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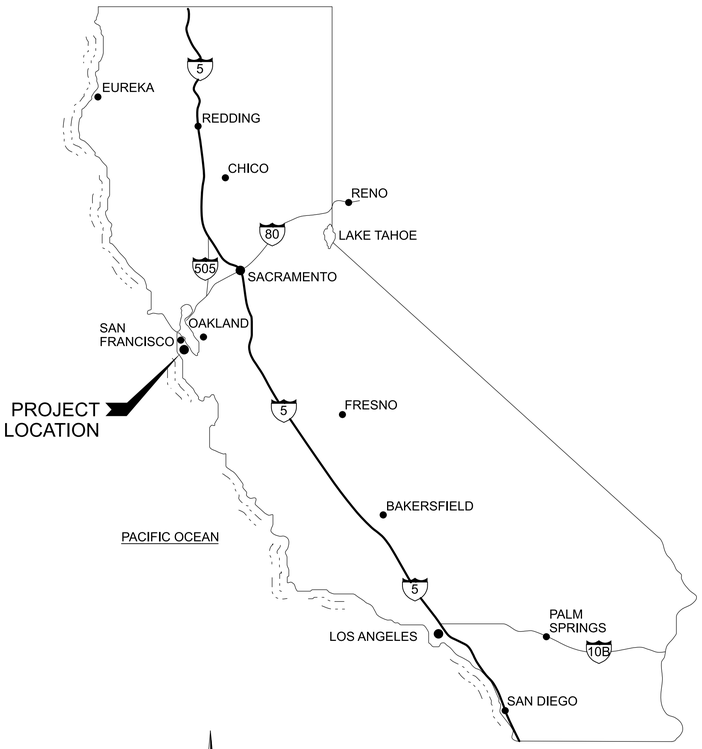
CITY OF SAN BRUNO

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT

SAN BRUNO, CA

PROJECT NO. 11003 AND 11004

VOLUME 2 - DRAWINGS



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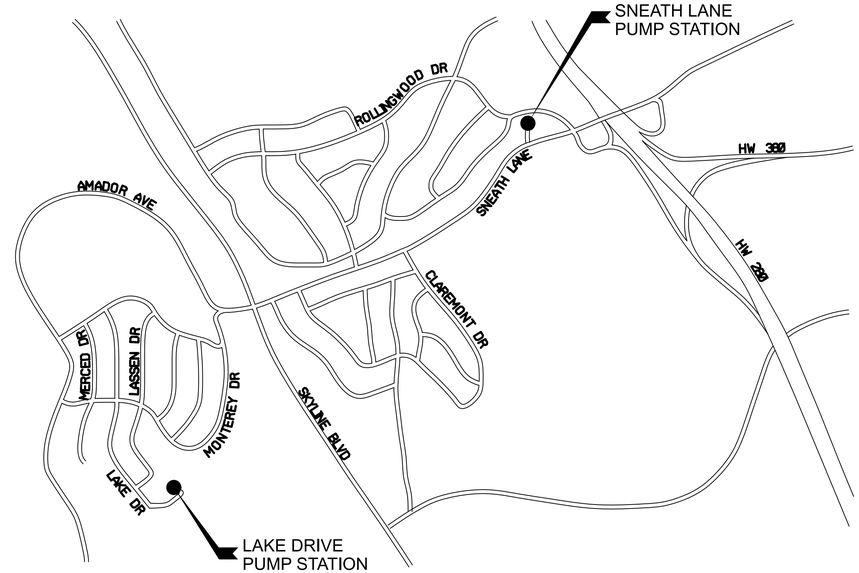
VICINITY MAP
NTS

SCOPE OF WORK:

REHABILITATION OF THE CITY OF SAN BRUNO'S LAKE AND SNEATH POTABLE WATER PUMP STATIONS. WORK INCLUDES, BUT IS NOT LIMITED TO:

-NEW MECHANICAL PIPING
-NEW HVAC
-NEW ELECTRICAL/INSTRUMENTATION
-EXISTING ELECTRICAL/INSTRUMENTATION IMPROVEMENTS
-BUILDING REFURBISHMENT AND IMPROVEMENTS TO MEET CURRENT APPLICABLE CODES
-A BUILDING ADDITION AT LAKE PUMP STATION
-ANCILLARY CIVIL SITE IMPROVEMENTS
-NEW GENERATORS

BUILDING CODES: 2019 CBC, CEC, CMC, CPC, CFC, CAL GREEN, AND CA ENERGY CODE		
	SNEATH LANE	**LAKE DRIVE**
OCCUPANCY GROUPS CLASSIFICATION	U	U
TYPE OF CONSTRUCTION	TYPE V B	TYPE V B



LOCATION MAP
NTS

N

LAKE DRIVE PUMP STATION
APN 17-441-30
102 LAKE DRIVE
SAN BRUNO, CA 94066
PROJECT # 11003

SNEATH LANE PUMP STATION
APN 17-251-02
2100 SNEATH LANE,
SAN BRUNO, CA 94066
PROJECT # 11004

PUBLIC WORKS DIRECTOR'S STATEMENT

THESE IMPROVEMENT PLANS HAVE BEEN REVIEWED BY THE CITY OF SAN BRUNO AND ARE IN GENERAL CONFORMANCE WITH THE SCOPE AND INTENT APPROVED IN THE CAPITAL IMPROVEMENT PROGRAM. CITY'S REVIEW OF THESE PLANS DOES NOT RELEASE, DIMINISH, NOR REPLACE THE DESIGNERS'S RESPONSIBILITY FOR THEIR WORK.

DocuSigned by:
C4C1DFCE1F6A4E2...

2/20/2026
DATE

MATTHEW LEE, P.E.
CITY OF SAN BRUNO PUBLIC WORKS DIRECTOR

JULY 2025

BID SUBMITTAL

WATERWORKS ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERGH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/04/2024

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DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
DRAWING INDEX

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/03/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-2
SHEET NUMBER 2

FILENAME: 1977D-G002.dgn PLOT DATE: 10/22/2020 9:02:19 AM

ABBREVIATIONS

A	AIR	CU IN	CUBIC INCH	GRTG	GRATING	PLYWD	PLYWOOD
@	AT	CU YD	CUBIC YARD	GSP	GALVANIZED STEEL PIPE	PNL	PANEL
AB	ANCHOR BOLT, AGGREGATE BASE	CULV	CULVERT	GV	GATE VALVE	PP, P&P	PLAN AND PROFILE, POWER POLE
AC	ASPHALTIC CONCRETE, ASBESTOS CEMENT	CV	CHECK VALVE	GVL	GRAVEL	PRC	POINT OF REVERSE CURVE
ACI	AMERICAN CONCRETE INSTITUTE	°C	CELSIUS	GW	GROUND WATER	PRESS	PRESSURE
ACU	AIR CONDITIONING UNIT					PROP	PROPERTY
ADD	ADDITIONAL	d	PENNY	HDPE	HIGH DENSITY POLYETHLENE PIPE	PRV	PRESSURE RELEASE VALVE
ADH AB	ADHESIVE ANCHOR BOLT	DBA	DEFORMED BAR ANCHOR	HDW	HARDWARE	PS	PUMP STATION
ADJ	ADJACENT, ADJUSTABLE	DBL	DOUBLE	HGL	HYDRAULIC GRADE LINE	PSF	POUNDS PER SQUARE FOOT
AE	ANALYZER ELEMENT	DET	DETAIL	HGT	HEIGHT	PSI	POUNDS PER SQUARE INCH
AFF	ABOVE FINISH FLOOR	DF	DOUGLAS FIR/LARCH	HM	HOLLOW METAL	PSIG	POUNDS PER SQUARE INCH, GAUGE
AFG	ABOVE FINISH GRADE	DI	DROP INLET, DUCTILE IRON	HORIZ	HORIZONTAL	PT	POINT OF TANGENCY
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	DIA	DIAMETER	HP	HORSEPOWER	P.U.E.	PUBLIC UTILITY EASEMENT
		DIAG	DIAGONAL	HPT	HIGH POINT	PV	PLUG VALVE
AIT	ANALYZER INDICATOR/TRANSMITTER	DIM	DIMENSION	HR	HANDRAIL	PVC	POLYVINYL CHLORIDE PLASTIC, POINT OF VERTICAL CURVE
AL, ALUM	ALUMINUM	DIP	DUCTILE IRON PIPE	HSS	HOLLOW STRUCTURAL STEEL		
ALP	AIR LOW PRESSURE	DIR	DIRECTION	HV	HOSE VALVE	PVMT	PAVEMENT
ALTN	ALTERNATE	DIST	DISTANCE	HWY	HIGHWAY	PVI	POINT OF VERTICAL INTERSECTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	DN	DOWN	HYD	HYDRANT	PVT	POINT OF VERTICAL TANGENCY, PRIVATE
APPROX	APPROXIMATE	DR	DRAIN			PW	POTABLE WATER, PROCESS WATER
APVD	APPROVED	DPT	DIFFERENTIAL PRESSURE TRANSMITTER	IA	INSTRUMENT AIR		
APWA	AMERICAN PUBLIC WORKS ASSOCIATION	DWG	DRAWING	I&C	INSTRUMENTATION & CONTROL	RC	REINFORCED CONCRETE
ARCH, A	ARCHITECTURAL			ID	INSIDE DIAMETER	RDCR	REDUCER
ARV	AIR RELEASE VALVE	E	EAST, ELECTRIC, ELECTRICAL	IF	INSIDE FACE	REINF	REINFORCED, REINFORCING, REINFORCE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	EA	EACH	IN	INCH	REQD	REQUIRED
		EC	END CURVE	INFL	INFLUENT	RJ	RESTRAINED JOINT
AUTO	AUTOMATIC	ECC	ECCENTRIC	INSTM	INSTRUMENTATION	R/W	RIGHT-OF-WAY
AUX	AUXILIARY	EE	ELECTRICAL	INSUL	INSULATE, INSULATION		
AWG	AMERICAN WIRE GAGE	EF	EACH FACE, EXHAUST FAN	INV	INVERT	SD	STORM DRAIN
AWWA	AMERICAN WATER WORKS ASSOCIATION	EFL	EFFLUENT			SECT	SECTION
		EG	EXISTING GRADE	JT	JOINT	SIM	SIMILAR
BAV	BALL VALVE	EJ	EXPANSION JOINT			SLP	SLOPE
BC	BEGIN CURVE, BOTTOM OF CURB	EL	ELEVATION	KIP	THOUSAND POUNDS	SMP	SAMPLE
BD	BLOW DOWN	ELB, ELL	ELBOW	KW	KILOWATT	SPEC	SPECIFICATIONS
BF	BLIND FLANGE, BOTTOM FACE	ELC	ELECTRICAL LOAD CENTER			SPLY	SUPPLY
BFD	BUTTERFLY VALVE DAMPER	ELEC	ELECTRIC, ELECTRICAL	L	LEFT, ANGLE, LENGTH	SQ	SQUARE
BFV	BUTTERFLY VALVE	EMR	EMERGENCY	LAT'L	LATERAL	SQ FT	SQUARE FOOT
BLDG	BUILDING	ENGR	ENGINEER	LB	POUNDS	SQ IN	SQUARE INCH
BLK	BLACK	EP	EDGE OF PAVEMENT	LB/CU FT	POUNDS PER CUBIC FOOT	SS	SANITARY SEWER
BM	BENCH MARK, BEAM	EQ	EQUALIZATION	LE	LEVEL ELEMENT	SSH	SAFETY SHOWER
BO	BLOW OFF	EQL SP	EQUALLY SPACED	LF	LINEAR FEET	SSMH	SANITARY SEWER MANHOLE
BOC	BACK OF CURB	EQPT	EQUIPMENT	LIT	LEVEL INDICATOR/TRANSMITTER	ST	SAMPLE TAP
BOG	BACK OF GUTTER	EW	EACH WAY	LP	LOW POINT	SST	STAINLESS STEEL
BOO	BOTTOM OF OPENING	EXC	EXCAVATE	LT	LEVEL TRANSMITTER	STA	STATION
BOT	BOTTOM	EXP	EXPOSED, EXPANSION	LSH	LEVEL SWITCH HIGH	STD	STANDARD
BRG	BEARING	EXP JT	EXPANSION JOINT	LSL	LEVEL SWITCH LOW	STIF	STIFFENER
BVC	BEGINNING OF VERTICAL CURVE	EXST	EXISTING			STL	STEEL, STEEL PIPE
BYP	BYPASS			MAX	MAXIMUM	STR	STRAIGHT
		FBE	FUSION BONDE EPOXY	MCC	MOTOR CONTROL CENTER	STRL	STRUCTURAL
C to C, CC	CENTER TO CENTER	FC	FLEXIBLE COUPLING	MCJ	MASONRY CONTROL JOINT	STRUCT	STRUCTURE
C	CHANNEL (BEAM)	FCA	FLANGED COUPLING ADAPTER	MECH	MECHANICAL	SW	SOUTHWEST, SERVICE WATER
CARV	COMBINATION AIR ADMISSION/ AIR RELEASE VALVE	FCO	FLOOR CLEAN OUT	MFR	MANUFACTURER		
		FD	FLOOR DRAIN	MGD	MILLION GALLONS PER DAY	T&B	TOP AND BOTTOM
CATH	COMBINATION AIR RELEASE VALVE CATHODIC PROTECTION	FDA	FLOOR DRAIN W/INTEGRAL TRAP	MH	MANHOLE	T&G	TONGUE AND GROOVE
		FDN	FOUNDATION	MIN	MINIMUM, MINUTE	t, T	THICKNESS
CATV	CABLE TELEVISION	FES	FLARED END SECTION	MISC	MISCELLANEOUS	TDH	TOTAL DYNAMIC HEAD
CB	CATCH BASIN	FEXT	FIRE EXTINGUISHER	MJ	MECHANICAL JOINT	THD	THREAD
CF	CUBIC FEET	FF	FINISH FLOOR	MSNRY	MASONRY	THK	THICK
CFM	CUBIC FEET PER MINUTE	FG	FINISH GRADE	N	NORTH	TNK	TANK
CFS	CUBIC FEET PER SECOND	FI	FLOW INDICATOR	NE	NORTHEAST	TOC	TOP OF CURB, TOP OF CONCRETE
CHEM	CHEMICAL	FL	FLOOR, FLOW LINE	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	TOW	TOP OF WALL
CI	CAST IRON	FLG	FLANGE			TOF	TOP OF FOOTING
CJ	CONSTRUCTION JOINT, CONTRACTION JOINT	FLH	FLAT HEAD	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	TS	TUBE STEEL
		FLL	FLOW LINE	NIC	NOT IN CONTRACT	TST	TOP OF STEEL
CL	CENTERLINE	FM	FLOW METER	NO	NUMBER, NUMBERING	TYP	TYPICAL
CLG	CEILING	FNSH	FINISH	NTS	NOT TO SCALE		
CLR	CLEAR, CLEARANCE	FOC	FACE OF CONCRETE	NW	NORTHWEST	UBC	UNIFORM BUILDING CODE
CLSM	CONTROLLED LOW STRENGTH MATERIAL	FS	FINISHED SURFACE, FLOW SWITCH			UD	UNDERDRAIN
CMLCSP	CEMENT MORTAR LINED AND COATED STEEL PIPE	FT	FOOT OR FEET	OC	ON CENTER	UG	UNDERGROUND
		FTG	FOOTING	OD	OUTSIDE DIAMETER, OVERFLOW DRAIN	UNK	UNKNOWN
CMLSP	CEMENT MORTAR LINED STEEL PIPE	FWD	FORWARD	OF	OUTSIDE FACE, OVERFLOW		
CMP	CORRUGATED METAL PIPE	°F	DEGREE FAHRENHEIT	OG	ORIGINAL GROUND	V	VENT, VOLT, VALVE
CMU	CONCRETE MASONRY UNIT			OHE	OVERHEAD ELECTRIC	VAC	VACUUM
CO	CLEANOUT	GA	GAGE	OMRF	ORDINARY MOMENT RESISTING FRAME	VERT	VERTICAL
COL	COLUMN	GAL	GALLON	O TO O	OUT TO OUT	VFD	VARIABLE FREQUENCY DRIVE
COM	COMMUNICATION	GALV	GALVANIZED	OPNG	OPENING	VPI	VERTICAL POINT OF INTERSECTION
COMB	COMBINED	GB	GRADE BREAK	OPP	OPPOSITE		
CONC	CONCRETE	GC	GROOVED COUPLING	OSHA	OCCUPATIONAL SAFETY & HEALTH ADMIN.	W/	WITH
CONN	CONNECTION	GCO	GRADE CLEAN OUT			WD	WOOD
CONT	CONTINUOUS, CONTINUATION	GCF	GROOVED COUPLING FITTING	PC	POINT OF CURVE	WSP	WELDED STEEL PIPE
COORD	COORDINATE	GD	GENERAL DRAINAGE	PE	PLAIN END, POLYETHYLENE, PERMANENT EASEMENT	WTR	WATER
CPLG	COUPLING	GE	GROOVED END			WWF	WELDED WIRE FABRIC
CTRD, CTD	CENTERED	GL	GLASS	PENT	PENETRATION		
CTR	CENTER	GPD	GALLONS PER DAY	PI	POINT OF INTERSECTION	XMFR	TRANSFORMER
CU	COPPER	GPH	GALLONS PER HOUR	PL	PLATE, PROPERTY LINE		
CU FT	CUBIC FOOT	GPM	GALLONS PER MINUTE	PLC	PROGRAMMABLE LOGIC CONTROLLER	YD	YARD

NOTES:

1. FOR ELECTRICAL AND INSTRUMENTATION ABBREVIATIONS, SEE ELECTRICAL AND INSTRUMENTATION DRAWINGS.
2. CONTACT THE ENGINEER FOR ABBREVIATIONS NOT LISTED.
3. THIS IS A STANDARD LEGEND SHEET, THEREFORE, SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND MAY NOT BE UTILIZED ON THIS PROJECT.

REGISTERED PROFESSIONAL ENGINEER — CYNTHIA V. BERTSCH — No. C65385 — CIVIL — STATE OF CALIFORNIA

01/03/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

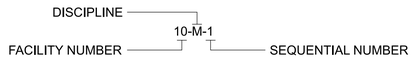
GENERAL
ABBREVIATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-3
SHEET NUMBER 3

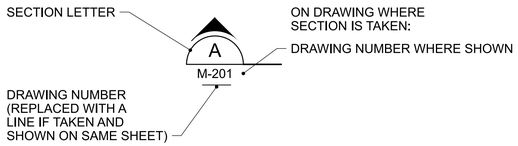
DISCIPLINE

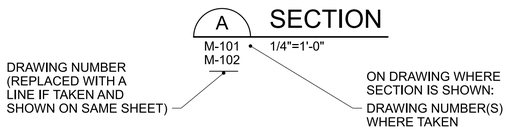
LETTER	DISCIPLINE
G	GENERAL
D	DEMOLITION
C	SITE CIVIL
M	MECHANICAL
AS	ARCHITECTURAL / STRUCTURAL
E	ELECTRICAL
I	INSTRUMENTATION
SD	STANDARD DETAILS

DRAWING NUMBER

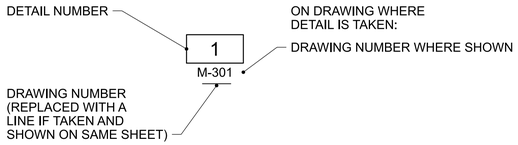


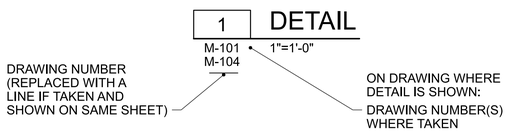
SECTION



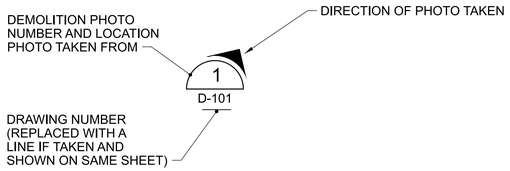


DETAIL





DEMOLITION PHOTO



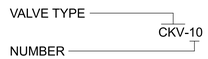
STANDARD DETAIL



NOTES:

1. STANDARD DETAIL CALLOUTS ARE SHOWN TO INDICATE DETAIL REQUIRED AT SPECIFIC LOCATIONS. DETAILS ARE NOT CALLED OUT AT ALL LOCATIONS. WHERE A STANDARD DETAIL CALLOUT IS NOT SHOWN, THE CONTRACTOR SHALL USE THE STANDARD DETAIL MOST APPLICABLE AND CONSISTENT WITH OTHER WORK UNDER THIS CONTRACT.

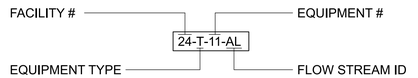
STANDARD VALVE AND OPERATOR



NOTES:

1. SEE SPECIFICATION SECTION 15200.

UNIQUE VALVE / EQUIPMENT DESIGNATION



LINE TYPE APPEARANCE

———	BLACK	NEW 'ON' DISCIPLINE
———	LIGHT OR MEDIUM GRAY OR SCREENED	EXISTING 'ON' OR 'OFF' DISCIPLINE
———	DARK GRAY	NEW 'OFF' DISCIPLINE

GENERAL SYMBOLOGY

	STRUCTURE OR EQUIPMENT TO BE SALVAGED OR DEMOLISHED
	PIPE TO BE SALVAGED OR DEMOLISHED
*	EQUIPMENT COMPONENTS OR PANELS SHOWN WITH A SINGLE ASTERISK (*) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.



01/05/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL

GENERAL DESIGNATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-4
SHEET NUMBER 4

STRUCTURAL NOTES

DESIGN CRITERIA:

1. APPLICABLE CODE: 2019 CALIFORNIA BUILDING CODE (2018 INTERNATIONAL BUILDING CODE (IBC), AS AMENDED BY THE STATE OF CALIFORNIA).

2. REFER TO THE SPECIFICATIONS FOR ADDITIONAL AND SPECIFIC STRUCTURAL LOADINGS AND REQUIREMENTS.

3. ROOF LOAD:
   - MINIMUM LIVE LOAD — 20 psf

4. WIND LOAD:
   - RISK CATEGORY — IV
   - BASIC WIND SPEED (ASCE 7-16) — 103 mph
   - EXPOSURE CATEGORY — C
   - DESIGN METHOD — DIRECTIONAL PROCEDURE

5. SEISMIC LOAD:
   - RISK CATEGORY — IV
   - IMPORTANCE FACTOR I_e — 1.5

   LAKE DR:
   - S_s: 2.446 — S_{DS}: 1.957
   - S_1: 1.026 — S_{D1}: 0.958

   SNEATH LN:
   - S_s: 2.419 — S_{DS}: 1.935
   - S_1: 1.014 — S_{D1}: 0.946

   - SITE CLASS — C
   - SEISMIC DESIGN CATEGORY — E

6. LATERAL FORCE RESISTING SYSTEM:
   - LAKE DRIVE PS BUILDING
     - LIGHT FRAME (WOOD) CONSTRUCTION
     - $V = C_sW$
     - $C_s = 0.376$
     - V_{ASD} =4992 LBS
     - R = 6.5, Ω = 2.5, Cd = 4
     - ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE

   - SNEATH LANE PS BUILDING
     - LIGHT FRAME (WOOD) CONSTRUCTION
     - $V = C_sW$
     - $C_s = 0.376$
     - V_{ASD} = 4306 LBS
     - R = 6.5, Ω = 2.5, Cd = 4
     - ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE

GENERAL INFORMATION:

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE BUILDING CODE.

2. DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO ALL SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE KEYED IN EACH LOCATION. CONSULT THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.

3. VERIFY ALL OPENING DIMENSIONS IN WALLS, SLABS, AND DECKS WITH THE ARCHITECTURAL, MECHANICAL, HVAC AND ELECTRICAL DRAWINGS.

4. FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS AND OPENINGS SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, HVAC AND PLUMBING DRAWINGS. COORDINATE ALL OPENINGS AND EQUIPMENT PADS WITH OTHER DISCIPLINES AND EQUIPMENT SUPPLIERS PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS.

5. NO STRUCTURAL MEMBER SHALL BE CUT FOR PIPES, DUCTS, ETC UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.

FOUNDATIONS:

1. IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION REPORT #1901.0130 BY BAJADA GEOSCIENCES, INC FOUNDATIONS HAVE BEEN DESIGNED FOR THE FOLLOWING VALUES:
   - ALLOWABLE BEARING, DEAD + LIVE LOADS — 1500 psf AT LAKE DR.
   - ALLOWABLE BEARING, DEAD + LIVE LOADS — 2000 psf AT SNEATH LN.
   - MINIMUM FOOTING EMBEDMENT — 18 INCHES
   - LATERAL EARTH PRESSURES (DRAINED)
     - ACTIVE — 70 pcf
     - PASSIVE — 300 pcf
   - SLIDING FRICTION COEFFICIENT — 0.4

2. NO BACKFILL SHALL BE PLACED BEHIND CANTILEVERED, FREE TOP WALLS UNTIL THE CONCRETE HAS ATTAINED 100% OF ITS SPECIFIED COMPRESSIVE STRENGTH.

3. NO BACKFILL SHALL BE PLACED BEHIND WALLS THAT ARE CONNECTED TO ELEVATED FLOOR OR ROOF SLABS OR DECKS UNTIL THE FLOOR OR ROOF SLAB HAS ATTAINED 100% OF ITS SPECIFIED COMPRESSIVE STRENGTH AND ALL ROOF AND FLOOR DECKING IS IN PLACE AND WELDED, SCREWED, OR NAILED AS APPROPRIATE.

4. GRADE TO DRAIN AWAY FROM STRUCTURES A MINIMUM GRADE OF 5% FOR A MINIMUM OF 10'-0" FROM STRUCTURE PERIMETER.

5. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AT LEAST 48 BUSINESS HOURS NOTICE FOLLOWING EXCAVATION FOR FOUNDATIONS AND PRIOR TO THE PLACEMENT OF FORMWORK, REINFORCING STEEL AND CONCRETE.

FORMWORK, SHORING AND BRACING:

1. THE STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. THE DESIGN SHOWN DOES NOT INCLUDE THE NECESSARY COMPONENTS OR EQUIPMENT FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION. THE CONTACTOR IS RESPONSIBLE FOR ALL WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN. CONSTRUCTION OF SHORING AND BRACING OF FORMWORK SHALL BE IN ACCORDANCE WITH ACI 347 "GUIDE TO FORMWORK FOR CONCRETE".

CONCRETE:

1. STRUCTURAL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS AND A SLUMP AS SPECIFIED IN SECTION 03300 - CAST-IN-PLACE CONCRETE.

2. THE CONTRACTOR SHALL SUBMIT THE CONCRETE MIX DESIGNS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO USE.

3. HORIZONTAL CONSTRUCTION JOINTS SHALL BE PREPARED TO EXPOSE CLEAN, SOLIDLY EMBEDDED AGGREGATE OVER THE ENTIRE JOINT INTERFACE.

4. PLACEMENT OF PIPES, CONDUITS OR OTHER EMBEDDED ITEMS IN THE CONCRETE SHALL BE IN ACCORDANCE WITH THESE DRAWINGS OR SHALL BE APPROVED BY THE ENGINEER.

5. NO ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.

6. CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C94.

7. THE REQUIREMENTS FOR CONCRETE MIXES, PLACING, TESTING AND CURING ARE CONTAINED IN THE PROJECT SPECIFICATIONS.

8. PORTLAND CEMENT SHALL CONFORM TO ASTM C150 TYPE II, AGGREGATE SHALL CONFORM TO ASTM C33.

9. CONTINUOUS WATERSTOP, AS SPECIFIED, SHALL BE INSTALLED IN ALL EXPANSION, CONTRACTION, CONTROL AND CONSTRUCTION JOINTS IN WALLS AND SLABS OF CONTAINMENT STRUCTURES, WATER HOLDING BASINS, CHANNELS, AND BELOW GRADE STRUCTURES, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.

10. THE CONCRETE JOINTS IN SLABS AND WALLS, AS SHOWN, ARE MINIMUM REQUIREMENTS. CONTRACTOR MAY SUBMIT ALTERNATE CONSTRUCTION JOINT LAYOUT DRAWINGS, SUBJECT TO SPECIFIED REQUIREMENTS, TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

11. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AT LEAST 48 BUSINESS HOURS NOTICE PRIOR TO THE PLACEMENT OF CONCRETE TO ALLOW SUFFICIENT TIME FOR INSPECTIONS AND SCHEDULING OF TESTING SERVICES.

CONCRETE REINFORCING:

1. PROVIDE LARGER SIZES AND MORE REINFORCING IN ALL SECTIONS OF CONCRETE WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.

2. CLEARANCE FOR REINFORCEMENT BARS, UNLESS SHOWN OTHERWISE, SHALL BE: CAST AGAINST EARTH = 3", CONCRETE SURFACES OF CONTAINMENT STRUCTURES = 2", ALL OTHER CONCRETE SURFACES: #5 BAR OR SMALLER = 1 1/2", #6 BAR OR LARGER = 2".

3. REFER TO WALL CORNER AND WALL INTERSECTION REINFORCING DETAIL 3303. WALL CORNER REINFORCING SIZES AND SPACINGS SHALL BE AS SHOWN ON THE DRAWINGS AND REFERENCED TO THIS DETAIL. TYPICAL HORIZONTAL WALL REINFORCING SHALL LAP WITH THE CORNER HORIZONTAL REINFORCING.

4. PROVIDE A MINIMUM OF TWO VERTICAL WALL BARS WITH MATCHING DOWELS AT WALL ENDS, CORNERS AND INTERSECTIONS WITH SIZE TO MATCH TYPICAL VERTICAL REINFORCING STEEL AS SHOWN. VERTICAL WALL BARS SHALL BE LAPPED WITH DOWELS FROM BASE SLABS AND EXTENDED INTO THE TOP FACE OF ROOF SLABS AND LAPPED WITH TOP SLAB REINFORCEMENT.

5. ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE 90 DEGREE ACI 318 STANDARD HOOKS.

6. ALL REINFORCING BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:

CONCRETE DESIGN STRENGTH = 4,000 PSI #		GRADE 60 REINFORCED STEEL						
BAR SIZE		#4	#5	#6	#7	#8	#9	#10
LAP SPLICE LENGTH								
SPACING <6"	TOP BAR *	2'-8"	3'-4"	4'-0"	5'-10"	6'-8"	7'-7"	8'-6"
	OTHER BAR	2'-1"	2'-7"	3'-1"	4'-6"	5'-2"	5'-10"	6'-7"
SPACING ≥6"	TOP BAR *	1'-8"	2'-0"	2'-5"	3'-6"	4'-0"	5'-0"	6'-2"
	OTHER BAR	1'-4"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"

* TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

\# WHERE 3,000 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 16%.

MASONRY:

1. SOLID GROUT ALL CELLS UNLESS INDICATED OTHERWISE.

2. MORTAR SHALL CONFORM TO ASTM C270, TYPE S, HYDRATED AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 1,900 PSI.

3. GROUT SHALL CONFORM TO ASTM C476 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 PSI CONTAINING NO MASONRY CEMENT.

4. CONCRETE BLOCK UNITS SHALL BE MEDIUM WEIGHT AND CONFORM TO ASTM C90 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 1,900 PSI. LINEAR SHRINKAGE SHALL NOT EXCEED 0.065 PERCENT.

5. PLACE COURSES IN RUNNING BOND PATTERN, UNLESS SPECIFICALLY INDICATED OTHERWISE.

6. REINFORCING STEEL FOR MASONRY SHALL CONFORM TO ASTM A615, GRADE 60 FOR DEFORMED BARS. LAP VERTICAL REINFORCING 48 BAR DIAMETERS WITH DOWELS AT BUILDING WALLS. LAP ALL OTHER VERTICAL BARS 72 BAR DIAMETERS. LAP VERTICAL BARS IN CANTILEVER WALLS 72 BAR DIAMETERS. STAGGER ADJACENT LAP SPLICES BY 24 INCHES, WHEN SEPARATED BY 3 INCHES OR LESS. REFERENCE STANDARD DETAIL 4002 - REINFORCED CMU WALL.

7. HORIZONTAL REINFORCING BARS SHALL BE CONTINUOUS AROUND WALL CORNERS AND THROUGH WALL INTERSECTIONS AND HOOKED AT WALL ENDS AS SHOWN IN THE DETAILS.

8. VERTICAL REINFORCING SHALL BE PLACED AT CORNERS, EACH SIDE OF OPENINGS, END WALLS (INCLUDING EACH SIDE OF CONTROL JOINTS), AT A MAXIMUM SPACING INDICATED IN THE DRAWINGS, AND CONTINUOUS FROM FOUNDATION TO TOP OF WALL.

9. CMU REINFORCING AT WALL INTERSECTIONS AND CORNERS SHALL BE AS INDICATED IN STANDARD DETAIL 4001 - CMU WALL CORNERS, UNLESS INDICATED OTHERWISE.

10. CMU REINFORCING AT ALL WALL ENDS, JAMBS AND DOOR OPENINGS, WINDOW LINTELS, LOUVERS AND PENETRATIONS SHALL BE INDICATED IN STANDARD DETAIL 4004 - CMU OPENINGS GREATER THAN 3'-0" OR STANDARD DETAIL 4003 - CMU OPENINGS LESS THAN 3'-0", UNLESS INDICATED OTHERWISE.

11. CMU WALL CONTROL JOINTS SHALL BE LOCATED WHERE SHOWN ON THE DRAWINGS AND SHALL RUN CONTINUOUS FROM THE TOP OF FOUNDATION TO TOP OF WALL OR PARAPET. ALL HORIZONTAL NON-STRUCTURAL BARS SHALL BE TERMINATED IN A STANDARD HOOK EACH SIDE OF JOINT. STRUCTURAL BARS SHALL BE CONTINUOUS THROUGH CONTROL JOINTS.

REGISTERED PROFESSIONAL ENGINEER — TODD KOTEK — No. C91811 — CIVIL — STATE OF CALIFORNIA

01/05/2024

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 1

DATE: JULY 2025
PROJECT NUMBER: 19-077
DRAWING NUMBER: G-5
SHEET NUMBER: 5

STRUCTURAL NOTES

ROUGH CARPENTRY:

1. DIMENSIONS ARE TYPICALLY SHOWN TO FACE OF STUD FOR EXTERIOR WALLS, CENTERLINE OF STUD AT INTERIOR WALLS AND TO CENTERLINE OF OPENINGS.

2. STRUCTURAL FRAMINGS SHALL BE DOUGLAS FIR (DF) OF THE GRADES INDICATED OR BETTER (WWPA GRADING RULES) WITH 19% MAXIMUM MOISTURE CONTENT:
   BEAMS AND STRINGERS:
   - 4x NO. 1
   - 6x NO. 1
   - JOISTS, RAFTERS & LEDGERS, 2x AND 4x NO. 1
   - POSTS AND TIMBERS NO. 1
   - STUDS, SILL & PLATES: 2x4 STUD
   - 2x6 NO. 1
   - 2x8 AND LARGER NO. 1
   - MISC. FRAMING LUMBER NOT NOTED NO. 2

3. SILLS ON CONCRETE SLAB ON GRADE SHALL BE APPROVED PRESSURE TREATED DF. EACH PIECE SHALL BEAR THE AWPA STAMP. CUTS AND BORED HOLES OF TREATED DF SHALL BE TREATED WITH COPPER GREEN.

4. FASTENERS FOR PRESERVATIVE-TREATED AND FIRE RETARDANT-TREATED WOOD SHALL BE OF HOT DIPPED ZINC-COATED GALVANIZED STEEL, OR STAINLESS STEEL. THE COATING WEIGHTS FOR ZINC-COATED FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A153. HARDWARE SHALL BE COATED PER SIMPSON STRONG TIE 'CORROSION INFORMATION'.

5. WOOD SILLS FOR BEARING SHEATHED WALLS OR JOISTS SUPPORT BEARING ON MASONRY OR CONCRETE SHALL BE BOLTED WITH 5/8" φ X 1'-0" BOLTS WITH 8" EMBEDMENT AT 4'-0" MAXIMUM SPACING, UNLESS OTHERWISE SHOWN, AND WITHIN 9" MAX, 5" MIN, OF END OF EACH PIECE. USE 5/8" φ X 1'-6" BOLTS @ 6" CURBS.

6. WOOD STRUCTURAL MEMBERS SHALL NOT BE DRILLED OR NOTCHED EXCEPT AS SHOWN OR AS APPROVED BY THE ENGINEER.

7. FRAMING HARDWARE NOTED IS SIMPSON STRONG-TIE AND SHALL BE INSTALLED WITH CONNECTORS SPECIFIED FOR EACH SPECIFIC DEVICE BY THE MANUFACTURER'S CURRENT CATALOG. EQUIVALENT DEVICES APPROVED BY THE ENGINEER MAY BE SUBSTITUTED. SINKERS SHALL NOT BE USED.

8. WALL TOP PLATES SHALL HAVE JOINTS AT A STUD CENTERLINE. END JOINTS IN DOUBLE TOP PLATES SHALL BE OFFSET AT LEAST 4'-0".

9. BOLT HOLES IN WOOD AND/OR STEEL SHALL BE 1/16" LARGER THAN BOLTS. STANDARD CUT WASHERS SHALL BE PROVIDED UNDER THE HEADS AND NUTS OF ALL BOLTS BEARING ON WOOD. 3" X 3"X ¼" PLATE WASHERS SHALL BE USED UNDER ALL ANCHOR BOLTS.

10. ALL NUTS SHALL BE TIGHTENED WHEN PLACED AND RETIGHTENED PRIOR TO APPLICATION OF FINISH OR AT COMPLETION OF JOB.

11. BLOCKING 2X WIDTH OF STUD, SHALL BE PROVIDED AT FLOOR, CEILING AND ROOF LINES AND SO THAT UNBRACED LENGTH OF STUD DOES NOT EXCEED 10'-0".

12. ALL JOISTS AND RAFTERS SHALL HAVE FULL DEPTH SOLID BLOCKING (2X MIN) OR CONTINUOUS RIM JOIST AT ALL SUPPORTS.

13. EXCEPT WHERE NOTED OTHERWISE, STUD WALLS SHALL BE 2X6 @ 16" OC MAXIMUM SPACING.

14. LAG BOLTS AND WOOD SCREWS SHALL BE SCREWED, NOT DRIVEN, INTO PLACE. LEAD HOLES SHALL BE PREBORED PER NDS CHAPTER12.

15. CONTRACTOR SHALL FURNISH SHOP DRAWINGS OF ALL GLU-LAMINATED BEAMS FOR ENGINEERS REVIEW PRIOR TO FABRICATION.



01/05/2024

PLYWOOD:

1. ALL STRUCTURAL PLYWOOD SHALL BE GRADE CC EXTERIOR OR CD INTERIOR WITH EXTERIOR GLUE. ALL PLYWOOD SHALL CONFORM TO CBC 2023 AND CBC 2306, AND TO U.S. PRODUCT STANDARD PS1-09, AND SHALL BE IDENTIFIED WITH THE GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION. OSB MAY BE SUBSTITUTED, PROVIDED THE OSB SHEATHING CONFORMS TO APA (NER 108) STRUCTURAL I RATED SHEATHING. PARTICLE BOARD IS NOT ALLOWED.

2. UNLESS OTHERWISE NOTED, PLYWOOD NAILS SHALL BE COMMON. APPROVED FASTENERS TO BE SUBSTITUTED SHALL BE EQUIVALENT IN LATERAL AND WITHDRAWAL STRENGTH TO THE SIZE OF COMMON NAIL SPECIFIED.

3. PLYWOOD ROOF SHEATHING SHALL BE LAID WITH GRAIN OF THE OUTER PLIES PERPENDICULAR TO THE FRAMING MEMBERS AND END JOINTS SHALL BE STAGERRED. BLOCK ALL UNSUPPORTED EDGES OF PLYWOOD SHEATHING WHERE SHOWN ON PLANS. TYPICAL NAILING SHALL BE 10d @ 4" OC AT ALL SUPPORTED EDGES AND WHERE BOUNDARY NAILING IS NOTED. FIELD NAILING SHALL BE 10d @ 12" OC.

4. ALL STRUCTURAL PLYWOOD NOTED ON THE DRAWINGS SHALL CONFORM TO THE FOLLOWING:

USE	THICKNESS	SPAN RATING
ROOF SHEATHING	15/32"	32/16
FLOOR SHEATHING	1-1/8" T&G	48/24
WALL SHEATHING	3/8"	24/0

WOOD NAILING:

1. NAILS SHALL BE "COMMON" WIRE NAILS, UNLESS OTHERWISE SPECIFIED. NAILS SHALL BE PREDRILLED, IF REQUIRED, TO AVOID SPLITTING THE MEMBER. NAILS SHALL BE THE FOLLOWING SIZES:
   - 10d COMMON = 0.148"φx 3"
   - 16d COMMON = 0.162"φ x 3 1/2"

2. THE EDGE DISTANCE FOR NAILING IN MEMBERS WHERE PLYWOOD PANELS ARE TO ABUT SHALL BE 3/4" FOR 3X OR WIDER AND 3/8" FOR 2X NOMINAL MEMBERS.

3. FASTENERS FOR PRESERVATIVE-TREATED AND FIRE RETARDANT-TREATED WOOD SHALL BE OF HOT DIPPED ZINC-COATING. FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A153.

4. NAILS IN STRUCTURAL WOOD PANELS SHALL BE DRIVEN SO THAT THEIR HEADS ARE FLUSH WITH THE PANEL SURFACE.

5. USE OF MACHINE NAILING IS SUBJECT TO A SATISFACTORY JOB SITE DEMONSTRATION AND ENGINEER'S APPROVAL. APPROVAL IS SUBJECT TO SATISFACTORY PERFORMANCE. IF NAIL HEADS PENETRATE THE FACE PLY MORE THAN WOULD BE NORMAL FOR A HAND HAMMER, OR IF MINIMUM ALLOWABLE EDGE DISTANCES ARE NOT MAINTAINED, THE PERFORMANCE WILL BE DEEMED UNSATISFACTORY.

6. SHEATHING PANELS SHALL BUTT AT CENTERLINE OF A SINGLE SUPPORTING MEMBER WITH EDGE NAILING FROM EACH PANEL INTO THAT MEMBER.

7. ALL TOP PLATES, SILLS AND STUDS SHALL HAVE EDGE NAILING AT THE CENTERLINE OF MEMBER.

8. PIECES OF WALL, ROOF OR FLOOR SHEATHING SHALL BE NO LESS THAN 12" IN LEAST DIMENSION. PIECES LESS THAN 24" SHALL HAVE 3X4 FLAT MIN BLKG @ UNSUPPORTED PANEL EDGES.

9. UNLESS NOTED ON DRAWINGS, FASTENING SHALL BE AS SPECIFIED BELOW:

JOISTS OR RAFTERS TO SIDES OF STUDS:	
EIGHT (8) INCH JOISTS OR LESS	3-16d
FOR EACH ADDITIONAL FOUR (4) INCHES IN DEPTH	1-16d
JOISTS OR RAFTERS AT ALL BEARINGS:	
TOE NAIL EACH SIDE	3-10d
CEILING JOISTS:	
LAPS OVER PARTITIONS FACE NAIL	3-16d
TO PARALLEL RAFTERS FACE NAIL	3-16d
BLOCKING BETWEEN JOISTS, RAFTERS OR TRUSSES:	
TO JOIST, RAFTER OR TRUSS EACH END	2-16d EN OR 4-10d TN
BLOCKING BETWEEN STUDS:	
EACH SIDE TOE NAILS	2-10d
OR END NAILS	2-16d
BRIDGING TO JOIST, TOE NAIL END EACH	2-8d
SILL PLATE TO JOIST OR BLOCKING, FACE NAIL	16d @16" OC
TOP PLATE TO STUD, END NAIL	2-16d
STUD TO SILL PLATE	3-16d EN or 4-8d TN
DOUBLED STUDS OR JOISTS, FACE NAIL	16d @12" OC
DOUBLE TOP PLATES, FACE NAIL	16d @16" OC
BUILT UP CORNER STUDS	16d @12" OC

STAINLESS STEEL:

1. STAINLESS STEEL MEMBERS SHALL CONFORM TO ASTM SPECIFICATIONS:
   - PLATES: A240
   - STRUCTURAL SHAPES: A276, A479 OR A1069
   - FASTENERS AND FITTINGS: A320
   - DEFORMED AND PLAIN BARS: A955

2. ALL COMPONENTS SHALL BE STAINLESS STEEL TYPE 316, UNLESS SHOWN OTHERWISE.

3. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWS D1.6. WELDERS SHALL HOLD VALID CERTIFICATES ISSUED BY AN ACCEPTED TESTING AGENCY WITHIN THE LAST 12 MONTHS.

4. ALL FILLET WELDS SHALL BE AWS MINIMUM AND BUTT WELDS SHALL BE COMPLETE JOINT PENETRATION (CJP), UNLESS INDICATED OTHERWISE.

5. WELDERS SHALL SUBMIT PRE-QUALIFIED WELDS AND WELDING PROCEDURES FOR REVIEW AND TO BE AVAILABLE ON PREMISES FOR REVIEW.

6. OPENINGS SHALL NOT BE PLACED IN STAINLESS STEEL MEMBERS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL PLANS.

7. THE STAINLESS STEEL FABRICATOR/CONTRACTOR SHALL FURNISH SHOP DRAWINGS OF ALL STAINLESS STEEL FOR ENGINEER'S REVIEW AND APPROVAL PRIOR TO FABRICATION.

ADHESIVE ANCHORS:

1. THE ADHESIVE ANCHOR SYSTEM USED FOR POST-INSTALLED ANCHORAGE TO CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY PUBLISHED ACI 355.4, ACCEPTANCE CRITERIA FOR QUALIFICATION OF POST-INSTALLED ADHESIVE ANCHORS IN CONCRETE AND COMMENTARY. THE ANCHOR SYSTEM SHALL BE ONE OF THE FOLLOWING:
   - HILTI HIT-HY 200.
   - SIMPSON SET-XP.

2. ADHESIVE ANCHORS SHALL BE SUPPLIED AS AN ENTIRE SYSTEM INCLUDING, BUT NOT LIMITED TO, THE NEW ADHESIVE CARTRIDGE, A CLEAN MIXING NOZZLE, EXTENSION TUBE, A DISPENSING GUN, AND ALL MANUFACTURER RECOMMENDED SUPPLIES FOR PROPERLY CLEANING THE DRILLED HOLE.

3. ALL-THREAD ROD TO BE USED IN ADHESIVE ANCHOR ASSEMBLIES SHALL CONFORM TO ASTM A36, A193 (GR B7), A307, OR F1554. STAINLESS STEEL ANCHOR RODS SHALL BE TYPE 316. NUTS, WASHERS, AND OTHER HARDWARE USED WITH AN ALL-THREAD SHALL HAVE A MATERIAL OR ALLOY DESIGNATION THAT MATCHES THE ALL-THREAD MATERIAL / ALLOY.

4. REINFORCING BARS SHALL BE ASTM A615 OR A706.

5. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT THE TIME OF ADHESIVE ANCHOR INSTALLATION. CONCRETE SHALL HAVE A MINIMUM AGE OF 21 DAYS AT THE TIME OF ADHESIVE ANCHOR INSTALLATION.

6. CONCRETE TEMPERATURE AT THE TIME OF ADHESIVE ANCHOR INSTALLATION SHALL BE 50°F MINIMUM AND 100°F MAXIMUM.

7. EMBEDMENT DEPTH AND ANCHOR PROJECTION FROM THE CONCRETE SURFACE SHALL BE AS SHOWN ON THE DRAWINGS FOR THE PARTICULAR ANCHOR OR GROUP OF ANCHORS BEING INSTALLED. ABSENT ANY INFORMATION, THE MINIMUM EMBEDMENT DEPTH SHALL BE 12d WHERE "d" IS THE ANCHOR DIAMETER.

8. ADHESIVE ANCHORS SHALL BE INSTALLED BY QUALIFIED PERSONNEL TRAINED TO INSTALL ADHESIVE ANCHORS IN ACCORDANCE WITH THE SPECIFICATIONS. POST-INSTALLED ADHESIVE ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

9. INSTALLATION OF ADHESIVE ANCHORS HORIZONTALLY OR UPWARDLY INCLINED TO SUPPORT SUSTAINED TENSION LOADS SHALL BE PERFORMED BY PERSONNEL CERTIFIED BY ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM. THESE ANCHORS ARE DESIGNATED WITH A (CERT) AFTER THE ANCHOR CALL-OUT.

10. THE INSTALLER'S QUALIFICATIONS SHALL BE SUBMITTED AND APPROVED IN ACCORDANCE WITH SECTION 05051 OF THE SPECIFICATIONS.

11. WHEN DRILLING HOLES IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR.

12. SPECIAL INSPECTION IS REQUIRED PER IBC SECTION 1705 AND THE REQUIREMENTS OF THE ICC REPORT. THE SPECIAL INSPECTOR MUST BE PERIODICALLY ON THE JOBSITE DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE, ANCHOR SPACING, AND CONCRETE THICKNESS.

13. ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION BY AN INSPECTOR SPECIALLY APPROVED FOR THAT PURPOSE BY THE BUILDING OFFICIAL.

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 2

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-6
SHEET NUMBER 6

STRUCTURAL NOTES

EXPANSION ANCHORS:

1. EXPANSION ANCHORS SHALL BE STAINLESS STEEL HILTI KWIK BOLT TZ OR SIMPSON STRONG-BOLT 2, UNLESS NOTED OTHERWISE. INSTALL ANCHORS IN CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS AND ICC REPORT.

2. SPECIAL INSPECTION IS REQUIRED PER IBC SECTION 1705 AND THE REQUIREMENTS OF THE ICC REPORT.

3. CONTRACTOR SHALL VERIFY MINIMUM EDGE DISTANCES, SPACING AND THICKNESSES ARE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS PRIOR TO INSTALLING ANCHORS.

4. WHEN DRILLING HOLES IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR.

5. THE SPECIAL INSPECTOR MUST BE PRESENT ON THE JOB SITE DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE, ANCHOR SPACING, AND CONCRETE THICKNESS.

DEFERRED SUBMITTALS:

1. PER 20108 IBC 107.3.4.1 THE FOLLOWING ITEMS, DRAWINGS AND CALCULATIONS, SHALL BE STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF THE PROJECT. ITEMS SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW AND APPROVAL. FOLLOWING APPROVAL BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE, THE CONTRACTOR SHALL SUBMIT THE ITEMS TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE STRUCTURE. THE CONTRACTOR SHALL NOT START FABRICATION OR ERECTION PRIOR TO REVIEW AND APPROVAL BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL TIME AND EFFORT REQUIRED TO OBTAIN A BUILDING OFFICIAL REVIEW/PERMIT FOR THE FOLLOWING PREFABRICATED STRUCTURAL COMPONENTS:
   - PRECAST CONCRETE ELEMENTS
   - HANDRAIL AND GUARDRAIL
   - PIPE SUPPORT SYSTEM
   - ANCHORAGE OF EQUIPMENT OVER 400 POUNDS

STRUCTURAL OBSERVATION:

1. STRUCTURAL OBSERVATION SHALL BE IN ACCORDANCE WITH THE 2018 IBC SECTION 1704.6 TOGETHER WITH LOCAL AND STATE AMENDMENTS.

2. THE OWNER SHALL EMPLOY A REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTIONS OR INSPECTIONS BY THE BUILDING OFFICIAL.

3. ONSITE STRUCTURAL OBSERVATION SHALL BE PERFORMED AT LEAST ONCE A MONTH, PLUS AT COMPLETION, FOR EACH SEISMIC FORCE OR WIND FORCE RESISTING SYSTEM IDENTIFIED, INCLUDING FOUNDATIONS AND CONNECTIONS.

4. AT THE CONCLUSION OF CONSTRUCTION, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES WHICH, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

5. STRUCTURAL OBSERVATION SHALL INCLUDE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM FOR EACH STRUCTURE CONTAINED IN THE WORK. THE CONTRACTOR SHALL SCHEDULE AND FACILITATE STRUCTURAL OBSERVATION INCLUDING THE FOLLOWING:
   - FOUNDATION REINFORCING STEEL, WATERSTOPS, EMBEDS, AND SIMILAR ITEMS PRIOR TO CONCRETE PLACEMENT.
   - WALL TO FOUNDATION CONNECTIONS PRIOR TO FORM CLOSURE FOR ALL MATERIALS.
   - CONCRETE SHEAR WALLS PRIOR TO CONCRETE PLACEMENT.
   - ELEVATED CONCRETE SLABS AND BEAMS PRIOR TO CONCRETE PLACEMENT.
   - MASONRY WALL, BEAM, PIER, AND COLUMN REINFORCING STEEL PRIOR TO GROUTING AND PRIOR TO CLOSING OF CLEANOUTS.
   - SYSTEM CONNECTION EMBEDS PRIOR TO GROUT OR CONCRETE PLACEMENTS.
   - CONCRETE WALL TO FLOOR AND ROOF CONNECTIONS PRIOR TO FORM CLOSURE OR OTHER COVER.
   - STEEL DECK WELDING AND OTHER CONNECTIONS PRIOR TO INSTALLATION OF CONCRETE TOPPING SLABS OR ROOFING.
   - STEEL DRAG STRUT AND COLLECTOR CONNECTIONS PRIOR TO COVER.
   - ALL OTHER WALL ANCHORAGE CONNECTIONS FOR MATERIALS NOT SPECIFICALLY IDENTIFIED ABOVE.

STATEMENT OF SPECIAL INSPECTIONS:

1. SPECIAL INSPECTION IS IN ADDITION TO THE INSPECTIONS REQUIRED BY SECTION 110 OF THE IBC. THE OWNER OR CONTRACTOR SHALL EMPLOY A SPECIAL INSPECTOR DURING CONSTRUCTION ON THE TYPES OF WORK INDICATED BELOW. REFERENCE THE PROJECT SPECIFICATIONS FOR DETERMINATION OF WHO IS RESPONSIBLE TO PAY FOR SPECIAL INSPECTIONS SERVICES AND ASSOCIATED TESTS.

2. SPECIAL INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT QUALIFIED PERSON WHO IS ACCEPTABLE TO THE ENGINEER AND BUILDING DEPARTMENT. THE INSPECTORS FOR EACH SYSTEM AND MATERIAL WILL BE ICC CERTIFIED OR OTHERWISE APPROVED BY THE BUILDING OFFICIAL. THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS AND SUBMIT RECORDS OF INSPECTION.

3. INSPECTION RECORDS AND TESTING REPORTS SHALL BE SUBMITTED TO THE ENGINEER, OWNER, AND BUILDING OFFICIAL WITHIN ONE WEEK OF INSPECTION OR WITHIN ONE WEEK OF TEST COMPLETION.

4. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF DISCREPANCIES SHALL BE SUBMITTED.

5. PERIODIC SPECIAL INSPECTION IS DEFINED AS SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.

6. SPECIAL INSPECTION IS REQUIRED PER CHAPTER 17 OF THE IBC FOR THE FOLLOWING ITEMS:
   - SOILS (BY CONTRACTOR PER SPECIFICATION SECTION 02300)
   - CAST-IN-PLACE DEEP FOUNDATION ELEMENTS
   - CONCRETE CONSTRUCTION
   - MASONRY CONSTRUCTION
   - WOOD FRAMING AND SHEAR WALL INSPECTION
   - ANCHORAGE OF MECHANICAL AND ELECTRICAL COMPONENTS

REQUIRED VERIFICATION AND SPECIAL INSPECTION OF SOILS

	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	2018 IBC REFERENCE
1.	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	X	SECTION 02300 - EARTHWORK	1705.6, 1804
2.	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	-	X	SECTION 02300 - EARTHWORK	1705.6
3.	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	-	X	SECTION 02300 - EARTHWORK	1705.6
4.	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	-	SECTION 02300 - EARTHWORK	1705.6
5.	PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	-	X	SECTION 02300 - EARTHWORK	1705.6

REQUIRED SPECIAL INSPECTION OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS

	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
1.	INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	X	-
2.	VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES	X	-
3.	FOR CONCRETE ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC SECTION 1705.3	-	-

REQUIRED SPECIAL INSPECTION OF CONCRETE CONSTRUCTION

	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	2018 IBC REFERENCE
1.	INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDIONS, AND VERIFY PLACEMENT	-	X	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2.a.	INSPECTION TO VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	-	X	AWS D1.4, ACI 318: 26.6.4	-
2.b.	INSPECT REINFORCING BARS SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	-	X	AWS D1.4, ACI 318: 26.6.4	-
2.c.	INSPECT ALL OTHER REINFORCING BAR WELDS	X		AWS D1.4, ACI 318: 26.6.4	-
3.	INSPECTION OF ANCHORS CAST IN CONCRETE	-	X	ACI 318: 17.8.2	-
4.a.	INSPECTION OF ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X	-	ACI 318: 17.8.2.4	-
4.b.	INSPECTION OF MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	-	X	ACI 318: 17.8.2	-
5.	VERIFYING USE OF REQUIRED DESIGN MIX	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6.	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM: C172, C31 ACI318: 26.5, 26.12	1908.10
7.	INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8.	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	-	X	ACI 318: 26.5.3-26.5.5	1908.9
9.	INSPECT PRESTRESSED CONCRETE FOR: A. APPLICATION OF PRESTRESSING FORCES B. GROUTING OF BONDED PRESTRESSING TENDONS	X	-	ACI 318: 26.10	-
10.	INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	-	X	ACI 318: 26.9	-
11.	VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	-	X	ACI 318: 26.11.2	-
12.	INSPECTION FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	-	X	ACI 318: 26.11.1.2(b)	-

REGISTERED PROFESSIONAL ENGINEER — TODD KOTEN — No. C61282 — CIVIL — STATE OF CALIFORNIA

01/05/2024

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 3

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-7
SHEET NUMBER 7

STRUCTURAL NOTES

REQUIRED VERIFICATION FOR MASONRY CONSTRUCTION			
MINIMUM VERIFICATION	REQUIRED FOR QUALITY ASSURANCE (a) & (b)		REFERENCE FOR CRITERIA
	LEVEL 2	LEVEL 3	TMS 602
PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS	R	R	ART. 1.5
PRIOR TO CONSTRUCTION, VERIFICATION OF F'_m	R	R	ART 1.4 B
DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE	R	R	ART. 1.5 & 1.6.3
DURING CONSTRUCTION, VERIFICATION OF F'_m FOR EVERY 5,000 SQ. FT	NR	R	ART 1.4 B
DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT	NR	R	ART 1.4 B

(a) R = REQUIRED, NR = NOT REQUIRED
(b) LEVEL 2 IS REQUIRED FOR RISK CATEGORY II & III. LEVEL 3 IS REQUIRED FOR RISK CATEGORY IV.

REQUIRED SPECIAL INSPECTION FOR MASONRY CONSTRUCTION				
INSPECTION TASK	FREQUENCY (a) & (b)		REFERENCE FOR CRITERIA	
	Level 2	Level 3	TMS 402	TMS 602
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. PROPORTIONS OF SITE-PREPARED MORTAR	P	P		Art. 2.1, 2.6 A, & 2.6 C
b. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	P	P		Art 3.4 & 3.6 A
c. SAMPLE PANEL CONSTRUCTION	P	C		Art. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. GROUT SPACE	P	C		Art. 3.2 D & 3.2 F
b. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	P	C	Sec. 6.1, 6.3.1, 6.3.6, & 6.3.7	Art. 3.2 E & 3.4
c. PROPORTIONS OF SITE-PREPARED GROUT	P	P		Art. 2.6 B & 2.4 G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:				
a. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	P	P		Art. 1.5
b. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	P	P		Art. 3.3 B
c. SIZE AND LOCATION OF STRUCTURAL MEMBERS	P	P		Art. 3.3 F
d. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	P	C	Sec. 1.2.1(e), 6.2.1, & 6.3.1	
e. WELDING OF REINFORCEMENT	C	C	Sec. 6.1.6.2	
f. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)	P	P		Art. 1.8 C & 1.8 D
g. PLACEMENT OF GROUT IS IN COMPLIANCE	C	C		Art. 3.5 & 3.6 C
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	P	C		Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3 & 1.4 B.4

(a) P = PERIODIC, C = CONTINUOUS
(b) LEVEL 2 IS REQUIRED FOR RISK CATEGORY II & III. LEVEL 3 IS REQUIRED FOR RISK CATEGORY IV.

REQUIRED SPECIAL INSPECTIONS FOR WOOD FRAMING, SHEAR WALLS AND DIAPHRAGMS				
VERIFICATION AND INSPECTION		CONTINUOUS	PERIODIC	2019 CBC REFERENCE
1.	INSPECT NAILING AT SHEAR WALL AND ROOF SYSTEMS USED AS SHEAR DIAPHARGMS	-	X	1705.12.2

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 4

REGISTERED PROFESSIONAL ENGINEER TODD KOTEY CIV IL STATE OF CALIFORNIA
01/05/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-8
SHEET NUMBER 8

FILENAME: 1977D-G008.dgn PLOT DATE: 3/10/2020 8:24:23 AM

STRUCTURAL NOTES

REQUIRED SPECIAL INSPECTION OF STEEL CONSTRUCTION (ANSI/AISC 360-10)			
QUALITY CONTROL (QC) INSPECTION TASKS SHALL BE PERFORMED BY THE FABRICATOR'S OR ERECTOR'S QUALITY CONTROL INSPECTOR (QCI). QUALITY ASSURANCE (QA) INSPECTION OF FABRICATED ITEMS SHALL BE MADE AT THE FABRICATOR'S PLANT. QA INSPECTION OF ERECTED STEEL SYSTEMS SHALL BE MADE AT THE PROJECT SITE. THE QUALITY ASSURANCE INSPECTOR (QAI) SHALL REVIEW THE MATERIAL TEST REPORTS AND CERTIFICATIONS FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. O = OBSERVE THESE ITEMS ON A RANDOM BASIS. P = PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.			
INSPECTION TASKS PRIOR TO WELDING		QC	QA
1.	WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	0
2.	WELDING PROCEDURE SPECIFICATIONS AVAILABLE	P	P
3.	MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P
4.	MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
5.	WELDER IDENTIFICATION SYSTEM	O	O
6.	FIT-UP OF GROOVE WELDS	O	O
	JOINT PREPARATION		
	DIMENSIONS		
	CLEANLINESS		
	TACKING		
	BACKING TYPE		
7.	CONFIGURATION AND FINISH OF ACCESS HOLES	O	O
8.	FIT-UP OF FILLET WELDS	O	O
	DIMENSIONS		
	CLEANLINESS		
	TACKING		
9.	CHECK WELDING EQUIPMENT	O	-
INSPECTION TASKS DURING TO WELDING		QC	QA
1.	CONTROL AND HANDLING OF WELDING	O	O
	PACKAGING		
	EXPOSURE CONTROL		
2.	NO WELDING OVER CRACKED TACK WELDS	O	O
3.	ENVIRONMENTAL CONDITIONS	O	O
	WIND SPEED WITHIN LIMITS		
	PRECIPITATION AND TEMPERATURE		
4.	WPS FOLLOWED	O	O
	SETTINGS ON WELDING EQUIPMENT		
	TRAVEL SPEED		
	SELECTED WELDING MATERIALS		
	SHIELDING GAS TYPE/FLOW RATE		
	PREHEAT APPLIED		
	INTERPASS TEMPERATURE MAINTAINED		
	PROPER POSITION		
5.	WELDING TECHNIQUES	O	O
	INTERPASS AND FINAL CLEANING		
	EACH PASS WITHIN PROFILE LIMITATIONS		
	EACH PASS MEETS QUALITY REQUIREMENTS		
INSPECTION TASKS AFTER TO WELDING		QC	QA
1.	WELDS CLEANED	O	O
2.	SIZE, LENGTH AND LOCATION OF WELDS	P	P
3.	WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	P
	CRACK PROHIBITION		
	WELD/BASE METAL FUSION		
	CRATER CROSS SECTION		
	WELD PROFILES		
	WELD SIZE		
	UNDERCUT		
	POROSITY		
4.	ARC STRIKES	P	P
5.	k-AREA	P	P
6.	BACKING AND WELD TABS REMOVED	P	P
7.	REPAIR ACTIVITIES	P	P
8.	DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P

INSPECTION TASKS PRIOR TO BOLTING		QC	QA
1.	MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P
2.	FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O
3.	CORRECT FASTENERS SELECETED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O
4.	CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O
5.	CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O
6.	PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O
7.	PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O
INSPECTION TASKS DURING TO BOLTING		QC	QA
1.	FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED	O	O
2.	JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O
3.	FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
4.	FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O
INSPECTION TASKS AFTER TO BOLTING		QC	QA
1.	DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P



01/05/2024

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 5

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-9
SHEET NUMBER 9

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE (SCREENED)
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT - FLEXIBLE
		GROOVED END JOINT - RIGID
		FLANGED JOINT
		MECHANICAL JOINT
		HUB & SPIGOT JOINT (RUBBER GASKET PUSH-ON)
		BALL JOINT
		FLANGE COUPLING ADAPTER
		FLEXIBLE COUPLING
		FLEXIBLE COUPLING WITH THRUST TIES
		DISMANTLING JOINT
		STEEL BELLOWS EXPANSION JOINT
		ELASTOMER BELLOWS EXPANSION JOINT
		ELBOW - 90 DEGREE
		ELBOW UP - 90 DEGREE
		ELBOW DOWN - 90 DEGREE
		ELBOW - 45 DEGREE
		ELBOW UP - 45 DEGREE
		ELBOW DOWN - 45 DEGREE
		TEE
		TEE UP
		TEE DOWN
		CROSS
		LATERAL
		LATERAL UP
		LATERAL DOWN
		REDUCER - CONCENTRIC

PIPE AND FITTING SYMBOLS (CONTINUED)

DOUBLE LINE	SINGLE LINE	
		REDUCER - ECCENTRIC
		UNION
		BLIND FLANGE
		PLUG
		CAP

VALVE SYMBOLS

DOUBLE LINE	SINGLE LINE	
		GATE
K	K	KNIFE GATE
		BUTTERFLY
		GLOBE
		BALL
V	V	VEE BALL
		PLUG OR COCK
SEAT PORT		ECCENTRIC PLUG WITH REQUIRED SEAT LOCATION
FP	FP	FULL PORT PLUG
		NEEDLE
		DIAPHRAGM
		PINCH VALVE
		SWING CHECK
		DOUBLE DISK OR SILENT CHECK
		BALL CHECK
		HOSE VALVE
	X	NON FREEZE HOSE VALVE X=NUMBER IN SPECIFICATIONS
	X	NON FREEZE HOSE VALVE WITH HOSE RACK X=NUMBER IN SPECIFICATIONS
	S	SAMPLE
		MUD
		PRESSURE RELIEF
		AIR AND OR VACUUM RELEASE
REGULATED SIDE		PRESSURE CONTROL
		MULTI-PORT VALVE ARROWS INDICATE FLOW PATTERN. SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN. BALL VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.
		FIRE HYDRANT
		CATHODIC PROTECTION TEST STATION
		CATHODIC PROTECTION ANODE

FLOW METERS

DOUBLE LINE	SINGLE LINE	
		MAGMETER

ACTUATORS

P	PNUEMATIC
M	MOTORIZED
S	SOLENOID

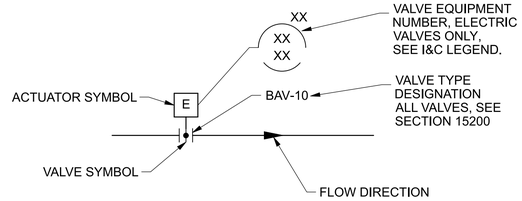
MISCELLANEOUS PIPING SYMBOLS

	STRAINER
	SIGHT GLASS
	FLEXIBLE (ELASTOMER) PIPE CONNECTION
	GAUGE WITH COCK
	THERMOMETER
	ROTAMETER
A	GALVANIC ANODE
XX	AIR SET XX = SUPPLY PRESSURE - PSIG
PS 26-1-2	TYPICAL INSTRUMENT SYMBOL (SEE I&C LEGEND)
	DRAIN
	DOUBLE CONTAINMENT PIPE

SINGLE-LINE FLOW STREAM IDENTIFICATION

16" RW

VALVE DESIGNATIONS



NOTES

1. ELECTRIC VALVE SHOWN, MANUAL VALVE SIMILAR.

NOTES

1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS AND THE PIPING SCHEDULE.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.

GENERAL PIPING NOTES

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED.
4. APPROPRIATE STANDARD WALL PIPE DETAIL SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS, WHEREVER APPLICABLE. ALL OF THE VARIOUS APPLICATIONS ARE NOT NECESSARILY USED IN THE PROJECT.
7. NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS ARE ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
8. THE CONTRACTOR FOR THIS PROJECT IS RESPONSIBLE FOR COORDINATING AND PERFORMING THE CONNECTION OF THE PIPING AND ASSOCIATED APPURTENANCES INSTALLED UNDER THIS CONTRACT TO BOTH THE EXISTING PIPING AND FACILITIES.
9. PRIOR TO SUBMITTING PIPING DRAWINGS FOR ANY NEW PIPE THAT IS TO CONNECT TO OR CROSS AN EXISTING PIPE OR STRUCTURE, THE CONTRACTOR SHALL EXPOSE THE EXISTING PIPE OR STRUCTURE TO VERIFY ITS EXACT LOCATION, SIZE, MATERIALS, AND INVERT ELEVATIONS.
10. COMPONENTS SHOWN WITH A DOUBLE ASTERISK (**) ARE PART OF A PACKAGE SYSTEM. SEE EQUIPMENT SPECIFICATIONS.

REGISTERED PROFESSIONAL ENGINEER JONATHAN C. BERTSCH No. C92341 CIVIL STATE OF CALIFORNIA

01/04/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
MECHANICAL LEGEND AND NOTES

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-10
SHEET NUMBER 10

CIVIL LEGEND

⊗ EL 158.5 — EL 158.5	SPOT ELEVATION
155	CONTOUR LINE
4:1	CUT SLOPE (HORIZ:VERT)
4:1	EMBANKMENT - FILL SLOPE (HORIZ:VERT)
	DRAINAGEWAY OR DITCH
	DIRECTION OF FLOW
	CENTER LINE, BUILDING, ROAD
	PROPERTY LINE
	RIGHT OF WAY, EASEMENT OR SETBACK
	STAGING OR WORK AREA LIMITS
N 1000.00 E 1000.00	STRUCTURE, BUILDING OR FACILITY LOCATION POINT COORDINATES
OR	STRUCTURE, BUILDING OR FACILITY
	RETAINING WALL
	CONCRETE CURB
	ARCHITECTURAL FENCE
	GUARD RAIL/BARRICADE
OX	CHAIN LINK FENCE WITH 3 STRAND BARBED WIRE TOPPING
	ARCHITECTURAL FENCE
	CHAIN LINK FENCE
X X	BARBED WIRE
X X	SINGLE SWING GATE
	DOUBLE SWING GATE
	SLIDING GATE
	CULVERT
	FIRE HYDRANT
	WALL
	BRUSH/TREE LINE
	TREE
OR OR	DEMOLITION
	ABANDON IN PLACE
	AUTOMATIC AIR RELEASE VALVE
	MANUAL AIR RELEASE VALVE
	WATER SURFACE
GB	GRADE BREAK

CIVIL LEGEND (CONTINUED)

	BEDROCK
	ROCKS OR RIPRAP
	SAND
	AGGREGATE BASE
	NATURAL SOIL
	COMPACTED SOIL
	CONCRETE
	GROUT
	CONTROLLED LOW STRENGTH MATERIAL (CLSM)
	PAVEMENT
	GRATING

NOTES:

1. EXISTING PIPING, EQUIPMENT, AND TOPOGRAPHY IS SHOWN SCREENEDAND/OR LIGHT-LINED. NEW PIPING, EQUIPMENT, STRUCTURE, AND FINISHED GRADE IS SHOWN HEAVY-LINED.
2. THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS MAY APPEAR ON THIS SHEET AND NOT BE USED ON THE PLANS.

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

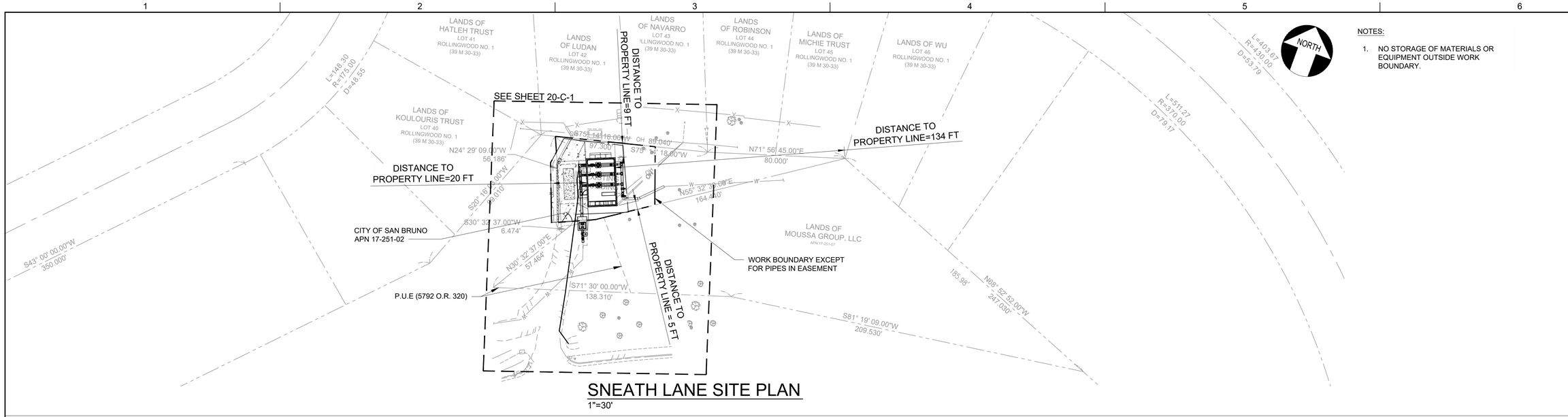
GENERAL
CIVIL LEGEND

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/03/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-11
SHEET NUMBER 11

FILENAME: 1977D-G011.dgn PLOT DATE: 10/19/2020 9:56:37 AM

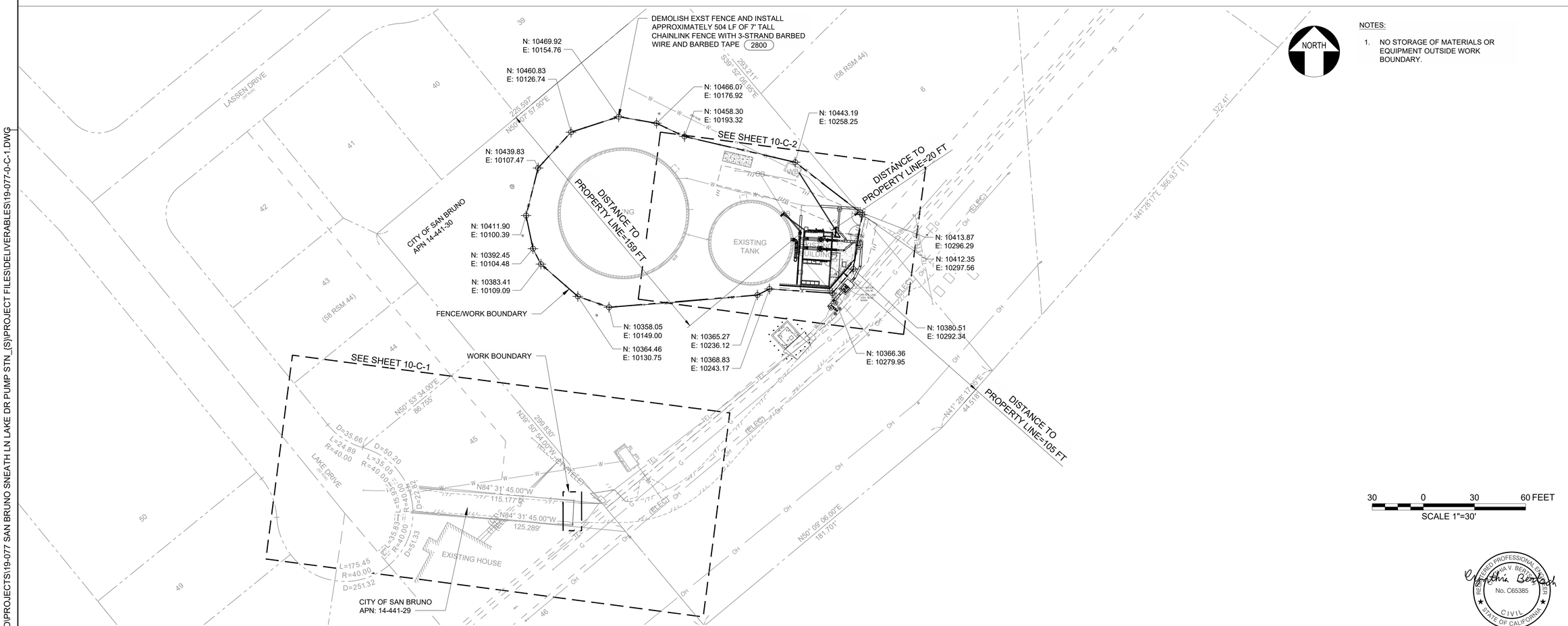


SNEATH LANE SITE PLAN

1"=30'

NOTES:

1. NO STORAGE OF MATERIALS OR EQUIPMENT OUTSIDE WORK BOUNDARY.



LAKE DRIVE SITE PLAN

1"=30'

NOTES:

1. NO STORAGE OF MATERIALS OR EQUIPMENT OUTSIDE WORK BOUNDARY.

30 0 30 60 FEET
SCALE 1"=30'

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

CITY OF SAN BRUNO

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 260 • San Mateo, CA 94402 • 650-539-3420

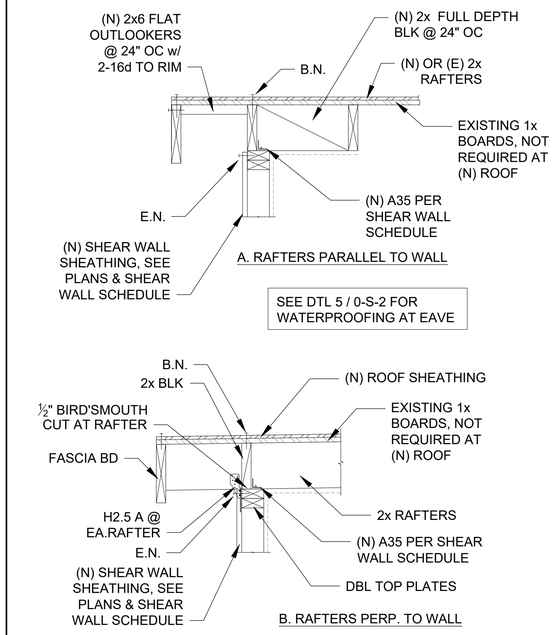
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
PUMP STATIONS OVERALL SITE PLAN

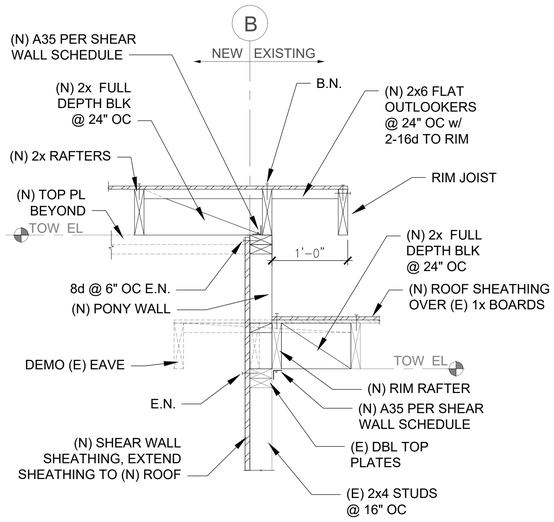
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 0-C-1
SHEET NUMBER 12

L:\CAD\PROJECTS\19-077 SAN BRUNO SNEATH LN LAKE DR PUMP STN_(S)\PROJECT FILES\DELIVERABLES\19-077-0-C-1.DWG

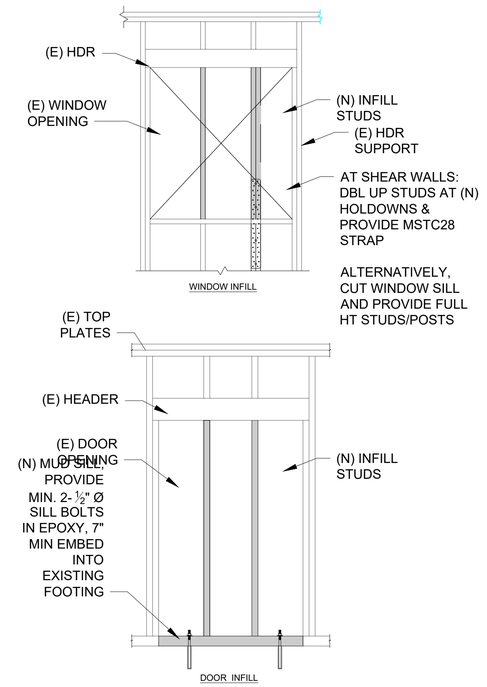
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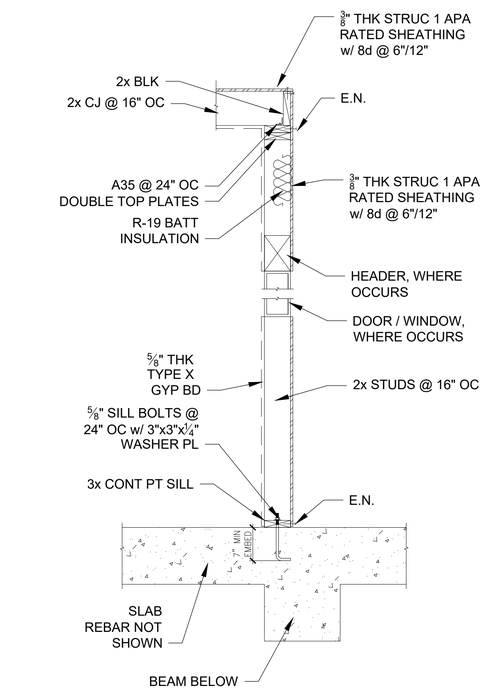
1 TYPICAL EAVE DETAIL
-- 1" = 1'-0"



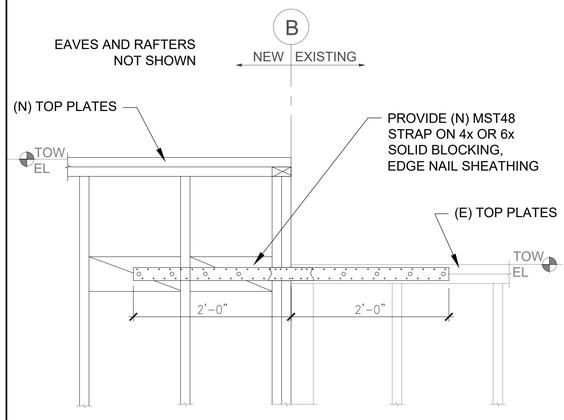
2 NEW TO EXISTING ROOF DETAIL AT LAKE DR
-- 1" = 1'-0"



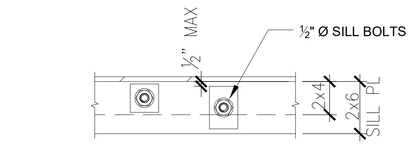
3 INFILL AT OPENING
-- 1" = 1'-0"



4 TYPICAL SHEAR TRANSFER DETAIL
-- 3/4" = 1'-0"

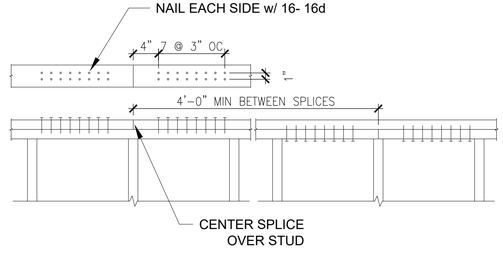


5 STRAP AT TOP PLATE AT LAKE DR
-- NTS

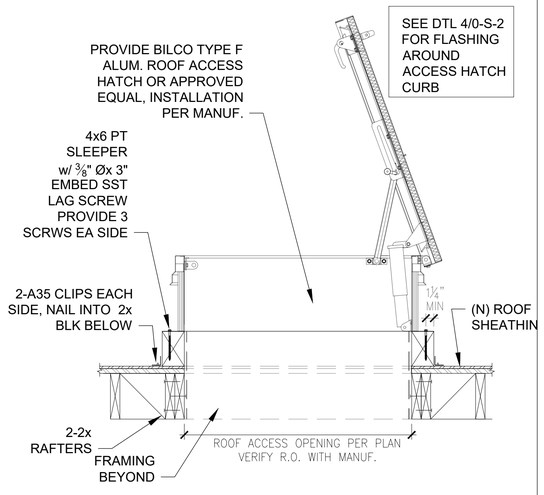


WASHER PLATE TO BE 3" MIN WIDE x ¼" THK
EDGE NOT MORE THAN ½" FROM SHEATHING

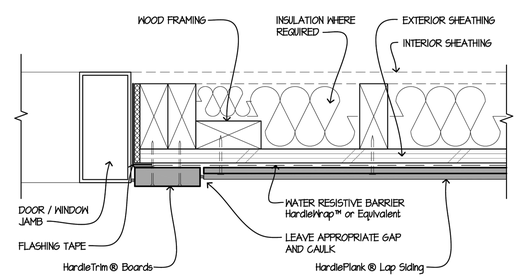
6 WASHER PLATE SIZE
-- 1 1/2" = 1'-0"



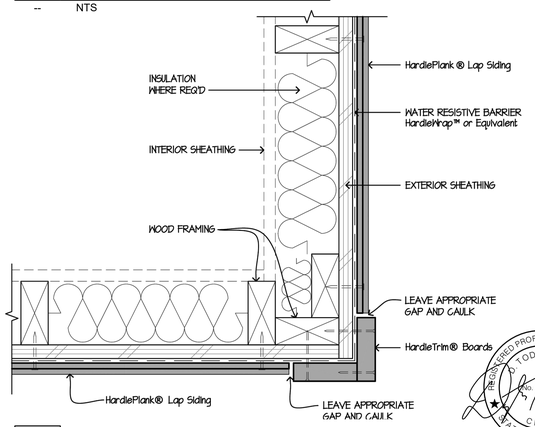
7 TOP PLATE SPLICE
-- 1" = 1'-0"



8 ROOF HATCH ATTACHEMENT
-- 1" = 1'-0"



9 DOOR / WINDOW JAMB
-- NTS



10 OUTSIDE CORNER
-- NTS

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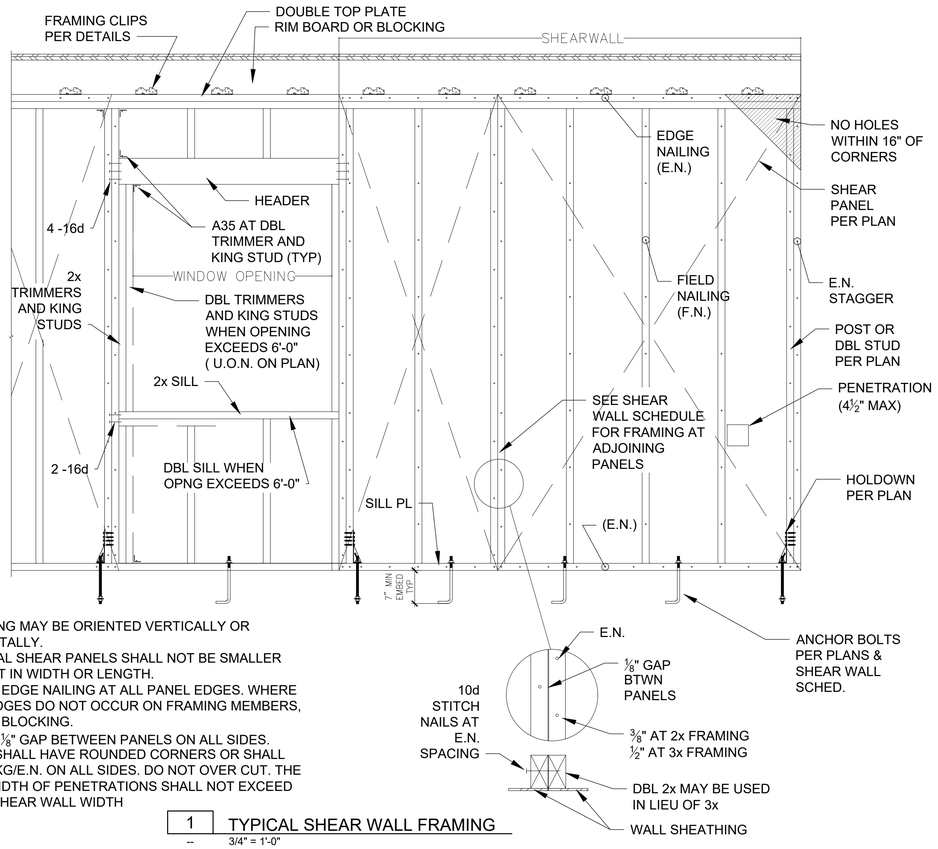
DESIGN
DRAWN
CHECKED
APPROVED

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
WOOD FRAMING DETAILS

DATE
JULY 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
0-S-1
SHEET NUMBER 13

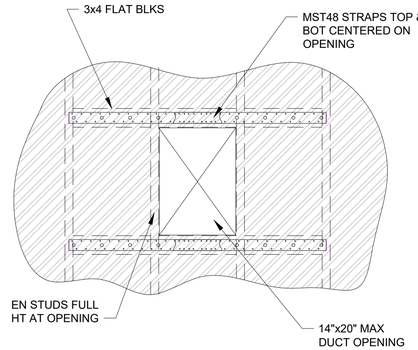
TODD KOSTY No. C84377 CIVIL STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER
01-05-2024



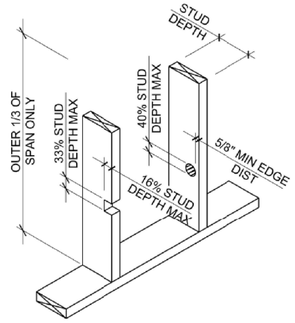
NOTES:

1. SHEATHING MAY BE ORIENTED VERTICALLY OR HORIZONTALLY.
2. INDIVIDUAL SHEAR PANELS SHALL NOT BE SMALLER THAN 2 FT IN WIDTH OR LENGTH.
3. PROVIDE EDGE NAILING AT ALL PANEL EDGES. WHERE PANEL EDGES DO NOT OCCUR ON FRAMING MEMBERS, PROVIDE BLOCKING.
4. PROVIDE ⅛" GAP BETWEEN PANELS ON ALL SIDES.
5. PANELS SHALL HAVE ROUNDED CORNERS OR SHALL HAVE BLKG/E.N. ON ALL SIDES. DO NOT OVER CUT. THE TOTAL WIDTH OF PENETRATIONS SHALL NOT EXCEED 20% OF SHEAR WALL WIDTH

1 TYPICAL SHEAR WALL FRAMING
-- 3/4" = 1'-0"

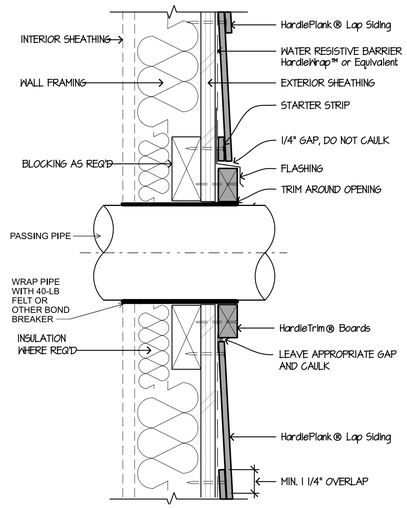


2 SHEAR WALL OPENING
-- 1" = 1'-0"

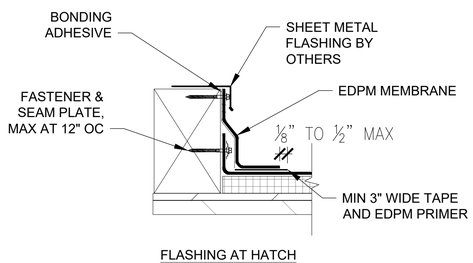


BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A CUT OR NOTCH

3 WOOD STUD CUTTING, NOTCHING & BORING LIMITS
-- NTS



8 WOOD STUD CUTTING, NOTCHING & BORING LIMITS
-- NTS

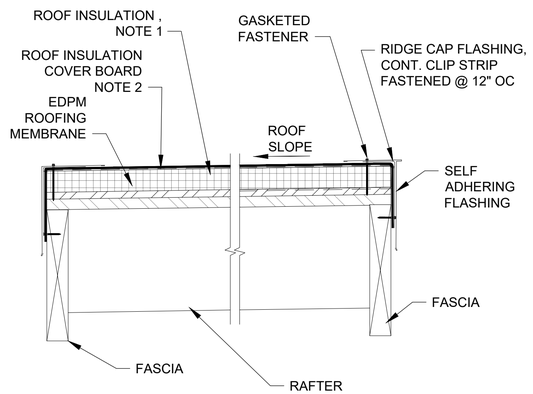


FLASHING AT HATCH

NOTES:

1. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER FLASHING, USE EDPM WASHERS, APPLY WATER CUT OFF MASTIC UNDER THE COUNTER-FLASHING OR CAULK THE FASTENER HEADS.
2. LAP SEALANT IS REQUIRED ON CUT-EDGES OF REINFORCED MEMBRANE.
3. MEMBRANE SPLICES SHALL INCORPORATE 6" WIDE SECURE TAPE.

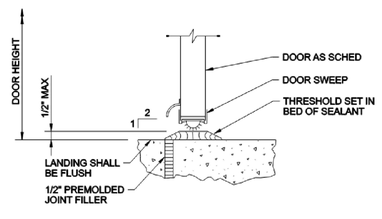
4 FLASHING AT ACCESS HATCH CURB
-- 1-1/2" = 1'-0"



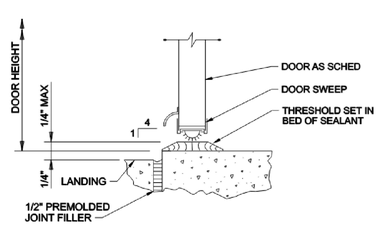
NOTES:

1. ROOF INSULATION SHALL BE MIN 2" THK STYROFOAM BRAND DECKMATE PLUS OR EQUAL. TAPER TOP LAYER TO MATCH ROOF SLOPE PER PLANS. ATTACHMENT SHALL BE PER SPEC SECTION 07 22 03-2.3 A AND MANUFACTURER'S INSTALLATION GUIDE
2. ROOF INSULATION COVER BOARD SHALL BE ½" THK MIN DENSDECK PRIME BY GEORGIA PACIFIC OR EQUAL

5 WATERPROOFING AT EAVE
-- 1-1/2" = 1'-0"

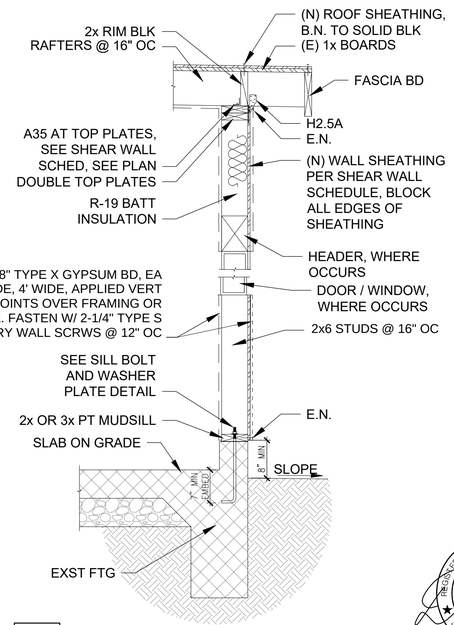


FLUSH LANDING - TYPE A



OFFSET LANDING - TYPE B

6 DOOR THRESHOLD
-- NTS



7 TYPICAL 1 HOUR RATED SHEAR WALL
-- 3/4" = 1'-0"

DESIGN
DRAWN
CHECKED
APPROVED

CITY OF SAN BRUNO

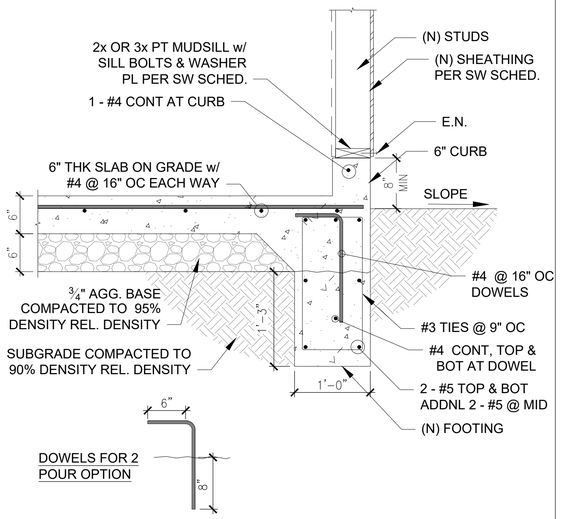
WATERWORKS ENGINEERS
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

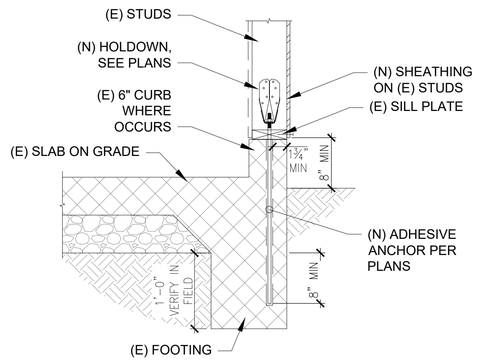
STRUCTURAL
WOOD FRAMING DETAILS

REGISTERED PROFESSIONAL ENGINEER TODD KOREY NO. C66187 CIVIL STATE OF CALIFORNIA
01-05-2024

DATE JANUARY 2024
PROJECT NUMBER 19-077
DRAWING NUMBER 0-S-2
SHEET NUMBER 14



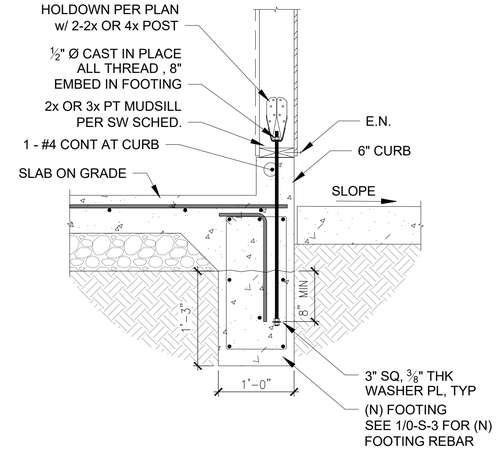
1 (N) PERIMETER FOOTING AT LAKE DR.
-- 1" = 1'-0"



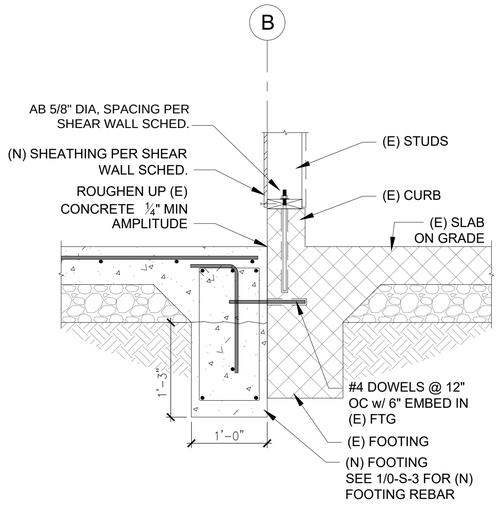
ADHESIVE ANCHOR NOTES

1. USE SIMPSON'S SET 3G OR HILTI HY 200 AND INSTALL PER MANUF. INSTRUCTIONS AND ICC ESR 2508
2. MIN. EMBEDMENT AND EDGE DISTANCE SHALL NE AS SHOWN IN DETAIL.
3. SPECIAL INSPECTIONS IN ACCORDANCE WITH CBC SECTION 1701 AND ICC ESR 2508 IS REQUIRED.
4. ANCHOR ROD SHALL BE 5/8" Ø ALL THREAD, ASTM F1554 GR 36

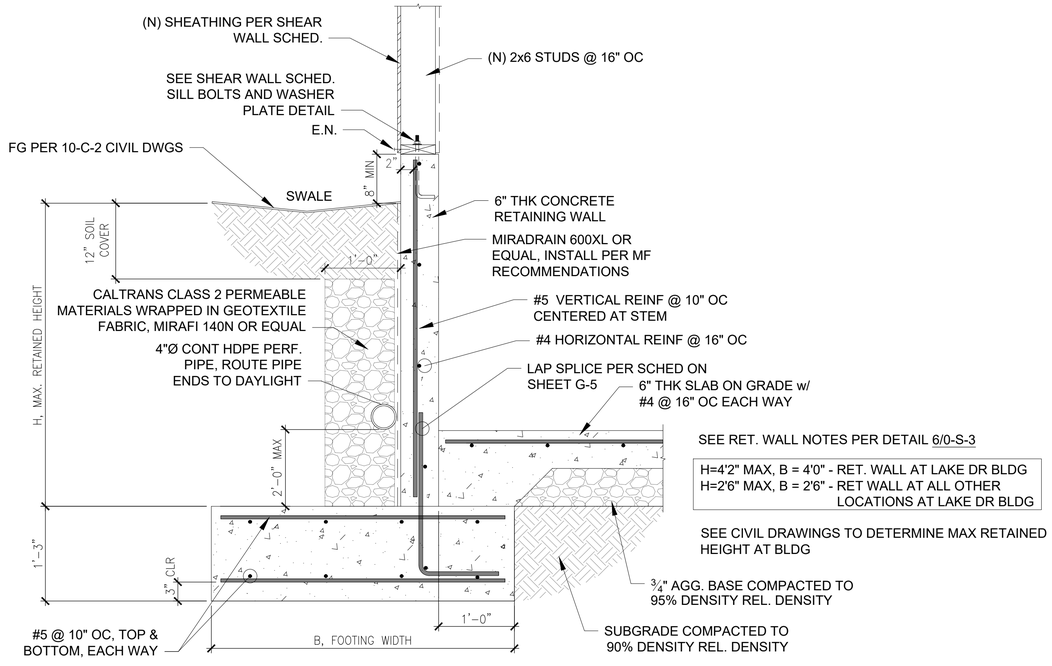
2 (N) HOLDOWN IN (E) FTF AT LAKE DR & SNEATH LN
-- 1" = 1'-0"



3 HOLDOWN IN (N) FOOTING AT LAKE DR.
-- 1" = 1'-0"



4 (N) TO (E) FOOTING AT LAKE DR.
-- 1" = 1'-0"

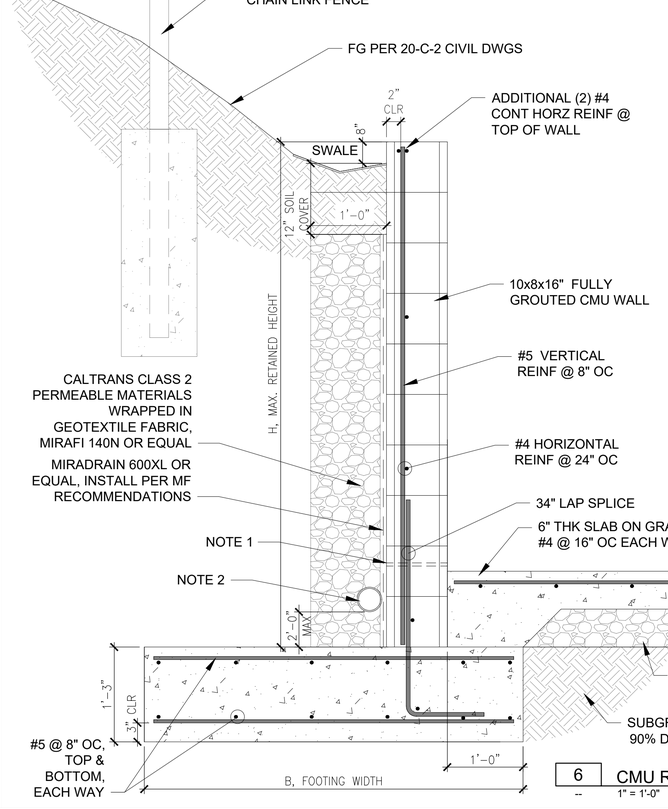


SEE RET. WALL NOTES PER DETAIL 6/0-S-3

H=4'2" MAX, B = 4'0" - RET. WALL AT LAKE DR BLDG H=2'6" MAX, B = 2'6" - RET WALL AT ALL OTHER LOCATIONS AT LAKE DR BLDG

SEE CIVIL DRAWINGS TO DETERMINE MAX RETAINED HEIGHT AT BLDG

5 CONCRETE RETAINING WALL AT LAKE DR
-- 1" = 1'-0"



RETAINING WALL NOTES

1. 1½" DIA SCHED 40 HDPE WEEP HOLES @ 15'-0" MAX, INSTALL + 6" ABOVE FG w/ SST OR ALUM MESH SCREEN ON BACKSIDE OF WALL. PROVIDE SAME SIZE PENETRATION THRU MIRADRAIN FABRIC @ EA WEEP HOLE LOCATION.
2. 4" DIA CONT HDPE PERFORATED PIPE, ROUTE PIPE ENDS TO DAYLIGHT.
3. SEE 3305 FOR LOCATIONS WHERE EXISTING PIPES OR CONDUITS INTERSECT RETAINING WALL FOOTINGS.
4. PROVIDE CRACK CONTROL JOINTS @ 20'-0" OC MAX PER DETAIL 4100/SD4

H=6'8" MAX, B = 5'6" - RET. WALL AT SNEATH LN BLDG H=2'6" MAX, B = 2'6" - RET WALL AT ALL OTHER LOCATIONS AT SNEATH LN BLDG

SEE CIVIL DRAWINGS TO DETERMINE MAX RETAINED HEIGHT AT BLDG

6 CMU RETAINING WALL AT SNEATH LN
-- 1" = 1'-0"

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280•San Mateo, CA 94402•650-539-3420

DESIGN | DRAWN | CHECKED | APPROVED

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
CONCRETE & MASONRY DETAILS

DATE JANUARY 2024
PROJECT NUMBER 19-077
DRAWING NUMBER 0-S-3
SHEET NUMBER 15



GENERAL HVAC NOTES

1. SIZES OF EQUIPMENT PADS SHOWN ON THE DRAWINGS ARE APPROXIMATE. DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FOR THE EQUIPMENT FURNISHED. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL DRAWINGS AND/OR STANDARD DETAILS.
2. DIELECTRIC COUPLINGS, FLANGES, OR UNIONS SHALL BE INSTALLED AT ALL CONNECTIONS OF COPPER PIPE TO OTHER TYPES OF METALLIC PIPING.
3. HVAC DRAWINGS MAY NOT SHOW ALL DRAINS, VENTS, OFFSETS, FITTINGS, ETC. REQUIRED FOR THE COMPLETE SYSTEM. SMALL PIPING IS SHOWN APPROXIMATELY TO SCALE, HOWEVER NOT EVERY FITTING AND OFFSET MAY BE SHOWN.
4. THE CONTRACTOR SHALL FURNISH, INSTALL, AND TEST ALL HVAC SYSTEMS TO PROVIDE THE COMPLETE SYSTEM.
5. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, ALL FLOOR SLABS AND WALL PENETRATIONS SHALL BE MADE USING THE APPROPRIATE THE STANDARD DETAILS.
6. NOT ALL, AND ONLY CERTAIN TYPES, OF SUPPORTS ARE SHOWN ON THE HVAC DRAWINGS. UNLESS OTHERWISE DETAILED ON THE DRAWINGS, ALL PIPE AND DUCT SUPPORTS SHALL BE DESIGNED, FURNISHED, AND INSTALLED BY THE CONTRACTOR AS SPECIFIED.
7. STANDARD DETAILS SHALL BE USED FOR ALL PERMANENT WORK EVEN THOUGH THEY ARE NOT CALLED OUT AT ALL LOCATIONS WHERE THEY APPLY.
8. PROVIDE TURNING VANES IN ALL ELBOWS, WHETHER OR NOT SHOWN ON DRAWINGS.
9. PROVIDE FLEXIBLE CONNECTIONS TO HVAC EQUIPMENT, UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SPECIFICATIONS.
10. DUCTWORK DIMENSIONS NOTED ARE FOR INSIDE DUCT MEASUREMENTS.
11. PROVIDE A COPY OF A CERTIFIED AIR BALANCE REPORT TO THE OWNER PRIOR TO THE FINAL INSPECTION. THIS REPORT SHALL BE CONDUCTED BY A THIRD PARTY CERTIFIED TO CONDUCT AN AIR BALANCE AND AS APPROVED BY THE ENGINEER OF RECORD. THE REPORT SHALL DEMONSTRATE THAT THE MECHANICAL SYSTEM WILL MEET THE DESIGN CALCULATIONS AS INDICATED IN THE CONTRACT DOCUMENTS.
12. CONTRACTOR SHALL COORDINATE ALL HVAC WORK WITH OTHER DISCIPLINES.
13. ALL CUTTING AND PATCHING OF WALLS, FLOORS AND ROOFS, AS REQUIRED TO INSTALL DUCTWORK, EQUIPMENT, ETC. SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
14. THE CONTRACTOR SHALL PROVIDE ALL METHODS AND MATERIALS FOR SUPPORTING ALL EQUIPMENT AND DUCTWORK FURNISHED UNDER THIS CONTRACT. IN AREAS OF BAR JOIST CONSTRUCTION, ALL PIPING, DUCTWORK, AND SUSPENDED EQUIPMENT WITH A CONCENTRATED LOAD (I.E. HANGERS IN EXCESS OF 150 LBS) SHALL BE SUPPORTED FROM THE TOP CHORD OF THE BAR JOIST. DO NOT HANG ANY PIPING OR DUCTWORK FROM THE ROOF DECK.
15. VERIFY THE FINAL MOUNTING HEIGHTS AND LOCATIONS OF LOUVERS, BRICK VENTS, CABINET HEATERS, SIDEWALL GRILLES AND RESISTERS, AND ALL OTHER VISIBLE EQUIPMENT WITH THE ARCHITECTURAL INTERIOR AND EXTERIOR ELEVATIONS.
16. ALL ADJUSTABLE THERMOSTATS, SENSORS AND SWITCHES INTENDED FOR NORMAL USE BY THE BUILDING'S OCCUPANTS SHALL BE MOUNTED 48 INCHES AT FINISHED FLOOR TO THE TOP OF THE DEVICE IN ACCORDANCE WITH ADA REQUIREMENTS.
17. DO NOT UTILIZE HVAC EQUIPMENT FURNISHED UNDER THIS CONTRACT AS A MEANS OF TEMPORARY HEAT DURING CONSTRUCTION. OBTAIN WRITTEN APPROVAL FROM THE ENGINEER OR OWNER PRIOR TO PLACING EQUIPMENT IN CONTINUOUS OPERATION.
18. PROVIDED ELEVATIONS ARE FOR REFERENCE ONLY. FINAL ELEVATIONS ARE SUBJECT TO ACTUAL FIELD CONDITIONS. CONTRACTOR SHALL FIELD VERIFY CLEARANCES AND DIMENSIONS PRIOR TO FABRICATING AND INSTALLING DUCTWORK AND EQUIPMENT. CONTRACTOR SHALL COORDINATE DUCT AND EQUIPMENT INSTALLATIONS WITH ALL OTHER TRADES TO AVOID INTERFERENCE WITH LIGHT FIXTURES, STRUCTURES, ETC.
19. PROVIDE SECURITY BARS ON PENETRATIONS 18 INCHES AND LARGER AS INDICATED ON DRAWINGS.
20. FIRE SYSTEM CONTROLS: THE CERTIFIED FIRE PROTECTION ALARM SYSTEM SUPPLIER / INSTALLER SHALL PROVIDE ALL NECESSARY PROGRAMING, CONDUIT AND WIRE, CONTACTS/RELAYS AND ANY ADDITIONAL EQUIMENT NECESSARY TO PROVIDE A COMPLETE SHUTDOWN OF ALL HVAC EQUIPMENT IN THE EVENT OF AN ALARM EVENT.
21. THIS SCOPE WILL INCLUDE ANY REQUIRED MODIFICATIONS OF AN EXISTING OR NEW FACP PANELS AND FIRE ALARM SYSTEM TO INTERFACE WITH HVAC EQUIPMENT STARTERS AND CONTROLLERS.
22. THE FIRE ALARM SYSTEM SUPPLIER SHALL COORDINATE WITH THE HVAC CONTRACTOR TO ENSURE A COMPLETE SHUTDOWN OF THEIR EQUIPMENT DURING A FIRE ALARM EVENT.
23. THE HVAC CONTRACTOR SHALL ENSURE THAT A SHUTDOWN SIGNAL RECEIVED AT ALL HVAC EQUIPMENT ARE EFFECTIVELY SHUT DOWN WITH ALL COMPONETS OF THAT EQUIPMENT.

HVAC SYMBOLS

- ACCESS DOOR, VERTICAL OR HORIZONTAL (AD)
- FLEXIBLE CONNECTION
- FLEXIBLE DUCTWORK (OR)
- TRANSITION ROUND TO SQUARE
- TURNING VANES (RECTANGULAR)
- TURNING VANES (RECTANGULAR), SMOOTH RADIUS
- GOOSENECK HOOD (COWL)
- VANES-EXTRACTOR
- DUCT HEATER (DH-01)
- DIRECTION OF SUPPLY AIR FLOW
- DIRECTION OF RETURN AIR FLOW
- DOOR UNDERCUT (UC)
- EXHAUST-CEILING
- FLOW CONTROL VALVE
- FLOW SWITCH (FS)
- REMOTE THERMOSTAT (T/AHU-01)
- AIR FILTER (F)
- AIRFLOW MONITOR (AFM)
- AUTOMATIC AIR VENT
- BALL VALVE-NORMALLY CLOSED
- DIFFERENTIAL PRESSURE SWITCH (DPS)
- CONTROL SWITCH (S/EF-01)
- SUCTION DIFFUSER
- DUCT SMOKE DETECTOR

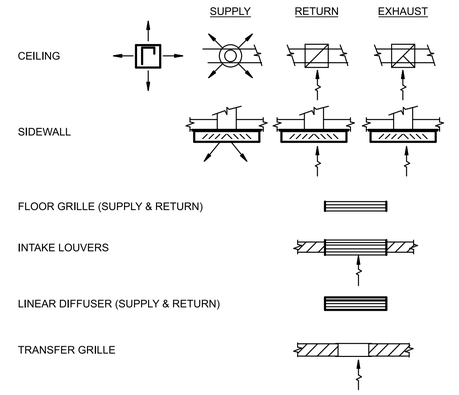
- DOOR UNDERCUT (UC)
- EXHAUST-CEILING
- FLOW CONTROL VALVE
- FLOW SWITCH (FS)
- REMOTE THERMOSTAT (T/AHU-01)
- AIR FILTER (F)
- AIRFLOW MONITOR (AFM)
- AUTOMATIC AIR VENT
- BALL VALVE-NORMALLY CLOSED
- DIFFERENTIAL PRESSURE SWITCH (DPS)
- CONTROL SWITCH (S/EF-01)

- POWER OR GRAVITY ROOF VENTILATOR (SRF)
- DUCT THERMOSTAT (T)
- DUCT HUMIDISTAT (H)
- INTERNALLY INSULATED SHEET METAL DUCT
- HIDDEN SHEET METAL DUCT
- HUMIDISTAT (ELECTRIC) (H/EC-01)
- ROUND ELBOW UP
- ROUND ELBOW DOWN
- SMOKE DETECTOR (SD)
- FAN - BLOWER
- POWER OR GRAVITY ROOF VENTILATOR - EXHAUST (ERV)

DAMPERS

- VOLUME DAMPER (VD)
- FIRE DAMPER (VERTICAL)
- MOTORIZED (M)
- SMOKE DAMPER (VERTICAL)
- COMBINATION SMOKE / FIRE DAMPER WITH SMOKE DETECTION (VERTICAL)
- FIRE DAMPER (HORIZONTAL)
- SMOKE DAMPER (HORIZONTAL)
- COMBINATION SMOKE / FIRE DAMPER WITH SMOKE DETECTION (HORIZONTAL)
- BACKDRAFT (BDD)

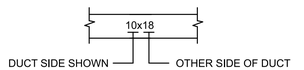
REGISTERS OR GRILLES



DUCT LINEWORK

	SUPPLY	RETURN	EXHAUST
DUCT THRU ROOF OR FLOOR			
DUCT UP			
DUCT DOWN			

DUCT DIMENSIONS



DUCT HEIGHT

T 10'-0"
B 9'-4"

- TD 6" — TOP OF DUCT FITTING DOWN 6"
- TU 6" — TOP OF DUCT FITTING UP 6"
- BD 6" — BOTTOM OF DUCT FITTING DOWN 6"
- BU 6" — BOTTOM OF DUCT FITTING UP 6"

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/05/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

HVAC

HVAC LEGEND, NOTES AND SCHEDULES

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 0-H-1
SHEET NUMBER 16

BENCHMARK:

CITY OF SAN BRUNO BM SB-17
A 2" BRASS MONUMENT STAMPED "CITY OF SAN BRUNO, PUBLIC WORKS, HVCN SB-17", SET IN TOP OF CURB ON FLEETWOOD DRIVE AT CURB RETURN, 2' EASTERLY OF DRIVEWAY.

ELEVATIONS SHOW HERON ARE BASED ON NAVD88. TO CONVERT TO NGVD29 SUBTRACT 3.461 FEET FROM THE ELEVATIONS SHOW. DATUM CONVERSION WAS OBTAINED FROM THE CITY OF SAN BRUNO HORIZONTAL AND VERTICAL NETWORK POINT DATA SHEET FOR BM SB-17

BASIS OF BEARINGS:
THE BEARING OF NORTH 39° 06' 26" WEST TAKEN ON THE CENTER LINE OF LAKE DRIVE AS SHOWN ON THAT CERTAIN MAP ENTITLED "PORTOLA HIGHLANDS NO. 2", FILED FOR RECORD ON SEPTEMBER 26, 1963, IN BOOK 58 OF MAPS AT PAGE(S) 44 AND 45, OFFICIAL RECORDS OF SAN MATEO COUNTY WAS TAKEN AS THE BASIS FOR ALL BEARINGS SHOWN HEREON.

CORNER RECORD NOTE:
THE DEVELOPER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND FILING OF PRE-CONSTRUCTION AND POST-CONSTRUCTION CORNER RECORDS FOR ANY MONUMENTS OR PROPERTY CORNERS SHOWN HEREON THAT MAY BE DESTROYED DURING IMPROVEMENTS TO THE SUBJECT PROPERTY AS DEFINED IN SECTION 8771(B) OF THE PROFESSIONAL LAND SURVEYORS ACT.

5 0 5 10 FEET
SCALE 1"=5'

01/03/2024

DESIGN C BERTSCH
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED M FISHER

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

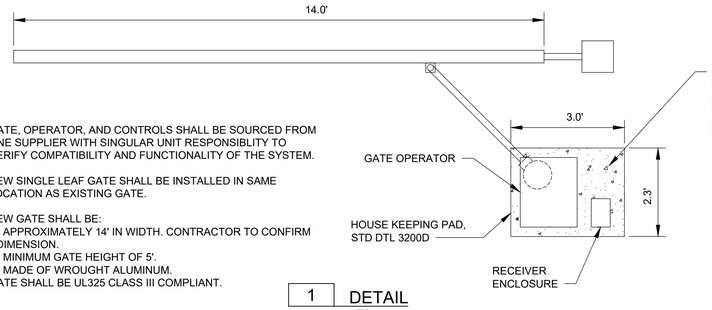
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
EXISTING UTILITIES
LAKE PUMP STATION

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-U-1
SHEET NUMBER 17

JOB NUMBER: 00-000 FILENAME: 19-077-10-U-1.DWG PLOT DATE: 12/29/23 PLOT TIME: 16:47:46

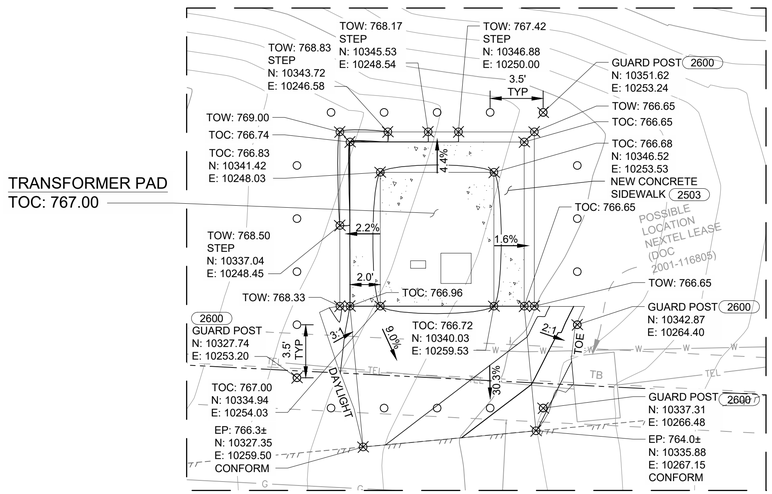
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NOTES:

1. GATE, OPERATOR, AND CONTROLS SHALL BE SOURCED FROM ONE SUPPLIER WITH SINGULAR UNIT RESPONSIBLITY TO VERIFY COMPATIBILITY AND FUNCTIONALITY OF THE SYSTEM.
2. NEW SINGLE LEAF GATE SHALL BE INSTALLED IN SAME LOCATION AS EXISTING GATE.
3. NEW GATE SHALL BE:
   - APPROXIMATELY 14' IN WIDTH. CONTRACTOR TO CONFIRM DIMENSION.
   - MINIMUM GATE HEIGHT OF 5'.
   - MADE OF WROUGHT ALUMINUM.
4. GATE SHALL BE UL325 CLASS III COMPLIANT.

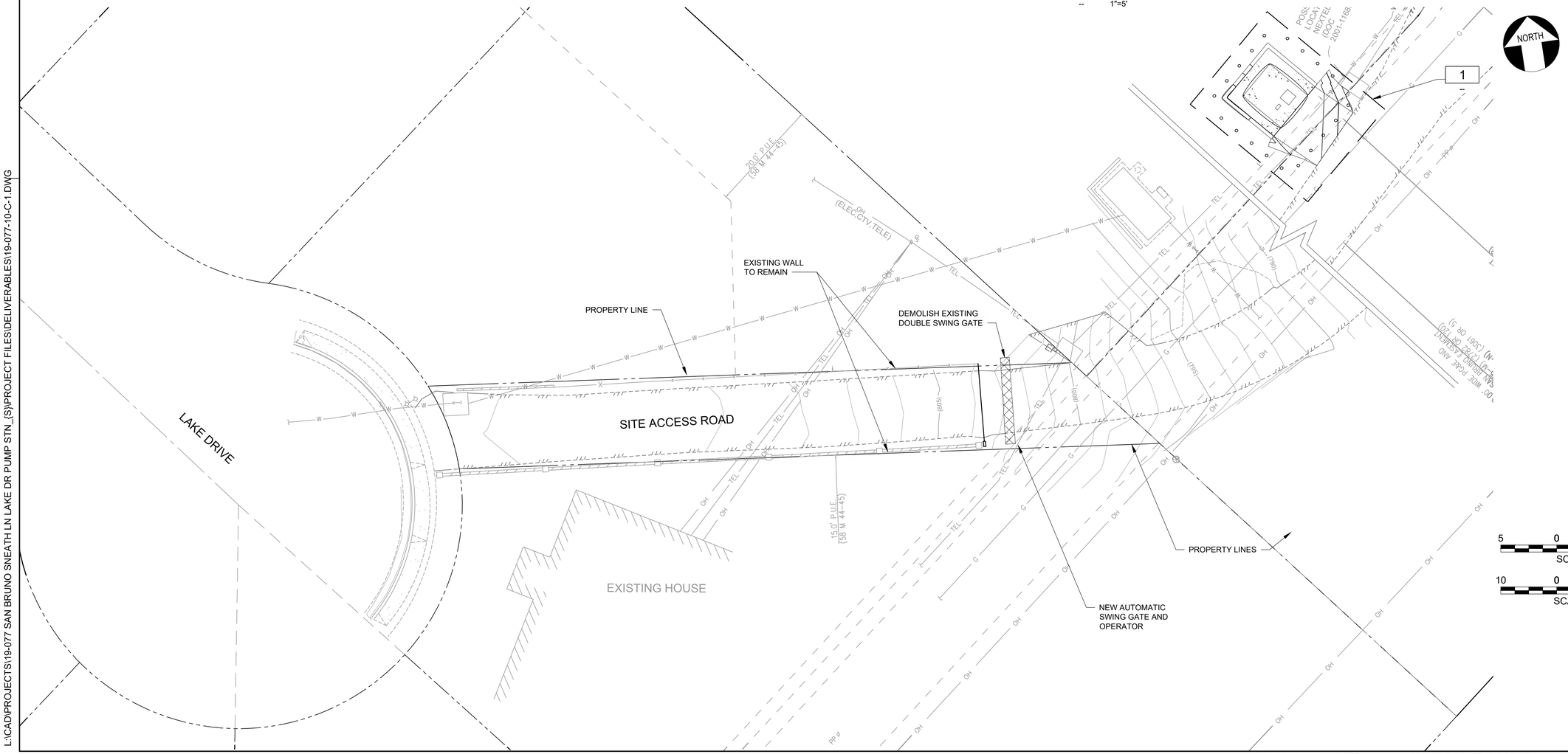
1 DETAIL
-- NTS



1 DETAIL
-- 1"=5'

NOTES:

1. NO LAYDOWN OF MATERIAL ALLOWED ON SITE ACCESS ROAD.



REGISTERED PROFESSIONAL ENGINEER
CHRISTINA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 260 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
LAKE PUMP STATION DRIVEWAY

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-C-1
SHEET NUMBER 18

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JOB NUMBER: 19-077 FILENAME: 19-077-10-C-1.DWG PLOT DATE: 06/30/25 PLOT TIME: 14:42:51

NORTH

1 0 1 2 FEET
SCALE 1"=1'

5 0 5 10 FEET
SCALE 1"=5'

NOTES:

1. SEE MECHANICAL PLANS FOR PIPING MODIFICATIONS.
2. SEE STRUCTURAL PLANS FOR STRUCTURE MODIFICATIONS.
3. SEE 0-S-3 DETAIL 5 FOR RETAINING WALL INFORMATION.

6'X18' GENERATOR PAD 3200E

EP: 754.6± CONFORM

RETAIN AND PROTECT EXISTING STORM DRAIN

EP: 754.2± CONFORM

EP: 754.4± CONFORM

NEW PAVED ACCESS

2.4%

6" SD @ 0.92%

EP: 754.5± CONFORM

CATCH BASIN
RIM: 753.49
INV OUT: 752.35 6"
INV IN: 753.12 6"

AC PAVEMENT 2501

NEW CHAINLINK DOUBLE-LEAF GATE 2800

NEW CHAINLINK DOUBLE -LEAF GATE

EP: 753.5± CONFORM

EP: 753.3± CONFORM

EP: 753.4± CONFORM

EP: 753.3± CONFORM

FL: 753.29

EP: 754.4± CONFORM

7.6%

4.4%

6" DRAIN @ 0.70%

6" 45° ELBOW
N: 10402.44
E: 10261.30
INV EL: 753.22

6" DRAIN @ 0.70%

FG: 753.87
N: 10402.80
E: 10263.34

FLOWLINE

TOC: 754.33

EP: 754.1± CONFORM

EP: 753.5± CONFORM

EP: 753.6± CONFORM

EP/FL: 753.92

EP: 754.3± CONFORM

EP: 754.3± CONFORM

EP: 754.25
N: 10389.56
E: 10284.70

FG: 753.77
N: 10399.53
E: 10261.10
INV EL: 753.24

20.8%

5.0%

9.0%

PAVEMENT CONNECTION 2502

14" PIPING, SEE DWG 10-M-1

TOC: 754.35
N: 10389.88
E: 10279.77

EP: 754.29
N: 10389.63
E: 10282.77

NEW 6' WIDE SINGLE-LEAF CHAINLINK ACCESS GATE 2802

5.3%

14.6%

FG: 753.87
N: 10385.76
E: 10262.29

EXISTING TANK

EXISTING BUILDING FF=754.37

NEW CONCRETE SIDEWALK 2503

EP: 754.71
N: 10384.33
E: 10291.69

SAWCUT INTO EXISTING PAVEMENT

FL: 754.06
N: 10388.82
E: 10286.65

13.5%

REMOVE AND REPLACE EXISTING PAVEMENT

INSTALL 6" DURA SLOPE CHANNEL DRAIN @ 0.70%

FG: 754.23
N: 10384.17
E: 10290.41

FL: 755.36

EP: 755.2± CONFORM

FL: 754.94

TOC: 754.35

DOOR LANDING 3202

NEW BUILDING EXTENSION FF=754.37

TYPE F AC DIKE 2760

FG: 754.6± CONFORM

EP: 755.4± N: 10382.99 E: 10292.81 CONFORM

FG: 753.87
N: 10371.23
E: 10261.36

FL: 753.76
N: 10371.37
E: 10259.21

EP: 755.6± CONFORM

FG: 754.5± N: 10372.01 E: 10249.23 CONFORM

TOC: 754.35

2.1%

4.8%

EP: 755.8± CONFORM

FL: 755.4± N: 10382.52 E: 10292.29 CONFORM

6.7%

13.8%

FLOWLINE

PERFORATED PIPE

RETAINING WALL, SEE DWG 10-C-3

5.8%

2.9%

EP/FL: 754.24
N: 10376.96
E: 10284.12

TOC: 757.83
N: 10371.18
E: 10292.99

FL: 754.7± N: 10369.51 E: 10249.07 CONFORM

FL: 758.07
N: 10368.50
E: 10264.89

FL: 757.6± N: 10367.59 E: 10279.27 CONFORM

VAULT AND PIPING, SEE DWG 10-M-1

TOC: 757.83
N: 10365.38
E: 10287.73

N: 10360.54
E: 10281.83

N: 10357.63
E: 10279.23

EXISTING 12' ACCESS ROAD

REPLACE EXISTING FENCE

NEW 7' TALL CHAINLINK FENCE WITH 3-STRAND BARBED WIRE AND BARDED TAPE 2800

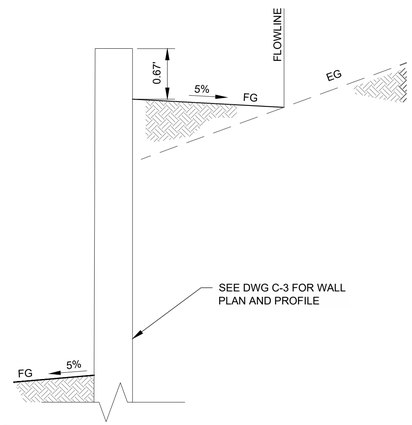
14"W

6"W

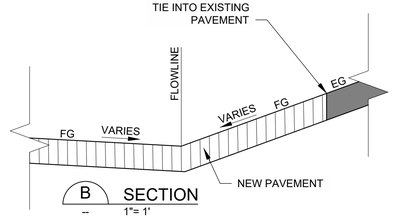
12"W

754

A SECTION
-- 1"= 1'



B SECTION
-- 1"= 1'



DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL

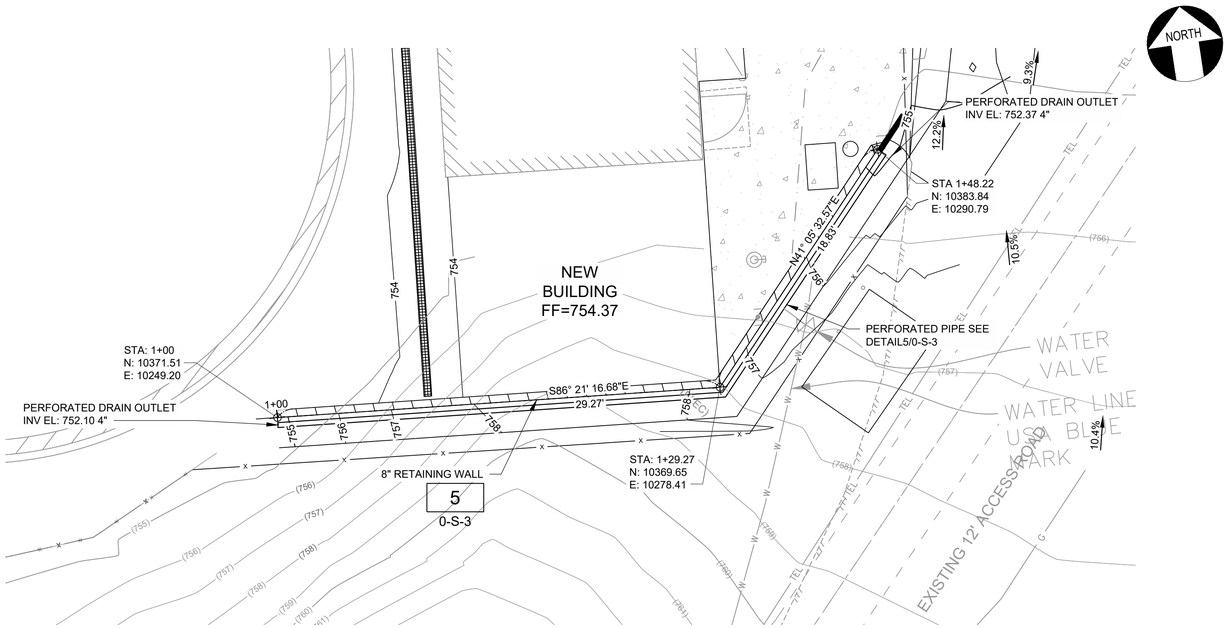
LAKE PUMP STATION PLAN

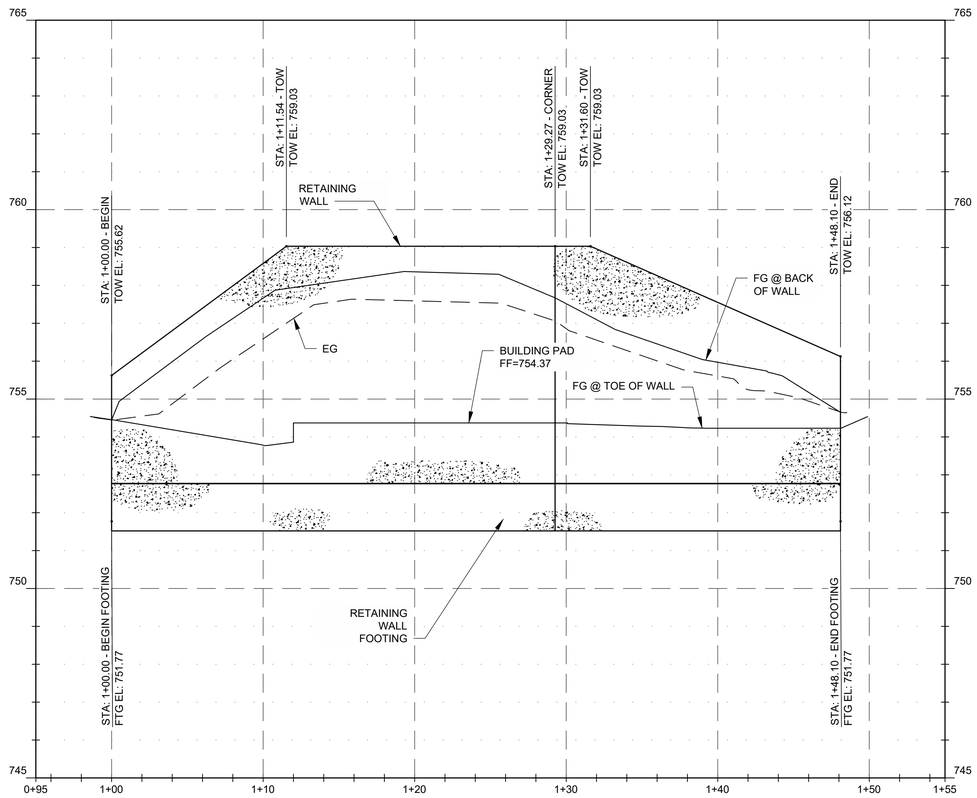
REGISTERED PROFESSIONAL ENGINEER
CHRISTINA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-C-2
SHEET NUMBER 19

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JOB NUMBER: 19-077 FILENAME: 19-077-10-C-2.DWG PLOT DATE: 07/23/25 PLOT TIME: 08:12:20





NOTES:

1. SEE 0-S-3 DETAIL 5 FOR RETAINING WALL INFORMATION.

5 0 5 10 FEET
HORIZ SCALE 1"=5'

5 0 5 10 FEET
VERT SCALE 1"=5'

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
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STATE OF CALIFORNIA
07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

CITY OF SAN BRUNO

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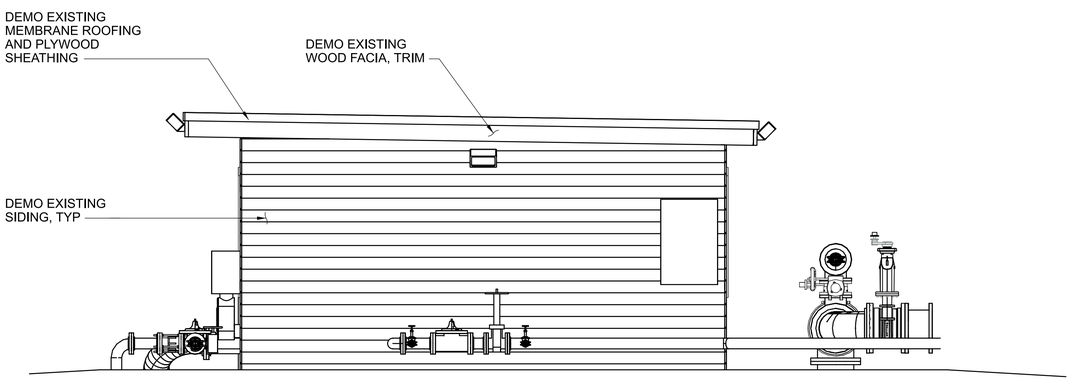
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
LAKE PUMP STATION
WALL PLAN AND PROFILE

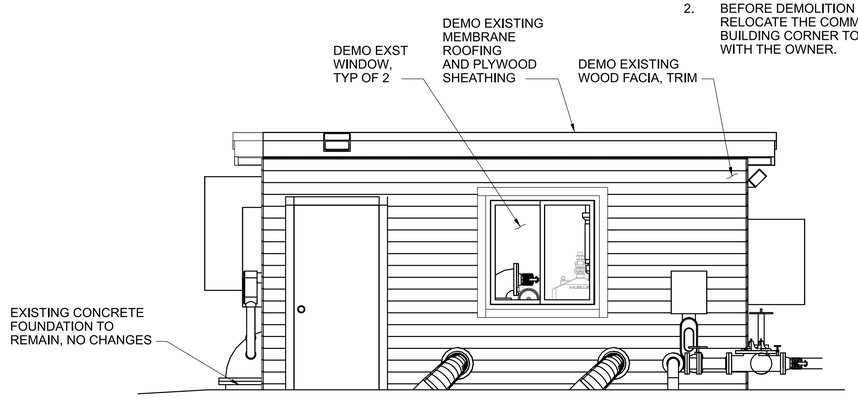
DATE
JULY 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
10-C-3
SHEET NUMBER 20

JOB NUMBER: 19-077 FILENAME: 19-077-10-C-3.DWG PLOT DATE: 06/30/25 PLOT TIME: 10:29:12

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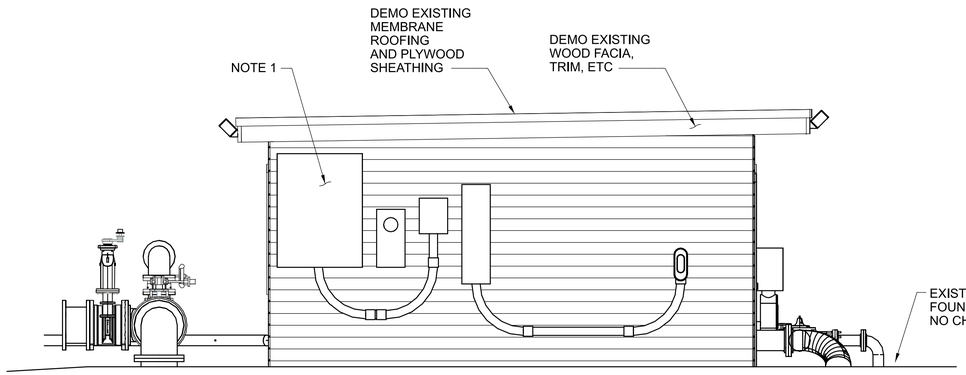
A NORTH ELEVATION
3/8" = 1'-0"
10-D-2



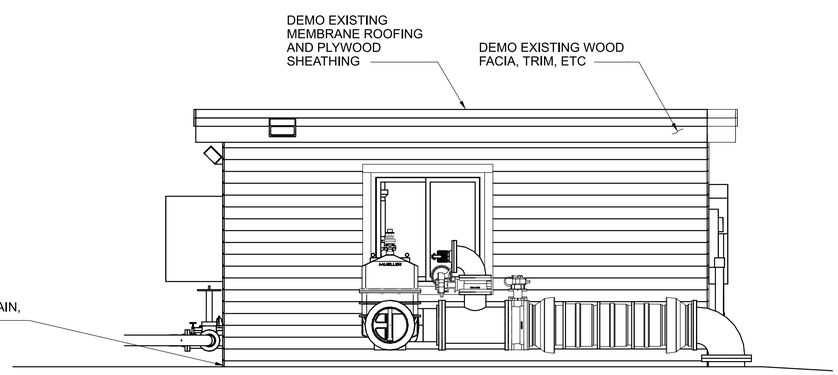
B EAST ELEVATION
3/8" = 1'-0"
10-D-2

NOTES:

1. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL EQUIPMENT AND LIGHTS TO REMAIN OR TO BE REPLACED. FOR ITEMS TO REMAIN, REMOVE TEMPORARILY TO FACILITATE BUILDING RESTORATION AND RE-INSTALL. ITEMS TO BE REPLACED SHALL BE SALVEGED AND TURNED OVER TO THE DISTRICT.
2. BEFORE DEMOLITION BEGINS, CONTRACTOR SHALL RELOCATE THE COMMUNICATION CABLE AT THE NORTHWEST BUILDING CORNER TO THE TANK ROOF IN COORDINATION WITH THE OWNER.



C SOUTH ELEVATION
3/8" = 1'-0"
10-D-2



D WEST ELEVATION
3/8" = 1'-0"
10-D-2

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

01/05/2024



DESIGNED H MEHERE
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

DEMOLITION

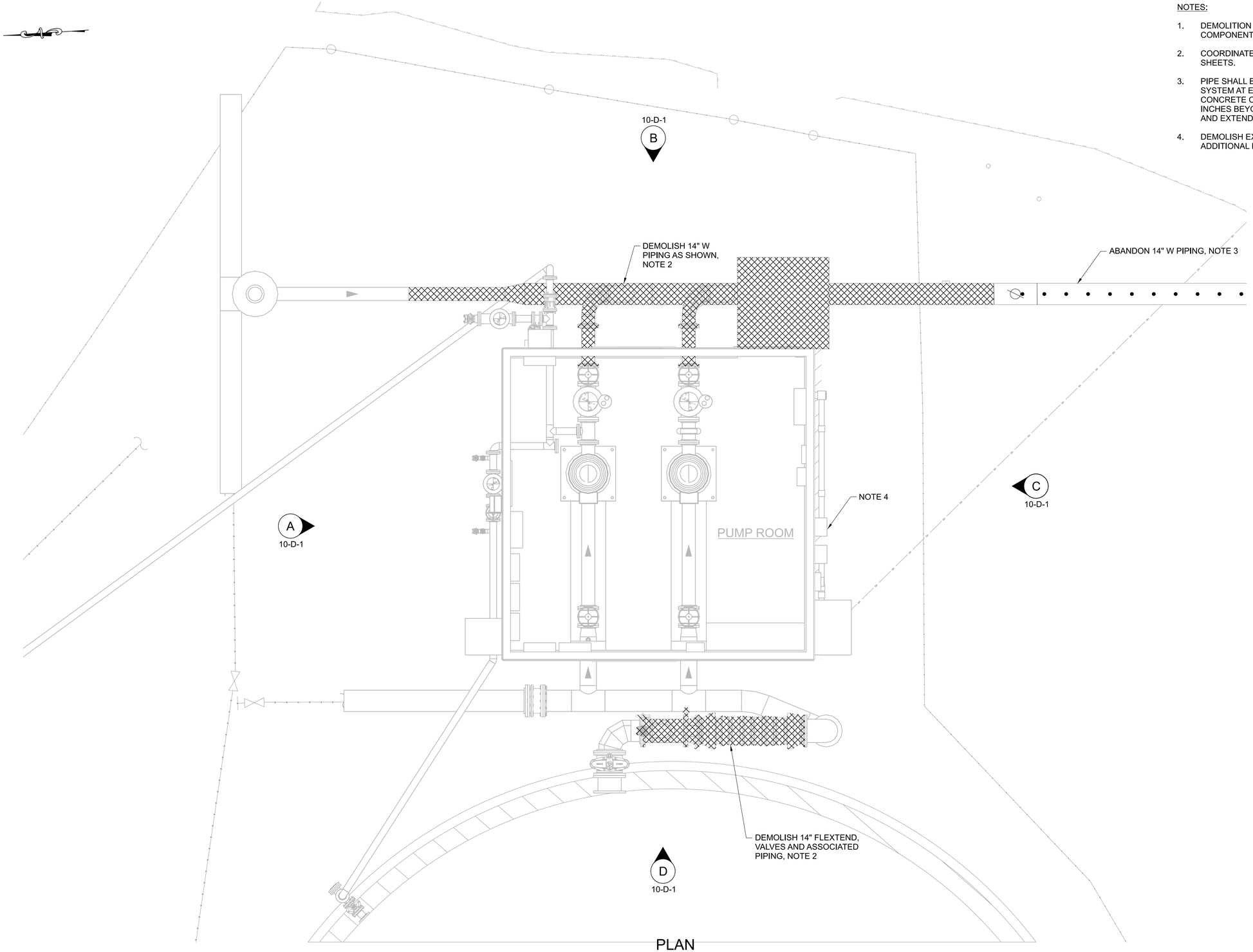
LAKE PUMP STATION ELEVATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-D-1
SHEET NUMBER 21

FILENAME: 1977D-10D400.DGN PLOT DATE: 10/22/2020 8:40:14 AM

NOTES:

1. DEMOLITION REQUIREMENTS OF SELECT BUILDING COMPONENTS/MATERIALS SHOWN ON 10-D-1.
2. COORDINATE DEMOLITION LIMITS WITH MECHANICAL SHEETS.
3. PIPE SHALL BE ABANDONED BY DISCONNECTING FROM SYSTEM AT EXTENT SHOWN, AND PLUGGING WITH A CONCRETE CAP WHICH PROTRUDES A MINIMUM OF 2-INCHES BEYOND THE OUTSIDE DIAMETER OF THE PIPE AND EXTENDING A MINIMUM OF 2-FEET INTO THE PIPE.
4. DEMOLISH EXST GROUNDING ROD. SEE 10-E-07 FOR ADDITIONAL ELECTRICAL DEMOLITION REQUIREMENTS.



PLAN
3/8" = 1'-0"

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

REGISTERED PROFESSIONAL ENGINEER
JONATHON TURBIN
No. C92341
CIVIL
STATE OF CALIFORNIA
01/04/2024

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

DEMOLITION
PIPING DEMOLITION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-D-2
SHEET NUMBER 22

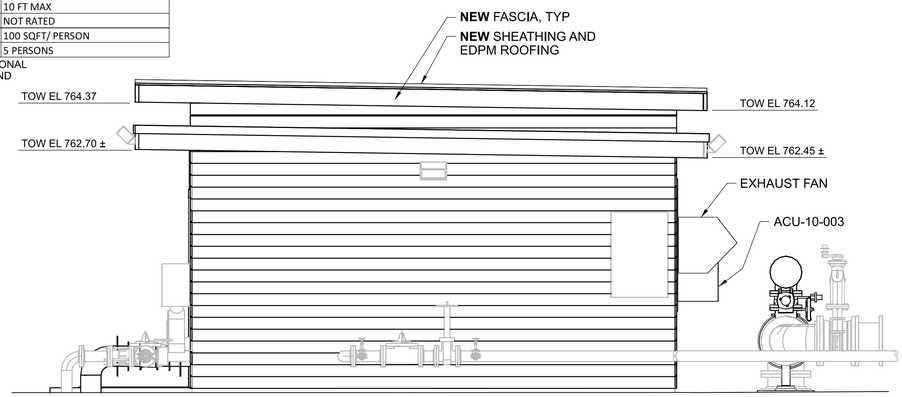
FILENAME: 1977D-10D101.dgn PLOT DATE: 10/22/2020 8:39:36 AM

BUILDING CODE ANALYSIS	
BUILDING CODE	2019 CALIFORNIA BUILDING CODE
OCCUPANCY CLASSIFICATION	U
HAZARDOUS MATERIALS	NONE
TYPE OF CONSTRUCTION	V-B
NUMBER OF STORIES ABV GRADE	1 STORY
BUILDING HT ABOVE GRADE	9'-9"
ACTUAL FLOOR AREA	544 SQ FT
FIRE SUPPRESSION	FIRE EXTINGUISHERS
FIRE SUPPRESSION DISTANCE	10 FT MAX
EXTERIOR WALLS	NOT RATED
OCCUPANT LOAD FACTOR	100 SQFT/ PERSON
OCCUPANT LOAD	5 PERSONS

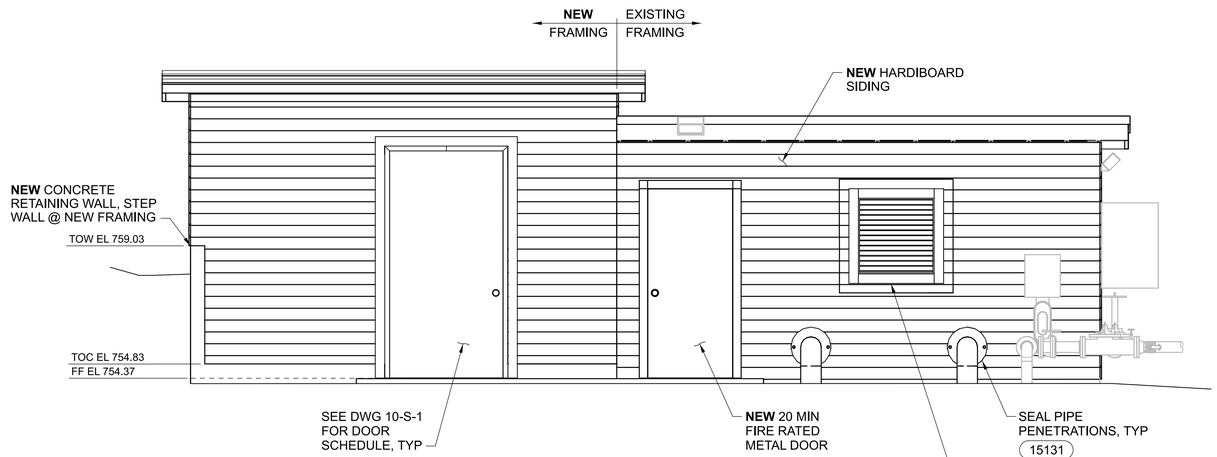
SEE DWG 10-S-1 FOR ADDITIONAL ARCHITECHTURAL NOTES AND DOOR SCHEDULE.

NOTES:

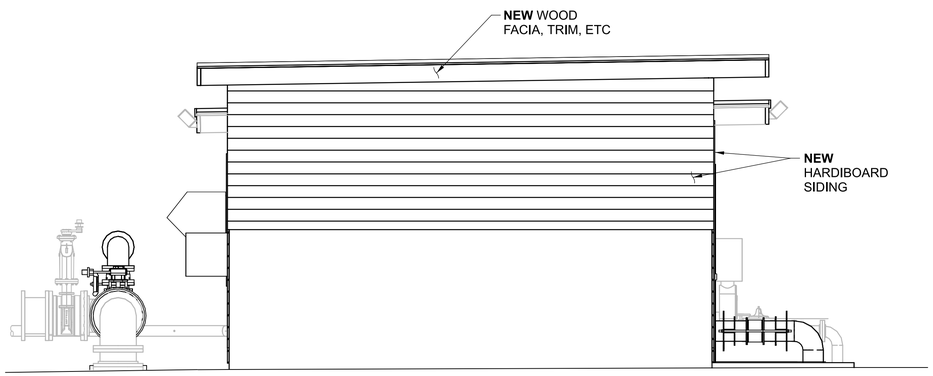
1. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL EQUIPMENT AND LIGHTS TO REMAIN OR TO BE REPLACED. FOR ITEMS TO REMAIN, REMOVE TEMPORARILY TO FACILITATE BUILDING RESTORATION AND RE-INSTALL. ITEMS TO BE REPLACED SHALL BE SALVAGED AND TURNED OVER TO THE DISTRICT.



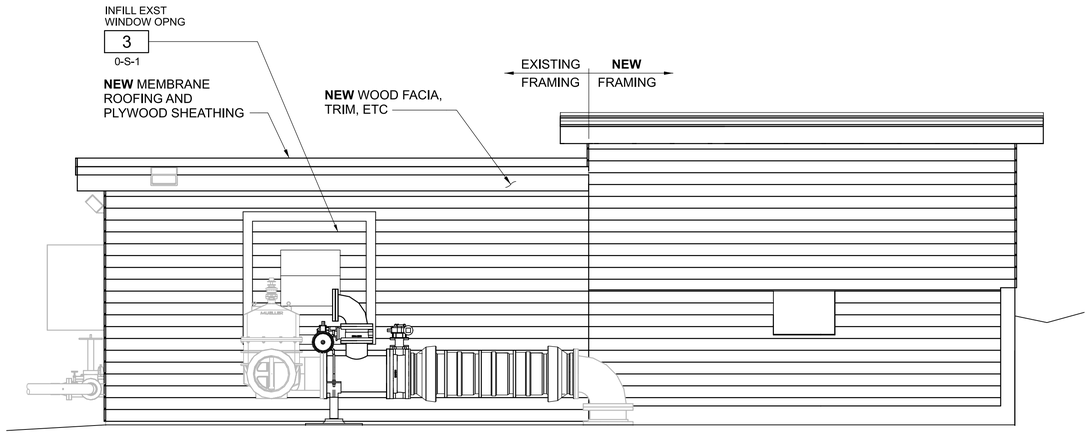
A 10-S-1 NORTH ELEVATION
3/8" = 1'-0"



B 10-S-1 EAST ELEVATION
3/8" = 1'-0"



C 10-S-1 SOUTH ELEVATION
3/8" = 1'-0"



D 10-S-1 WEST ELEVATION
3/8" = 1'-0"

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

02/06/2026

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ARCITECTURAL / STRUCTURAL

LAKE PUMP STATION ELEVATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-AS-1
SHEET NUMBER 23

FILENAME: 1977D-10AS401.DGN PLOT DATE: 10/22/2020 8:38:47 AM

GENERAL ARCHITECTURAL NOTES

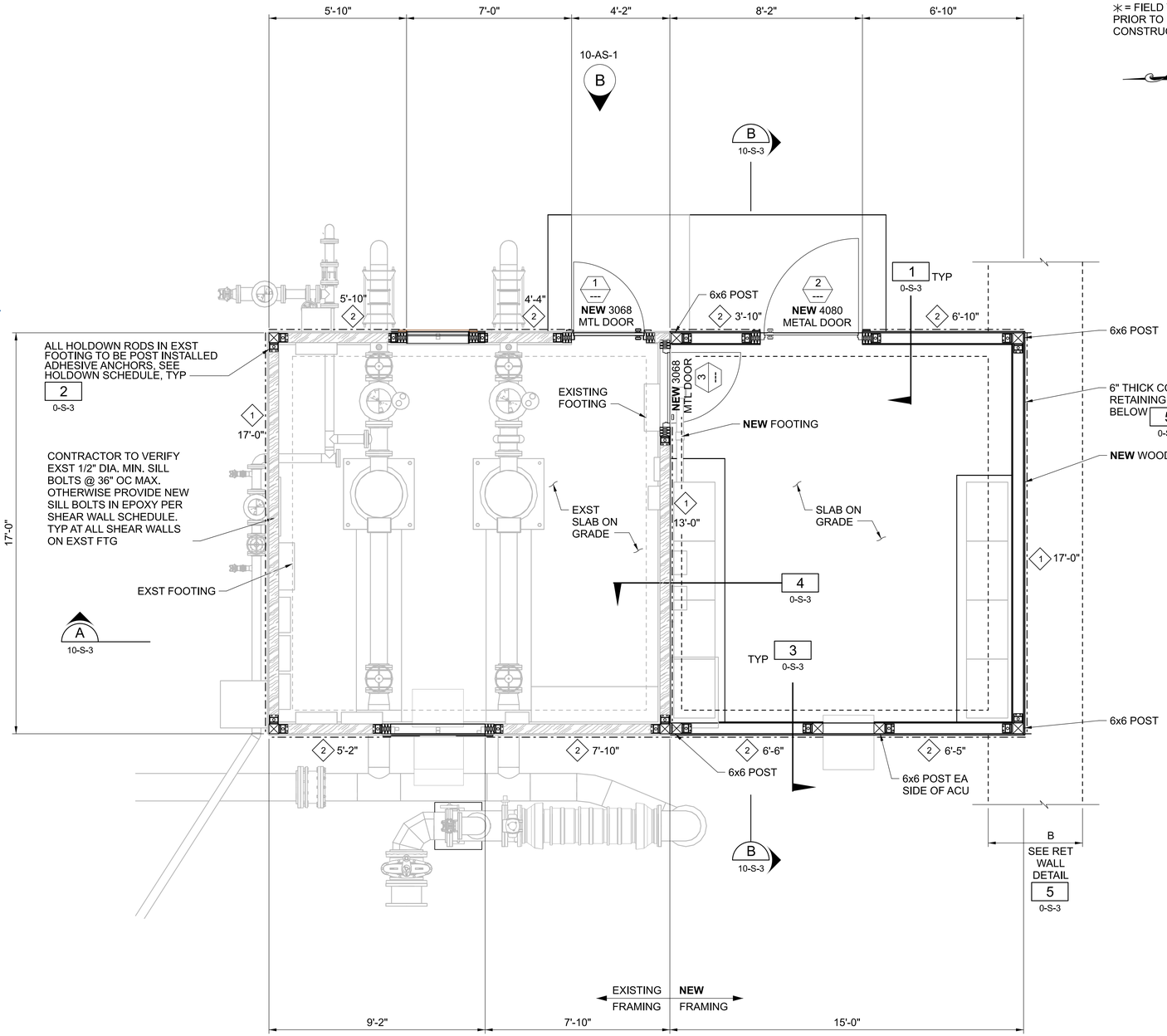
1. UNLESS OTHERWISE NOTES, PLAN DIMENSIONS ARE TO FACE OF STUDS.
2. REPETETIVE FEATURES ARE NOT DRAWIN IN THEIR ENTIRETY AND SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.
3. VERIFY ALL ROUGH IN DIMENSIONS FOR EQUIPMENT PROVIDED IN THIS CONTRACT, OR BY OTHERS.
4. REFER TO STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CATEGORIES OF DRAWINGS FOR ADDITIONAL NOTES.
5. VERIFY SIZE AND LOCATION OF, AND PROVIDE: ALL OPENINGS THROUGH FLOORS AND WALLS, ACCESS DOORS, FURRING, CURBS, ANCHORS AND INSERTS. PROVIDE ALL BASES, BLOCKING REQUIRED FOR ACCESSORIES, MECHANCIAL EQUIPMENT AND OTHER EQUIPMENT

DOOR SCHEDULE

DOOR NUMBER	DOOR DIMENSIONS	LITES	SILL DETAIL	EXIT DEVICE	WALL	CLOSURE	LOCK
1	3'-0" x 6'-8"	NR	5/0-S-2	NR	WOOD	R	R
2	4'-0" x 8'-0"	NR	5/0-S-2	NR	WOOD	R	R
3	3'-0" x 6'-8"	NR	5/0-S-2	NR	WOOD	NR	NR

NOTES

1. INSTALL DOORS AND FRAME IN ACCORDANCE WITH STEEL DOOR INSTITUTE'S RECOMMENDATIONS. PROVIDE TRIM AND JOINT SEALANT AROUND FRAMES TO ENSURE A WEATHER TIGHT BARRIER. SEE SPEC SECTION 08-13-03
2. SEE SPEC SECTION 08-71-03 DOOR HARDWARE FOR ALL DOOR HARDWARE INCLUDING EXIT DEVICES AND PRIVACY LATCHES. DOOR OPERATION SHALL BE PER CBC 1010.1.9. DOOR OPENING HARDWARE SHALL BE MOUNTED 34" TO 48" ABOVE FINSIHED FLOOR PER CBC 1010.1.9.2. DOOR THRESHOLD SHALL BE 3/4" MAX ABOVE FINISHED FLOOR PER CBC 1010.1.7. DOOR OPENING FORCE SHALL BE 5-POUND MAX PER CBC 11B-404.2.9
3. N=NARROW LITES; G=FULL GLASS; R=REQUIRED; NR=NOT REQUIRED



WALL LEGEND

EXST 2x4 OR 2x6 WALL

NEW 2x6 WALL

HOLDOWN SCHEDULE

UNLESS OTHERWISE NOTED ON PLANS, PROVIDE AT EACH END OF SHEAR WALLS.
POST SIZES NOTED HERE IS MINIMUM UNLESS LARGER POST IS SHOWN ON PLAN
SEE 2 & 3/0-S-3 FOR HOLDOWN DETAILS

SHEAR WALL	HOLDOWN	ANCHOR ROD	MIN. POST
1	HDU4 (4,565 LBS)	SSTB24 OR 5/8" ϕ ATR	2-2x OR 4x
2	HDU5 (5,645 LBS)	SSTB24 OR 5/8" ϕ ATR	2-2x OR 4x

SHEAR WALL SCHEDULE

TYPE	SHEATHING	EDGE NAIL	ADJOINING SHEAR PANEL EDGE MATERIAL	FIELD NAIL	PLATE NAIL	RIM OR BLOCKING TRANSFER	RIM OR BLOCKING MATERIAL	MUD SILL	SHEAR CAPACITY ASD	5/8" DIA SILL BOLTS
1	3/8" THK STRUC 1	8d @ 6" OC	2x STUDS, PLATE	8d @ 12" OC	16d @ 6" OC	A35 @ 24" OC	2x	2x PLATE	230 PLF	48" OC
2	3/8" THK STRUC 2	8d @ 4" OC	2x STUDS, PLATE	8d @ 12" OC	16d @ 4" OC	A35 @ 16" OC	2x	2x PLATE	360 PLF	36" OC

SHEAR WALL LEGEND

1 X'-XX" — BOX IDENTIFIES LOCATION, TYPE, AND LENGTH OF SHEAR WALL

PLAN

3/8" = 1'-0"

SCALE 3/8"=1'-0"

01/05/2024

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
LAKE PUMP STATION FOUNDATION PLAN

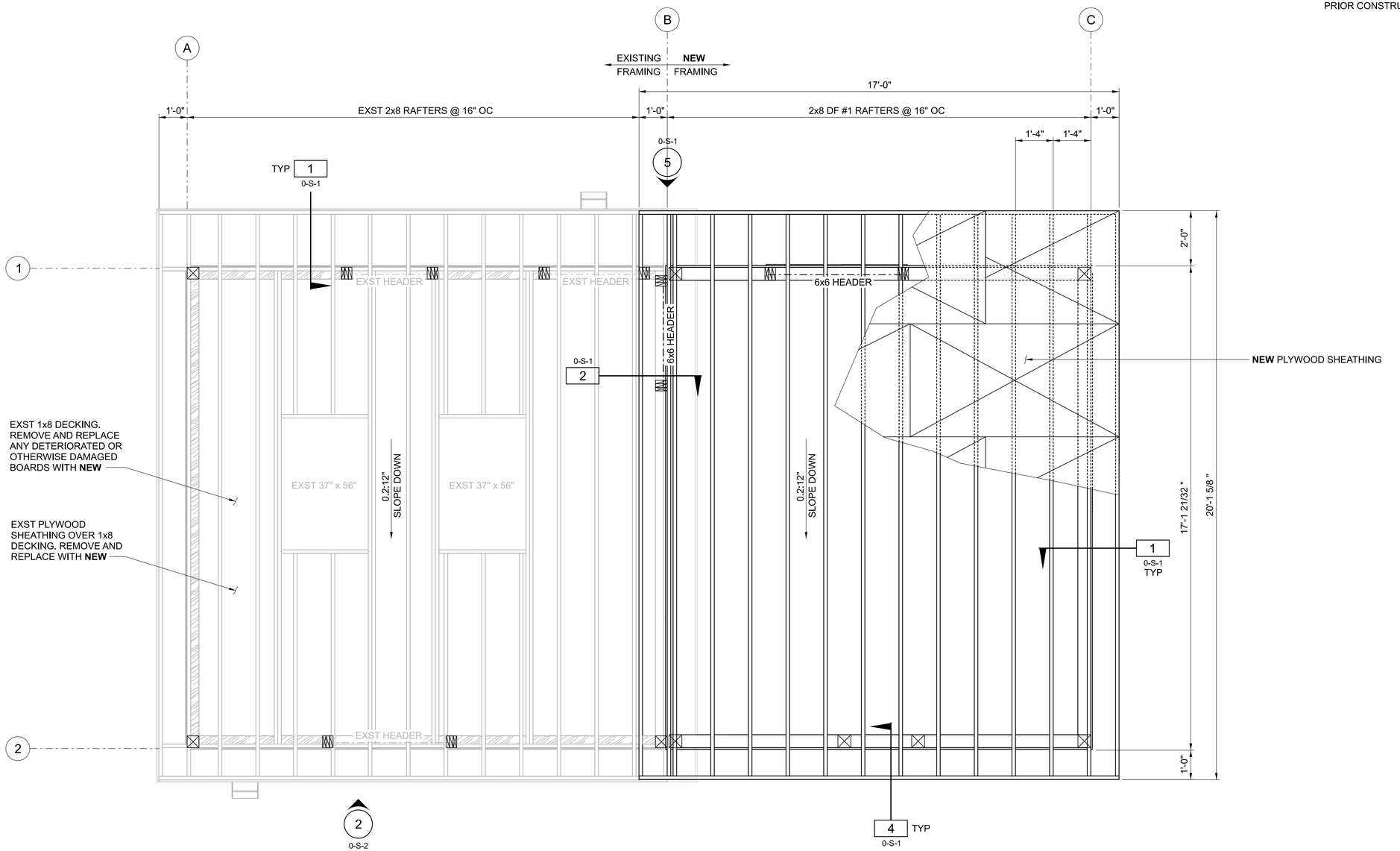
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-S-1
SHEET NUMBER 24

FILENAME: 1977D-10S100.DGN PLOT DATE: 10/22/2020 8:36:38 AM

NOTES:

SEE DWG 10-S-1 FOR SHEAR WALLS, HOLDOWN SCHEDULE AND WALL LEGEND.

*= FIELD VERIFY DIMENSIONS PRIOR CONSTRUCTION.



PLAN
1/2"=1'-0"

2 0 2 4 FEET
SCALE 1/2"=1'-0"

01/05/2024

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

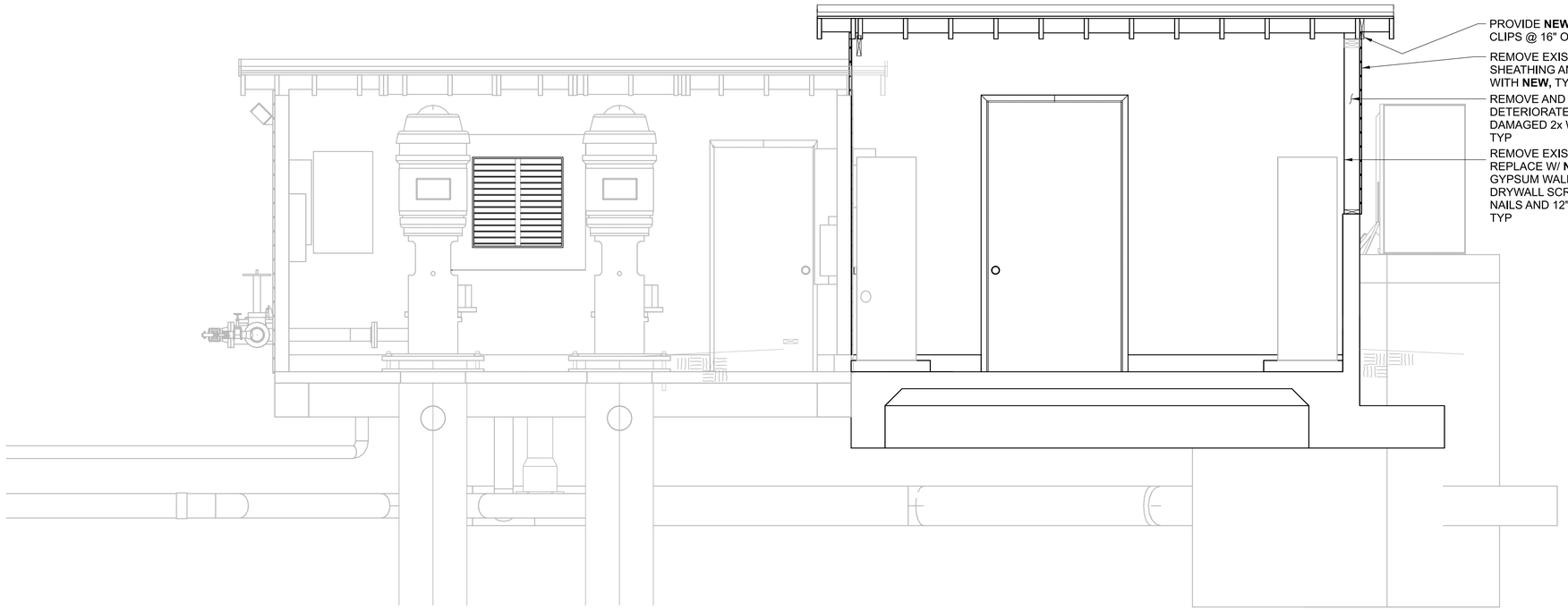
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
LAKE PUMP STATION
ROOF FRAMIMG PLAN

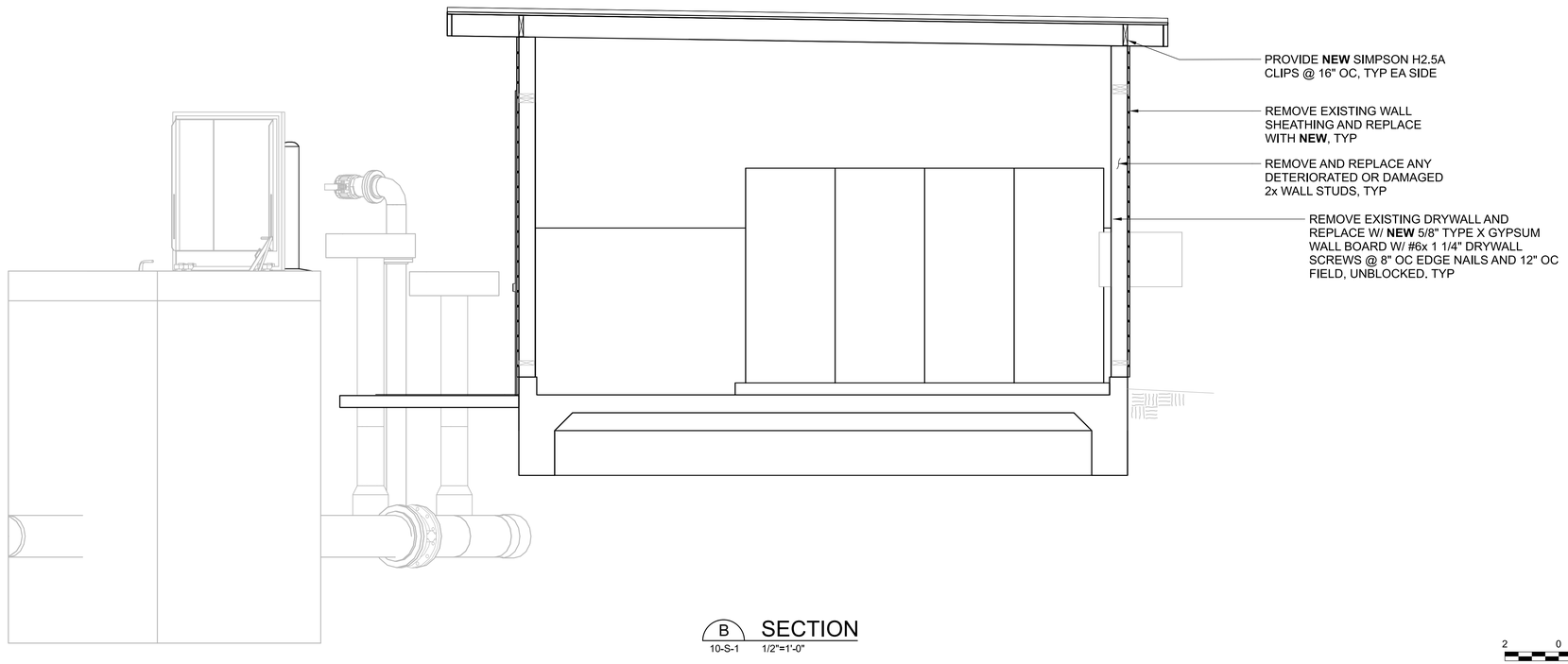
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-S-2
SHEET NUMBER 25

FILENAME: 1977D-10S102.DGN PLOT DATE: 3/30/2020 11:14:05 AM

★ = FIELD VERIFY DIMENSIONS
PRIOR CONSTRUCTION.



A SECTION
10-S-2, 10-S-3 — 1/2"=1'-0"



B SECTION
10-S-1 — 1/2"=1'-0"

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

01/05/2024

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

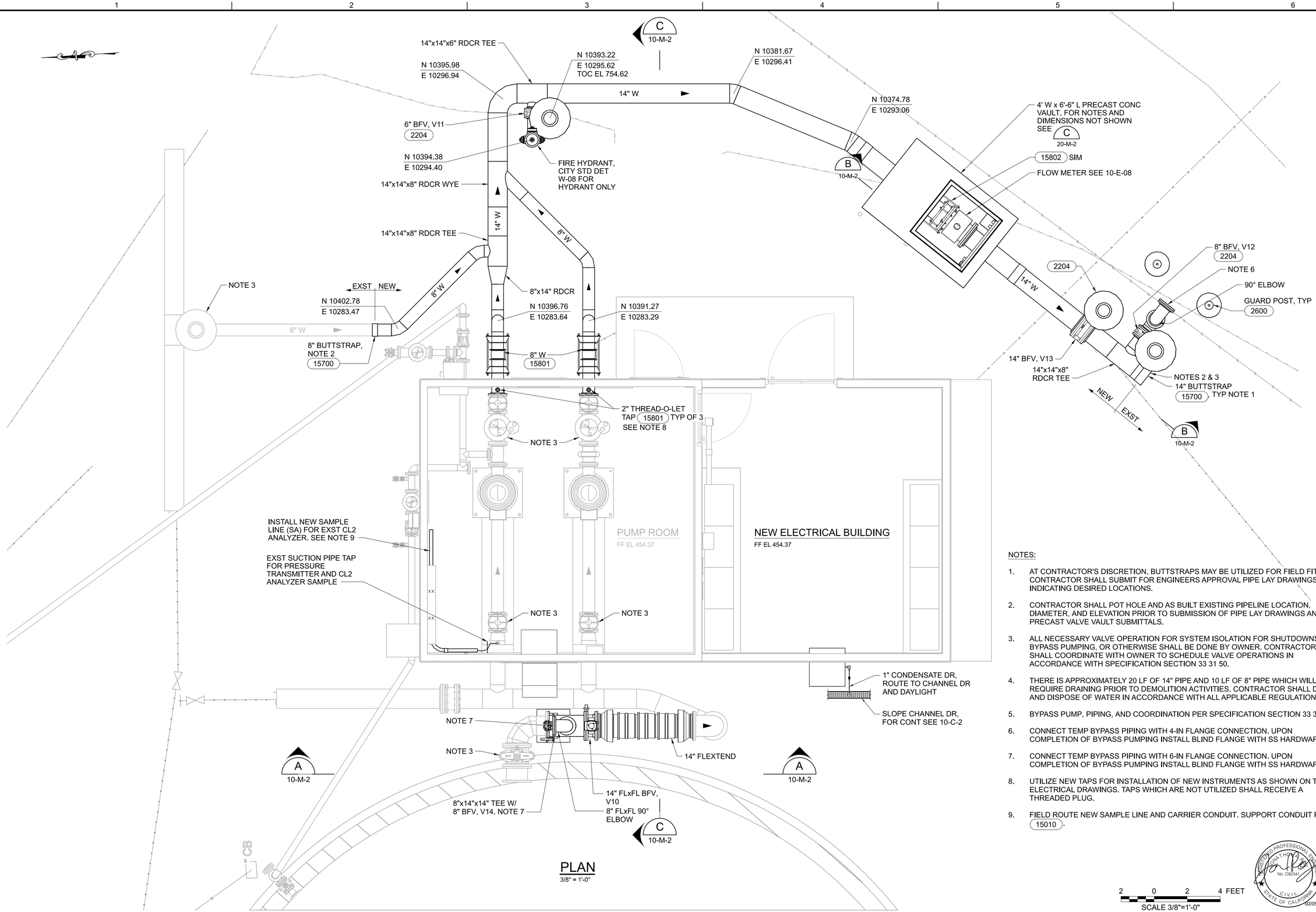
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
LAKE PUMP STATION SECTIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-S-3
SHEET NUMBER 26

FILENAME: 1977D-10S201.DGN PLOT DATE: 3/30/2020 11:14:05 AM



PLAN

3/8" = 1'-0"

NOTES:

1. AT CONTRACTOR'S DISCRETION, BUTTSTRAPS MAY BE UTILIZED FOR FIELD FIT UP. CONTRACTOR SHALL SUBMIT FOR ENGINEERS APPROVAL PIPE LAY DRAWINGS INDICATING DESIRED LOCATIONS.
2. CONTRACTOR SHALL POT HOLE AND AS BUILT EXISTING PIPELINE LOCATION, DIAMETER, AND ELEVATION PRIOR TO SUBMISSION OF PIPE LAY DRAWINGS AND PRECAST VALVE VAULT SUBMITTALS.
3. ALL NECESSARY VALVE OPERATION FOR SYSTEM ISOLATION FOR SHUTDOWNS, BYPASS PUMPING, OR OTHERWISE SHALL BE DONE BY OWNER. CONTRACTOR SHALL COORDINATE WITH OWNER TO SCHEDULE VALVE OPERATIONS IN ACCORDANCE WITH SPECIFICATION SECTION 33 31 50.
4. THERE IS APPROXIMATELY 20 LF OF 14" PIPE AND 10 LF OF 8" PIPE WHICH WILL REQUIRE DRAINING PRIOR TO DEMOLITION ACTIVITIES. CONTRACTOR SHALL DRAIN AND DISPOSE OF WATER IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
5. BYPASS PUMP, PIPING, AND COORDINATION PER SPECIFICATION SECTION 33 31 50.
6. CONNECT TEMP BYPASS PIPING WITH 4-IN FLANGE CONNECTION. UPON COMPLETION OF BYPASS PUMPING INSTALL BLIND FLANGE WITH SS HARDWARE.
7. CONNECT TEMP BYPASS PIPING WITH 6-IN FLANGE CONNECTION. UPON COMPLETION OF BYPASS PUMPING INSTALL BLIND FLANGE WITH SS HARDWARE.
8. UTILIZE NEW TAPS FOR INSTALLATION OF NEW INSTRUMENTS AS SHOWN ON THE ELECTRICAL DRAWINGS. TAPS WHICH ARE NOT UTILIZED SHALL RECEIVE A THREADED PLUG.
9. FIELD ROUTE NEW SAMPLE LINE AND CARRIER CONDUIT. SUPPORT CONDUIT PER 15010.

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

REGISTERED PROFESSIONAL ENGINEER — JONATHON C. BERTSCH — No. C92341 — CIVIL — STATE OF CALIFORNIA — 02/05/2026

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

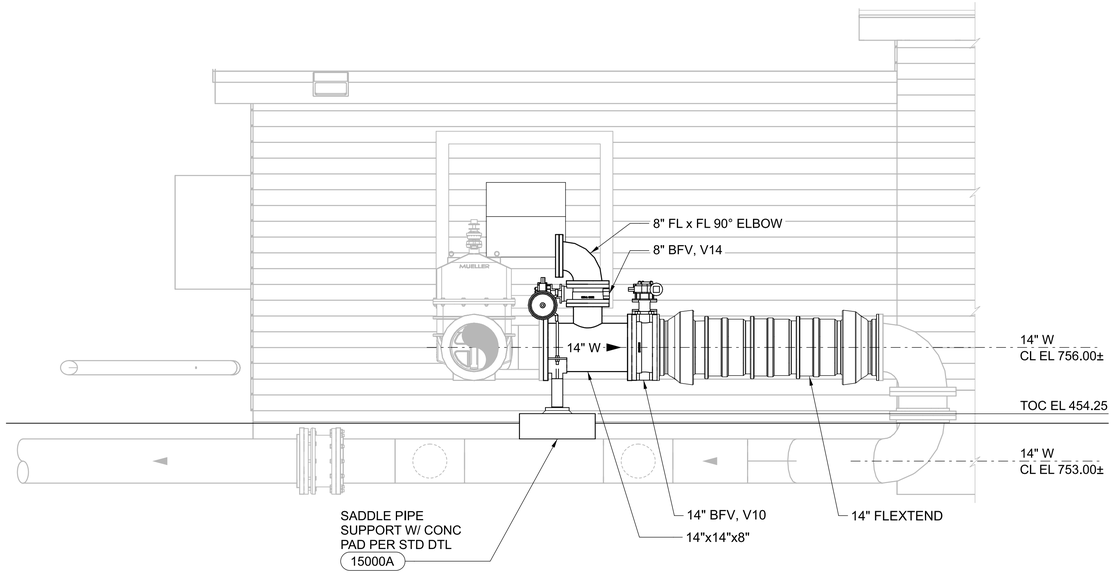
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

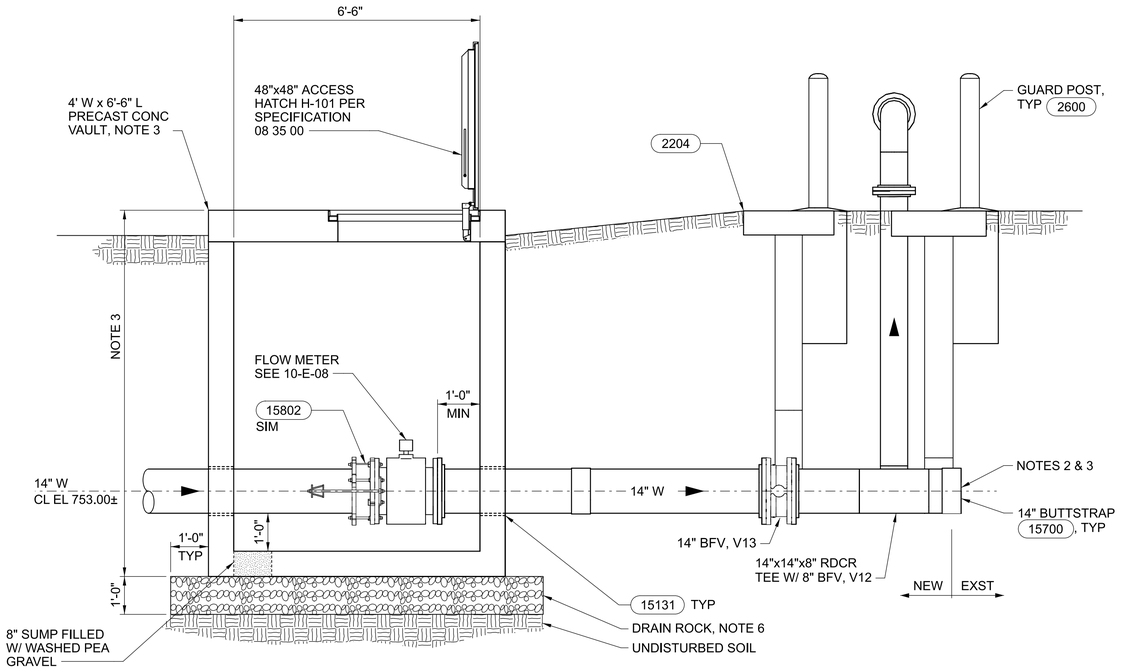
MECHANICAL
LAKE PUMP STATION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-M-1
SHEET NUMBER 27

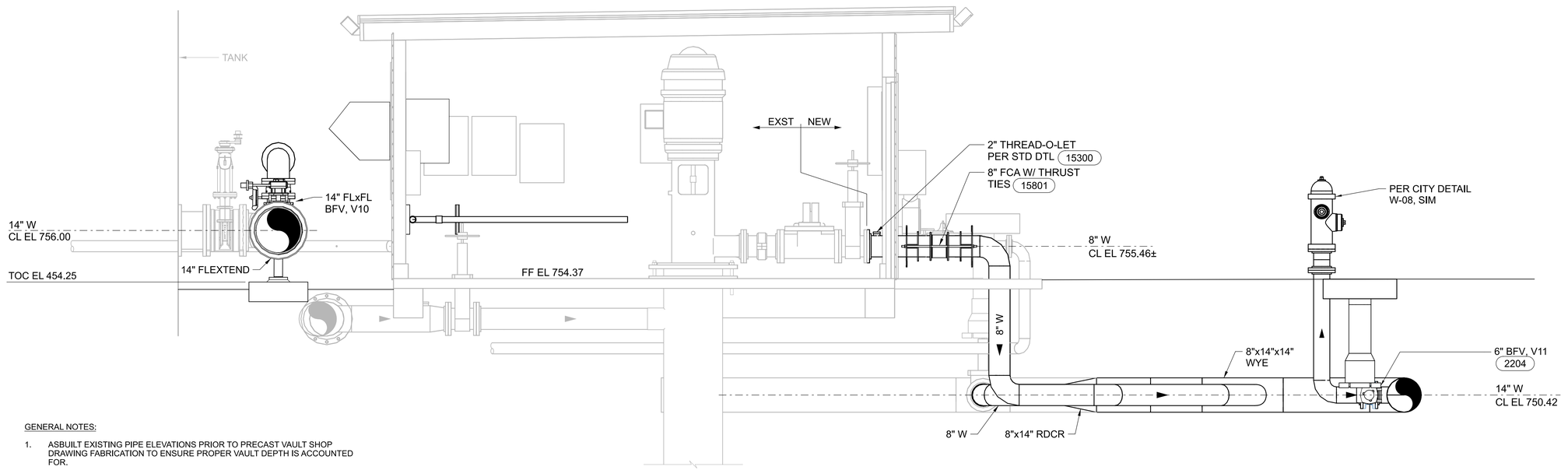
FILENAME: 1977D-10M101.dgn PLOT DATE: 10/19/2020 3:57:07 PM



A SECTION
10-M-1 1/2" = 1'-0"



B SECTION
10-M-1 1/2" = 1'-0"



C SECTION
10-M-1 1/2" = 1'-0"

GENERAL NOTES:

1. ASBUILT EXISTING PIPE ELEVATIONS PRIOR TO PRECAST VAULT SHOP DRAWING FABRICATION TO ENSURE PROPER VAULT DEPTH IS ACCOUNTED FOR.
2. VAULT AND ACCESS HATCH TO BE H20 TRAFFIC RATED.
3. REFERENCE SPECIFICATION 03 40 03 FOR ADDITIONAL REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER
JONATHON ROY
No. C92341
CIVIL
STATE OF CALIFORNIA
02/05/2026

2 0 2 4 FEET
SCALE 1/2"=1'-0"

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION
REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

MECHANICAL
LAKE PUMP STATION
SECTIONS

DATE
JULY 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
10-M-2
SHEET NUMBER 28

FILENAME: 1977D-10M201.DGN PLOT DATE: 10/22/2020 8:41:42 AM

WALL MOUNTED AIR CONDITIONING UNIT

EQUIPMENT NUMBER	LOCATION	INDOOR FAN AIR FLOW (CFM)	INDOOR FAN ESP (IN WG)	INDOOR FAN MOTOR (HP)	INDOOR FAN DRIVE	POWER SUPPLY (V/PH)	MCA (AMPS)	COOLING EAT EDB (°F)	COOLING EAT EWB (°F)	COOLING CAPACITY (MBH) SENSIBLE	COOLING CAPACITY (MBH) TOTAL	COOLING MIN CAPACITY STAGES	HEATING EAT	HEATING TYPE	HEATING CAPACITY MBH (KW)	HEATING MINIMUM HEAT STAGES	DISCHARGE DIRECTION	ARI MINIMUM EFFICIENCY	OA (CFM)	APPROX WEIGHT (LBS)	FILTER DATA TYPE	FILTER DATA THICKNESS (IN)	NOTES
ACU-10-003	ELEC ROOM	380	0.1	--	DIRECT	208/1	15	79	66	23.5	23.5	1	--	--	--	--	VERITCAL	9.8 SEER	--	128	MANF	1	1, 2, 4, 5, 6, 7, 8

NOTES:

1 - AMBIENT TEMPERATURES: COOLING - 103°F MAX / 26°F MIN
2 - THERMOSTAT SHALL BE PROVIDED BY THE MANUFACTURER, REMOTE
3 - INTERLOCK WITH ROOM/BUILDING SMOKE/FIRE DETECTORS
4 - PROVIDE WALL SLEEVE WITH LOUVER OPENING FOR EXTERIOR COIL AIRFLOW
5 - PROVIDE R410A REFRIGERANT
6 - PROVIDE PLUG IN TYPE POWER CORD
7 - PROVIDE ENERGY SAVER , ON/OFF TIMER CONTROLS
8 - SPEEDS: 3 - COOLING, 3- FAN ONLY

FAN SCHEDULE

EQUIPMENT NUMBER	LOCATION	FAN TYPE	AIR FLOW (CFM)	ESP (IN WG)	MOTOR (HP)	POWER SUPPLY (V/PH)	FLA (AMPS)	MOP (AMPS)	WHEEL TYPE	DRIVE	MANF.	MODEL	APPROX WEIGHT (LBS)	NOTES
EF-10-001	PUMP ROOM	EF	1700	0.5	0.5	208 / 1	3.8	15	P	DIRECT	GREENHECK	AER	148	1B, 5, 6, 8,9,10

FAN TYPES:
CF - CABINET FAN
DF - INLINE DUCT FAN
FEF - FUME HOOD EXHAUST FAN
HVLS - HIGH VOLUME LOW SPEED
PRV - POWER ROOF VENTILATOR
EF - EXHAUST FAN
SF - SUPPLY FAN

WHEEL TYPES:
C - CENTRIFUGAL
M - MIXED FLOW
P - PROPELLER

NOTES:
1 - FAN BLADE CONSTUCTION; A) ALUMINUM, B) STEEL, C)304 STAINLESS STEEL
2 - PROVIDE CURB EXTENSION
3 - MOTOR CURRENT SENSOR RELAYS SHALL BE FURNISHED BY THE MANUFACTURERE TO DETECT OPERATION OF VENTILATION EQUIPMENT
4 - PROVIDE BAROMETRIC CONTROL SWITCHES
5 - THERMOSTAT SHALL BE PROVIDED COMPATIBLE WITH EQUIPMENT
6 - PROVIDE OSHA GUARD ON FAN/ MOTOR END
7 - EXHAUST FAN TO BE INTERLOCKED WITH LIGHT SWITCH
8 - PROVIDE WEATHERHOOD AND BIRD SCREEN
9 - PROVIDE DISCONNECT SWITCH
10 - PROVIDE CONTROL DIAL FOR BALANCING

LOUVERS SCHEDULE

EQUIPMENT NUMBER	LOCATION	TYPE	AIR FLOW (CFM)	LENGTH (IN)	WIDTH (IN)	QTY (EA)	FILTER TYPE	THICKNESS (IN)	MATERIAL	FINISH	MANUFACTURER	MODEL	NOTES
LVR-10-01	PUMP ROOM	IN	1700	32	32	1	MERV 13	2	AL	MATCH TRIM	GREENHECK	ESJ-401	1, 2,3A, 4A, 5A,6A

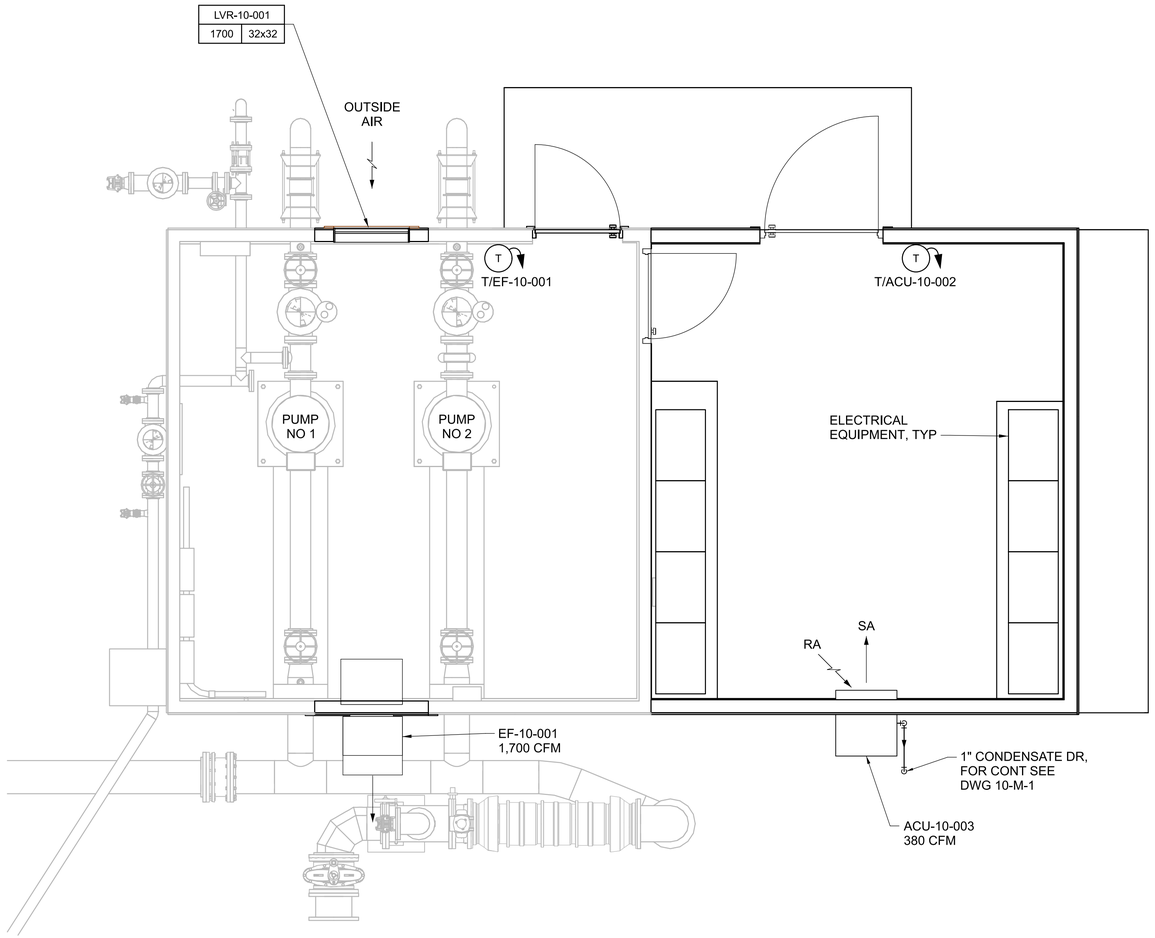
TYPES:
IN - INTAKE
EX - EXHAUST
BI - BI-DIRECTIONAL

MATERIAL:
AL - ALUMINUM
GS - GALVANIZED STEEL
SS - 304 STAINLESS STEEL

NOTES:
1 - MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATION
2 - PROVIDE STAINLESS STEEL HARDWARE
3 - PROVIDE FILTER RACK; A)ALUMINUM, B)STEEL, C)304 STAINLESS STEEL
4 - PROVIDE SCREEN ACCESSORIES; A) BIRDSCREEN, B)INSECT SCREEN, C)SECURITY BARS
5 - PROVIDE FRAME ACCESSORIES; A) EXTENDED SILL, B)FLANGE FRAME, C)GLAZING FRAME, D)HINGE FRAME
6 - LOUVER VELOCITY SHALL NOT EXCEED; A) 500 FPM, B)650 FPM
7 - PROVIDE EXTERNAL GRAVITY DAMPER
8 - EPOXY COATING

NOTES:

1. PROVIDE FABRICATED WALL THROUGH SLEEVE FOR WALL MOUNTED AIR CONDITIONING UNIT.
2. COORDINATE WALL CONSTRUCTION WITH INSTALLATION OF WALL MOUNTED AIR CONDITIONING UNIT.
3. PROVIDE CEILING MOUNT ACCESSORY FOR ELECTRICAL UNIT HEATER.



PLAN
1/2" = 1'-0"

2 0 2 4 FEET
SCALE 1/2"=1'-0"

01/05/2024

REGISTERED PROFESSIONAL ENGINEER
CHRISTINA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

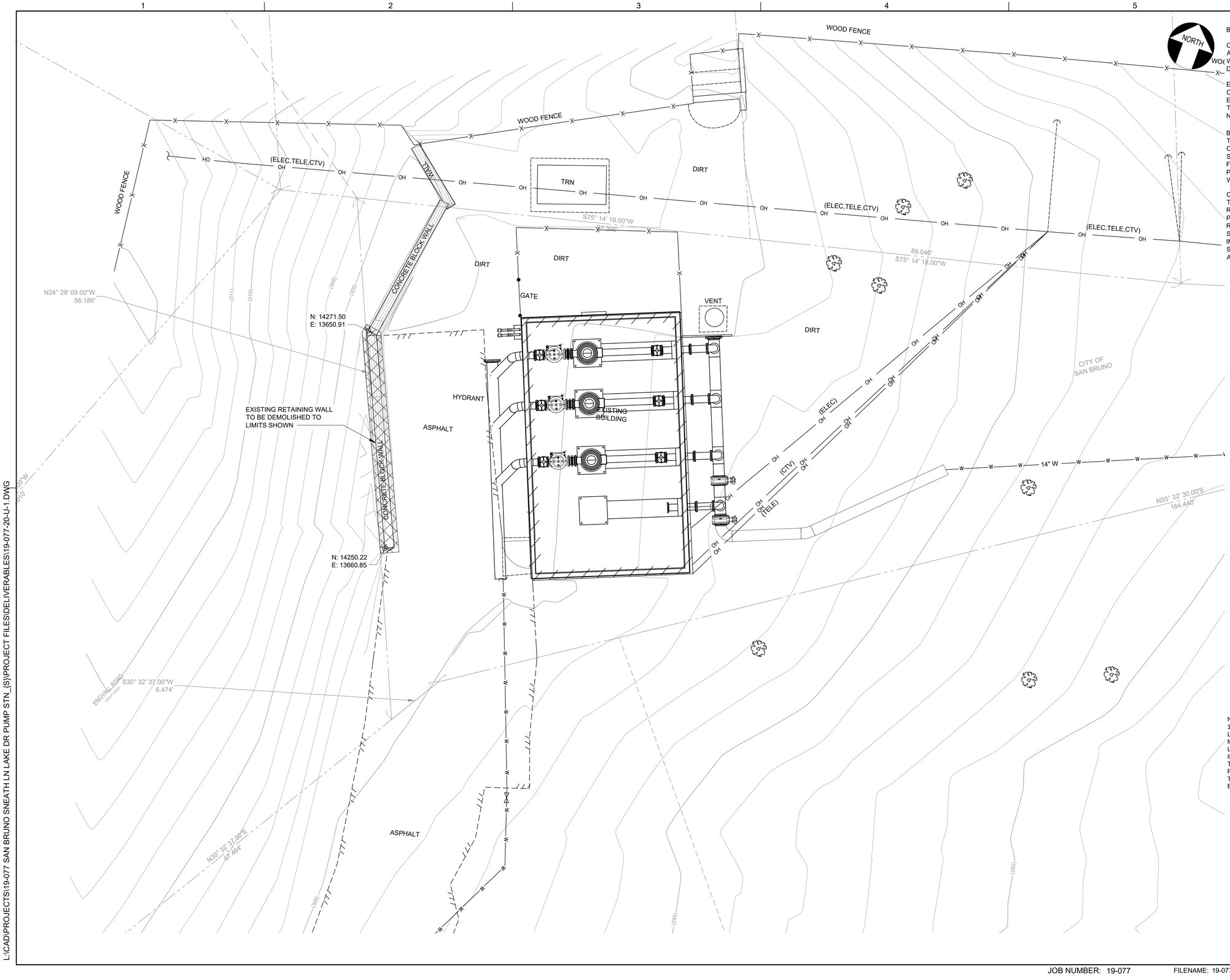
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

HVAC
LAKE PUMP STATION HVAC PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-H-1
SHEET NUMBER 29

FILENAME: 1977D-10H101.DGN PLOT DATE: 10/22/2020 8:36:38 AM



BENCHMARK:

CITY OF SAN BRUNO BM SB-17
A 2" BRASS MONUMENT STAMPED "CITY OF SAN BRUNO, PUBLIC WORKS, HVCN SB-17", SET IN TOP OF CURB ON FLEETWOOD DRIVE AT CURB RETURN, 2' EASTERLY OF DRIVEWAY.

ELEVATIONS SHOW HERON ARE BASED ON NAVD88. TO CONVERT TO NGVD29 SUBTRACT 3.461 FEET FROM THE ELEVATIONS SHOW. DATUM CONVERSION WAS OBTAINED FROM THE CITY OF SAN BRUNO HORIZONTAL AND VERTICAL NETWORK POINT DATA SHEET FOR BM SB-17

BASIS OF BEARINGS:
THE BEARING OF NORTH 65° 30' 00" EAST TAKEN ON THE CENTER LINE OF A PORTION OF ROLLINGWOOD DRIVE AS SHOWN ON THAT CERTAIN MAP ENTITLE "ROLLINGWOOD NO.1", FILED FOR RECORD ON JULY 14, 1954, IN BOOK 39 OF MAP PAGE(S) 30-33, OFFICIAL RECORDS OF SAN MATEO COUNTY WAS TAKEN AS THE BASIS FOR ALL BEARINGS SHOWN HEREON.

CORNER RECORD NOTE:
THE DEVELOPER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND FILING OF PRE-CONSTRUCTION AND POST-CONSTRUCTION CORNER RECORDS FOR ANY MONUMENTS OR PROPERTY CORNERS SHOWN HEREON THAT MAY BE DESTROYED DURING IMPROVEMENTS TO THE SUBJECT PROPERTY AS DEFINED IN SECTION 8771(B) OF THE PROFESSIONAL LAND SURVEYORS ACT.

NOTE:
1. THIS PROJECT WILL NOT INCREASE THE ELECTRICAL LOAD. THE OVERHEAD SERVICE TERMINATION AND METERING EQUIPMENT SHALL BE INSTALLED IN THE SAME LOCATION. THE CITY AGREES THAT IF ELECTRICAL LOADS INCREASE BEYOND THE CAPABILITY OF THE EXISTING TRANSFORMER AND OVERHEAD SERVICE CABLE IN THE FUTURE THEN THE CITY WILL INSTALL AN UNDERGROUND TRANSFORMER AND UNDERGROUND SERVICE AT THE CITY'S EXPENSE.

5 0 5 10 FEET
SCALE 1"=5'

REGISTERED PROFESSIONAL ENGINEER
CHRISTINA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/05/2024

DESIGN C BERTSCH
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED M FISHER

CITY OF SAN BRUNO

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 260 • San Mateo, CA 94402 • 650-539-3420

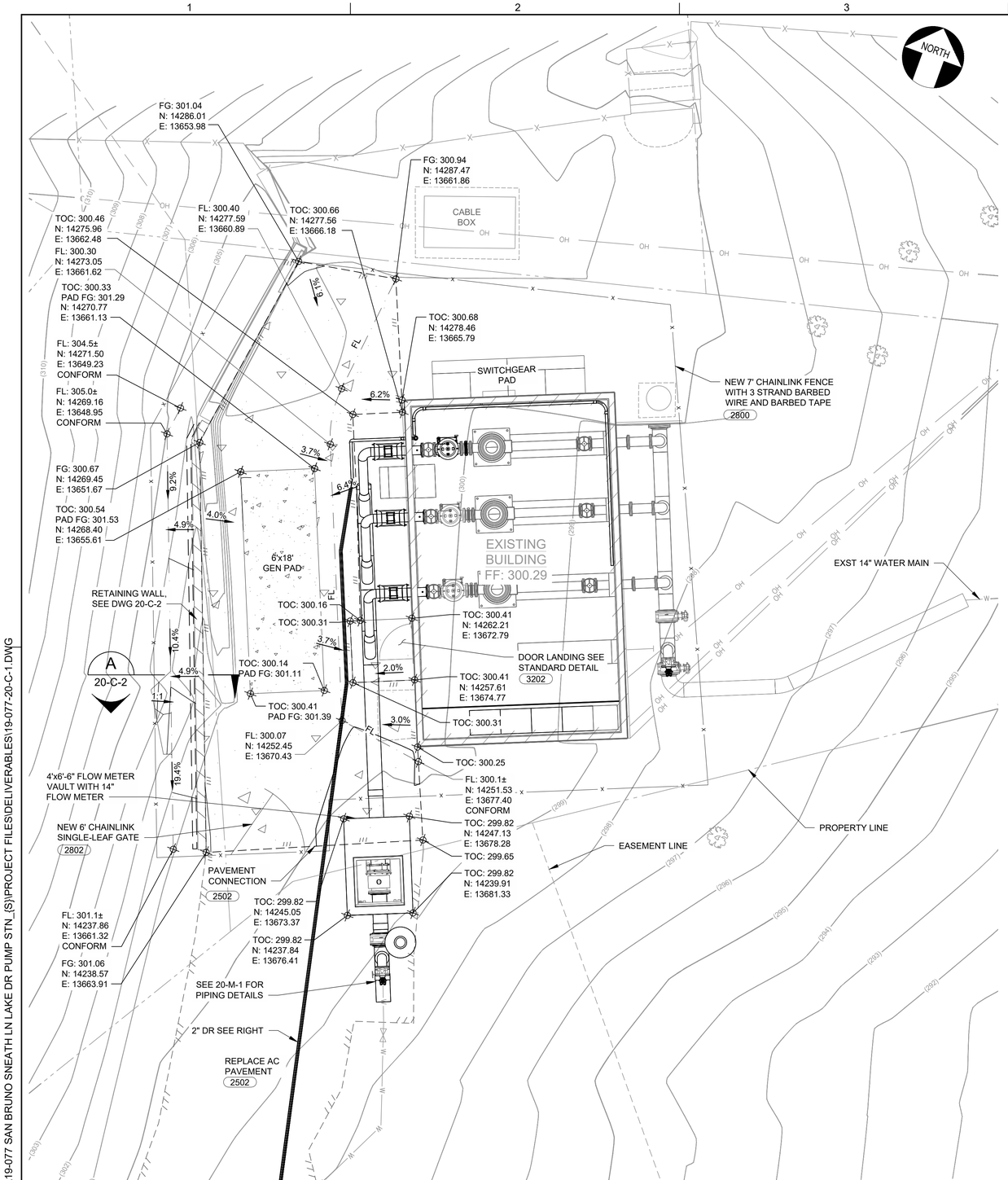
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

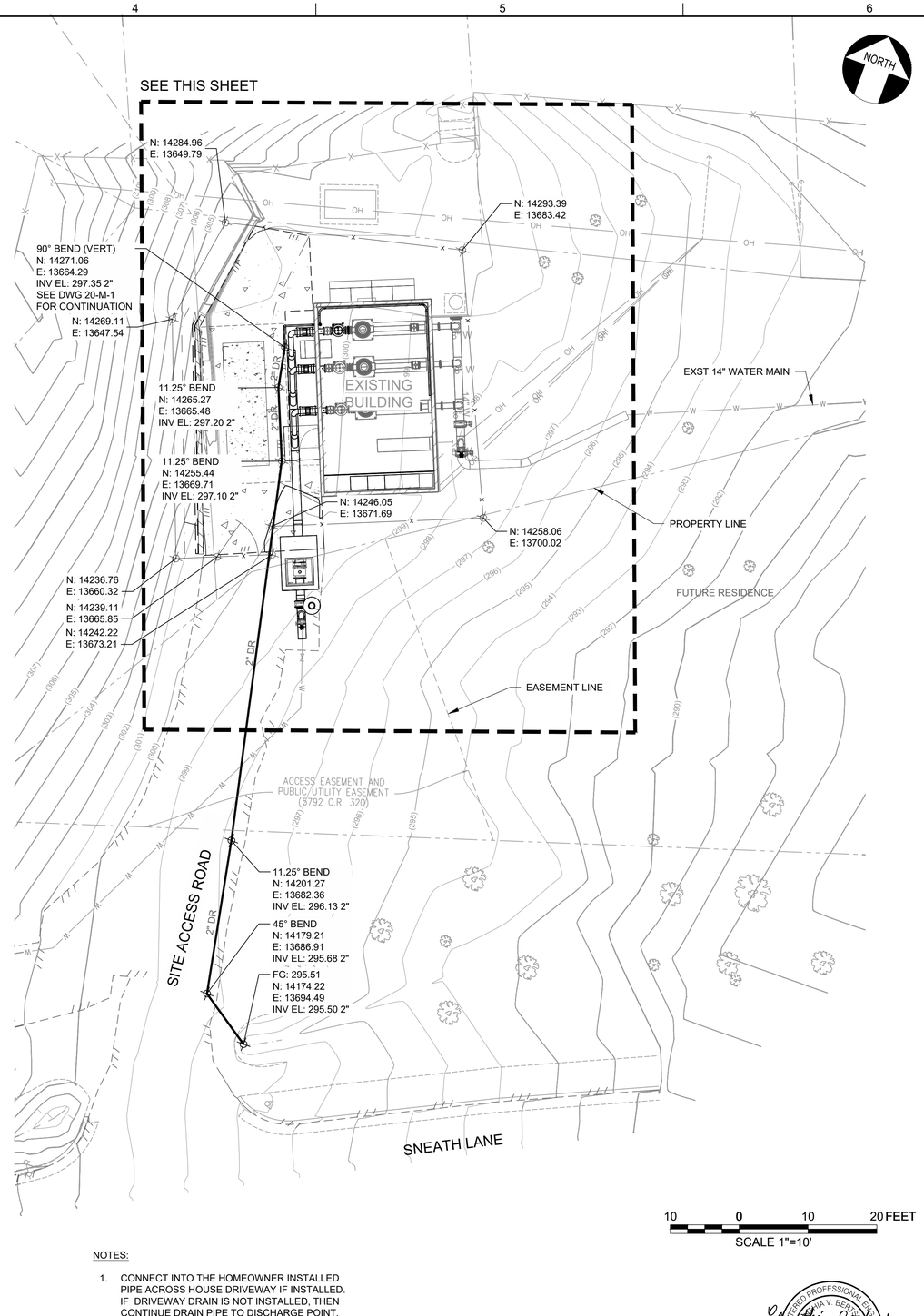
CIVIL
EXISTING UTILITIES
SNEATH PUMP STATION

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-U-1
SHEET NUMBER 30

L:\CAD\PROJECTS\19-077 SAN BRUNO SNEATH LN LAKE DR PUMP STN_(S)\PROJECT FILES\DELIVERABLES\19-077-20-U-1.DWG

JOB NUMBER: 19-077 FILENAME: 19-077-20-U-1.DWG PLOT DATE: 01/4/24 PLOT TIME: 09:32:03





NOTES:

1. CONNECT INTO THE HOMEOWNER INSTALLED PIPE ACROSS HOUSE DRIVEWAY IF INSTALLED. IF DRIVEWAY DRAIN IS NOT INSTALLED, THEN CONTINUE DRAIN PIPE TO DISCHARGE POINT.
2. CONTRACTOR SHALL TRIM TREES PER CITY REGULATIONS AS NECESSARY FOR INGRESS/EGRESS TO THE SITE.

REGISTERED PROFESSIONAL ENGINEER — CYNTHIA V. BERTSCH — No. C65385 — CIVIL — STATE OF CALIFORNIA

07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

CITY OF SAN BRUNO

WATERWORKS ENGINEERS
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

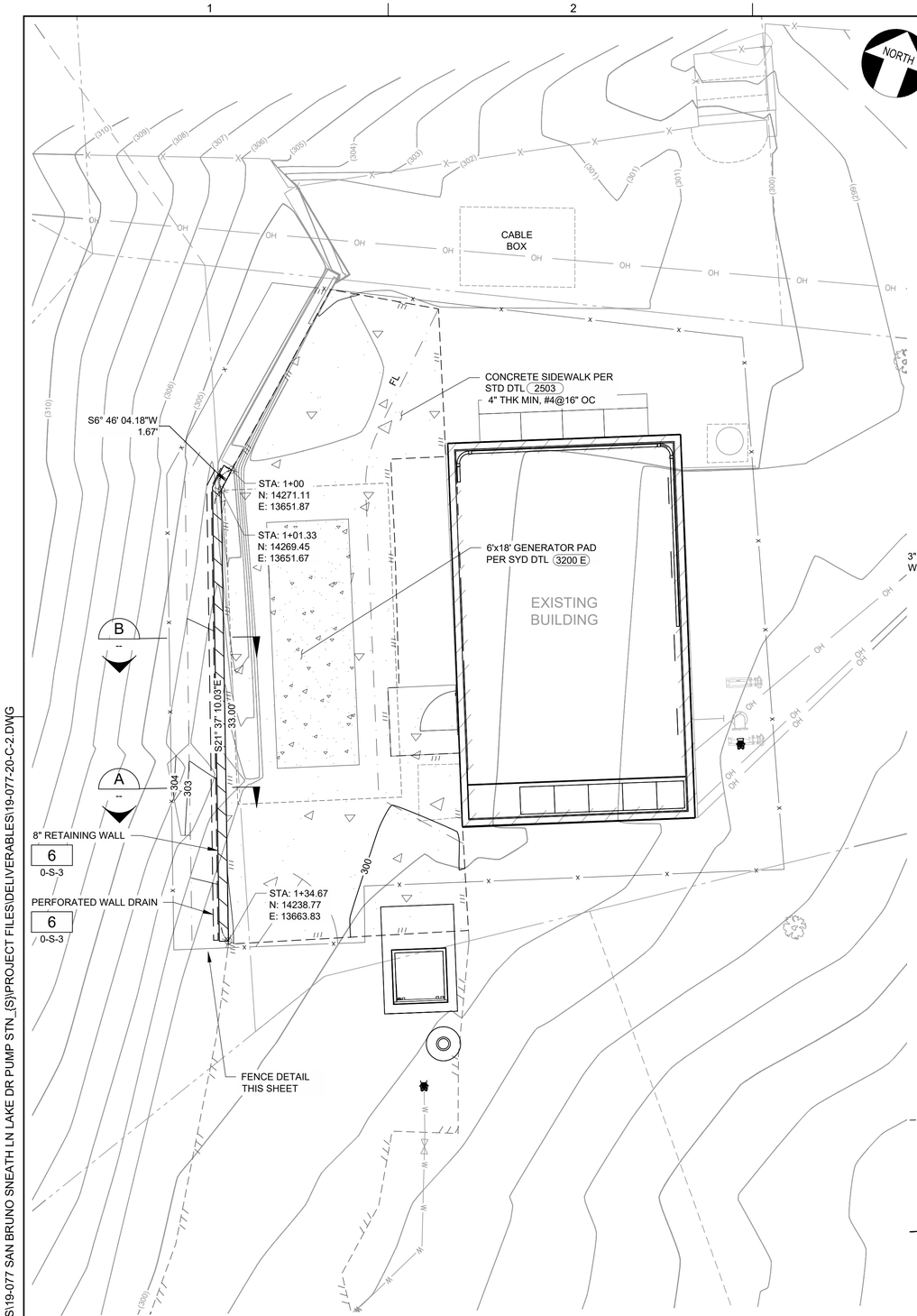
CIVIL

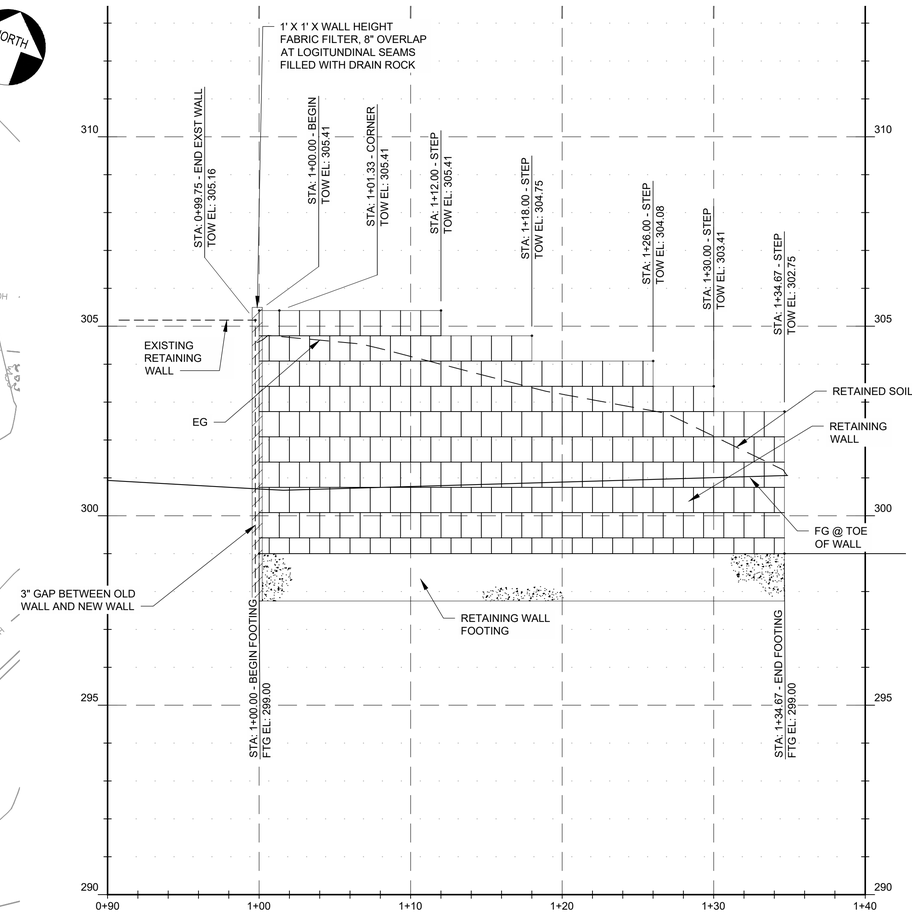
SNEATH PUMP STATION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-C-1
SHEET NUMBER 31

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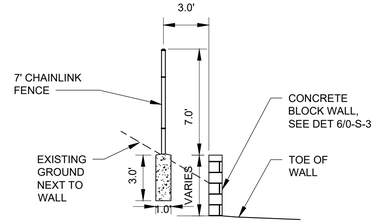
JOB NUMBER: 19-077 FILENAME: 19-077-20-C-1.DWG PLOT DATE: 06/30/25 PLOT TIME: 15:54:42



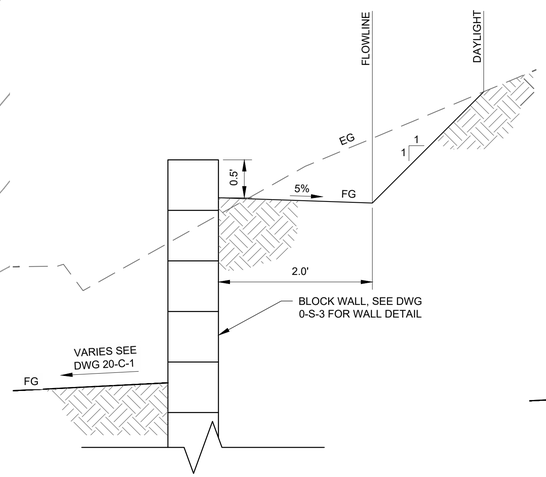


NOTES:

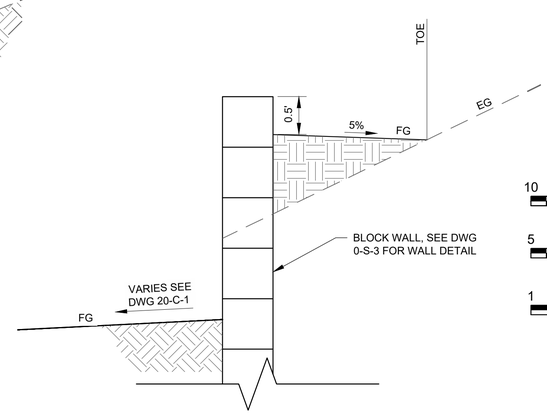
1. SEE MECHANICAL PLANS FOR PIPING MODIFICATIONS.
2. SEE STRUCTUAL PLANS FOR STRUCTURE MODIFICATION.
3. SEE DTL 6/0-S-3 FOR RETAINING WALL INFORMATION.



FENCE/RETAINING WALL DETAIL



A SECTION
20-C-1 1"=1'



B SECTION
20-C-1 1"=1'

10 0 10 20 FEET
HORIZ SCALE 1"=10'

5 0 5 10 FEET
VERT SCALE 1"=5'

1 0 1 2 FEET
SCALE 1"=1'

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 280 •San Mateo, CA 94402 •650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
SNEATH PUMP STATION RETAINING WALL

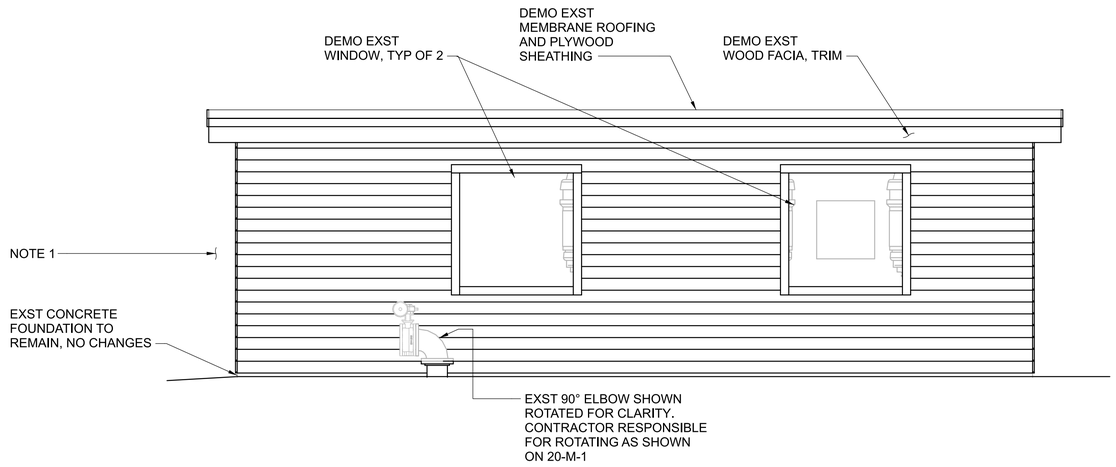
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-C-2
SHEET NUMBER 32

L:\CAD\PROJECTS\19-077 SAN BRUNO SNEATH LN LAKE DR PUMP STN_(S)\PROJECT FILES\DELIVERABLES\19-077-20-C-2.DWG

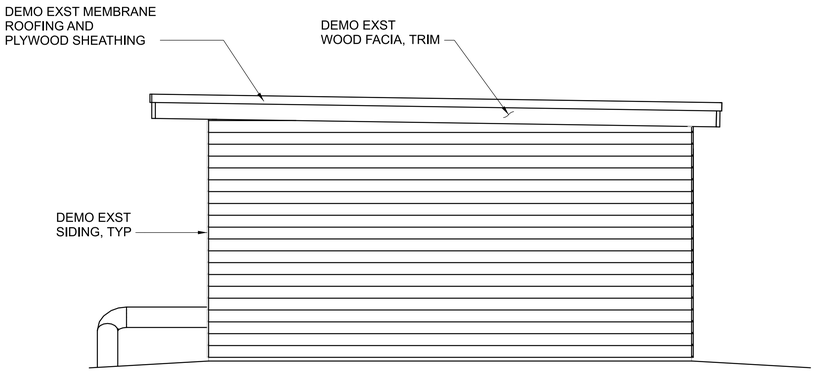
JOB NUMBER: 19-077 FILENAME: 19-077-20-C-2.DWG PLOT DATE: 06/30/25 PLOT TIME: 15:57:50

NOTES:

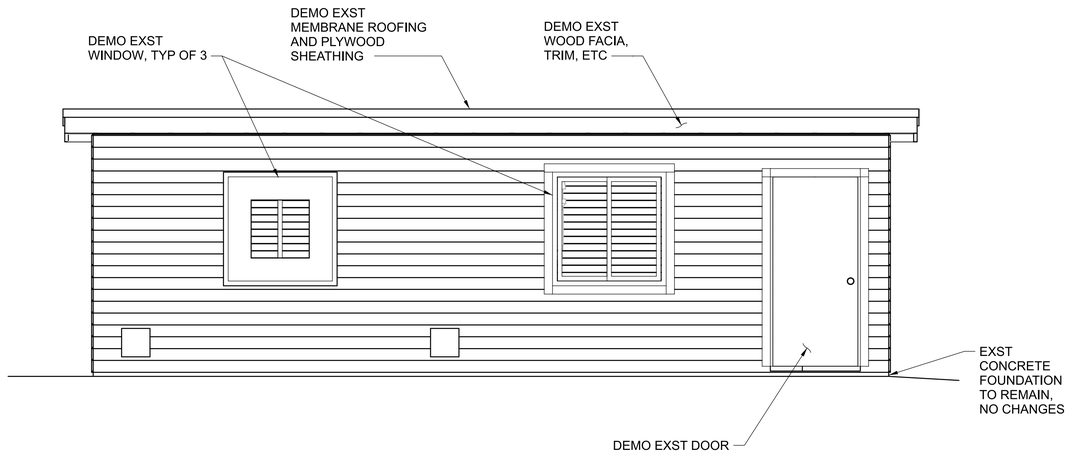
1. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL EQUIPMENT AND LIGHTS TO REMAIN OR TO BE REPLACED. FOR ITEMS TO REMAIN, REMOVE TEMPORARILY TO FACILITATE BUILDING RESTORATION AND RE-INSTALL. ITEMS TO BE REPLACED SHALL BE SALVEGED AND TURNED OVER TO CITY.



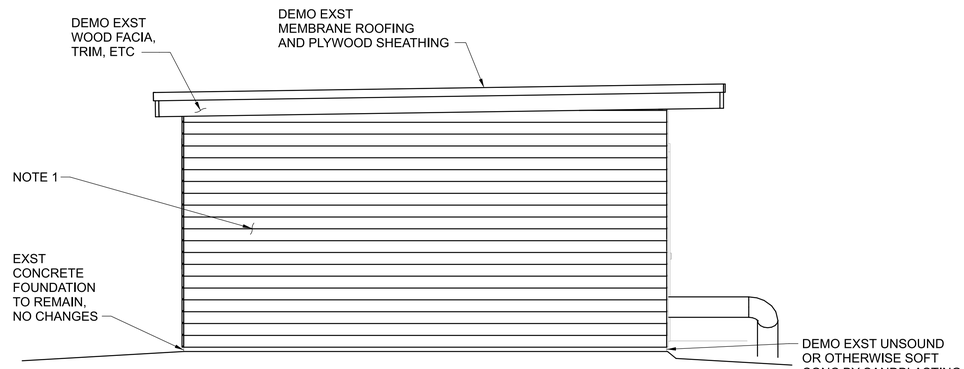
D NORTH ELEVATION
3/8" = 1'-0"
20-S-1



C EAST ELEVATION
3/8" = 1'-0"
20-S-1



B SOUTH ELEVATION
3/8" = 1'-0"
20-S-1



A WEST ELEVATION
3/8" = 1'-0"
20-S-1

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

01/05/2024

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

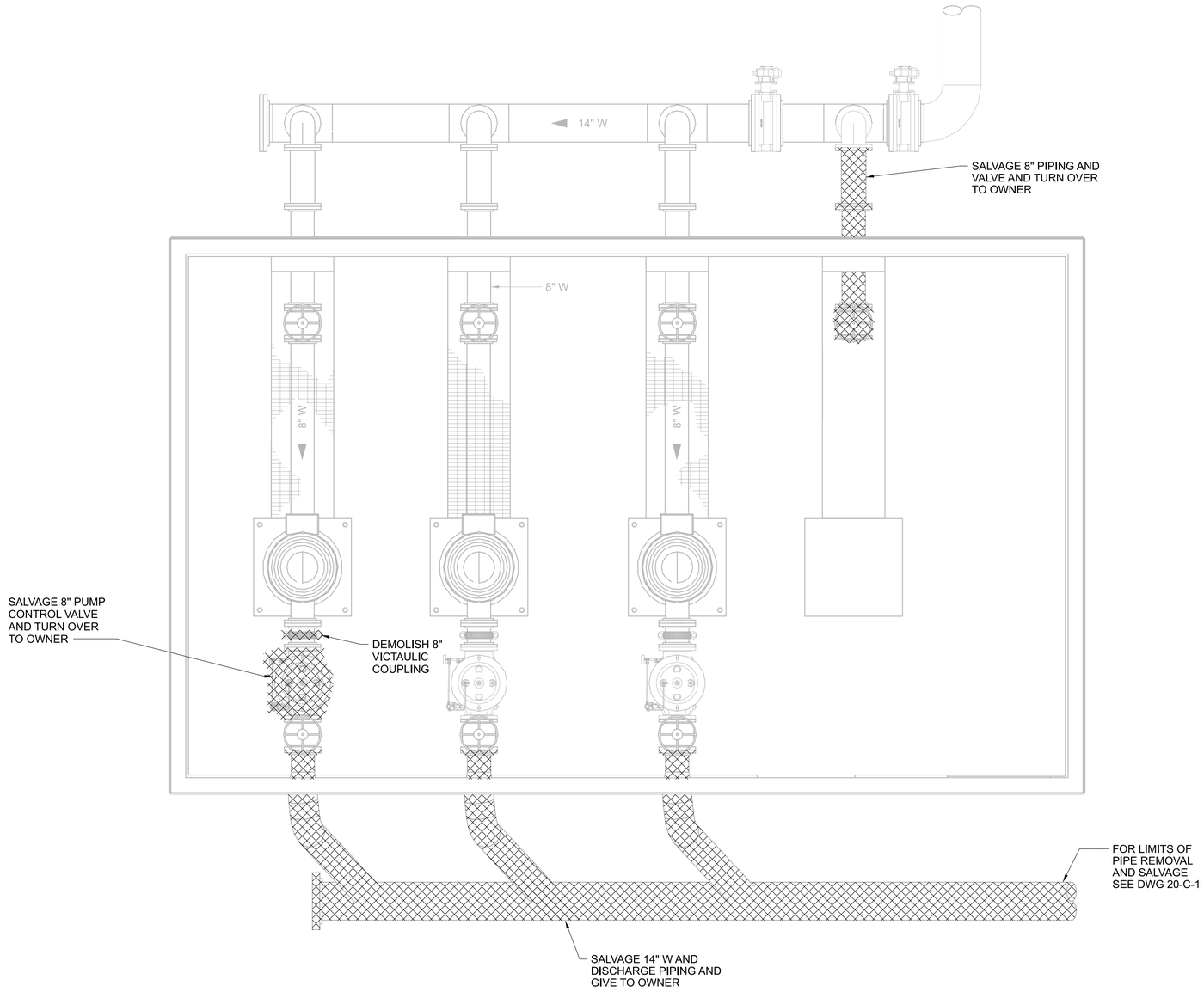
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

DEMOLITION

ELEVATIONS

DATE
JULY 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
20-D-1
SHEET NUMBER 33



PLAN

1/2" = 1'-0"

2 0 2 4 FEET

SCALE 1/2"=1'-0"

REGISTERED PROFESSIONAL ENGINEER
JONATHON ROY
No. C92341
CIVIL
STATE OF CALIFORNIA
01/03/2024

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

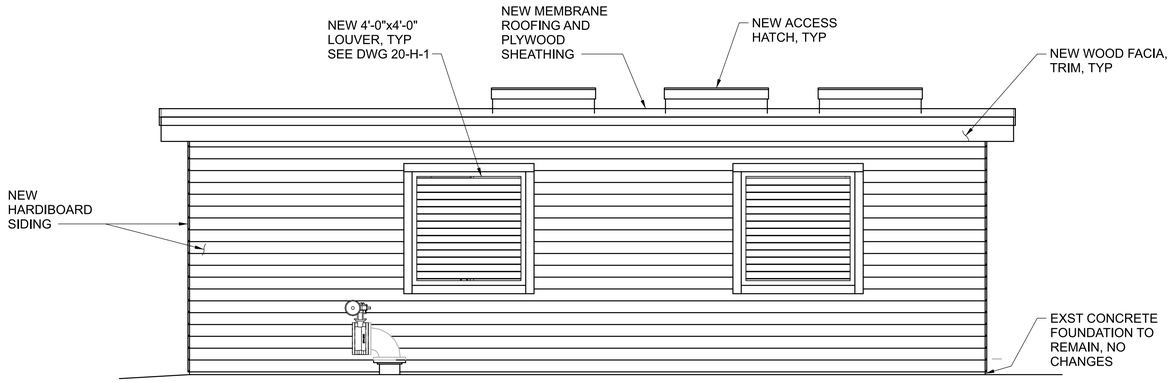
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

DEMOLITION

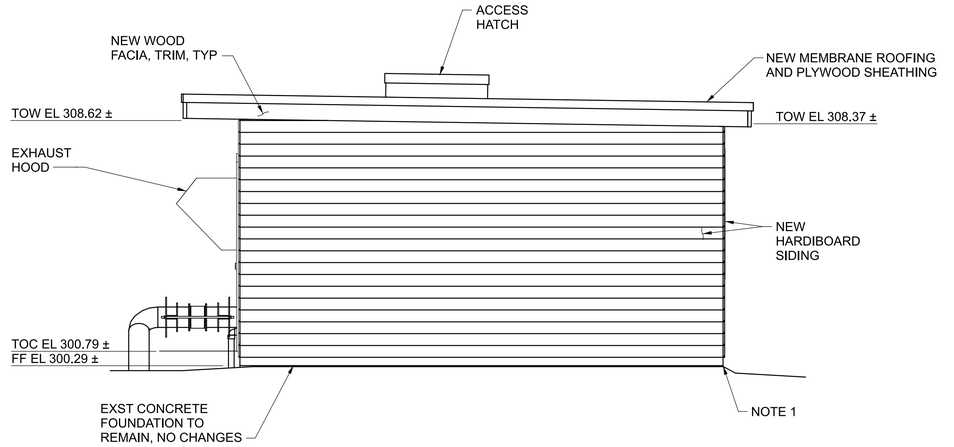
SNEATH PUMP STATION RELOCATION, SALVAGE AND DEMOLITION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-D-2
SHEET NUMBER 34

FILENAME: 1977D-20D102.DGN PLOT DATE: 10/22/2020 8:47:27 AM



A NORTH ELEVATION
3/8" = 1'-0"
20-S-1



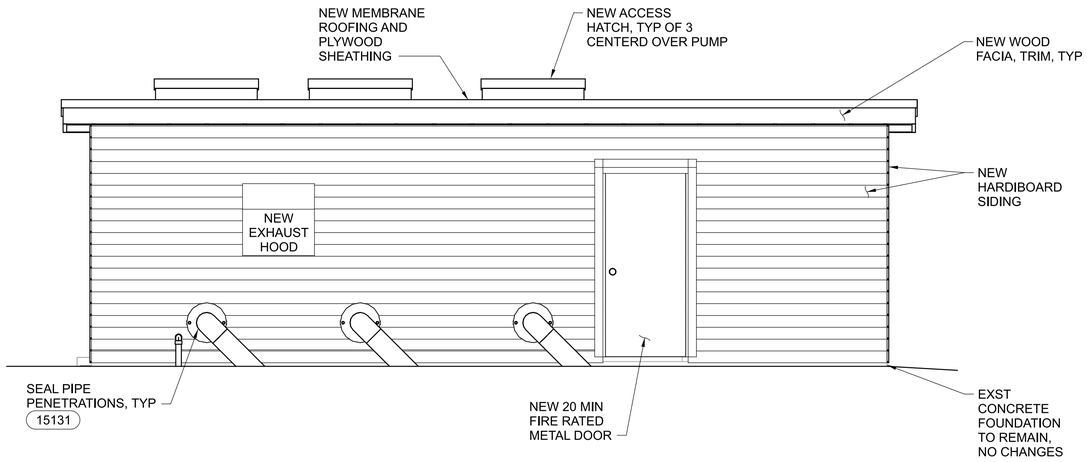
B EAST ELEVATION
3/8" = 1'-0"
20-S-1

NOTES:

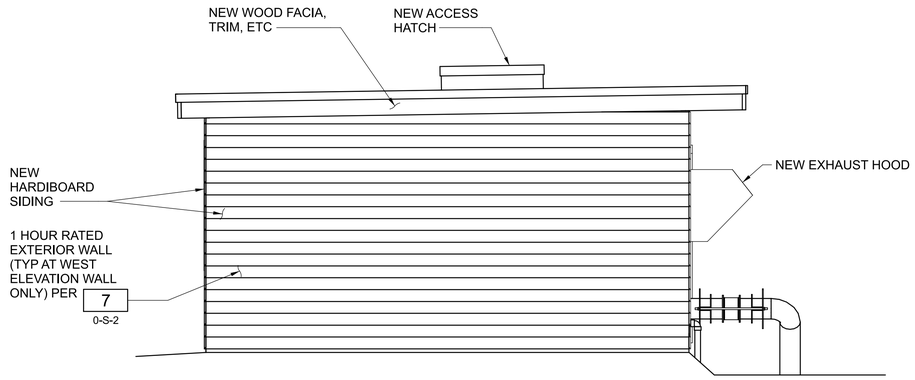
1. PLACE CLSM IN WASHED OUT AREA INCLUDING AS MUCH AS FEASIBLE INTO THE CLAY PIPE.
2. VERIFY ALL EXST ELEVATIONS IN FIELD.

BUILDING CODE ANALYSIS	
BUILDING CODE	2019 CALIFORNIA BUILDING CODE
OCCUPANCY CLASSIFICATION	U
HAZARDOUS MATERIALS	NONE
TYPE OF CONSTRUCTION	V-B
NUMBER OF STORIES ABV GRADE	1 STORY
BUILDING HT ABOVE GRADE	9'-0"
ACTUAL FLOOR AREA	476 SQ FT
FIRE SUPPRESSION	FIRE EXTINGUISHERS
FIRE SUPPRESSION DISTANCE	10 FT MAX
EXTERIOR WALLS	NOT RATED
OCCUPANT LOAD FACTOR	100 SQFT/ PERSON
OCCUPANT LOAD	5 PERSONS

SEE DWG 20-S-1 FOR ADDITIONAL ARCHITECTURAL NOTES AND DOOR SCHEDULE.



C SOUTH ELEVATION
3/8" = 1'-0"
20-S-1



D WEST ELEVATION
3/8" = 1'-0"
20- S-1

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

01/05/2024

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

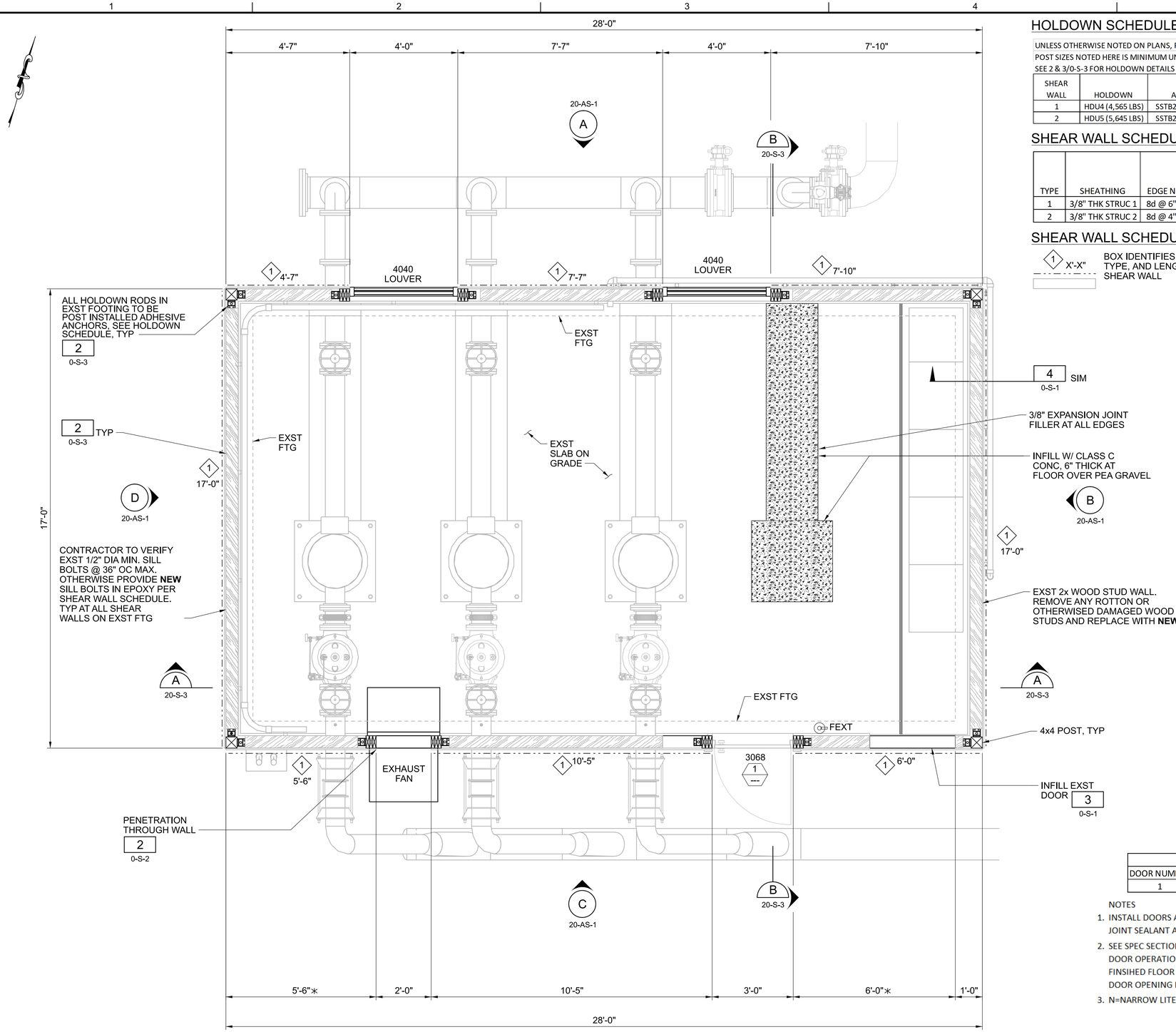
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ARCHITECTURAL / STRUCTURAL

SNEATH PUMP STATION ELEVATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-AS-1
SHEET NUMBER 35



HOLDOWN SCHEDULE

UNLESS OTHERWISE NOTED ON PLANS, PROVIDE AT EACH END OF SHEAR WALLS.
POST SIZES NOTED HERE IS MINIMUM UNLESS LARGER POST IS SHOWN ON PLAN
SEE 2 & 3/0-S-3 FOR HOLDOWN DETAILS

SHEAR WALL	HOLDOWN	ANCHOR ROD	MIN. POST
1	HDU4 (4,565 LBS)	SSTB24 OR 5/8" ϕ ATR	2-2x OR 4x
2	HDU5 (5,645 LBS)	SSTB24 OR 5/8" ϕ ATR	2-2x OR 4x

SHEAR WALL SCHEDULE

TYPE	SHEATHING	EDGE NAIL	ADJOINING SHEAR PANEL EDGE MATERIAL	FIELD NAIL	PLATE NAIL	RIM OR BLOCKING TRANSFER	RIM OR BLOCKING MATERIAL	MUD SILL	SHEAR CAPACITY ASD	5/8" DIA SILL BOLTS
1	3/8" THK STRUC 1	8d @ 6" OC	2x STUDS, PLATE	8d @ 12" OC	16d @ 6" OC	A35 @ 24" OC	2x	2x PLATE	230 PLF	48" OC
2	3/8" THK STRUC 2	8d @ 4" OC	2x STUDS, PLATE	8d @ 12" OC	16d @ 4" OC	A35 @ 16" OC	2x	2x PLATE	360 PLF	36" OC

SHEAR WALL SCHEDULE

1 X'-X" — BOX IDENTIFIES LOCATION, TYPE, AND LENGTH OF SHEAR WALL

WALL LEGEND

EXST 2x4 OR 2x6 WALL

NEW 2x6 WALL

NOTES:

1. ∗ = FIELD VERIFY DIMENSIONS PRIOR TO DEMOLISHING AND CONSTRUCTION.

GENERAL ARCHITECTURAL NOTES

1. UNLESS OTHERWISE NOTES, PLAN DIMENSIONS ARE TO FACE OF STUDS.
2. REPETETIVE FEATURES ARE NOT DRAWIN IN THEIR ENTIRETY AND SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.
3. VERIFY ALL ROUGH IN DIMENSIONS FOR EQUIPMENT PROVIDED IN THIS CONTRACT, OR BY OTHERS.
4. REFER TO STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CATEGORIES OF DRAWINGS FOR ADDITIONAL NOTES.
5. VERIFY SIZE AND LOCATION OF, AND PROVIDE: ALL OPENINGS THROUGH FLOORS AND WALLS, ACCESS DOORS, FURRING, CURBS, ANCHORS AND INSERTS. PROVIDE ALL BASES, BLOCKING REQUIRED FOR ACCESSORIES, MECHANCIAL EQUIPMENT AND OTHER EQUIPMENT

DOOR SCHEDULE							
DOOR NUMBER	DOOR DIMENSIONS	LITES	SILL DETAIL	EXIT DEVICE	WALL	CLOSURE	LOCK
1	3'-0" x 6'-8"	NR	5/0-S-2	NR	WOOD	R	R

NOTES

1. INSTALL DOORS AND FRAME IN ACCORDANCE WITH STEEL DOOR INSTITUTE'S RECOMMENDATIONS. PROVIDE TRIM AND JOINT SEALANT AROUND FRAMES TO ENSURE A WEATHER TIGHT BARRIER. SEE SPEC SECTION 08-13-03
2. SEE SPEC SECTION 08-71-03 DOOR HARDWARE FOR ALL DOOR HARDWARE INCLUDING EXIT DEVICES AND PRIVACY LATCHES. DOOR OPERATION SHALL BE PER CBC 1010.1.9. DOOR OPENING HARDWARE SHALL BE MOUNTED 34" TO 48" ABOVE FINSIHED FLOOR PER CBC 1010.1.9.2. DOOR THRESHOLD SHALL BE 3/4" MAX ABOVE FINISHED FLOOR PER CBC 1010.1.7. DOOR OPENING FORCE SHALL BE 5-POUND MAX PER CBC 11B-404.2.9
3. N=NARROW LITES; G=FULL GLASS; R=REQUIRED; NR=NOT REQUIRED

REGISTERED PROFESSIONAL ENGINEER — TODD KOTEY — No. 5618 — CIVIL — STATE OF CALIFORNIA

01/05/2024

2 0 2 4 FEET

SCALE 1/2"=1'-0"

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

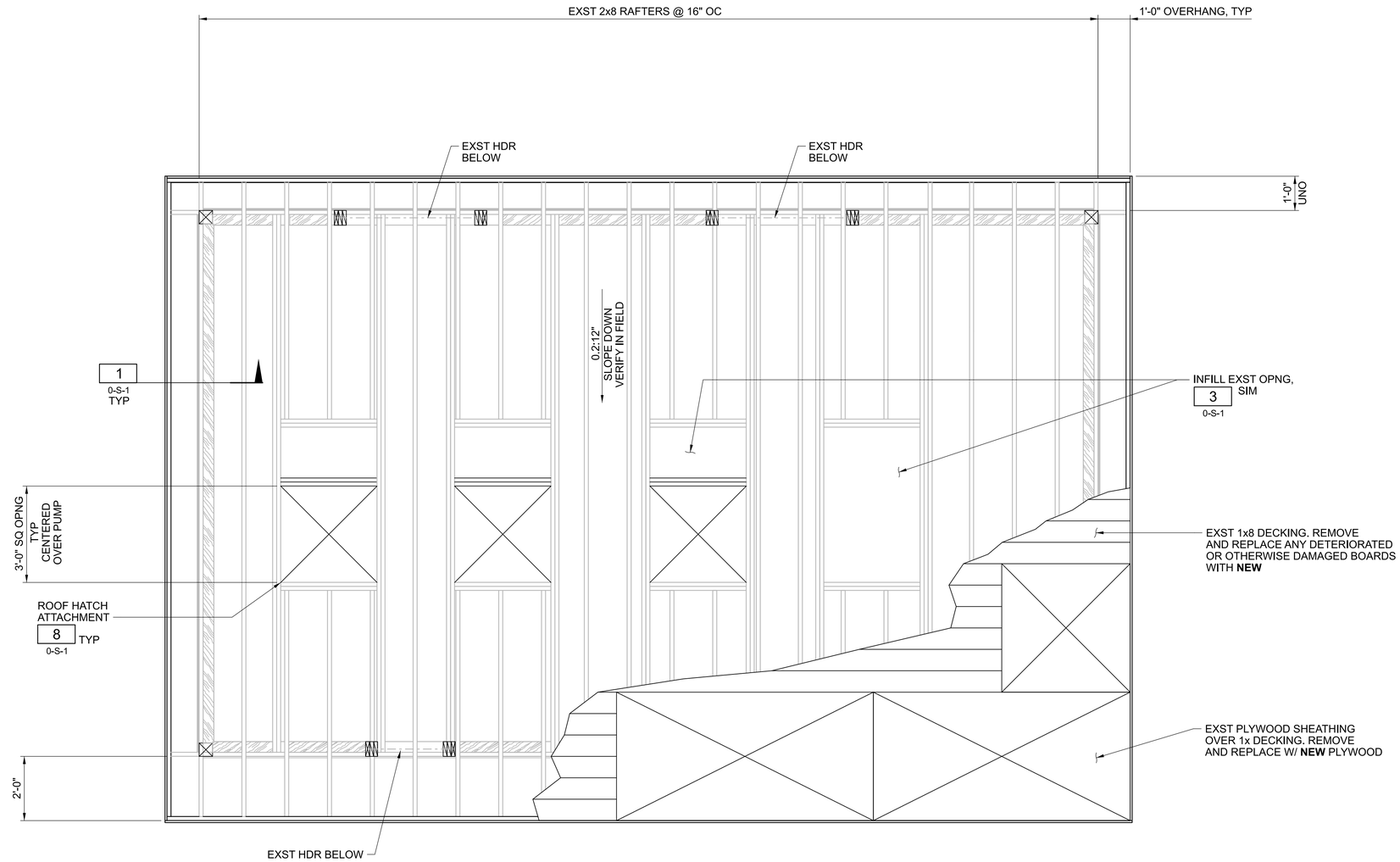
STRUCTURAL

SNEATH PUMP STATION FOUNDATION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-S-1
SHEET NUMBER 36

NOTES:

1. SEE DWG 20-S-1 FOR SHEAR WALLS, HOLDOWN SCHEDULE AND WALL LEGEND.



PLAN
1/2" = 1'-0"

2 0 2 4 FEET
SCALE 1/2"=1'-0"

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

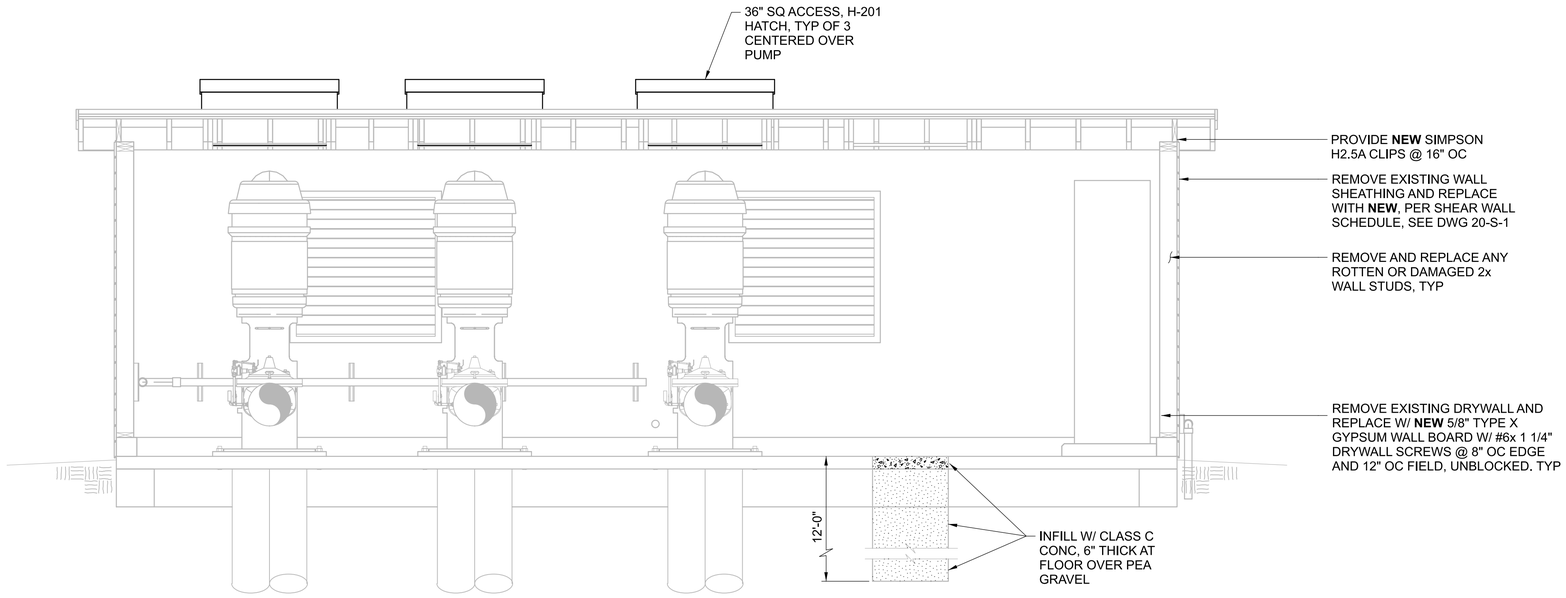
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
SNEATH PUMP STATION
ROOF FRAMING PLAN

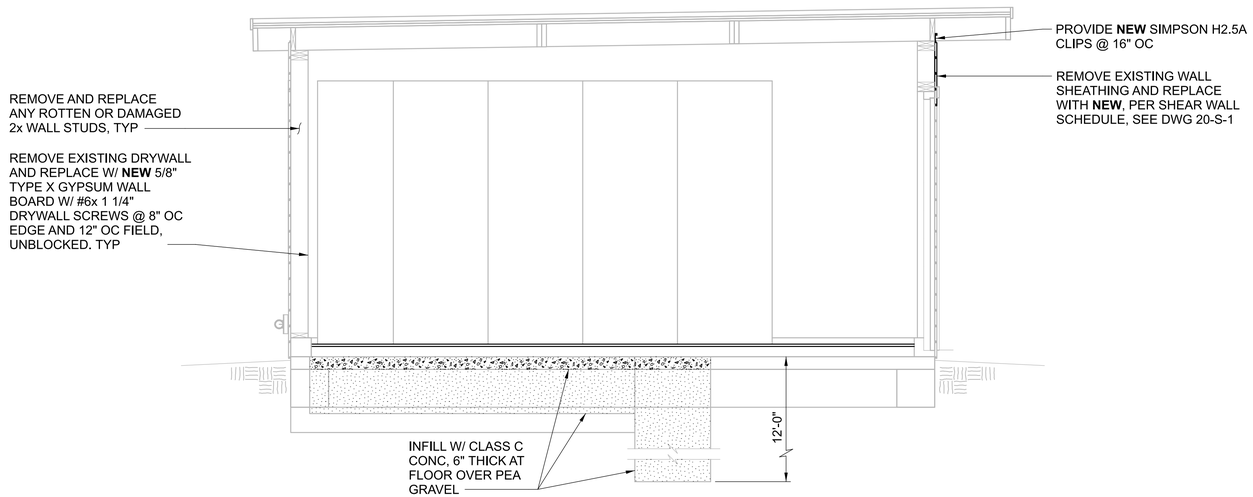
REGISTERED PROFESSIONAL ENGINEER T. TODD KOTEY No. C64847 CIVIL STATE OF CALIFORNIA
01/05/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-S-2
SHEET NUMBER 37

FILENAME: 1977D-20S102.DGN PLOT DATE: 10/22/2020 8:43:40 AM



A SECTION
20-S-1 1/2" = 1'-0"



B SECTION
20-S-1 1/2" = 1'-0"

2 0 2 4 FEET
SCALE 1/2"=1'-0"

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

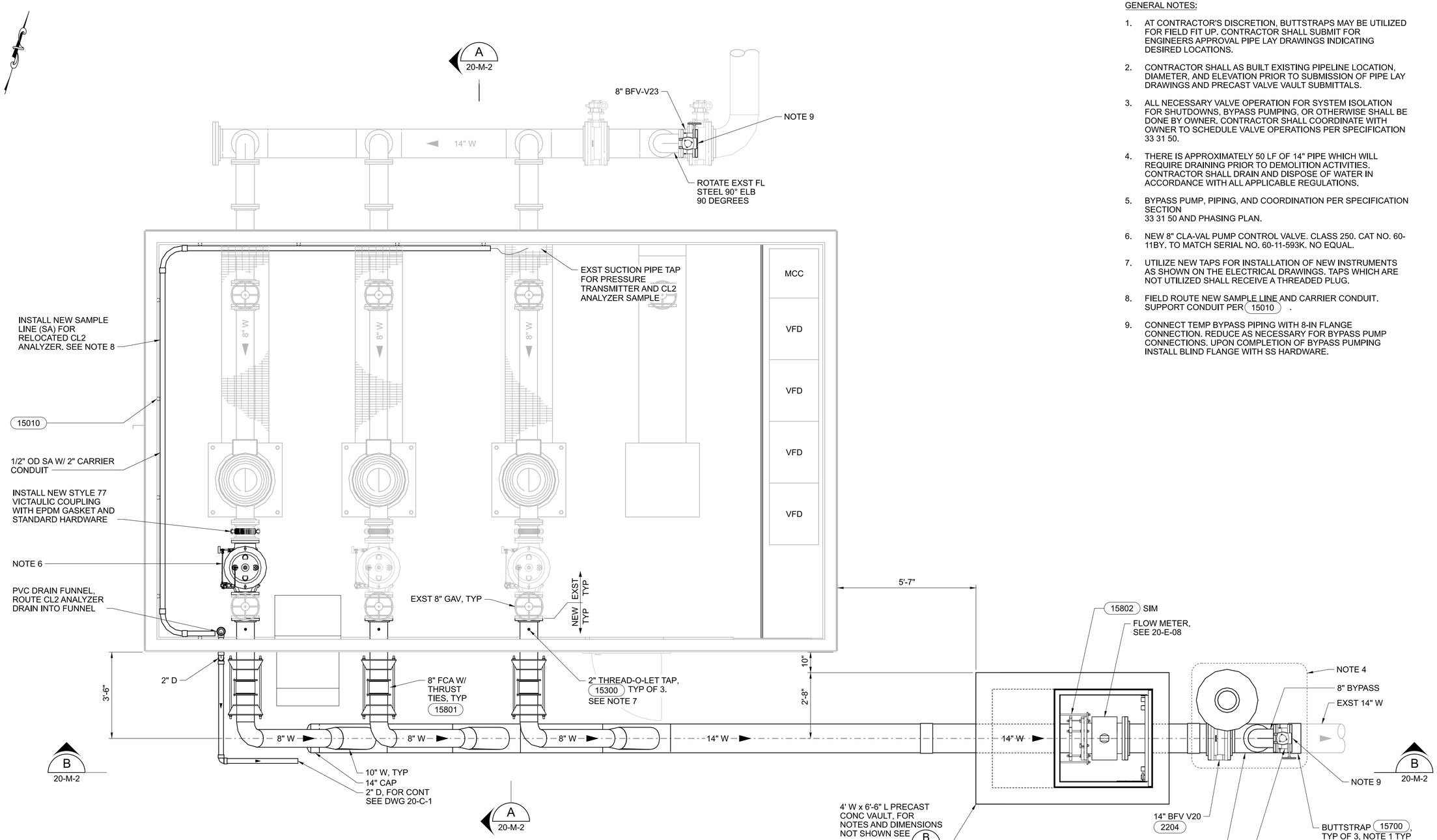
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
SNEATH PUMP STATION SECTIONS

REGISTERED PROFESSIONAL ENGINEER T TODD KOTEY No. C49811 CIVIL STATE OF CALIFORNIA
01/05/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-S-3
SHEET NUMBER 38

FILENAME: 1977D-20S103.DGN PLOT DATE: 10/22/2020 8:45:10 AM



PLAN
1/2" = 1'-0"

GENERAL NOTES:

1. AT CONTRACTOR'S DISCRETION, BUTTSTRAPS MAY BE UTILIZED FOR FIELD FIT UP. CONTRACTOR SHALL SUBMIT FOR ENGINEERS APPROVAL PIPE LAY DRAWINGS INDICATING DESIRED LOCATIONS.
2. CONTRACTOR SHALL AS BUILT EXISTING PIPELINE LOCATION, DIAMETER, AND ELEVATION PRIOR TO SUBMISSION OF PIPE LAY DRAWINGS AND PRECAST VALVE VAULT SUBMITTALS.
3. ALL NECESSARY VALVE OPERATION FOR SYSTEM ISOLATION FOR SHUTDOWNS, BYPASS PUMPING, OR OTHERWISE SHALL BE DONE BY OWNER. CONTRACTOR SHALL COORDINATE WITH OWNER TO SCHEDULE VALVE OPERATIONS PER SPECIFICATION 33 31 50.
4. THERE IS APPROXIMATELY 50 LF OF 14" PIPE WHICH WILL REQUIRE DRAINING PRIOR TO DEMOLITION ACTIVITIES. CONTRACTOR SHALL DRAIN AND DISPOSE OF WATER IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
5. BYPASS PUMP, PIPING, AND COORDINATION PER SPECIFICATION SECTION 33 31 50 AND PHASING PLAN.
6. NEW 8" CLA-VAL PUMP CONTROL VALVE. CLASS 250. CAT NO. 60-11BY. TO MATCH SERIAL NO. 60-11-593K. NO EQUAL.
7. UTILIZE NEW TAPS FOR INSTALLATION OF NEW INSTRUMENTS AS SHOWN ON THE ELECTRICAL DRAWINGS. TAPS WHICH ARE NOT UTILIZED SHALL RECEIVE A THREADED PLUG.
8. FIELD ROUTE NEW SAMPLE LINE AND CARRIER CONDUIT. SUPPORT CONDUIT PER 15010 .
9. CONNECT TEMP BYPASS PIPING WITH 8-IN FLANGE CONNECTION. REDUCE AS NECESSARY FOR BYPASS PUMP CONNECTIONS. UPON COMPLETION OF BYPASS PUMPING INSTALL BLIND FLANGE WITH SS HARDWARE.

2 0 2 4 FEET
SCALE 1/2"=1'-0"

REGISTERED PROFESSIONAL ENGINEER
JONATHAN T. TOOMEY
No. C92341
CIVIL
STATE OF CALIFORNIA
02/05/2026

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

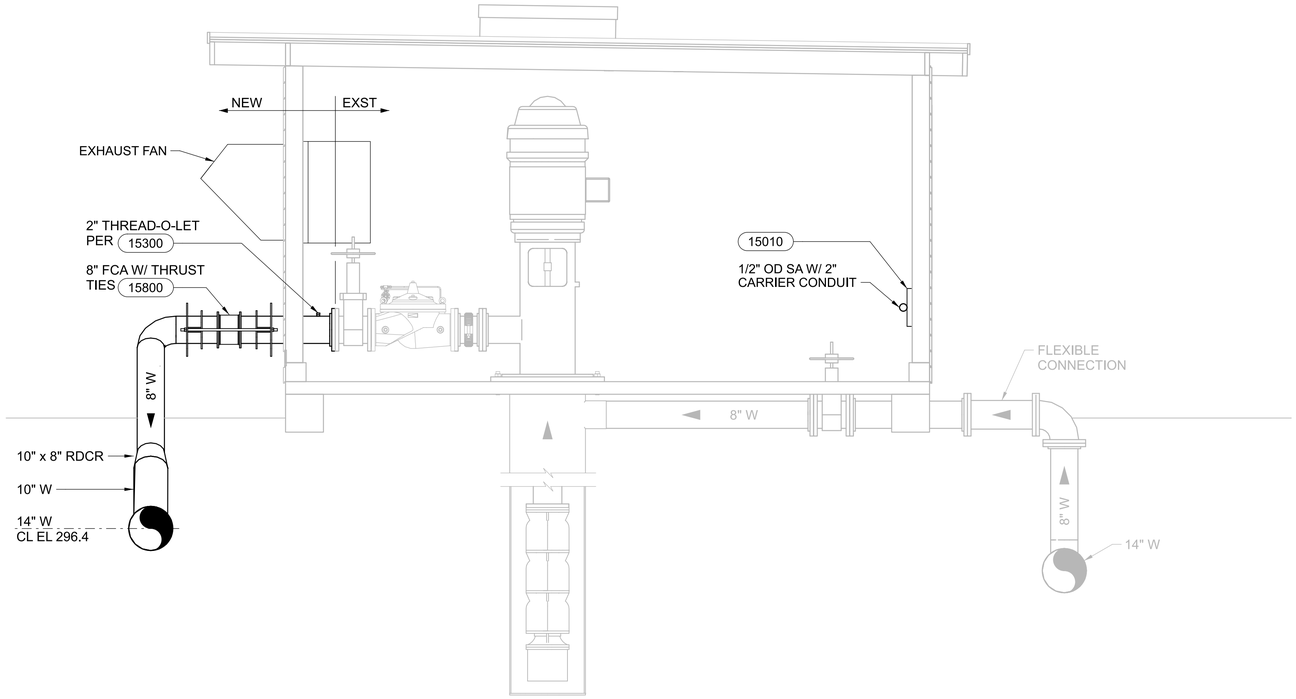
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

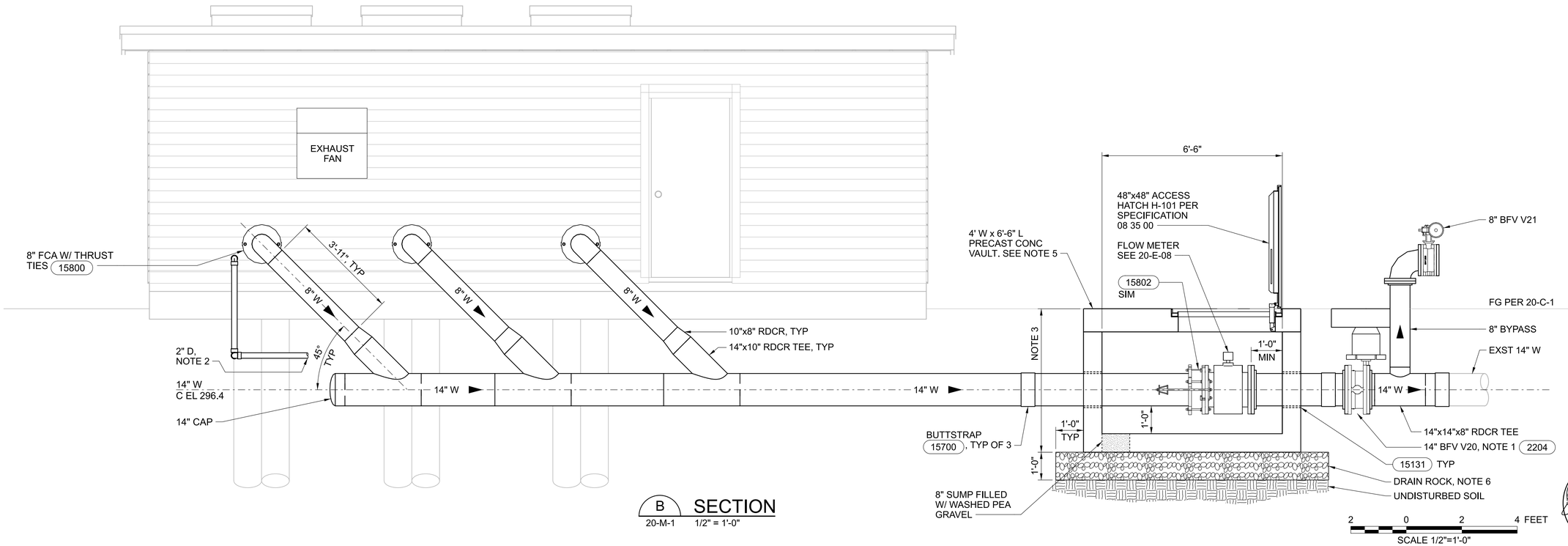
MECHANICAL
SNEATH PUMP STATION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-M-1
SHEET NUMBER 39

FILENAME: 1977D-20M101.dgn PLOT DATE: 10/22/2020 8:49:10 AM



A SECTION
20-M-1 1/2" = 1'-0"



B SECTION
20-M-1 1/2" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR TO POTHOLE EX PIPE TO CONFIRM DEPTH AND LOCATION.
2. SEE 20-M-1 AND 20-C-2 FOR DRAIN CONTINUATION.
3. ASBUILT EXISTING PIPE ELEVATIONS PRIOR TO PRECAST VAULT SHOP DRAWING FABRICATION TO ENSURE PROPER VAULT DEPTH IS ACCOUNTED FOR.
4. VAULT AND ACCESS HATCH TO BE H20 TRAFFIC RATED.
5. REFERENCE SPECIFICATION 03 40 03 FOR ADDITIONAL REQUIREMENTS.
6. WRAP DRAIN ROCK W/ FILTER FABRIC, MIRAFI TYPE 140N, OR APPROVED EQUAL, MIN 12" OVERLAP.

DESIGNED J ROY
DRAWN J MARTIN
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

MECHANICAL
SNEATH PUMP STATION SECTIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-M-2
SHEET NUMBER 40

REGISTERED PROFESSIONAL ENGINEER
JONATHAN HOLT
No. C92341
CIVIL
STATE OF CALIFORNIA
02/05/2026

FILENAME: 1977D-20M201.DGN PLOT DATE: 10/22/2020 8:49:59 AM

FAN SCHEDULE

EQUIPMENT NUMBER	LOCATION	FAN TYPE	AIR FLOW (CFM)	ESP (IN WG)	MOTOR (HP)	POWER SUPPLY (V/PH)	FLA (AMPS)	MOP (AMPS)	WHEEL TYPE	DRIVE	MANF.	MODEL	APPROX WEIGHT (LBS)	NOTES
EF-20-001	PUMP ROOM	EF	3600	0.5	0.75	208 / 1	5.4	15	P	DIRECT	GREENHECK	AER	185	1B, 5, 6, 8,9,10

FAN TYPES:
- CF - CABINET FAN
- DF - INLINE DUCT FAN
- FEF - FUME HOOD EXHAUST FAN
- HVLS - HIGH VOLUME LOW SPEED
- PRV - POWER ROOF VENTILATOR
- EF - EXHAUST FAN
- SF - SUPPLY FAN

WHEEL TYPES:
- C - CENTRIFUGAL
- M - MIXED FLOW
- P - PROPELLER

NOTES:
1. FAN BLADE CONSTUCTION; A) ALUMINUM, B) STEEL, C)304 STAINLESS STEEL
2. PROVIDE CURB EXTENSION
3. MOTOR CURRENT SENSOR RELAYS SHALL BE FURNISHED BY THE MANUFACTURERE TO DETECT OPERATION OF VENTILATION EQUIPMENT
4. PROVIDE BAROMETRIC CONTROL SWITCHES
5. THERMOSTAT SHALL BE PROVIDED COMPATIBLE WITH EQUIPMENT
6. PROVIDE OSHA GUARD ON FAN/ MOTOR END
7. EXHAUST FAN TO BE INTERLOCKED WITH LIGHT SWITCH
8. PROVIDE WEATHERHOOD AND BIRD SCREEN
9. PROVIDE DISCONNECT SWITCH
10. PROVIDE CONTROL DIAL FOR BALANCING

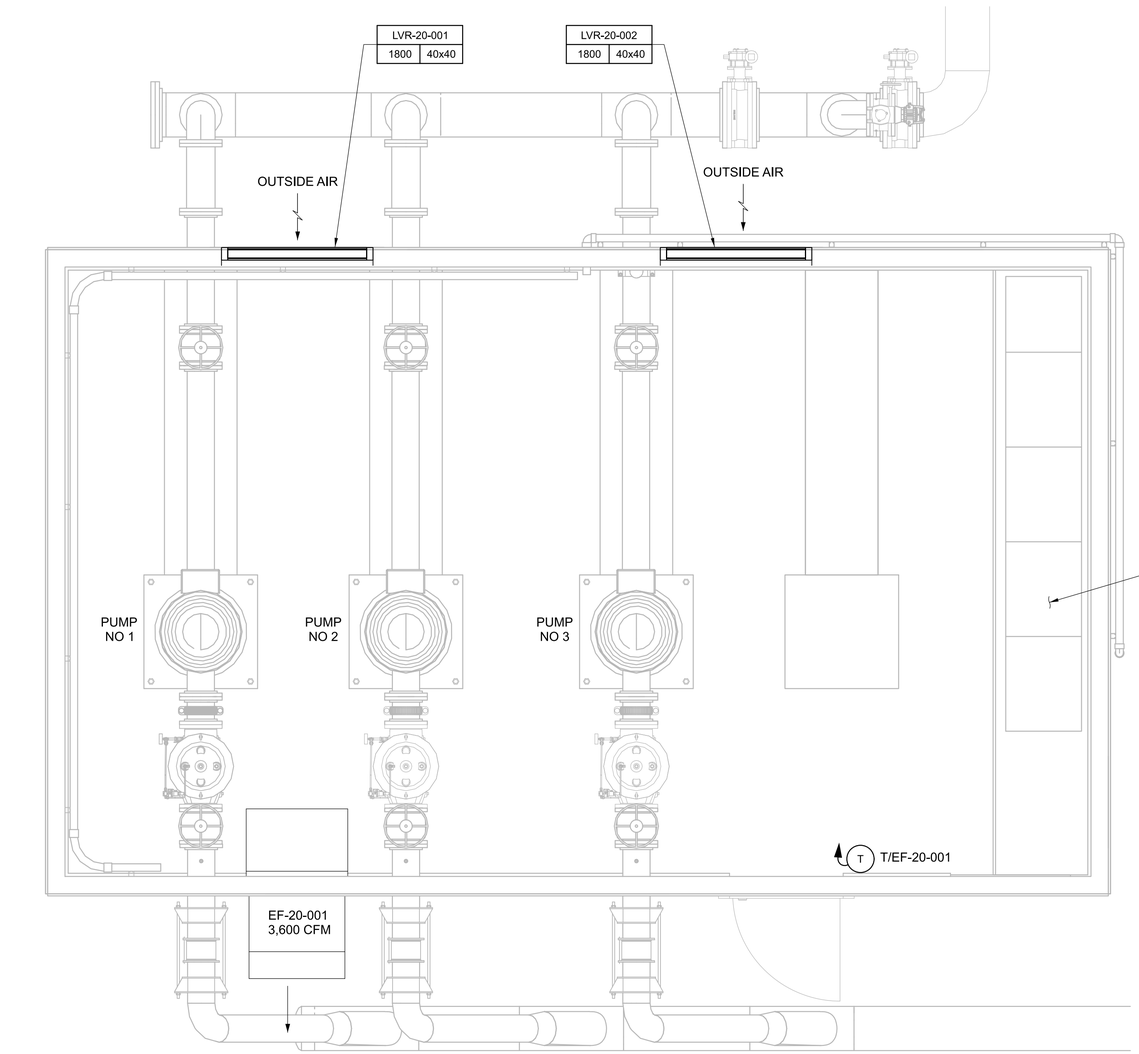
LOUVERS SCHEDULE

EQUIPMENT NUMBER	LOCATION	TYPE	AIR FLOW (CFM)	LENGTH (IN)	WIDTH (IN)	QTY (EA)	FILTER TYPE	THICKNESS (IN)	MATERIAL	FINISH	MANUFACTURER	MODEL	NOTES
LVR-20-001	PUMP ROOM	IN	1,800	40	40	1	MERV 13	2	AL	MATCH TRIM	GREENHECK	ESJ-401	1, 2,3A, 4A, 5A,6A
LVR-20-002	PUMP ROOM	IN	1,800	40	40	1	MERV 13	2	AL	MATCH TRIM	GREENHECK	ESJ-401	1, 2,3A, 4A, 5A,6A

TYPES:
- IN - INTAKE
- EX - EXHAUST
- BI - BI-DIRECTIONAL

MATERIAL:
- AL - ALUMINUM
- GS - GALVANIZED STEEL
- SS - 304 STAINLESS STEEL

NOTES:
1. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATION
2. PROVIDE STAINLESS STEEL HARDWARE
3. PROVIDE FILTER RACK; A)ALUMINUM, B)STEEL, C)304 STAINLESS STEEL
4. PROVIDE SCREEN ACCESSORIES; A) BIRDSCREEN, B)INSECT SCREEN, C)SECURITY BARS
5. PROVIDE FRAME ACCESSORIES; A) EXTENDED SILL, B)FLANGE FRAME, C)GLAZING FRAME, D)HINGE FRAME
6. LOUVER VELOCITY SHALL NOT EXCEED; A) 500 FPM, B)650 FPM
7. PROVIDE EXTERNAL GRAVITY DAMPER
8. EPOXY COATING



PLAN
1/2" = 1'-0"

NOTES:

1. PROVIDE CEILING MOUNT ACCESSORY FOR ELECTRICAL UNIT HEATER.

2 0 2 4 FEET
SCALE 1/2"=1'-0"

01/03/2024

REGISTERED PROFESSIONAL ENGINEER — CYNTHIA V. BERTSCH — No. C65385 — CIVIL — STATE OF CALIFORNIA

DESIGNED D BEGAY
DRAWN C WORRALL
CHECKED C BERTSCH
APPROVED C BERTSCH

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

HVAC
HVAC PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-H-1
SHEET NUMBER 41

COMPONENTS

SYMBOL	DESCRIPTION
RES	RESISTOR
SV	SOLENOID COIL
HTR	HEATER
	CAPACITOR
	DIODE
	DIODE, ZENER
MOV	METAL OXIDE VARISTOR
	AUDIBLE ALARM
?	3 PHASE MOTOR ? = MOTOR HP
M	3 PHASE MOTOR
M	SINGLE PHASE MOTOR
	TRANSFORMER SIZE AND VOLTAGE AS SHOWN
M	UTILITY POWER METER
	UFER GROUND
	GROUND ROD
	CURRENT TRANSFORMER RATIO AS NOTED
	DISCONNECT SWITCH SIZED PER FEEDER
PDB	POWER DISTRIBUTION BLOCK

SWITCHES – OPERATOR

SYMBOL	DESCRIPTION
SW	TOGGLE OR DISCONNECT SWITCH
PB	PUSHBUTTON – NORMALLY OPEN, MOMENTARY ACTION
PB	PUSHBUTTON – NORMALLY CLOSED, MOMENTARY UNLESS LOS (LOCK OUT STOP) WHERE MECHANICALLY HELD
PB	PUSHBUTTON, MECHANICALLY CONNECTED, DOUBLE CIRCUIT – NORMALLY CLOSED AND NORMALLY OPEN
HAND OFF AUTO	SELECTOR SWITCH, 3 POSITION – CONTACT STATUS SHOWN EXISTS I.E. AT POSITION OF HAND, OFF, OR AUTO
	SELECTOR SWITCH, 2 POSITION – MIDDLE POSITION IS DELETED
	ALTERNATE METHOD: X00 = HAND 00X = AUTO, 0X0 = OFF
	POTENTIOMETER

SWITCHES – PROCESS

SYMBOL	DESCRIPTION
FS	FLOW SWITCH – CLOSES UPON INCREASING FLOW
FS	FLOW SWITCH – OPENS UPON INCREASING FLOW
LS	LEVEL SWITCH – CLOSES UPON INCREASING LEVEL
LS	LEVEL SWITCH – OPENS UPON INCREASING LEVEL
PS	PRESSURE SWITCH – CLOSES UPON INCREASING PRESSURE (DECREASING VACUUM)
PS	PRESSURE SWITCH – OPENS UPON INCREASING PRESSURE (DECREASING VACUUM)
TS	TEMPERATURE SWITCH – CLOSES UPON INCREASING TEMPERATURE
TS	TEMPERATURE SWITCH – OPENS UPON INCREASING TEMPERATURE
ZS	LIMIT SWITCH – CLOSES AT SET LIMIT
ZS	LIMIT SWITCH – OPENS AT SET LIMIT
WS	TORQUE SWITCH – CLOSES UPON INCREASING TORQUE
WS	TORQUE SWITCH – OPENS UPON INCREASING TORQUE

DEVICES – FRONT PANEL

SYMBOL	DESCRIPTION
X	INDICATING LIGHT, LETTER "x" INDICATES COLOR: R=RED G=GREEN, A=AMBER, W=WHITE Y=YELLOW, B=BLUE
PIT X	INDICATING LIGHT, PUSH TO TEST
ETM	ELAPSED TIME METER

DEVICES – PROTECTIVE

SYMBOL	DESCRIPTION
S	CT SHORTING TERMINAL BLOCK
PTS	FUSED POTENTIAL TRANSFORMER, 208 / 120 V SECONDARY OR AS SHOWN
PM	POWER MONITOR
SPD	SURGE PROTECTION DEVICE
PFR	POWER FAIL REPLAY

DEVICES – RELAY

SYMBOL	DESCRIPTION
M1	CONTACTOR OR STARTER M1
CR1	CONTROL RELAY CR1
TR2	TIME DELAY RELAY TR2 – ADJUSTABLE TIME DELAY RANGE & SETTING AS SHOWN
TDOE TDOD	TIME DELAY ON ENERGIZATION TIME DELAY ON DE–ENERGIZATION
107, 121	REFERENCED RELAY WITH N.O. CONTACT ON LINE 107 N.C. CONTACT ON LINE 121
CR1 (105)	NORMALLY OPEN, RELAY CONTACT – ACTUATED BY RELAY CR1 COIL LOCATED ON LINE 105
CR1	NORMALLY CLOSED, RELAY CONTACT – ACTUATED BY RELAY CR1
TR2	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER TR2 IS ENERGIZED
TR2	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS ENERGIZED
TR2	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS DE–ENERGIZED
TR2	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER TR2 IS DE–ENERGIZED
TR2	CONTACT OPENS AND CLOSES IN A TIMED REPEAT CYCLE

DEVICES – PROTECTIVE

SYMBOL	DESCRIPTION
V xA xP xT	LOW VOLTAGE MOLDED CASE, INSULATED CASE OR POWER CIRCUIT BREAKER. RATINGS AS SHOWN IN DRAWINGS AND AS DEFINED BELOW: xA: CIRCUIT BREAKER AMERAGE xAT: AMPERAGE TRIP xAF: AMPERAGE FRAME xP: NUMBER OF POLES xT: TRIP PROTECTION MCP: MOTOR CIRCUIT PROTECTION TM: THERMAL MAGNETIC L: LONG TIME DELAY S: SHORT TIME DELAY I: INSTANTANEOUS TRIP G: GROUND FAULT A: ARC FLASH PROTECTION 100% DUTY RATED
100%	y: BREAKER FEATURES / OPTIONS – SHUNT TRIP
S	– KIRK–KEY INTERLOCK
K	– MANUALLY CHARGED PUSHBUTTON OPERATION
M	– ELECTRICALLY CHARGED PUSHBUTTON OPERATION
E	
OL	THERMAL OVERLOAD CONTACT
	THERMAL OVERLOAD ELEMENT
	FUSE MEDIUM VOLTAGE CIRCUIT BREAKER
52	TRIP FUNCTIONS PER DRAWINGS AND SPECIFICATIONS
MFR	MULTIFUNCTION RELAY PER SPECIFICATIONS

WIRING – CONNECTIONS

SYMBOL	DESCRIPTION
	PANEL OR EQUIPMENT WIRING
	FIELD WIRING
	CONDUCTORS – NOT CONNECTED
	CONDUCTORS – CONNECTED
	GROUND CONNECTION
	PLUG AND RECEPTACLE
	INCOMING LINE
123 123	TERMINAL BLOCKS WITH TERMINAL NUMBER AS SHOWN OR AS DETERMINED BY SUBMITTAL
123	DISCONNECTING TERMINAL BLOCK
	FUSE
SHIELD CONDUCTOR	SHIELDED CABLE

PLAN – SYMBOLS

SYMBOL	DESCRIPTION
	CONDUIT, EXPOSED
	CONDUIT, IN SLAB OR BELOW GRADE
	CONDUIT, CONCEALED IN WALL OR CEILING
	CONDUIT STUBBED OUT & CAPPED
	CONDUIT BENDS TOWARD OBSERVER
	CONDUIT BENDS AWAY FROM OBSERVER
	CONDUIT ENDS
J	FLEXIBLE CONDUIT CONNECTION FROM J–BOX TO EQUIPMENT
	CONDUIT CHANGE IN ELEVATION
G	BARE COPPER GROUND WIRE
G	GROUND CONNECTION BOLTED TYPE
G	GROUND CONNECTION EXOTHERMIC WELD TYPE
	DISCONNECT SWITCH
	FIELD MOUNTED DEVICE
	TELEPHONE/DATA RECEPTACLE 2 PORT TA568A, 2 CAT 6 CABLES
#	CONDUIT REFERENCE TO SCHEDULE
T	THERMOSTAT
E	EYS SEAL
J	JUNCTION BOX
	PULL BOX OF SIZE SHOWN (CHRISTY BOX SIZE MINIMUM)
A a #	LIGHTING FIXTURE # – CIRCUIT BREAKER NUMBER A – FIXTURE SCHEDULE REF. a – CONTROL SWITCH REFERENCE
WP #7 WP	DUPLEX RECEPTACLE # – CIRCUIT BREAKER NUMBER WP – WEATHERPROOF (IF SHOWN) GFI – GROUND FAULT TYPE
aM	TOGGLE SWITCH a – FIXTURES CONTROLLED 3 – 3 WAY M = MOTION DETECTOR T = TIMER SWITCH
	SPECIAL RECEPTACLE AS REQUIRED FOR EQUIPMENT TO BE CONNECTED

MISCELLANEOUS ABBREVIATIONS

&	AND	N	NEUTRAL
@	AT	NC	NORMALLY CLOSED
A	AMBER, AMPERES	NHC	NORMALLY HELD CLOSED
AC	ALTERNATING CURRENT	NHO	NORMALLY HELD OPEN
ACK	ACKNOWLEDGE	NIC	NOT IN CONTRACT
AFF	ABOVE FINISHED FLOOR	NL	NIGHT LIGHT
AH	AMP HOUR	NO	NORMALLY OPEN
AI	ANALOG INPUT	NTS	NOT TO SCALE
AIC	AMP INTERRUPTING CAPACITY SYMMETRICAL	(N)	NEW
AM	AMP METER	OC	ON CENTER
AO	ANALOG OUTPUT	OI, OIT	OPERATOR INTERFACE
AWG	AMERICAN WIRE GUAGE	OL	OVERLOAD
ATS	AUTOMATIC TRANSFER SWITCH	ORP	OXIDATION REDUCTION POTENTIAL
BATT	BATTERY	P	POLE
BFC	BELOW FINISHED CEILING	PB	PUSHBUTTON
BOD	BIOCHEMICAL OXYGEN DEMAND	PBX	PULL BOX
BPF	BAND PASS FILTER	PDB	POWER DISTRIBUTION BLOCK
BYP	BYPASS	PF	POWER FACTOR
C	CONDUIT	PFR	POWER FAIL RELAY
CAP	CAPACITOR	PH	HYDROGEN ION CONCENTRATION
CB	CIRCUIT BREAKER	PLC	PROGRAMMABLE LOGIC CONTROLLER
CKT	CIRCUIT	PM	POWER MONITOR
COAX	COAXIAL CABLE	PNL	PANEL
COMM	COMMUNICATION	POT	POTENTIOMETER
CR	CONTROL RELAY	PR	PAIR, TWISTED AND SHIELDED
CT	CURRENT TRANSFORMER	PRI	PRIMARY
CS	CONSTANT SPEED	PROVIDE	FURNISH, INSTALL, AND CONNECT
CU	COPPER	PS	PRESSURE SWITCH
DC	DIRECT CURRENT	PT	POTENTIAL TRANSFORMER
DET	DETAIL	PTT	PUSH TO TEST
DI	DIGITAL INPUT	PVC	POLYVINYLCHLORIDE
DISC	DISCONNECT	PWR	POWER
DO	DIGITAL OUTPUT	REF	REFERENCE
DPDT	DOUBLE POLE DOUBLE THROW	RFI	RADIO FREQUENCY INTERFERENCE
DWG	DRAWING	RMS	ROOT MEAN SQUARE
E–DTL	ELECTRICAL DRAWING DETAIL	RTD	RESISTANCE TEMPERATURE DETECTOR
ELEV	ELEVATION	RST	RESET
ENET	ETHERNET	RVAT	REDUCE VOLTAGE AUTO TRANSFORMER
ETM	ELAPSED TIME METER	RTU	REMOTE TERMINAL UNIT
ESW	ETHERNET SWITCH	(R)	REWIRE, RELOCATE, REVISE, REUSE
(E)	EXISTING	SCH	SCHEDULE
FCS	FIELD CONTROL STATION	SEC	SECONDARY, SECOND
FLA	FULL LOAD AMPS	SECS	SECONDS
FLEX	FLEXIBLE LIQUID TIGHT CONDUIT	SEL	SELECTOR
FS	FULL SPEED	SFA	SERVICE FACTOR AMPS
FVNR	FULL VOLTAGE NON–REVERSING	SPEC	SPECIFICATION
FVR	FULL VOLTAGE REVERSING	SPD	SURGE PROTECTIVE DEVICE
FWD	FORWARD	SS	STAINLESS STEEL
(F)	FUTURE	SSRC	STAINLESS STEEL RIGID CONDUIT
GALV	GALVANIZED	SSS	SOLID STATE STARTER
GFI	GROUND FAULT INTERRUPTER	STT	START
GND	GROUND	STP	STOP
GRS	GALVANIZED RIGID STEEL CONDUIT	SV	SOLENOID VALVE
GRS–PVC	PVC COATED GRS CONDUIT	SW	SWITCH
HI	HIGH	SWBD	SWITCHBOARD
HIM	HUMAN INTERFACE MODULE	SYM	SYMMETRICAL
HOA	HAND OFF AUTO	TB	TERMINAL BLOCK
HP	HORSE POWER	TC	TIME CLOCK
HPS	HIGH PRESSURE SODIUM	TDOD	TIME DELAY ON DE–ENERGIZATION
HS	HAND SWITCH	TDOE	TIME DELAY ON ENERGIZATION
HTR	HEATER	TELCO	TELEPHONE COMPANY
HZ	HERTZ	TM	THERMAL MAGNETIC
HZD	HAZARD	TEMP	TEMPERATURE
I	INTERLOCK	TR	TIME DELAY RELAY
I/O	INPUT/OUTPUT	TRIAD	TWISTED AND SHIELDED 3 CONDUCTOR
INST	INSTANTANEOUS	TS	TEMPERATURE SWITCH
ISR	INTRINSICALLY SAFE RELAY	TSPR	TWISTED AND SHIELDED PAIR
IS	INTRINSICALLY SAFE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
J	JUNCTION BOX	TYP	TYPICAL
K	KILO, PREFIX	UG	UNDERGROUND
LA	LIGHTNING ARRESTOR	ULH	ULTRA LOW HARMONIC
LC	LIGHTING CONTACTOR	UON	UNLESS OTHERWISE NOTED
LEL	LOWER EXPLOSION LIMIT	UPS	UNINTERRUPTIBLE POWER SUPPLY
LOS	LOCK OUT STOP	V	VOLTAGE
LS	LIMIT SWITCH	VA	VOLT AMPS
M	MOTOR CONTACTOR	VAR	VOLT AMPS REACTIVE
MAG	MAGNETIC FLOWMETER	VFD	VARIABLE FREQUENCY DRIVE
MAX	MAXIMUM	VLV	VALVE
MCC	MOTOR CONTROL CENTER	VM	VOLTMETER
MCM	THOUSAND CIRCULAR MILS	VMR	VOLTAGE MONITOR RELAY
MCP	MOTOR CIRCUIT PROTECTOR	VR	VOLTAGE RELAY
MCS	MOLDED CASE SWITCH	W	WATTS
MH	MANHOLE	WP	WEATHER PROOF, NEMA 3R
MIN	MINIMUM, MINUTE	WTP	WATER TREATMENT PLANT
MODEM	MODEM	WWTP	WASTE WATER TREATMENT PLANT
MOV	MOTOR OPERATED VALVE	XFMR	TRANSFORMER
MTR	MOTOR	Z	IMPEDANCE
MUX	MULTIPLEXER	ZS	LIMIT SWITCH
MV	MERCURY VAPOR, MEDIUM VOLTAGE		

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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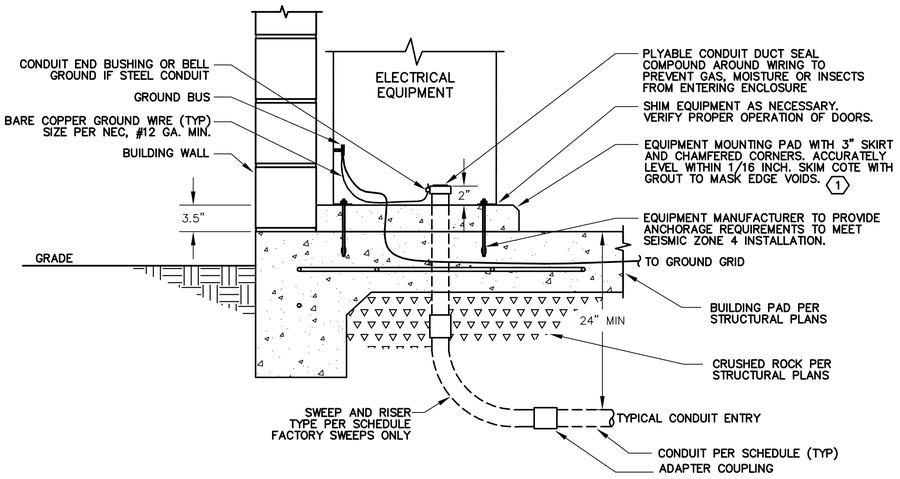
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DATE: JUL 22, 2025 TIME: 3:20:28PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ELECTRICAL
SYMBOLS AND ABBREVIATIONS

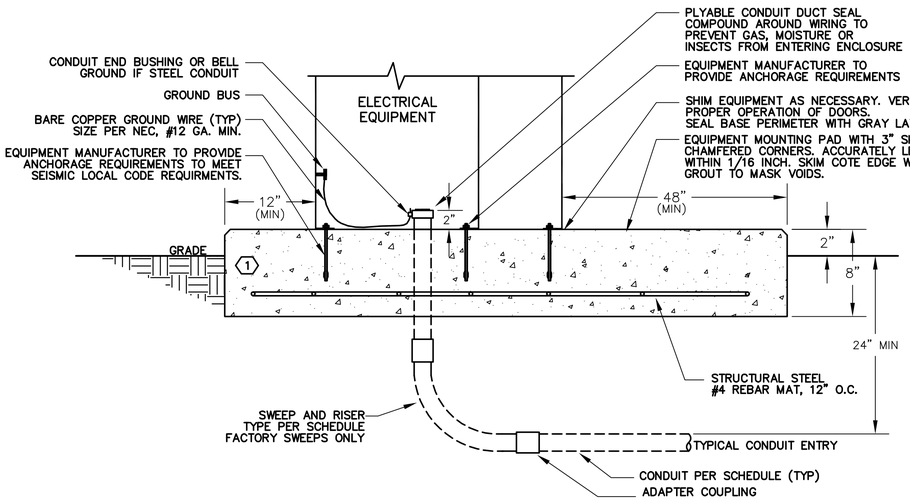
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 00-E-01
SHEET NUMBER 42



IECP — **INDOOR EQUIPMENT CONCRETE PAD DETAIL**

NOT TO SCALE

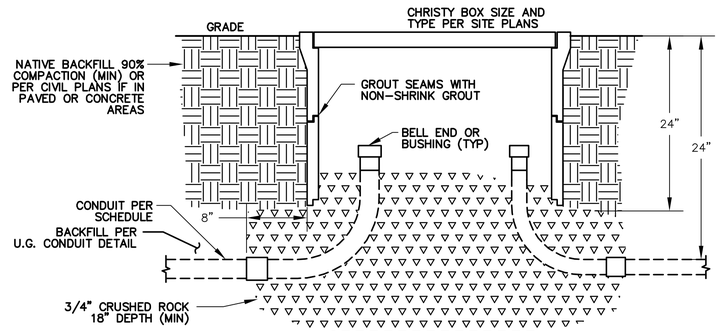
NOTES: 1 CONTRACTOR SHALL VERIFY EQUIPMENT SIZE AND SIZE PAD ACCORDINGLY. EQUIPMENT MANUFACTURER TO PROVIDE EQUPMENT DIMENSIONS.



OECP — **OUTDOOR EQUIPMENT CONCRETE PAD DETAIL**

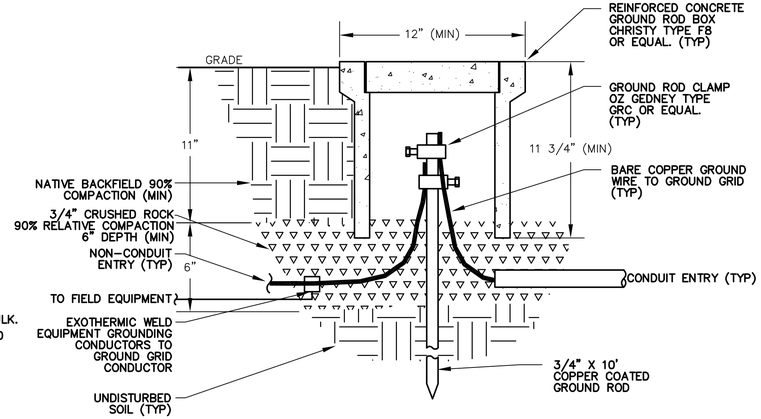
NOT TO SCALE

NOTES: 1 CONTRACTOR SHALL VERIFY EQUIPMENT SIZE AND SIZE PAD ACCORDINGLY. EQUIPMENT MANUFACTURER TO PROVIDE EQUPMENT DIMENSIONS.



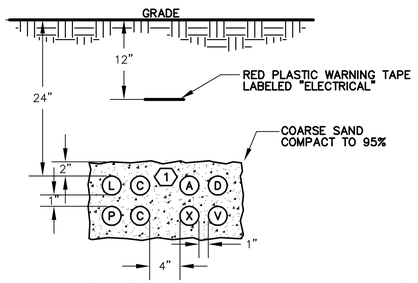
UPB — **UNDERGROUND PULL BOX DETAIL**

NOT TO SCALE



GIB — **GROUND INSPECTION BOX DETAIL**

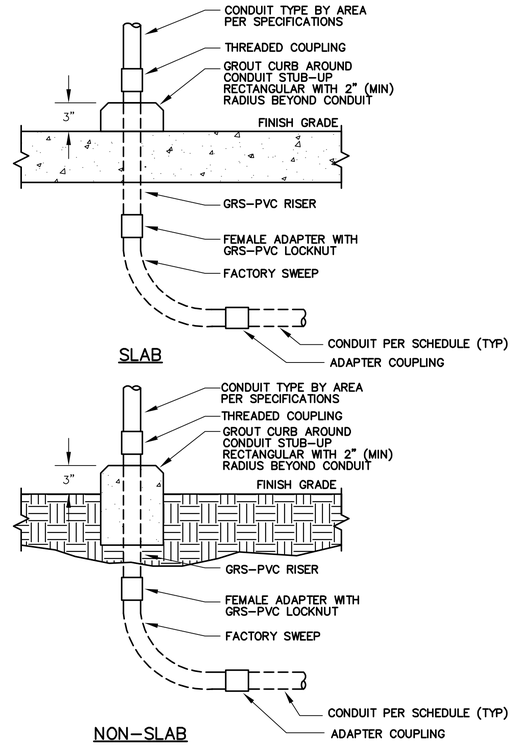
NOT TO SCALE



LVC — **LOW VOLTAGE NON-DUCT BANK SECTION**

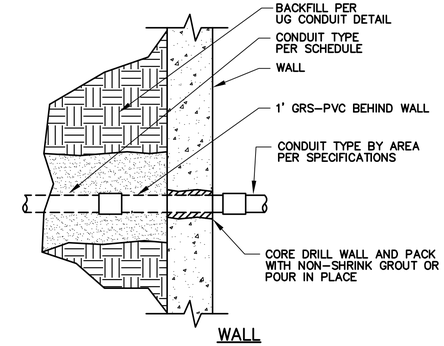
NOT TO SCALE

NOTES:
1. NUMBER OF CONDUITS PER PLANS AND SCHEDULE. MAXIMUM DEPTH OF TRENCH SHALL BE 42". DESIGN TRENCH DESIGN AND INSTALL TRENCH TO MAINTAIN 6" VERTICAL CLEARANCE AND 12" HORIZONTAL CLEARANCE FROM PIPES.
2. P, L, OR C DESIGNATION FOR POWER OR CONTROL CONDUITS.
3. A, D, V, OR X DESIGNATION FOR COMMUNICATION (TELEPHONE, DATA, VIDEO, OR INSTRUMENTATION) CONDUITS.
4. USE CONDUIT SPACERS TO SUPPORT CONDUITS AND MAINTAIN SPACING (3' INTERVALS)



SLAB

NON-SLAB



WALL

ECT — **EXPOSED CONDUIT TRANSITION DETAIL**

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

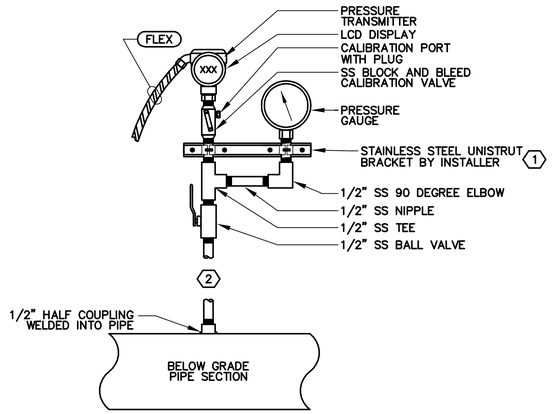
FRISCH ENGINEERING, INC.
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WWW.FRISCHENGINEERING.COM
FILE: 19-077 DETAILS 1.DWG
DATE: JUL 22, 2025 TIME: 3:21:00PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ELECTRICAL
DETAILS 1

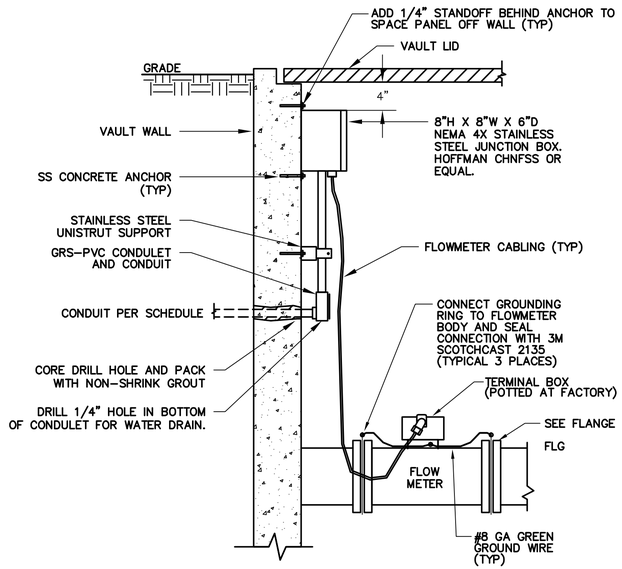
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 00-E-02
SHEET NUMBER 43



PT — PRESSURE TRANSMITTER DETAIL

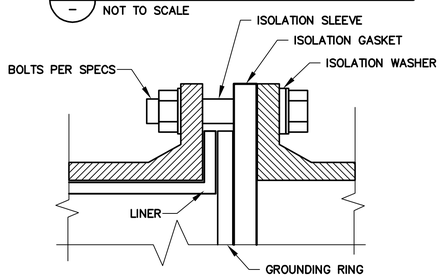
NOT TO SCALE

NOTES: (1) MOUNT PRESSURE TRANSMITTER AND GAUGE TO BUILDING WALL
(2) PIPING PER CIVIL PLANS



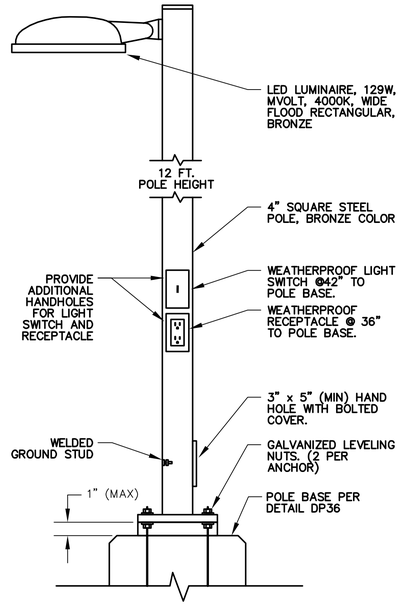
FM — FLOWMETER VAULT DETAIL

NOT TO SCALE



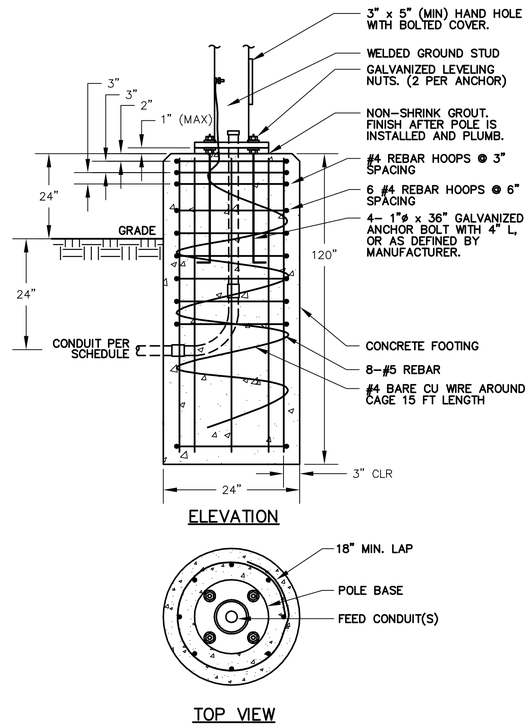
FLG — FLOWMETER FLANGE ASSEMBLY

NOT TO SCALE



AL — AREA LIGHT DETAIL

NOT TO SCALE

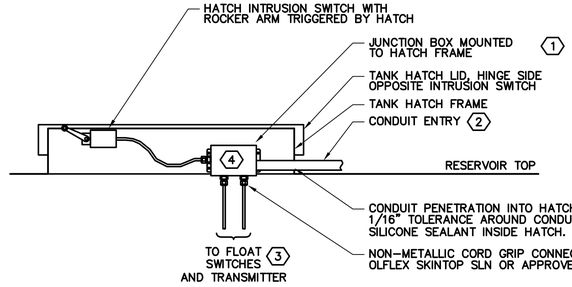


ELEVATION

TOP VIEW

DP24 — DRILLED PIER DETAIL 24

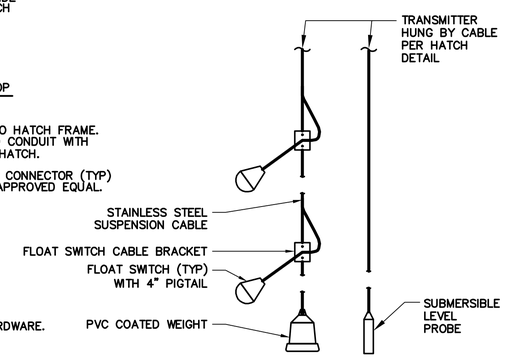
NOT TO SCALE



RHD — RESERVOIR HATCH DETAIL

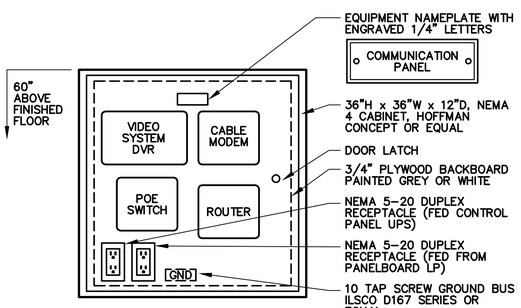
SECTION VIEW, NOT TO SCALE

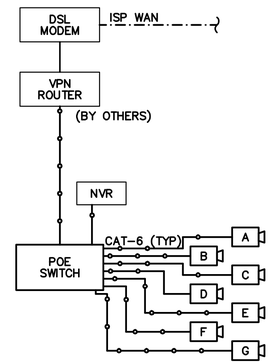
NOTES:
(1) 6"H X 4"W X 4"D, NEMA 4X PVC JUNCTION/SPLICE BOX. JUNCTION BOX SHALL BE HOFFMAN JFGQRR OR EQUAL. MOUNT BOX ON WALL OF HATCH FRAME USING STAINLESS STEEL HARDWARE. MOUNT BOX WITH HINGE ON BOTTOM. APPLY SILICONE SEALANT TO PENETRATION BACKS TO SEAL BOX COMPLETELY.
(2) CONDUIT SHALL BE SUPPORTED ON ROOF OF RESERVOIR BY SOLID-BACKED GALVANIZED STEEL UNISTRUT THAT IS FULL PERIMETER SEAL-WELDED TO THE RESERVOIR PRIOR TO PAINTING. UNISTRUT SHALL BE SIZED TO ACCEPT TWO ADDITIONAL (FUTURE) CONDUIT. UNISTRUT SHALL BE PAINTED ALONG WITH TANK.
(3) FLOAT SWITCH CABLES SHALL BE ATTACHED TO LADDER INSIDE TANK. USE ALL-PLASTIC ZIP TIES ON 2 FOOT CENTERS. HIGH FLOAT SHALL TRIP 4 INCHES BELOW OVERFLOW OUTLET. LOW FLOAT SHALL (UN)TRIP 6 INCHES ABOVE PUMP SUCTION OUTLET.
(4) SPLICES IN SPLICE BOX SHALL BE WATERPROOF. AFTER TESTING, INSTALL EPOXY RESIN SPLICE KITS, 3M SCOTCH-CAST OR APPROVED EQUAL.



FST — FLOAT SWITCH AND LEVEL TRANSMITTER DETAIL

NOT TO SCALE





ETHERNET VIDEO CAMERAS

CP — COMMUNICATION PANEL

NOT TO SCALE

NOTES: 1. PANEL SHALL BE NEMA 1 WHEN INSTALLED INDOORS AT PUMP STATIONS. PANEL SHALL BE NEMA 3R WHEN INSTALLED OUTDOORS AT STREAM LEVEL MONITORING STATION.

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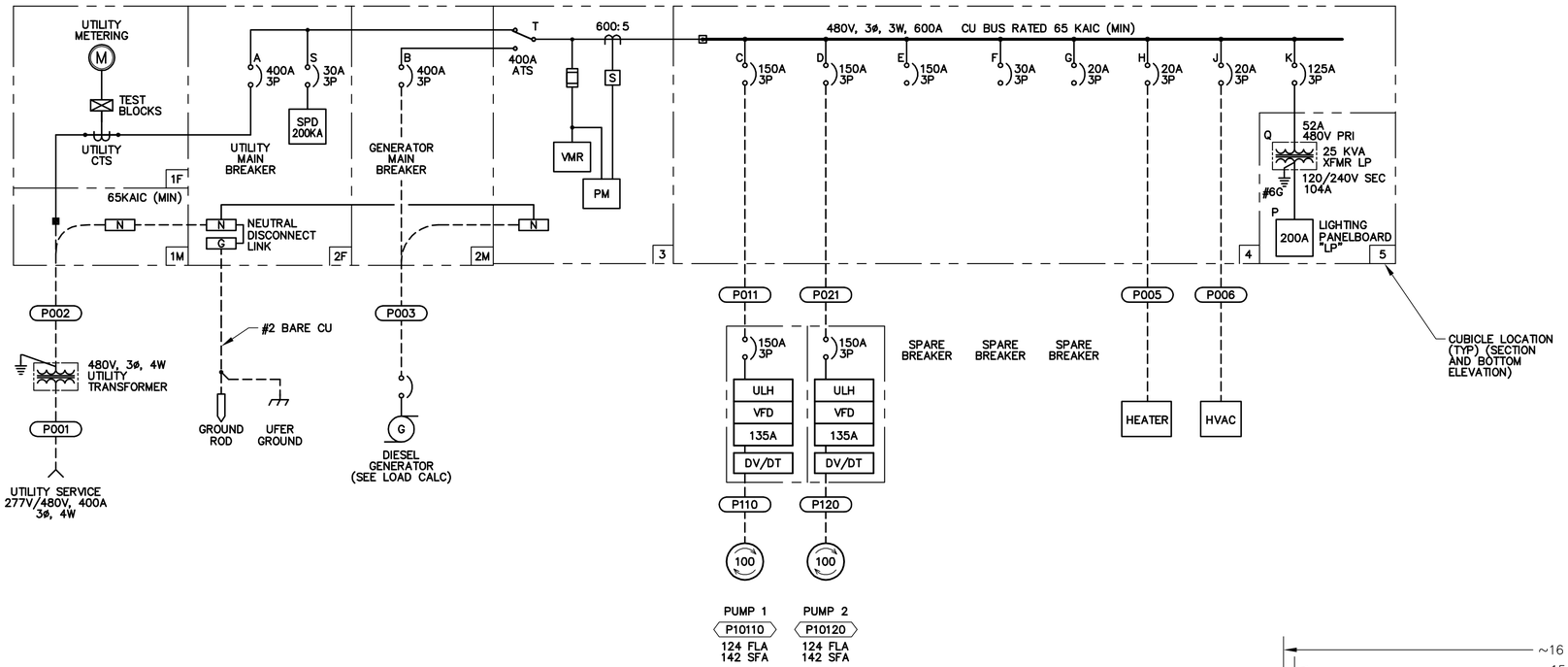
FILE: 19-077 DETAILS 2.DWG
DATE: JUL 22, 2025 TIME: 3:21:10PM

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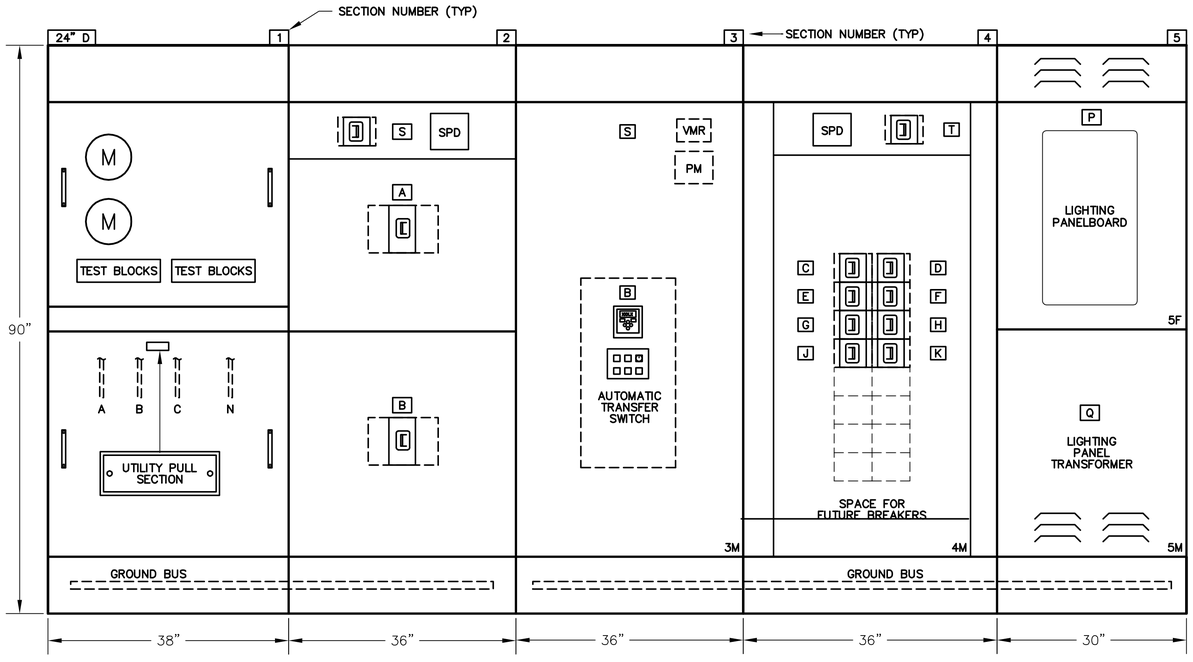
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ELECTRICAL
DETAILS 2

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 00-E-03
SHEET NUMBER 44



ONE-LINE DIAGRAM

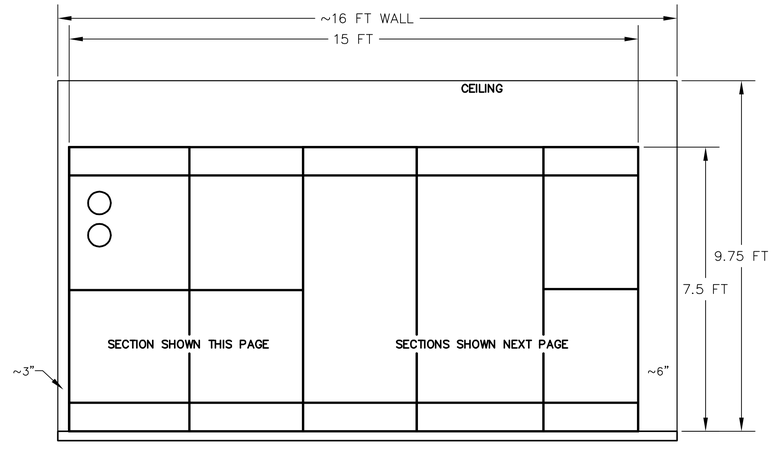


METER/MAIN ELEVATION

NEMA 1, INDOOR

ATS AND DISTRIBUTION ELEVATION

NEMA 1, INDOOR



ELECTRICAL METER WALL ELEVATION

NEMA 1, INDOOR

GENERAL NOTES:

1. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
2. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
3. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, ON EXTERIOR DOORS AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
4. FURNISH CODE REQUIRED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

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FILE: 10-E-01.DWG
DATE: JUL 22, 2025 TIME: 3:21:47PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION METER/MAIN ONE-LINE AND ELEVATION

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-01
SHEET NUMBER 45

LOAD CALCULATIONS

LOAD DESCRIPTION		CONNECTED LOAD LOAD	QTY	TOTAL	DEMAND LOAD LOAD	QTY	TOTAL	GENERATOR LOAD LOAD	QTY	TOTAL	SHORT CIRCUIT CALCULATIONS SCA/LOAD	QTY	TOTAL
											UTILITY	1	5419.1A AIC
100HP PUMP		124.00 A	2	206183.3 VA	124.00 A	2	206183.3 VA	124.00 A	2	206183.3 VA	744.00 A	2	1488.0A
5KW HVAC SYSTEM		6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	36.08 A	1	36.1A
5KW HEATER		6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	6.01 A	0	5000.0 VA	0.00 A	1	0.0A
PANELBOARD LP	120/240	17.52 A	1	14564.0 VA	14.01 A	1	11651.2 VA	14.01 A	1	11651.2 VA			
	TOTAL LOAD =	277.55 A	<	230747.3 VA	274.04 A	<	227834.5 VA	274.04 A	<	227834.5 VA	TOTAL		6943.2A
LOAD CORRECTION FACTORS								GENERATOR SIZE			MAXIMUM SHORT		
LARGEST MOTOR LOAD x 25%:								NAMEPLATE = 275 KW 343.75 KVA			CIRCUIT PRODUCED =		6943.2A AIC
100HP HP => 0.25 x	103091.7 VA =	31.00 A		25772.9 VA	31.00 A		25772.9 VA	@ TEMP OF 100 deg F					
80% BREAKER DERATING =	TOTAL x 0.25 =	77.14 A		64130.1 VA	76.26 A		63401.9 VA	ELEVATION OF 800 FT ASL			EQUIPMENT RATING =		65000A AIC
FOR CONTINUOUS LOADS NEC 210-20								DERATED SIZE = 268.7 KW 335.8 KVA			MINIMUM PER SPEC		
	SERVICE SIZE (MIN) =	385.68 A		320650.3VA	381.30 A		317009.3VA	AMPERAGE = 404 A @ 0.8 PF			NO SERIES DERATING		
	UTILITY SERVICE =	400 AMP						UTILIZATION % = 76 % @ 0.90 PF			EQUIPMENT IS "OK"		
	480V, 3 PHASE, 4 WIRE							VOLT DIP % = 15% MAXIMUM					

GENERAL NOTES:

1. REAR ACCESS SHALL NOT BE REQUIRED TO SERVICE OR REPLACE SWITCHBOARD COMPONENTS.
2. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
3. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
4. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
5. FURNISH CODE REQURIED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

NOTES:

ADD THE PREFIX 10 TO COMPLETE CONDUIT, INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET.

NOTES REFERENCED IN DRAWING:

(1) MOUNT PFR AND POWER MONITOR BEHIND THIS DOOR ACCESS TO DEVICES SHALL BE BEHIND DOOR.

PANEL "LP"

LOCATION:MCC SECTION
ENCLOSURE:NEMA 1A
AIC RATING:22 KAIC

120/ 240 VOLTS, 1 PHASE, 3 WIRE
100 AMP BUS
100 AMP MAIN BREAKER

BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS		AMPS/ POLE	BKR NO.	BKR NO.	AMPS/ POLE	LINE AMPS		LOAD VA	DESCRIPTION	BKR NO.
1	LIGHTING ELECTRICAL ROOM	168	1.4		20/1	1	2	20/1	5.0		600	CONTROL PANEL	2
3	LIGHTING PUMP ROOM	168		1.4	20/1	3	4	20/1		1.7	200	CONTROL PANEL AUXILLIARY	4
5	LIGHTING OUTDOORS	228	1.9		20/1	5	6	20/1	0.0		0	SPARE	6
7	RECEPTACLE ELECTRICAL ROOM	1200		10.0	20/1	7	8	20/1		0.0	0	SPARE	8
9	RECEPTACLE PUMP ROOM	1200	10.0		20/1	9	10	20/1	10.0		1200	ELECTRICAL ROOM EXHAUST FAN	10
11	RECEPTACLE OUTDOORS	900		7.5	20/1	11	12	20/1		15.0	1800	PUMP ROOM EXHAUST FAN	12
13	SPARE	0	0.0		20/1	13	14	20/1	1.7		200	COMMUNICATION PANEL	14
15	METERING SYSTEM	600		5.0	20/1	15	16	20/1		4.2	500	GENERATOR BATTERY CHARGER	16
17	TANK 6 PAX SYSTEM	600	5.0		20/1	17	18	40/2	10.0		1200	GENERATOR BLOCK HEATER	18
19	TANK 6A PAX SYSTEM	600		5.0	20/1	19	20			10.0	1200		20
21	(E) TRANSMITTER PANEL	600	5.0		20/1	21	22	20/1	0.0		0	SPARE	22
23	SPARE	0		0.0	20/1	23	24	20/1		1.7	200	CL2 ANALYZER	24
25	SPARE	0	0.0		20/1	25	26	20/1	10.0		1200	VEHICLE GATE	26
27	SPARE	0		0.0	20/1	27	28	20/1		0.0	0	SPARE	28
29	SPARE	0	0.0		20/1	29	30	20/1	0.0		0	SPARE	30
31	SPARE	0		0.0	20/1	31	32	20/1		0.0	0	SPARE	32
33	SPACE	0	0.0			33	34		0.0		0	SPACE	34
35	SPACE	0		0.0		35	36			0.0	0	SPACE	36
37	SPACE	0	0.0			37	38		0.0		0	SPACE	38
39	SPACE	0		0.0		39	40			0.0	0	SPACE	40
41	SPACE	0	0.0			41	42		0.0		0	SPACE	42

PHASE	A	B		A	B	PHASE
LEFT SIDE AMPS	23.30	28.90	NEUTRAL	36.67	32.50	RIGHT SIDE AMPS
LEFT SIDE KVA	2.80	3.47		4.40	3.90	RIGHT SIDE KVA
			GROUND			
TOTAL PHASE KVA	7.20	7.37		14.56		TOTAL KVA
TOTAL PHASE AMPS	60	61		60.68		TOTAL AMPS @ 240V, 1P
% OF AVERAGE	99	101		0.80		DIVERSITY FACTOR
				11.65		LOAD KVA

NOTES:
1 MEANS OF WIRE COLOR CODING SHALL BE POSTED ON PANELBOARD PER NEC 210 (4)
2 ASTERISK (*) DENOTES GFI BREAKER REQUIRED WITH 5 MA SENSITIVITY
3 TILDA (~) DENOTES GFI BREAKER REQUIRED WITH 30 MA SENSITIVITY

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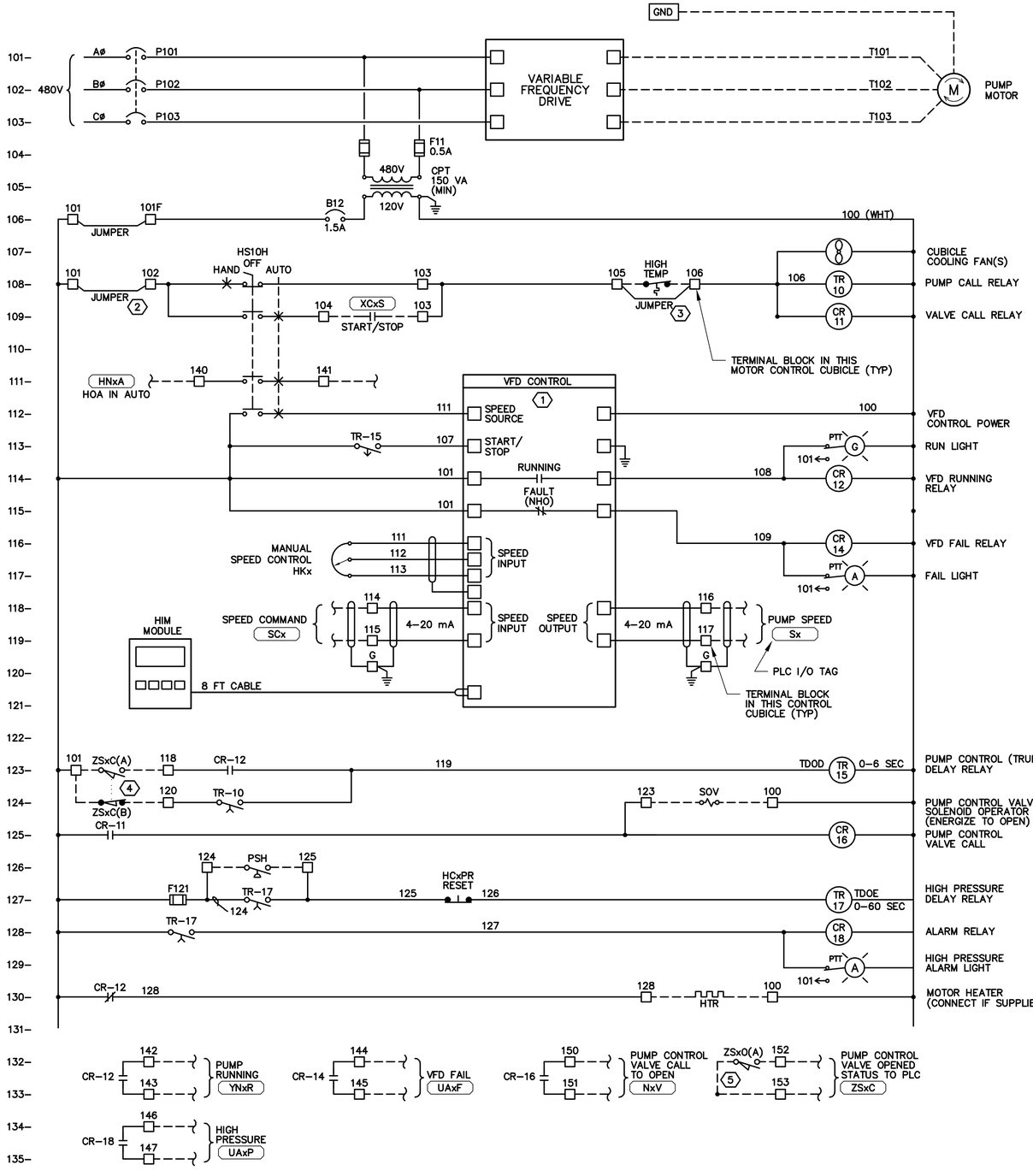
FRISCH ENGINEERING, INC.
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

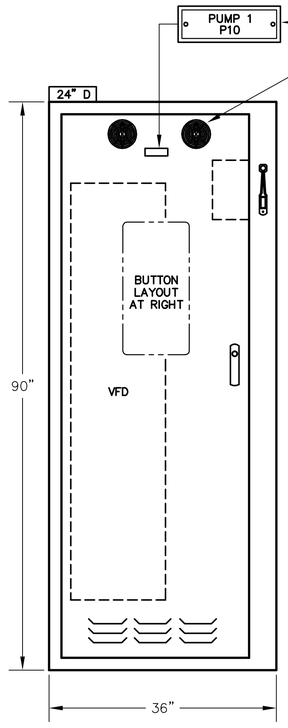
ELECTRICAL
LAKE PUMP STATION
LOAD CALCULATION AND PANELBOARD SCHEDULE

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-02
SHEET NUMBER 46



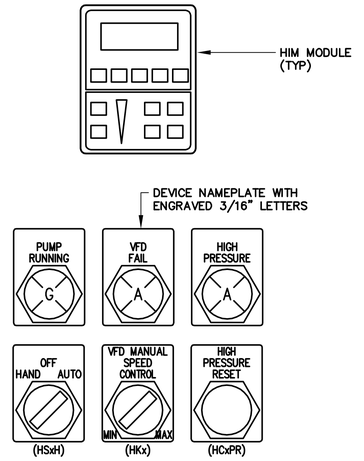
VFD PUMP ELEMENTARY DIAGRAM

TYPICAL FOR LAKE PS: P10110 P10120



VFD ELEVATION

INDOOR, NEMA 1



DOOR LAYOUT

NOT TO SCALE

PANEL FABRICATION METHODS

1. NEMA 1, INDOOR INSTALLATION.
2. ALL SEAMS CONTINUOUS WELDED.
3. OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCHES.
4. DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
5. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
6. INTERNAL SCREWS, BOLTS, AND NUTS SHALL BE MACHINE THREAD.
7. EXTERIOR PANEL COLOR: BRUSHED STAINLESS STEEL
8. PLASTIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT.
9. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
10. ALL WIRING SHALL BE PERMANENTLY LABELLED WITH WIRE MARKERS ON BOTH ENDS.
11. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
12. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.

NOTES REFERENCED IN DRAWING:

1. PROVIDE VFD WITH 120 VAC CONTROL CIRCUIT INTERFACE AND ELECTRONIC OVERLOAD PROTECTION.
2. MOTOR OVERTEMPERATURE SWITCH, INSTALL IF SUPPLIED, JUMPER IF NOT.
3. REMOVE JUMPER FOR DEVICE WHEN CONNECTED.
4. SWITCH CHANGES STATE WHEN VALVE FULLY CLOSED. USE FORM C CONTACTS FOR FULLY CLOSED SWITCH (ZSxC) ONLY.
5. SWITCH CHANGES STATE WHEN VALVE FULLY OPEN. USE FORM C CONTACTS FOR FULLY OPEN SWITCH (ZSxO) ONLY.

GENERAL NOTES:

1. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPTION: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.
2. SIMILAR DIAGRAM FOR ALL VFD MOTORS AS SHOWN IN ONE–LINE DIAGRAM

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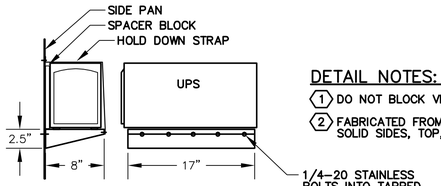
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
VFD PUMP ELEMENTARY DIAGRAM AND ELEVATION

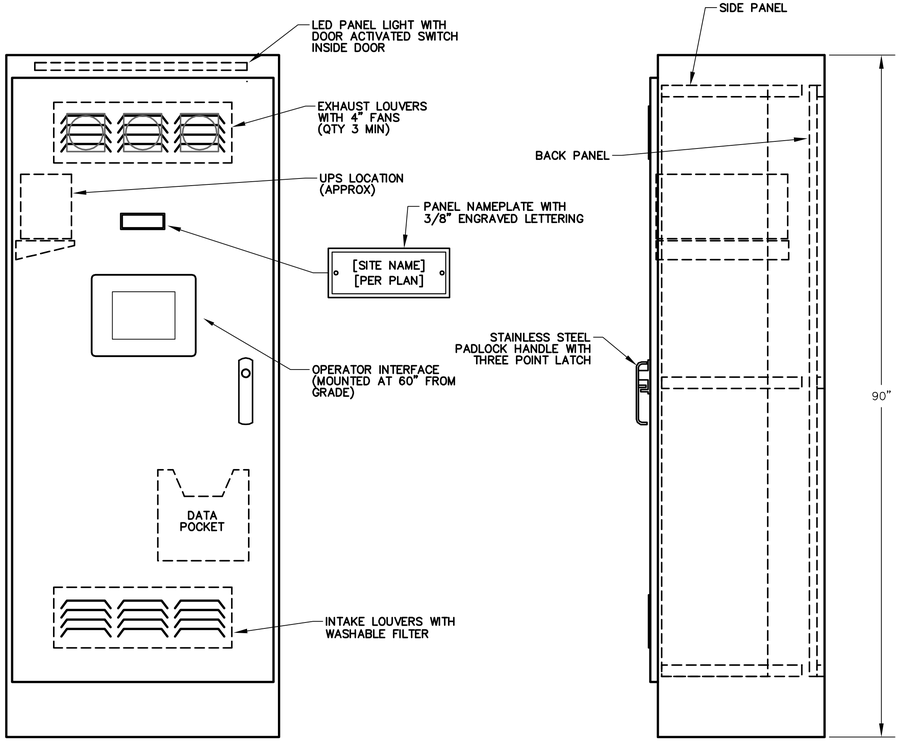
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-03
SHEET NUMBER 47



UPS SHELF DETAIL
SCALE: 1" = 10"

DETAIL NOTES:

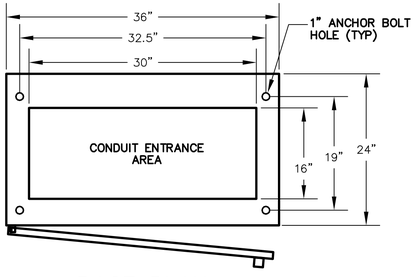
1. DO NOT BLOCK VENTS WITH SPACER BLOCK. USE TWO.
2. FABRICATED FROM 14 GA (MIN) PAINTED GALVANEAL OR STAINLESS STEEL SOLID SIDES, TOP, BACK AND FRONT WITH CONTINUOUS WELDED SEAMS.



FRONT ELEVATION

SIDE ELEVATION

ELEVATION
SCALE: 1" = 10"



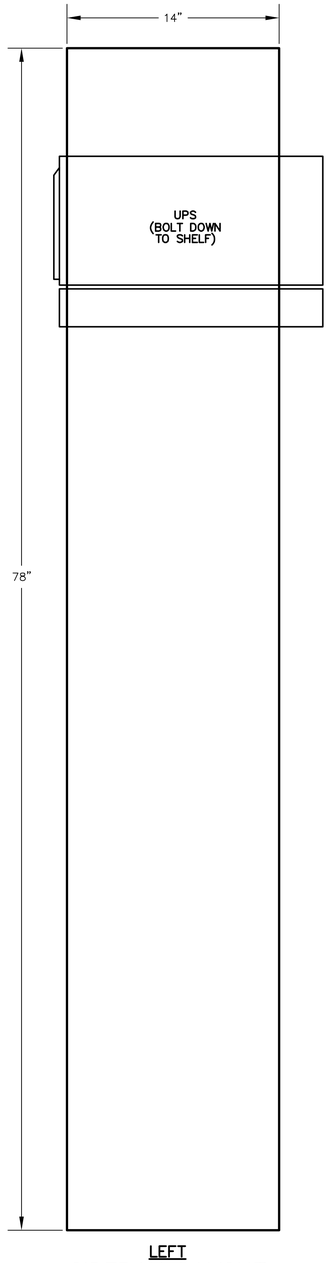
BASE PLAN

PANEL FABRICATION METHODS

1. FREESTANDING, OPEN BOTTOM.
2. OUTER DOOR SEALED WITH RUBBERIZED FOAM GASKET.
3. PANEL SHALL BE FABRICATED FROM PAINT BOND GALVANEAL SHEET STEEL.
4. 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
5. ALL SEAMS SHALL HAVE CONTINUOUS WELD GROUND SMOOTH.
6. DOOR TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCH.
7. DOOR HINGES AND PINS SHALL BE CONTINUOUS, HEAVY DUTY.
8. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
9. INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE MACHINE THREAD INTO TAPPED BACKPAN.
10. EXTERIOR PANEL COLOR: ANSI 61 GRAY.
11. MOUNTING PAN AND INTERIOR DOOR COLOR: WHITE.
12. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
13. ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
14. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
15. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.
16. HOFFMAN TYPE 12 FREE–STANDING, OR EQUAL.

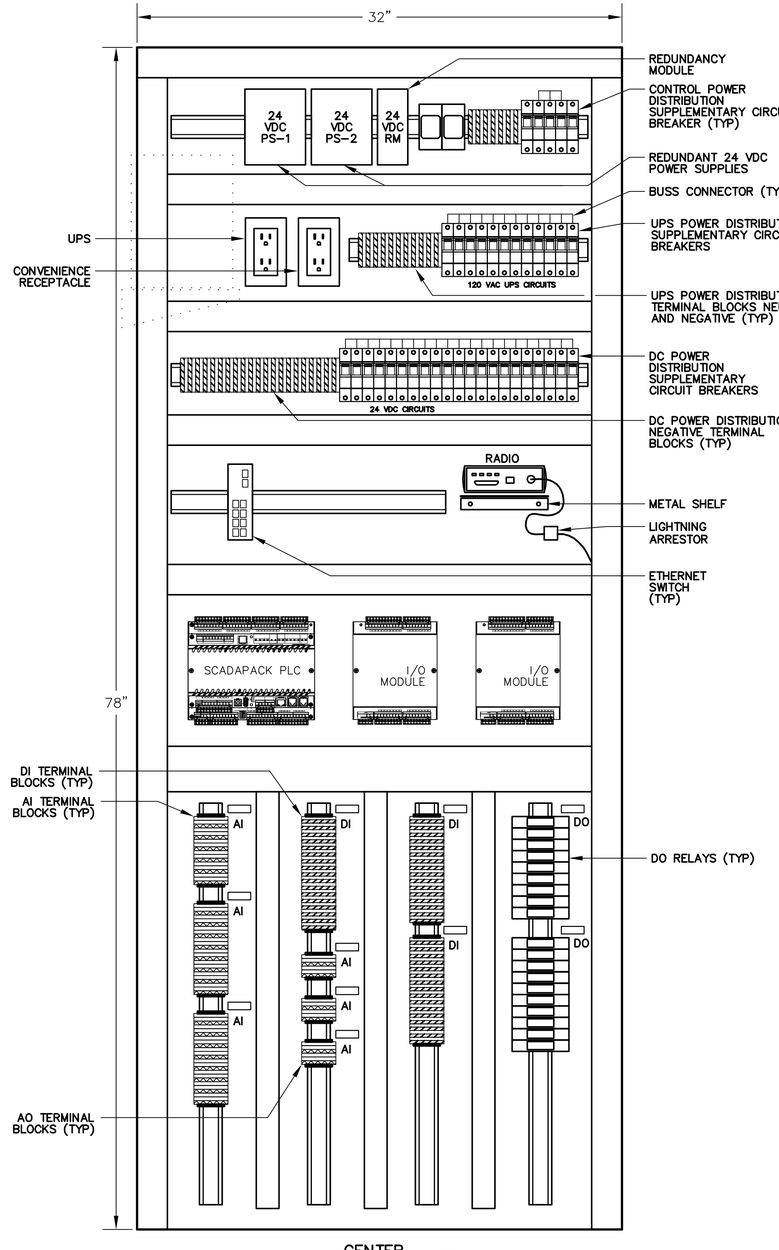
GENERAL NOTES:

1. REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ACTUAL BACKPAN LAYOUT SHALL BE SIMILAR TO LAYOUT SHOWN. SUBMIT SCALED BACKPAN LAYOUT FOR REVIEW BY ENGINEER.
2. QUANTITY OF TERMINAL BLOCKS AND RELAYS SHALL BE AS DETERMINED BY P&IDS AND EXAMPLE I/O WIRING DIAGRAM



LEFT

SIDEPAN LAYOUT
SCALE: 1" = 5"



CENTER ⟨1⟩

BACKPAN LAYOUT
SCALE: 1" = 5"

LAYOUT REFERENCED NOTES:

⟨1⟩ WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.

⟨2⟩ ADDITIONAL FIBER OPTIC (AUX) SWITCH ONLY FOR PUMP STATION B. SEE NETWORK TOPOLOGY DWG 00–I–02

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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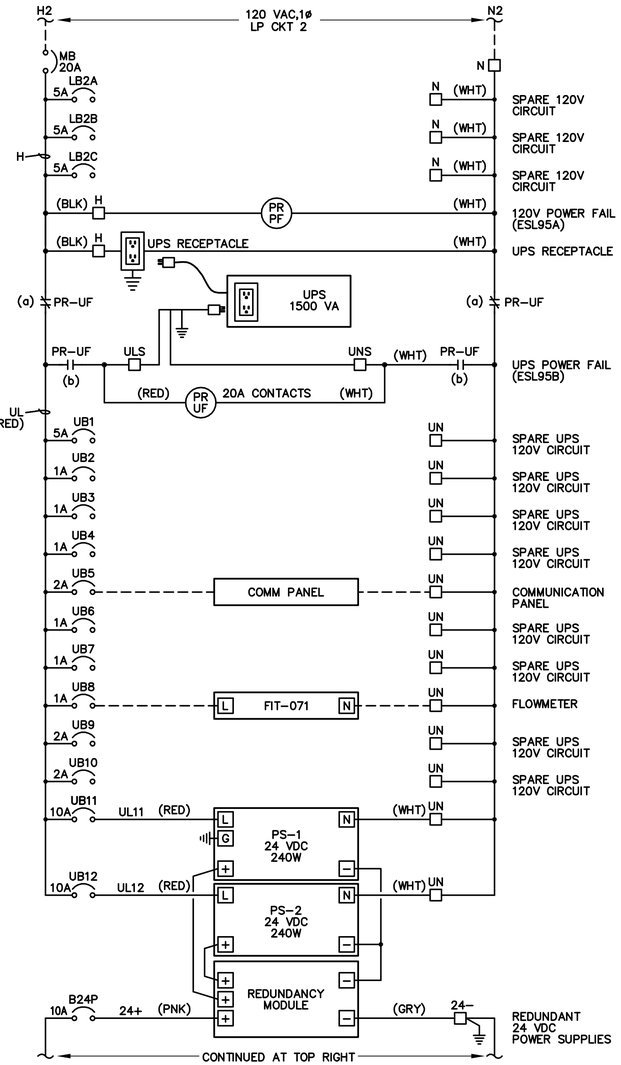
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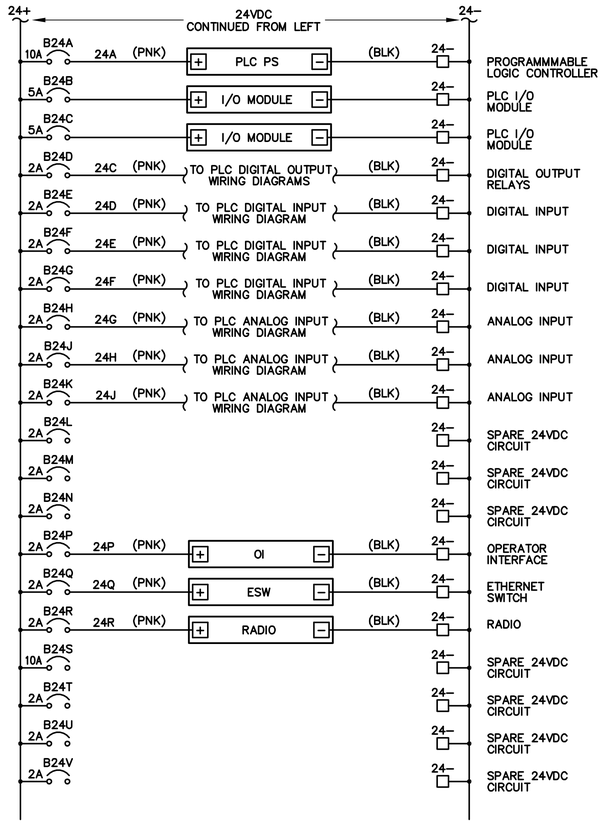
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

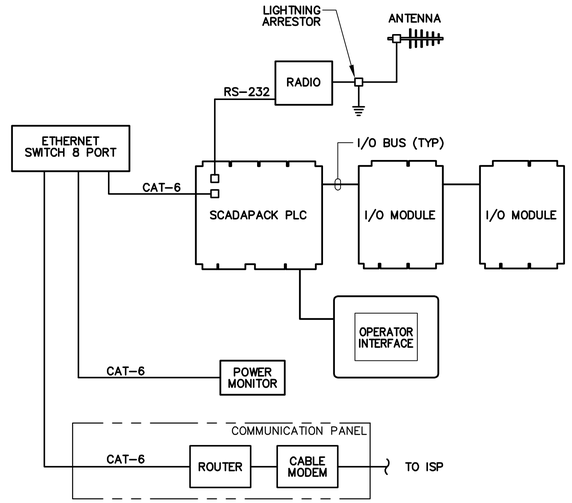
ELECTRICAL
LAKE PUMP STATION
CONTROL PANEL ELEVATION AND BACKPAN LAYOUT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-04
SHEET NUMBER 48

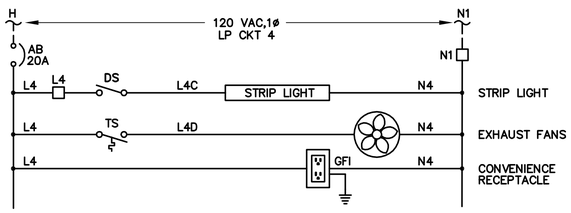


POWER DISTRIBUTION DIAGRAM

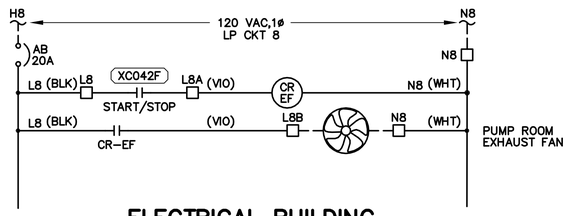




COMMUNICATION BLOCK DIAGRAM



AUXILLIARY POWER DIAGRAM



ELECTRICAL BUILDING EXHAUST FAN POWER DIAGRAM

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FILE: 10-E-05.DWG
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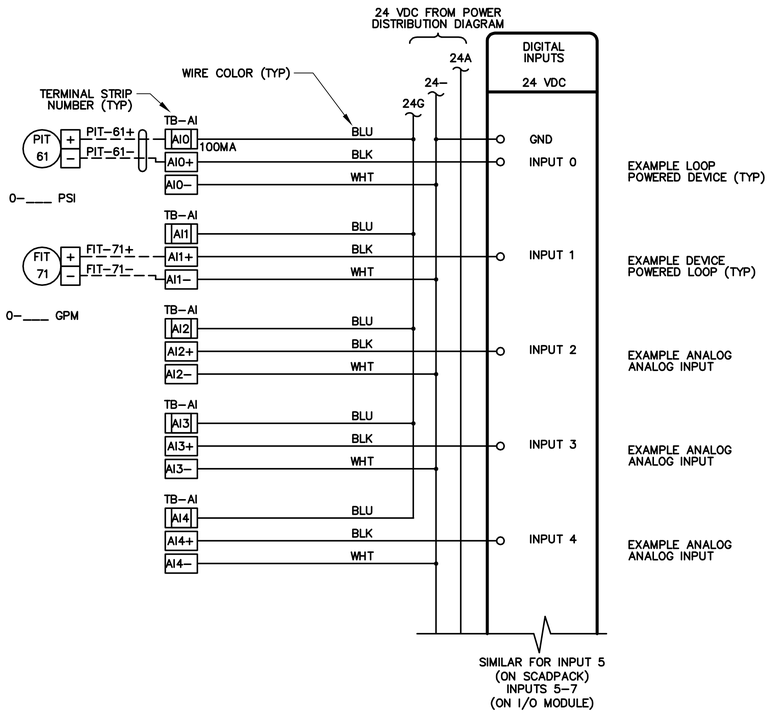
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

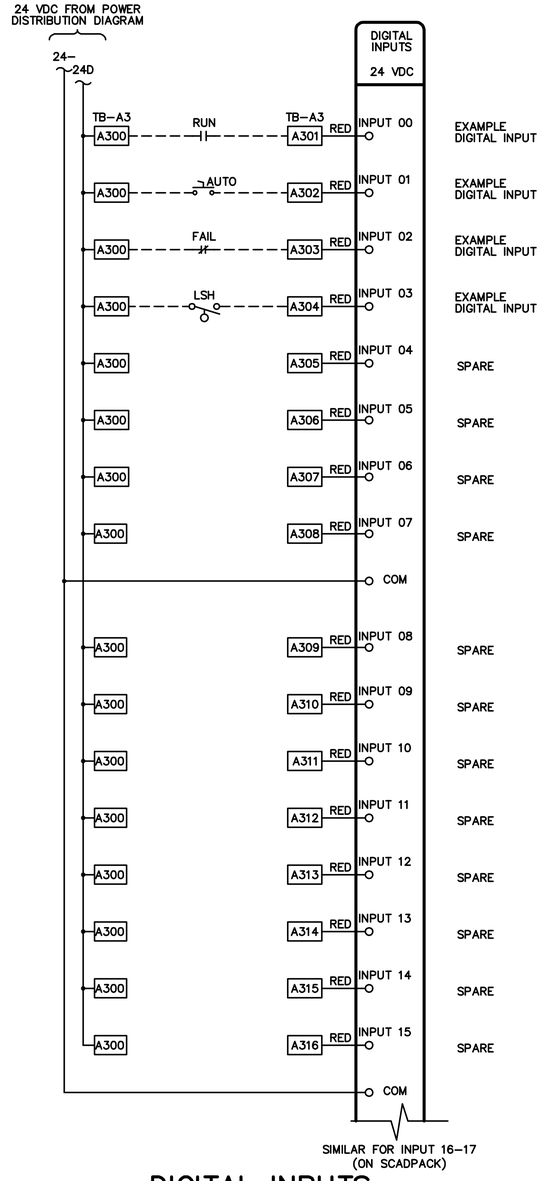
ELECTRICAL
LAKE PUMP STATION
CONTROL PANEL POWER DISTRIBUTION DIAGRAM

REGISTERED PROFESSIONAL ENGINEER
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ELECTRICAL
STATE OF CALIFORNIA
7/16/25

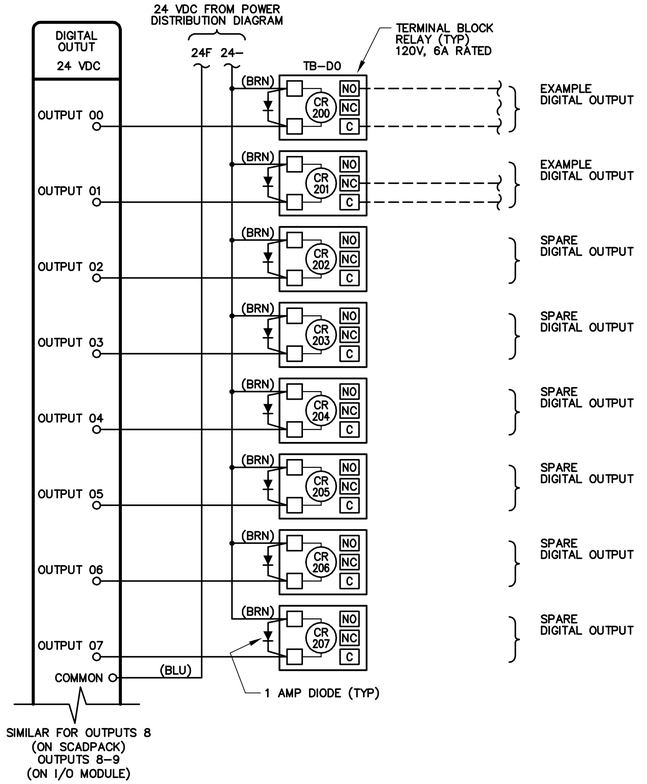
DATE
July 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
10-E-05
SHEET NUMBER 49



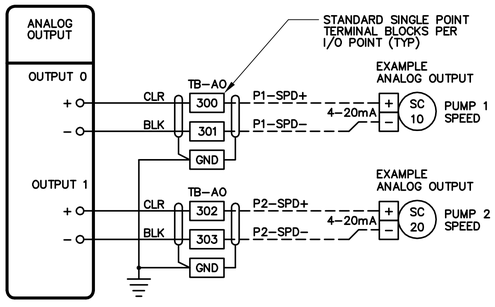
ANALOG INPUTS



DIGITAL INPUTS



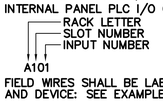
DIGITAL OUTPUTS



ANALOG OUTPUTS

EXAMPLE PLC I/O WIRING DIAGRAMS

NOTES:
1. WIRE SPARE PLC I/O POINTS TO TERMINAL BLOCKS.
2. EXAMPLE I/O POINTS SHOWN. THIS DRAWING INTENDED TO SHOW I/O WIRING ONLY.
3. I/O TYPE AND NUMBER OF POINTS AND CARDS REQUIRED IS DETERMINED BY P&ID DRAWINGS.
4. MINIMUM 20% SPARE I/O POINTS PER I/O TYPE.
5. INTERNAL PANEL PLC I/O CARD WIRE NUMBERS SHALL BE BUILT AS SHOWN IN EXAMPLE BELOW.



6. FIELD WIRES SHALL BE LABELED WITH ACRONYM OF CONTROL PANEL ID (NOT SHOWN) AND DEVICE: SEE EXAMPLES.

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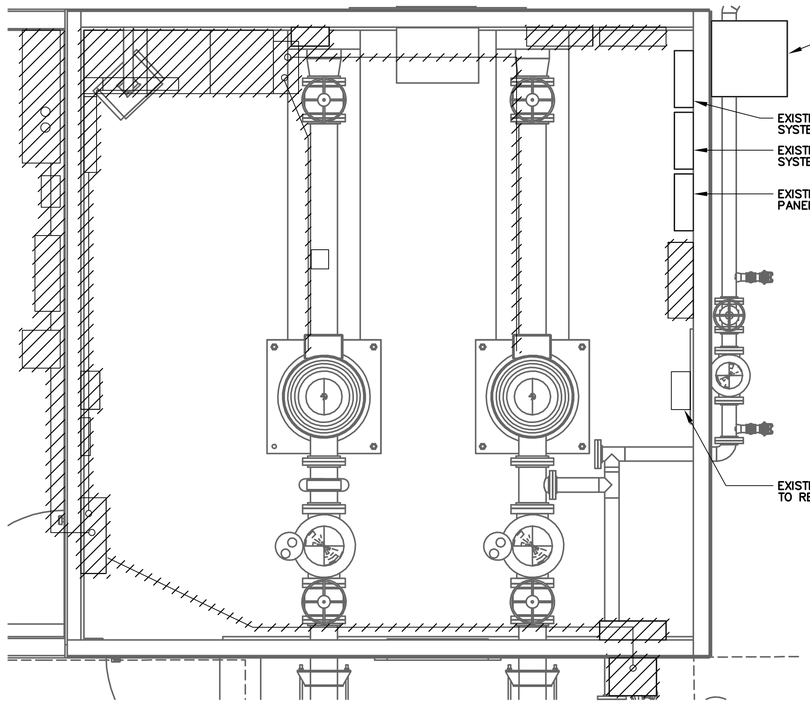
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
CONTROL PANEL EXAMPLE PLC I/O WIRING DIAGRAMS

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-06
SHEET NUMBER 50



EQUIPMENT DEMOLITION NOTES

1. REMOVE AND WASTE ELECTRICAL PANELS AND ASSOCIATED CONDUITS.
2. PROVIDE FIRST RIGHT OF SALVAGE TO OWNER. NOTIFY OWNER 1 WEEK PRIOR TO WASTING.

0 2 4
(Approximate Scale in Feet)

ELECTRICAL DEMOLITION PLAN

SCALE: 1/2" = 1'

N

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
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APPROVED C. BERTSCH

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FILE: 19-077 ELECT.DWG
DATE: JUL 22, 2025 TIME: 3:22:31 PM

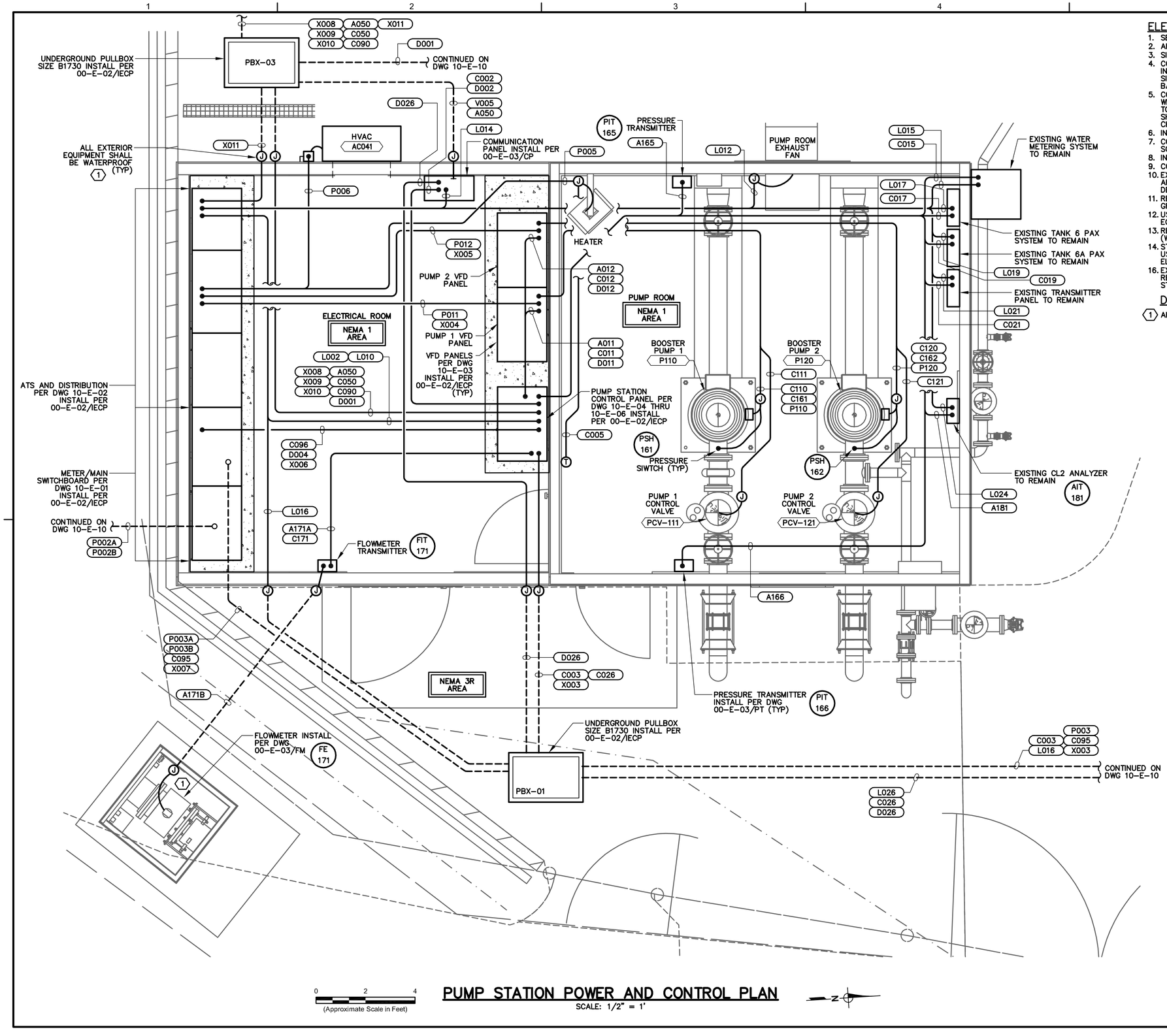
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
ELECTRICAL DEMOLITION PLAN

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA

DATE
July 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
10-E-07
SHEET NUMBER 51



ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.
14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSTION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.
16. EXTEND NEW CONDUIT UP POLE 10 FT FOR UTILITY CONNECTION. COIL ENOUGH WIRE TO REACH TOP OF POLE FOR UTILITY COMPLETION AND TERMINATION. INSTALL PER UTILITY STANDARDS AND REQUIREMENTS.

DRAWING REFERENCED NOTES:

1. ALL EQUIPMENT TO BE WEATHER RESISTANT AT WET LOCATIONS.

0 2 4
(Approximate Scale in Feet)

PUMP STATION POWER AND CONTROL PLAN

SCALE: 1/2" = 1'

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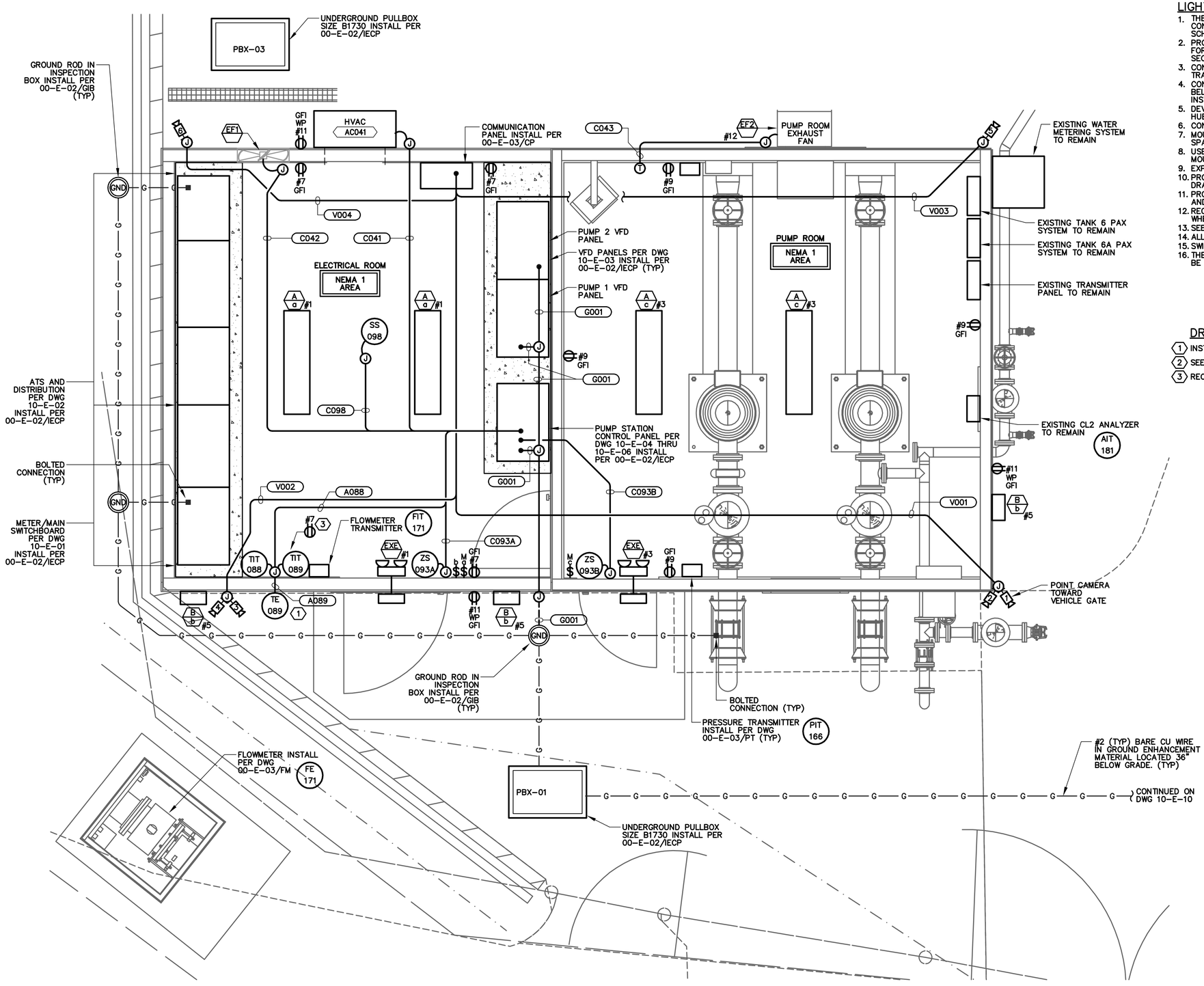
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DATE: JUL 22, 2025 TIME: 3:22:37PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
POWER AND CONTROL PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-08
SHEET NUMBER 52



LIGHTING AND RECEPTACLE PLAN NOTES

1. THESE NOTES SHALL APPLY TO ALL EQUIPMENT OR FIXTURES WITH ELECTRICAL CONNECTIONS BUT WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.
2. PROVIDE AND INSTALL NECESSARY WIRES IN SURFACE MOUNT 3/4" (MINIMUM) CONDUIT FOR FOR ELECTRICAL FIXTURE ARRANGEMENT AS SHOWN. MAXIMUM 3 CIRCUITS PER CONDUIT SECTION OVER 24" IN LENGTH. CONDUITS SHALL NOT EXCEED 40% FILL.
3. CONDUITS UNDER SLAB SHALL BE PVC-40 WITH STUB-OUTS PER EXPOSED CONDUIT TRANSITION DETAIL.
4. CONDUITS ABOVE CEILING SHALL BE EMT WITH COMPRESSION STYLE FITTINGS. CONDUITS BELOW CEILING SHALL BE GRS. ACCESS TO ATTIC AREA SHALL NOT BE REQUIRED TO INSTALL CONDUCTORS.
5. DEVICE BOXES AND CONDUIT BODIES SHALL BE CAST IRON OR ALUMINUM WITH THREADED HUB.
6. CONDUCTORS SHALL BE COPPER TYPE THHN, CLASS C STRANDING, #12 AWG (MINIMUM).
7. MOUNT CONDUITS USING SINGLE BOLT GALVANIZED PIPE STRAPS AND CLAMP BACK SPACERS.
8. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
9. EXPOSED CONDUIT SHALL BE PAINTED WITH WALL AND/OR CEILING AS SPECIFIED.
10. PROVIDE AND INSTALL FIXTURES PER SCHEDULE THIS PAGE, QUANTITY AS SHOWN IN DRAWINGS.
11. PROVIDE AND INSTALL ALL DEVICE BOXES, JUNCTION BOXES, RECEPTACLES, SWITCHES, AND COVERS MOUNT ALL RECEPTACLES AT 48" AFF UNLESS OTHERWISE NOTED.
12. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) WHERE SHOWN.
13. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
14. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
15. SWITCH TYPE: T= TIME SWITCH, M= MOTION DETECTOR, 3= 3-WAY.
16. THE MINIMUM GROUND ELECTRODE SYSTEM CONDUCTOR OR BONDING JUMPER SHALL BE #8 CU.

DRAWING REFERENCED NOTES:

1. INSTALL OUTDOOR TEMPERATURE ELEMENT ON BUILDING WALL 6" BELOW EAVE.
2. SEE FIXTURE SCHEDULE ON SHEET DWG 10-E-10
3. RECEPTACLE LOCATED ON WALL BELOW TEMP TRANSMITTER

0 2 4
(Approximate Scale in Feet)

PUMP STATION LIGHTING AND RECEPTACLE PLAN (2)

SCALE: 1/2" = 1'

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DATE: JUL 22, 2025 TIME: 3:22:45PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
LIGHTING AND RECEPTACLE PLAN

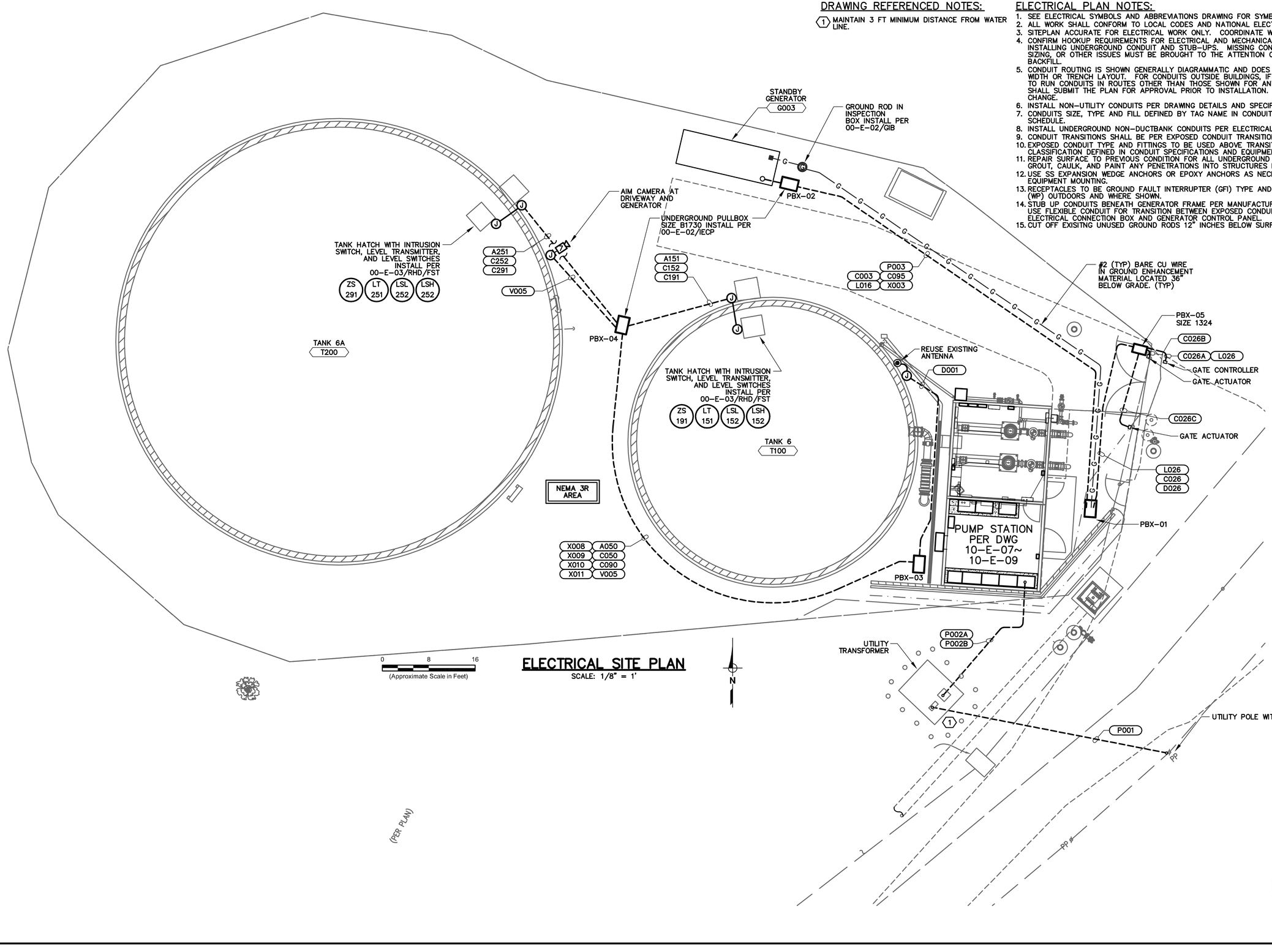
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-09
SHEET NUMBER 53

DRAWING REFERENCED NOTES:

(1) MAINTAIN 3 FT MINIMUM DISTANCE FROM WATER LINE.

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
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10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
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14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSTION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.
15. CUT OFF EXISITNG UNUSED GROUND RODS 12" INCHES BELOW SURFACE.



ELECTRICAL SITE PLAN

SCALE: 1/8" = 1'

7/16/25

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FILE: 19-077 - 10-E-10.DWG
DATE: JUL 22, 2025 TIME: 3:22:56PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
ELECTRICAL SITE PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-10
SHEET NUMBER 54

CONDUIT & WIRE ROUTING SCHEDULE

REV	CONDUIT DETAILS TAG NO.	FROM	TO	QTY	SIZE	TYPE	POWER WIRE QTY	POWER WIRE SIZE	CONTROL WIRE QTY	CONTROL WIRE SIZE	GROUND SIZE	NOTES
	A011	CONTROL PANEL	PUMP 1 VFD	1	3/4"	SPEC	–	–	2	#18 TSPR	#14	
	A012	CONTROL PANEL	PUMP 2 VFD	1	3/4"	SPEC	–	–	2	#18 TSPR	#14	
	A050	COMMUNICATION PANEL	PBX–03	1	3/4"	SPEC	–	–	2	#18 TSPR	#14	
	A088	CONTROL PANEL	TIT–088, TIT–089 J–BOX	1	3/4"	SPEC	–	–	2	#18 TSPR	#14	
	A089	TIT–088, TIT–089 J–BOX	OUTDOOR TEMP TE–089	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A151	PBX–04	TANK 6 LEVEL LT–151	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A165	CONTROL PANEL	PIT–165	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A166	CONTROL PANEL	PIT–166	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A171 A	CONTROL PANEL	FLOWMETER TRANSMITTER FIT–171	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A171 B	FLOWMETER TRANSMITTER FIT–171	FLOWMETER FE–171	1	1"	SPEC	–	–	1	MFG CABLE	#14	
	A181	CONTROL PANEL	CL2 ANALYZER AIT–181	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A251	PBX–04	TANK 6A LEVEL LT–251	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	C002	CONTROL PANEL	COMMUNICATION PANEL	1	3/4"	SPEC	2	#14	–	–	#14	
	C003	CONTROL PANEL	GENERATOR	1	3/4"	SPEC	–	–	8	#14	#14	
	C005	HEATER	HEATER THERMOSTAT	1	3/4"	SPEC	–	–	4	#14	#14	
	C011	CONTROL PANEL	PUMP 1 VFD	1	3/4"	SPEC	–	–	14	#14	#14	
	C012	CONTROL PANEL	PUMP 2 VFD	1	3/4"	SPEC	–	–	14	#14	#14	
	C015	CONTROL PANEL	WATER METERING SYSTEM	1	3/4"	SPEC	–	–	8	#14	#14	
	C017	CONTROL PANEL	TANK 6 PAX SYSTEM	1	3/4"	SPEC	–	–	8	#14	#14	
	C019	CONTROL PANEL	TANK 6A PAX SYSTEM	1	3/4"	SPEC	–	–	8	#14	#14	
	C021	CONTROL PANEL	TRANSMITTER PANEL	1	3/4"	SPEC	–	–	8	#14	#14	
	C026A	PBX–05	GATE CONTROLLER	1	3/4"	SPEC	–	–	4	#14	#14	
	C026B	PBX–05	GATE ACTUATOR	1	3/4"	SPEC	–	–	4	#14	#14	
	C026C	PBX–05	GATE ACTUATOR	1	3/4"	SPEC	–	–	4	#14	#14	
	C026	CONTROL PANEL	PBX–05	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	C041	CONTROL PANEL	HVAC UNIT	1	3/4"	SPEC	–	–	4	#14	#14	
	C042	CONTROL PANEL	EXHAUST FAN EF1	1	3/4"	SPEC	2	#12	–	–	#12	
	C043	THERMOSTAT	EXHAUST FAN EF2	1	3/4"	SPEC	–	–	4	#14	#14	
	C050	COMMUNICATION PANEL	PBX–04	1	3/4"	SPEC	–	–	8	#14	#14	
	C090	COMMUNICATION PANEL	PBX–04	1	3/4"	SPEC	–	–	4	#14	#14	
	C093A	CONTROL PANEL	INTRUSION ZS–093A	1	3/4"	SPEC	–	–	2	#14	#14	
	C093B	CONTROL PANEL	INTRUSION ZS–093B	1	3/4"	SPEC	–	–	2	#14	#14	
	C095	METER/MAIN SWITCHBOARD	GENERATOR	1	3/4"	SPEC	–	–	8	#14	#14	
	C096	CONTROL PANEL	METER/MAIN SWITCHBOARD	1	3/4"	SPEC	–	–	8	#14	#14	
	C098	CONTROL PANEL	SMOKE DETECTOR SS–098	1	3/4"	SPEC	–	–	2	#14	#14	
	C110	PUMP 1 VFD	PUMP 1	1	3/4"	SPEC	–	–	4	#14	#14	
	C111	PUMP 1 VFD	PUMP 1 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C120	PUMP 2 VFD	PUMP 2	1	3/4"	SPEC	–	–	4	#14	#14	
	C121	PUMP 2 VFD	PUMP 2 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C152	PBX–04	TANK 6 LSH–152 LSL–152	1	3/4"	SPEC	–	–	4	#14	#14	
	C161	PUMP 1 VFD	PSH–161	1	3/4"	SPEC	–	–	2	#14	#14	
	C162	PUMP 2 VFD	PSH–162	1	3/4"	SPEC	–	–	2	#14	#14	
	C171	CONTROL PANEL	FLOWMETER TRANSMITTER FIT–171	1	3/4"	SPEC	2	#14	–	–	#14	
	C191	PBX–04	TANK 6 INTRUSION ZS–191	1	3/4"	SPEC	–	–	2	#14	#14	
	C252	PBX–04	TANK 6A LSH–252 LSL–252	1	3/4"	SPEC	–	–	4	#14	#14	
	C291	PBX–04	TANK 6A INTRUSION ZS–291	1	3/4"	SPEC	–	–	2	#14	#14	

NOTES PERTAINING TO CONDUIT SCHEDULE:

1. CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION, CONDUIT AND BOXES FOR NON–EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
2. SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
3. CONDUITS OVER 15 FT LENGTH (EITHER EMPTY OR WITH CONDUCTORS SIZED LESS THAN #8 AWG), SHALL INCLUDE A POLY PULL STRING. STRING SHALL BE TIED OFF AT EACH END.
4. FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS, CONDUIT AND BOXES.
5. WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
6. SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
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STATE OF CALIFORNIA
7/16/25

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DRAWN N. CONANT
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
ELECTRICAL CONDUIT SCHEDULE 1

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-11
SHEET NUMBER 55

CONDUIT & WIRE ROUTING SCHEDULE

REV	CONDUIT DETAILS TAG NO.	FROM	TO	QTY	SIZE	TYPE	POWER WIRE QTY	POWER WIRE SIZE	CONTROL WIRE QTY	CONTROL WIRE SIZE	GROUND SIZE	NOTES
	D001	CONTROL PANEL	ANTENNA	1	2"	SPEC	–	–	1	ANTENNA CABLE	–	
	D002	CONTROL PANEL	COMMUNICATION PANEL	1	1"	SPEC	–	–	2	CAT 5E	–	
	D004	CONTROL PANEL	METER/MAIN SWITCHBOARD	1	3/4"	SPEC	–	–	1	CAT 5E	–	
	D011	CONTROL PANEL	PUMP 1 VFD	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	D012	CONTROL PANEL	PUMP 2 VFD	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	D026	COMMUNICATION PANEL	PBX–05	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	G001	GROUND ROD	INDOOR ELECTRICAL GEAR	1	3/4"	SPEC	–	–	–	–	#2	
	L002	PANELBOARD	CONTROL PANEL	1	3/4"	SPEC	4	#12	–	–	#12	
	L012	PANELBOARD	CONTROL PANEL	1	3/4"	SPEC	2	#12	–	–	#12	
	L014	PANELBOARD	COMMUNICATION PANEL	1	3/4"	SPEC	2	#12	–	–	#12	
	L015	PANELBOARD	WATER METERING SYSTEM	1	3/4"	SPEC	2	#12	–	–	#12	
	L016	PANELBOARD	GENERATOR	1	1"	SPEC	2	#8	3	#12	#10	HEATER AND CHARGER
	L017	PANELBOARD	TANK 6 PAX SYSTEM	1	3/4"	SPEC	2	#12	–	–	#12	
	L019	PANELBOARD	TANK 6A PAX SYSTEM	1	3/4"	SPEC	2	#12	–	–	#12	
	L021	PANELBOARD	TRANSMITTER PANEL	1	3/4"	SPEC	2	#12	–	–	#12	
	L024	PANELBOARD	CL2 ANALYZER AIT–181	1	3/4"	SPEC	2	#12	–	–	#12	
	L026	PANELBOARD	GATE CONTROLLER	1	3/4"	SPEC	2	#12	–	–	#12	
	P001	UTILITY POLE	UTILITY TRANSFORMER	1	4"	SPEC	–	–	–	–	–	PER UTILITY REQUIREMENTS
	P002A,B	UTILITY TRANSFORMER	METER/MAIN SWITCHBOARD	2	5"	SPEC	–	–	–	–	–	PER UTILITY REQUIREMENTS
	P003A,B	GENERATOR	METER/MAIN SWITCHBOARD	2	3"	SPEC	4	#4/0	–	–	#2	
	P005	METER/MAIN SWITCHBOARD	HEATER	1	3/4"	SPEC	3	#12	–	–	#12	
	P006	METER/MAIN SWITCHBOARD	HVAC UNIT	1	3/4"	SPEC	3	#12	–	–	#12	
	P011	METER/MAIN SWITCHBOARD	PUMP 1 VFD	1	2–1/2"	SPEC	3	#1/0	–	–	#2	
	P012	METER/MAIN SWITCHBOARD	PUMP 2 VFD	1	2–1/2"	SPEC	3	#1/0	–	–	#2	
	P110	PUMP 1 VFD	PUMP 1	1	2–1/2"	SPEC	3	#2/0	–	–	#2	
	P120	PUMP 2 VFD	PUMP 2	1	2–1/2"	SPEC	3	#2/0	–	–	#2	
	V001	COMMUNICATION PANEL	CAMERA 1, 2	1	3/4"	SPEC	–	–	2	CAT 6	–	
	V002	COMMUNICATION PANEL	CAMERA 3,4	1	3/4"	SPEC	–	–	2	CAT 6	–	
	V003	COMMUNICATION PANEL	CAMERA 5	1	3/4"	SPEC	–	–	1	CAT 6	–	
	V004	COMMUNICATION PANEL	CAMERA 6	1	3/4"	SPEC	–	–	1	CAT 6	–	
	V005	COMMUNICATION PANEL	CAMERA 7	1	3/4"	SPEC	–	–	1	CAT 6	–	
	X003	CONTROL PANEL	GENERATOR	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X004	METER/MAIN SWITCHBOARD	PUMP 1 VFD	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X005	METER/MAIN SWITCHBOARD	PUMP 2 VFD	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X006	CONTROL PANEL	METER/MAIN SWITCHBOARD	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X007	METER/MAIN SWITCHBOARD	PBX–01	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X008	COMMUNICATION PANEL	PBX–04	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X009	COMMUNICATION PANEL	PBX–04	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X010	COMMUNICATION PANEL	PBX–04	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X011	PANELBOARD	PBX–04	1	1"	SPEC	–	–	–	–	–	PULL ROPE

NOTES PERTAINING TO CONDUIT SCHEDULE:

1. CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION, CONDUIT AND BOXES FOR NON–EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
2. SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
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4. FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS, CONDUIT AND BOXES.
5. WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
6. SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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DATE: JUL 22, 2025 TIME: 3:23:10PM

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1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
ELECTRICAL CONDUIT SCHEDULE 2

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-12
SHEET NUMBER 56

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Lake Pump Station

San Bruno, CA

Project Designer:

Frisch Engineering, Inc.
13405 Folsom Blvd, Unit 600
Folsom, CA 95630
916-353-1025

Report Prepared by:

Scott Turnbull
M/E Systems Engineering
5098 Foothills Blvd Ste 3 PMB 382
Roseville, CA 95747
916-774-6330

Job Number:

17154

Date:

11/7/2022

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2019 Building Energy Efficiency Standards.

This program developed by EnergySoft Software – www.energysoft.com.

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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station — Lake Pump Station	Report Page:	(Page 1 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

This document is used to demonstrate compliance with requirements in §110.9, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path.

A. GENERAL INFORMATION

01	Project Location (city)	San Bruno	04	Total Conditioned Floor Area (ft²)	136
02	Climate Zone	3	05	Total Unconditioned Floor Area (ft²)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1
	●: See Table I				

B. PROJECT SCOPE

This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6 or §141.0(b)2 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☒ New Lighting System	Area Category Method	136	Area Category Method	0
☐ New Lighting System – Parking Garage				
Total Area of Work (ft²)	136		0	

C. COMPLIANCE RESULTS

If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)1	Allowed Lighting Power per §140.6(b) (Watts)						Adjusted Lighting Power per §140.6(a)1 (Watts)				Compliance Results
	01	02	03	04		05		06	07		08	09
	Complete Building §140.6(c)1	Area Category §140.6(c)2	Area Category Additional §140.6(c)2G (+)	Tailored §140.6(c)3 (+)	=	Total Allowed (Watts)	≥	Total Designed (Watts)	Adjustments: PAF Lighting Control Credits §140.6(a)2 (-)	=	Total Adjusted (Watts) *Includes Adjustments	05 must be >= 08 §140.6
	(See Table I)	(See Table I)	(See Table J)	(See Table K)				(See Table F)	(See Table P)			
Conditioned		115.6	95		=	211	≥	200	0	=	200	COMPLIES
Unconditioned					=		≥			=		

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft

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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station — Lake Pump Station	Report Page:	(Page 2 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

C. COMPLIANCE RESULTS

Controls Compliance (See Table H for Details)	COMPLIES
Rated Power Reduction Compliance (See Table Q for Details)	

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. INDOOR LIGHTING FIXTURE SCHEDULE

This table includes all permanent designed lighting and all portable lighting in offices.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
									Field Inspector	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per §140.6(a)3	Design Watts	Pass	Fail
A	Ceiling Mount LED	No	No	50	Mfr. Spec	4	No	200	☐	☐
							Total Designed Watts: CONDITIONED SPACES	200		

[1] *FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per §140.6(a)4B is adjusted to be 75% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*

[2] *Authority Having Jurisdiction may ask for luminaire cut sheets to confirm wattage used for compliance per §130.0(c). Wattage used must be the maximum rated for the luminaire, not the lamp.*

G. MODULAR LIGHTING SYSTEMS

This section does not apply to this project.

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft

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REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA

7/16/25

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-13
SHEET NUMBER 57

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station	Report Page:	(Page 3 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

*This table includes lighting controls for conditioned and unconditioned spaces. When a control having a * is shown, the notes section of this table provides more detail on how compliance is achieved. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Building Level Controls

01	02	03	
Mandatory Demand Response §110.12(c)	Shut-off controls §130.1(c)	Field Inspector	
		Pass	Fail
Not Required <= 10,000 SF	Whole Building Other	☐	☐

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Sky lit Daylighting §130.1(d)	Secondary Daylighting §140.6(d)	Interlocked Systems §140.6(a)1	Field Inspector	
								Pass	Fail
*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved. *EX: Conference 1: Primary/Skylight Daylighting; Exempt because less than 120 watts of general lighting; EXCEPTION 1 to §130.1(d)2*					13				
					Plan Sheet Showing Daylit Zones:				

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Each area complying using the Complete Building or Area Category Methods per §140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
Pump Room	General Commercial Industrial Work Area Precision	0.85	72	61.2	Yes	No
Electrical Room	General Commercial Industrial Work Area Precision	0.85	64	54.4	Yes	No

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station	Report Page:	(Page 4 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

TOTALS:	136	115.6	See Tables J, or P for detail

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

All areas indicated in Table I as using an additional allowance using the Area Category Method have been included in this table to calculate the additional allowance per Table 140.6-C

Conditioned Spaces

01	02	03	04	05	06	07	08	09	10
Area Description	Primary Function Area	Applicable Qualifying Lighting System from Table 140.6-C	Allowed Density (W/ft² or W/lf or W/unit)	Ltg Area, Length or ATM/Mirror (ft², lf or #)	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	Number of Luminaires	Total Design Watts
Pump Room	General Commercial Industrial Work Area Precision	PrecisionLightingIndustrial	0.70	72	50.4	A	50	2	100
Total Design Watts	Calculated Allowance (Watts):	Total Additional Allowance for this area:							
100	50.4	50.4							
Electrical Room	General Commercial Industrial Work Area Precision	PrecisionLightingIndustrial	0.70	64	44.8	A	50	2	100
Total Design Watts	Calculated Allowance (Watts):	Total Additional Allowance for this area:							
100	44.8	44.8							
11									
Total Additional Allowance (Watts) CONDITIONED SPACES		95.2							

Unconditioned Spaces

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This section does not apply to this project.

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station	Report Page:	(Page 5 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS

This section does not apply to this project.

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200601 | Report Generated: 2022-11-07 12:46:41

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station	Report Page:	(Page 6 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCv/

Form/Title	Field Inspector	
	Pass	Fail
NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified	Field Inspector	
		Pass	Fail
NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐	

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200601 | Report Generated: 2022-11-07 12:46:41

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
3485 FOLSOM BLVD, UNIT 600
RENO, NV 89502
PH 916 353 1025
WWW.FRISCHENGINEERING.COM

FILE: 19-077 E14.DWG
DATE: JUL 16, 2025 TIME: 11:39:39AM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-538-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-14
SHEET NUMBER 58

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 7 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Scott Turnbull	
Company: M/E Systems Engineering	Signature Date: 2022-11-07
Address: 5098 Foothills Blvd Ste 3 PMB 382	CEA/ HERS Certification Identification (if applicable): N/A
City/State/Zip: Roseville CA 95747	Phone: 916-774-6330

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Responsible Designer Signature:
Thomas Frisch	
Company: Frisch Engineering, Inc.	Date Signed: 2022-11-07
Address: 13405 Folsom Blvd, Unit 600	License: E15761
City/State/Zip: Folsom CA 95630	Phone: 916-353-1025

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 1 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

A. GENERAL INFORMATION

01	Project Location (city)	San Bruno	04	Total Illuminated Hardscape Area (ft²)	18
02	Climate Zone	3			
03	Outdoor Lighting Zone per Title 24 Part 1 §10-114 or as designated by Authority Having Jurisdiction (AHJ):				
☐	LZ-0: Very Low - Undeveloped Parkland	☐ LZ-2: Moderate - Rural Areas	☐ LZ-4: High - Must be reviewed by CA Energy Commission for Approval		
☐	LZ-1: Low - Developed Parkland	☒ LZ-3: Moderately High - Urban Areas			

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.7 or §141.0(b)2L for alterations.

My Project Consists of:

01	02
☒ New Lighting System	Must Comply with Allowances from §140.7
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)? ○ Yes ○ No

03	04	05
% of Existing Luminaires Being Altered[1]	Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ < 10% ☐ >= 10% and < 50% ☐ >= 50%		

Please proceed to Table F. Outdoor Lighting Fixture Schedule to define the project's luminaires.

[1] *FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.*

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 2 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through I. Note: if any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) §140.7 or §141.0(b)2L												Compliance Results		
01		02		03		04		05		06		07	08	09
General Hardscape Allowance §140.7(d)1 (See Table I)	+	Per Application §140.7(d)2 (See Table J)	+	Sales Frontage §140.7(d)2 (See Table K)	+	Ornamental §140.7(d)2 (See Table L)	+	Per Specific Area §140.7(d)2 (See Table M)	OR	Existing Power Allowance §141.0(b)2L (See Table N)	=	Total Allowed (Watts)	≥	Total Actual (Watts)	07 must be >= 08
358.14	+	—	+	—	+	—	+	—	OR	—	=	358.14	≥	129	COMPLIES
Cutoff Compliance [See Table G for Details]															N/A
Controls Compliance [See Table H for Details]															COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 3 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with §140.7 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per §141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included).

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1,2]	How is Wattage determined	Total number luminaires[2]	Luminaire Status[3]	Excluded per §140.7(a)	Design Watts	Cutoff Req. > 6,200 initial lumen output §130.2(b)[4]	Field Inspector	
										Pass	Fail
B	Wall Mount LED	☐ Linear	43	Mfr. Spec	3	New	☐	129	NA: < 6200 lumens	☐	☐
							Total Design Watts:	129			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX- Luminaire is lighting a statue: EXCEPTION 2 to §130.2(b)

[1] *FOOTNOTES: Authority Having Jurisdiction may ask for luminaire cut sheets to confirm wattage used for compliance per §130.0(c)*

[2] *For linear luminaires, wattage should be indicated as W/ft instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.*

[3] *Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.*

[4] *Compliance with mandatory cutoff requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by §130.2(b)*

G. CUTOFF REQUIREMENTS (BUG)

This section does not apply to this project.

REGISTERED PROFESSIONAL ENGINEER THOMAS P. FRISCH No. E15761 ELECTRICAL STATE OF CALIFORNIA

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
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PH 916 353 1025
WWW.FRISCHENGINEERING.COM

FILE: 10-E-15.DWG
DATE: JUL 16, 2025 TIME: 11:39:48AM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-15
SHEET NUMBER 59

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 4 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
*When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Mandatory Controls

01	02	03	04	05	
Area Description	Shut-Off §130.2(c)1	Auto-Schedule §130.2(c)2	Motion Sensor §130.2(c)3	Field Inspector	
				Pass	Fail
	Photocontrol	Yes	Yes	☐	☐

** NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.*
Ex: Not permitted by health & safety to be turned off: EXCEPTION 1 to §130.2(c)

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200501 | Report Generated: 2022-11-07 12:46:41

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 5 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

I. LIGHTING POWER ALLOWANCE (per §140.7)

This table includes areas using allowance calculations per §140.7. General Hardscape Allowance is per Table 140.7-A while "Use it or lose it" Allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

01				
☒ General Hardscape Allowance Table I (below)	"Use it or lose it" Allowance (select all that apply) (select all that apply)			
	☐ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☐ Per Specific Area Table M

Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 0, 1 & 4)
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 2 & 3)

02	03	04	05	06	07	08	09	10
Area Description	Surface Type	Area Wattage Allowance (AWA)			Area Wattage Allowance (AWA)			Total General AWA + LWA (Watts)
		Illuminated Area (ft^2)	Allowed Density (W/ft^2)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	
Walkway	Concrete	18	0.03	0.5	19	0.4	7.6	8
							Initial Wattage Allowance for Entire Site (Watts):	350
							Total General Hardscape Allowance (Watts):	358

J. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200501 | Report Generated: 2022-11-07 12:46:41

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 6 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Form/Title	Field Inspector	
	Pass	Fail
NRCI-LTO-01-E – Must be submitted for all buildings	☐	☐
NRCI-LTO-02-E- Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified	Field Inspector	
		Pass	Fail
NRCA-LTO-02-A – Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	☐	☐	

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200501 | Report Generated: 2022-11-07 12:46:41

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 7 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Scott Turnbull	Documentation Author Signature: Scott Turnbull
Company: M/E Systems Engineering	Signature Date: 2022-11-07
Address: 5098 Foothills Blvd Ste 3 PMB 382	CEA/ HERS Certification Identification (if applicable): N/A
City/State/Zip: Roseville CA 95747	Phone: 916-774-6330

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Thomas Frisch	Responsible Designer Signature: Tom Frisch
Company: Frisch Engineering, Inc.	Date Signed: 2022-11-07
Address: 13405 Folsom Blvd, Unit 600	License: E15761
City/State/Zip: Folsom CA 95630	Phone: 916-353-1025

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200501 | Report Generated: 2022-11-07 12:46:41

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

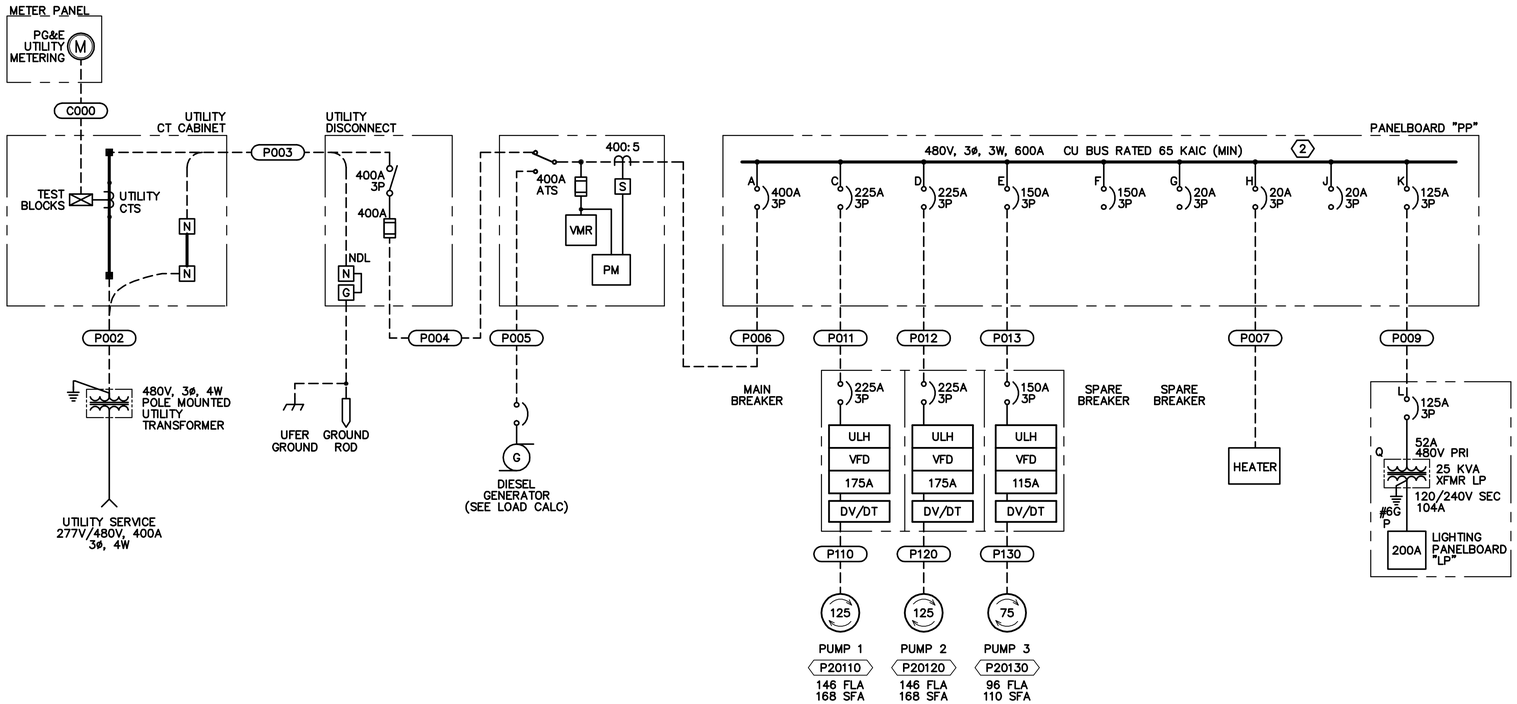
FRISCH ENGINEERING, INC.
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13405 FOLSOM BLVD, UNIT 600
FOLSOM, CA 95630
PH 916 353 1025
WWW.FRISCHENGINEERING.COM
FILE: 19-077_DWG_E-16.DWG
DATE: JUL 16, 2025 TIME: 11:39:56AM

WATERWORKS ENGINEERS
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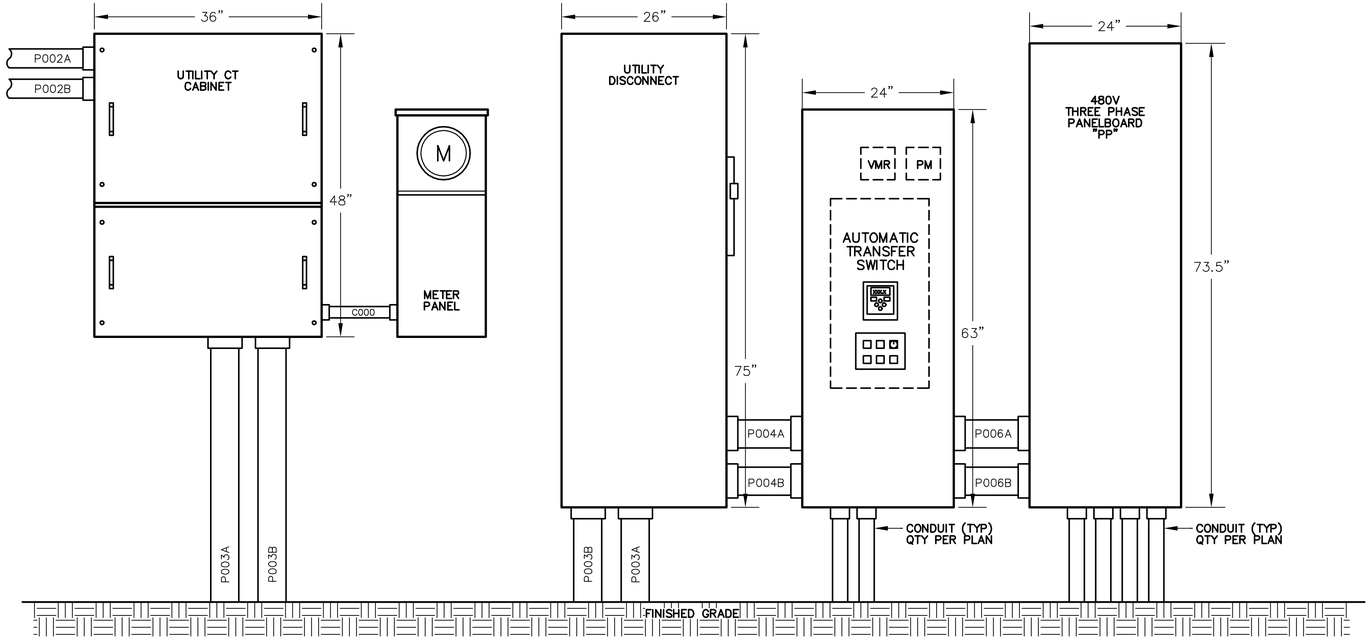
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-16
SHEET NUMBER 60



ONE-LINE DIAGRAM



ELECTRICAL EQUIPMENT WALL ELEVATION

NEMA 3R, OUTDOOR

GENERAL NOTES:

1. REAR ACCESS SHALL NOT BE REQUIRED TO SERVICE OR REPLACE COMPONENTS.
2. EACH BREAKER SHALL HAVE PADLOCK PROVISIONS TO LOCK BREAKER IN THE OFF POSITION.
3. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
4. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC SCREW-ON NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, AT MINIMUM. TEXT HEIGHT SHALL BE 3/16 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
5. FURNISH CODE REQURIED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
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FILE: 19-077 ONE-LINE.DWG
DATE: JUL 22, 2025 TIME: 3:23:21 PM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION METER/MAIN ONE-LINE AND ELEVATION

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-01
SHEET NUMBER 61

LOAD CALCULATIONS

LOAD DESCRIPTION	CONNECTED LOAD LOAD	QTY	TOTAL	DEMAND LOAD LOAD	QTY	TOTAL	GENERATOR LOAD LOAD	QTY	TOTAL	SHORT CIRCUIT CALCULATIONS SCA/LOAD	QTY	TOTAL
										UTILITY	1	5412.0A AIC
125HP PUMP	156.00 A	2	259391.9 VA	156.00 A	1	129696.0 VA	156.00 A	1	129696.0 VA	936.00 A	2	1872.0A
75HP PUMP	96.00 A	1	79812.9 VA	96.00 A	1	79812.9 VA	96.00 A	1	79812.9 VA	576.00 A	1	576.0A
5KW HVAC SYSTEM	6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	36.08 A	1	36.1A
5KW HEATER	6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	6.01 A	0	5000.0 VA	0.00 A	1	0.0A
PANELBOARD LP 120/240	15.93 A	1	13241.0 VA	12.74 A	1	10592.8 VA	12.74 A	1	10592.8 VA			
TOTAL LOAD =	435.95 A	<	362445.8 VA	276.77 A	<	230101.7 VA	276.77 A	<	230101.7 VA	TOTAL		7896.1A
LOAD CORRECTION FACTORS							GENERATOR SIZE			MAXIMUM SHORT		
LARGEST MOTOR LOAD x 25%:							NAMEPLATE = 300 KW 375 KVA			CIRCUIT PRODUCED =		7896.1A AIC
125HP HP => 0.25 x 129696.0 VA =	39.00 A		32424.0 VA	39.00 A		32424.0 VA	@ TEMP OF 100 deg F					
80% BREAKER DERATING = TOTAL x 0.25 =	118.74 A		98717.5 VA	0.00 A		0.0 VA	ELEVATION OF 800 FT ASL			EQUIPMENT RATING =		65000A AIC
FOR CONTINUOUS LOADS NEC 210-20							DERATED SIZE = 293.1 KW 366.4 KVA			MINIMUM PER SPEC		
SERVICE SIZE (MIN) =	593.69 A		493587.3VA	315.77 A		262525.7VA	AMPERAGE = 441 A @ 0.8 PF			NO SERIES DERATING		
UTILITY SERVICE =	600AMP						UTILIZATION % = 71 % @ 0.90 PF			EQUIPMENT IS "OK"		
480V, 3 PHASE, 4 WIRE							VOLT DIP % = 15% MAXIMUM					

GENERAL NOTES:

1. REAR ACCESS SHALL NOT BE REQUIRED TO SERVICE OR REPLACE SWITCHBOARD COMPONENTS.
2. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
3. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
4. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
5. FURNISH CODE REQURIED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

NOTES:

ADD THE PREFIX 20 TO COMPLETE CONDUIT, INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET.

NOTES REFERENCED IN DRAWING:

(1) MOUNT PFR AND POWER MONITOR BEHIND THIS DOOR ACCESS TO DEVICES SHALL BE BEHIND DOOR.
(2) DISTRIBUTION ELEVATION SEEN ON DWG 20-E-01

PANEL "LP"

LOCATION:MCC SECTION
ENCLOSURE:NEMA 1A
AIC RATING:22 KAIC

120/ 240 VOLTS, 1 PHASE, 3 WIRE
100 AMP BUS
100 AMP MAIN BREAKER

BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS		AMPS/ POLE	BKR NO.
1	LIGHTING INDOORS	336	2.8		20/1	1
3	LIGHTING OUTDOORS	304		2.5	20/1	3
5	RECEPTACLE INDOORS	900	7.5		20/1*	5
7	RECEPTACLE INDOORS	900		7.5	20/1*	7
9	RECEPTACLE OUTDOORS	1800	15.0		20/1*	9
11	SPARE	0		0.0	20/1	11
13	SPARE	0	0.0		20/1	13
15	SPARE	1		0.0	20/1	15
17	SPARE	0	0.0		20/1	17
19	SPARE	0		0.0	20/1	19
21	SPARE	0	0.0		20/1	21
23	SPARE	0		0.0	20/1	23
25	SPARE	0	0.0		20/1	25
27	SPACE	0		0.0		27
29	SPACE	0	0.0			29
31	SPACE	0		0.0	20/1	31
33	SPACE	0	0.0			33
35	SPACE	0		0.0		35
37	SPACE	0	0.0			37
39	SPACE	0		0.0		39
41	SPACE	0	0.0			41

BKR NO.	AMPS/ POLE	LINE AMPS		LOAD VA	DESCRIPTION	BKR NO.
2	20/1	5.0		600	CONTROL PANEL	2
4	20/1		1.7	200	CONTROL PANEL AUXILLIARY	4
6	20/1	2.5		300	MAIN BREAKER SECTION AUXILLIARY	6
8	20/1		2.5	300	ATS SECTION AUXILLIARY	8
10	20/1	2.5		300	DISTRIBUOIN SECTION AUXILLIARY	10
12	20/1		15.0	1800	EXHAUST FAN	12
14	20/1	1.7		200	COMMUNICATION PANEL	14
16	20/1		4.2	500	GENERATOR BATTERY CHARGER	16
18	40/2	10.0		1200	GENERATOR BLOCK HEATER	18
20			10.0	1200		20
22	20/1	0.0		0	SPARE	22
24	20/1		1.7	200	CL2 ANALYZER	24
26	20/1	10.0		1200	VEHICLE GATE	26
28	20/2		4.2	500	CABLE TV BOX	28
30		4.2		500		30
32			0.0	0	SPARE	32
34		0.0		0	SPACE	34
36			0.0	0	SPACE	36
38		0.0		0	SPACE	38
40			0.0	0	SPACE	40
42		0.0		0	SPACE	42

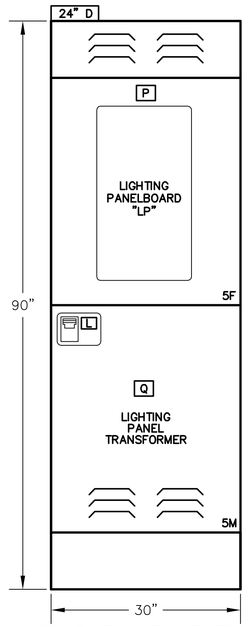
PHASE	A	B
LEFT SIDE AMPS	25.30	10.04
LEFT SIDE KVA	3.04	1.21
TOTAL PHASE KVA	7.34	5.91
TOTAL PHASE AMPS	61	49
% OF AVERAGE	111	89

NEUTRAL

GROUND

A	B	PHASE
35.83	39.17	RIGHT SIDE AMPS
4.30	4.70	RIGHT SIDE KVA
13.24		TOTAL KVA
55.17		TOTAL AMPS @ 240V, 1P
0.80		DIVERSITY FACTOR
10.59		LOAD KVA

NOTES:
1 MEANS OF WIRE COLOR CODING SHALL BE POSTED ON PANELBOARD PER NEC 210 (4)
2 ASTERISK (*) DENOTES GFI BREAKER REQUIRED WITH 5 MA SENSITIVITY
3 TILDA (~) DENOTES GFI BREAKER REQUIRED WITH 30 MA SENSITIVITY



LIGHTING PANEL ELEVATION

NEMA 1, INDOOR

GENERAL NOTES:

1. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
2. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
3. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, ON EXTERIOR DOORS AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
4. FURNISH CODE REQUIRED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

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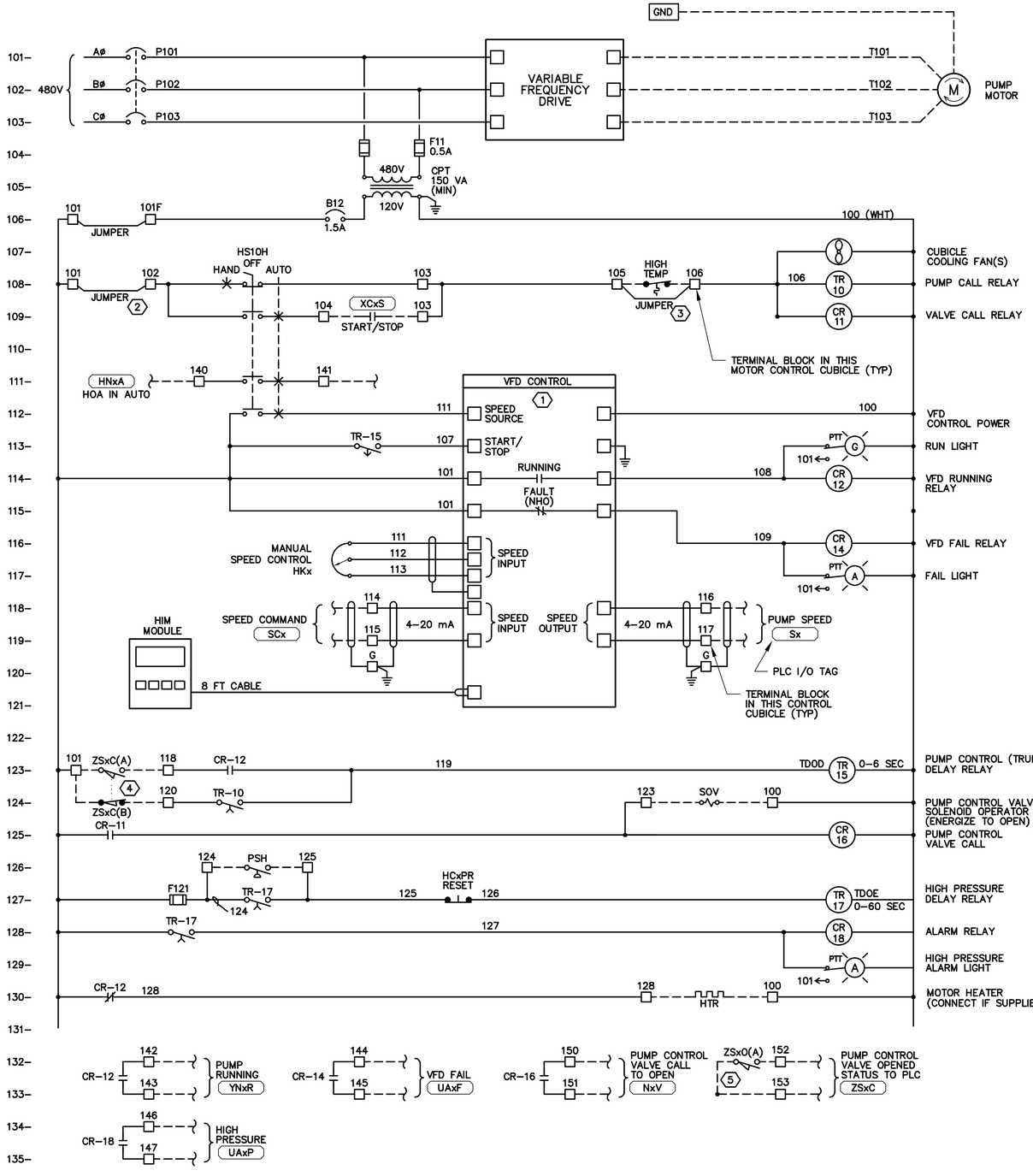
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FILE: 19-077 20-E-02.DWG
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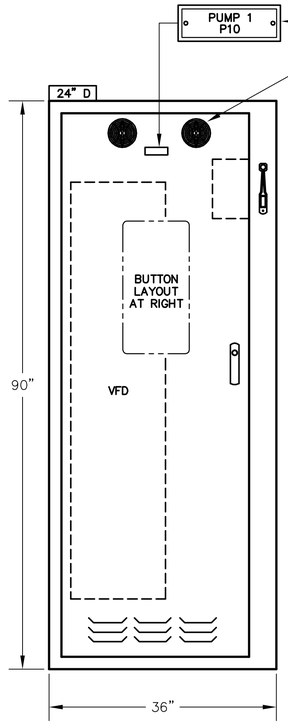
ELECTRICAL
SNEATH PUMP STATION
DISTRIBUTION ONE-LINE
AND LIGHTING PANEL ELEVATION

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-02
SHEET NUMBER 62



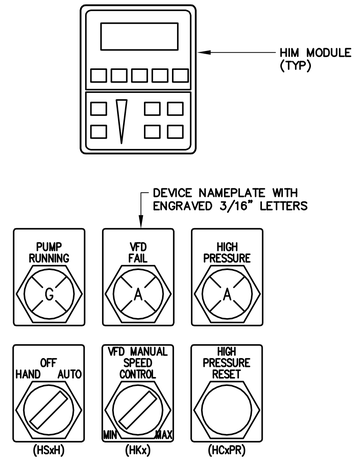
VFD PUMP ELEMENTARY DIAGRAM

TYPICAL FOR SNEATH PS: P20110 P20120 P20130



VFD ELEVATION

INDOOR, NEMA 1



DOOR LAYOUT

NOT TO SCALE

PANEL FABRICATION METHODS

1. NEMA 1, INDOOR INSTALLATION.
2. ALL SEAMS CONTINUOUS WELDED.
3. OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCHES.
4. DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
5. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
6. INTERNAL SCREWS, BOLTS, AND NUTS SHALL BE MACHINE THREAD.
7. EXTERIOR PANEL COLOR: BRUSHED STAINLESS STEEL
8. PLASTIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT.
9. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
10. ALL WIRING SHALL BE PERMANENTLY LABELLED WITH WIRE MARKERS ON BOTH ENDS.
11. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
12. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.

NOTES REFERENCED IN DRAWING:

1. PROVIDE VFD WITH 120 VAC CONTROL CIRCUIT INTERFACE AND ELECTRONIC OVERLOAD PROTECTION.
2. MOTOR OVERTEMPERATURE SWITCH, INSTALL IF SUPPLIED, JUMPER IF NOT.
3. REMOVE JUMPER FOR DEVICE WHEN CONNECTED.
4. SWITCH CHANGES STATE WHEN VALVE FULLY CLOSED. USE FORM C CONTACTS FOR FULLY CLOSED SWITCH (ZSxC) ONLY.
5. SWITCH CHANGES STATE WHEN VALVE FULLY OPEN. USE FORM C CONTACTS FOR FULLY OPEN SWITCH (ZSxO) ONLY.

GENERAL NOTES:

1. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPTION: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.
2. SIMILAR DIAGRAM FOR ALL VFD MOTORS AS SHOWN IN ONE–LINE DIAGRAM

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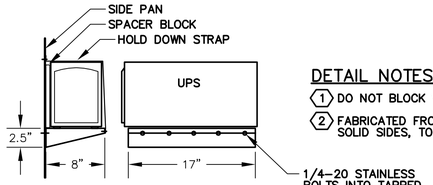
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
VFD PUMP ELEMENTARY DIAGRAM AND ELEVATION

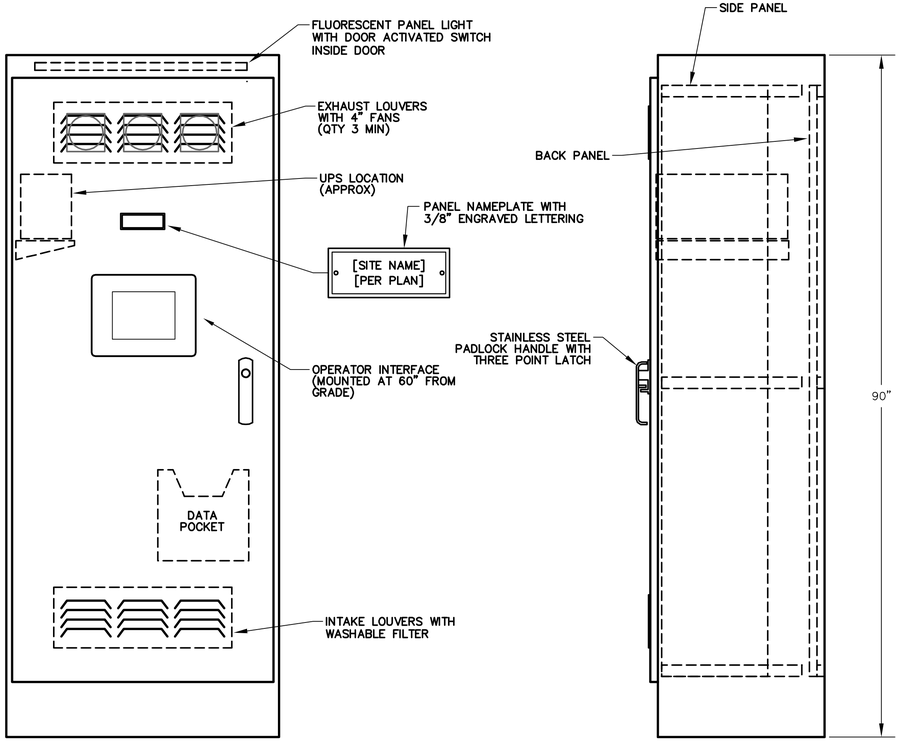
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-03
SHEET NUMBER 63



UPS SHELF DETAIL
SCALE: 1" = 10"

DETAIL NOTES:

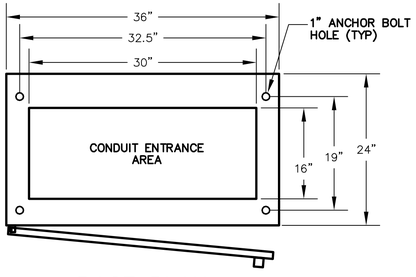
1. DO NOT BLOCK VENTS WITH SPACER BLOCK. USE TWO.
2. FABRICATED FROM 14 GA (MIN) PAINTED GALVANEAL OR STAINLESS STEEL SOLID SIDES, TOP, BACK AND FRONT WITH CONTINUOUS WELDED SEAMS.



FRONT ELEVATION

SIDE ELEVATION

ELEVATION
SCALE: 1" = 10"



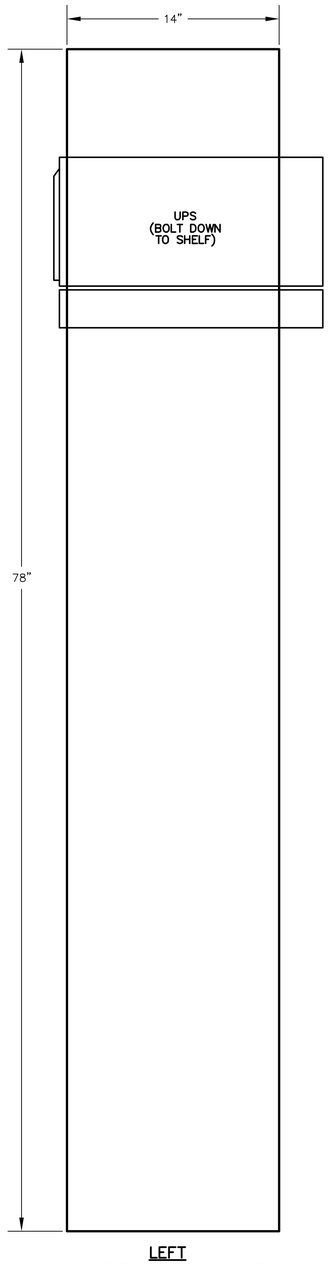
BASE PLAN

PANEL FABRICATION METHODS

1. FREESTANDING, OPEN BOTTOM.
2. OUTER DOOR SEALED WITH RUBBERIZED FOAM GASKET.
3. PANEL SHALL BE FABRICATED FROM PAINT BOND GALVANEAL SHEET STEEL.
4. 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
5. ALL SEAMS SHALL HAVE CONTINUOUS WELD GROUND SMOOTH.
6. DOOR TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCH.
7. DOOR HINGES AND PINS SHALL BE CONTINUOUS, HEAVY DUTY.
8. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
9. INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE MACHINE THREAD INTO TAPPED BACKPAN.
10. EXTERIOR PANEL COLOR: ANSI 61 GRAY.
11. MOUNTING PAN AND INTERIOR DOOR COLOR: WHITE.
12. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
13. ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
14. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
15. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.
16. HOFFMAN TYPE 12 FREE–STANDING, OR EQUAL.

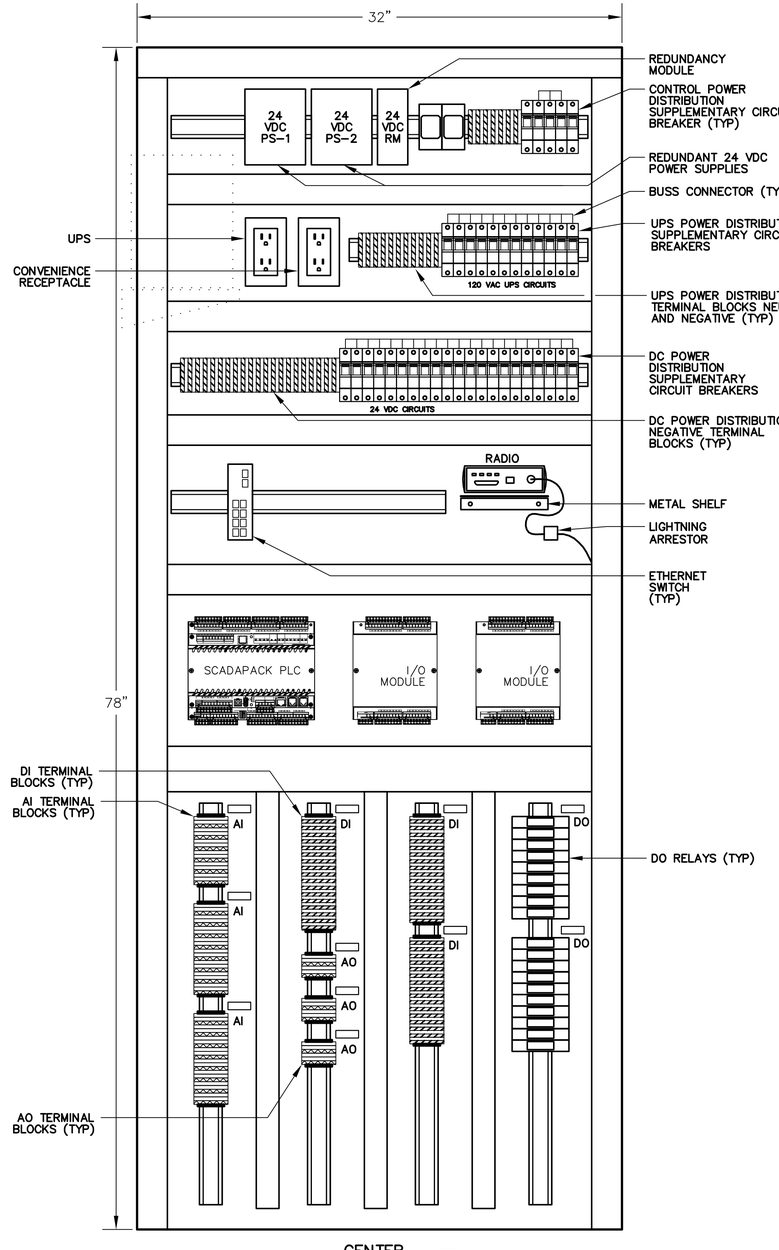
GENERAL NOTES:

1. REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ACTUAL BACKPAN LAYOUT SHALL BE SIMILAR TO LAYOUT SHOWN. SUBMIT SCALED BACKPAN LAYOUT FOR REVIEW BY ENGINEER.
2. QUANTITY OF TERMINAL BLOCKS AND RELAYS SHALL BE AS DETERMINED BY P&IDS AND EXAMPLE I/O WIRING DIAGRAM



LEFT

SIDEPAN LAYOUT
SCALE: 1" = 5"



CENTER (1)

BACKPAN LAYOUT
SCALE: 1" = 5"

LAYOUT REFERENCED NOTES:

(1) WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.
(2) ADDITIONAL FIBER OPTIC (AUX) SWITCH ONLY FOR PUMP STATION B. SEE NETWORK TOPOLOGY DWG 00–I–02

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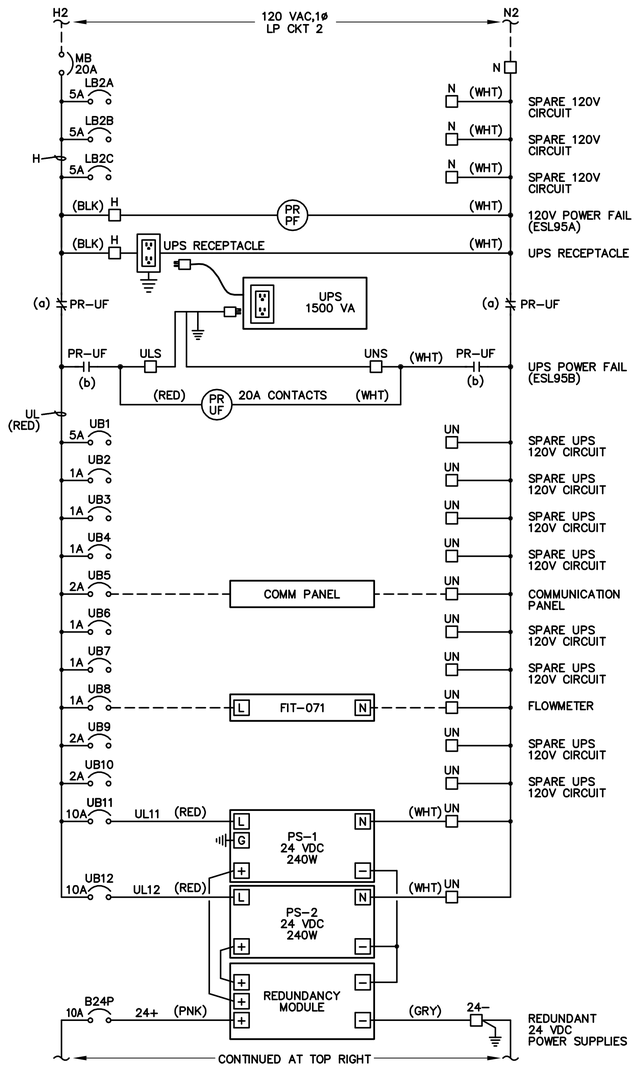
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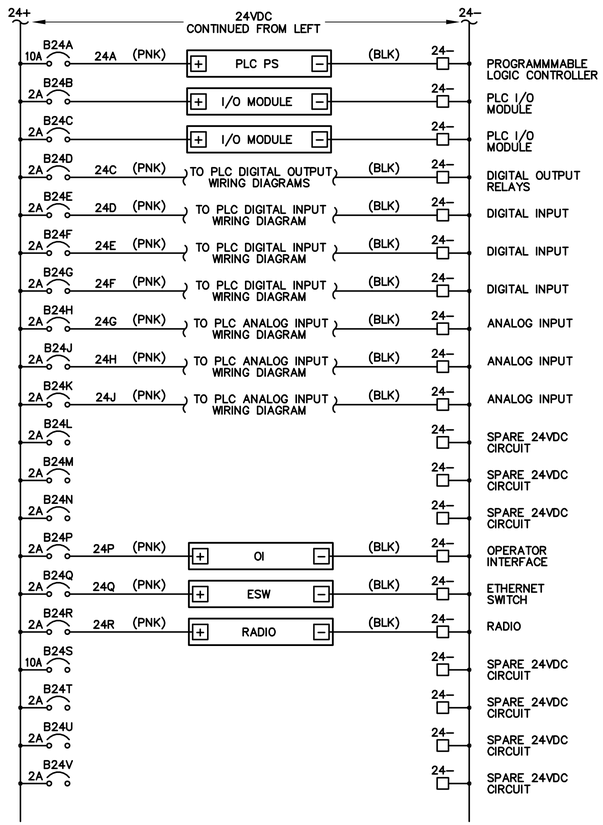
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
CONTROL PANEL ELEVATION AND BACKPAN LAYOUT

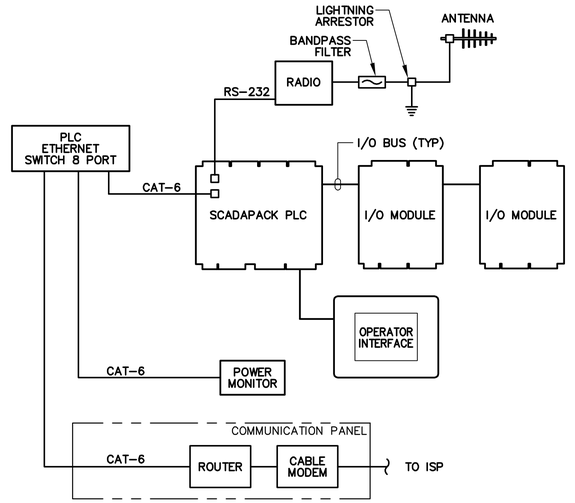
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PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-04
SHEET NUMBER 64



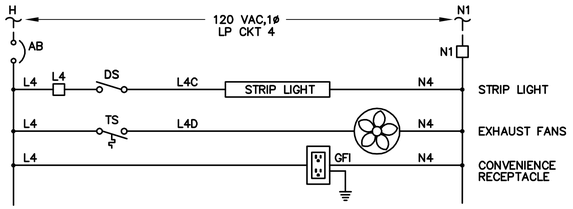
POWER DISTRIBUTION DIAGRAM



24VDC DISTRIBUTION DIAGRAM – CONTINUED



COMMUNICATION BLOCK DIAGRAM



AUXILLIARY POWER DIAGRAM

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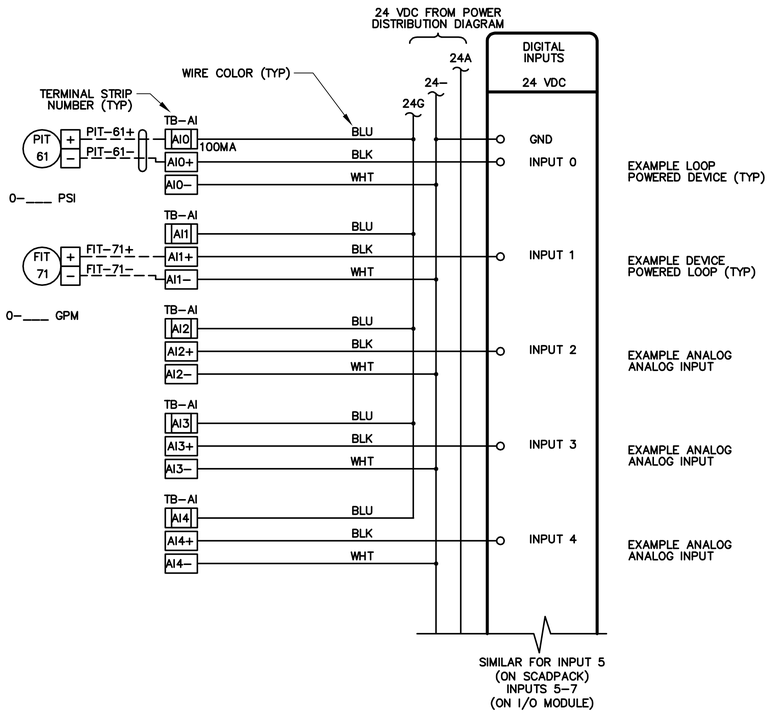
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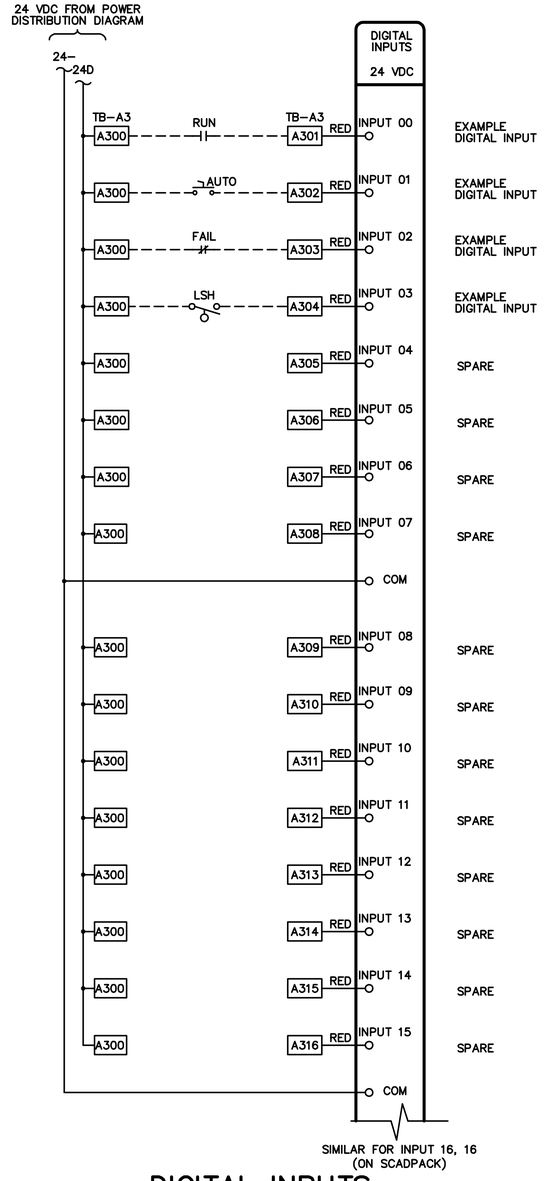
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
CONTROL PANEL POWER
DISTRIBUTION DIAGRAM

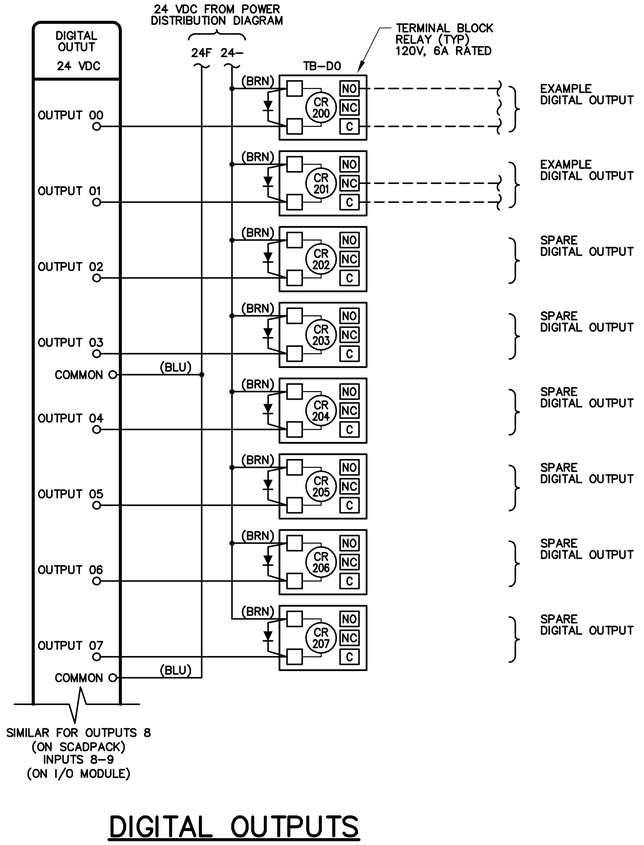
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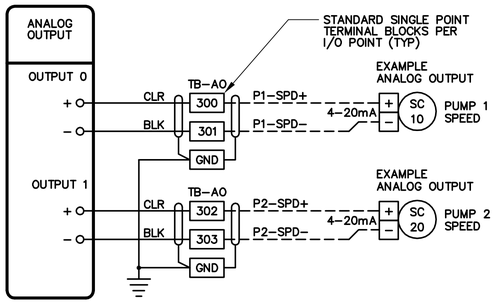
ANALOG INPUTS



DIGITAL INPUTS



DIGITAL OUTPUTS



ANALOG OUTPUTS

EXAMPLE PLC I/O WIRING DIAGRAMS

NOTES:
1. WIRE SPARE PLC I/O POINTS TO TERMINAL BLOCKS.
2. EXAMPLE I/O POINTS SHOWN. THIS DRAWING INTENDED TO SHOW I/O WIRING ONLY.
3. I/O TYPE AND NUMBER OF POINTS AND CARDS REQUIRED IS DETERMINED BY P&ID DRAWINGS.
4. MINIMUM 20% SPARE I/O POINTS PER I/O TYPE.
5. INTERNAL PANEL PLC I/O CARD WIRE NUMBERS SHALL BE BUILT AS SHOWN IN EXAMPLE BELOW.

   RACK LETTER
   SLOT NUMBER
   INPUT NUMBER
   A101
6. FIELD WIRES SHALL BE LABELED WITH ACRONYM OF CONTROL PANEL ID (NOT SHOWN) AND DEVICE: SEE EXAMPLES.

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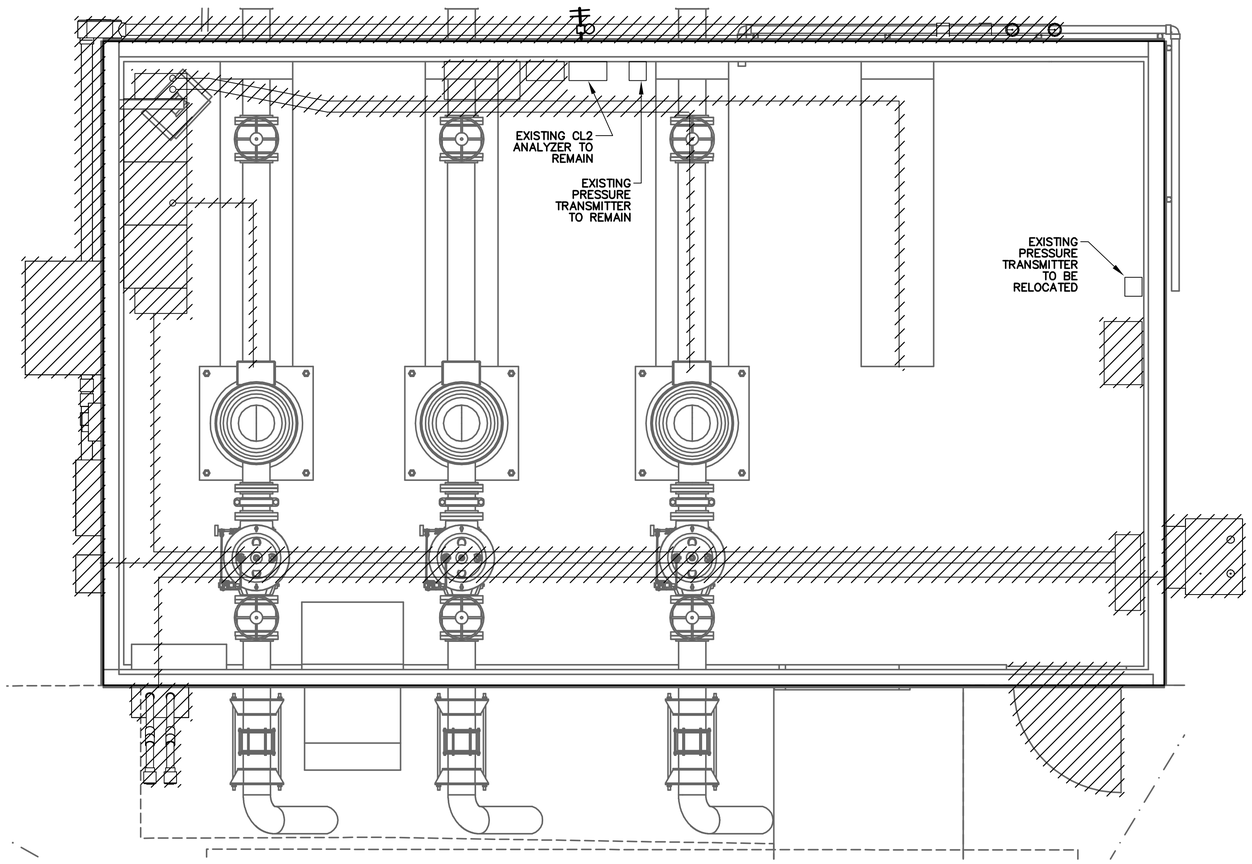
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
CONTROL PANEL EXAMPLE PLC I/O WIRING DIAGRAMS

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-06
SHEET NUMBER 66



EQUIPMENT DEMOLITION NOTES

1. REMOVE AND WASTE ELECTRICAL PANELS AND ASSOCIATED CONDUITS.
2. PROVIDE FIRST RIGHT OF SALVAGE TO OWNER. NOTIFY OWNER 1 WEEK PRIOR TO WASTING.

0 2 4
(Approximate Scale in Feet)

PUMP STATION POWER AND CONTROL PLAN

SCALE: 1/2" = 1'

N

7/16/25

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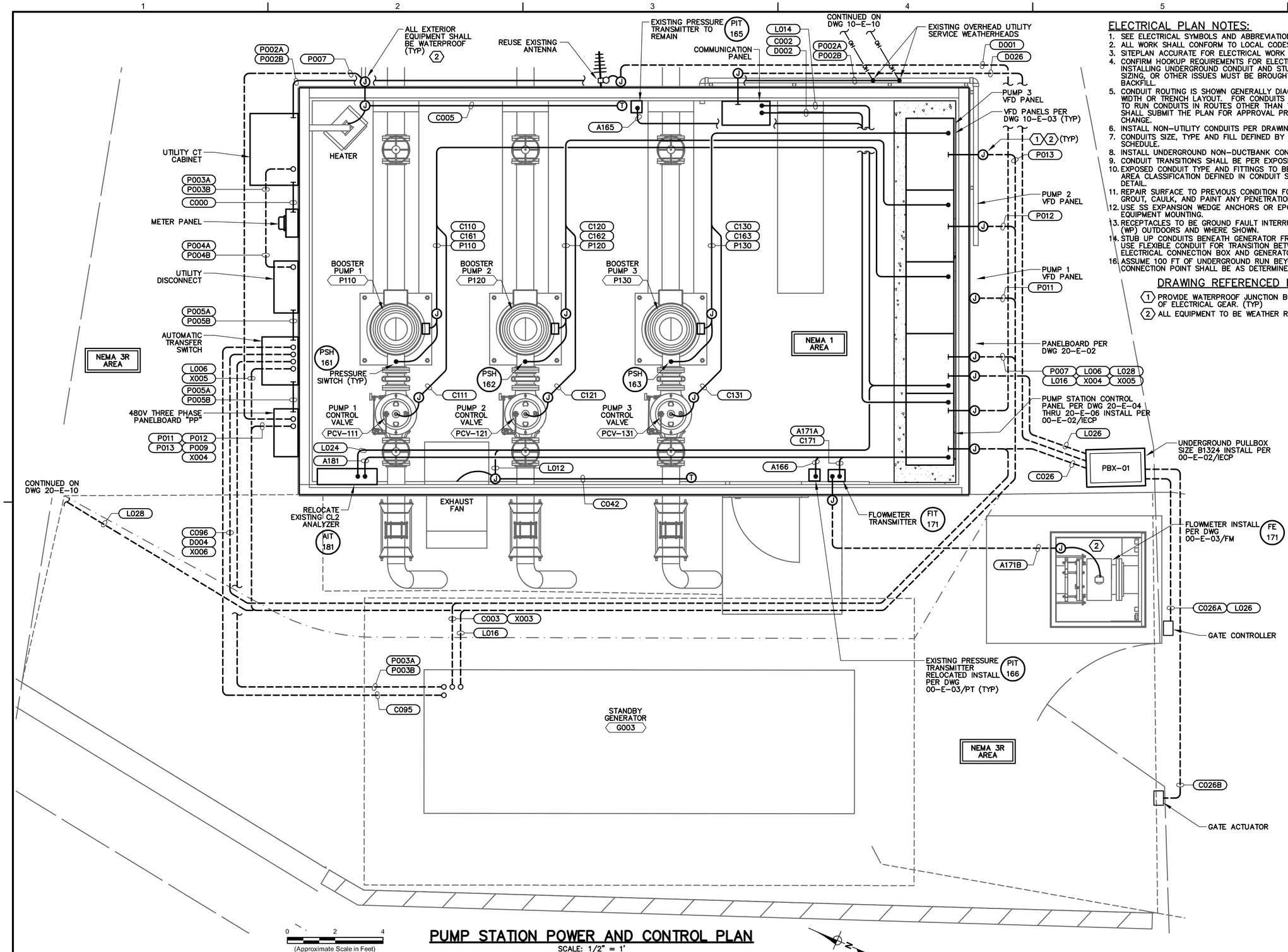
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
ELECTRICAL DEMOLITION PLAN

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DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-07
SHEET NUMBER 67



PUMP STATION POWER AND CONTROL PLAN

SCALE: 1/2" = 1'

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.
14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSTION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.
16. ASSUME 100 FT OF UNDERGROUND RUN BEYOND DRAWING FOR UTILITY CONNECTIONS. CONNECTION POINT SHALL BE AS DETERMINED BY UTILITY.

DRAWING REFERENCED NOTES:

1. PROVIDE WATERPROOF JUNCTION BOXES OUTSIDE OF BUILDING FOR REAR ENTRY OF ELECTRICAL GEAR. (TYP)
2. ALL EQUIPMENT TO BE WEATHER RESISTANT AT WET LOCATIONS.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

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DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

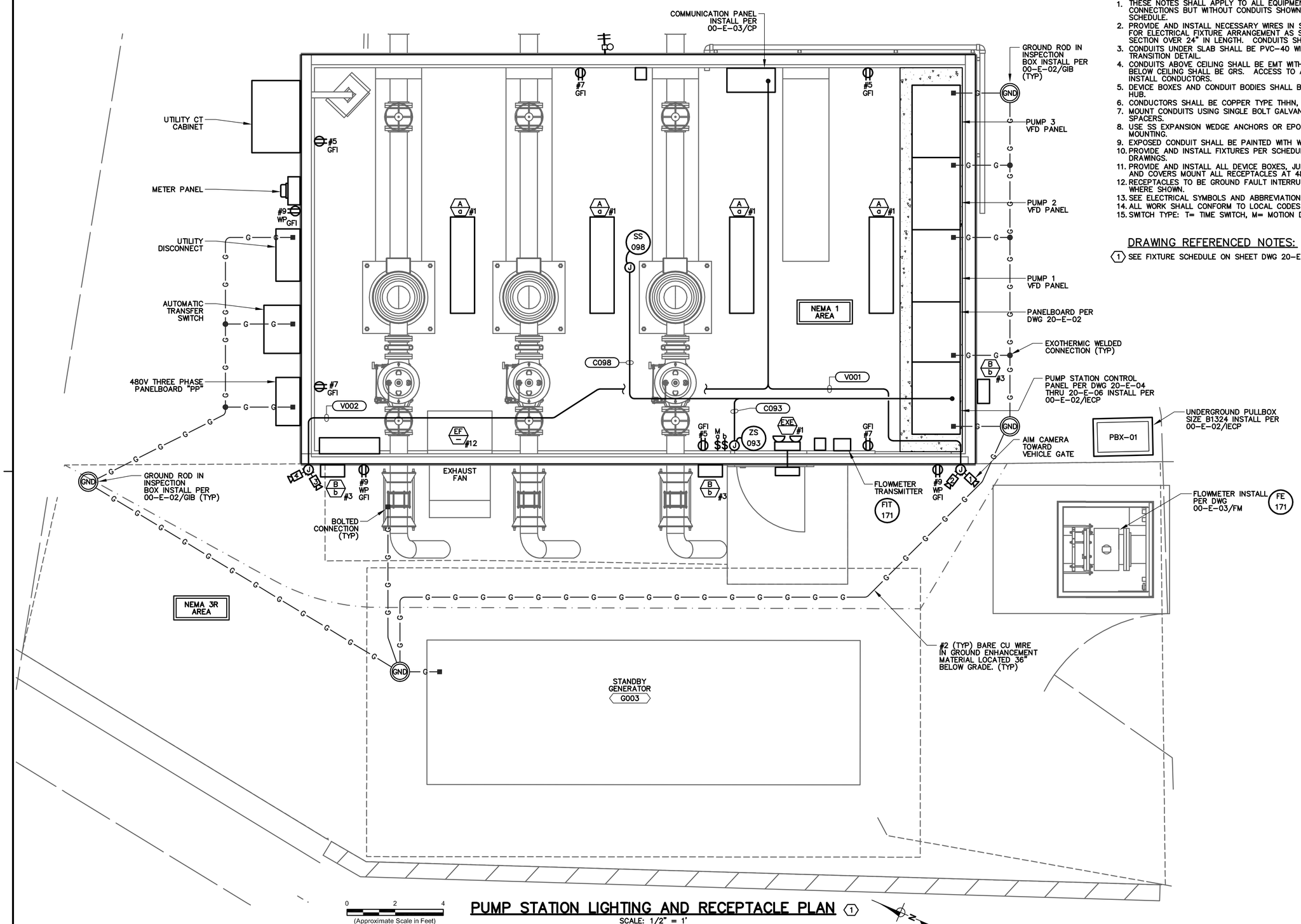
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
POWER AND CONTROL PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-08
SHEET NUMBER 68



0 2 4
(Approximate Scale in Feet)

PUMP STATION LIGHTING AND RECEPTACLE PLAN (1)

SCALE: 1/2" = 1'

LIGHTING AND RECEPTACLE PLAN NOTES

1. THESE NOTES SHALL APPLY TO ALL EQUIPMENT OR FIXTURES WITH ELECTRICAL CONNECTIONS BUT WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.
2. PROVIDE AND INSTALL NECESSARY WIRES IN SURFACE MOUNT 3/4" (MINIMUM) CONDUIT FOR FOR ELECTRICAL FIXTURE ARRANGEMENT AS SHOWN. MAXIMUM 3 CIRCUITS PER CONDUIT SECTION OVER 24" IN LENGTH. CONDUITS SHALL NOT EXCEED 40% FILL.
3. CONDUITS UNDER SLAB SHALL BE PVC-40 WITH STUB-OUTS PER EXPOSED CONDUIT TRANSITION DETAIL.
4. CONDUITS ABOVE CEILING SHALL BE EMT WITH COMPRESSION STYLE FITTINGS. CONDUITS BELOW CEILING SHALL BE GRS. ACCESS TO ATTIC AREA SHALL NOT BE REQUIRED TO INSTALL CONDUCTORS.
5. DEVICE BOXES AND CONDUIT BODIES SHALL BE CAST IRON OR ALUMINUM WITH THREADED HUB.
6. CONDUCTORS SHALL BE COPPER TYPE THHN, CLASS C STRANDING, #12 AWG (MINIMUM).
7. MOUNT CONDUITS USING SINGLE BOLT GALVANIZED PIPE STRAPS AND CLAMP BACK SPACERS.
8. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
9. EXPOSED CONDUIT SHALL BE PAINTED WITH WALL AND/OR CEILING AS SPECIFIED.
10. PROVIDE AND INSTALL FIXTURES PER SCHEDULE THIS PAGE, QUANTITY AS SHOWN IN DRAWINGS.
11. PROVIDE AND INSTALL ALL DEVICE BOXES, JUNCTION BOXES, RECEPTACLES, SWITCHES, AND COVERS MOUNT ALL RECEPTACLES AT 48" AFF UNLESS OTHERWISE NOTED.
12. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) WHERE SHOWN.
13. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
14. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
15. SWITCH TYPE: T= TIME SWITCH, M= MOTION DETECTOR, 3= 3-WAY.

DRAWING REFERENCED NOTES:

(1) SEE FIXTURE SCHEDULE ON SHEET DWG 20-E-10

7/16/25

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APPROVED C. BERTSCH

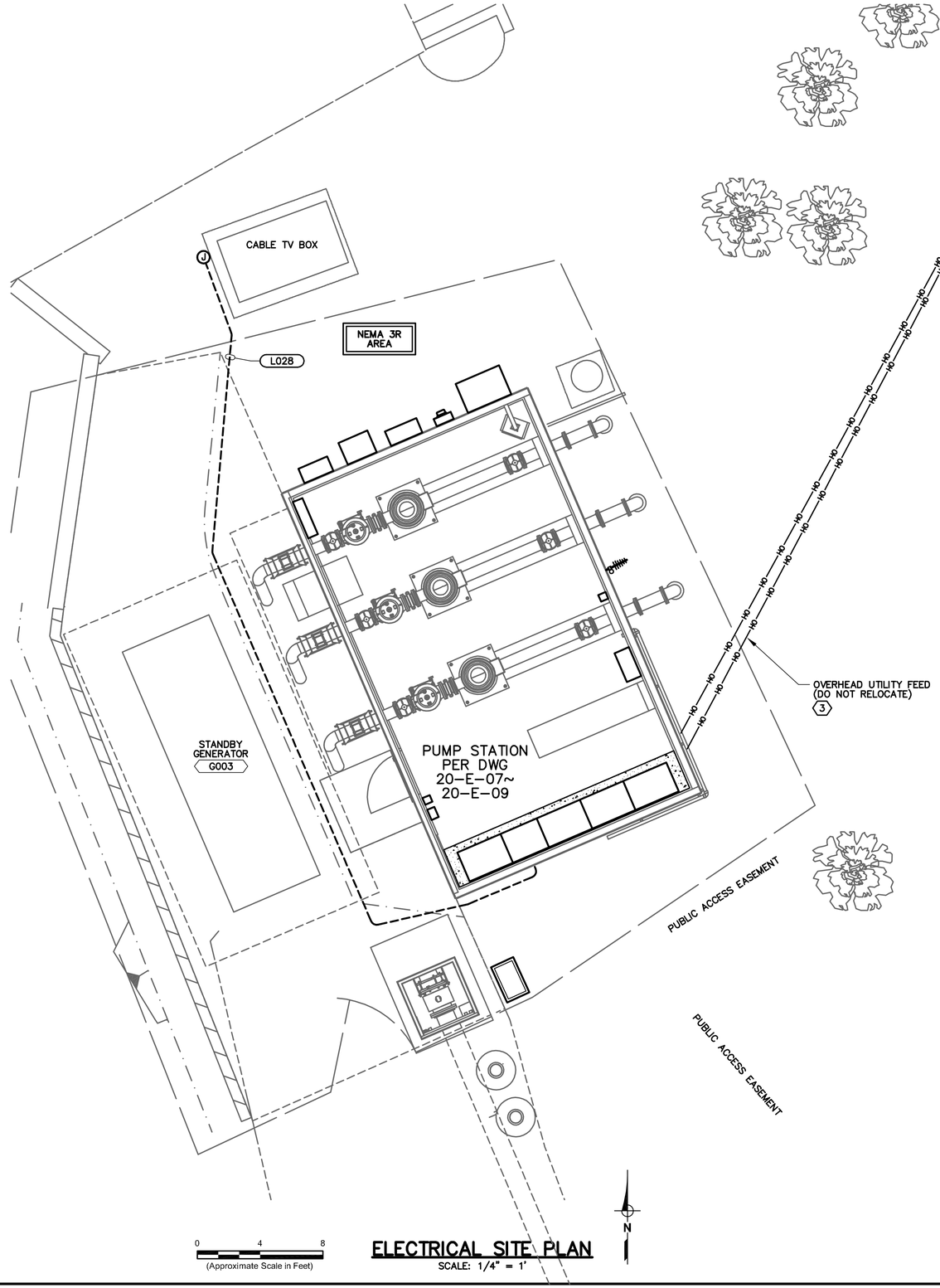
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
LIGHTING AND RECEPTACLE PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-09
SHEET NUMBER 69



ELECTRICAL SITE PLAN
SCALE: 1/4" = 1'

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.
14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSTION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.

FIXTURE SCHEDULE

CODE LETTER	FIXTURE TYPE	FIXTURE LAMPS	WATTS/ FIXTURE	MANUFACTURER OR APPROVED EQUAL	MOUNTING ARRANGEMENT	NOTES
A	STRIP LUMINAIRE, 4 FT, VAPORTIGHT MOLDED POLYCARBONATE HOUSING FROSTED LENS, MEDIUM DISTRIBUTION	6000 LUMEN 4500K	120V 50W	ATLAS ILW48LED4D RAB SEAL4-50/D10	CEILING MOUNT FIXTURE	U.L. LISTED -20F TO 140F
B	WALL PACK LIGHT - MEDIUM DARK BRONZE COLOR ALUMINUM CASE	5025 LUMEN 4000K	120V 43W	ATLAS WPM64LED RAB WPLEDFC52N/PCS	WALL MOUNT 12 FT AFF	U.L. LISTED FOR WET LOCATIONS PHOTOCELL CONTROL, MOTION DETECTION FULL CUTOFF
EXE	EXIT LIGHT PACK WITH EGRESS LAMPS AND REMOTE OUTDOOR EGRESS FIXTURE LED LAMPS WITH RED LED SIGN INTEGRAL BATTERY AND CHARGER	2 LED 3W	120V 5W	DUAL-LITE HCX-U-R-W-03L-RC12 CPRSB0603L	WALL MOUNT 9 FT AFF	WHITE INTERIOR, BROWN EXTERIOR DUAL LED LAMPS INDOORS AND OUT 12W REMOTE LIGHT CAPACITY
EF1	16" EXHAUST FAN WITH FAN INTAKE GUARD FIBERGLASS GRAVITY OPERATED SHUTTER AND THERMOSTAT CONTROL		1/6 HP 120 VAC 1 PHASE	DAYTON GRAINGER 5C531	WALL MOUNT	LINE VOLTAGE THERMOSTAT 50 - 90 DEG F COOLING GRAINGER 6GVX8 OR EQUAL
EF2	EXHAUST FAN WITH, FAN INTAKE GUARD ALUMINUM GRAVITY OPERATED SHUTTER ALUMINUM INTAKE LOUVER AND THERMOSTAT CONTROL		1/2 HP 120 VAC 1 PHASE	DAYTON GRAINGER 3XK47	SHUTTER 4C559 FAN GUARD 6D584 WALL MOUNT INTAKE LOUVER 4F955	LINE VOLTAGE THERMOSTAT 50 - 90 DEG F COOLING GRAINGER 6GVX8 OR EQUAL

DRAWING REFERENCED NOTES:

1. MAINTAIN 3 FT MINIMUM FROM EDGE OF PAD
2. MAINTAIN 3 FT MINIMUM DISTANCE FROM WATER LINE.
3. INSTALL SPOOL AND CLEVIS SYSTEM FOR PG&E CONNECTION. INSTALLATION SHALL BE PER FIGURES 4.33 AND 4.34 OF THE PG&E ELECTRIC & GAS SERVICE REQUIREMENTS (GREENBOOK), LATEST VERSION. UTILITY TO RECONNECT AT EXISTING OVERHEAD SERVICE LOCATION.

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA
7/16/25

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION ELECTRICAL SITE PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-10
SHEET NUMBER 70

CONDUIT & WIRE ROUTING SCHEDULE

REV	CONDUIT DETAILS TAG NO.	FROM	TO	QTY	SIZE	TYPE	POWER WIRE QTY	POWER WIRE SIZE	CONTROL WIRE QTY	CONTROL WIRE SIZE	GROUND SIZE	NOTES
	A088	CONTROL PANEL	TIT–088, TIT–089 J–BOX	1	1"	SPEC	–	–	2	#18 TSPR	#14	
	A089	TIT–088, TIT–089 J–BOX	OUTDOOR TEMP TE–089	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A165	CONTROL PANEL	PIT–165	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A166	CONTROL PANEL	PIT–166	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A171 A	CONTROL PANEL	FLOWMETER TRANSMITTER FIT–171	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A171 B	FLOWMETER TRANSMITTER FIT–171	FLOWMETER FE–171	1	1"	SPEC	–	–	1	MFG CABLE	#14	
	A181	CONTROL PANEL	CL2 ANALYZER AIT–181	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	C000	UTILITY CT CABINET	METER PANEL	1	1–1/2"	GRS	–	–	–	–	–	PER UTILITY REQUIREMENTS
	C002	CONTROL PANEL	COMMUNICATION PANEL	1	3/4"	SPEC	2	#14	–	–	#14	
	C003	CONTROL PANEL	GENERATOR	1	3/4"	SPEC	–	–	8	#14	#14	
	C005	HEATER	HEATER THERMOSTAT	1	3/4"	SPEC	–	–	4	#14	#14	
	C026A	PBX–01	GATE CONTROLLER	1	3/4"	SPEC	–	–	4	#14	#14	
	C026B	PBX–01	GATE ACTUATOR	1	3/4"	SPEC	–	–	4	#14	#14	
	C026	CONTROL PANEL	PBX–01	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	C042	THERMOSTAT	EXHAUST FAN	1	3/4"	SPEC	–	–	4	#14	#14	
	C093	COMMUNICATION PANEL	INTRUSION ZS–093	1	3/4"	SPEC	–	–	2	#14	#14	
	C095	AUTOMATIC TRANSFER SWITCH	GENERATOR	1	3/4"	SPEC	–	–	8	#14	#14	
	C096	CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	8	#14	#14	
	C098	CONTROL PANEL	SMOKE DETECTOR SS–098	1	3/4"	SPEC	–	–	2	#14	#14	
	C110	PUMP 1 VFD	PUMP 1	1	3/4"	SPEC	–	–	4	#14	#14	
	C111	PUMP 1 VFD	PUMP 1 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C120	PUMP 2 VFD	PUMP 2	1	3/4"	SPEC	–	–	4	#14	#14	
	C121	PUMP 2 VFD	PUMP 2 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C130	PUMP 3 VFD	PUMP 3	1	3/4"	SPEC	–	–	4	#14	#14	
	C131	PUMP 3 VFD	PUMP 3 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C161	PUMP 1 VFD	PSH–161	1	3/4"	SPEC	–	–	2	#14	#14	
	C162	PUMP 2 VFD	PSH–162	1	3/4"	SPEC	–	–	2	#14	#14	
	C163	PUMP 3 VFD	PSH–163	1	3/4"	SPEC	–	–	2	#14	#14	
	C171	CONTROL PANEL	FLOWMETER TRANSMITTER FIT–171	1	3/4"	SPEC	2	#14	–	–	#14	
	D001	CONTROL PANEL	ANTENNA	1	2"	SPEC	–	–	1	ANTENNA CABLE	–	
	D002	CONTROL PANEL	COMMUNICATION PANEL	1	1"	SPEC	–	–	2	CAT 5E	–	BELDEN 7919A
	D004	CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	1	CAT 5E	–	BELDEN 7919A
	D026	COMMUNICATION PANEL	PBX–01	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	L006	PANELBOARD "LP"	AUTOMATIC TRANSFER SWITCH	1	1"	SPEC	6	#12	–	–	#12	
	L012	PANELBOARD "LP"	EXHAUST FAN	1	3/4"	SPEC	2	#12	–	–	#12	
	L014	PANELBOARD "LP"	COMMUNICATION PANEL	1	3/4"	SPEC	2	#12	–	–	#12	
	L016	PANELBOARD "LP"	GENERATOR	1	1"	SPEC	2	#8	3	#12	#10	HEATER AND CHARGER
	L024	PANELBOARD "LP"	CL2 ANALYZER AIT–181	1	3/4"	SPEC	2	#12	–	–	#12	
	L026	PANELBOARD "LP"	GATE CONTROLLER	1	3/4"	SPEC	2	#12	–	–	#12	
	L028	PANELBOARD "LP"	CABLE TV BOX	1	3/4"	SPEC	3	#12	–	–	#12	
	P002A,B	OVERHEAD UTILITY SERVICE WEATHERHEAD	UTILITY CT CABINET	2	–	(E)	–	–	–	–	–	REPLACE PER UTILITY REQUIREMENTS
	P003A,B	UTILITY CT CABINET	UTILITY DISCONNECT	2	3"	SPEC	3	#250	–	–	#1	
	P004A,B	UTILITY DISCONNECT	AUTOMATIC TRANSFER SWITCH	2	3"	SPEC	3	#250	–	–	#1	
	P005A,B	GENERATOR	AUTOMATIC TRANSFER SWITCH	2	3"	SPEC	3	#250	–	–	#1	
	P006A,B	AUTOMATIC TRANSFER SWITCH	PANELBOARD "PP"	2	3"	SPEC	3	#250	–	–	#1	
	P007	PANELBOARD "PP"	HEATER	1	3/4"	SPEC	3	#12	–	–	#12	
	P009	PANELBOARD "PP"	PANELBOARD "LP" TRANSFORMER	1	2"	SPEC	3	#1/0	–	–	#4	
	P011	PANELBOARD "PP"	PUMP 1 VFD	1	3"	SPEC	3	#4/0	–	–	#1	
	P012	PANELBOARD "PP"	PUMP 2 VFD	1	3"	SPEC	3	#4/0	–	–	#1	
	P013	PANELBOARD "PP"	PUMP 3 VFD	1	3"	SPEC	3	#1/0	–	–	#4	
	P110	PUMP 1 VFD	PUMP 1	1	3"	SPEC	3	#4/0	–	–	#1	
	P120	PUMP 2 VFD	PUMP 2	1	3"	SPEC	3	#4/0	–	–	#1	
	P130	PUMP 3 VFD	PUMP 3	1	3"	SPEC	3	#1/0	–	–	#4	
	V001	COMMUNICATION PANEL	CAMERA 1, 2	1	3/4"	SPEC	–	–	2	CAT 5E	–	BELDEN 7919A
	V002	COMMUNICATION PANEL	CAMERA 3,4	1	3/4"	SPEC	–	–	2	CAT 5E	–	BELDEN 7919A
	X003	CONTROL PANEL	GENERATOR	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X004	PANELBOARD "LP"	PANELBOARD "PP"	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X005	PANELBOARD "LP"	AUTOMATIC TRANSFER SWITCH	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X006	CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	1"	SPEC	–	–	–	–	–	PULL ROPE

NOTES PERTAINING TO CONDUIT SCHEDULE:

1. CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION, CONDUIT AND BOXES FOR NON–EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
2. SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
3. CONDUITS OVER 15 FT LENGTH (EITHER EMPTY OR WITH CONDUCTORS SIZED LESS THAN #8 AWG), SHALL INCLUDE A POLY PULL STRING. STRING SHALL BE TIED OFF AT EACH END.
4. FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS, CONDUIT AND BOXES.
5. WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
6. SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

REGISTERED PROFESSIONAL ENGINEER
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
ELECTRICAL CONDUIT SCHEDULE

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-11
SHEET NUMBER 71

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Sneath Pump Station

San Bruno, CA

Project Designer:

Frisch Engineering, Inc.
13405 Folsom Blvd, Unit 600
Folsom, CA 95630
916-353-1025

Report Prepared by:

Scott Turnbull
M/E Systems Engineering
5098 Foothills Blvd Ste 3 PMB 382
Roseville, CA 95747
916-774-6330

Job Number:

17154

Date:

11/7/2022

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2019 Building Energy Efficiency Standards.

This program developed by EnergySoft Software – www.energysoft.com.

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Form NRCC-LTO-E Outdoor Lighting	9

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
This document is used to demonstrate compliance with requirements in §110.9, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path.			
Project Name: Sneath Pump Station (Sneath Pump Station)		Report Page:	(Page 1 of 6)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

A. GENERAL INFORMATION

01	Project Location (city)	San Bruno	04	Total Conditioned Floor Area (ft²)	119
02	Climate Zone	3	05	Total Unconditioned Floor Area (ft²)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1
●: See Table I					

B. PROJECT SCOPE

This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6 or §141.0(b)2 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☒ New Lighting System	Area Category Method	119	Area Category Method	0
☐ New Lighting System – Parking Garage				
Total Area of Work (ft²)	119		0	

C. COMPLIANCE RESULTS

If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)1	Allowed Lighting Power per §140.6(b) (Watts)						Adjusted Lighting Power per §140.6(a)1 (Watts)				Compliance Results
	01	02	03	04		05		06	07		08	09
	Complete Building §140.6(c)1	Area Category §140.6(c)2	Area Category Additional §140.6(c)2G (+)	Tailored §140.6(c)3 (+)	=	Total Allowed (Watts)	≥	Total Designed (Watts)	Adjustments: PAF Lighting Control Credits §140.6(a)2 (-)	=	Total Adjusted (Watts) *Includes Adjustments	05 must be >= 08 §140.6
	(See Table I)	(See Table I)	(See Table J)	(See Table K)				(See Table F)	(See Table P)			
Conditioned		101.1	83		=	184	≥	150	0	=	150	COMPLIES
Unconditioned					=		≥			=		

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft

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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name: Sneath Pump Station (Sneath Pump Station)		Report Page:	(Page 2 of 6)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

C. COMPLIANCE RESULTS

Controls Compliance (See Table H for Details)	COMPLIES
Rated Power Reduction Compliance (See Table Q for Details)	

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. INDOOR LIGHTING FIXTURE SCHEDULE

This table includes all permanent designed lighting and all portable lighting in offices.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
									Field Inspector	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per §140.6(a)3	Design Watts	Pass	Fail
A	Ceiling Mount LED	No	No	50	Mfr. Spec	3	No	150	☐	☐
							Total Designed Watts: CONDITIONED SPACES	150		

[1] *FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per §140.6(a)4B is adjusted to be 75% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*

[2] *Authority Having Jurisdiction may ask for luminaire cut sheets to confirm wattage used for compliance per §130.0(c). Wattage used must be the maximum rated for the luminaire, not the lamp.*

G. MODULAR LIGHTING SYSTEMS

This section does not apply to this project.

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003, Schema Version: rev 20200601 — Report Generated: 2022-11-07 12:51:54

REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
13405 FOLSOM BLVD, UNIT 600
FOLSOM, CA 95630
PH 916 353 1025
WWW.FRISCHENGINEERING.COM

FILE: T:\17154\Drawings\17154.DWG
DATE: JUL 16, 2025 TIME: 11:45:46AM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-12
SHEET NUMBER 72

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE				NRCC-LTI-E
Project Name:	Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 3 of 6)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

*This table includes lighting controls for conditioned and unconditioned spaces. When a control having a * is shown, the notes section of this table provides more detail on how compliance is achieved. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Building Level Controls

01	02	03	
Mandatory Demand Response §110.12(c)	Shut-off controls §130.1(c)	Field Inspector	
		Pass	Fail
Not Required <= 10,000 SF	Whole Building Other	☐	☐

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Sky lit Daylighting §130.1(d)	Secondary Daylighting §140.6(d)	Interlocked Systems §140.6(a)1	Field Inspector	
								Pass	Fail
*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved. EX: Conference 1: Primary/Skylight Daylighting: Exempt because less than 120 watts of general lighting; EXCEPTION 1 to §130.1(d)2					13				
					Plan Sheet Showing Daylit Zones:				

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Each area complying using the Complete Building or Area Category Methods per §140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
Pump Room	General Commercial Industrial Work Area Precision	0.85	119	101.1	Yes	No
		TOTALS:	119	101.1	See Tables J, or P for detail	

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE				NRCC-LTI-E
Project Name:	Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 4 of 6)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

All areas indicated in Table I as using an additional allowance using the Area Category Method have been included in this table to calculate the additional allowance per Table 140.6-C

Conditioned Spaces

01	02	03	04	05	06	07	08	09	10
Area Description	Primary Function Area	Applicable Qualifying Lighting System from Table 140.6-C	Allowed Density (W/ft² or W/lf or W/unit)	Ltg Area, Length or ATM/Mirror (ft², lf or #)	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	Number of Luminaires	Total Design Watts
Pump Room	General Commercial Industrial Work Area Precision	PrecisionLightingIndustrial	0.70	119	83.3	A	50	3	150
Total Design Watts	Calculated Allowance (Watts):	Total Additional Allowance for this area:							
150	83.3	83.3							
11									
Total Additional Allowance (Watts) CONDITIONED SPACES		83.3							

Unconditioned Spaces

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This section does not apply to this project.

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS

This section does not apply to this project.

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE				NRCC-LTI-E
Project Name:	Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 5 of 6)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCv/

Form/Title	Field Inspector	
	Pass	Fail
NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified		Field Inspector	
			Pass	Fail
NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐		

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE				NRCC-LTI-E
Project Name:	Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 6 of 6)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Scott Turnbull	
Company: M/E Systems Engineering	Signature Date: 2022-11-07
Address: 5098 Foothills Blvd Ste 3 PMB 382	CEA/ HERS Certification Identification (if applicable): N/A
City/State/Zip: Roseville CA 95747	Phone: 916-774-6330

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Responsible Designer Signature:
Thomas Frisch	
Company: Frisch Engineering, Inc.	Date Signed: 2022-11-07
Address: 13405 Folsom Blvd, Unit 600	License: E15761
City/State/Zip: Folsom CA 95630	Phone: 916-353-1025

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
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FILE: T24-2025-19-077.DWG
DATE: JUL 16, 2025 TIME: 11:45:53 AM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-538-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-13
SHEET NUMBER 73

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name:	Sneath Pump Station — Sneath Pump Station	Report Page:	(Page 1 of 7)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066	Date Prepared:	11/7/2022

A. GENERAL INFORMATION

01	Project Location (city)	San Bruno	04	Total Illuminated Hardscape Area (ft²)	18
02	Climate Zone	3			

03 Outdoor Lighting Zone per Title 24 Part 1 §10.114 or as designated by Authority Having Jurisdiction (AH):

☐ LZ-0: Very Low – Undeveloped Parkland ☐ LZ-2: Moderate – Rural Areas ☐ LZ-4: High – Must be reviewed by CA Energy Commission for Approval
☐ LZ-1: Low – Developed Parkland ☒ LZ-3: Moderately High – Urban Areas

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.7 or §141.0(b)2L for alterations.

My Project Consists of:

01	02
☒ New Lighting System	Must Comply with Allowances from §140.7
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)? ○ Yes ○ No

03	04	05
% of Existing Luminaires Being Altered[1]	Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ < 10% ☐ >= 10% and < 50% ☐ >= 50%		

Please proceed to Table F. Outdoor Lighting Fixture Schedule to define the project's luminaires.

[1] *FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.*

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name:	Sneath Pump Station — Sneath Pump Station	Report Page:	(Page 2 of 7)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066	Date Prepared:	11/7/2022

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through I. Note: if any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) §140.7 or §141.0(b)2L												Compliance Results			
01		02		03		04		05	OR	06	=	07	≥	08	09
General Hardscape Allowance §140.7(d)1 (See Table I)	+	Per Application §140.7(d)2 (See Table J)	+	Sales Frontage §140.7(d)2 (See Table K)	+	Ornamental §140.7(d)2 (See Table L)	+	Per Specific Area §140.7(d)2 (See Table M)	OR	Existing Power Allowance §141.0(b)2L (See Table N)	=	Total Allowed (Watts)	≥	Total Actual (Watts)	07 must be >= 08
355.2	+	—	+	—	+	—	+	—	OR	—	=	355.2	≥	129	COMPLIES
Cutoff Compliance (See Table G for Details)															N/A
Controls Compliance (See Table H for Details)															COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003 Schema Version: rev 20200501 — Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name:	Sneath Pump Station — Sneath Pump Station	Report Page:	(Page 3 of 7)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066	Date Prepared:	11/7/2022

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with §140.7 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per §141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included).

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1,2]	How is Wattage determined	Total number luminaires[2]	Luminaire Status[3]	Excluded per §140.7(a)	Design Watts	Cutoff Req. > 6,200 initial lumen output §130.2(b)[4]	Field Inspector	
										Pass	Fail
B	Wall Mount LED	☐ Linear	43	Mfr. Spec	3	New	☐	129	NA: < 6200 lumens	☐	☐
							Total Design Watts:	129			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX: Luminaire is lighting a statue; EXCEPTION 2 to §130.2(b)

[1] *ROOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.0(c)*

[2] *For linear luminaires, wattage should be indicated as W/ft instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.*

[3] *Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.*

[4] *Compliance with mandatory cutoff requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by §130.2(b)*

G. CUTOFF REQUIREMENTS (BUG)

This section does not apply to this project.

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003 Schema Version: rev 20200501 — Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name:	Sneath Pump Station — Sneath Pump Station	Report Page:	(Page 4 of 7)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066	Date Prepared:	11/7/2022

H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
*When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Mandatory Controls

01	02	03	04	05	
Area Description	Shut-Off §130.2(c)1	Auto-Schedule §130.2(c)2	Motion Sensor §130.2(c)3	Field Inspector	
				Pass	Fail
	Photocontrol	Yes	Yes	☐	☐

* NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.
EX: Not permitted by health & safety to be turned off; EXCEPTION 1 to §130.2(c)

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003 Schema Version: rev 20200501 — Report Generated: 2022-11-07 12:51:54

REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
3485 FOLSOM BLVD, UNIT 600
FOLSOM, CA 95630
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WWW.FRISCHENGINEERING.COM

FILE: T:\PROJECTS\2025\2514-DWG\2514-E-14.DWG
DATE: JUL 16, 2025 TIME: 11:46:01 AM

WATERWORKS ENGINEERS
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-14
SHEET NUMBER 74

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 5 of 7)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

I. LIGHTING POWER ALLOWANCE (per §140.7)

This table includes areas using allowance calculations per §140.7. General Hardscape Allowance is per Table 140.7-A while "Use it or lose it" Allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

	01				
	☒ General Hardscape Allowance Table I (below)	"Use it or lose it" Allowance (select all that apply) (select all that apply)			
		☐ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☐ Per Specific Area Table M
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 0, 1 & 4)					
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 2 & 3)					

02	03	04	05	06	07	08	09	10
Area Description	Surface Type	Area Wattage Allowance (AWA)			Area Wattage Allowance (AWA)			Total General AWA + LWA (Watts)
		Illuminated Area (ft²)	Allowed Density (W/ft²)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	
Walkway	Asphalt	18	0.025	0.4	19	0.2	4.8	5
							Initial Wattage Allowance for Entire Site (Watts):	350
							Total General Hardscape Allowance (Watts):	355

J. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number:
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:
Report Version: 2019.1.003
Schema Version: rev 20200501

Registration Provider: Energysoft
Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 6 of 7)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCv/

Form/Title	Field Inspector	
	Pass	Fail
NRCI-LTO-01-E - Must be submitted for all buildings	☐	☐
NRCI-LTO-02-E- Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified		Field Inspector	
			Pass	Fail
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	☐	☐		

Registration Number:
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:
Report Version: 2019.1.003
Schema Version: rev 20200501

Registration Provider: Energysoft
Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 7 of 7)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Scott Turnbull	Scott Turnbull
Company: M/E Systems Engineering	Signature Date: 2022-11-07
Address: 5098 Foothills Blvd Ste 3 PMB 382	CEA/ HERS Certification Identification (If applicable): N/A
City/State/Zip: Roseville CA 95747	Phone: 916-774-6330

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Responsible Designer Signature:
Thomas Frisch	Thomas Frisch
Company: Frisch Engineering, Inc.	Date Signed: 2022-11-07
Address: 13405 Folsom Blvd, Unit 600	License: E15761
City/State/Zip: Folsom CA 95630	Phone: 916-353-1025

Registration Number:
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:
Report Version: 2019.1.003
Schema Version: rev 20200501

Registration Provider: Energysoft
Report Generated: 2022-11-07 12:51:54

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-15
SHEET NUMBER 75

P&ID SYMBOLS

ISA SYMBOLS

SYMBOL	DESCRIPTION
XXX / XXX	FIELD MOUNTED INSTRUMENT
XXX / XXX	INSTRUMENT MOUNTED ON DOOR OF LOCAL PANEL, OPERATOR ACCESSIBLE
XXX / XXX	INSTRUMENT MOUNTED ON DOOR OF FIELD PANEL, OPERATOR ACCESSIBLE
XXX / XXX	INSTRUMENT MOUNTED WITHIN PANEL, OPERATOR INACCESSIBLE
XXX / XXX	INSTRUMENT MOUNTED WITHIN FIELD PANEL, OPERATOR INACESSIBLE
I	OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES
MCE–XX	ASSOCIATED MOTOR CONTROL ELEMENTARY IF APPLICABLE
UNIT XXX / XXX	VISUAL DISPLAY OF PLC ANALOG REGISTER SCALE TO UNITS AS SHOWN
XXX / XXX	VISUAL DISPLAY OF PLC ANALOG ALARM REGISTER
XXX / XXX	VISUAL DISPLAY OF PLC DIGITAL REGISTER
XXX / XXX	VISUAL DISPLAY OF PLC DIGITAL ALARM REGISTER
X / X	TAG DESCRIPTION
XXXX	PLC I/O TAG
	PLC DIGITAL INPUT
	PLC DIGITAL OUTPUT
	ANALOG INPUT
	ANALOG OUTPUT
	AUDIBLE ALARM (BUZZER OR HORN)
X	LAMP INDICATION COLOR DENOTED BY "X" RED, BLU, GRN, WHT, AMBER
a XXXX / XXXX a	CONTINUATION TAG FROM ONE AREA TO ANOTHER AREA OF DIFFERENT DRAWINGS "a" TAG IDENTIFIER TO POINT ON DRAWING NUMBER XXXX.
I–X / I–X	CONTINUED ON DWG I–X

LINE TYPES

	PRIMARY PROCESS LINE
	SECONDARY PROCESS LINE
	ELECTRICAL SIGNAL LINE (DIGITAL OR ANALOG)
	SOFTWARE OR DATA LINK
	BOUNDARY OF EQUIPMENT PACKAGE SYSTEM
	COMMUNICATION CONNECTION

VALVES

	GATE VALVE
	CHECK VALVE
	PLUG VALVE
	BALL VALVE
	BALL CHECK VALVE
	BUTTERFLY VALVE
	ANGLE VALVE
	NEEDLE VALVE
	RELIEF VALVE
	DIAPHRAGM VALVE
	3–WAY VALVE
	FLOW CONTROL VALVE
	PINCH VALVE
	CONE VALVE
	ANTISIPHON/BACKPRESSURE VALVE
S	SOLENOID VALVE (2–WAY) (S→M FOR MOTORIZED VALVE)
S	SOLENOID VALVE (3–WAY) (S→M FOR MOTORIZED VALVE)
S	SOLENOID VALVE (4–WAY) (S→M FOR MOTORIZED VALVE)
	PNEUMATIC DIAPHRAGM CONTROL VALVE
	PRESSURE SUSTAINING VALVE
	PRESSURE REGULATING VALVE
	MULTIFUNCTION VALVE
	SLUICE GATE (SG) OR SLIDE GATE (SLG)
	AIR RELIEF VALVE (ARV)
	FLOAT VALVE
	STRAINER
	BACKFLOW PREVENTER
CV	CALIBRATION VALVE
	CALIBRATION COLUMN
	ROTAMETER
	UNION

ACTUATORS

M	MOTORIZED
S	SOLENOID
S / A	PNEUMATIC OPERATOR S– SOLENOID – OPEN/CLOSE A– POSITIONER – MODULATING

PUMPS

	CENTRIFUGAL PUMP OR BLOWER
	SUBMERSIBLE SEWAGE PUMP
	VERTICAL TURBINE PUMP OR WELL PUMP
	SUBMERSIBLE WELL PUMP
	GEAR PUMP
	POSITIVE DISPLACEMENT PUMP OR BLOWER
	DIAPHRAGM PUMP
	PERISTALTIC PUMP
M M	MOTOR

SENSORS

	ORIFICE PLATE
LIT XXX	ULTRASONIC LEVEL TRANSMITTER (FLOW IF OVER FLUME OR WEIR)
LE XXX	CONDUCTANCE TYPE LEVEL ELEMENTS
LIT XXX	RADAR TYPE LEVEL TRANSMITTER
	GUIDED OPTION
LIT XXX	CAPACITANCE TYPE LEVEL TRANSMITTER

SENSORS

MAG	MAGNETIC FLOWMETER
%	DENSITY METER
~	ULTRASONIC FLOWMETER
	TURBINE OR PROPELLER METER
	VENTURI TUBE
	THERMAL DISPERSION FLOWMETER OR SWITCH
	PADDLE WHEEL FLOWMETER
C	CORIOLIS FLOWMETER

MISCELLANEOUS MECHANICAL ITEMS

	PIPE REDUCER
	RUPTURE DISC
	PRESSURE OR VACUUM RELIEF VALVE
	DIAPHRAGM SEAL
	ANNUALAR SEAL
	DRAIN TO WASTE
	MIXER
F OR F	FILTER
	VENT W/CAP OR SCREEN
	FLEXIBLE HOSE OR TUBING
	SPRAY NOZZLE SYSTEM
	EXPANSION JOINT
	STATIC MIXER
	EJECTOR / EDUCTOR
	HOSE COUPLING
	PULSATION DAMPENER
	OMNI ANTENNA NON–DIRECTIONAL
	YAGI ANTENNA DIRECTIONAL

P&ID ABBREVIATIONS

INSTRUMENTATION SYBMOLS

	FIRST LETTER: MEASURED OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROLLER	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW	RATIO			
G	GENERAL		GLASS VIEWING DEVICE		
H	HAND				HIGH, OPENED
I	CURRENT		INDICATING, INDICATOR		
J	POWER	SCAN			
K	TIME, TIME SCHEDULED	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW, CLOSED
M	MOISTURE	MOMENTARY			MIDDLE
N	STATUS		STATUS	USER'S CHOICE	USER'S CHOICE
O	OPERTOR		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RESET		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMITTER	TEST
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VAVE, DAMPER, LOUVER	
W	WEIGHT		WELL		
X	SWITCH	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OF PRESENCE	Y AXIS		RELAY, COMPUTER, CONVERTER	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

P&ID ABBREVIATIONS

SWITCH IDENTIFIER

F/R	FORWARD/REVERSE	OPN	OPEN
HOA	HAND–OFF–AUTO	CLS	CLOSE
HOR	HAND–OFF–REMOTE	SEL	SELECTOR
LOS	LOCK OUT STOP	S/S	START / STOP
L/R	LOCAL / REMOTE	%	PERCENT ADJUSTMENT
MOA	MANUAL–OFF–AUTO		
OCA	OPEN–CLOSE–AUTO		
O/C	OPEN / CLOSE		
O/O	ON / OFF		

REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA

7/16/25

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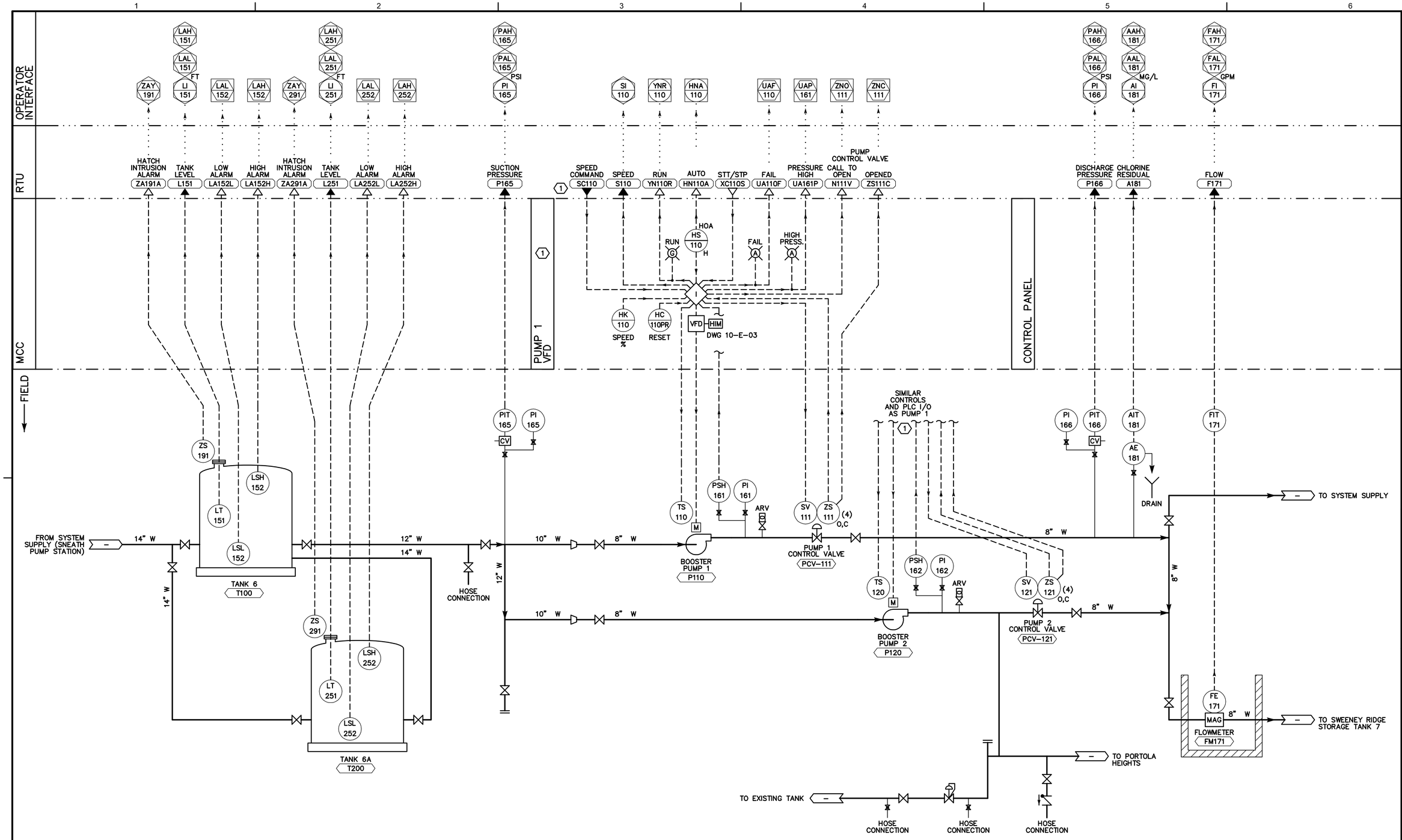
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
SYMBOLS AND ABBREVIATIONS

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 00-I-01
SHEET NUMBER 76



LAKE BOOSTER PUMP STATION

NOTES REFERENCED IN DRAWING:

(1) TYPICAL I/O CONTROLS AND VFDS FOR ALL PUMPS

NOTES:

ADD THE PREFIX 10 TO COMPLETE INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET. EXAMPLE: P10110 FOR PUMP 1

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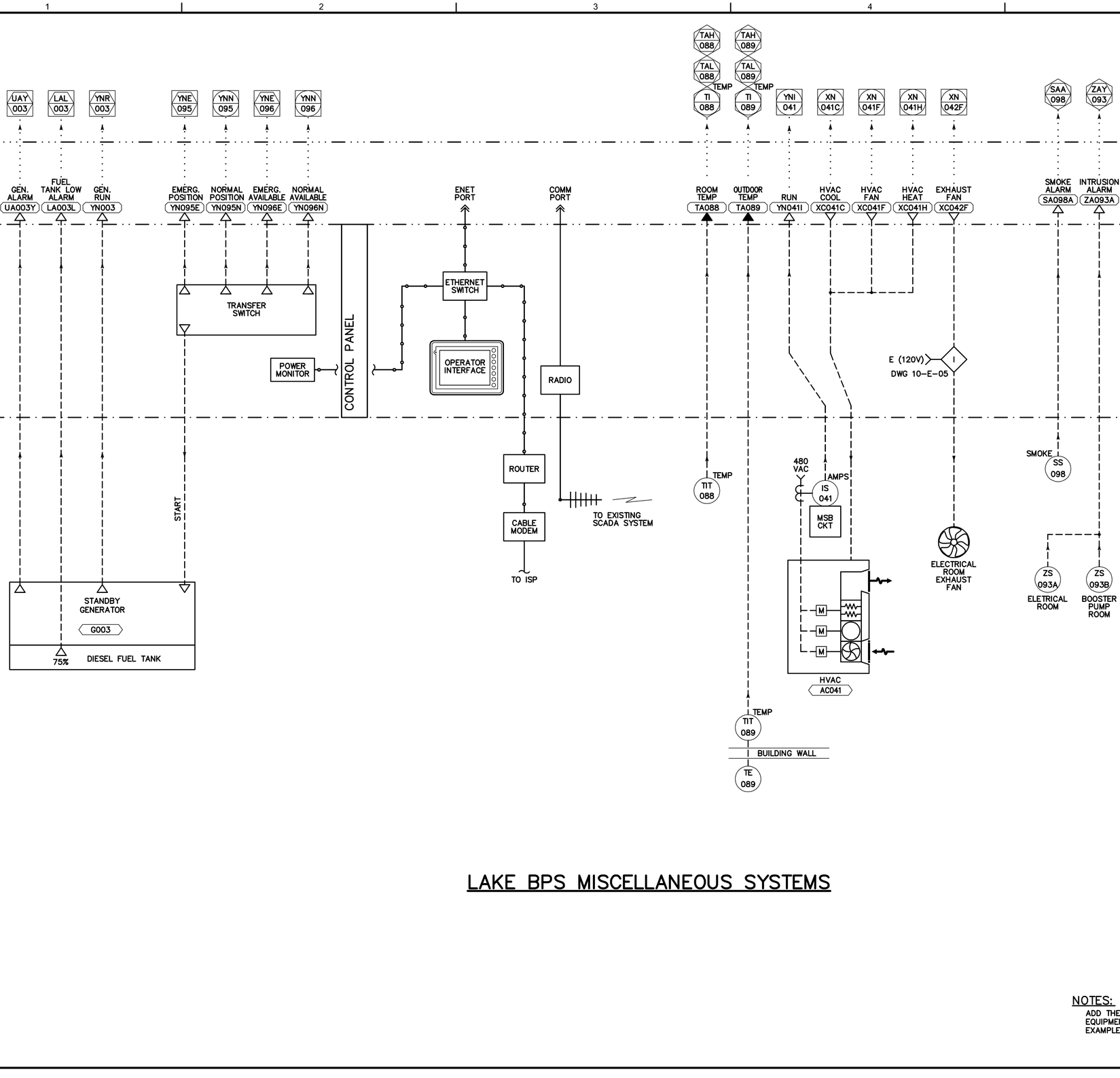
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
LAKE PUMP STATION
P&ID

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-I-01
SHEET NUMBER 77



LAKE BPS MISCELLANEOUS SYSTEMS

NOTES:

ADD THE PREFIX 10 TO COMPLETE INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET.
EXAMPLE: G10003 FOR GENERATOR

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ELECTRICAL
STATE OF CALIFORNIA
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
LAKE PUMP STATION
MISCELLANEOUS SYSTEMS
P&ID

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-I-02
SHEET NUMBER 78

OPERATOR INTERFACE

RTU

MCC

FIELD

PAH 165
PAL 165
PI 165
PSI

SI 110
YNR 110
HNA 110
UAF 110
UAP 161
ZNO 111
ZNC 111

PAH 166
PAL 166
PI 166
PSI

AAH 181
AAL 181
AI 181
MG/L

FAH 171
FAL 171
FI 171
GPM

SUCTION PRESSURE P165

SPEED COMMAND SC110
SPEED S110
RUN YN110R
AUTO HN110A
STT/STP XC110S
FAIL UA110F
PRESSURE HIGH UA161P
PUMP CONTROL VALVE CALL TO OPEN N111V
PUMP CONTROL VALVE OPENED ZS111C

DISCHARGE PRESSURE P166
CHLORINE RESIDUAL A181
FLOW F171

1

PUMP 1 VFD

HOA
HS 110
H
RUN G
FAIL A
HIGH PRESS. A

HK 110
SPEED %
HC 110PR
RESET
VFD HIM
DWG 20-E-03

CONTROL PANEL

PIT 165
PI 165
CV

PSH 161
PI 161
ARV
TS 110
M
SV 111
ZS 111 (4) O,C

8" W
BOOSTER PUMP 1
P110
PUMP 1 CONTROL VALVE
PCV-111

SIMILAR CONTROLS AND PLC I/O AS PUMP 1

PSH 162
PI 162
ARV
TS 120
M
SV 121
ZS 121 (4) O,C

BOOSTER PUMP 2
P120
PUMP 2 CONTROL VALVE
PCV-121

PSH 163
PI 163
ARV
TS 130
M
SV 131
ZS 131 (4) O,C

BOOSTER PUMP 3
P130
PUMP 3 CONTROL VALVE
PCV-131

12" W

FROM DISTRIBUTION SYSTEM

PI 166
PIT 166
CV
AIT 181
AE 181
DRAIN
FIT 171

FE 171
MAG
FLOWMETER
FM171

TO DISTRIBUTION SYSTEM

SNEATH BOOSTER PUMP STATION

NOTES REFERENCED IN DRAWING:

1 TYPICAL I/O CONTROLS AND VFDS FOR ALL PUMPS

NOTES:

ADD THE PREFIX 20 TO COMPLETE INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET. EXAMPLE: P20110 FOR PUMP 1

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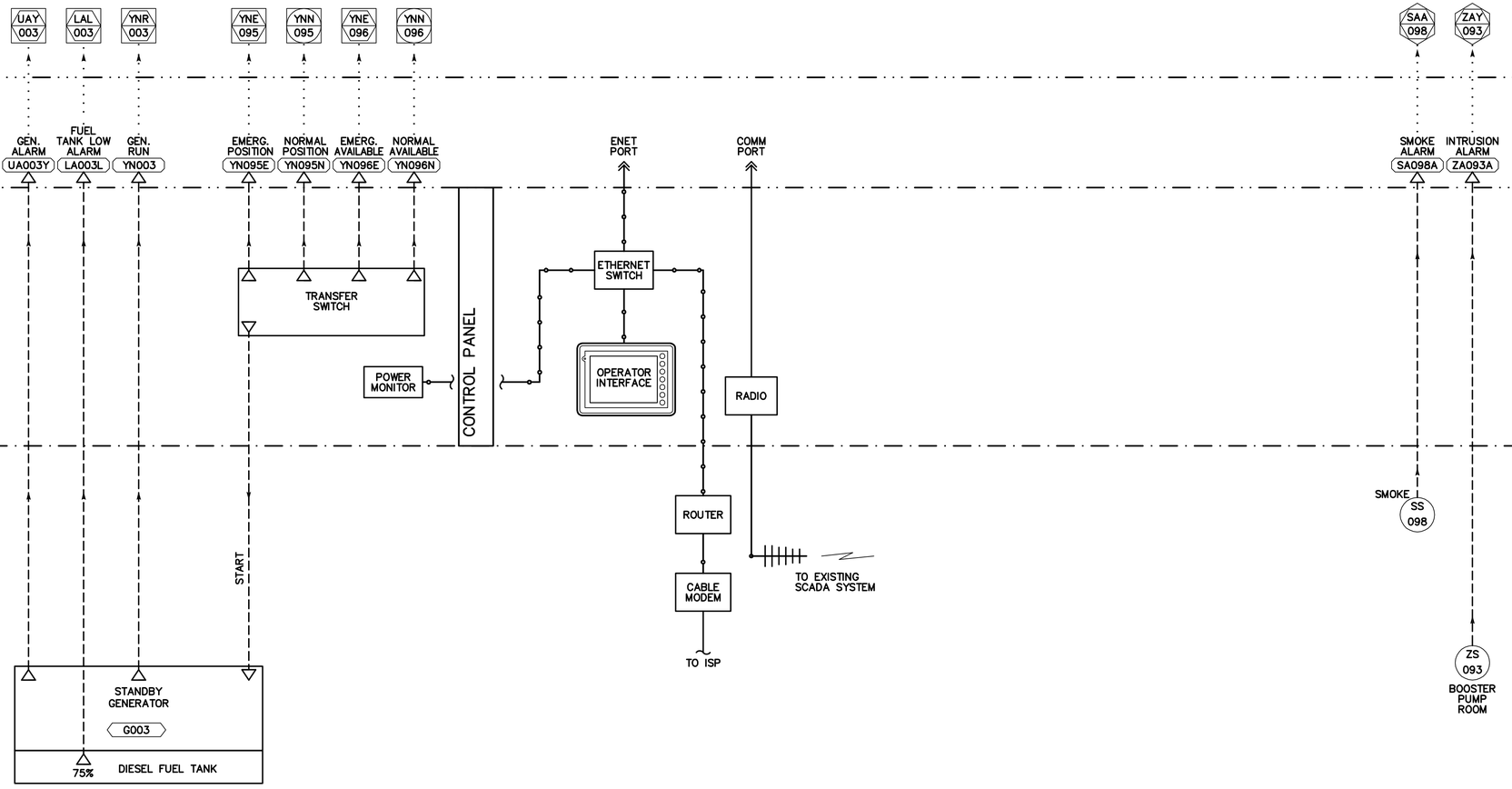
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
SNEATH PUMP STATION
P&ID

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-I-01
SHEET NUMBER 79



SNEATH BPS MISCELLANEOUS SYSTEMS

NOTES:

ADD THE PREFIX 20 TO COMPLETE INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET. EXAMPLE: G20003 FOR GENERATOR

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
SNEATH PUMP STATION
MISCELLANEOUS SYSTEMS
P&ID

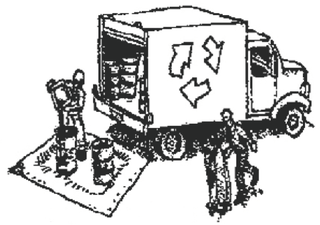
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DRAWING NUMBER 20-I-02
SHEET NUMBER 80

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control



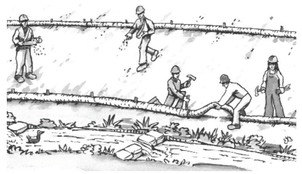
Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving



- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work



- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

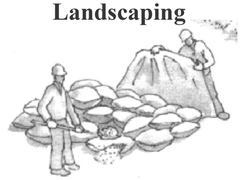
- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

Concrete, Grout & Mortar Application



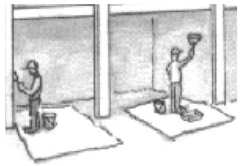
- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping



- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

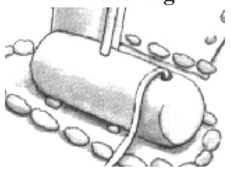
Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering



- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

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01/03/2024

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DRAWN	B TROTTER
CHECKED	C BERTSCH
APPROVED	C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

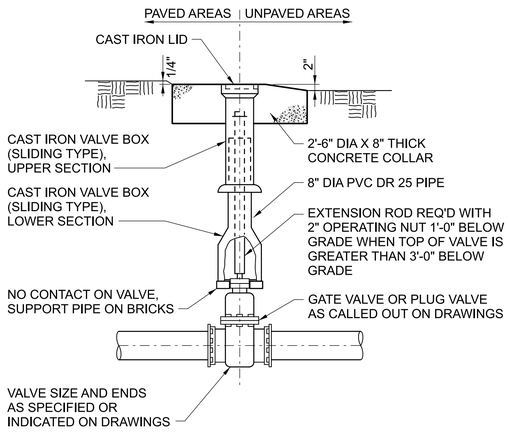
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

STANDARD DETAILS

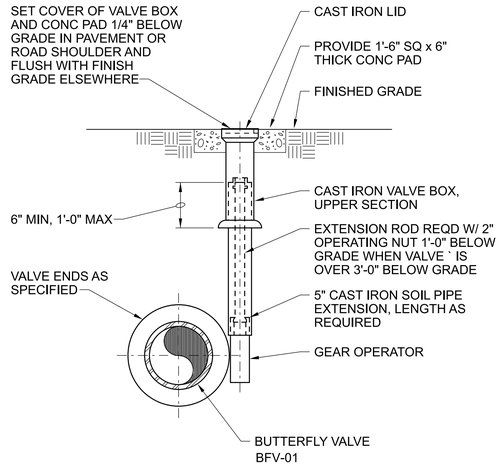
DATE	JULY 2025
PROJECT NUMBER	19-077
DRAWING NUMBER	SD-1
SHEET NUMBER	81

FILENAME: 1977D-SD801.dgn PLOT DATE: 3/10/2020 11:26:51 AM



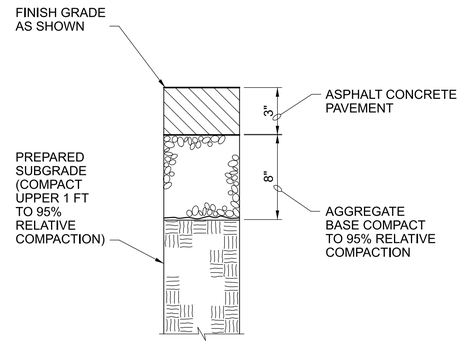
BURIED GATE OR PLUG VALVE BOX 2202

NTS



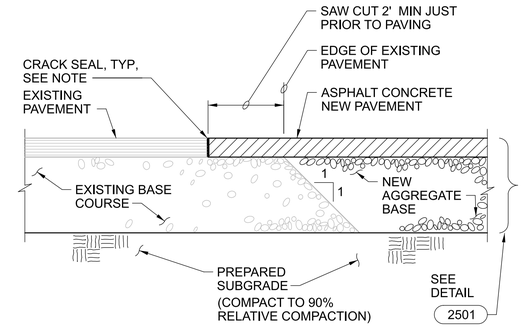
BURIED BUTTERFLY VALVE BOX 2204

NTS



ASPHALT CONCRETE PAVEMENT 2501

NTS

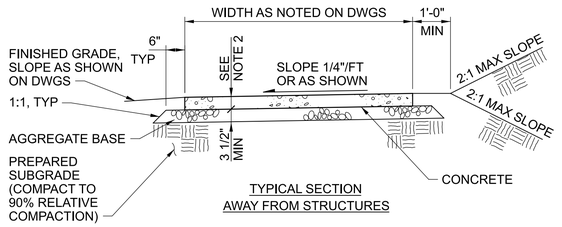


NOTES:

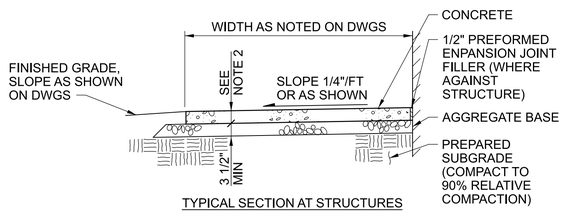
1. PAINT EDGE OF EXISTING ASPHALT WITH TACK COAT PRIOR TO PAVING. CRACK SEAL JOINT AFTER PAVING OPERATION HAS BEEN COMPLETED.

PAVEMENT CONNECTION 2502

NTS



TYPICAL SECTION
AWAY FROM STRUCTURES



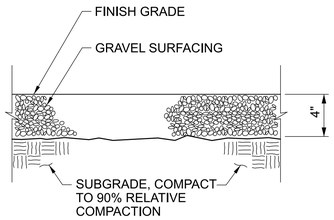
TYPICAL SECTION AT STRUCTURES

NOTES:

1. SIDEWALKS 8 FEET AND WIDER SHALL HAVE A LONGITUDINAL CONTRACTION JOINT AT THE MIDPOINT. PROVIDE LATERAL CONTRACTION JOINTS AT EQUAL SPACING, NO MORE THAN 5'-0" BETWEEN JOINTS.
2. CONCRETE DEPTH FOR STANDARD SIDEWALKS SHALL BE NOMINAL 3 1/2" MINIMUM, THICKNESS IN DRIVEWAY SHALL BE 5 1/2" MINIMUM.

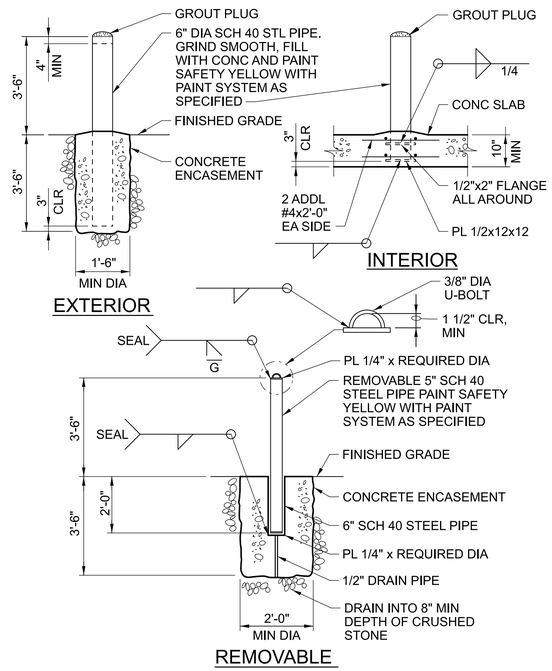
CONCRETE SIDEWALK 2503

NTS



GRAVEL SURFACING 2504

NTS



GUARD POST 2600

NTS

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

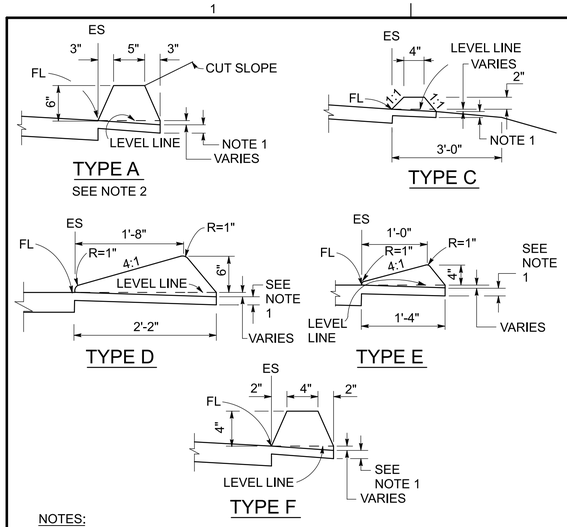
STANDARD DETAILS

REGISTERED PROFESSIONAL ENGINEER — CYNTHIA V. BERTSCH — No. C65385 — CIVIL — STATE OF CALIFORNIA

01/03/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER SD-2
SHEET NUMBER 82

FILENAME: 1977D-SD801.dgn PLOT DATE: 3/10/2020 11:27:46 AM



NOTES:

1. FOR AC SHOULDERS ONLY, EXTEND TOP LAYER OF AC PLACED ON THE SHOULDER UNDER DIKE WITH NO JOINT AT THE ES.
2. TYPE A DIKE ONLY TO BE USED WHERE RESTRICTIVE SLOPE CONDITIONS DO NOT PROVIDE ENOUGH WIDTH TO USE TYPE D OR TYPE E DIKE.

DIKE QUANTITIES

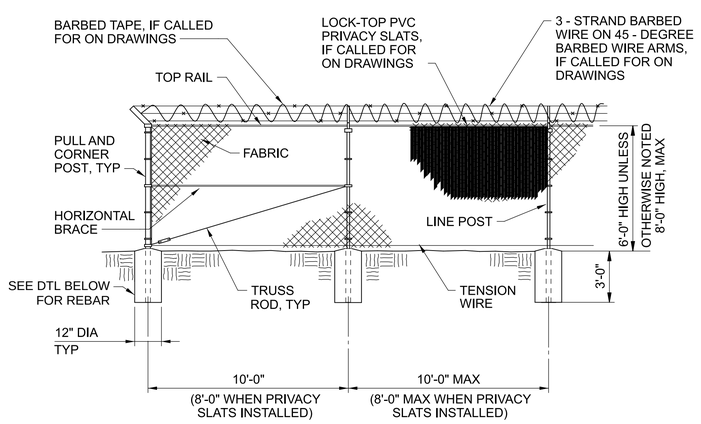
TYPE	CUBIC YARDS PER LINEAR FOOT
A	0.0135
C	0.0038
D	0.0293
E	0.0130
F	0.0066

QUANTITIES BASED ON 5% CROSS SLOPE.

AC DIKE

NTS

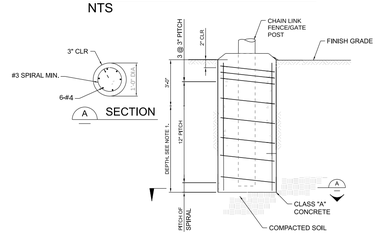
2760



CHAINLINK FENCE

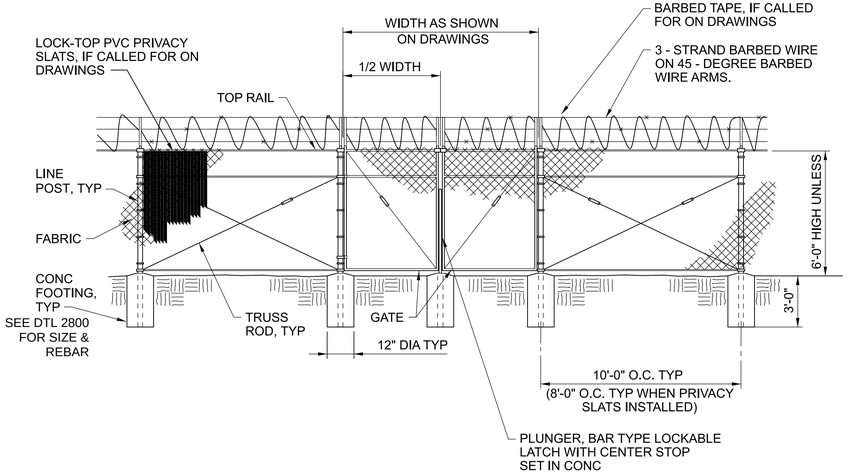
NTS

2800



CONCRETE PIER

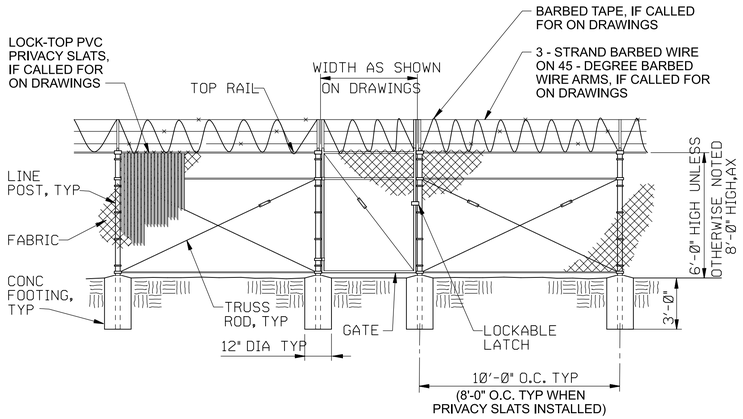
NTS AT FENCE/ GATE POST



CHAINLINK DOUBLE-LEAF GATE FENCE

NTS

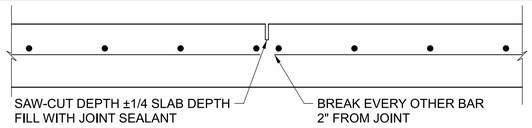
2800



CHAINLINK SINGLE-LEAF GATE

NTS

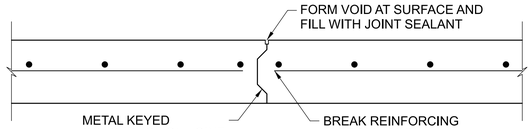
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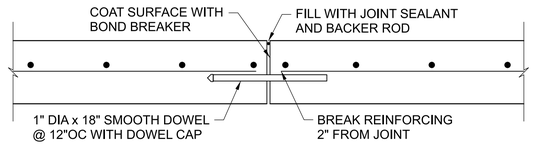
NOTES:

1. SAW-CUT SAME DAY AS POUR AS SOON AS SPALLING WILL NOT OCCUR.
2. CONTRACTOR SHALL USE STRING LINE OR OTHER POSITIVE MEANS TO PLACE REINFORCING AND LOCATE SAWCUT.
3. BREAK REINF AND ADD SPLICE BARS SIMILAR AT DOUBLE MAT.
4. 3/8" TOOLED JOINT MAY BE USED IN PLACE OF SAWN JOINT.

SLAB ON GRADE SAWN JOINT, TYPE A



SLAB ON GRADE CONSTRUCTION JOINT, TYPE B



SLAB ON GRADE CONSTRUCTION JOINT, TYPE C

CONC SLAB ON GRADE JOINTS

NTS

3160

NOTES:

1. PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE DRAWINGS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A ONE PIECE TEMPLATE, MATCHING THE BASE PLATE, WHILE PAD IS BEING POURED.
3. ANCHOR BOLT SLEEVES SHALL BE USED TO PROVIDE THE ANCHOR BOLT A MINIMUM MOVEMENT OF 1/2" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
4. ANCHOR BOLT SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.
6. TYPE "D" DETAIL SHALL BE USED ONLY FOR SLABS ON GRADE AND AT GRADE. THE SURROUNDING FLOOR SLAB SHALL NOT BE PLACED UNTIL THE EXACT SIZE AND LOCATION OF THE PAD IS KNOWN.
7. WEDGES OR SHIMS SHALL BE USED TO SUPPORT THE BASE WHILE THE NON-SHRINK GROUT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF. IF LEFT IN, THE WEDGES OR SHIMS SHALL NOT BE EXPOSED TO VIEW.
8. HEIGHT OF PADS SHALL BE MINIMUM REQUIRED FOR ANCHOR BOLT CLEARANCE TO KEEP ANCHOR BOLT OUT OF SLAB (SEE TABLE BELOW). WHERE EQUIPMENT OR PIPING ELEVATION REQUIRE A PAD HEIGHT LESS THAN THE MINIMUM SHOWN, USE TYPE B WITH BLOCKOUT.

AB DIA (IN.)	1/2	5/8	3/4	7/8	1	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	7	8 1/2	10	11	12 1/2	15	16 1/2	18	21	24

9. TYPE "F" PADS MAY BE SUBSTITUTED FOR TYPE "A" PADS FOR LOCATIONS APPROVED IN WRITING BY THE ENGINEER.
10. SEE ANCHOR BOLT AND BLOCKOUT DETAILS (3210).

EQUIPMENT PAD NOTES

NTS

3200



01/05/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

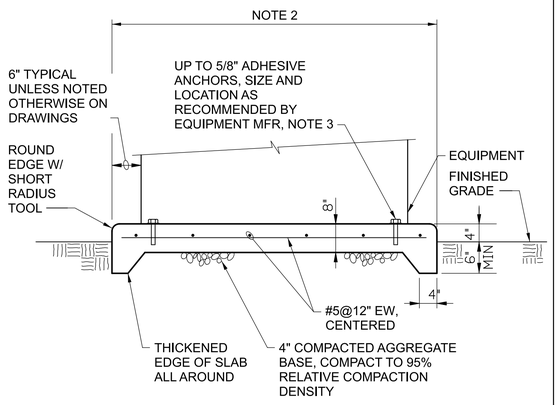
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

STANDARD DETAILS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER SD-3
SHEET NUMBER 83



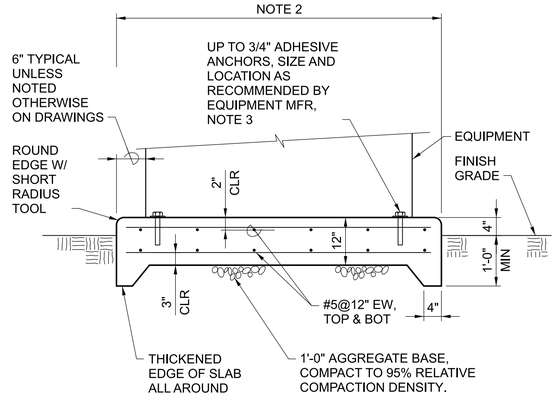
NOTES:

1. SEE (3200) FOR GENERAL EQUIPMENT PAD NOTES.
2. EQUIPMENT PAD SIZE PER DRAWINGS. WHERE PAD SIZE IS NOT SHOWN, SIZE TO FIT EQUIPMENT.
3. IF ANCHOR BOLTS ARE CALLED OUT FOR ON DRAWINGS, PROVIDE ANCHOR BOLTS PER (3210) IN LIEU OF ADHESIVE ANCHORS.

EQUIPMENT PAD NOTES

NTS

3200D



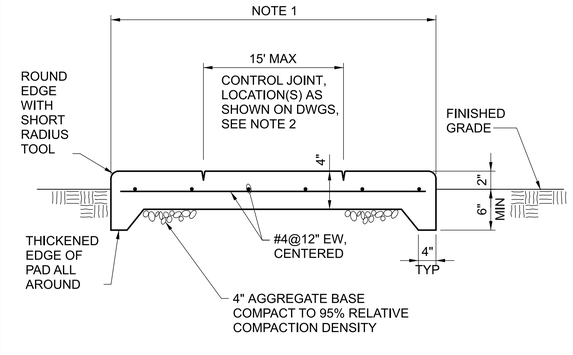
NOTES:

1. SEE (3200) FOR GENERAL EQUIPMENT PAD NOTES.
2. EQUIPMENT PAD SIZE PER DRAWINGS. WHERE PAD SIZE IS NOT SHOWN, SIZE TO FIT EQUIPMENT.
3. IF ANCHOR BOLTS ARE CALLED OUT FOR ON DRAWINGS, PROVIDE ANCHOR BOLTS PER (3210) IN LIEU OF ADHESIVE ANCHORS.

EQUIPMENT PAD-TYPE E

NTS

3200E



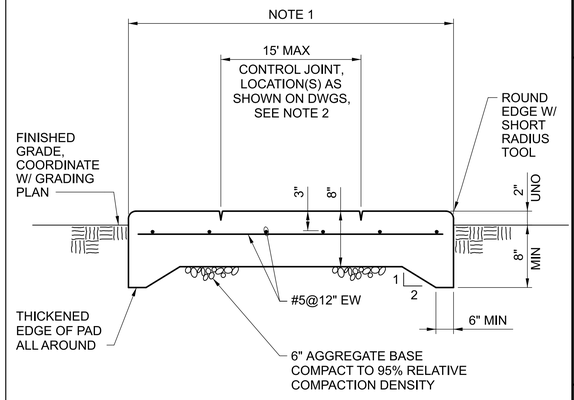
NOTE:

1. CONCRETE PAD, SIZED PER DRAWINGS.
2. CONTROL JOINT SHALL BE FORMED IN FRESH CONCRETE BY HAND TOOLING OR SAW CUTTING. CONTROL JOINTS SHALL BE FORMED TO A DEPTH OF 1 1/2"

CONCRETE HOUSE KEEPING PAD

NTS

3201



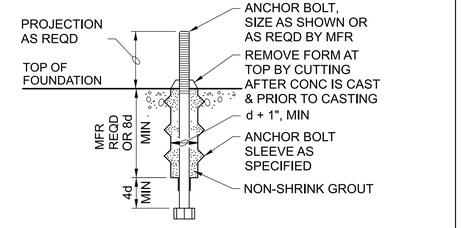
NOTE:

1. CONCRETE PAD, SIZED PER DRAWINGS.
2. CONTROL JOINT SHALL BE FORMED IN FRESH CONCRETE BY HAND TOOLING OR SAW CUTTING. PROVIDE (3160) TYPE A CONTROL JOINTS, UNLESS OTHERWISE NOTED.

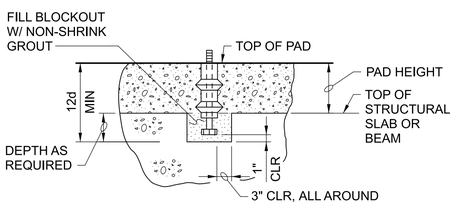
CONCRETE SLAB ON GRADE

NTS

3202



ANCHOR BOLT DETAIL

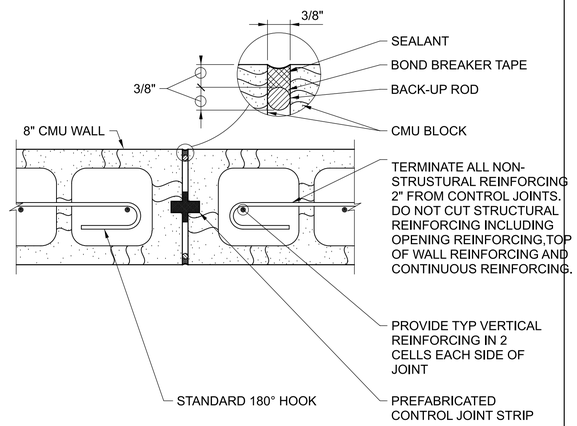


ANCHOR BOLT BLOCKOUT

CAST-IN CONCRETE ANCHOR BOLT

NTS

3210



NOTE:

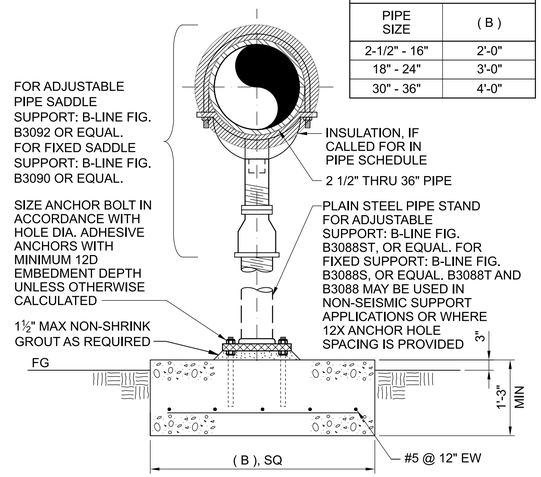
12" CMU WALL WITH 2 LAYERS OF REINFORCING IS SIMILAR.

CMU CONTROL JOINT

NTS

4100

DIMENSION TABLE	
PIPE SIZE	(B)
2-1/2" - 16"	2'-0"
18" - 24"	3'-0"
30" - 36"	4'-0"



NOTES:

1. COAT ALL SHAPES PER SPECIFICATION SECTION 099900 SYSTEM 300.
2. ADJUSTABLE OR FIXED SUPPORT INSTALLATION AT CONTRACTOR'S DISCRETION, UNLESS SHOWN OTHERWISE.

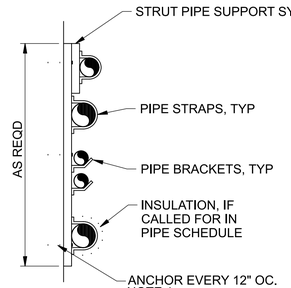
SADDLE PIPE SUPPORT WITH CONCRETE PAD

NTS

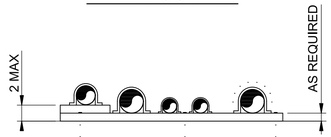
15000A

NOTE:

USE NEOPRENE SLEEVE ON COPPER AND PVC PIPING AT STRAPS AND BRACKETS.



WALL MOUNTED



FLOOR MOUNTED

NOTE :

1. ATTACH TO WALL WITH SST ANCHORS, 3/8" DIAMETER MIN, COORDINATED WITH WALL CONSTRUCTION

PIPE SUPPORTS

NTS

15010



01/05/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

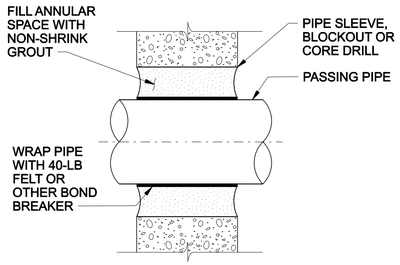
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

STANDARD DETAILS

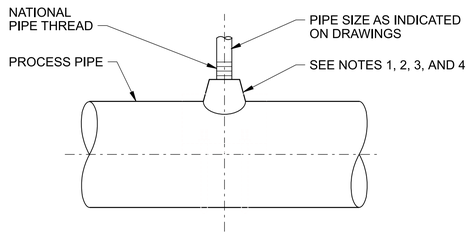
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER SD-4
SHEET NUMBER 84

FILENAME: 1977D-SD801.dgn PLOT DATE: 3/10/2020 11:39:00 AM



WALL SLEEVE WITH GROUT SEAL
NTS

15131



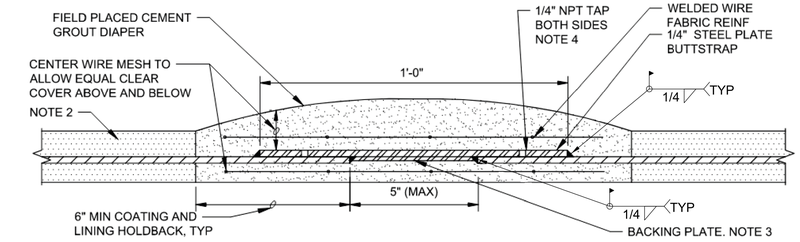
PIPE TAPS

NOTES:

1. FOR STEEL, GALVANIZED STEEL, AND PVC 2 1/2" AND SMALLER USE A BUSHING IN A TEE.
2. FOR DUCTILE IRON, ALL SIZES, USE SERVICE SADDLE.
3. FOR NEW STEEL AND STAINLESS STEEL PIPES 3" AND LARGER, AND PRESSURE VESSELS, USE THRED-O-LET AS SHOWN.
4. FOR PVC, EXISTING STEEL AND STAINLESS STEEL PIPES 3" AND LARGER, USE SERVICE SADDLE.

PIPE TAPS
NTS

15300



NOTES:

1. AFTER SUCCESSFUL COMPLETION OF WELD TESTS, CONTRACTOR TO GROUT INSIDE BUTT STRAP JOINT. GROUT TO BE REINFORCED WITH MINIMUM 4x4 W1.4xW1.4 WELDED WIRE REINFORCING.
2. FOR CONNECTION TO EXISTING PIPE, CONTRACTOR TO REMOVE COATING AND EXPOSE STEEL CYLINDER AS NECESSARY TO ALLOW PROPER BUTT STRAP INSTALLATION. CONFIRM CYLINDER THICKNESS AND WELD BUTT STRAP TO CYLINDER ACCORDINGLY.
3. BUTT STRAP SPLICE JOINT TO BE COMPLETE JOINT PENETRATION BUTT WELD WITH BACKING PLATE.
4. CONTRACTOR TO PERFORM AIR AND SOAP TEST AND OTHER WELD TESTS AS SPECIFIED. PLUG TAP WITH WELDED PLUG AFTER COMPLETION OF SUCCESSFUL AIR/SOAP TEST.
5. TO FACILITATE INTERIOR GROUTING OF BUTTSTRAP JOINTS, ALL BUTTSTRAPS LESS THAN 24" DIA SHALL BE SUPPLIED AND INSTALLED WITH A 4" DIA HANDHOLE PER (15750).

BUTTSTRAP CONNECTION
NTS

15700

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

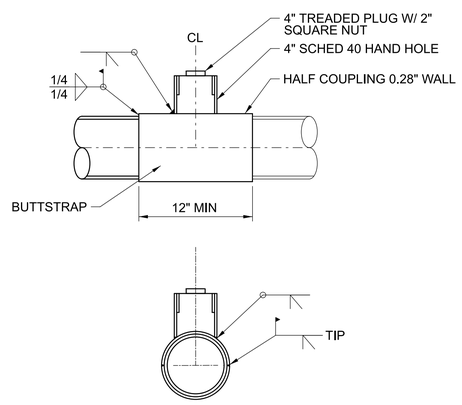
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

STANDARD DETAILS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER SD-5
SHEET NUMBER 85



SECTION THROUGH COUPLING

BUTTSTRAP AND REPAIR COUPLING HANDHOLE DETAIL
NTS

15750

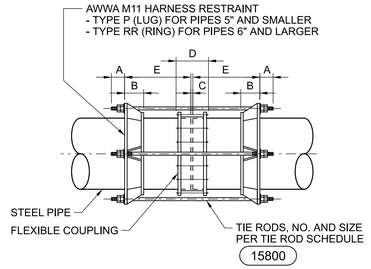
	TEST PRESSURE, TIE ROD DIAMETER AND NUMBER OF TIE RODS													
	50 PSI		100 PSI		150 PSI		200 PSI		250 PSI		275 PSI		300 PSI	
PIPE SIZE (IN)	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS
4	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2
6	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2
8	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2
10	5/8	2	5/8	2	5/8	2	5/8	2	3/4	2	3/4	2	7/8	2
12	5/8	2	5/8	2	3/4	2	3/4	2	7/8	2	7/8	2	1	2
14	5/8	2	5/8	2	3/4	2	7/8	2	1	2	1 1/8	2	1 1/8	2
16	5/8	2	7/8	2	1 1/8	2	1 1/8	2	1 1/4	2	1 1/4	2	1 1/4	2
18	5/8	2	1 1/8	2	1 1/8	2	1 1/4	2	1 3/8	2	1 1/2	2	1 1/2	2
20	7/8	2	1 1/8	2	1 3/8	2	1 1/8	2	1 1/2	2	1 5/8	2	1 3/4	2
24	5/8	4	3/4	4	1	4	1 1/8	4	1 1/8	4	1 1/4	4	1 1/4	4
26	5/8	4	3/4	4	1	4	1 1/8	4	1 1/4	4	1 1/4	4	1 1/4	4
30	5/8	4	7/8	4	1 1/8	4	1 1/4	4	1 3/8	4	1 3/8	4	1 1/2	4
36	7/8	4	1 1/4	4	1 3/8	4	1 1/2	4	1 5/8	4	1 3/4	4	1 3/4	4
42	1 1/8	4	1 1/2	4	1 5/8	4	1 1/2	6	1 5/8	6	1 5/8	6	1 3/4	6
48	1 3/8	4	1 5/8	4	1 3/8	6	1 5/8	6	1 3/4	6	1 7/8	6	1 3/4	8
54	1 1/2	4	1 3/8	6	1 5/8	6	1 3/4	6	1 3/4	8	1 7/8	8	-	-
60	1 1/8	6	1 1/2	6	1 3/4	6	1 3/4	8	1 3/4	10	1 3/4	10	-	-
66	1 1/4	6	1 3/8	8	1 5/8	8	1 7/8	8	1 7/8	10	2	10	-	-
72	1 3/8	6	1 3/4	6	1 3/4	8	1 7/8	10	1 7/8	12	2	12	-	-
78	1 1/2	6	1 1/2	10	1 3/4	10	1 7/8	12	2 1/4	10	2 1/4	10	-	-
84	1 5/8	6	1 5/8	10	1 7/8	10	2	12	2 1/4	12	2 1/4	12	-	-
90	1 3/4	6	1 3/4	8	1 7/8	12	2 1/4	10	2 1/4	14	2 1/4	14	-	-
96	1 1/2	8	1 7/8	8	2 1/4	8	2 1/4	12	2 1/2	12	2 1/2	12	-	-
102	1 1/2	8	1 3/4	12	2 1/4	10	2 1/4	14	2 1/2	14	2 1/2	14	-	-
108	1 3/4	8	1 3/4	12	2 1/4	12	2 1/2	12	2 1/2	14	2 1/2	16	-	-
114	1 3/4	8	1 7/8	12	2 1/4	12	2 1/2	12	2 3/4	14	2 3/4	16	-	-
120	1 1/2	10	1 7/8	14	2 1/2	10	2 3/4	12	2 3/4	16	3	14	-	-
126	1 5/8	10	1 7/8	14	2 1/2	12	2 1/2	16	3	14	3	16	-	-
132	1 3/4	10	1 7/8	16	2 1/2	12	2 3/4	16	3	16	3	18	-	-
138	1 3/4	10	2 1/4	12	2 1/2	14	2 3/4	16	2 3/4	20	3	20	-	-
144	1 7/8	10	2 1/4	12	2 1/2	16	2 3/4	18	3	18	3	20	-	-

NOTES:

1. PIPE SIZES SHOWN ARE NOMINAL.
2. TIE ROD NUMBER AND SIZE ARE BASED ON AWWA M11, 5TH EDITION.
3. TIE RODS SHALL CONFORM TO ASTM A193 GRADE B7.

TIE ROD SCHEDULE FOR HARNESSED JOINTS
NTS

15800



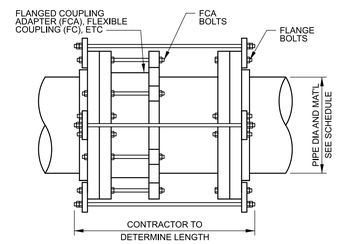
15800

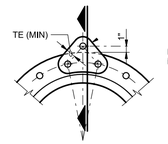
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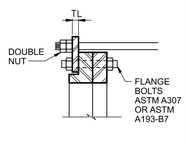
1. THE MIDDLE RING LENGTH OF THE FLEXIBLE COUPLING SHALL BE AS SPECIFIED.
2. "A" = WIDTH OF WASHER, NUTS AND EXPOSED THREADS OF TIE ROD.
3. "B" = RESTRAINT HARNESS WIDTH.
4. "C" = COUPLING MANUFACTURER'S RECOMMENDED SPACE (GAP) BETWEEN ENDS OF PIPE FROM THE APPROVED SHOP DRAWINGS.
5. "D" = COUPLING BOLT LENGTH FROM THE APPROVED SHOP DRAWINGS.
6. "E" = B+D+1 INCH, (ROUND THIS VALUE UP TO NEXT EVEN INCH), MINIMUM.
7. TIE ROD LENGTH = 2A+2E+C.
8. NUTS AND WASHERS SHALL CONFORM TO ASTM A194 GRADE 2H.
9. TIGHTEN TIE ROD NUTS GRADUALLY AND EQUALLY IN STAGES TO PREVENT UNEVEN ALIGNMENT AND TO ALLOW EQUAL STRESS ON ALL RODS UNDER PRESSURE. TIGHTEN UNTIL SNUG. BACK-UP FIRST NUT WITH SECOND NUT. THREADS SHALL PROTRUDE FROM NUTS.
10. PROVIDE CATHODIC PROTECTION ACROSS COUPLING IF SHOWN ON THE DRAWINGS OR SPECIFIED.

JOINT RESTRAINT HARNESS & TIE RODS FOR STEEL PIPE - TYPE A
NTS

15801







FRONT ELEVATION SECTION

HARNESS LUGS

NOTES:

1. HARNESS LUGS SHALL CONFORM TO ASTM A36.
2. HARNESS LUGS SHALL BE EQUALLY SPACED AROUND PIPE.
3. TIE ROD NUTS SHALL BE TIGHTENED GRADUALLY AND EQUALLY IN STAGES TO PREVENT UNEVEN ALIGNMENT AND TO ALLOW EQUAL STRESS ON ALL RODS UNDER PRESSURE. TIGHTEN UNTIL SNUG. BACK-UP FIRST NUT WITH SECOND NUT. THREADS SHALL PROTRUDE FROM NUTS.
4. CONTRACTOR SHALL USE SCHEDULE DATA FOR ONLY THOSE PIPE SIZES AND TEST PRESSURES SPECIFIED IN THIS CONTRACT.

TIE ROD AND HARNESS LUG SCHEDULE				
PIPE DIA (IN.)	TEST PRESSURE (PSI)	TIE RODS (NO.-DIA)	LUG PLATE	
			TL	TE
6	100	2 - 5/8"	1/2"	1 1/8"
	150	2 - 5/8"	1/2"	1 1/8"
	225	2 - 5/8"	5/8"	1 1/8"
	375	6 - 5/8"	5/8"	1"
8	100	2 - 5/8"	1/2"	1 1/4"
	150	2 - 5/8"	5/8"	1 1/4"
	225	4 - 5/8"	5/8"	1 1/4"
	375	6 - 5/8"	3/4"	1 1/8"
10	100	2 - 5/8"	5/8"	1 3/8"
	150	3 - 5/8"	5/8"	1 3/8"
	225	6 - 5/8"	5/8"	1 3/8"
	375	8 - 3/4"	3/4"	1 3/8"
12	100	2 - 7/8"	3/4"	1 1/8"
	150	3 - 7/8"	3/4"	1 1/8"
	225	6 - 3/4"	3/4"	1 1/8"
	375	8 - 3/4"	3/4"	1 5/8"
14	100	2 - 7/8"	3/4"	1 3/8"
	150	4 - 3/4"	3/4"	1 3/8"
	225	10 - 5/8"	5/8"	1 1/2"
	375	10 - 7/8"	3/4"	1 5/8"
16	100	4 - 3/4"	3/4"	1 3/8"
	150	8 - 5/8"	5/8"	1 3/8"
	225	8 - 3/4"	3/4"	1 3/8"
	375	10 - 1"	7/8"	2"
18	100	4 - 3/4"	3/4"	1 1/2"
	150	8 - 3/4"	5/8"	1 1/2"
	225	8 - 7/8"	3/4"	1 1/2"
	375	10 - 1"	7/8"	2 1/8"
24	100	4 - 1"	7/8"	1 5/8"
	150	10 - 3/4"	3/4"	1 5/8"
	225	10 - 1"	7/8"	1 5/8"
	375	12 - 1 3/16"	1"	2 3/8"
30	100	7 - 1"	7/8"	1 5/8"
	150	14 - 7/8"	3/4"	1 5/8"
	225	14 - 1 1/8"	7/8"	2 1/4"
	375	14 - 1 3/8"	1 1/8"	2 1/4"
36	100	8 - 1 1/8"	7/8"	2"
	150	16 - 7/8"	3/4"	2"
	225	16 - 1 3/16"	7/8"	2 5/8"
	375	16 - 1 1/2"	1 1/8"	2 5/8"
42	100	12 - 1"	7/8"	2"
	150	18 - 1"	7/8"	2"
	225	18 - 1 1/4"	1"	2 5/8"

JOINT RESTRAINT LUGS AND TIE RODS FOR FLANGED PIPE
NTS

15802

REGISTERED PROFESSIONAL ENGINEER JONATHON C. VIVIL No. C92341 STATE OF CALIFORNIA
01/04/2024

FILENAME: 1977D-SD801.dgn PLOT DATE: 3/10/2020 11:44:30 AM

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DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
DRAWING INDEX

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/03/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-2
SHEET NUMBER 2

FILENAME: 1977D-G002.dgn PLOT DATE: 10/22/2020 9:02:19 AM

ABBREVIATIONS

A	AIR	CU IN	CUBIC INCH	GRTG	GRATING	PLYWD	PLYWOOD
@	AT	CU YD	CUBIC YARD	GSP	GALVANIZED STEEL PIPE	PNL	PANEL
AB	ANCHOR BOLT, AGGREGATE BASE	CULV	CULVERT	GV	GATE VALVE	PP, P&P	PLAN AND PROFILE, POWER POLE
AC	ASPHALTIC CONCRETE, ASBESTOS CEMENT	CV	CHECK VALVE	GVL	GRAVEL	PRC	POINT OF REVERSE CURVE
ACI	AMERICAN CONCRETE INSTITUTE	°C	CELSIUS	GW	GROUND WATER	PRESS	PRESSURE
ACU	AIR CONDITIONING UNIT					PROP	PROPERTY
ADD	ADDITIONAL	d	PENNY	HDPE	HIGH DENSITY POLYETHLENE PIPE	PRV	PRESSURE RELEASE VALVE
ADH AB	ADHESIVE ANCHOR BOLT	DBA	DEFORMED BAR ANCHOR	HDW	HARDWARE	PS	PUMP STATION
ADJ	ADJACENT, ADJUSTABLE	DBL	DOUBLE	HGL	HYDRAULIC GRADE LINE	PSF	POUNDS PER SQUARE FOOT
AE	ANALYZER ELEMENT	DET	DETAIL	HGT	HEIGHT	PSI	POUNDS PER SQUARE INCH
AFF	ABOVE FINISH FLOOR	DF	DOUGLAS FIR/LARCH	HM	HOLLOW METAL	PSIG	POUNDS PER SQUARE INCH, GAUGE
AFG	ABOVE FINISH GRADE	DI	DROP INLET, DUCTILE IRON	HORIZ	HORIZONTAL	PT	POINT OF TANGENCY
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	DIA	DIAMETER	HP	HORSEPOWER	P.U.E.	PUBLIC UTILITY EASEMENT
		DIAG	DIAGONAL	HPT	HIGH POINT	PV	PLUG VALVE
AIT	ANALYZER INDICATOR/TRANSMITTER	DIM	DIMENSION	HR	HANDRAIL	PVC	POLYVINYL CHLORIDE PLASTIC, POINT OF VERTICAL CURVE
AL, ALUM	ALUMINUM	DIP	DUCTILE IRON PIPE	HSS	HOLLOW STRUCTURAL STEEL		
ALP	AIR LOW PRESSURE	DIR	DIRECTION	HV	HOSE VALVE	PVMT	PAVEMENT
ALTN	ALTERNATE	DIST	DISTANCE	HWY	HIGHWAY	PVI	POINT OF VERTICAL INTERSECTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	DN	DOWN	HYD	HYDRANT	PVT	POINT OF VERTICAL TANGENCY, PRIVATE
APPROX	APPROXIMATE	DR	DRAIN			PW	POTABLE WATER, PROCESS WATER
APVD	APPROVED	DPT	DIFFERENTIAL PRESSURE TRANSMITTER	IA	INSTRUMENT AIR		
APWA	AMERICAN PUBLIC WORKS ASSOCIATION	DWG	DRAWING	I&C	INSTRUMENTATION & CONTROL	RC	REINFORCED CONCRETE
ARCH, A	ARCHITECTURAL			ID	INSIDE DIAMETER	RDCR	REDUCER
ARV	AIR RELEASE VALVE	E	EAST, ELECTRIC, ELECTRICAL	IF	INSIDE FACE	REINF	REINFORCED, REINFORCING, REINFORCE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	EA	EACH	IN	INCH	REQD	REQUIRED
		EC	END CURVE	INFL	INFLUENT	RJ	RESTRAINED JOINT
AUTO	AUTOMATIC	ECC	ECCENTRIC	INSTM	INSTRUMENTATION	R/W	RIGHT-OF-WAY
AUX	AUXILIARY	EE	ELECTRICAL	INSUL	INSULATE, INSULATION		
AWG	AMERICAN WIRE GAGE	EF	EACH FACE, EXHAUST FAN	INV	INVERT	SD	STORM DRAIN
AWWA	AMERICAN WATER WORKS ASSOCIATION	EFL	EFFLUENT			SECT	SECTION
		EG	EXISTING GRADE	JT	JOINT	SIM	SIMILAR
BAV	BALL VALVE	EJ	EXPANSION JOINT			SLP	SLOPE
BC	BEGIN CURVE, BOTTOM OF CURB	EL	ELEVATION	KIP	THOUSAND POUNDS	SMP	SAMPLE
BD	BLOW DOWN	ELB, ELL	ELBOW	KW	KILOWATT	SPEC	SPECIFICATIONS
BF	BLIND FLANGE, BOTTOM FACE	ELC	ELECTRICAL LOAD CENTER			SPLY	SUPPLY
BFD	BUTTERFLY VALVE DAMPER	ELEC	ELECTRIC, ELECTRICAL	L	LEFT, ANGLE, LENGTH	SQ	SQUARE
BFV	BUTTERFLY VALVE	EMR	EMERGENCY	LAT'L	LATERAL	SQ FT	SQUARE FOOT
BLDG	BUILDING	ENGR	ENGINEER	LB	POUNDS	SQ IN	SQUARE INCH
BLK	BLACK	EP	EDGE OF PAVEMENT	LB/CU FT	POUNDS PER CUBIC FOOT	SS	SANITARY SEWER
BM	BENCH MARK, BEAM	EQ	EQUALIZATION	LE	LEVEL ELEMENT	SSH	SAFETY SHOWER
BO	BLOW OFF	EQL SP	EQUALLY SPACED	LF	LINEAR FEET	SSMH	SANITARY SEWER MANHOLE
BOC	BACK OF CURB	EQPT	EQUIPMENT	LIT	LEVEL INDICATOR/TRANSMITTER	ST	SAMPLE TAP
BOG	BACK OF GUTTER	EW	EACH WAY	LP	LOW POINT	SST	STAINLESS STEEL
BOO	BOTTOM OF OPENING	EXC	EXCAVATE	LT	LEVEL TRANSMITTER	STA	STATION
BOT	BOTTOM	EXP	EXPOSED, EXPANSION	LSH	LEVEL SWITCH HIGH	STD	STANDARD
BRG	BEARING	EXP JT	EXPANSION JOINT	LSL	LEVEL SWITCH LOW	STIF	STIFFENER
BVC	BEGINNING OF VERTICAL CURVE	EXST	EXISTING			STL	STEEL, STEEL PIPE
BYP	BYPASS			MAX	MAXIMUM	STR	STRAIGHT
		FBE	FUSION BONDE EPOXY	MCC	MOTOR CONTROL CENTER	STRL	STRUCTURAL
C to C, CC	CENTER TO CENTER	FC	FLEXIBLE COUPLING	MCJ	MASONRY CONTROL JOINT	STRUCT	STRUCTURE
C	CHANNEL (BEAM)	FCA	FLANGED COUPLING ADAPTER	MECH	MECHANICAL	SW	SOUTHWEST, SERVICE WATER
CARV	COMBINATION AIR ADMISSION/ AIR RELEASE VALVE	FCO	FLOOR CLEAN OUT	MFR	MANUFACTURER		
		FD	FLOOR DRAIN	MGD	MILLION GALLONS PER DAY	T&B	TOP AND BOTTOM
CATH	COMBINATION AIR RELEASE VALVE CATHODIC PROTECTION	FDA	FLOOR DRAIN W/INTEGRAL TRAP	MH	MANHOLE	T&G	TONGUE AND GROOVE
		FDN	FOUNDATION	MIN	MINIMUM, MINUTE	t, T	THICKNESS
CATV	CABLE TELEVISION	FES	FLARED END SECTION	MISC	MISCELLANEOUS	TDH	TOTAL DYNAMIC HEAD
CB	CATCH BASIN	FEXT	FIRE EXTINGUISHER	MJ	MECHANICAL JOINT	THD	THREAD
CF	CUBIC FEET	FF	FINISH FLOOR	MSNRY	MASONRY	THK	THICK
CFM	CUBIC FEET PER MINUTE	FG	FINISH GRADE	N	NORTH	TNK	TANK
CFS	CUBIC FEET PER SECOND	FI	FLOW INDICATOR	NE	NORTHEAST	TOC	TOP OF CURB, TOP OF CONCRETE
CHEM	CHEMICAL	FL	FLOOR, FLOW LINE	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	TOW	TOP OF WALL
CI	CAST IRON	FLG	FLANGE			TOF	TOP OF FOOTING
CJ	CONSTRUCTION JOINT, CONTRACTION JOINT	FLH	FLAT HEAD	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	TS	TUBE STEEL
		FLL	FLOW LINE	NIC	NOT IN CONTRACT	TST	TOP OF STEEL
CL	CENTERLINE	FM	FLOW METER	NO	NUMBER, NUMBERING	TYP	TYPICAL
CLG	CEILING	FNSH	FINISH	NTS	NOT TO SCALE		
CLR	CLEAR, CLEARANCE	FOC	FACE OF CONCRETE	NW	NORTHWEST	UBC	UNIFORM BUILDING CODE
CLSM	CONTROLLED LOW STRENGTH MATERIAL	FS	FINISHED SURFACE, FLOW SWITCH			UD	UNDERDRAIN
CMLCSP	CEMENT MORTAR LINED AND COATED STEEL PIPE	FT	FOOT OR FEET	OC	ON CENTER	UG	UNDERGROUND
		FTG	FOOTING	OD	OUTSIDE DIAMETER, OVERFLOW DRAIN	UNK	UNKNOWN
CMLSP	CEMENT MORTAR LINED STEEL PIPE	FWD	FORWARD	OF	OUTSIDE FACE, OVERFLOW		
CMP	CORRUGATED METAL PIPE	°F	DEGREE FAHRENHEIT	OG	ORIGINAL GROUND	V	VENT, VOLT, VALVE
CMU	CONCRETE MASONRY UNIT			OHE	OVERHEAD ELECTRIC	VAC	VACUUM
CO	CLEANOUT	GA	GAGE	OMRF	ORDINARY MOMENT RESISTING FRAME	VERT	VERTICAL
COL	COLUMN	GAL	GALLON	O TO O	OUT TO OUT	VFD	VARIABLE FREQUENCY DRIVE
COM	COMMUNICATION	GALV	GALVANIZED	OPNG	OPENING	VPI	VERTICAL POINT OF INTERSECTION
COMB	COMBINED	GB	GRADE BREAK	OPP	OPPOSITE		
CONC	CONCRETE	GC	GROOVED COUPLING	OSHA	OCCUPATIONAL SAFETY & HEALTH ADMIN.	W/	WITH
CONN	CONNECTION	GCO	GRADE CLEAN OUT			WD	WOOD
CONT	CONTINUOUS, CONTINUATION	GCF	GROOVED COUPLING FITTING	PC	POINT OF CURVE	WSP	WELDED STEEL PIPE
COORD	COORDINATE	GD	GENERAL DRAINAGE	PE	PLAIN END, POLYETHYLENE, PERMANENT EASEMENT	WTR	WATER
CPLG	COUPLING	GE	GROOVED END			WWF	WELDED WIRE FABRIC
CTRD, CTD	CENTERED	GL	GLASS	PENT	PENETRATION		
CTR	CENTER	GPD	GALLONS PER DAY	PI	POINT OF INTERSECTION	XMFR	TRANSFORMER
CU	COPPER	GPH	GALLONS PER HOUR	PL	PLATE, PROPERTY LINE		
CU FT	CUBIC FOOT	GPM	GALLONS PER MINUTE	PLC	PROGRAMMABLE LOGIC CONTROLLER	YD	YARD

NOTES:

1. FOR ELECTRICAL AND INSTRUMENTATION ABBREVIATIONS, SEE ELECTRICAL AND INSTRUMENTATION DRAWINGS.
2. CONTACT THE ENGINEER FOR ABBREVIATIONS NOT LISTED.
3. THIS IS A STANDARD LEGEND SHEET, THEREFORE, SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND MAY NOT BE UTILIZED ON THIS PROJECT.

REGISTERED PROFESSIONAL ENGINEER — CYNTHIA V. BERTSCH — No. C65385 — CIVIL — STATE OF CALIFORNIA

01/03/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

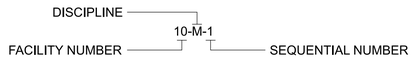
GENERAL
ABBREVIATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-3
SHEET NUMBER 3

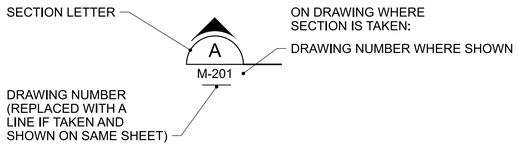
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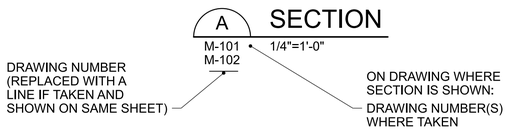
LETTER	DISCIPLINE
G	GENERAL
D	DEMOLITION
C	SITE CIVIL
M	MECHANICAL
AS	ARCHITECTURAL / STRUCTURAL
E	ELECTRICAL
I	INSTRUMENTATION
SD	STANDARD DETAILS

DRAWING NUMBER

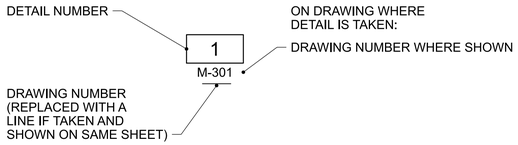


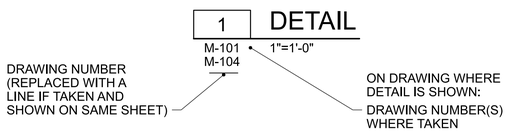
SECTION



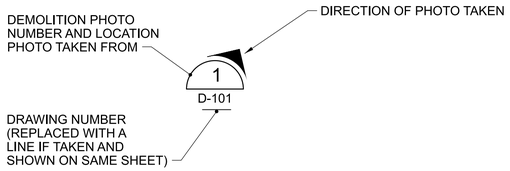


DETAIL





DEMOLITION PHOTO



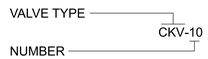
STANDARD DETAIL



NOTES:

1. STANDARD DETAIL CALLOUTS ARE SHOWN TO INDICATE DETAIL REQUIRED AT SPECIFIC LOCATIONS. DETAILS ARE NOT CALLED OUT AT ALL LOCATIONS. WHERE A STANDARD DETAIL CALLOUT IS NOT SHOWN, THE CONTRACTOR SHALL USE THE STANDARD DETAIL MOST APPLICABLE AND CONSISTENT WITH OTHER WORK UNDER THIS CONTRACT.

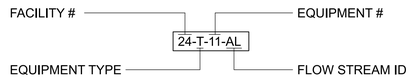
STANDARD VALVE AND OPERATOR



NOTES:

1. SEE SPECIFICATION SECTION 15200.

UNIQUE VALVE / EQUIPMENT DESIGNATION



LINE TYPE APPEARANCE

———	BLACK	NEW 'ON' DISCIPLINE
———	LIGHT OR MEDIUM GRAY OR SCREENED	EXISTING 'ON' OR 'OFF' DISCIPLINE
———	DARK GRAY	NEW 'OFF' DISCIPLINE

GENERAL SYMBOLOGY

	STRUCTURE OR EQUIPMENT TO BE SALVAGED OR DEMOLISHED
	PIPE TO BE SALVAGED OR DEMOLISHED
*	EQUIPMENT COMPONENTS OR PANELS SHOWN WITH A SINGLE ASTERISK (*) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.



01/05/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL

GENERAL DESIGNATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-4
SHEET NUMBER 4

STRUCTURAL NOTES

DESIGN CRITERIA:

1. APPLICABLE CODE: 2019 CALIFORNIA BUILDING CODE (2018 INTERNATIONAL BUILDING CODE (IBC), AS AMENDED BY THE STATE OF CALIFORNIA).

2. REFER TO THE SPECIFICATIONS FOR ADDITIONAL AND SPECIFIC STRUCTURAL LOADINGS AND REQUIREMENTS.

3. ROOF LOAD:
   - MINIMUM LIVE LOAD — 20 psf

4. WIND LOAD:
   - RISK CATEGORY — IV
   - BASIC WIND SPEED (ASCE 7-16) — 103 mph
   - EXPOSURE CATEGORY — C
   - DESIGN METHOD — DIRECTIONAL PROCEDURE

5. SEISMIC LOAD:
   - RISK CATEGORY — IV
   - IMPORTANCE FACTOR I_e — 1.5

   LAKE DR:
   - S_s: 2.446 — S_{DS}: 1.957
   - S_1: 1.026 — S_{D1}: 0.958

   SNEATH LN:
   - S_s: 2.419 — S_{DS}: 1.935
   - S_1: 1.014 — S_{D1}: 0.946

   - SITE CLASS — C
   - SEISMIC DESIGN CATEGORY — E

6. LATERAL FORCE RESISTING SYSTEM:
   - LAKE DRIVE PS BUILDING
     - LIGHT FRAME (WOOD) CONSTRUCTION
     - $V = C_sW$
     - $C_s = 0.376$
     - V_{ASD} =4992 LBS
     - R = 6.5, Ω = 2.5, Cd = 4
     - ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE

   - SNEATH LANE PS BUILDING
     - LIGHT FRAME (WOOD) CONSTRUCTION
     - $V = C_sW$
     - $C_s = 0.376$
     - V_{ASD} = 4306 LBS
     - R = 6.5, Ω = 2.5, Cd = 4
     - ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE

GENERAL INFORMATION:

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE BUILDING CODE.

2. DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO ALL SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE KEYED IN EACH LOCATION. CONSULT THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.

3. VERIFY ALL OPENING DIMENSIONS IN WALLS, SLABS, AND DECKS WITH THE ARCHITECTURAL, MECHANICAL, HVAC AND ELECTRICAL DRAWINGS.

4. FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS AND OPENINGS SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, HVAC AND PLUMBING DRAWINGS. COORDINATE ALL OPENINGS AND EQUIPMENT PADS WITH OTHER DISCIPLINES AND EQUIPMENT SUPPLIERS PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS.

5. NO STRUCTURAL MEMBER SHALL BE CUT FOR PIPES, DUCTS, ETC UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.

FOUNDATIONS:

1. IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION REPORT #1901.0130 BY BAJADA GEOSCIENCES, INC FOUNDATIONS HAVE BEEN DESIGNED FOR THE FOLLOWING VALUES:
   - ALLOWABLE BEARING, DEAD + LIVE LOADS — 1500 psf AT LAKE DR.
   - ALLOWABLE BEARING, DEAD + LIVE LOADS — 2000 psf AT SNEATH LN.
   - MINIMUM FOOTING EMBEDMENT — 18 INCHES
   - LATERAL EARTH PRESSURES (DRAINED)
     - ACTIVE — 70 pcf
     - PASSIVE — 300 pcf
   - SLIDING FRICTION COEFFICIENT — 0.4

2. NO BACKFILL SHALL BE PLACED BEHIND CANTILEVERED, FREE TOP WALLS UNTIL THE CONCRETE HAS ATTAINED 100% OF ITS SPECIFIED COMPRESSIVE STRENGTH.

3. NO BACKFILL SHALL BE PLACED BEHIND WALLS THAT ARE CONNECTED TO ELEVATED FLOOR OR ROOF SLABS OR DECKS UNTIL THE FLOOR OR ROOF SLAB HAS ATTAINED 100% OF ITS SPECIFIED COMPRESSIVE STRENGTH AND ALL ROOF AND FLOOR DECKING IS IN PLACE AND WELDED, SCREWED, OR NAILED AS APPROPRIATE.

4. GRADE TO DRAIN AWAY FROM STRUCTURES A MINIMUM GRADE OF 5% FOR A MINIMUM OF 10'-0" FROM STRUCTURE PERIMETER.

5. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AT LEAST 48 BUSINESS HOURS NOTICE FOLLOWING EXCAVATION FOR FOUNDATIONS AND PRIOR TO THE PLACEMENT OF FORMWORK, REINFORCING STEEL AND CONCRETE.

FORMWORK, SHORING AND BRACING:

1. THE STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. THE DESIGN SHOWN DOES NOT INCLUDE THE NECESSARY COMPONENTS OR EQUIPMENT FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION. THE CONTACTOR IS RESPONSIBLE FOR ALL WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN. CONSTRUCTION OF SHORING AND BRACING OF FORMWORK SHALL BE IN ACCORDANCE WITH ACI 347 "GUIDE TO FORMWORK FOR CONCRETE".

CONCRETE:

1. STRUCTURAL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS AND A SLUMP AS SPECIFIED IN SECTION 03300 - CAST-IN-PLACE CONCRETE.

2. THE CONTRACTOR SHALL SUBMIT THE CONCRETE MIX DESIGNS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO USE.

3. HORIZONTAL CONSTRUCTION JOINTS SHALL BE PREPARED TO EXPOSE CLEAN, SOLIDLY EMBEDDED AGGREGATE OVER THE ENTIRE JOINT INTERFACE.

4. PLACEMENT OF PIPES, CONDUITS OR OTHER EMBEDDED ITEMS IN THE CONCRETE SHALL BE IN ACCORDANCE WITH THESE DRAWINGS OR SHALL BE APPROVED BY THE ENGINEER.

5. NO ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.

6. CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C94.

7. THE REQUIREMENTS FOR CONCRETE MIXES, PLACING, TESTING AND CURING ARE CONTAINED IN THE PROJECT SPECIFICATIONS.

8. PORTLAND CEMENT SHALL CONFORM TO ASTM C150 TYPE II, AGGREGATE SHALL CONFORM TO ASTM C33.

9. CONTINUOUS WATERSTOP, AS SPECIFIED, SHALL BE INSTALLED IN ALL EXPANSION, CONTRACTION, CONTROL AND CONSTRUCTION JOINTS IN WALLS AND SLABS OF CONTAINMENT STRUCTURES, WATER HOLDING BASINS, CHANNELS, AND BELOW GRADE STRUCTURES, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.

10. THE CONCRETE JOINTS IN SLABS AND WALLS, AS SHOWN, ARE MINIMUM REQUIREMENTS. CONTRACTOR MAY SUBMIT ALTERNATE CONSTRUCTION JOINT LAYOUT DRAWINGS, SUBJECT TO SPECIFIED REQUIREMENTS, TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

11. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AT LEAST 48 BUSINESS HOURS NOTICE PRIOR TO THE PLACEMENT OF CONCRETE TO ALLOW SUFFICIENT TIME FOR INSPECTIONS AND SCHEDULING OF TESTING SERVICES.

CONCRETE REINFORCING:

1. PROVIDE LARGER SIZES AND MORE REINFORCING IN ALL SECTIONS OF CONCRETE WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.

2. CLEARANCE FOR REINFORCEMENT BARS, UNLESS SHOWN OTHERWISE, SHALL BE: CAST AGAINST EARTH = 3", CONCRETE SURFACES OF CONTAINMENT STRUCTURES = 2", ALL OTHER CONCRETE SURFACES: #5 BAR OR SMALLER = 1 1/2", #6 BAR OR LARGER = 2".

3. REFER TO WALL CORNER AND WALL INTERSECTION REINFORCING DETAIL 3303. WALL CORNER REINFORCING SIZES AND SPACINGS SHALL BE AS SHOWN ON THE DRAWINGS AND REFERENCED TO THIS DETAIL. TYPICAL HORIZONTAL WALL REINFORCING SHALL LAP WITH THE CORNER HORIZONTAL REINFORCING.

4. PROVIDE A MINIMUM OF TWO VERTICAL WALL BARS WITH MATCHING DOWELS AT WALL ENDS, CORNERS AND INTERSECTIONS WITH SIZE TO MATCH TYPICAL VERTICAL REINFORCING STEEL AS SHOWN. VERTICAL WALL BARS SHALL BE LAPPED WITH DOWELS FROM BASE SLABS AND EXTENDED INTO THE TOP FACE OF ROOF SLABS AND LAPPED WITH TOP SLAB REINFORCEMENT.

5. ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE 90 DEGREE ACI 318 STANDARD HOOKS.

6. ALL REINFORCING BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:

CONCRETE DESIGN STRENGTH = 4,000 PSI #		GRADE 60 REINFORCED STEEL						
BAR SIZE		#4	#5	#6	#7	#8	#9	#10
LAP SPLICE LENGTH								
SPACING <6"	TOP BAR *	2'-8"	3'-4"	4'-0"	5'-10"	6'-8"	7'-7"	8'-6"
	OTHER BAR	2'-1"	2'-7"	3'-1"	4'-6"	5'-2"	5'-10"	6'-7"
SPACING ≥6"	TOP BAR *	1'-8"	2'-0"	2'-5"	3'-6"	4'-0"	5'-0"	6'-2"
	OTHER BAR	1'-4"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"

* TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

\# WHERE 3,000 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 16%.

MASONRY:

1. SOLID GROUT ALL CELLS UNLESS INDICATED OTHERWISE.

2. MORTAR SHALL CONFORM TO ASTM C270, TYPE S, HYDRATED AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 1,900 PSI.

3. GROUT SHALL CONFORM TO ASTM C476 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 PSI CONTAINING NO MASONRY CEMENT.

4. CONCRETE BLOCK UNITS SHALL BE MEDIUM WEIGHT AND CONFORM TO ASTM C90 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 1,900 PSI. LINEAR SHRINKAGE SHALL NOT EXCEED 0.065 PERCENT.

5. PLACE COURSES IN RUNNING BOND PATTERN, UNLESS SPECIFICALLY INDICATED OTHERWISE.

6. REINFORCING STEEL FOR MASONRY SHALL CONFORM TO ASTM A615, GRADE 60 FOR DEFORMED BARS. LAP VERTICAL REINFORCING 48 BAR DIAMETERS WITH DOWELS AT BUILDING WALLS. LAP ALL OTHER VERTICAL BARS 72 BAR DIAMETERS. LAP VERTICAL BARS IN CANTILEVER WALLS 72 BAR DIAMETERS. STAGGER ADJACENT LAP SPLICES BY 24 INCHES, WHEN SEPARATED BY 3 INCHES OR LESS. REFERENCE STANDARD DETAIL 4002 - REINFORCED CMU WALL.

7. HORIZONTAL REINFORCING BARS SHALL BE CONTINUOUS AROUND WALL CORNERS AND THROUGH WALL INTERSECTIONS AND HOOKED AT WALL ENDS AS SHOWN IN THE DETAILS.

8. VERTICAL REINFORCING SHALL BE PLACED AT CORNERS, EACH SIDE OF OPENINGS, END WALLS (INCLUDING EACH SIDE OF CONTROL JOINTS), AT A MAXIMUM SPACING INDICATED IN THE DRAWINGS, AND CONTINUOUS FROM FOUNDATION TO TOP OF WALL.

9. CMU REINFORCING AT WALL INTERSECTIONS AND CORNERS SHALL BE AS INDICATED IN STANDARD DETAIL 4001 - CMU WALL CORNERS, UNLESS INDICATED OTHERWISE.

10. CMU REINFORCING AT ALL WALL ENDS, JAMBS AND DOOR OPENINGS, WINDOW LINTELS, LOUVERS AND PENETRATIONS SHALL BE INDICATED IN STANDARD DETAIL 4004 - CMU OPENINGS GREATER THAN 3'-0" OR STANDARD DETAIL 4003 - CMU OPENINGS LESS THAN 3'-0", UNLESS INDICATED OTHERWISE.

11. CMU WALL CONTROL JOINTS SHALL BE LOCATED WHERE SHOWN ON THE DRAWINGS AND SHALL RUN CONTINUOUS FROM THE TOP OF FOUNDATION TO TOP OF WALL OR PARAPET. ALL HORIZONTAL NON-STRUCTURAL BARS SHALL BE TERMINATED IN A STANDARD HOOK EACH SIDE OF JOINT. STRUCTURAL BARS SHALL BE CONTINUOUS THROUGH CONTROL JOINTS.

REGISTERED PROFESSIONAL ENGINEER — TODD KOTEK — No. C91811 — CIVIL — STATE OF CALIFORNIA

01/05/2024

DESIGNED A LINDEMAN
DRAWN B TROTTER
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 1

DATE: JULY 2025
PROJECT NUMBER: 19-077
DRAWING NUMBER: G-5
SHEET NUMBER: 5

STRUCTURAL NOTES

ROUGH CARPENTRY:

1. DIMENSIONS ARE TYPICALLY SHOWN TO FACE OF STUD FOR EXTERIOR WALLS, CENTERLINE OF STUD AT INTERIOR WALLS AND TO CENTERLINE OF OPENINGS.

2. STRUCTURAL FRAMINGS SHALL BE DOUGLAS FIR (DF) OF THE GRADES INDICATED OR BETTER (WWPA GRADING RULES) WITH 19% MAXIMUM MOISTURE CONTENT:
   BEAMS AND STRINGERS:
   - 4x NO. 1
   - 6x NO. 1
   - JOISTS, RAFTERS & LEDGERS, 2x AND 4x NO. 1
   - POSTS AND TIMBERS NO. 1
   - STUDS, SILL & PLATES: 2x4 STUD
   - 2x6 NO. 1
   - 2x8 AND LARGER NO. 1
   - MISC. FRAMING LUMBER NOT NOTED NO. 2

3. SILLS ON CONCRETE SLAB ON GRADE SHALL BE APPROVED PRESSURE TREATED DF. EACH PIECE SHALL BEAR THE AWPA STAMP. CUTS AND BORED HOLES OF TREATED DF SHALL BE TREATED WITH COPPER GREEN.

4. FASTENERS FOR PRESERVATIVE-TREATED AND FIRE RETARDANT-TREATED WOOD SHALL BE OF HOT DIPPED ZINC-COATED GALVANIZED STEEL, OR STAINLESS STEEL. THE COATING WEIGHTS FOR ZINC-COATED FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A153. HARDWARE SHALL BE COATED PER SIMPSON STRONG TIE 'CORROSION INFORMATION'.

5. WOOD SILLS FOR BEARING SHEATHED WALLS OR JOISTS SUPPORT BEARING ON MASONRY OR CONCRETE SHALL BE BOLTED WITH 5/8" φ X 1'-0" BOLTS WITH 8" EMBEDMENT AT 4'-0" MAXIMUM SPACING, UNLESS OTHERWISE SHOWN, AND WITHIN 9" MAX, 5" MIN, OF END OF EACH PIECE. USE 5/8" φ X 1'-6" BOLTS @ 6" CURBS.

6. WOOD STRUCTURAL MEMBERS SHALL NOT BE DRILLED OR NOTCHED EXCEPT AS SHOWN OR AS APPROVED BY THE ENGINEER.

7. FRAMING HARDWARE NOTED IS SIMPSON STRONG-TIE AND SHALL BE INSTALLED WITH CONNECTORS SPECIFIED FOR EACH SPECIFIC DEVICE BY THE MANUFACTURER'S CURRENT CATALOG. EQUIVALENT DEVICES APPROVED BY THE ENGINEER MAY BE SUBSTITUTED. SINKERS SHALL NOT BE USED.

8. WALL TOP PLATES SHALL HAVE JOINTS AT A STUD CENTERLINE. END JOINTS IN DOUBLE TOP PLATES SHALL BE OFFSET AT LEAST 4'-0".

9. BOLT HOLES IN WOOD AND/OR STEEL SHALL BE 1/16" LARGER THAN BOLTS. STANDARD CUT WASHERS SHALL BE PROVIDED UNDER THE HEADS AND NUTS OF ALL BOLTS BEARING ON WOOD. 3" X 3"X ¼" PLATE WASHERS SHALL BE USED UNDER ALL ANCHOR BOLTS.

10. ALL NUTS SHALL BE TIGHTENED WHEN PLACED AND RETIGHTENED PRIOR TO APPLICATION OF FINISH OR AT COMPLETION OF JOB.

11. BLOCKING 2X WIDTH OF STUD, SHALL BE PROVIDED AT FLOOR, CEILING AND ROOF LINES AND SO THAT UNBRACED LENGTH OF STUD DOES NOT EXCEED 10'-0".

12. ALL JOISTS AND RAFTERS SHALL HAVE FULL DEPTH SOLID BLOCKING (2X MIN) OR CONTINUOUS RIM JOIST AT ALL SUPPORTS.

13. EXCEPT WHERE NOTED OTHERWISE, STUD WALLS SHALL BE 2X6 @ 16" OC MAXIMUM SPACING.

14. LAG BOLTS AND WOOD SCREWS SHALL BE SCREWED, NOT DRIVEN, INTO PLACE. LEAD HOLES SHALL BE PREBORED PER NDS CHAPTER12.

15. CONTRACTOR SHALL FURNISH SHOP DRAWINGS OF ALL GLU-LAMINATED BEAMS FOR ENGINEERS REVIEW PRIOR TO FABRICATION.



01/05/2024

PLYWOOD:

1. ALL STRUCTURAL PLYWOOD SHALL BE GRADE CC EXTERIOR OR CD INTERIOR WITH EXTERIOR GLUE. ALL PLYWOOD SHALL CONFORM TO CBC 2023 AND CBC 2306, AND TO U.S. PRODUCT STANDARD PS1-09, AND SHALL BE IDENTIFIED WITH THE GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION. OSB MAY BE SUBSTITUTED, PROVIDED THE OSB SHEATHING CONFORMS TO APA (NER 108) STRUCTURAL I RATED SHEATHING. PARTICLE BOARD IS NOT ALLOWED.

2. UNLESS OTHERWISE NOTED, PLYWOOD NAILS SHALL BE COMMON. APPROVED FASTENERS TO BE SUBSTITUTED SHALL BE EQUIVALENT IN LATERAL AND WITHDRAWAL STRENGTH TO THE SIZE OF COMMON NAIL SPECIFIED.

3. PLYWOOD ROOF SHEATHING SHALL BE LAID WITH GRAIN OF THE OUTER PLIES PERPENDICULAR TO THE FRAMING MEMBERS AND END JOINTS SHALL BE STAGERRED. BLOCK ALL UNSUPPORTED EDGES OF PLYWOOD SHEATHING WHERE SHOWN ON PLANS. TYPICAL NAILING SHALL BE 10d @ 4" OC AT ALL SUPPORTED EDGES AND WHERE BOUNDARY NAILING IS NOTED. FIELD NAILING SHALL BE 10d @ 12" OC.

4. ALL STRUCTURAL PLYWOOD NOTED ON THE DRAWINGS SHALL CONFORM TO THE FOLLOWING:

USE	THICKNESS	SPAN RATING
ROOF SHEATHING	15/32"	32/16
FLOOR SHEATHING	1-1/8" T&G	48/24
WALL SHEATHING	3/8"	24/0

WOOD NAILING:

1. NAILS SHALL BE "COMMON" WIRE NAILS, UNLESS OTHERWISE SPECIFIED. NAILS SHALL BE PREDRILLED, IF REQUIRED, TO AVOID SPLITTING THE MEMBER. NAILS SHALL BE THE FOLLOWING SIZES:
   - 10d COMMON = 0.148"φx 3"
   - 16d COMMON = 0.162"φ x 3 1/2"

2. THE EDGE DISTANCE FOR NAILING IN MEMBERS WHERE PLYWOOD PANELS ARE TO ABUT SHALL BE 3/4" FOR 3X OR WIDER AND 3/8" FOR 2X NOMINAL MEMBERS.

3. FASTENERS FOR PRESERVATIVE-TREATED AND FIRE RETARDANT-TREATED WOOD SHALL BE OF HOT DIPPED ZINC-COATING. FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A153.

4. NAILS IN STRUCTURAL WOOD PANELS SHALL BE DRIVEN SO THAT THEIR HEADS ARE FLUSH WITH THE PANEL SURFACE.

5. USE OF MACHINE NAILING IS SUBJECT TO A SATISFACTORY JOB SITE DEMONSTRATION AND ENGINEER'S APPROVAL. APPROVAL IS SUBJECT TO SATISFACTORY PERFORMANCE. IF NAIL HEADS PENETRATE THE FACE PLY MORE THAN WOULD BE NORMAL FOR A HAND HAMMER, OR IF MINIMUM ALLOWABLE EDGE DISTANCES ARE NOT MAINTAINED, THE PERFORMANCE WILL BE DEEMED UNSATISFACTORY.

6. SHEATHING PANELS SHALL BUTT AT CENTERLINE OF A SINGLE SUPPORTING MEMBER WITH EDGE NAILING FROM EACH PANEL INTO THAT MEMBER.

7. ALL TOP PLATES, SILLS AND STUDS SHALL HAVE EDGE NAILING AT THE CENTERLINE OF MEMBER.

8. PIECES OF WALL, ROOF OR FLOOR SHEATHING SHALL BE NO LESS THAN 12" IN LEAST DIMENSION. PIECES LESS THAN 24" SHALL HAVE 3X4 FLAT MIN BLKG @ UNSUPPORTED PANEL EDGES.

9. UNLESS NOTED ON DRAWINGS, FASTENING SHALL BE AS SPECIFIED BELOW:

JOISTS OR RAFTERS TO SIDES OF STUDS:	
EIGHT (8) INCH JOISTS OR LESS	3-16d
FOR EACH ADDITIONAL FOUR (4) INCHES IN DEPTH	1-16d
JOISTS OR RAFTERS AT ALL BEARINGS:	
TOE NAIL EACH SIDE	3-10d
CEILING JOISTS:	
LAPS OVER PARTITIONS FACE NAIL	3-16d
TO PARALLEL RAFTERS FACE NAIL	3-16d
BLOCKING BETWEEN JOISTS, RAFTERS OR TRUSSES:	
TO JOIST, RAFTER OR TRUSS EACH END	2-16d EN OR 4-10d TN
BLOCKING BETWEEN STUDS:	
EACH SIDE TOE NAILS	2-10d
OR END NAILS	2-16d
BRIDGING TO JOIST, TOE NAIL END EACH	2-8d
SILL PLATE TO JOIST OR BLOCKING, FACE NAIL	16d @16" OC
TOP PLATE TO STUD, END NAIL	2-16d
STUD TO SILL PLATE	3-16d EN or 4-8d TN
DOUBLED STUDS OR JOISTS, FACE NAIL	16d @12" OC
DOUBLE TOP PLATES, FACE NAIL	16d @16" OC
BUILT UP CORNER STUDS	16d @12" OC

STAINLESS STEEL:

1. STAINLESS STEEL MEMBERS SHALL CONFORM TO ASTM SPECIFICATIONS:
   - PLATES: A240
   - STRUCTURAL SHAPES: A276, A479 OR A1069
   - FASTENERS AND FITTINGS: A320
   - DEFORMED AND PLAIN BARS: A955

2. ALL COMPONENTS SHALL BE STAINLESS STEEL TYPE 316, UNLESS SHOWN OTHERWISE.

3. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWS D1.6. WELDERS SHALL HOLD VALID CERTIFICATES ISSUED BY AN ACCEPTED TESTING AGENCY WITHIN THE LAST 12 MONTHS.

4. ALL FILLET WELDS SHALL BE AWS MINIMUM AND BUTT WELDS SHALL BE COMPLETE JOINT PENETRATION (CJP), UNLESS INDICATED OTHERWISE.

5. WELDERS SHALL SUBMIT PRE-QUALIFIED WELDS AND WELDING PROCEDURES FOR REVIEW AND TO BE AVAILABLE ON PREMISES FOR REVIEW.

6. OPENINGS SHALL NOT BE PLACED IN STAINLESS STEEL MEMBERS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL PLANS.

7. THE STAINLESS STEEL FABRICATOR/CONTRACTOR SHALL FURNISH SHOP DRAWINGS OF ALL STAINLESS STEEL FOR ENGINEER'S REVIEW AND APPROVAL PRIOR TO FABRICATION.

ADHESIVE ANCHORS:

1. THE ADHESIVE ANCHOR SYSTEM USED FOR POST-INSTALLED ANCHORAGE TO CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY PUBLISHED ACI 355.4, ACCEPTANCE CRITERIA FOR QUALIFICATION OF POST-INSTALLED ADHESIVE ANCHORS IN CONCRETE AND COMMENTARY. THE ANCHOR SYSTEM SHALL BE ONE OF THE FOLLOWING:
   - HILTI HIT-HY 200.
   - SIMPSON SET-XP.

2. ADHESIVE ANCHORS SHALL BE SUPPLIED AS AN ENTIRE SYSTEM INCLUDING, BUT NOT LIMITED TO, THE NEW ADHESIVE CARTRIDGE, A CLEAN MIXING NOZZLE, EXTENSION TUBE, A DISPENSING GUN, AND ALL MANUFACTURER RECOMMENDED SUPPLIES FOR PROPERLY CLEANING THE DRILLED HOLE.

3. ALL-THREAD ROD TO BE USED IN ADHESIVE ANCHOR ASSEMBLIES SHALL CONFORM TO ASTM A36, A193 (GR B7), A307, OR F1554. STAINLESS STEEL ANCHOR RODS SHALL BE TYPE 316. NUTS, WASHERS, AND OTHER HARDWARE USED WITH AN ALL-THREAD SHALL HAVE A MATERIAL OR ALLOY DESIGNATION THAT MATCHES THE ALL-THREAD MATERIAL / ALLOY.

4. REINFORCING BARS SHALL BE ASTM A615 OR A706.

5. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT THE TIME OF ADHESIVE ANCHOR INSTALLATION. CONCRETE SHALL HAVE A MINIMUM AGE OF 21 DAYS AT THE TIME OF ADHESIVE ANCHOR INSTALLATION.

6. CONCRETE TEMPERATURE AT THE TIME OF ADHESIVE ANCHOR INSTALLATION SHALL BE 50°F MINIMUM AND 100°F MAXIMUM.

7. EMBEDMENT DEPTH AND ANCHOR PROJECTION FROM THE CONCRETE SURFACE SHALL BE AS SHOWN ON THE DRAWINGS FOR THE PARTICULAR ANCHOR OR GROUP OF ANCHORS BEING INSTALLED. ABSENT ANY INFORMATION, THE MINIMUM EMBEDMENT DEPTH SHALL BE 12d WHERE "d" IS THE ANCHOR DIAMETER.

8. ADHESIVE ANCHORS SHALL BE INSTALLED BY QUALIFIED PERSONNEL TRAINED TO INSTALL ADHESIVE ANCHORS IN ACCORDANCE WITH THE SPECIFICATIONS. POST-INSTALLED ADHESIVE ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

9. INSTALLATION OF ADHESIVE ANCHORS HORIZONTALLY OR UPWARDLY INCLINED TO SUPPORT SUSTAINED TENSION LOADS SHALL BE PERFORMED BY PERSONNEL CERTIFIED BY ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM. THESE ANCHORS ARE DESIGNATED WITH A (CERT) AFTER THE ANCHOR CALL-OUT.

10. THE INSTALLER'S QUALIFICATIONS SHALL BE SUBMITTED AND APPROVED IN ACCORDANCE WITH SECTION 05051 OF THE SPECIFICATIONS.

11. WHEN DRILLING HOLES IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR.

12. SPECIAL INSPECTION IS REQUIRED PER IBC SECTION 1705 AND THE REQUIREMENTS OF THE ICC REPORT. THE SPECIAL INSPECTOR MUST BE PERIODICALLY ON THE JOBSITE DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE, ANCHOR SPACING, AND CONCRETE THICKNESS.

13. ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION BY AN INSPECTOR SPECIALLY APPROVED FOR THAT PURPOSE BY THE BUILDING OFFICIAL.

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 2

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-6
SHEET NUMBER 6

STRUCTURAL NOTES

EXPANSION ANCHORS:

1. EXPANSION ANCHORS SHALL BE STAINLESS STEEL HILTI KWIK BOLT TZ OR SIMPSON STRONG-BOLT 2, UNLESS NOTED OTHERWISE. INSTALL ANCHORS IN CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS AND ICC REPORT.

2. SPECIAL INSPECTION IS REQUIRED PER IBC SECTION 1705 AND THE REQUIREMENTS OF THE ICC REPORT.

3. CONTRACTOR SHALL VERIFY MINIMUM EDGE DISTANCES, SPACING AND THICKNESSES ARE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS PRIOR TO INSTALLING ANCHORS.

4. WHEN DRILLING HOLES IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A REASONABLE CLEARANCE BETWEEN REINFORCEMENT AND THE DRILLED-IN ANCHOR.

5. THE SPECIAL INSPECTOR MUST BE PRESENT ON THE JOB SITE DURING ANCHOR INSTALLATION TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, HOLE CLEANLINESS, EMBEDMENT DEPTH, CONCRETE TYPE, DRILL BIT DIAMETER, HOLE DEPTH, EDGE DISTANCE, ANCHOR SPACING, AND CONCRETE THICKNESS.

DEFERRED SUBMITTALS:

1. PER 20108 IBC 107.3.4.1 THE FOLLOWING ITEMS, DRAWINGS AND CALCULATIONS, SHALL BE STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF THE PROJECT. ITEMS SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW AND APPROVAL. FOLLOWING APPROVAL BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE, THE CONTRACTOR SHALL SUBMIT THE ITEMS TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE STRUCTURE. THE CONTRACTOR SHALL NOT START FABRICATION OR ERECTION PRIOR TO REVIEW AND APPROVAL BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL TIME AND EFFORT REQUIRED TO OBTAIN A BUILDING OFFICIAL REVIEW/PERMIT FOR THE FOLLOWING PREFABRICATED STRUCTURAL COMPONENTS:
   - PRECAST CONCRETE ELEMENTS
   - HANDRAIL AND GUARDRAIL
   - PIPE SUPPORT SYSTEM
   - ANCHORAGE OF EQUIPMENT OVER 400 POUNDS

STRUCTURAL OBSERVATION:

1. STRUCTURAL OBSERVATION SHALL BE IN ACCORDANCE WITH THE 2018 IBC SECTION 1704.6 TOGETHER WITH LOCAL AND STATE AMENDMENTS.

2. THE OWNER SHALL EMPLOY A REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTIONS OR INSPECTIONS BY THE BUILDING OFFICIAL.

3. ONSITE STRUCTURAL OBSERVATION SHALL BE PERFORMED AT LEAST ONCE A MONTH, PLUS AT COMPLETION, FOR EACH SEISMIC FORCE OR WIND FORCE RESISTING SYSTEM IDENTIFIED, INCLUDING FOUNDATIONS AND CONNECTIONS.

4. AT THE CONCLUSION OF CONSTRUCTION, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES WHICH, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

5. STRUCTURAL OBSERVATION SHALL INCLUDE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM FOR EACH STRUCTURE CONTAINED IN THE WORK. THE CONTRACTOR SHALL SCHEDULE AND FACILITATE STRUCTURAL OBSERVATION INCLUDING THE FOLLOWING:
   - FOUNDATION REINFORCING STEEL, WATERSTOPS, EMBEDS, AND SIMILAR ITEMS PRIOR TO CONCRETE PLACEMENT.
   - WALL TO FOUNDATION CONNECTIONS PRIOR TO FORM CLOSURE FOR ALL MATERIALS.
   - CONCRETE SHEAR WALLS PRIOR TO CONCRETE PLACEMENT.
   - ELEVATED CONCRETE SLABS AND BEAMS PRIOR TO CONCRETE PLACEMENT.
   - MASONRY WALL, BEAM, PIER, AND COLUMN REINFORCING STEEL PRIOR TO GROUTING AND PRIOR TO CLOSING OF CLEANOUTS.
   - SYSTEM CONNECTION EMBEDS PRIOR TO GROUT OR CONCRETE PLACEMENTS.
   - CONCRETE WALL TO FLOOR AND ROOF CONNECTIONS PRIOR TO FORM CLOSURE OR OTHER COVER.
   - STEEL DECK WELDING AND OTHER CONNECTIONS PRIOR TO INSTALLATION OF CONCRETE TOPPING SLABS OR ROOFING.
   - STEEL DRAG STRUT AND COLLECTOR CONNECTIONS PRIOR TO COVER.
   - ALL OTHER WALL ANCHORAGE CONNECTIONS FOR MATERIALS NOT SPECIFICALLY IDENTIFIED ABOVE.

STATEMENT OF SPECIAL INSPECTIONS:

1. SPECIAL INSPECTION IS IN ADDITION TO THE INSPECTIONS REQUIRED BY SECTION 110 OF THE IBC. THE OWNER OR CONTRACTOR SHALL EMPLOY A SPECIAL INSPECTOR DURING CONSTRUCTION ON THE TYPES OF WORK INDICATED BELOW. REFERENCE THE PROJECT SPECIFICATIONS FOR DETERMINATION OF WHO IS RESPONSIBLE TO PAY FOR SPECIAL INSPECTIONS SERVICES AND ASSOCIATED TESTS.

2. SPECIAL INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT QUALIFIED PERSON WHO IS ACCEPTABLE TO THE ENGINEER AND BUILDING DEPARTMENT. THE INSPECTORS FOR EACH SYSTEM AND MATERIAL WILL BE ICC CERTIFIED OR OTHERWISE APPROVED BY THE BUILDING OFFICIAL. THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS AND SUBMIT RECORDS OF INSPECTION.

3. INSPECTION RECORDS AND TESTING REPORTS SHALL BE SUBMITTED TO THE ENGINEER, OWNER, AND BUILDING OFFICIAL WITHIN ONE WEEK OF INSPECTION OR WITHIN ONE WEEK OF TEST COMPLETION.

4. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF DISCREPANCIES SHALL BE SUBMITTED.

5. PERIODIC SPECIAL INSPECTION IS DEFINED AS SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.

6. SPECIAL INSPECTION IS REQUIRED PER CHAPTER 17 OF THE IBC FOR THE FOLLOWING ITEMS:
   - SOILS (BY CONTRACTOR PER SPECIFICATION SECTION 02300)
   - CAST-IN-PLACE DEEP FOUNDATION ELEMENTS
   - CONCRETE CONSTRUCTION
   - MASONRY CONSTRUCTION
   - WOOD FRAMING AND SHEAR WALL INSPECTION
   - ANCHORAGE OF MECHANICAL AND ELECTRICAL COMPONENTS

REQUIRED VERIFICATION AND SPECIAL INSPECTION OF SOILS

	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	2018 IBC REFERENCE
1.	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	X	SECTION 02300 - EARTHWORK	1705.6, 1804
2.	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	-	X	SECTION 02300 - EARTHWORK	1705.6
3.	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	-	X	SECTION 02300 - EARTHWORK	1705.6
4.	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	-	SECTION 02300 - EARTHWORK	1705.6
5.	PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	-	X	SECTION 02300 - EARTHWORK	1705.6

REQUIRED SPECIAL INSPECTION OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS

	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
1.	INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	X	-
2.	VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES	X	-
3.	FOR CONCRETE ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC SECTION 1705.3	-	-

REQUIRED SPECIAL INSPECTION OF CONCRETE CONSTRUCTION

	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	2018 IBC REFERENCE
1.	INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDIONS, AND VERIFY PLACEMENT	-	X	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2.a.	INSPECTION TO VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	-	X	AWS D1.4, ACI 318: 26.6.4	-
2.b.	INSPECT REINFORCING BARS SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	-	X	AWS D1.4, ACI 318: 26.6.4	-
2.c.	INSPECT ALL OTHER REINFORCING BAR WELDS	X		AWS D1.4, ACI 318: 26.6.4	-
3.	INSPECTION OF ANCHORS CAST IN CONCRETE	-	X	ACI 318: 17.8.2	-
4.a.	INSPECTION OF ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X	-	ACI 318: 17.8.2.4	-
4.b.	INSPECTION OF MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	-	X	ACI 318: 17.8.2	-
5.	VERIFYING USE OF REQUIRED DESIGN MIX	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6.	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM: C172, C31 ACI318: 26.5, 26.12	1908.10
7.	INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8.	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	-	X	ACI 318: 26.5.3-26.5.5	1908.9
9.	INSPECT PRESTRESSED CONCRETE FOR: A. APPLICATION OF PRESTRESSING FORCES B. GROUTING OF BONDED PRESTRESSING TENDONS	X	-	ACI 318: 26.10	-
10.	INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	-	X	ACI 318: 26.9	-
11.	VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	-	X	ACI 318: 26.11.2	-
12.	INSPECTION FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	-	X	ACI 318: 26.11.1.2(b)	-

REGISTERED PROFESSIONAL ENGINEER — TODD KOTEN — No. C61282 — CIVIL — STATE OF CALIFORNIA

01/05/2024

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 3

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-7
SHEET NUMBER 7

STRUCTURAL NOTES

REQUIRED VERIFICATION FOR MASONRY CONSTRUCTION			
MINIMUM VERIFICATION	REQUIRED FOR QUALITY ASSURANCE (a) & (b)		REFERENCE FOR CRITERIA
	LEVEL 2	LEVEL 3	TMS 602
PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS	R	R	ART. 1.5
PRIOR TO CONSTRUCTION, VERIFICATION OF F'_m	R	R	ART 1.4 B
DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE	R	R	ART. 1.5 & 1.6.3
DURING CONSTRUCTION, VERIFICATION OF F'_m FOR EVERY 5,000 SQ. FT	NR	R	ART 1.4 B
DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT	NR	R	ART 1.4 B

(a) R = REQUIRED, NR = NOT REQUIRED
(b) LEVEL 2 IS REQUIRED FOR RISK CATEGORY II & III. LEVEL 3 IS REQUIRED FOR RISK CATEGORY IV.

REQUIRED SPECIAL INSPECTION FOR MASONRY CONSTRUCTION				
INSPECTION TASK	FREQUENCY (a) & (b)		REFERENCE FOR CRITERIA	
	Level 2	Level 3	TMS 402	TMS 602
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. PROPORTIONS OF SITE-PREPARED MORTAR	P	P		Art. 2.1, 2.6 A, & 2.6 C
b. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	P	P		Art 3.4 & 3.6 A
c. SAMPLE PANEL CONSTRUCTION	P	C		Art. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. GROUT SPACE	P	C		Art. 3.2 D & 3.2 F
b. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	P	C	Sec. 6.1, 6.3.1, 6.3.6, & 6.3.7	Art. 3.2 E & 3.4
c. PROPORTIONS OF SITE-PREPARED GROUT	P	P		Art. 2.6 B & 2.4 G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:				
a. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	P	P		Art. 1.5
b. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	P	P		Art. 3.3 B
c. SIZE AND LOCATION OF STRUCTURAL MEMBERS	P	P		Art. 3.3 F
d. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	P	C	Sec. 1.2.1(e), 6.2.1, & 6.3.1	
e. WELDING OF REINFORCEMENT	C	C	Sec. 6.1.6.2	
f. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)	P	P		Art. 1.8 C & 1.8 D
g. PLACEMENT OF GROUT IS IN COMPLIANCE	C	C		Art. 3.5 & 3.6 C
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	P	C		Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3 & 1.4 B.4

(a) P = PERIODIC, C = CONTINUOUS
(b) LEVEL 2 IS REQUIRED FOR RISK CATEGORY II & III. LEVEL 3 IS REQUIRED FOR RISK CATEGORY IV.

REQUIRED SPECIAL INSPECTIONS FOR WOOD FRAMING, SHEAR WALLS AND DIAPHRAGMS				
VERIFICATION AND INSPECTION		CONTINUOUS	PERIODIC	2019 CBC REFERENCE
1.	INSPECT NAILING AT SHEAR WALL AND ROOF SYSTEMS USED AS SHEAR DIAPHARGMS	-	X	1705.12.2

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 4

REGISTERED PROFESSIONAL ENGINEER TODD KOTEY CIV IL STATE OF CALIFORNIA
01/05/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-8
SHEET NUMBER 8

FILENAME: 1977D-G008.dgn PLOT DATE: 3/10/2020 8:24:23 AM

STRUCTURAL NOTES

REQUIRED SPECIAL INSPECTION OF STEEL CONSTRUCTION (ANSI/AISC 360-10)			
QUALITY CONTROL (QC) INSPECTION TASKS SHALL BE PERFORMED BY THE FABRICATOR'S OR ERECTOR'S QUALITY CONTROL INSPECTOR (QCI). QUALITY ASSURANCE (QA) INSPECTION OF FABRICATED ITEMS SHALL BE MADE AT THE FABRICATOR'S PLANT. QA INSPECTION OF ERECTED STEEL SYSTEMS SHALL BE MADE AT THE PROJECT SITE. THE QUALITY ASSURANCE INSPECTOR (QAI) SHALL REVIEW THE MATERIAL TEST REPORTS AND CERTIFICATIONS FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. O = OBSERVE THESE ITEMS ON A RANDOM BASIS. P = PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.			
INSPECTION TASKS PRIOR TO WELDING		QC	QA
1.	WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	0
2.	WELDING PROCEDURE SPECIFICATIONS AVAILABLE	P	P
3.	MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P
4.	MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
5.	WELDER IDENTIFICATION SYSTEM	O	O
6.	FIT-UP OF GROOVE WELDS	O	O
	JOINT PREPARATION		
	DIMENSIONS		
	CLEANLINESS		
	TACKING		
	BACKING TYPE		
7.	CONFIGURATION AND FINISH OF ACCESS HOLES	O	O
8.	FIT-UP OF FILLET WELDS	O	O
	DIMENSIONS		
	CLEANLINESS		
	TACKING		
9.	CHECK WELDING EQUIPMENT	O	-
INSPECTION TASKS DURING TO WELDING		QC	QA
1.	CONTROL AND HANDLING OF WELDING	O	O
	PACKAGING		
	EXPOSURE CONTROL		
2.	NO WELDING OVER CRACKED TACK WELDS	O	O
3.	ENVIRONMENTAL CONDITIONS	O	O
	WIND SPEED WITHIN LIMITS		
	PRECIPITATION AND TEMPERATURE		
4.	WPS FOLLOWED	O	O
	SETTINGS ON WELDING EQUIPMENT		
	TRAVEL SPEED		
	SELECTED WELDING MATERIALS		
	SHIELDING GAS TYPE/FLOW RATE		
	PREHEAT APPLIED		
	INTERPASS TEMPERATURE MAINTAINED		
	PROPER POSITION		
5.	WELDING TECHNIQUES	O	O
	INTERPASS AND FINAL CLEANING		
	EACH PASS WITHIN PROFILE LIMITATIONS		
	EACH PASS MEETS QUALITY REQUIREMENTS		
INSPECTION TASKS AFTER TO WELDING		QC	QA
1.	WELDS CLEANED	O	O
2.	SIZE, LENGTH AND LOCATION OF WELDS	P	P
3.	WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	P
	CRACK PROHIBITION		
	WELD/BASE METAL FUSION		
	CRATER CROSS SECTION		
	WELD PROFILES		
	WELD SIZE		
	UNDERCUT		
	POROSITY		
4.	ARC STRIKES	P	P
5.	k-AREA	P	P
6.	BACKING AND WELD TABS REMOVED	P	P
7.	REPAIR ACTIVITIES	P	P
8.	DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P

INSPECTION TASKS PRIOR TO BOLTING		QC	QA
1.	MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P
2.	FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O
3.	CORRECT FASTENERS SELECETED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O
4.	CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O
5.	CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O
6.	PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O
7.	PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O
INSPECTION TASKS DURING TO BOLTING		QC	QA
1.	FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED	O	O
2.	JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O
3.	FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
4.	FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O
INSPECTION TASKS AFTER TO BOLTING		QC	QA
1.	DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P



01/05/2024

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
STRUCTURAL NOTES 5

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-9
SHEET NUMBER 9

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE (SCREENED)
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT - FLEXIBLE
		GROOVED END JOINT - RIGID
		FLANGED JOINT
		MECHANICAL JOINT
		HUB & SPIGOT JOINT (RUBBER GASKET PUSH-ON)
		BALL JOINT
		FLANGE COUPLING ADAPTER
		FLEXIBLE COUPLING
		FLEXIBLE COUPLING WITH THRUST TIES
		DISMANTLING JOINT
		STEEL BELLOWS EXPANSION JOINT
		ELASTOMER BELLOWS EXPANSION JOINT
		ELBOW - 90 DEGREE
		ELBOW UP - 90 DEGREE
		ELBOW DOWN - 90 DEGREE
		ELBOW - 45 DEGREE
		ELBOW UP - 45 DEGREE
		ELBOW DOWN - 45 DEGREE
		TEE
		TEE UP
		TEE DOWN
		CROSS
		LATERAL
		LATERAL UP
		LATERAL DOWN
		REDUCER - CONCENTRIC

PIPE AND FITTING SYMBOLS (CONTINUED)

DOUBLE LINE	SINGLE LINE	
		REDUCER - ECCENTRIC
		UNION
		BLIND FLANGE
		PLUG
		CAP

VALVE SYMBOLS

DOUBLE LINE	SINGLE LINE	
		GATE
K	K	KNIFE GATE
		BUTTERFLY
		GLOBE
		BALL
V	V	VEE BALL
		PLUG OR COCK
SEAT PORT		ECCENTRIC PLUG WITH REQUIRED SEAT LOCATION
FP	FP	FULL PORT PLUG
		NEEDLE
		DIAPHRAGM
		PINCH VALVE
		SWING CHECK
		DOUBLE DISK OR SILENT CHECK
		BALL CHECK
		HOSE VALVE
	X	NON FREEZE HOSE VALVE X=NUMBER IN SPECIFICATIONS
	X	NON FREEZE HOSE VALVE WITH HOSE RACK X=NUMBER IN SPECIFICATIONS
	S	SAMPLE
		MUD
		PRESSURE RELIEF
		AIR AND OR VACUUM RELEASE
REGULATED SIDE		PRESSURE CONTROL
		MULTI-PORT VALVE ARROWS INDICATE FLOW PATTERN. SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN. BALL VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.
		FIRE HYDRANT
		CATHODIC PROTECTION TEST STATION
		CATHODIC PROTECTION ANODE

FLOW METERS

DOUBLE LINE	SINGLE LINE	
		MAGMETER

ACTUATORS

P	PNUEMATIC
M	MOTORIZED
S	SOLENOID

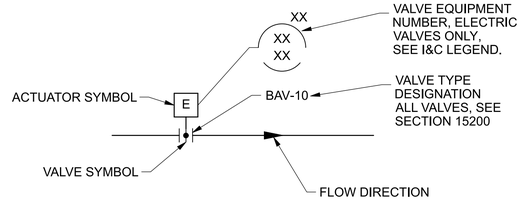
MISCELLANEOUS PIPING SYMBOLS

	STRAINER
	SIGHT GLASS
	FLEXIBLE (ELASTOMER) PIPE CONNECTION
	GAUGE WITH COCK
	THERMOMETER
	ROTAMETER
A	GALVANIC ANODE
XX	AIR SET XX = SUPPLY PRESSURE - PSIG
PS 26-1-2	TYPICAL INSTRUMENT SYMBOL (SEE I&C LEGEND)
	DRAIN
	DOUBLE CONTAINMENT PIPE

SINGLE-LINE FLOW STREAM IDENTIFICATION

16" RW

VALVE DESIGNATIONS



NOTES

1. ELECTRIC VALVE SHOWN, MANUAL VALVE SIMILAR.

NOTES

1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS AND THE PIPING SCHEDULE.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.

GENERAL PIPING NOTES

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED.
4. APPROPRIATE STANDARD WALL PIPE DETAIL SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS, WHEREVER APPLICABLE. ALL OF THE VARIOUS APPLICATIONS ARE NOT NECESSARILY USED IN THE PROJECT.
7. NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS ARE ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
8. THE CONTRACTOR FOR THIS PROJECT IS RESPONSIBLE FOR COORDINATING AND PERFORMING THE CONNECTION OF THE PIPING AND ASSOCIATED APPURTENANCES INSTALLED UNDER THIS CONTRACT TO BOTH THE EXISTING PIPING AND FACILITIES.
9. PRIOR TO SUBMITTING PIPING DRAWINGS FOR ANY NEW PIPE THAT IS TO CONNECT TO OR CROSS AN EXISTING PIPE OR STRUCTURE, THE CONTRACTOR SHALL EXPOSE THE EXISTING PIPE OR STRUCTURE TO VERIFY ITS EXACT LOCATION, SIZE, MATERIALS, AND INVERT ELEVATIONS.
10. COMPONENTS SHOWN WITH A DOUBLE ASTERISK (**) ARE PART OF A PACKAGE SYSTEM. SEE EQUIPMENT SPECIFICATIONS.

REGISTERED PROFESSIONAL ENGINEER JONATHAN C. BERTSCH No. C92341 CIVIL STATE OF CALIFORNIA

01/04/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

GENERAL
MECHANICAL LEGEND AND NOTES

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-10
SHEET NUMBER 10

CIVIL LEGEND

⊗ EL 158.5 — EL 158.5	SPOT ELEVATION
155	CONTOUR LINE
4:1	CUT SLOPE (HORIZ:VERT)
4:1	EMBANKMENT - FILL SLOPE (HORIZ:VERT)
	DRAINAGEWAY OR DITCH
	DIRECTION OF FLOW
	CENTER LINE, BUILDING, ROAD
	PROPERTY LINE
	RIGHT OF WAY, EASEMENT OR SETBACK
	STAGING OR WORK AREA LIMITS
N 1000.00 E 1000.00	STRUCTURE, BUILDING OR FACILITY LOCATION POINT COORDINATES
OR	STRUCTURE, BUILDING OR FACILITY
	RETAINING WALL
	CONCRETE CURB
	ARCHITECTURAL FENCE
	GUARD RAIL/BARRICADE
OX	CHAIN LINK FENCE WITH 3 STRAND BARBED WIRE TOPPING
	ARCHITECTURAL FENCE
	CHAIN LINK FENCE
X X	BARBED WIRE
X X	SINGLE SWING GATE
	DOUBLE SWING GATE
	SLIDING GATE
	CULVERT
	FIRE HYDRANT
	WALL
	BRUSH/TREE LINE
	TREE
OR OR	DEMOLITION
	ABANDON IN PLACE
	AUTOMATIC AIR RELEASE VALVE
	MANUAL AIR RELEASE VALVE
	WATER SURFACE
GB	GRADE BREAK

CIVIL LEGEND (CONTINUED)

	BEDROCK
	ROCKS OR RIPRAP
	SAND
	AGGREGATE BASE
	NATURAL SOIL
	COMPACTED SOIL
	CONCRETE
	GROUT
	CONTROLLED LOW STRENGTH MATERIAL (CLSM)
	PAVEMENT
	GRATING

NOTES:

1. EXISTING PIPING, EQUIPMENT, AND TOPOGRAPHY IS SHOWN SCREENEDAND/OR LIGHT-LINED. NEW PIPING, EQUIPMENT, STRUCTURE, AND FINISHED GRADE IS SHOWN HEAVY-LINED.
2. THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS MAY APPEAR ON THIS SHEET AND NOT BE USED ON THE PLANS.

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

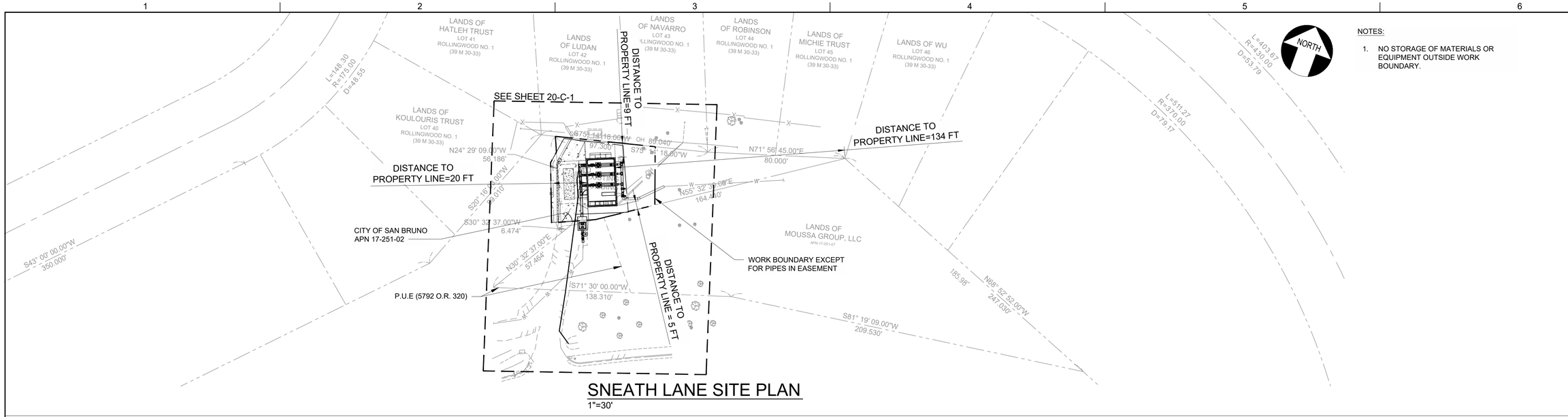
GENERAL
CIVIL LEGEND

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/03/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER G-11
SHEET NUMBER 11

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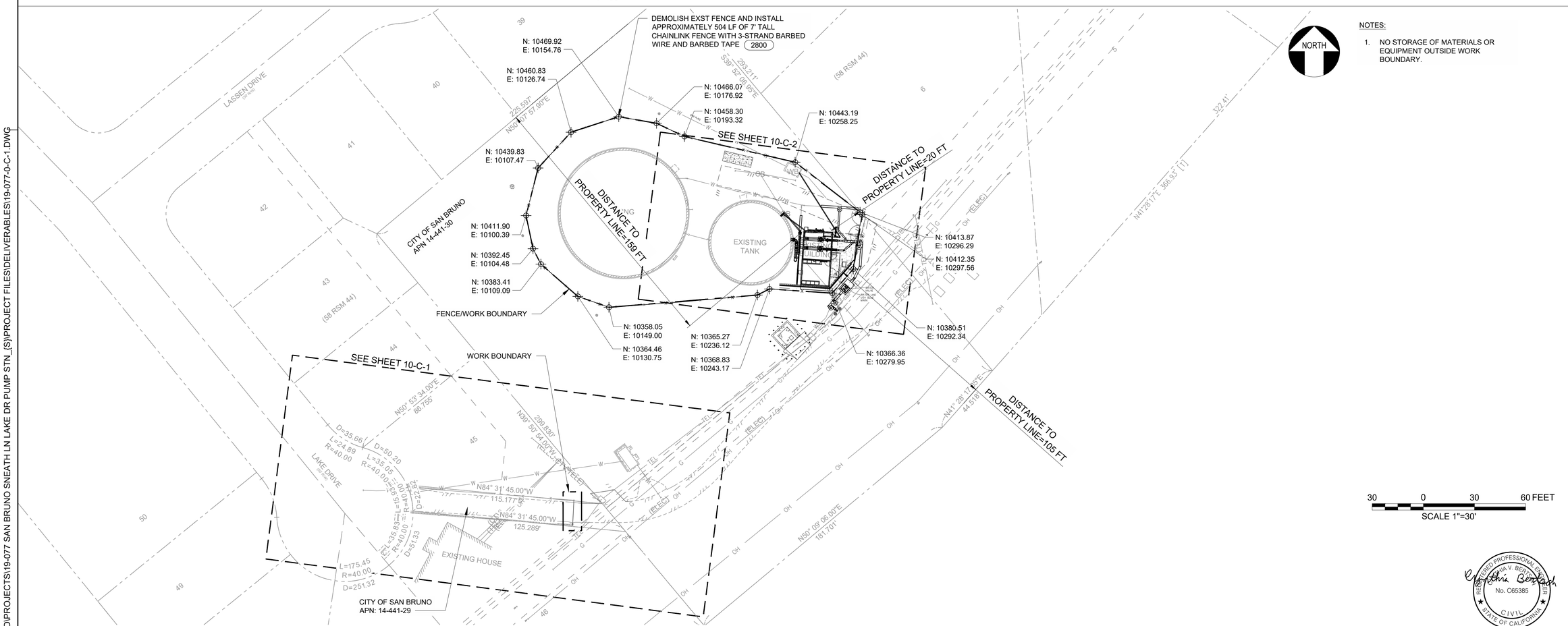


SNEATH LANE SITE PLAN

1"=30'

NOTES:

1. NO STORAGE OF MATERIALS OR EQUIPMENT OUTSIDE WORK BOUNDARY.



LAKE DRIVE SITE PLAN

1"=30'

NOTES:

1. NO STORAGE OF MATERIALS OR EQUIPMENT OUTSIDE WORK BOUNDARY.

30 0 30 60 FEET
SCALE 1"=30'

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

CITY OF SAN BRUNO

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 260 • San Mateo, CA 94402 • 650-539-3420

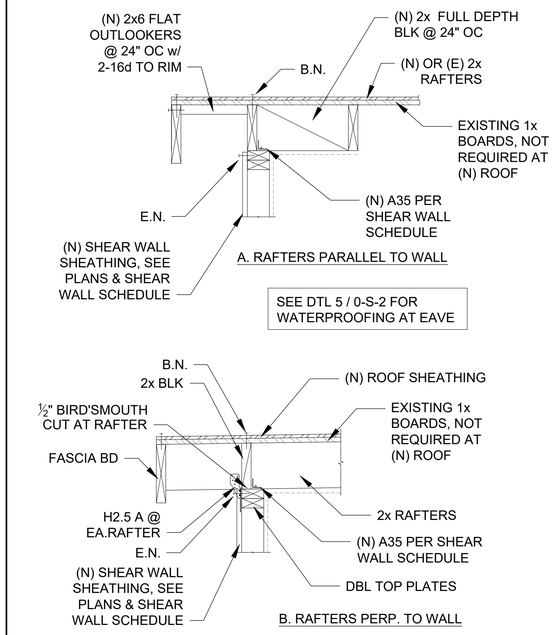
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
PUMP STATIONS OVERALL SITE PLAN

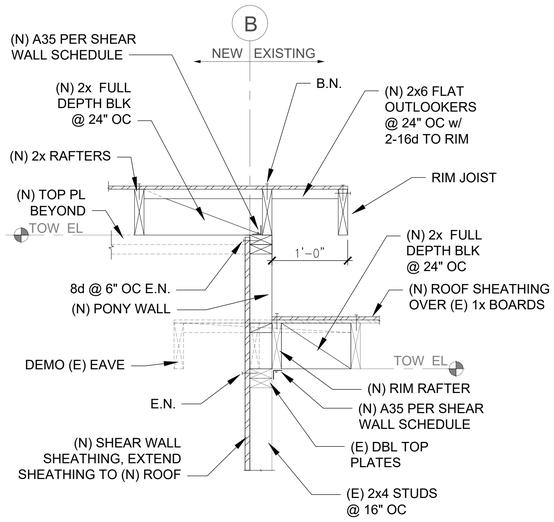
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 0-C-1
SHEET NUMBER 12

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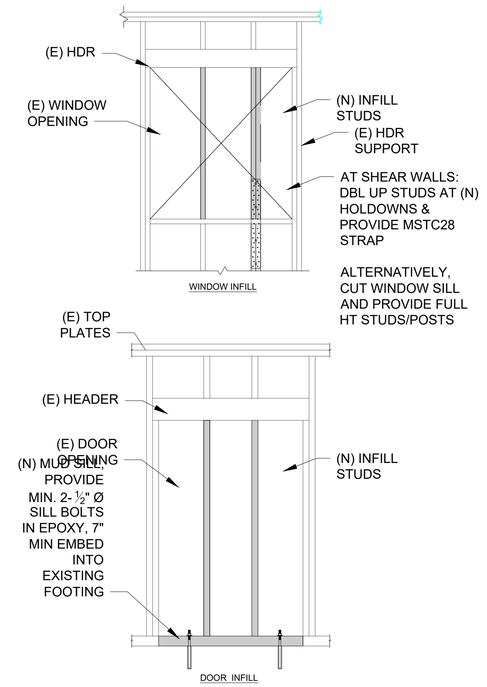
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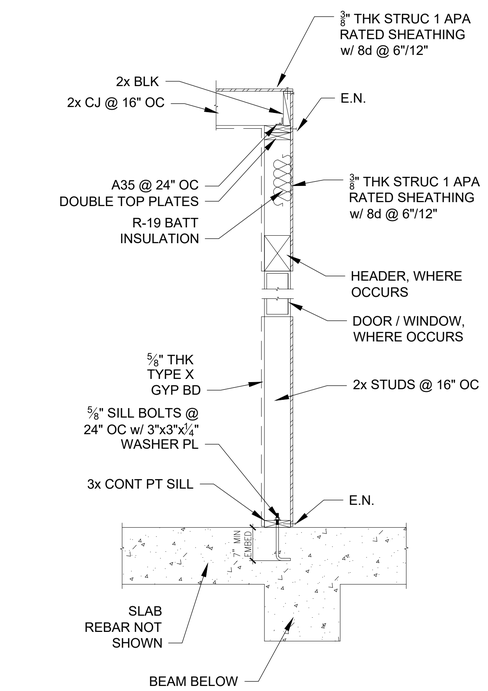
1 TYPICAL EAVE DETAIL
-- 1" = 1'-0"



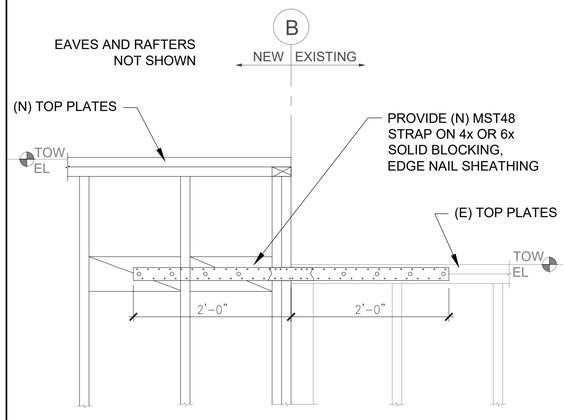
2 NEW TO EXISTING ROOF DETAIL AT LAKE DR
-- 1" = 1'-0"



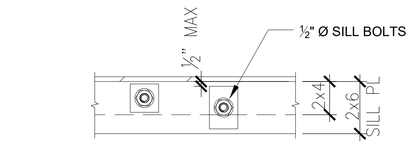
3 INFILL AT OPENING
-- 1" = 1'-0"



4 TYPICAL SHEAR TRANSFER DETAIL
-- 3/4" = 1'-0"

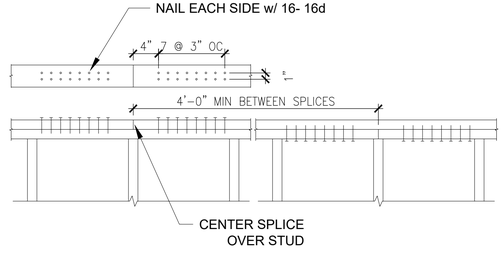


5 STRAP AT TOP PLATE AT LAKE DR
-- NTS

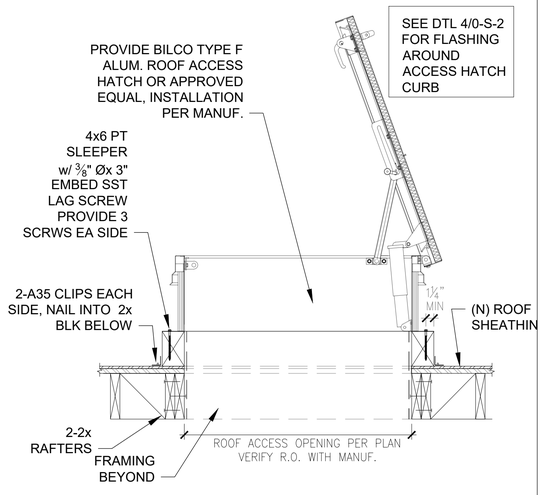


WASHER PLATE TO BE 3" MIN WIDE x ¼" THK
EDGE NOT MORE THAN ½" FROM SHEATHING

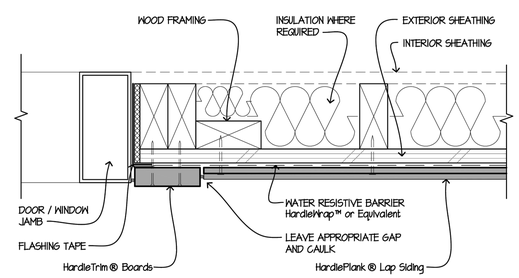
6 WASHER PLATE SIZE
-- 1 1/2" = 1'-0"



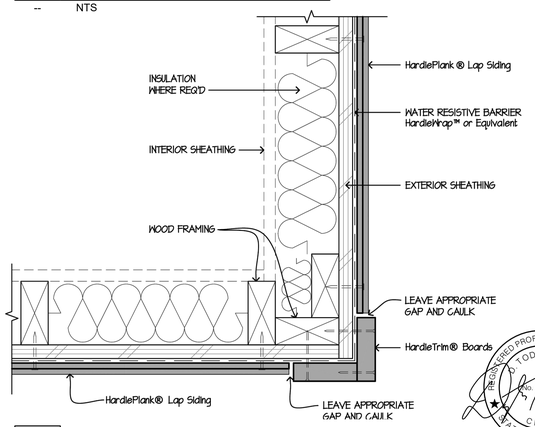
7 TOP PLATE SPLICE
-- 1" = 1'-0"



8 ROOF HATCH ATTACHEMENT
-- 1" = 1'-0"



9 DOOR / WINDOW JAMB
-- NTS



10 OUTSIDE CORNER
-- NTS

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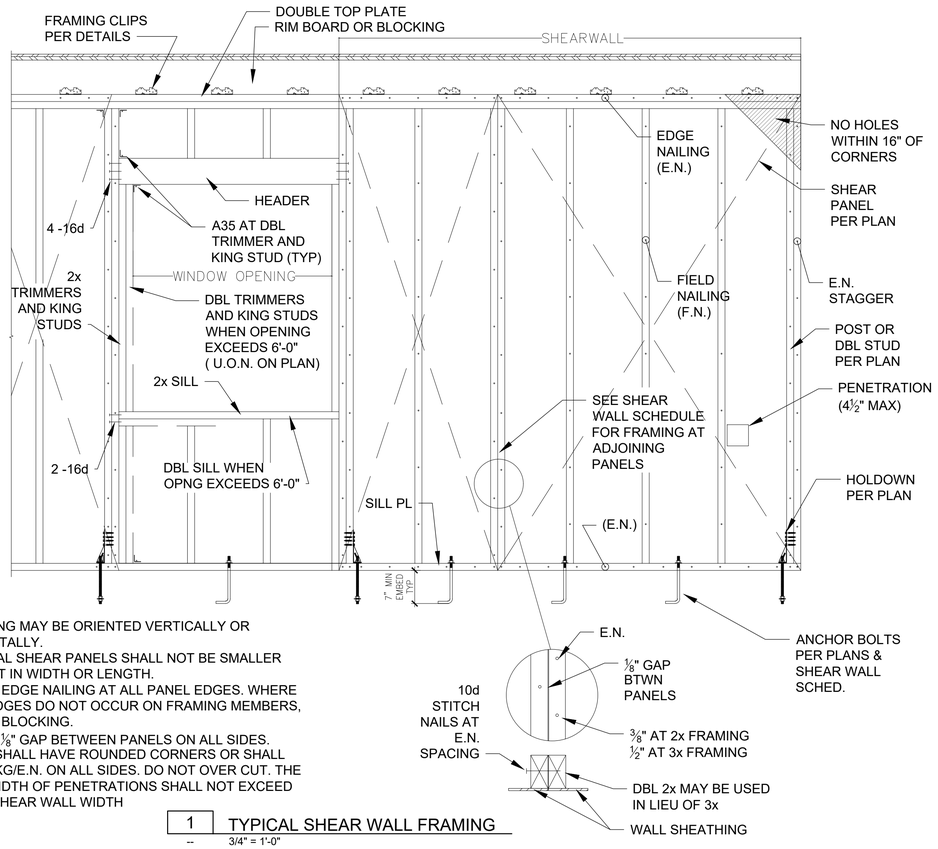
DESIGN
DRAWN
CHECKED
APPROVED

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
WOOD FRAMING DETAILS

DATE
JULY 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
0-S-1
SHEET NUMBER 13

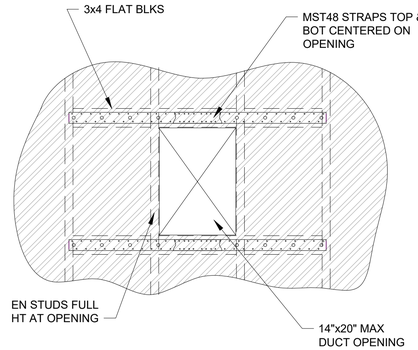
TODD KOSTY No. C84377 CIVIL STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER
01-05-2024



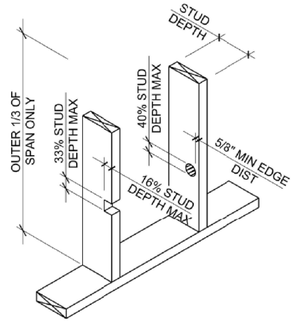
NOTES:

1. SHEATHING MAY BE ORIENTED VERTICALLY OR HORIZONTALLY.
2. INDIVIDUAL SHEAR PANELS SHALL NOT BE SMALLER THAN 2 FT IN WIDTH OR LENGTH.
3. PROVIDE EDGE NAILING AT ALL PANEL EDGES. WHERE PANEL EDGES DO NOT OCCUR ON FRAMING MEMBERS, PROVIDE BLOCKING.
4. PROVIDE ⅛" GAP BETWEEN PANELS ON ALL SIDES.
5. PANELS SHALL HAVE ROUNDED CORNERS OR SHALL HAVE BLKG/E.N. ON ALL SIDES. DO NOT OVER CUT. THE TOTAL WIDTH OF PENETRATIONS SHALL NOT EXCEED 20% OF SHEAR WALL WIDTH

1 TYPICAL SHEAR WALL FRAMING
-- 3/4" = 1'-0"

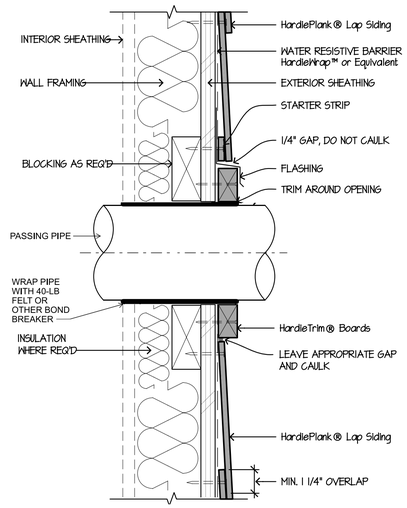


2 SHEAR WALL OPENING
-- 1" = 1'-0"

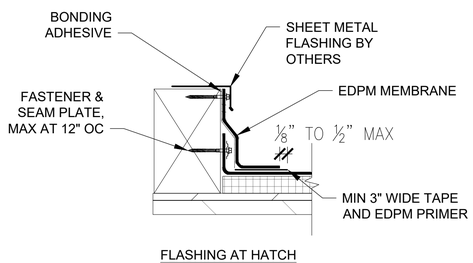


BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A CUT OR NOTCH

3 WOOD STUD CUTTING, NOTCHING & BORING LIMITS
-- NTS



8 WOOD STUD CUTTING, NOTCHING & BORING LIMITS
-- NTS

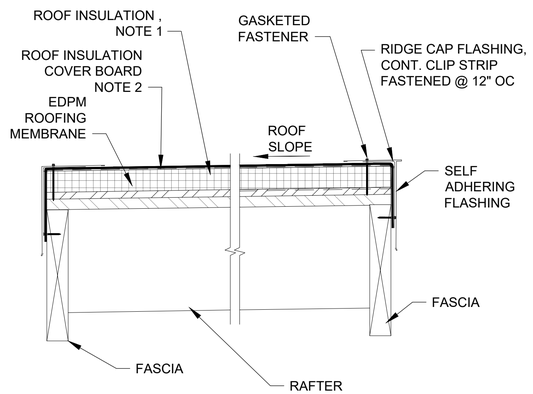


FLASHING AT HATCH

NOTES:

1. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER FLASHING, USE EDPM WASHERS, APPLY WATER CUT OFF MASTIC UNDER THE COUNTER-FLASHING OR CAULK THE FASTENER HEADS.
2. LAP SEALANT IS REQUIRED ON CUT-EDGES OF REINFORCED MEMBRANE.
3. MEMBRANE SPLICES SHALL INCORPORATE 6" WIDE SECURE TAPE.

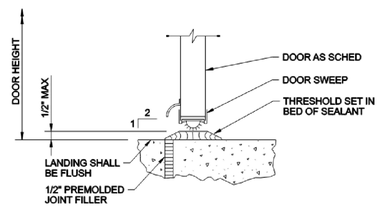
4 FLASHING AT ACCESS HATCH CURB
-- 1-1/2" = 1'-0"



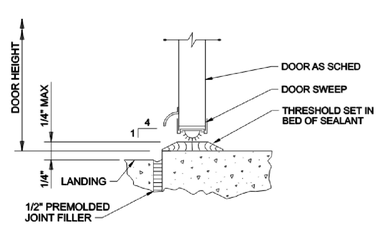
NOTES:

1. ROOF INSULATION SHALL BE MIN 2" THK STYROFOAM BRAND DECKMATE PLUS OR EQUAL. TAPER TOP LAYER TO MATCH ROOF SLOPE PER PLANS. ATTACHMENT SHALL BE PER SPEC SECTION 07 22 03-2.3 A AND MANUFACTURER'S INSTALLATION GUIDE
2. ROOF INSULATION COVER BOARD SHALL BE ½" THK MIN DENSDECK PRIME BY GEORGIA PACIFIC OR EQUAL

5 WATERPROOFING AT EAVE
-- 1-1/2" = 1'-0"

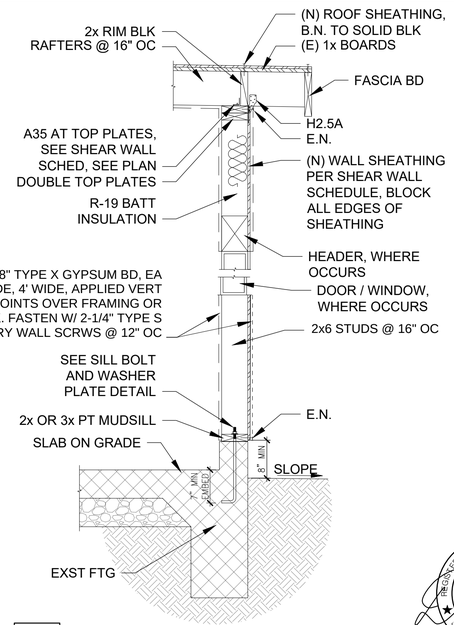


FLUSH LANDING - TYPE A



OFFSET LANDING - TYPE B

6 DOOR THRESHOLD
-- NTS



7 TYPICAL 1 HOUR RATED SHEAR WALL
-- 3/4" = 1'-0"

DESIGN
DRAWN
CHECKED
APPROVED

CITY OF SAN BRUNO

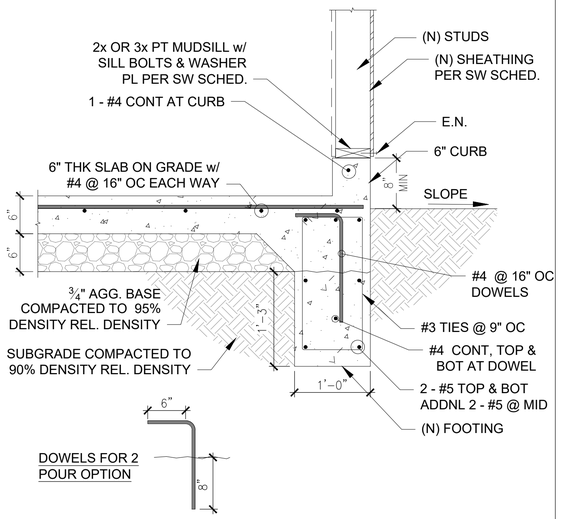
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280•San Mateo, CA 94402•650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

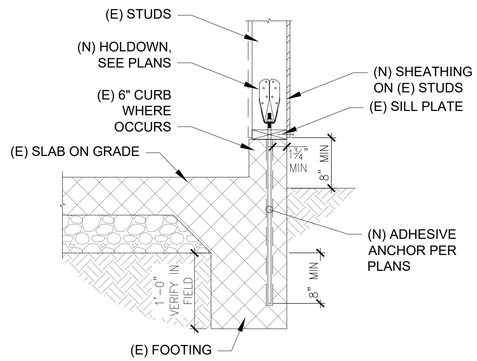
STRUCTURAL
WOOD FRAMING DETAILS

REGISTERED PROFESSIONAL ENGINEER TODD KOREY NO. C66187 CIVIL STATE OF CALIFORNIA
01-05-2024

DATE JANUARY 2024
PROJECT NUMBER 19-077
DRAWING NUMBER 0-S-2
SHEET NUMBER 14



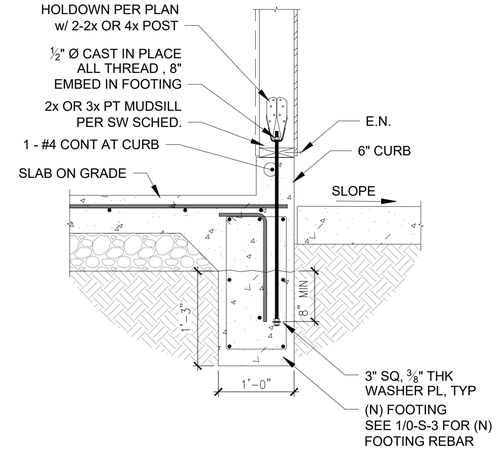
1 (N) PERIMETER FOOTING AT LAKE DR.
-- 1" = 1'-0"



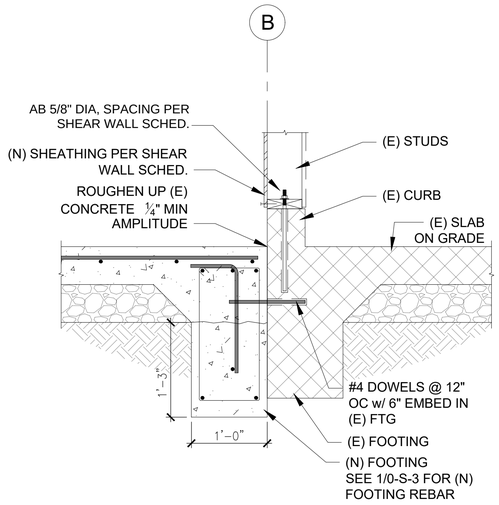
ADHESIVE ANCHOR NOTES

1. USE SIMPSON'S SET 3G OR HILTI HY 200 AND INSTALL PER MANUF. INSTRUCTIONS AND ICC ESR 2508
2. MIN. EMBEDMENT AND EDGE DISTANCE SHALL NE AS SHOWN IN DETAIL.
3. SPECIAL INSPECTIONS IN ACCORDANCE WITH CBC SECTION 1701 AND ICC ESR 2508 IS REQUIRED.
4. ANCHOR ROD SHALL BE 5/8" Ø ALL THREAD, ASTM F1554 GR 36

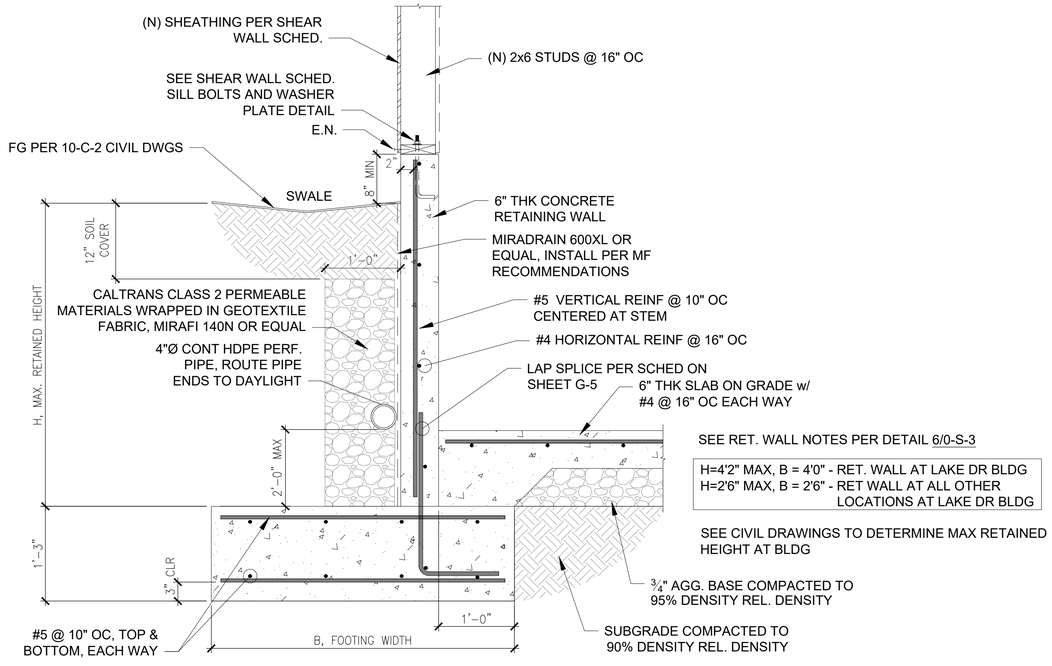
2 (N) HOLDOWN IN (E) FTF AT LAKE DR & SNEATH LN
-- 1" = 1'-0"



3 HOLDOWN IN (N) FOOTING AT LAKE DR.
-- 1" = 1'-0"



4 (N) TO (E) FOOTING AT LAKE DR.
-- 1" = 1'-0"

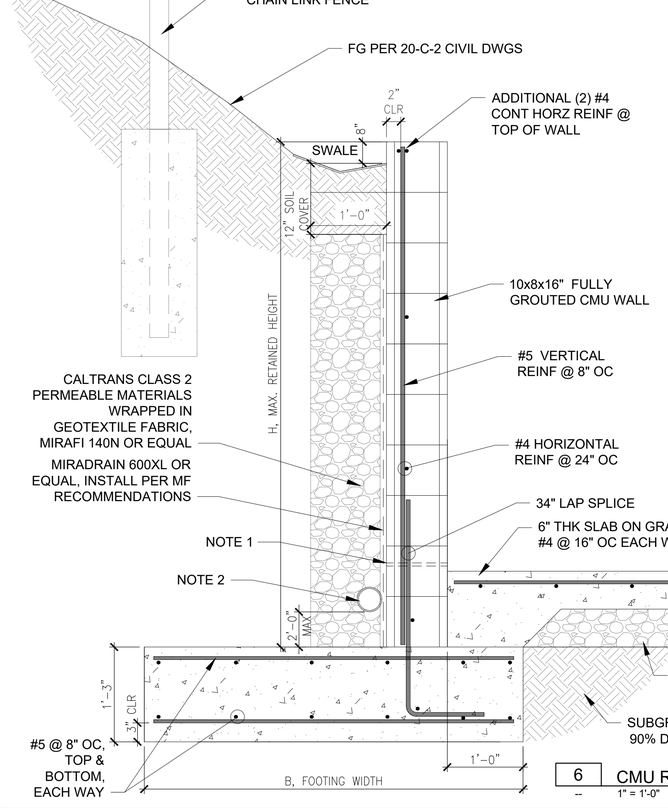


SEE RET. WALL NOTES PER DETAIL 6/0-S-3

H=4'2" MAX, B = 4'0" - RET. WALL AT LAKE DR BLDG H=2'6" MAX, B = 2'6" - RET WALL AT ALL OTHER LOCATIONS AT LAKE DR BLDG

SEE CIVIL DRAWINGS TO DETERMINE MAX RETAINED HEIGHT AT BLDG

5 CONCRETE RETAINING WALL AT LAKE DR
-- 1" = 1'-0"



RETAINING WALL NOTES

1. 1½" DIA SCHED 40 HDPE WEEP HOLES @ 15'-0" MAX, INSTALL + 6" ABOVE FG w/ SST OR ALUM MESH SCREEN ON BACKSIDE OF WALL. PROVIDE SAME SIZE PENETRATION THRU MIRADRAIN FABRIC @ EA WEEP HOLE LOCATION.
2. 4" DIA CONT HDPE PERFORATED PIPE, ROUTE PIPE ENDS TO DAYLIGHT.
3. SEE 3305 FOR LOCATIONS WHERE EXISTING PIPES OR CONDUITS INTERSECT RETAINING WALL FOOTINGS.
4. PROVIDE CRACK CONTROL JOINTS @ 20'-0" OC MAX PER DETAIL 4100/SD4

H=6'8" MAX, B = 5'6" - RET. WALL AT SNEATH LN BLDG H=2'6" MAX, B = 2'6" - RET WALL AT ALL OTHER LOCATIONS AT SNEATH LN BLDG

SEE CIVIL DRAWINGS TO DETERMINE MAX RETAINED HEIGHT AT BLDG

6 CMU RETAINING WALL AT SNEATH LN
-- 1" = 1'-0"

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280•San Mateo, CA 94402•650-539-3420

DESIGN | DRAWN | CHECKED | APPROVED

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
CONCRETE & MASONRY DETAILS

DATE JANUARY 2024
PROJECT NUMBER 19-077
DRAWING NUMBER 0-S-3
SHEET NUMBER 15



GENERAL HVAC NOTES

1. SIZES OF EQUIPMENT PADS SHOWN ON THE DRAWINGS ARE APPROXIMATE. DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FOR THE EQUIPMENT FURNISHED. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL DRAWINGS AND/OR STANDARD DETAILS.
2. DIELECTRIC COUPLINGS, FLANGES, OR UNIONS SHALL BE INSTALLED AT ALL CONNECTIONS OF COPPER PIPE TO OTHER TYPES OF METALLIC PIPING.
3. HVAC DRAWINGS MAY NOT SHOW ALL DRAINS, VENTS, OFFSETS, FITTINGS, ETC. REQUIRED FOR THE COMPLETE SYSTEM. SMALL PIPING IS SHOWN APPROXIMATELY TO SCALE, HOWEVER NOT EVERY FITTING AND OFFSET MAY BE SHOWN.
4. THE CONTRACTOR SHALL FURNISH, INSTALL, AND TEST ALL HVAC SYSTEMS TO PROVIDE THE COMPLETE SYSTEM.
5. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, ALL FLOOR SLABS AND WALL PENETRATIONS SHALL BE MADE USING THE APPROPRIATE THE STANDARD DETAILS.
6. NOT ALL, AND ONLY CERTAIN TYPES, OF SUPPORTS ARE SHOWN ON THE HVAC DRAWINGS. UNLESS OTHERWISE DETAILED ON THE DRAWINGS, ALL PIPE AND DUCT SUPPORTS SHALL BE DESIGNED, FURNISHED, AND INSTALLED BY THE CONTRACTOR AS SPECIFIED.
7. STANDARD DETAILS SHALL BE USED FOR ALL PERMANENT WORK EVEN THOUGH THEY ARE NOT CALLED OUT AT ALL LOCATIONS WHERE THEY APPLY.
8. PROVIDE TURNING VANES IN ALL ELBOWS, WHETHER OR NOT SHOWN ON DRAWINGS.
9. PROVIDE FLEXIBLE CONNECTIONS TO HVAC EQUIPMENT, UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SPECIFICATIONS.
10. DUCTWORK DIMENSIONS NOTED ARE FOR INSIDE DUCT MEASUREMENTS.
11. PROVIDE A COPY OF A CERTIFIED AIR BALANCE REPORT TO THE OWNER PRIOR TO THE FINAL INSPECTION. THIS REPORT SHALL BE CONDUCTED BY A THIRD PARTY CERTIFIED TO CONDUCT AN AIR BALANCE AND AS APPROVED BY THE ENGINEER OF RECORD. THE REPORT SHALL DEMONSTRATE THAT THE MECHANICAL SYSTEM WILL MEET THE DESIGN CALCULATIONS AS INDICATED IN THE CONTRACT DOCUMENTS.
12. CONTRACTOR SHALL COORDINATE ALL HVAC WORK WITH OTHER DISCIPLINES.
13. ALL CUTTING AND PATCHING OF WALLS, FLOORS AND ROOFS, AS REQUIRED TO INSTALL DUCTWORK, EQUIPMENT, ETC. SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
14. THE CONTRACTOR SHALL PROVIDE ALL METHODS AND MATERIALS FOR SUPPORTING ALL EQUIPMENT AND DUCTWORK FURNISHED UNDER THIS CONTRACT. IN AREAS OF BAR JOIST CONSTRUCTION, ALL PIPING, DUCTWORK, AND SUSPENDED EQUIPMENT WITH A CONCENTRATED LOAD (I.E. HANGERS IN EXCESS OF 150 LBS) SHALL BE SUPPORTED FROM THE TOP CHORD OF THE BAR JOIST. DO NOT HANG ANY PIPING OR DUCTWORK FROM THE ROOF DECK.
15. VERIFY THE FINAL MOUNTING HEIGHTS AND LOCATIONS OF LOUVERS, BRICK VENTS, CABINET HEATERS, SIDEWALL GRILLES AND RESISTERS, AND ALL OTHER VISIBLE EQUIPMENT WITH THE ARCHITECTURAL INTERIOR AND EXTERIOR ELEVATIONS.
16. ALL ADJUSTABLE THERMOSTATS, SENSORS AND SWITCHES INTENDED FOR NORMAL USE BY THE BUILDING'S OCCUPANTS SHALL BE MOUNTED 48 INCHES AT FINISHED FLOOR TO THE TOP OF THE DEVICE IN ACCORDANCE WITH ADA REQUIREMENTS.
17. DO NOT UTILIZE HVAC EQUIPMENT FURNISHED UNDER THIS CONTRACT AS A MEANS OF TEMPORARY HEAT DURING CONSTRUCTION. OBTAIN WRITTEN APPROVAL FROM THE ENGINEER OR OWNER PRIOR TO PLACING EQUIPMENT IN CONTINUOUS OPERATION.
18. PROVIDED ELEVATIONS ARE FOR REFERENCE ONLY. FINAL ELEVATIONS ARE SUBJECT TO ACTUAL FIELD CONDITIONS. CONTRACTOR SHALL FIELD VERIFY CLEARANCES AND DIMENSIONS PRIOR TO FABRICATING AND INSTALLING DUCTWORK AND EQUIPMENT. CONTRACTOR SHALL COORDINATE DUCT AND EQUIPMENT INSTALLATIONS WITH ALL OTHER TRADES TO AVOID INTERFERENCE WITH LIGHT FIXTURES, STRUCTURES, ETC.
19. PROVIDE SECURITY BARS ON PENETRATIONS 18 INCHES AND LARGER AS INDICATED ON DRAWINGS.
20. FIRE SYSTEM CONTROLS: THE CERTIFIED FIRE PROTECTION ALARM SYSTEM SUPPLIER / INSTALLER SHALL PROVIDE ALL NECESSARY PROGRAMING, CONDUIT AND WIRE, CONTACTS/RELAYS AND ANY ADDITIONAL EQUIMENT NECESSARY TO PROVIDE A COMPLETE SHUTDOWN OF ALL HVAC EQUIPMENT IN THE EVENT OF AN ALARM EVENT.
21. THIS SCOPE WILL INCLUDE ANY REQUIRED MODIFICATIONS OF AN EXISTING OR NEW FACP PANELS AND FIRE ALARM SYSTEM TO INTERFACE WITH HVAC EQUIPMENT STARTERS AND CONTROLLERS.
22. THE FIRE ALARM SYSTEM SUPPLIER SHALL COORDINATE WITH THE HVAC CONTRACTOR TO ENSURE A COMPLETE SHUTDOWN OF THEIR EQUIPMENT DURING A FIRE ALARM EVENT.
23. THE HVAC CONTRACTOR SHALL ENSURE THAT A SHUTDOWN SIGNAL RECEIVED AT ALL HVAC EQUIPMENT ARE EFFECTIVELY SHUT DOWN WITH ALL COMPONETS OF THAT EQUIPMENT.

HVAC SYMBOLS

- ACCESS DOOR, VERTICAL OR HORIZONTAL (AD)
- FLEXIBLE CONNECTION
- FLEXIBLE DUCTWORK (OR)
- TRANSITION ROUND TO SQUARE
- TURNING VANES (RECTANGULAR)
- TURNING VANES (RECTANGULAR), SMOOTH RADIUS
- GOOSENECK HOOD (COWL)
- VANES-EXTRACTOR
- DUCT HEATER (DH-01)
- DIRECTION OF SUPPLY AIR FLOW
- DIRECTION OF RETURN AIR FLOW
- DOOR UNDERCUT (UC)
- EXHAUST-CEILING
- FLOW CONTROL VALVE
- FLOW SWITCH (FS)
- REMOTE THERMOSTAT (T/AHU-01)
- AIR FILTER (F)
- AIRFLOW MONITOR (AFM)
- AUTOMATIC AIR VENT
- BALL VALVE-NORMALLY CLOSED
- DIFFERENTIAL PRESSURE SWITCH (DPS)
- CONTROL SWITCH (S/EF-01)
- SUCTION DIFFUSER
- DUCT SMOKE DETECTOR

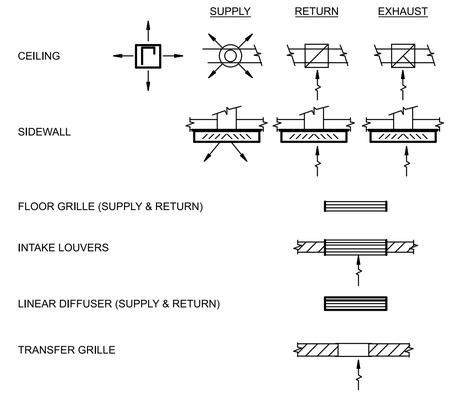
- DOOR UNDERCUT (UC)
- EXHAUST-CEILING
- FLOW CONTROL VALVE
- FLOW SWITCH (FS)
- REMOTE THERMOSTAT (T/AHU-01)
- AIR FILTER (F)
- AIRFLOW MONITOR (AFM)
- AUTOMATIC AIR VENT
- BALL VALVE-NORMALLY CLOSED
- DIFFERENTIAL PRESSURE SWITCH (DPS)
- CONTROL SWITCH (S/EF-01)

- POWER OR GRAVITY ROOF VENTILATOR (SRF)
- DUCT THERMOSTAT (T)
- DUCT HUMIDISTAT (H)
- INTERNALLY INSULATED SHEET METAL DUCT
- HIDDEN SHEET METAL DUCT
- HUMIDISTAT (ELECTRIC) (H/EC-01)
- ROUND ELBOW UP
- ROUND ELBOW DOWN
- SMOKE DETECTOR (SD)
- FAN - BLOWER
- POWER OR GRAVITY ROOF VENTILATOR - EXHAUST (ERV)

DAMPERS

- VOLUME DAMPER (VD)
- FIRE DAMPER (VERTICAL)
- MOTORIZED (M)
- SMOKE DAMPER (VERTICAL)
- COMBINATION SMOKE / FIRE DAMPER WITH SMOKE DETECTION (VERTICAL)
- FIRE DAMPER (HORIZONTAL)
- SMOKE DAMPER (HORIZONTAL)
- COMBINATION SMOKE / FIRE DAMPER WITH SMOKE DETECTION (HORIZONTAL)
- BACKDRAFT (BDD)

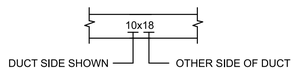
REGISTERS OR GRILLES



DUCT LINEWORK

	SUPPLY	RETURN	EXHAUST
DUCT THRU ROOF OR FLOOR			
DUCT UP			
DUCT DOWN			

DUCT DIMENSIONS



DUCT HEIGHT

T 10'-0"
B 9'-4"

- TD 6" — TOP OF DUCT FITTING DOWN 6"
- TU 6" — TOP OF DUCT FITTING UP 6"
- BD 6" — BOTTOM OF DUCT FITTING DOWN 6"
- BU 6" — BOTTOM OF DUCT FITTING UP 6"

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/05/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

HVAC
HVAC LEGEND, NOTES AND SCHEDULES

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 0-H-1
SHEET NUMBER 16

BENCHMARK:

CITY OF SAN BRUNO BM SB-17
A 2" BRASS MONUMENT STAMPED "CITY OF SAN BRUNO, PUBLIC WORKS, HVCN SB-17", SET IN TOP OF CURB ON FLEETWOOD DRIVE AT CURB RETURN, 2' EASTERLY OF DRIVEWAY.

ELEVATIONS SHOW HERON ARE BASED ON NAVD88. TO CONVERT TO NGVD29 SUBTRACT 3.461 FEET FROM THE ELEVATIONS SHOW. DATUM CONVERSION WAS OBTAINED FROM THE CITY OF SAN BRUNO HORIZONTAL AND VERTICAL NETWORK POINT DATA SHEET FOR BM SB-17

BASIS OF BEARINGS:
THE BEARING OF NORTH 39° 06' 26" WEST TAKEN ON THE CENTER LINE OF LAKE DRIVE AS SHOWN ON THAT CERTAIN MAP ENTITLED "PORTOLA HIGHLANDS NO. 2", FILED FOR RECORD ON SEPTEMBER 26, 1963, IN BOOK 58 OF MAPS AT PAGE(S) 44 AND 45, OFFICIAL RECORDS OF SAN MATEO COUNTY WAS TAKEN AS THE BASIS FOR ALL BEARINGS SHOWN HEREON.

CORNER RECORD NOTE:
THE DEVELOPER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND FILING OF PRE-CONSTRUCTION AND POST-CONSTRUCTION CORNER RECORDS FOR ANY MONUMENTS OR PROPERTY CORNERS SHOWN HEREON THAT MAY BE DESTROYED DURING IMPROVEMENTS TO THE SUBJECT PROPERTY AS DEFINED IN SECTION 8771(B) OF THE PROFESSIONAL LAND SURVEYORS ACT.

5 0 5 10 FEET
SCALE 1"=5'

01/03/2024

DESIGN C BERTSCH
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED M FISHER

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

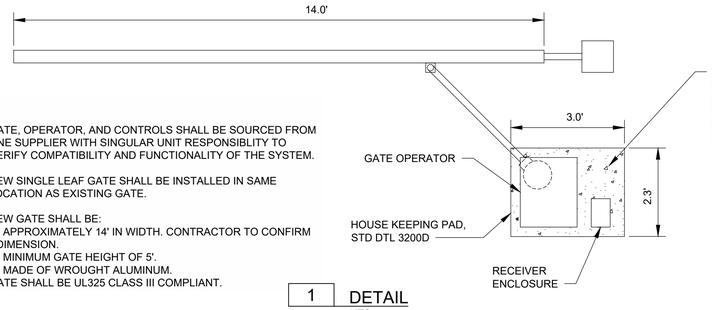
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
EXISTING UTILITIES
LAKE PUMP STATION

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-U-1
SHEET NUMBER 17

JOB NUMBER: 00-000 FILENAME: 19-077-10-U-1.DWG PLOT DATE: 12/29/23 PLOT TIME: 16:47:46

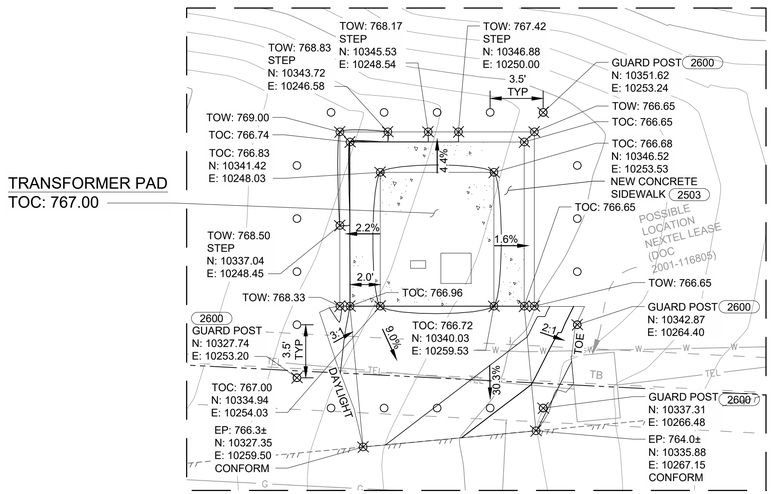
L:\CAD\PROJECTS\19-077 SAN BRUNO SNEATH LN LAKE DR PUMP STN_(S)\PROJECT FILES\DELIVERABLES\19-077-10-U-1.DWG



NOTES:

1. GATE, OPERATOR, AND CONTROLS SHALL BE SOURCED FROM ONE SUPPLIER WITH SINGULAR UNIT RESPONSIBLITY TO VERIFY COMPATIBILITY AND FUNCTIONALITY OF THE SYSTEM.
2. NEW SINGLE LEAF GATE SHALL BE INSTALLED IN SAME LOCATION AS EXISTING GATE.
3. NEW GATE SHALL BE:
   - APPROXIMATELY 14' IN WIDTH. CONTRACTOR TO CONFIRM DIMENSION.
   - MINIMUM GATE HEIGHT OF 5'.
   - MADE OF WROUGHT ALUMINUM.
4. GATE SHALL BE UL325 CLASS III COMPLIANT.

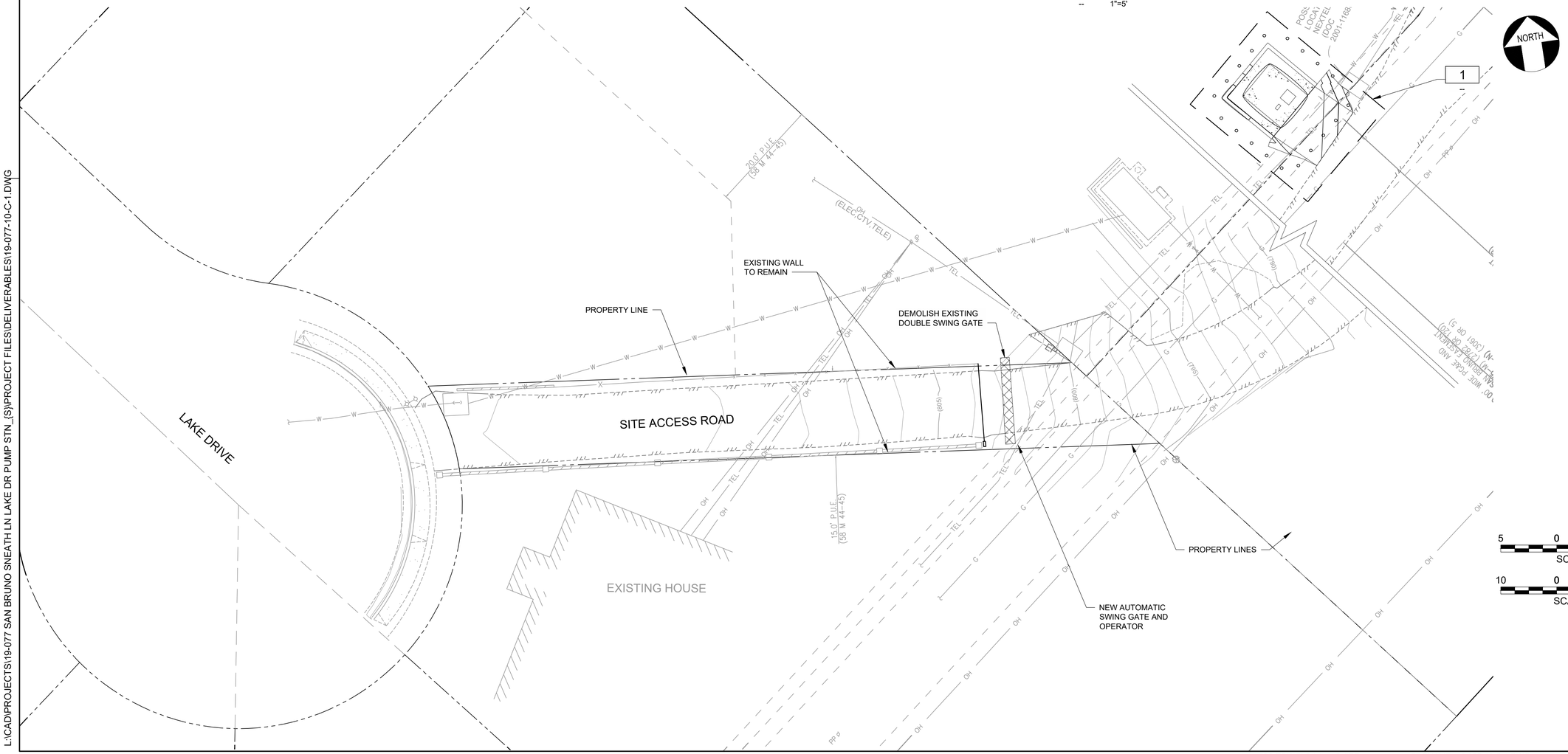
1 DETAIL
-- NTS



1 DETAIL
-- 1"=5'

NOTES:

1. NO LAYDOWN OF MATERIAL ALLOWED ON SITE ACCESS ROAD.



REGISTERED PROFESSIONAL ENGINEER
CHRISTINA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 260 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
LAKE PUMP STATION DRIVEWAY

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-C-1
SHEET NUMBER 18

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JOB NUMBER: 19-077 FILENAME: 19-077-10-C-1.DWG PLOT DATE: 06/30/25 PLOT TIME: 14:42:51

NORTH

1 0 1 2 FEET
SCALE 1"=1'

5 0 5 10 FEET
SCALE 1"=5'

NOTES:

1. SEE MECHANICAL PLANS FOR PIPING MODIFICATIONS.
2. SEE STRUCTURAL PLANS FOR STRUCTURE MODIFICATIONS.
3. SEE 0-S-3 DETAIL 5 FOR RETAINING WALL INFORMATION.

6'X18' GENERATOR PAD 3200E

EP: 754.6± CONFORM

RETAIN AND PROTECT EXISTING STORM DRAIN

EP: 754.2± CONFORM

EP: 754.4± CONFORM

NEW PAVED ACCESS

2.4%

6" SD @ 0.92%

EP: 754.5± CONFORM

CATCH BASIN
RIM: 753.49
INV OUT: 752.35 6"
INV IN: 753.12 6"

AC PAVEMENT 2501

NEW CHAINLINK DOUBLE-LEAF GATE 2800

NEW CHAINLINK DOUBLE -LEAF GATE

EP: 753.5± CONFORM

EP: 753.3± CONFORM

EP: 753.4± CONFORM

EP: 753.3± CONFORM

FL: 753.29

EP: 754.4± CONFORM

7.6%

4.4%

6" DRAIN @ 0.70%

6" 45° ELBOW
N: 10402.44
E: 10261.30
INV EL: 753.22

6" DRAIN @ 0.70%

FG: 753.87
N: 10402.80
E: 10263.34

FLOWLINE

TOC: 754.33

EP: 754.1± CONFORM

EP: 753.5± CONFORM

EP: 753.6± CONFORM

EP/FL: 753.92

EP: 754.3± CONFORM

EP: 754.3± CONFORM

EP: 754.25
N: 10389.56
E: 10284.70

FG: 753.77
N: 10399.53
E: 10261.10
INV EL: 753.24

20.8%

5.0%

9.0%

PAVEMENT CONNECTION 2502

14" PIPING, SEE DWG 10-M-1

TOC: 754.35
N: 10389.88
E: 10279.77

EP: 754.29
N: 10389.63
E: 10282.77

NEW 6' WIDE SINGLE-LEAF CHAINLINK ACCESS GATE 2802

5.3%

14.6%

FG: 753.87
N: 10385.76
E: 10262.29

EXISTING TANK

EXISTING BUILDING FF=754.37

NEW CONCRETE SIDEWALK 2503

EP: 754.71
N: 10384.33
E: 10291.69

SAWCUT INTO EXISTING PAVEMENT

FL: 754.06
N: 10388.82
E: 10286.65

13.5%

REMOVE AND REPLACE EXISTING PAVEMENT

INSTALL 6" DURA SLOPE CHANNEL DRAIN @ 0.70%

FG: 754.23
N: 10384.17
E: 10290.41

FL: 755.36

EP: 755.2± CONFORM

FL: 754.94

TOC: 754.35

DOOR LANDING 3202

NEW BUILDING EXTENSION FF=754.37

TYPE F AC DIKE 2760

FG: 754.6± CONFORM

EP: 755.4± N: 10382.99 E: 10292.81 CONFORM

FG: 753.87
N: 10371.23
E: 10261.36

FL: 753.76
N: 10371.37
E: 10259.21

EP: 755.6± CONFORM

FG: 754.5± N: 10372.01 E: 10249.23 CONFORM

TOC: 754.35

2.1%

4.8%

EP: 755.8± CONFORM

FL: 755.4± N: 10382.52 E: 10292.29 CONFORM

6.7%

13.8%

FLOWLINE

PERFORATED PIPE

RETAINING WALL, SEE DWG 10-C-3

5.8%

2.9%

EP/FL: 754.24
N: 10376.96
E: 10284.12

TOC: 757.83
N: 10371.18
E: 10292.99

FL: 754.7± N: 10369.51 E: 10249.07 CONFORM

FL: 758.07
N: 10368.50
E: 10264.89

FL: 757.6± N: 10367.59 E: 10279.27 CONFORM

VAULT AND PIPING, SEE DWG 10-M-1

TOC: 757.83
N: 10365.38
E: 10287.73

N: 10360.54
E: 10281.83

N: 10357.63
E: 10279.23

EXISTING 12' ACCESS ROAD

REPLACE EXISTING FENCE

NEW 7' TALL CHAINLINK FENCE WITH 3-STRAND BARBED WIRE AND BARDED TAPE 2800

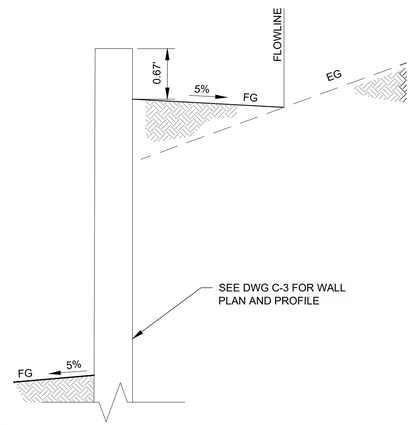
14"W

6"W

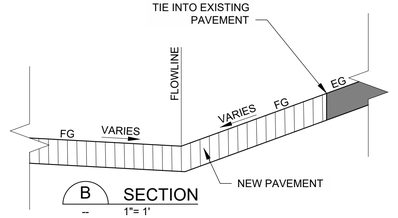
12"W

754

A SECTION
-- 1"= 1'



B SECTION
-- 1"= 1'



DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL

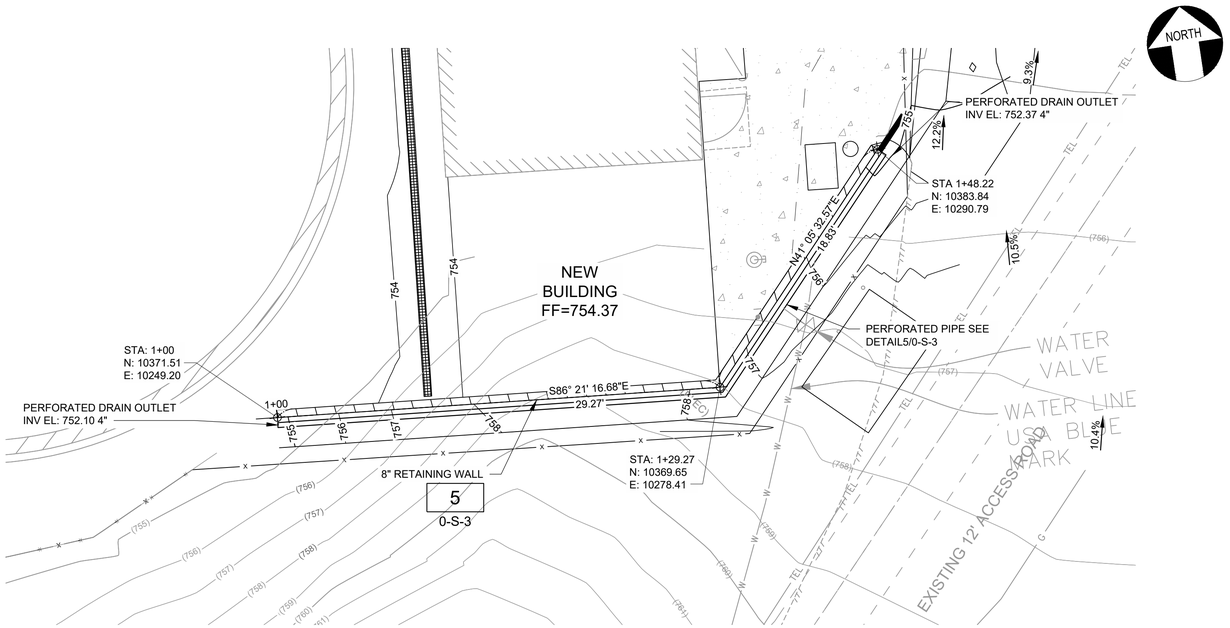
LAKE PUMP STATION PLAN

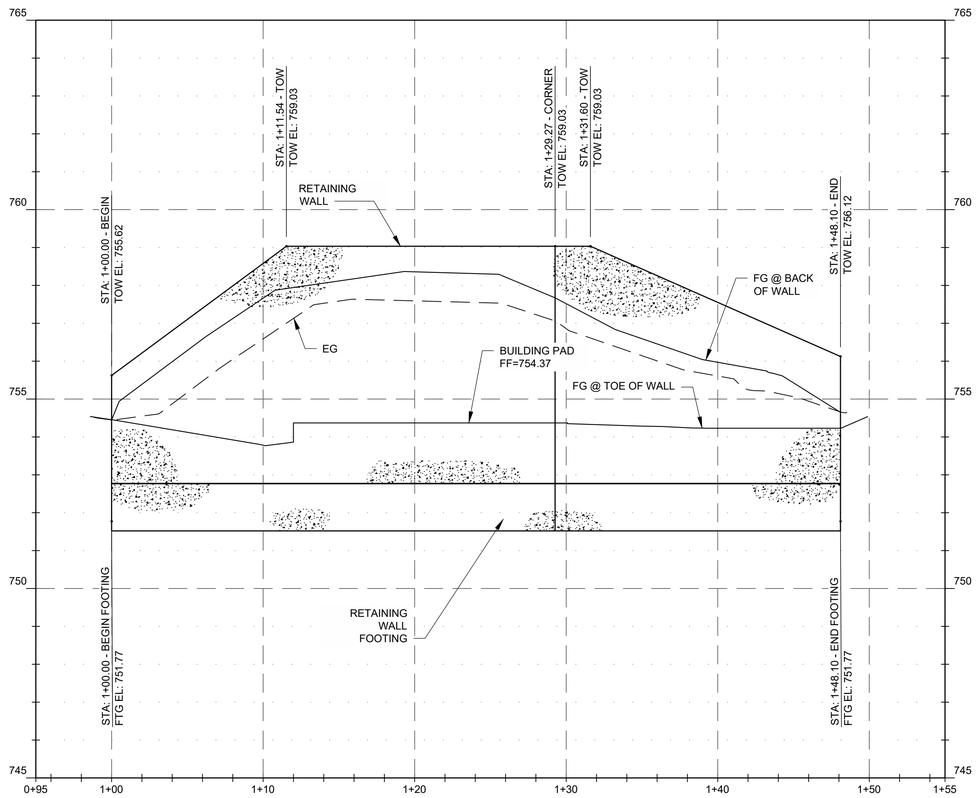
REGISTERED PROFESSIONAL ENGINEER
CHRISTINA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-C-2
SHEET NUMBER 19

L:\CAD\PROJECTS\19-077 SAN BRUNO SNEATH LN LAKE DR PUMP STN_(S)\PROJECT FILES\DELIVERABLES\19-077-10-C-2.DWG

JOB NUMBER: 19-077 FILENAME: 19-077-10-C-2.DWG PLOT DATE: 07/23/25 PLOT TIME: 08:12:20





NOTES:

1. SEE 0-S-3 DETAIL 5 FOR RETAINING WALL INFORMATION.

5 0 5 10 FEET
HORIZ SCALE 1"=5'

5 0 5 10 FEET
VERT SCALE 1"=5'

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

CITY OF SAN BRUNO

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 260 • San Mateo, CA 94402 • 650-539-3420

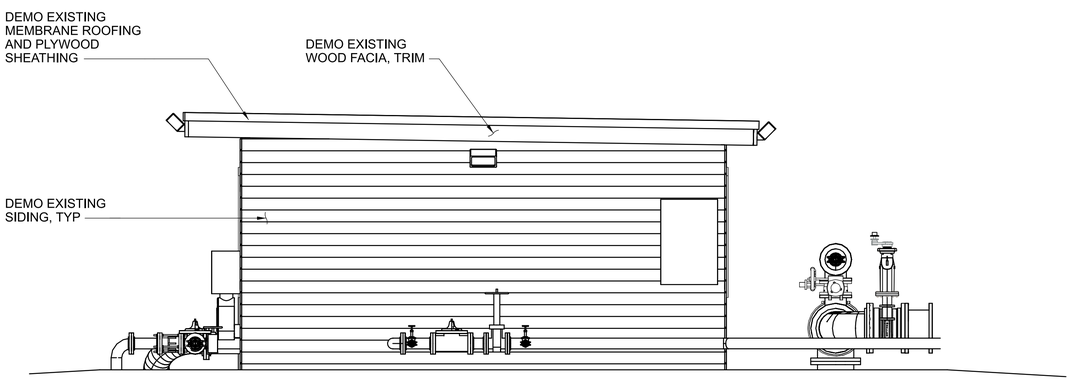
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
LAKE PUMP STATION
WALL PLAN AND PROFILE

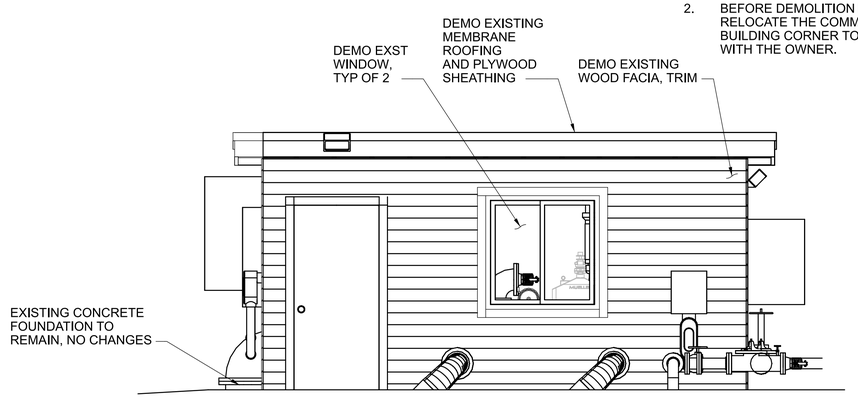
DATE
JULY 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
10-C-3
SHEET NUMBER 20

JOB NUMBER: 19-077 FILENAME: 19-077-10-C-3.DWG PLOT DATE: 06/30/25 PLOT TIME: 10:29:12

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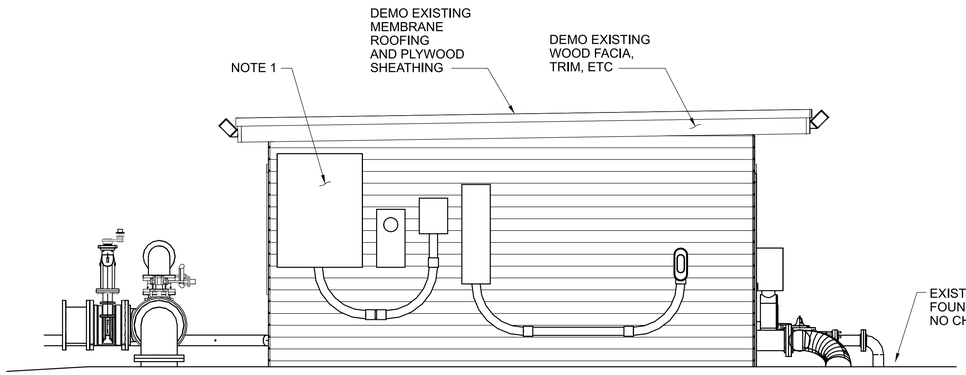
A NORTH ELEVATION
3/8" = 1'-0"
10-D-2



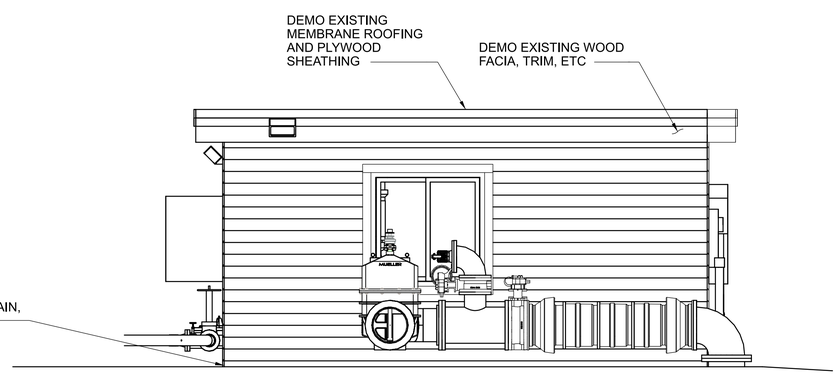
B EAST ELEVATION
3/8" = 1'-0"
10-D-2

NOTES:

1. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL EQUIPMENT AND LIGHTS TO REMAIN OR TO BE REPLACED. FOR ITEMS TO REMAIN, REMOVE TEMPORARILY TO FACILITATE BUILDING RESTORATION AND RE-INSTALL. ITEMS TO BE REPLACED SHALL BE SALVEGED AND TURNED OVER TO THE DISTRICT.
2. BEFORE DEMOLITION BEGINS, CONTRACTOR SHALL RELOCATE THE COMMUNICATION CABLE AT THE NORTHWEST BUILDING CORNER TO THE TANK ROOF IN COORDINATION WITH THE OWNER.



C SOUTH ELEVATION
3/8" = 1'-0"
10-D-2



D WEST ELEVATION
3/8" = 1'-0"
10-D-2

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

01/05/2024



DESIGNED H MEHERE
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

DEMOLITION

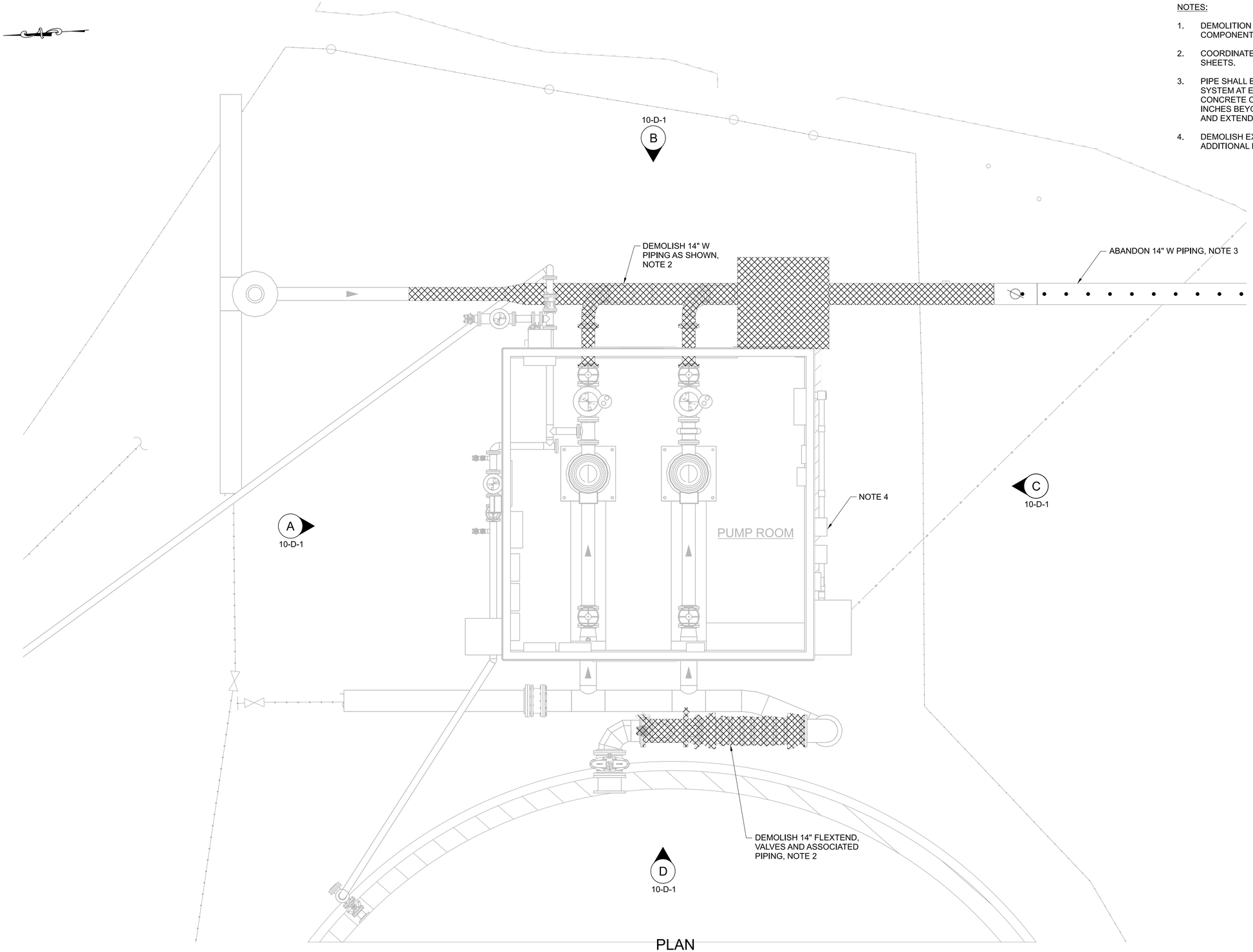
LAKE PUMP STATION ELEVATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-D-1
SHEET NUMBER 21

FILENAME: 1977D-10D400.DGN PLOT DATE: 10/22/2020 8:40:14 AM

NOTES:

1. DEMOLITION REQUIREMENTS OF SELECT BUILDING COMPONENTS/MATERIALS SHOWN ON 10-D-1.
2. COORDINATE DEMOLITION LIMITS WITH MECHANICAL SHEETS.
3. PIPE SHALL BE ABANDONED BY DISCONNECTING FROM SYSTEM AT EXTENT SHOWN, AND PLUGGING WITH A CONCRETE CAP WHICH PROTRUDES A MINIMUM OF 2-INCHES BEYOND THE OUTSIDE DIAMETER OF THE PIPE AND EXTENDING A MINIMUM OF 2-FEET INTO THE PIPE.
4. DEMOLISH EXST GROUNDING ROD. SEE 10-E-07 FOR ADDITIONAL ELECTRICAL DEMOLITION REQUIREMENTS.



PLAN
3/8" = 1'-0"

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

REGISTERED PROFESSIONAL ENGINEER
JONATHON TURBIN
No. C92341
CIVIL
STATE OF CALIFORNIA
01/04/2024

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

DEMOLITION
PIPING DEMOLITION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-D-2
SHEET NUMBER 22

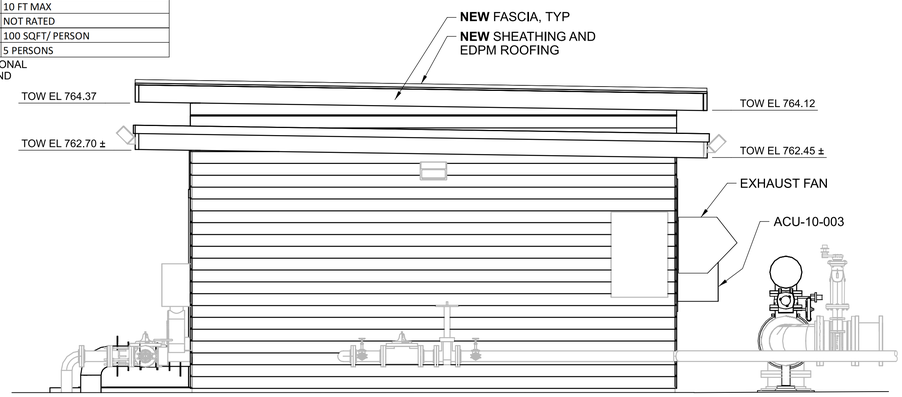
FILENAME: 1977D-10D101.dgn PLOT DATE: 10/22/2020 8:39:36 AM

BUILDING CODE ANALYSIS	
BUILDING CODE	2019 CALIFORNIA BUILDING CODE
OCCUPANCY CLASSIFICATION	U
HAZARDOUS MATERIALS	NONE
TYPE OF CONSTRUCTION	V-B
NUMBER OF STORIES ABV GRADE	1 STORY
BUILDING HT ABOVE GRADE	9'-9"
ACTUAL FLOOR AREA	544 SQ FT
FIRE SUPPRESSION	FIRE EXTINGUISHERS
FIRE SUPPRESSION DISTANCE	10 FT MAX
EXTERIOR WALLS	NOT RATED
OCCUPANT LOAD FACTOR	100 SQFT/ PERSON
OCCUPANT LOAD	5 PERSONS

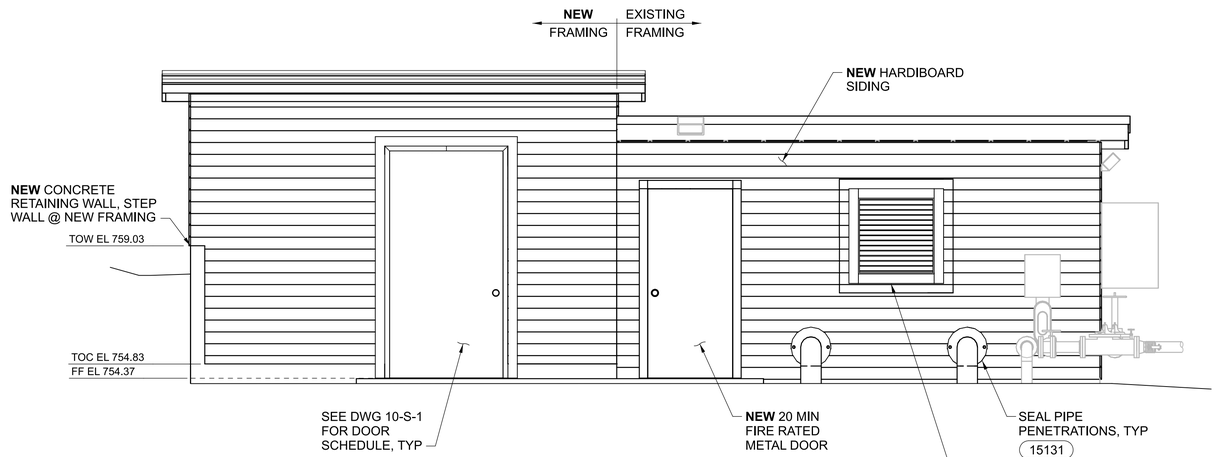
SEE DWG 10-S-1 FOR ADDITIONAL ARCHITECHTURAL NOTES AND DOOR SCHEDULE.

NOTES:

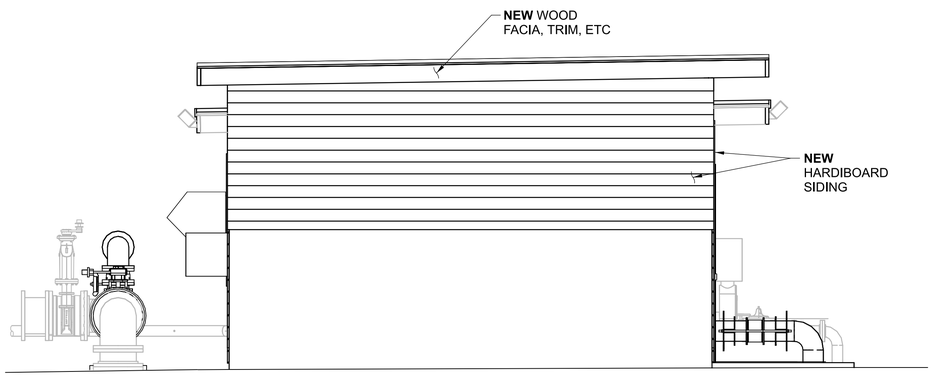
1. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL EQUIPMENT AND LIGHTS TO REMAIN OR TO BE REPLACED. FOR ITEMS TO REMAIN, REMOVE TEMPORARILY TO FACILITATE BUILDING RESTORATION AND RE-INSTALL. ITEMS TO BE REPLACED SHALL BE SALVAGED AND TURNED OVER TO THE DISTRICT.



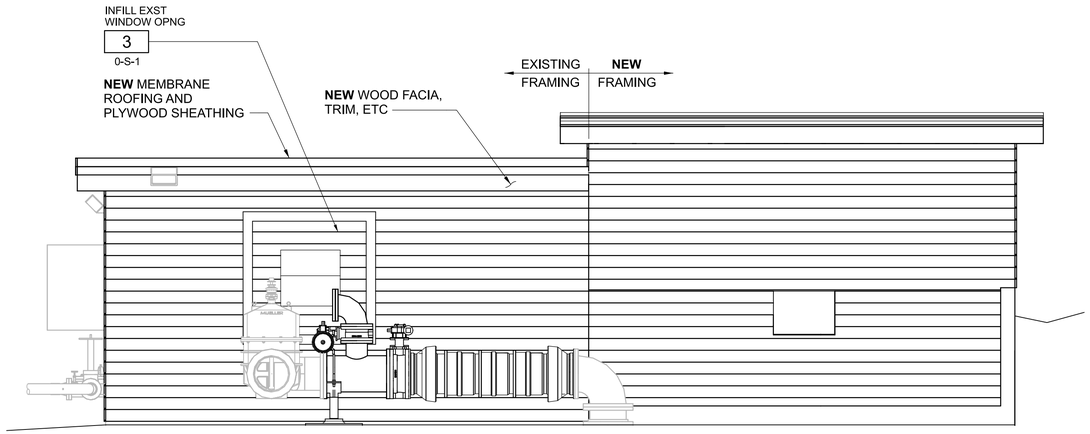
A 10-S-1 NORTH ELEVATION
3/8" = 1'-0"



B 10-S-1 EAST ELEVATION
3/8" = 1'-0"



C 10-S-1 SOUTH ELEVATION
3/8" = 1'-0"



D 10-S-1 WEST ELEVATION
3/8" = 1'-0"

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

02/06/2026

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ARCITECTURAL / STRUCTURAL

LAKE PUMP STATION ELEVATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-AS-1
SHEET NUMBER 23

FILENAME: 1977D-10AS401.DGN PLOT DATE: 10/22/2020 8:38:47 AM

GENERAL ARCHITECTURAL NOTES

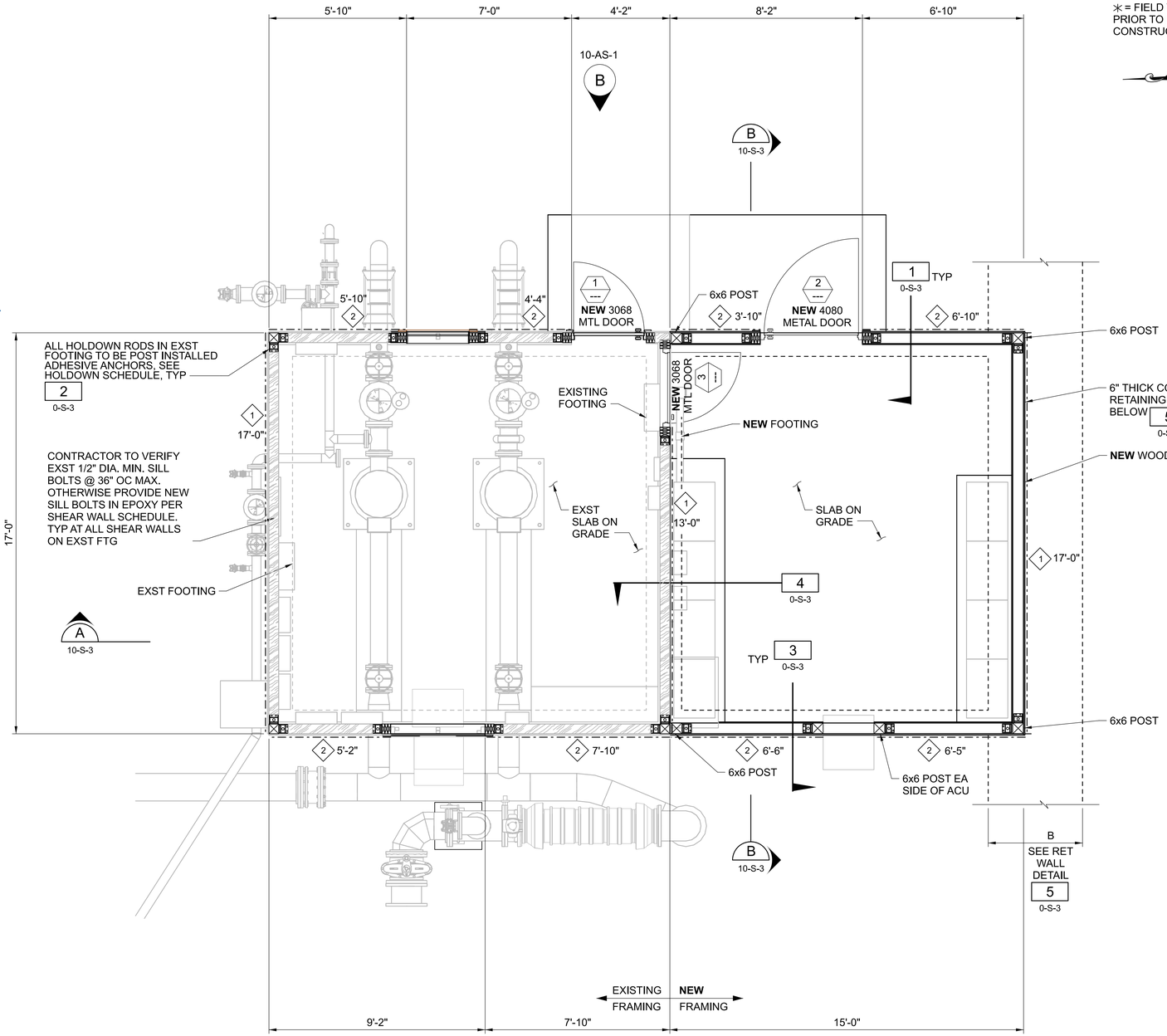
1. UNLESS OTHERWISE NOTES, PLAN DIMENSIONS ARE TO FACE OF STUDS.
2. REPETETIVE FEATURES ARE NOT DRAWIN IN THEIR ENTIRETY AND SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.
3. VERIFY ALL ROUGH IN DIMENSIONS FOR EQUIPMENT PROVIDED IN THIS CONTRACT, OR BY OTHERS.
4. REFER TO STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CATEGORIES OF DRAWINGS FOR ADDITIONAL NOTES.
5. VERIFY SIZE AND LOCATION OF, AND PROVIDE: ALL OPENINGS THROUGH FLOORS AND WALLS, ACCESS DOORS, FURRING, CURBS, ANCHORS AND INSERTS. PROVIDE ALL BASES, BLOCKING REQUIRED FOR ACCESSORIES, MECHANCIAL EQUIPMENT AND OTHER EQUIPMENT

DOOR SCHEDULE

DOOR NUMBER	DOOR DIMENSIONS	LITES	SILL DETAIL	EXIT DEVICE	WALL	CLOSURE	LOCK
1	3'-0" x 6'-8"	NR	5/0-S-2	NR	WOOD	R	R
2	4'-0" x 8'-0"	NR	5/0-S-2	NR	WOOD	R	R
3	3'-0" x 6'-8"	NR	5/0-S-2	NR	WOOD	NR	NR

NOTES

1. INSTALL DOORS AND FRAME IN ACCORDANCE WITH STEEL DOOR INSTITUTE'S RECOMMENDATIONS. PROVIDE TRIM AND JOINT SEALANT AROUND FRAMES TO ENSURE A WEATHER TIGHT BARRIER. SEE SPEC SECTION 08-13-03
2. SEE SPEC SECTION 08-71-03 DOOR HARDWARE FOR ALL DOOR HARDWARE INCLUDING EXIT DEVICES AND PRIVACY LATCHES. DOOR OPERATION SHALL BE PER CBC 1010.1.9. DOOR OPENING HARDWARE SHALL BE MOUNTED 34" TO 48" ABOVE FINSIHED FLOOR PER CBC 1010.1.9.2. DOOR THRESHOLD SHALL BE 3/4" MAX ABOVE FINISHED FLOOR PER CBC 1010.1.7. DOOR OPENING FORCE SHALL BE 5-POUND MAX PER CBC 11B-404.2.9
3. N=NARROW LITES; G=FULL GLASS; R=REQUIRED; NR=NOT REQUIRED



WALL LEGEND

EXST 2x4 OR 2x6 WALL

NEW 2x6 WALL

HOLDOWN SCHEDULE

UNLESS OTHERWISE NOTED ON PLANS, PROVIDE AT EACH END OF SHEAR WALLS.
POST SIZES NOTED HERE IS MINIMUM UNLESS LARGER POST IS SHOWN ON PLAN
SEE 2 & 3/0-S-3 FOR HOLDOWN DETAILS

SHEAR WALL	HOLDOWN	ANCHOR ROD	MIN. POST
1	HDU4 (4,565 LBS)	SSTB24 OR 5/8" ϕ ATR	2-2x OR 4x
2	HDU5 (5,645 LBS)	SSTB24 OR 5/8" ϕ ATR	2-2x OR 4x

SHEAR WALL SCHEDULE

TYPE	SHEATHING	EDGE NAIL	ADJOINING SHEAR PANEL EDGE MATERIAL	FIELD NAIL	PLATE NAIL	RIM OR BLOCKING TRANSFER	RIM OR BLOCKING MATERIAL	MUD SILL	SHEAR CAPACITY ASD	5/8" DIA SILL BOLTS
1	3/8" THK STRUC 1	8d @ 6" OC	2x STUDS, PLATE	8d @ 12" OC	16d @ 6" OC	A35 @ 24" OC	2x	2x PLATE	230 PLF	48" OC
2	3/8" THK STRUC 2	8d @ 4" OC	2x STUDS, PLATE	8d @ 12" OC	16d @ 4" OC	A35 @ 16" OC	2x	2x PLATE	360 PLF	36" OC

SHEAR WALL LEGEND

1 X'-XX" — BOX IDENTIFIES LOCATION, TYPE, AND LENGTH OF SHEAR WALL

PLAN

3/8" = 1'-0"

SCALE 3/8"=1'-0"

01/05/2024

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
LAKE PUMP STATION FOUNDATION PLAN

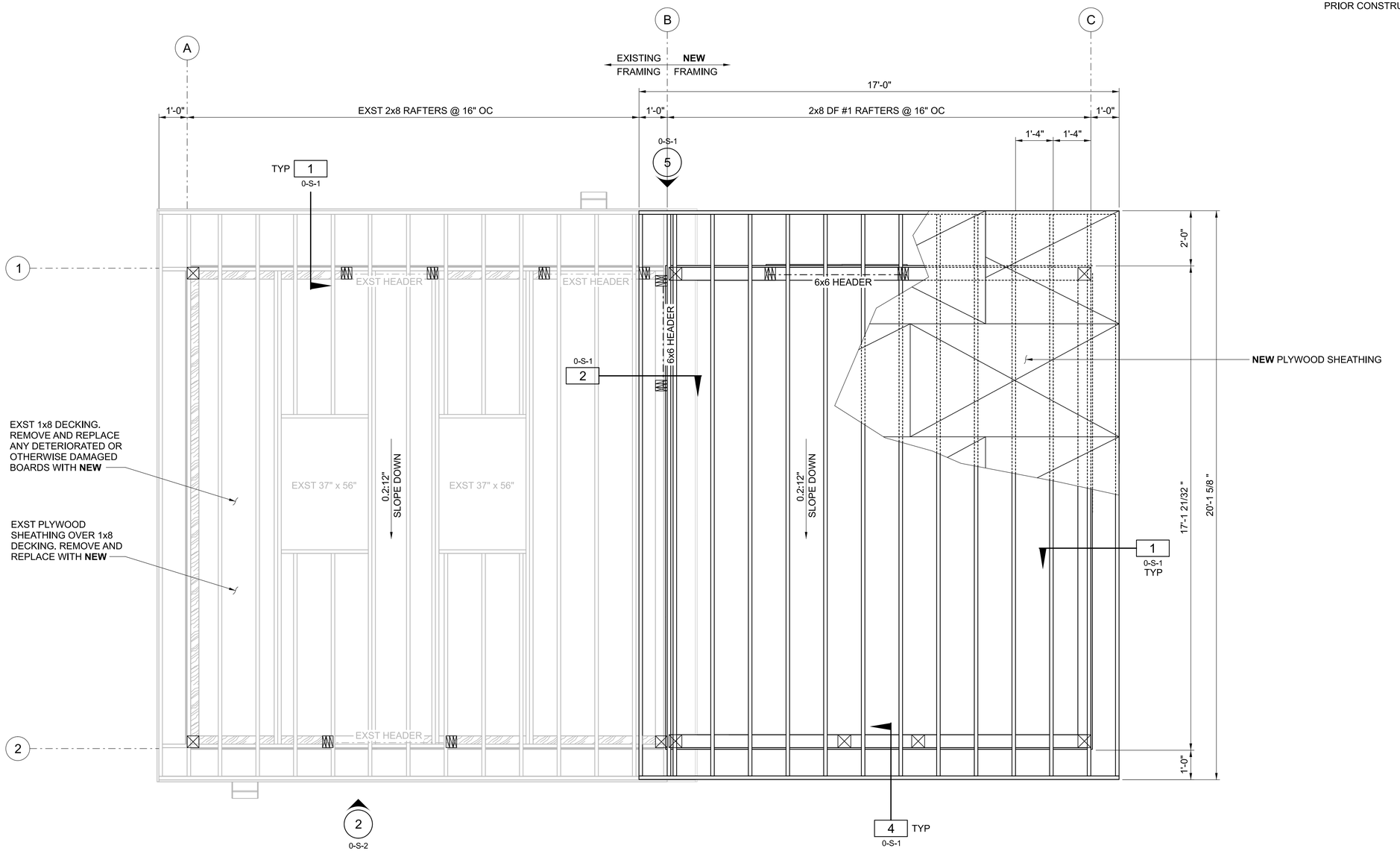
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-S-1
SHEET NUMBER 24

FILENAME: 1977D-10S100.DGN PLOT DATE: 10/22/2020 8:36:38 AM

NOTES:

SEE DWG 10-S-1 FOR SHEAR WALLS, HOLDOWN SCHEDULE AND WALL LEGEND.

*= FIELD VERIFY DIMENSIONS PRIOR CONSTRUCTION.



PLAN
1/2"=1'-0"

2 0 2 4 FEET
SCALE 1/2"=1'-0"

01/05/2024

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

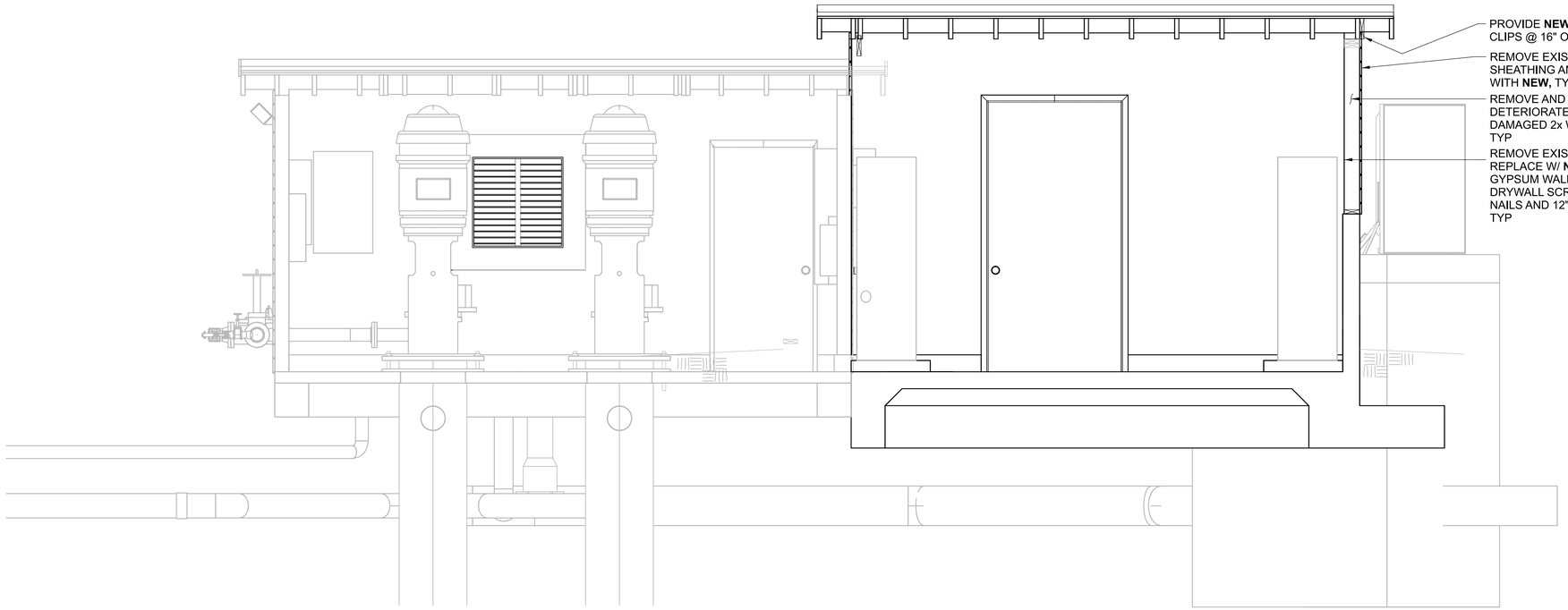
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
LAKE PUMP STATION
ROOF FRAMIMG PLAN

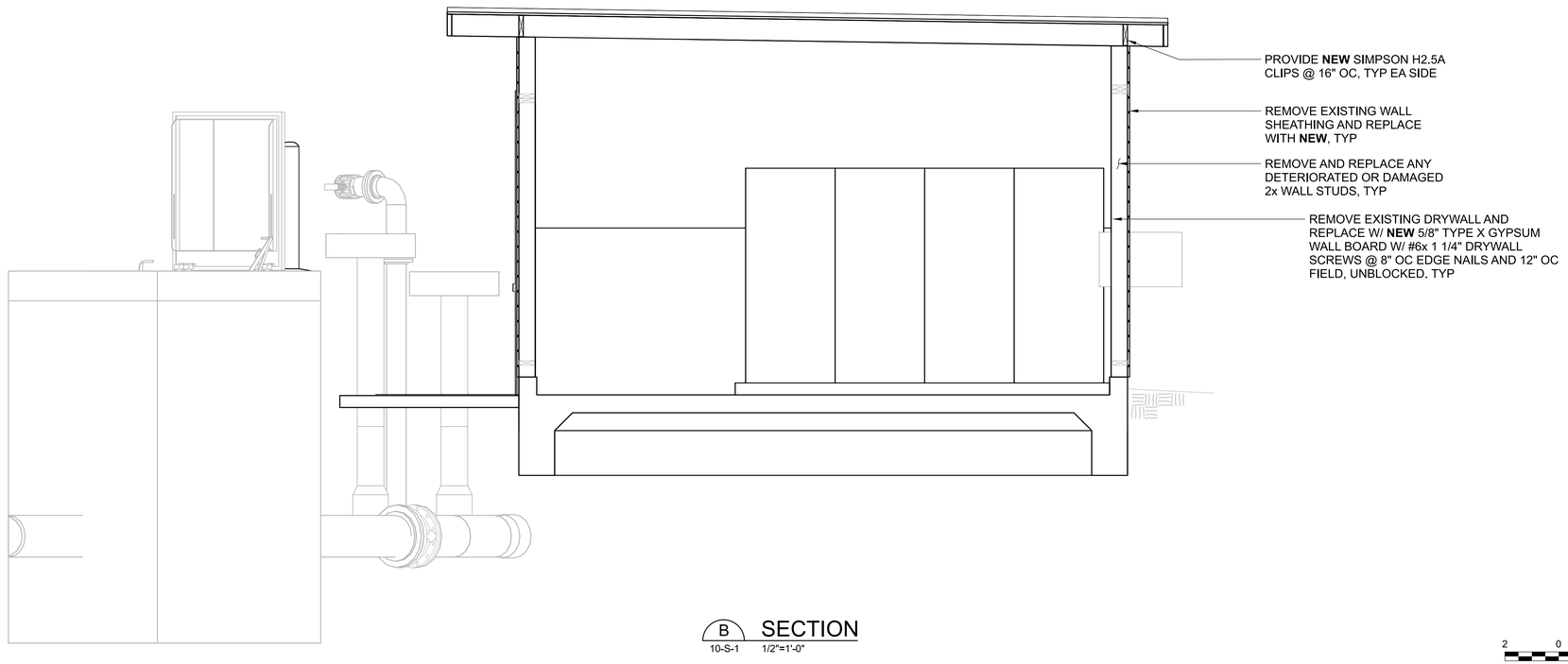
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-S-2
SHEET NUMBER 25

FILENAME: 1977D-10S102.DGN PLOT DATE: 3/30/2020 11:14:05 AM

★ = FIELD VERIFY DIMENSIONS
PRIOR CONSTRUCTION.



A SECTION
10-S-2, 10-S-3 — 1/2"=1'-0"



B SECTION
10-S-1 — 1/2"=1'-0"

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

01/05/2024

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

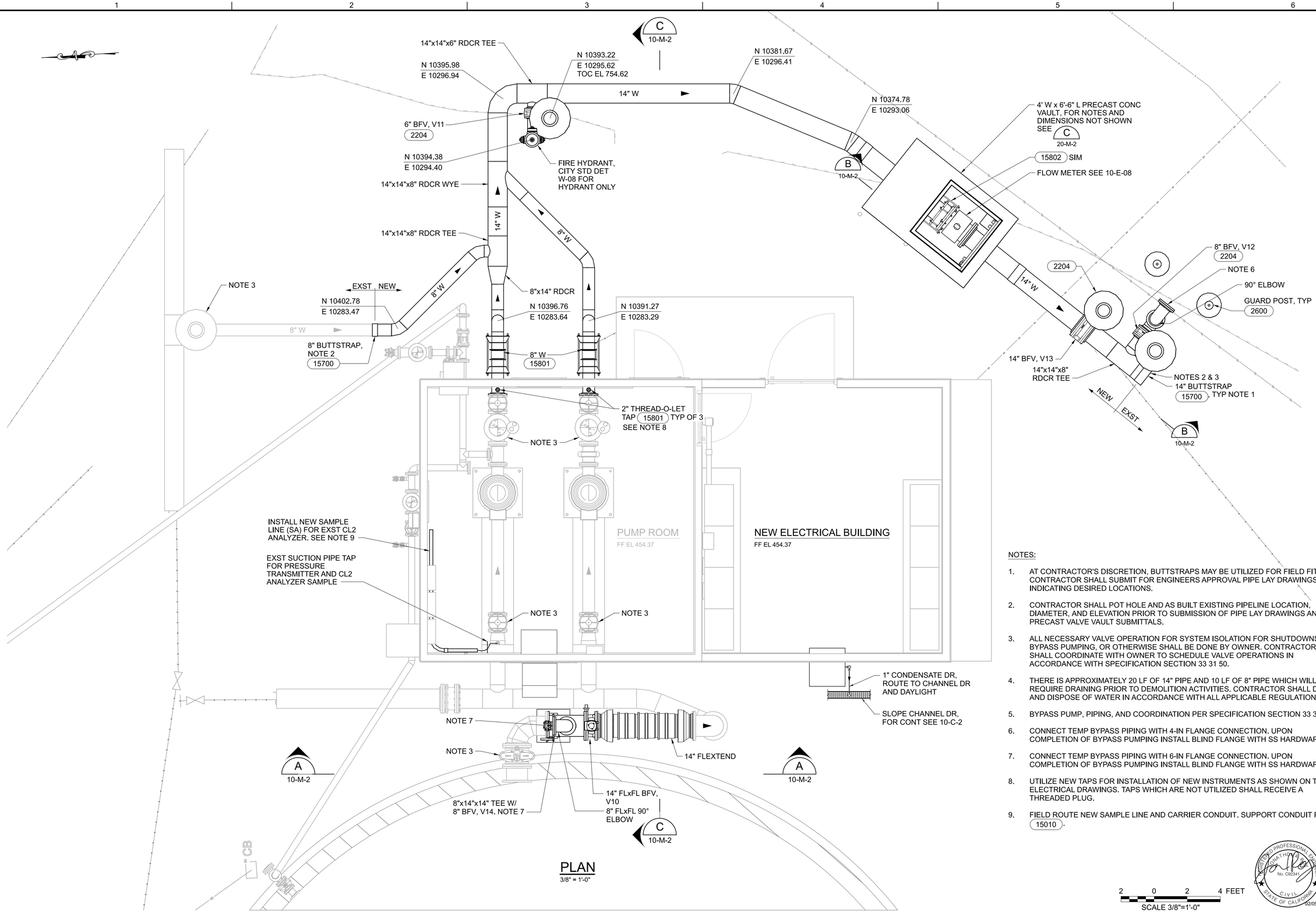
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
LAKE PUMP STATION SECTIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-S-3
SHEET NUMBER 26

FILENAME: 1977D-10S201.DGN PLOT DATE: 3/30/2020 11:14:05 AM



PLAN

3/8" = 1'-0"

NOTES:

1. AT CONTRACTOR'S DISCRETION, BUTTSTRAPS MAY BE UTILIZED FOR FIELD FIT UP. CONTRACTOR SHALL SUBMIT FOR ENGINEERS APPROVAL PIPE LAY DRAWINGS INDICATING DESIRED LOCATIONS.
2. CONTRACTOR SHALL POT HOLE AND AS BUILT EXISTING PIPELINE LOCATION, DIAMETER, AND ELEVATION PRIOR TO SUBMISSION OF PIPE LAY DRAWINGS AND PRECAST VALVE VAULT SUBMITTALS.
3. ALL NECESSARY VALVE OPERATION FOR SYSTEM ISOLATION FOR SHUTDOWNS, BYPASS PUMPING, OR OTHERWISE SHALL BE DONE BY OWNER. CONTRACTOR SHALL COORDINATE WITH OWNER TO SCHEDULE VALVE OPERATIONS IN ACCORDANCE WITH SPECIFICATION SECTION 33 31 50.
4. THERE IS APPROXIMATELY 20 LF OF 14" PIPE AND 10 LF OF 8" PIPE WHICH WILL REQUIRE DRAINING PRIOR TO DEMOLITION ACTIVITIES. CONTRACTOR SHALL DRAIN AND DISPOSE OF WATER IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
5. BYPASS PUMP, PIPING, AND COORDINATION PER SPECIFICATION SECTION 33 31 50.
6. CONNECT TEMP BYPASS PIPING WITH 4-IN FLANGE CONNECTION. UPON COMPLETION OF BYPASS PUMPING INSTALL BLIND FLANGE WITH SS HARDWARE.
7. CONNECT TEMP BYPASS PIPING WITH 6-IN FLANGE CONNECTION. UPON COMPLETION OF BYPASS PUMPING INSTALL BLIND FLANGE WITH SS HARDWARE.
8. UTILIZE NEW TAPS FOR INSTALLATION OF NEW INSTRUMENTS AS SHOWN ON THE ELECTRICAL DRAWINGS. TAPS WHICH ARE NOT UTILIZED SHALL RECEIVE A THREADED PLUG.
9. FIELD ROUTE NEW SAMPLE LINE AND CARRIER CONDUIT. SUPPORT CONDUIT PER 15010.

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

REGISTERED PROFESSIONAL ENGINEER — JONATHON C. BERTSCH — No. C92341 — CIVIL — STATE OF CALIFORNIA — 02/05/2026

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

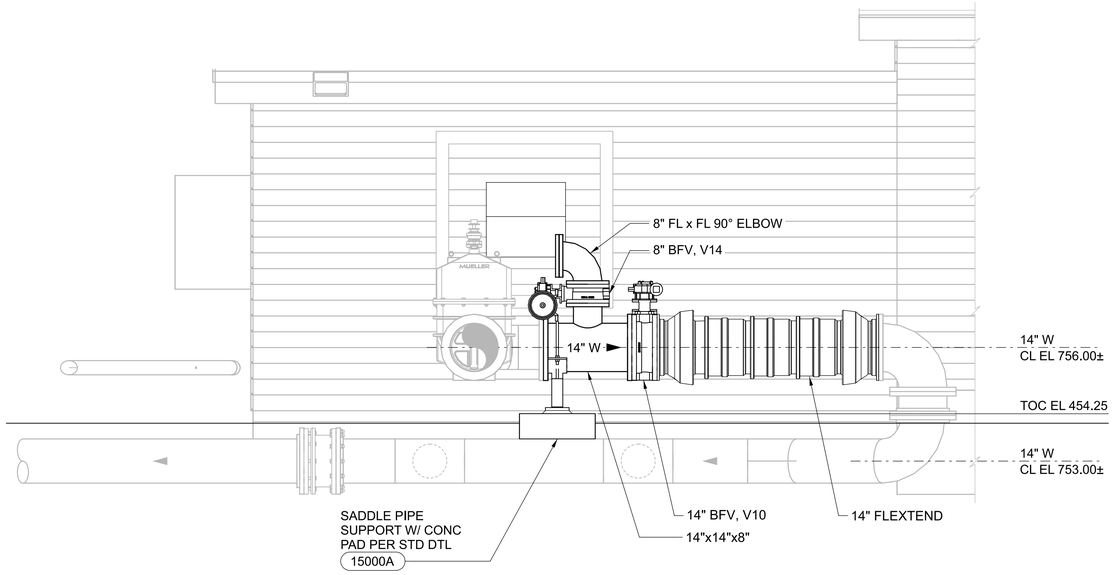
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

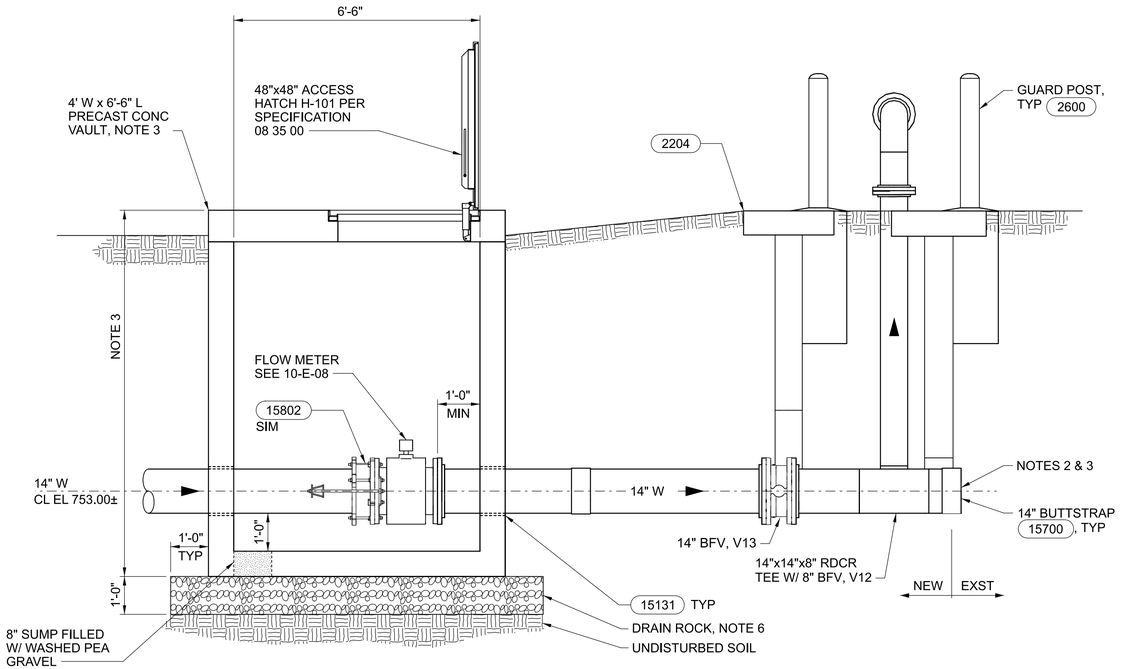
MECHANICAL
LAKE PUMP STATION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-M-1
SHEET NUMBER 27

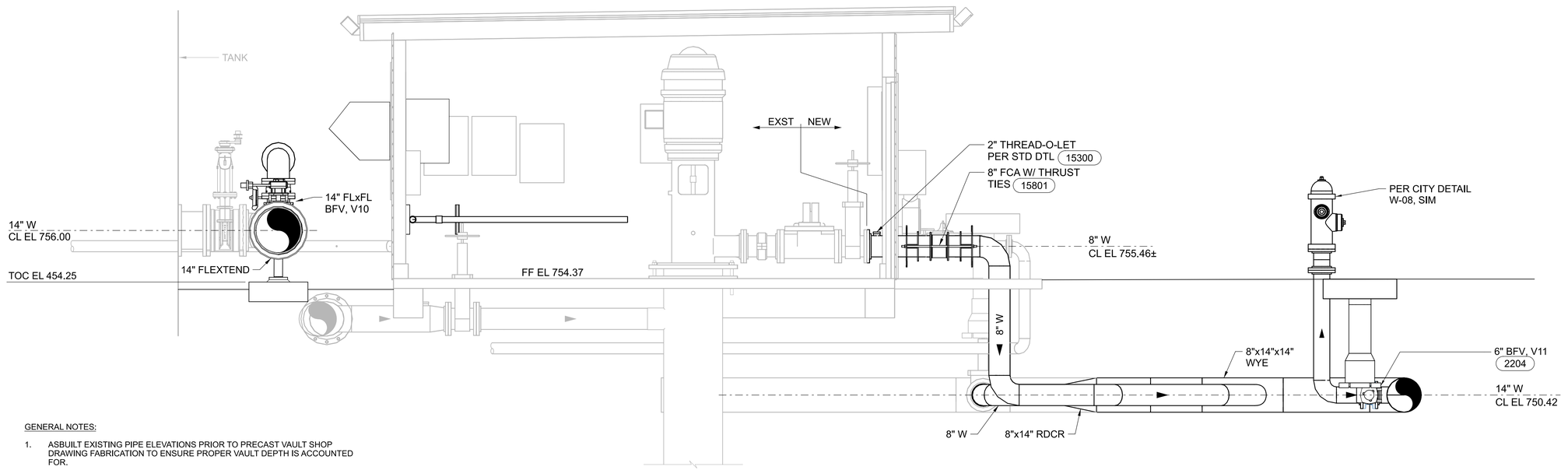
FILENAME: 1977D-10M101.dgn PLOT DATE: 10/19/2020 3:57:07 PM



A SECTION
10-M-1 1/2" = 1'-0"



B SECTION
10-M-1 1/2" = 1'-0"



C SECTION
10-M-1 1/2" = 1'-0"

GENERAL NOTES:

1. ASBUILT EXISTING PIPE ELEVATIONS PRIOR TO PRECAST VAULT SHOP DRAWING FABRICATION TO ENSURE PROPER VAULT DEPTH IS ACCOUNTED FOR.
2. VAULT AND ACCESS HATCH TO BE H20 TRAFFIC RATED.
3. REFERENCE SPECIFICATION 03 40 03 FOR ADDITIONAL REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER
JONATHON ROY
No. C92341
CIVIL
STATE OF CALIFORNIA
02/05/2026

2 0 2 4 FEET
SCALE 1/2"=1'-0"

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION
REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

MECHANICAL
LAKE PUMP STATION
SECTIONS

DATE
JULY 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
10-M-2
SHEET NUMBER 28

FILENAME: 1977D-10M201.DGN PLOT DATE: 10/22/2020 8:41:42 AM

WALL MOUNTED AIR CONDITIONING UNIT

EQUIPMENT NUMBER	LOCATION	INDOOR FAN AIR FLOW (CFM)	INDOOR FAN ESP (IN WG)	INDOOR FAN MOTOR (HP)	INDOOR FAN DRIVE	POWER SUPPLY (V/PH)	MCA (AMPS)	COOLING EAT EDB (°F)	COOLING EAT EWB (°F)	COOLING CAPACITY (MBH) SENSIBLE	COOLING CAPACITY (MBH) TOTAL	COOLING MIN CAPACITY STAGES	HEATING EAT	HEATING TYPE	HEATING CAPACITY MBH (KW)	HEATING MINIMUM HEAT STAGES	DISCHARGE DIRECTION	ARI MINIMUM EFFICIENCY	OA (CFM)	APPROX WEIGHT (LBS)	FILTER DATA TYPE	FILTER DATA THICKNESS (IN)	NOTES
ACU-10-003	ELEC ROOM	380	0.1	--	DIRECT	208/1	15	79	66	23.5	23.5	1	--	--	--	--	VERITCAL	9.8 SEER	--	128	MANF	1	1, 2, 4, 5, 6, 7, 8

NOTES:

1 - AMBIENT TEMPERATURES: COOLING - 103°F MAX / 26°F MIN
2 - THERMOSTAT SHALL BE PROVIDED BY THE MANUFACTURER, REMOTE
3 - INTERLOCK WITH ROOM/BUILDING SMOKE/FIRE DETECTORS
4 - PROVIDE WALL SLEEVE WITH LOUVER OPENING FOR EXTERIOR COIL AIRFLOW
5 - PROVIDE R410A REFRIGERANT
6 - PROVIDE PLUG IN TYPE POWER CORD
7 - PROVIDE ENERGY SAVER , ON/OFF TIMER CONTROLS
8 - SPEEDS: 3 - COOLING, 3- FAN ONLY

FAN SCHEDULE

EQUIPMENT NUMBER	LOCATION	FAN TYPE	AIR FLOW (CFM)	ESP (IN WG)	MOTOR (HP)	POWER SUPPLY (V/PH)	FLA (AMPS)	MOP (AMPS)	WHEEL TYPE	DRIVE	MANF.	MODEL	APPROX WEIGHT (LBS)	NOTES
EF-10-001	PUMP ROOM	EF	1700	0.5	0.5	208 / 1	3.8	15	P	DIRECT	GREENHECK	AER	148	1B, 5, 6, 8,9,10

FAN TYPES:
CF - CABINET FAN
DF - INLINE DUCT FAN
FEF - FUME HOOD EXHAUST FAN
HVLS - HIGH VOLUME LOW SPEED
PRV - POWER ROOF VENTILATOR
EF - EXHAUST FAN
SF - SUPPLY FAN

WHEEL TYPES:
C - CENTRIFUGAL
M - MIXED FLOW
P - PROPELLER

NOTES:
1 - FAN BLADE CONSTUCTION; A) ALUMINUM, B) STEEL, C)304 STAINLESS STEEL
2 - PROVIDE CURB EXTENSION
3 - MOTOR CURRENT SENSOR RELAYS SHALL BE FURNISHED BY THE MANUFACTURERE TO DETECT OPERATION OF VENTILATION EQUIPMENT
4 - PROVIDE BAROMETRIC CONTROL SWITCHES
5 - THERMOSTAT SHALL BE PROVIDED COMPATIBLE WITH EQUIPMENT
6 - PROVIDE OSHA GUARD ON FAN/ MOTOR END
7 - EXHAUST FAN TO BE INTERLOCKED WITH LIGHT SWITCH
8 - PROVIDE WEATHERHOOD AND BIRD SCREEN
9 - PROVIDE DISCONNECT SWITCH
10 - PROVIDE CONTROL DIAL FOR BALANCING

LOUVERS SCHEDULE

EQUIPMENT NUMBER	LOCATION	TYPE	AIR FLOW (CFM)	LENGTH (IN)	WIDTH (IN)	QTY (EA)	FILTER TYPE	THICKNESS (IN)	MATERIAL	FINISH	MANUFACTURER	MODEL	NOTES
LVR-10-01	PUMP ROOM	IN	1700	32	32	1	MERV 13	2	AL	MATCH TRIM	GREENHECK	ESJ-401	1, 2,3A, 4A, 5A,6A

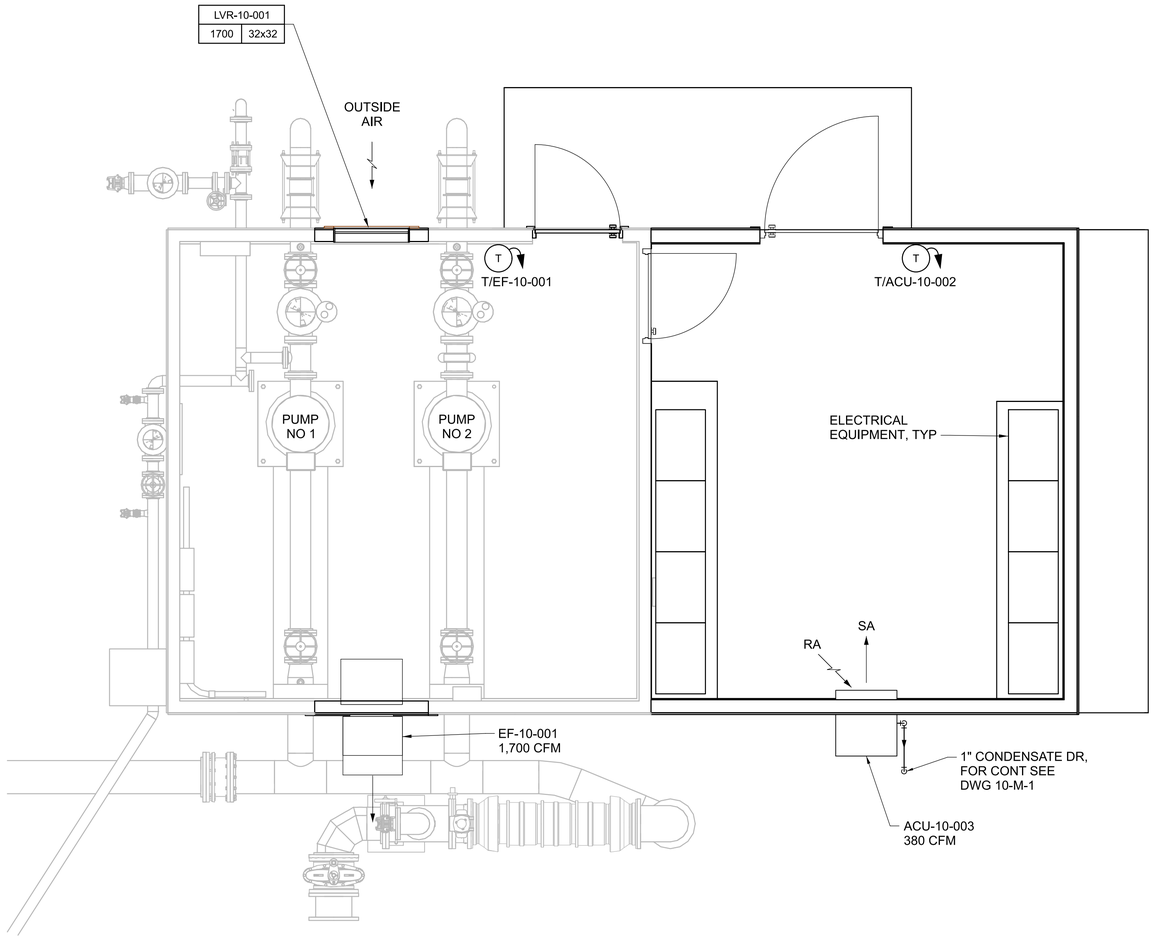
TYPES:
IN - INTAKE
EX - EXHAUST
BI - BI-DIRECTIONAL

MATERIAL:
AL - ALUMINUM
GS - GALVANIZED STEEL
SS - 304 STAINLESS STEEL

NOTES:
1 - MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATION
2 - PROVIDE STAINLESS STEEL HARDWARE
3 - PROVIDE FILTER RACK; A)ALUMINUM, B)STEEL, C)304 STAINLESS STEEL
4 - PROVIDE SCREEN ACCESSORIES; A) BIRDSCREEN, B)INSECT SCREEN, C)SECURITY BARS
5 - PROVIDE FRAME ACCESSORIES; A) EXTENDED SILL, B)FLANGE FRAME, C)GLAZING FRAME, D)HINGE FRAME
6 - LOUVER VELOCITY SHALL NOT EXCEED; A) 500 FPM, B)650 FPM
7 - PROVIDE EXTERNAL GRAVITY DAMPER
8 - EPOXY COATING

NOTES:

1. PROVIDE FABRICATED WALL THROUGH SLEEVE FOR WALL MOUNTED AIR CONDITIONING UNIT.
2. COORDINATE WALL CONSTRUCTION WITH INSTALLATION OF WALL MOUNTED AIR CONDITIONING UNIT.
3. PROVIDE CEILING MOUNT ACCESSORY FOR ELECTRICAL UNIT HEATER.



PLAN
1/2" = 1'-0"

2 0 2 4 FEET
SCALE 1/2"=1'-0"

01/05/2024

REGISTERED PROFESSIONAL ENGINEER
CHRISTINA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

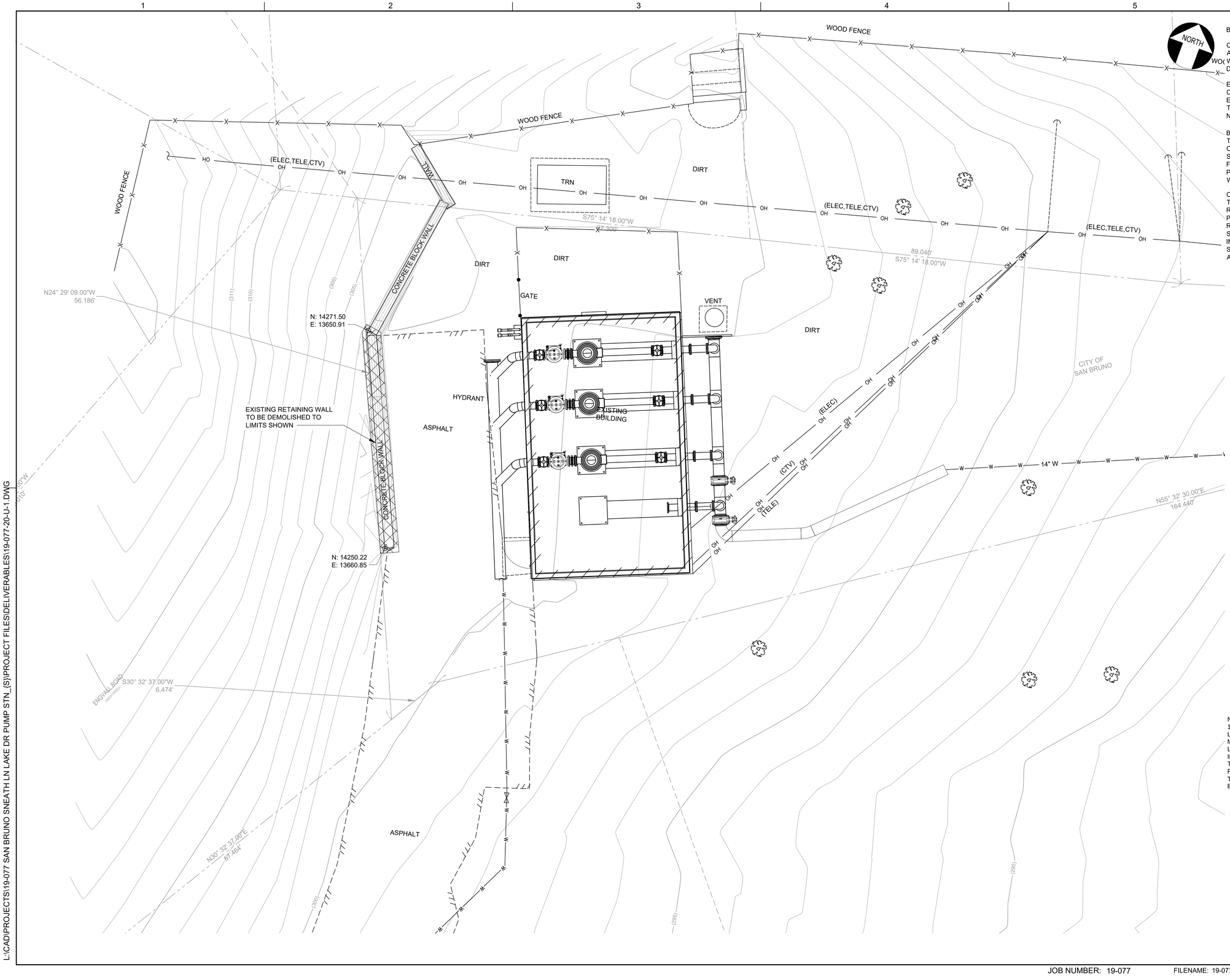
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

HVAC
LAKE PUMP STATION HVAC PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-H-1
SHEET NUMBER 29

FILENAME: 1977D-10H101.DGN PLOT DATE: 10/22/2020 8:36:38 AM



BENCHMARK:

CITY OF SAN BRUNO BM SB-17
A 2" BRASS MONUMENT STAMPED "CITY OF SAN BRUNO, PUBLIC WORKS, HVCN SB-17", SET IN TOP OF CURB ON FLEETWOOD DRIVE AT CURB RETURN, 2' EASTERLY OF DRIVEWAY.

ELEVATIONS SHOW HERON ARE BASED ON NAVD88. TO CONVERT TO NGVD29 SUBTRACT 3.461 FEET FROM THE ELEVATIONS SHOW. DATUM CONVERSION WAS OBTAINED FROM THE CITY OF SAN BRUNO HORIZONTAL AND VERTICAL NETWORK POINT DATA SHEET FOR BM SB-17

BASIS OF BEARINGS:
THE BEARING OF NORTH 65° 30' 00" EAST TAKEN ON THE CENTER LINE OF A PORTION OF ROLLINGWOOD DRIVE AS SHOWN ON THAT CERTAIN MAP ENTITLE "ROLLINGWOOD NO.1", FILED FOR RECORD ON JULY 14, 1954, IN BOOK 39 OF MAP PAGE(S) 30-33, OFFICIAL RECORDS OF SAN MATEO COUNTY WAS TAKEN AS THE BASIS FOR ALL BEARINGS SHOWN HEREON.

CORNER RECORD NOTE:
THE DEVELOPER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND FILING OF PRE-CONSTRUCTION AND POST-CONSTRUCTION CORNER RECORDS FOR ANY MONUMENTS OR PROPERTY CORNERS SHOWN HEREON THAT MAY BE DESTROYED DURING IMPROVEMENTS TO THE SUBJECT PROPERTY AS DEFINED IN SECTION 8771(B) OF THE PROFESSIONAL LAND SURVEYORS ACT.

NOTE:
1. THIS PROJECT WILL NOT INCREASE THE ELECTRICAL LOAD. THE OVERHEAD SERVICE TERMINATION AND METERING EQUIPMENT SHALL BE INSTALLED IN THE SAME LOCATION. THE CITY AGREES THAT IF ELECTRICAL LOADS INCREASE BEYOND THE CAPABILITY OF THE EXISTING TRANSFORMER AND OVERHEAD SERVICE CABLE IN THE FUTURE THEN THE CITY WILL INSTALL AN UNDERGROUND TRANSFORMER AND UNDERGROUND SERVICE AT THE CITY'S EXPENSE.

5 0 5 10 FEET
SCALE 1"=5'

REGISTERED PROFESSIONAL ENGINEER
CHRISTINA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/05/2024

DESIGN C BERTSCH
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED M FISHER

CITY OF SAN BRUNO

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 260 • San Mateo, CA 94402 • 650-539-3420

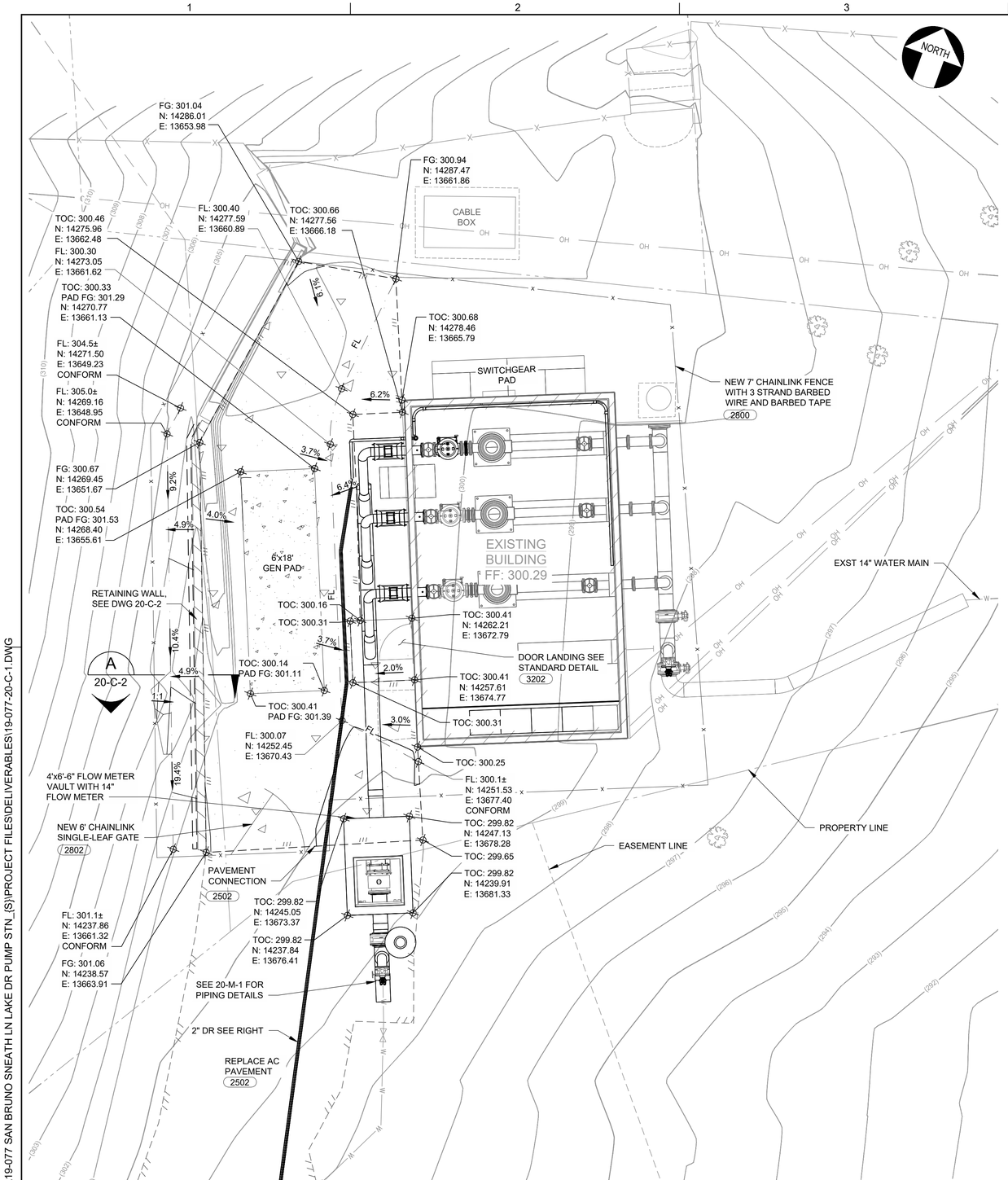
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

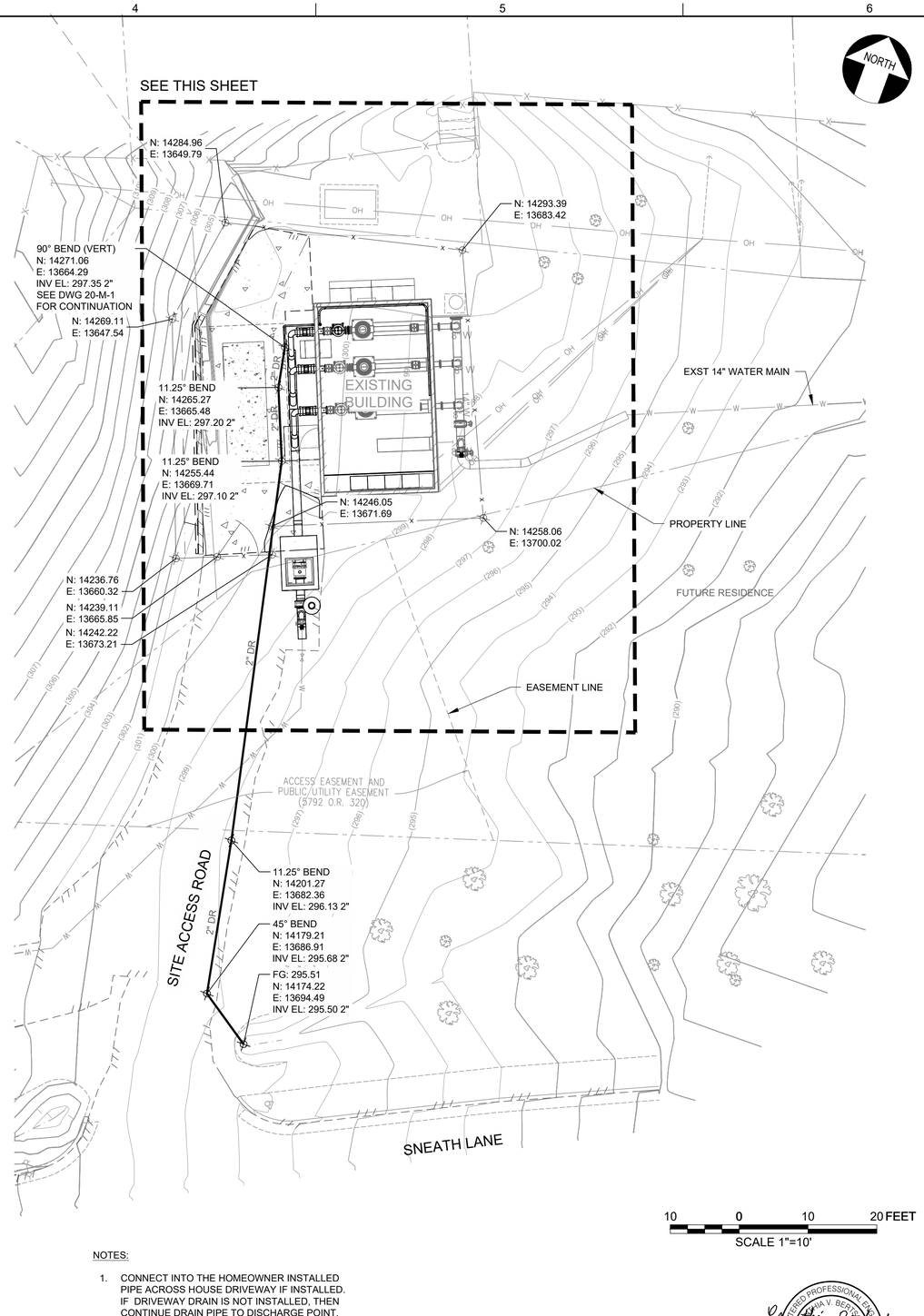
CIVIL
EXISTING UTILITIES
SNEATH PUMP STATION

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-U-1
SHEET NUMBER 30

L:\CAD\PROJECTS\19-077 SAN BRUNO SNEATH LN LAKE DR PUMP STN_(S)\PROJECT FILES\DELIVERABLES\19-077-20-U-1.DWG

JOB NUMBER: 19-077 FILENAME: 19-077-20-U-1.DWG PLOT DATE: 01/4/24 PLOT TIME: 09:32:03





NOTES:

1. CONNECT INTO THE HOMEOWNER INSTALLED PIPE ACROSS HOUSE DRIVEWAY IF INSTALLED. IF DRIVEWAY DRAIN IS NOT INSTALLED, THEN CONTINUE DRAIN PIPE TO DISCHARGE POINT.
2. CONTRACTOR SHALL TRIM TREES PER CITY REGULATIONS AS NECESSARY FOR INGRESS/EGRESS TO THE SITE.

REGISTERED PROFESSIONAL ENGINEER — CYNTHIA V. BERTSCH — No. C65385 — CIVIL — STATE OF CALIFORNIA

07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

CITY OF SAN BRUNO

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 260 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

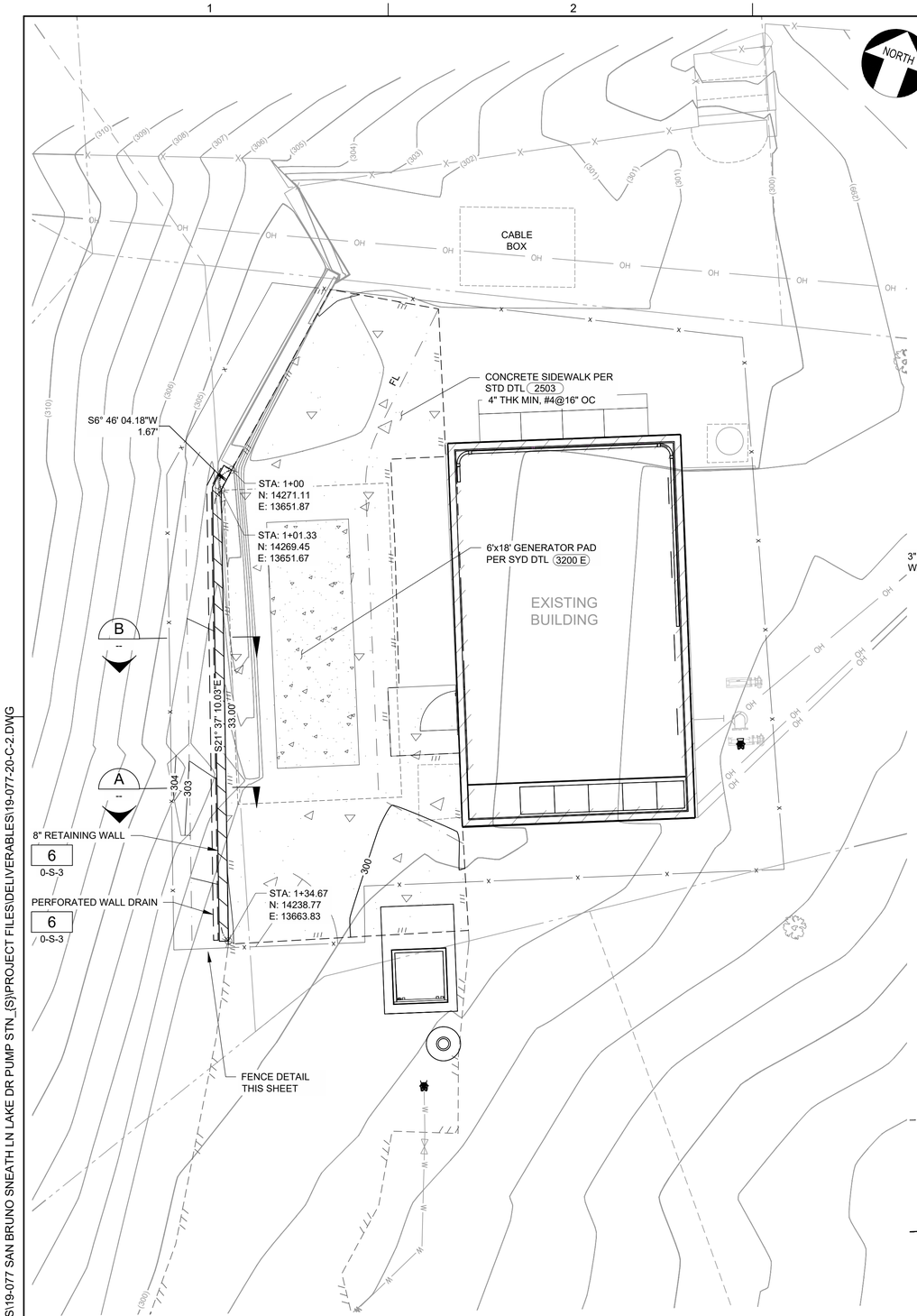
CIVIL

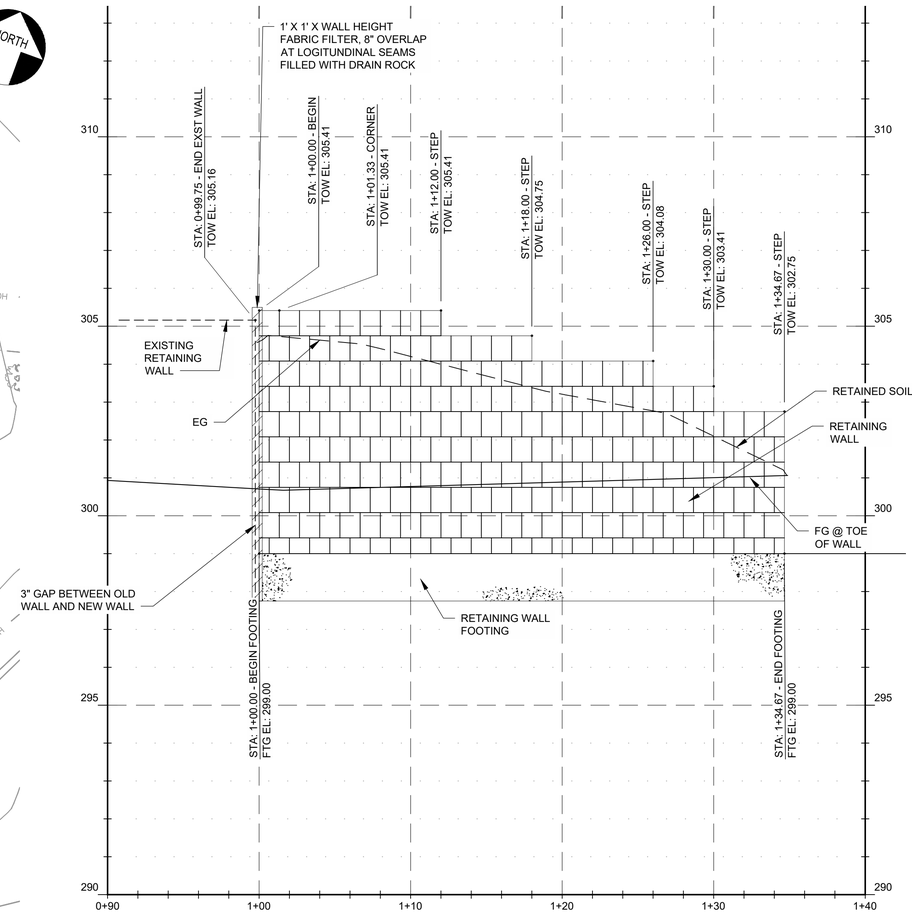
SNEATH PUMP STATION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-C-1
SHEET NUMBER 31

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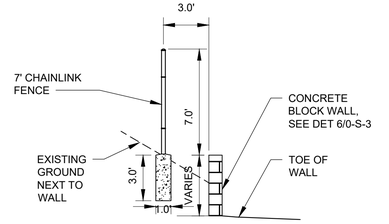
JOB NUMBER: 19-077 FILENAME: 19-077-20-C-1.DWG PLOT DATE: 06/30/25 PLOT TIME: 15:54:42



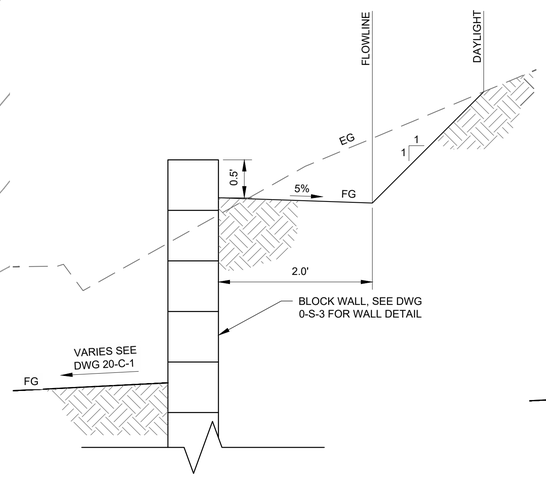


NOTES:

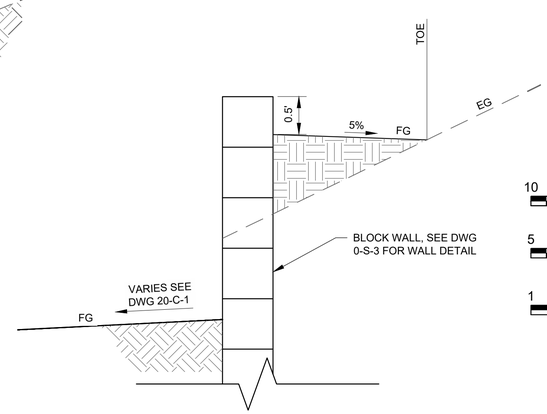
1. SEE MECHANICAL PLANS FOR PIPING MODIFICATIONS.
2. SEE STRUCTUAL PLANS FOR STRUCTURE MODIFICATION.
3. SEE DTL 6/0-S-3 FOR RETAINING WALL INFORMATION.



FENCE/RETAINING WALL DETAIL



A SECTION
20-C-1 1"=1'



B SECTION
20-C-1 1"=1'

10 0 10 20 FEET
HORIZ SCALE 1"=10'

5 0 5 10 FEET
VERT SCALE 1"=5'

1 0 1 2 FEET
SCALE 1"=1'

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA
07/23/2025

DESIGN J ROY
DRAWN M TRUITT
CHECKED P WEBSTER
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Suite 280 •San Mateo, CA 94402 •650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

CIVIL
SNEATH PUMP STATION RETAINING WALL

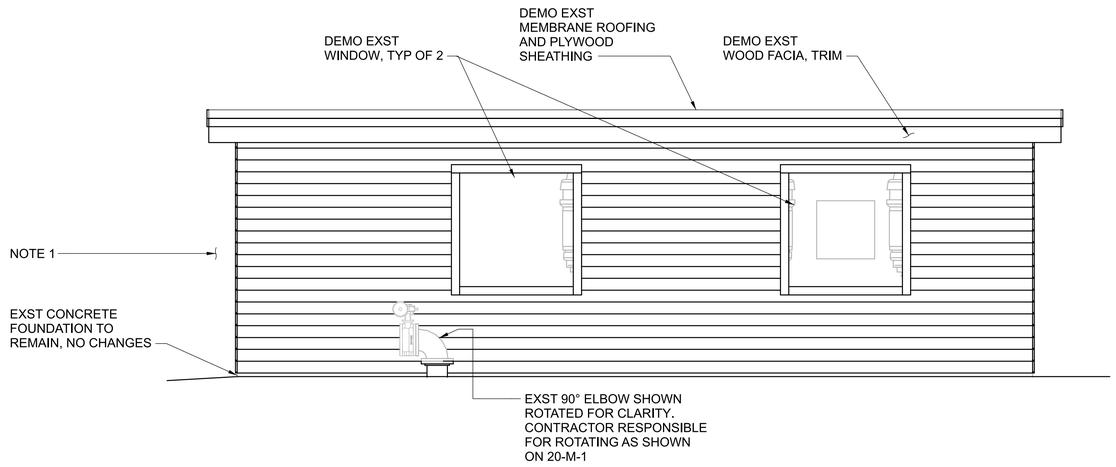
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-C-2
SHEET NUMBER 32

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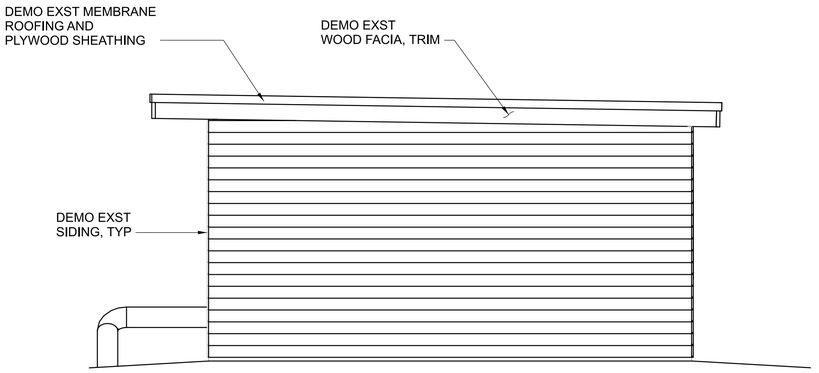
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NOTES:

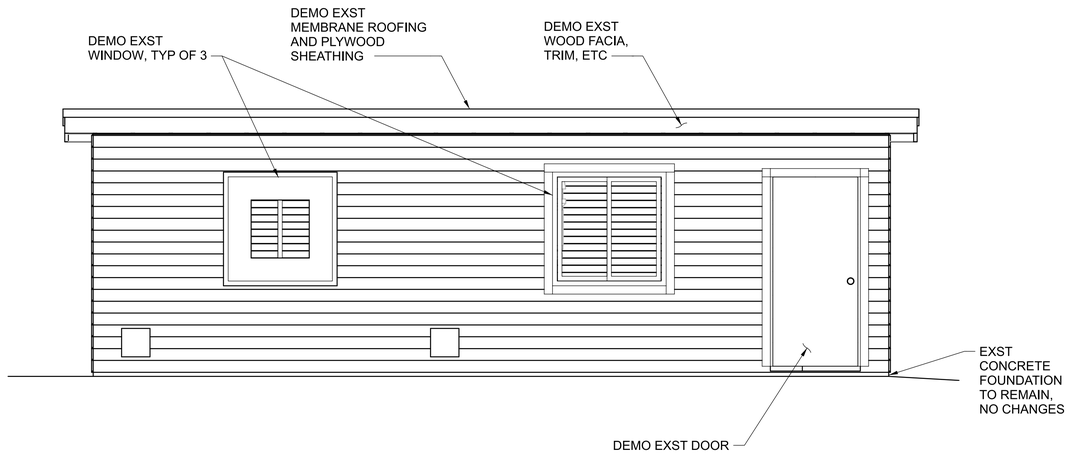
1. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL EQUIPMENT AND LIGHTS TO REMAIN OR TO BE REPLACED. FOR ITEMS TO REMAIN, REMOVE TEMPORARILY TO FACILITATE BUILDING RESTORATION AND RE-INSTALL. ITEMS TO BE REPLACED SHALL BE SALVEGED AND TURNED OVER TO CITY.



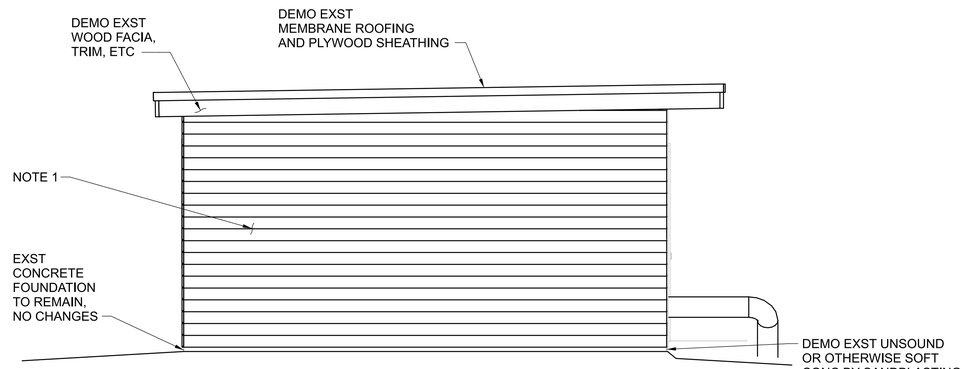
D NORTH ELEVATION
3/8" = 1'-0"
20-S-1



C EAST ELEVATION
3/8" = 1'-0"
20-S-1



B SOUTH ELEVATION
3/8" = 1'-0"
20-S-1



A WEST ELEVATION
3/8" = 1'-0"
20-S-1

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

01/05/2024

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

DESIGNED A LINDEMAN
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

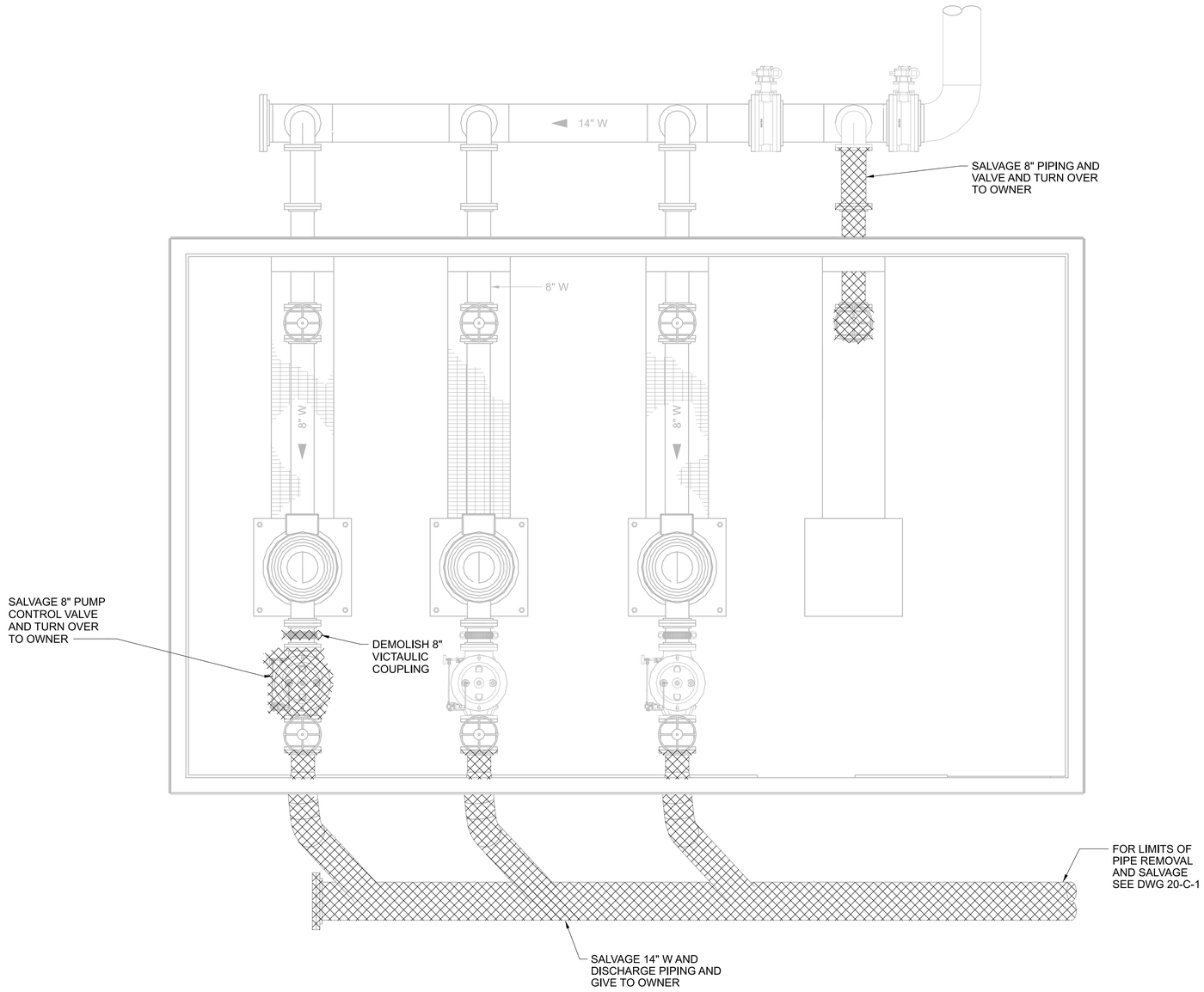
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

DEMOLITION

ELEVATIONS

DATE
JULY 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
20-D-1
SHEET NUMBER 33



PLAN

1/2" = 1'-0"

2 0 2 4 FEET

SCALE 1/2"=1'-0"

REGISTERED PROFESSIONAL ENGINEER
JONATHON ROY
No. C92341
CIVIL
STATE OF CALIFORNIA
01/03/2024

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

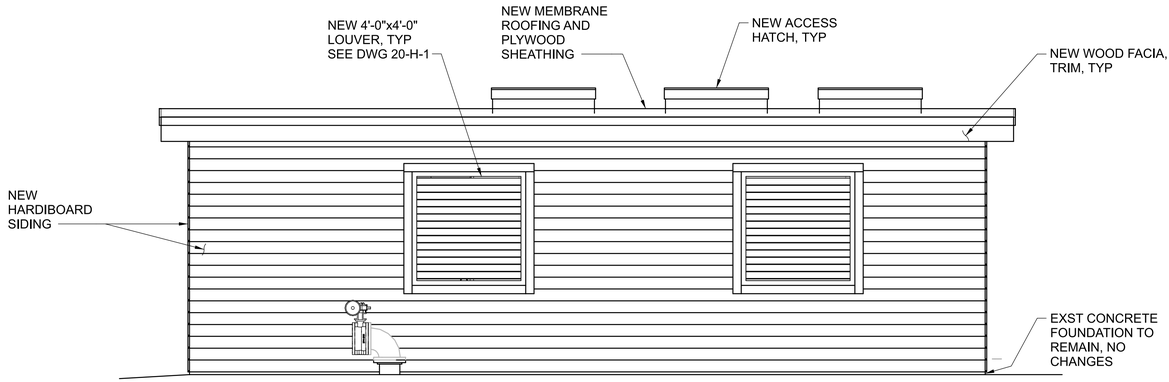
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

DEMOLITION

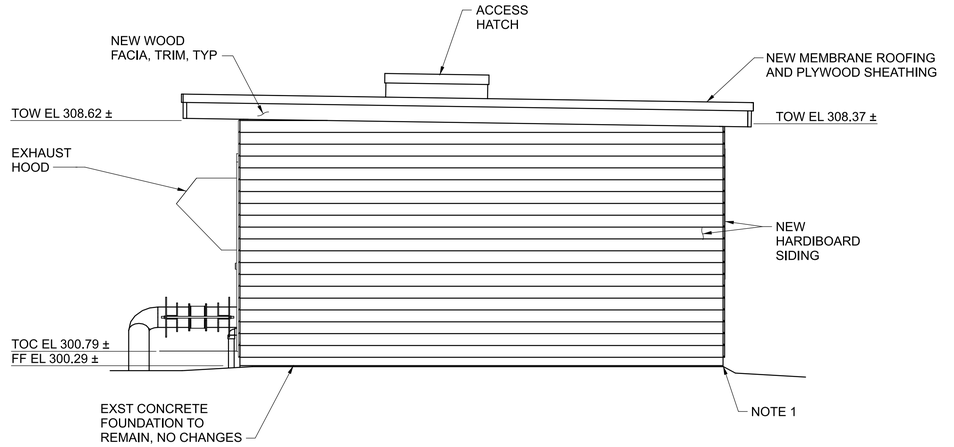
SNEATH PUMP STATION RELOCATION, SALVAGE AND DEMOLITION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-D-2
SHEET NUMBER 34

FILENAME: 1977D-20D102.DGN PLOT DATE: 10/22/2020 8:47:27 AM



A NORTH ELEVATION
3/8" = 1'-0"
20-S-1



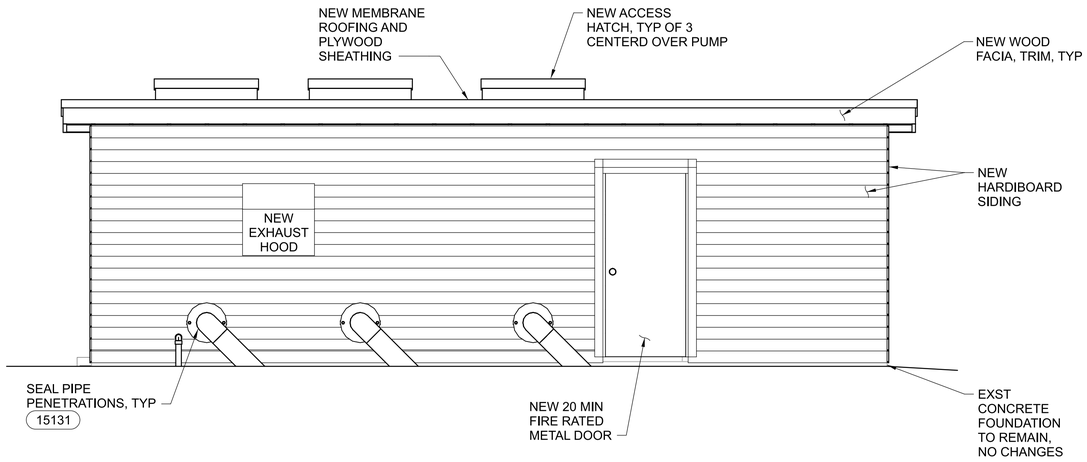
B EAST ELEVATION
3/8" = 1'-0"
20-S-1

NOTES:

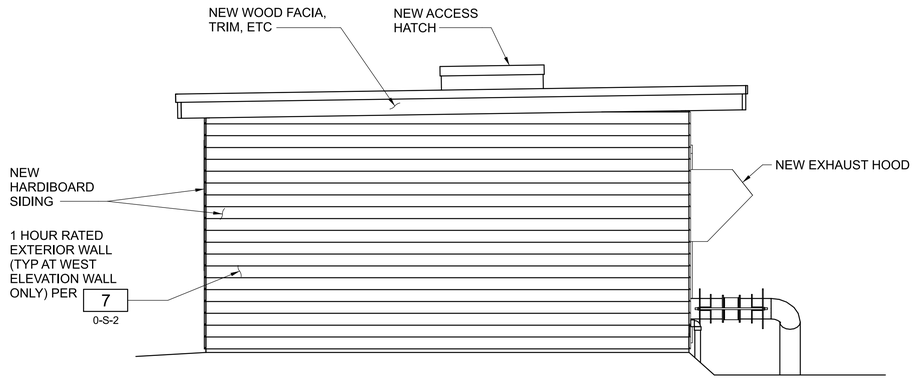
1. PLACE CLSM IN WASHED OUT AREA INCLUDING AS MUCH AS FEASIBLE INTO THE CLAY PIPE.
2. VERIFY ALL EXST ELEVATIONS IN FIELD.

BUILDING CODE ANALYSIS	
BUILDING CODE	2019 CALIFORNIA BUILDING CODE
OCCUPANCY CLASSIFICATION	U
HAZARDOUS MATERIALS	NONE
TYPE OF CONSTRUCTION	V-B
NUMBER OF STORIES ABV GRADE	1 STORY
BUILDING HT ABOVE GRADE	9'-0"
ACTUAL FLOOR AREA	476 SQ FT
FIRE SUPPRESSION	FIRE EXTINGUISHERS
FIRE SUPPRESSION DISTANCE	10 FT MAX
EXTERIOR WALLS	NOT RATED
OCCUPANT LOAD FACTOR	100 SQFT/ PERSON
OCCUPANT LOAD	5 PERSONS

SEE DWG 20-S-1 FOR ADDITIONAL ARCHITECTURAL NOTES AND DOOR SCHEDULE.



C SOUTH ELEVATION
3/8" = 1'-0"
20-S-1



D WEST ELEVATION
3/8" = 1'-0"
20- S-1

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

01/05/2024

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

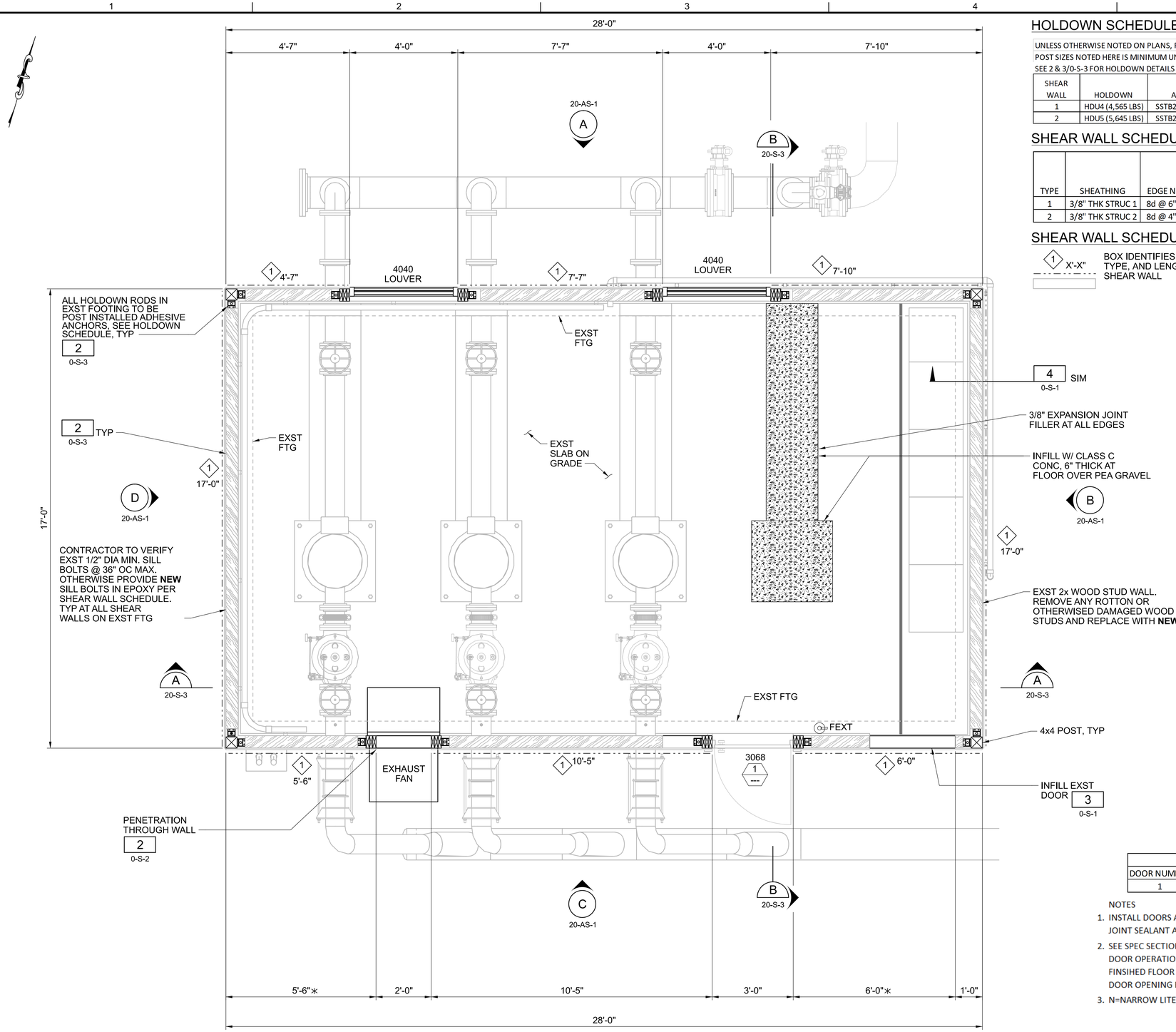
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ARCHITECTURAL / STRUCTURAL

SNEATH PUMP STATION ELEVATIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-AS-1
SHEET NUMBER 35



HOLDOWN SCHEDULE

UNLESS OTHERWISE NOTED ON PLANS, PROVIDE AT EACH END OF SHEAR WALLS.
POST SIZES NOTED HERE IS MINIMUM UNLESS LARGER POST IS SHOWN ON PLAN
SEE 2 & 3/0-S-3 FOR HOLDOWN DETAILS

SHEAR WALL	HOLDOWN	ANCHOR ROD	MIN. POST
1	HDU4 (4,565 LBS)	SSTB24 OR 5/8" ϕ ATR	2-2x OR 4x
2	HDU5 (5,645 LBS)	SSTB24 OR 5/8" ϕ ATR	2-2x OR 4x

SHEAR WALL SCHEDULE

TYPE	SHEATHING	EDGE NAIL	ADJOINING SHEAR PANEL EDGE MATERIAL	FIELD NAIL	PLATE NAIL	RIM OR BLOCKING TRANSFER	RIM OR BLOCKING MATERIAL	MUD SILL	SHEAR CAPACITY ASD	5/8" DIA SILL BOLTS
1	3/8" THK STRUC 1	8d @ 6" OC	2x STUDS, PLATE	8d @ 12" OC	16d @ 6" OC	A35 @ 24" OC	2x	2x PLATE	230 PLF	48" OC
2	3/8" THK STRUC 2	8d @ 4" OC	2x STUDS, PLATE	8d @ 12" OC	16d @ 4" OC	A35 @ 16" OC	2x	2x PLATE	360 PLF	36" OC

SHEAR WALL SCHEDULE

1 X'-X" — BOX IDENTIFIES LOCATION, TYPE, AND LENGTH OF SHEAR WALL

WALL LEGEND

EXST 2x4 OR 2x6 WALL

NEW 2x6 WALL

NOTES:

1. ∗ = FIELD VERIFY DIMENSIONS PRIOR TO DEMOLISHING AND CONSTRUCTION.

GENERAL ARCHITECTURAL NOTES

1. UNLESS OTHERWISE NOTES, PLAN DIMENSIONS ARE TO FACE OF STUDS.
2. REPETETIVE FEATURES ARE NOT DRAWIN IN THEIR ENTIRETY AND SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.
3. VERIFY ALL ROUGH IN DIMENSIONS FOR EQUIPMENT PROVIDED IN THIS CONTRACT, OR BY OTHERS.
4. REFER TO STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CATEGORIES OF DRAWINGS FOR ADDITIONAL NOTES.
5. VERIFY SIZE AND LOCATION OF, AND PROVIDE: ALL OPENINGS THROUGH FLOORS AND WALLS, ACCESS DOORS, FURRING, CURBS, ANCHORS AND INSERTS. PROVIDE ALL BASES, BLOCKING REQUIRED FOR ACCESSORIES, MECHANCIAL EQUIPMENT AND OTHER EQUIPMENT

DOOR SCHEDULE							
DOOR NUMBER	DOOR DIMENSIONS	LITES	SILL DETAIL	EXIT DEVICE	WALL	CLOSURE	LOCK
1	3'-0" x 6'-8"	NR	5/0-S-2	NR	WOOD	R	R

NOTES

1. INSTALL DOORS AND FRAME IN ACCORDANCE WITH STEEL DOOR INSTITUTE'S RECOMMENDATIONS. PROVIDE TRIM AND JOINT SEALANT AROUND FRAMES TO ENSURE A WEATHER TIGHT BARRIER. SEE SPEC SECTION 08-13-03
2. SEE SPEC SECTION 08-71-03 DOOR HARDWARE FOR ALL DOOR HARDWARE INCLUDING EXIT DEVICES AND PRIVACY LATCHES. DOOR OPERATION SHALL BE PER CBC 1010.1.9. DOOR OPENING HARDWARE SHALL BE MOUNTED 34" TO 48" ABOVE FINSIHED FLOOR PER CBC 1010.1.9.2. DOOR THRESHOLD SHALL BE 3/4" MAX ABOVE FINISHED FLOOR PER CBC 1010.1.7. DOOR OPENING FORCE SHALL BE 5-POUND MAX PER CBC 11B-404.2.9
3. N=NARROW LITES; G=FULL GLASS; R=REQUIRED; NR=NOT REQUIRED

REGISTERED PROFESSIONAL ENGINEER — TODD KOTEY — No. 5618 — CIVIL — STATE OF CALIFORNIA

01/05/2024

2 0 2 4 FEET

SCALE 1/2"=1'-0"

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

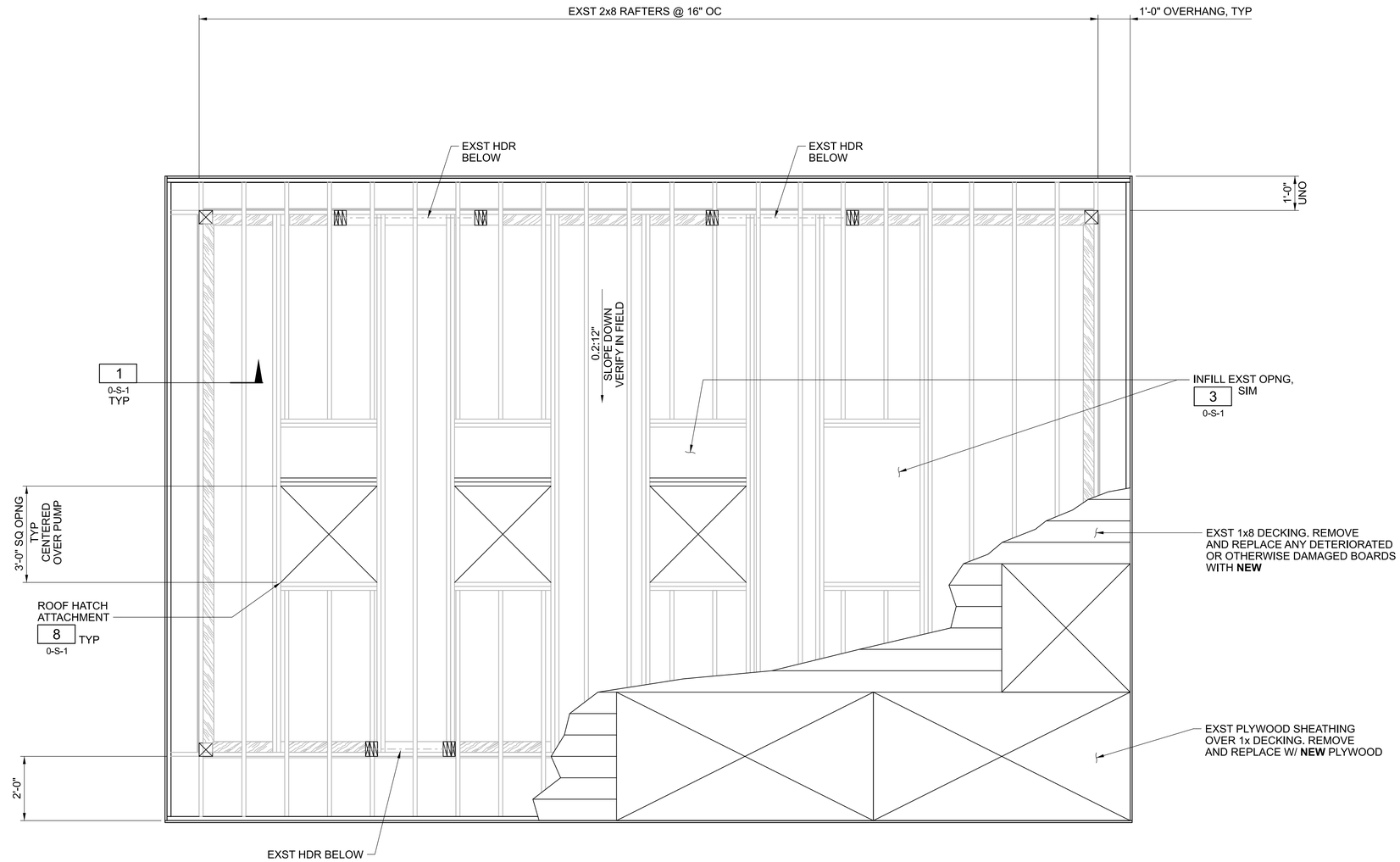
STRUCTURAL

SNEATH PUMP STATION FOUNDATION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-S-1
SHEET NUMBER 36

NOTES:

1. SEE DWG 20-S-1 FOR SHEAR WALLS, HOLDOWN SCHEDULE AND WALL LEGEND.



PLAN
1/2" = 1'-0"

2 0 2 4 FEET
SCALE 1/2"=1'-0"

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

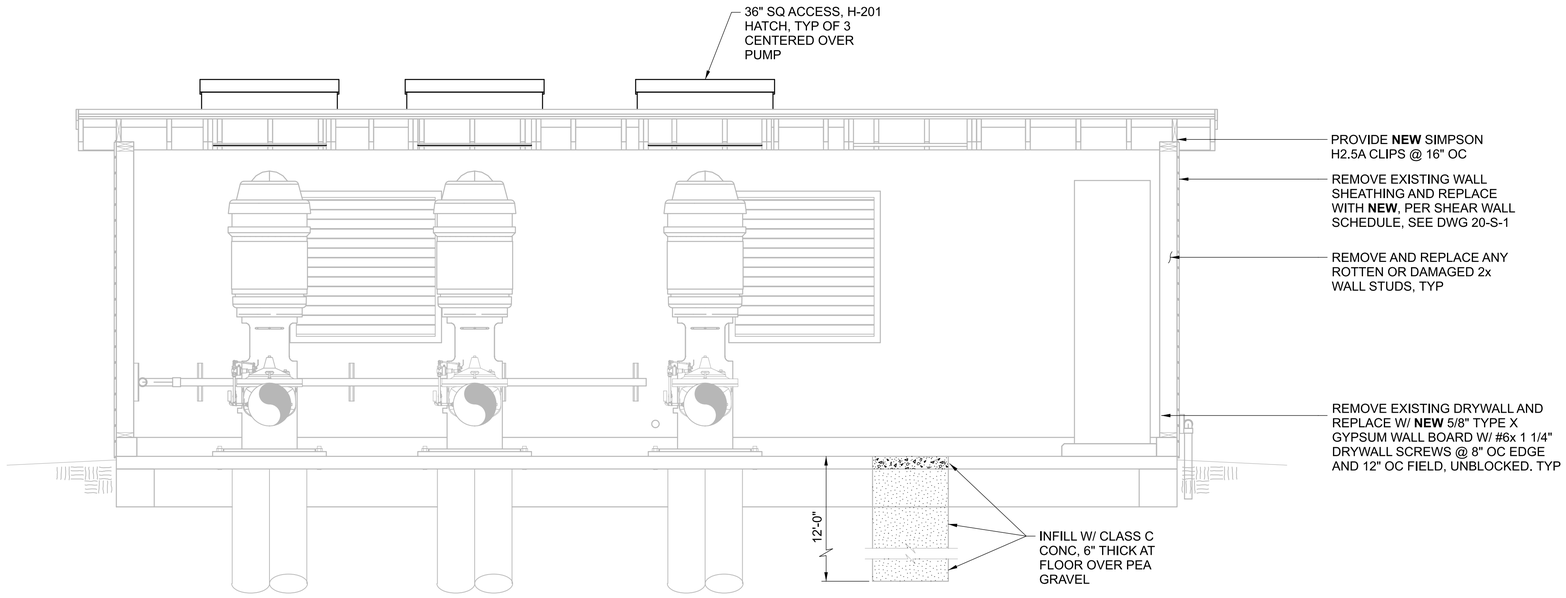
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
SNEATH PUMP STATION
ROOF FRAMING PLAN

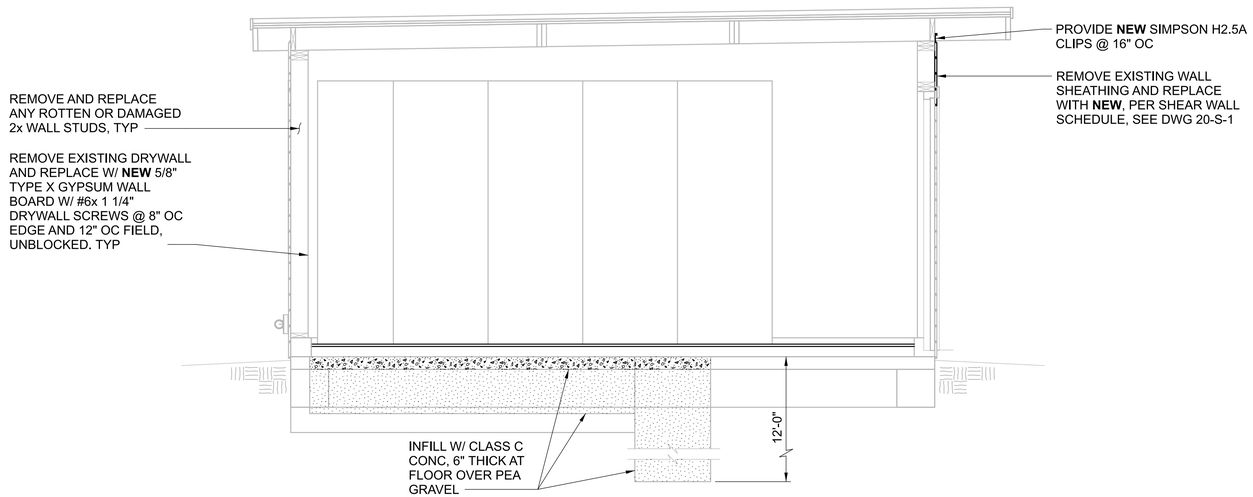
REGISTERED PROFESSIONAL ENGINEER T. TODD KOTEY No. C64847 CIVIL STATE OF CALIFORNIA
01/05/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-S-2
SHEET NUMBER 37

FILENAME: 1977D-20S102.DGN PLOT DATE: 10/22/2020 8:43:40 AM



A SECTION
20-S-1 1/2" = 1'-0"



B SECTION
20-S-1 1/2" = 1'-0"

2 0 2 4 FEET
SCALE 1/2"=1'-0"

DESIGNED H MEHERE
DRAWN C WORRALL
CHECKED T KOTEY
APPROVED T KOTEY

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

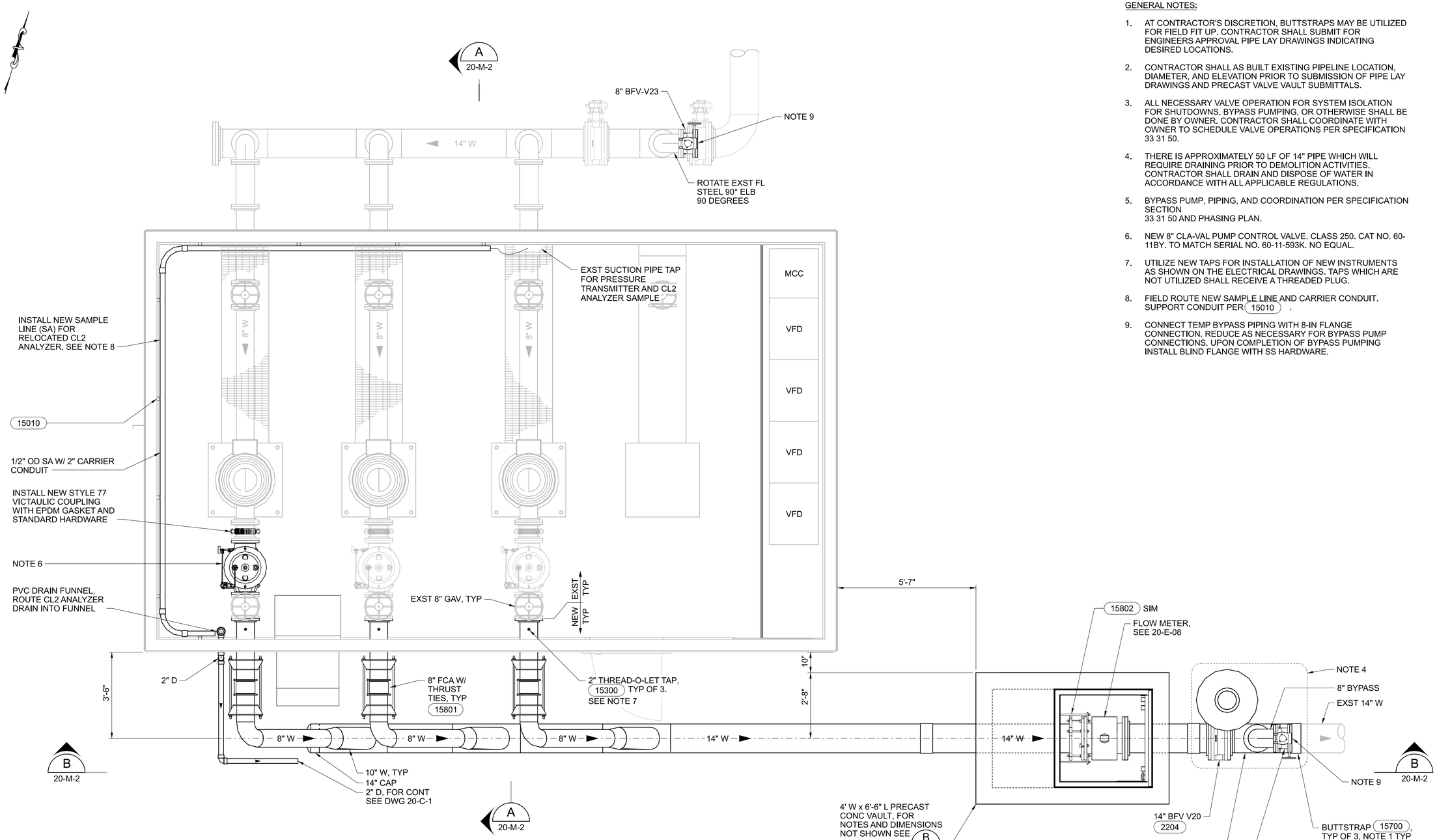
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STRUCTURAL
SNEATH PUMP STATION SECTIONS

REGISTERED PROFESSIONAL ENGINEER T TODD KOTEY No. C49811 CIVIL STATE OF CALIFORNIA
01/05/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-S-3
SHEET NUMBER 38

FILENAME: 1977D-20S103.DGN PLOT DATE: 10/22/2020 8:45:10 AM



PLAN
1/2" = 1'-0"

GENERAL NOTES:

1. AT CONTRACTOR'S DISCRETION, BUTTSTRAPS MAY BE UTILIZED FOR FIELD FIT UP. CONTRACTOR SHALL SUBMIT FOR ENGINEERS APPROVAL PIPE LAY DRAWINGS INDICATING DESIRED LOCATIONS.
2. CONTRACTOR SHALL AS BUILT EXISTING PIPELINE LOCATION, DIAMETER, AND ELEVATION PRIOR TO SUBMISSION OF PIPE LAY DRAWINGS AND PRECAST VALVE VAULT SUBMITTALS.
3. ALL NECESSARY VALVE OPERATION FOR SYSTEM ISOLATION FOR SHUTDOWNS, BYPASS PUMPING, OR OTHERWISE SHALL BE DONE BY OWNER. CONTRACTOR SHALL COORDINATE WITH OWNER TO SCHEDULE VALVE OPERATIONS PER SPECIFICATION 33 31 50.
4. THERE IS APPROXIMATELY 50 LF OF 14" PIPE WHICH WILL REQUIRE DRAINING PRIOR TO DEMOLITION ACTIVITIES. CONTRACTOR SHALL DRAIN AND DISPOSE OF WATER IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
5. BYPASS PUMP, PIPING, AND COORDINATION PER SPECIFICATION SECTION 33 31 50 AND PHASING PLAN.
6. NEW 8" CLA-VAL PUMP CONTROL VALVE. CLASS 250. CAT NO. 60-11BY. TO MATCH SERIAL NO. 60-11-593K. NO EQUAL.
7. UTILIZE NEW TAPS FOR INSTALLATION OF NEW INSTRUMENTS AS SHOWN ON THE ELECTRICAL DRAWINGS. TAPS WHICH ARE NOT UTILIZED SHALL RECEIVE A THREADED PLUG.
8. FIELD ROUTE NEW SAMPLE LINE AND CARRIER CONDUIT. SUPPORT CONDUIT PER 15010 .
9. CONNECT TEMP BYPASS PIPING WITH 8-IN FLANGE CONNECTION. REDUCE AS NECESSARY FOR BYPASS PUMP CONNECTIONS. UPON COMPLETION OF BYPASS PUMPING INSTALL BLIND FLANGE WITH SS HARDWARE.

2 0 2 4 FEET
SCALE 1/2"=1'-0"

REGISTERED PROFESSIONAL ENGINEER
JONATHAN T. TOOMEY
No. C92341
CIVIL
STATE OF CALIFORNIA
02/05/2026

DESIGNED J ROY
DRAWN C WORRALL
CHECKED T DURBIN
APPROVED C BERTSCH

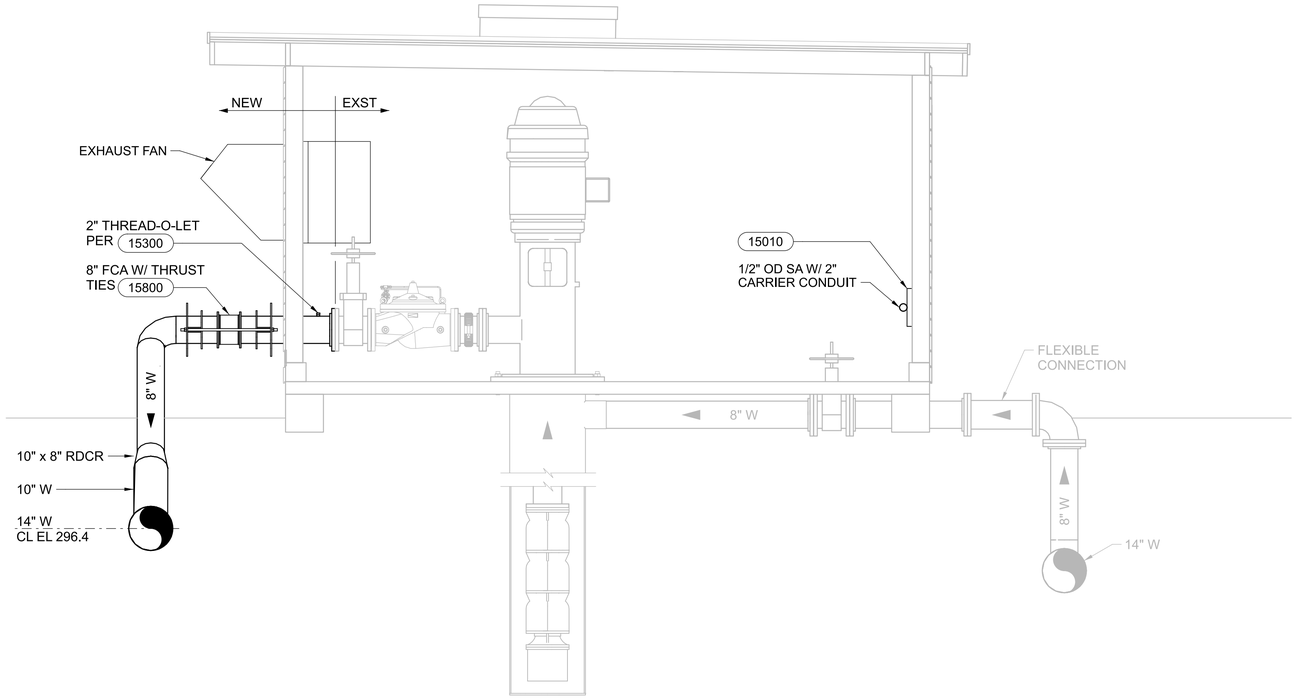
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

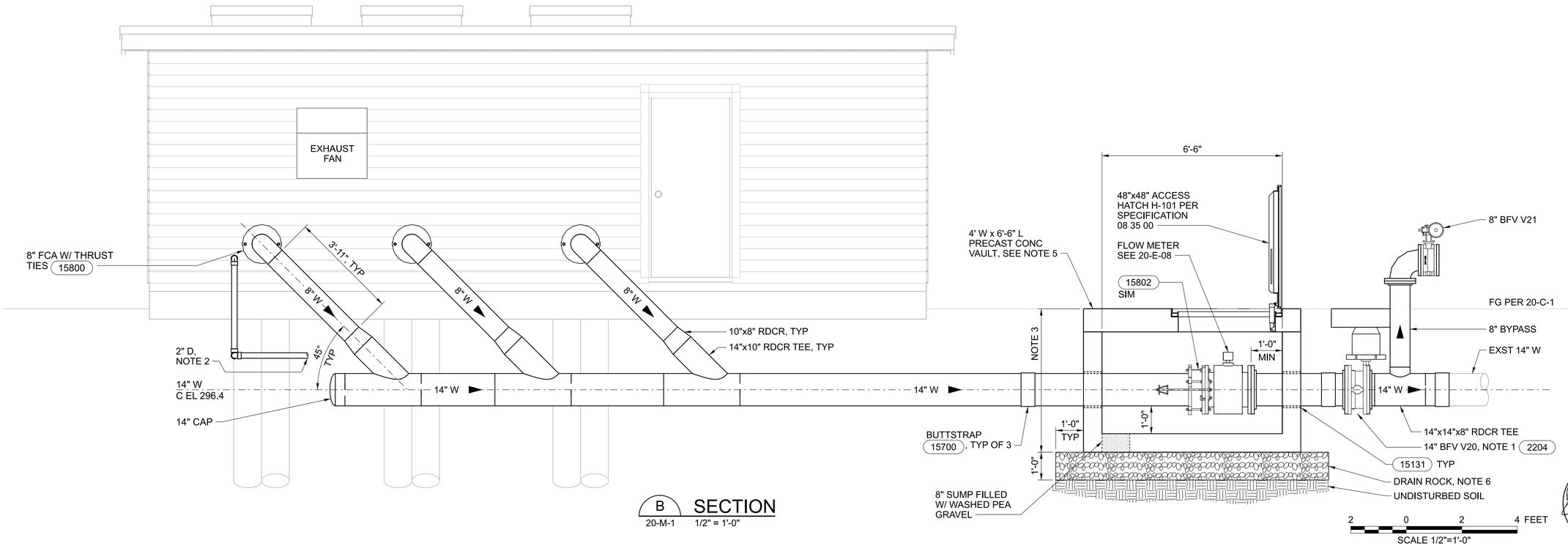
MECHANICAL
SNEATH PUMP STATION PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-M-1
SHEET NUMBER 39

FILENAME: 1977D-20M101.dgn PLOT DATE: 10/22/2020 8:49:10 AM



A SECTION
20-M-1 1/2" = 1'-0"



B SECTION
20-M-1 1/2" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR TO POTHOLE EX PIPE TO CONFIRM DEPTH AND LOCATION.
2. SEE 20-M-1 AND 20-C-2 FOR DRAIN CONTINUATION.
3. ASBUILT EXISTING PIPE ELEVATIONS PRIOR TO PRECAST VAULT SHOP DRAWING FABRICATION TO ENSURE PROPER VAULT DEPTH IS ACCOUNTED FOR.
4. VAULT AND ACCESS HATCH TO BE H20 TRAFFIC RATED.
5. REFERENCE SPECIFICATION 03 40 03 FOR ADDITIONAL REQUIREMENTS.
6. WRAP DRAIN ROCK W/ FILTER FABRIC, MIRAFI TYPE 140N, OR APPROVED EQUAL, MIN 12" OVERLAP.

DESIGNED J ROY
DRAWN J MARTIN
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

MECHANICAL
SNEATH PUMP STATION SECTIONS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-M-2
SHEET NUMBER 40

REGISTERED PROFESSIONAL ENGINEER
JONATHAN HOLT
No. C92341
CIVIL
STATE OF CALIFORNIA
02/05/2026

FILENAME: 1977D-20M201.DGN PLOT DATE: 10/22/2020 8:49:59 AM

FAN SCHEDULE

EQUIPMENT NUMBER	LOCATION	FAN TYPE	AIR FLOW (CFM)	ESP (IN WG)	MOTOR (HP)	POWER SUPPLY (V/PH)	FLA (AMPS)	MOP (AMPS)	WHEEL TYPE	DRIVE	MANF.	MODEL	APPROX WEIGHT (LBS)	NOTES
EF-20-001	PUMP ROOM	EF	3600	0.5	0.75	208 / 1	5.4	15	P	DIRECT	GREENHECK	AER	185	1B, 5, 6, 8,9,10

FAN TYPES:
- CF - CABINET FAN
- DF - INLINE DUCT FAN
- FEF - FUME HOOD EXHAUST FAN
- HVLS - HIGH VOLUME LOW SPEED
- PRV - POWER ROOF VENTILATOR
- EF - EXHAUST FAN
- SF - SUPPLY FAN

WHEEL TYPES:
- C - CENTRIFUGAL
- M - MIXED FLOW
- P - PROPELLER

NOTES:
1. FAN BLADE CONSTUCTION; A) ALUMINUM, B) STEEL, C)304 STAINLESS STEEL
2. PROVIDE CURB EXTENSION
3. MOTOR CURRENT SENSOR RELAYS SHALL BE FURNISHED BY THE MANUFACTURERE TO DETECT OPERATION OF VENTILATION EQUIPMENT
4. PROVIDE BAROMETRIC CONTROL SWITCHES
5. THERMOSTAT SHALL BE PROVIDED COMPATIBLE WITH EQUIPMENT
6. PROVIDE OSHA GUARD ON FAN/ MOTOR END
7. EXHAUST FAN TO BE INTERLOCKED WITH LIGHT SWITCH
8. PROVIDE WEATHERHOOD AND BIRD SCREEN
9. PROVIDE DISCONNECT SWITCH
10. PROVIDE CONTROL DIAL FOR BALANCING

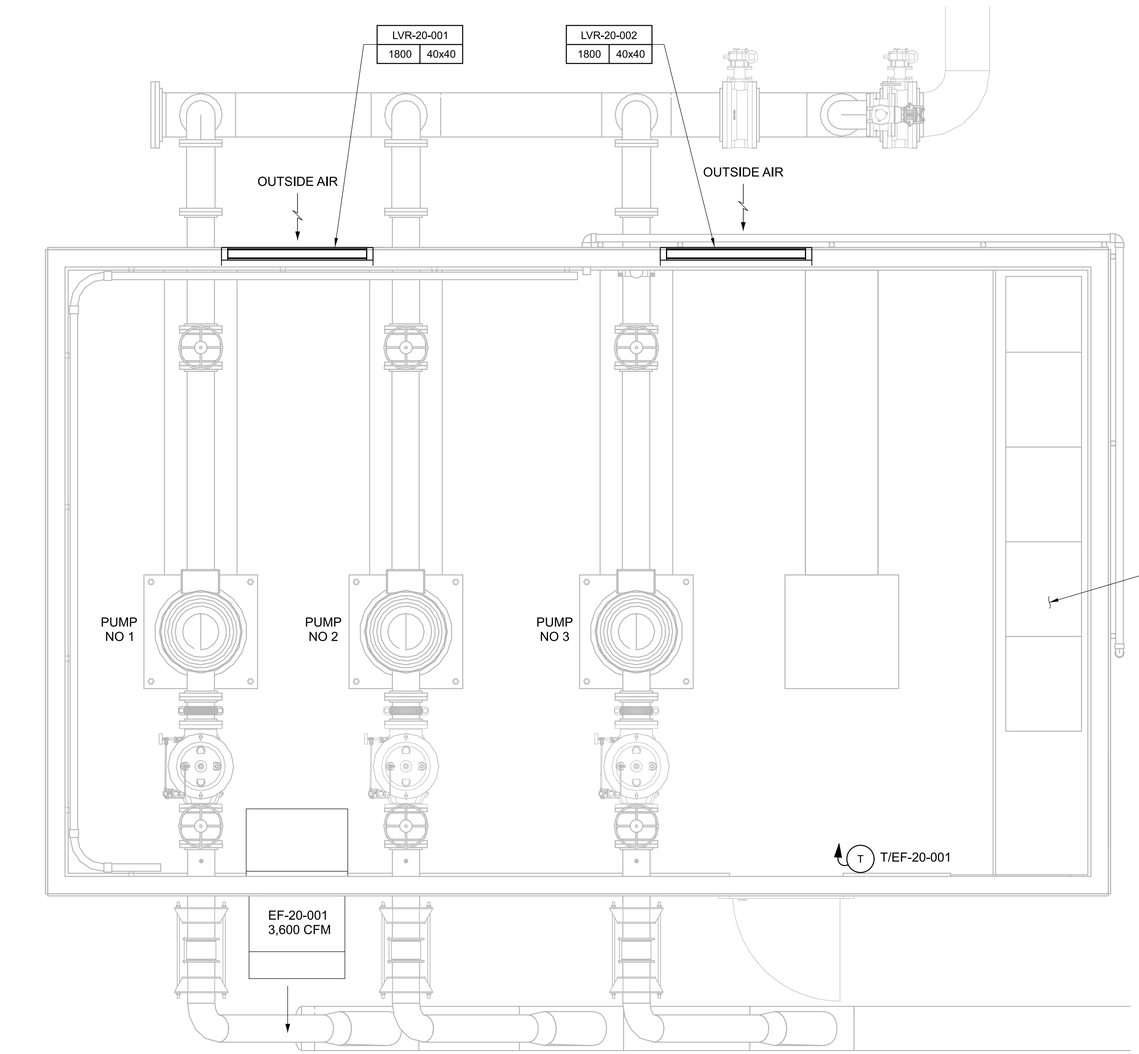
LOUVERS SCHEDULE

EQUIPMENT NUMBER	LOCATION	TYPE	AIR FLOW (CFM)	LENGTH (IN)	WIDTH (IN)	QTY (EA)	FILTER TYPE	THICKNESS (IN)	MATERIAL	FINISH	MANUFACTURER	MODEL	NOTES
LVR-20-001	PUMP ROOM	IN	1,800	40	40	1	MERV 13	2	AL	MATCH TRIM	GREENHECK	ESJ-401	1, 2,3A, 4A, 5A,6A
LVR-20-002	PUMP ROOM	IN	1,800	40	40	1	MERV 13	2	AL	MATCH TRIM	GREENHECK	ESJ-401	1, 2,3A, 4A, 5A,6A

TYPES:
- IN - INTAKE
- EX - EXHAUST
- BI - BI-DIRECTIONAL

MATERIAL:
- AL - ALUMINUM
- GS - GALVANIZED STEEL
- SS - 304 STAINLESS STEEL

NOTES:
1. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATION
2. PROVIDE STAINLESS STEEL HARDWARE
3. PROVIDE FILTER RACK; A)ALUMINUM, B)STEEL, C)304 STAINLESS STEEL
4. PROVIDE SCREEN ACCESSORIES; A) BIRDSCREEN, B)INSECT SCREEN, C)SECURITY BARS
5. PROVIDE FRAME ACCESSORIES; A) EXTENDED SILL, B)FLANGE FRAME, C)GLAZING FRAME, D)HINGE FRAME
6. LOUVER VELOCITY SHALL NOT EXCEED; A) 500 FPM, B)650 FPM
7. PROVIDE EXTERNAL GRAVITY DAMPER
8. EPOXY COATING



PLAN
1/2" = 1'-0"

NOTES:

1. PROVIDE CEILING MOUNT ACCESSORY FOR ELECTRICAL UNIT HEATER.

2 0 2 4 FEET
SCALE 1/2"=1'-0"

01/03/2024

REGISTERED PROFESSIONAL ENGINEER — CYNTHIA V. BERTSCH — No. C65385 — CIVIL — STATE OF CALIFORNIA

DESIGNED D BEGAY
DRAWN C WORRALL
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402- 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

HVAC
HVAC PLAN

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-H-1
SHEET NUMBER 41

COMPONENTS

SYMBOL	DESCRIPTION
RES	RESISTOR
SV	SOLENOID COIL
HTR	HEATER
	CAPACITOR
	DIODE
	DIODE, ZENER
MOV	METAL OXIDE VARISTOR
	AUDIBLE ALARM
?	3 PHASE MOTOR ? = MOTOR HP
M	3 PHASE MOTOR
M	SINGLE PHASE MOTOR
	TRANSFORMER SIZE AND VOLTAGE AS SHOWN
M	UTILITY POWER METER
	UFER GROUND
	GROUND ROD
	CURRENT TRANSFORMER RATIO AS NOTED
	DISCONNECT SWITCH SIZED PER FEEDER
PDB	POWER DISTRIBUTION BLOCK

SWITCHES – OPERATOR

SYMBOL	DESCRIPTION
SW	TOGGLE OR DISCONNECT SWITCH
PB	PUSHBUTTON – NORMALLY OPEN, MOMENTARY ACTION
PB	PUSHBUTTON – NORMALLY CLOSED, MOMENTARY UNLESS LOS (LOCK OUT STOP) WHERE MECHANICALLY HELD
PB	PUSHBUTTON, MECHANICALLY CONNECTED, DOUBLE CIRCUIT – NORMALLY CLOSED AND NORMALLY OPEN
HAND OFF AUTO	SELECTOR SWITCH, 3 POSITION – CONTACT STATUS SHOWN EXISTS I.E. AT POSITION OF HAND, OFF, OR AUTO
	SELECTOR SWITCH, 2 POSITION – MIDDLE POSITION IS DELETED
	ALTERNATE METHOD: X00 = HAND 00X = AUTO, 0X0 = OFF
	POTENTIOMETER

SWITCHES – PROCESS

SYMBOL	DESCRIPTION
FS	FLOW SWITCH – CLOSES UPON INCREASING FLOW
FS	FLOW SWITCH – OPENS UPON INCREASING FLOW
LS	LEVEL SWITCH – CLOSES UPON INCREASING LEVEL
LS	LEVEL SWITCH – OPENS UPON INCREASING LEVEL
PS	PRESSURE SWITCH – CLOSES UPON INCREASING PRESSURE (DECREASING VACUUM)
PS	PRESSURE SWITCH – OPENS UPON INCREASING PRESSURE (DECREASING VACUUM)
TS	TEMPERATURE SWITCH – CLOSES UPON INCREASING TEMPERATURE
TS	TEMPERATURE SWITCH – OPENS UPON INCREASING TEMPERATURE
ZS	LIMIT SWITCH – CLOSES AT SET LIMIT
ZS	LIMIT SWITCH – OPENS AT SET LIMIT
WS	TORQUE SWITCH – CLOSES UPON INCREASING TORQUE
WS	TORQUE SWITCH – OPENS UPON INCREASING TORQUE

DEVICES – FRONT PANEL

SYMBOL	DESCRIPTION
X	INDICATING LIGHT, LETTER "x" INDICATES COLOR: R=RED G=GREEN, A=AMBER, W=WHITE Y=YELLOW, B=BLUE
PIT X	INDICATING LIGHT, PUSH TO TEST
ETM	ELAPSED TIME METER

DEVICES – PROTECTIVE

SYMBOL	DESCRIPTION
S	CT SHORTING TERMINAL BLOCK
PTS	FUSED POTENTIAL TRANSFORMER, 208 / 120 V SECONDARY OR AS SHOWN
PM	POWER MONITOR
SPD	SURGE PROTECTION DEVICE
PFR	POWER FAIL REPLAY

DEVICES – RELAY

SYMBOL	DESCRIPTION
M1	CONTACTOR OR STARTER M1
CR1	CONTROL RELAY CR1
TR2	TIME DELAY RELAY TR2 – ADJUSTABLE TIME DELAY RANGE & SETTING AS SHOWN
TDOE TDOD	TIME DELAY ON ENERGIZATION TIME DELAY ON DE–ENERGIZATION
107, 121	REFERENCED RELAY WITH N.O. CONTACT ON LINE 107 N.C. CONTACT ON LINE 121
CR1 (105)	NORMALLY OPEN, RELAY CONTACT – ACTUATED BY RELAY CR1 COIL LOCATED ON LINE 105
CR1	NORMALLY CLOSED, RELAY CONTACT – ACTUATED BY RELAY CR1
TR2	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER TR2 IS ENERGIZED
TR2	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS ENERGIZED
TR2	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS DE–ENERGIZED
TR2	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER TR2 IS DE–ENERGIZED
TR2	CONTACT OPENS AND CLOSES IN A TIMED REPEAT CYCLE

DEVICES – PROTECTIVE

SYMBOL	DESCRIPTION
V xA xP xT	LOW VOLTAGE MOLDED CASE, INSULATED CASE OR POWER CIRCUIT BREAKER. RATINGS AS SHOWN IN DRAWINGS AND AS DEFINED BELOW: xA: CIRCUIT BREAKER AMERAGE xAT: AMPERAGE TRIP xAF: AMPERAGE FRAME xP: NUMBER OF POLES xT: TRIP PROTECTION MCP: MOTOR CIRCUIT PROTECTION TM: THERMAL MAGNETIC L: LONG TIME DELAY S: SHORT TIME DELAY I: INSTANTANEOUS TRIP G: GROUND FAULT A: ARC FLASH PROTECTION 100% DUTY RATED
100%	y: BREAKER FEATURES / OPTIONS – SHUNT TRIP
S	– KIRK–KEY INTERLOCK
K	– MANUALLY CHARGED PUSHBUTTON OPERATION
M	– ELECTRICALLY CHARGED PUSHBUTTON OPERATION
E	
OL	THERMAL OVERLOAD CONTACT
	THERMAL OVERLOAD ELEMENT
	FUSE MEDIUM VOLTAGE CIRCUIT BREAKER
52	TRIP FUNCTIONS PER DRAWINGS AND SPECIFICATIONS
MFR	MULTIFUNCTION RELAY PER SPECIFICATIONS

WIRING – CONNECTIONS

SYMBOL	DESCRIPTION
	PANEL OR EQUIPMENT WIRING
	FIELD WIRING
	CONDUCTORS – NOT CONNECTED
	CONDUCTORS – CONNECTED
	GROUND CONNECTION
	PLUG AND RECEPTACLE
	INCOMING LINE
123 123	TERMINAL BLOCKS WITH TERMINAL NUMBER AS SHOWN OR AS DETERMINED BY SUBMITTAL
123	DISCONNECTING TERMINAL BLOCK
	FUSE
SHIELD CONDUCTOR	SHIELDED CABLE

PLAN – SYMBOLS

SYMBOL	DESCRIPTION
	CONDUIT, EXPOSED
	CONDUIT, IN SLAB OR BELOW GRADE
	CONDUIT, CONCEALED IN WALL OR CEILING
	CONDUIT STUBBED OUT & CAPPED
	CONDUIT BENDS TOWARD OBSERVER
	CONDUIT BENDS AWAY FROM OBSERVER
	CONDUIT ENDS
J	FLEXIBLE CONDUIT CONNECTION FROM J–BOX TO EQUIPMENT
	CONDUIT CHANGE IN ELEVATION
G	BARE COPPER GROUND WIRE
G	GROUND CONNECTION BOLTED TYPE
G	GROUND CONNECTION EXOTHERMIC WELD TYPE
	DISCONNECT SWITCH
	FIELD MOUNTED DEVICE
	TELEPHONE/DATA RECEPTACLE 2 PORT TA568A, 2 CAT 6 CABLES
#	CONDUIT REFERENCE TO SCHEDULE
T	THERMOSTAT
E	EYS SEAL
J	JUNCTION BOX
	PULL BOX OF SIZE SHOWN (CHRISTY BOX SIZE MINIMUM)
A a #	LIGHTING FIXTURE # – CIRCUIT BREAKER NUMBER A – FIXTURE SCHEDULE REF. a – CONTROL SWITCH REFERENCE
WP #7 WP	DUPLEX RECEPTACLE # – CIRCUIT BREAKER NUMBER WP – WEATHERPROOF (IF SHOWN) GFI – GROUND FAULT TYPE
aM	TOGGLE SWITCH a – FIXTURES CONTROLLED 3 – 3 WAY M = MOTION DETECTOR T = TIMER SWITCH
	SPECIAL RECEPTACLE AS REQUIRED FOR EQUIPMENT TO BE CONNECTED

MISCELLANEOUS ABBREVIATIONS

&	AND	N	NEUTRAL
@	AT	NC	NORMALLY CLOSED
A	AMBER, AMPERES	NHC	NORMALLY HELD CLOSED
AC	ALTERNATING CURRENT	NHO	NORMALLY HELD OPEN
ACK	ACKNOWLEDGE	NIC	NOT IN CONTRACT
AFF	ABOVE FINISHED FLOOR	NL	NIGHT LIGHT
AH	AMP HOUR	NO	NORMALLY OPEN
AI	ANALOG INPUT	NTS	NOT TO SCALE
AIC	AMP INTERRUPTING CAPACITY SYMMETRICAL	(N)	NEW
AM	AMP METER	OC	ON CENTER
AO	ANALOG OUTPUT	OI, OIT	OPERATOR INTERFACE
AWG	AMERICAN WIRE GUAGE	OL	OVERLOAD
ATS	AUTOMATIC TRANSFER SWITCH	ORP	OXIDATION REDUCTION POTENTIAL
BATT	BATTERY	P	POLE
BFC	BELOW FINISHED CEILING	PB	PUSHBUTTON
BOD	BIOCHEMICAL OXYGEN DEMAND	PBX	PULL BOX
BPF	BAND PASS FILTER	PDB	POWER DISTRIBUTION BLOCK
BYP	BYPASS	PF	POWER FACTOR
C	CONDUIT	PFR	POWER FAIL RELAY
CAP	CAPACITOR	PH	HYDROGEN ION CONCENTRATION
CB	CIRCUIT BREAKER	PLC	PROGRAMMABLE LOGIC CONTROLLER
CKT	CIRCUIT	PM	POWER MONITOR
COAX	COAXIAL CABLE	PNL	PANEL
COMM	COMMUNICATION	POT	POTENTIOMETER
CR	CONTROL RELAY	PR	PAIR, TWISTED AND SHIELDED
CT	CURRENT TRANSFORMER	PRI	PRIMARY
CS	CONSTANT SPEED	PROVIDE	FURNISH, INSTALL, AND CONNECT
CU	COPPER	PS	PRESSURE SWITCH
DC	DIRECT CURRENT	PT	POTENTIAL TRANSFORMER
DET	DETAIL	PTT	PUSH TO TEST
DI	DIGITAL INPUT	PVC	POLYVINYLCHLORIDE
DISC	DISCONNECT	PWR	POWER
DO	DIGITAL OUTPUT	REF	REFERENCE
DPDT	DOUBLE POLE DOUBLE THROW	RFI	RADIO FREQUENCY INTERFERENCE
DWG	DRAWING	RMS	ROOT MEAN SQUARE
E–DTL	ELECTRICAL DRAWING DETAIL	RTD	RESISTANCE TEMPERATURE DETECTOR
ELEV	ELEVATION	RST	RESET
ENET	ETHERNET	RVAT	REDUCE VOLTAGE AUTO TRANSFORMER
ETM	ELAPSED TIME METER	RTU	REMOTE TERMINAL UNIT
ESW	ETHERNET SWITCH	(R)	REWIRE, RELOCATE, REVISE, REUSE
(E)	EXISTING	SCH	SCHEDULE
FCS	FIELD CONTROL STATION	SEC	SECONDARY, SECOND
FLA	FULL LOAD AMPS	SECS	SECONDS
FLEX	FLEXIBLE LIQUID TIGHT CONDUIT	SEL	SELECTOR
FS	FULL SPEED	SFA	SERVICE FACTOR AMPS
FVNR	FULL VOLTAGE NON–REVERSING	SPEC	SPECIFICATION
FVR	FULL VOLTAGE REVERSING	SPD	SURGE PROTECTIVE DEVICE
FWD	FORWARD	SS	STAINLESS STEEL
(F)	FUTURE	SSRC	STAINLESS STEEL RIGID CONDUIT
GALV	GALVANIZED	SSS	SOLID STATE STARTER
GFI	GROUND FAULT INTERRUPTER	STT	START
GND	GROUND	STP	STOP
GRS	GALVANIZED RIGID STEEL CONDUIT	SV	SOLENOID VALVE
GRS–PVC	PVC COATED GRS CONDUIT	SW	SWITCH
HI	HIGH	SWBD	SWITCHBOARD
HIM	HUMAN INTERFACE MODULE	SYM	SYMMETRICAL
HOA	HAND OFF AUTO	TB	TERMINAL BLOCK
HP	HORSE POWER	TC	TIME CLOCK
HPS	HIGH PRESSURE SODIUM	TDOD	TIME DELAY ON DE–ENERGIZATION
HS	HAND SWITCH	TDOE	TIME DELAY ON ENERGIZATION
HTR	HEATER	TELCO	TELEPHONE COMPANY
HZ	HERTZ	TM	THERMAL MAGNETIC
HZD	HAZARD	TEMP	TEMPERATURE
I	INTERLOCK	TR	TIME DELAY RELAY
I/O	INPUT/OUTPUT	TRIAD	TWISTED AND SHIELDED 3 CONDUCTOR
INST	INSTANTANEOUS	TS	TEMPERATURE SWITCH
ISR	INTRINSICALLY SAFE RELAY	TSPR	TWISTED AND SHIELDED PAIR
IS	INTRINSICALLY SAFE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
J	JUNCTION BOX	TYP	TYPICAL
K	KILO, PREFIX	UG	UNDERGROUND
LA	LIGHTNING ARRESTOR	ULH	ULTRA LOW HARMONIC
LC	LIGHTING CONTACTOR	UON	UNLESS OTHERWISE NOTED
LEL	LOWER EXPLOSION LIMIT	UPS	UNINTERRUPTIBLE POWER SUPPLY
LOS	LOCK OUT STOP	V	VOLTAGE
LS	LIMIT SWITCH	VA	VOLT AMPS
M	MOTOR CONTACTOR	VAR	VOLT AMPS REACTIVE
MAG	MAGNETIC FLOWMETER	VFD	VARIABLE FREQUENCY DRIVE
MAX	MAXIMUM	VLV	VALVE
MCC	MOTOR CONTROL CENTER	VM	VOLTMETER
MCM	THOUSAND CIRCULAR MILS	VMR	VOLTAGE MONITOR RELAY
MCP	MOTOR CIRCUIT PROTECTOR	VR	VOLTAGE RELAY
MCS	MOLDED CASE SWITCH	W	WATTS
MH	MANHOLE	WP	WEATHER PROOF, NEMA 3R
MIN	MINIMUM, MINUTE	WTP	WATER TREATMENT PLANT
MODEM	MODEM	WWTP	WASTE WATER TREATMENT PLANT
MOV	MOTOR OPERATED VALVE	XFMR	TRANSFORMER
MTR	MOTOR	Z	IMPEDANCE
MUX	MULTIPLEXER	ZS	LIMIT SWITCH
MV	MERCURY VAPOR, MEDIUM VOLTAGE		

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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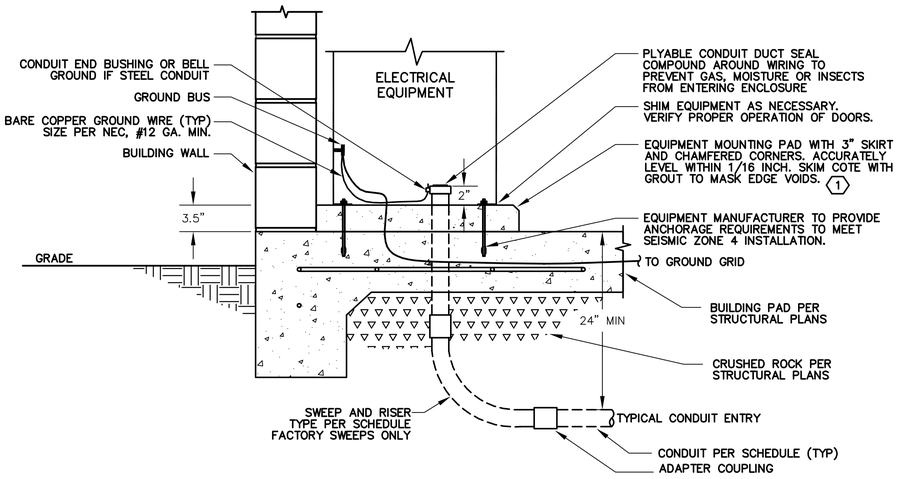
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ELECTRICAL
SYMBOLS AND ABBREVIATIONS

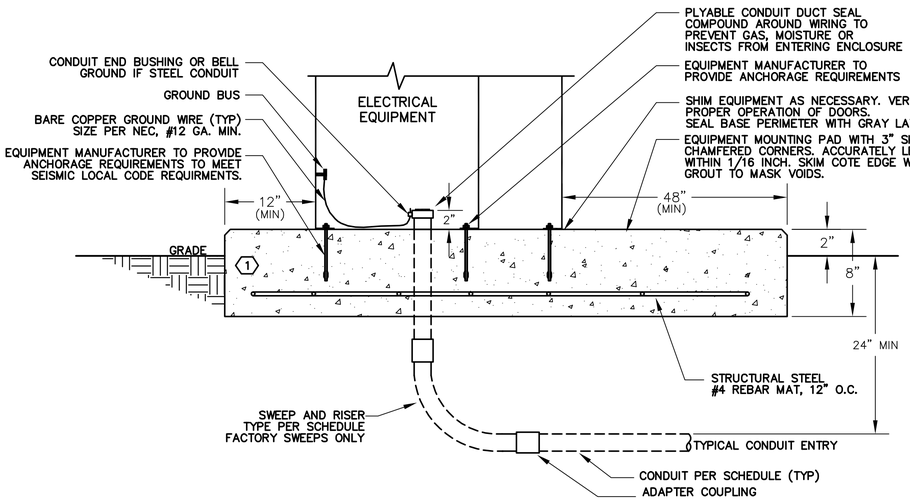
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 00-E-01
SHEET NUMBER 42



IECP — **INDOOR EQUIPMENT CONCRETE PAD DETAIL**

NOT TO SCALE

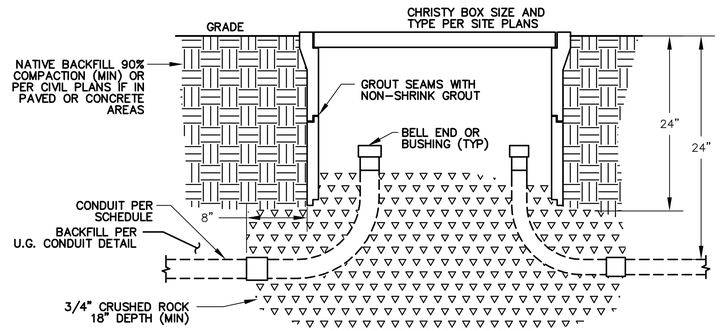
NOTES: 1 CONTRACTOR SHALL VERIFY EQUIPMENT SIZE AND SIZE PAD ACCORDINGLY. EQUIPMENT MANUFACTURER TO PROVIDE EQUPMENT DIMENSIONS.



OECP — **OUTDOOR EQUIPMENT CONCRETE PAD DETAIL**

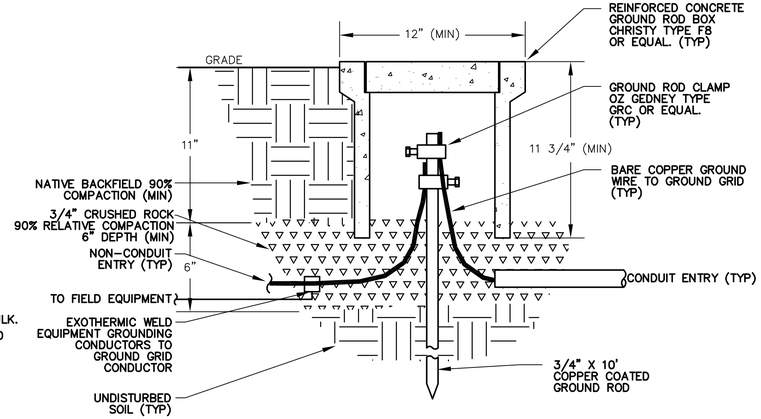
NOT TO SCALE

NOTES: 1 CONTRACTOR SHALL VERIFY EQUIPMENT SIZE AND SIZE PAD ACCORDINGLY. EQUIPMENT MANUFACTURER TO PROVIDE EQUPMENT DIMENSIONS.



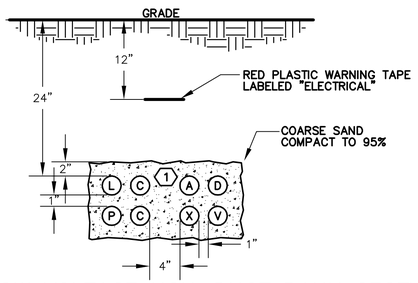
UPB — **UNDERGROUND PULL BOX DETAIL**

NOT TO SCALE



GIB — **GROUND INSPECTION BOX DETAIL**

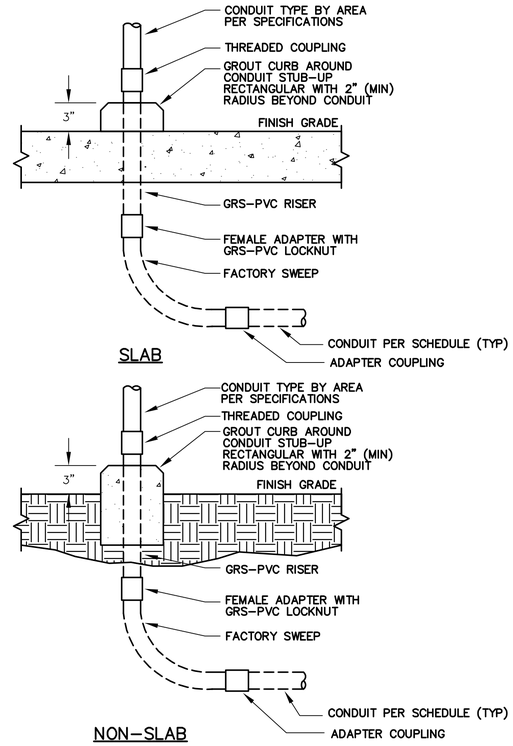
NOT TO SCALE



LVC — **LOW VOLTAGE NON-DUCT BANK SECTION**

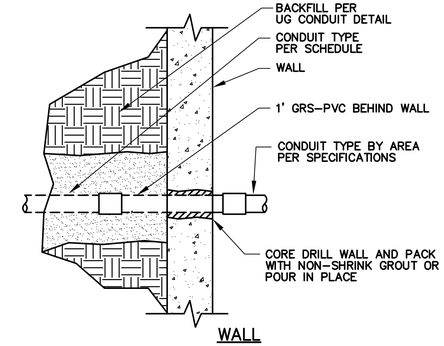
NOT TO SCALE

NOTES:
1. NUMBER OF CONDUITS PER PLANS AND SCHEDULE. MAXIMUM DEPTH OF TRENCH SHALL BE 42". DESIGN TRENCH DESIGN AND INSTALL TRENCH TO MAINTAIN 6" VERTICAL CLEARANCE AND 12" HORIZONTAL CLEARANCE FROM PIPES.
2. P, L, OR C DESIGNATION FOR POWER OR CONTROL CONDUITS.
3. A, D, V, OR X DESIGNATION FOR COMMUNICATION (TELEPHONE, DATA, VIDEO, OR INSTRUMENTATION) CONDUITS.
4. USE CONDUIT SPACERS TO SUPPORT CONDUITS AND MAINTAIN SPACING (3' INTERVALS)



SLAB

NON-SLAB



WALL

ECT — **EXPOSED CONDUIT TRANSITION DETAIL**

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

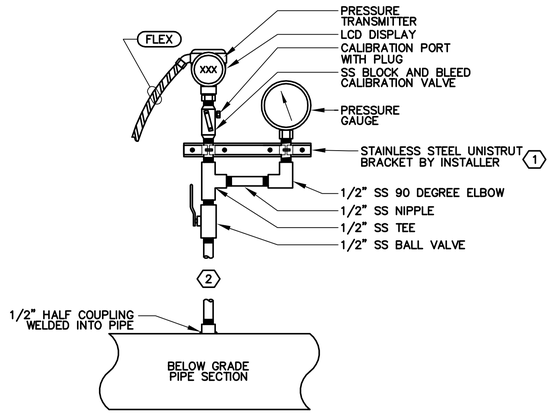
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ELECTRICAL
DETAILS 1

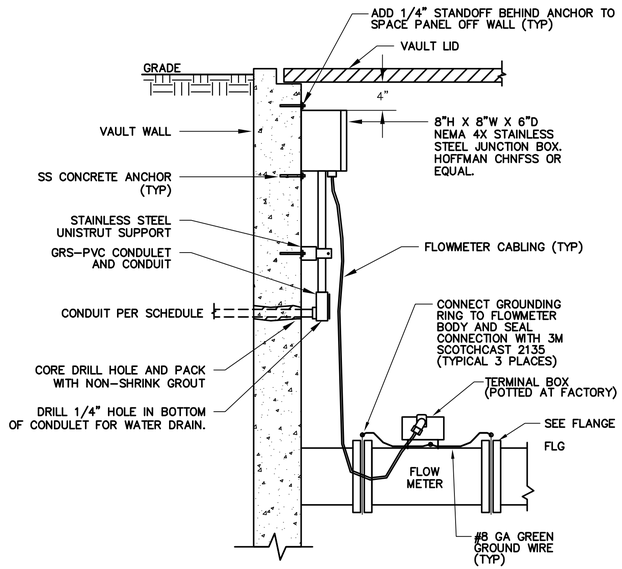
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 00-E-02
SHEET NUMBER 43



PT — PRESSURE TRANSMITTER DETAIL

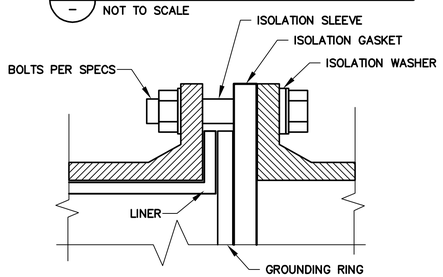
NOT TO SCALE

NOTES: (1) MOUNT PRESSURE TRANSMITTER AND GAUGE TO BUILDING WALL
(2) PIPING PER CIVIL PLANS



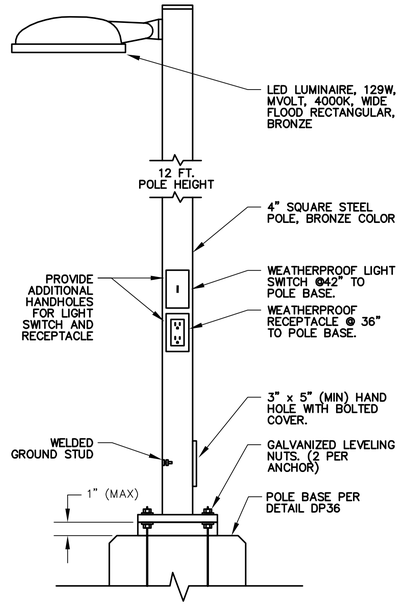
FM — FLOWMETER VAULT DETAIL

NOT TO SCALE



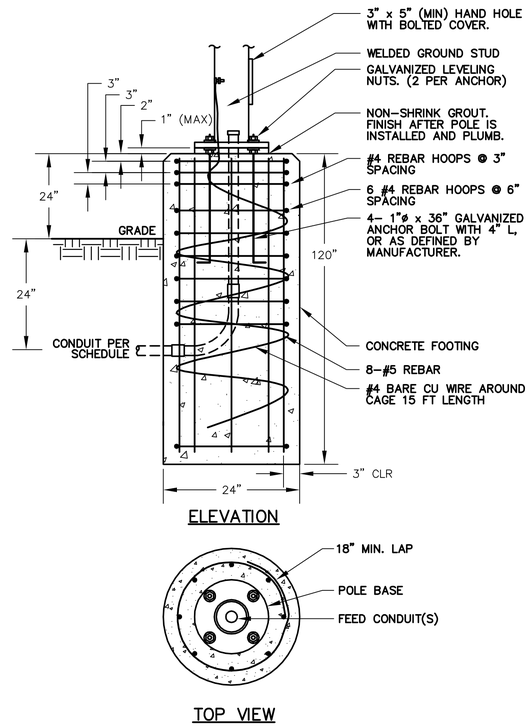
FLG — FLOWMETER FLANGE ASSEMBLY

NOT TO SCALE



AL — AREA LIGHT DETAIL

NOT TO SCALE

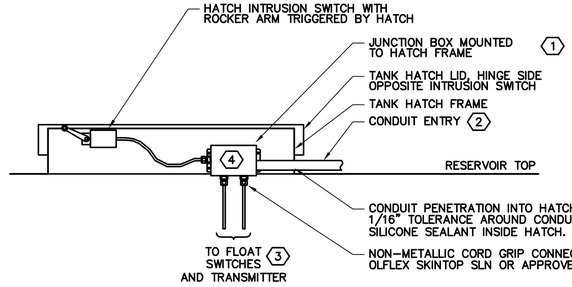


ELEVATION

TOP VIEW

DP24 — DRILLED PIER DETAIL 24

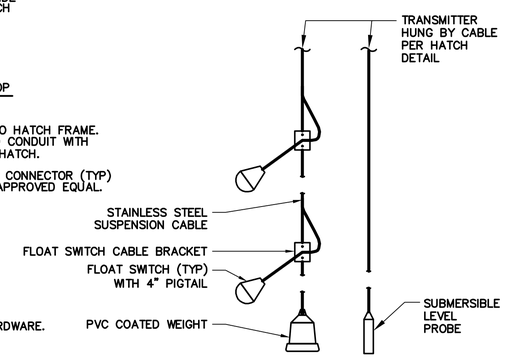
NOT TO SCALE



RHD — RESERVOIR HATCH DETAIL

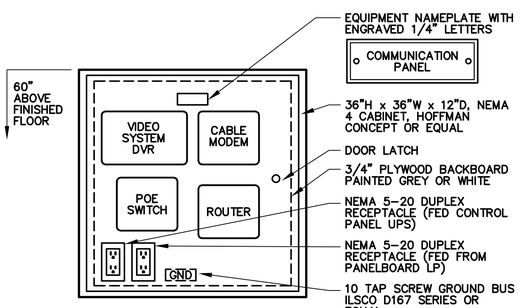
SECTION VIEW, NOT TO SCALE

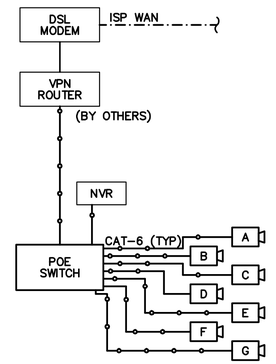
NOTES:
(1) 6"H X 4"W X 4"D, NEMA 4X PVC JUNCTION/SPLICE BOX. JUNCTION BOX SHALL BE HOFFMAN JFGQRR OR EQUAL. MOUNT BOX ON WALL OF HATCH FRAME USING STAINLESS STEEL HARDWARE. MOUNT BOX WITH HINGE ON BOTTOM. APPLY SILICONE SEALANT TO PENETRATION BACKS TO SEAL BOX COMPLETELY.
(2) CONDUIT SHALL BE SUPPORTED ON ROOF OF RESERVOIR BY SOLID-BACKED GALVANIZED STEEL UNISTRUT THAT IS FULL PERIMETER SEAL-WELDED TO THE RESERVOIR PRIOR TO PAINTING. UNISTRUT SHALL BE SIZED TO ACCEPT TWO ADDITIONAL (FUTURE) CONDUIT. UNISTRUT SHALL BE PAINTED ALONG WITH TANK.
(3) FLOAT SWITCH CABLES SHALL BE ATTACHED TO LADDER INSIDE TANK. USE ALL-PLASTIC ZIP TIES ON 2 FOOT CENTERS. HIGH FLOAT SHALL TRIP 4 INCHES BELOW OVERFLOW OUTLET. LOW FLOAT SHALL (UN)TRIP 6 INCHES ABOVE PUMP SUCTION OUTLET.
(4) SPLICES IN SPLICE BOX SHALL BE WATERPROOF. AFTER TESTING, INSTALL EPOXY RESIN SPLICE KITS, 3M SCOTCH-CAST OR APPROVED EQUAL.



FST — FLOAT SWITCH AND LEVEL TRANSMITTER DETAIL

NOT TO SCALE





ETHERNET VIDEO CAMERAS

CP — COMMUNICATION PANEL

NOT TO SCALE

NOTES: 1. PANEL SHALL BE NEMA 1 WHEN INSTALLED INDOORS AT PUMP STATIONS. PANEL SHALL BE NEMA 3R WHEN INSTALLED OUTDOORS AT STREAM LEVEL MONITORING STATION.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
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ELECTRICAL
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7/16/25

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APPROVED C. BERTSCH

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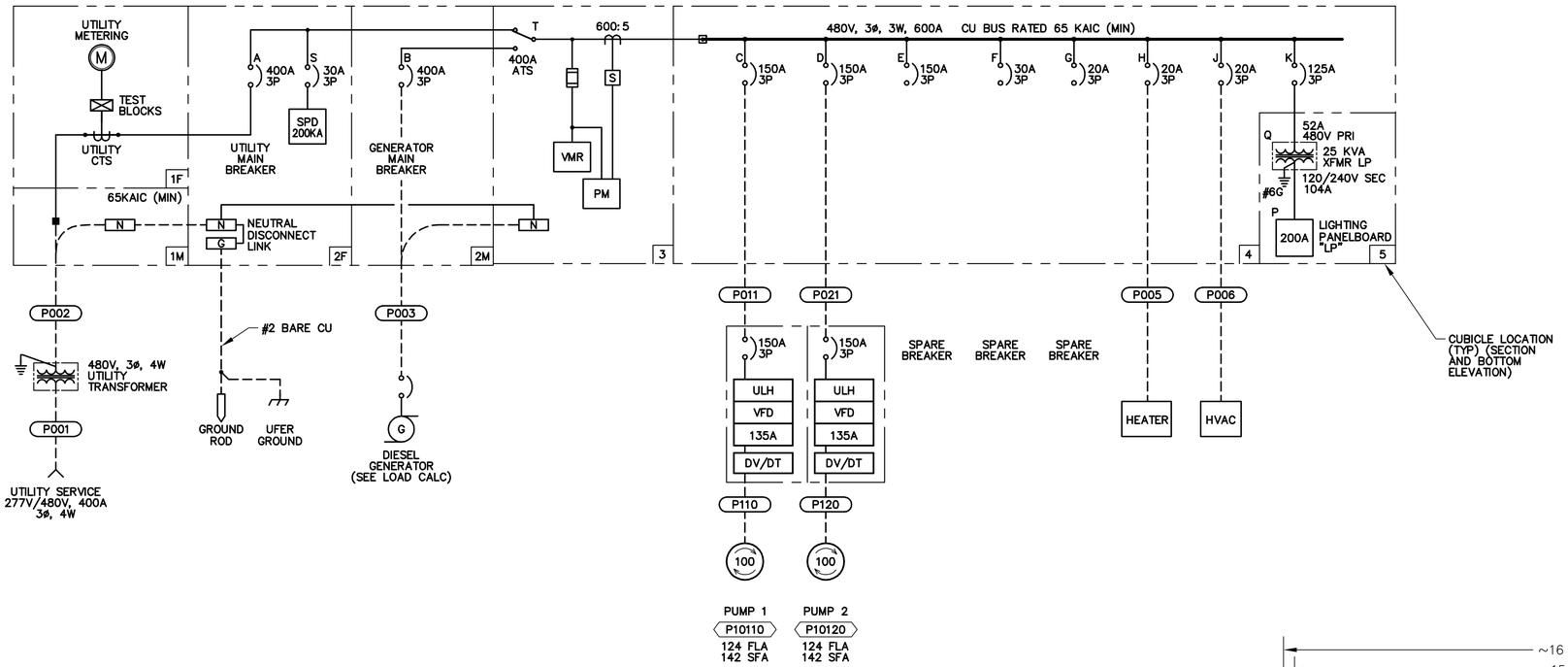
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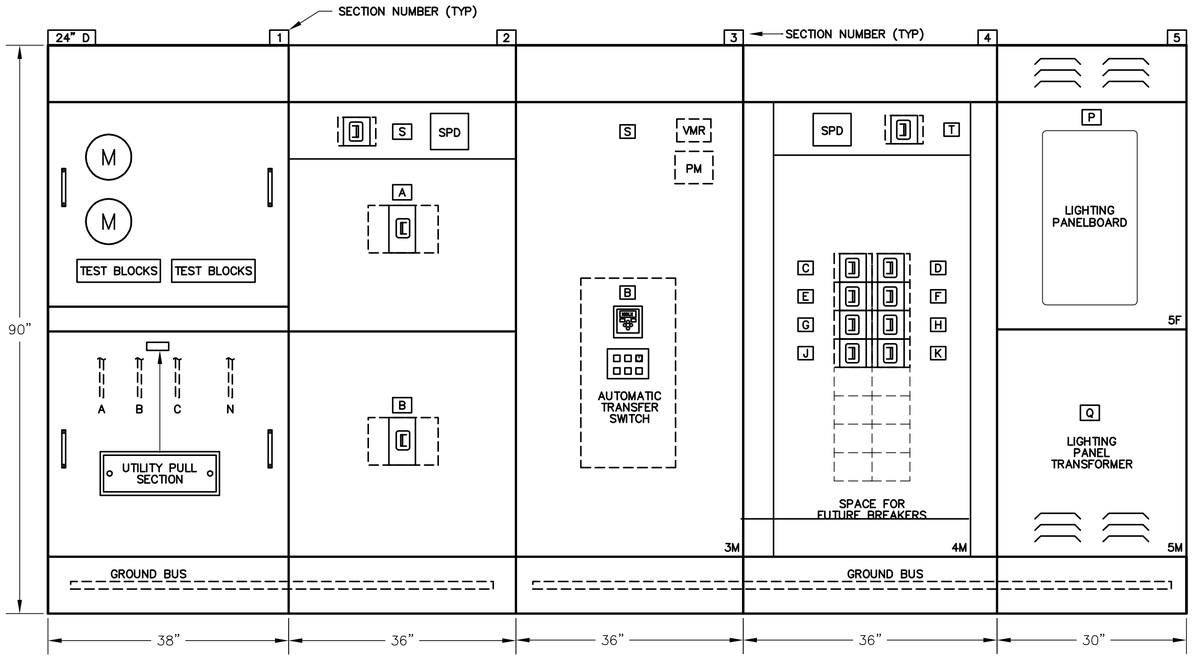
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

ELECTRICAL
DETAILS 2

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 00-E-03
SHEET NUMBER 44



ONE-LINE DIAGRAM

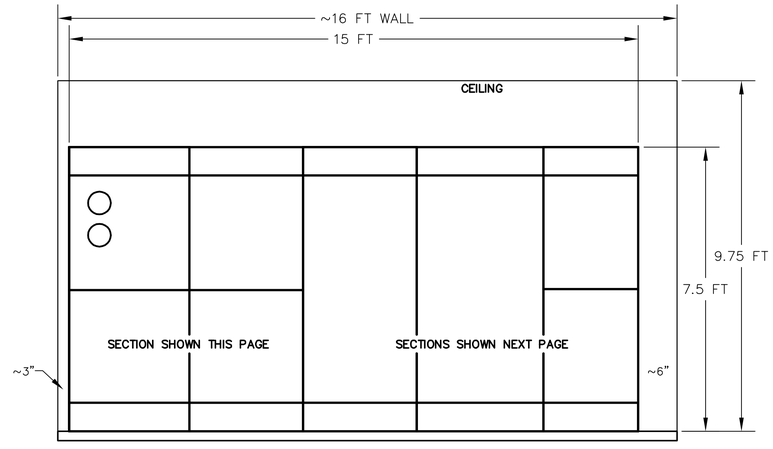


METER/MAIN ELEVATION

NEMA 1, INDOOR

ATS AND DISTRIBUTION ELEVATION

NEMA 1, INDOOR



ELECTRICAL METER WALL ELEVATION

NEMA 1, INDOOR

GENERAL NOTES:

1. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
2. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
3. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, ON EXTERIOR DOORS AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
4. FURNISH CODE REQUIRED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

REGISTERED PROFESSIONAL ENGINEER
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ELECTRICAL
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7/16/25

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CHECKED M. FRISCH
APPROVED C. BERTSCH

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FILE: 10-E-01.DWG
DATE: JUL 22, 2025 TIME: 3:21:47PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION METER/MAIN ONE-LINE AND ELEVATION

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-01
SHEET NUMBER 45

LOAD CALCULATIONS

LOAD DESCRIPTION		CONNECTED LOAD LOAD	QTY	TOTAL	DEMAND LOAD LOAD	QTY	TOTAL	GENERATOR LOAD LOAD	QTY	TOTAL	SHORT CIRCUIT CALCULATIONS SCA/LOAD	QTY	TOTAL
											UTILITY	1	5419.1A AIC
100HP PUMP		124.00 A	2	206183.3 VA	124.00 A	2	206183.3 VA	124.00 A	2	206183.3 VA	744.00 A	2	1488.0A
5KW HVAC SYSTEM		6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	36.08 A	1	36.1A
5KW HEATER		6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	6.01 A	0	5000.0 VA	0.00 A	1	0.0A
PANELBOARD LP	120/240	17.52 A	1	14564.0 VA	14.01 A	1	11651.2 VA	14.01 A	1	11651.2 VA			
	TOTAL LOAD =	277.55 A	<	230747.3 VA	274.04 A	<	227834.5 VA	274.04 A	<	227834.5 VA	TOTAL		6943.2A
LOAD CORRECTION FACTORS								GENERATOR SIZE			MAXIMUM SHORT		
LARGEST MOTOR LOAD x 25%:								NAMEPLATE = 275 KW 343.75 KVA			CIRCUIT PRODUCED =		6943.2A AIC
100HP HP => 0.25 x	103091.7 VA =	31.00 A		25772.9 VA	31.00 A		25772.9 VA	@ TEMP OF 100 deg F					
80% BREAKER DERATING =	TOTAL x 0.25 =	77.14 A		64130.1 VA	76.26 A		63401.9 VA	ELEVATION OF 800 FT ASL			EQUIPMENT RATING =		65000A AIC
FOR CONTINUOUS LOADS NEC 210-20								DERATED SIZE = 268.7 KW 335.8 KVA			MINIMUM PER SPEC		
	SERVICE SIZE (MIN) =	385.68 A		320650.3VA	381.30 A		317009.3VA	AMPERAGE = 404 A @ 0.8 PF			NO SERIES DERATING		
	UTILITY SERVICE =	400 AMP						UTILIZATION % = 76 % @ 0.90 PF			EQUIPMENT IS "OK"		
	480V, 3 PHASE, 4 WIRE							VOLT DIP % = 15% MAXIMUM					

GENERAL NOTES:

1. REAR ACCESS SHALL NOT BE REQUIRED TO SERVICE OR REPLACE SWITCHBOARD COMPONENTS.
2. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
3. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
4. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
5. FURNISH CODE REQURIED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

NOTES:

ADD THE PREFIX 10 TO COMPLETE CONDUIT, INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET.

NOTES REFERENCED IN DRAWING:

(1) MOUNT PFR AND POWER MONITOR BEHIND THIS DOOR ACCESS TO DEVICES SHALL BE BEHIND DOOR.

PANEL "LP"

LOCATION:MCC SECTION
ENCLOSURE:NEMA 1A
AIC RATING:22 KAIC

120/ 240 VOLTS, 1 PHASE, 3 WIRE
100 AMP BUS
100 AMP MAIN BREAKER

BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS		AMPS/ POLE	BKR NO.	BKR NO.	AMPS/ POLE	LINE AMPS		LOAD VA	DESCRIPTION	BKR NO.
1	LIGHTING ELECTRICAL ROOM	168	1.4		20/1	1	2	20/1	5.0		600	CONTROL PANEL	2
3	LIGHTING PUMP ROOM	168		1.4	20/1	3	4	20/1		1.7	200	CONTROL PANEL AUXILLIARY	4
5	LIGHTING OUTDOORS	228	1.9		20/1	5	6	20/1	0.0		0	SPARE	6
7	RECEPTACLE ELECTRICAL ROOM	1200		10.0	20/1	7	8	20/1		0.0	0	SPARE	8
9	RECEPTACLE PUMP ROOM	1200	10.0		20/1	9	10	20/1	10.0		1200	ELECTRICAL ROOM EXHAUST FAN	10
11	RECEPTACLE OUTDOORS	900		7.5	20/1	11	12	20/1		15.0	1800	PUMP ROOM EXHAUST FAN	12
13	SPARE	0	0.0		20/1	13	14	20/1	1.7		200	COMMUNICATION PANEL	14
15	METERING SYSTEM	600		5.0	20/1	15	16	20/1		4.2	500	GENERATOR BATTERY CHARGER	16
17	TANK 6 PAX SYSTEM	600	5.0		20/1	17	18	40/2	10.0		1200	GENERATOR BLOCK HEATER	18
19	TANK 6A PAX SYSTEM	600		5.0	20/1	19	20			10.0	1200		20
21	(E) TRANSMITTER PANEL	600	5.0		20/1	21	22	20/1	0.0		0	SPARE	22
23	SPARE	0		0.0	20/1	23	24	20/1		1.7	200	CL2 ANALYZER	24
25	SPARE	0	0.0		20/1	25	26	20/1	10.0		1200	VEHICLE GATE	26
27	SPARE	0		0.0	20/1	27	28	20/1		0.0	0	SPARE	28
29	SPARE	0	0.0		20/1	29	30	20/1	0.0		0	SPARE	30
31	SPARE	0		0.0	20/1	31	32	20/1		0.0	0	SPARE	32
33	SPACE	0	0.0			33	34		0.0		0	SPACE	34
35	SPACE	0		0.0		35	36			0.0	0	SPACE	36
37	SPACE	0	0.0			37	38		0.0		0	SPACE	38
39	SPACE	0		0.0		39	40			0.0	0	SPACE	40
41	SPACE	0	0.0			41	42		0.0		0	SPACE	42

PHASE	A	B		A	B	PHASE
LEFT SIDE AMPS	23.30	28.90	NEUTRAL	36.67	32.50	RIGHT SIDE AMPS
LEFT SIDE KVA	2.80	3.47		4.40	3.90	RIGHT SIDE KVA
			GROUND			
TOTAL PHASE KVA	7.20	7.37		14.56		TOTAL KVA
TOTAL PHASE AMPS	60	61		60.68		TOTAL AMPS @ 240V, 1P
% OF AVERAGE	99	101		0.80		DIVERSITY FACTOR
				11.65		LOAD KVA

NOTES:
1 MEANS OF WIRE COLOR CODING SHALL BE POSTED ON PANELBOARD PER NEC 210 (4)
2 ASTERISK (*) DENOTES GFI BREAKER REQUIRED WITH 5 MA SENSITIVITY
3 TILDA (~) DENOTES GFI BREAKER REQUIRED WITH 30 MA SENSITIVITY

REGISTERED PROFESSIONAL ENGINEER
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7/16/25

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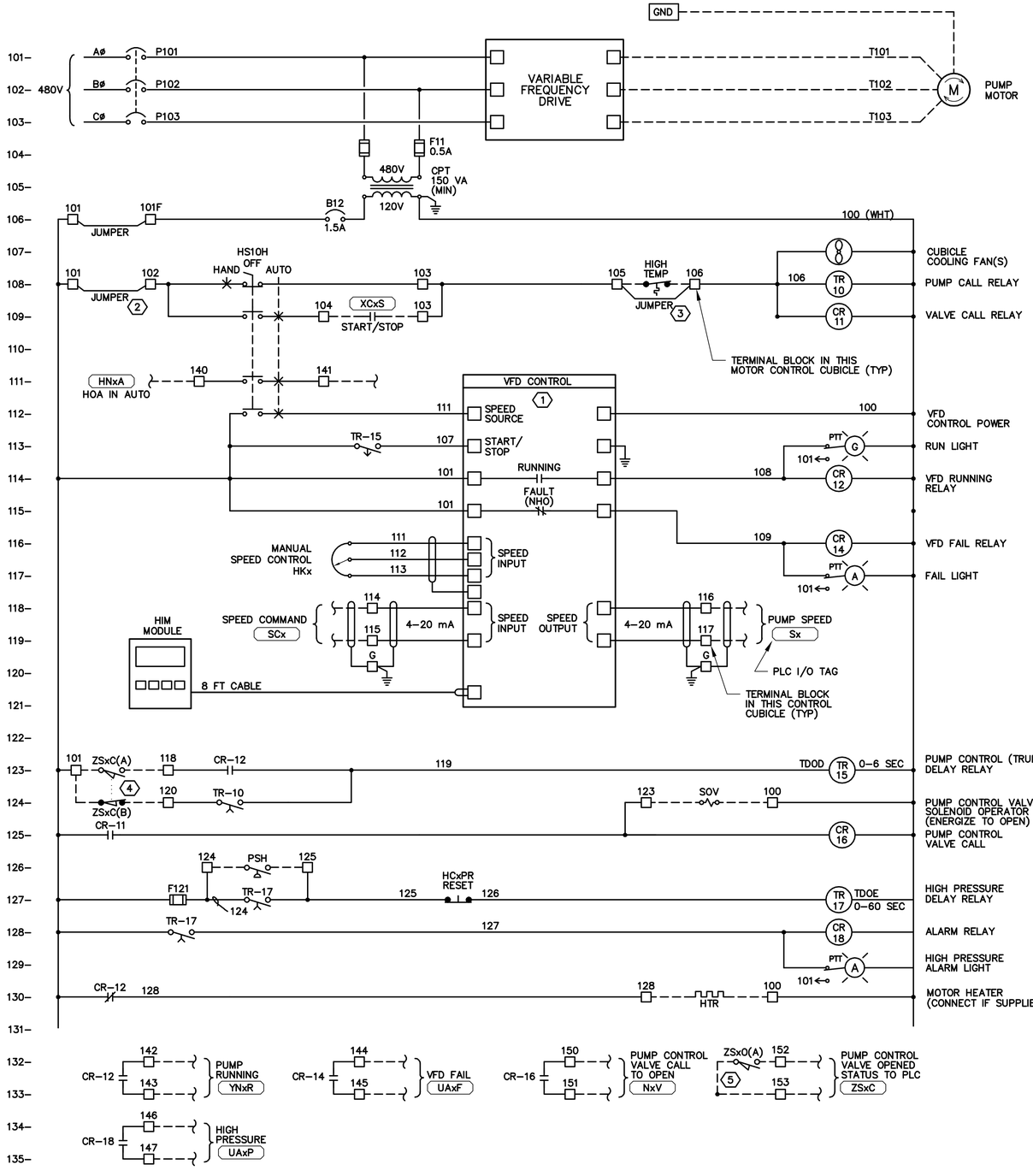
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

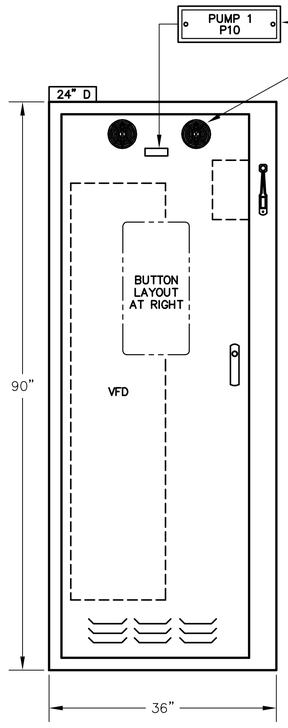
ELECTRICAL
LAKE PUMP STATION
LOAD CALCULATION AND PANELBOARD SCHEDULE

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-02
SHEET NUMBER 46



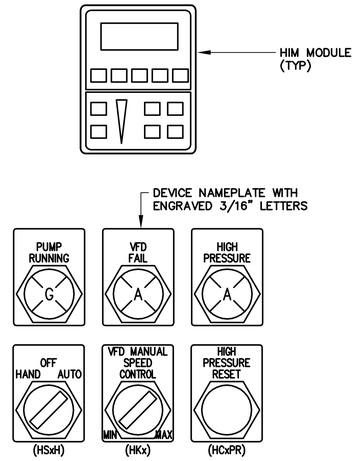
VFD PUMP ELEMENTARY DIAGRAM

TYPICAL FOR LAKE PS: P10110 P10120



VFD ELEVATION

INDOOR, NEMA 1



DOOR LAYOUT

NOT TO SCALE

PANEL FABRICATION METHODS

1. NEMA 1, INDOOR INSTALLATION.
2. ALL SEAMS CONTINUOUS WELDED.
3. OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCHES.
4. DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
5. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
6. INTERNAL SCREWS, BOLTS, AND NUTS SHALL BE MACHINE THREAD.
7. EXTERIOR PANEL COLOR: BRUSHED STAINLESS STEEL
8. PLASTIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT.
9. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
10. ALL WIRING SHALL BE PERMANENTLY LABELLED WITH WIRE MARKERS ON BOTH ENDS.
11. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
12. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.

NOTES REFERENCED IN DRAWING:

1. PROVIDE VFD WITH 120 VAC CONTROL CIRCUIT INTERFACE AND ELECTRONIC OVERLOAD PROTECTION.
2. MOTOR OVERTEMPERATURE SWITCH, INSTALL IF SUPPLIED, JUMPER IF NOT.
3. REMOVE JUMPER FOR DEVICE WHEN CONNECTED.
4. SWITCH CHANGES STATE WHEN VALVE FULLY CLOSED. USE FORM C CONTACTS FOR FULLY CLOSED SWITCH (ZSxC) ONLY.
5. SWITCH CHANGES STATE WHEN VALVE FULLY OPEN. USE FORM C CONTACTS FOR FULLY OPEN SWITCH (ZSxO) ONLY.

GENERAL NOTES:

1. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPTION: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.
2. SIMILAR DIAGRAM FOR ALL VFD MOTORS AS SHOWN IN ONE–LINE DIAGRAM

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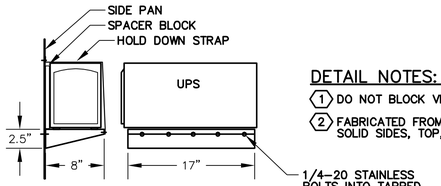
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DATE: JUL 22, 2025 TIME: 3:22:02PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
VFD PUMP ELEMENTARY DIAGRAM AND ELEVATION

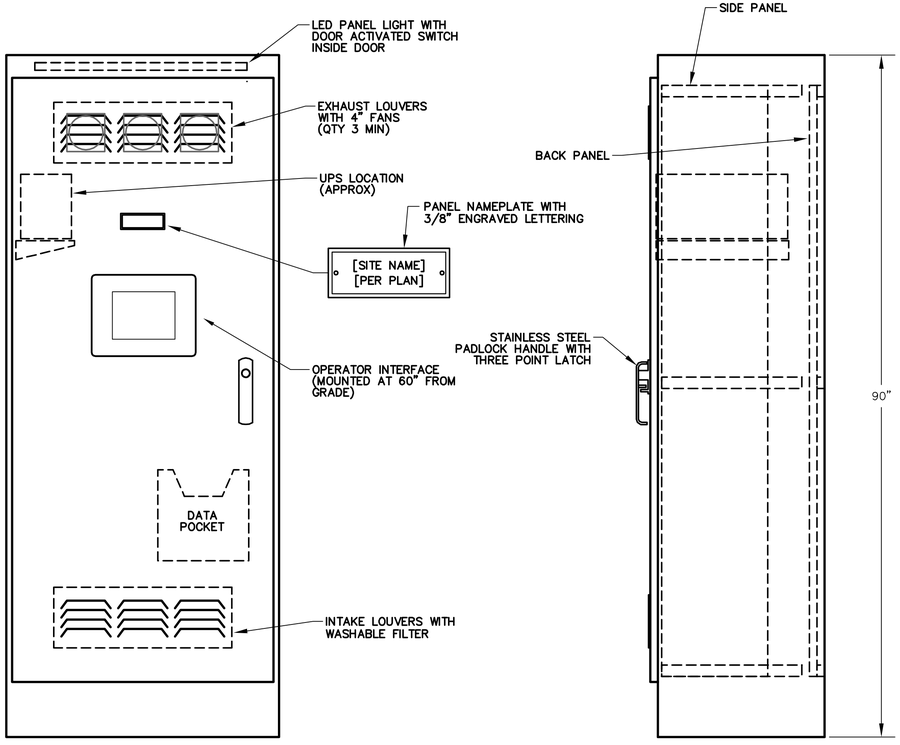
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-03
SHEET NUMBER 47



UPS SHELF DETAIL
SCALE: 1" = 10"

DETAIL NOTES:

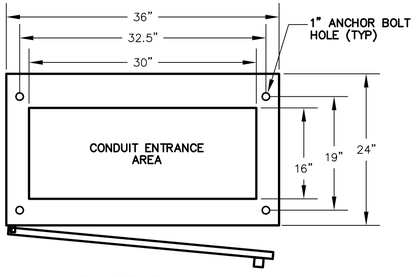
1. DO NOT BLOCK VENTS WITH SPACER BLOCK. USE TWO.
2. FABRICATED FROM 14 GA (MIN) PAINTED GALVANEAL OR STAINLESS STEEL SOLID SIDES, TOP, BACK AND FRONT WITH CONTINUOUS WELDED SEAMS.



FRONT ELEVATION

SIDE ELEVATION

ELEVATION
SCALE: 1" = 10"



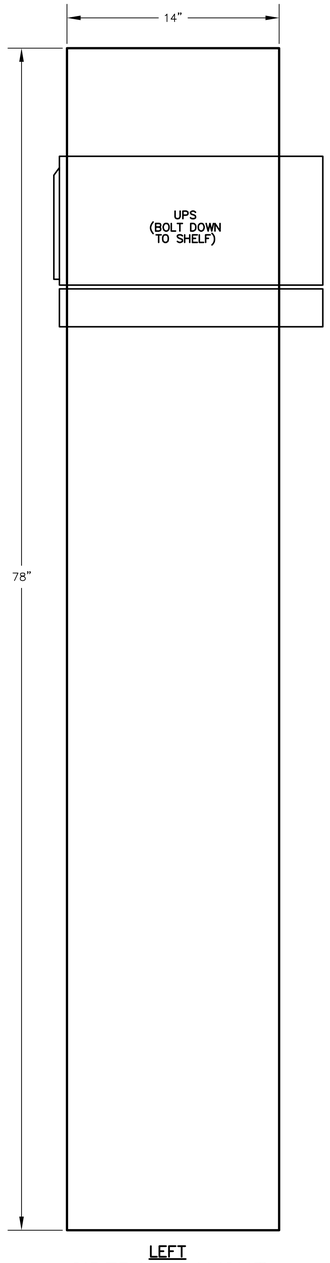
BASE PLAN

PANEL FABRICATION METHODS

1. FREESTANDING, OPEN BOTTOM.
2. OUTER DOOR SEALED WITH RUBBERIZED FOAM GASKET.
3. PANEL SHALL BE FABRICATED FROM PAINT BOND GALVANEAL SHEET STEEL.
4. 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
5. ALL SEAMS SHALL HAVE CONTINUOUS WELD GROUND SMOOTH.
6. DOOR TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCH.
7. DOOR HINGES AND PINS SHALL BE CONTINUOUS, HEAVY DUTY.
8. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
9. INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE MACHINE THREAD INTO TAPPED BACKPAN.
10. EXTERIOR PANEL COLOR: ANSI 61 GRAY.
11. MOUNTING PAN AND INTERIOR DOOR COLOR: WHITE.
12. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
13. ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
14. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
15. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.
16. HOFFMAN TYPE 12 FREE–STANDING, OR EQUAL.

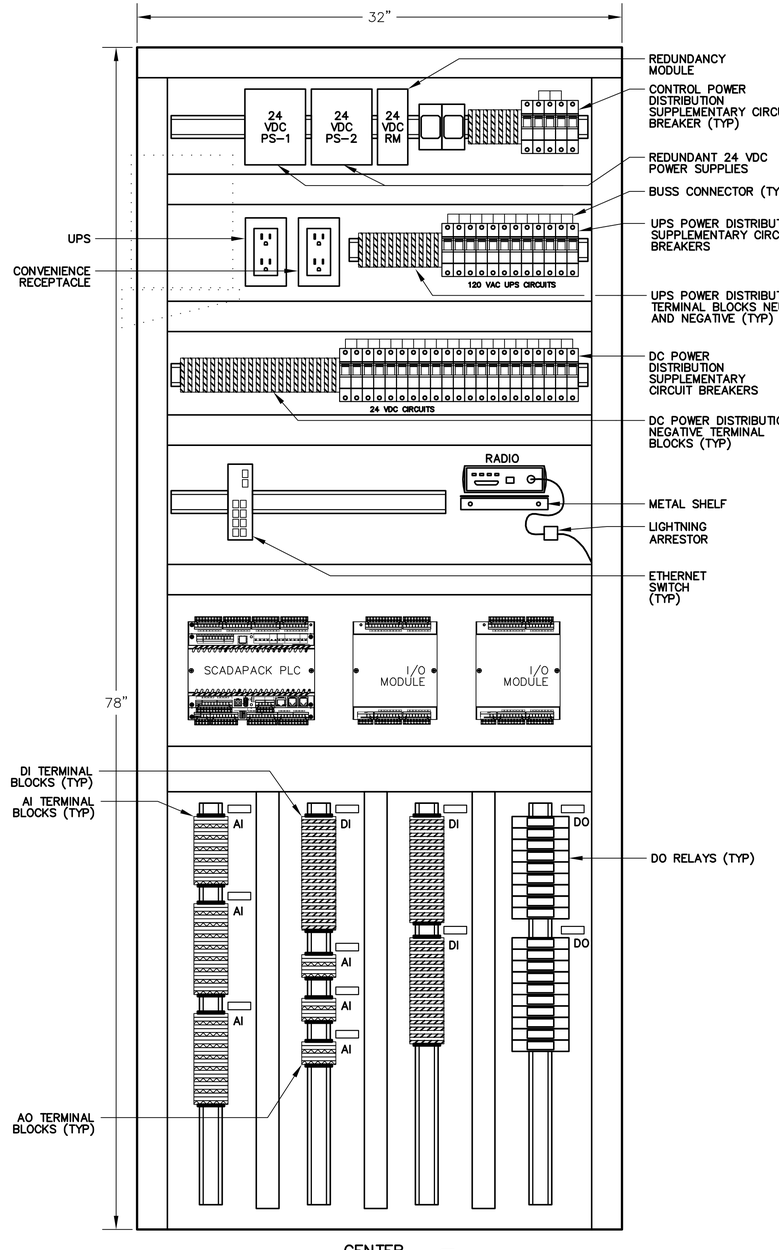
GENERAL NOTES:

1. REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ACTUAL BACKPAN LAYOUT SHALL BE SIMILAR TO LAYOUT SHOWN. SUBMIT SCALED BACKPAN LAYOUT FOR REVIEW BY ENGINEER.
2. QUANTITY OF TERMINAL BLOCKS AND RELAYS SHALL BE AS DETERMINED BY P&IDS AND EXAMPLE I/O WIRING DIAGRAM



LEFT

SIDEPAN LAYOUT
SCALE: 1" = 5"



CENTER ⟨1⟩

BACKPAN LAYOUT
SCALE: 1" = 5"

LAYOUT REFERENCED NOTES:

⟨1⟩ WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.

⟨2⟩ ADDITIONAL FIBER OPTIC (AUX) SWITCH ONLY FOR PUMP STATION B. SEE NETWORK TOPOLOGY DWG 00–I–02

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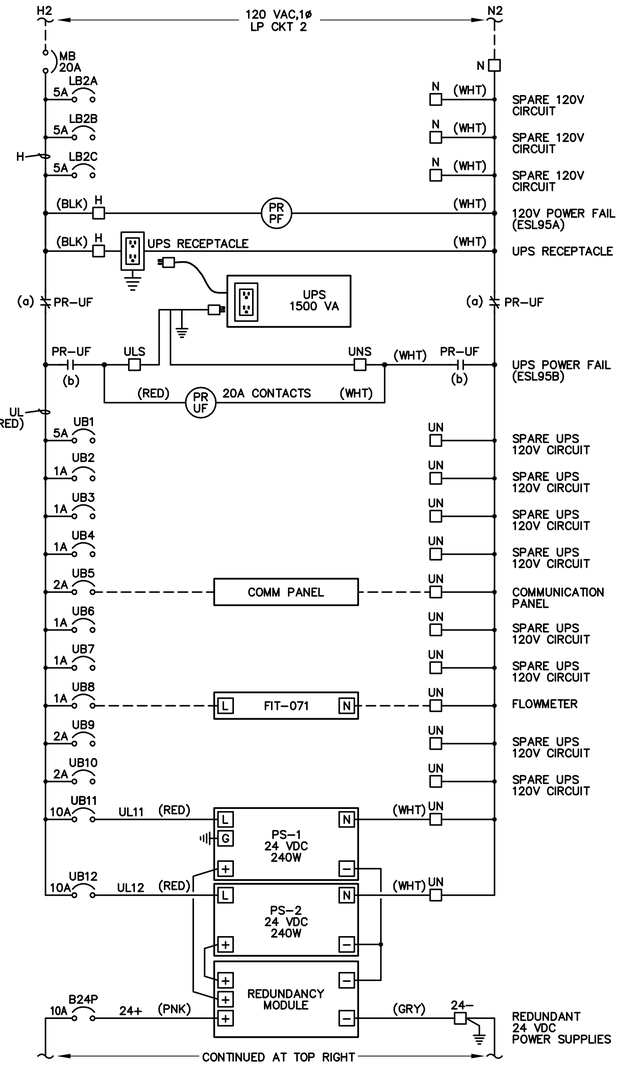
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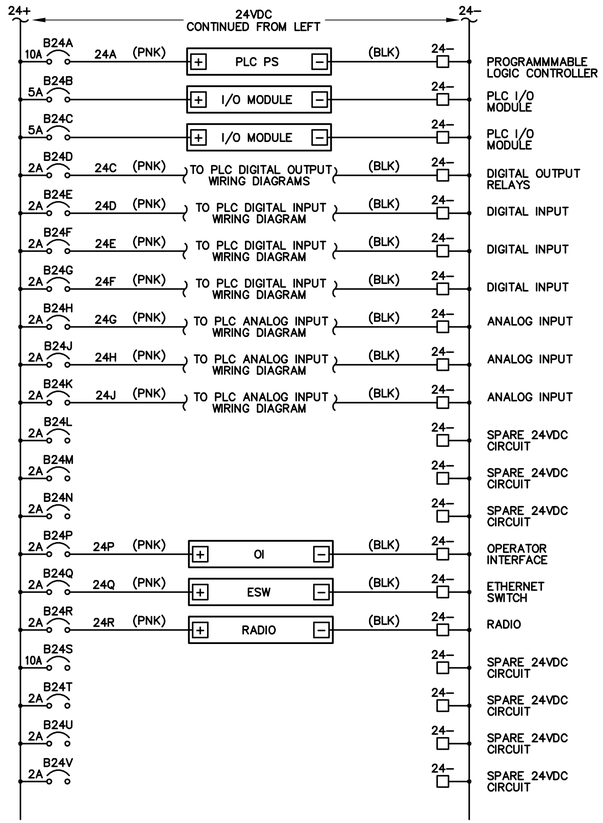
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

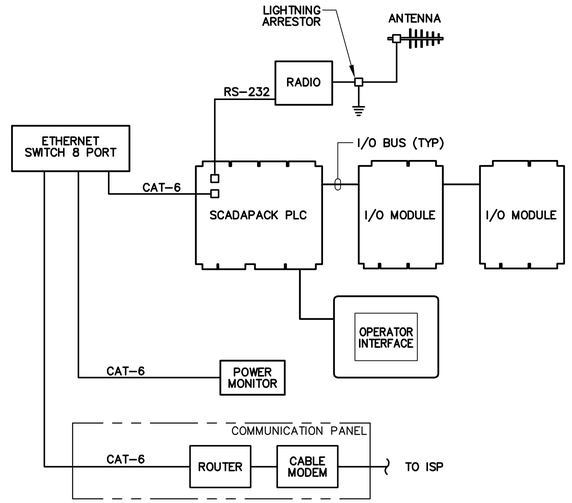
ELECTRICAL
LAKE PUMP STATION
CONTROL PANEL ELEVATION AND BACKPAN LAYOUT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-04
SHEET NUMBER 48

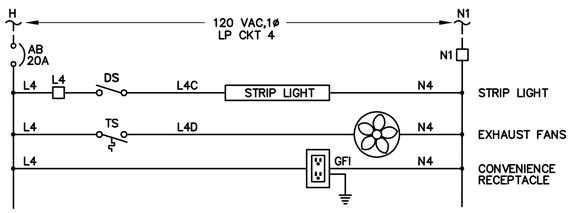


POWER DISTRIBUTION DIAGRAM

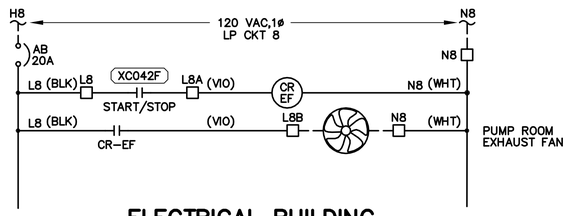




COMMUNICATION BLOCK DIAGRAM



AUXILLIARY POWER DIAGRAM



ELECTRICAL BUILDING EXHAUST FAN POWER DIAGRAM

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FILE: 10-E-05.DWG
DATE: JUL 22, 2025 TIME: 3:22:15PM

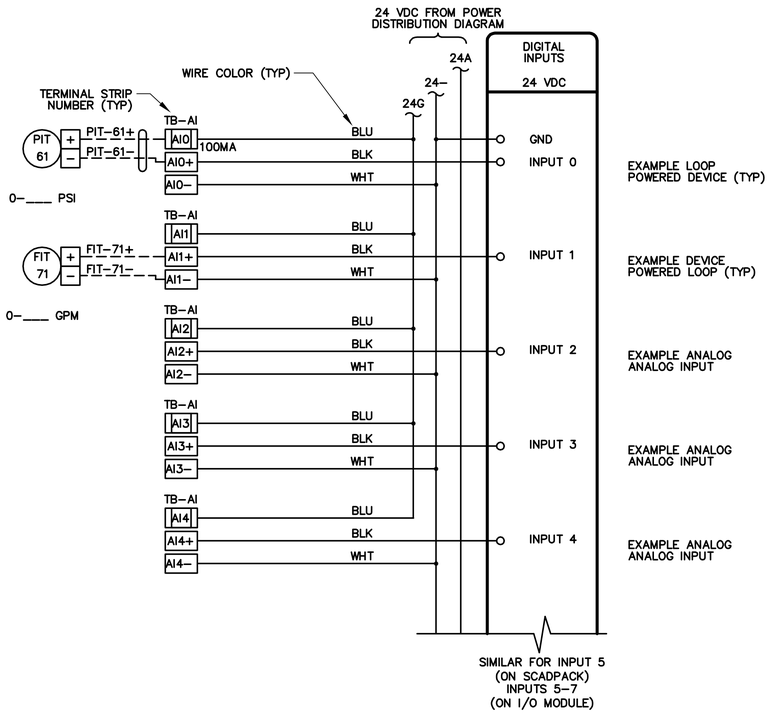
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

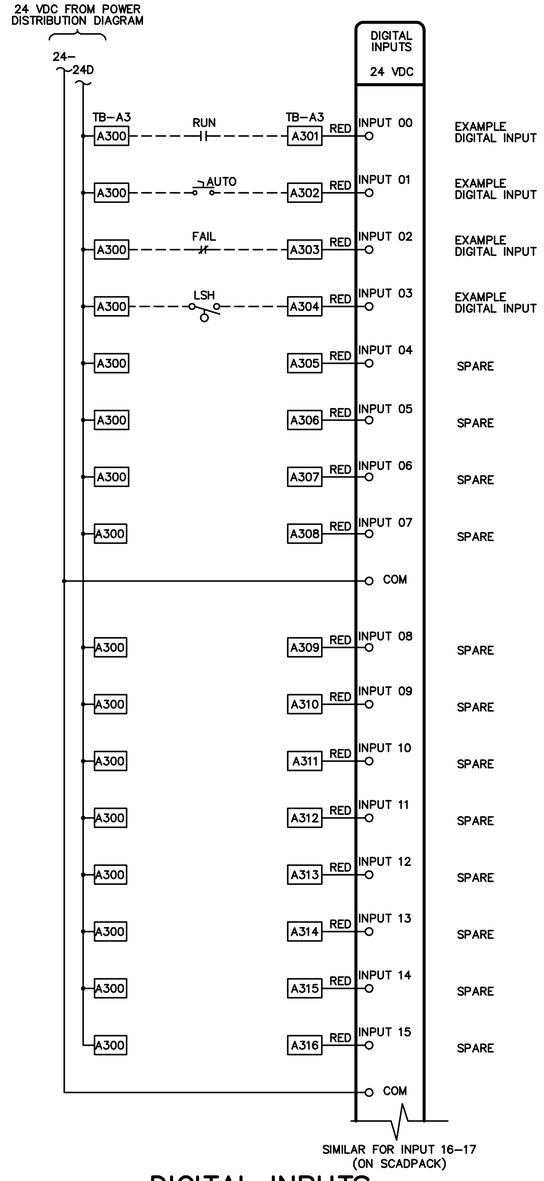
ELECTRICAL
LAKE PUMP STATION
CONTROL PANEL POWER DISTRIBUTION DIAGRAM

REGISTERED PROFESSIONAL ENGINEER
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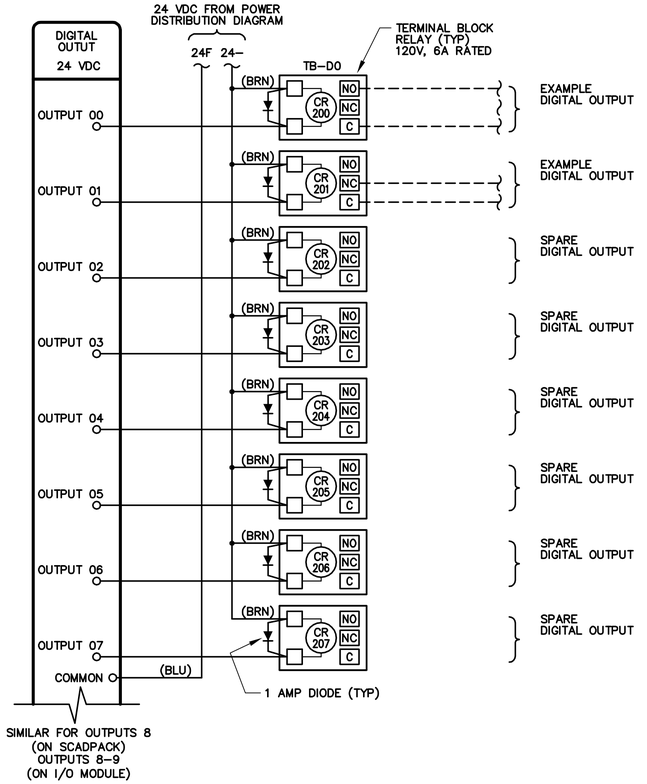
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July 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
10-E-05
SHEET NUMBER 49



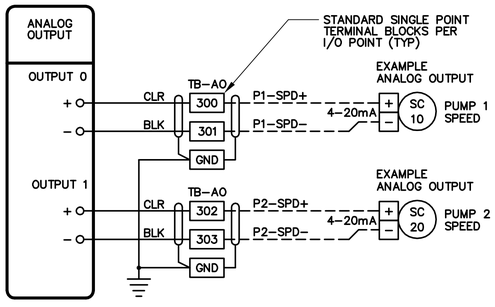
ANALOG INPUTS



DIGITAL INPUTS



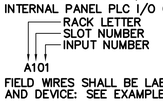
DIGITAL OUTPUTS



ANALOG OUTPUTS

EXAMPLE PLC I/O WIRING DIAGRAMS

NOTES:
1. WIRE SPARE PLC I/O POINTS TO TERMINAL BLOCKS.
2. EXAMPLE I/O POINTS SHOWN. THIS DRAWING INTENDED TO SHOW I/O WIRING ONLY.
3. I/O TYPE AND NUMBER OF POINTS AND CARDS REQUIRED IS DETERMINED BY P&ID DRAWINGS.
4. MINIMUM 20% SPARE I/O POINTS PER I/O TYPE.
5. INTERNAL PANEL PLC I/O CARD WIRE NUMBERS SHALL BE BUILT AS SHOWN IN EXAMPLE BELOW.



6. FIELD WIRES SHALL BE LABELED WITH ACRONYM OF CONTROL PANEL ID (NOT SHOWN) AND DEVICE: SEE EXAMPLES.

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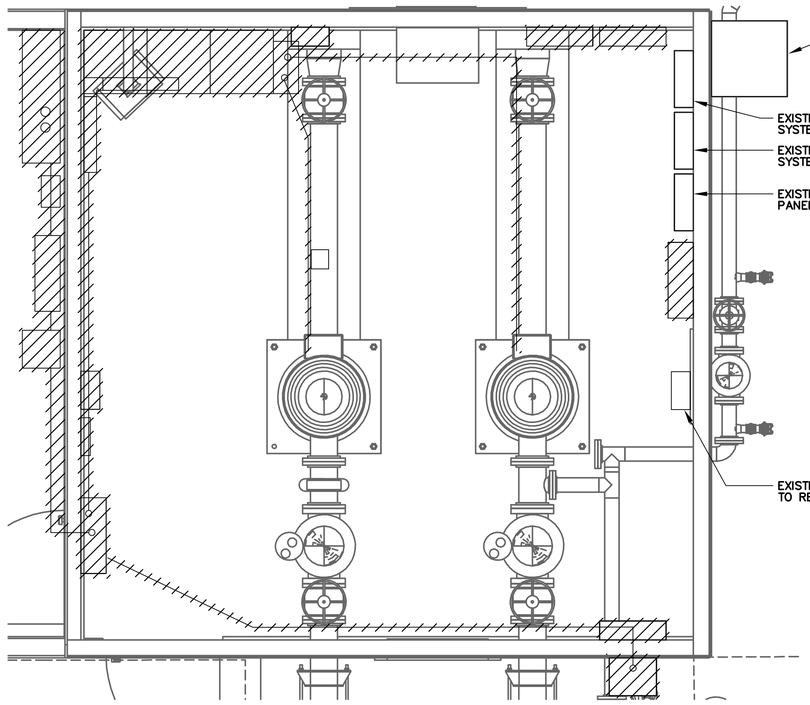
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FILE: 10-E-06.DWG
DATE: JUL 22, 2025 TIME: 3:22:22PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
CONTROL PANEL EXAMPLE PLC I/O WIRING DIAGRAMS

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-06
SHEET NUMBER 50



EQUIPMENT DEMOLITION NOTES

1. REMOVE AND WASTE ELECTRICAL PANELS AND ASSOCIATED CONDUITS.
2. PROVIDE FIRST RIGHT OF SALVAGE TO OWNER. NOTIFY OWNER 1 WEEK PRIOR TO WASTING.

0 2 4
(Approximate Scale in Feet)

ELECTRICAL DEMOLITION PLAN

SCALE: 1/2" = 1'

N

7/16/25

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DATE: JUL 22, 2025 TIME: 3:22:31 PM

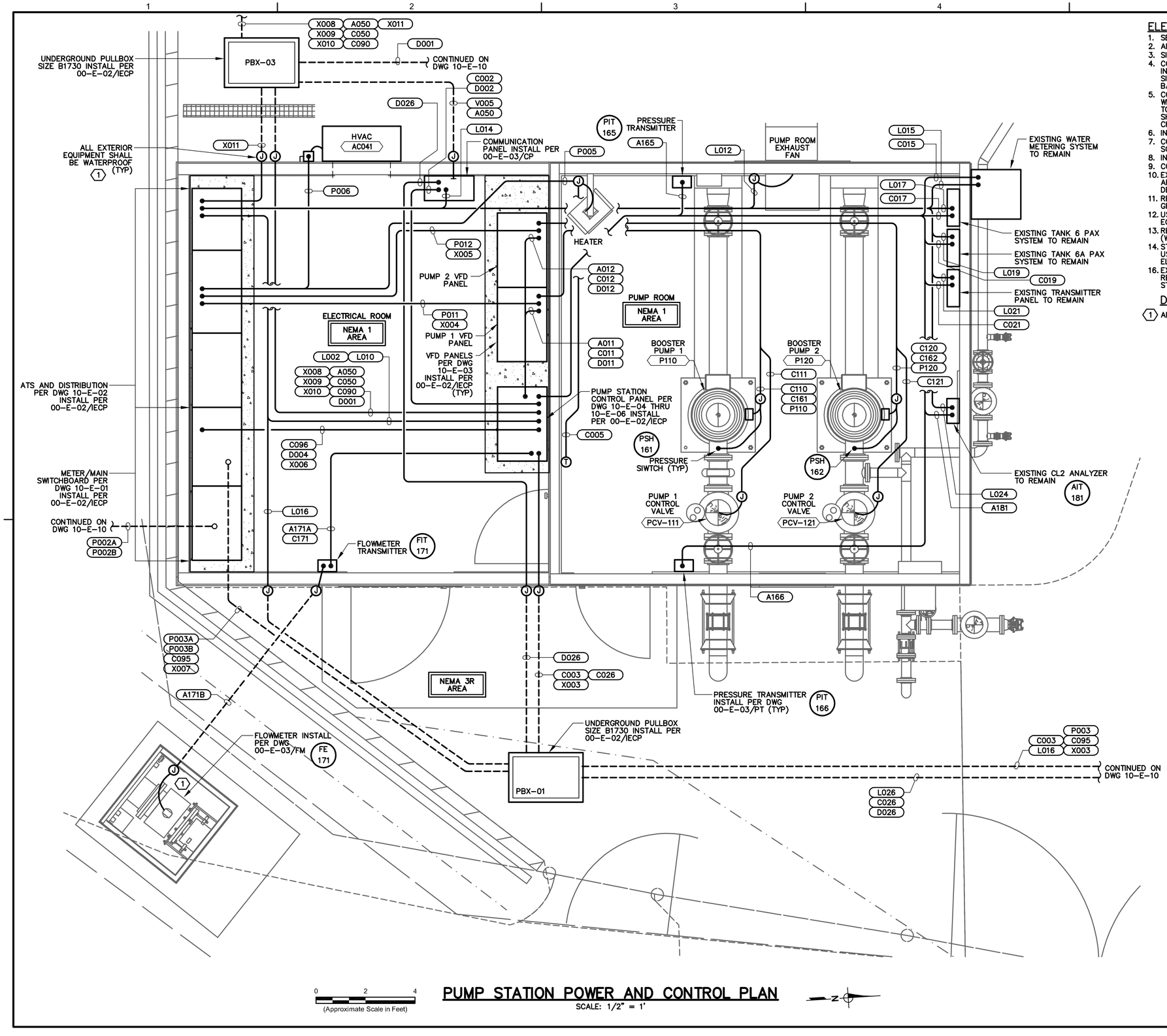
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
ELECTRICAL DEMOLITION PLAN

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA

DATE
July 2025
PROJECT NUMBER
19-077
DRAWING NUMBER
10-E-07
SHEET NUMBER 51



ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.
14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSTION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.
16. EXTEND NEW CONDUIT UP POLE 10 FT FOR UTILITY CONNECTION. COIL ENOUGH WIRE TO REACH TOP OF POLE FOR UTILITY COMPLETION AND TERMINATION. INSTALL PER UTILITY STANDARDS AND REQUIREMENTS.

DRAWING REFERENCED NOTES:

1. ALL EQUIPMENT TO BE WEATHER RESISTANT AT WET LOCATIONS.

0 2 4
(Approximate Scale in Feet)

PUMP STATION POWER AND CONTROL PLAN

SCALE: 1/2" = 1'

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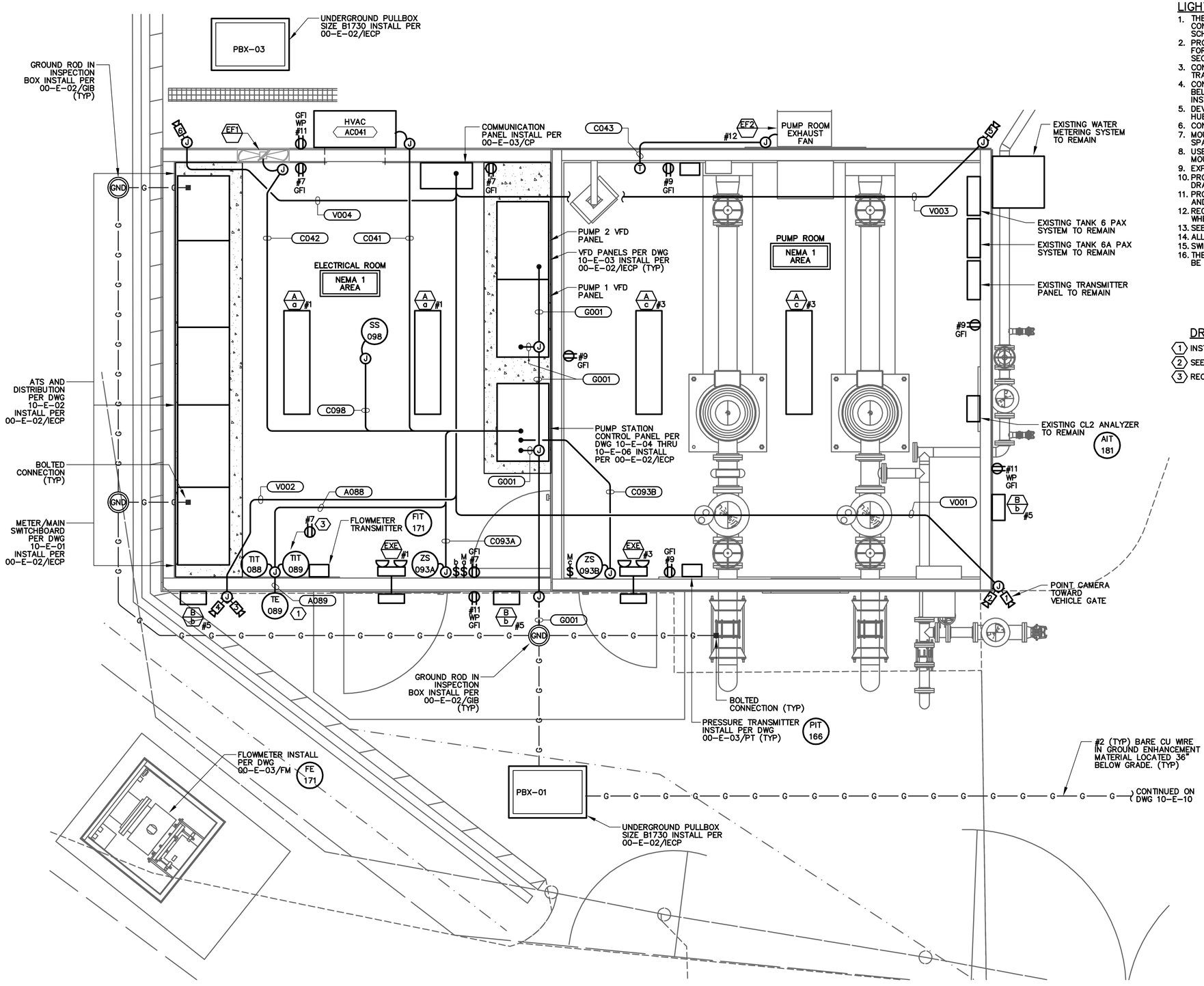
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DATE: JUL 22, 2025 TIME: 3:22:37PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
POWER AND CONTROL PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-08
SHEET NUMBER 52



LIGHTING AND RECEPTACLE PLAN NOTES

1. THESE NOTES SHALL APPLY TO ALL EQUIPMENT OR FIXTURES WITH ELECTRICAL CONNECTIONS BUT WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.
2. PROVIDE AND INSTALL NECESSARY WIRES IN SURFACE MOUNT 3/4" (MINIMUM) CONDUIT FOR FOR ELECTRICAL FIXTURE ARRANGEMENT AS SHOWN. MAXIMUM 3 CIRCUITS PER CONDUIT SECTION OVER 24" IN LENGTH. CONDUITS SHALL NOT EXCEED 40% FILL.
3. CONDUITS UNDER SLAB SHALL BE PVC-40 WITH STUB-OUTS PER EXPOSED CONDUIT TRANSITION DETAIL.
4. CONDUITS ABOVE CEILING SHALL BE EMT WITH COMPRESSION STYLE FITTINGS. CONDUITS BELOW CEILING SHALL BE GRS. ACCESS TO ATTIC AREA SHALL NOT BE REQUIRED TO INSTALL CONDUCTORS.
5. DEVICE BOXES AND CONDUIT BODIES SHALL BE CAST IRON OR ALUMINUM WITH THREADED HUB.
6. CONDUCTORS SHALL BE COPPER TYPE THHN, CLASS C STRANDING, #12 AWG (MINIMUM).
7. MOUNT CONDUITS USING SINGLE BOLT GALVANIZED PIPE STRAPS AND CLAMP BACK SPACERS.
8. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
9. EXPOSED CONDUIT SHALL BE PAINTED WITH WALL AND/OR CEILING AS SPECIFIED.
10. PROVIDE AND INSTALL FIXTURES PER SCHEDULE THIS PAGE, QUANTITY AS SHOWN IN DRAWINGS.
11. PROVIDE AND INSTALL ALL DEVICE BOXES, JUNCTION BOXES, RECEPTACLES, SWITCHES, AND COVERS MOUNT ALL RECEPTACLES AT 48" AFF UNLESS OTHERWISE NOTED.
12. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) WHERE SHOWN.
13. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
14. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
15. SWITCH TYPE: T= TIME SWITCH, M= MOTION DETECTOR, 3= 3-WAY.
16. THE MINIMUM GROUND ELECTRODE SYSTEM CONDUCTOR OR BONDING JUMPER SHALL BE #8 CU.

DRAWING REFERENCED NOTES:

1. INSTALL OUTDOOR TEMPERATURE ELEMENT ON BUILDING WALL 6" BELOW EAVE.
2. SEE FIXTURE SCHEDULE ON SHEET DWG 10-E-10
3. RECEPTACLE LOCATED ON WALL BELOW TEMP TRANSMITTER

0 2 4
(Approximate Scale in Feet)

PUMP STATION LIGHTING AND RECEPTACLE PLAN (2)

SCALE: 1/2" = 1'

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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DATE: JUL 22, 2025 TIME: 3:22:45PM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
LIGHTING AND RECEPTACLE PLAN

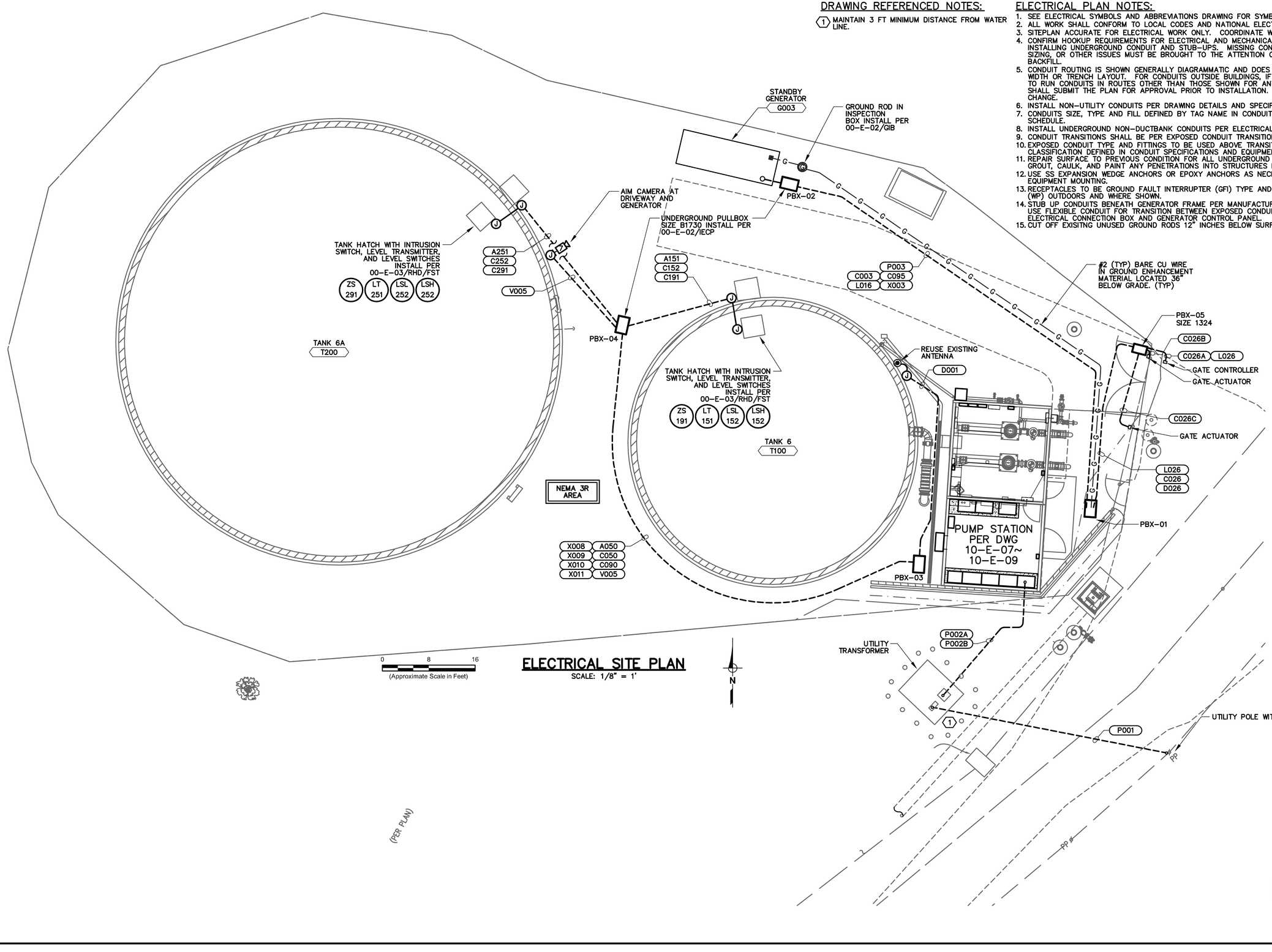
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-09
SHEET NUMBER 53

DRAWING REFERENCED NOTES:

(1) MAINTAIN 3 FT MINIMUM DISTANCE FROM WATER LINE.

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.
14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSTION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.
15. CUT OFF EXISITNG UNUSED GROUND RODS 12" INCHES BELOW SURFACE.



ELECTRICAL SITE PLAN

SCALE: 1/8" = 1'

7/16/25

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
ELECTRICAL SITE PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-10
SHEET NUMBER 54

CONDUIT & WIRE ROUTING SCHEDULE

REV	CONDUIT DETAILS TAG NO.	FROM	TO	QTY	SIZE	TYPE	POWER WIRE QTY	POWER WIRE SIZE	CONTROL WIRE QTY	CONTROL WIRE SIZE	GROUND SIZE	NOTES
	A011	CONTROL PANEL	PUMP 1 VFD	1	3/4"	SPEC	–	–	2	#18 TSPR	#14	
	A012	CONTROL PANEL	PUMP 2 VFD	1	3/4"	SPEC	–	–	2	#18 TSPR	#14	
	A050	COMMUNICATION PANEL	PBX–03	1	3/4"	SPEC	–	–	2	#18 TSPR	#14	
	A088	CONTROL PANEL	TIT–088, TIT–089 J–BOX	1	3/4"	SPEC	–	–	2	#18 TSPR	#14	
	A089	TIT–088, TIT–089 J–BOX	OUTDOOR TEMP TE–089	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A151	PBX–04	TANK 6 LEVEL LT–151	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A165	CONTROL PANEL	PIT–165	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A166	CONTROL PANEL	PIT–166	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A171 A	CONTROL PANEL	FLOWMETER TRANSMITTER FIT–171	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A171 B	FLOWMETER TRANSMITTER FIT–171	FLOWMETER FE–171	1	1"	SPEC	–	–	1	MFG CABLE	#14	
	A181	CONTROL PANEL	CL2 ANALYZER AIT–181	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A251	PBX–04	TANK 6A LEVEL LT–251	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	C002	CONTROL PANEL	COMMUNICATION PANEL	1	3/4"	SPEC	2	#14	–	–	#14	
	C003	CONTROL PANEL	GENERATOR	1	3/4"	SPEC	–	–	8	#14	#14	
	C005	HEATER	HEATER THERMOSTAT	1	3/4"	SPEC	–	–	4	#14	#14	
	C011	CONTROL PANEL	PUMP 1 VFD	1	3/4"	SPEC	–	–	14	#14	#14	
	C012	CONTROL PANEL	PUMP 2 VFD	1	3/4"	SPEC	–	–	14	#14	#14	
	C015	CONTROL PANEL	WATER METERING SYSTEM	1	3/4"	SPEC	–	–	8	#14	#14	
	C017	CONTROL PANEL	TANK 6 PAX SYSTEM	1	3/4"	SPEC	–	–	8	#14	#14	
	C019	CONTROL PANEL	TANK 6A PAX SYSTEM	1	3/4"	SPEC	–	–	8	#14	#14	
	C021	CONTROL PANEL	TRANSMITTER PANEL	1	3/4"	SPEC	–	–	8	#14	#14	
	C026A	PBX–05	GATE CONTROLLER	1	3/4"	SPEC	–	–	4	#14	#14	
	C026B	PBX–05	GATE ACTUATOR	1	3/4"	SPEC	–	–	4	#14	#14	
	C026C	PBX–05	GATE ACTUATOR	1	3/4"	SPEC	–	–	4	#14	#14	
	C026	CONTROL PANEL	PBX–05	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	C041	CONTROL PANEL	HVAC UNIT	1	3/4"	SPEC	–	–	4	#14	#14	
	C042	CONTROL PANEL	EXHAUST FAN EF1	1	3/4"	SPEC	2	#12	–	–	#12	
	C043	THERMOSTAT	EXHAUST FAN EF2	1	3/4"	SPEC	–	–	4	#14	#14	
	C050	COMMUNICATION PANEL	PBX–04	1	3/4"	SPEC	–	–	8	#14	#14	
	C090	COMMUNICATION PANEL	PBX–04	1	3/4"	SPEC	–	–	4	#14	#14	
	C093A	CONTROL PANEL	INTRUSION ZS–093A	1	3/4"	SPEC	–	–	2	#14	#14	
	C093B	CONTROL PANEL	INTRUSION ZS–093B	1	3/4"	SPEC	–	–	2	#14	#14	
	C095	METER/MAIN SWITCHBOARD	GENERATOR	1	3/4"	SPEC	–	–	8	#14	#14	
	C096	CONTROL PANEL	METER/MAIN SWITCHBOARD	1	3/4"	SPEC	–	–	8	#14	#14	
	C098	CONTROL PANEL	SMOKE DETECTOR SS–098	1	3/4"	SPEC	–	–	2	#14	#14	
	C110	PUMP 1 VFD	PUMP 1	1	3/4"	SPEC	–	–	4	#14	#14	
	C111	PUMP 1 VFD	PUMP 1 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C120	PUMP 2 VFD	PUMP 2	1	3/4"	SPEC	–	–	4	#14	#14	
	C121	PUMP 2 VFD	PUMP 2 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C152	PBX–04	TANK 6 LSH–152 LSL–152	1	3/4"	SPEC	–	–	4	#14	#14	
	C161	PUMP 1 VFD	PSH–161	1	3/4"	SPEC	–	–	2	#14	#14	
	C162	PUMP 2 VFD	PSH–162	1	3/4"	SPEC	–	–	2	#14	#14	
	C171	CONTROL PANEL	FLOWMETER TRANSMITTER FIT–171	1	3/4"	SPEC	2	#14	–	–	#14	
	C191	PBX–04	TANK 6 INTRUSION ZS–191	1	3/4"	SPEC	–	–	2	#14	#14	
	C252	PBX–04	TANK 6A LSH–252 LSL–252	1	3/4"	SPEC	–	–	4	#14	#14	
	C291	PBX–04	TANK 6A INTRUSION ZS–291	1	3/4"	SPEC	–	–	2	#14	#14	

NOTES PERTAINING TO CONDUIT SCHEDULE:

1. CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION, CONDUIT AND BOXES FOR NON–EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
2. SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
3. CONDUITS OVER 15 FT LENGTH (EITHER EMPTY OR WITH CONDUCTORS SIZED LESS THAN #8 AWG), SHALL INCLUDE A POLY PULL STRING. STRING SHALL BE TIED OFF AT EACH END.
4. FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS, CONDUIT AND BOXES.
5. WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
6. SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
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WATERWORKS ENGINEERS
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
ELECTRICAL CONDUIT SCHEDULE 1

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-11
SHEET NUMBER 55

CONDUIT & WIRE ROUTING SCHEDULE

REV	CONDUIT DETAILS TAG NO.	FROM	TO	QTY	SIZE	TYPE	POWER WIRE QTY	POWER WIRE SIZE	CONTROL WIRE QTY	CONTROL WIRE SIZE	GROUND SIZE	NOTES
	D001	CONTROL PANEL	ANTENNA	1	2"	SPEC	–	–	1	ANTENNA CABLE	–	
	D002	CONTROL PANEL	COMMUNICATION PANEL	1	1"	SPEC	–	–	2	CAT 5E	–	
	D004	CONTROL PANEL	METER/MAIN SWITCHBOARD	1	3/4"	SPEC	–	–	1	CAT 5E	–	
	D011	CONTROL PANEL	PUMP 1 VFD	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	D012	CONTROL PANEL	PUMP 2 VFD	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	D026	COMMUNICATION PANEL	PBX–05	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	G001	GROUND ROD	INDOOR ELECTRICAL GEAR	1	3/4"	SPEC	–	–	–	–	#2	
	L002	PANELBOARD	CONTROL PANEL	1	3/4"	SPEC	4	#12	–	–	#12	
	L012	PANELBOARD	CONTROL PANEL	1	3/4"	SPEC	2	#12	–	–	#12	
	L014	PANELBOARD	COMMUNICATION PANEL	1	3/4"	SPEC	2	#12	–	–	#12	
	L015	PANELBOARD	WATER METERING SYSTEM	1	3/4"	SPEC	2	#12	–	–	#12	
	L016	PANELBOARD	GENERATOR	1	1"	SPEC	2	#8	3	#12	#10	HEATER AND CHARGER
	L017	PANELBOARD	TANK 6 PAX SYSTEM	1	3/4"	SPEC	2	#12	–	–	#12	
	L019	PANELBOARD	TANK 6A PAX SYSTEM	1	3/4"	SPEC	2	#12	–	–	#12	
	L021	PANELBOARD	TRANSMITTER PANEL	1	3/4"	SPEC	2	#12	–	–	#12	
	L024	PANELBOARD	CL2 ANALYZER AIT–181	1	3/4"	SPEC	2	#12	–	–	#12	
	L026	PANELBOARD	GATE CONTROLLER	1	3/4"	SPEC	2	#12	–	–	#12	
	P001	UTILITY POLE	UTILITY TRANSFORMER	1	4"	SPEC	–	–	–	–	–	PER UTILITY REQUIREMENTS
	P002A,B	UTILITY TRANSFORMER	METER/MAIN SWITCHBOARD	2	5"	SPEC	–	–	–	–	–	PER UTILITY REQUIREMENTS
	P003A,B	GENERATOR	METER/MAIN SWITCHBOARD	2	3"	SPEC	4	#4/0	–	–	#2	
	P005	METER/MAIN SWITCHBOARD	HEATER	1	3/4"	SPEC	3	#12	–	–	#12	
	P006	METER/MAIN SWITCHBOARD	HVAC UNIT	1	3/4"	SPEC	3	#12	–	–	#12	
	P011	METER/MAIN SWITCHBOARD	PUMP 1 VFD	1	2–1/2"	SPEC	3	#1/0	–	–	#2	
	P012	METER/MAIN SWITCHBOARD	PUMP 2 VFD	1	2–1/2"	SPEC	3	#1/0	–	–	#2	
	P110	PUMP 1 VFD	PUMP 1	1	2–1/2"	SPEC	3	#2/0	–	–	#2	
	P120	PUMP 2 VFD	PUMP 2	1	2–1/2"	SPEC	3	#2/0	–	–	#2	
	V001	COMMUNICATION PANEL	CAMERA 1, 2	1	3/4"	SPEC	–	–	2	CAT 6	–	
	V002	COMMUNICATION PANEL	CAMERA 3,4	1	3/4"	SPEC	–	–	2	CAT 6	–	
	V003	COMMUNICATION PANEL	CAMERA 5	1	3/4"	SPEC	–	–	1	CAT 6	–	
	V004	COMMUNICATION PANEL	CAMERA 6	1	3/4"	SPEC	–	–	1	CAT 6	–	
	V005	COMMUNICATION PANEL	CAMERA 7	1	3/4"	SPEC	–	–	1	CAT 6	–	
	X003	CONTROL PANEL	GENERATOR	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X004	METER/MAIN SWITCHBOARD	PUMP 1 VFD	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X005	METER/MAIN SWITCHBOARD	PUMP 2 VFD	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X006	CONTROL PANEL	METER/MAIN SWITCHBOARD	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X007	METER/MAIN SWITCHBOARD	PBX–01	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X008	COMMUNICATION PANEL	PBX–04	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X009	COMMUNICATION PANEL	PBX–04	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X010	COMMUNICATION PANEL	PBX–04	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X011	PANELBOARD	PBX–04	1	1"	SPEC	–	–	–	–	–	PULL ROPE

NOTES PERTAINING TO CONDUIT SCHEDULE:

1. CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION, CONDUIT AND BOXES FOR NON–EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
2. SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
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4. FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS, CONDUIT AND BOXES.
5. WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
6. SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

REGISTERED PROFESSIONAL ENGINEER
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
ELECTRICAL CONDUIT SCHEDULE 2

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-12
SHEET NUMBER 56

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Lake Pump Station

San Bruno, CA

Project Designer:

Frisch Engineering, Inc.
13405 Folsom Blvd, Unit 600
Folsom, CA 95630
916-353-1025

Report Prepared by:

Scott Turnbull
M/E Systems Engineering
5098 Foothills Blvd Ste 3 PMB 382
Roseville, CA 95747
916-774-6330

Job Number:

17154

Date:

11/7/2022

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2019 Building Energy Efficiency Standards.

This program developed by EnergySoft Software – www.energysoft.com.

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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station — Lake Pump Station	Report Page:	(Page 1 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

This document is used to demonstrate compliance with requirements in §110.9, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path.

A. GENERAL INFORMATION

01	Project Location (city)	San Bruno	04	Total Conditioned Floor Area (ft²)	136
02	Climate Zone	3	05	Total Unconditioned Floor Area (ft²)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1
	●: See Table I				

B. PROJECT SCOPE

This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6 or §141.0(b)2 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☒ New Lighting System	Area Category Method	136	Area Category Method	0
☐ New Lighting System – Parking Garage				
Total Area of Work (ft²)	136		0	

C. COMPLIANCE RESULTS

If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)1	Allowed Lighting Power per §140.6(b) (Watts)						Adjusted Lighting Power per §140.6(a)1 (Watts)				Compliance Results
	01	02	03	04		05		06	07		08	09
	Complete Building §140.6(c)1	Area Category §140.6(c)2	Area Category Additional §140.6(c)2G (+)	Tailored §140.6(c)3 (+)	=	Total Allowed (Watts)	≥	Total Designed (Watts)	Adjustments: PAF Lighting Control Credits §140.6(a)2 (-)	=	Total Adjusted (Watts) *Includes Adjustments	05 must be >= 08 §140.6
	(See Table I)	(See Table I)	(See Table J)	(See Table K)				(See Table F)	(See Table P)			
Conditioned		115.6	95		=	211	≥	200	0	=	200	COMPLIES
Unconditioned					=		≥			=		

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003, Schema Version: rev 20200601 — Report Generated: 2022-11-07 12:46:41

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station — Lake Pump Station	Report Page:	(Page 2 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

C. COMPLIANCE RESULTS

Controls Compliance (See Table H for Details)	COMPLIES
Rated Power Reduction Compliance (See Table Q for Details)	

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. INDOOR LIGHTING FIXTURE SCHEDULE

This table includes all permanent designed lighting and all portable lighting in offices.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
									Field Inspector	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per §140.6(a)3	Design Watts	Pass	Fail
A	Ceiling Mount LED	No	No	50	Mfr. Spec	4	No	200	☐	☐
							Total Designed Watts: CONDITIONED SPACES	200		

[1] *FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per §140.6(a)4B is adjusted to be 75% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*

[2] *Authority Having Jurisdiction may ask for luminaire cut sheets to confirm wattage used for compliance per §130.0(c). Wattage used must be the maximum rated for the luminaire, not the lamp.*

G. MODULAR LIGHTING SYSTEMS

This section does not apply to this project.

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003, Schema Version: rev 20200601 — Report Generated: 2022-11-07 12:46:41

REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
13405 FOLSOM BLVD, UNIT 600
FOLSOM, CA 95630
PH 916 353 1025
WWW.FRISCHENGINEERING.COM
FILE: 17154 LTG.DWG
DATE: JUL 16, 2025 TIME: 11:39:31 AM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-13
SHEET NUMBER 57

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station	Report Page:	(Page 3 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

*This table includes lighting controls for conditioned and unconditioned spaces. When a control having a * is shown, the notes section of this table provides more detail on how compliance is achieved. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Building Level Controls

01	02	03	
Mandatory Demand Response §110.12(c)	Shut-off controls §130.1(c)	Field Inspector	
		Pass	Fail
Not Required <= 10,000 SF	Whole Building Other	☐	☐

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Sky lit Daylighting §130.1(d)	Secondary Daylighting §140.6(d)	Interlocked Systems §140.6(a)1	Field Inspector	
								Pass	Fail
*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved. *EX: Conference 1: Primary/Skylight Daylighting; Exempt because less than 120 watts of general lighting; EXCEPTION 1 to §130.1(d)2*					13				
					Plan Sheet Showing Daylit Zones:				

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Each area complying using the Complete Building or Area Category Methods per §140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
Pump Room	General Commercial Industrial Work Area Precision	0.85	72	61.2	Yes	No
Electrical Room	General Commercial Industrial Work Area Precision	0.85	64	54.4	Yes	No

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station	Report Page:	(Page 4 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

TOTALS:	136	115.6	See Tables J, or P for detail

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

All areas indicated in Table I as using an additional allowance using the Area Category Method have been included in this table to calculate the additional allowance per Table 140.6-C

Conditioned Spaces

01	02	03	04	05	06	07	08	09	10
Area Description	Primary Function Area	Applicable Qualifying Lighting System from Table 140.6-C	Allowed Density (W/ft² or W/lf or W/unit)	Ltg Area, Length or ATM/Mirror (ft², lf or #)	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	Number of Luminaires	Total Design Watts
Pump Room	General Commercial Industrial Work Area Precision	PrecisionLightingIndustrial	0.70	72	50.4	A	50	2	100
Total Design Watts	Calculated Allowance (Watts):	Total Additional Allowance for this area:							
100	50.4	50.4							
Electrical Room	General Commercial Industrial Work Area Precision	PrecisionLightingIndustrial	0.70	64	44.8	A	50	2	100
Total Design Watts	Calculated Allowance (Watts):	Total Additional Allowance for this area:							
100	44.8	44.8							
11									
Total Additional Allowance (Watts) CONDITIONED SPACES		95.2							

Unconditioned Spaces

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This section does not apply to this project.

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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station	Report Page:	(Page 5 of 7)
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L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS

This section does not apply to this project.

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200601 | Report Generated: 2022-11-07 12:46:41

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name:	Lake Pump Station	Report Page:	(Page 6 of 7)
Project Address:	102 Lake Dr. San Bruno, CA 94066	Date Prepared:	11/7/2022

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCv/

Form/Title	Field Inspector	
	Pass	Fail
NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified	Field Inspector	
		Pass	Fail
NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐	

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200601 | Report Generated: 2022-11-07 12:46:41

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
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FRISCH ENGINEERING, INC.
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3485 FOLSOM BLVD, UNIT 600
RENO, NV 89502
PH 916 353 1025
WWW.FRISCHENGINEERING.COM

FILE: 19-077 E14.DWG
DATE: JUL 16, 2025 TIME: 11:39:39AM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-538-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-14
SHEET NUMBER 58

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 7 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Scott Turnbull	
Company: M/E Systems Engineering	Signature Date: 2022-11-07
Address: 5098 Foothills Blvd Ste 3 PMB 382	CEA/ HERS Certification Identification (if applicable): N/A
City/State/Zip: Roseville CA 95747	Phone: 916-774-6330

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Responsible Designer Signature:
Thomas Frisch	
Company: Frisch Engineering, Inc.	Date Signed: 2022-11-07
Address: 13405 Folsom Blvd, Unit 600	License: E15761
City/State/Zip: Folsom CA 95630	Phone: 916-353-1025

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 1 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

A. GENERAL INFORMATION

01	Project Location (city)	San Bruno	04	Total Illuminated Hardscape Area (ft²)	18
02	Climate Zone	3			
03	Outdoor Lighting Zone per Title 24 Part 1 §10-114 or as designated by Authority Having Jurisdiction (AHJ):				
☐	LZ-0: Very Low - Undeveloped Parkland	☐ LZ-2: Moderate - Rural Areas	☐ LZ-4: High - Must be reviewed by CA Energy Commission for Approval		
☐	LZ-1: Low - Developed Parkland	☒ LZ-3: Moderately High - Urban Areas			

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.7 or §141.0(b)2L for alterations.

My Project Consists of:

01	02
☒ New Lighting System	Must Comply with Allowances from §140.7
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)? ○ Yes ○ No

03	04	05
% of Existing Luminaires Being Altered[1]	Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ < 10% ☐ >= 10% and < 50% ☐ >= 50%		

Please proceed to Table F. Outdoor Lighting Fixture Schedule to define the project's luminaires.

[1] *FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.*

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 2 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through I. Note: if any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) §140.7 or §141.0(b)2L												Compliance Results		
01		02		03		04		05		06		07	08	09
General Hardscape Allowance §140.7(d)1 (See Table I)	+	Per Application §140.7(d)2 (See Table J)	+	Sales Frontage §140.7(d)2 (See Table K)	+	Ornamental §140.7(d)2 (See Table L)	+	Per Specific Area §140.7(d)2 (See Table M)	OR	Existing Power Allowance §141.0(b)2L (See Table N)	=	Total Allowed (Watts)	≥	Total Actual (Watts)	07 must be >= 08
358.14	+	—	+	—	+	—	+	—	OR	—	=	358.14	≥	129	COMPLIES
Cutoff Compliance [See Table G for Details]															N/A
Controls Compliance [See Table H for Details]															COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

STATE OF CALIFORNIA

Outdoor Lighting

NRCC-LTO-E

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 3 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with §140.7 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per §141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included).

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1,2]	How is Wattage determined	Total number luminaires[2]	Luminaire Status[3]	Excluded per §140.7(a)	Design Watts	Cutoff Req. > 6,200 initial lumen output §130.2(b)[4]	Field Inspector	
										Pass	Fail
B	Wall Mount LED	☐ Linear	43	Mfr. Spec	3	New	☐	129	NA: < 6200 lumens	☐	☐
							Total Design Watts:	129			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX- Luminaire is lighting a statue: EXCEPTION 2 to §130.2(b)

[1] *FOOTNOTES: Authority Having Jurisdiction may ask for luminaire cut sheets to confirm wattage used for compliance per §130.0(c)*

[2] *For linear luminaires, wattage should be indicated as W/ft instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.*

[3] *Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.*

[4] *Compliance with mandatory cutoff requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by §130.2(b)*

G. CUTOFF REQUIREMENTS (BUG)

This section does not apply to this project.

REGISTERED PROFESSIONAL ENGINEER THOMAS P. FRISCH No. E15761 ELECTRICAL STATE OF CALIFORNIA

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
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WATERWORKS ENGINEERS
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-15
SHEET NUMBER 59

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 4 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
*When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Mandatory Controls

01	02	03	04	05	
Area Description	Shut-Off §130.2(c)1	Auto-Schedule §130.2(c)2	Motion Sensor §130.2(c)3	Field Inspector	
				Pass	Fail
	Photocontrol	Yes	Yes	☐	☐

** NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.*
Ex: Not permitted by health & safety to be turned off: EXCEPTION 1 to §130.2(c)

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STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 5 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

I. LIGHTING POWER ALLOWANCE (per §140.7)

This table includes areas using allowance calculations per §140.7. General Hardscape Allowance is per Table 140.7-A while "Use it or lose it" Allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

01				
☒ General Hardscape Allowance Table I (below)	"Use it or lose it" Allowance (select all that apply) (select all that apply)			
	☐ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☐ Per Specific Area Table M

Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 0, 1 & 4)
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 2 & 3)

02	03	04	05	06	07	08	09	10
Area Description	Surface Type	Area Wattage Allowance (AWA)			Area Wattage Allowance (AWA)			Total General AWA + LWA (Watts)
		Illuminated Area (ft^2)	Allowed Density (W/ft^2)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	
Walkway	Concrete	18	0.03	0.5	19	0.4	7.6	8
							Initial Wattage Allowance for Entire Site (Watts):	350
							Total General Hardscape Allowance (Watts):	358

J. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
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STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 6 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Form/Title	Field Inspector	
	Pass	Fail
NRCI-LTO-01-E – Must be submitted for all buildings	☐	☐
NRCI-LTO-02-E- Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified	Field Inspector	
		Pass	Fail
NRCA-LTO-02-A – Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	☐	☐	

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200501 | Report Generated: 2022-11-07 12:46:41

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
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CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Lake Pump Station	Lake Pump Station	Report Page:	(Page 7 of 7)
Project Address: 102 Lake Dr. San Bruno, CA 94066		Date Prepared:	11/7/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Scott Turnbull	Documentation Author Signature: Scott Turnbull
Company: M/E Systems Engineering	Signature Date: 2022-11-07
Address: 5098 Foothills Blvd Ste 3 PMB 382	CEA/ HERS Certification Identification (if applicable): N/A
City/State/Zip: Roseville CA 95747	Phone: 916-774-6330

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Thomas Frisch	Responsible Designer Signature: Tom Frisch
Company: Frisch Engineering, Inc.	Date Signed: 2022-11-07
Address: 13405 Folsom Blvd, Unit 600	License: E15761
City/State/Zip: Folsom CA 95630	Phone: 916-353-1025

Registration Number: | Registration Date/Time: | Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance | Report Version: 2019.1.003 Schema Version: rev 20200501 | Report Generated: 2022-11-07 12:46:41

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

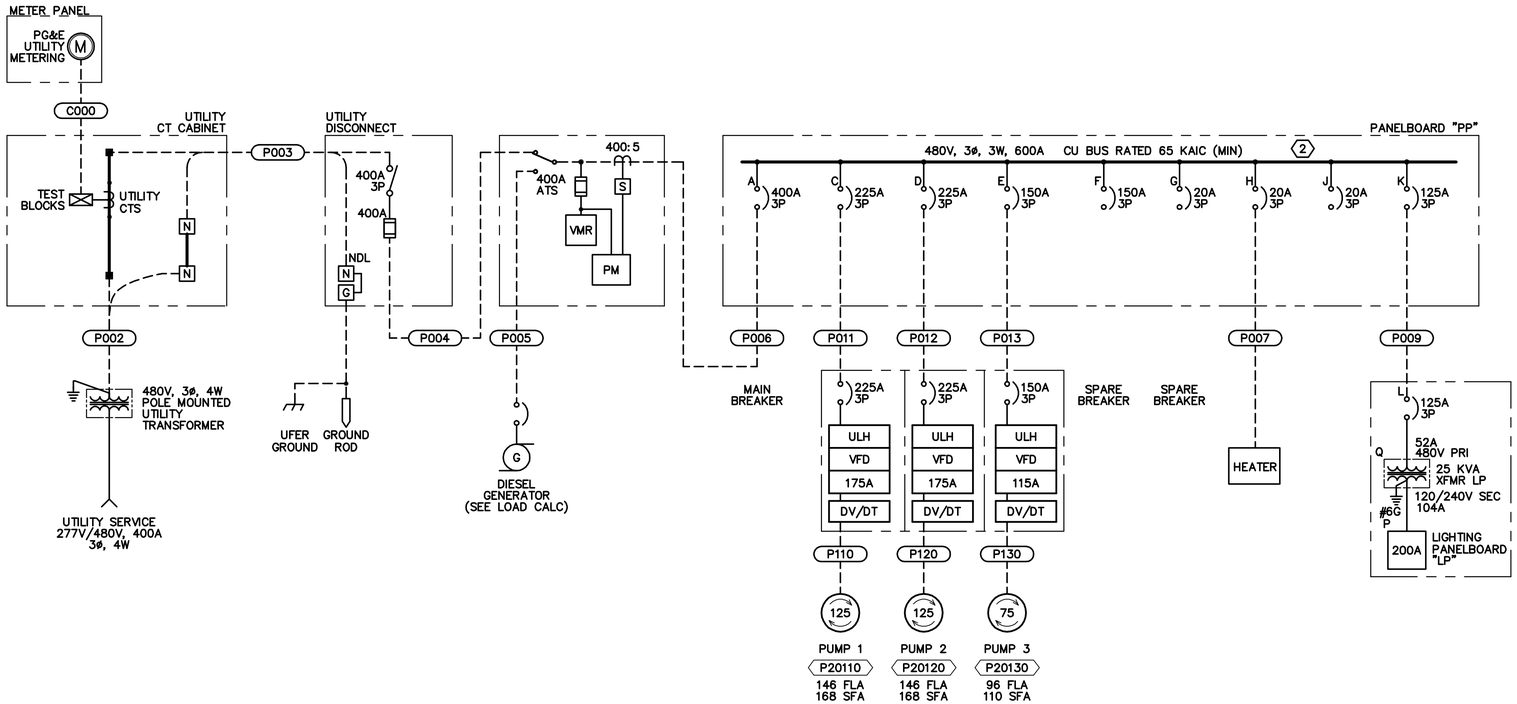
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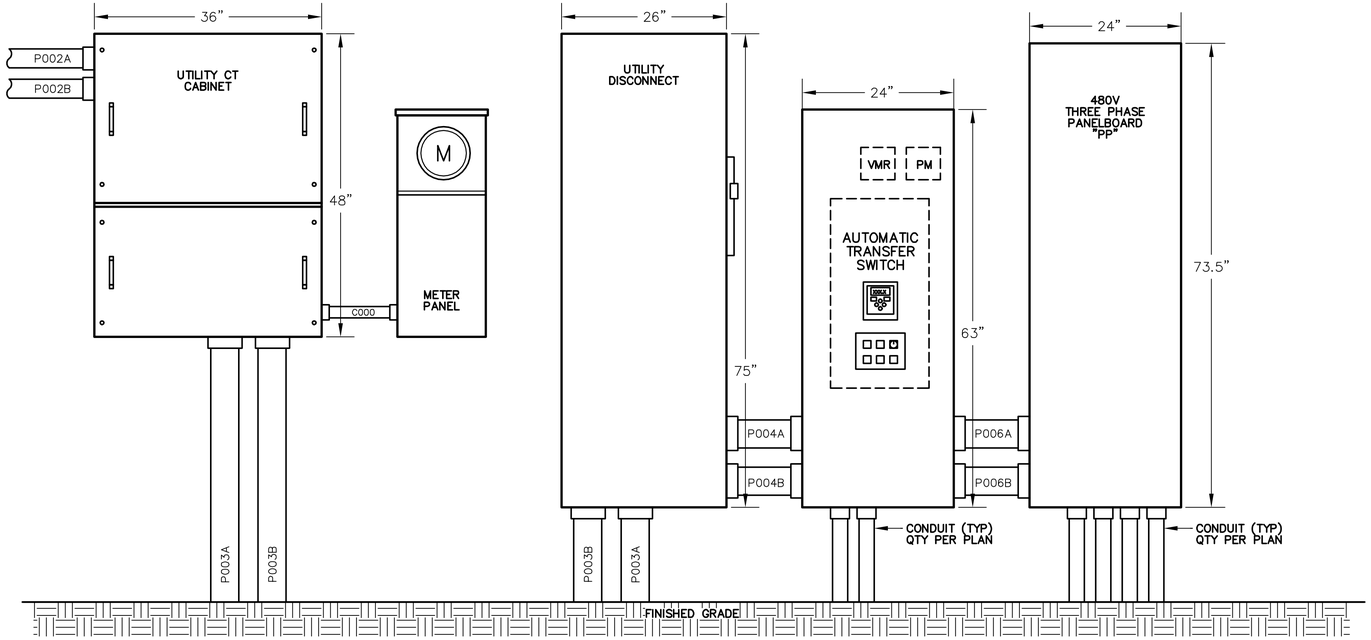
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
102 LAKE DRIVE

ELECTRICAL
LAKE PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-E-16
SHEET NUMBER 60



ONE-LINE DIAGRAM



ELECTRICAL EQUIPMENT WALL ELEVATION

NEMA 3R, OUTDOOR

GENERAL NOTES:

1. REAR ACCESS SHALL NOT BE REQUIRED TO SERVICE OR REPLACE COMPONENTS.
2. EACH BREAKER SHALL HAVE PADLOCK PROVISIONS TO LOCK BREAKER IN THE OFF POSITION.
3. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
4. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC SCREW-ON NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, AT MINIMUM. TEXT HEIGHT SHALL BE 3/16 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
5. FURNISH CODE REQURIED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

REGISTERED PROFESSIONAL ENGINEER
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FILE: 19-077 ONE-LINE.DWG
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION METER/MAIN ONE-LINE AND ELEVATION

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-01
SHEET NUMBER 61

LOAD CALCULATIONS

LOAD DESCRIPTION	CONNECTED LOAD LOAD	QTY	TOTAL	DEMAND LOAD LOAD	QTY	TOTAL	GENERATOR LOAD LOAD	QTY	TOTAL	SHORT CIRCUIT CALCULATIONS SCA/LOAD	QTY	TOTAL
										UTILITY	1	5412.0A AIC
125HP PUMP	156.00 A	2	259391.9 VA	156.00 A	1	129696.0 VA	156.00 A	1	129696.0 VA	936.00 A	2	1872.0A
75HP PUMP	96.00 A	1	79812.9 VA	96.00 A	1	79812.9 VA	96.00 A	1	79812.9 VA	576.00 A	1	576.0A
5KW HVAC SYSTEM	6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	36.08 A	1	36.1A
5KW HEATER	6.01 A	1	5000.0 VA	6.01 A	1	5000.0 VA	6.01 A	0	5000.0 VA	0.00 A	1	0.0A
PANELBOARD LP 120/240	15.93 A	1	13241.0 VA	12.74 A	1	10592.8 VA	12.74 A	1	10592.8 VA			
TOTAL LOAD =	435.95 A	<	362445.8 VA	276.77 A	<	230101.7 VA	276.77 A	<	230101.7 VA	TOTAL		7896.1A
LOAD CORRECTION FACTORS							GENERATOR SIZE			MAXIMUM SHORT		
LARGEST MOTOR LOAD x 25%:							NAMEPLATE = 300 KW 375 KVA			CIRCUIT PRODUCED =		7896.1A AIC
125HP HP => 0.25 x 129696.0 VA =	39.00 A		32424.0 VA	39.00 A		32424.0 VA	@ TEMP OF 100 deg F					
80% BREAKER DERATING = TOTAL x 0.25 =	118.74 A		98717.5 VA	0.00 A		0.0 VA	ELEVATION OF 800 FT ASL			EQUIPMENT RATING =		65000A AIC
FOR CONTINUOUS LOADS NEC 210-20							DERATED SIZE = 293.1 KW 366.4 KVA			MINIMUM PER SPEC		
SERVICE SIZE (MIN) =	593.69 A		493587.3VA	315.77 A		262525.7VA	AMPERAGE = 441 A @ 0.8 PF			NO SERIES DERATING		
UTILITY SERVICE =	600AMP						UTILIZATION % = 71 % @ 0.90 PF			EQUIPMENT IS "OK"		
480V, 3 PHASE, 4 WIRE							VOLT DIP % = 15% MAXIMUM					

GENERAL NOTES:

1. REAR ACCESS SHALL NOT BE REQUIRED TO SERVICE OR REPLACE SWITCHBOARD COMPONENTS.
2. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
3. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
4. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
5. FURNISH CODE REQURIED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

NOTES:

ADD THE PREFIX 20 TO COMPLETE CONDUIT, INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET.

NOTES REFERENCED IN DRAWING:

(1) MOUNT PFR AND POWER MONITOR BEHIND THIS DOOR ACCESS TO DEVICES SHALL BE BEHIND DOOR.
(2) DISTRIBUTION ELEVATION SEEN ON DWG 20-E-01

PANEL "LP"

LOCATION:MCC SECTION
ENCLOSURE:NEMA 1A
AIC RATING:22 KAIC

120/ 240 VOLTS, 1 PHASE, 3 WIRE
100 AMP BUS
100 AMP MAIN BREAKER

BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS		AMPS/ POLE	BKR NO.
1	LIGHTING INDOORS	336	2.8		20/1	1
3	LIGHTING OUTDOORS	304		2.5	20/1	3
5	RECEPTACLE INDOORS	900	7.5		20/1*	5
7	RECEPTACLE INDOORS	900		7.5	20/1*	7
9	RECEPTACLE OUTDOORS	1800	15.0		20/1*	9
11	SPARE	0		0.0	20/1	11
13	SPARE	0	0.0		20/1	13
15	SPARE	1		0.0	20/1	15
17	SPARE	0	0.0		20/1	17
19	SPARE	0		0.0	20/1	19
21	SPARE	0	0.0		20/1	21
23	SPARE	0		0.0	20/1	23
25	SPARE	0	0.0		20/1	25
27	SPACE	0		0.0		27
29	SPACE	0	0.0			29
31	SPACE	0		0.0	20/1	31
33	SPACE	0	0.0			33
35	SPACE	0		0.0		35
37	SPACE	0	0.0			37
39	SPACE	0		0.0		39
41	SPACE	0	0.0			41

BKR NO.	AMPS/ POLE	LINE AMPS		LOAD VA	DESCRIPTION	BKR NO.
2	20/1	5.0		600	CONTROL PANEL	2
4	20/1		1.7	200	CONTROL PANEL AUXILLIARY	4
6	20/1	2.5		300	MAIN BREAKER SECTION AUXILLIARY	6
8	20/1		2.5	300	ATS SECTION AUXILLIARY	8
10	20/1	2.5		300	DISTRIBUOIN SECTION AUXILLIARY	10
12	20/1		15.0	1800	EXHAUST FAN	12
14	20/1	1.7		200	COMMUNICATION PANEL	14
16	20/1		4.2	500	GENERATOR BATTERY CHARGER	16
18	40/2	10.0		1200	GENERATOR BLOCK HEATER	18
20			10.0	1200		20
22	20/1	0.0		0	SPARE	22
24	20/1		1.7	200	CL2 ANALYZER	24
26	20/1	10.0		1200	VEHICLE GATE	26
28	20/2		4.2	500	CABLE TV BOX	28
30		4.2		500		30
32			0.0	0	SPARE	32
34		0.0		0	SPACE	34
36			0.0	0	SPACE	36
38		0.0		0	SPACE	38
40			0.0	0	SPACE	40
42		0.0		0	SPACE	42

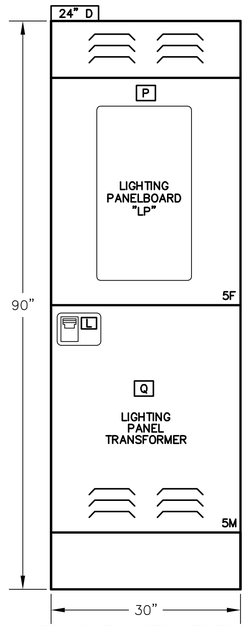
PHASE	A	B
LEFT SIDE AMPS	25.30	10.04
LEFT SIDE KVA	3.04	1.21
TOTAL PHASE KVA	7.34	5.91
TOTAL PHASE AMPS	61	49
% OF AVERAGE	111	89

NEUTRAL

GROUND

A	B	PHASE
35.83	39.17	RIGHT SIDE AMPS
4.30	4.70	RIGHT SIDE KVA
13.24		TOTAL KVA
55.17		TOTAL AMPS @ 240V, 1P
0.80		DIVERSITY FACTOR
10.59		LOAD KVA

NOTES:
1 MEANS OF WIRE COLOR CODING SHALL BE POSTED ON PANELBOARD PER NEC 210 (4)
2 ASTERISK (*) DENOTES GFI BREAKER REQUIRED WITH 5 MA SENSITIVITY
3 TILDA (~) DENOTES GFI BREAKER REQUIRED WITH 30 MA SENSITIVITY



LIGHTING PANEL ELEVATION

NEMA 1, INDOOR

GENERAL NOTES:

1. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
2. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
3. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, ON EXTERIOR DOORS AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
4. FURNISH CODE REQUIRED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

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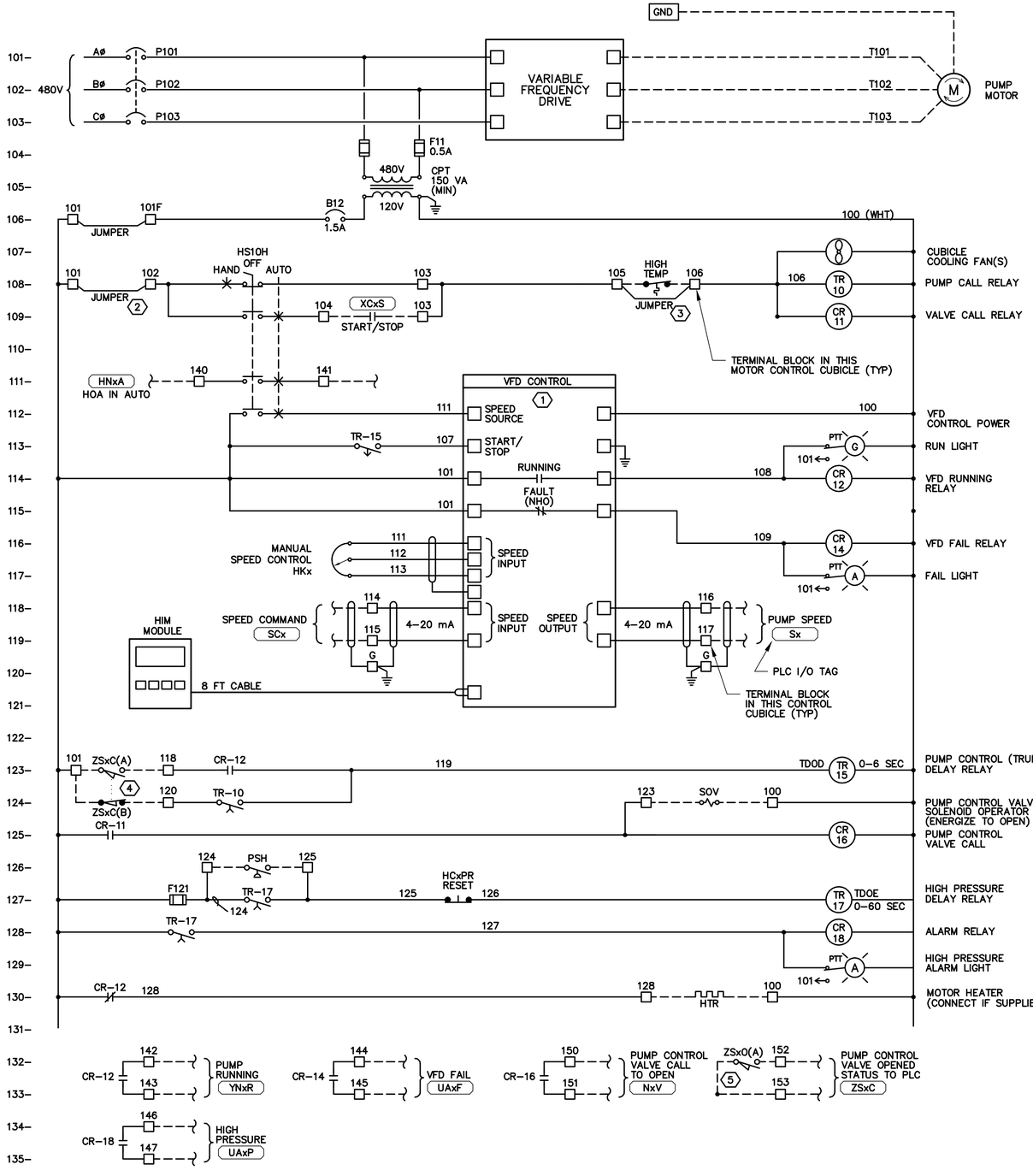
FRISCH ENGINEERING, INC.
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FILE: 19-077 20-E-02.DWG
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

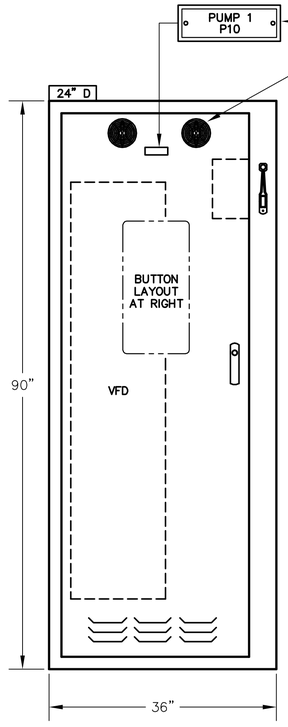
ELECTRICAL
SNEATH PUMP STATION
DISTRIBUTION ONE-LINE
AND LIGHTING PANEL ELEVATION

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-02
SHEET NUMBER 62



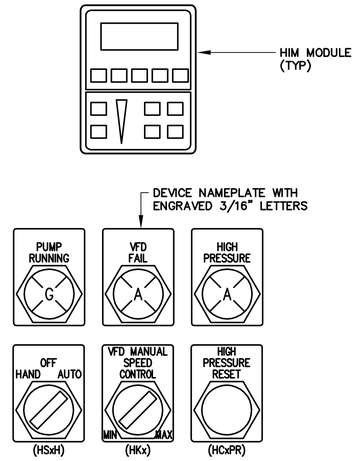
VFD PUMP ELEMENTARY DIAGRAM

TYPICAL FOR SNEATH PS: P20110 P20120 P20130



VFD ELEVATION

INDOOR, NEMA 1



DOOR LAYOUT

NOT TO SCALE

PANEL FABRICATION METHODS

1. NEMA 1, INDOOR INSTALLATION.
2. ALL SEAMS CONTINUOUS WELDED.
3. OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCHES.
4. DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
5. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
6. INTERNAL SCREWS, BOLTS, AND NUTS SHALL BE MACHINE THREAD.
7. EXTERIOR PANEL COLOR: BRUSHED STAINLESS STEEL
8. PLASTIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT.
9. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
10. ALL WIRING SHALL BE PERMANENTLY LABELLED WITH WIRE MARKERS ON BOTH ENDS.
11. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
12. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.

NOTES REFERENCED IN DRAWING:

1. PROVIDE VFD WITH 120 VAC CONTROL CIRCUIT INTERFACE AND ELECTRONIC OVERLOAD PROTECTION.
2. MOTOR OVERTEMPERATURE SWITCH, INSTALL IF SUPPLIED, JUMPER IF NOT.
3. REMOVE JUMPER FOR DEVICE WHEN CONNECTED.
4. SWITCH CHANGES STATE WHEN VALVE FULLY CLOSED. USE FORM C CONTACTS FOR FULLY CLOSED SWITCH (ZSxC) ONLY.
5. SWITCH CHANGES STATE WHEN VALVE FULLY OPEN. USE FORM C CONTACTS FOR FULLY OPEN SWITCH (ZSxO) ONLY.

GENERAL NOTES:

1. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPTION: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.
2. SIMILAR DIAGRAM FOR ALL VFD MOTORS AS SHOWN IN ONE–LINE DIAGRAM

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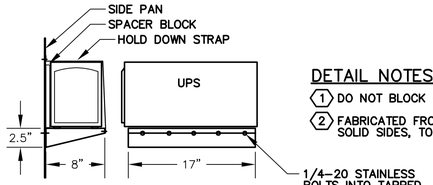
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
VFD PUMP ELEMENTARY DIAGRAM AND ELEVATION

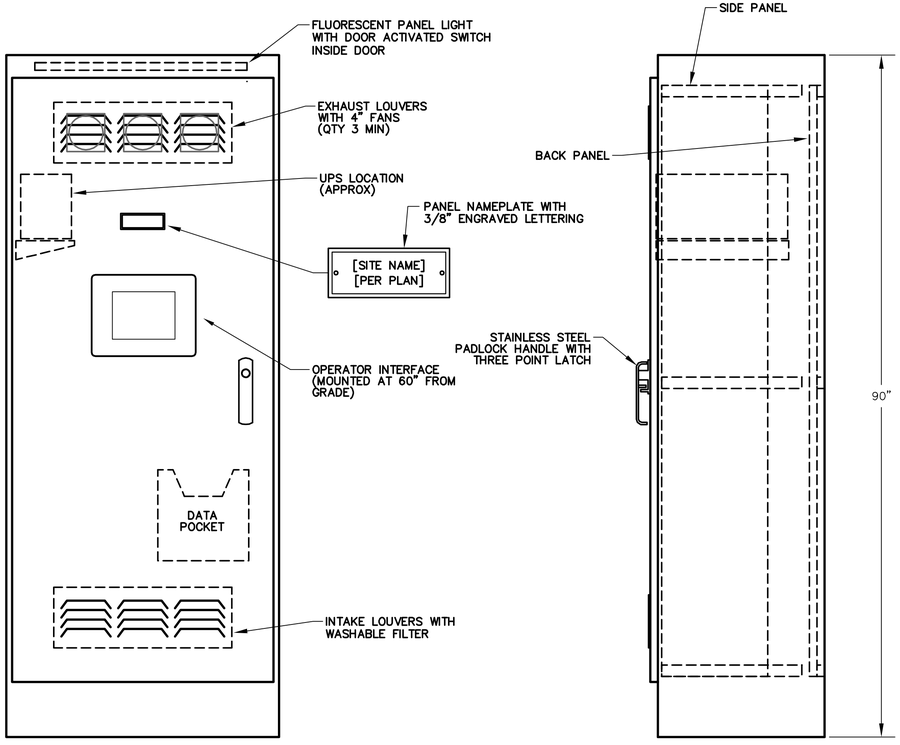
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-03
SHEET NUMBER 63



UPS SHELF DETAIL
SCALE: 1" = 10"

DETAIL NOTES:

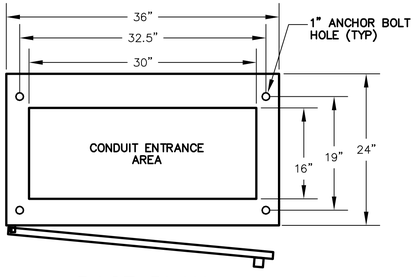
1. DO NOT BLOCK VENTS WITH SPACER BLOCK. USE TWO.
2. FABRICATED FROM 14 GA (MIN) PAINTED GALVANEAL OR STAINLESS STEEL SOLID SIDES, TOP, BACK AND FRONT WITH CONTINUOUS WELDED SEAMS.



FRONT ELEVATION

SIDE ELEVATION

ELEVATION
SCALE: 1" = 10"



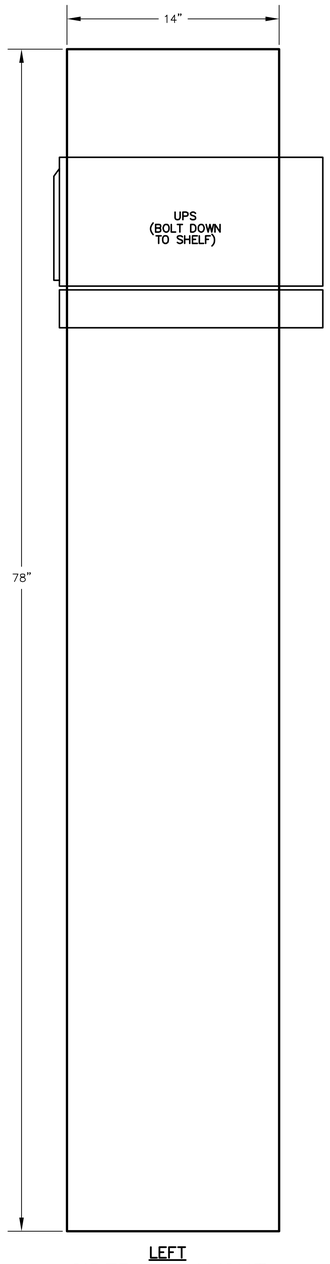
BASE PLAN

PANEL FABRICATION METHODS

1. FREESTANDING, OPEN BOTTOM.
2. OUTER DOOR SEALED WITH RUBBERIZED FOAM GASKET.
3. PANEL SHALL BE FABRICATED FROM PAINT BOND GALVANEAL SHEET STEEL.
4. 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
5. ALL SEAMS SHALL HAVE CONTINUOUS WELD GROUND SMOOTH.
6. DOOR TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCH.
7. DOOR HINGES AND PINS SHALL BE CONTINUOUS, HEAVY DUTY.
8. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
9. INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE MACHINE THREAD INTO TAPPED BACKPAN.
10. EXTERIOR PANEL COLOR: ANSI 61 GRAY.
11. MOUNTING PAN AND INTERIOR DOOR COLOR: WHITE.
12. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
13. ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
14. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
15. AS – BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.
16. HOFFMAN TYPE 12 FREE–STANDING, OR EQUAL.

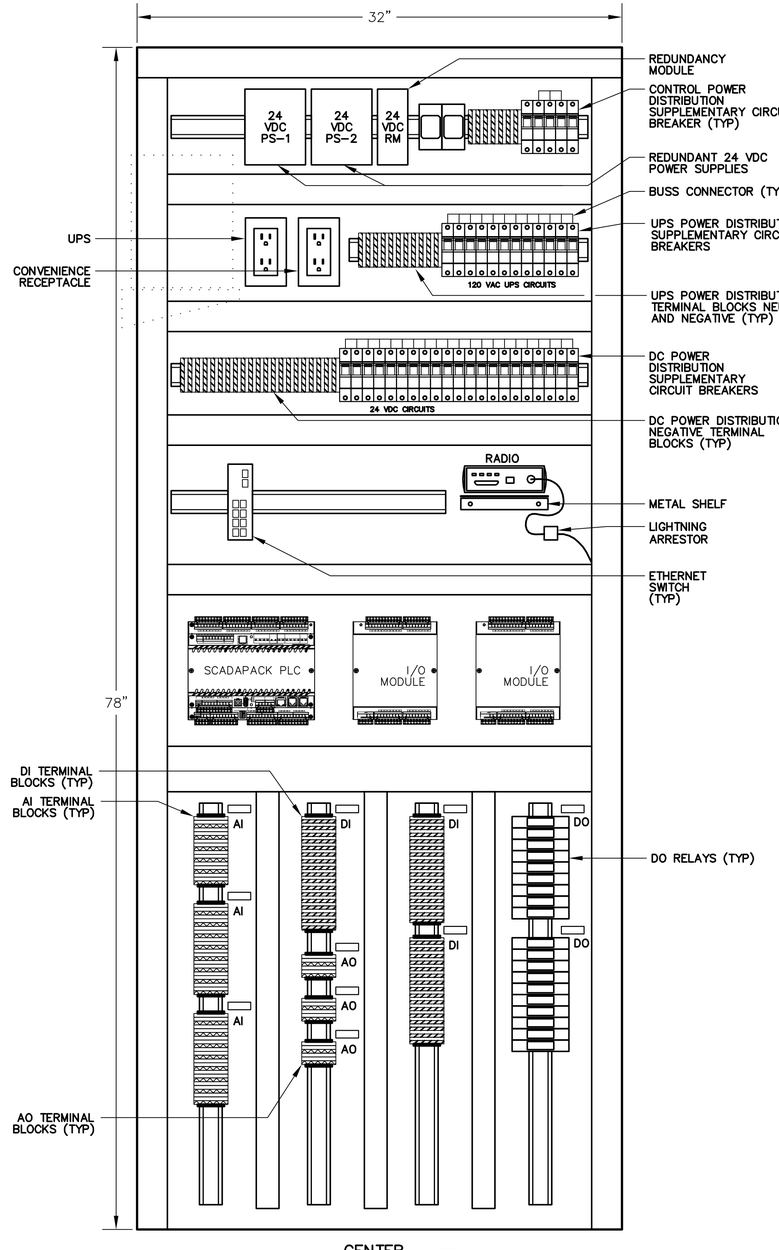
GENERAL NOTES:

1. REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ACTUAL BACKPAN LAYOUT SHALL BE SIMILAR TO LAYOUT SHOWN. SUBMIT SCALED BACKPAN LAYOUT FOR REVIEW BY ENGINEER.
2. QUANTITY OF TERMINAL BLOCKS AND RELAYS SHALL BE AS DETERMINED BY P&IDS AND EXAMPLE I/O WIRING DIAGRAM



LEFT

SIDEPAN LAYOUT
SCALE: 1" = 5"



CENTER (1)

BACKPAN LAYOUT
SCALE: 1" = 5"

LAYOUT REFERENCED NOTES:

(1) WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.
(2) ADDITIONAL FIBER OPTIC (AUX) SWITCH ONLY FOR PUMP STATION B. SEE NETWORK TOPOLOGY DWG 00–I–02

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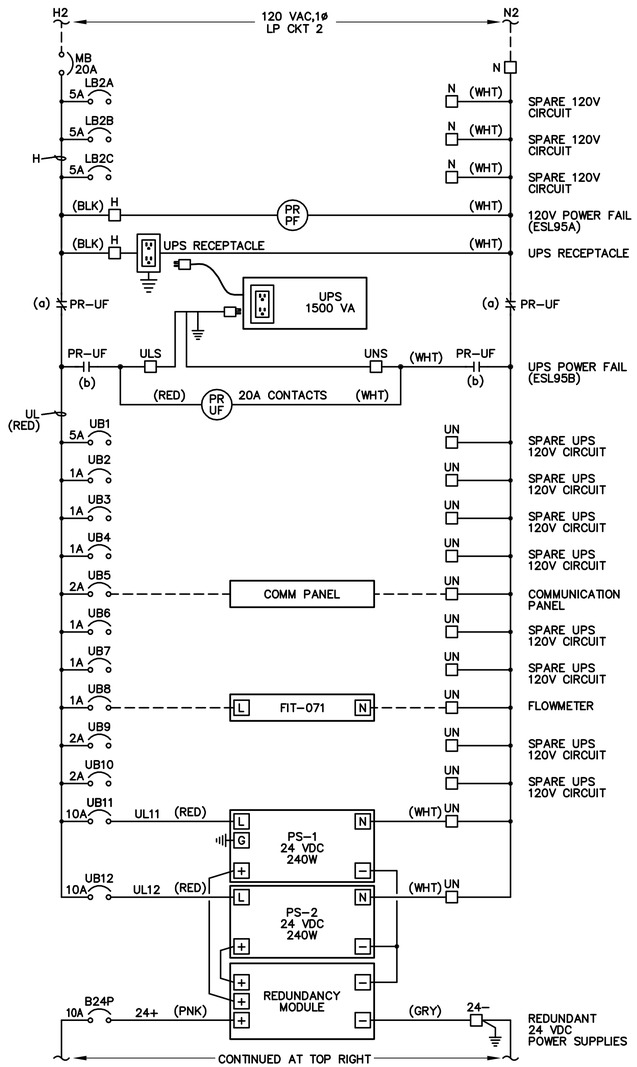
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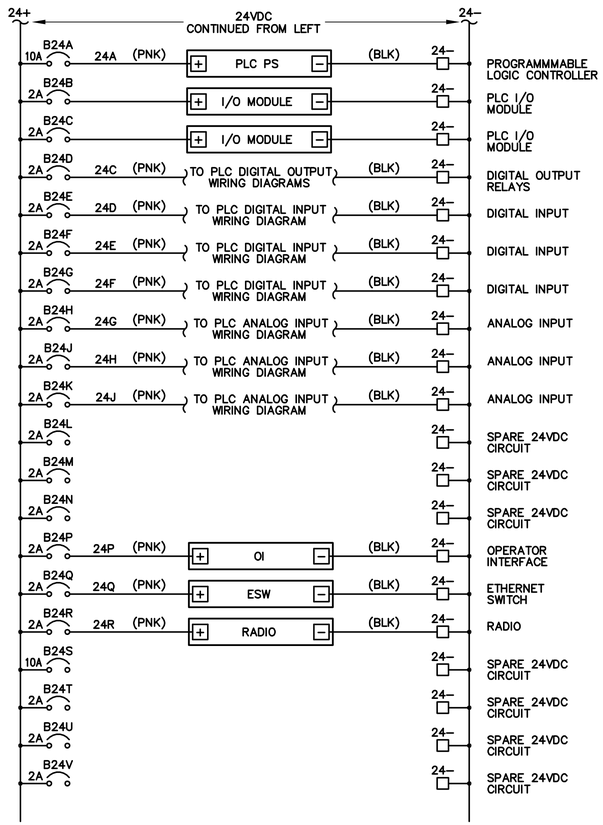
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
CONTROL PANEL ELEVATION AND BACKPAN LAYOUT

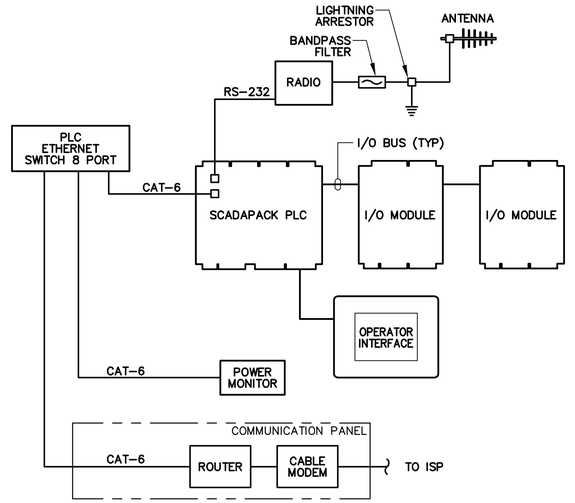
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SHEET NUMBER 64



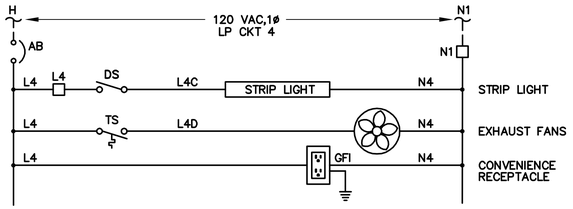
POWER DISTRIBUTION DIAGRAM



24VDC DISTRIBUTION DIAGRAM – CONTINUED



COMMUNICATION BLOCK DIAGRAM



AUXILLIARY POWER DIAGRAM

REGISTERED PROFESSIONAL ENGINEER
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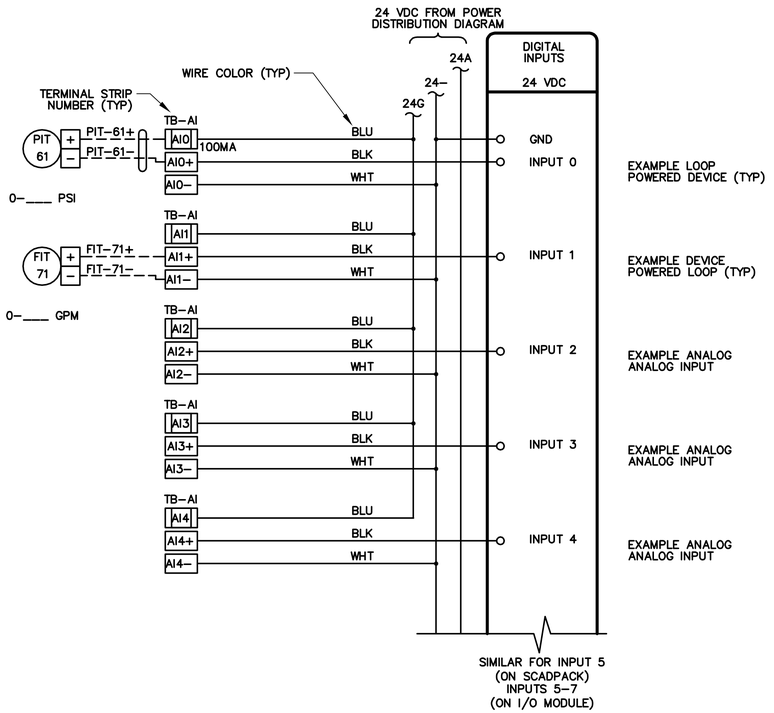
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FILE: 19-077 DWG 20-E-05.DWG
DATE: JUL 22, 2025 TIME: 3:23:55PM

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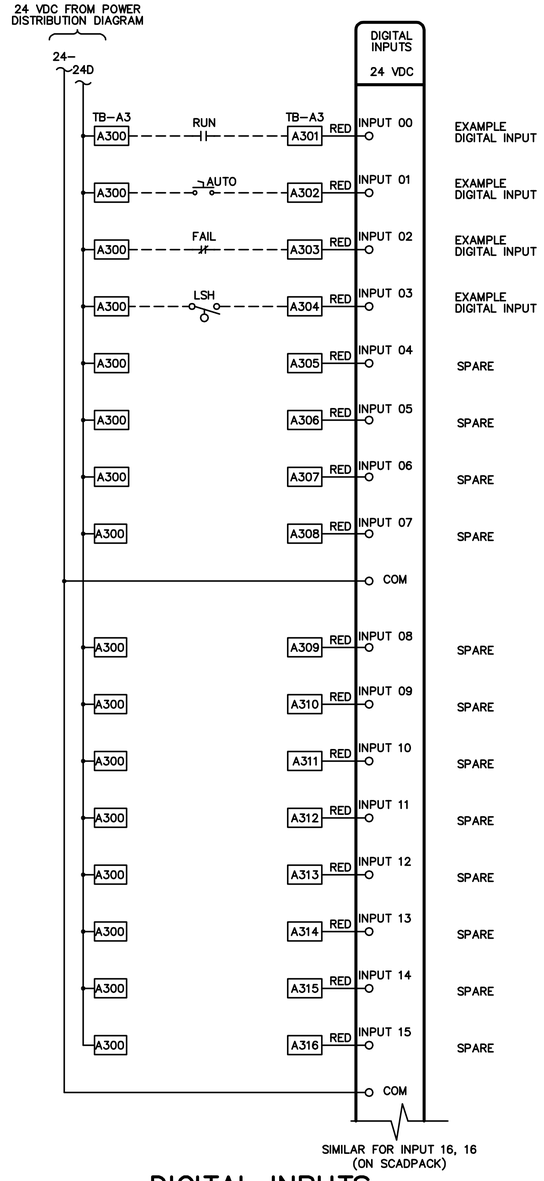
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
CONTROL PANEL POWER
DISTRIBUTION DIAGRAM

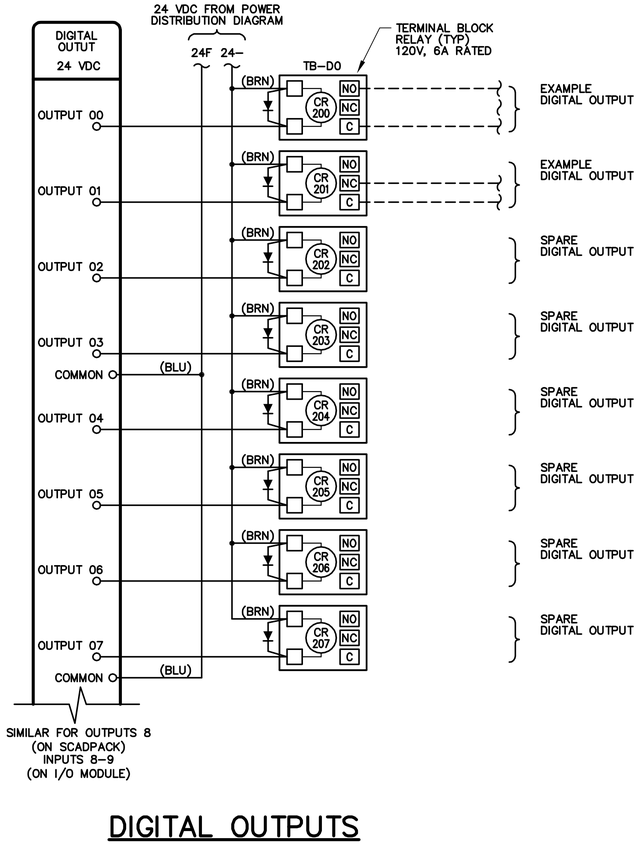
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-05
SHEET NUMBER 65



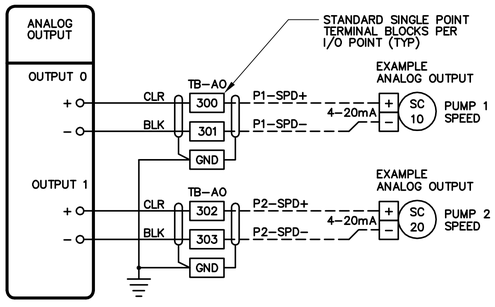
ANALOG INPUTS



DIGITAL INPUTS



DIGITAL OUTPUTS



ANALOG OUTPUTS

EXAMPLE PLC I/O WIRING DIAGRAMS

NOTES:
1. WIRE SPARE PLC I/O POINTS TO TERMINAL BLOCKS.
2. EXAMPLE I/O POINTS SHOWN. THIS DRAWING INTENDED TO SHOW I/O WIRING ONLY.
3. I/O TYPE AND NUMBER OF POINTS AND CARDS REQUIRED IS DETERMINED BY P&ID DRAWINGS.
4. MINIMUM 20% SPARE I/O POINTS PER I/O TYPE.
5. INTERNAL PANEL PLC I/O CARD WIRE NUMBERS SHALL BE BUILT AS SHOWN IN EXAMPLE BELOW.

   RACK LETTER
   SLOT NUMBER
   INPUT NUMBER
   A101
6. FIELD WIRES SHALL BE LABELED WITH ACRONYM OF CONTROL PANEL ID (NOT SHOWN) AND DEVICE: SEE EXAMPLES.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

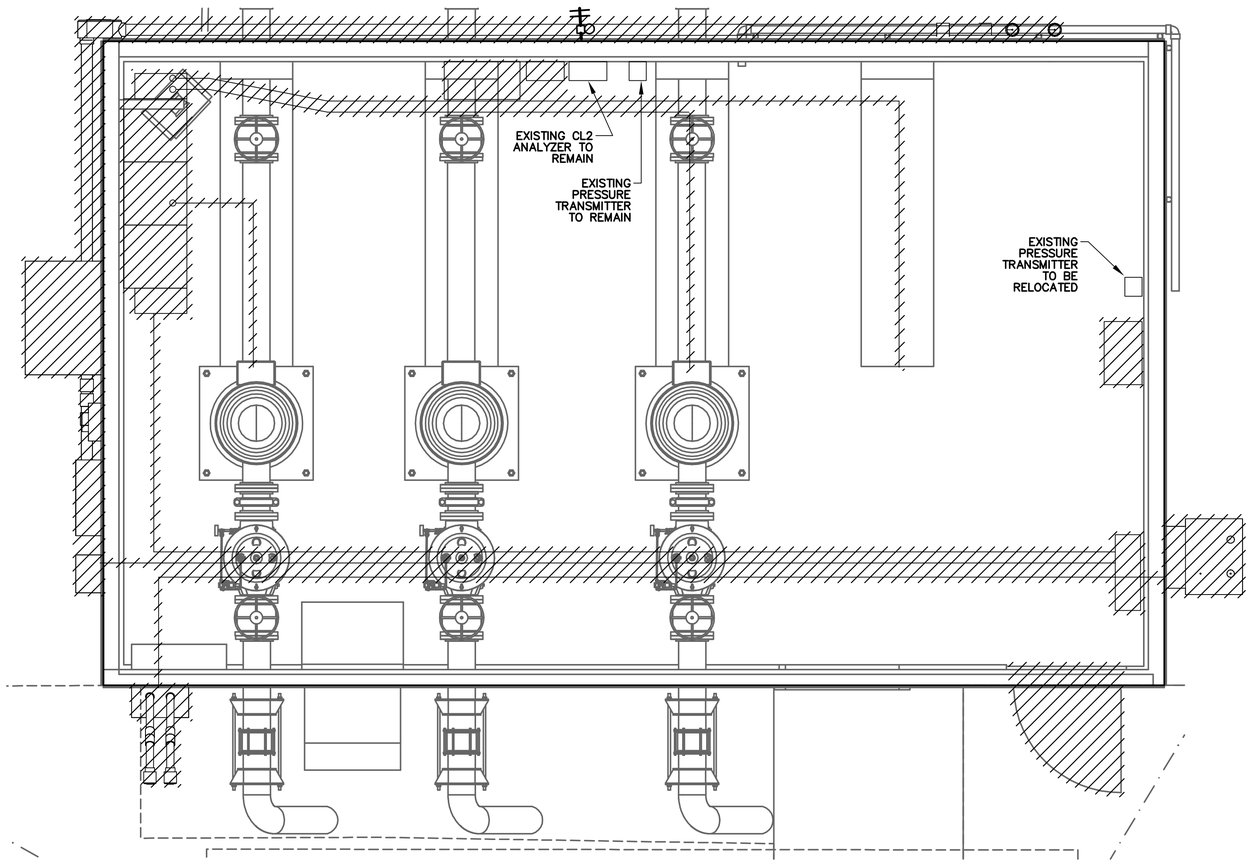
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FILE: 19-077 SHEET.DWG
DATE: JUL 22, 2025 TIME: 3:24:04PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
CONTROL PANEL EXAMPLE PLC I/O WIRING DIAGRAMS

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-06
SHEET NUMBER 66



EQUIPMENT DEMOLITION NOTES

1. REMOVE AND WASTE ELECTRICAL PANELS AND ASSOCIATED CONDUITS.
2. PROVIDE FIRST RIGHT OF SALVAGE TO OWNER. NOTIFY OWNER 1 WEEK PRIOR TO WASTING.

0 2 4
(Approximate Scale in Feet)

PUMP STATION POWER AND CONTROL PLAN

SCALE: 1/2" = 1'

N

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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FILE: 19-077 SHEET.DWG
DATE: JUL 22, 2025 TIME: 3:24:36PM

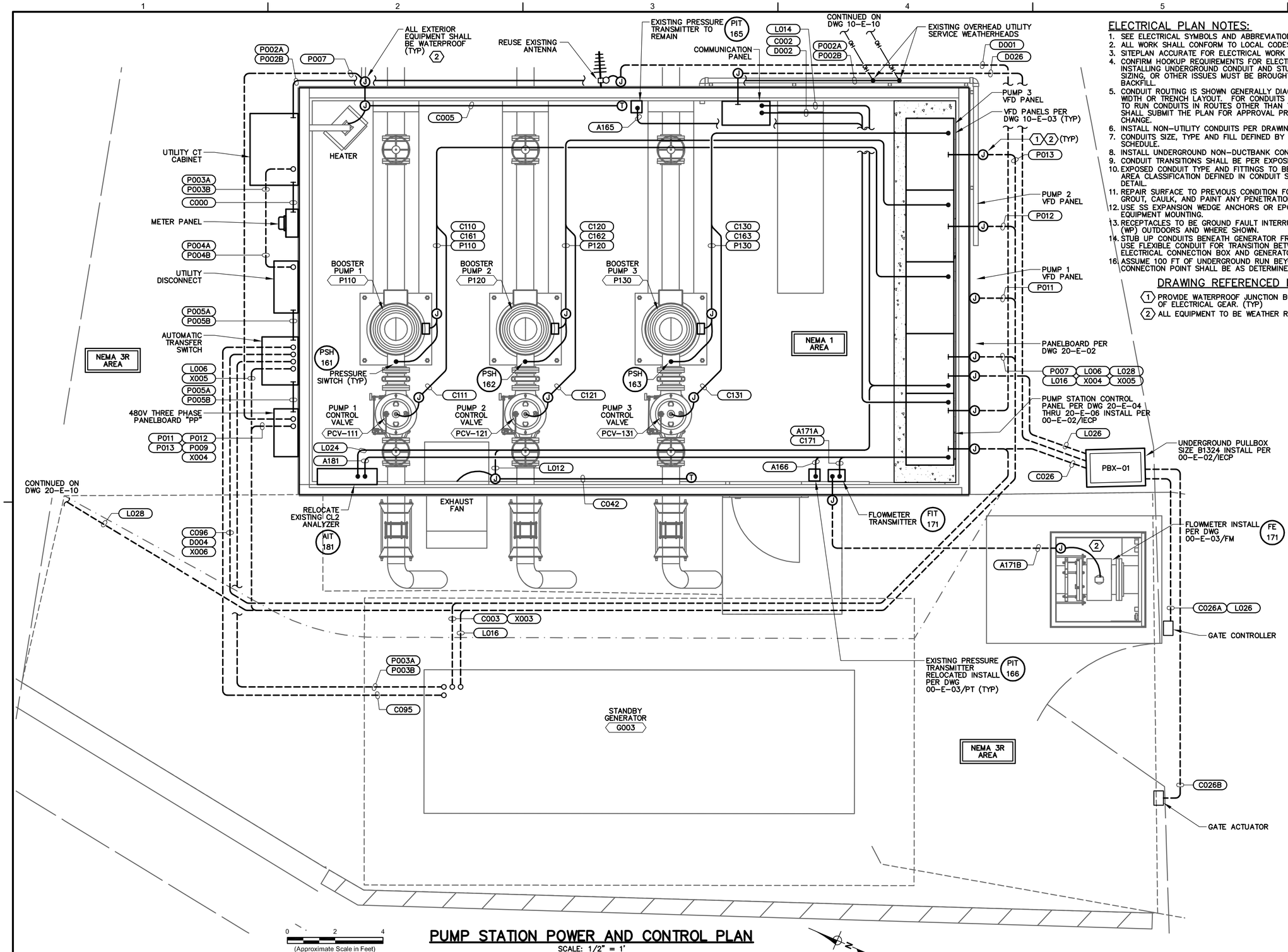
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
ELECTRICAL DEMOLITION PLAN

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-07
SHEET NUMBER 67



PUMP STATION POWER AND CONTROL PLAN

SCALE: 1/2" = 1'

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.
14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSTION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.
16. ASSUME 100 FT OF UNDERGROUND RUN BEYOND DRAWING FOR UTILITY CONNECTIONS. CONNECTION POINT SHALL BE AS DETERMINED BY UTILITY.

DRAWING REFERENCED NOTES:

1. PROVIDE WATERPROOF JUNCTION BOXES OUTSIDE OF BUILDING FOR REAR ENTRY OF ELECTRICAL GEAR. (TYP)
2. ALL EQUIPMENT TO BE WEATHER RESISTANT AT WET LOCATIONS.

REGISTERED PROFESSIONAL ENGINEER
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DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

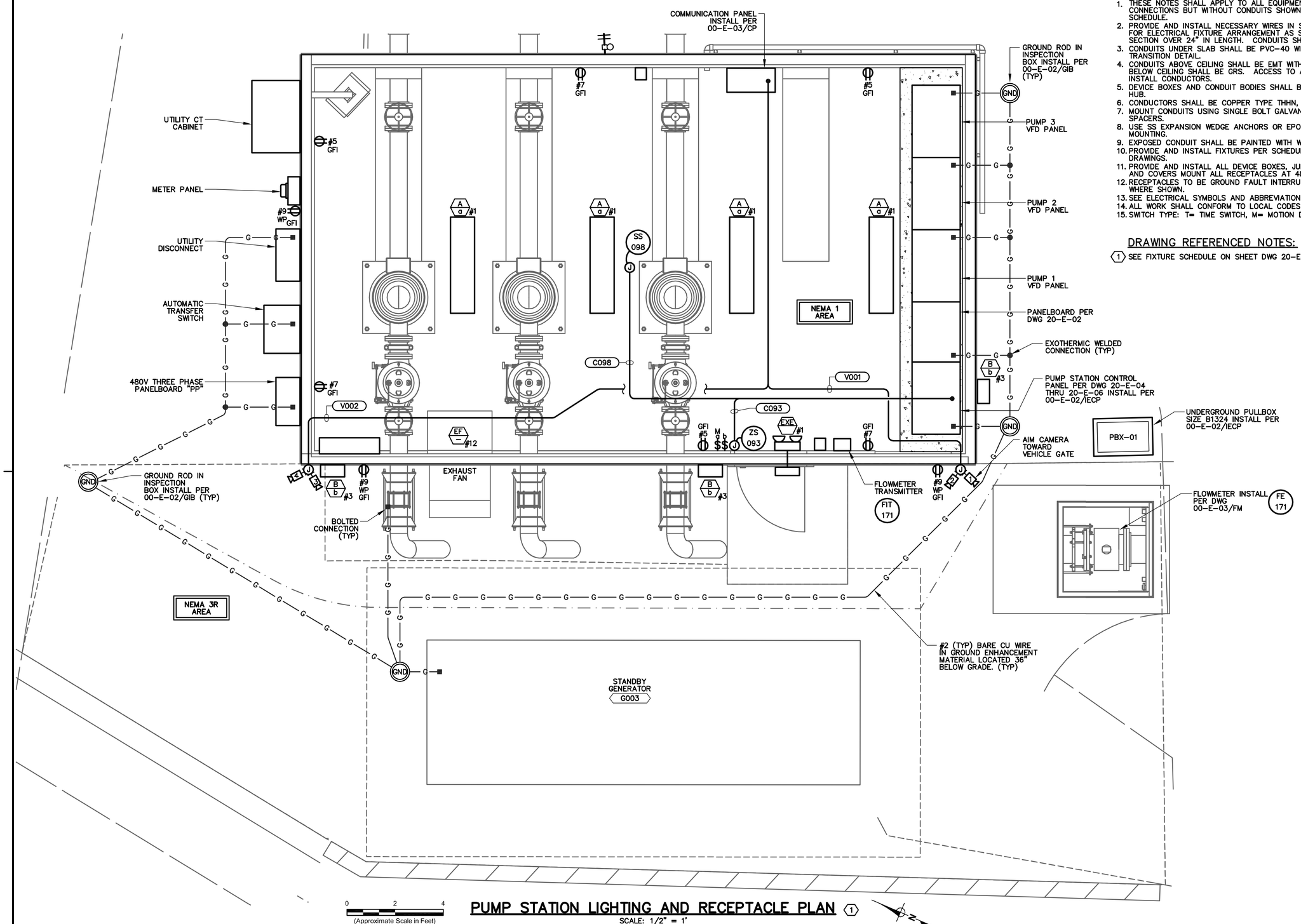
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FILE: 19-077 SHEET1.DWG
DATE: JUL 22, 2025 TIME: 3:24:29PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
POWER AND CONTROL PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-08
SHEET NUMBER 68



0 2 4
(Approximate Scale in Feet)

PUMP STATION LIGHTING AND RECEPTACLE PLAN (1)

SCALE: 1/2" = 1'

LIGHTING AND RECEPTACLE PLAN NOTES

1. THESE NOTES SHALL APPLY TO ALL EQUIPMENT OR FIXTURES WITH ELECTRICAL CONNECTIONS BUT WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.
2. PROVIDE AND INSTALL NECESSARY WIRES IN SURFACE MOUNT 3/4" (MINIMUM) CONDUIT FOR FOR ELECTRICAL FIXTURE ARRANGEMENT AS SHOWN. MAXIMUM 3 CIRCUITS PER CONDUIT SECTION OVER 24" IN LENGTH. CONDUITS SHALL NOT EXCEED 40% FILL.
3. CONDUITS UNDER SLAB SHALL BE PVC-40 WITH STUB-OUTS PER EXPOSED CONDUIT TRANSITION DETAIL.
4. CONDUITS ABOVE CEILING SHALL BE EMT WITH COMPRESSION STYLE FITTINGS. CONDUITS BELOW CEILING SHALL BE GRS. ACCESS TO ATTIC AREA SHALL NOT BE REQUIRED TO INSTALL CONDUCTORS.
5. DEVICE BOXES AND CONDUIT BODIES SHALL BE CAST IRON OR ALUMINUM WITH THREADED HUB.
6. CONDUCTORS SHALL BE COPPER TYPE THHN, CLASS C STRANDING, #12 AWG (MINIMUM).
7. MOUNT CONDUITS USING SINGLE BOLT GALVANIZED PIPE STRAPS AND CLAMP BACK SPACERS.
8. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
9. EXPOSED CONDUIT SHALL BE PAINTED WITH WALL AND/OR CEILING AS SPECIFIED.
10. PROVIDE AND INSTALL FIXTURES PER SCHEDULE THIS PAGE, QUANTITY AS SHOWN IN DRAWINGS.
11. PROVIDE AND INSTALL ALL DEVICE BOXES, JUNCTION BOXES, RECEPTACLES, SWITCHES, AND COVERS MOUNT ALL RECEPTACLES AT 48" AFF UNLESS OTHERWISE NOTED.
12. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) WHERE SHOWN.
13. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
14. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
15. SWITCH TYPE: T= TIME SWITCH, M= MOTION DETECTOR, 3= 3-WAY.

DRAWING REFERENCED NOTES:

(1) SEE FIXTURE SCHEDULE ON SHEET DWG 20-E-10

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

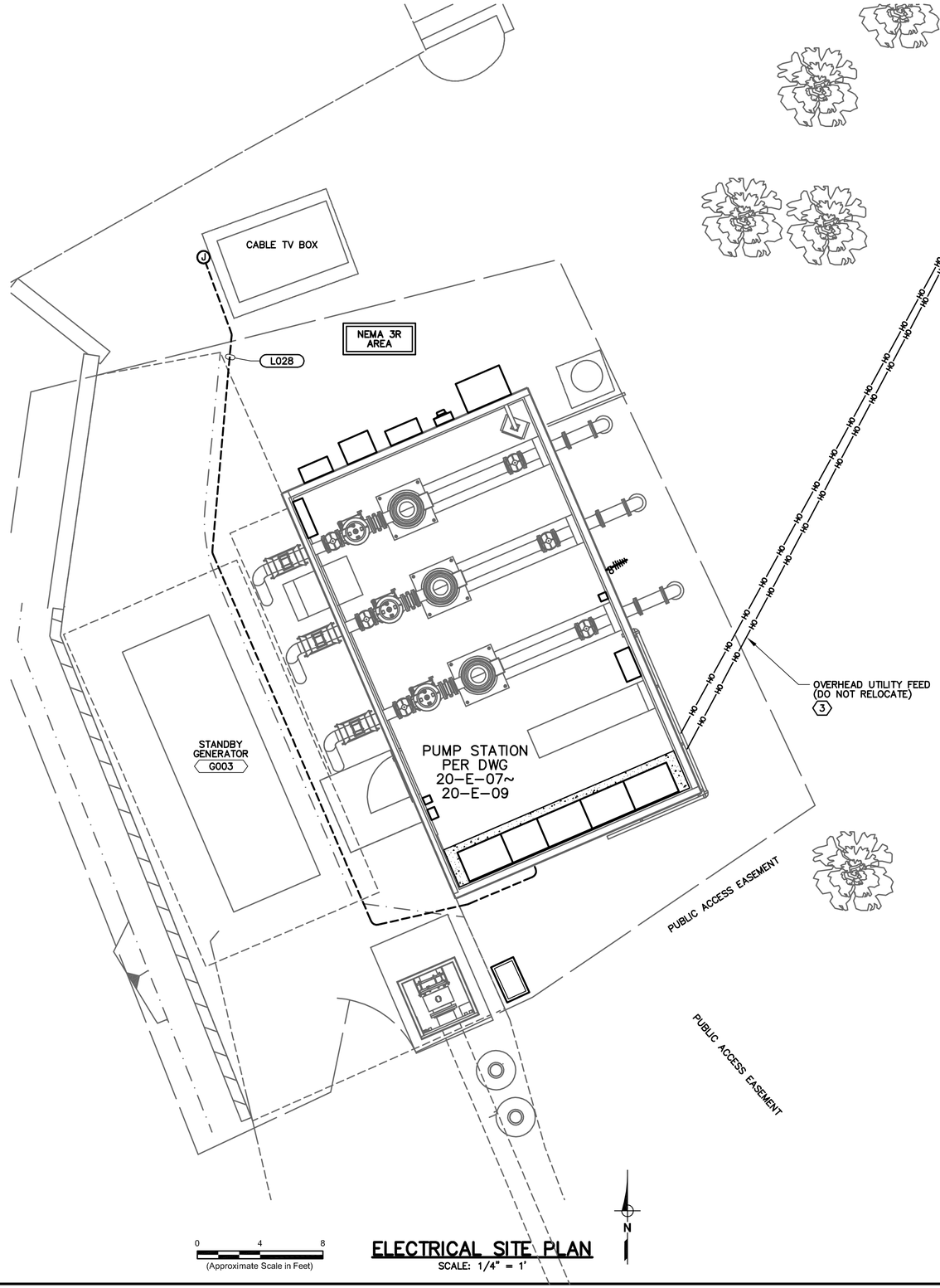
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FILE: 19-077 SHEET.DWG
DATE: JUL 22, 2025 TIME: 3:24:16PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
LIGHTING AND RECEPTACLE PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-09
SHEET NUMBER 69



ELECTRICAL SITE PLAN
SCALE: 1/4" = 1'

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
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6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.
14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSTION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.

FIXTURE SCHEDULE

CODE LETTER	FIXTURE TYPE	FIXTURE LAMPS	WATTS/ FIXTURE	MANUFACTURER OR APPROVED EQUAL	MOUNTING ARRANGEMENT	NOTES
A	STRIP LUMINAIRE, 4 FT, VAPORTIGHT MOLDED POLYCARBONATE HOUSING FROSTED LENS, MEDIUM DISTRIBUTION	6000 LUMEN 4500K	120V 50W	ATLAS ILW48LED4D RAB SEAL4-50/D10	CEILING MOUNT FIXTURE	U.L. LISTED -20F TO 140F
B	WALL PACK LIGHT - MEDIUM DARK BRONZE COLOR ALUMINUM CASE	5025 LUMEN 4000K	120V 43W	ATLAS WPM64LED RAB WPLEDFC52N/PCS	WALL MOUNT 12 FT AFF	U.L. LISTED FOR WET LOCATIONS PHOTOCELL CONTROL, MOTION DETECTION FULL CUTOFF
EXE	EXIT LIGHT PACK WITH EGRESS LAMPS AND REMOTE OUTDOOR EGRESS FIXTURE LED LAMPS WITH RED LED SIGN INTEGRAL BATTERY AND CHARGER	2 LED 3W	120V 5W	DUAL-LITE HCX-U-R-W-03L-RC12 CPRSB0603L	WALL MOUNT 9 FT AFF	WHITE INTERIOR, BROWN EXTERIOR DUAL LED LAMPS INDOORS AND OUT 12W REMOTE LIGHT CAPACITY
EF1	16" EXHAUST FAN WITH FAN INTAKE GUARD FIBERGLASS GRAVITY OPERATED SHUTTER AND THERMOSTAT CONTROL		1/6 HP 120 VAC 1 PHASE	DAYTON GRAINGER 5C531	WALL MOUNT	LINE VOLTAGE THERMOSTAT 50 - 90 DEG F COOLING GRAINGER 6GVX8 OR EQUAL
EF2	EXHAUST FAN WITH, FAN INTAKE GUARD ALUMINUM GRAVITY OPERATED SHUTTER ALUMINUM INTAKE LOUVER AND THERMOSTAT CONTROL		1/2 HP 120 VAC 1 PHASE	DAYTON GRAINGER 3XK47	SHUTTER 4C559 FAN GUARD 6D584 WALL MOUNT INTAKE LOUVER 4F955	LINE VOLTAGE THERMOSTAT 50 - 90 DEG F COOLING GRAINGER 6GVX8 OR EQUAL

DRAWING REFERENCED NOTES:

1. MAINTAIN 3 FT MINIMUM FROM EDGE OF PAD
2. MAINTAIN 3 FT MINIMUM DISTANCE FROM WATER LINE.
3. INSTALL SPOOL AND CLEVIS SYSTEM FOR PG&E CONNECTION. INSTALLATION SHALL BE PER FIGURES 4.33 AND 4.34 OF THE PG&E ELECTRIC & GAS SERVICE REQUIREMENTS (GREENBOOK), LATEST VERSION. UTILITY TO RECONNECT AT EXISTING OVERHEAD SERVICE LOCATION.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
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STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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FILE: 19-077 SET.DWG
DATE: Feb 18, 2026 TIME: 5:56:04PM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION ELECTRICAL SITE PLAN

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-10
SHEET NUMBER 70

CONDUIT & WIRE ROUTING SCHEDULE

REV	CONDUIT DETAILS TAG NO.	FROM	TO	QTY	SIZE	TYPE	POWER WIRE QTY	POWER WIRE SIZE	CONTROL WIRE QTY	CONTROL WIRE SIZE	GROUND SIZE	NOTES
	A088	CONTROL PANEL	TIT–088, TIT–089 J–BOX	1	1"	SPEC	–	–	2	#18 TSPR	#14	
	A089	TIT–088, TIT–089 J–BOX	OUTDOOR TEMP TE–089	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A165	CONTROL PANEL	PIT–165	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A166	CONTROL PANEL	PIT–166	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A171 A	CONTROL PANEL	FLOWMETER TRANSMITTER FIT–171	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	A171 B	FLOWMETER TRANSMITTER FIT–171	FLOWMETER FE–171	1	1"	SPEC	–	–	1	MFG CABLE	#14	
	A181	CONTROL PANEL	CL2 ANALYZER AIT–181	1	3/4"	SPEC	–	–	1	#18 TSPR	#14	
	C000	UTILITY CT CABINET	METER PANEL	1	1–1/2"	GRS	–	–	–	–	–	PER UTILITY REQUIREMENTS
	C002	CONTROL PANEL	COMMUNICATION PANEL	1	3/4"	SPEC	2	#14	–	–	#14	
	C003	CONTROL PANEL	GENERATOR	1	3/4"	SPEC	–	–	8	#14	#14	
	C005	HEATER	HEATER THERMOSTAT	1	3/4"	SPEC	–	–	4	#14	#14	
	C026A	PBX–01	GATE CONTROLLER	1	3/4"	SPEC	–	–	4	#14	#14	
	C026B	PBX–01	GATE ACTUATOR	1	3/4"	SPEC	–	–	4	#14	#14	
	C026	CONTROL PANEL	PBX–01	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	C042	THERMOSTAT	EXHAUST FAN	1	3/4"	SPEC	–	–	4	#14	#14	
	C093	COMMUNICATION PANEL	INTRUSION ZS–093	1	3/4"	SPEC	–	–	2	#14	#14	
	C095	AUTOMATIC TRANSFER SWITCH	GENERATOR	1	3/4"	SPEC	–	–	8	#14	#14	
	C096	CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	8	#14	#14	
	C098	CONTROL PANEL	SMOKE DETECTOR SS–098	1	3/4"	SPEC	–	–	2	#14	#14	
	C110	PUMP 1 VFD	PUMP 1	1	3/4"	SPEC	–	–	4	#14	#14	
	C111	PUMP 1 VFD	PUMP 1 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C120	PUMP 2 VFD	PUMP 2	1	3/4"	SPEC	–	–	4	#14	#14	
	C121	PUMP 2 VFD	PUMP 2 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C130	PUMP 3 VFD	PUMP 3	1	3/4"	SPEC	–	–	4	#14	#14	
	C131	PUMP 3 VFD	PUMP 3 CONTROL VALVE	1	3/4"	SPEC	–	–	10	#14	#14	
	C161	PUMP 1 VFD	PSH–161	1	3/4"	SPEC	–	–	2	#14	#14	
	C162	PUMP 2 VFD	PSH–162	1	3/4"	SPEC	–	–	2	#14	#14	
	C163	PUMP 3 VFD	PSH–163	1	3/4"	SPEC	–	–	2	#14	#14	
	C171	CONTROL PANEL	FLOWMETER TRANSMITTER FIT–171	1	3/4"	SPEC	2	#14	–	–	#14	
	D001	CONTROL PANEL	ANTENNA	1	2"	SPEC	–	–	1	ANTENNA CABLE	–	
	D002	CONTROL PANEL	COMMUNICATION PANEL	1	1"	SPEC	–	–	2	CAT 5E	–	BELDEN 7919A
	D004	CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	1	CAT 5E	–	BELDEN 7919A
	D026	COMMUNICATION PANEL	PBX–01	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	L006	PANELBOARD "LP"	AUTOMATIC TRANSFER SWITCH	1	1"	SPEC	6	#12	–	–	#12	
	L012	PANELBOARD "LP"	EXHAUST FAN	1	3/4"	SPEC	2	#12	–	–	#12	
	L014	PANELBOARD "LP"	COMMUNICATION PANEL	1	3/4"	SPEC	2	#12	–	–	#12	
	L016	PANELBOARD "LP"	GENERATOR	1	1"	SPEC	2	#8	3	#12	#10	HEATER AND CHARGER
	L024	PANELBOARD "LP"	CL2 ANALYZER AIT–181	1	3/4"	SPEC	2	#12	–	–	#12	
	L026	PANELBOARD "LP"	GATE CONTROLLER	1	3/4"	SPEC	2	#12	–	–	#12	
	L028	PANELBOARD "LP"	CABLE TV BOX	1	3/4"	SPEC	3	#12	–	–	#12	
	P002A,B	OVERHEAD UTILITY SERVICE WEATHERHEAD	UTILITY CT CABINET	2	–	(E)	–	–	–	–	–	REPLACE PER UTILITY REQUIREMENTS
	P003A,B	UTILITY CT CABINET	UTILITY DISCONNECT	2	3"	SPEC	3	#250	–	–	#1	
	P004A,B	UTILITY DISCONNECT	AUTOMATIC TRANSFER SWITCH	2	3"	SPEC	3	#250	–	–	#1	
	P005A,B	GENERATOR	AUTOMATIC TRANSFER SWITCH	2	3"	SPEC	3	#250	–	–	#1	
	P006A,B	AUTOMATIC TRANSFER SWITCH	PANELBOARD "PP"	2	3"	SPEC	3	#250	–	–	#1	
	P007	PANELBOARD "PP"	HEATER	1	3/4"	SPEC	3	#12	–	–	#12	
	P009	PANELBOARD "PP"	PANELBOARD "LP" TRANSFORMER	1	2"	SPEC	3	#1/0	–	–	#4	
	P011	PANELBOARD "PP"	PUMP 1 VFD	1	3"	SPEC	3	#4/0	–	–	#1	
	P012	PANELBOARD "PP"	PUMP 2 VFD	1	3"	SPEC	3	#4/0	–	–	#1	
	P013	PANELBOARD "PP"	PUMP 3 VFD	1	3"	SPEC	3	#1/0	–	–	#4	
	P110	PUMP 1 VFD	PUMP 1	1	3"	SPEC	3	#4/0	–	–	#1	
	P120	PUMP 2 VFD	PUMP 2	1	3"	SPEC	3	#4/0	–	–	#1	
	P130	PUMP 3 VFD	PUMP 3	1	3"	SPEC	3	#1/0	–	–	#4	
	V001	COMMUNICATION PANEL	CAMERA 1, 2	1	3/4"	SPEC	–	–	2	CAT 5E	–	BELDEN 7919A
	V002	COMMUNICATION PANEL	CAMERA 3,4	1	3/4"	SPEC	–	–	2	CAT 5E	–	BELDEN 7919A
	X003	CONTROL PANEL	GENERATOR	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X004	PANELBOARD "LP"	PANELBOARD "PP"	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X005	PANELBOARD "LP"	AUTOMATIC TRANSFER SWITCH	1	1"	SPEC	–	–	–	–	–	PULL ROPE
	X006	CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	1"	SPEC	–	–	–	–	–	PULL ROPE

NOTES PERTAINING TO CONDUIT SCHEDULE:

1. CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION, CONDUIT AND BOXES FOR NON–EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
2. SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
3. CONDUITS OVER 15 FT LENGTH (EITHER EMPTY OR WITH CONDUCTORS SIZED LESS THAN #8 AWG), SHALL INCLUDE A POLY PULL STRING. STRING SHALL BE TIED OFF AT EACH END.
4. FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS, CONDUIT AND BOXES.
5. WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
6. SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
3485 FOLSOM BLVD, UNIT 600
FOLSOM, CA 95630
PH 916 353 1025
WWW.FRISCHENGINEERING.COM
FILE: T:\DWG\SE\SE-E-11.DWG
DATE: JUL 22, 2025 TIME: 3:24:48PM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
ELECTRICAL CONDUIT SCHEDULE

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-11
SHEET NUMBER 71

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Sneath Pump Station

San Bruno, CA

Project Designer:

Frisch Engineering, Inc.
13405 Folsom Blvd, Unit 600
Folsom, CA 95630
916-353-1025

Report Prepared by:

Scott Turnbull
M/E Systems Engineering
5098 Foothills Blvd Ste 3 PMB 382
Roseville, CA 95747
916-774-6330

Job Number:

17154

Date:

11/7/2022

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2019 Building Energy Efficiency Standards.

This program developed by EnergySoft Software – www.energysoft.com.

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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
This document is used to demonstrate compliance with requirements in §110.9, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path.			
Project Name: Sneath Pump Station (Sneath Pump Station)		Report Page:	(Page 1 of 6)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

A. GENERAL INFORMATION

01	Project Location (city)	San Bruno	04	Total Conditioned Floor Area (ft²)	119
02	Climate Zone	3	05	Total Unconditioned Floor Area (ft²)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1
●: See Table I					

B. PROJECT SCOPE

This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6 or §141.0(b)2 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☒ New Lighting System	Area Category Method	119	Area Category Method	0
☐ New Lighting System – Parking Garage				
Total Area of Work (ft²)	119		0	

C. COMPLIANCE RESULTS

If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)1	Allowed Lighting Power per §140.6(b) (Watts)						Adjusted Lighting Power per §140.6(a)1 (Watts)				Compliance Results
	01	02	03	04		05		06	07		08	09
	Complete Building §140.6(c)1	Area Category §140.6(c)2	Area Category Additional §140.6(c)2G (+)	Tailored §140.6(c)3 (+)	=	Total Allowed (Watts)	≥	Total Designed (Watts)	Adjustments: PAF Lighting Control Credits §140.6(a)2 (-)	=	Total Adjusted (Watts) *Includes Adjustments	05 must be >= 08 §140.6
	(See Table I)	(See Table I)	(See Table J)	(See Table K)				(See Table F)	(See Table P)			
Conditioned		101.1	83		=	184	≥	150	0	=	150	COMPLIES
Unconditioned					=		≥			=		

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003, Schema Version: rev 20200601 — Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTI-E
Project Name: Sneath Pump Station (Sneath Pump Station)		Report Page:	(Page 2 of 6)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

C. COMPLIANCE RESULTS

Controls Compliance (See Table H for Details)	COMPLIES
Rated Power Reduction Compliance (See Table Q for Details)	

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. INDOOR LIGHTING FIXTURE SCHEDULE

This table includes all permanent designed lighting and all portable lighting in offices.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
									Field Inspector	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per §140.6(a)3	Design Watts	Pass	Fail
A	Ceiling Mount LED	No	No	50	Mfr. Spec	3	No	150	☐	☐
							Total Designed Watts: CONDITIONED SPACES	150		

[1] *FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per §140.6(a)4B is adjusted to be 75% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*

[2] *Authority Having Jurisdiction may ask for luminaire cut sheets to confirm wattage used for compliance per §130.0(c). Wattage used must be the maximum rated for the luminaire, not the lamp.*

G. MODULAR LIGHTING SYSTEMS

This section does not apply to this project.

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003, Schema Version: rev 20200601 — Report Generated: 2022-11-07 12:51:54

REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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WWW.FRISCHENGINEERING.COM

FILE: T:\17154\Drawings\17154.DWG
DATE: JUL 16, 2025 TIME: 11:45:46AM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-12
SHEET NUMBER 72

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE				NRCC-LTI-E
Project Name:	Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 3 of 6)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

*This table includes lighting controls for conditioned and unconditioned spaces. When a control having a * is shown, the notes section of this table provides more detail on how compliance is achieved. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Building Level Controls

01	02	03	
Mandatory Demand Response §110.12(c)	Shut-off controls §130.1(c)	Field Inspector	
		Pass	Fail
Not Required <= 10,000 SF	Whole Building Other	☐	☐

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Sky lit Daylighting §130.1(d)	Secondary Daylighting §140.6(d)	Interlocked Systems §140.6(a)1	Field Inspector	
								Pass	Fail
*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved. EX: Conference 1: Primary/Skylight Daylighting: Exempt because less than 120 watts of general lighting; EXCEPTION 1 to §130.1(d)2					13				
					Plan Sheet Showing Daylit Zones:				

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Each area complying using the Complete Building or Area Category Methods per §140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
Pump Room	General Commercial Industrial Work Area Precision	0.85	119	101.1	Yes	No
		TOTALS:	119	101.1	See Tables J, or P for detail	

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE				NRCC-LTI-E
Project Name:	Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 4 of 6)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

All areas indicated in Table I as using an additional allowance using the Area Category Method have been included in this table to calculate the additional allowance per Table 140.6-C

Conditioned Spaces

01	02	03	04	05	06	07	08	09	10
Area Description	Primary Function Area	Applicable Qualifying Lighting System from Table 140.6-C	Allowed Density (W/ft² or W/lf or W/unit)	Ltg Area, Length or ATM/Mirror (ft², lf or #)	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	Number of Luminaires	Total Design Watts
Pump Room	General Commercial Industrial Work Area Precision	PrecisionLightingIndustrial	0.70	119	83.3	A	50	3	150
Total Design Watts	Calculated Allowance (Watts):	Total Additional Allowance for this area:							
150	83.3	83.3							
11									
Total Additional Allowance (Watts) CONDITIONED SPACES		83.3							

Unconditioned Spaces

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This section does not apply to this project.

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS

This section does not apply to this project.

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE				NRCC-LTI-E
Project Name:	Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 5 of 6)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCv/

Form/Title	Field Inspector	
	Pass	Fail
NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified		Field Inspector	
			Pass	Fail
NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐		

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE				NRCC-LTI-E
Project Name:	Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 6 of 6)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Scott Turnbull	
Company: M/E Systems Engineering	Signature Date: 2022-11-07
Address: 5098 Foothills Blvd Ste 3 PMB 382	CEA/ HERS Certification Identification (if applicable): N/A
City/State/Zip: Roseville CA 95747	Phone: 916-774-6330

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Responsible Designer Signature:
Thomas Frisch	
Company: Frisch Engineering, Inc.	Date Signed: 2022-11-07
Address: 13405 Folsom Blvd, Unit 600	License: E15761
City/State/Zip: Folsom CA 95630	Phone: 916-353-1025

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
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FOLSOM, CA 95630
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FILE: T24-2025-19-077.DWG
DATE: JUL 16, 2025 TIME: 11:45:53 AM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-13
SHEET NUMBER 73

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name:	Sneath Pump Station — Sneath Pump Station	Report Page:	(Page 1 of 7)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066	Date Prepared:	11/7/2022

A. GENERAL INFORMATION

01	Project Location (city)	San Bruno	04	Total Illuminated Hardscape Area (ft²)	18
02	Climate Zone	3			

03 Outdoor Lighting Zone per Title 24 Part 1 §10.114 or as designated by Authority Having Jurisdiction (AH):

☐ LZ-0: Very Low – Undeveloped Parkland ☐ LZ-2: Moderate – Rural Areas ☐ LZ-4: High – Must be reviewed by CA Energy Commission for Approval
☐ LZ-1: Low – Developed Parkland ☒ LZ-3: Moderately High – Urban Areas

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.7 or §141.0(b)2L for alterations.

My Project Consists of:

01	02
☒ New Lighting System	Must Comply with Allowances from §140.7
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)? ○ Yes ○ No

03	04	05
% of Existing Luminaires Being Altered[1]	Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ < 10% ☐ >= 10% and < 50% ☐ >= 50%		

Please proceed to Table F. Outdoor Lighting Fixture Schedule to define the project's luminaires.

[1] *FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.*

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name:	Sneath Pump Station — Sneath Pump Station	Report Page:	(Page 2 of 7)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066	Date Prepared:	11/7/2022

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through I. Note: if any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) §140.7 or §141.0(b)2L												Compliance Results			
01		02		03		04		05	OR	06	=	07	≥	08	09
General Hardscape Allowance §140.7(d)1 (See Table I)	+	Per Application §140.7(d)2 (See Table J)	+	Sales Frontage §140.7(d)2 (See Table K)	+	Ornamental §140.7(d)2 (See Table L)	+	Per Specific Area §140.7(d)2 (See Table M)	OR	Existing Power Allowance §141.0(b)2L (See Table N)	=	Total Allowed (Watts)	≥	Total Actual (Watts)	07 must be >= 08
355.2	+	—	+	—	+	—	+	—	OR	—	=	355.2	≥	129	COMPLIES
Cutoff Compliance (See Table G for Details)															N/A
Controls Compliance (See Table H for Details)															COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003 Schema Version: rev 20200501 — Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name:	Sneath Pump Station — Sneath Pump Station	Report Page:	(Page 3 of 7)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066	Date Prepared:	11/7/2022

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with §140.7 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per §141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included).

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1,2]	How is Wattage determined	Total number luminaires[2]	Luminaire Status[3]	Excluded per §140.7(a)	Design Watts	Cutoff Req. > 6,200 initial lumen output §130.2(b)[4]	Field Inspector	
										Pass	Fail
B	Wall Mount LED	☐ Linear	43	Mfr. Spec	3	New	☐	129	NA: < 6200 lumens	☐	☐
							Total Design Watts:	129			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX: Luminaire is lighting a statue; EXCEPTION 2 to §130.2(b)

[1] *ROOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.0(c)*

[2] *For linear luminaires, wattage should be indicated as W/ft instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.*

[3] *Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.*

[4] *Compliance with mandatory cutoff requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by §130.2(b)*

G. CUTOFF REQUIREMENTS (BUG)

This section does not apply to this project.

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003 Schema Version: rev 20200501 — Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name:	Sneath Pump Station — Sneath Pump Station	Report Page:	(Page 4 of 7)
Project Address:	2100 Sneath Lane, San Bruno, CA 94066	Date Prepared:	11/7/2022

H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
*When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Mandatory Controls

01	02	03	04	05	
Area Description	Shut-Off §130.2(c)1	Auto-Schedule §130.2(c)2	Motion Sensor §130.2(c)3	Field Inspector	
				Pass	Fail
	Photocontrol	Yes	Yes	☐	☐

* NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.
EX: Not permitted by health & safety to be turned off; EXCEPTION 1 to §130.2(c)

Registration Number: — Registration Date/Time: — Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance — Report Version: 2019.1.003 Schema Version: rev 20200501 — Report Generated: 2022-11-07 12:51:54

REGISTERED PROFESSIONAL ENGINEER — THOMAS P. FRISCH — No. E15761 — ELECTRICAL — STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

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CONSULTING ELECTRICAL ENGINEERS
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FOLSOM, CA 95630
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FILE: T:\PROJECTS\2025\2514-DWG\2514-E-14.DWG
DATE: JUL 16, 2025 TIME: 11:46:01 AM

WATERWORKS ENGINEERS
1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-538-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-14
SHEET NUMBER 74

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 5 of 7)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

I. LIGHTING POWER ALLOWANCE (per §140.7)

This table includes areas using allowance calculations per §140.7. General Hardscape Allowance is per Table 140.7-A while "Use it or lose it" Allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

	01				
	☒ General Hardscape Allowance Table I (below)	"Use it or lose it" Allowance (select all that apply) (select all that apply)			
		☐ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☐ Per Specific Area Table M
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 0, 1 & 4)					
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A (LZ 2 & 3)					

02	03	04	05	06	07	08	09	10
Area Description	Surface Type	Area Wattage Allowance (AWA)			Area Wattage Allowance (AWA)			Total General AWA + LWA (Watts)
		Illuminated Area (ft²)	Allowed Density (W/ft²)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	
Walkway	Asphalt	18	0.025	0.4	19	0.2	4.8	5
							Initial Wattage Allowance for Entire Site (Watts):	350
							Total General Hardscape Allowance (Watts):	355

J. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number:
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:
Report Version: 2019.1.003
Schema Version: rev 20200501

Registration Provider: Energysoft
Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 6 of 7)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCv/

Form/Title	Field Inspector	
	Pass	Fail
NRCI-LTO-01-E - Must be submitted for all buildings	☐	☐
NRCI-LTO-02-E- Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified		Field Inspector	
			Pass	Fail
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	☐	☐		

Registration Number:
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:
Report Version: 2019.1.003
Schema Version: rev 20200501

Registration Provider: Energysoft
Report Generated: 2022-11-07 12:51:54

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-LTO-E
Project Name: Sneath Pump Station	Sneath Pump Station	Report Page:	(Page 7 of 7)
Project Address: 2100 Sneath Lane, San Bruno, CA 94066		Date Prepared:	11/7/2022

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Scott Turnbull	Scott Turnbull
Company: M/E Systems Engineering	Signature Date: 2022-11-07
Address: 5098 Foothills Blvd Ste 3 PMB 382	CEA/ HERS Certification Identification (If applicable): N/A
City/State/Zip: Roseville CA 95747	Phone: 916-774-6330

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Responsible Designer Signature:
Thomas Frisch	Thomas Frisch
Company: Frisch Engineering, Inc.	Date Signed: 2022-11-07
Address: 13405 Folsom Blvd, Unit 600	License: E15761
City/State/Zip: Folsom CA 95630	Phone: 916-353-1025

Registration Number:
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:
Report Version: 2019.1.003
Schema Version: rev 20200501

Registration Provider: Energysoft
Report Generated: 2022-11-07 12:51:54

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA

7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

FRISCH ENGINEERING, INC.
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WWW.FRISCHENGINEERING.COM

FILE: 19-077 2025.DWG
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1730 El Camino Real, Suite 280 • San Mateo, CA 94402 • 650-538-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA
2100 SNEATH LANE

ELECTRICAL
SNEATH PUMP STATION
TITLE 24 ANALYSIS REPORT

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-E-15
SHEET NUMBER 75

P&ID SYMBOLS

ISA SYMBOLS

SYMBOL	DESCRIPTION
XXX / XXX	FIELD MOUNTED INSTRUMENT
XXX / XXX	INSTRUMENT MOUNTED ON DOOR OF LOCAL PANEL, OPERATOR ACCESSIBLE
XXX / XXX	INSTRUMENT MOUNTED ON DOOR OF FIELD PANEL, OPERATOR ACCESSIBLE
XXX / XXX	INSTRUMENT MOUNTED WITHIN PANEL, OPERATOR INACCESSIBLE
XXX / XXX	INSTRUMENT MOUNTED WITHIN FIELD PANEL, OPERATOR INACESSIBLE
I	OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES
MCE–XX	ASSOCIATED MOTOR CONTROL ELEMENTARY IF APPLICABLE
UNIT XXX / XXX	VISUAL DISPLAY OF PLC ANALOG REGISTER SCALE TO UNITS AS SHOWN
XXX / XXX	VISUAL DISPLAY OF PLC ANALOG ALARM REGISTER
XXX / XXX	VISUAL DISPLAY OF PLC DIGITAL REGISTER
XXX / XXX	VISUAL DISPLAY OF PLC DIGITAL ALARM REGISTER
X / X	TAG DESCRIPTION
XXXX	PLC I/O TAG
	PLC DIGITAL INPUT
	PLC DIGITAL OUTPUT
	ANALOG INPUT
	ANALOG OUTPUT
	AUDIBLE ALARM (BUZZER OR HORN)
X	LAMP INDICATION COLOR DENOTED BY "X" RED, BLU, GRN, WHT, AMBER
a XXXX / XXXX a	CONTINUATION TAG FROM ONE AREA TO ANOTHER AREA OF DIFFERENT DRAWINGS "a" TAG IDENTIFIER TO POINT ON DRAWING NUMBER XXXX.
I–X / I–X	CONTINUED ON DWG I–X

LINE TYPES

	PRIMARY PROCESS LINE
	SECONDARY PROCESS LINE
	ELECTRICAL SIGNAL LINE (DIGITAL OR ANALOG)
	SOFTWARE OR DATA LINK
	BOUNDARY OF EQUIPMENT PACKAGE SYSTEM
	COMMUNICATION CONNECTION

VALVES

	GATE VALVE
	CHECK VALVE
	PLUG VALVE
	BALL VALVE
	BALL CHECK VALVE
	BUTTERFLY VALVE
	ANGLE VALVE
	NEEDLE VALVE
	RELIEF VALVE
	DIAPHRAGM VALVE
	3–WAY VALVE
	FLOW CONTROL VALVE
	PINCH VALVE
	CONE VALVE
	ANTISIPHON/BACKPRESSURE VALVE
S	SOLENOID VALVE (2–WAY) (S→M FOR MOTORIZED VALVE)
S	SOLENOID VALVE (3–WAY) (S→M FOR MOTORIZED VALVE)
S	SOLENOID VALVE (4–WAY) (S→M FOR MOTORIZED VALVE)
	PNEUMATIC DIAPHRAGM CONTROL VALVE
	PRESSURE SUSTAINING VALVE
	PRESSURE REGULATING VALVE
	MULTIFUNCTION VALVE
	SLUICE GATE (SG) OR SLIDE GATE (SLG)
	AIR RELIEF VALVE (ARV)
	FLOAT VALVE
	STRAINER
	BACKFLOW PREVENTER
CV	CALIBRATION VALVE
	CALIBRATION COLUMN
	ROTAMETER
	UNION

ACTUATORS

M	MOTORIZED
S	SOLENOID
S / A	PNEUMATIC OPERATOR S– SOLENOID – OPEN/CLOSE A– POSITIONER – MODULATING

PUMPS

	CENTRIFUGAL PUMP OR BLOWER
	SUBMERSIBLE SEWAGE PUMP
	VERTICAL TURBINE PUMP OR WELL PUMP
	SUBMERSIBLE WELL PUMP
	GEAR PUMP
	POSITIVE DISPLACEMENT PUMP OR BLOWER
	DIAPHRAGM PUMP
	PERISTALTIC PUMP
M M	MOTOR

SENSORS

	ORIFICE PLATE
LIT XXX	ULTRASONIC LEVEL TRANSMITTER (FLOW IF OVER FLUME OR WEIR)
LE XXX	CONDUCTANCE TYPE LEVEL ELEMENTS
LIT XXX	RADAR TYPE LEVEL TRANSMITTER
	GUIDED OPTION
LIT XXX	CAPACITANCE TYPE LEVEL TRANSMITTER

SENSORS

MAG	MAGNETIC FLOWMETER
%	DENSITY METER
~	ULTRASONIC FLOWMETER
	TURBINE OR PROPELLER METER
	VENTURI TUBE
	THERMAL DISPERSION FLOWMETER OR SWITCH
	PADDLE WHEEL FLOWMETER
C	CORIOLIS FLOWMETER

MISCELLANEOUS MECHANICAL ITEMS

	PIPE REDUCER
	RUPTURE DISC
	PRESSURE OR VACUUM RELIEF VALVE
	DIAPHRAGM SEAL
	ANNUALAR SEAL
	DRAIN TO WASTE
	MIXER
F OR F	FILTER
	VENT W/CAP OR SCREEN
	FLEXIBLE HOSE OR TUBING
	SPRAY NOZZLE SYSTEM
	EXPANSION JOINT
	STATIC MIXER
	EJECTOR / EDUCTOR
	HOSE COUPLING
	PULSATION DAMPENER
	OMNI ANTENNA NON–DIRECTIONAL
	YAGI ANTENNA DIRECTIONAL

P&ID ABBREVIATIONS

INSTRUMENTATION SYBMOLS

	FIRST LETTER: MEASURED OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROLLER	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW	RATIO			
G	GENERAL		GLASS VIEWING DEVICE		
H	HAND				HIGH, OPENED
I	CURRENT		INDICATING, INDICATOR		
J	POWER	SCAN			
K	TIME, TIME SCHEDULED	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW, CLOSED
M	MOISTURE	MOMENTARY			MIDDLE
N	STATUS		STATUS	USER'S CHOICE	USER'S CHOICE
O	OPERTOR		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RESET		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMITTER	TEST
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VAVE, DAMPER, LOUVER	
W	WEIGHT		WELL		
X	SWITCH	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OF PRESENCE	Y AXIS		RELAY, COMPUTER, CONVERTER	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

P&ID ABBREVIATIONS

SWITCH IDENTIFIER

F/R	FORWARD/REVERSE	OPN	OPEN
HOA	HAND–OFF–AUTO	CLS	CLOSE
HOR	HAND–OFF–REMOTE	SEL	SELECTOR
LOS	LOCK OUT STOP	S/S	START / STOP
L/R	LOCAL / REMOTE	%	PERCENT ADJUSTMENT
MOA	MANUAL–OFF–AUTO		
OCA	OPEN–CLOSE–AUTO		
O/C	OPEN / CLOSE		
O/O	ON / OFF		

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7/16/25

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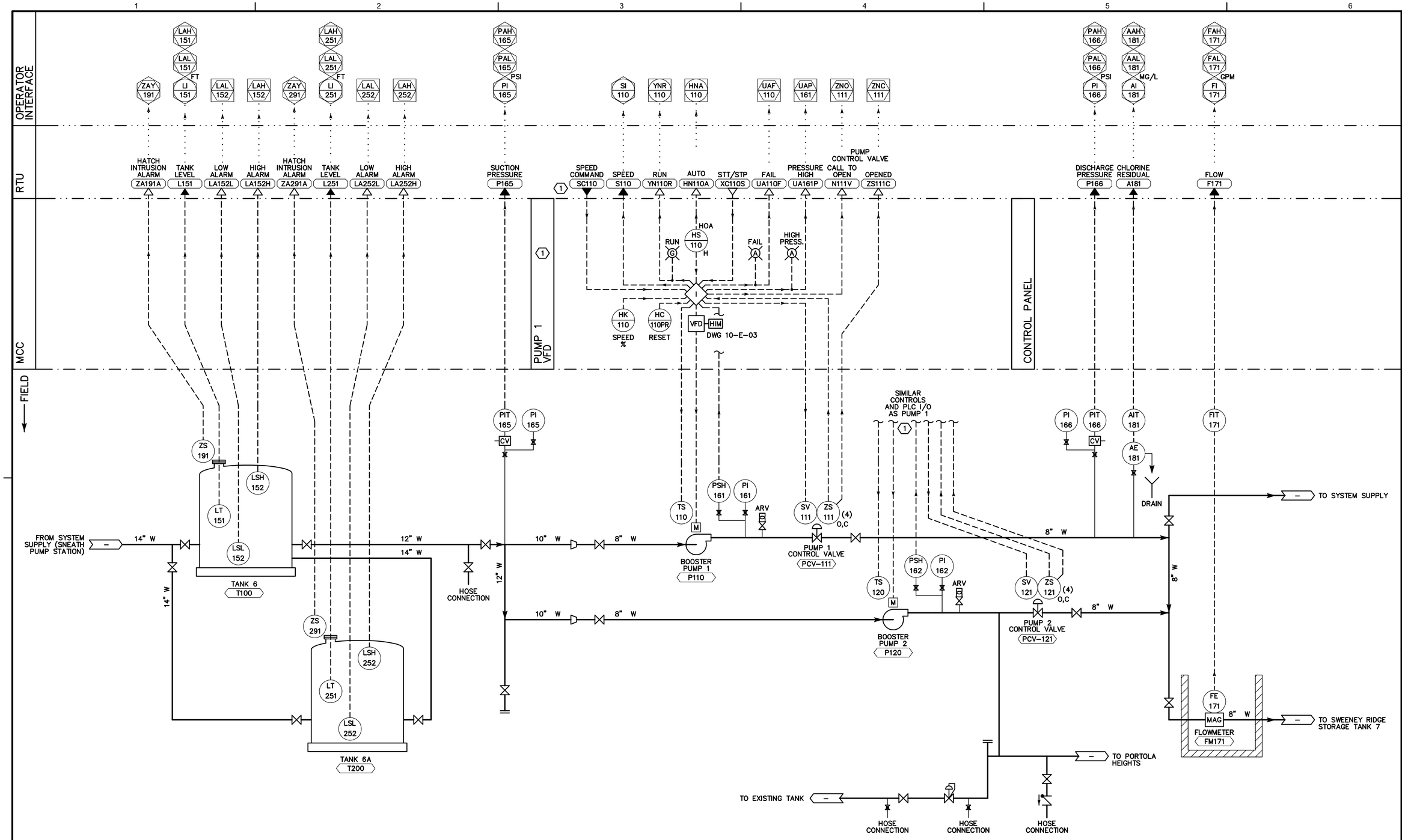
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
SYMBOLS AND ABBREVIATIONS

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 00-I-01
SHEET NUMBER 76



LAKE BOOSTER PUMP STATION

NOTES REFERENCED IN DRAWING:

(1) TYPICAL I/O CONTROLS AND VFDS FOR ALL PUMPS

NOTES:

ADD THE PREFIX 10 TO COMPLETE INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET. EXAMPLE: P10110 FOR PUMP 1

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ELECTRICAL
STATE OF CALIFORNIA
7/16/25

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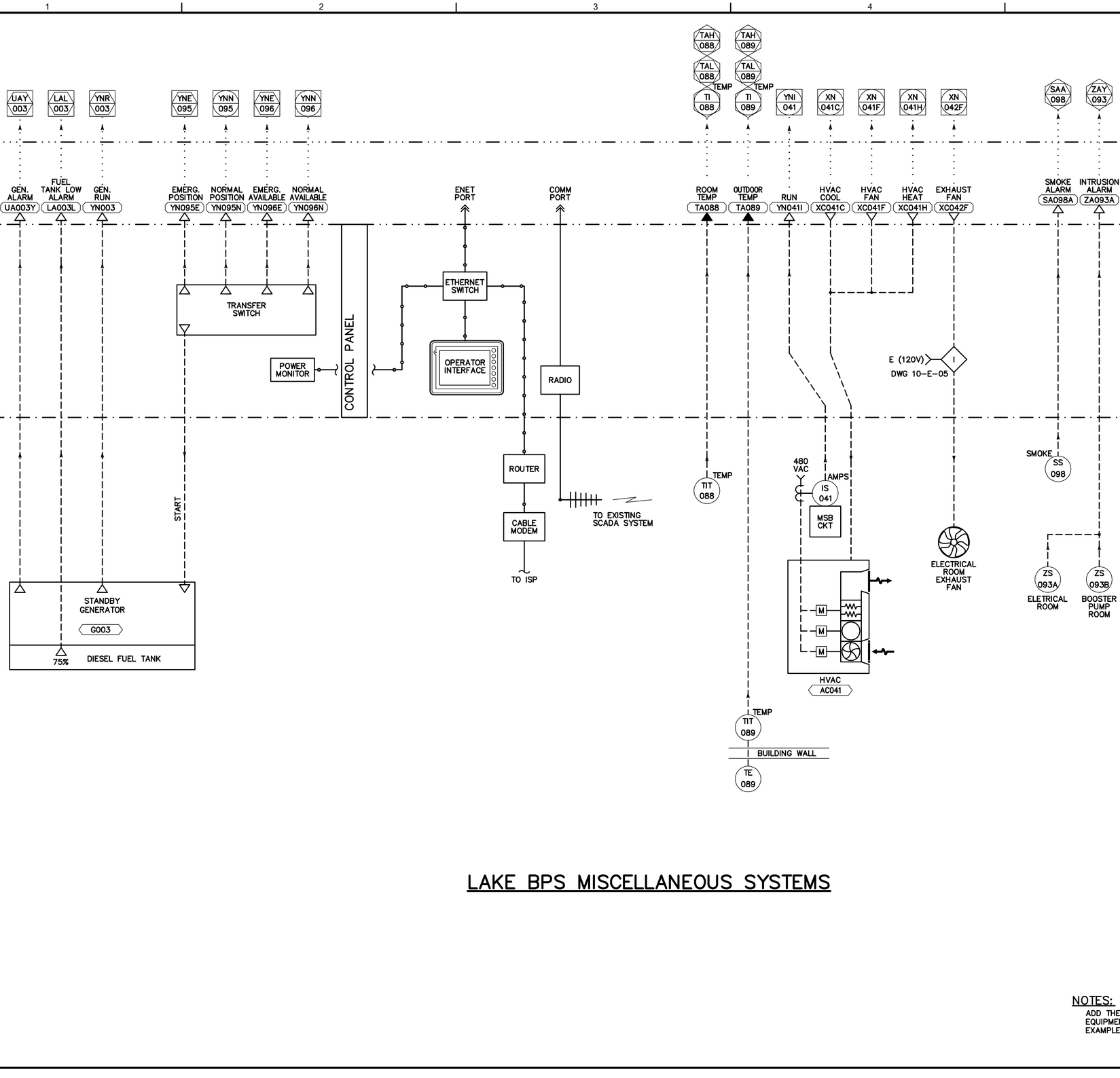
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
LAKE PUMP STATION
P&ID

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-I-01
SHEET NUMBER 77



LAKE BPS MISCELLANEOUS SYSTEMS

NOTES:

ADD THE PREFIX 10 TO COMPLETE INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET.
EXAMPLE: G10003 FOR GENERATOR

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
7/16/25

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DRAWN N. CONANT
CHECKED M. FRISCH
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FILE: 10-I-02.DGN
DATE: JUL 16, 2025 TIME: 11:46:55AM

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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
LAKE PUMP STATION
MISCELLANEOUS SYSTEMS
P&ID

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 10-I-02
SHEET NUMBER 78

OPERATOR INTERFACE

RTU

MCC

FIELD

PAH 165
PAL 165
PI 165
PSI

SI 110
YNR 110
HNA 110
UAF 110
UAP 161
ZNO 111
ZNC 111

PAH 166
PAL 166
PI 166
PSI

AAH 181
AAL 181
AI 181
MG/L

FAH 171
FAL 171
FI 171
GPM

SUCTION PRESSURE P165

SPEED COMMAND SC110
SPEED S110
RUN YN110R
AUTO HN110A
STT/STP XC110S
FAIL UA110F
PRESSURE HIGH UA161P
PUMP CONTROL VALVE CALL TO OPEN N111V
PUMP CONTROL VALVE OPENED ZS111C

DISCHARGE PRESSURE P166
CHLORINE RESIDUAL A181
FLOW F171

1

PUMP 1 VFD

HOA
HS 110
H
RUN G
FAIL A
HIGH PRESS. A

HK 110
SPEED %
HC 110PR
RESET
VFD HIM
DWG 20-E-03

CONTROL PANEL

PIT 165
PI 165
CV

PSH 161
PI 161
ARV
TS 110
M
SV 111
ZS 111 (4) O,C

8" W
BOOSTER PUMP 1
P110
PUMP 1 CONTROL VALVE
PCV-111

SIMILAR CONTROLS AND PLC I/O AS PUMP 1

PSH 162
PI 162
ARV
TS 120
M
SV 121
ZS 121 (4) O,C

BOOSTER PUMP 2
P120
PUMP 2 CONTROL VALVE
PCV-121

PSH 163
PI 163
ARV
TS 130
M
SV 131
ZS 131 (4) O,C

BOOSTER PUMP 3
P130
PUMP 3 CONTROL VALVE
PCV-131

12" W

FROM DISTRIBUTION SYSTEM

PI 166
PIT 166
CV
AIT 181
AE 181
DRAIN
FIT 171

FE 171
MAG
FLOWMETER
FM171

TO DISTRIBUTION SYSTEM

SNEATH BOOSTER PUMP STATION

NOTES REFERENCED IN DRAWING:

1 TYPICAL I/O CONTROLS AND VFDS FOR ALL PUMPS

NOTES:

ADD THE PREFIX 20 TO COMPLETE INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET. EXAMPLE: P20110 FOR PUMP 1

REGISTERED PROFESSIONAL ENGINEER
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ELECTRICAL
STATE OF CALIFORNIA
7/16/25

DESIGN T. FRISCH
DRAWN N. CONANT
CHECKED M. FRISCH
APPROVED C. BERTSCH

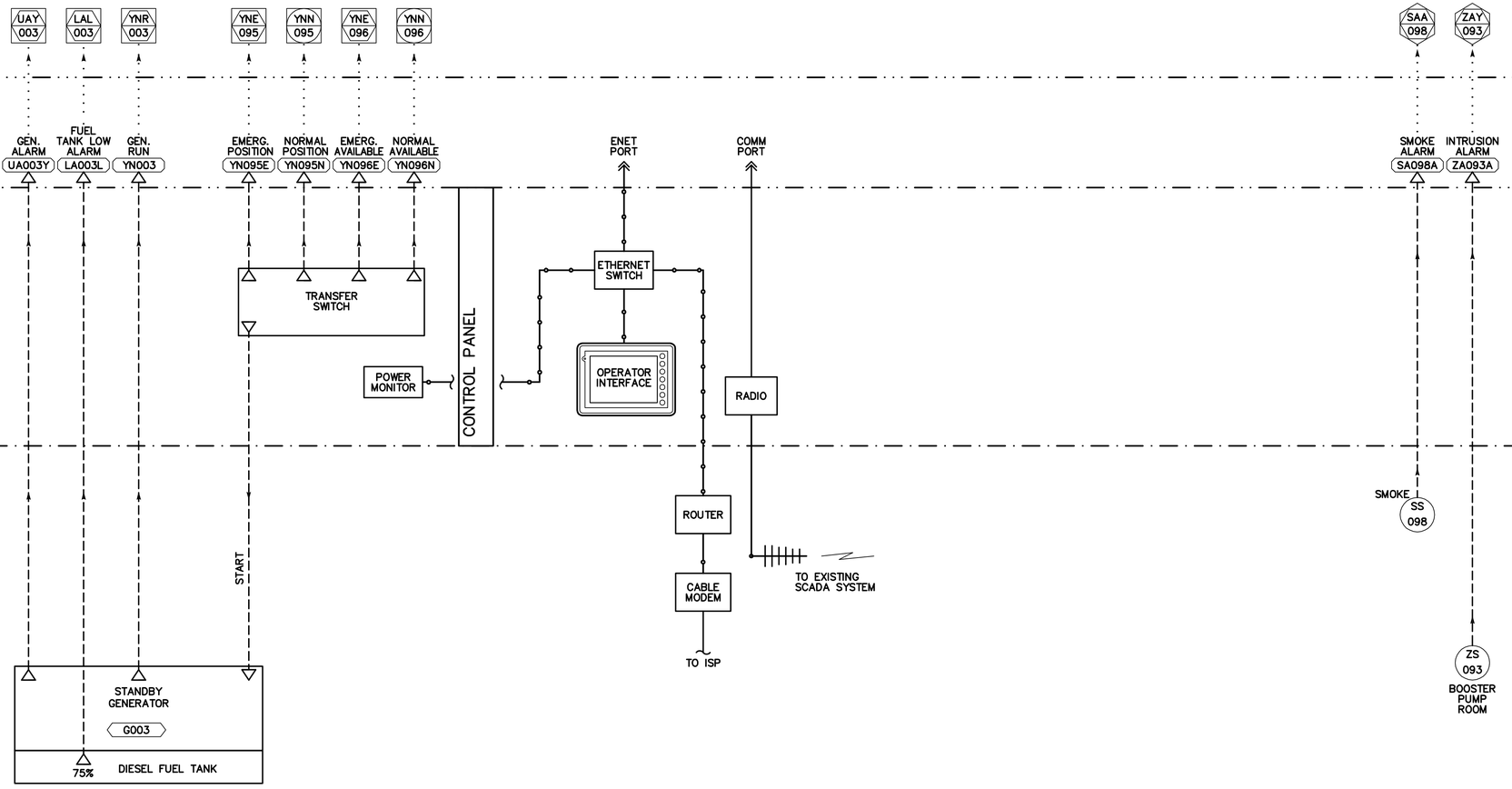
FRISCH ENGINEERING, INC.
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
SNEATH PUMP STATION
P&ID

DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-I-01
SHEET NUMBER 79



SNEATH BPS MISCELLANEOUS SYSTEMS

NOTES:

ADD THE PREFIX 20 TO COMPLETE INSTRUMENT OR EQUIPMENT TAG REFFERENCE ON THIS SHEET. EXAMPLE: G20003 FOR GENERATOR

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
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ELECTRICAL
STATE OF CALIFORNIA

7/16/25

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FILE: 19-077-20-I-02.DWG
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SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

INSTRUMENTATION
SNEATH PUMP STATION
MISCELLANEOUS SYSTEMS
P&ID

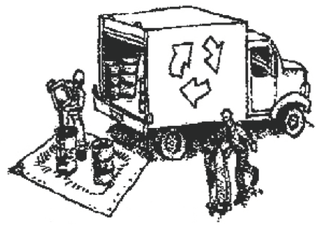
DATE July 2025
PROJECT NUMBER 19-077
DRAWING NUMBER 20-I-02
SHEET NUMBER 80

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control



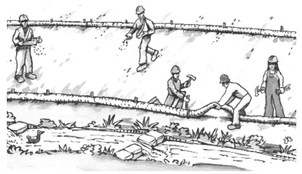
Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving



- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work



- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

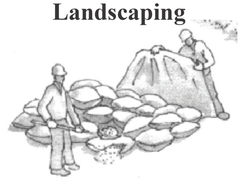
- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

Concrete, Grout & Mortar Application



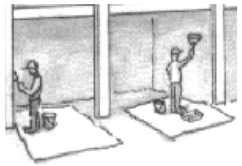
- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping



- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

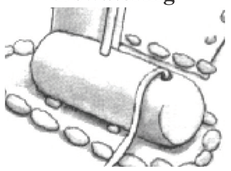
Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering



- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

REGISTERED PROFESSIONAL ENGINEER
CYNTHIA V. BERTSCH
No. C65385
CIVIL
STATE OF CALIFORNIA

01/03/2024

DESIGNED	J ROY
DRAWN	B TROTTER
CHECKED	C BERTSCH
APPROVED	C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

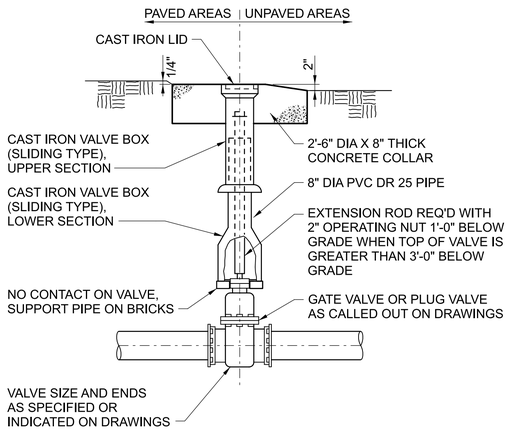
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

STANDARD DETAILS

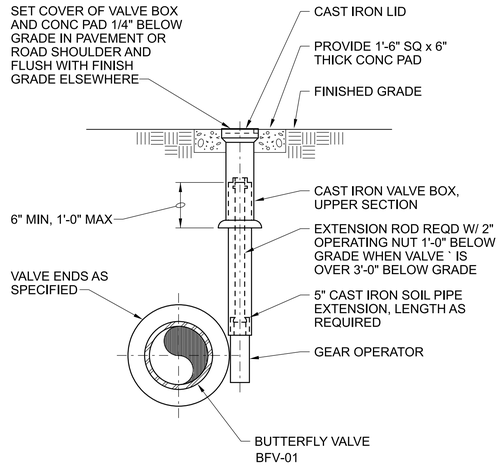
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PROJECT NUMBER	19-077
DRAWING NUMBER	SD-1
SHEET NUMBER	81

FILENAME: 1977D-SD801.dgn PLOT DATE: 3/10/2020 11:26:51 AM



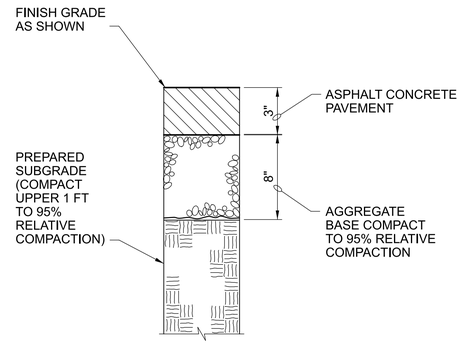
BURIED GATE OR PLUG VALVE BOX 2202

NTS



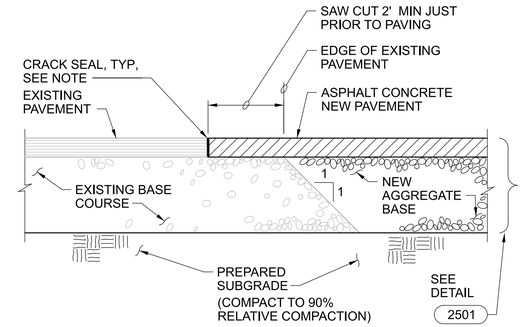
BURIED BUTTERFLY VALVE BOX 2204

NTS



ASPHALT CONCRETE PAVEMENT 2501

NTS

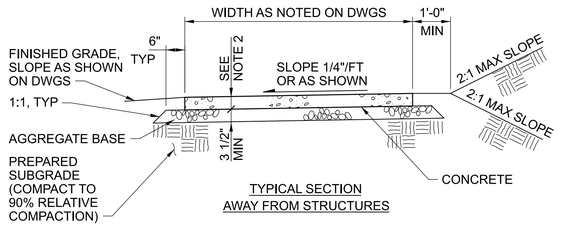


NOTES:

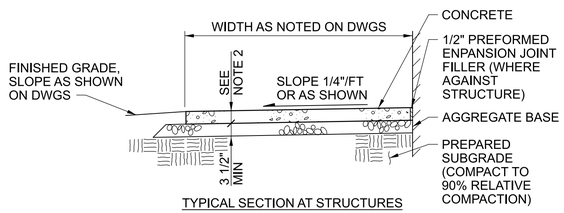
1. PAINT EDGE OF EXISTING ASPHALT WITH TACK COAT PRIOR TO PAVING. CRACK SEAL JOINT AFTER PAVING OPERATION HAS BEEN COMPLETED.

PAVEMENT CONNECTION 2502

NTS



TYPICAL SECTION
AWAY FROM STRUCTURES



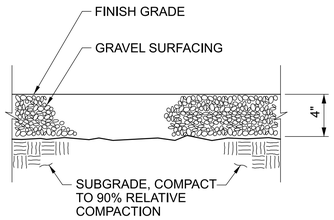
TYPICAL SECTION AT STRUCTURES

NOTES:

1. SIDEWALKS 8 FEET AND WIDER SHALL HAVE A LONGITUDINAL CONTRACTION JOINT AT THE MIDPOINT. PROVIDE LATERAL CONTRACTION JOINTS AT EQUAL SPACING, NO MORE THAN 5'-0" BETWEEN JOINTS.
2. CONCRETE DEPTH FOR STANDARD SIDEWALKS SHALL BE NOMINAL 3 1/2" MINIMUM, THICKNESS IN DRIVEWAY SHALL BE 5 1/2" MINIMUM.

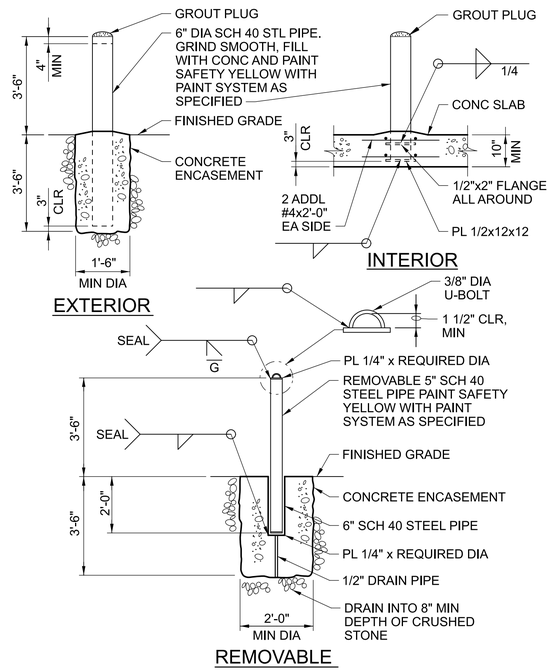
CONCRETE SIDEWALK 2503

NTS



GRAVEL SURFACING 2504

NTS



GUARD POST 2600

NTS

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

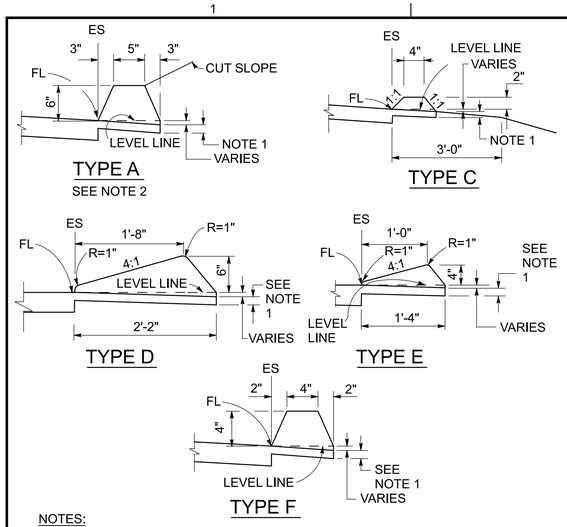
STANDARD DETAILS

REGISTERED PROFESSIONAL ENGINEER — CYNTHIA V. BERTSCH — No. C65385 — CIVIL — STATE OF CALIFORNIA

01/03/2024

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER SD-2
SHEET NUMBER 82

FILENAME: 1977D-SD801.dgn PLOT DATE: 3/10/2020 11:27:46 AM



NOTES:

1. FOR AC SHOULDERS ONLY, EXTEND TOP LAYER OF AC PLACED ON THE SHOULDER UNDER DIKE WITH NO JOINT AT THE ES.
2. TYPE A DIKE ONLY TO BE USED WHERE RESTRICTIVE SLOPE CONDITIONS DO NOT PROVIDE ENOUGH WIDTH TO USE TYPE D OR TYPE E DIKE.

DIKE QUANTITIES

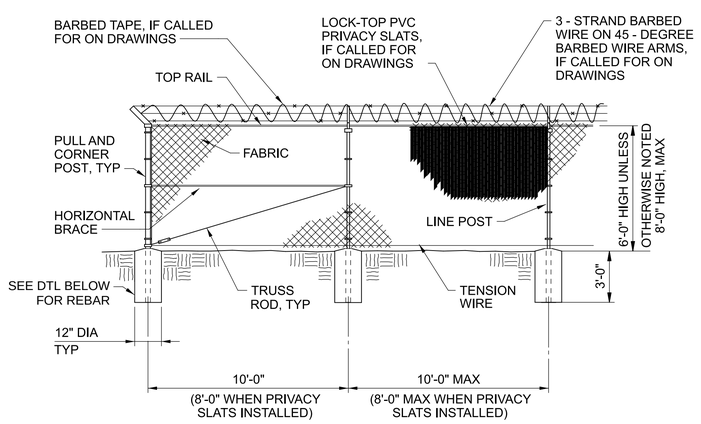
TYPE	CUBIC YARDS PER LINEAR FOOT
A	0.0135
C	0.0038
D	0.0293
E	0.0130
F	0.0066

QUANTITIES BASED ON 5% CROSS SLOPE.

AC DIKE

NTS

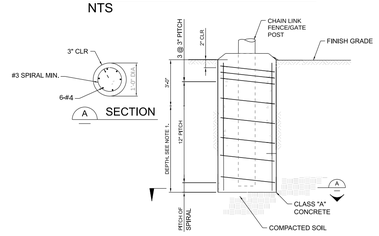
2760



CHAINLINK FENCE

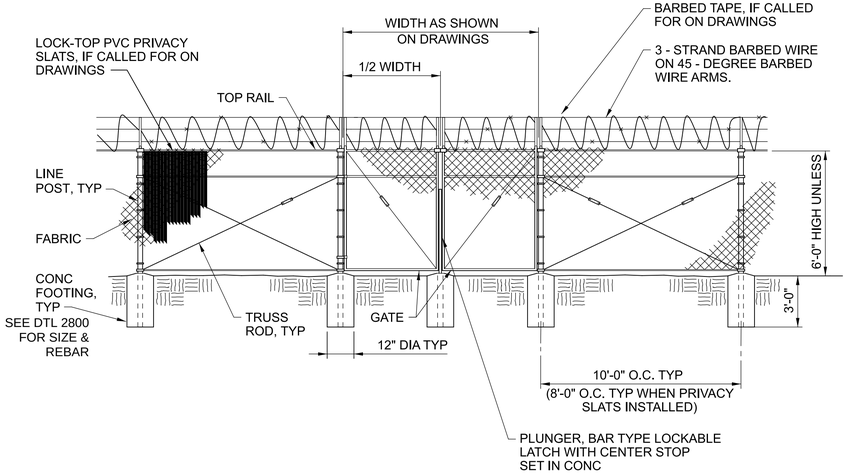
NTS

2800



CONCRETE PIER

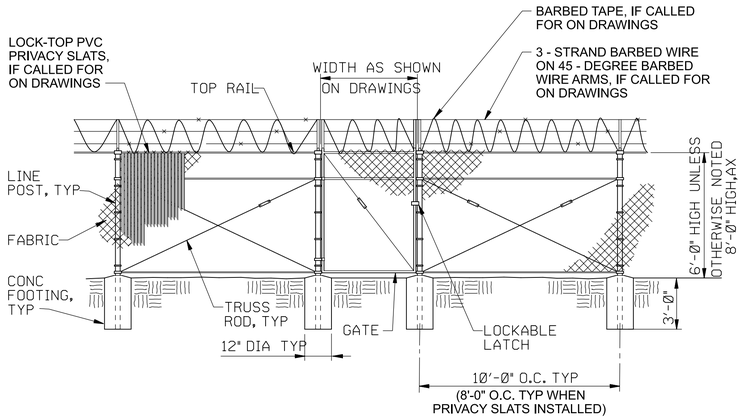
NTS AT FENCE/ GATE POST



CHAINLINK DOUBLE-LEAF GATE FENCE

NTS

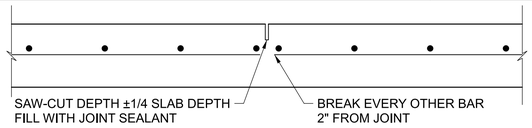
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CHAINLINK SINGLE-LEAF GATE

NTS

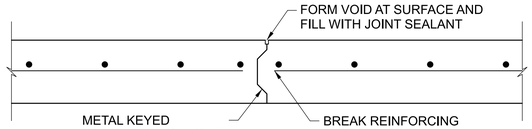
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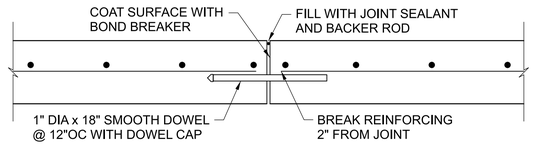
NOTES:

1. SAW-CUT SAME DAY AS POUR AS SOON AS SPALLING WILL NOT OCCUR.
2. CONTRACTOR SHALL USE STRING LINE OR OTHER POSITIVE MEANS TO PLACE REINFORCING AND LOCATE SAWCUT.
3. BREAK REINF AND ADD SPLICE BARS SIMILAR AT DOUBLE MAT.
4. 3/8" TOOLED JOINT MAY BE USED IN PLACE OF SAWN JOINT.

SLAB ON GRADE SAWN JOINT, TYPE A



SLAB ON GRADE CONSTRUCTION JOINT, TYPE B



SLAB ON GRADE CONSTRUCTION JOINT, TYPE C

CONC SLAB ON GRADE JOINTS

NTS

3160

NOTES:

1. PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE DRAWINGS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A ONE PIECE TEMPLATE, MATCHING THE BASE PLATE, WHILE PAD IS BEING POURED.
3. ANCHOR BOLT SLEEVES SHALL BE USED TO PROVIDE THE ANCHOR BOLT A MINIMUM MOVEMENT OF 1/2" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
4. ANCHOR BOLT SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.
6. TYPE "D" DETAIL SHALL BE USED ONLY FOR SLABS ON GRADE AND AT GRADE. THE SURROUNDING FLOOR SLAB SHALL NOT BE PLACED UNTIL THE EXACT SIZE AND LOCATION OF THE PAD IS KNOWN.
7. WEDGES OR SHIMS SHALL BE USED TO SUPPORT THE BASE WHILE THE NON-SHRINK GROUT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF. IF LEFT IN, THE WEDGES OR SHIMS SHALL NOT BE EXPOSED TO VIEW.
8. HEIGHT OF PADS SHALL BE MINIMUM REQUIRED FOR ANCHOR BOLT CLEARANCE TO KEEP ANCHOR BOLT OUT OF SLAB (SEE TABLE BELOW). WHERE EQUIPMENT OR PIPING ELEVATION REQUIRE A PAD HEIGHT LESS THAN THE MINIMUM SHOWN, USE TYPE B WITH BLOCKOUT.

AB DIA (IN.)	1/2	5/8	3/4	7/8	1	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	7	8 1/2	10	11	12 1/2	15	16 1/2	18	21	24

9. TYPE "F" PADS MAY BE SUBSTITUTED FOR TYPE "A" PADS FOR LOCATIONS APPROVED IN WRITING BY THE ENGINEER.
10. SEE ANCHOR BOLT AND BLOCKOUT DETAILS (3210).

EQUIPMENT PAD NOTES

NTS

3200



01/05/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

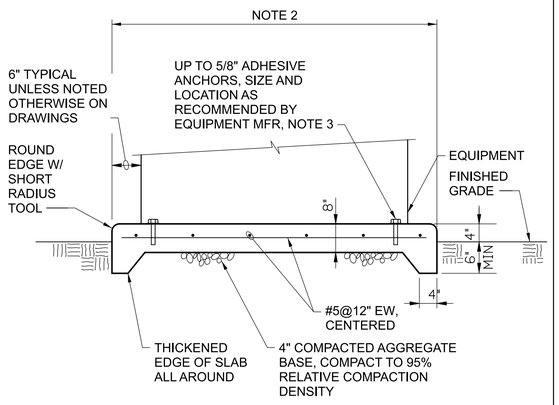
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

STANDARD DETAILS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER SD-3
SHEET NUMBER 83



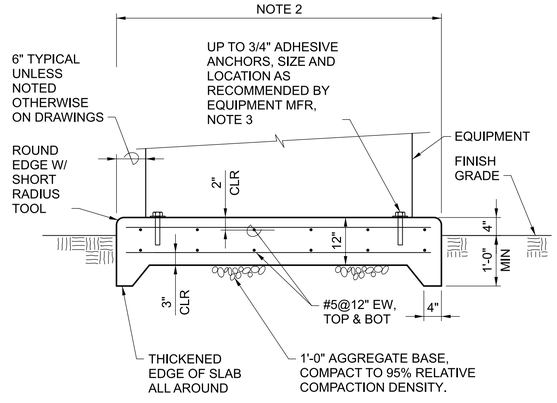
NOTES:

1. SEE (3200) FOR GENERAL EQUIPMENT PAD NOTES.
2. EQUIPMENT PAD SIZE PER DRAWINGS. WHERE PAD SIZE IS NOT SHOWN, SIZE TO FIT EQUIPMENT.
3. IF ANCHOR BOLTS ARE CALLED OUT FOR ON DRAWINGS, PROVIDE ANCHOR BOLTS PER (3210) IN LIEU OF ADHESIVE ANCHORS.

EQUIPMENT PAD NOTES

NTS

3200D



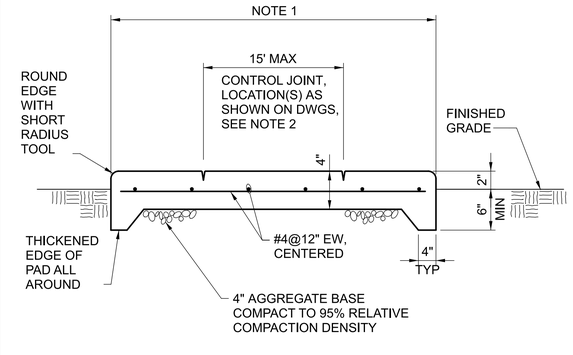
NOTES:

1. SEE (3200) FOR GENERAL EQUIPMENT PAD NOTES.
2. EQUIPMENT PAD SIZE PER DRAWINGS. WHERE PAD SIZE IS NOT SHOWN, SIZE TO FIT EQUIPMENT.
3. IF ANCHOR BOLTS ARE CALLED OUT FOR ON DRAWINGS, PROVIDE ANCHOR BOLTS PER (3210) IN LIEU OF ADHESIVE ANCHORS.

EQUIPMENT PAD-TYPE E

NTS

3200E



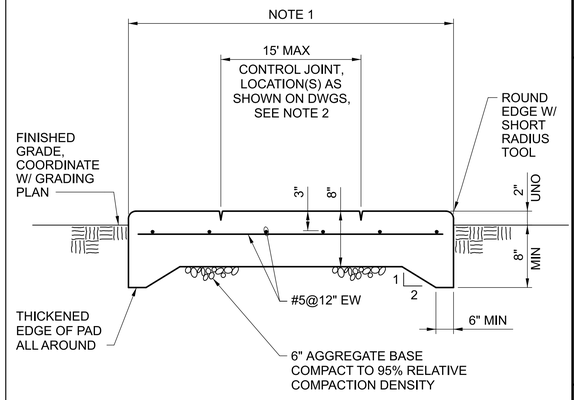
NOTE:

1. CONCRETE PAD, SIZED PER DRAWINGS.
2. CONTROL JOINT SHALL BE FORMED IN FRESH CONCRETE BY HAND TOOLING OR SAW CUTTING. CONTROL JOINTS SHALL BE FORMED TO A DEPTH OF 1 1/2"

CONCRETE HOUSE KEEPING PAD

NTS

3201



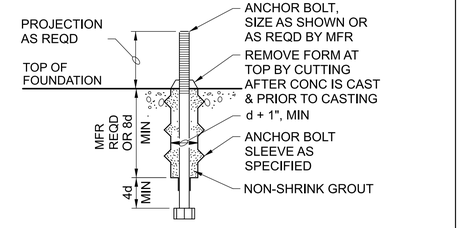
NOTE:

1. CONCRETE PAD, SIZED PER DRAWINGS.
2. CONTROL JOINT SHALL BE FORMED IN FRESH CONCRETE BY HAND TOOLING OR SAW CUTTING. PROVIDE (3160) TYPE A CONTROL JOINTS, UNLESS OTHERWISE NOTED.

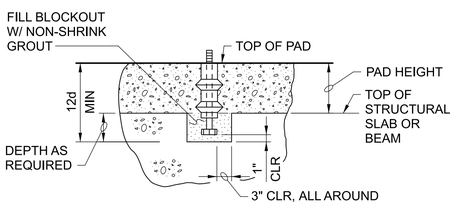
CONCRETE SLAB ON GRADE

NTS

3202



ANCHOR BOLT DETAIL

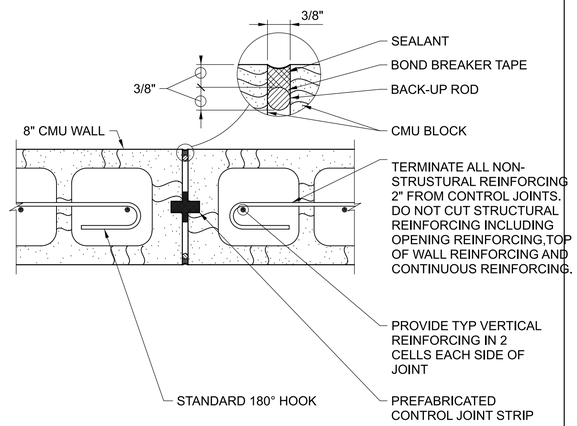


ANCHOR BOLT BLOCKOUT

CAST-IN CONCRETE ANCHOR BOLT

NTS

3210



NOTE:

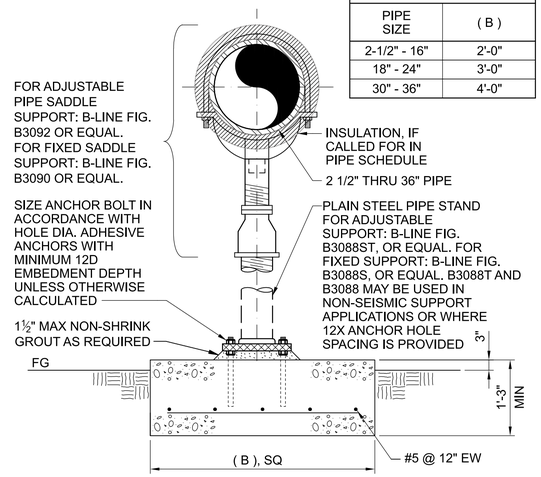
12" CMU WALL WITH 2 LAYERS OF REINFORCING IS SIMILAR.

CMU CONTROL JOINT

NTS

4100

DIMENSION TABLE	
PIPE SIZE	(B)
2-1/2" - 16"	2'-0"
18" - 24"	3'-0"
30" - 36"	4'-0"



NOTES:

1. COAT ALL SHAPES PER SPECIFICATION SECTION 099900 SYSTEM 300.
2. ADJUSTABLE OR FIXED SUPPORT INSTALLATION AT CONTRACTOR'S DISCRETION, UNLESS SHOWN OTHERWISE.

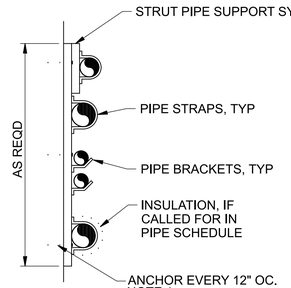
SADDLE PIPE SUPPORT WITH CONCRETE PAD

NTS

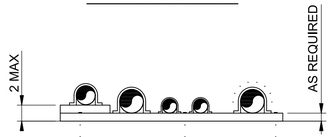
15000A

NOTE:

USE NEOPRENE SLEEVE ON COPPER AND PVC PIPING AT STRAPS AND BRACKETS.



WALL MOUNTED



FLOOR MOUNTED

NOTE :

1. ATTACH TO WALL WITH SST ANCHORS, 3/8" DIAMETER MIN, COORDINATED WITH WALL CONSTRUCTION

PIPE SUPPORTS

NTS

15010



01/05/2024

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

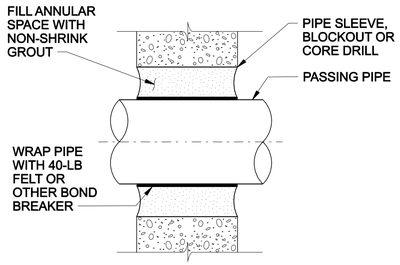
SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

STANDARD DETAILS

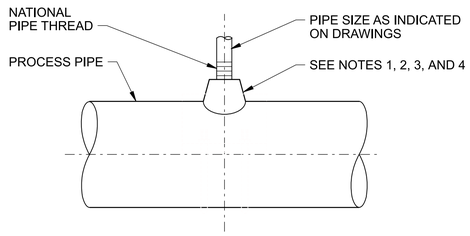
DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER SD-4
SHEET NUMBER 84

FILENAME: 1977D-SD801.dgn PLOT DATE: 3/10/2020 11:39:00 AM



WALL SLEEVE WITH GROUT SEAL
NTS

15131



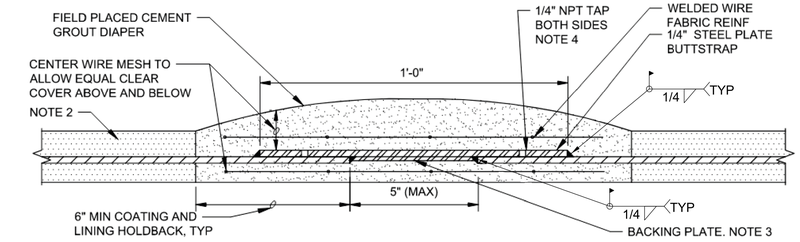
PIPE TAPS

NOTES:

1. FOR STEEL, GALVANIZED STEEL, AND PVC 2 1/2" AND SMALLER USE A BUSHING IN A TEE.
2. FOR DUCTILE IRON, ALL SIZES, USE SERVICE SADDLE.
3. FOR NEW STEEL AND STAINLESS STEEL PIPES 3" AND LARGER, AND PRESSURE VESSELS, USE THRED-O-LET AS SHOWN.
4. FOR PVC, EXISTING STEEL AND STAINLESS STEEL PIPES 3" AND LARGER, USE SERVICE SADDLE.

PIPE TAPS
NTS

15300



NOTES:

1. AFTER SUCCESSFUL COMPLETION OF WELD TESTS, CONTRACTOR TO GROUT INSIDE BUTT STRAP JOINT. GROUT TO BE REINFORCED WITH MINIMUM 4x4 W1.4xW1.4 WELDED WIRE REINFORCING.
2. FOR CONNECTION TO EXISTING PIPE, CONTRACTOR TO REMOVE COATING AND EXPOSE STEEL CYLINDER AS NECESSARY TO ALLOW PROPER BUTT STRAP INSTALLATION. CONFIRM CYLINDER THICKNESS AND WELD BUTT STRAP TO CYLINDER ACCORDINGLY.
3. BUTT STRAP SPLICE JOINT TO BE COMPLETE JOINT PENETRATION BUTT WELD WITH BACKING PLATE.
4. CONTRACTOR TO PERFORM AIR AND SOAP TEST AND OTHER WELD TESTS AS SPECIFIED. PLUG TAP WITH WELDED PLUG AFTER COMPLETION OF SUCCESSFUL AIR/SOAP TEST.
5. TO FACILITATE INTERIOR GROUTING OF BUTTSTRAP JOINTS, ALL BUTTSTRAPS LESS THAN 24" DIA SHALL BE SUPPLIED AND INSTALLED WITH A 4" DIA HANDHOLE PER (15750).

BUTTSTRAP CONNECTION
NTS

15700

DESIGNED J ROY
DRAWN B TROTTER
CHECKED C BERTSCH
APPROVED C BERTSCH

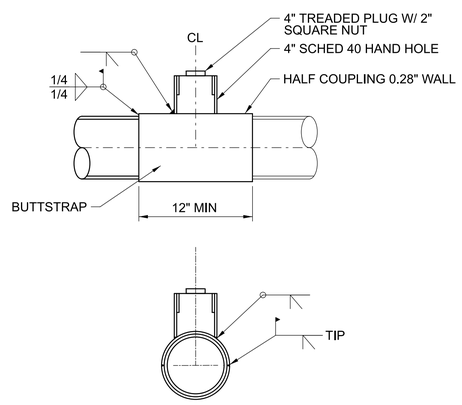
WATERWORKS ENGINEERS
1730 S. El Camino Real, Ste 288 San Mateo, CA 94402• 650-539-3420

SNEATH AND LAKE PUMP STATION REHABILITATION PROJECT
CITY OF SAN BRUNO, CALIFORNIA

STANDARD DETAILS

STANDARD DETAILS

DATE JULY 2025
PROJECT NUMBER 19-077
DRAWING NUMBER SD-5
SHEET NUMBER 85



SECTION THROUGH COUPLING

BUTTSTRAP AND REPAIR COUPLING HANDHOLE DETAIL
NTS

15750

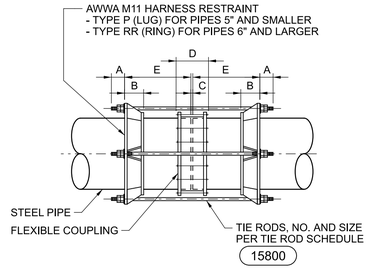
	TEST PRESSURE, TIE ROD DIAMETER AND NUMBER OF TIE RODS													
	50 PSI		100 PSI		150 PSI		200 PSI		250 PSI		275 PSI		300 PSI	
PIPE SIZE (IN)	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS	TIE ROD DIA (IN)	NO. OF RODS
4	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2
6	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2
8	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2	5/8	2
10	5/8	2	5/8	2	5/8	2	5/8	2	3/4	2	3/4	2	7/8	2
12	5/8	2	5/8	2	3/4	2	3/4	2	7/8	2	7/8	2	1	2
14	5/8	2	5/8	2	3/4	2	7/8	2	1	2	1 1/8	2	1 1/8	2
16	5/8	2	7/8	2	1 1/8	2	1 1/8	2	1 1/4	2	1 1/4	2	1 1/4	2
18	5/8	2	1 1/8	2	1 1/8	2	1 1/4	2	1 3/8	2	1 1/2	2	1 1/2	2
20	7/8	2	1 1/8	2	1 3/8	2	1 1/8	2	1 1/2	2	1 5/8	2	1 3/4	2
24	5/8	4	3/4	4	1	4	1 1/8	4	1 1/8	4	1 1/4	4	1 1/4	4
26	5/8	4	3/4	4	1	4	1 1/8	4	1 1/4	4	1 1/4	4	1 1/4	4
30	5/8	4	7/8	4	1 1/8	4	1 1/4	4	1 3/8	4	1 3/8	4	1 1/2	4
36	7/8	4	1 1/4	4	1 3/8	4	1 1/2	4	1 5/8	4	1 3/4	4	1 3/4	4
42	1 1/8	4	1 1/2	4	1 5/8	4	1 1/2	6	1 5/8	6	1 5/8	6	1 3/4	6
48	1 3/8	4	1 5/8	4	1 3/8	6	1 5/8	6	1 3/4	6	1 7/8	6	1 3/4	8
54	1 1/2	4	1 3/8	6	1 5/8	6	1 3/4	6	1 3/4	8	1 7/8	8	-	-
60	1 1/8	6	1 1/2	6	1 3/4	6	1 3/4	8	1 3/4	10	1 3/4	10	-	-
66	1 1/4	6	1 3/8	8	1 5/8	8	1 7/8	8	1 7/8	10	2	10	-	-
72	1 3/8	6	1 3/4	6	1 3/4	8	1 7/8	10	1 7/8	12	2	12	-	-
78	1 1/2	6	1 1/2	10	1 3/4	10	1 7/8	12	2 1/4	10	2 1/4	10	-	-
84	1 5/8	6	1 5/8	10	1 7/8	10	2	12	2 1/4	12	2 1/4	12	-	-
90	1 3/4	6	1 3/4	8	1 7/8	12	2 1/4	10	2 1/4	14	2 1/4	14	-	-
96	1 1/2	8	1 7/8	8	2 1/4	8	2 1/4	12	2 1/2	12	2 1/2	12	-	-
102	1 1/2	8	1 3/4	12	2 1/4	10	2 1/4	14	2 1/2	14	2 1/2	14	-	-
108	1 3/4	8	1 3/4	12	2 1/4	12	2 1/2	12	2 1/2	14	2 1/2	16	-	-
114	1 3/4	8	1 7/8	12	2 1/4	12	2 1/2	12	2 3/4	14	2 3/4	16	-	-
120	1 1/2	10	1 7/8	14	2 1/2	10	2 3/4	12	2 3/4	16	3	14	-	-
126	1 5/8	10	1 7/8	14	2 1/2	12	2 1/2	16	3	14	3	16	-	-
132	1 3/4	10	1 7/8	16	2 1/2	12	2 3/4	16	3	16	3	18	-	-
138	1 3/4	10	2 1/4	12	2 1/2	14	2 3/4	16	2 3/4	20	3	20	-	-
144	1 7/8	10	2 1/4	12	2 1/2	16	2 3/4	18	3	18	3	20	-	-

NOTES:

1. PIPE SIZES SHOWN ARE NOMINAL.
2. TIE ROD NUMBER AND SIZE ARE BASED ON AWWA M11, 5TH EDITION.
3. TIE RODS SHALL CONFORM TO ASTM A193 GRADE B7.

TIE ROD SCHEDULE FOR HARNESSED JOINTS
NTS

15800



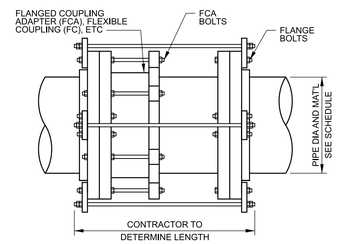
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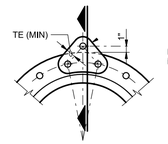
NOTES:

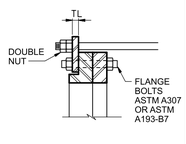
1. THE MIDDLE RING LENGTH OF THE FLEXIBLE COUPLING SHALL BE AS SPECIFIED.
2. "A" = WIDTH OF WASHER, NUTS AND EXPOSED THREADS OF TIE ROD.
3. "B" = RESTRAINT HARNESS WIDTH.
4. "C" = COUPLING MANUFACTURER'S RECOMMENDED SPACE (GAP) BETWEEN ENDS OF PIPE FROM THE APPROVED SHOP DRAWINGS.
5. "D" = COUPLING BOLT LENGTH FROM THE APPROVED SHOP DRAWINGS.
6. "E" = B+D+1 INCH, (ROUND THIS VALUE UP TO NEXT EVEN INCH), MINIMUM.
7. TIE ROD LENGTH = 2A+2E+C.
8. NUTS AND WASHERS SHALL CONFORM TO ASTM A194 GRADE 2H.
9. TIGHTEN TIE ROD NUTS GRADUALLY AND EQUALLY IN STAGES TO PREVENT UNEVEN ALIGNMENT AND TO ALLOW EQUAL STRESS ON ALL RODS UNDER PRESSURE. TIGHTEN UNTIL SNUG. BACK-UP FIRST NUT WITH SECOND NUT. THREADS SHALL PROTRUDE FROM NUTS.
10. PROVIDE CATHODIC PROTECTION ACROSS COUPLING IF SHOWN ON THE DRAWINGS OR SPECIFIED.

JOINT RESTRAINT HARNESS & TIE RODS FOR STEEL PIPE - TYPE A
NTS

15801







FRONT ELEVATION SECTION

HARNESS LUGS

NOTES:

1. HARNESS LUGS SHALL CONFORM TO ASTM A36.
2. HARNESS LUGS SHALL BE EQUALLY SPACED AROUND PIPE.
3. TIE ROD NUTS SHALL BE TIGHTENED GRADUALLY AND EQUALLY IN STAGES TO PREVENT UNEVEN ALIGNMENT AND TO ALLOW EQUAL STRESS ON ALL RODS UNDER PRESSURE. TIGHTEN UNTIL SNUG. BACK-UP FIRST NUT WITH SECOND NUT. THREADS SHALL PROTRUDE FROM NUTS.
4. CONTRACTOR SHALL USE SCHEDULE DATA FOR ONLY THOSE PIPE SIZES AND TEST PRESSURES SPECIFIED IN THIS CONTRACT.

TIE ROD AND HARNESS LUG SCHEDULE				
PIPE DIA (IN.)	TEST PRESSURE (PSI)	TIE RODS (NO.-DIA)	LUG PLATE	
			TL	TE
6	100	2 - 5/8"	1/2"	1 1/8"
	150	2 - 5/8"	1/2"	1 1/8"
	225	2 - 5/8"	5/8"	1 1/8"
	375	6 - 5/8"	5/8"	1"
8	100	2 - 5/8"	1/2"	1 1/4"
	150	2 - 5/8"	5/8"	1 1/4"
	225	4 - 5/8"	5/8"	1 1/4"
	375	6 - 5/8"	3/4"	1 1/8"
10	100	2 - 5/8"	5/8"	1 3/8"
	150	3 - 5/8"	5/8"	1 3/8"
	225	6 - 5/8"	5/8"	1 3/8"
	375	8 - 3/4"	3/4"	1 3/8"
12	100	2 - 7/8"	3/4"	1 1/8"
	150	3 - 7/8"	3/4"	1 1/8"
	225	6 - 3/4"	3/4"	1 1/8"
	375	8 - 3/4"	3/4"	1 5/8"
14	100	2 - 7/8"	3/4"	1 3/8"
	150	4 - 3/4"	3/4"	1 3/8"
	225	10 - 5/8"	5/8"	1 1/2"
	375	10 - 7/8"	3/4"	1 5/8"
16	100	4 - 3/4"	3/4"	1 3/8"
	150	8 - 5/8"	5/8"	1 3/8"
	225	8 - 3/4"	3/4"	1 3/8"
	375	10 - 1"	7/8"	2"
18	100	4 - 3/4"	3/4"	1 1/2"
	150	8 - 3/4"	5/8"	1 1/2"
	225	8 - 7/8"	3/4"	1 1/2"
	375	10 - 1"	7/8"	2 1/8"
24	100	4 - 1"	7/8"	1 5/8"
	150	10 - 3/4"	3/4"	1 5/8"
	225	10 - 1"	7/8"	1 5/8"
	375	12 - 1 3/16"	1"	2 3/8"
30	100	7 - 1"	7/8"	1 5/8"
	150	14 - 7/8"	3/4"	1 5/8"
	225	14 - 1 1/8"	7/8"	2 1/4"
	375	14 - 1 3/8"	1 1/8"	2 1/4"
36	100	8 - 1 1/8"	7/8"	2"
	150	16 - 7/8"	3/4"	2"
	225	16 - 1 3/16"	7/8"	2 5/8"
	375	16 - 1 1/2"	1 1/8"	2 5/8"
42	100	12 - 1"	7/8"	2"
	150	18 - 1"	7/8"	2"
	225	18 - 1 1/4"	1"	2 5/8"

JOINT RESTRAINT LUGS AND TIE RODS FOR FLANGED PIPE
NTS

15802

REGISTERED PROFESSIONAL ENGINEER JONATHON C. VIVIL No. C92341 STATE OF CALIFORNIA
01/04/2024

FILENAME: 1977D-SD801.dgn PLOT DATE: 3/10/2020 11:44:30 AM