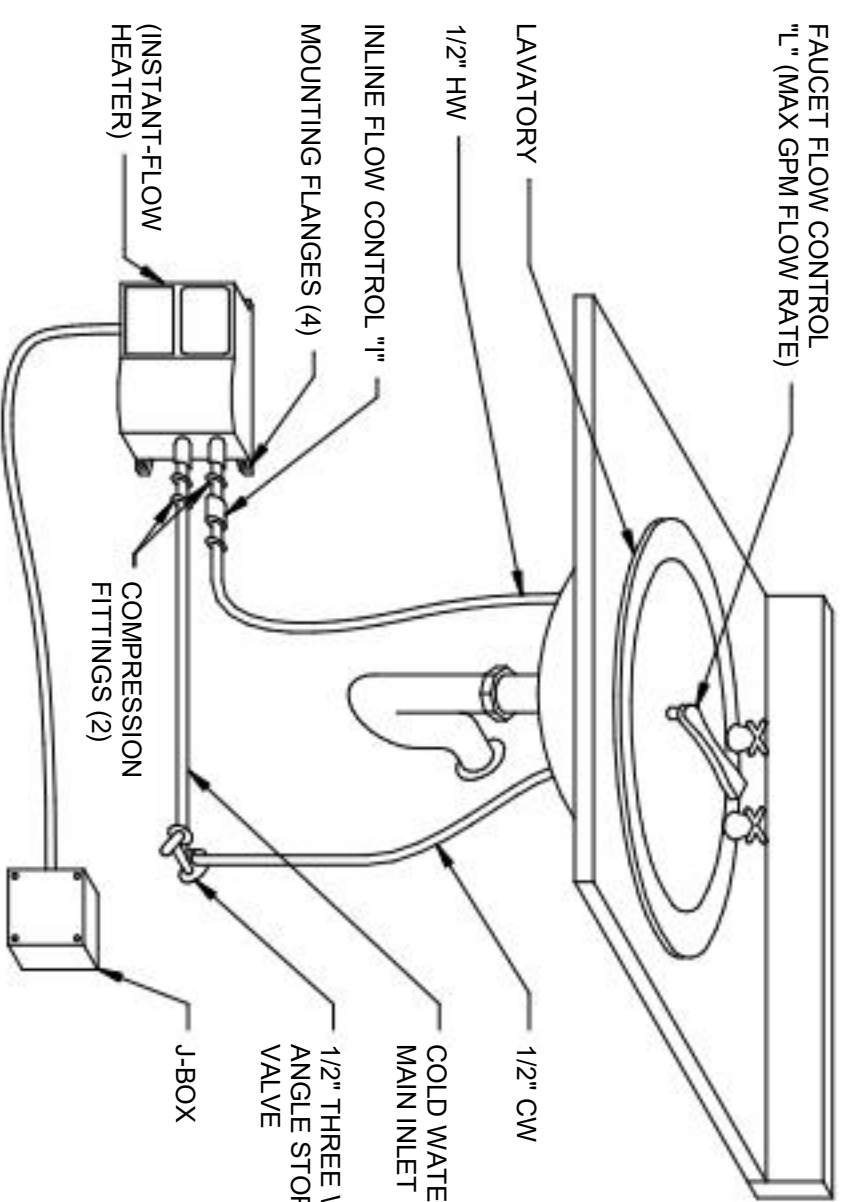
A FLOOR CLEANOUT - NEW FLOOR
NO SCALE



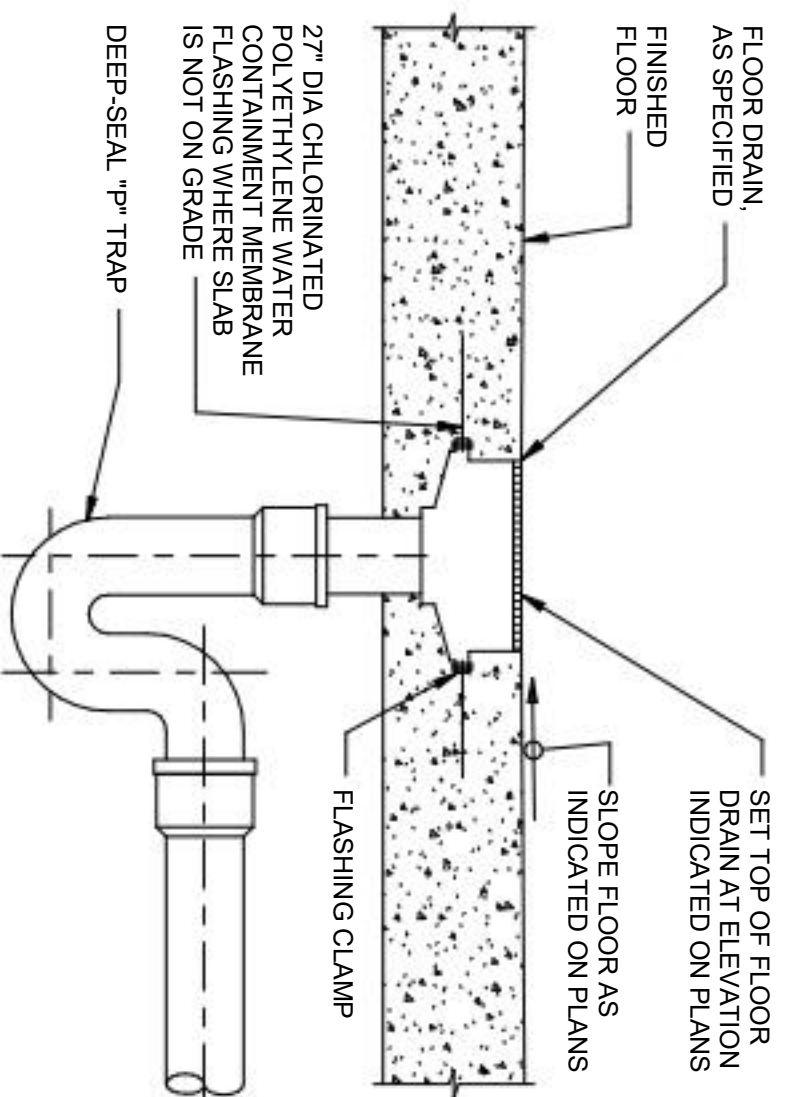
E WALL OR COLUMN MOUNTED HOSE RACK
NO SCALE



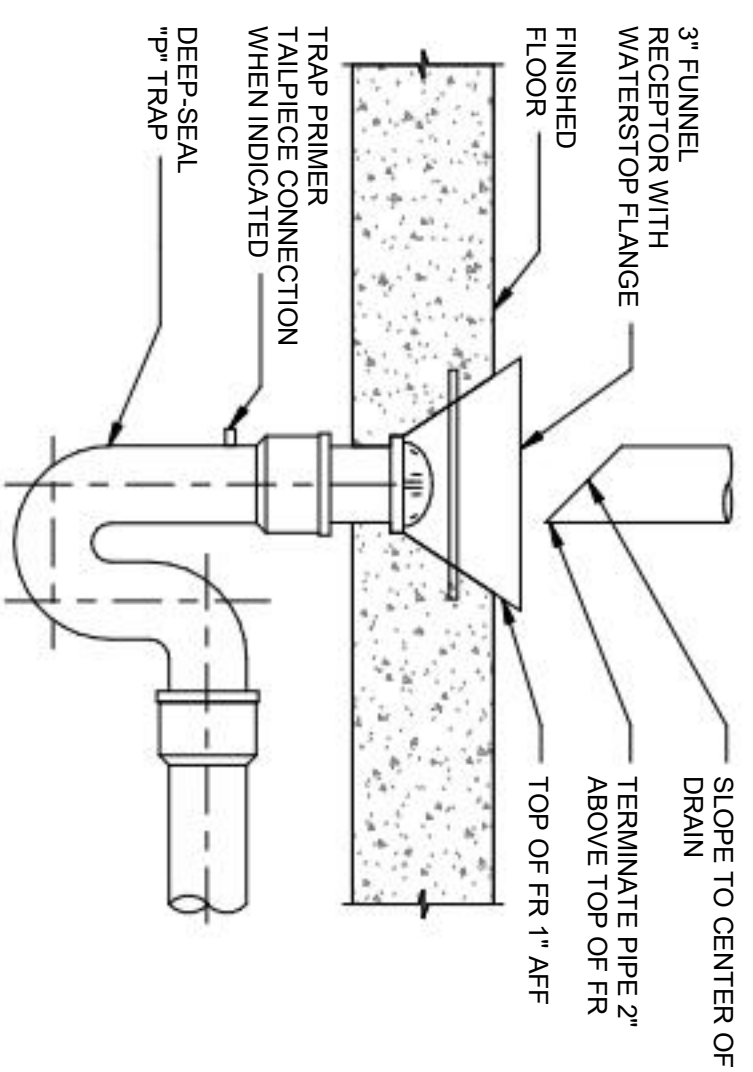
B OUTDOOR EMERGENCY SHOWER AND EYE WASH
NO SCALE



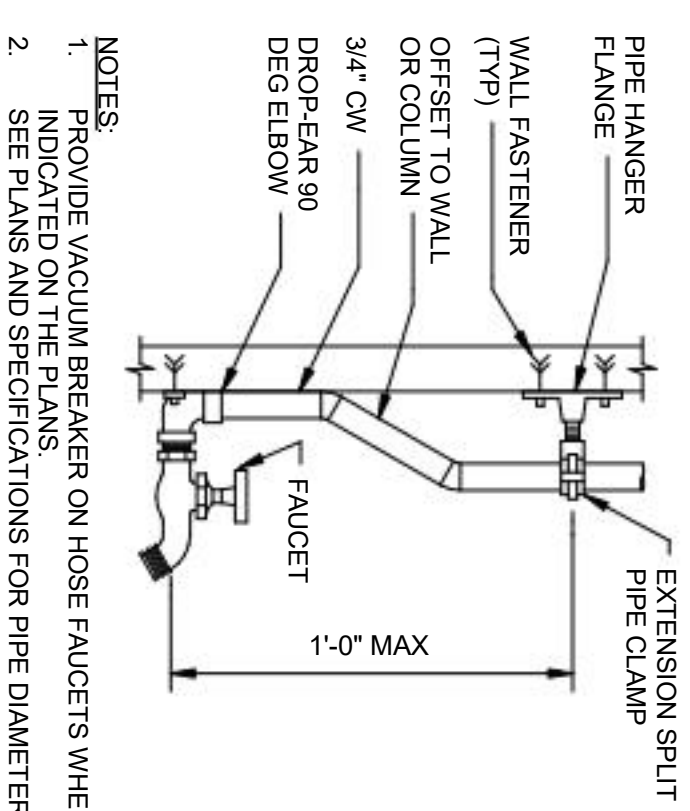
F HEATER-INSTITANTANEOUS UNDER THE LAVATORY
NO SCALE



C FLOOR DRAIN - NEW FLOOR
NO SCALE



G FUNNEL DRAIN - NEW FLOOR
NO SCALE



D HOSE FAUCET PIPE MOUNTING
NO SCALE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	APPROX WEIGHT (LBS)	NOTES
EW-1	CHROMOMITE	SERIES SR-30	ELECTRIC INSTANTANEOUS WATER HEATER, 0.5 GPM, 47.8 F RISE, 3.8 KW, 120 VOLT, 1 PHASE, 60 HZ	---	---
EMH-1	CHROMOMITE	SERIES R-75SS	ELECTRIC INSTANTANEOUS WATER HEATER, 2 GPM, 57.8 F RISE, 18 KW, 240 VOLT, 1 PHASE, 60 HZ	---	---

PLUMBING EQUIPMENT SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	WATER (IN)			WASTE (IN)			APPROX WEIGHT (LBS)	NOTES
				HOT	COLD	WASTE	VENT	VENT			
EEW-1	HAWS	743FP	EMERGENCY EYE WASH, WALL MOUNTED, FROST-PROOF, REMOTE ACTUATED BALL VALVE, 1/2" IPS TEMPERED WATER 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	AMERICAN STANDARD	FAUCET, 8354,112	SINK, SBC-1725-BP2	1/2"	1/2"	3"	2"	---	---	---	
UR-1	AMERICAN STANDARD	6501,010 WASHROCK	URINAL, WALL MOUNT, FLUSH VALVE, 1.0 GALLON/FLUSH MAX.	---	3/4"	2"	1 1/2"	---	---	1	
WC-1	AMERICAN STANDARD	3895,016 PRIOLO	WATER CLOSET, FLOOR MOUNT, FLUSH VALVE, 1.6 GALLON/FLUSH MAX.	---	1"	4"	2"	---	---	1	

PLUMBING FIXTURE SCHEDULE

PIPING ACCESSORIES SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	NOTES
FOO-1	SMITH	4240 SERIES	HEAVY DUTY FLOOR CLEANOUT WITH ADJUSTABLE TRACTOR COVER	---
TD-1	HUBBEL	POLYCAST 800 SERIES	EXTRA HEAVY DUTY TRENCH DRAIN, POLYMER CONCRETE, PRE-SLOPED, 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:

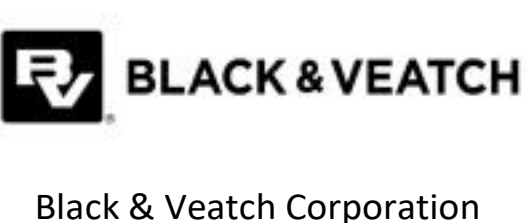
NONE

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

NO.	BY	CHK	APP

REVISIONS AND RECORD OF USE

DATE



Black & Veatch Corporation

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

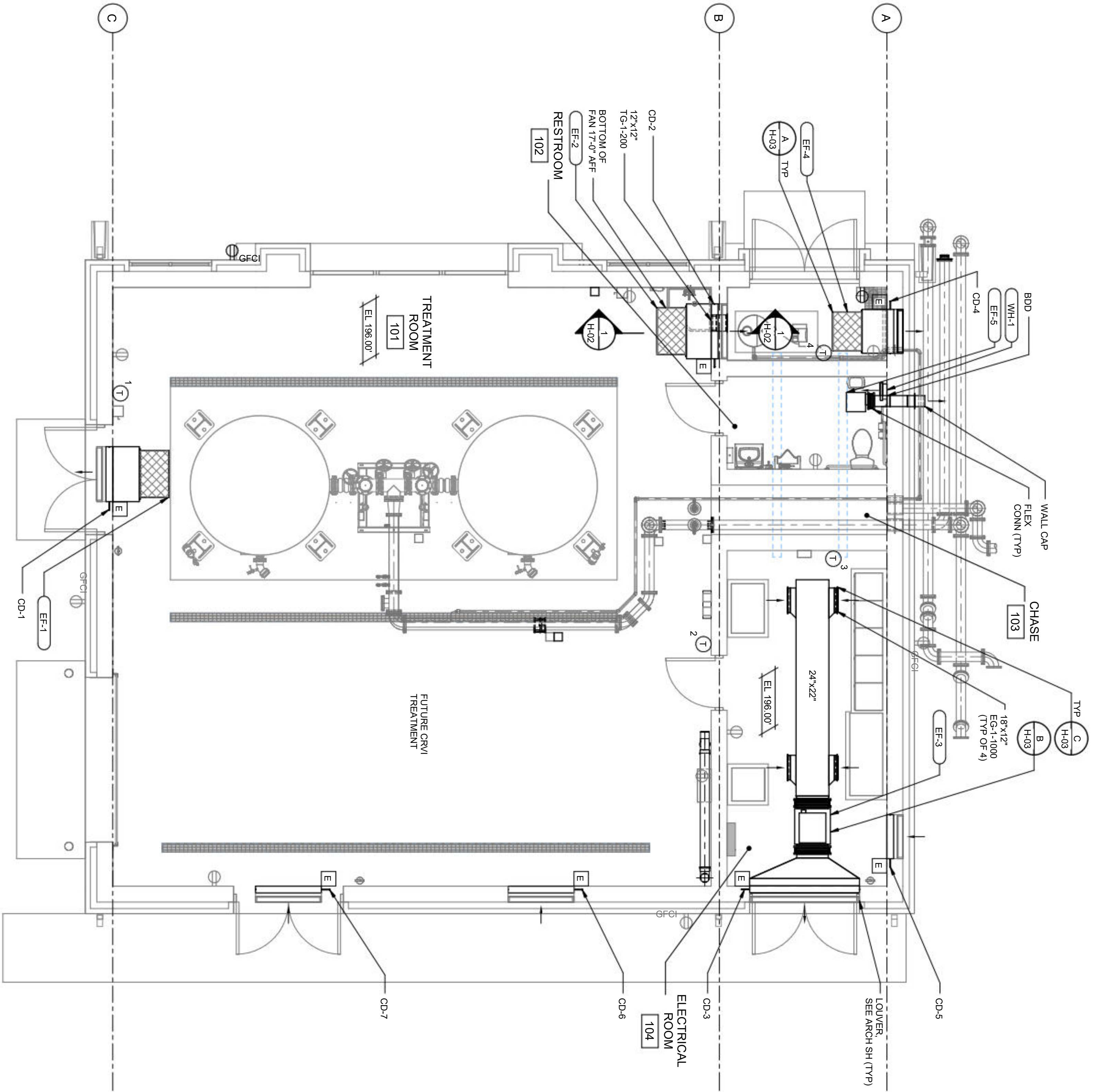
TREATMENT BUILDING
PLUMBING
DETAILS AND SCHEDULES

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

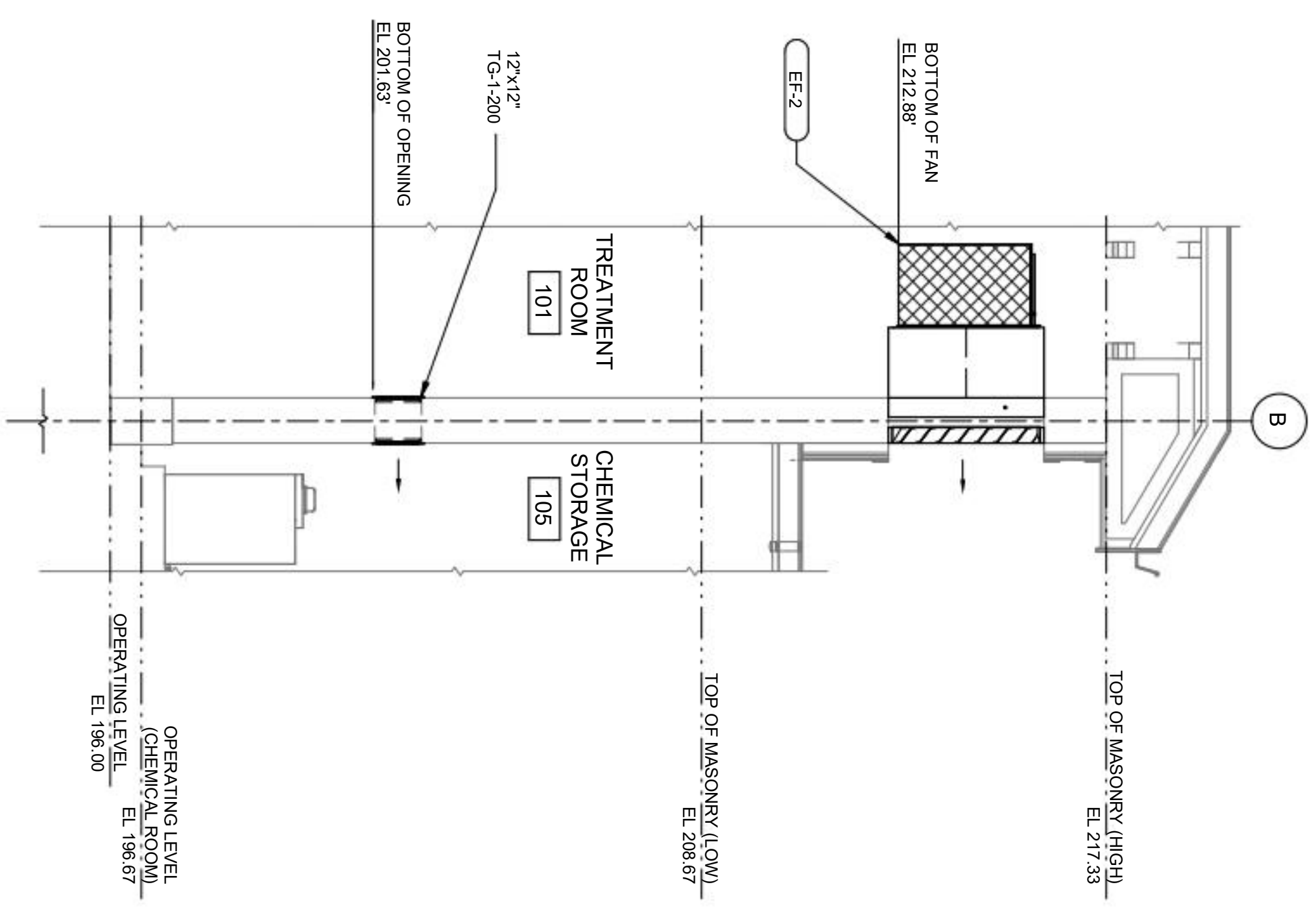
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
PROJECT NO. 407941

P-03
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION

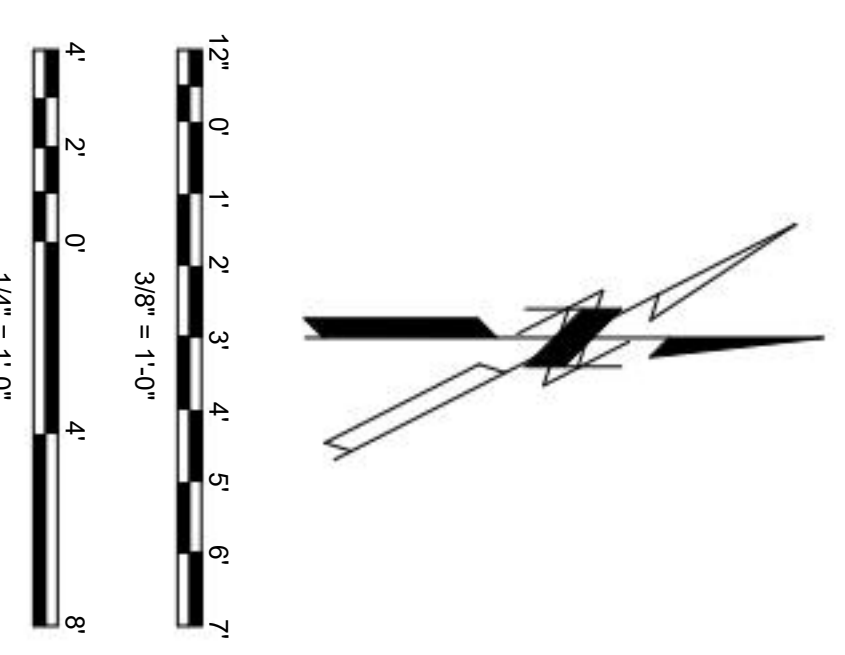


OPERATING FLOOR PLAN
1/4" = 1'-0"



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

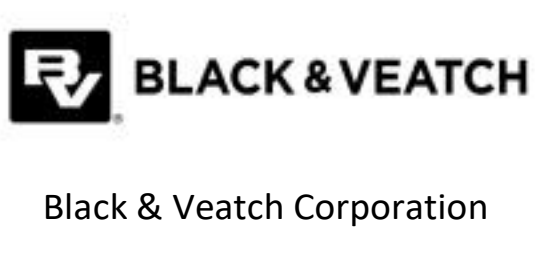
GENERAL SHEET NOTES	
SHEET KEYNOTES	



PRELIMINARY - NOT FOR CONSTRUCTION

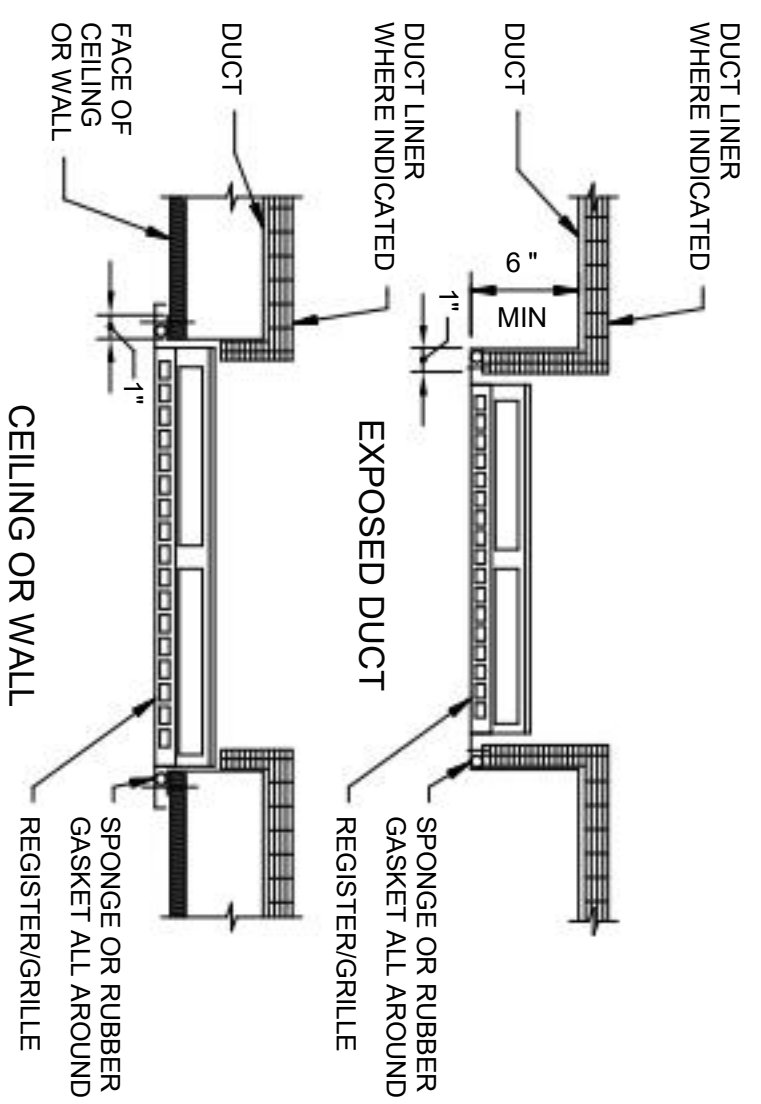
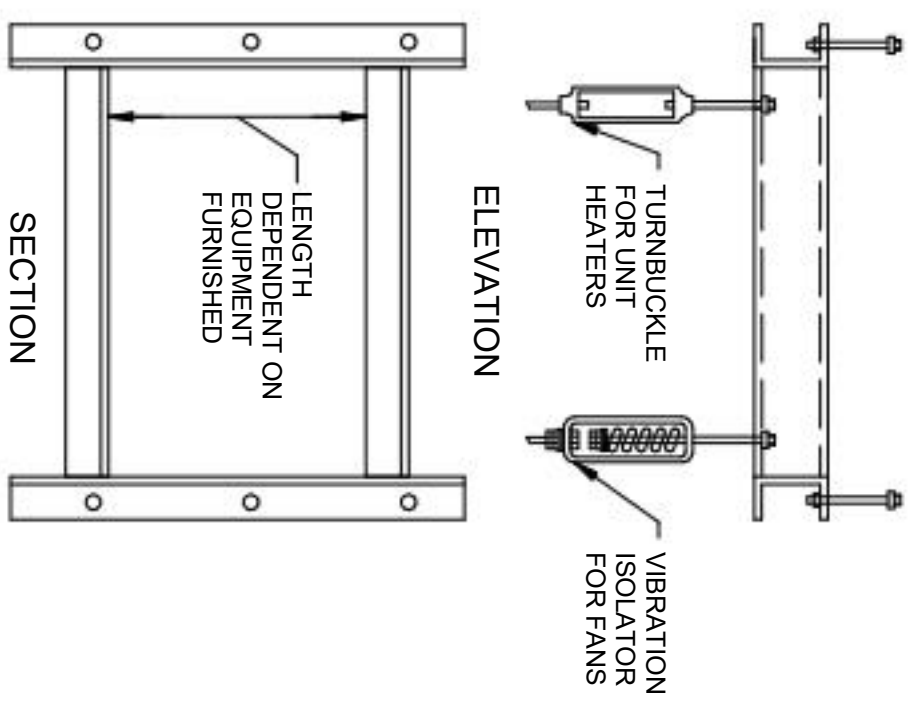
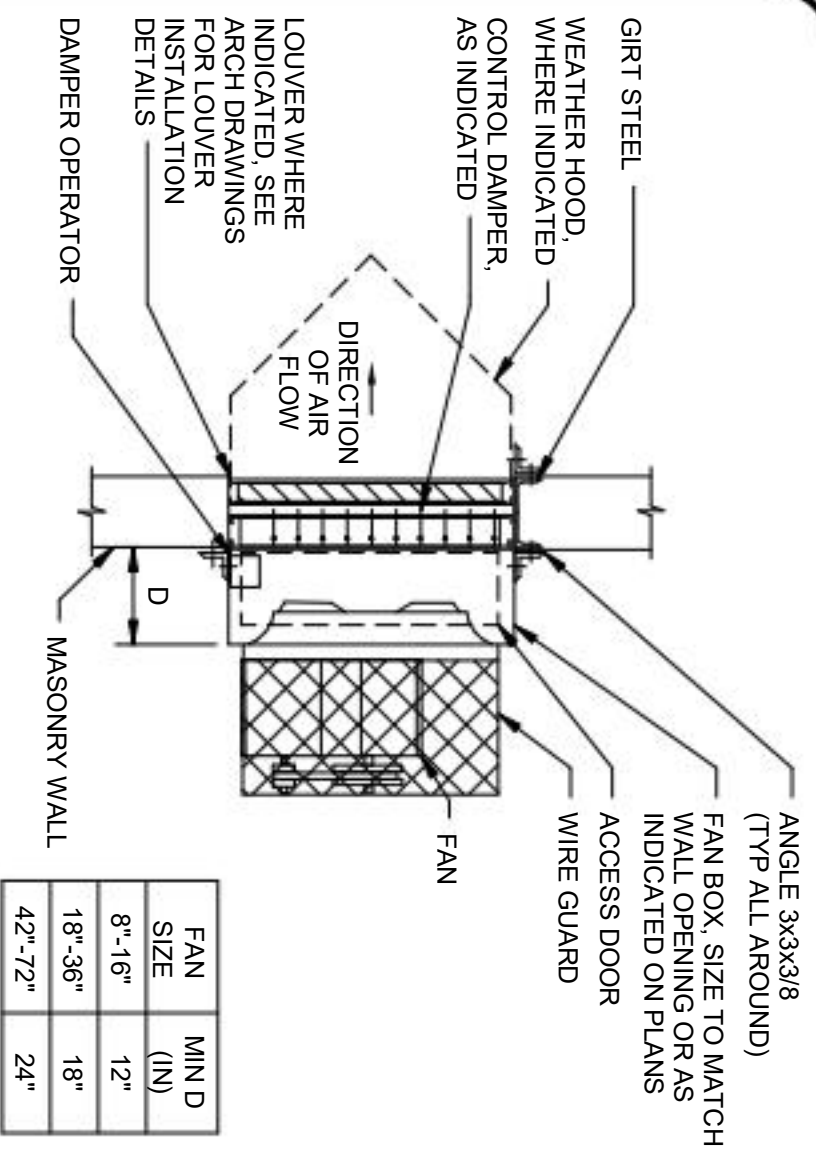
**SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT**

TREATMENT BUILDING
HVAC
FLOOR PLAN AND SECTION



DESIGNED: RWN	NO. 1136207	REGISTERED PROFESSIONAL ENGINEER
DATE: JULY 2021	MECHANICAL	STATE OF CALIFORNIA
DRAWN: MS		
CHECKED: AEC		
APPROVED:		
PROJECT NO. 407941		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE		
H-02		
SHEET		

DATE REVISIONS AND RECORD OF USE NO. BY CHK APP



A PROPELLER FAN
NO SCALE

B CEILING HANGER - 2 OR 4 ROD - EQUIPMENT SUPPORT - STRUCT MEMBER
NO SCALE

C REGISTER/GRILLE
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.

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	FAN TYPE	AIR FLOW (GPM)	ESP (IN WC)	BRAKE HP	MOTOR HP	VOLTS	PHASE	MINIMUM WHEEL DIAMETER (IN)	WHEEL TYPE	DRIVE	TYPE	FILTER DATA	VIBRATION ISOLATION	APPROX WEIGHT (LBS)	NOTES
EF-1	TREATMENT ROOM 101	GREENHECK	SPCE	PF	2000	0.375	0.32	1/2	480	3	24	P	BELT	---	---	INTERNAL	100	2A
EF-2	TREATMENT ROOM 101	GREENHECK	SPCE	PF	2000	0.375	0.32	1/2	480	3	24	P	BELT	---	---	INTERNAL	100	2A
EF-3	ELECTRICAL ROOM 104	GREENHECK	BSC-VG	DF	4000 / 2000	0.375	1.48	2	480	3	16	A	BELT	---	---	INTERNAL	160	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	WH	TYPE	UNIT ORIENTATION	EAT (F)	EWT (F)	AIR FLOW (CFM)	AIR PD (IN WC)	OUTPUT CAPACITY (BTUH)	POWER CAPACITY (KW)	WATER FLOW (GPM)	WATER PD (FT)	MOTOR HP	POWER SUPPLY VOLTS	PHASE	APPROX WEIGHT (LBS)	NOTES
WH-1	REST ROOM 102	INDEECO	WAI	WH	HORIZONTAL	---	---	---	---	---	---	1.5	---	---	---	120	1	24	1

AIR DEVICE SCHEDULE

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

HVAC SEQUENCE OF OPERATIONS:

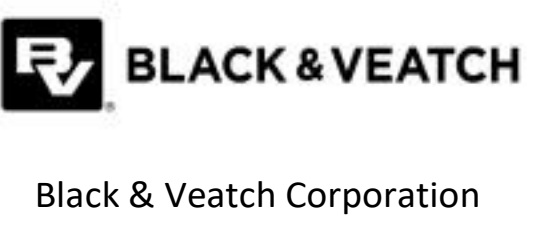
- HEATING SYSTEMS:
 - 1.1 WALL HEATERS WALL HEATERS SHALL BE CONTROLLED BY THEIR RESPECTIVE THERMOSTATS.
- VENTILATING/EXHAUST SYSTEMS:
 - 2.1 "ON-OFF-AUTO" EQUIPMENT CONTROL. EQUIPMENT INDICATED FOR "ON-OFF-AUTO" CONTROL SHALL EACH BE CONTROLLED BY AN INDIVIDUAL "ON-OFF-AUTO" FAN SELECTOR SWITCH. THE 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 PROVEN OPEN. WHEN THE SWITCH IS PLACED IN THE "OFF" POSITION, THE FAN SHALL BE PROVEN OPEN. WHEN THE FANS DE-ENERGIZED, THE CONTROL DAMPERS 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	---

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

HEATERS	VENTILATING EQUIPMENT
54F	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 GAP
2. CONSTRUCTION AT 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 PATTERNS.



SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT
TREATMENT BUILDING
HVAC
DETAILS, SCHEDULES AND SEQUENCE OF OPERATIONS

DESIGNED: RVN
CHECKED: AEC
APPROVED:
DATE: JULY 2021

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
PROJECT NO. 407941

H-03
SHEET OF

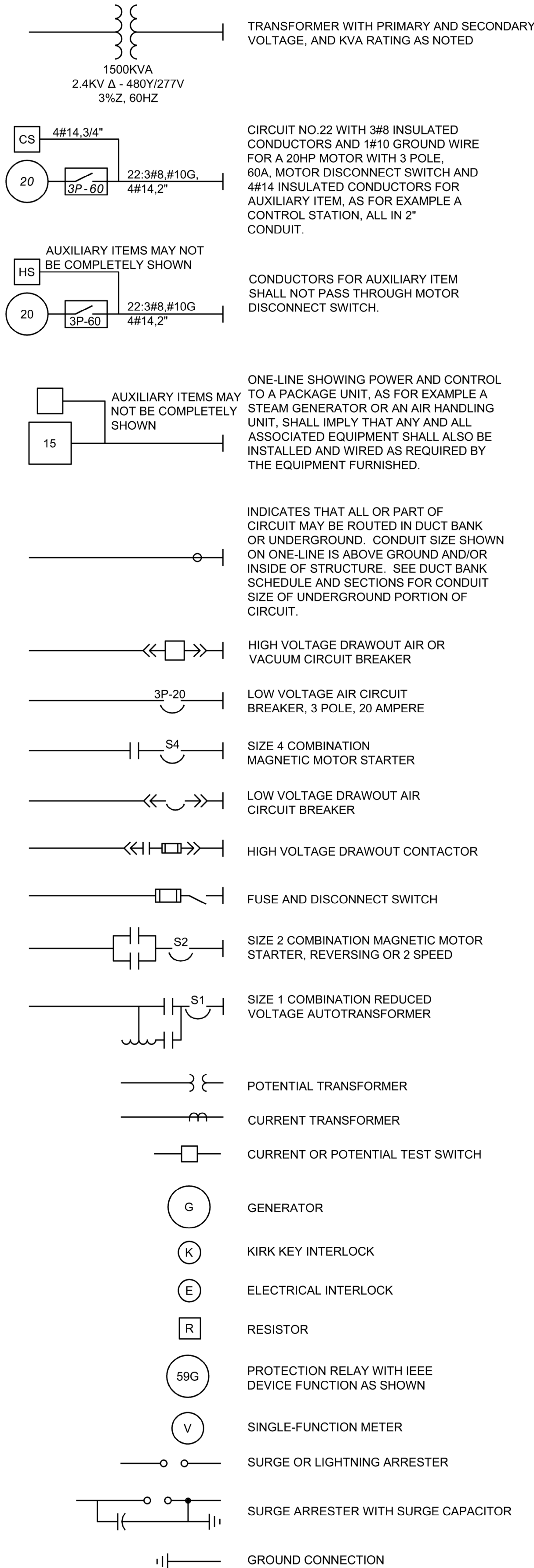
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NO.	BY	CHK	APP

DATE: _____ REVISIONS AND RECORD OF USE

ELECTRICAL LEGENDS

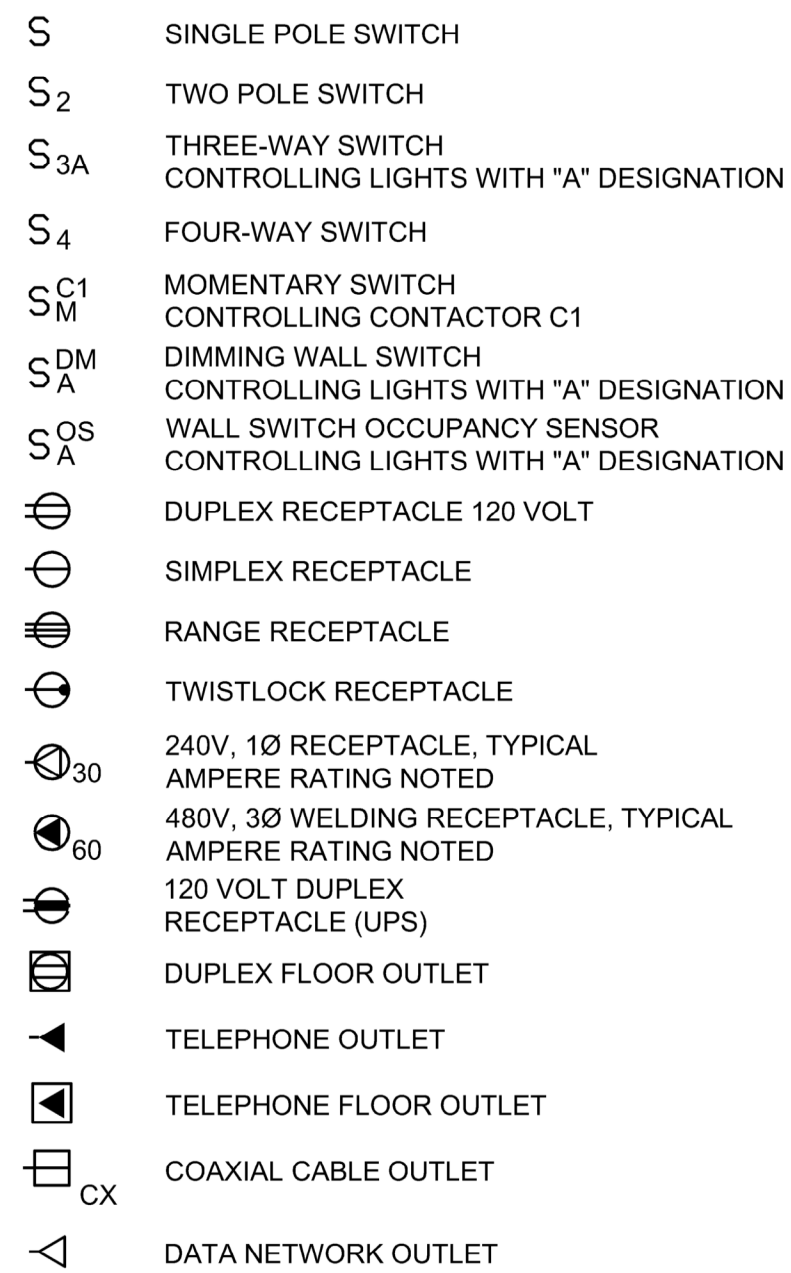
ONE-LINE DIAGRAM LEGEND



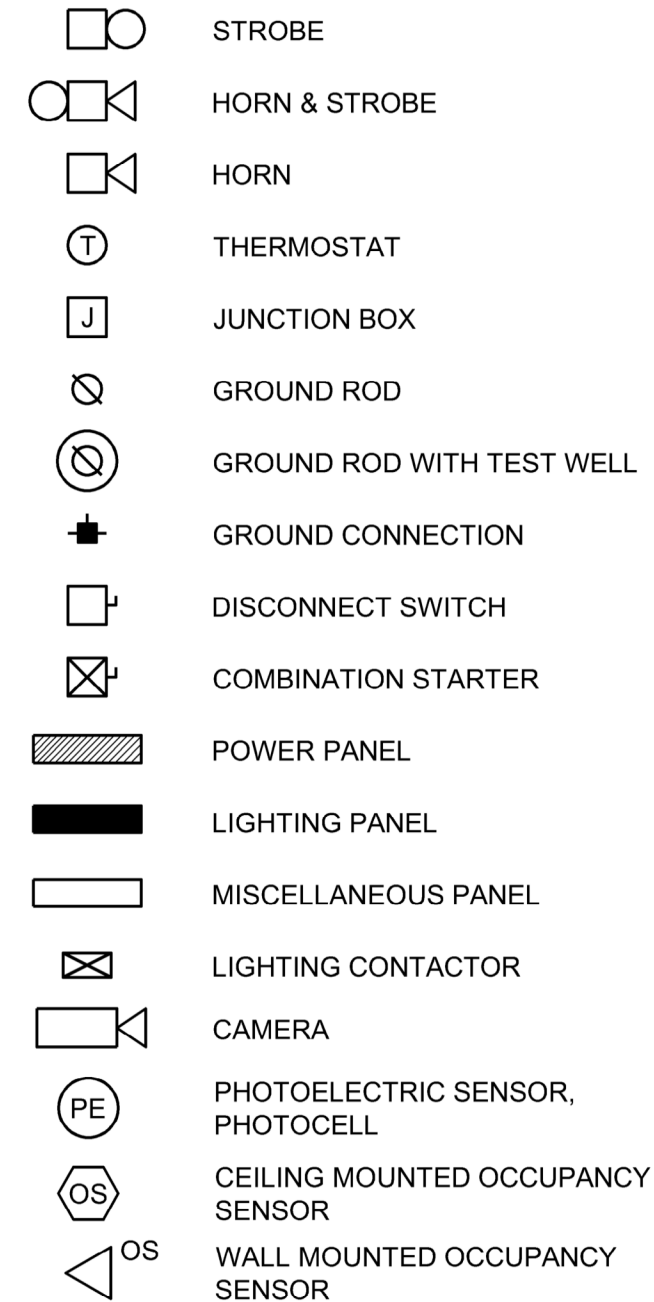
SCHEMATIC SYMBOLS



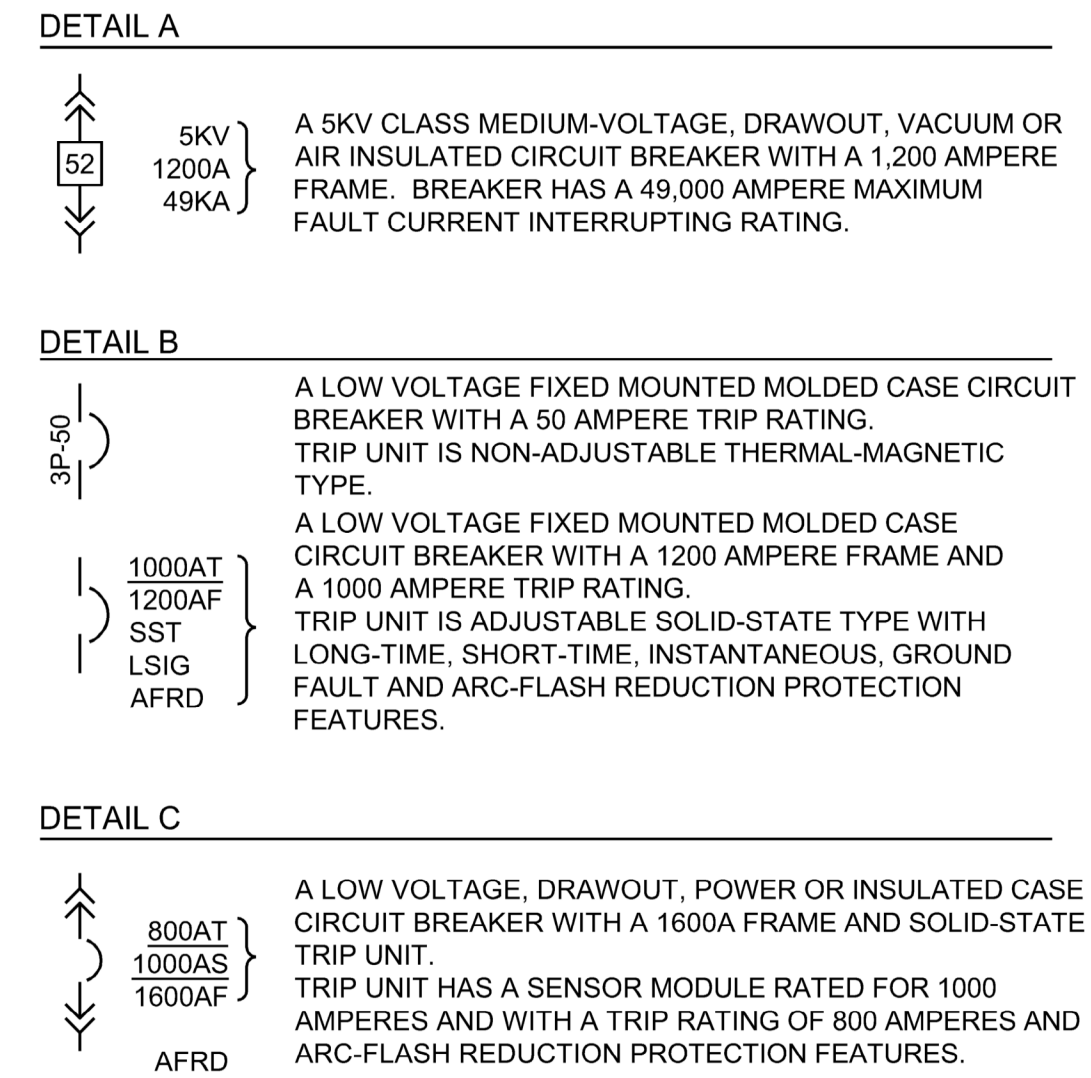
SWITCH & OUTLET SYMBOLS



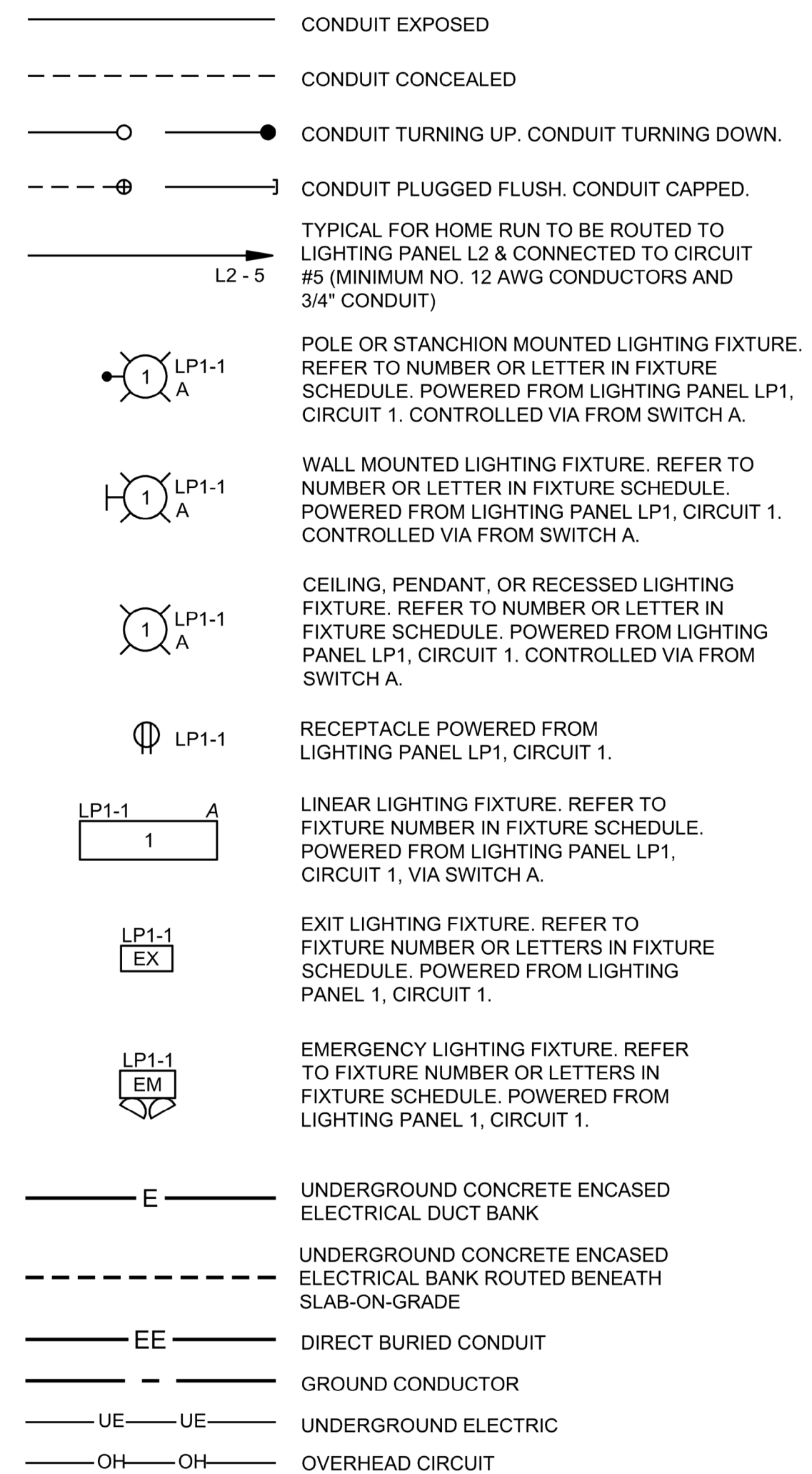
MISCELLANEOUS SYMBOLS



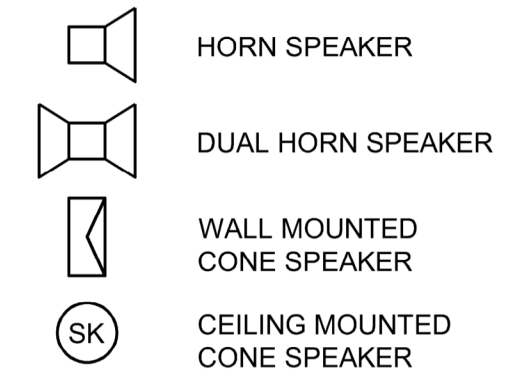
BREAKER DETAILS



CONDUIT & WIRING INSTALLATION LEGEND

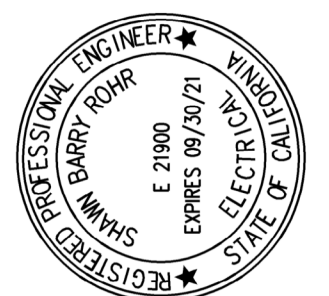


COMMUNICATION SYMBOLS



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



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

PRELIMINARY - NOT FOR CONSTRUCTION

ELECTRICAL ABBREVIATIONS & NOTES

ELECTRICAL GENERAL NOTES

- SOLID LINES (————) INDICATE NEW WORK OR EQUIPMENT.
- SCREENED LINES (———) INDICATE EXISTING WORK OR EQUIPMENT.
- DASHED LINES (-----) INDICATE FUTURE WORK OR EQUIPMENT.
- REFER TO INDIVIDUAL DISCIPLINE CONTRACT DRAWINGS FOR ADDITIONAL ABBREVIATIONS, DETAILS, AND GENERAL DESIGN NOTES.
- LEGEND SHEETS ARE GENERAL. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
- 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 1, DIVISION 1 AREA AS DEFINED BY NEC. ALL EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.
- AREA TYPE 7B** CLASS 1, 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.

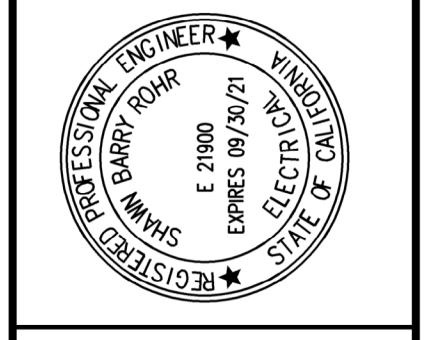
GENERAL REQUIREMENTS

- 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.
- SPARE WIRES SHALL BE TAPED AND COILED AND LABELED TO INDICATE WHERE OTHER END OF SPARE WIRE IS LOCATED.
- 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.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
- 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".
- 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		I		S	
A	AMBER, AMPERE, ALARM	I/O	INPUT/OUTPUT	S	SHORT-TIME, SHIELDED, STARTER
AC	ALTERNATING CURRENT	IUB	INSTANTANEOUS INTERCOM JUNCTION BOX	SA	SURGE ARRESTER, SPEAKER AMPLIFIER
ACB	AIR CIRCUIT BREAKER			SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
ACR	ACCESS CARD READER	J		SF6	SULFUR HEXAFLUORIDE
AF	AMPERE FRAME	JJB	JUNCTION BOX	SH	SPACE HEATER
AFD	ADJUSTABLE FREQUENCY DRIVE			SN	SOLID NEUTRAL
AFRD	ARC-FLASH REDUCTION DEVICE	K		SO	SOLENOID OILER
AM	AMMETER	K	KEY INTERLOCK	SP	SINGLE POLE
ANN	ANNUNCIATOR	KAIC	THOUSAND AMPERES INTERRUPTING CURRENT	SPD	SURGE PROTECTION DEVICE
AR	ALARM RELAY	KCMIL	THOUSAND CIRCULAR MIL	SPDT	SINGLE POLE DOUBLE THROW
AS	AMMETER SWITCH, AMPERE SENSOR	KO	KEY OPERATED	SPST	SINGLE POLE SINGLE THROW
AT	AMPERE TRIP	KV	KILOVOLT	SS	SELECTOR SWITCH, START/STOP, STAINLESS STEEL
ATS	AUTOMATIC TRANSFER SWITCH	KVA	KILOVOLT AMPERE	SSM	SOLID-STATE METERING
AUX	AUXILIARY	KVAR	KILOVAR	SSS	SOLID-STATE STARTER
AWG	AMERICAN WIRE GAUGE	KW	KILOWATT	SST	SOLID-STATE TRIP
		KWH	KILOWATT HOUR	SUPV	SUPERVISORY CONTROL
B				SV	SOLENOID VALVE
B	BUS	L		SWB, SWBD	SWITCHBOARD
BC	BATTERY CHARGER	LA	LOW LEVEL, LONG-TIME LIGHTNING ARRESTER	SWG, SWGR	SWITCHGEAR
BKR	BREAKER	LAN	LOCAL AREA NETWORK		
BR	BRAKE	LC	LIGHTING CONTRACTOR	T	
BT	BEARING TEMPERATURE	LCE	LIGHTING CONTACTOR ENCLOSURE	T	THERMOSTAT, TIMER, TOTALIZER, TRANSFORMER
C		LCP	LOCAL CONTROL PANEL	TACH	TACHOMETER
C	CLOSE, COUNTER, CONTACTOR, CONTROL, CCTV CAMERA	LCS	LOCAL CONTROL STATION	TB	TERMINAL BLOCK
CAP	CAPACITOR	LOA	LOCAL-OFF-AUTO	TC	TIMER CLUTCH
CB	CIRCUIT BREAKER	LOR	LOCAL-OFF-REMOTE	TD	TIME DELAY RELAY
CB'A"	CIRCUIT BREAKER AUXILIARY CONTACT (OPEN WHEN BREAKER IS OPEN)	LOS	LOCK OUT STOP	TEMP	TEMPERATURE
CB'B"	CIRCUIT BREAKER AUXILIARY CONTACT (CLOSED WHEN BREAKER IS OPEN)	LP	LIGHTING PANEL	TM	TIMER MOTOR
CD	CONTROL DAMPER	LS	LIMIT OR LEVEL SWITCH	TQ	TORQUE
CI	CELL INTERLOCK	LTG	LIGHTING	TR	TIMER RELAY, TRIAD
CKT	CIRCUIT	LWCO	LOW WATER CUTOFF	TS	TEMPERATURE SWITCH
CL2	CHLORINE			TTB	TELEPHONE TERMINAL BOARD
COS	CABLE OPERATED SWITCH	M			
CP	CONTROL PANEL	M	MAGNETIC MOTOR STARTER	UG	UNDERGROUND
CPT	CONTROL POWER TRANSFORMER	MA	MILLIAMPERE	UPS	UNINTERRUPTIBLE POWER SUPPLY
CR	CURRENT OF CONTROL RELAY, CARD READER	MCB	MAIN CIRCUIT BREAKER	V	
CS	CONTROL STATION	MCC	MOTOR CONTROL CENTER	V	VOLTS, VOLTAGE RESTRAINED
CT	CYCLE TIMER OR CURRENT TRANSFORMER	MCLU	MOTOR CONTROL LINEUP	VA	VOLT AMPERE
CTC	CYCLE TIMER CLUTCH	MD	MOISTURE DETECTOR, MOTION DETECTOR	VAR	VARMIETER
CTM	CYCLE TIMER MONITOR	MDL	MAGNETIC DOOR LOCK	VFD	VARIABLE FREQUENCY DRIVE
2/C	2 CONDUCTOR	MFR	MANUFACTURER	VI	VACUUM INTERRUPTER
4"C	4" CONDUIT	MH	MANHOLE, MOUNTING HEIGHT	VLS	VALVE LIMIT SWITCH
D		MHV	MOTOR OPERATED VALVE	VM	VOLTMETER
DC	DIRECT CURRENT, DOOR CONTACT	MFR	MOTOR PROTECTION RELAY	VPI	VALVE POSITION INDICATOR
DI	DOOR INTERLOCK	MS	MANUAL MOTOR STARTER	VS	VOLTMETER SWITCH
DM	DAMPER MOTOR, DEMAND METER, DIMMER SWITCH	MSH	MOTOR SPACE HEATER	W	
DPDT	DOUBLE POLE DOUBLE THROW	MTS	MANUAL TRANSFER SWITCH	W	WHITE, WATTS
DPST	DOUBLE POLE SINGLE THROW	MV	MILLIVOLT, MEDIUM VOLTAGE	WH	WATTHOUR METER
DPR	DIFFERENTIAL PRESSURE REGULATOR	MVA	MEGAVOLT AMPERE	WM	WATT METER
DPS	DIFFERENTIAL PRESSURE SWITCH	N		WP	WEATHERPROOF
DS	DISCONNECT SWITCH, DOOR SWITCH, DESKTOP STATION	N	NEUTRAL	WPI	WEATHERPROOF IN-USE
DVLS	DISCHARGE VALVE LIMIT SWITCH	NGR	NEUTRAL GROUNDING RESISTOR	WS	WALL STATION
E		NGT	NEUTRAL GROUNDING TRANSFORMER	X	
E	ELECTRIC OPERATOR FOR CONTROL DAMPER OR VALVE	NC	NORMALLY CLOSED	X	AUXILIARY RELAY
EC	EMPTY CONDUIT	NO	NORMALLY OPEN, NUMBER	XFMR	TRANSFORMER
EDS	ELECTRICAL DOOR STRIKE	O		XP	EXPLOSION PROOF
EL	ELEVATION, EMERGENCY LIGHT	O	OPEN	Y	
EMH	ELECTRICAL MANHOLE	OL	OVERLOAD	Y	YELLOW
ER	ELECTRODE RELAY	OOA	ON-OFF-AUTO	Z	
ES	END SWITCH, REQUEST TO EXIT SENSOR	OOR	ON-OFF-REMOTE	Z	AUXILIARY RELAY, IMPEDANCE
E-STOP	EMERGENCY STOP	OS	OCCUPANCY SENSOR	ZS	POSITION SWITCH
ETM	ELAPSED TIME METER	O/U	OVER/UNDER	ZSS	ZERO SPEED SWITCH
EX	EXISTING	P		1-1PR#16S	ONE, SINGLE PAIR, TWISTED SHIELDED #16 CABLE
EXP	EXPLOSION PROOF	P	PRIMARY, POWER, POLE	3-7/C#14	THREE, SINGLE, SEVEN CONDUCTOR #14 MULTICONDUCTOR CONTROL CABLES
F		PCS	PLANT CONTROL SYSTEM		
F	FORWARD, FIELD	PB	PUSH BUTTON, PULL BOX		
FO	FIBER OPTIC	PE	PHOTOELECTRIC SENSOR, PHOTOCCELL		
FPR	FEEDER PROTECTION RELAY	PF	POWER FACTOR		
FS	FLOW SWITCH	PFCC	POWER FACTOR CORRECTION CAPACITOR		
G		PH	PHASE		
G	GREEN, GROUND, GENERATOR, GROUND FAULT	PL	PILOT LIGHT		
GD	GROUND FAULT	PLC	PROGRAMMABLE LOGIC CONTROLLER		
GEN	GENERATOR	PP	POWER PANEL		
GFCl, GFI	GROUND FAULT CURRENT INTERRUPTOR, GROUND FAULT INTERRUPTOR	PR	PAIR		
GLS	GEARED LIMIT SWITCH	PRS	PROXIMITY SWITCH		
GPR	GENERATOR PROTECTION RELAY	PS	PRESSURE SWITCH		
GND	GROUND	PT	POTENTIAL TRANSFORMER, PROGRAM TIMER		
#G	#8 GROUND WIRE	Q			
H					
H	HIGH, HUMIDISTAT				
HH	HANDHOLE	R			
HMT	HIGH MOTOR TEMPERATURE	R	RED, RAISE, RELAY, REVERSE		
HOA	HAND-OFF-AUTO	RECP	RECEPTACLE		
HOR	HAND-OFF-REMOTE	RES	RESISTOR		
HP	HORSEPOWER	RH	REMOTE HANDSET		
HS	HAND STATION	RT	REPEATING TIMER		
HWCO	HIGH WATER CUTOFF	RTD	RESISTANCE TEMPERATURE DETECTOR		
HZ	HERTZ (CYCLE)	RTU	REMOTE TERMINAL UNIT		
		RVSS	REDUCED VOLTAGE SOLID STATE STARTER		

NO.	BY	CHK/APP.



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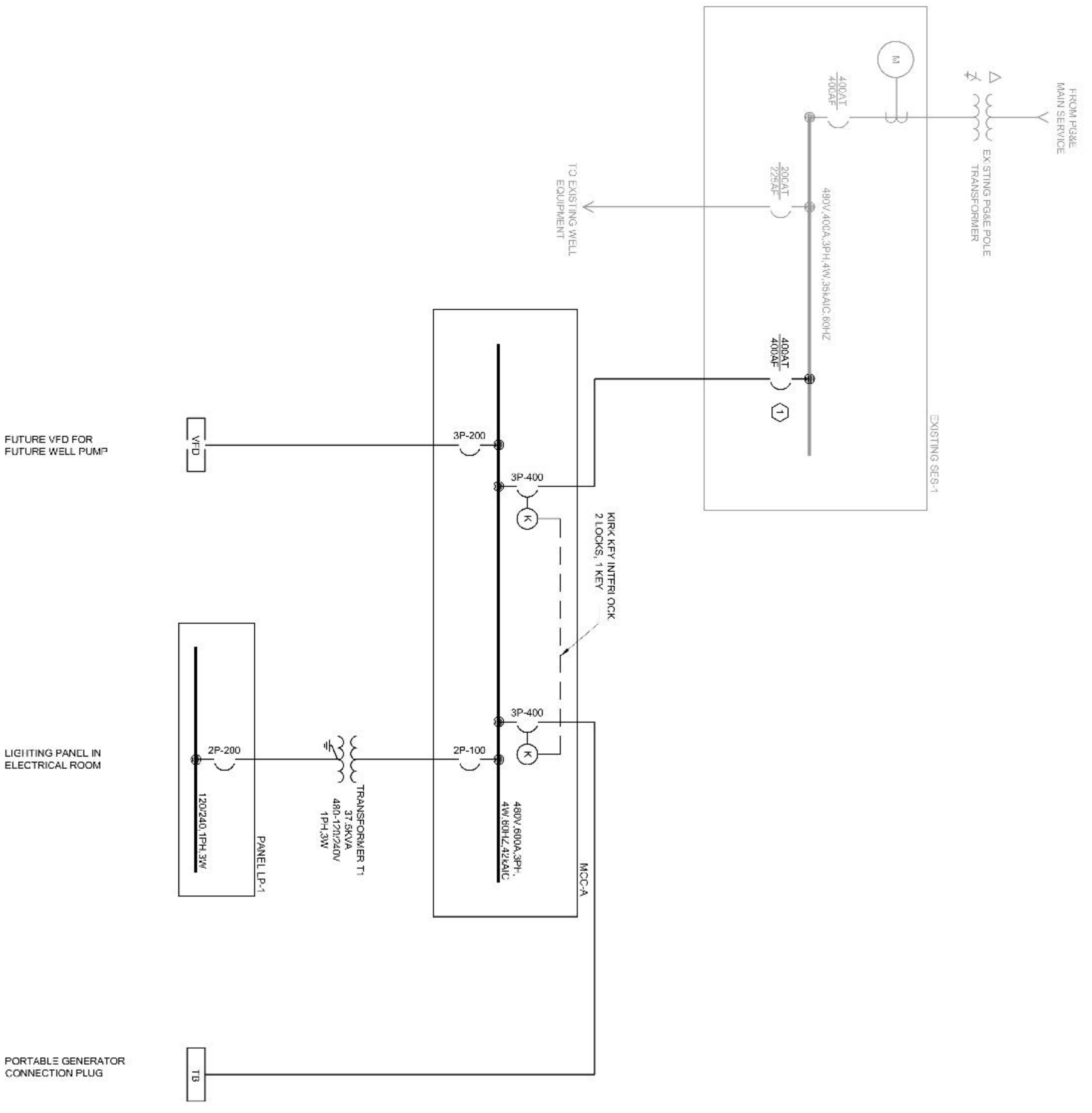
SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT
ELECTRICAL ABBREVIATIONS & NOTES

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

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

PROJECT NO.
407941

E-02
SHEET OF



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



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

ELECTRICAL
POWER DISTRIBUTION FUNCTIONAL DIAGRAM

DESIGNED BY: [Blank]
 DETAILER: TEB
 CHECKED: CRM
 APPROVED: [Blank]
 DATE: JULY 2021

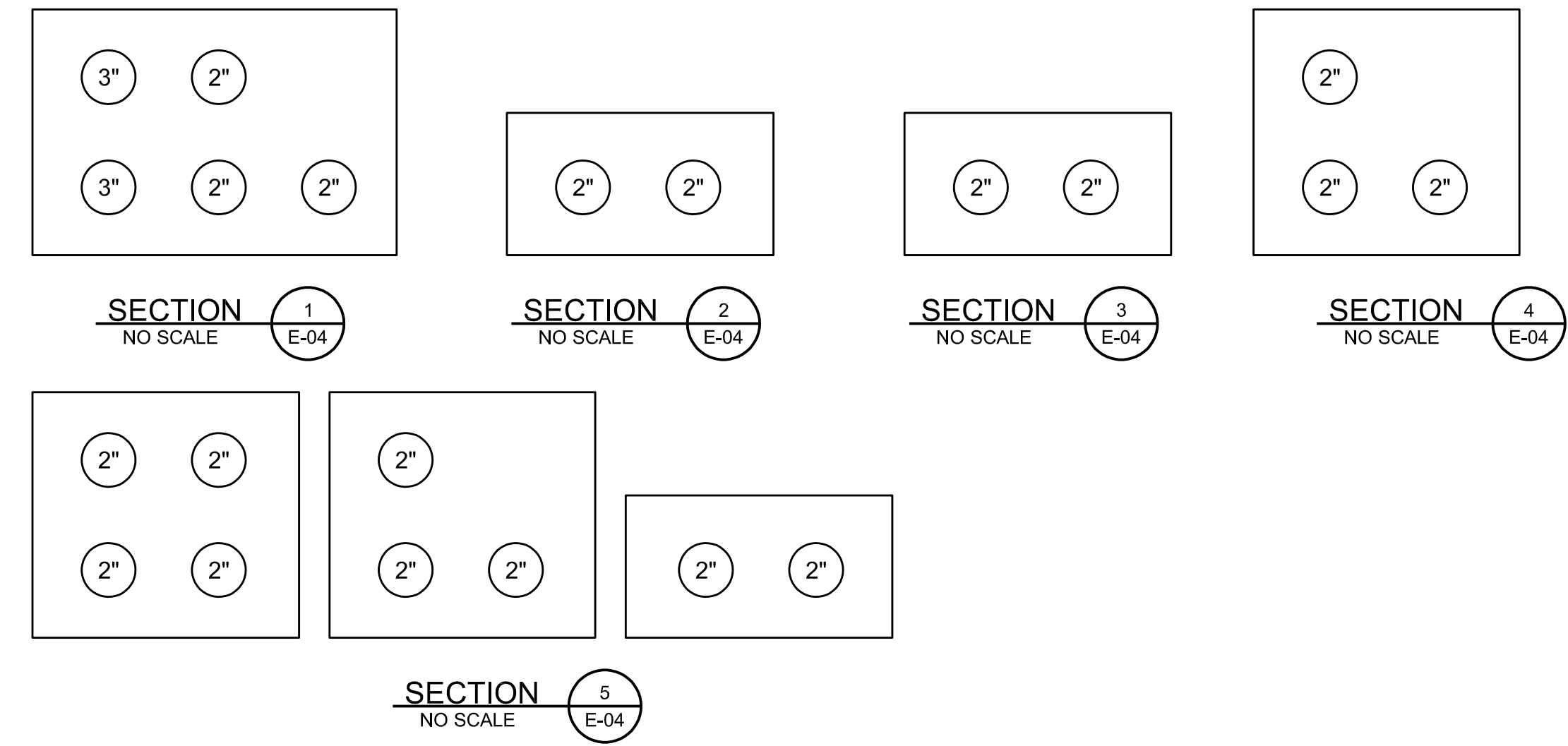
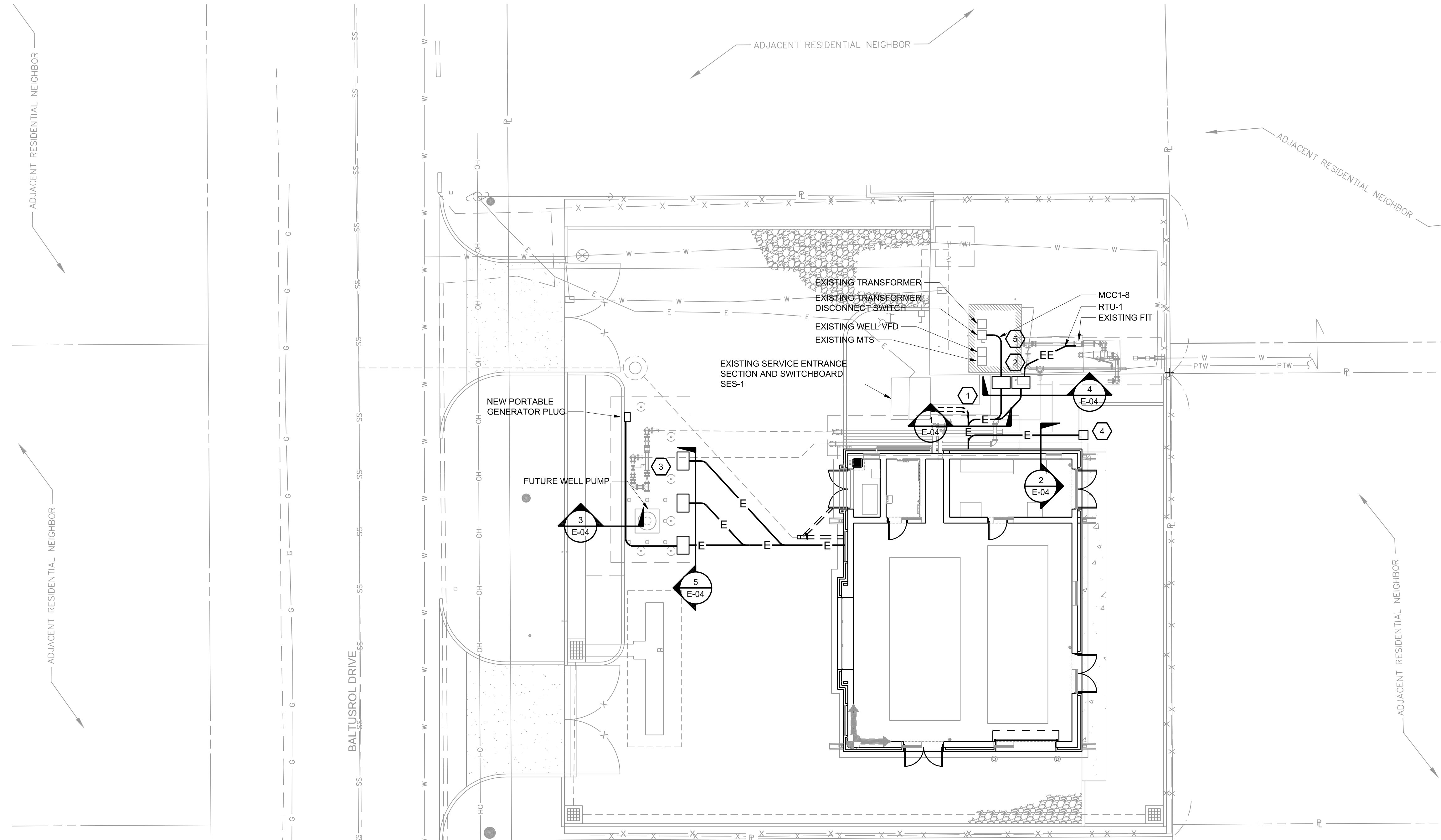
IF THIS BAR DOES NOT MEASURE 1" IN DRAWING IS NOT TO FULL SCALE
 PROJECT NO. 407941

PRELIMINARY - NOT FOR CONSTRUCTION

E-03
SHEET OF

DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK APP

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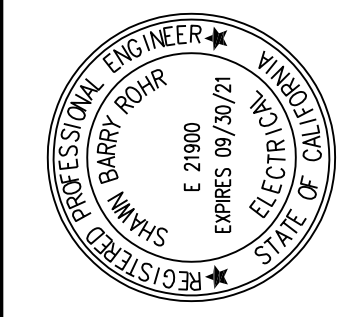


GENERAL SHEET NOTES

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

SHEET KEY NOTES

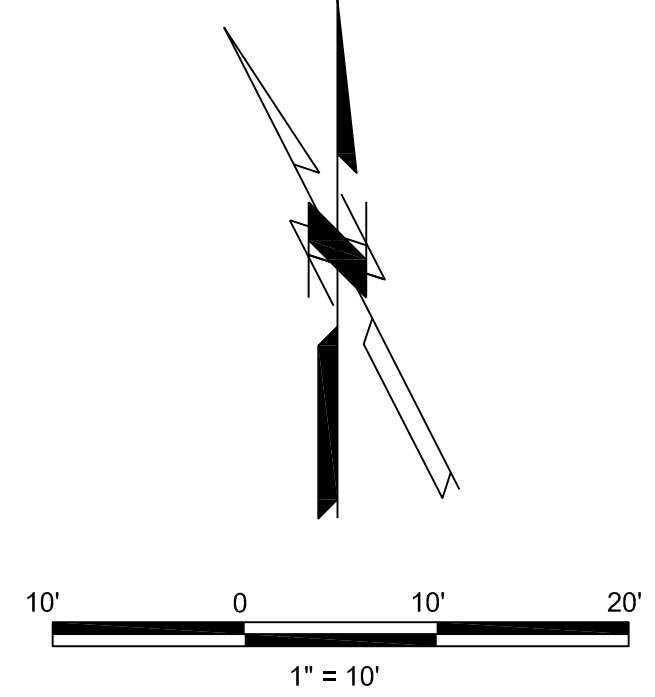
- CONTRACTOR SHALL INTERCEPT EXISTING 2-3" CAPPED SPARE CONDUITS AND CONNECT TO THE NEW DUCT BANK FOR MCC FEEDER CIRCUIT. EXCAVATION SHALL BE COORDINATED WITH OWNER.
- CONTRACTOR SHALL INSTALL TWO UNDERGROUND HANDHOLES, ONE FOR POWER AND ONE FOR SIGNAL CABLES FOR THE EXISTING MISCELLANEOUS LOADS AND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



**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



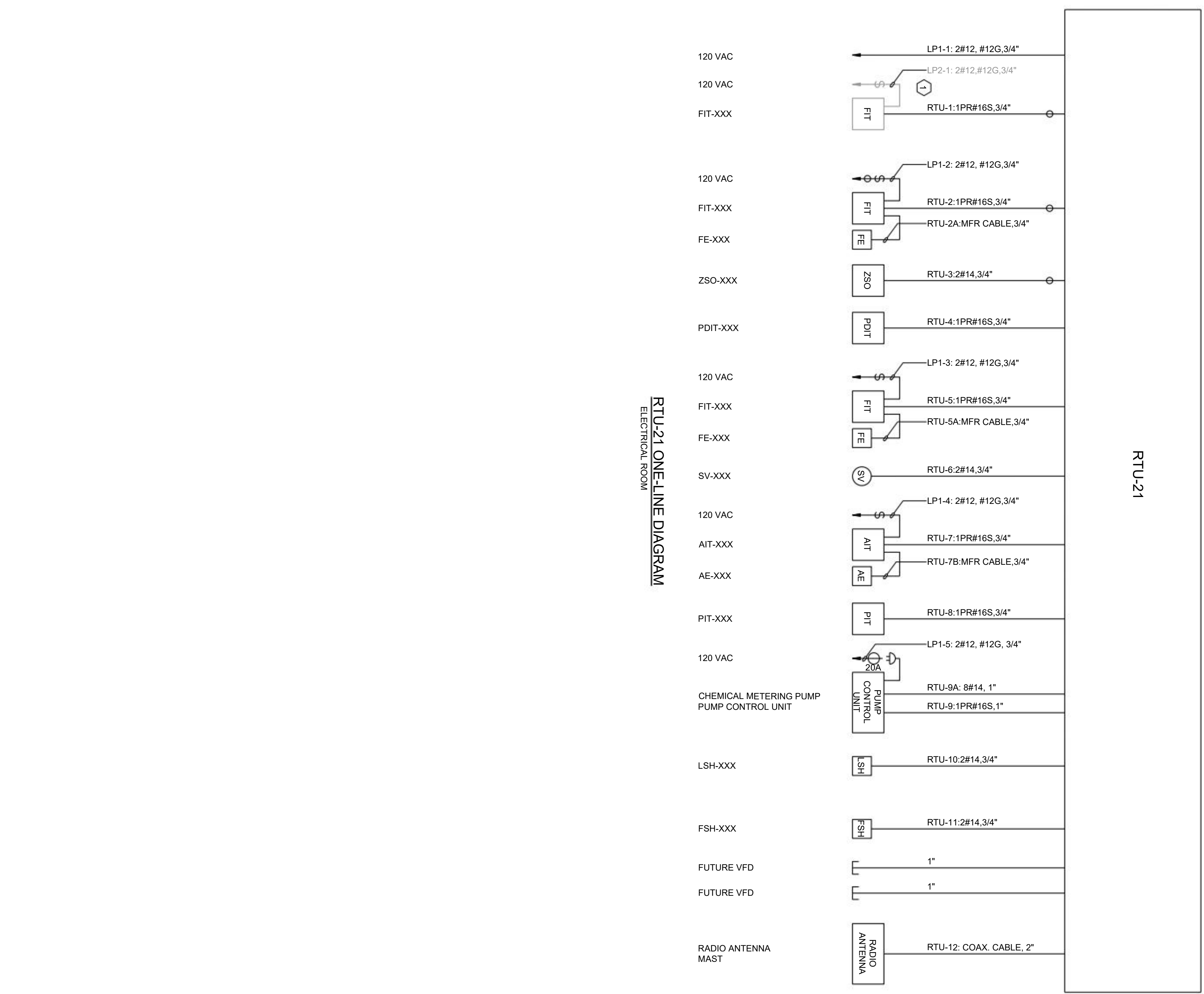
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
 407941

E-04
 SHEET
 OF

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISIONS AND RECORD OF USE



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.

PRELIMINARY - NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE



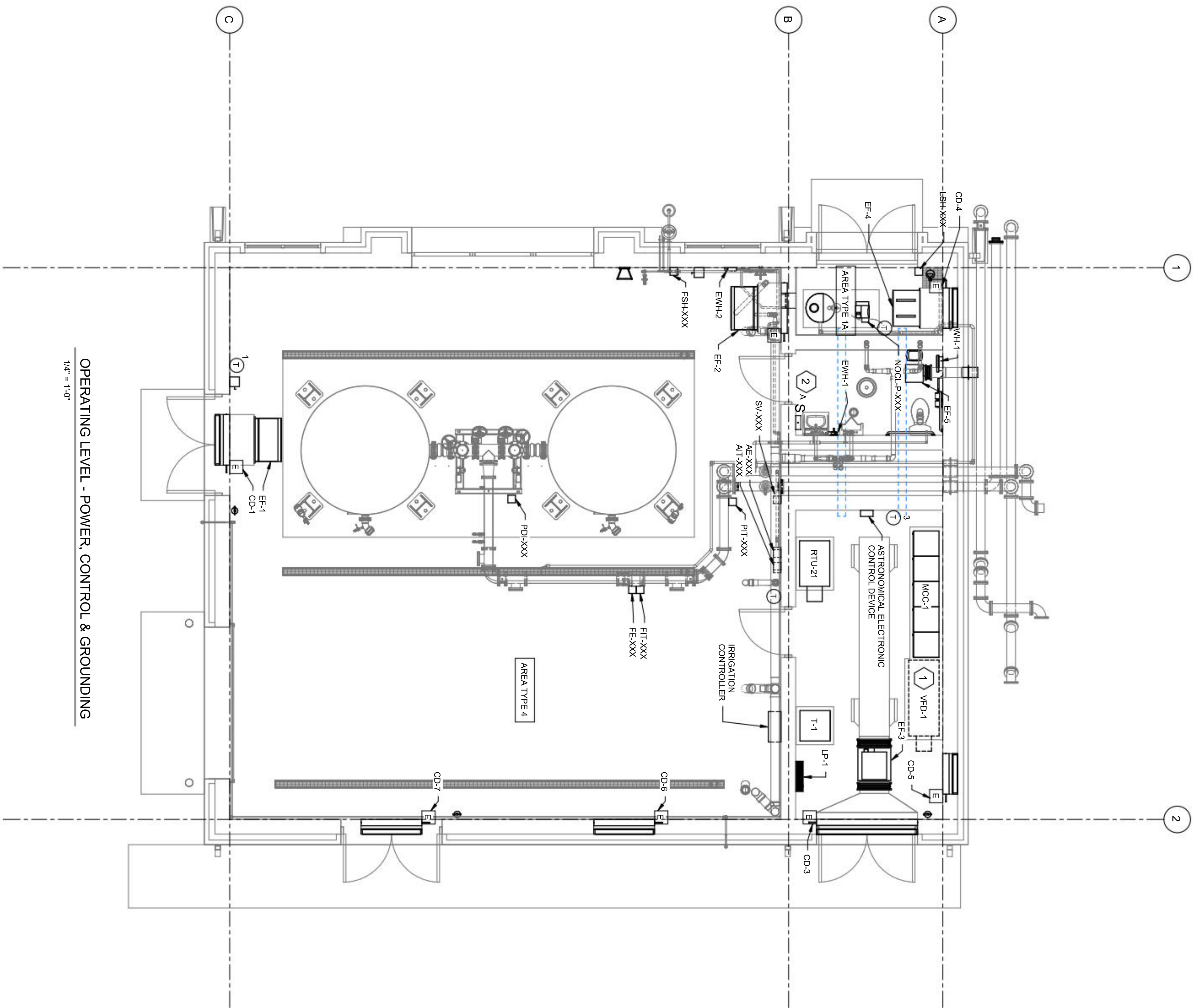
SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

ELECTRICAL
MISCELLANEOUS ONE-LINE DIAGRAMS

DESIGNED: PV
 CHECKED: CRM
 APPROVED:
 DATE: JUL 7 2021

PROJECT NO.
407941

E-07
SHEET
OF



OPERATING LEVEL - POWER, CONTROL & GROUNDING
1/4" = 1'-0"

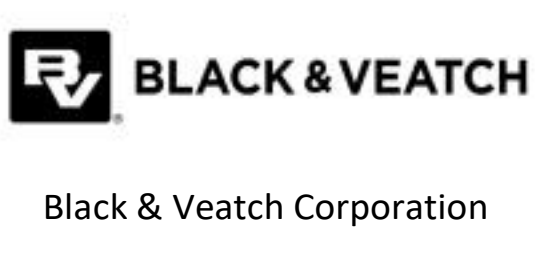
GENERAL SHEET NOTES

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

SHEET KEYNOTES

- SPACE FOR FUTURE VFD.
- FAN CONTROLLED SWITCH.

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE



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

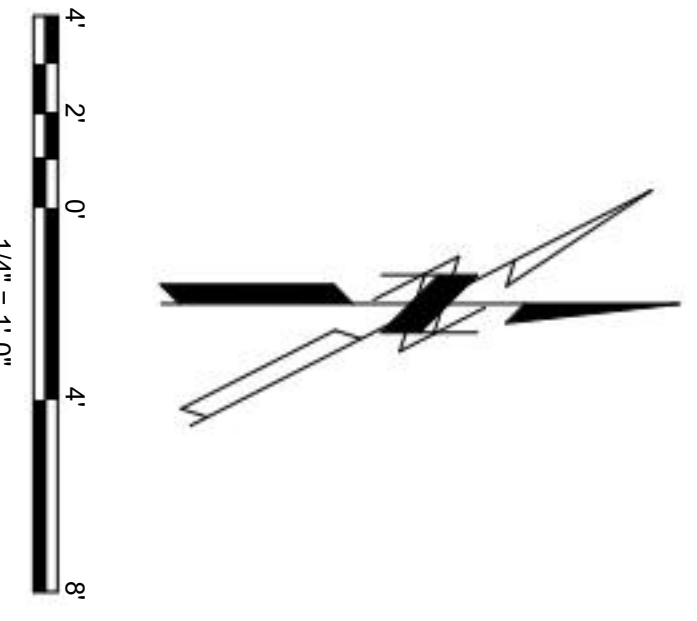
TREATMENT BUILDING
ELECTRICAL
BUILDING POWER PLAN

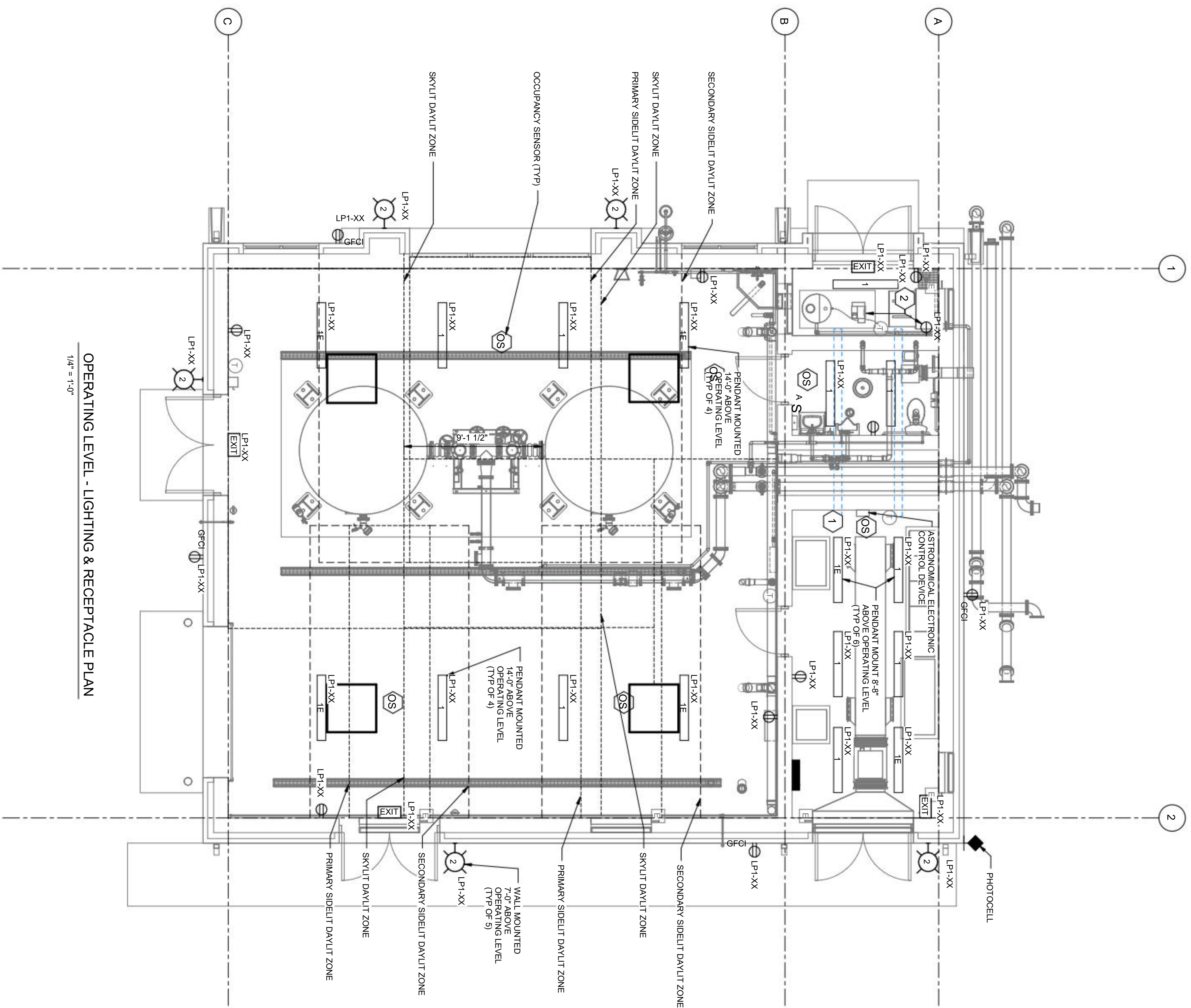
DESIGNED: RV
DETAILED: RC
CHECKED: CRM
APPROVED: [Signature]
DATE: JULY 2021

PROJECT NO.
407941

E-08
SHEET
OF

PRELIMINARY - NOT FOR CONSTRUCTION



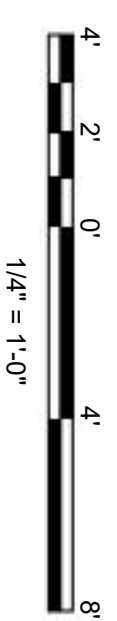


OPERATING LEVEL - LIGHTING & RECEPTACLE PLAN
1/4" = 1'-0"

GENERAL SHEET NOTES

- SEE DRAWINGS E-01 & E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENT.
- PROVIDE LIGHTING CONTROL PANEL FOR EXTERIOR LIGHTING.
- PROVIDE SIMPLEX RECEPTACLE DEDICATED FOR SODIUM HYPOCHLORITE METERING PUMP. REFER TO DRAWING E-08 FOR METERING PUMP LOCATION.

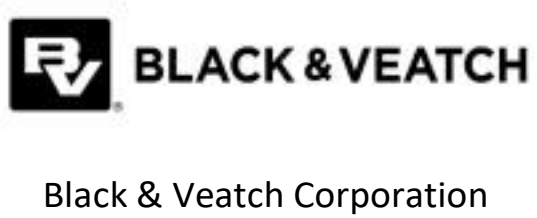
SHEET KEYNOTES



PRELIMINARY - NOT FOR CONSTRUCTION

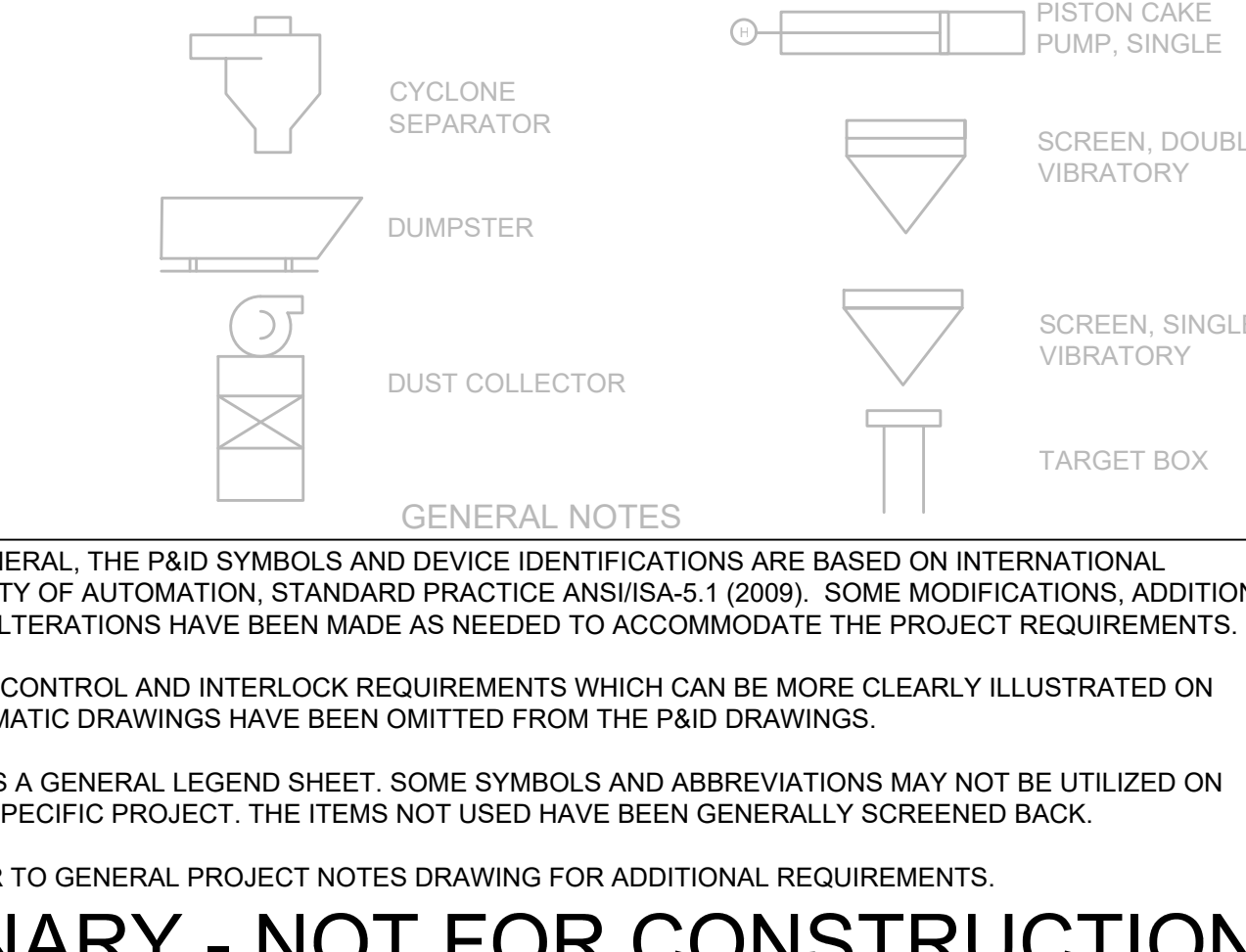
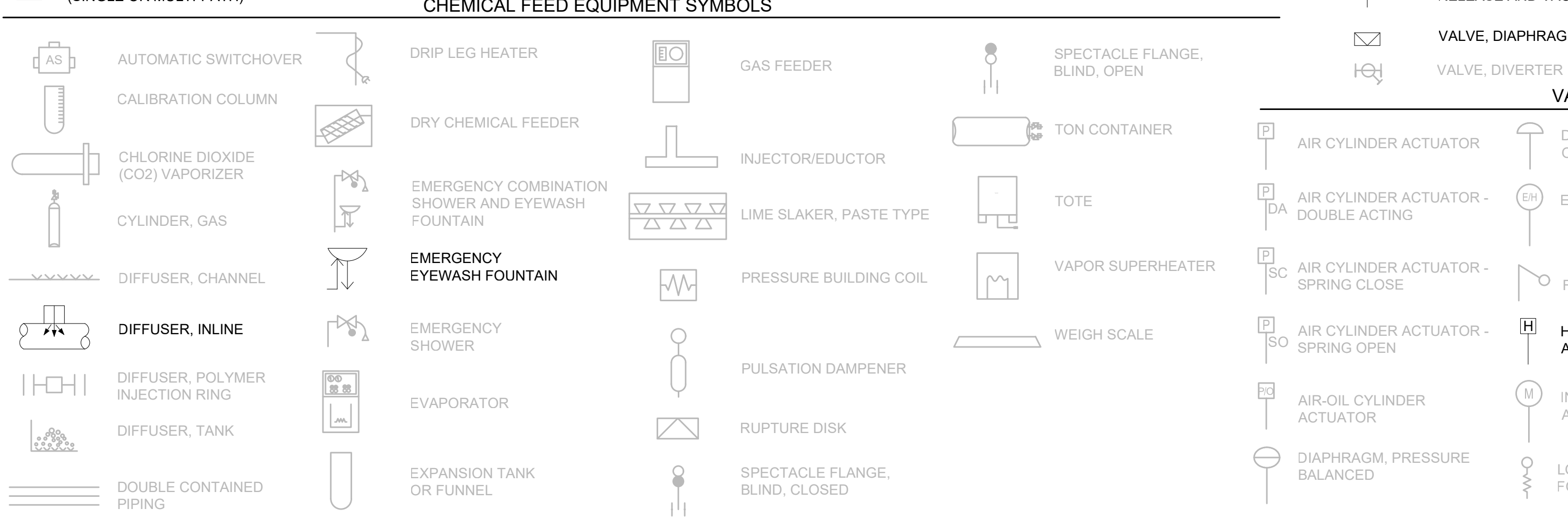
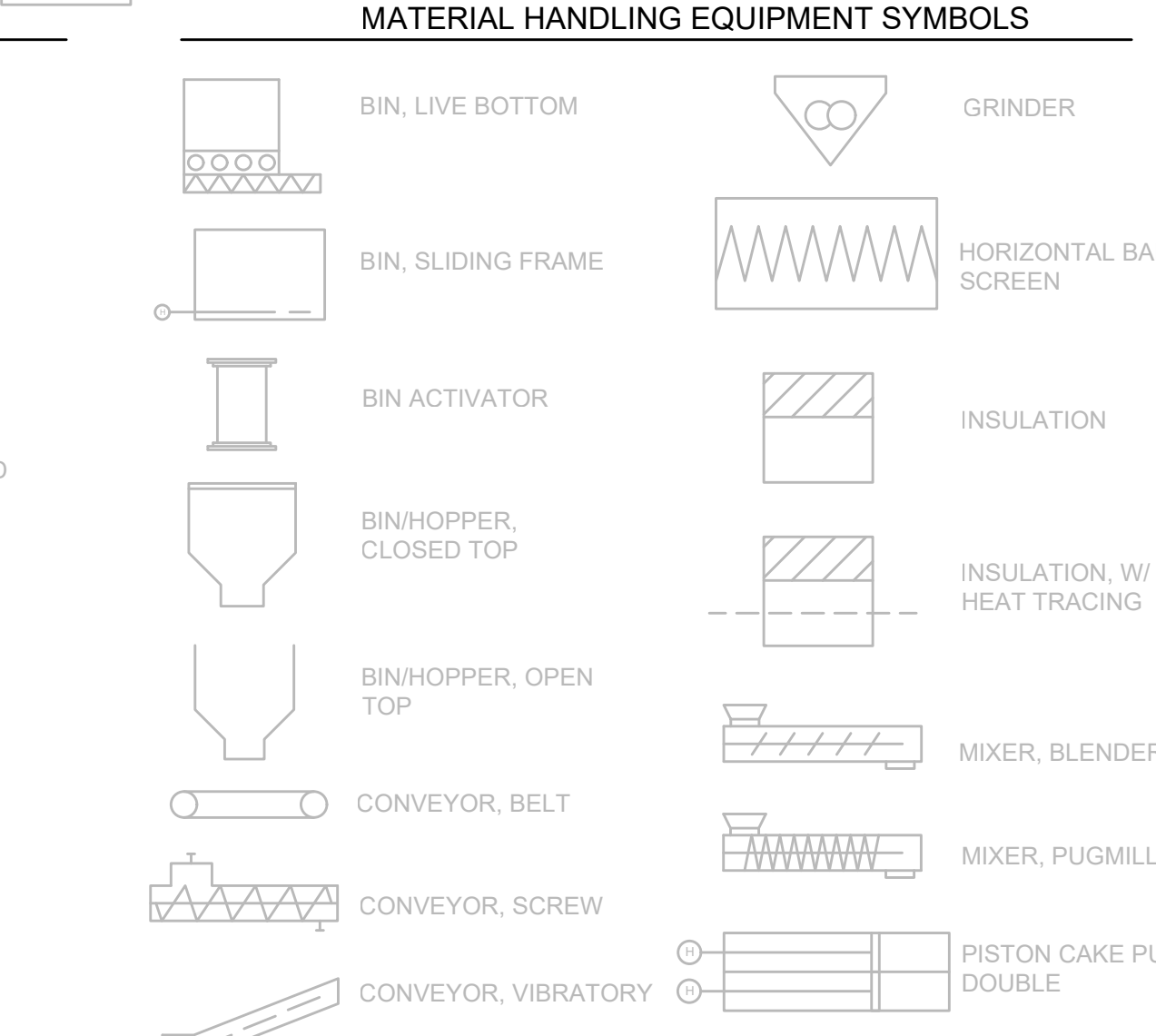
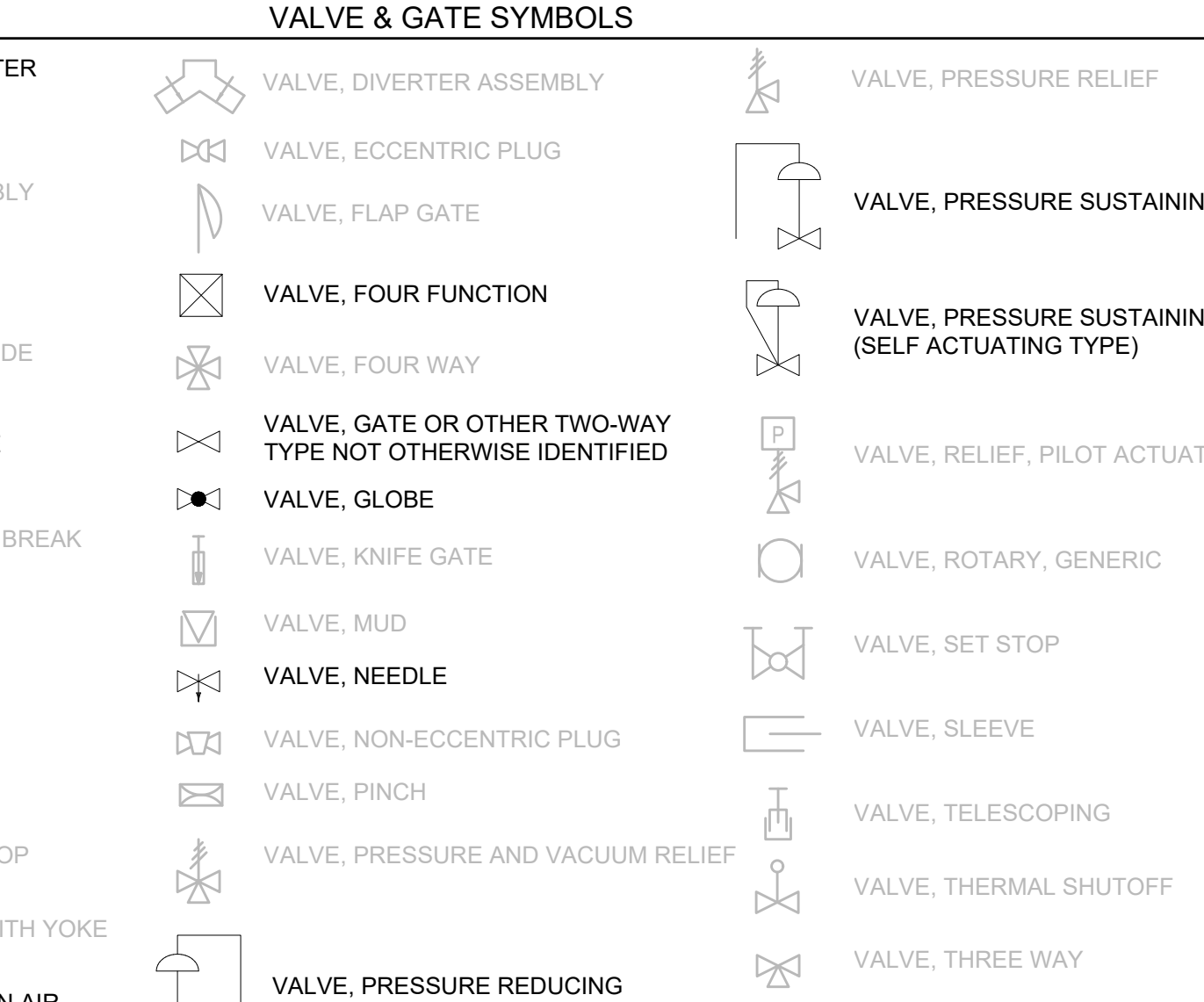
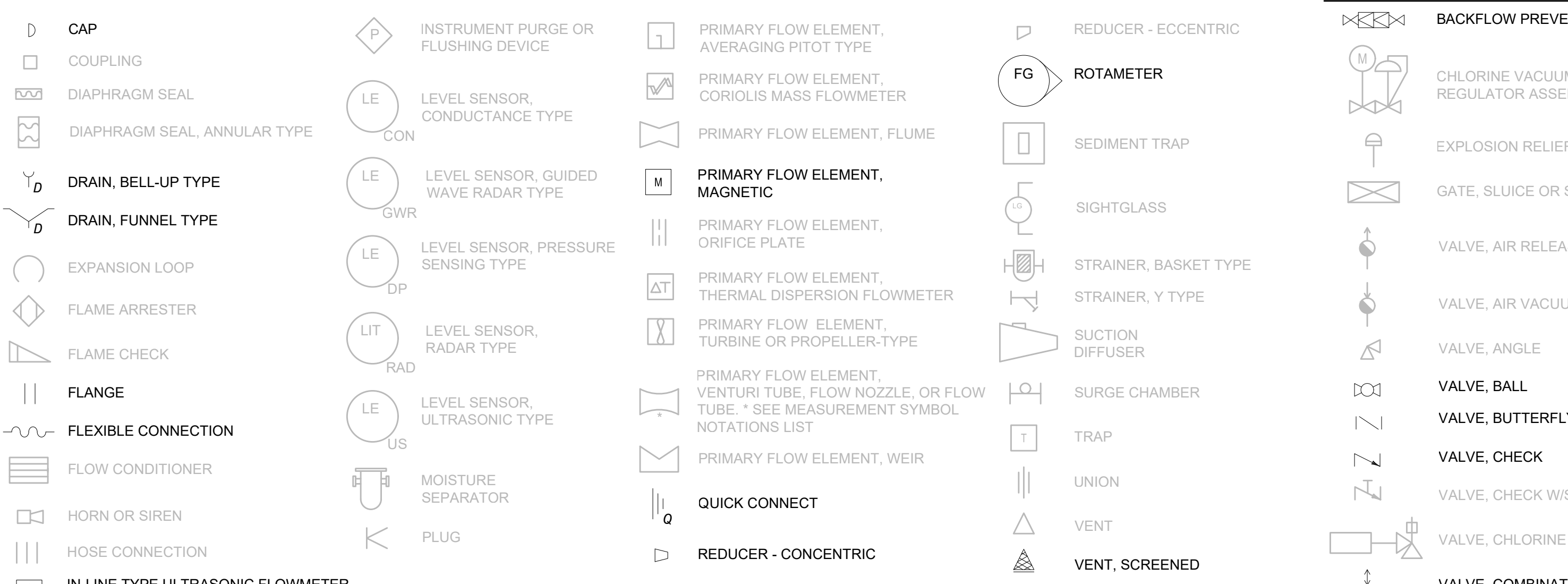
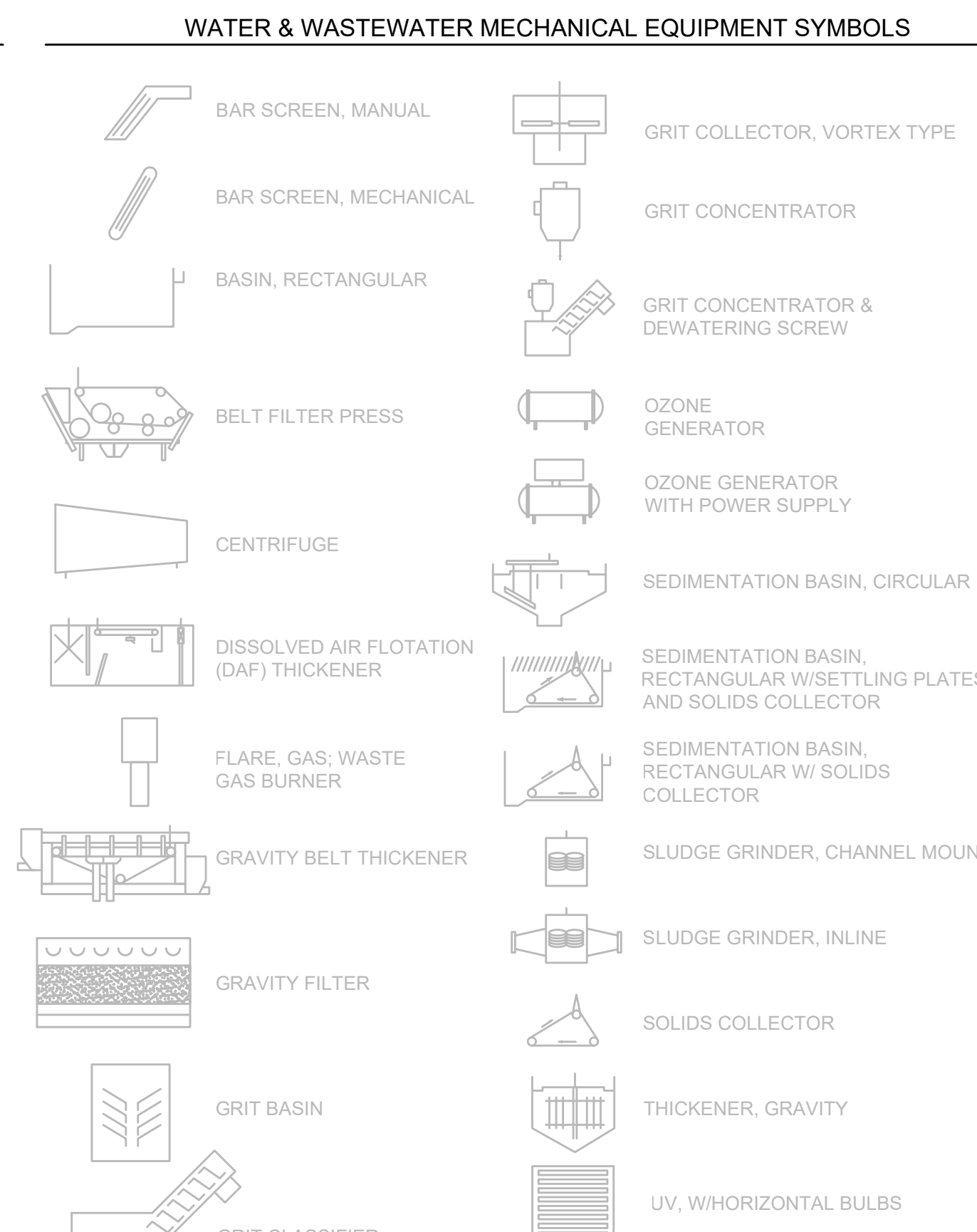
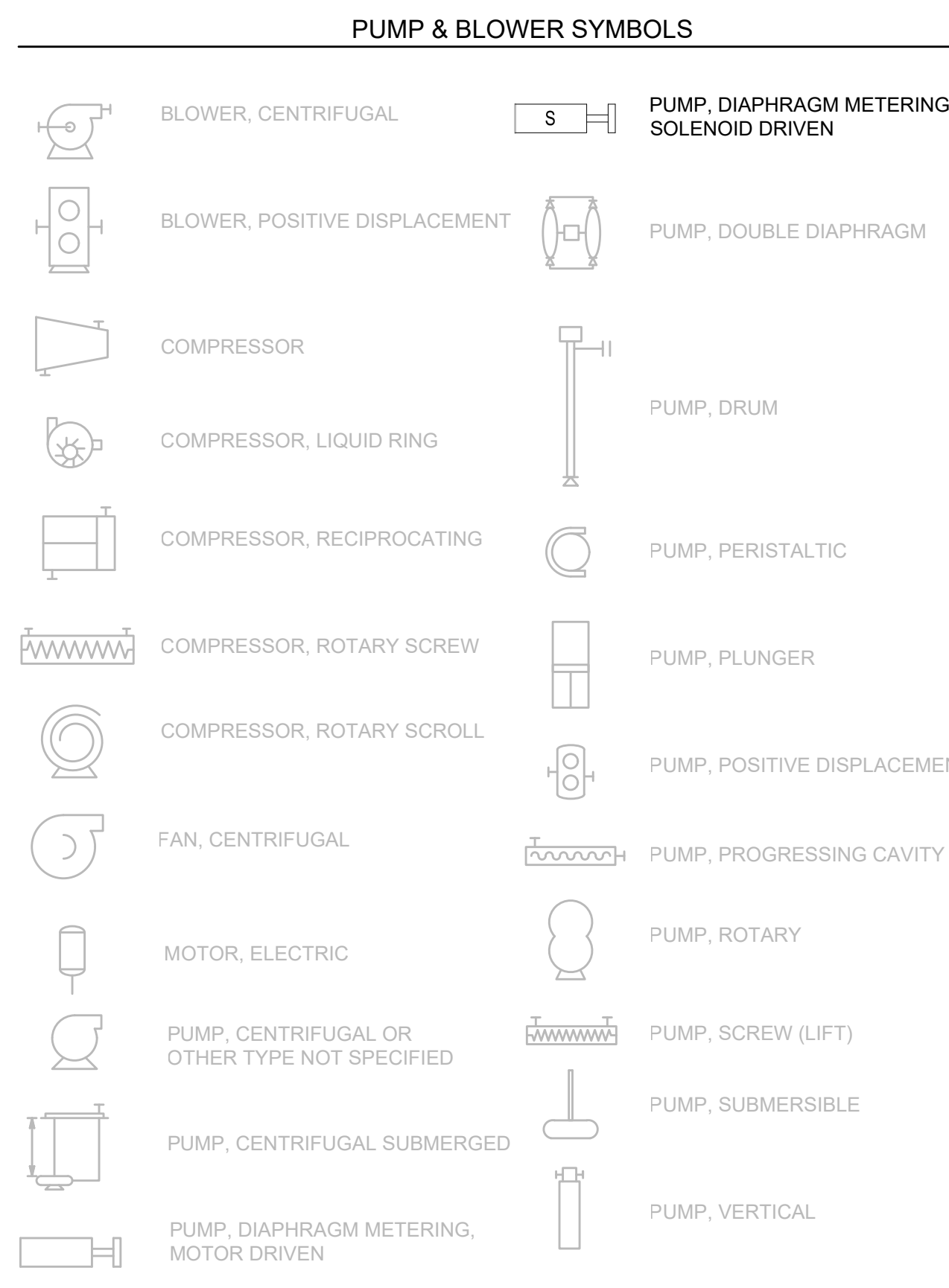
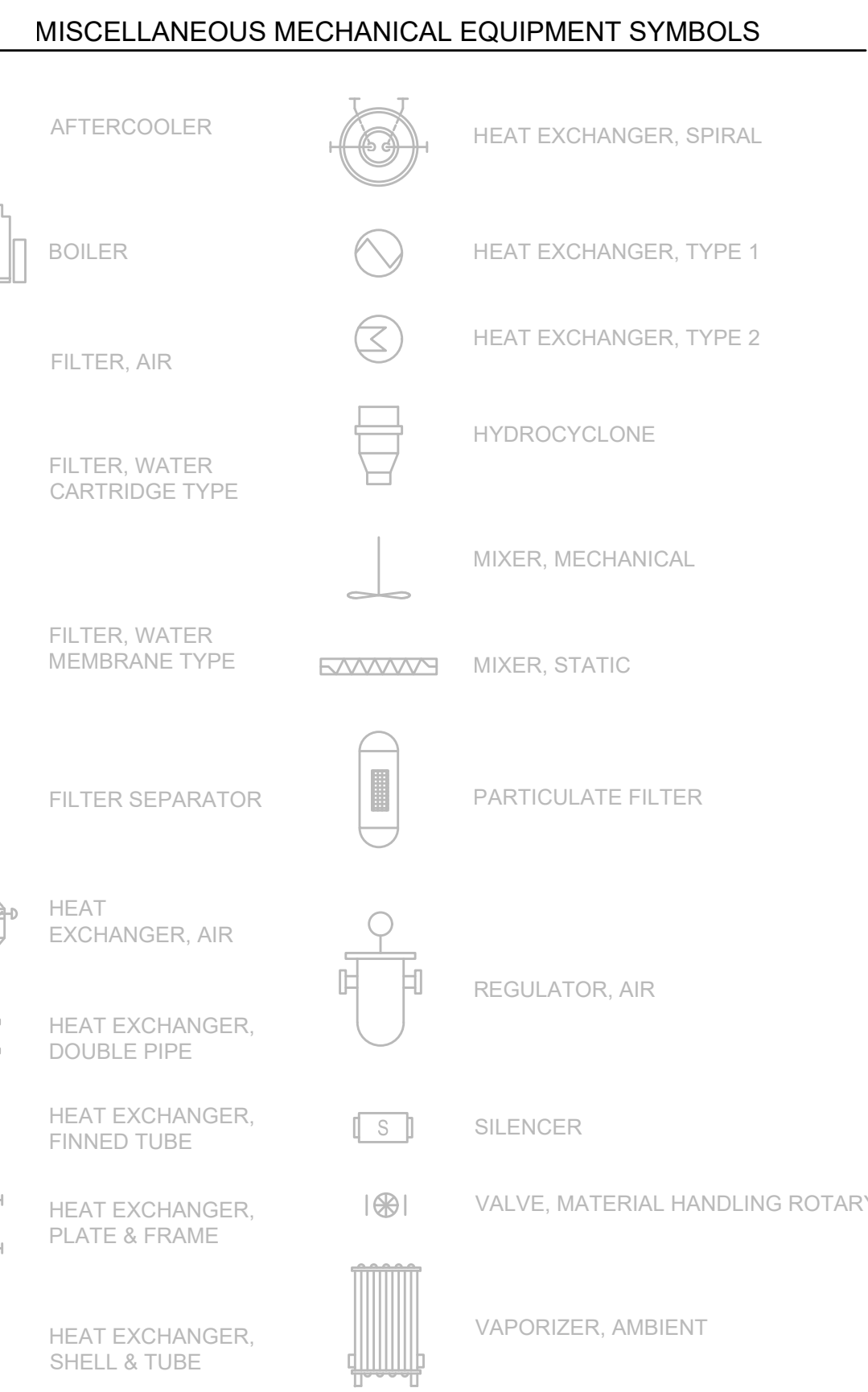
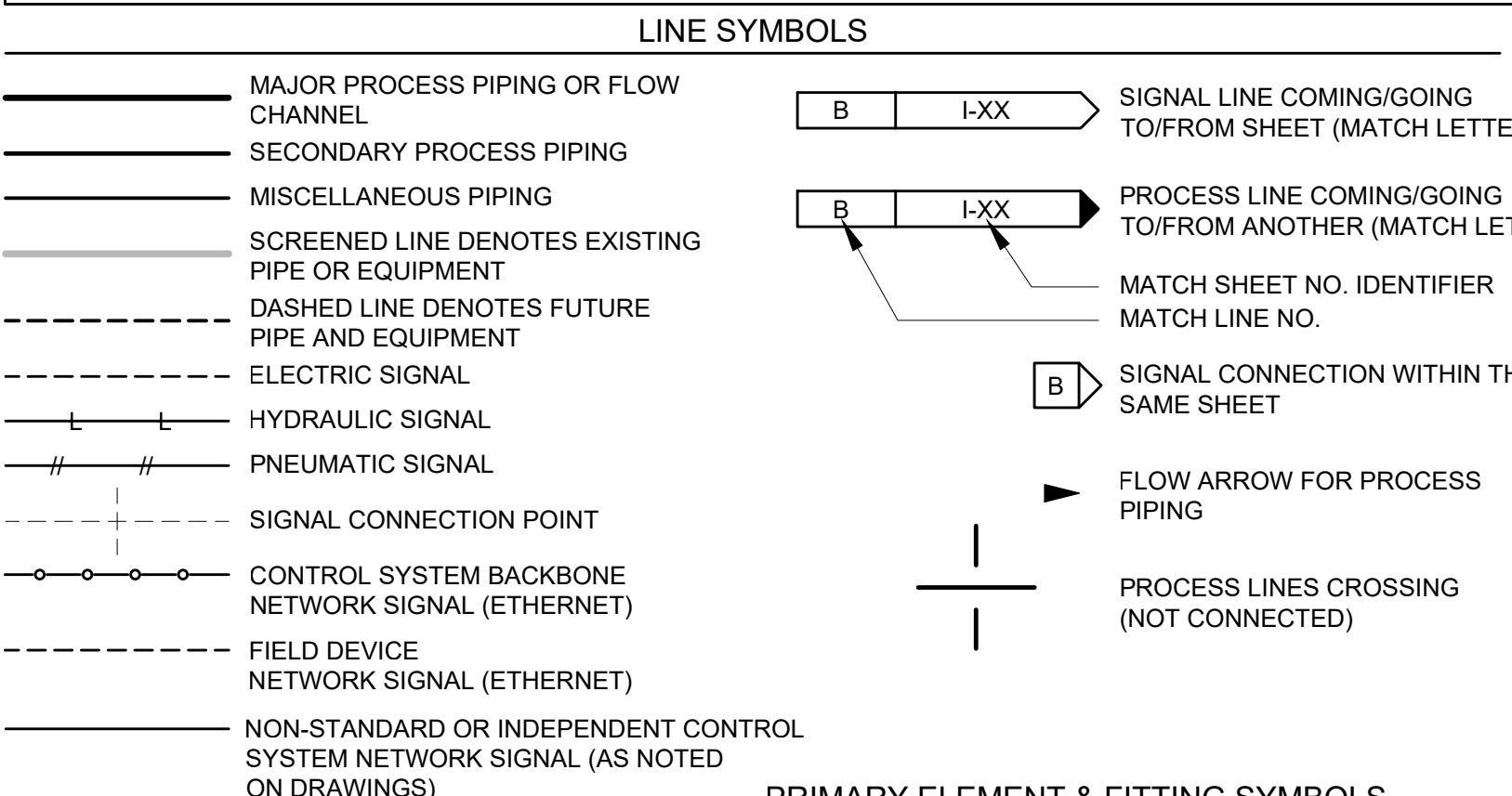
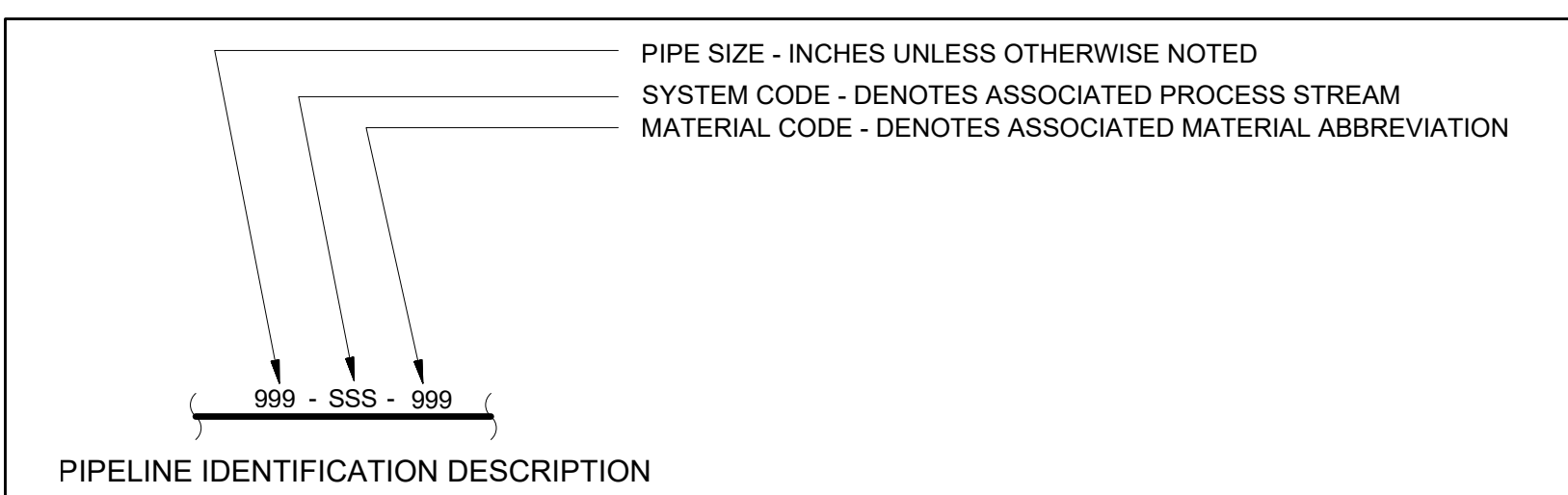
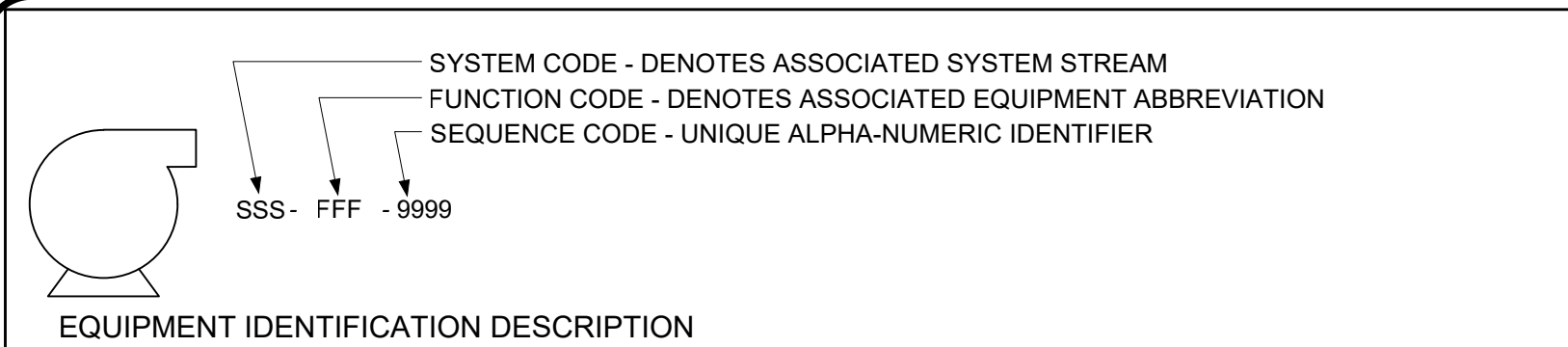
SOQUEL CREEK WATER DISTRICT
COUNTRY CLUB WELL
1,2,3-TCP REMOVAL PROJECT

TREATMENT BUILDING
ELECTRICAL
BUILDING LIGHTING PLAN

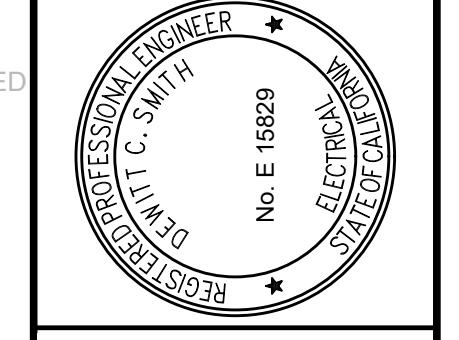


DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK APP

DESIGNED: RV	0
DETAILED: RC	12
CHECKED: CRM	1
APPROVED:	
DATE: JULY 2021	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
PROJECT NO: 407941	
E-09	
SHEET	



NO.	BY	CHK/APP
REVISIONS AND RECORD OF USE		
DATE		



BLACK & VEATCH
 Black & Veatch Corporation

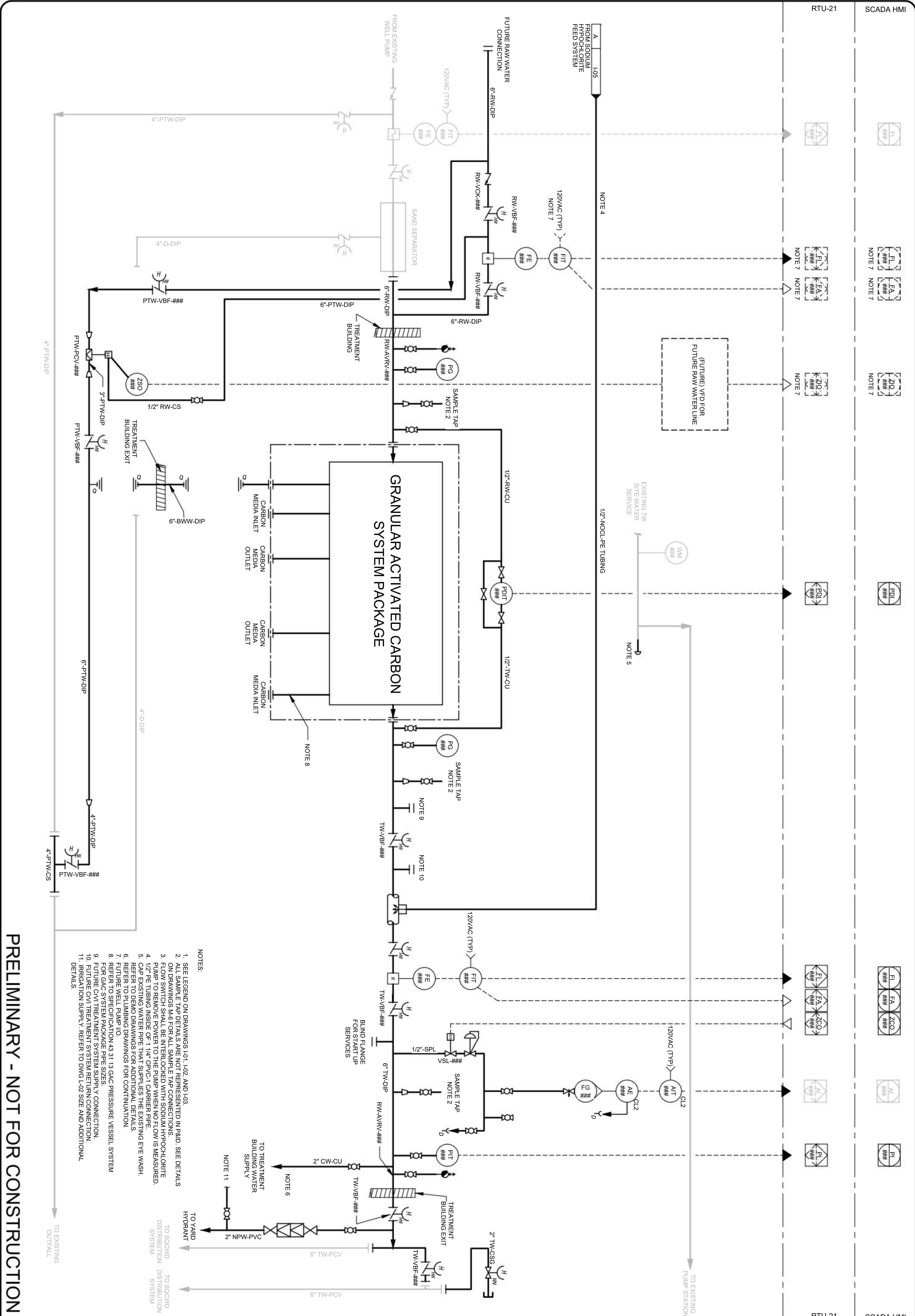
**SOQUEL CREEK WATER DISTRICT
 COUNTRY CLUB WELL
 1,2,3-TCP REMOVAL PROJECT**

**INSTRUMENTATION
 LEGEND AND ABBREVIATIONS
 SHEET 1 OF 3**

DESIGNED:	RHD
Detailed:	ABA
CHECKED:	
APPROVED:	
DATE:	JULY 2021
PROJECT NO.	407941
SHEET	I-01
OF	

PRELIMINARY - NOT FOR CONSTRUCTION

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- 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 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 CARRIER PIPE.
 5. CPE EXISTING VALVE OPERATOR SUPPLIES THE EXISTING EYE WASH.
 6. REFER TO P&ID DRAWINGS FOR ADDITIONAL DETAILS.
 7. REFER TO P&ID DRAWINGS FOR CONTINUATION.
 8. REFER TO SPECIFICATION 43 31 1.3 GAC PRESSURE VESSEL SYSTEM FOR GAC SYSTEM PACKAGE PIPE SIZES.
 9. FUTURE CWT TREATMENT SYSTEM RETURN CONNECTION.
 10. FUTURE CWT TREATMENT SYSTEM RETURN CONNECTION.
 11. IRRIGATION SUPPLY. REFER TO DWG I-02 SIZE AND ADDITIONAL DETAILS.

PRELIMINARY - NOT FOR CONSTRUCTION

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

INSTRUMENTATION
 WELL TREATMENT
 P&ID

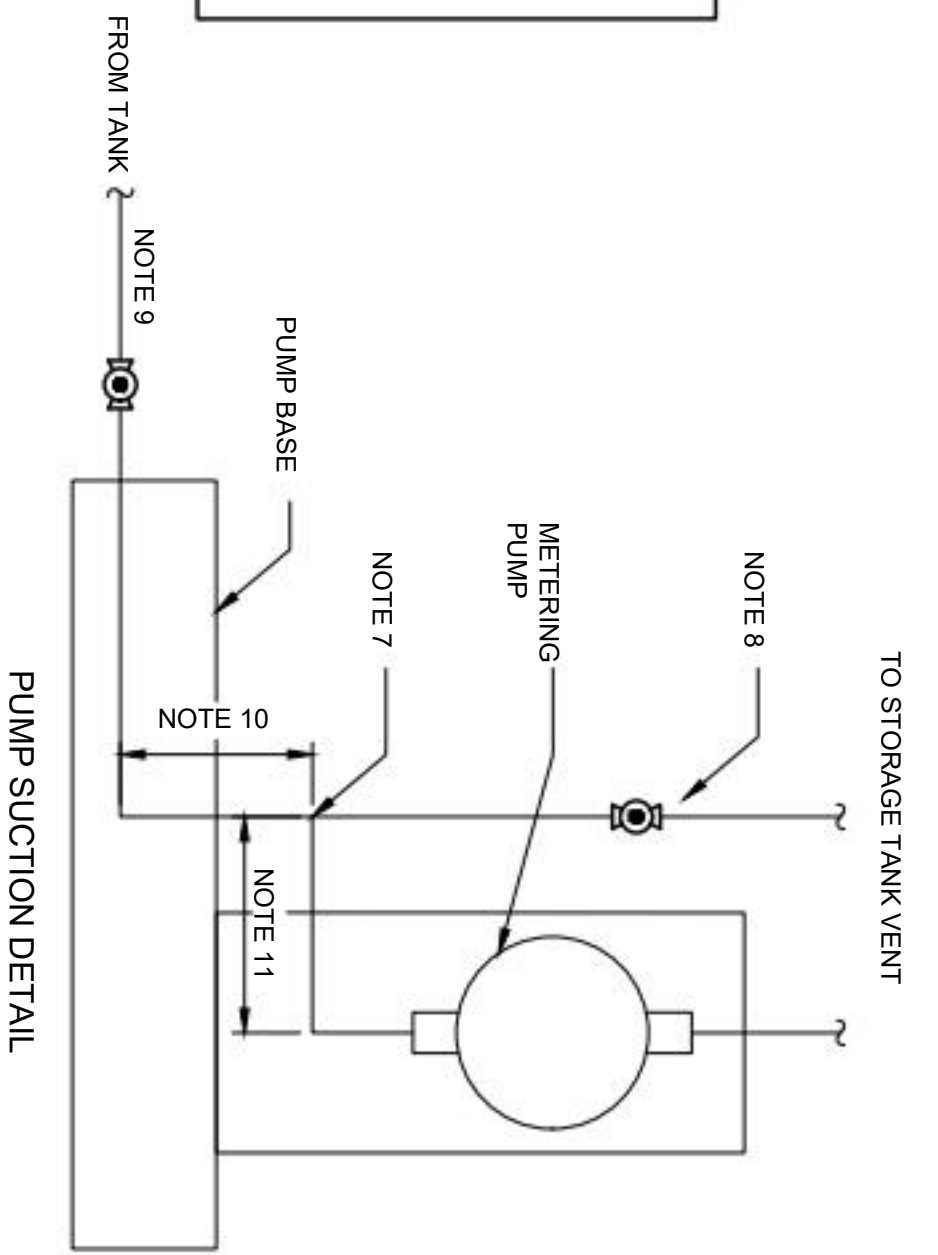
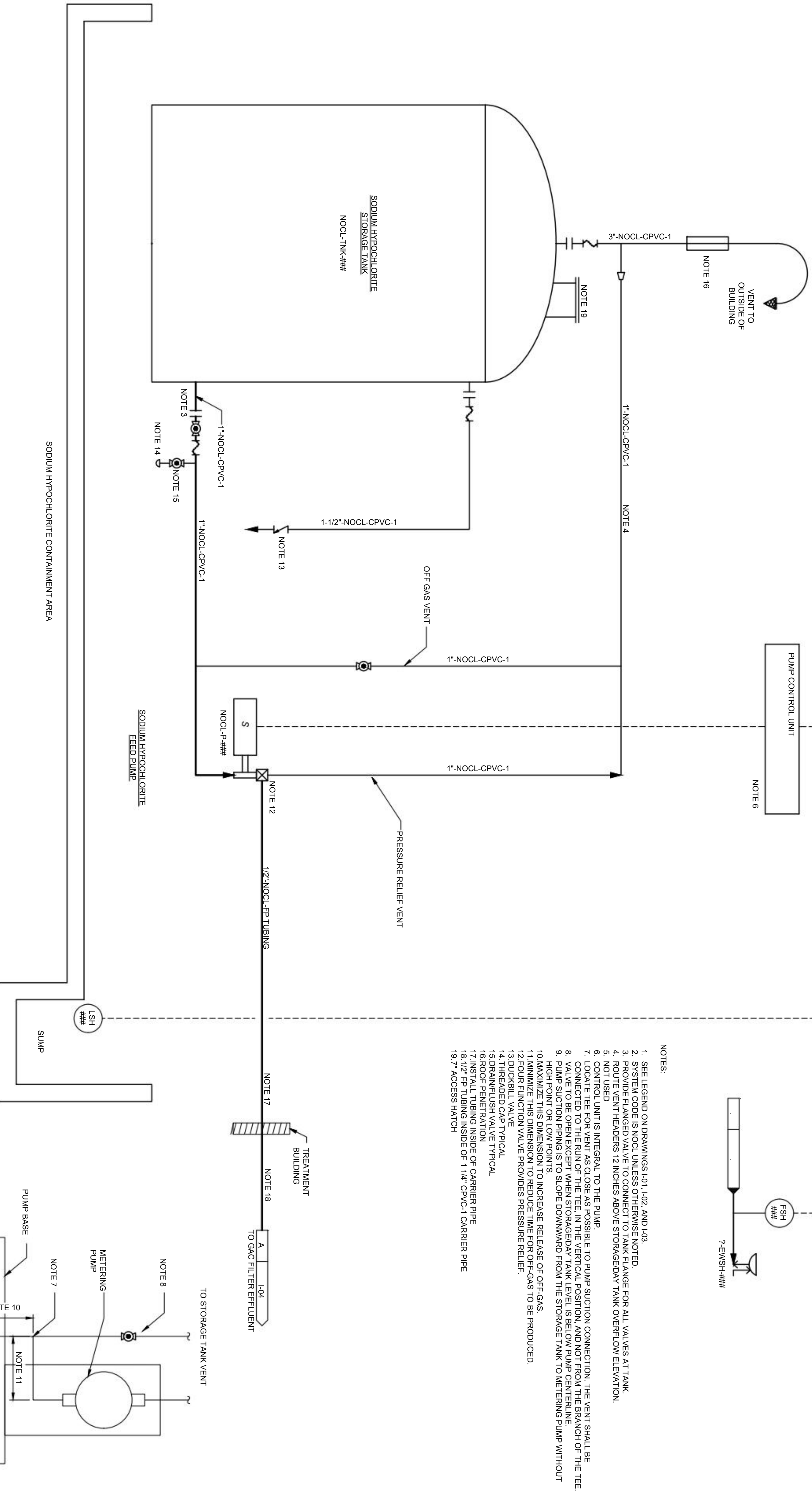
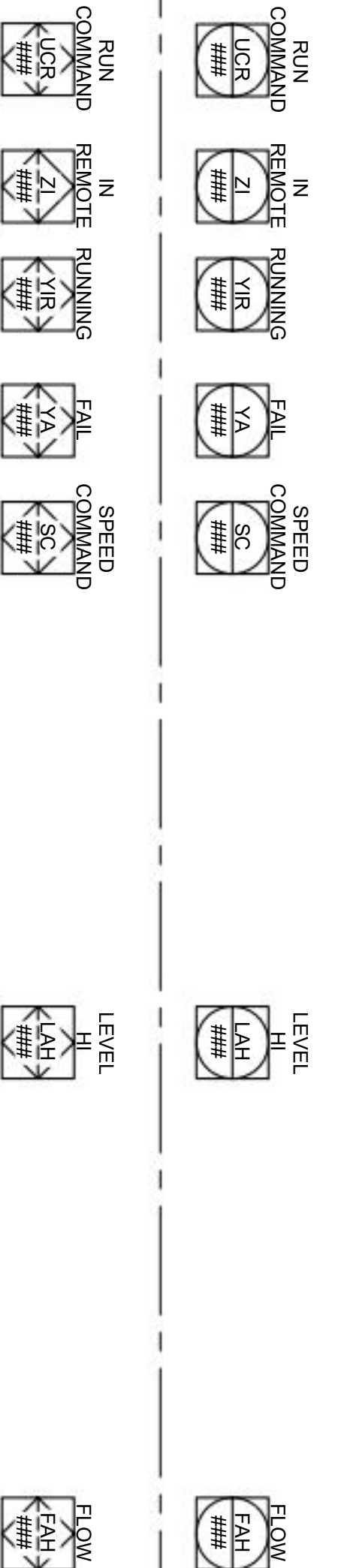
BLACK & VEATCH
 Black & Veatch Corporation



DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNED: RMD
 CHECKED: MAA
 DATE: JULY 2021
 APPROVED: [Signature]

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
 PROJECT NO. 407941
I-04
 SHEET OF



PRELIMINARY - NOT FOR CONSTRUCTION

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

INSTRUMENTATION
SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM
P&ID



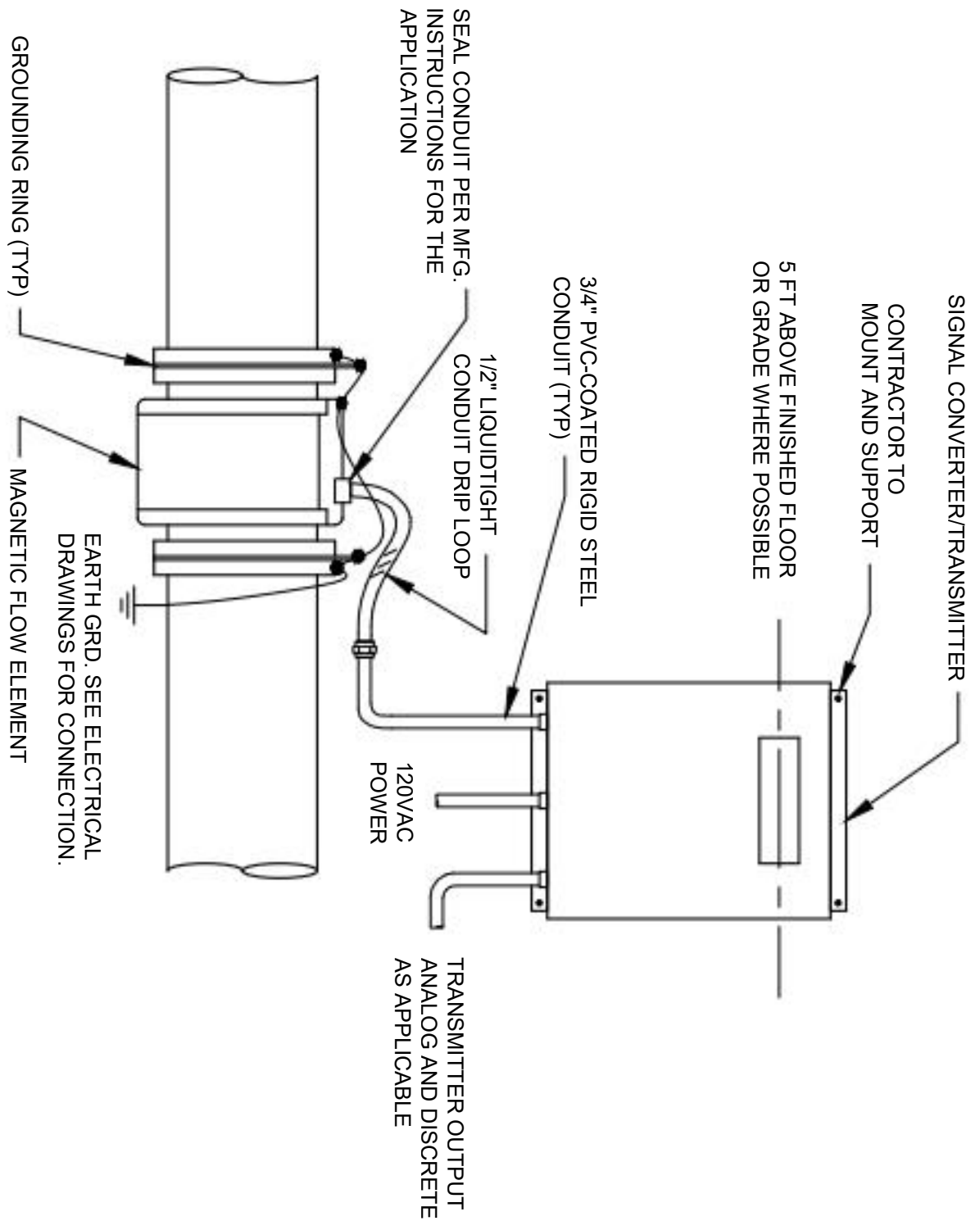
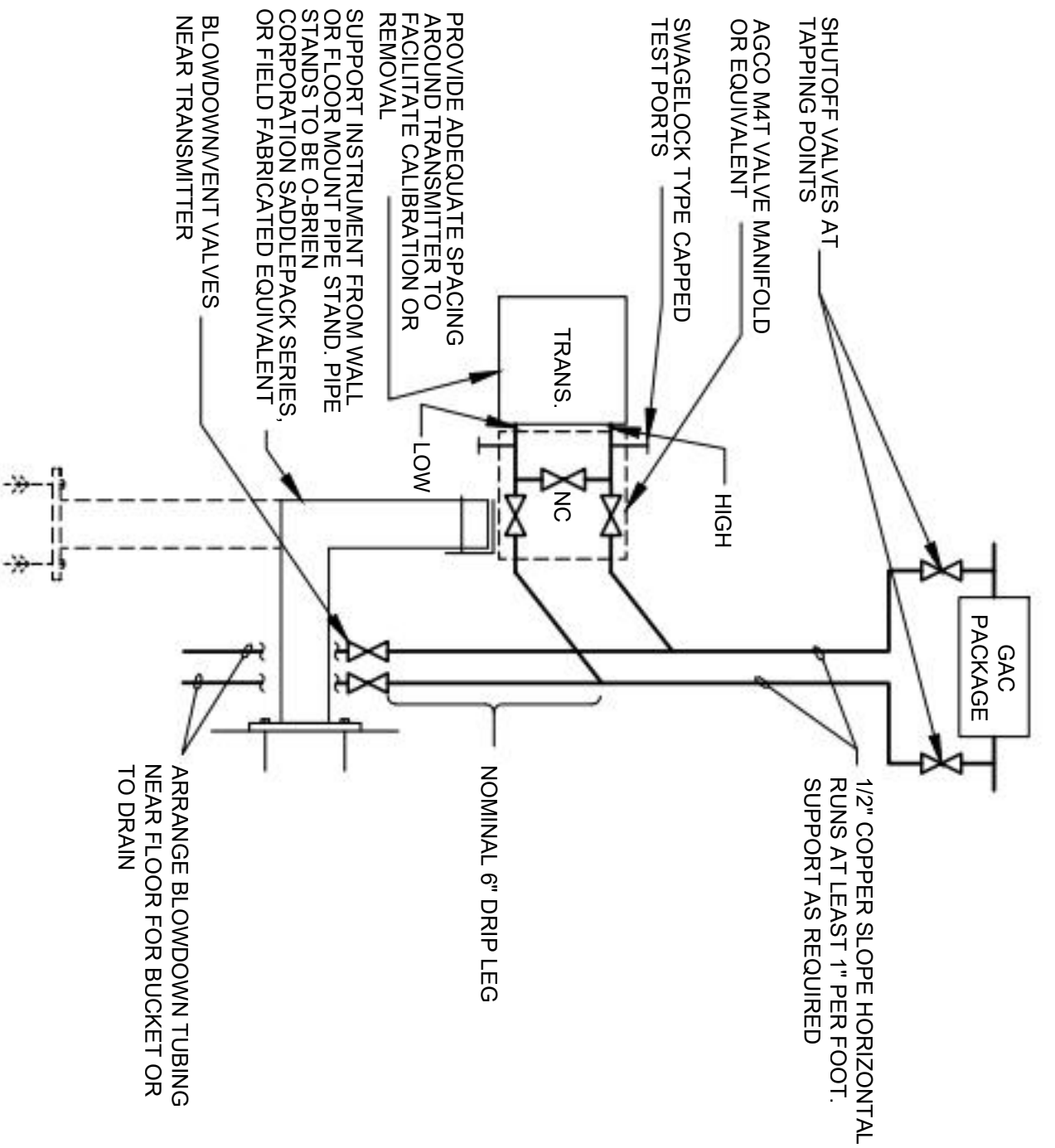
DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNED: RMD
 CHECKED: AMR
 APPROVED: [Signature]
 DATE: JULY 2021

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

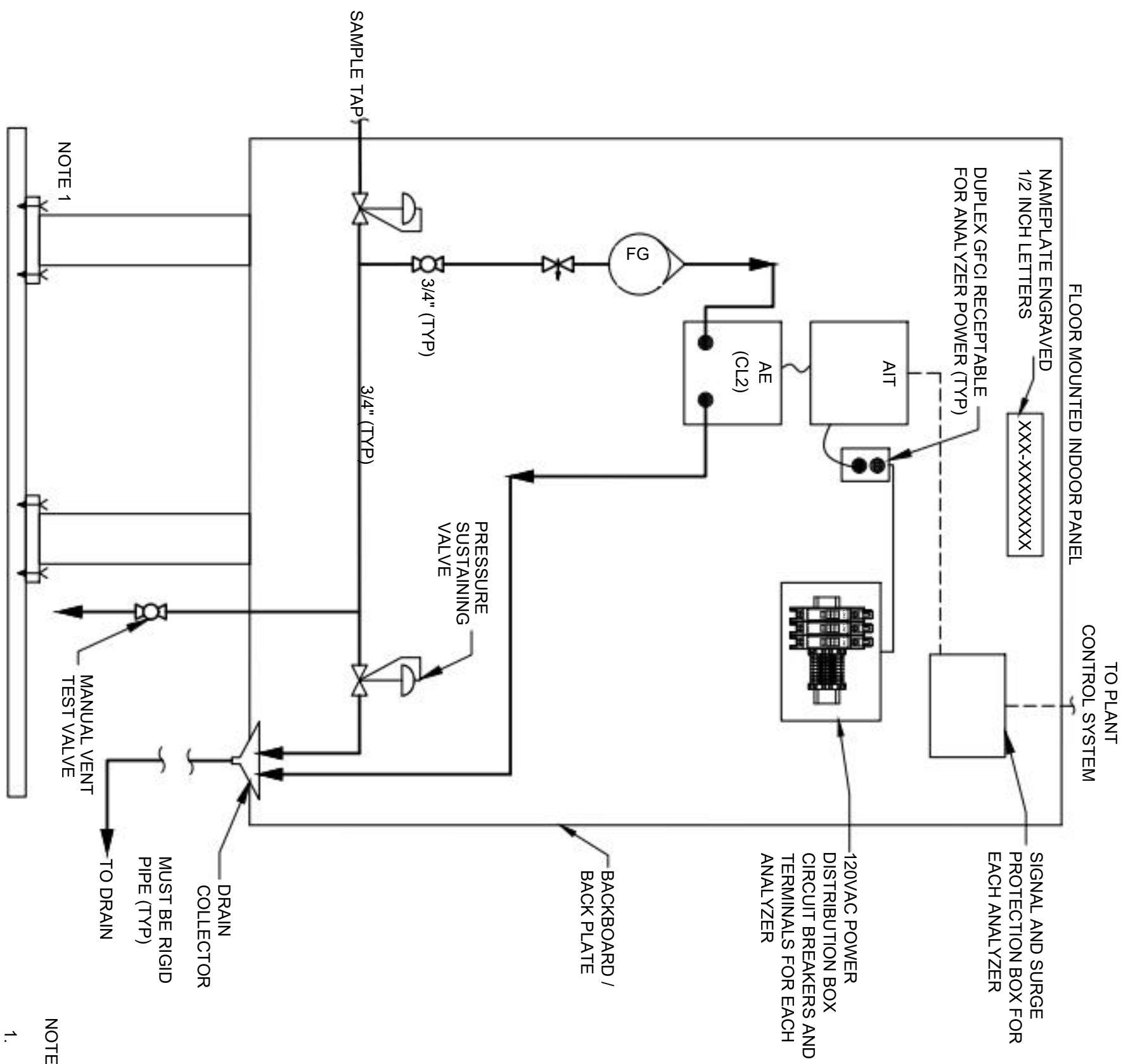
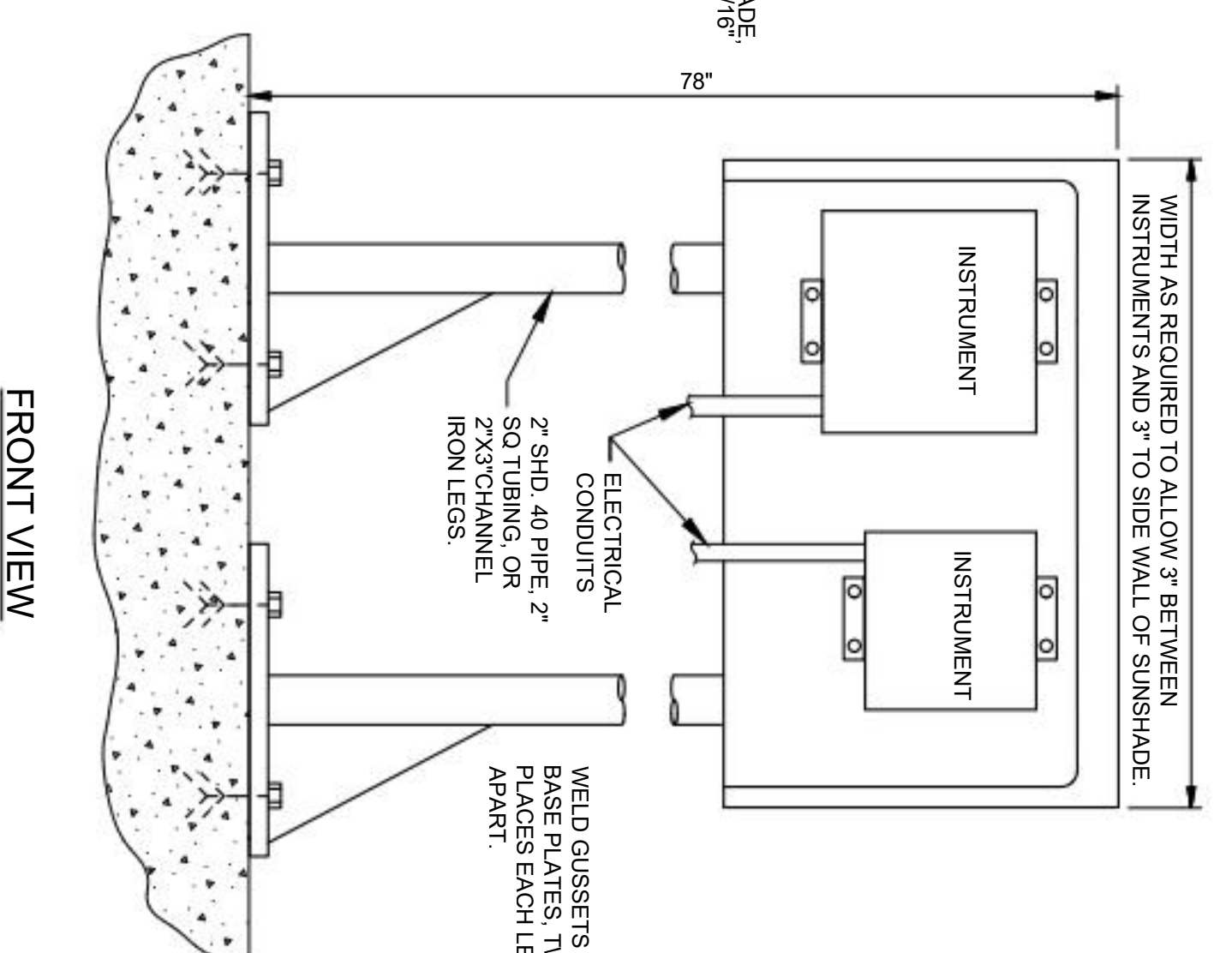
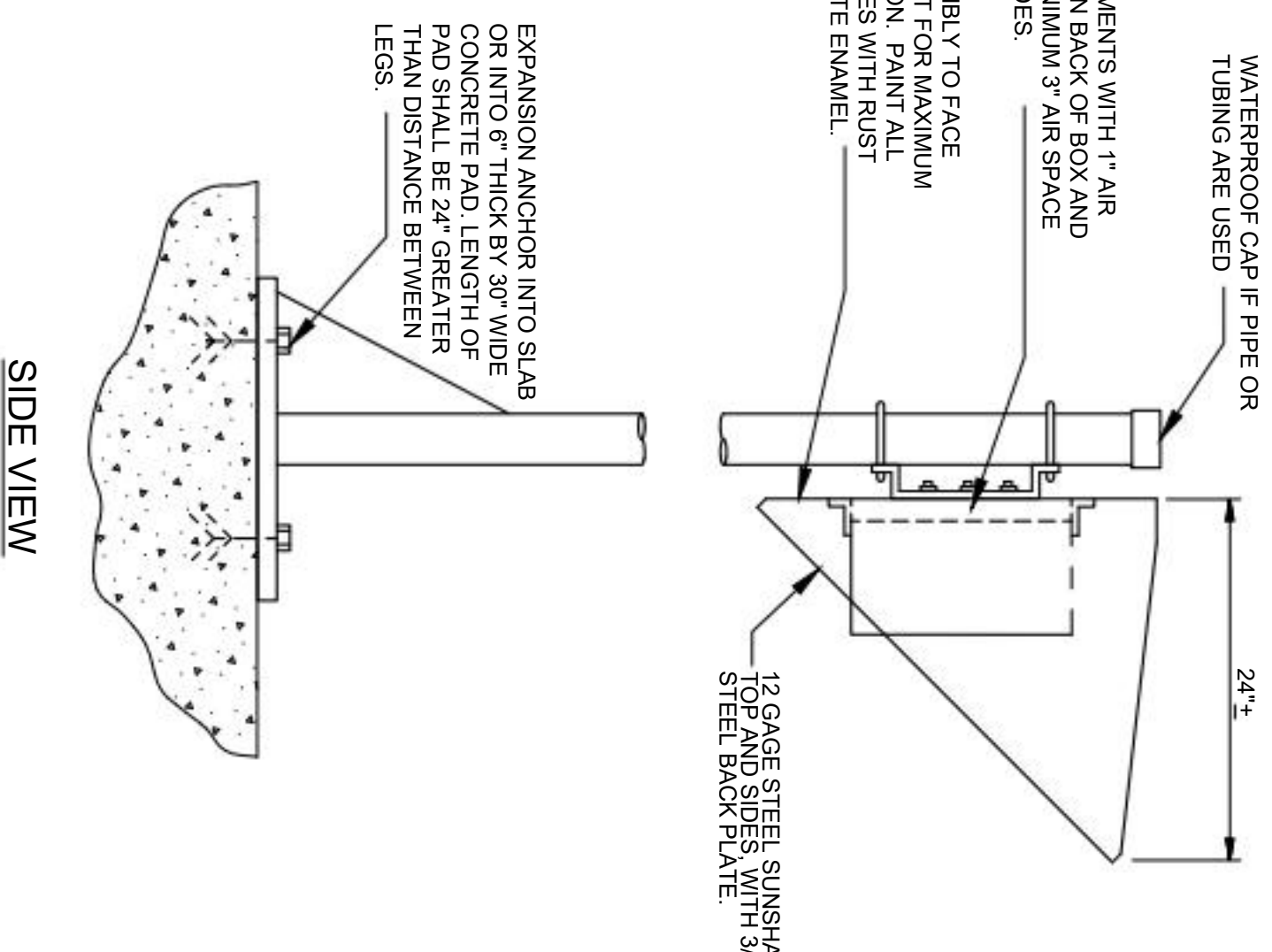
PROJECT NO:
 407941

I-05
 SHEET
 OF



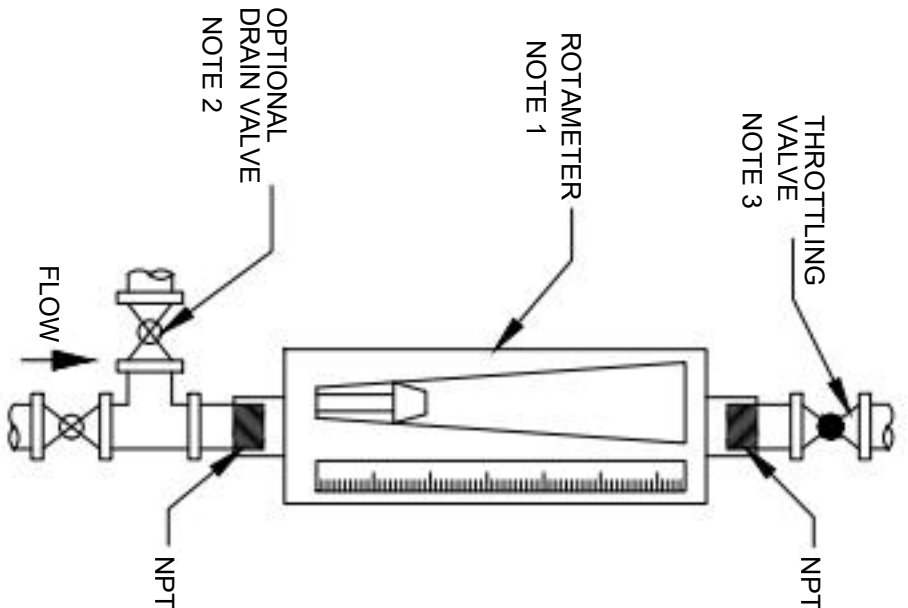
FLOW METER-MAGNETIC
NO SCALE

- NOTE:
1. PIPE TO BE SUPPORTED ON BOTH SIDES OF METER.



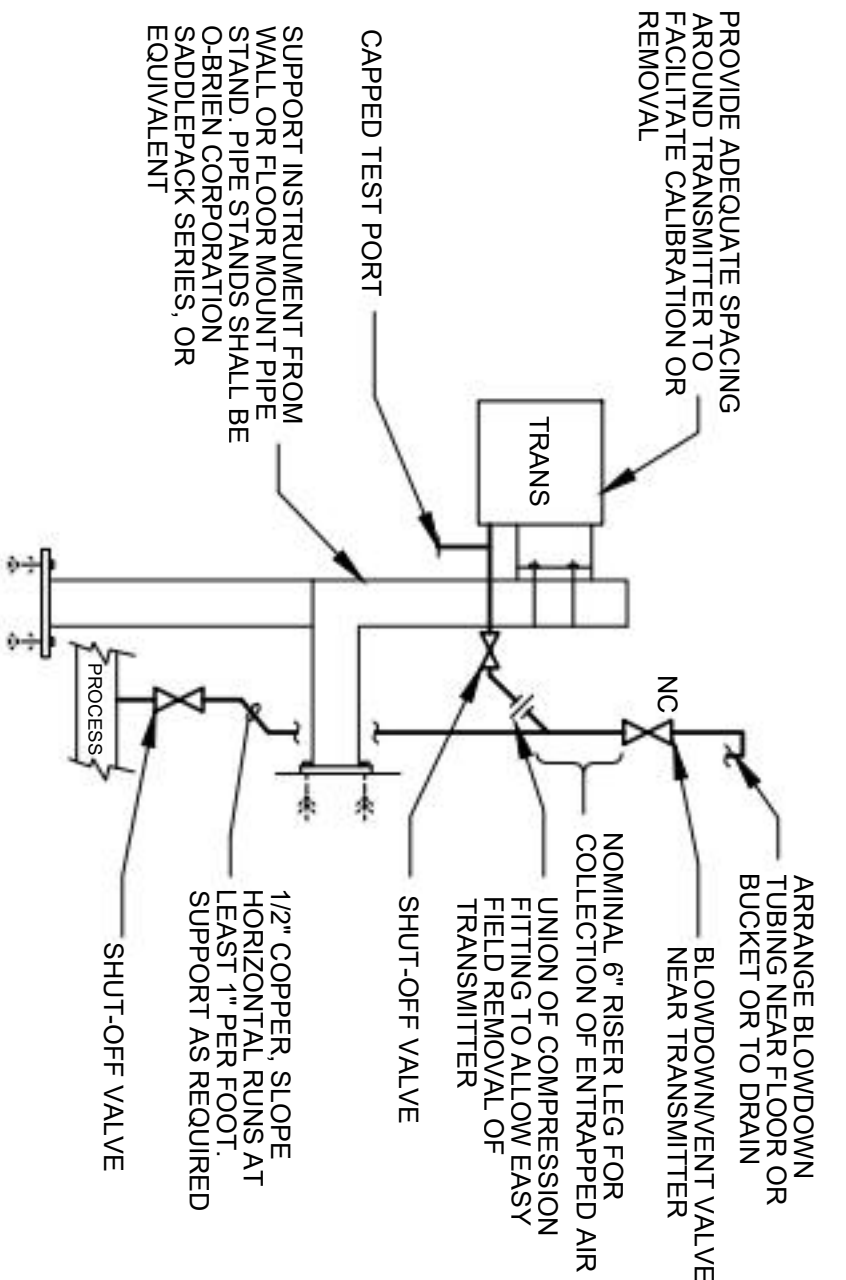
CHLORINE ANALYZER SAMPLE BOARD
NO SCALE

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

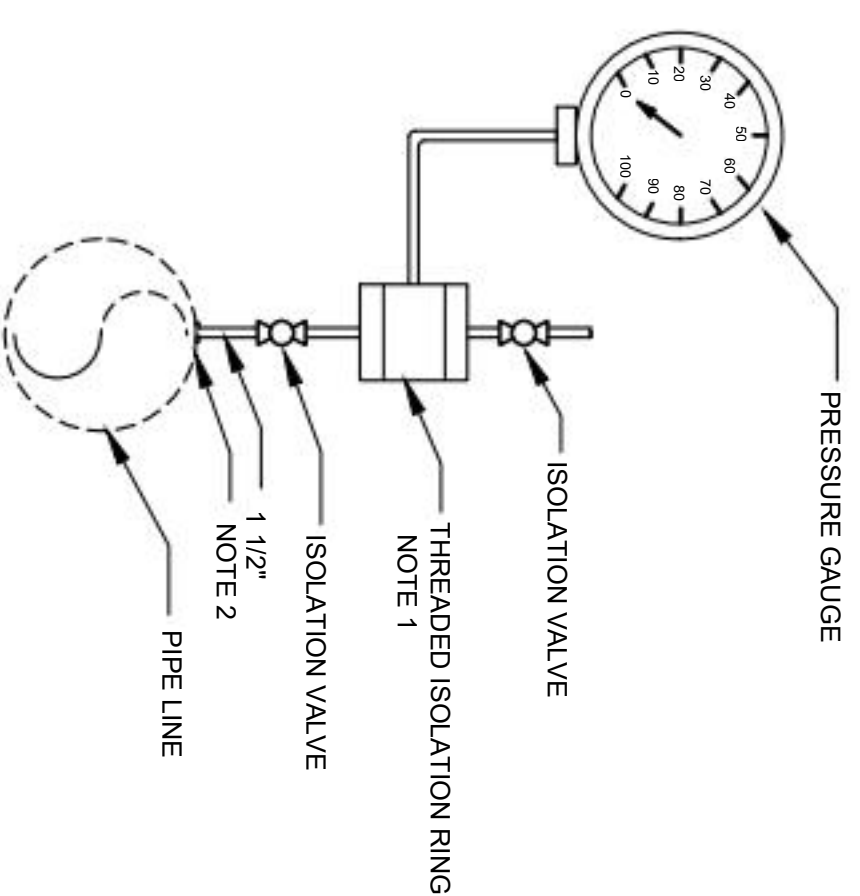


ROTAMETER
NO SCALE

- 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.

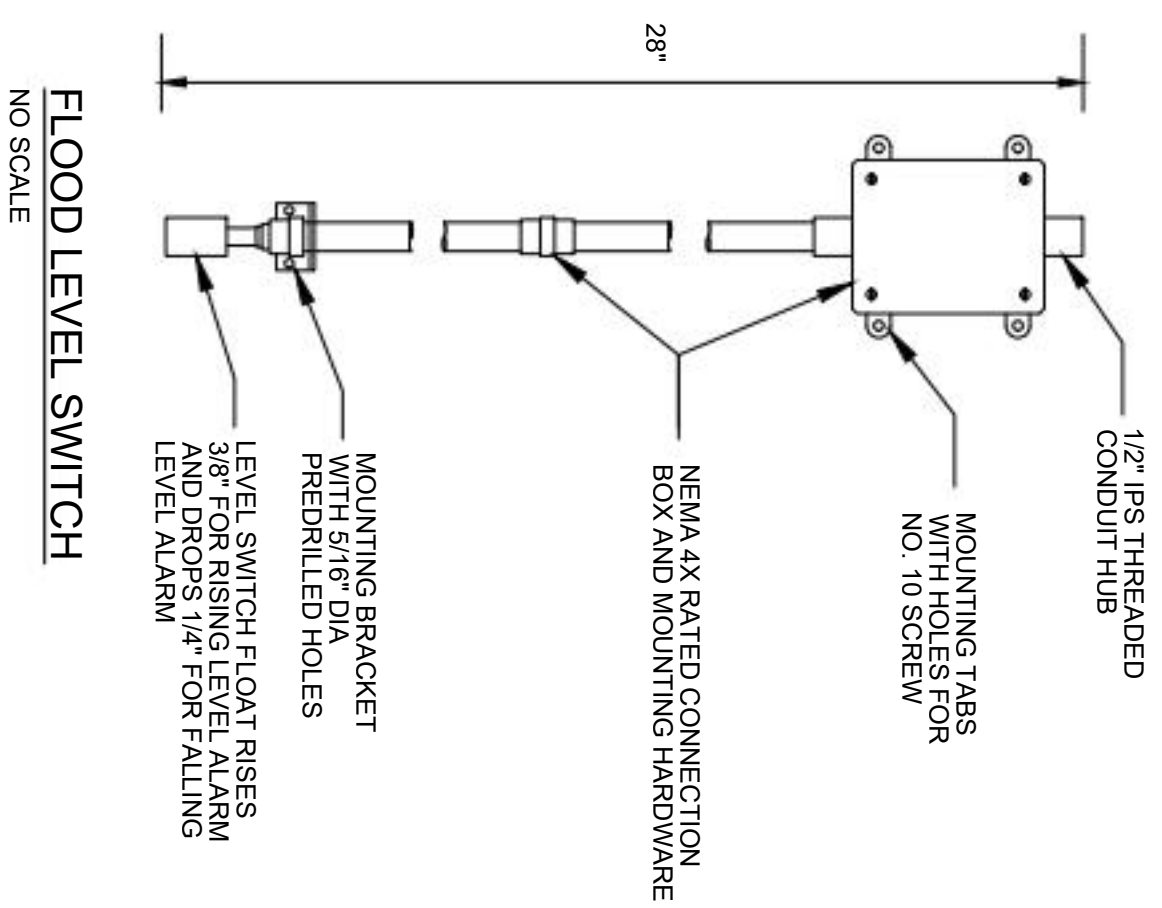


PRESSURE TRANSMITTER-PROCESS TAP (BELOW-TRANSMITTER)
NO SCALE

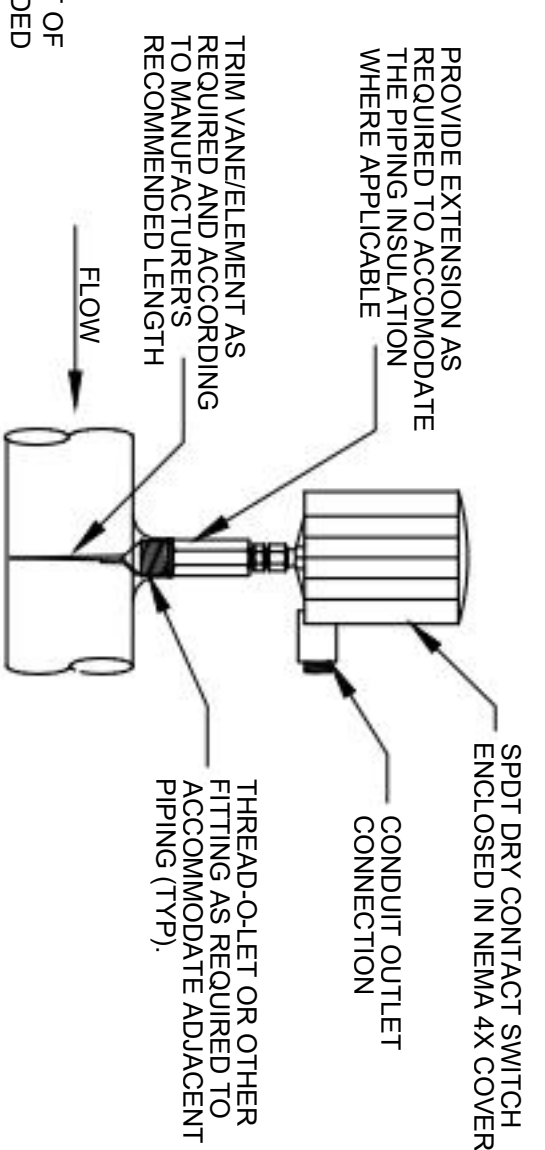


PRESSURE GAUGE WITH THREADED ISOLATION RING
NO SCALE

- NOTES:
1. ISOLATION RING PRESSURE RANGE 260 PSI MAX.
2. A TAPPING SADDLE IS REQUIRED TO PROVIDE THE ISOLATION RING. 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

PRELIMINARY - NOT FOR CONSTRUCTION

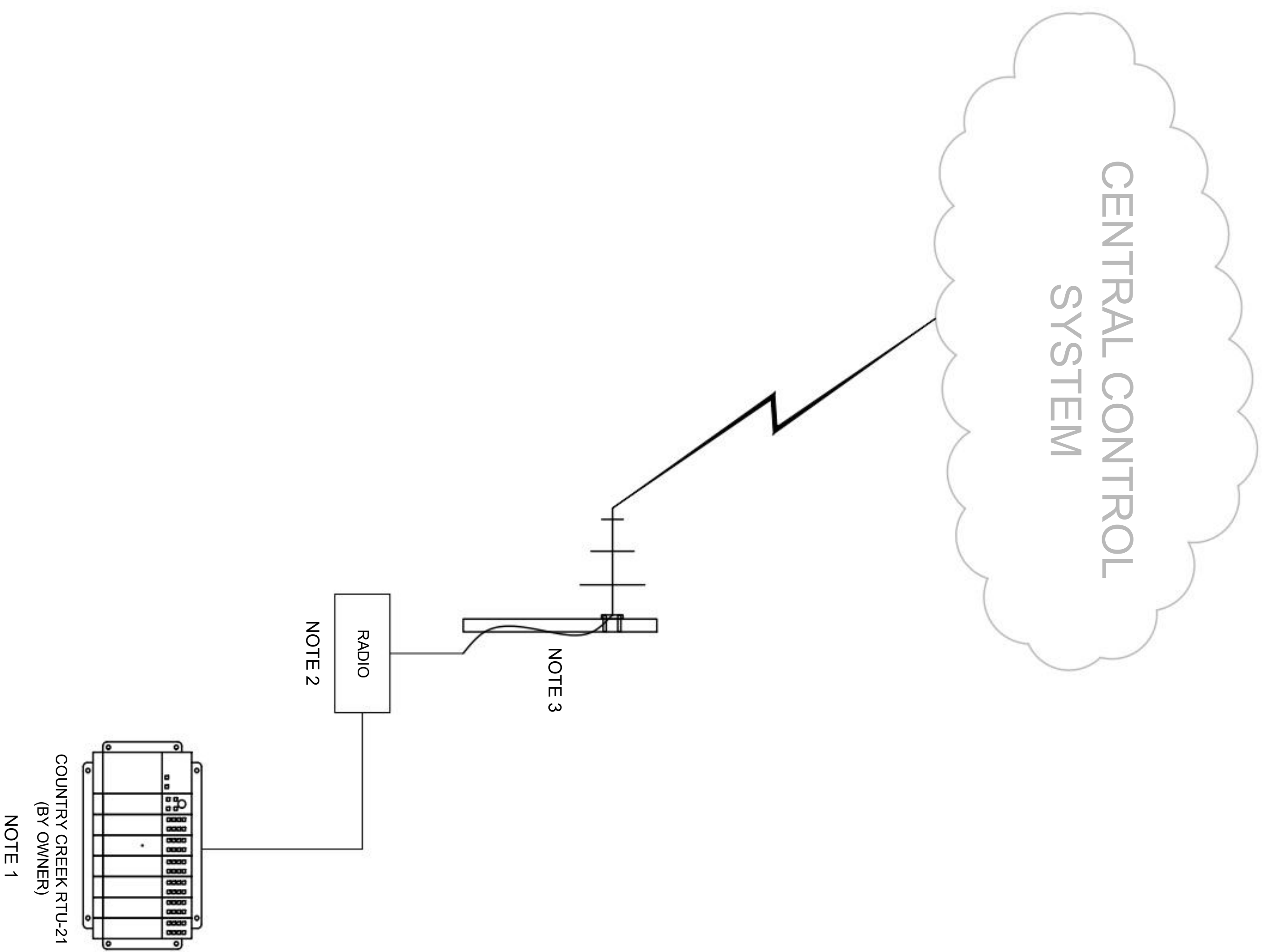
NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF USE



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

INSTRUMENTATION
INSTRUMENT INSTALLATION DETAILS

DESIGNED: RMD	DATE: JULY 2021
DETAILED: MAA	APPROVED: MAA
CHECKED: MAA	PROJECT NO: 407941
DATE: JULY 2021	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
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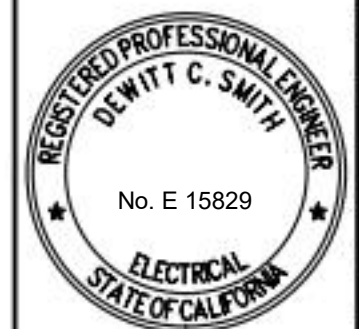


- NOTES:
1. CONTRACTOR TO SUPPLY AND INSTALL NEW RTU PANEL IN NEW MCC ROOM - HOWEVER RE-USE THE EXISTING RTU HARDWARE FROM EXISTING RTU PANEL. RTU PROGRAMMING MODIFICATIONS WILL BE BY OWNER.
 2. CONTRACTOR TO MOVE THE EXISTING RADIO COMMUNICATION SYSTEM TO THE NEW MCC ROOM AND CONNECT TO THE RTU SYSTEM.
 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

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

INSTRUMENTATION
CONTROL SYSTEM BLOCK DIAGRAM



DATE	REVISIONS AND RECORD OF USE	NO.	BY	CHK	APP

DESIGNED: RMD
DETAILED: MAA
CHECKED: MAA
APPROVED: _____
DATE: JULY 2021

0 12 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING
IS NOT TO FULL SCALE

PROJECT NO.
407941

I-07
SHEET
OF

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

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

tbITripsAndVMT	VendorTripNumber	0.00	2.00
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tbITripsAndVMT	WorkerTripNumber	23.00	8.00
tbITripsAndVMT	WorkerTripNumber	23.00	8.00
tbITripsAndVMT	WorkerTripNumber	23.00	8.00
tbITripsAndVMT	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

2.2 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	N2O	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

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

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

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

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 Development	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, Winter

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		3,838.309 2	3,838.309 2	0.7892		3,858.039 2
Total	2.0529	17.6884	20.8038	0.0403	0.0508	0.9062	0.9569	7.6900e-003	0.8687	0.8764		3,838.309 2	3,838.309 2	0.7892		3,858.039 2

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

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

3.2 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	3,838.309 2	3,838.309 2	0.7892		3,858.039 2
Total	2.0529	17.6884	20.8038	0.0403	0.0508	0.9062	0.9569	7.6900e-003	0.8687	0.8764	0.0000	3,838.309 2	3,838.309 2	0.7892		3,858.039 2

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

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

3.3 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		1,711.174 1	1,711.174 1	0.5534		1,725.009 8
Total	0.5368	5.9827	7.6615	0.0177	0.0000	0.2249	0.2249	0.0000	0.2069	0.2069		1,711.174 1	1,711.174 1	0.5534		1,725.009 8

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

3.3 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	1,711.174 1	1,711.174 1	0.5534		1,725.009 8
Total	0.5368	5.9827	7.6615	0.0177	0.0000	0.2249	0.2249	0.0000	0.2069	0.2069	0.0000	1,711.174 1	1,711.174 1	0.5534		1,725.009 8

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

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

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

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

3.7 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		1,621.333 2	1,621.333 2	0.0858		1,623.478 9
Total	0.9546	7.7751	9.8259	0.0171	0.0000	0.4115	0.4115	0.0000	0.4115	0.4115		1,621.333 2	1,621.333 2	0.0858		1,623.478 9

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

3.7 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	1,621.333 2	1,621.333 2	0.0858		1,623.478 9
Total	0.9546	7.7751	9.8259	0.0171	0.0000	0.4115	0.4115	0.0000	0.4115	0.4115	0.0000	1,621.333 2	1,621.333 2	0.0858		1,623.478 9

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

3.8 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

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

3.8 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

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

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

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	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

Land Use	Miles			Trip %			Trip Purpose %		
	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

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

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

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

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
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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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

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

tbITripsAndVMT	VendorTripNumber	0.00	2.00
tbITripsAndVMT	WorkerTripNumber	28.00	8.00
tbITripsAndVMT	WorkerTripNumber	10.00	8.00
tbITripsAndVMT	WorkerTripNumber	23.00	8.00
tbITripsAndVMT	WorkerTripNumber	23.00	8.00
tbITripsAndVMT	WorkerTripNumber	23.00	8.00
tbITripsAndVMT	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

2.2 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	N2O	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

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

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

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

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 Development	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		3,838.309 2	3,838.309 2	0.7892		3,858.039 2
Total	2.0529	17.6884	20.8038	0.0403	0.0508	0.9062	0.9569	7.6900e-003	0.8687	0.8764		3,838.309 2	3,838.309 2	0.7892		3,858.039 2

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

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

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	3,838.309 2	3,838.309 2	0.7892		3,858.039 2
Total	2.0529	17.6884	20.8038	0.0403	0.0508	0.9062	0.9569	7.6900e-003	0.8687	0.8764	0.0000	3,838.309 2	3,838.309 2	0.7892		3,858.039 2

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		1,711.174 1	1,711.174 1	0.5534		1,725.009 8
Total	0.5368	5.9827	7.6615	0.0177	0.0000	0.2249	0.2249	0.0000	0.2069	0.2069		1,711.174 1	1,711.174 1	0.5534		1,725.009 8

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

3.3 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	1,711.174 1	1,711.174 1	0.5534		1,725.009 8
Total	0.5368	5.9827	7.6615	0.0177	0.0000	0.2249	0.2249	0.0000	0.2069	0.2069	0.0000	1,711.174 1	1,711.174 1	0.5534		1,725.009 8

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

3.4 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		1,621.333 2	1,621.333 2	0.0858		1,623.478 9
Total	0.9546	7.7751	9.8259	0.0171	0.0000	0.4115	0.4115	0.0000	0.4115	0.4115		1,621.333 2	1,621.333 2	0.0858		1,623.478 9

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	1,621.333 2	1,621.333 2	0.0858		1,623.478 9
Total	0.9546	7.7751	9.8259	0.0171	0.0000	0.4115	0.4115	0.0000	0.4115	0.4115	0.0000	1,621.333 2	1,621.333 2	0.0858		1,623.478 9

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

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

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

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

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

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	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

Land Use	Miles			Trip %			Trip Purpose %		
	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

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

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

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

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

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

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, 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
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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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

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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

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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

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

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

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

2.2 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	N2O	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	

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

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

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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
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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 Development	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

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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/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

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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/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

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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 - 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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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

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

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

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

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	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

Land Use	Miles			Trip %			Trip Purpose %		
	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

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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

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

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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	0.0000	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

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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			
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

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

8.2 Waste by Land Use

Unmitigated

Land Use	Waste Disposed tons	Total CO2	CH4	N2O	CO2e
		MTT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

Land Use	Waste Disposed tons	Total CO2	CH4	N2O	CO2e
		MTT/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
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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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/MW hr)	203.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	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

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

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	7,453.980 5	7,453.980 5	1.6799	0.1241	7,532.962 1
2023	5.3678	49.3375	46.8521	0.0954	0.2900	2.2261	2.5161	0.0775	2.1038	2.1813	0.0000	9,088.908 7	9,088.908 7	2.0405	0.0208	9,146.114 0
Maximum	5.3678	49.3375	46.8521	0.0954	6.7174	2.2261	8.8233	2.7747	2.1038	4.7486	0.0000	9,088.908 7	9,088.908 7	2.0405	0.1241	9,146.114 0

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	7,453.980 5	7,453.980 5	1.6799	0.1241	7,532.962 0
2023	5.3678	49.3375	46.8521	0.0954	0.2900	2.2261	2.5161	0.0775	2.1038	2.1813	0.0000	9,088.908 7	9,088.908 7	2.0405	0.0208	9,146.114 0
Maximum	5.3678	49.3375	46.8521	0.0954	6.7174	2.2261	8.8233	2.7747	2.1038	4.7486	0.0000	9,088.908 7	9,088.908 7	2.0405	0.1241	9,146.114 0

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

2.2 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	N2O	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

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

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

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

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

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

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 Installation	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

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

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		6,573.254 2	6,573.254 2	1.6662		6,614.908 4
Total	4.3615	42.3034	37.5344	0.0687	6.3865	2.0865	8.4730	2.6852	1.9553	4.6405		6,573.254 2	6,573.254 2	1.6662		6,614.908 4

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

3.3 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

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

3.3 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

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

3.5 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

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

3.5 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

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

5.0 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	
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	

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

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

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
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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

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/MW hr)	203.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	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

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	N2O	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

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

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

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

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

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

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 Installation	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		6,573.254 2	6,573.254 2	1.6662		6,614.908 4
Total	4.3615	42.3034	37.5344	0.0687	6.3865	2.0865	8.4730	2.6852	1.9553	4.6405		6,573.254 2	6,573.254 2	1.6662		6,614.908 4

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	6,573.254 2	6,573.254 2	1.6662		6,614.908 4
Total	4.3615	42.3034	37.5344	0.0687	6.3865	2.0865	8.4730	2.6852	1.9553	4.6405	0.0000	6,573.254 2	6,573.254 2	1.6662		6,614.908 4

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

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

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

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

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

3.5 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

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

3.5 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

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

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

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

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	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

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, Summer

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, 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
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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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/MW hr)	203.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	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
- 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

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

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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	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
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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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	N2O	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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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

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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 Installation	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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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

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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

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

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

3.6 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

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

3.6 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

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

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

	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

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

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

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

	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

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

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

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

8.2 Waste by Land Use

Unmitigated

Land Use	Waste Disposed tons	Total CO2	CH4	N2O	CO2e
		MTT/yr			
General Light Industry	2.31	0.4689	0.0277	0.0000	1.1617
Total		0.4689	0.0277	0.0000	1.1617

Mitigated

Land Use	Waste Disposed tons	Total CO2	CH4	N2O	CO2e
		MTT/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

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**10.0 Stationary Equipment**

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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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 ₂ e Conversion Calculations	
	Energy Intensity Factor (lbs/MWh)	Emissions (lbs)	Total CO ₂ e Emissions (lbs)	Total CO ₂ e Emissions (MT)
CO ₂	203.98	38,960	38,960	18
CH ₄	0.033	6	158	0
N ₂ O	0.004	1	228	0
TOTAL GHG EMISSIONS FROM ELECTRICITY				18

Notes

- MWh = megawatt-hours; lbs = pounds; CO₂ = carbon dioxide, CH₄ = methane; N₂O = nitrous oxide; CO₂e = 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 Seascapes 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 Seascapes 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 (CNDDDB; CDFW 2021a), Biogeographic Information and Observation System (BIOS; CDFW 2021b), USFWS Information for Planning and Consultation (IPaC; USFWS 2021a), and USFWS Critical Habitat Portal (USFWS 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 CNDDDB 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., CNDDDB, 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 CNDDDB, 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 CNDDDB. CNDDDB 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 are 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



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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.

A handwritten signature in blue ink, appearing to read "Christian Knowlton".

Christian Knowlton
Biologist

A handwritten signature in blue ink, appearing to read "Sherri Miller".

Sherri Miller
Principal

Attachments

- Attachment 1 Figures
- Attachment 2 Representative Site Photographs
- Attachment 3 Special-Status Species Evaluation Tables



References

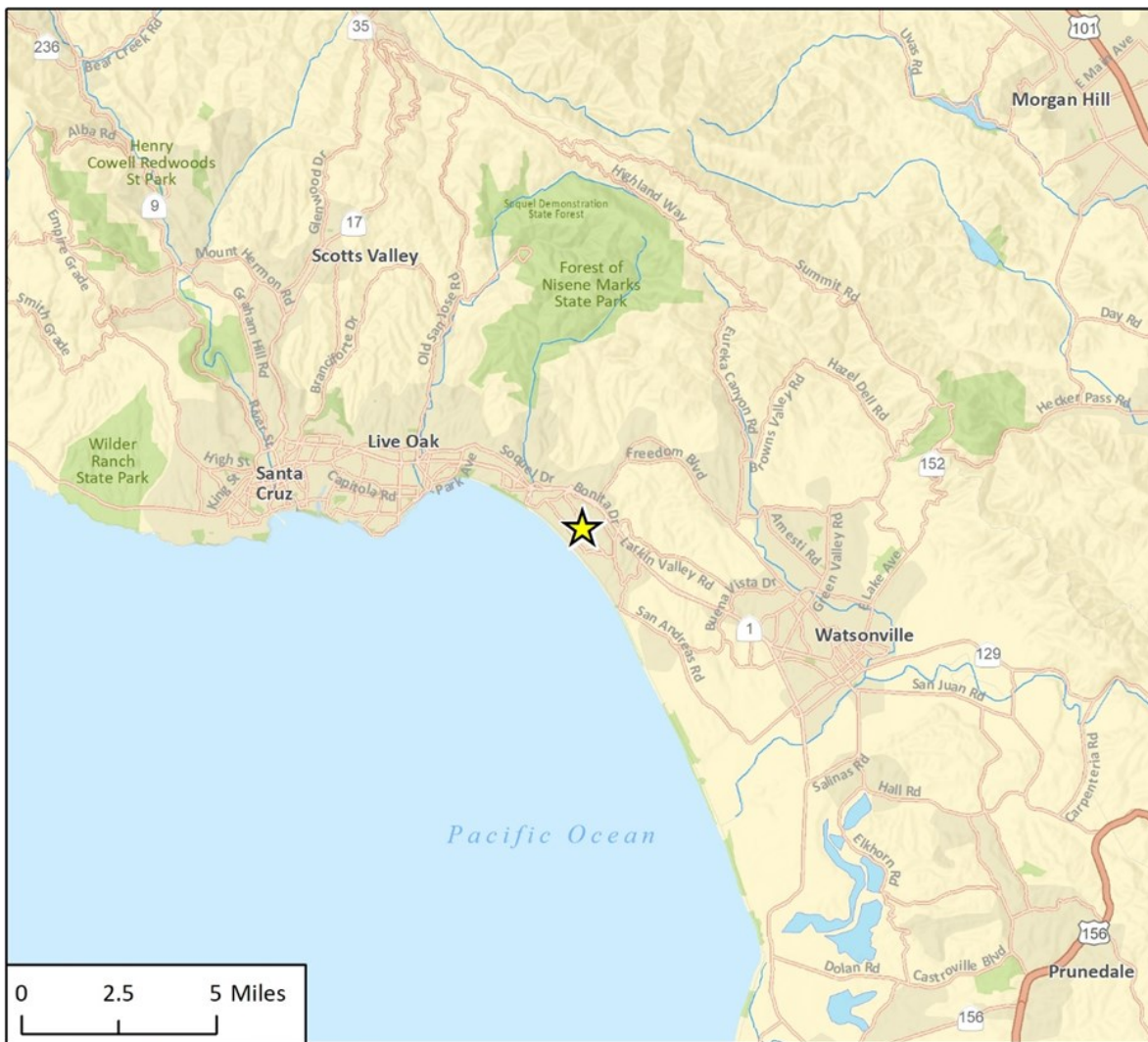
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Attachment 1

Figures



Figure 1 Regional Project Location



Imagery provided by Esri and its licensors © 2021.



Fig. 1. Regional Location

Figure 2 Study Area



Imagery provided by ESRI, Microsoft Bing and its licensors © 2021.

Fig. 2 Study Location Map

Figure 3 Vegetation/Land Cover in the Study Area



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Fig 3 Vegetation Land Cover

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				
<i>Agrostis blasdalei</i> 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.
<i>Amsinckia lunaris</i> 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.
<i>Arctostaphylos andersonii</i> 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.
<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i> 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.
<i>Arctostaphylos pajaroensis</i> 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.
<i>Arctostaphylos silvicola</i> 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.
<i>Arenaria paludicola</i> 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.
<i>Calyptidium parryi</i> var. <i>hesseae</i> 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.



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Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
<i>Campanula californica</i> 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.
<i>Carex comosa</i> 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.
<i>Carex saliniformis</i> 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.
<i>Ceanothus ferrisiae</i> 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.
<i>Centromadia parryi</i> ssp. <i>congdonii</i> 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.
<i>Chorizanthe pungens</i> var. <i>hartwegiana</i> 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.
<i>Chorizanthe pungens</i> var. <i>pungens</i> 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.
<i>Chorizanthe robusta</i> var. <i>hartwegii</i> 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.
<i>Chorizanthe robusta</i> var. <i>robusta</i> 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.



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Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
<i>Collinsia multicolor</i> 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.
<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i> 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.
<i>Dacryophyllum</i> <i>falcifolium</i> 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.
<i>Eriogonum nudum</i> var. <i>decurrens</i> 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.
<i>Erysimum</i> <i>ammophilum</i> 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.
<i>Erysimum</i> <i>teretifolium</i> 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.
<i>Fissidens pauperculus</i> 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.
<i>Gilia tenuiflora</i> ssp. <i>arenaria</i> 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.
<i>Hesperocypris</i> <i>abramsiana</i> var. <i>abramsiana</i> 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 <i>Pinus attenuata</i> , 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.



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<i>Hoita strobilina</i> 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.
<i>Holocarpha macradenia</i> 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.
<i>Horkelia cuneata</i> var. <i>sericea</i> 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.
<i>Horkelia marinensis</i> 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.
<i>Lasthenia californica</i> ssp. <i>macrantha</i> 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.
<i>Lessingia micradenia</i> var. <i>glabrata</i> 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.
<i>Malacothamnus arcuatus</i> 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.
<i>Microseris paludosa</i> 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.
<i>Monardella sinuata</i> ssp. <i>nigrescens</i> 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.
<i>Monolopia gracilens</i> 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.



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Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
<i>Pedicularis dudleyi</i> 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.
<i>Penstemon rattanii</i> var. <i>kleei</i> 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.
<i>Pentachaeta bellidiflora</i> 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.
<i>Piperia candida</i> 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.
<i>Piperia yadonii</i> 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.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i> 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.
<i>Plagiobothrys diffusus</i> 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.
<i>Polygonum hickmanii</i> Scotts Valley polygonum	FE/SE G1/S1 1B.1	Valley and foothill grassland. Purisima sandstone or mudstone with a thin soil layer; vernal 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.
<i>Senecio aphanactis</i> 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.



Soquel Creek Water District

**Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant
Project Biological Resources Assessment**

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
<i>Stebbinsoseris decipiens</i> 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.
<i>Trifolium buckwestiorum</i> 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.
<i>Trifolium hydrophilum</i> 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.
<i>Trifolium polyodon</i> 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				
<i>Euphilotes enoptes smithi</i> 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: <i>Eriogonum latifolium</i> and <i>Eriogonum parvifolium</i> 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.
<i>Polyphylla barbata</i> 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.
<i>Trimerotropis infantilis</i> 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				
<i>Eucyclogobius newberryi</i> 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.
<i>Oncorhynchus kisutch</i> 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.
<i>Oncorhynchus mykiss irideus</i> 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.
<i>Oncorhynchus mykiss irideus</i> 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.



Soquel Creek Water District

**Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant
Project Biological Resources Assessment**

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
<i>Spirinchus thaleichthys</i> 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.
<i>Thaleichthys pacificus</i> 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				
<i>Ambystoma californiense</i> 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.
<i>Ambystoma macrodactylum croceum</i> 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.
<i>Aneides niger</i> 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.
<i>Dicamptodon ensatus</i> 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.



Soquel Creek Water District
**Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant
 Project Biological Resources Assessment**

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.		
<i>Rana boylei</i> 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.
<i>Rana draytonii</i> 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				
<i>Anniella pulchra</i> 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.
<i>Emys marmorata</i> 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				
<i>Agelaius tricolor</i> tricolored blackbird	None/ST G1G2/S1S2 SSC	Highly 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.
<i>Aquila chrysaetos</i> 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.
<i>Asio flammeus</i> 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.



Soquel Creek Water District
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Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
<i>Athene cunicularia</i> 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.
<i>Brachyramphus marmoratus</i> 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.
<i>Charadrius nivosus</i> 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.
<i>Coturnicops noveboracensis</i> 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.
<i>Cypseloides niger</i> 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.
<i>Elanus leucurus</i> 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.
<i>Falco peregrinus anatum</i> 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.
<i>Laterallus jamaicensis coturniculus</i> 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.



Soquel Creek Water District

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Project Biological Resources Assessment**

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
<i>Rallus obsoletus</i> 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.
<i>Riparia</i> 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				
<i>Antrozous pallidus</i> 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.
<i>Corynorhinus townsendii</i> 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.
<i>Neotoma fuscipes annectens</i> 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.
<i>Sorex ornatus salarius</i> 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.



Soquel Creek Water District

**Country Club Replacement Well and 1,2,3-Trichloropropane Removal Water Treatment Plant
Project Biological Resources Assessment**

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
<i>Taxidea taxus</i> 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	<i>Santa Cruz Regional Wastewater Treatment System Project, Santa Cruz County, California</i>	Outside
S-007106	Miley Paul Holman, Randy Wiberg, and Matthew Clark	1985	<i>An Archaeological Reconnaissance of the Benchlands and Uplands, Seascape Properties, Santa Cruz County, California</i>	Outside
S-039959	David Brunzell	2012	<i>Cultural Resources Assessment of the Crown Castle Seacliff Project, Santa Cruz County, California (BCR Consulting Project No. SYN1208) (letter report)</i>	Outside
S-048282	Jennifer Roland	2015	<i>FCC Form 620 New Tower Submission Packet, 26011/ Rio Del Mar Elementary SC1, 819 Pinehurst Drive, Santa Cruz, CA 95003</i>	Outside
S-048282a	Jennifer Roland	2015	<i>Phase I Investigation for the Verizon Wireless Rio Del Mar Elementary SC1 Installation Project, Aptos, Santa Cruz, California</i>	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 Canyon 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 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

Capitol Berry Farms

1964 Bill of Sale. April 8. Document on file with SqCWD.

Eustice, W. Gordon

1984 Individual Grant Deed 36908. August 1. Document on file with SqCWD.

Monterey Bay Water Company (MWBC)

1961 Monterey Bay Water Company Well Data, Aptos-Rio del Mar System. Document on file with SqCWD.

Morgan, Chris

1998 State of California Department of Parks and Recreation Site Record Form for P-44-000377. On file at the Northwest Information Center, Sonoma State University.

National Park Service

1983 Archaeological and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Electronic document, online at https://www.nps.gov/history/local-law/arch_stnds_0.htm (accessed May 2021).

NETR Online

2021 *Historic Aerials*. <https://www.historicaerials.com/viewer> (accessed March 2021).

Santa Cruz Land Title Company

1964 Escrow Statement. Escrow Number 90246. Document on file with SQCWD.

Soquel Creek Water District (SqCWD)

2021 "History." "<https://www.soquelcreekwater.org/204/History> (accessed May 2021).

United States Geological Survey (USGS)

2021 Topo View. [online map database]. <https://ngmdb.usgs.gov/topoview/> (accessed March 2021).

University of California, Santa Cruz

1953 Catalog of Aerial Photographs – Coastline from Ano Nuevo to the Pajaro River, Santa Cruz County. August 25. Document on file with SqCWD.

1956 Catalog of Aerial Photographs – Santa Cruz County, CA; with overlap coverage into adjoining counties: Santa Clara, San Mateo, San Benito and Monterey. August 13. Aerial photograph of the project area and vicinity. Document on file with SqCWD.

1961 Catalog of Aerial Photography – Santa Cruz County Coastline, portion from Natural Bridges State Park to Mouth of the Pajaro River. December 6 and 8. Document on file with SqCWD.

Western Title Insurance Company

1964 Policy of Title Insurance. Policy 57888. May 13. Document on file with SqCWD.



Soquel Creek Water District
**Cultural Resources Assessment for the Country Club Well Replacement Well and
1,2,3-Trichloropropane Removal Water Treatment Plant Project**

Wilson, Michael

2021 Personal correspondence. June 17. Email messages on file with Rincon Consultants, Ventura CA.

Attachment A

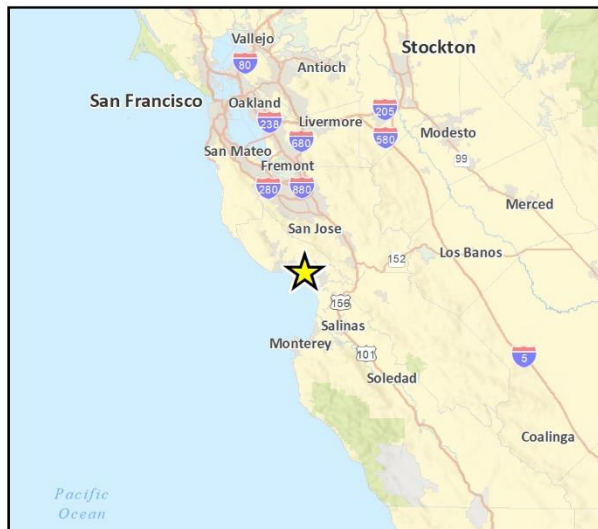
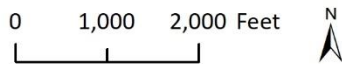
Figures

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 have changed since the original topographic map was assembled.

Project Location



CRFig1 Proj Locn Map

Figure 2 Project Site Location



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

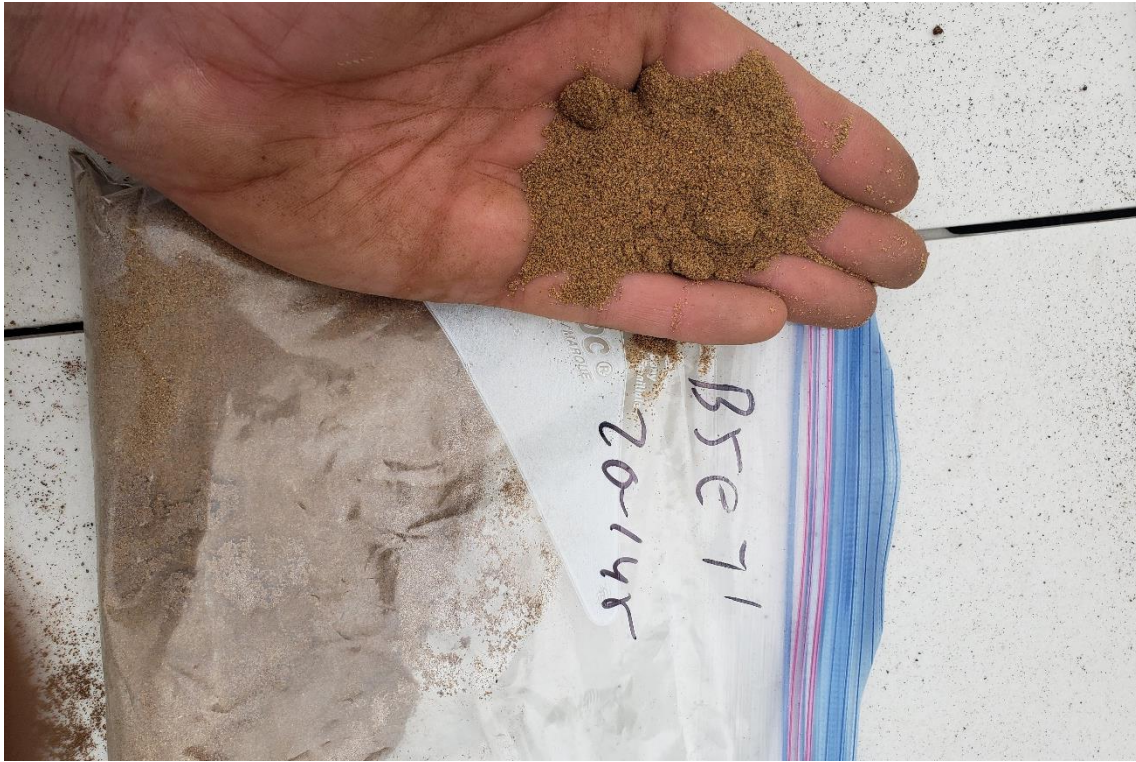


Figure 8 Dark, Organic Rich Soil



Attachment B

Northwest Information Center Records Search Results

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 <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
NON-ARCHAEOLOGICAL Resource Locations Report Locations ¹	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
"Other" Report Locations ²	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	

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	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
List (PDF format)	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
Detail (PDF format)	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
Excel Spreadsheet	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
NON-ARCHAEOLOGICAL Resource Database	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
List (PDF format)	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
Detail (PDF format)	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
Excel Spreadsheet	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
Report Database ¹	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
List (PDF format)	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
Detail (PDF format)	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
Excel Spreadsheet	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
Include "Other" Reports ²	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	

4. Document PDFs (paper copy only upon request):

	Within project area	Within 0.5 mi.	radius
ARCHAEOLOGICAL Resource Records ¹	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
NON-ARCHAEOLOGICAL Resource Records Reports ¹	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	
"Other" Reports ²	yes <input type="checkbox"/> / no <input type="checkbox"/>	yes <input type="checkbox"/> / no <input type="checkbox"/>	

CHRIS Data Request Form

5. Eligibility Listings and Documentation:

Within project area Within 0.5 mi. radius

OHP Built Environment Resources Directory³:

Directory listing only (Excel format)
Associated documentation⁴

yes / no
yes / no

yes / no
yes / no

OHP Archaeological Resources Directory^{1,5}:

Directory listing only (Excel format)
Associated documentation⁴

yes / no
yes / no

yes / no
yes / no

California Inventory of Historic Resources (1976):

Directory listing only (PDF format)
Associated documentation⁴

yes / no
yes / no

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 sources as part of this request.

Caltrans Bridge Survey	yes <input type="checkbox"/> / no <input type="checkbox"/>
Ethnographic Information	yes <input type="checkbox"/> / no <input type="checkbox"/>
Historical Literature	yes <input type="checkbox"/> / no <input type="checkbox"/>
Historical Maps	yes <input type="checkbox"/> / no <input type="checkbox"/>
Local Inventories	yes <input type="checkbox"/> / no <input type="checkbox"/>
GLO and/or Rancho Plat Maps	yes <input type="checkbox"/> / no <input type="checkbox"/>
Shipwreck Inventory	yes <input type="checkbox"/> / no <input type="checkbox"/>
Soil Survey Maps	yes <input type="checkbox"/> / no <input type="checkbox"/>

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.



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

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



CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain
Apache

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

**Native American Heritage Commission
Native American Contacts List
March 19, 2021**

Amah Mutsun Tribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt CA 95632
vlopez@amahmutsun.org
(916) 743-5833

Ohlone/Costanoan
North Valley Yokuts

Rumsen Am:a Tur:ataj Ohlone
Dee Dee Manzanares Ybarra, Chairperson
14671 Farmington Street
Herperia CA 92345
rumsenama@gmail.com
(760) 403-1756

Ohlone/Costanoan

Amah Mutsun Tribal Band of Mission San Juan Bautista
Irene Zwielerlein, Chairperson
789 Canada Road
Woodside CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 332-1526 Fax

Ohlone/Costanoan

Costanoan Ohlone Rumsen-Mutsen Tribe
Patrick Orozco, Chairman
644 Peartree Drive
Watsonville CA 95076
yanapvoic97@gmail.com
(831) 728-8471

Ohlone/Costanoan

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods
1615 Pearson Court
San Jose CA 95122
kanyon@kanyonconsulting.com
408-673-0626

Ohlone/Costanoan

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister CA 95024
ams@indiancanyon.org
(831) 637-4238

Ohlone/Costanoan

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.

A handwritten signature in black ink, appearing to read "Courtney Montgomery".

Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map





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.

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.

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Courtney Montgomery, M.A.
Archaeologist

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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

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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Sincerely,
Rincon Consultants, Inc.

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Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map





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

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.

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Sincerely,
Rincon Consultants, Inc.

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Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map





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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.

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Rincon Consultants, Inc.

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Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map





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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.

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Sincerely,

Rincon Consultants, Inc.

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Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map





Rincon Consultants, Inc.

437 Figueroa Street, Suite 203
Monterey, California 93940

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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.

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.

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Courtney Montgomery, M.A.
Archaeologist

Enclosed: Project Location Map



Courtney Montgomery

From: KKLLC Admin <admin@kanyonconsulting.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

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

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
<p>Amah Mutsun Tribal Band Valentin Lopez, Chairperson P.O. Box 5272 Galt, California 95632 Phone: (916) 743-5833 vlopez@amahmutsun.org</p>	03/25/2021: Emailed letter	
<p>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</p>	03/25/2021: Emailed letter	
<p>Costanoan Ohlone Rumsen-Mutsun Tribe Patrick Orozco, Chairman 644 Peartree Drive Watsonville, California 95076 Phone: (831) 728-8471 yanapvoic97@gmail.com</p>	03/25/2021: Emailed letter	
<p>Indian Canyon Mutsun Band of Costanoan Ann Marie Sayers, Chairperson P.O. Box 28 Hollister, California 95024 Phone: (831) 637-4238 ams@indiancanyon.org</p>	03/25/2021: Emailed letter	
<p>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</p>	03/25/2021: Emailed letter	
<p>Rumš̄en Am:a Tur:ataj Ohlone Dee Dee Manzanares Ybarra, Chairperson 14671 Farmington Street Hesperia, California Phone: (760) 403-1756 rumsenama@gmail.com</p>	03/25/2021: Emailed letter	

Local Group/Government Contact	Rincon Outreach Efforts	Response to Outreach Efforts
<p>Indian Canyon Mutsun Band of Costanoan Kanyon Sayers-Roods 1615 Pearson Court San Jose, California 95122 Phone: (408) 673-0626 kanyon@kanyonkonsulting.com</p>	<p>03/25/2021: Emailed letter</p>	<p>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.</p>

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. Sources 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:**

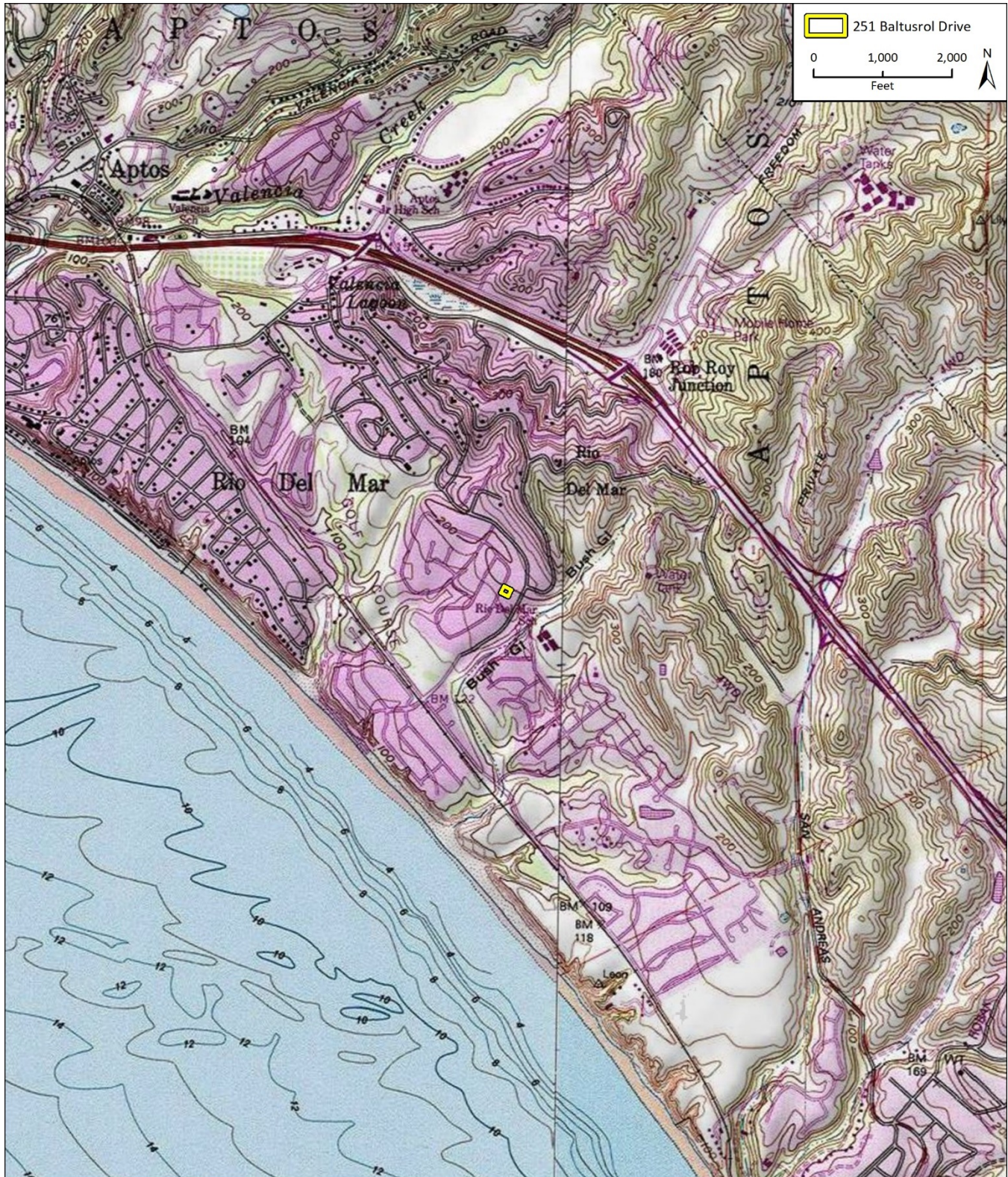
***P11. Report Citation:**

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):



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 if it 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
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Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT						
Construction Equipment	#	Hours per		Load Factor	Construction Phase	Fuel Used (gallons)
		Day	Horsepower			
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

Construction 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?Dockkey=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
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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	Fuel Economy (MPG) [1]	
Light Duty Auto (LDA)	0.000000	Passenger Vehicles	24.4
Light Duty Truck 1 (LDT1)	0.854050	Light-Med Duty Trucks	17.9
Light Duty Truck 2 (LDT2)	0.000000	Heavy Trucks/Other	7.5
Medium Duty Vehicle (MDV)	0.145950	Motorcycles	44
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		

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

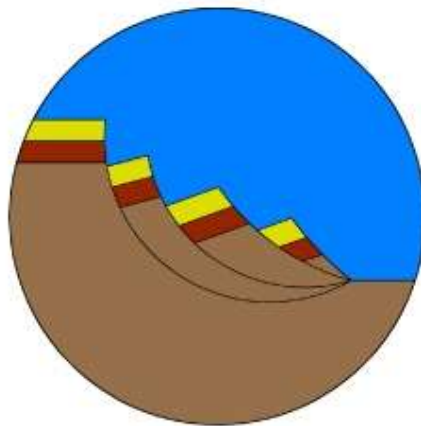
GEOTECHNICAL INVESTIGATION

**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

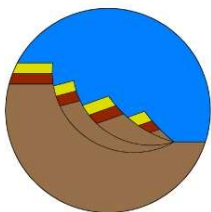


Prepared by:

CMAG ENGINEERING, INC.

Project No. 20-145-SC

April 1, 2021



CMAG ENGINEERING, INC.

P.O. BOX 640 APTOS, CALIFORNIA 95001

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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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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 (SO₄) 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.

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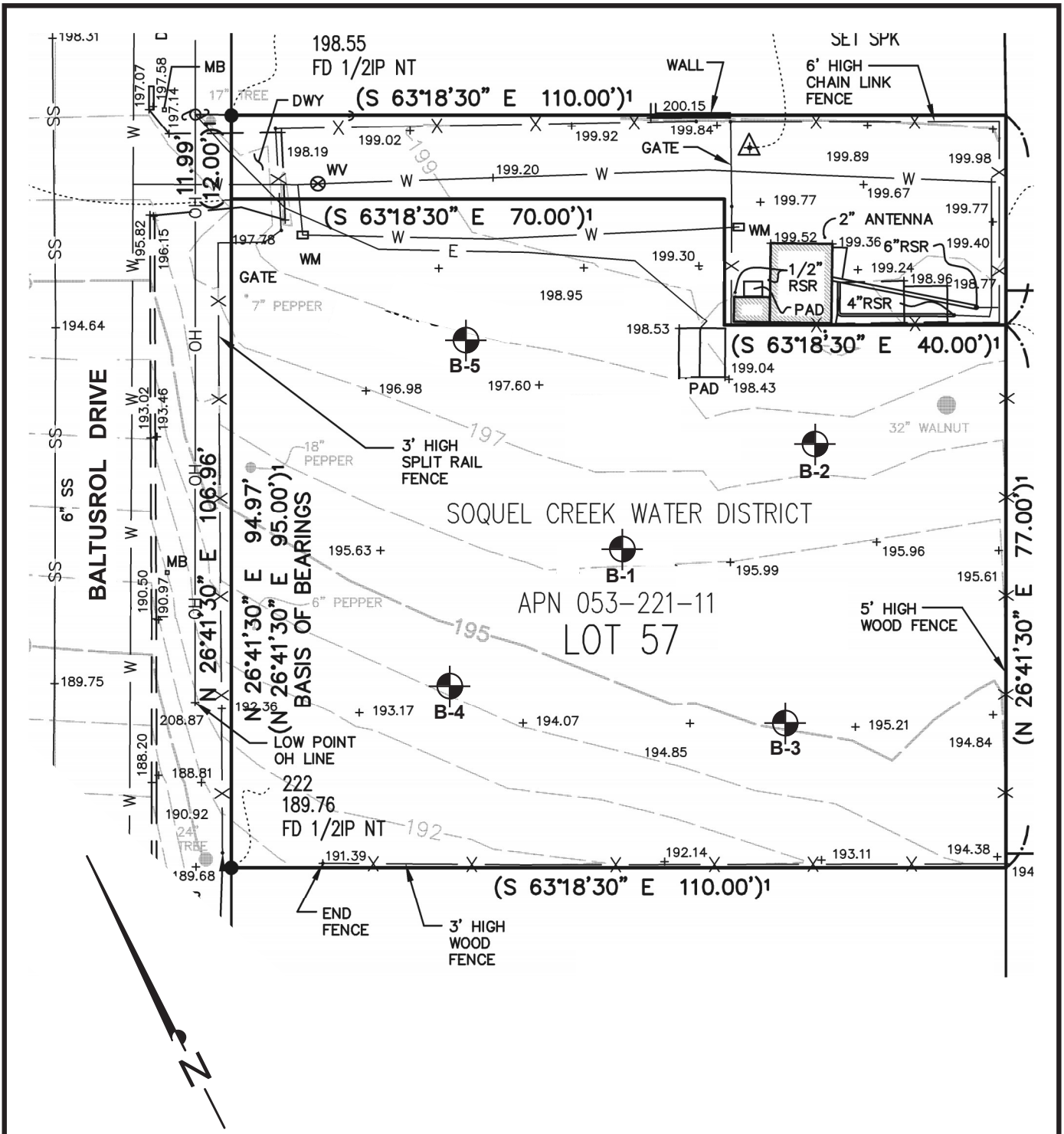
U.S. Geological Survey and California Geological Survey. *Quaternary Fault and Fold Database for the United States*. (<https://www.usgs.gov/natural-hazards/earthquake-hazards/faults>).



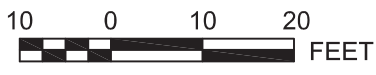
BASEMAP: DeLorme Topo USA®

SCALE: 1:100,000

CMAG ENGINEERING	SITE LOCATION MAP	FIGURE
	251 Baltusrol Drive	1



SCALE: 1 INCH = 20 FEET

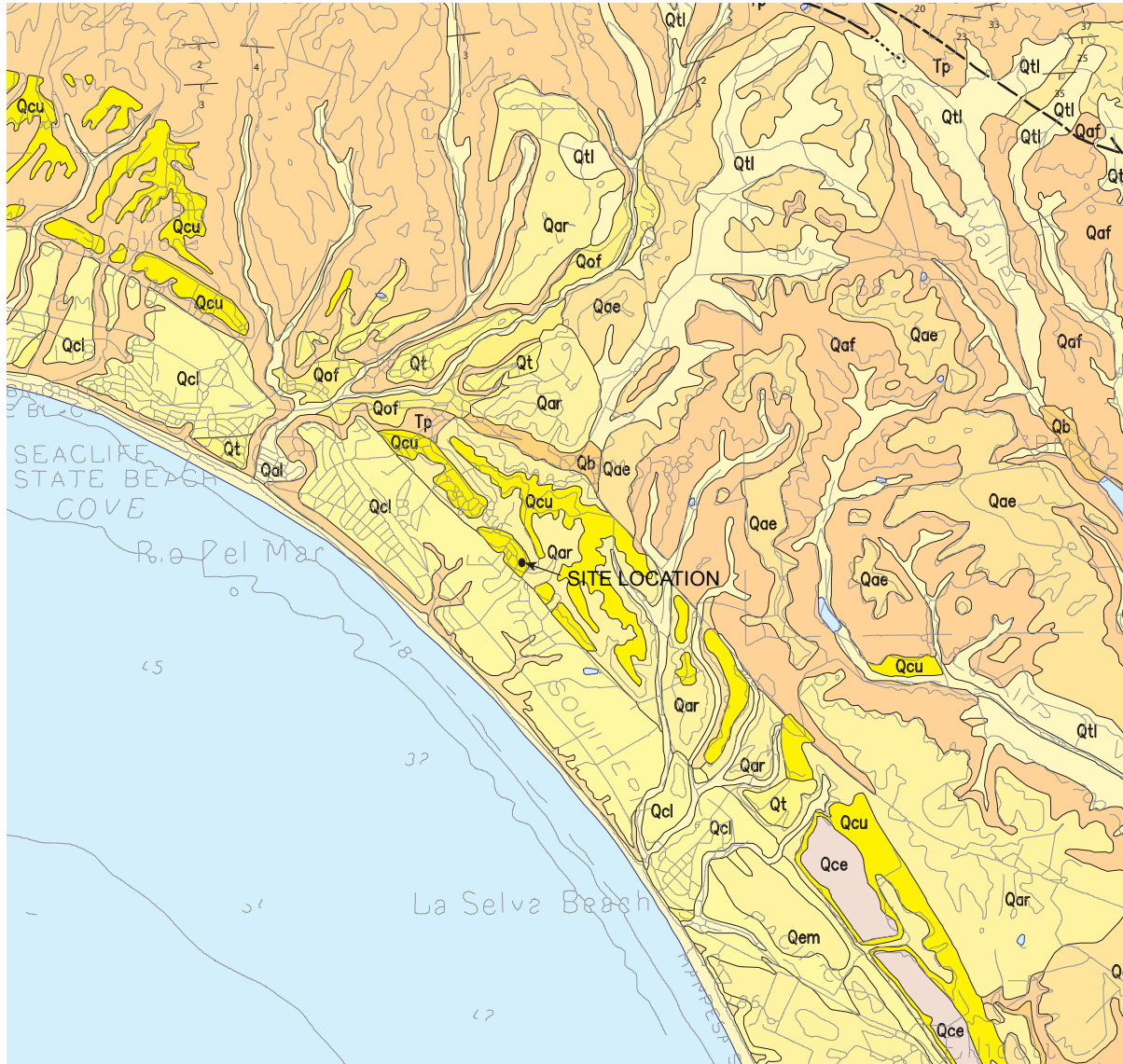


EXPLANATION OF SYMBOLS

- 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	FIGURE
	251 Baltusrol Drive	2



EXPLANATION

UNITS

- Qtl Colluvium (Holocene)
- Qal Alluvial Deposits, Undifferentiated (Holocene)
- Qof Older Flood Plain 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



SCALE: 1:62,500



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.

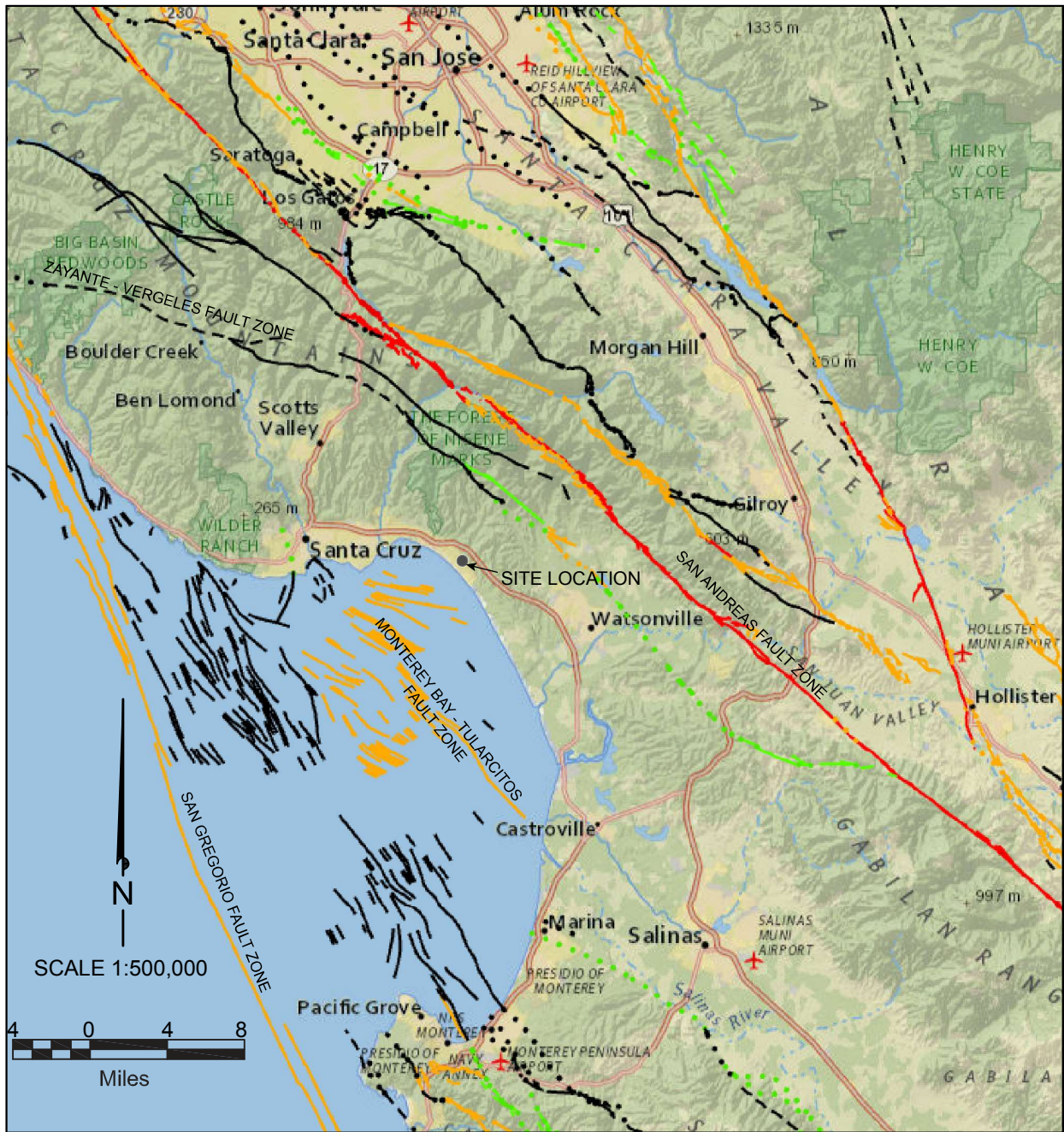
CMAG ENGINEERING

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	

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Other Tests
				<div style="display: flex; justify-content: space-around; font-size: small;"> <div style="text-align: center;">  2" Ring Sample </div> <div style="text-align: center;">  2.5" Ring Sample </div> <div style="text-align: center;">  Bulk Sample </div> </div> <div style="display: flex; justify-content: space-around; font-size: small; margin-top: 5px;"> <div style="text-align: center;">  Terzaghi Split Spoon Sample </div> <div style="text-align: center;">  Groundwater </div> <div style="text-align: center;">  3" Shelby Tube </div> </div>					
	SM			Qcu: Very Dark Grayish Brown Silty SAND. Moist, Non Plastic.					
	SM			Sand - Fine to Medium Grained. High Organics.					
5				Dark Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic.	9	10		5.7	F.C. = 30.0% Sulfate
				Sand - Fine to Medium Grained.					
	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									












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

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Other Tests
				<div style="display: flex; justify-content: space-around; font-size: small;"> <div style="text-align: center;">  2" Ring Sample </div> <div style="text-align: center;">  2.5" Ring Sample </div> <div style="text-align: center;">  Bulk Sample </div> </div> <div style="display: flex; justify-content: space-around; font-size: small; margin-top: 5px;"> <div style="text-align: center;">  Terzaghi Split Spoon Sample </div> <div style="text-align: center;">  Groundwater </div> <div style="text-align: center;">  3" Shelby Tube </div> </div>					
	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	
45				Boring Terminated at 41.5± ft. Groundwater Not Encountered. Boring Backfilled With Cuttings And Capped With Grout.					
50									
55									
60									
65									
70									











LOG OF EXPLORATORY BORING

Project No.: 20-145-SC	Boring: B-2
Project: 251 Baltusrol Drive Santa Cruz County, California	Location: See Figure 2 Elevation: 197.5± ft.
Date: January 15, 2021	Method of Drilling: Track Mounted Drill Rig, 6in. Solid Stem Auger, 140lb. Automatic Trip Hammer
Logged By: ALG	

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Other Tests
				<div style="display: flex; justify-content: space-around; font-size: small;"> <div style="text-align: center;">  2" Ring Sample </div> <div style="text-align: center;">  2.5" Ring Sample </div> <div style="text-align: center;">  Bulk Sample </div> </div> <div style="display: flex; justify-content: space-around; font-size: small; margin-top: 5px;"> <div style="text-align: center;">  Terzaghi Split Spoon Sample </div> <div style="text-align: center;">  Groundwater </div> <div style="text-align: center;">  3" Shelby Tube </div> </div>					
	SM			Qcu: Dark Grayish Brown Silty SAND. Moist, Non Plastic. High Organics.					
	SM			Dark Yellowish Brown Silty SAND. Loose, Moist, Non Plastic. Sand - Fine to Medium Grained.	13		96.2	9.4	Corrosivity
5					7	8		5.8	F.C. = 28.2%
	SM			Material Consistent - Medium Dense.	13	15		6.1	
10	SM			Dark Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained.	10	12		9.8	
15				Boring Terminated at 10.5± ft. Groundwater Not Encountered. Boring Backfilled With Cuttings And Capped With Grout.					
20									
25									
30									
35									












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	

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Other Tests
				<div style="display: flex; justify-content: space-around; font-size: small;"> <div style="text-align: center;">  2" Ring Sample </div> <div style="text-align: center;">  2.5" Ring Sample </div> <div style="text-align: center;">  Bulk Sample </div> </div> <div style="display: flex; justify-content: space-around; font-size: small; margin-top: 5px;"> <div style="text-align: center;">  Terzaghi Split Spoon Sample </div> <div style="text-align: center;">  Groundwater </div> <div style="text-align: center;">  3" Shelby Tube </div> </div>					
	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		106.1	6.7	
					13	15		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									












LOG OF EXPLORATORY BORING

Project No.: 20-145-SC	Boring: B-4	
Project: 251 Baltusrol Drive Santa Cruz County, California	Location: See Figure 2	
Date: January 15, 2021	Elevation: 194± ft.	
Logged By: ALG	Method of Drilling: Track Mounted Drill Rig, 6in. Solid Stem Auger, 140lb. Automatic Trip Hammer	

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Other Tests
				<div style="display: flex; justify-content: space-around; font-size: small;"> <div style="text-align: center;">  2" Ring Sample </div> <div style="text-align: center;">  2.5" Ring Sample </div> <div style="text-align: center;">  Bulk Sample </div> </div> <div style="display: flex; justify-content: space-around; font-size: small; margin-top: 5px;"> <div style="text-align: center;">  Terzaghi Split Spoon Sample </div> <div style="text-align: center;">  Groundwater </div> <div style="text-align: center;">  3" Shelby Tube </div> </div>					
	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%
15	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	
20	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	
25				Boring Terminated at 19.5± ft. Groundwater Not Encountered. Boring Backfilled With Cuttings And Capped With Grout.					
30									
35									

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	

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Other Tests
									
									
5	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%
10	SP-SM			Dark Yellowish Brown Poorly Graded SAND with Silt. Medium Dense, Moist, Non Plastic. Sand - Fine Grained.					
	SM			Dark Yellowish Brown Silty SAND. Medium Dense, Moist, Non Plastic. Sand - Fine to Medium Grained.	19		102.8	4.8	
15					18	23		15.9	
20	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	
25				Boring Terminated at 19.5± ft. Groundwater Not Encountered. Boring Backfilled With Cuttings And Capped With Grout.					
30									
35									

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 diatomaceous 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.

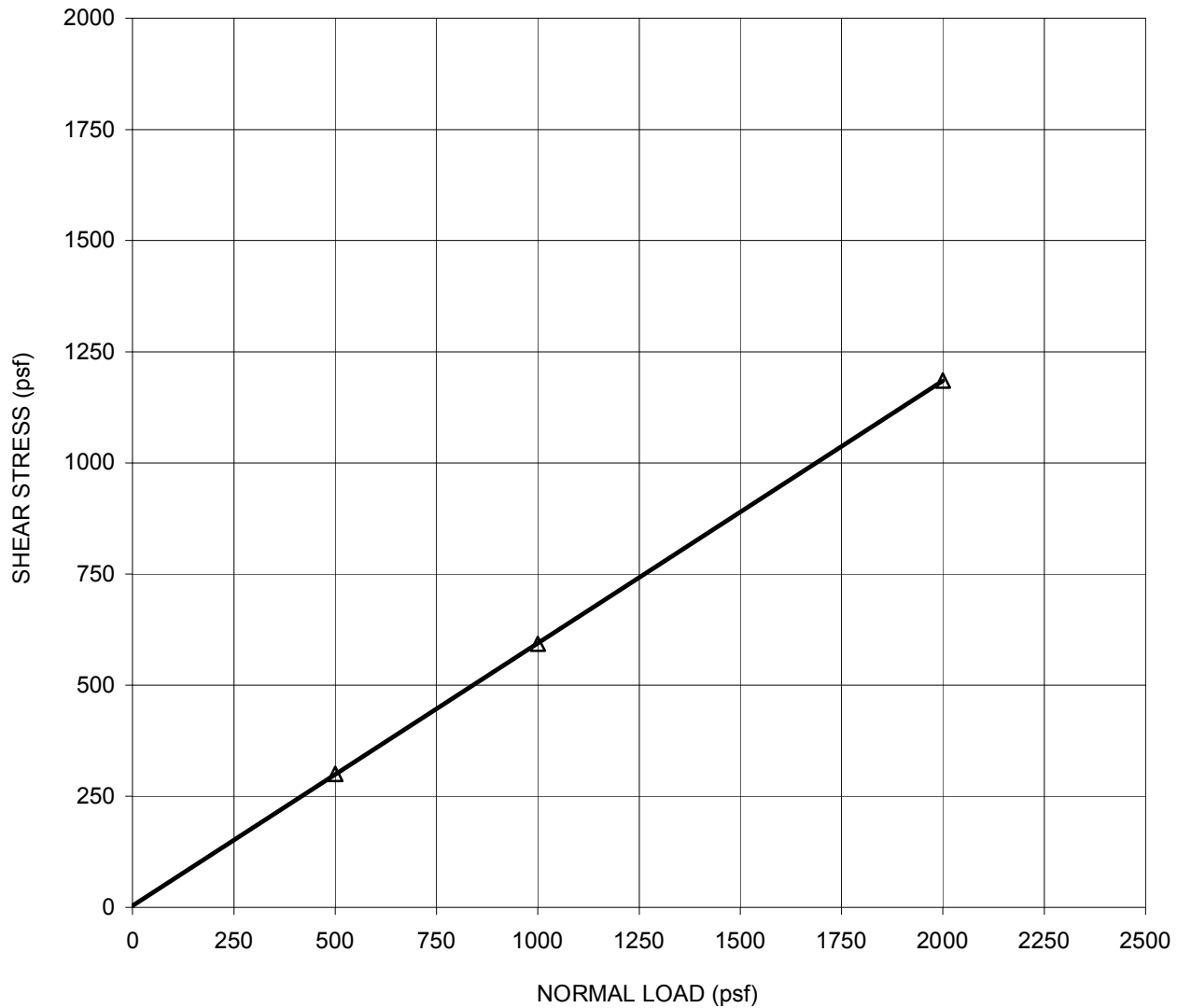
Chlorides

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	FRICTION
DEPTH (ft):	4		(psf)	ANGLE
SOIL TYPE (USCS):	SM		0	31
MOISTURE: SATURATED		TEST TYPE: CONSOLIDATED - DRAINED		



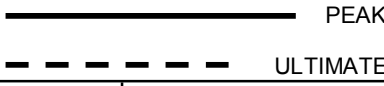
CMAG ENGINEERING

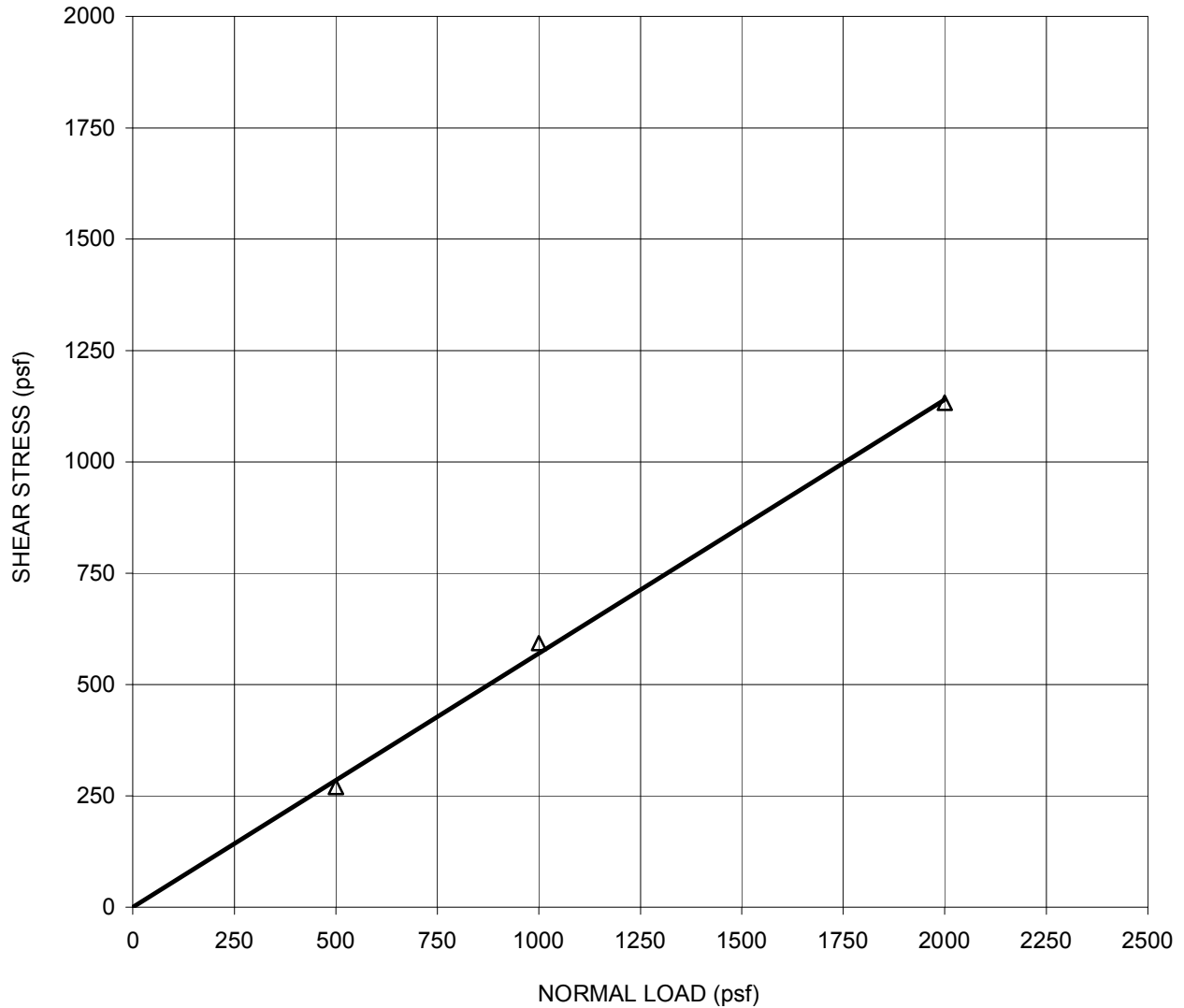
DIRECT SHEAR TEST RESULTS

251 Baltusrol Drive

FIGURE

B-1

BORING:	B-5		COHESION	FRICTION
DEPTH (ft):	2		(psf)	ANGLE
SOIL TYPE (USCS):	SM		0	30
MOISTURE: SATURATED		TEST TYPE: CONSOLIDATED - DRAINED		



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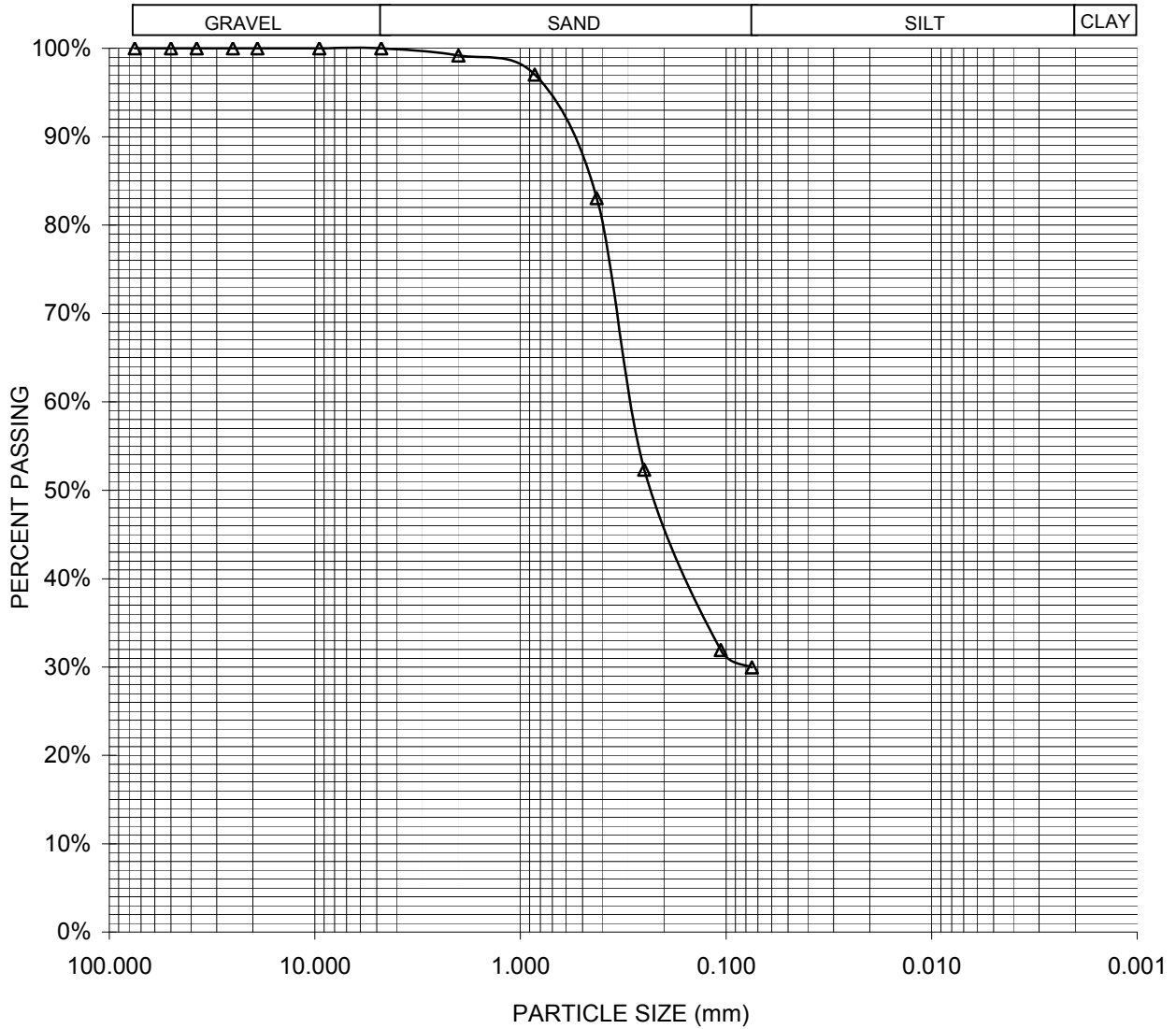
DIRECT SHEAR TEST RESULTS

251 Baltusrol Drive

FIGURE

B-2

BORING:	B-1	PERCENT	PERCENT
DEPTH (ft):	2	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	100.0%	30.0%



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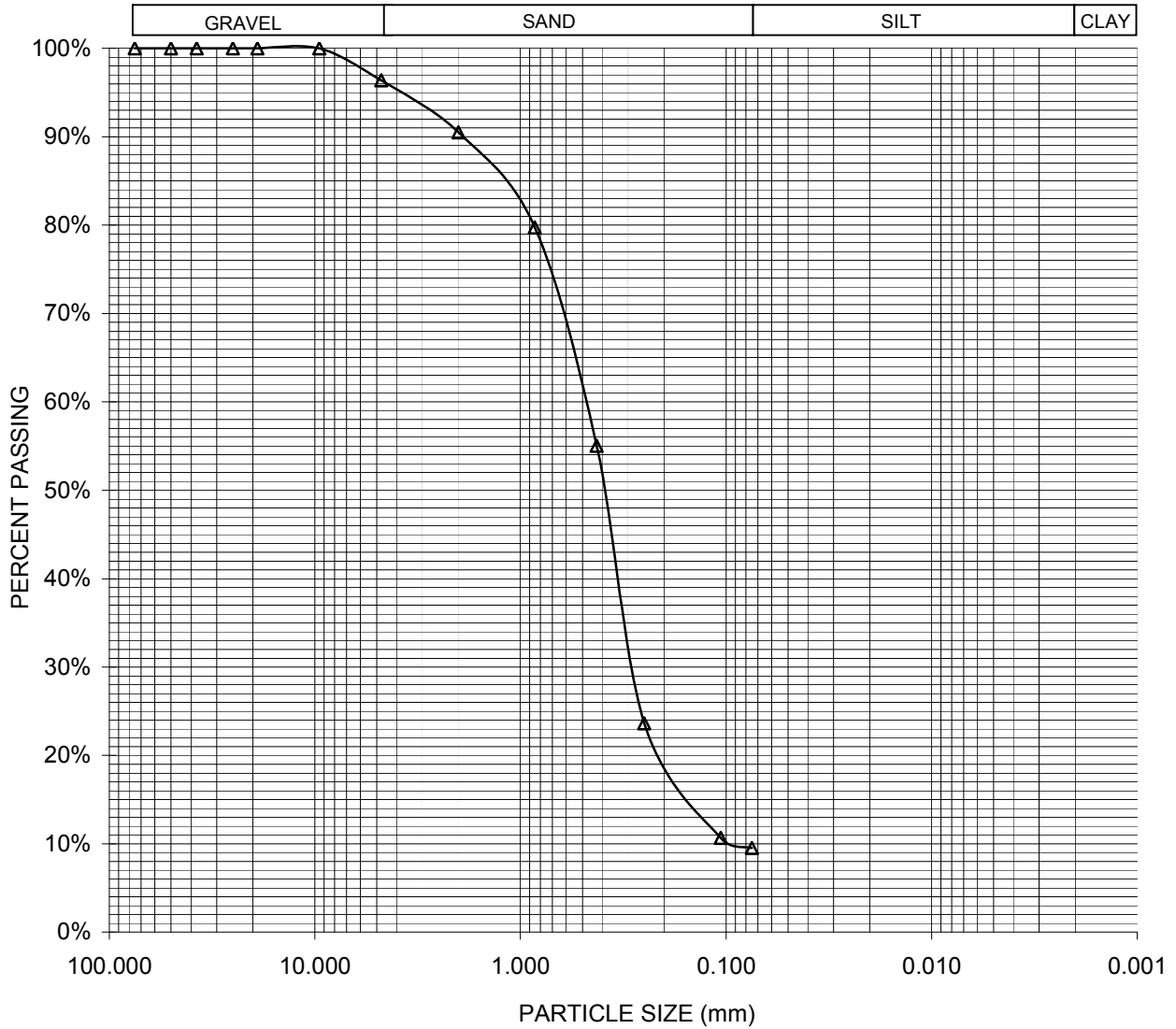
PARTICLE SIZE DISTRIBUTION

251 Baltusrol Drive

FIGURE

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%



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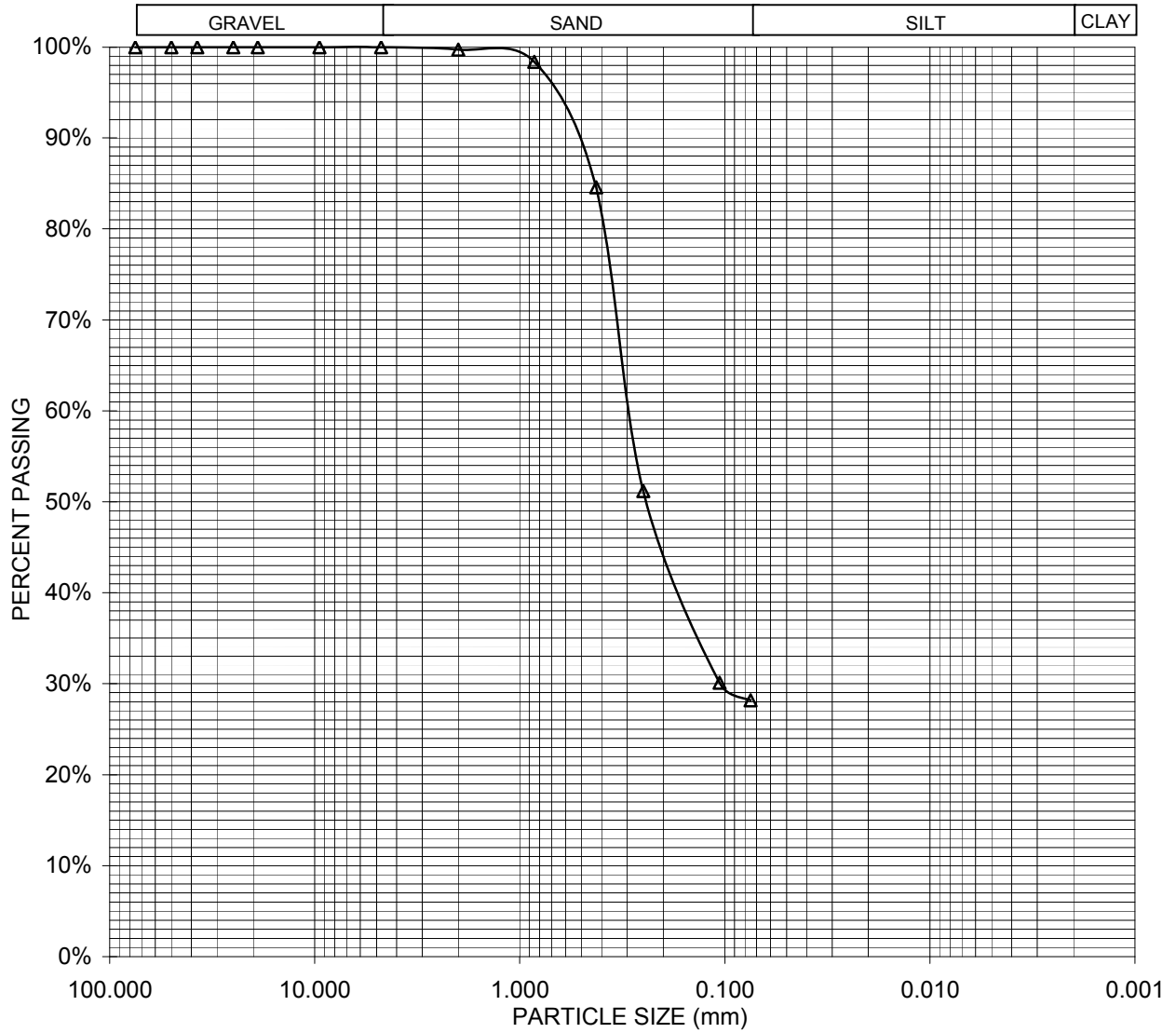
PARTICLE SIZE DISTRIBUTION

251 Baltusrol Drive

FIGURE

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%



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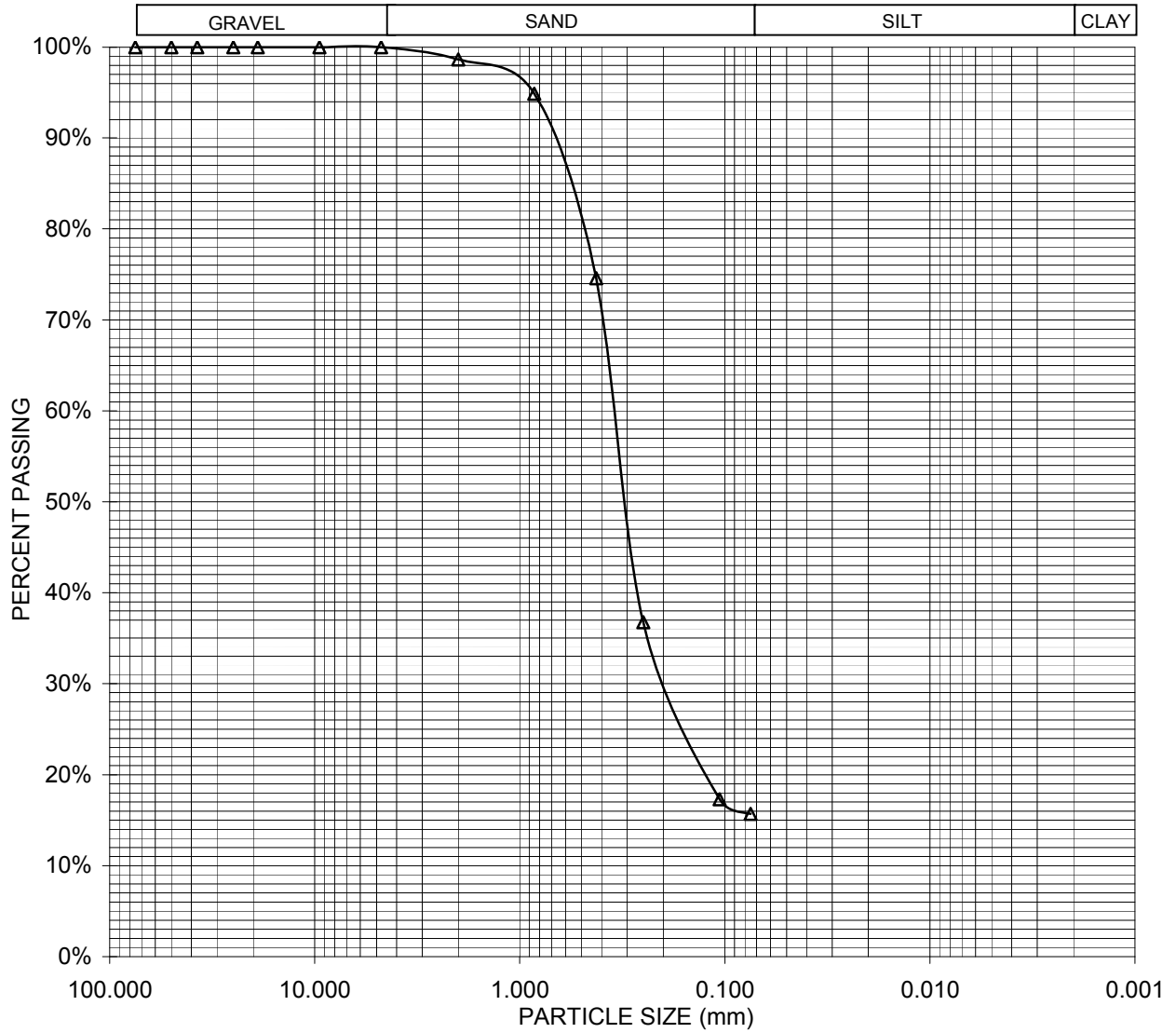
PARTICLE SIZE DISTRIBUTION

251 Baltusrol Drive

FIGURE

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%



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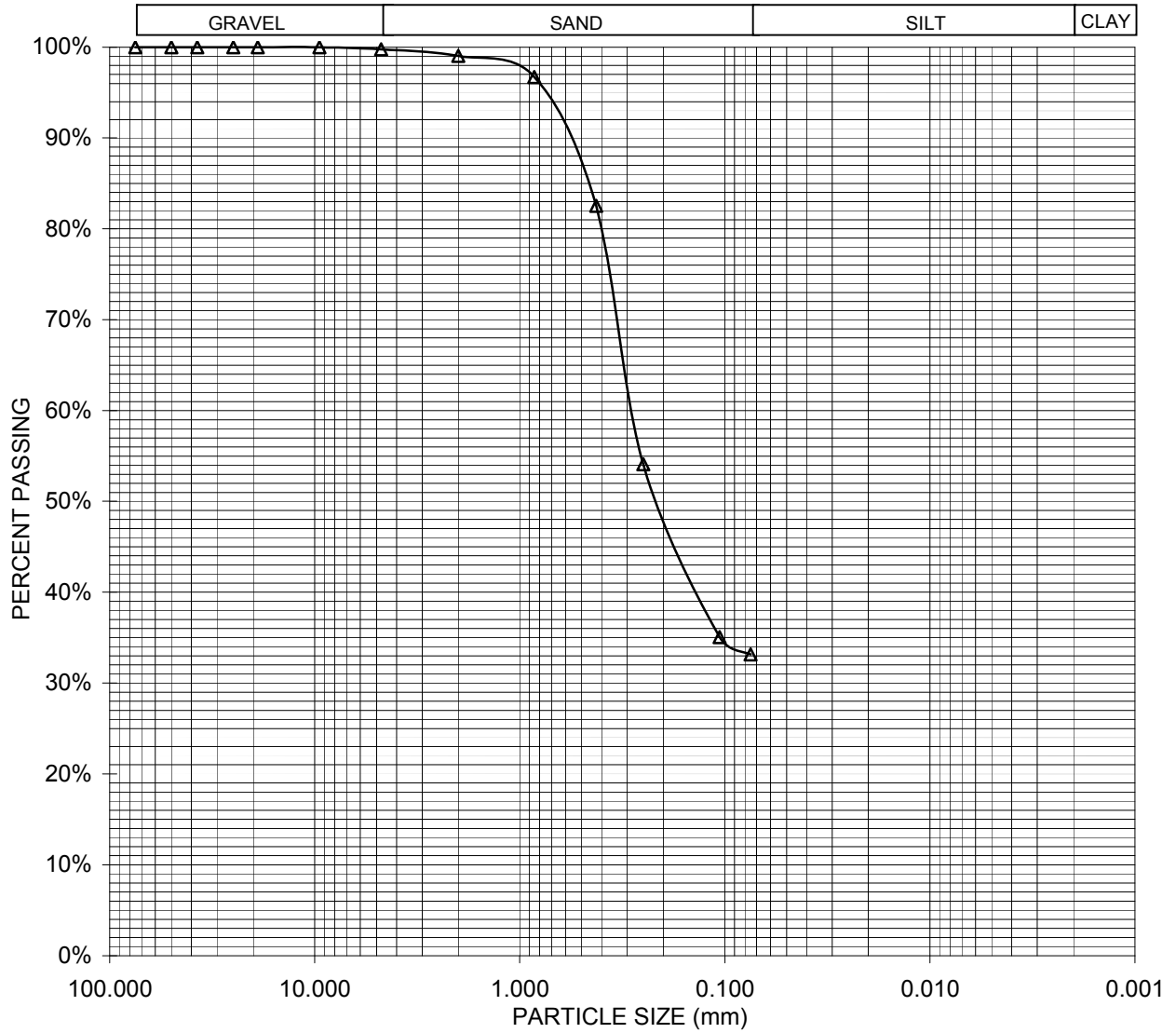
PARTICLE SIZE DISTRIBUTION

251 Baltusrol Drive

FIGURE

B-6

BORING:	B-4	PERCENT	PERCENT
DEPTH (ft):	1	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	99.8%	33.2%



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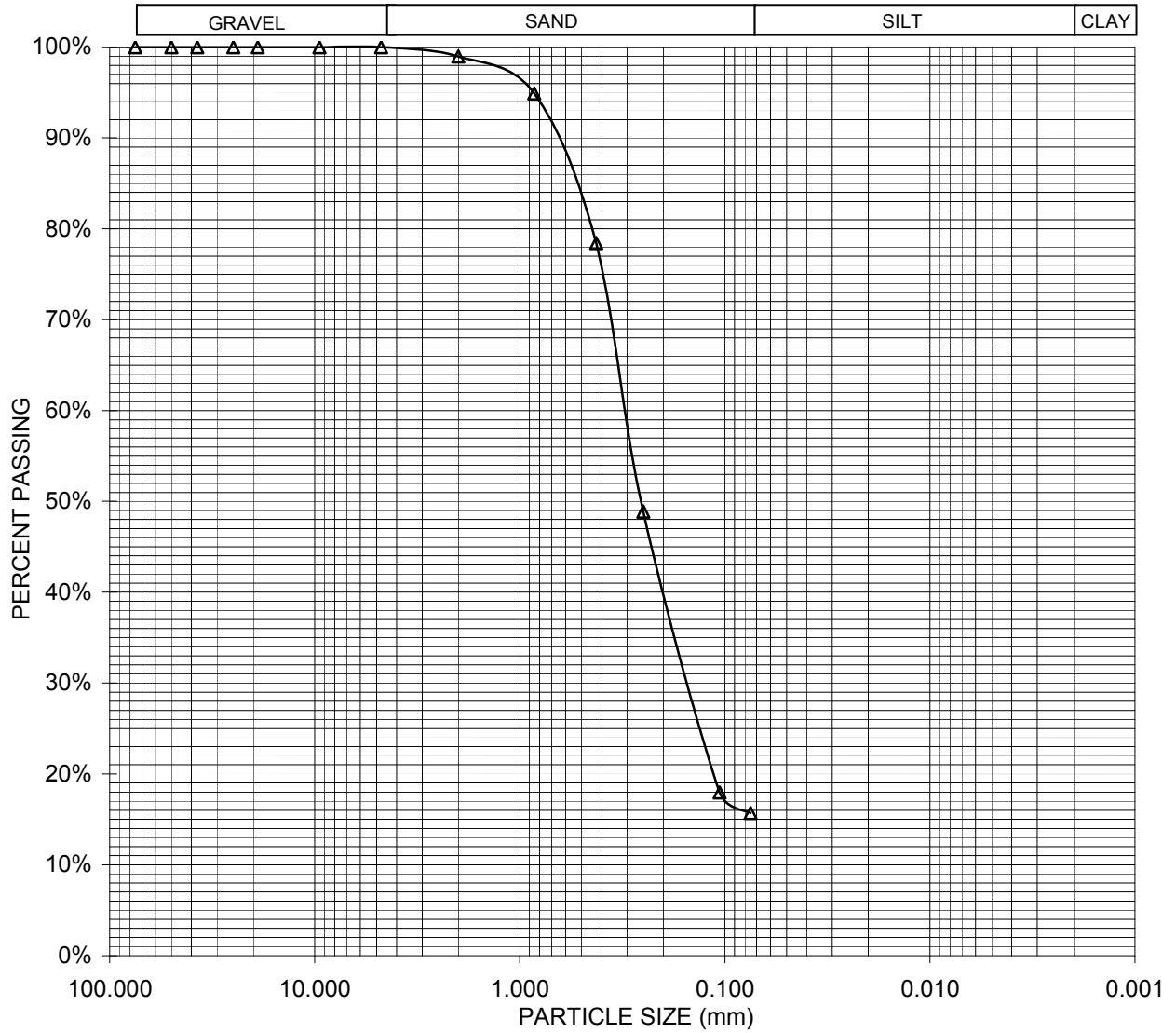
PARTICLE SIZE DISTRIBUTION

251 Baltusrol Drive

FIGURE

B-7

BORING:	B-4	PERCENT	PERCENT
DEPTH (ft):	8	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SM	100.0%	15.7%



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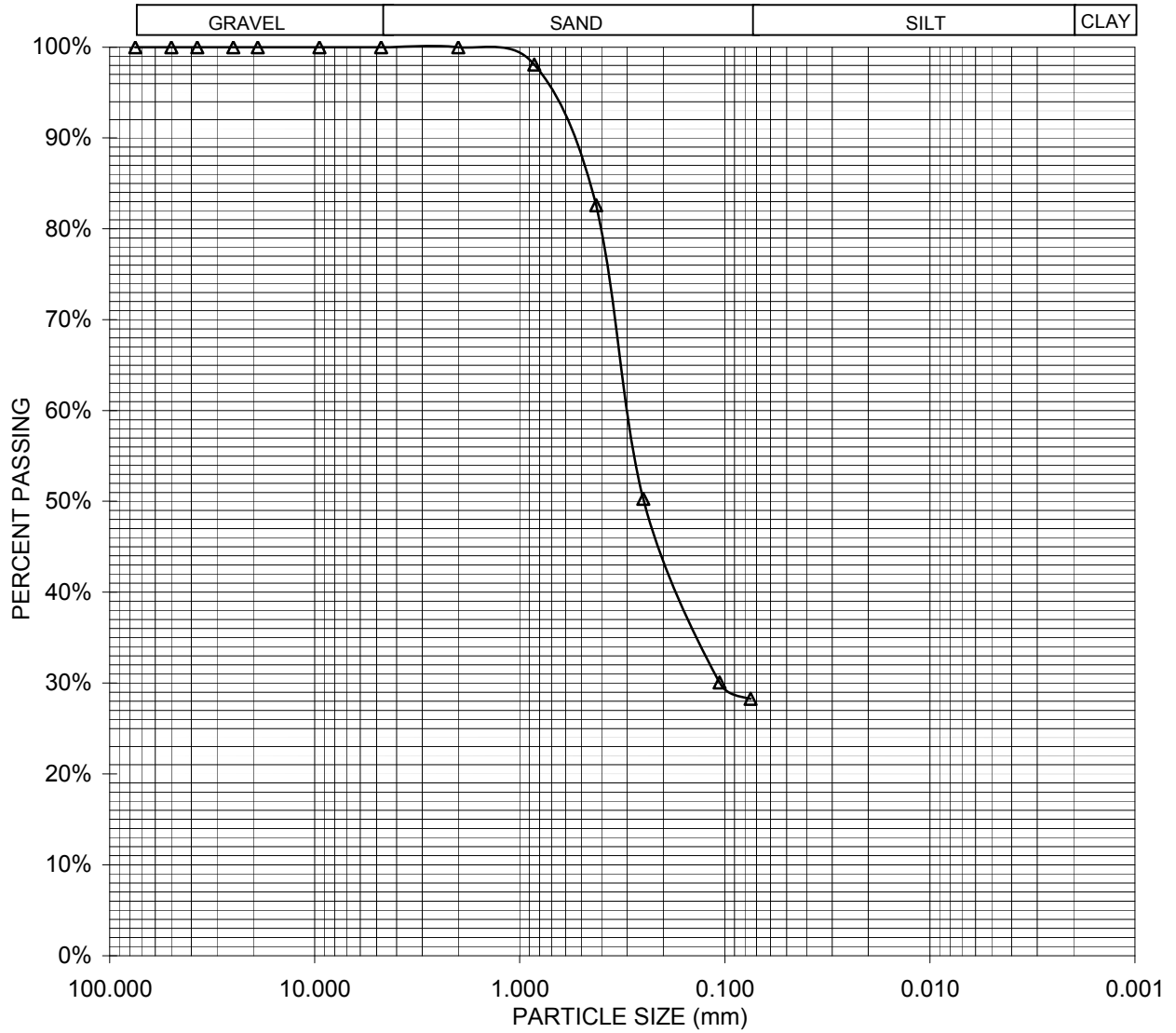
PARTICLE SIZE DISTRIBUTION

251 Baltusrol Drive

FIGURE

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%



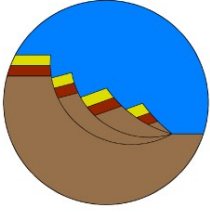
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PARTICLE SIZE DISTRIBUTION

251 Baltusrol Drive

FIGURE

B-9



CMAG ENGINEERING, INC.

P.O. BOX 640, APTOS, CALIFORNIA 95001

PH: 831.475.1411

WWW.CMAGENGINEERING.COM

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 $K_r > 0.5$, 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.

Addendum to Geotechnical Report
251 Baltusrol Drive
Santa Cruz County, California

May 19, 2021
Project No. 20-145-SC
Page 6

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 data¹, 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.

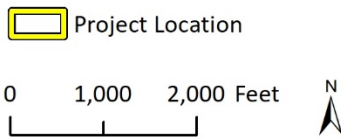
The proposed project includes replacing the existing Country Club well, constructing a 1,2,3-trichloropropane (TCP) removal water treatment plant (herein referred to as "water treatment plant"),

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 have changed since the original topographic map was assembled.



CRFig 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.



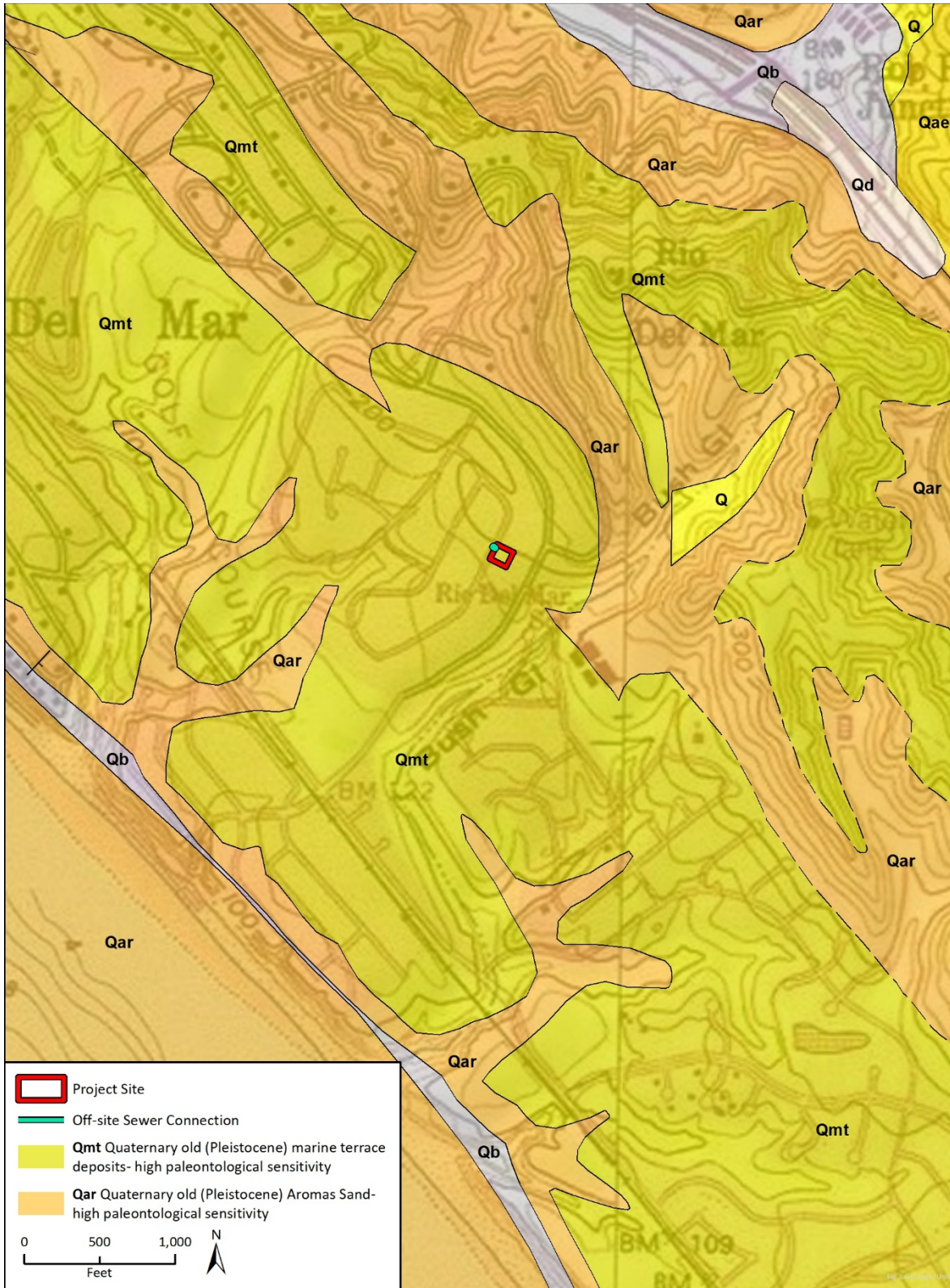
Cenozoic era, the area of the present-day Coast Ranges was covered by marine waters, resulting in the thick accumulation of marine and nonmarine shale, sandstone, and conglomerate on the Franciscan basement rock (Bartow and Nilsen 1990). Later, these deposits were unconformably overlain by Paleocene- 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.

A handwritten signature in black ink that reads "Jmendieta".

Jorge Mendieta
Associate Paleontologist

A handwritten signature in black ink that reads "Jen DiCenzo".

Jennifer DiCenzo
Senior Paleontologist/Program Manager

A handwritten signature in blue ink that reads "Jennifer Haddow".

Jennifer Haddow, PhD
Principal Environmental Scientist



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Soquel Creek Water District
Paleontological Resource Assessment for Country Club Replacement Well
and 1,2,3-Trichloropropane Removal Water Treatment Plant Project

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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

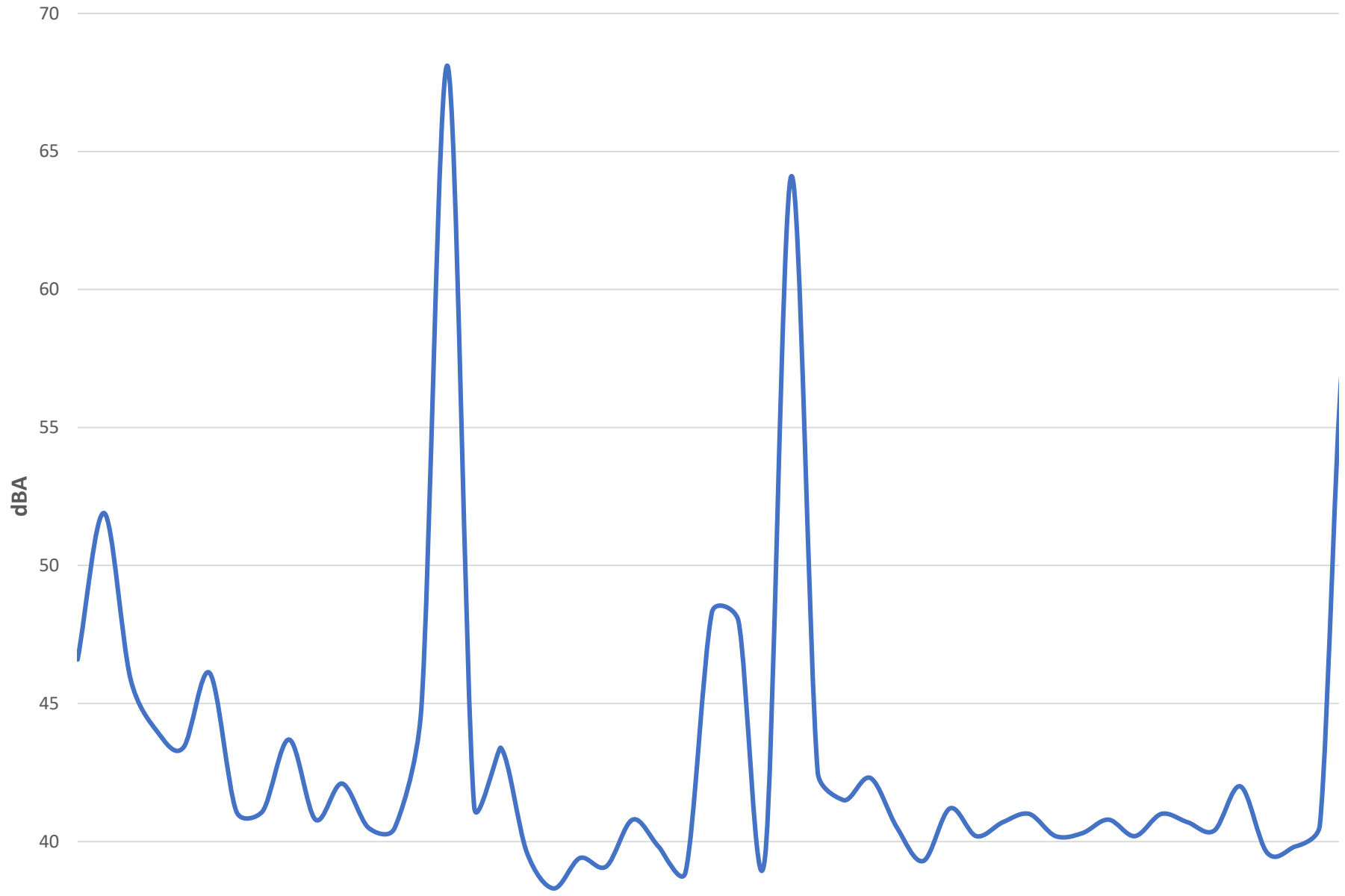
SEL 79.1

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
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35	8/16/2021 16:59	4:59 PM	40.2	157069.2822
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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
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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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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
55	8/16/2021 17:04	5:04 PM	40.3	160727.8958
56	8/16/2021 17:04	5:04 PM	41.4	207057.6397
57	8/16/2021 17:04	5:04 PM	44.7	442681.384
58	8/16/2021 17:05	5:05 PM	42.7	279313.0705
59	8/16/2021 17:05	5:05 PM	55.9	5835677.175
60	8/16/2021 17:05	5:05 PM	40.9	184540.3156

Noise Measurement 1 - 225 Baltusrol Drive - August 16, 2021



Noise Measurement 2 - 840 Clubhouse Drive

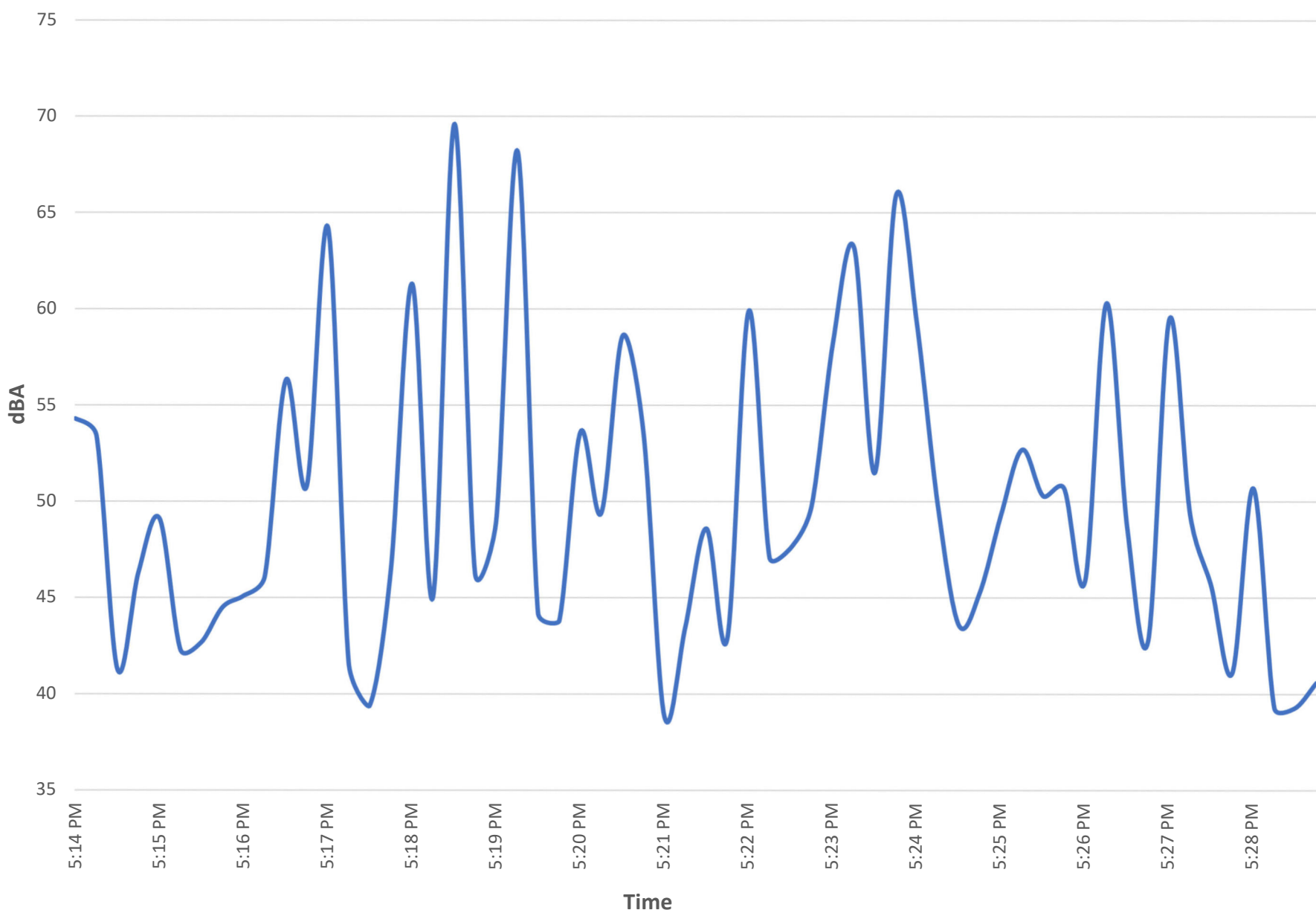
Data Logger 2

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Weighting	A	
Response	SLOW	
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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



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

Description	Impact Device	Usage (%)	Equipment			
			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 Limit Exceedance (dBA)										Noise Limits (dBA)		
-----										-----		
-----										-----		
Night	Day		Calculated (dBA)		Day		Evening		Night			
	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax		
Auger Drill Rig	N/A	N/A	90.4	83.4	N/A	N/A	N/A	N/A	N/A	N/A		
Concrete Saw	N/A	N/A	95.6	88.6	N/A	N/A	N/A	N/A	N/A	N/A		
Dozer	N/A	N/A	87.7	83.7	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		

Groundborne Noise and Vibration Modeling

Notes

The reference distance is measured from the nearest anticipated point of construction equipment to the nearest structure.

Equipment	Reference Level Inputs			
	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

Equipment	Vibration Level at Receiver			
	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 <i>(Choice: Hard or Soft)</i>	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

MICHAEL J. WILSON
SEWER AVAILABILITY - 251 BALTUSROL DR.
PAGE 2

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

MICHAEL J. WILSON
SEWER AVAILABILITY - 251 BALTUSROL DR.
PAGE 3

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)