



# SAUSALITO-MARIN CITY SANITARY DISTRICT

# HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT

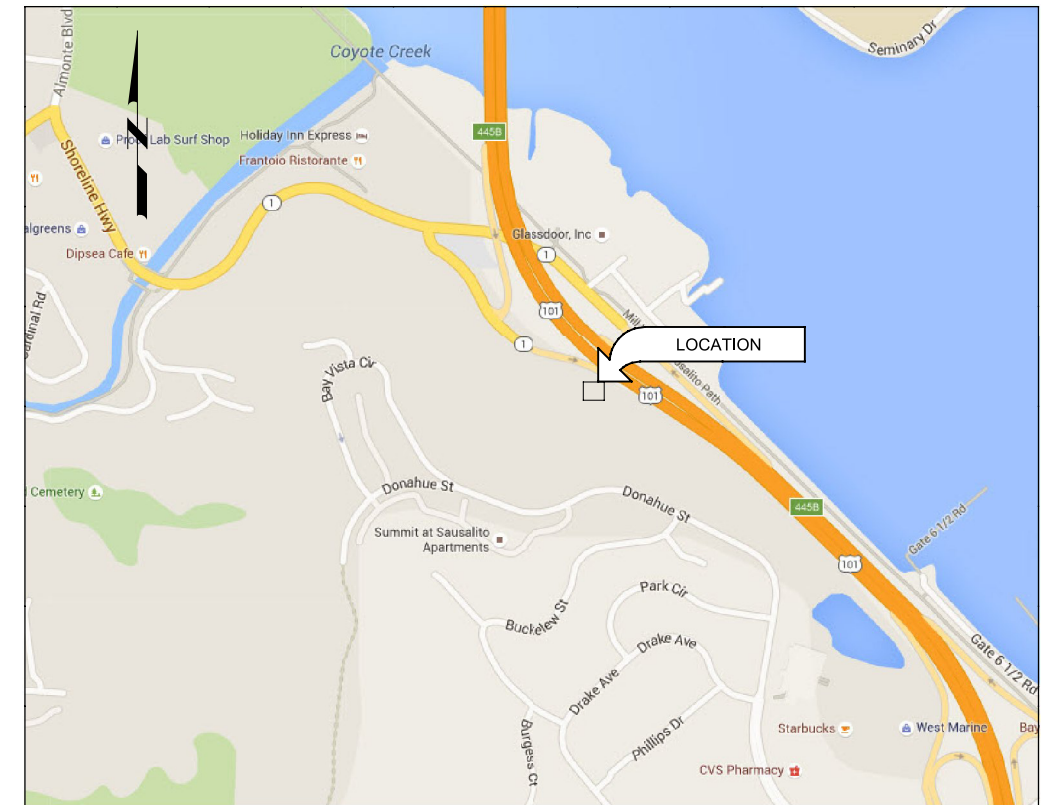
## MARIN COUNTY, CALIFORNIA

MAY 2016

VOLUME 2 OF 2  
DRAWINGS

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VICINITY MAP



JOB NO. 8321C.10
DRAWING NO. <b>G01</b>
SHEET NO. 1 OF 32

Pict Date: 06-MAY-2016 1:55:13 PM  
 User: JGarreth  
 Model: Layout1  
 ColorTable: gshades.ctb  
 DesignScript: Carollo\_Std\_Pen\_v0805.dgn  
 PlotScale: 2:1  
 LAST SAVED BY: JGarreth

### ABBREVIATIONS

<b>A</b>	AB	AGGREGATED BASE	<b>J</b>	JNCT	JUNCTION
	ABC	AGGREGATED BASE COURSE	<b>L</b>	LAT	LATERAL
	AC	ASPHALTIC CONCRETE		LCC	LCC INC. (SURVEYOR)
	APPROX	APPROXIMATE		LF	LINEAR FEET
	ARV	AIR RELEASE VALVE		LONG	LONGITUDINAL
				LT	LEFT
<b>B</b>	BC	BEGIN CURVE	<b>M</b>	MAX	MAXIMUM
	BF	BLIND FLANGE		MFR	MANUFACTURER
	BFP	BACK FLOW PREVENTER		MH	MANHOLE
	BFV	BUTTERFLY VALVE		MISC	MISCELLANEOUS
	BLDG	BUILDING		MIN	MINIMUM
	BOA	BEGINNING OF ALIGNMENT		MJ	MECHANICAL JOINT
	BOC	BACK OF CURB		MON	MONUMENT
	BOP	BEGINNING OF PIPE			
	BV	BALL VALVE	<b>N</b>	N	NORTH
	BVC	BEGINNING OF VERTICAL CURVE		NAD	NORTH AMERICAN DATUM
	BYP	BYPASS		NAVD	NORTH AMERICAN VERTICAL DATUM
				NG	NATURAL GAS
<b>C</b>	CATV	CABLE TV		NGS	NATIONAL GEODETIC SURVEY
	CB	CATCH BASIN		NIC	NOT IN CONTRACT
	CC	CONCRETE CURB		NL	NAIL
	CFM	CUBIC FOOT PER MINUTE		NO./NO'S	NUMBER / NUMBERS
	CI	CAST IRON		NTS	NOT TO SCALE
	CL OR C	CENTERLINE		NW	NORTHWEST
	CIP	CURED IN PLACE PIPE	<b>O</b>	OC	ON CENTER
	CLR	CLEAR / CLEARANCE		OD	OUTSIDE DIAMETER
	CML	CEMENT MORTAR LINED		OHE	OVERHEAD ELECTRIC
	CMLC	CEMENT MORTAR LINED AND COATED		OHU	OVERHEAD UTILITIES
	CMLSP	CEMENT MORTAR LINED STEEL PIPE		OTF	OUTFALL
	CMP	CORRUGATED METAL PIPE	<b>P</b>	PC	POINT OF CURVATURE
	CLSM	CONTROL LOW STRENGTH MATERIAL		PCC	POINT OF COMPOUND CURVE
	CONC	CONCRETE		PCL	PARCEL PROPERTY LINE
	CP	CONTROL POINT		PERP	PERPENDICULAR
	CPLG	COUPLING		PH	POT HOLE
	CO	CLEANOUT		PI	POINT OF INTERSECTION
	COORD	COORDINATE		PL	PROPERTY LINE
	CSP	CORRUGATED STEEL PIPE		PP	POWER POLE
	CTR	CENTER		PROP	PROPERTY
	CU	CUBIC		PRC	POINT OF REVERSE CURVATURE
	CULV	CULVERT		PT	POINT, POINT OF TANGENT
				PV	PLUG VALVE
<b>D</b>	D	DRAIN		PVC	POLYVINYL CHLORIDE
	DEG	DEGREE		PVI	POINT OF VERTICAL INTERSECTION
	DEMO	DEMOLITION		PVT	POINT OF VERTICAL TANGENCY
	DET	DETAIL		PVMT	PAVEMENT
	DIA	DROP INLET		QTY	QUANTITY
	DIFF	DIFFERENCE	<b>R</b>	RAD	RADIUS
	DIP	DUCTILE IRON PIPE		RCP	REINFORCED CONCRETE PIPE
	DR	DRIVE		RED	REDUCER
	DWG	DRAWING		REF	REFERENCE
	DW	DRIVEWAY APRON		REINF	REINFORCED
				REQ'D	REQUIRED
<b>E</b>	E	ELECTRIC, EAST		REV	REVISION
	EA	EACH		RR	RAILROAD
	EC	END OF CURVE		RP	RADIUS POINT
	ECC	ECCENTRIC		RTK	REAL TIME KINEMATIC
	EG	EXISTING GROUND		RW	RIGHT-OF-WAY
	ELL	ELBOW	<b>S</b>	S	SLOPE, SOUTH
	ELEC	ELECTRIC		SD	STORM DRAIN
	ELEV/EL	ELEVATION		SDDI	STORM DRAIN DROP INLET
	EMH	ELECTRICAL MANHOLE		SDMH	STORM DRAIN MANHOLE
	EOA	END OF ALIGNMENT		SDVLT	STORM DRAIN VAULT
	EOP	EDGE OF PAVEMENT		SHLD	SHOULDER
	EP	EDGE OF PAVING		SHNR	SHINER
	EQ	EQUAL		SHT	SHEET
	EUG	ELECTRICAL UNDERGROUND		SIM	SIMILAR
	EVC	END OF VERTICAL CURVE		SPEC	SPECIFICATION
	EW	EACH WAY		SQ FT	SQUARE FEET
	EX/EXIST	EXISTING		SS	SANITARY SEWER
				SSCO	SANITARY SEWER CLEANOUT
<b>F</b>	FC	FLEXIBLE COUPLING / FLEXIBLE CONNECTION		SSMH	SANITARY SEWER MANHOLE
	FCA	FLANGE COUPLING ADAPTER		SST	STAINLESS STEEL
	FD	FOUND		ST	STREET
	FH	FIRE HYDRANT		STA	STATION
	FIN	FINAL / FINISHED		STD	STANDARD
	FL	FLOW LINE		STL	STEEL
	FLEX	FLEXIBLE		SW	SWITCHWEST
	FLG	FLANGE	<b>T</b>	TB	THRUST BLOCK
	FLGA	FLANGE ADAPTER		TELE	TELEPHONE
	FM	FORCE MAIN		TG	TOP OF GRATE
	FMSS	FORCE MAIN SANITARY SEWER		TOC	TOP OF CONCRETE
	FO	FIBER OPTIC OR CATV		TOP	TOP OF PIPE
	FOC	FACE OF CURB		TS	TRAFFIC SIGNAL
	FS	FIRE SERVICES		TYP	TYPICAL
	FSP	FABRICATED STEEL PIPE	<b>U</b>	UGE	UNDERGROUND ELECTRIC
	FT	FOOT		UGG	UNDERGROUND G
	FTG	FOOTING		USPB	UNDERGROUND POWER BOX
				UGTEL	UNDERGROUND TELEPHONE
<b>G</b>	G	GAS		UNKN	UNKNOWN
	GALV	GALVANIZE(D)		UNO	UNLESS NOTED OTHERWISE
	GM	GAS METER	<b>V</b>	VC	VERTICAL CURVE
	GND	GROUND		VCP	VITRIFIED CLAY PIPE
	GPS	GLOBAL POSITIONING SYSTEM		VERT	VERTICAL
	GSP	GALVANIZED STEEL PIPE		VLT	VAULT
	GV	GATE VALVE		VPI	VERTICAL POINT OF INTERSECTION
			<b>W</b>	W / WTR	WATER
<b>H</b>	HDG	HOT DIPPED GALVANIZED		W	WEST
	HDPE	HIGH DENSITY POLYETHYLENE		WM	WATER METER
	HORIZ	HORIZONTAL		WV	WATER VALVE
	HP	HIGH POINT		WW	WASTEWATER
	HPGM	HIGH PRESSURE GAS MAIN			
	HW	HEADWALL			
	HWY	HIGHWAY			
	HYD	HYDRANT			
<b>I</b>	I	INTERSECTION OF ANGLE			
	ID	INSIDE DIAMETER			
	INV	INVERT			
	IRR	IRRIGATION			

### GENERAL NOTES

- THE FOLLOWING NOTES ARE GENERAL AND APPLY TO ALL SHEETS OF THESE CONTRACT DOCUMENTS AS IF THEY WERE WRITTEN IN THEIR ENTIRETY ON EACH SHEET.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
- UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS SHALL APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS AT NO ADDITIONAL COST TO OWNER.
- WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK, DETAILS SHALL BE IN THE SAME AS FOR OTHER SIMILAR WORK.
- CONTRACTOR SHALL OBTAIN ENCROACHMENT PERMIT FROM COUNTY OF MARIN AND CALTRANS AT NO COST TO THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ENCROACHMENT PERMIT REQUIREMENTS. SEE SPECIFICATIONS - APPENDIX FOR STANDARD CONDITIONS. THE PROPOSED WORK SHALL COMPLY WITH THE MOST CURRENT CALTRANS 2015 STANDARD PLANS AND SPECIFICATIONS.
- CONTRACTOR SHALL COMPLY WITH LOCAL CONSTRUCTION STORM WATER DISCHARGE REGULATIONS AND REQUIREMENTS.
- PRIOR TO EXCAVATION FOR NEW STRUCTURES, ELECTRICAL CONDUIT, NEW PIPING AND/OR OTHER PROPOSED UTILITIES, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING PIPING AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL TEMPORARILY RELOCATE CONFLICTING EXISTING UTILITIES AT TIE-IN/CONNECTION LOCATIONS AND REINSTALL THEM AS REQUIRED TO ELIMINATE THE CONFLICT AT NO ADDITIONAL COST TO THE OWNER.
- ALL PIPELINES 12" AND LARGER SHALL HAVE A MINIMUM COVER OF 36" UNLESS THE COVER DEPTH IS SPECIFICALLY INDICATED ON THE DRAWINGS. PIPES SHALL BE ROUTED AS SHOWN UNLESS MINOR REVISIONS ARE NECESSARY TO MISS EXISTING PIPES, STRUCTURES, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL FITTINGS AND ADAPTERS REQUIRED TO MAKE THE ROUTING CHANGES AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL INCLUDE COST FOR THIS IN THE BID.
- EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS OBTAINED FROM AVAILABLE RECORDS OR ELECTRONIC FILES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR FACILITIES AND UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, SIZES, MATERIAL TYPES, AND ELEVATIONS SHOWN AROUND OR NEAR AREAS OF NEW CONSTRUCTION PRIOR TO START OF CONSTRUCTION.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT FROM DAMAGE EXISTING FACILITIES AND UTILITIES SHOWN OR NOT SHOWN THAT ARE TO REMAIN IN PLACE. ALL FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ORIGINAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
- CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING PIPE, EQUIPMENT, ETC. AND SHALL PROVIDE ALL FITTINGS, ADAPTERS, AND APPURTENANCES REQUIRED TO MAKE THE CONNECTIONS. PROVIDE ALL SUPPORTS REQUIRED FOR A RIGIDLY SUPPORTED COMPLETE AND WORKING SYSTEM.
- ADJUST ALL VALVE BOXES, VAULTS, PULL BOXES, AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR DIRECTED. MANHOLES IN UNPAVED AREAS SHALL BE SET SIX INCHES ABOVE FINISHED GRADE AND VAULTS SHALL BE SIX INCHES ABOVE FINISHED GRADE.
- THE CONTRACTOR SHALL CONTACT THE PROPER UTILITY REPRESENTATIVE AS FOLLOWS FOR QUESTIONS OR COORDINATION OF CONSTRUCTION RELATED TO EXISTING UTILITIES.  
 SEWER/PUMP STATION SMCS 415-332-0244  
 ELECTRICAL PG&E 800-743-5000  
 CABLE COMCAST 925-424-0329
- CONTRACTOR SHALL VERIFY THAT PIPING SHOWN TO BE ABANDONED OR AS ABANDONED PREVIOUSLY IS NO LONGER IN SERVICE. LINES IN SERVICE SHALL BE MAINTAINED UNTIL NO LONGER REQUIRED BY THE OWNER.
- ALL EXISTING PIPES THAT ARE TO BE ABANDONED IN PLACE OR REMOVED MAY NOT BE SHOWN. WHERE PIPING IS TO BE ABANDONED AND MUST REMAIN IN SERVICE UNTIL COMPLETION OF OTHER PHASES OF WORK, AND IT CONFLICTS WITH NEW PIPING. TEMPORARILY RELOCATE PIPING AS REQUIRED TO MAINTAIN SERVICE BY THE OWNER.
- CONTRACTOR SHALL REROUTE THE EXISTING PIPING IF REQUIRED TO MISS THE NEW STRUCTURES. THE EXISTING PIPE SHALL REMAIN IN SERVICE UNTIL NEW PIPING IS READY TO BE PLACED INTO SERVICE. ALLOWABLE DOWNTIME SHALL BE COORDINATED WITH OWNER PRIOR TO STARTING ASSOCIATED WORK, UNLESS SPECIFIED OTHERWISE. IT MAY BE NECESSARY TO PROVIDE A STORAGE TANK TO ACHIEVE CONTRACTOR'S REQUIRED DOWNTIME AT NO ADDITIONAL COST TO OWNER.
- THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS IN THE VICINITY OF ANY OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL ABIDE BY THE NATIONAL ELECTRIC CODE AND ANY REQUIREMENT BY THE OWNER OF THE ELECTRIC LINES.
- PROVIDE TEMPORARY SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES, PIPES, AND FACILITIES.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL MECHANICAL AND ELECTRICAL ITEMS BEFORE PLACING ANY STRUCTURAL STEEL OR CONCRETE. STRUCTURAL DIMENSIONS AND OPENINGS CONTROLLED BY ARCHITECTURAL, MECHANICAL, OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES, AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

### UTILITY NOTES

- EXISTING UTILITIES IN THE PROJECT MAY BE IN A FRAGILE CONDITION. THE CONTRACTOR SHALL EXERCISE NECESSARY CAUTION WHEN WORKING NEAR EXISTING UTILITIES.
- PLAN LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE BASED ON RECORD DRAWINGS. POT-HOLING AND SURVEY INFORMATION AND ARE CONSIDERED APPROXIMATE ONLY. WHERE NO ELEVATIONS ARE SHOWN, NO INFORMATION WAS AVAILABLE DURING THE DESIGN PERIOD.
- SOME UTILITY SERVICES MAY NOT BE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO LOCATE AND PROTECT SERVICE DURING CONSTRUCTION.
- CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (U.S.A.) AT 1-800-227-2600 AT LEAST 48 HOURS PRIOR TO EXCAVATING UTILITIES.
- THE LOCATION, SIZE, AND MATERIALS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND IS SHOWN FOR BIDDING PURPOSES. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE UTILITY OWNERS SO THAT THOSE UTILITIES MAY MARK THE LOCATION OF THEIR UTILITIES PRIOR TO ANY EXCAVATION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT EXISTING UTILITIES.
- DISTRICT HAS APPLIED FOR PRELIMINARY ENCROACHMENT PERMITS FROM CALTRANS AT MARIN COUNTY AND WILL PAY PERMIT FEES. CONTRACTOR IS REQUIRED TO SUBMIT SWPPP, TRAFFIC CONTROL PLAN, AND INSURANCE TO PERMITTING AGENCY. FOR FINAL ENCROACHMENT PERMIT.

### EARTHWORK NOTES

- CLEAR THE CONSTRUCTION AREA OF NATURAL OBSTRUCTIONS EXISTING FOUNDATIONS, BUILDINGS, FENCES, LUMBER, WALLS, STUMPS, BRUSH, WEEDS, RUBBISH, TREES, BOULDERS, AND ANY OTHER ITEMS WHICH INTERFERES WITH CONSTRUCTION OPERATIONS OR ARE DESIGNATED FOR REMOVAL.
- GRUB OUT AND DISPOSE OF TREE TRUNKS AND ROOT MATERIAL BELOW THE GROUND SURFACE REMAINING AFTER CLEARING.
- DISPOSE OF THE UNACCEPTABLE BACKFILL MATERIAL FROM THE CLEARING AND GRUBBING OPERATIONS AT NO ADDITIONAL COST TO THE OWNER.
- ROCK AND AGGREGATE STORAGE AREAS (LOCATED OUTSIDE OF GRAVEL ROAD AREA) SHALL BE RESTORED BY EXCAVATING ANY SOILS CONTAINING ROCK OR AGGREGATE AND BACKFILLING WITH TOPSOIL. SOIL REMOVED MAY BE USED FOR TRENCH BACKFILL ABOVE THE PIPE ZONE TO FINISHED GRADE.
- EXISTING STORM DRAIN SWALE SHALL BE RESTORED TO EXISTING GRADE UNLESS NOTED OTHERWISE.

### SURVEY INFORMATION

- THE COORDINATE SYSTEM IS BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE III NAD 83, EPOCH 1991.35, HOLDING NGS PUBLISHED CONTROL MONUMENT WITH THE PERMANENT IDENTIFIER (PID) HT3390 (N 2149929.19, E 5977275.42). SEE "WWW.NGS.NOAA.GOV" FOR POINT DATA SHEET AND DESCRIPTION. RTK GPS WAS USED TO ESTABLISH LOCAL CONTROL NETWORK ON SITE. LOCAL BENCHMARK ESTABLISHED AT LCC CP #2012 (N 2148479.38, E 5980167.84 - GPS COORDINATE HELD HERE). A FD NL & SHNR IN AC ACCESS ROAD.
- ELEVATIONS ARE BASED ON NAVD88, PER RTK GPS SURVEY ESTABLISHED CONTROL POINTS. SITE BENCHMARK WAS HELD AT LCC CP #2012, (SEE ABOVE FOR DESCRIPTION), ELEVATION HELD AS 13.33 FEET, (NAVD88).
- STATE RIGHT-OF-WAY LINE LOCATIONS HAVE BEEN ESTABLISHED BY SURVEYING MONUMENTS WITH LISTED NAD27 COORDINATES, AND COMBINING THEIR LOCATIONS WITH DATA AND PERFORMING A "BEST FIT" INSERTION AND ROTATION INTO THE BASEMAP BASED ON THE LOCATED MONUMENTS. IN ADDITION, RIGHT OF WAY LINES WERE DETERMINED USING ADJACENT RECORD SUBDIVISION MAPS AND RECORD OF SURVEY MAPS, AS LISTED ON THE MAP. THE ACCURACY OF ROW LINES SHOWN ARE MOST LIKELY WITHIN 0.5 FT OF TRUE LOCATION. FURTHER SURVEY AND BOUNDARY ANALYSIS WOULD BE REQUIRED TO DETERMINE LOCATIONS WITH GREATER ACCURACY, IF REQUIRED.
- THIS SURVEY DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. NOT ALL PROPERTY CORNERS HAVE BEEN SEARCHED FOR OR LOCATED, AND NEW CORNERS OR MONUMENTS HAVE NOT BEEN SET DURING THIS SURVEY. THE BOUNDARY (PROPERTY) LINES SHOWN HEREON ARE BASED ON RECORD INFORMATION ONLY.
- UTILITIES SHOWN ARE BASED UPON SURFACE OBSERVATIONS OF STRUCTURES FOUND IN THE FIELD. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR LOCATIONS, CAPACITIES OR FUNCTIONALITY OF ALL UTILITIES SHOWN HEREON. SOME UNDERGROUND UTILITIES MAY NOT BE SHOWN.

DESIGNED	JS		
DRAWN	BH		
CHECKED	JW		
DATE	MAY 2016		
REV	DATE	BY	DESCRIPTION

Digitally signed by James A. Wickstrom  
 Contact Info: Carollo Engineers, Inc.  
 Date: 2016.05.06 14:39:23-0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION  
 IMPROVEMENT PROJECT  
 GENERAL  
 NOTES AND ABBREVIATIONS

VERIFY SCALES	JOB NO. 8231C.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. G02
0 1"	SHEET NO. 2 OF 32
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

Plot Date: 06-MAY-2016 1:19:38 PM

User: JGarrety

Model: Layout1

ColorTable: gshade.ctb

DesignScript: Carollo\_Sld\_Pen\_v0905.pen

PlotScale: 2:1

LAST SAVED BY: JGarrety

### MATERIALS LEGEND

MATERIAL	EXISTING	REMOVE	NEW
CLASS "A", "B", AND "D" CONCRETE			
CLASS "C" CONCRETE			
STEEL			
ALUMINUM			
BRICK OR BLOCK			
STRUCTURAL WOOD			
ABC			
SOIL			
VIEW IN PLAN (NEW SHOWN - EXISTING SCREENED)			
GRATING		TREAD PLATE	
PAVEMENT			

### CIVIL LINEWORK

NEW STRUCTURES	
EXISTING STRUCTURES	
NEW PIPING (TRIPLE LINES)	
NEW PIPING (SINGLE LINE)	
EXISTING PIPING (TRIPLE LINES)	
EXISTING PIPING (SINGLE LINE)	
HIDDEN LINE	
HIDDEN LINE (EXISTING)	
CENTER, MONUMENT, OR SURVEY LINE	
GUARDRAIL	
EXISTING CONTOURS	
NEW CONTOURS	
NEW FENCE	
EXISTING FENCE (SCREENED)	
REMOVE OR ABANDONED (CROSS HATCHING: FENCE SHOWN AS EXAMPLE)	
POWER POLE & LINE	
CABLE TV (UNDERGROUND)	
FIBER OPTIC	
NATURAL GAS	
UNDERGROUND ELECTRIC	
SANITARY SEWER	
STORM DRAIN	
TELEPHONE	
WATER	
PROPERTY LINE OR RIGHT OF WAY	
SLOPE	
NEW ROAD	
EXISTING ROAD (SCREENED)	
LIMITS OF CONSTRUCTION	
SHORING	
RAILROAD TRACKS	
CITY LIMITS	
FUTURE ROAD	
EXISTING ROAD	
CURB & GUTTER	
ELECTRICAL DUCT BANKS	
EXISTING PIPING UNDER SLAB	
NEW PIPING UNDER SLAB	
EXISTING PIPING UNDER SLAB	
EXISTING PIPING UNDER SLAB	
EXISTING CENTERLINE	
NEW CENTERLINE	
SOIL BORING LOCATIONS	

### MECHANICAL AND HVAC LINEWORK

NEW OR EXISTING STRUCTURES	
NEW OR EXISTING STRUCTURES HIDDEN	
NEW PIPING (TRIPLE LINES)	
NEW PIPING HIDDEN (TRIPLE LINES)	
NEW PIPING (SINGLE LINE)	
NEW PIPING HIDDEN (SINGLE LINE)	
EXISTING PIPING (TRIPLE LINES)	
EXISTING PIPING HIDDEN (TRIPLE LINES)	
EXISTING PIPING (SINGLE LINE)	
EXISTING PIPING HIDDEN (SINGLE LINE)	
NEW EQUIPMENT OR PIPING CENTERLINE	
EXISTING EQUIPMENT OR PIPING CENTERLINE	
NEW EQUIPMENT	
NEW EQUIPMENT HIDDEN	
EXISTING EQUIPMENT	
NEW FITTING	
EXISTING TO BE REMOVED	
NEW PIPING CALL-OUT	
EXISTING PIPING CALL-OUT	

### STRUCTURAL LINEWORK

NEW STRUCTURES	
EXISTING STRUCTURES	
NEW PIPING UNDER SLAB (TRIPLE LINES)	
NEW PIPING UNDER SLAB (SINGLE LINE)	
EXISTING PIPING UNDER SLAB (TRIPLE LINES)	
EXISTING PIPING UNDER SLAB (SINGLE LINE)	
HIDDEN LINE	
EXISTING HIDDEN LINE	
NEW CENTERLINE	
EXISTING CENTERLINE	
GUARDRAIL	
EXISTING TO BE REMOVED	
STRUCTURAL OPENING	
REINFORCING BARS	
SLOPE LINE	

REV	DATE	BY	DESCRIPTION

DESIGNED	JS
DRAWN	BH
CHECKED	JW
DATE	MAY 2016

Digitally signed by James A. Wickstrom  
 Contact Info: Carollo Engineers, Inc.  
 Date: 2016.05.06 14:39:11-0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION  
 IMPROVEMENT PROJECT  
 GENERAL  
 LEGEND AND LINE WORK

VERIFY SCALES	JOB NO. 8231C.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. G03
0 1"	SHEET NO. 3 OF 32
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

Plot Date: 06-MAY-2016 1:19:50 PM

User: JGarrety

PlotScale: 2:1

LAST SAVED BY: JGarrety

### PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE	DESCRIPTION	DOUBLE LINE	SINGLE LINE	DESCRIPTION	SINGLE LINE	DESCRIPTION
		WELDED JOINT			GATE VALVE		VALVE: THREE WAY AIR OPERATED
		GROOVED END JOINT			KNIFE GATE VALVE		VALVE: THREE WAY MOTOR OPERATED
		FLANGED JOINT			BUTTERFLY VALVE		VALVE: THREE WAY SOLENOID OPERATED
		HUB & SPIGOT JOINT (RUBBER GASKET)			CHARACTERIZED BALL CONTROL VALVE		VALVE: VACUUM
		PUSH-ON JOINT (RESTRAINED)			BALL VALVE		BACKPRESSURE REGULATOR SELF-CONTAINED
		ADAPTER SIDE GROOVED END ADAPTER FLANGE			GLOBE VALVE		BACKPRESSURE REGULATOR W/ EXTERNAL PRESSURE TAP
		FLANGED COUPLING ADAPTER			3-WAY GLOBE TYPE MIXING VALVE		PRESSURE-REDUCING REGULATOR: SELF-CONTAINED
		FLANGED COUPLING ADAPTER WITH THRUST TIES			DIAPHRAGM VALVE		PRESSURE-REDUCING REGULATOR W/ EXTERNAL PRESSURE TAP
		FLEXIBLE COUPLING			PLUG VALVE		
		FLEXIBLE COUPLING WITH THRUST TIES			PLUG VALVE		
		METAL BELLOWS EXP JOINT			SWING CHECK VALVE		
		ELASTOMER BELLOWS EXP JOINT			SWING CHECK VALVE		
		FLEXIBLE COUPLING ADAPTER			WAFER CHECK VALVE		
		DISMANTLING JOINT			PINCH VALVE		
		EXPANSION COMPENSATOR			BALL CHECK VALVE		
		ELBOW UP			FLAPPER CHECK VALVE		
		ELBOW DOWN			SILENT CHECK VALVE		
		TEE UP			MUD VALVE (PLAN VIEW)		
		TEE DOWN			NEEDLE VALVE		
		LATERAL UP			CHECK BACKFLOW PREVENTER		
		LATERAL DOWN			PIPE MATERIAL CHANGE		
		CONCENTRIC REDUCER			VALVE: ANGLE		
		ECCENTRIC REDUCER TF, BF			VALVE: AIR RELIEF		
		UNION			VALVE: FOUR WAY		
		CAP			VALVE: HOSE		
		ANCHOR			VALVE: PRESSURE RELIEF		
		ELBOW, 90 DEGREE			VALVE: PRESSURE-REDUCING PRESSURE-REDUCING REGULATOR		
		CROSS			VALVE: TELESCOPING		
		TEE					
		ELBOW, 45 DEGREE					
		ELBOW, 22.5 DEGREE					
		ELBOW, 11.25 DEGREE					
		LATERAL					

### MECHANICAL SYMBOLS

SINGLE LINE	DESCRIPTION	SINGLE LINE	DESCRIPTION
	AIR OR CHEMICAL DIFFUSER		PRIMARY LEVEL ELEMENT: RADAR
	QUICK DISCONNECT HIGH PRESSURE AIR OR FLUSHING		PRIMARY LEVEL ELEMENT: ULTRASONIC
	BATCHMETER		PRIMARY FLOW ELEMENT: FLUME
	AIR VENT		PRIMARY FLOW ELEMENT: X = C - CORIOLOS
	BASKET STRAINER		X = M - MAGNETIC
	BLOWER		X = PT - PITOT TUBE
	CALIBRATION COLUMN		X = R - ROTAMETER
	COMPRESSOR/TURBINE		X = T - TURBINE
	COMPRESSOR: RECIPROCATING		X = TH - THERMAL
	DIAPHRAGM SEAL		X = U - ULTRASONIC
	DRAIN		X = D - DENSITY
	EJECTOR OR EDUCTOR		PRIMARY FLOW ELEMENT: ORIFICE PLATE
	ELECTRIC MOTOR		PRIMARY FLOW ELEMENT: VENTURI TUBE
	EQUIPMENT DRAIN		PRIMARY FLOW ELEMENT: WEIR
	EXPANSION JOINT, FLEXIBLE VIBRATION JOINT		PULSATION DAMPENER
	FAN: EXHAUST/SUPPLY		PUMP: CENTRIFUGAL
	FILTER		PUMP: DIAPHRAGM
	FIRE HYDRANT		PUMP: METERING
	FLAME ARRESTER		PUMP: PLUNGER
	FLAME ARRESTER WITH THERMALLY OPERATED VALVE		PUMP: PERISTALTIC TUBE METERING
	FLOOR DRAIN		PUMP: PROGRESSIVE CAVITY
	FLOW SWITCH		PUMP: RECIPROCATING
	GAUGE: PRESSURE		PUMP: ROTARY
	GAUGE: DIFFERENTIAL PRESSURE		PUMP: SCREW
	WEIR		PUMP: SUBMERSIBLE
	MIXER		PUMP: VERTICAL LIFT
	OIL OR MOISTURE TRAP		ROTARY CHEMICAL FEEDER
	PRIMARY LEVEL ELEMENT: BUBBLER		RUPTURE DISK
	PRIMARY LEVEL ELEMENT: ELECTRODE		SAMPLE PORT
	PRIMARY LEVEL ELEMENT: FLOAT SWITCH		SIGHT GLASS
	FLUID LEVEL		SLIDE GATE
	PRIMARY LEVEL ELEMENT: INVERTED COLUMN		SLUICE GATE
			STRAINER: WYE TYPE
			STRAINER: WYE TYPE WITH BLOWOFF
			THERMOMETER

### DETAIL REFERENCES

PLAN/TITLE		<b>PLAN TITLE</b> SCALE: SCALE FILE: FILE PLAN NOT REFERENCED
SECTION CUT		VIEW C - = SHOWN ON SAME DRAWING ###X## = SEE INDICATED DRAWING
SECTION OR DETAIL TITLE W/ REFERENCE		ALPHA = SECTION NUMERIC = DETAIL <b>C/1 SECTION/DETAIL TITLE</b> SCALE: SCALE FILE: FILE DRAWING CUT ORIENTATION
DRAWING REFERENCE		AREA DESIGNATOR (WHEN APPLICABLE) DISCIPLINE DESIGNATOR ###X## CONSECUTIVE SHEET NUMBER
TYPICAL DETAIL REFERENCE		TYPICAL DETAIL # X## TYP
EXTERIOR ELEVATION VIEWS		A ###X##
PHOTO LOCATION		1 ARROW INDICATES POINT OF VIEW
GRID BUBBLE		A 1

REV	DATE	BY	DESCRIPTION

DESIGNED	JS
DRAWN	BH
CHECKED	JW
DATE	MAY 2016

Digitally signed by James A. Wickstrom  
Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 14:38:59 -0700



SAUSALITO-MARIN CITY SANITARY DISTRICT	
HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT	
GENERAL	
GENERAL SYMBOLS	
VERIFY SCALES	JOB NO. 8231C.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. G04
0 1"	SHEET NO. 4 OF 32
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

Plot Date: 05-MAY-2016 1:20:02 PM

User: JGarrethy

Model: Layout1

ColorTable: gshaded.ctb DesignScript: Carollo\_Sld\_Pen\_v0905.pen PlotScale: 2:1

LAST SAVED BY: JGarrethy

1 2 3 4 5 6 7 8 9 10 11 12 13

**GENERAL NOTES:**

- USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH PROJECT DRAWINGS BY OTHER DISCIPLINES AND WITH THE SPECIFICATIONS.
- UNLESS DETAILED, SPECIFIED, OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE GENERAL NOTES AND TYPICAL DETAILS.
- PRESENTATION CONVENTIONS FOR STRUCTURAL DRAWINGS:
  - SCREENED LINE WORK INDICATES EXISTING CONDITIONS.
  - WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED SIZES.
  - PLANS ARE TREATED AS HORIZONTAL SECTIONS. (I.E.: "PLAN AT ELEVATION 110" SHOWS CONSTRUCTION AT AND BELOW ELEVATION 110.)
- VERIFY DIMENSIONS AND CONDITIONS BEFORE BEGINNING WORK. ADVISE ENGINEER IMMEDIATELY OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DIMENSIONS, AND INFORMATION SHOWN ON THESE DRAWINGS. CONFIRM THE FOLLOWING BEFORE PREPARATION AND SUBMITTAL OF SHOP DRAWINGS:
  - DIMENSIONS AND WEIGHTS FOR EQUIPMENT SELECTED.
  - SIZES AND LOCATIONS OF EQUIPMENT PADS FOR EQUIPMENT SELECTED.
- TYPICAL DETAILS ARE INCLUDED ON THE "TS" DRAWINGS.
  - TYPICAL DETAILS ARE INTENDED TO APPLY AT LOCATIONS DESCRIBED BY THEIR TITLES, EVEN WHEN NOT SPECIFICALLY REFERENCED ON THE DRAWINGS.
  - IN STRUCTURAL TYPICAL DETAILS, ORIENTATION OF BARS IN EACH MAT OF REINFORCEMENT (WHETHER "LINES" OR "DOTS" ARE CLOSER TO THE FACE OF THE CONCRETE) IS GENERALLY ARBITRARY. SEE DRAWINGS OF EACH STRUCTURE FOR ORIENTATION REQUIRED AT THAT STRUCTURE.
- SEE CIVIL DRAWINGS FOR STRUCTURE COORDINATES, POINTS ON THE STRUCTURES TO WHICH SITE COORDINATES REFER ARE SHOWN ON THE STRUCTURAL PLANS.
- DRAWINGS PREPARED BY OTHER DISCIPLINES INCLUDE OPENINGS, ANCHORS, PIPES, CONDUITS, AND OTHER ITEMS THAT ARE EMBEDDED INTO OR PASS THROUGH STRUCTURES.
  - CONFIRM SIZE AND LOCATIONS OF OPENINGS, PENETRATIONS AND EMBEDMENT FOR ITEMS AND EQUIPMENT FURNISHED.
  - IN GENERAL, OPENINGS, EMBEDMENTS, AND PENETRATIONS LESS THAN 12 INCHES IN DIAMETER ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS.
  - SEE MECHANICAL DRAWINGS FOR DETAILS OF PIPE PENETRATIONS, PIPE SUPPORTS, AND ASSOCIATED STRUCTURAL REQUIREMENTS.
  - SEE MECHANICAL DRAWINGS FOR EQUIPMENT PADS AND PIPE SUPPORTS.

**STRUCTURAL DESIGN CRITERIA - GENERAL:**

- SEE DRAWINGS OF INDIVIDUAL STRUCTURES FOR SPECIFIC DESIGN CRITERIA BASED ON THESE OVERALL CRITERIA FOR THE SITE.
- BUILDING CODE:**
    - 2013 CALIFORNIA BUILDING CODE (CBC 2013) WITH ASCE 7-10.
  - STRUCTURE RISK CATEGORY: III
  - DEAD LOADS:** CALCULATED FOR STRUCTURE SELF-WEIGHT.
  - LIVE LOADS:**
    - FLOOR LIVE LOAD: SEE PLANS.
    - GRATING AND CHECKERED PLATE: 100 PSF (UNO).
    - EQUIPMENT LOADS: SEE PLANS.
  - FLUID PRESSURE LOADS:** 63 PSF/FT (UNO).
  - WIND DESIGN DATA:**
    - SPECIAL WIND REGION: NO
    - WIND-BORNE DEBRIS REGION: NO
    - BASIC WIND SPEED (3 SEC GUST, 33 FEET ABOVE GROUND): 115 MPH.
  - EARTHQUAKE DESIGN DATA:**
    - SITE CLASS: C
    - MAPPED SPECTRAL RESPONSE ACCELERATIONS:  $S_s = 1.501$  g  $S_1 = 0.660$  g
    - SITE COEFFICIENTS:  $F_a = 1.0$   $F_v = 1.3$
    - MAXIMUM CONSIDERED ACCELERATIONS:  $S_{ms} = 1.501$  g  $S_{m1} = 0.859$  g
    - DESIGN SPECTRAL RESPONSE ACCELERATIONS:  $S_{ds} = 1.001$  g  $S_{d1} = 0.572$  g (\* 5% DAMPED)
  - CONSTRUCTION LOADS:** STRUCTURES HAVE BEEN DESIGNED FOR OPERATING LOADS ON COMPLETED FACILITIES. UNTIL CONSTRUCTION IS COMPLETE AND MEMBERS HAVE ACHIEVED THEIR DESIGN STRENGTH, PROTECT STRUCTURES AS REQUIRED BY SHORING, BRACING, AND BALANCING.

**GEOTECHNICAL REPORT / FOUNDATION DESIGN CRITERIA:**

- GEOTECHNICAL INVESTIGATION REPORT:
 

TITLE: GEOTECHNICAL INVESTIGATION REPORT SAUSALITO - MARIN CITY SANITARY DISTRICT HIGHWAY BOOSTER PUMP STATION IMPROVEMENTS PROJECT SAUSALITO, CA. PREPARED BY: MILLER PACIFIC ENGINEERS REPORT NO: 2213.002 DATED: JANUARY 12, 2016.
- FOUNDATION DESIGNS ARE BASED ON RECOMMENDATIONS IN THE GEOTECHNICAL INVESTIGATION REPORT.
  - NET ALLOWABLE BEARING PRESSURE: 750 PSF
  - LATERAL EARTH PRESSURE (UNO): SURCHARGE: EQUIVALENT TO 2 FEET OF SOIL ABOVE FINISHED GRADE.
 

	STATIC	SEISMIC
AT REST (PSF/FT):	50 PSF	60 PSF
SLIDING COEFFICIENT OF FRICTION:	0.35	0.35

**TYPICAL STRUCTURAL MATERIALS:**

- MATERIALS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- SEE PROJECT SPECIFICATIONS AND NOTES ON DRAWINGS OF SPECIFIC STRUCTURES FOR DETAILED AND LOCATION-SPECIFIC REQUIREMENTS.

**REINFORCING STEEL (FOR CONCRETE AND MASONRY):**

- DEFORMED BARS:
  - TYPICAL: ASTM A 615, GRADE 60.
  - WHERE INDICATED ON THE DRAWINGS: ASTM A 706.

**CONCRETE:**

- NORMAL DENSITY.
- MINIMUM SPECIFIED CONCRETE COMPRESSIVE STRENGTH,  $f_c$  (AT 28 DAYS UNO).
  - STRUCTURES: "CLASS A" OR "CLASS B"  $f_c = 4000$  PSI.

**STRUCTURAL STEEL:**

- SECTIONS
  - SHAPES W, WT: ASTM A 992 ( $F_y = 50$  KSI)
  - SHAPES S, ST, M, MT, HP, C, MC, L: ASTM A 36 ( $F_y = 36$  KSI)
  - PLATES AND BARS: ASTM A 36 ( $F_y = 36$  KSI)
  - PIPES: ASTM A 53, GRADE B ( $F_y = 35$  KSI)
  - HOLLOW STRUCTURAL SECTIONS:
    - ROUND: ASTM A 500, GRADE B ( $F_y = 42$  KSI)
    - SQUARE AND RECTANGULAR: ASTM A 500, GRADE B ( $F_y = 46$  KSI)

**CONNECTIONS:**

- BOLTS - STEEL TO CONCRETE OR MASONRY: ANCHOR BOLTS WITH HEX FORGED HEAD. ASTM A193, STAINLESS TYPE 316

**STAINLESS STEEL:**

- ANSI TYPE 316/316L.
- SECTIONS: SHAPES AND BARS: ASTM A 276.
- BOLTED CONNECTIONS - BOLTS AND ANCHOR BOLTS:
  - MATCH ALLOY OF THE STRUCTURAL MEMBERS CONNECTED.
  - TYPE 316/316L: ASTM A 193, GRADE B8M, CLASS 1, HEAVY HEX.

**CONSTRUCTION:**

CONFORM TO THE FOLLOWING REQUIREMENTS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

**EXCAVATION AND BACKFILLING:**

- EXPOSE AND PREPARE SUBGRADE AS SHOWN ON THE DRAWINGS AND SPECIFIED. OBTAIN ENGINEER'S OBSERVATION OF SUBGRADE SURFACES, AS EXPOSED AND AS PREPARED, BEFORE PROCEEDING WITH FOUNDATION CONSTRUCTION.
- DO NOT PLACE BACKFILL AGAINST WALLS UNTIL STRUCTURES SUPPORTING THE TOP OF THE WALL ARE IN PLACE, ARE COMPLETE, AND (IN THE CASE OF CONCRETE) HAVE CURED TO THEIR MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH.
- WHERE BACKFILL MUST BE PLACED AGAINST WALLS BEFORE STRUCTURES ABOVE ARE COMPLETE, PROVIDE BRACING FOR WALLS. KEEP BRACING IN PLACE UNTIL THE STRUCTURE ABOVE IS COMPLETE AND (IN THE CASE OF CONCRETE) HAS CURED TO ITS MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH.

**CONCRETE:**

- SEE S101/TYP FOR CONCRETE NOTES, INCLUDING CLEAR COVER AND LAP SPLICE LENGTH REQUIREMENTS FOR REINFORCING.
- SUBMIT LOCATIONS OF CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS FOR ACCEPTANCE BY THE ENGINEER BEFORE FORM LAYOUT.
- PROVIDE CHAMFER AT EXPOSED EDGES OF CAST-IN-PLACE CONCRETE. SEE SPECIFICATION 03102 FOR CHAMFERS.
- PROVIDE REINFORCING:
  - AT OPENINGS - AS INDICATED IN S180/TYP.
- WELDING OF REINFORCING IS NOT PERMITTED UNLESS DETAILED ON THE DRAWINGS OR ACCEPTED IN ADVANCE BY THE ENGINEER.
- MAINTAIN MINIMUM 3 INCHES CLEAR CONCRETE COVER BETWEEN REINFORCING AND EMBEDMENTS.

**STEEL, STAINLESS STEEL, AND ALUMINUM - CONNECTIONS:**

- POST-INSTALLED ANCHORS IN CONCRETE AND MASONRY:
  - INSTALL IN FULL COMPLIANCE WITH ACCEPTED BUILDING CODE EVALUATION REPORT AND MANUFACTURER'S INSTRUCTIONS.
  - DO NOT CUT, DAMAGE, OR INTERRUPT EXISTING REINFORCEMENT TO INSTALL ANCHORS. USE NON-DESTRUCTIVE TESTING EQUIPMENT TO IDENTIFY LOCATIONS OF REINFORCEMENT IN MEMBERS BEFORE DRILLING HOLES FOR ANCHORS.

**METAL FABRICATIONS:**

- COVER PLATES:
  - ALUMINUM WITH TYPE 316 STAINLESS STEEL FASTENERS, UNLESS OTHERWISE NOTED.
  - COVER PLATE AND ITS SEATS OR SUPPORTS SHALL BE OF THE SAME MATERIAL.

**SPECIAL INSPECTION:**

- SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING STRUCTURAL MATERIALS AND CONSTRUCTION. SEE SPECIFICATION SECTION 01455 FOR DETAILS.
- DIVISION 2 SITE CONSTRUCTION (EARTHWORK)
  - EXCAVATION DEPTH.
  - ADEQUACY OF EXPOSED SURFACE TO PROVIDE REQUIRED SUPPORT.
  - PREPARATION OF SOILS/SURFACES SUPPORTING CONSTRUCTION.
  - FILL AND BACKFILL.
- DIVISION 3 CONCRETE:
  - LOCATIONS.
  - FORMWORK AND MEMBER SIZES.
  - REINFORCING STEEL.
  - ANCHORS: CAST-IN AND POST-INSTALLED.
  - CONCRETE MIX AND PLACEMENT.
  - PROTECTION AND CURING PROCEDURES.
  - PRECAST CONCRETE.
- DIVISION 5 METALS
  - GENERAL ALL METALS:
    - ANCHORS - CAST-IN AND BUILT-IN ANCHOR BOLTS.
    - ANCHORS - POST-INSTALLED MECHANICAL AND ADHESIVE.

**STRUCTURAL SYMBOLS:**

- SEE SHEET G04 FOR KEY TO DRAWING TITLES AND SECTION CUTS, AND G03 FOR DEFINITION OF MATERIALS SHADING PATTERNS.
- WELDING: SYMBOLS: IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) A2.4.

**STRUCTURAL ABBREVIATIONS:**

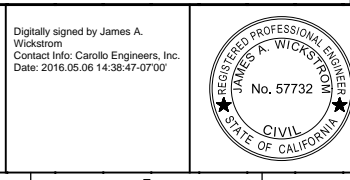
- SEE SHEET G02 FOR GENERAL LIST OF ABBREVIATIONS USED ON DRAWINGS.
- ABBREVIATIONS FOR NAMES OF TECHNICAL GROUPS MAY BE FOUND IN THE PROJECT SPECIFICATIONS.
- STRUCTURAL MEMBERS:
  - STEEL: ABBREVIATIONS AND DESIGNATIONS ARE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION'S STEEL CONSTRUCTION MANUAL, CURRENT EDITION.
  - ALUMINUM: ABBREVIATIONS AND DESIGNATIONS ARE IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION'S ALUMINUM DESIGN MANUAL, CURRENT EDITION.
- ABBREVIATIONS FOR STRUCTURAL DRAWINGS:
 

WHEN USED ON THE STRUCTURAL DRAWINGS, THE FOLLOWING ABBREVIATIONS HAVE THE MEANINGS LISTED.

REINFORCEMENT:	OTHER:
BO BOTTOM OF	L ANGLE
EF EACH FACE	PL PLATE
IF INSIDE FACE	
O.F. OUTSIDE FACE	
T.O. TOP OF	
# NUMBER (REINFORCING BAR SIZE)	

DESIGNED	JS		
DRAWN	BH		
CHECKED	JW		
DATE	MAY 2016		
REV	DATE	BY	DESCRIPTION
1			
2			
3			

Digitally signed by James A. Wickstrom  
 Contact Info: Carollo Engineers, Inc.  
 Date: 2016.05.06 14:38:47 -0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION  
 IMPROVEMENT PROJECT  
 GENERAL  
 STRUCTURAL NOTES

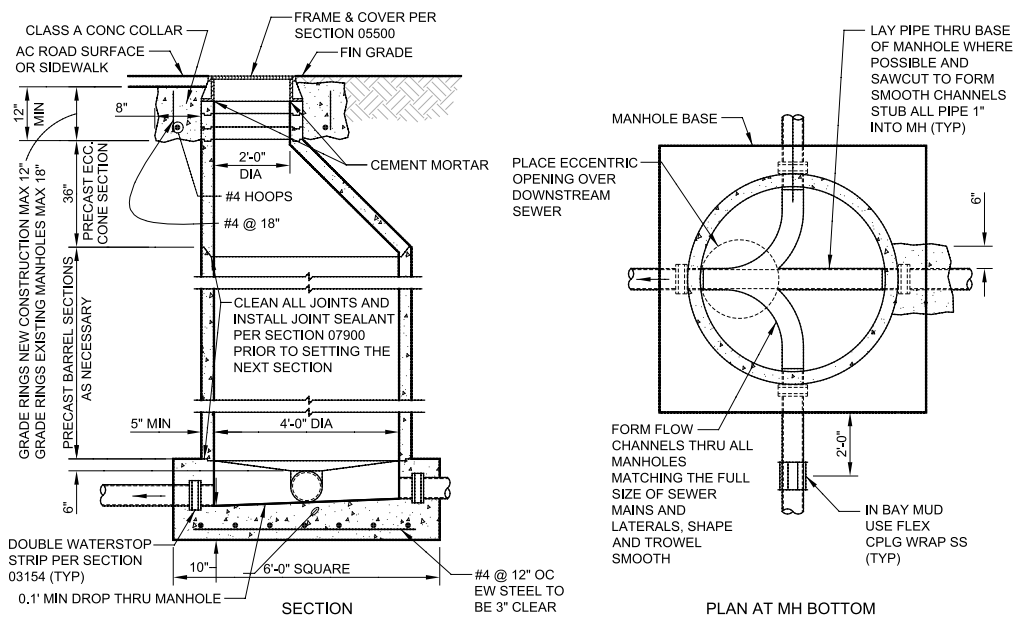
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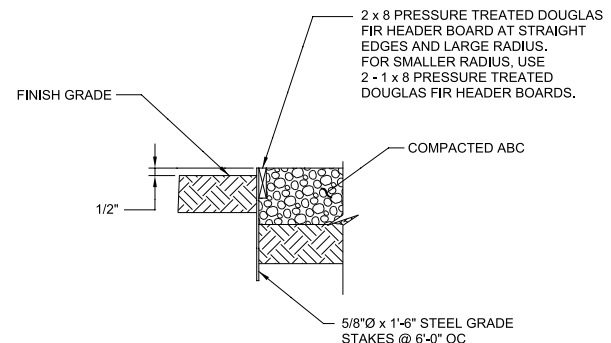
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Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo\_Std\_Pen\_v0805.pen PlotScale: 2:1

LAST SAVED BY: JGarrethy



1. MANHOLE BASE SHALL BE CLASS A (6-SACK) CONCRETE AND SHALL BE POURED AGAINST UNDISTURBED SOIL.
2. PRECAST MANHOLE SECTIONS PER SECTION 02084.
3. ECCENTRIC CONE SECTION SHALL BE POSITIONED AS DIRECTED BY THE DISTRICT.
4. RECESS IN MANHOLE BASE SHALL BE FORMED WITH AN APPROVED METAL FORMING RING TO RECEIVE PRECAST MANHOLE JOINT. PREFORMED PLASTIC SEAL GASKET SHALL BE INSTALLED BEFORE PLACING FIRST BARREL SECTION.
5. PRECAST MANHOLE BASES ARE NOT ALLOWED.
6. COMPACT BACKFILL MATERIAL TO 90% RELATIVE COMPACTION, WITHIN 2' OF PAVEMENT SUBGRADE, A MINIMUM OF 95% RELATIVE COMPACTION IS REQUIRED.
7. CLEAN AND COAT INTERIOR OF PRECAST MANHOLE SECTIONS PER SECTION 02084.



**C010** ECCENTRIC MANHOLE  
TYP

03/24/16

**C130** WOOD HEADER  
TYP

05/02/16

REV	DATE	BY	DESCRIPTION

DESIGNED	CE
DRAWN	CE
CHECKED	CE
DATE	MAY 2016

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Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 14:38:35 -0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT

TYPICAL  
TYPICAL DETAILS  
CIVIL

VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1"  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

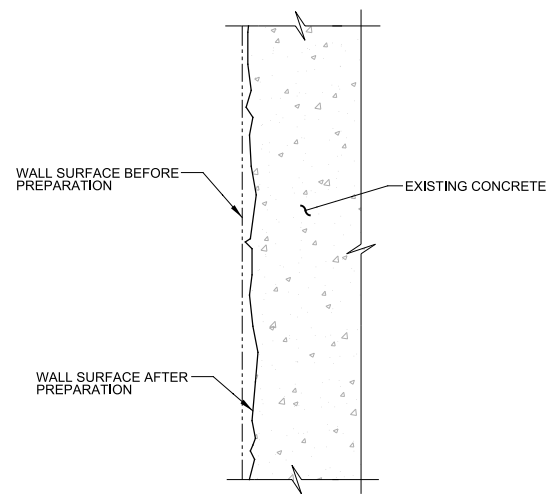
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DRAWING NO. TC01  
SHEET NO. 6 OF 32

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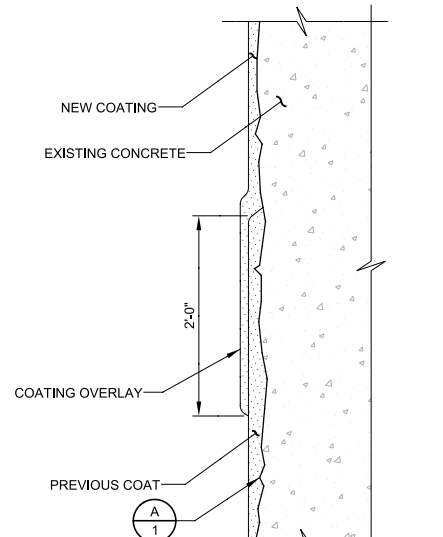
LAST SAVED BY: JGarrety



SECTION - WALL PREPARATION

- NOTES:
1. ABRASE THE WALL TO CREATE ROUGH SURFACE SIMILAR TO INTERNATIONAL CONCRETE REPAIR INSTITUTE CSP-3.
  2. BLOW CLEAN WITH DRY, OIL-FREE AIR.

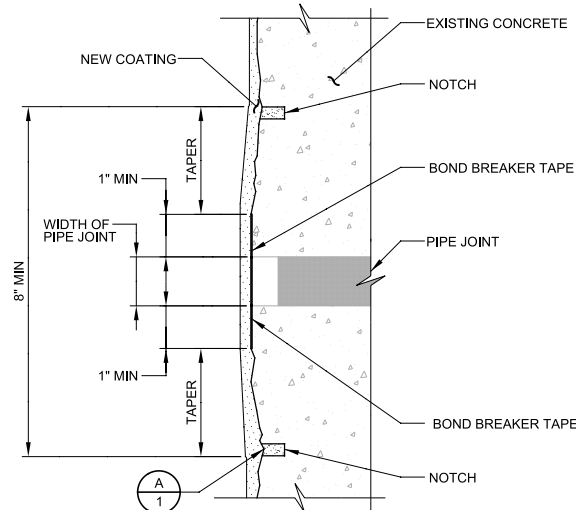
**D300** ELASTOMERIC POLYURETHANE COATING  
TYP N SHEET 1 OF 7 04/30/07



SECTION - TRANSITION BETWEEN COATS

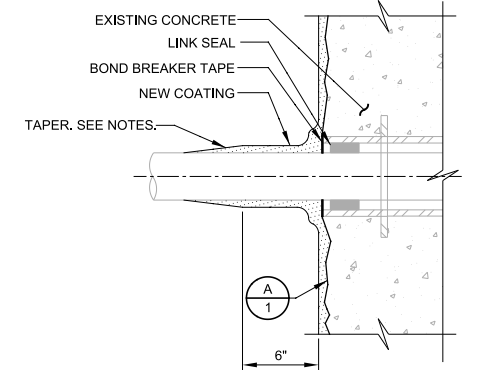
- NOTES:
1. ABRASE 2'-0" OF PREVIOUS COATING UNTIL ALL GLOSS IS REMOVED BEFORE APPLICATION OF NEW COATING.
  2. BLOW CLEAN WITH DRY, OIL-FREE AIR.

**D300** ELASTOMERIC POLYURETHANE COATING  
TYP N SHEET 2 OF 7 04/30/07



SECTION - AT EXPANSION JOINT

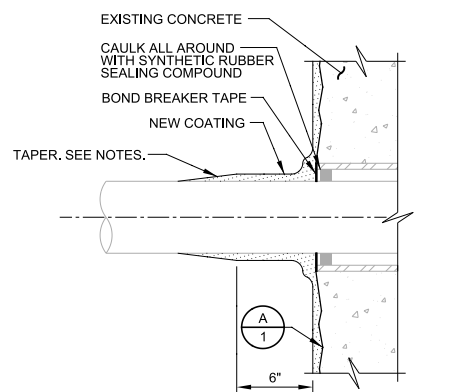
**D300** ELASTOMERIC POLYURETHANE COATING  
TYP RN SHEET 3 OF 7 03/15/16



SECTION - PIPE THROUGH WET WALL OR SLABS

- NOTES:
1. TAPER SHALL BE 3" LONG.
  2. FOR STEEL PIPE, ABRASE PIPE TO SOCIETY OF PROTECTIVE COATINGS SP-5 FINISH.
  3. FOR DUCTILE IRON PIPE, ABRASE TO SOCIETY OF PROTECTIVE COATINGS SP-10 FINISH.

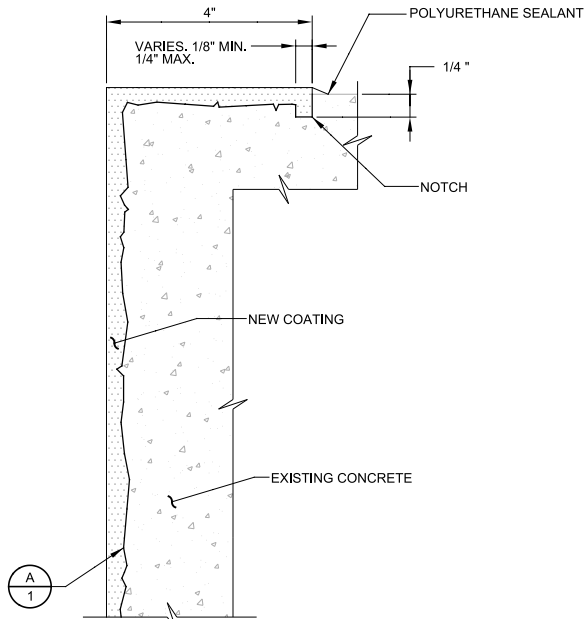
**D300** ELASTOMERIC POLYURETHANE COATING  
TYP N SHEET 4 OF 7 04/30/07



SECTION - PIPE THROUGH DRY WALL OR SLABS

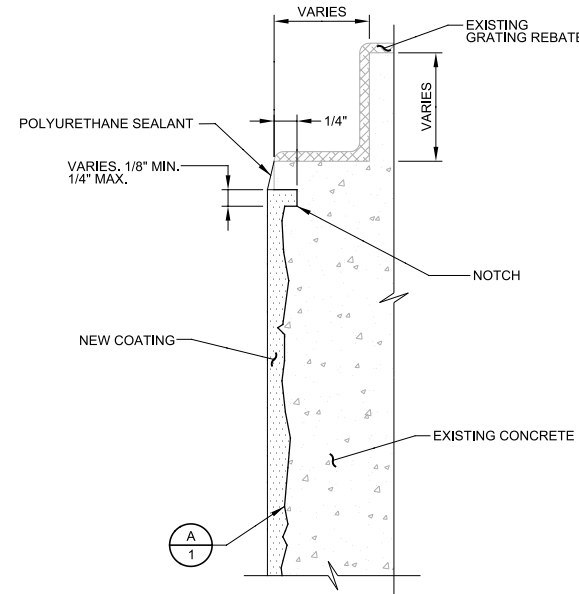
- NOTES:
1. TAPER SHALL BE 3" LONG.
  2. FOR STEEL PIPE, ABRASE PIPE TO SOCIETY OF PROTECTIVE COATINGS SP-5 FINISH.
  3. FOR DUCTILE IRON PIPE, ABRASE TO SOCIETY OF PROTECTIVE COATINGS SP-10 FINISH.

**D300** ELASTOMERIC POLYURETHANE COATING  
TYP N SHEET 5 OF 7 04/30/07



SECTION - EDGE TREATMENT

**D300** ELASTOMERIC POLYURETHANE COATING  
TYP N SHEET 6 OF 7 04/30/07



SECTION - EDGE TREATMENT WITH REBATE

**D300** ELASTOMERIC POLYURETHANE COATING  
TYP N SHEET 7 OF 7 04/30/07

REV	DATE	BY	DESCRIPTION

DESIGNED	CE
DRAWN	CE
CHECKED	CE
DATE	MAY 2016

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Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 14:38:25 -0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT

TYPICAL  
CORROSION

VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1"  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 8231C.10  
DRAWING NO. TD01  
SHEET NO. 7 OF 32

Plot Date: 06-MAY-2016 1:55:27 PM

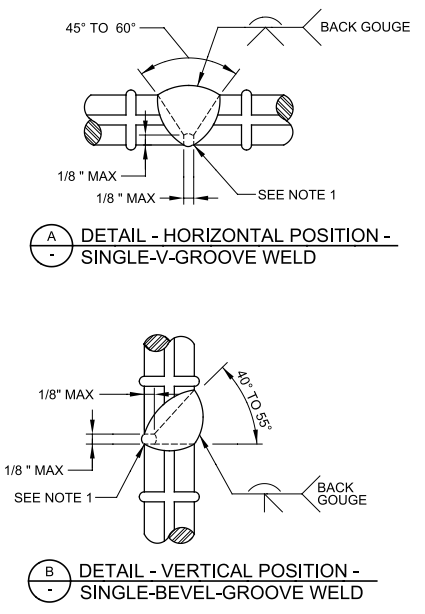
User: JGarrety

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo\_Std\_Pen\_v0905.pen PlotScale: 2:1

LAST SAVED BY: JGarrety

- CONCRETE CONSTRUCTION SHALL COMPLY WITH ACI "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318) AND "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350-06) AND COMMENTARY (ACI 350R-06)."
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, MINIMUM REINFORCEMENT OF CONCRETE WALLS OR SLABS SHALL BE:  
10" THICK OR LESS - USE #5 @ 12" EW  
MORE THAN 10" THICK - USE #5 @ 12" EW EF
- WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAP SPLICED, OR TERMINATED IN AN ACI STANDARD 90 DEGREE HOOK. LAP SPLICES SHALL CONFORM WITH NOTE 12.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, BARS SHALL BE DOWELED. DOWELS SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCEMENT WHICH IS SPLICED TO THE DOWELS.
- SLABS, BEAMS AND COLUMN REINFORCING BARS SHALL HAVE A MINIMUM EXTENSION OR ANCHORAGE INTO SUPPORTS IN ACCORDANCE WITH ACI 318 AND ACI 350.
- STIRRUP SUPPORT BARS SHALL BE PROVIDED TO SECURE TOP BARS AGAINST DISPLACEMENT AS REQUIRED.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, CONCRETE COVER OVER #11 AND SMALLER REINF BARS SHALL BE AS FOLLOWS:  
A. SLABS AND JOISTS:  
FORMED CONCRETE SURFACES AND UNFORMED TOP SURFACES FOR DRY CONDITIONS:  
#7 BARS AND SMALLER.....1"  
#8 BARS AND LARGER.....1 1/2"  
FORMED CONCRETE SURFACES AND UNFORMED TOP SURFACES EXPOSED TO WEATHER, IN CONTACT WITH SOIL OR WATER, OR LOCATED OVER WATER.....2"  
B. BEAMS AND COLUMNS:  
FORMED CONCRETE SURFACES FOR DRY CONDITIONS:  
STIRRUPS, SPIRALS, AND TIES.....1 1/2"  
PRINCIPAL REINFORCEMENT.....2"  
FORMED CONCRETE SURFACES EXPOSED TO WEATHER, IN CONTACT WITH SOIL OR WATER, OR BEAMS LOCATED OVER WATER:  
STIRRUPS AND TIES.....2"  
PRINCIPAL REINFORCEMENT.....2 1/2"  
C. WALLS:  
FORMED CONCRETE SURFACES FOR DRY CONDITIONS:  
#7 BARS AND SMALLER.....1"  
#8 BARS AND LARGER.....1 1/2"  
FORMED CONCRETE SURFACES EXPOSED TO WEATHER, OR IN CONTACT WITH SOIL OR WATER.....2"

**S101 REINFORCED CONCRETE NOTES**  
TYP S SHEET 1 OF 3 08/31/07

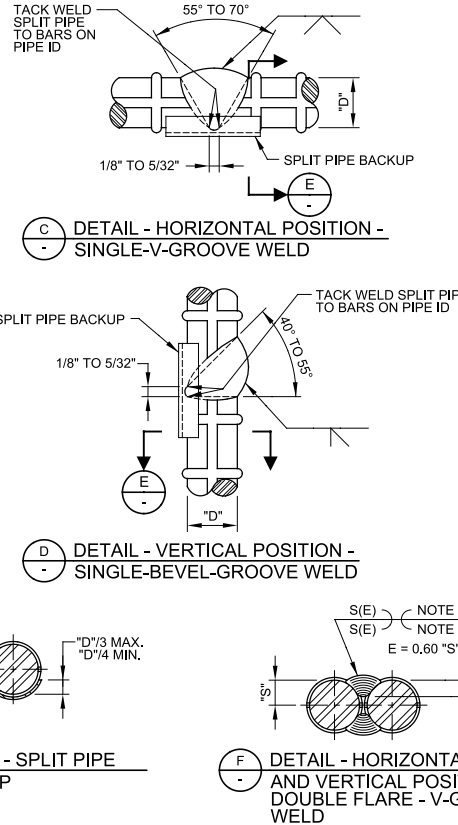


- NOTES:**
- CHIP, GRIND, OR GOUGE TO SOUND METAL BEFORE WELDING OTHER SIDE.
  - USE DETAIL A & B FOR #9 & LARGER BARS. USE DETAIL C & D FOR #8 & SMALLER BARS. USE DETAIL F FOR #6 & SMALLER BARS.
  - USE E 70 ELECTRODES FOR GRADE 40 BARS AND E 90 ELECTRODES FOR GRADE 60 BARS.
  - SEE AWS D1.4 FOR WELDING PROCESS, PREHEAT REQUIREMENTS, AND OTHER DETAILS. SUBMIT WELDING PROCEDURE PER AWS.
  - 1 1/2" FOR #3 AND #4 BARS, 2" FOR #5 BARS, AND 2 1/2" FOR #6 BARS.

**S190 WELDED SPLICE OF REINFORCING BARS**  
TYP N SHEET 1 OF 2 12/12/13

- FOOTINGS AND BASE SLABS:  
FORMED VERTICAL CONCRETE SURFACES.....2"  
AT UNFORMED CONCRETE SURFACES CAST AGAINST THE SOIL OR CONCRETE WORK MATS.....3"  
TOP SURFACE OF FOOTINGS AND BASE SLABS.....SAME AS SLABS
- KEYWAYS AND WATERSTOP SHALL END 3" BELOW THE TOP OF WALLS, UNLESS THERE IS A SLAB ON TOP OF THE WALL. IN WHICH CASE IT SHALL END AT THE BOTTOM OF THE SLAB. IN JOINTS WHERE WATERSTOP TERMINATES AT ADJOINING SLAB OR WALL, WATERSTOP SHALL BE EMBEDDED IN ADJOINING SLAB OR WALL A MINIMUM OF 6".
- CONCRETE CURING SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. WHERE WATER CURING IS REQUIRED, MEMBRANE CURING IS NOT ALLOWED. THE CONTRACTOR IS WARNED THAT WATER CURING IS DIFFICULT AT TIMES DUE TO WIND AND DRY CONDITIONS. THE CONTRACTOR SHALL STUDY REQUIREMENTS AND SHALL FURNISH ADEQUATE SYSTEMS TO PROVIDE WATER CURING WHERE REQUIRED. TOP OF WALLS SHALL BE KEPT VISIBLY MOIST AT ALL TIMES AND SHALL BE FLOODED NOT LESS THAN THREE TIMES DAILY.
- WATERSTOP SHALL BE PLACED IN CONSTRUCTION, AND EXPANSION JOINTS IN WATERBEARING SLABS AND WALLS UNLESS OTHERWISE INDICATED ON THE DRAWINGS, AND IN WALLS AND SLABS SUBJECTED TO GROUNDWATER, WATERSTOP IN THE WALLS SHALL BE CARRIED INTO SLABS AND SHALL BE SPLICED WITH THE WATERSTOP IN THE SLABS.
- NO BACKFILL SHALL BE PLACED AGAINST WALLS UNTIL:  
A. WALLS HAVE BEEN CAST FULL HEIGHT OF STRUCTURE AND CONCRETE HAS REACHED THE SPECIFIED STRENGTH  
B. CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND CONCRETE HAS REACHED THE SPECIFIED STRENGTH.
- LAP SPLICES:  
A. WHEN MULTIPLE BARS ARE SPLICED AT THE SAME SECTION, THE CLEAR BAR SPACING IS THE MINIMUM CLEAR DISTANCE BETWEEN THE BARS OUTSIDE THE SPLICE LENGTH LESS ONE BAR DIAMETER.  
B. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE BARS AT A LAP SPLICE SHALL BE IN CONTACT WITH EACH OTHER.  
C. TOP BARS ARE HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

**S101 REINFORCED CONCRETE NOTES**  
TYP S SHEET 2 OF 3 08/31/07



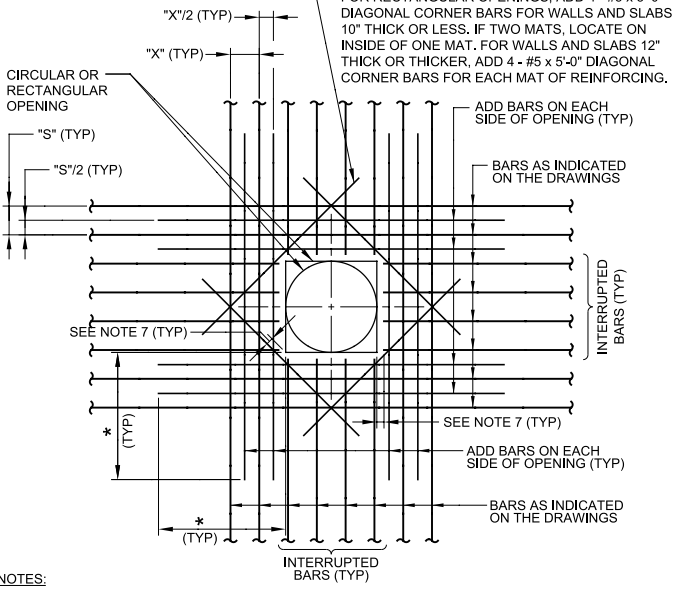
**S190 WELDED SPLICE OF REINFORCING BARS**  
TYP N SHEET 2 OF 2 12/12/13

REINFORCING BAR LAP SPLICES:  $f_c = 4000$  PSI,  $F_y = 60,000$  PSI

BAR SIZE	MINIMUM COVER (BAR DIA)	MINIMUM CLEAR BAR SPACING (BAR DIA)	LAP SPLICE LENGTH (INCHES)	
			TOP BARS	OTHER BARS
#4	MORE THAN 1	MORE THAN 2	32 *	25 *
	MORE THAN 2	MORE THAN 4	20	16
#5	MORE THAN 1	MORE THAN 2	40 *	31 *
	MORE THAN 2	MORE THAN 4	26	20
#6	MORE THAN 1	MORE THAN 2	48 *	37 *
	MORE THAN 2	MORE THAN 4	30	24
#7	MORE THAN 1	MORE THAN 2	70 *	54 *
	MORE THAN 2	MORE THAN 4	43	33
#8	MORE THAN 1	MORE THAN 2	81 *	62 *
	MORE THAN 2	MORE THAN 4	50	38
#9	MORE THAN 1	MORE THAN 2	90 *	70 *
	MORE THAN 2	MORE THAN 4	56	42
#10	MORE THAN 1	MORE THAN 2	104 *	81 *
	MORE THAN 2	MORE THAN 4	62	48
#11	MORE THAN 1	MORE THAN 2	114 *	88 *
	MORE THAN 2	MORE THAN 4	69	54

- REINFORCING BAR LAP SPLICE TABLE NOTES:**
- THE SPLICE LENGTH SHALL BE SELECTED ONLY WHEN BOTH REQUIREMENTS OF THE COVER AND BAR SPACING ARE SATISFIED.
  - \* = IF THE CLEAR SPACING IS LESS THAN OR EQUAL TO TWO BAR DIAMETERS OR THE COVER IS LESS THAN OR EQUAL TO ONE BAR DIAMETER, THE LAP SPLICE LENGTH SHALL BE INCREASED BY 50 PERCENT.

**S101 REINFORCED CONCRETE NOTES**  
TYP S SHEET 3 OF 3 08/31/07



- NOTES:**
- ADD BARS SHALL BE SAME SIZE AS PARALLEL BARS BEING CUT.
  - AREA OF ADD BARS AT EACH EDGE OF OPENING IN EACH DIRECTION SHALL BE EQUAL TO OR GREATER THAN 1/2 THE CROSS SECTIONAL AREA OF THE INTERRUPTED BARS.
  - PROVIDE STANDARD ACI HOOKS ON BARS IF STRAIGHT EXTENSION PAST THE OPENING, CANNOT BE ACHIEVED.
  - PLACE ADD BARS IN SAME PLANES AS INTERRUPTED REINFORCING.
  - PLACE #5 DIAGONAL BARS ON INSIDE MAT OF REINFORCING.
  - \* = DIMENSION EQUALS OPENING DIMENSION MEASURED PERPENDICULAR TO ADD BARS PLUS LAP SPLICE LENGTH.
  - 2" CLEAR TO CONCRETE OPENINGS OR OUTSIDE FACE OF PIPES AND PIPE SLEEVES. DO NOT OVERCUT REINFORCEMENT FOR EASIER PLACEMENT OF WEEP RINGS AND FLANGES.

**S180 ADDITIONAL REINFORCING AT OPENINGS IN CONCRETE SLABS OR WALLS**  
TYP NS 07/11/13

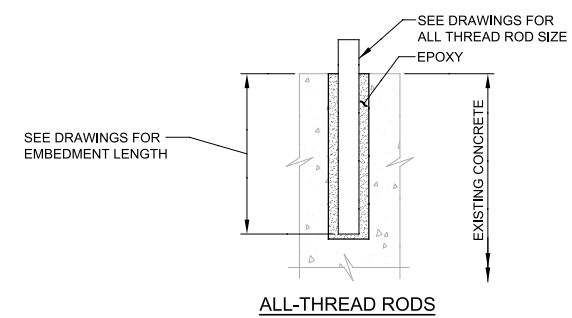
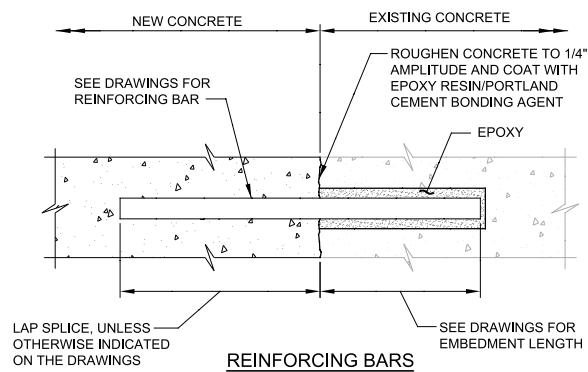
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DRAWN CE						HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT		BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO.
CHECKED CE						TYPICAL		0 1"	TS01
DATE MAY 2016						STRUCTURAL		IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 8 OF 32
REV	DATE	BY	DESCRIPTION						

Plot Date: 05-MAY-2016 1:22:55 PM

User: JGarrety

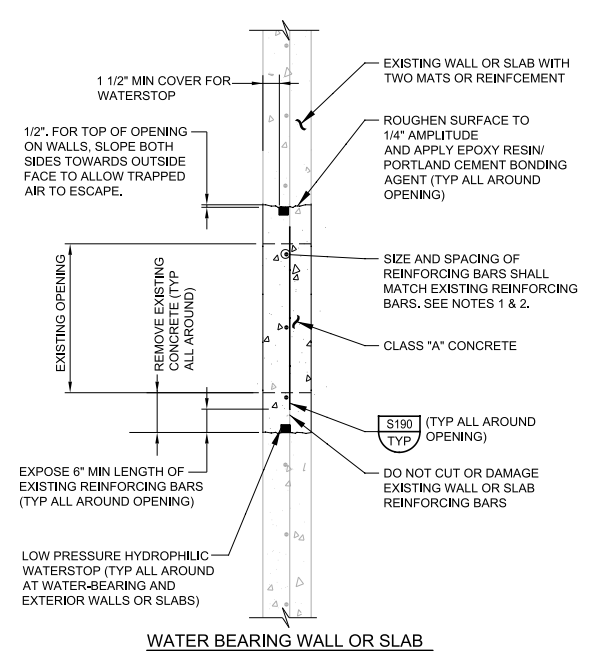
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LAST SAVED BY: JGarrety



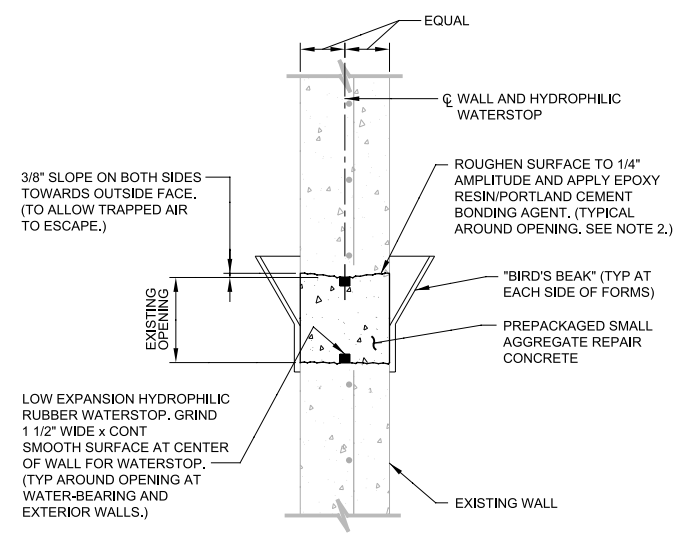
**NOTE:**  
1. INSTALLATION OF REINFORCING BARS AND ALL THREAD RODS AS INDICATED IN THE SPECIFICATIONS.

**S194** EPOXY BONDED REINFORCING BARS OR ALL THREAD RODS  
TYP  
04/30/07



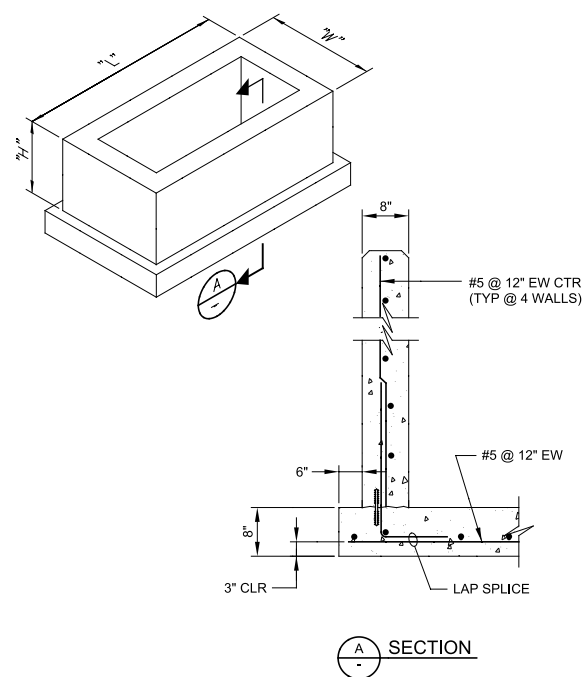
**NOTES:**  
1. REINFORCING BARS SHALL BE A706 REINF BARS.  
2. FOR CIRCULAR TANK WALL, ROLL CIRCUMFERENTIAL REINFORCING BARS AS REQUIRED TO MATCH THE RADIUS OF TANK.

**S201** CONCRETE INFILL FOR OPENING IN EXISTING CONCRETE WITH ONE MAT OF REINFORCING BAR > 8"Ø  
TYP  
04/18/16



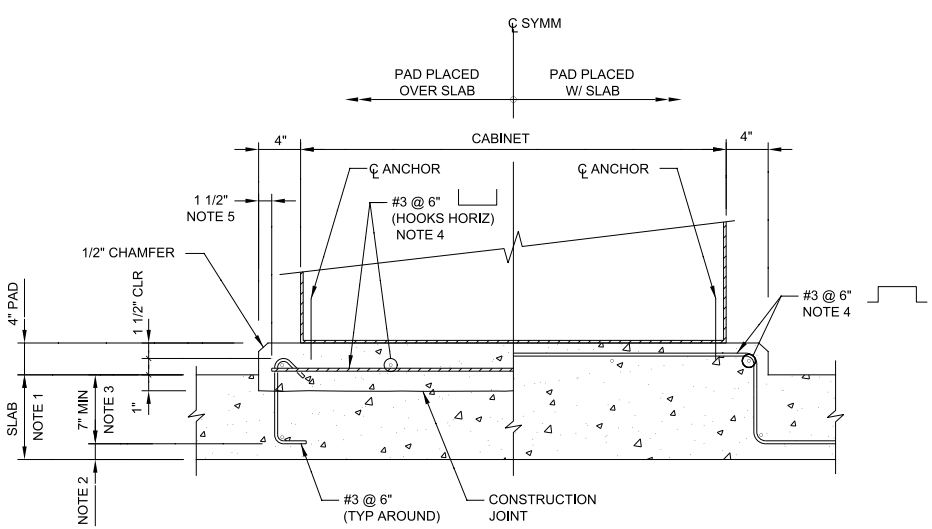
**NOTES:**  
1. PLACE CONCRETE THROUGH "BIRD'S BEAK" ON FORM. REMOVE EXCESS CONCRETE AND FINISH TO MATCH EXISTING SURFACE.  
2. REMOVE ANY LOOSE OR FRACTURED AGGREGATE OR CONCRETE ON SURFACE OF ROUGHED CONCRETE.

**S220** FILL OPENING: CONCRETE WALL WITH 1 MAT REINFORCING ≤ 8"Ø  
TYP  
04/18/16



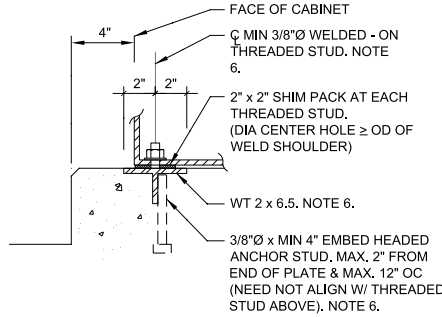
**NOTES:**  
1. "L", "W", AND "H" AS INDICATED ON THE DRAWINGS.  
2. MAX DIMENSIONS: "L" = 4'-0", "H" = 4'-0", "W" = 4'-0".

**S280** CONCRETE BOX REINFORCING - SINGLE MAT  
TYP  
07/30/14

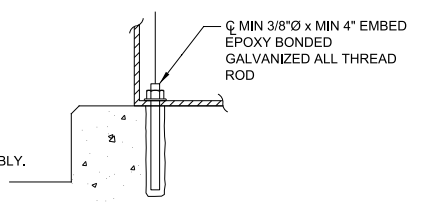


**NOTES:**  
1. SEE STRUCTURAL DRAWINGS FOR THICKNESS OF SLAB BELOW PAD. SLAB REINFORCEMENT NOT SHOWN.  
2. SEE S101/ TYP FOR MIN CONCRETE COVER REQUIREMENTS.  
3. CONTACT ENGINEER FOR INSTRUCTIONS WHERE HOOK EMBEDMENT IS LESS THAN DIMENSION SHOWN.  
4. FOR EQUIPMENT WITH CONDUIT WINDOWS BELOW, ADJUST BAR LOCATIONS TO FIT BETWEEN WINDOWS.  
5. LOCATE VERTICAL EDGE OF PAD AND VERTICAL FACE OF #3s USING VERTICAL 2x FORM DURING SLAB PLACEMENT.  
6. HOT DIP GALVANIZE WT AND HEADED ANCHOR STUD ASSEMBLY. TOUCH UP GALVANIZING AFTER FIELD WELDING THREADED STUDS.

**S350** ELECTRICAL EQUIPMENT HOUSEKEEPING PAD  
TYP  
02/21/14



**A** CAST-IN-ANCHOR



**B** POST-INSTALLED ANCHOR

REV	DATE	BY	DESCRIPTION

DESIGNED	CE
DRAWN	CE
CHECKED	CE
DATE	MAY 2016

Digitally signed by Michael Dadik  
Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.08 21:25:41-0700'



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT  
TYPICAL  
TYPICAL DETAILS STRUCTURAL

VERIFY SCALES  
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0 1"  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

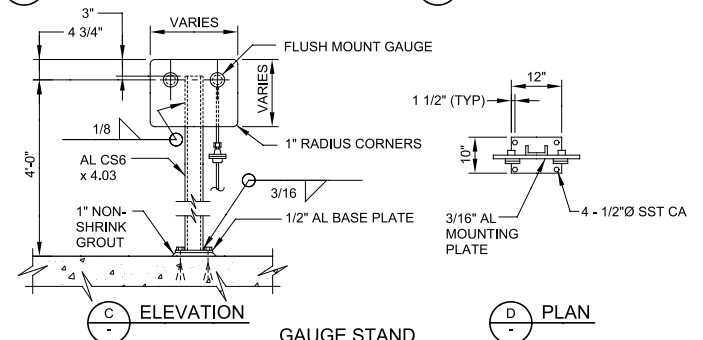
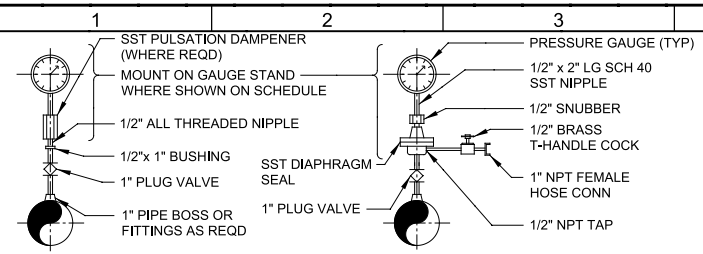
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DRAWING NO. TS02  
SHEET NO. 9 OF 32

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User: JGarrety

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo\_Std\_Pen\_v0905.pen PlotScale: 2:1

LAST SAVED BY: JGarrety



- NOTES:**
1. ALL GAUGES SHALL BE DUAL SCALE. SCALES ON THE GAUGE FACE SHALL BE MARKED IN PSIG AND FEET OF WATER (FOR POSITIVE READINGS) OR INCHES OF MERCURY (FOR VACUUM READINGS).
  2. MOUNTING PLATE DIMENSIONS VARY ACCORDING TO SIZE AND NUMBER OF GAUGES REQUIRED.
  3. AT GAUGE STAND, DIAPHRAGM SHALL BE LOCATED BELOW THE MOUNTING PLATE. ONE INCH PIPE SHALL BE ROUTED BETWEEN DIAPHRAGM AND SERVICE PIPE PLUG VALVE. CROSSES WITH THREADED PLUGS SHALL BE USED IN LIEU OF 90° ELBOWS, WITH AT LEAST ONE UNION PER CROSS.
  4. COAT ALUMINUM IN CONTACT WITH CONCRETE AS SPECIFIED.

**M294** PRESSURE GAUGE DETAILS

TYP

08/01/05

REV	DATE	BY	DESCRIPTION

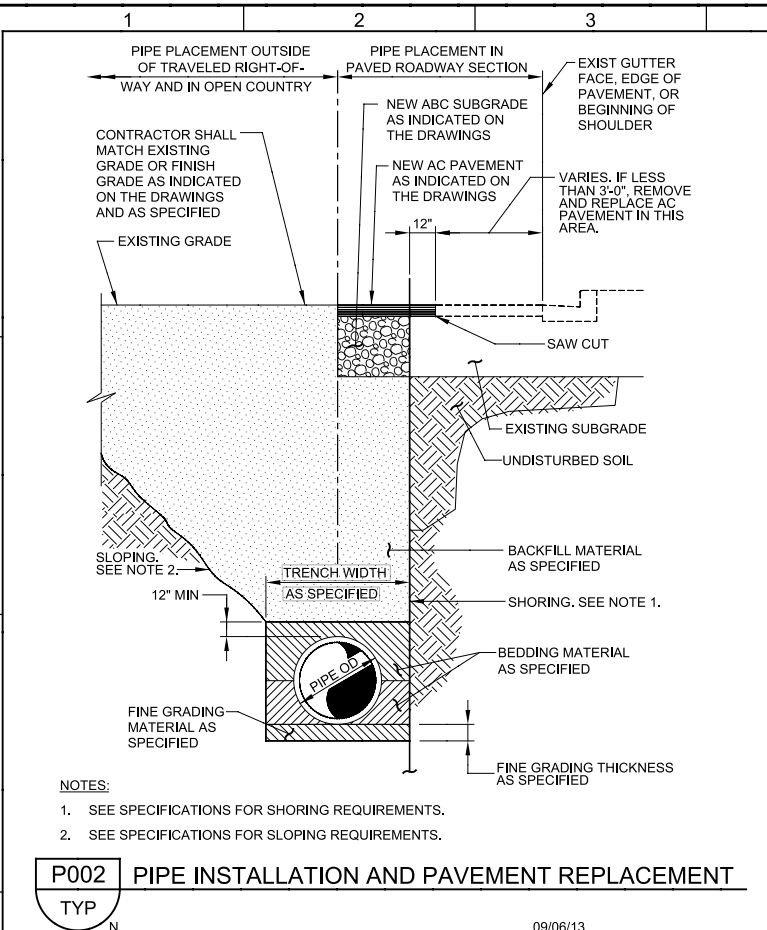
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DRAWN	CE
CHECKED	CE
DATE	MAY 2016

Digitally signed by James A. Wickstrom  
 Contact Info: Carollo Engineers, Inc.  
 Date: 2016.05.06 14:38:09 -0700

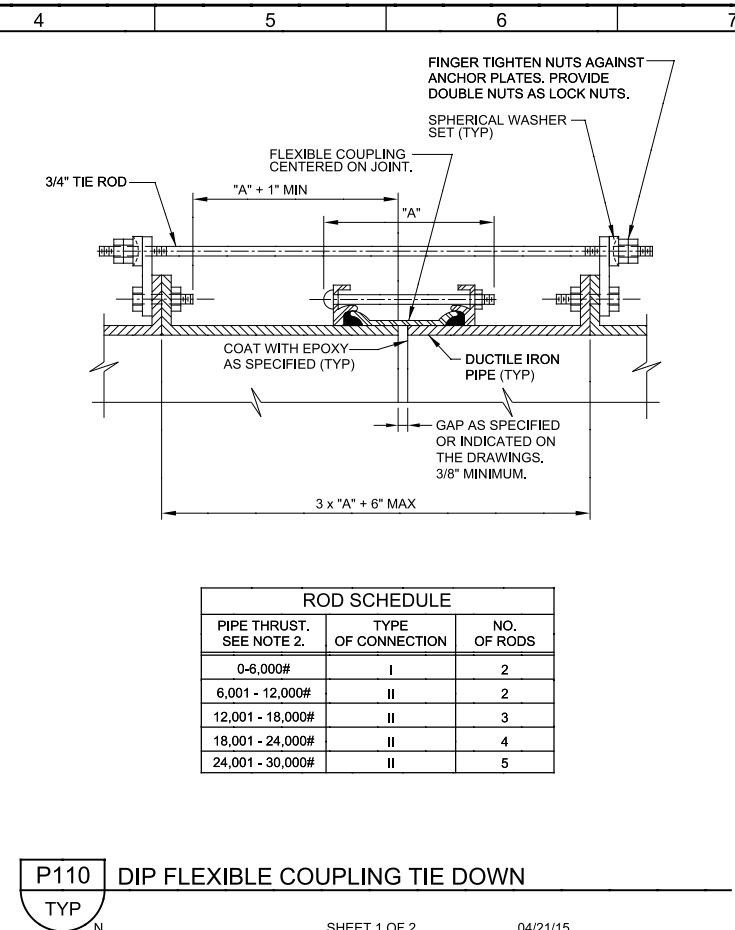


SAUSALITO-MARIN CITY SANITARY DISTRICT		VERIFY SCALES	JOB NO. 8231C.10
HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT		BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. <b>TM01</b>
TYPICAL		0 1"	SHEET NO. 10 OF 32
TYPICAL DETAILS MECHANICAL		IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

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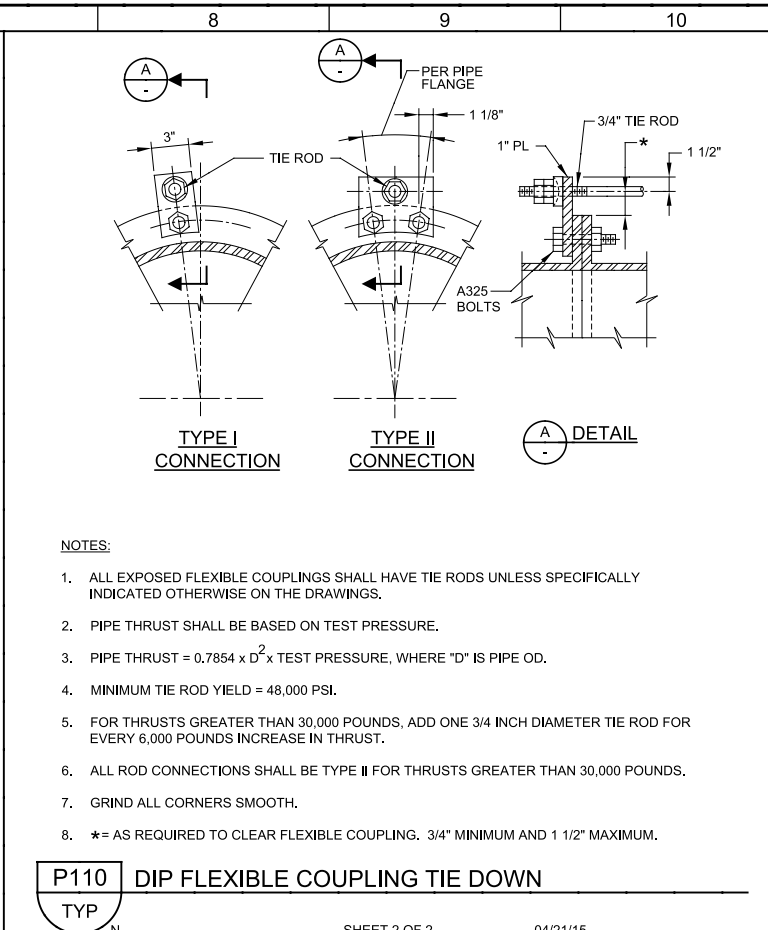


**P002** PIPE INSTALLATION AND PAVEMENT REPLACEMENT  
 TYP  
 09/06/13

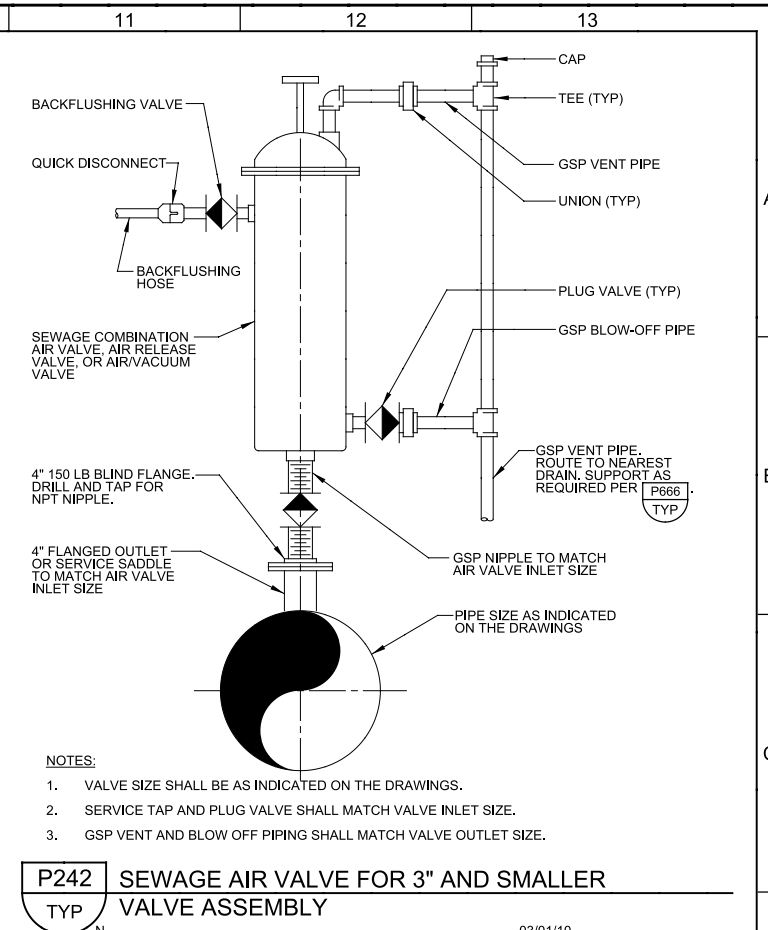


**P110** DIP FLEXIBLE COUPLING TIE DOWN  
 TYP  
 SHEET 1 OF 2 04/21/15

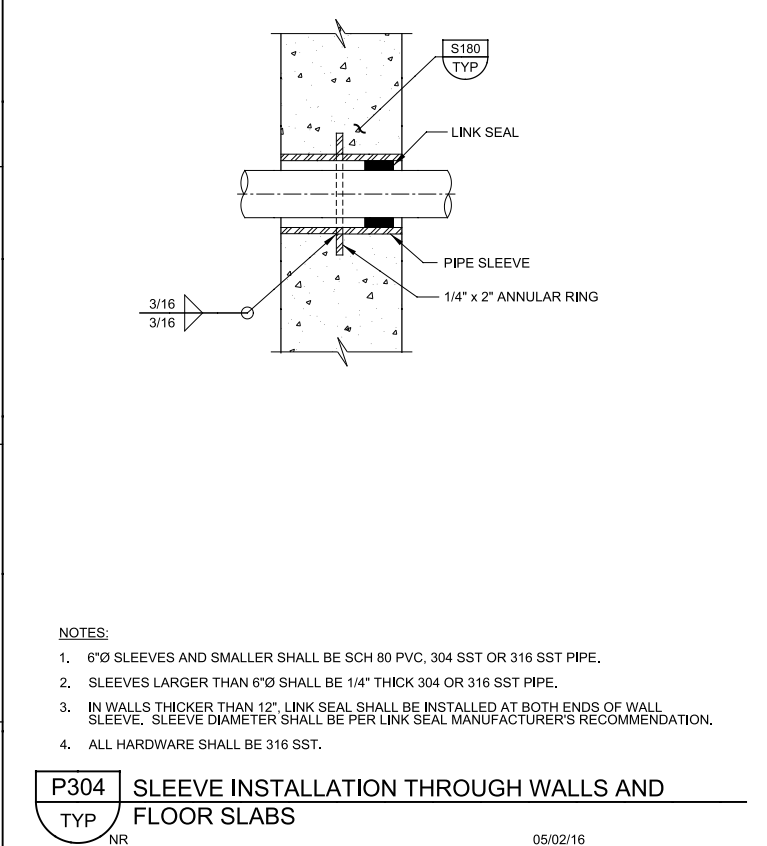
ROD SCHEDULE		
PIPE THRUST. SEE NOTE 2.	TYPE OF CONNECTION	NO. OF RODS
0-6,000#	I	2
6,001 - 12,000#	II	2
12,001 - 18,000#	II	3
18,001 - 24,000#	II	4
24,001 - 30,000#	II	5



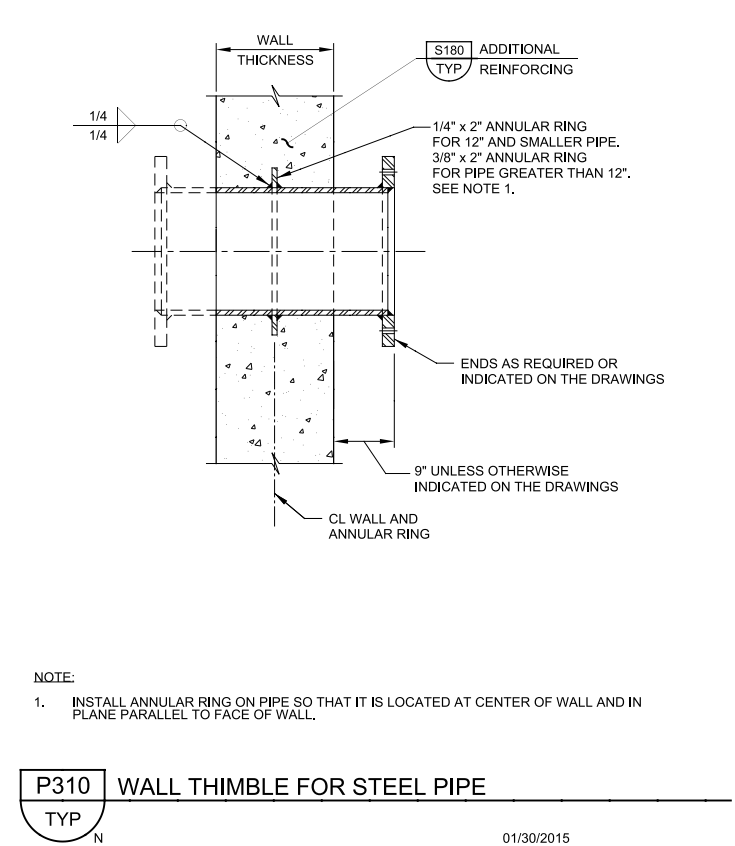
**P110** DIP FLEXIBLE COUPLING TIE DOWN  
 TYP  
 SHEET 2 OF 2 04/21/15



**P242** SEWAGE AIR VALVE FOR 3" AND SMALLER VALVE ASSEMBLY  
 TYP  
 03/01/10



**P304** SLEEVE INSTALLATION THROUGH WALLS AND FLOOR SLABS  
 TYP  
 05/02/16



**P310** WALL THIMBLE FOR STEEL PIPE  
 TYP  
 01/30/2015

REV	DATE	BY	DESCRIPTION

DESIGNED CE  
 DRAWN CE  
 CHECKED CE  
 DATE MAY 2016

Digitally signed by James A. Wickstrom  
 Contact Info: Carollo Engineers, Inc.  
 Date: 2016.05.06 14:37:53-0700

REGISTERED PROFESSIONAL ENGINEER  
 JAMES A. WICKSTROM  
 No. 57732  
 CIVIL  
 STATE OF CALIFORNIA

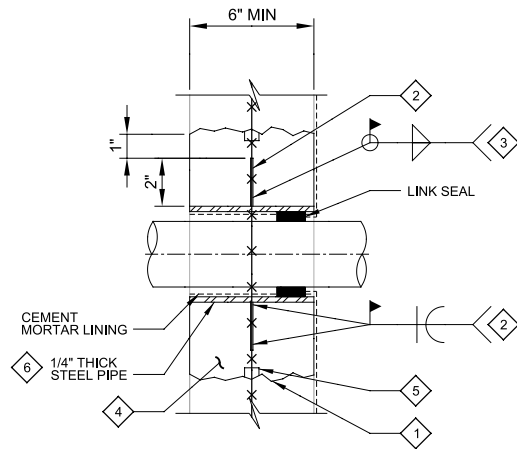
**carollo**

SAUSALITO - MARIN CITY  
 SANITARY DISTRICT

SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT  
 TYPICAL  
**TYPICAL DETAILS PIPING**

VERIFY SCALES  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

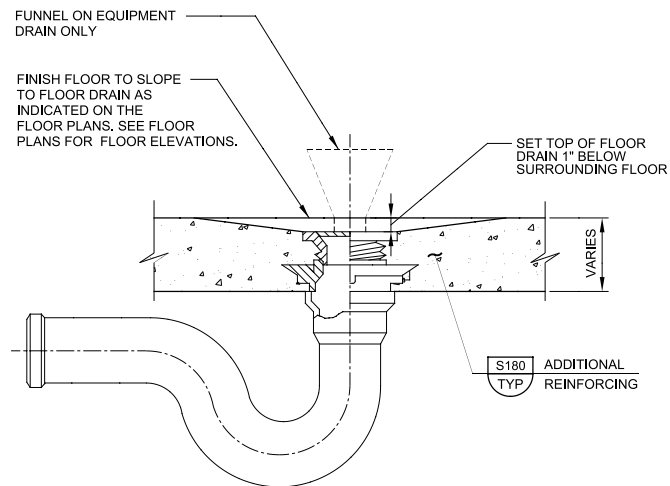
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 DRAWING NO. TP01  
 SHEET NO. 11 OF 32



- KEY NOTES:**
- 1 CHIP BACK EXISTING CONCRETE. REINFORCING TO REMAIN.
  - 2 WELD ANNULAR PLATE 1/4" x 2" TO OUTSIDE OF STEEL PIPE AND TO RCP REINFORCED WIRE.
  - 3 CUT WIRE AND WELD PIPE TO RING.
  - 4 GROUT THIMBLE IN PLACE.
  - 5 LOW EXPANSION HYDROPHILIC WATER STOP.
  - 6 PIPE DIAMETER SHALL BE PER LINK SEAL MANUFACTURER'S RECOMMENDATION.

**P375** WALL PENETRATION  
TYP

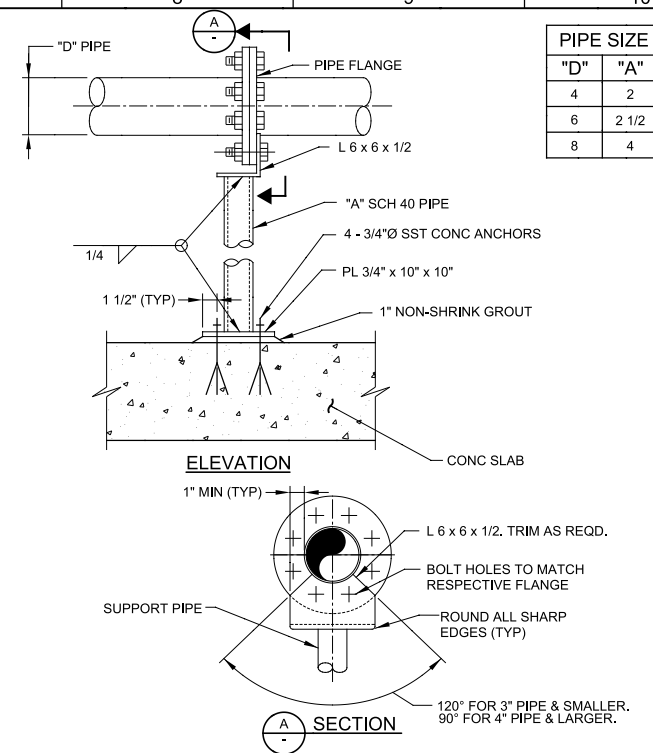
04/18/16



- NOTE:**
1. PROVIDE 12" RADIUS SLOPE TO EQUIPMENT DRAINS WHERE FLOOR DOES NOT SLOPE TO DRAIN.
  2. MINIMUM TRAP DEPTH SHALL BE 8".
  3. ALL DRAIN HARDWARE SHALL BE TYPE 304 OR 316 SST OR NON-METALLIC.

**P410** FLOOR DRAIN OR EQUIPMENT DRAIN WITH TRAP  
TYP

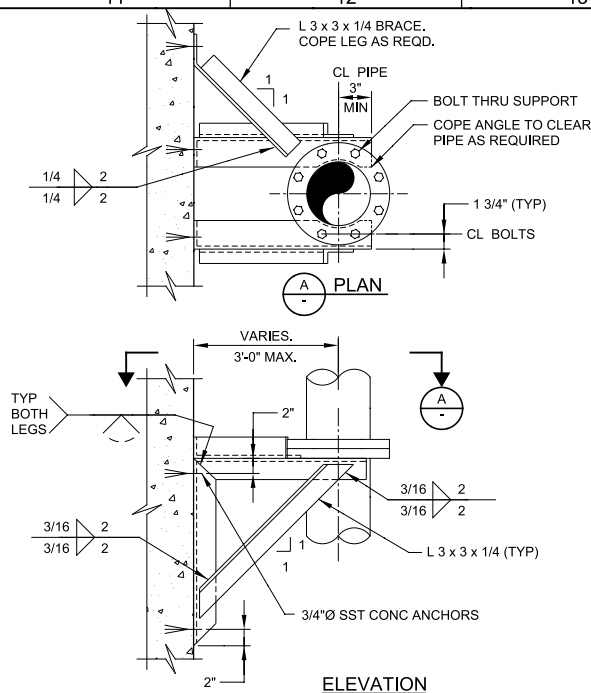
05/02/16



- NOTE:**
1. ALL MATERIAL FOR SUPPORT SHALL BE TYPE 316 STAINLESS STEEL.

**P626** PIPE SUPPORT WITH PIPE FLANGE CONNECTION  
TYP

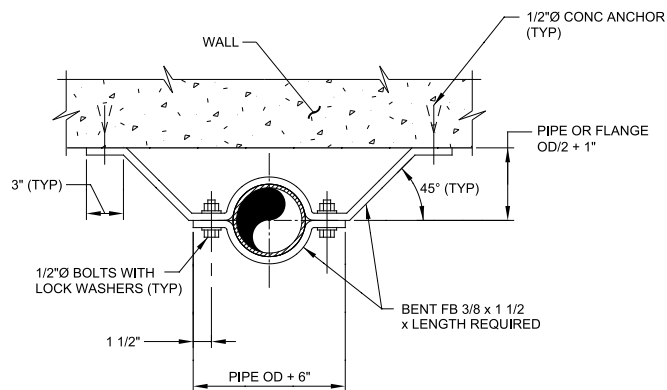
04/18/16



- NOTE:**
1. MATERIAL SHALL BE TYPE 316 STAINLESS STEEL.

**P656** VERTICAL PIPE SUPPORT - WALL BRACKET INSIDE  
TYP

04/18/16



- NOTE:**
1. IF SUPPORT IS SUBMERGED OR LOCATED BELOW THE TOP OF WALL IN WATER BEARING STRUCTURE, ALL MATERIAL SHALL BE STAINLESS STEEL. IN ALL OTHER AREAS, ALL MATERIAL SHALL BE HOT-DIP GALVANIZED STEEL UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

**P666** VERTICAL PIPE SWAY BRACE  
TYP

07/31/08

REV	DATE	BY	DESCRIPTION

DESIGNED	CE
DRAWN	CE
CHECKED	CE
DATE	MAY 2016

Digitally signed by James A. Wickstrom  
Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 14:37:41-0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT

TYPICAL  
DETAILS  
PIPING

VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

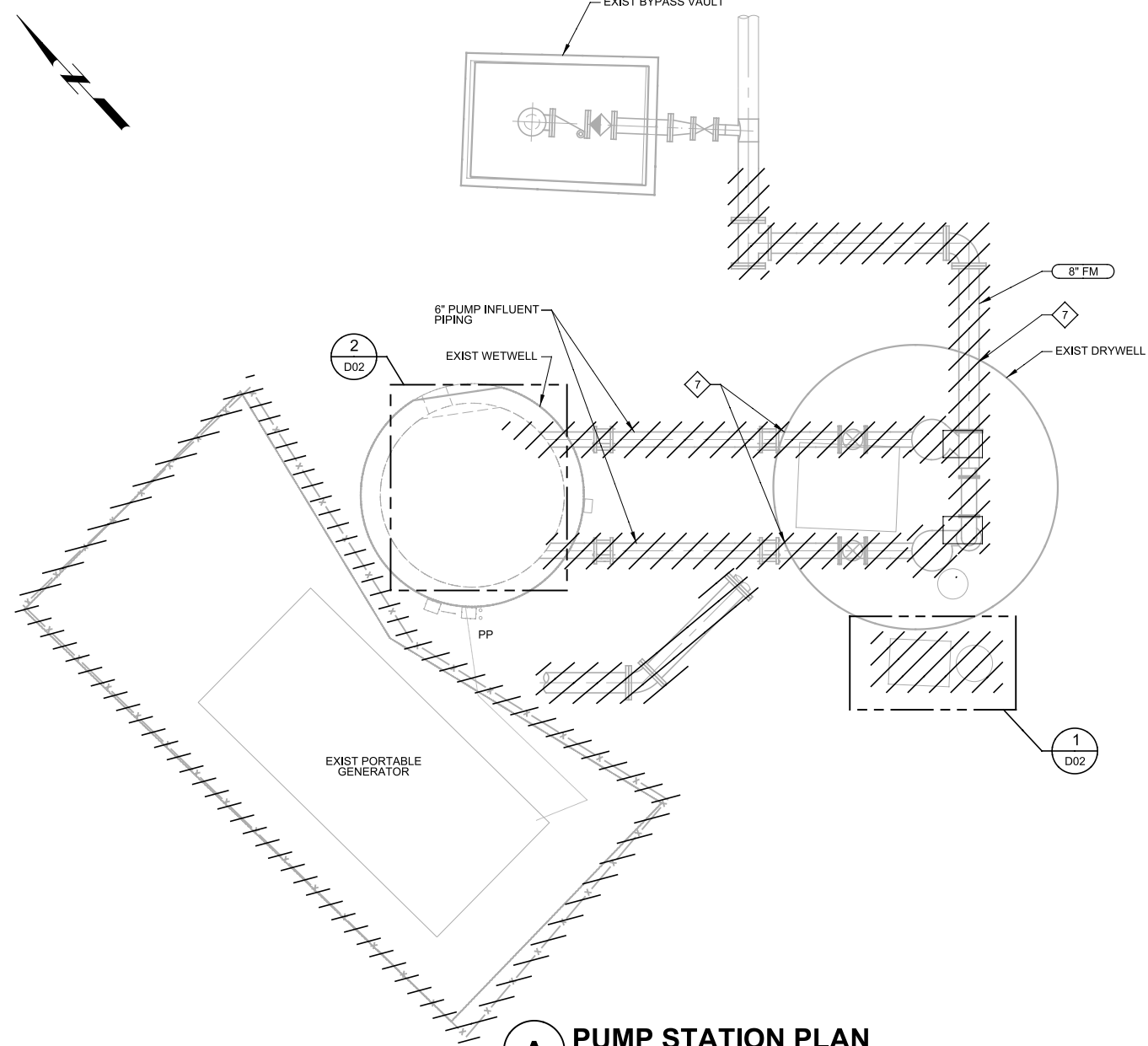
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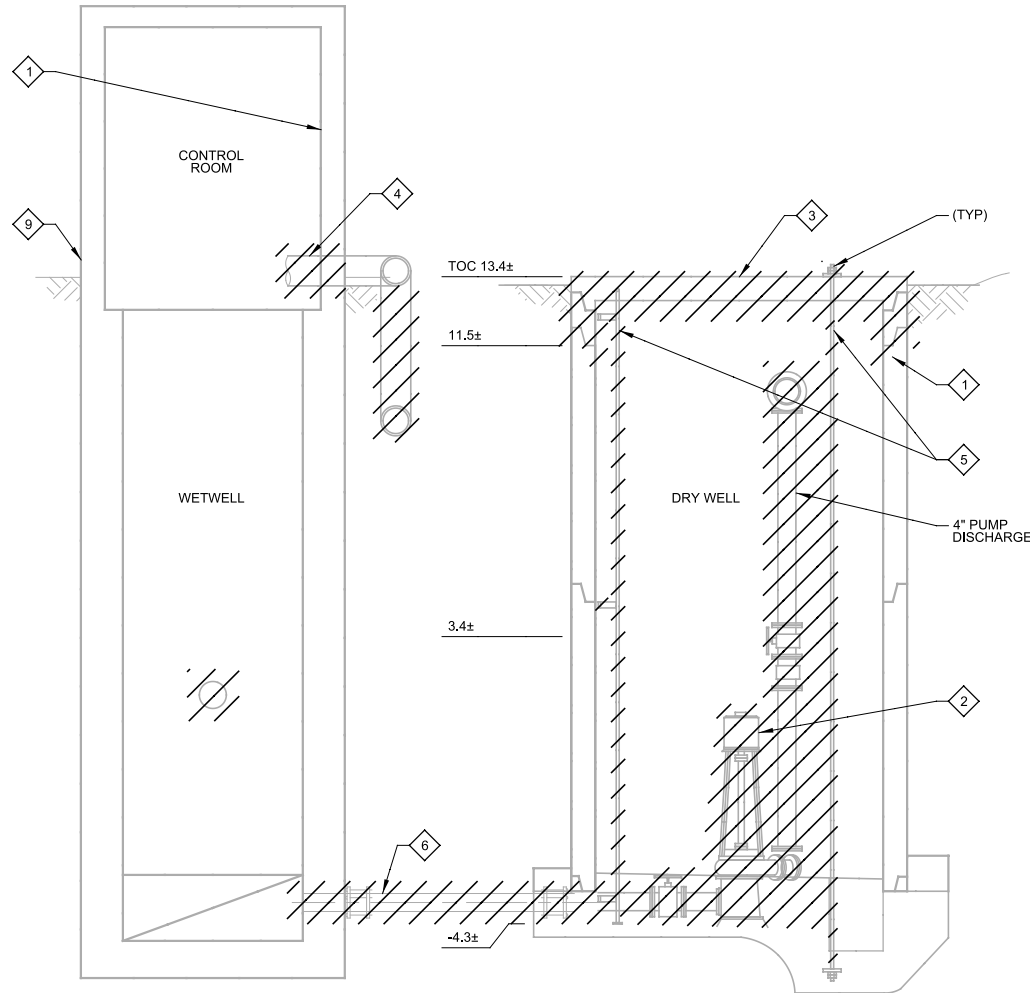
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LAST SAVED BY: JGarrety



**A PUMP STATION PLAN**  
 SCALE: 3/8" = 1'-0"  
 FILE: 8231C10D100



**B SECTION**  
 SCALE: 3/8" = 1'-0"  
 FILE: 8231C10D300

- GENERAL NOTES:**
- SEE DRAWING G02 FOR GENERAL NOTES.
  - SEE SECTION 02552 FOR TEMPORARY BYPASS PUMPING REQUIREMENTS FOR WORK ON WETWELL AND PIPING.
  - SEE SECTION 01410 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS.
  - SEE DRAWING E08 FOR ELECTRICAL DEMOLITION.
  - NOT ALL EXISTING EQUIPMENT, PIPING, CONDUITS, ETC ARE SHOWN.

- KEY NOTES:**
- CONTRACTOR SHALL NOT DAMAGE EXISTING PIPE OR STRUCTURE DURING CONSTRUCTION.
  - REMOVE INFLUENT PUMPS P-1 AND P-2 AND ASSOCIATED PUMP SHAFTING, PUMP SUPPORTS, AND ASSOCIATED SUCTION AND DISCHARGE PIPING.
  - DEMOLISH EXISTING ROOF, ACCESS HATCH, VENT, AND ANCHOR RODS.
  - DEMOLISH ABOVE GROUND PIPING AND CAP HOLES. FILL BELOW GRADE PIPING TO BE ABANDONED WITH CLSM.
  - CUT AND REMOVE EXISTING ANCHOR RODS (TYP OF 4).
  - REMOVE EXPOSED PIPE IN DRYWELL. CAP AND FILL REMAINDER OF BURIED PIPE WITH CLSM.
  - PLUG WALL PENETRATIONS PER DETAIL S201/TYP FOR HOLES GREATER THAN 8", AND PER DETAIL S220/TYP FOR HOLES SMALLER THAN 8".

REV	DATE	BY	DESCRIPTION

DESIGNED	JS
DRAWN	JLG
CHECKED	JW
DATE	MAY 2016

Digitally signed by James A. Wickstrom  
 Contact Info: Carollo Engineers, Inc.  
 Date: 2016.05.06 14:37:19 -0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION  
 IMPROVEMENT PROJECT  
 DEMOLITION  
 HIGHWAY BOOSTER PUMP STATION  
 PLAN & SECTIONS DEMO

VERIFY SCALES  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.  
8231C.10  
 DRAWING NO.  
**D01**  
 SHEET NO.  
13 OF 32

Pict Date: 06-MAY-2016 1:18:57 PM

User: JGarrety

PlotScale: 2:1

Model: Layout1

ColorTable: gshade.ctb

DesignScript: Carollo\_Sid\_Pen\_v0905.pen

LAST SAVED BY: JGarrety



**1 PHOTO**  
D01 SCALE: NO SCALE  
FILE: 8231C10D02A



**2 PHOTO**  
D01 SCALE: NO SCALE  
FILE: 8231C10D02B

**GENERAL NOTES:**

1. SEE DRAWING G02 FOR GENERAL NOTES.
2. SEE SECTION 02552 FOR TEMPORARY BYPASS PUMPING REQUIREMENTS FOR WORK ON WETWELL AND PIPING.
3. SEE SECTION 01410 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS.
4. SEE DRAWING E08 FOR ELECTRICAL DEMOLITION.
5. NOT ALL EXISTING EQUIPMENT, PIPING, CONDUITS, ETC ARE SHOWN.

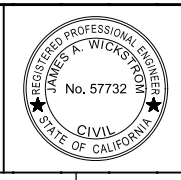
**KEY NOTES:**

1. REMOVE AND PROPERLY DISPOSE OF BOX AND SUMP PUMP. CUT 12"Ø SUMP DOWN TO GRADE. FILL WITH CLSM OR LOW DENSITY CELLULAR MATERIAL.
2. REMOVE ALL FLOOR HATCHES, COVERS, AND PIPING. CONTRACTOR SHALL PROVIDE SMOOTH, LEVEL FLOOR SURFACE USING LEVELING MATERIAL PER SECTION 03920.
3. REMOVE WOOD DOOR AND FRAME. REPLACE WITH METAL DOOR AND FRAME PER SECTIONS 08110 AND 08710.
4. REPAIR INTERIOR CONCRETE WALLS PER SECTION 03925 AND PLUG ALL ABANDONED PIPE PENETRATIONS WITH CONCRETE. PAINT INTERIOR AND EXTERIOR OF CONTROL ROOM BUILDING PER SECTION 09910.

REV	DATE	BY	DESCRIPTION

DESIGNED JS
DRAWN JLG
CHECKED JW
DATE MAY 2016

Digitally signed by James A. Wickstrom  
Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 14:37:05 -0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT  
DEMOLITION  
HIGHWAY BOOSTER PUMP STATION  
DEMOLITION PHOTOS

VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1"  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.  
8231C.10  
DRAWING NO.  
**D02**  
SHEET NO.  
14 OF 32

Plot Date: 05-MAY-2016 1:48:34 PM

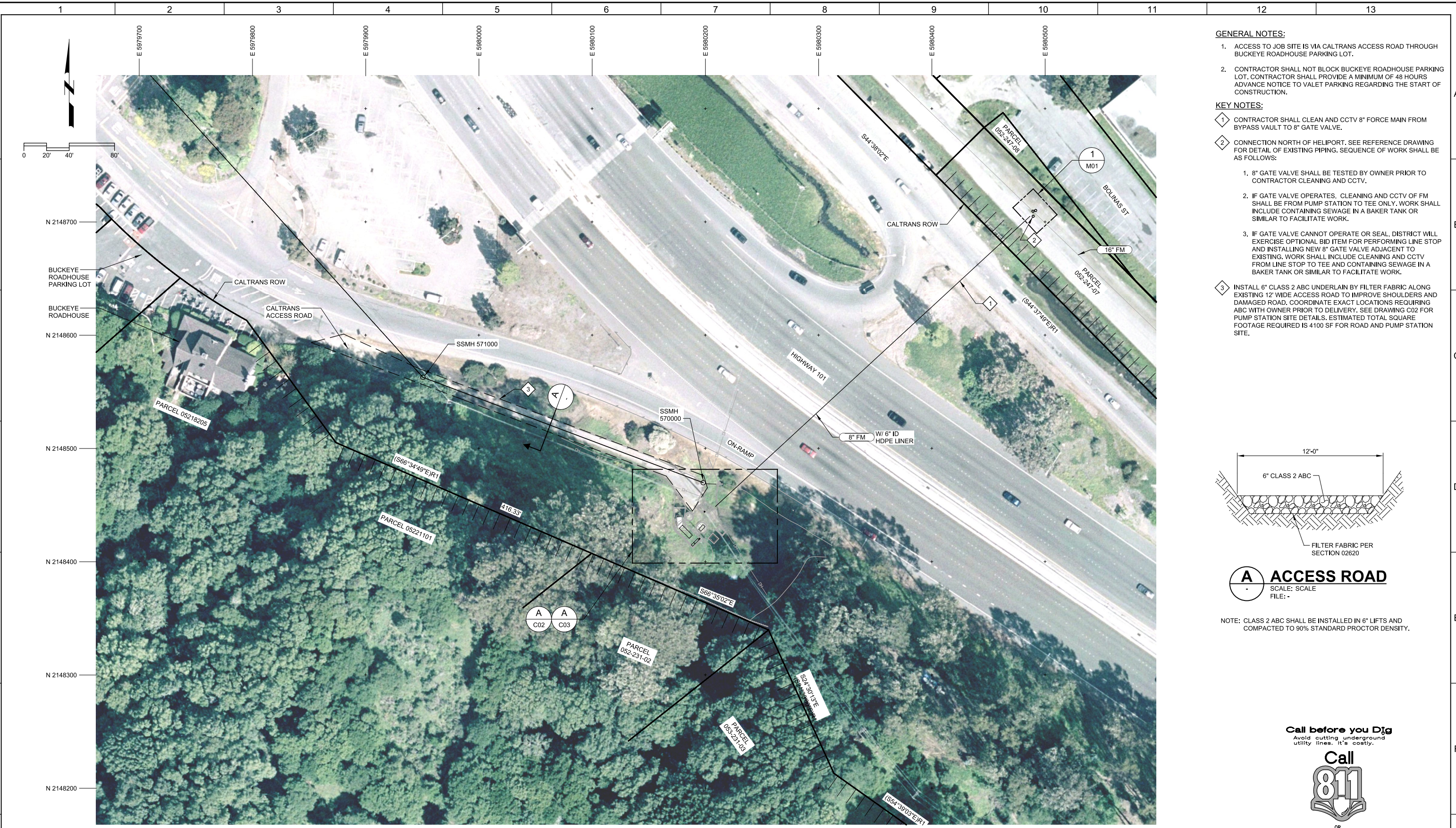
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PlotScale: 2:1

Model: Layout1

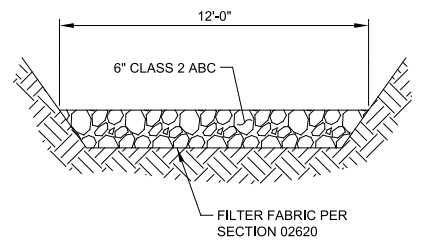
ColorTable: gshade.ctb DesignScript: Carollo\_Std\_Pen\_v0905.pen PlotScale: 2:1

LAST SAVED BY: bhaves



- GENERAL NOTES:**
- ACCESS TO JOB SITE IS VIA CALTRANS ACCESS ROAD THROUGH BUCKEYE ROADHOUSE PARKING LOT.
  - CONTRACTOR SHALL NOT BLOCK BUCKEYE ROADHOUSE PARKING LOT. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS ADVANCE NOTICE TO VALET PARKING REGARDING THE START OF CONSTRUCTION.

- KEY NOTES:**
- CONTRACTOR SHALL CLEAN AND CCTV 8" FORCE MAIN FROM BYPASS VAULT TO 8" GATE VALVE.
  - CONNECTION NORTH OF HELIPORT. SEE REFERENCE DRAWING FOR DETAIL OF EXISTING PIPING. SEQUENCE OF WORK SHALL BE AS FOLLOWS:
    - 8" GATE VALVE SHALL BE TESTED BY OWNER PRIOR TO CONTRACTOR CLEANING AND CCTV.
    - IF GATE VALVE OPERATES, CLEANING AND CCTV OF FM SHALL BE FROM PUMP STATION TO TEE ONLY. WORK SHALL INCLUDE CONTAINING SEWAGE IN A BAKER TANK OR SIMILAR TO FACILITATE WORK.
    - IF GATE VALVE CANNOT OPERATE OR SEAL, DISTRICT WILL EXERCISE OPTIONAL BID ITEM FOR PERFORMING LINE STOP AND INSTALLING NEW 8" GATE VALVE ADJACENT TO EXISTING. WORK SHALL INCLUDE CLEANING AND CCTV FROM LINE STOP TO TEE AND CONTAINING SEWAGE IN A BAKER TANK OR SIMILAR TO FACILITATE WORK.
  - INSTALL 6" CLASS 2 ABC UNDERLAIN BY FILTER FABRIC ALONG EXISTING 12" WIDE ACCESS ROAD TO IMPROVE SHOULDERS AND DAMAGED ROAD. COORDINATE EXACT LOCATIONS REQUIRING ABC WITH OWNER PRIOR TO DELIVERY. SEE DRAWING C02 FOR PUMP STATION SITE DETAILS. ESTIMATED TOTAL SQUARE FOOTAGE REQUIRED IS 4100 SF FOR ROAD AND PUMP STATION SITE.



**A ACCESS ROAD**  
SCALE: SCALE  
FILE: -

NOTE: CLASS 2 ABC SHALL BE INSTALLED IN 6" LIFTS AND COMPACTED TO 90% STANDARD PROCTOR DENSITY.

Call before you Dig  
Avoid cutting underground utility lines. It's costly.

Call  
**811**  
OR  
1-800-227-2600

**A HIGHWAY BOOSTER PUMP STATION SITE PLAN**  
FILE: 8231C10C100

REV	DATE	BY	DESCRIPTION

DESIGNED JS
DRAWN JLG
CHECKED JW
DATE MAY 2016

Digitally signed by James A. Wickstrom  
Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 14:36:11-0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT  
CIVIL  
OVERALL SITE  
PLAN

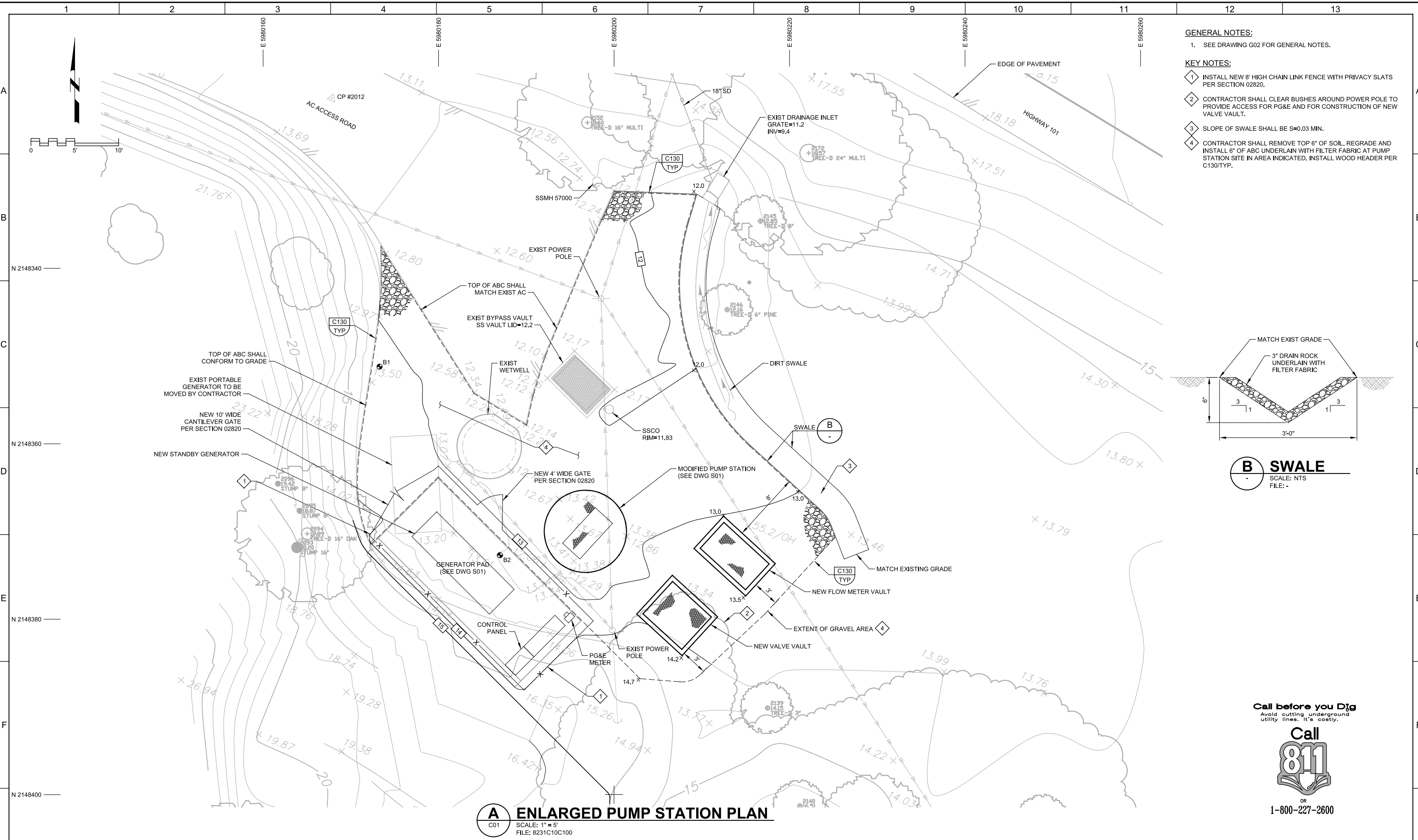
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. <b>C01</b>
	SHEET NO. 15 OF 32

Plot Date: 06-MAY-2016 1:48:31 PM

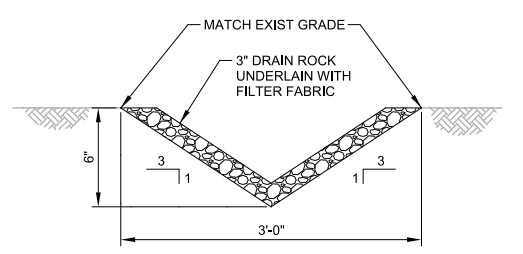
User: svcPW

Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo\_Std\_Pen\_v0905.pen PlotScale: 2:1

LAST SAVED BY: bhaves



- GENERAL NOTES:**
- SEE DRAWING G02 FOR GENERAL NOTES.
- KEY NOTES:**
- INSTALL NEW 8' HIGH CHAIN LINK FENCE WITH PRIVACY SLATS PER SECTION 02820.
  - CONTRACTOR SHALL CLEAR BUSHES AROUND POWER POLE TO PROVIDE ACCESS FOR PG&E AND FOR CONSTRUCTION OF NEW VALVE VAULT.
  - SLOPE OF SWALE SHALL BE S=0.03 MIN.
  - CONTRACTOR SHALL REMOVE TOP 6" OF SOIL, REGRADE AND INSTALL 6" OF ABC UNDERLAIN WITH FILTER FABRIC AT PUMP STATION SITE IN AREA INDICATED. INSTALL WOOD HEADER PER C130/TYP.



**B SWALE**  
SCALE: NTS  
FILE: -

**A ENLARGED PUMP STATION PLAN**  
C01 SCALE: 1" = 5'  
FILE: 8231C10C100

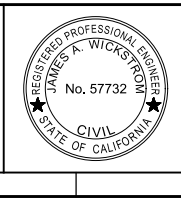
**Call before you Dig**  
Avoid cutting underground utility lines. It's costly.

**Call 811**  
OR  
1-800-227-2600

REV	DATE	BY	DESCRIPTION

DESIGNED	JS
DRAWN	JG
CHECKED	JW
DATE	MAY 2016

Digitally signed by James A. Wickstrom  
Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 14:35:58 -0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT  
CIVIL  
PAVING AND GRADING  
PLAN

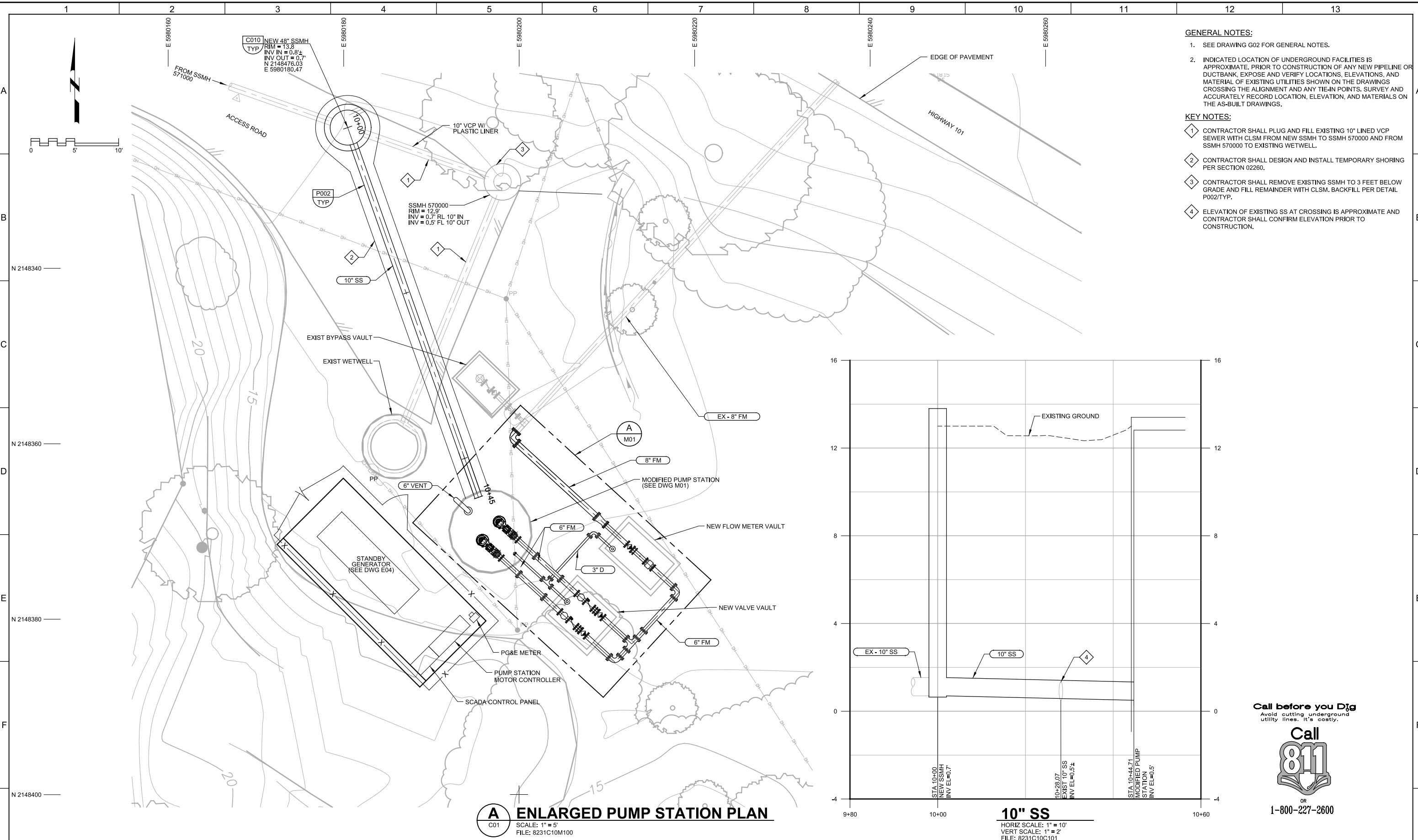
VERIFY SCALES	JOB NO.
BAR IS ONE INCH ON ORIGINAL DRAWING	8231C.10
0 1"	DRAWING NO.
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	C02
	SHEET NO.
	16 OF 32

Plot Date: 06-MAY-2016 1:48:36 PM

User: svcPW

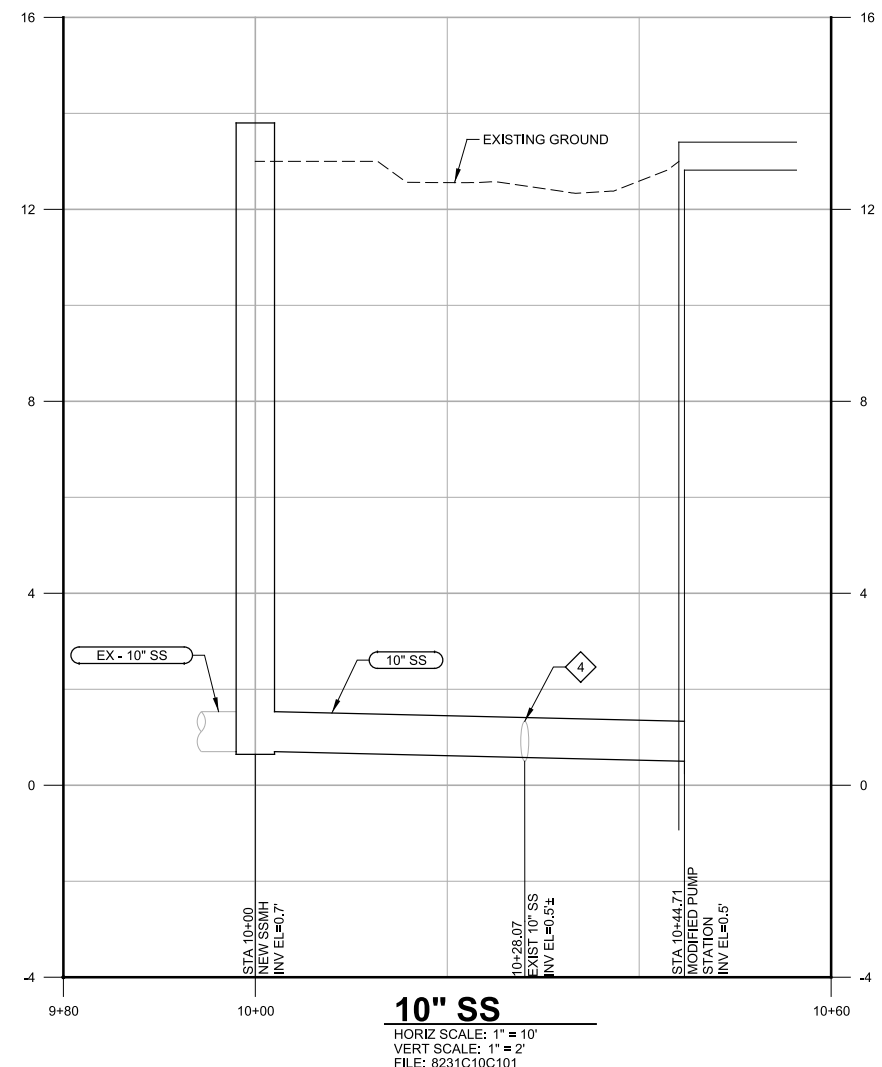
PlotScale: 2:1

LAST SAVED BY: bhaves



- GENERAL NOTES:**
- SEE DRAWING G02 FOR GENERAL NOTES.
  - INDICATED LOCATION OF UNDERGROUND FACILITIES IS APPROXIMATE. PRIOR TO CONSTRUCTION OF ANY NEW PIPELINE OR DUCTBANK, EXPOSE AND VERIFY LOCATIONS, ELEVATIONS, AND MATERIAL OF EXISTING UTILITIES SHOWN ON THE DRAWINGS CROSSING THE ALIGNMENT AND ANY TIE-IN POINTS. SURVEY AND ACCURATELY RECORD LOCATION, ELEVATION, AND MATERIALS ON THE AS-BUILT DRAWINGS.

- KEY NOTES:**
- CONTRACTOR SHALL PLUG AND FILL EXISTING 10" LINED VCP SEWER WITH CLSM FROM NEW SSMH TO SSMH 570000 AND FROM SSMH 570000 TO EXISTING WETWELL.
  - CONTRACTOR SHALL DESIGN AND INSTALL TEMPORARY SHORING PER SECTION 02260.
  - CONTRACTOR SHALL REMOVE EXISTING SSMH TO 3 FEET BELOW GRADE AND FILL REMAINDER WITH CLSM. BACKFILL PER DETAIL P002/TYP.
  - ELEVATION OF EXISTING SS AT CROSSING IS APPROXIMATE AND CONTRACTOR SHALL CONFIRM ELEVATION PRIOR TO CONSTRUCTION.



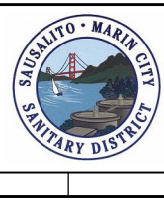
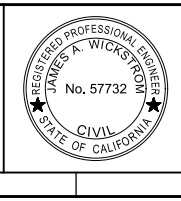
**A ENLARGED PUMP STATION PLAN**  
 C01 SCALE: 1" = 5'  
 FILE: 8231C10M100



REV	DATE	BY	DESCRIPTION

DESIGNED JS
DRAWN JG
CHECKED JW
DATE MAY 2016

Digitally signed by James A. Wickstrom  
 Contact Info: Carollo Engineers, Inc.  
 Date: 2016.05.06 14:35:43-0700



SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION  
 IMPROVEMENT PROJECT  
 CIVIL  
 HIGHWAY BOOSTER PUMP  
 STATION YARD PIPING

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 8231C.10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. C03
	SHEET NO. 17 OF 32

Plot Date: 05-MAY-2016 1:20:46 PM

User: JGarrety

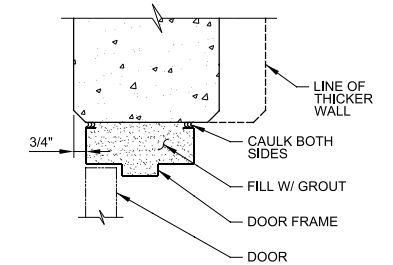
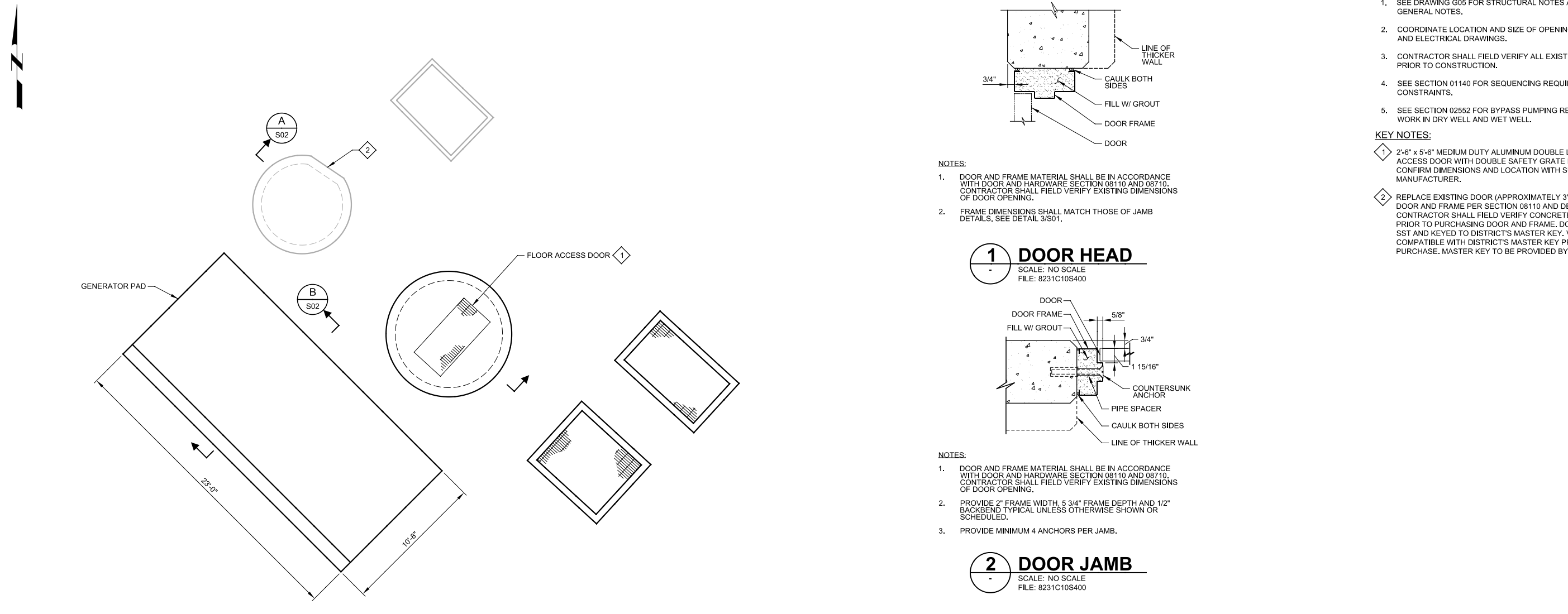
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LAST SAVED BY: JGarrety

PROJECT NO. 8231C10 FILE NAME: 8231C10S01.dgn

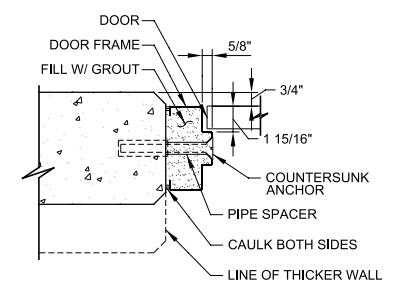
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A B C D E F G



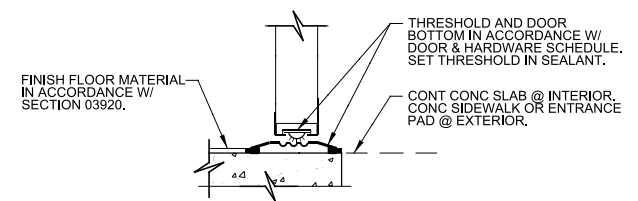
- NOTES:**
- DOOR AND FRAME MATERIAL SHALL BE IN ACCORDANCE WITH DOOR AND HARDWARE SECTION 08110 AND 08710. CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS OF DOOR OPENING.
  - FRAME DIMENSIONS SHALL MATCH THOSE OF JAMB DETAILS. SEE DETAIL 3/S01.

**1 DOOR HEAD**  
SCALE: NO SCALE  
FILE: 8231C10S400



- NOTES:**
- DOOR AND FRAME MATERIAL SHALL BE IN ACCORDANCE WITH DOOR AND HARDWARE SECTION 08110 AND 08710. CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS OF DOOR OPENING.
  - PROVIDE 2" FRAME WIDTH, 5 3/4" FRAME DEPTH AND 1/2" BACKBEND TYPICAL UNLESS OTHERWISE SHOWN OR SCHEDULED.
  - PROVIDE MINIMUM 4 ANCHORS PER JAMB.

**2 DOOR JAMB**  
SCALE: NO SCALE  
FILE: 8231C10S400



- NOTE:**
- DOOR CLEARANCE AT BOTTOM OF DOOR SHALL BE 1/4" MIN AND 3/8" MAX.

**3 DOOR SILL**  
SCALE: NO SCALE  
FILE: 8231C10S400

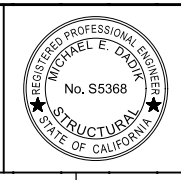
- GENERAL NOTES:**
- SEE DRAWING G05 FOR STRUCTURAL NOTES AND G02 FOR GENERAL NOTES.
  - COORDINATE LOCATION AND SIZE OF OPENINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS.
  - CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS PRIOR TO CONSTRUCTION.
  - SEE SECTION 01140 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS.
  - SEE SECTION 02552 FOR BYPASS PUMPING REQUIREMENTS FOR WORK IN DRY WELL AND WET WELL.

- KEY NOTES:**
- 2'-6" x 5'-6" MEDIUM DUTY ALUMINUM DOUBLE LEAF FLOOR ACCESS DOOR WITH DOUBLE SAFETY GRATE PER SECTION 08320. CONFIRM DIMENSIONS AND LOCATION WITH SUBMERSIBLE PUMP MANUFACTURER.
  - REPLACE EXISTING DOOR (APPROXIMATELY 3' x 7') WITH STEEL DOOR AND FRAME PER SECTION 08110 AND DETAILS 1, 2, 3. CONTRACTOR SHALL FIELD VERIFY CONCRETE OPENING SIZE PRIOR TO PURCHASING DOOR AND FRAME. DOOR LOCK SHALL BE SST AND KEYED TO DISTRICT'S MASTER KEY. VERIFY LOCK IS COMPATIBLE WITH DISTRICT'S MASTER KEY PRIOR TO PURCHASE. MASTER KEY TO BE PROVIDED BY OWNER.

REV	DATE	BY	DESCRIPTION

DESIGNED MH
DRAWN JLG
CHECKED MD
DATE MAY 2016

Digitally signed by Michael Dadik  
Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 15:48:20-0700'



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT  
STRUCTURAL  
STRUCTURAL PLAN  
AND DETAILS

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1'	JOB NO. 8231C.10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. <b>S01</b>
	SHEET NO. 18 OF 32

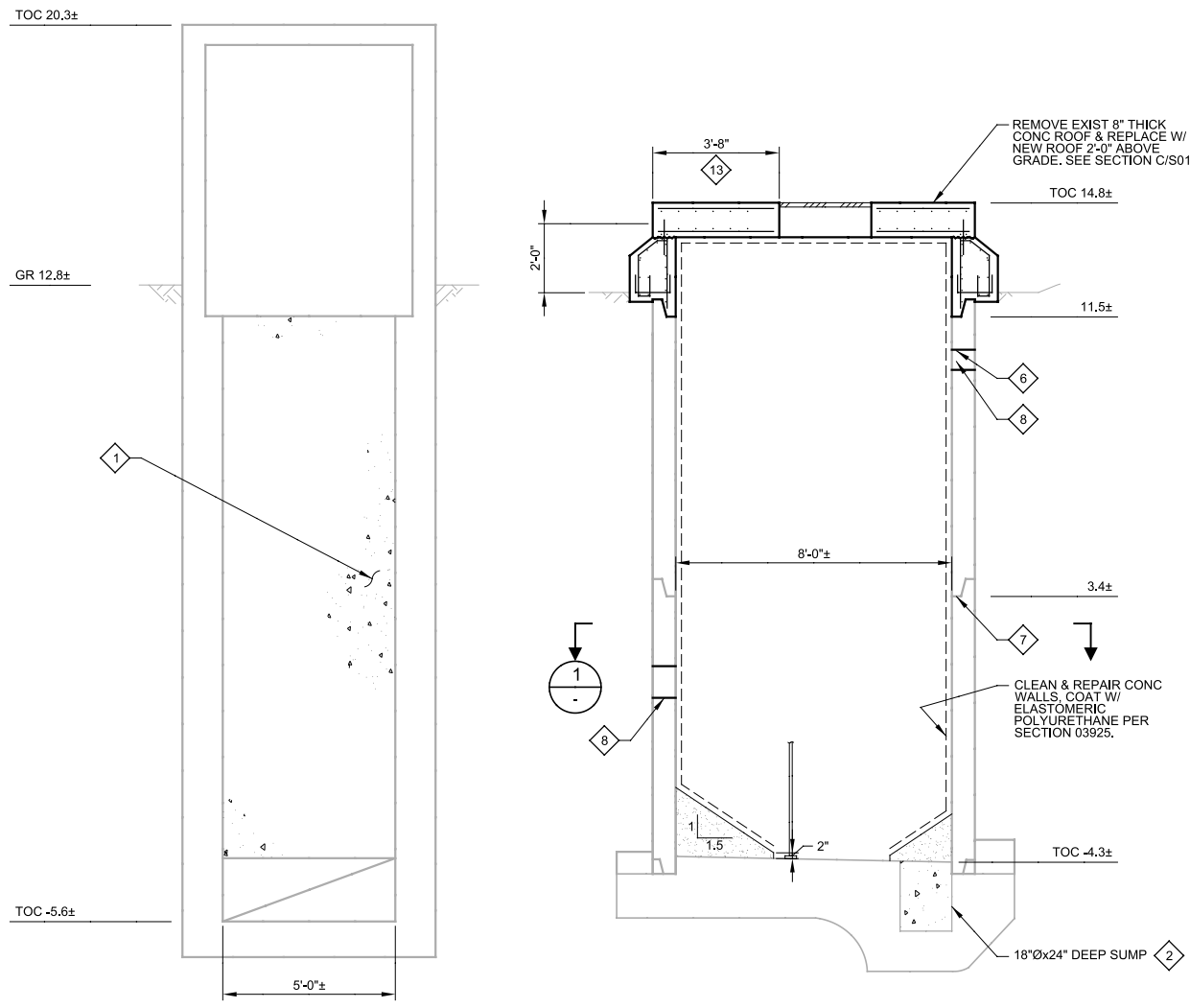
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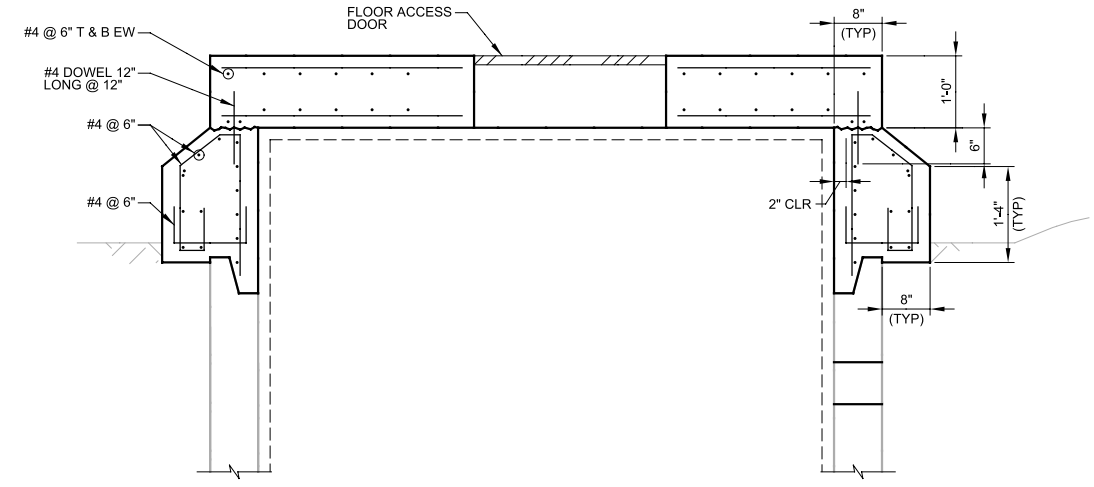
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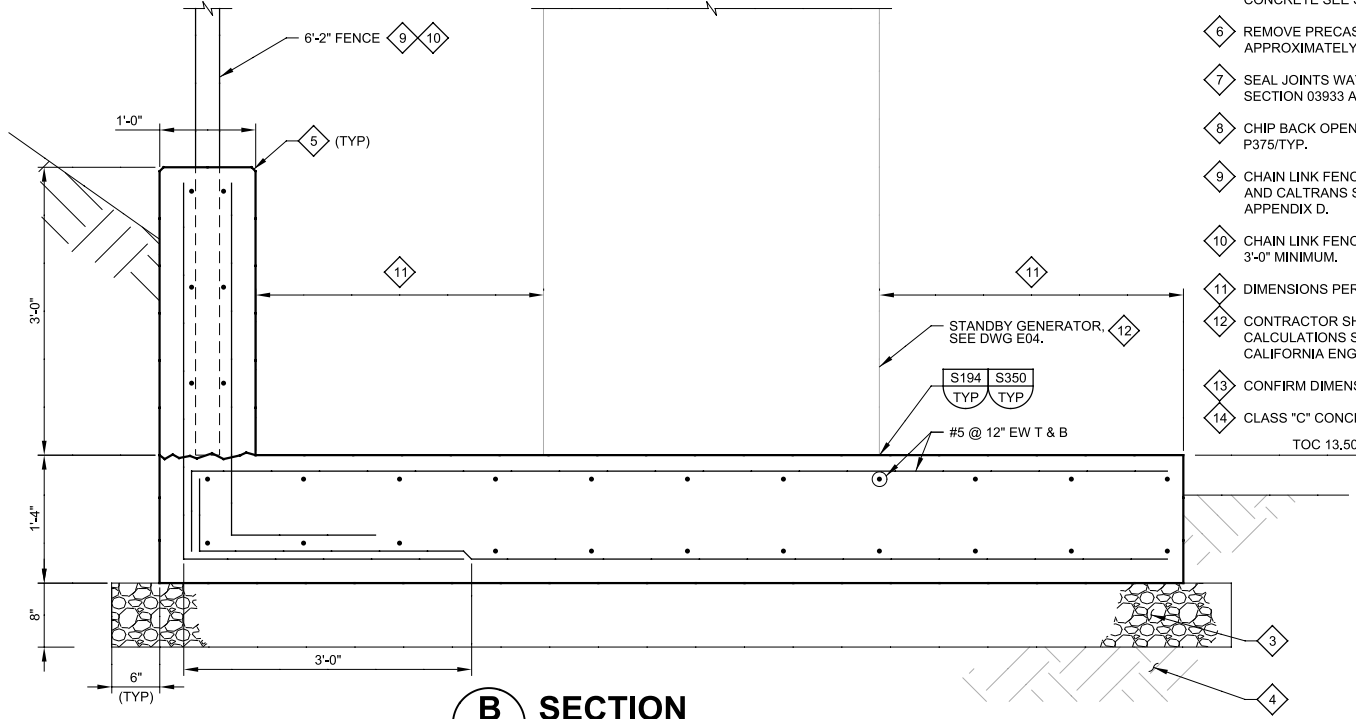
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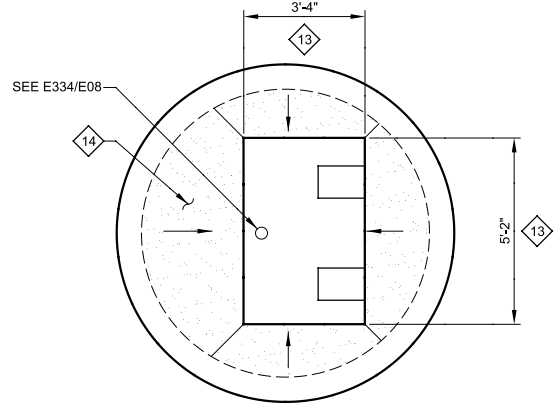
**A SECTION**  
S01 SCALE: 3/8" = 1'-0"  
FILE: 8231C10S300



**C SECTION**  
S01 SCALE: 3/4" = 1'-0"  
FILE: 8231C10S300



**B SECTION**  
S01 SCALE: 1" = 1'-0"  
FILE: 8231C10S302



**1 CONCRETE FILL**  
S02 SCALE: 3/8" = 1'-0"  
FILE: 8231C10S100

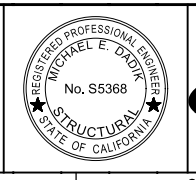
- GENERAL NOTES:**
- SEE DRAWING G05 FOR STRUCTURAL NOTES AND G02 FOR GENERAL NOTES.
  - COORDINATE LOCATION AND SIZE OF OPENINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS.
  - CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS PRIOR TO CONSTRUCTION.
  - SEE SECTION 01140 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS.
  - SEE SECTION 02552 FOR BYPASS PUMPING REQUIREMENTS FOR WORK IN DRY WELL AND WET WELL.

- KEY NOTES:**
- FILL WITH CELLULAR CONCRETE PER SPECIFICATION 02314.
  - FILL WITH CLASS C CONCRETE.
  - CLASS II AGGREGATE BASE COMPACTED TO 95% RELATIVE COMPACTION. UNDERLAIN BY FILTER FABRIC PER SECTION 02620.
  - UNDISTURBED NATIVE SOIL.
  - PROVIDE CHAMFER AT EXPOSED EDGES OF CAST-IN-PLACE CONCRETE SEE SPECIFICATION 03102.
  - REMOVE PRECAST CONCRETE PIPE TO FIRST JOINT APPROXIMATELY 1'-11" BELOW TOP OF EXISTING ROOF.
  - SEAL JOINTS WATERTIGHT USING INJECTION GROUT PER SECTION 03933 AND MANUFACTURER'S GUIDELINES.
  - CHIP BACK OPENING FOR NEW PIPE PENETRATIONS PER DETAIL P375/TYP.
  - CHAIN LINK FENCE WITH SLATS SHALL BE PER SECTION 02820 AND CALTRANS STANDARD DETAILS, SHEET RSP A85. SEE APPENDIX D.
  - CHAIN LINK FENCE POST SHALL BE EMBEDDED INTO CONCRETE 3'-0" MINIMUM.
  - DIMENSIONS PER MANUFACTURERS RECOMMENDATIONS.
  - CONTRACTOR SHALL SUBMIT EQUIPMENT SEISMIC ANCHORAGE CALCULATIONS STAMPED AND SIGNED BY A REGISTERED CALIFORNIA ENGINEER.
  - CONFIRM DIMENSION WITH PUMP MANUFACTURER.
  - CLASS "C" CONCRETE FILL PER SECTION 03300.

REV	DATE	BY	DESCRIPTION

DESIGNED MH
DRAWN JLG
CHECKED MD
DATE MAY 2016

Digitally signed by Michael Dadik  
Contact Info: Carollo Engineers, Inc.  
Date: 2016.05.06 15:46:50-0700'



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT  
STRUCTURAL  
HIGHWAY BOOSTER PUMP STATION  
PLAN AND SECTIONS

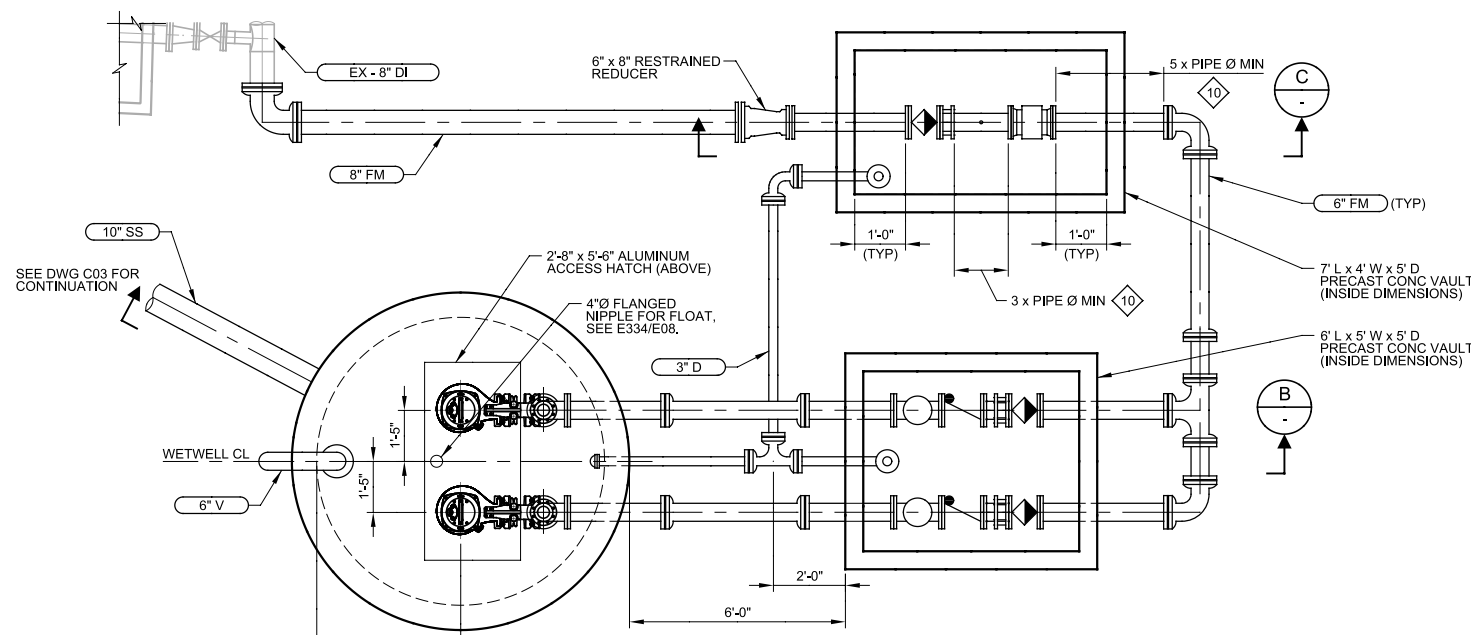
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. <b>S02</b>
	SHEET NO. 19 OF 32

Plot Date: 05-MAY-2016 1:20:13 PM

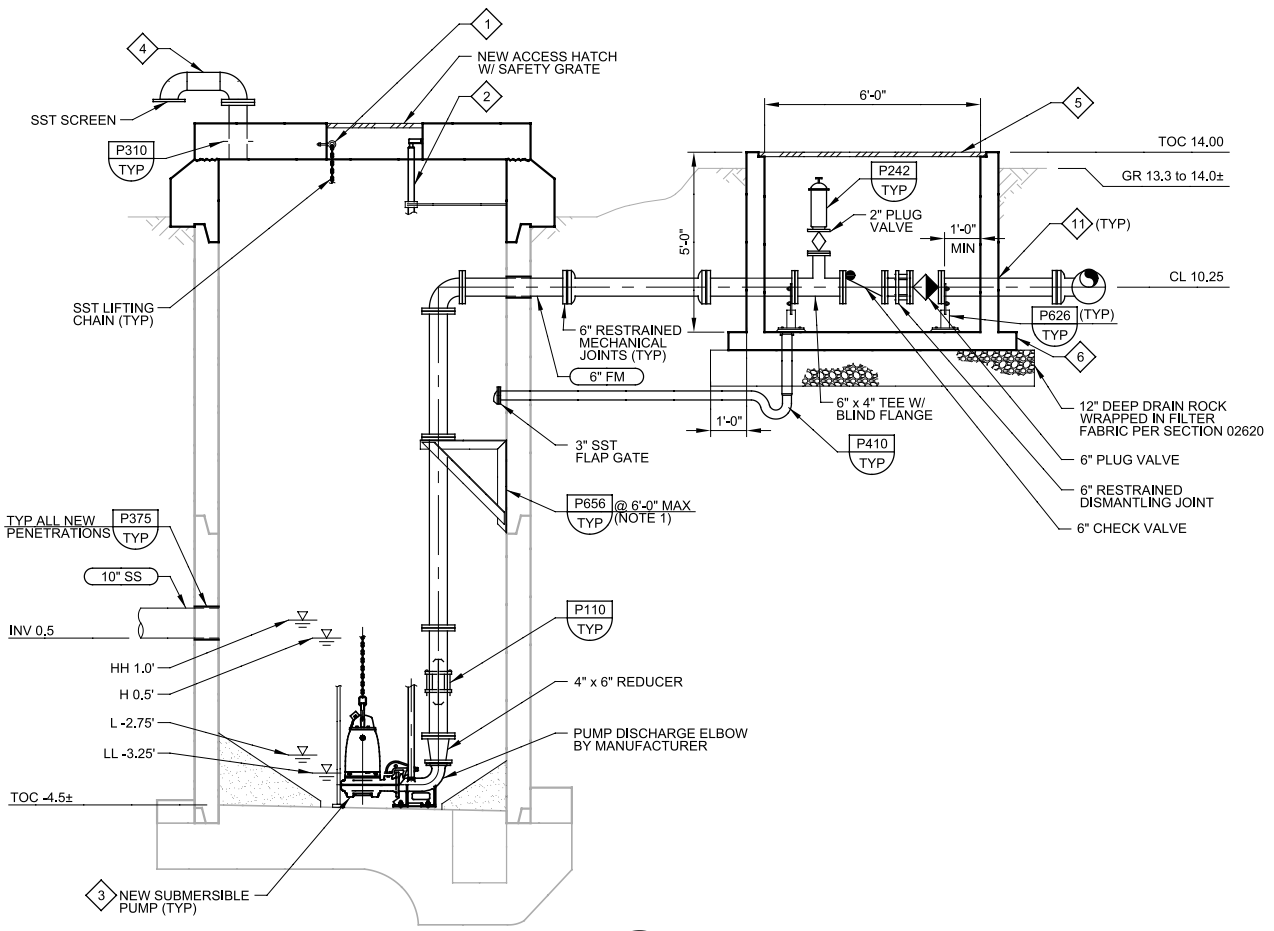
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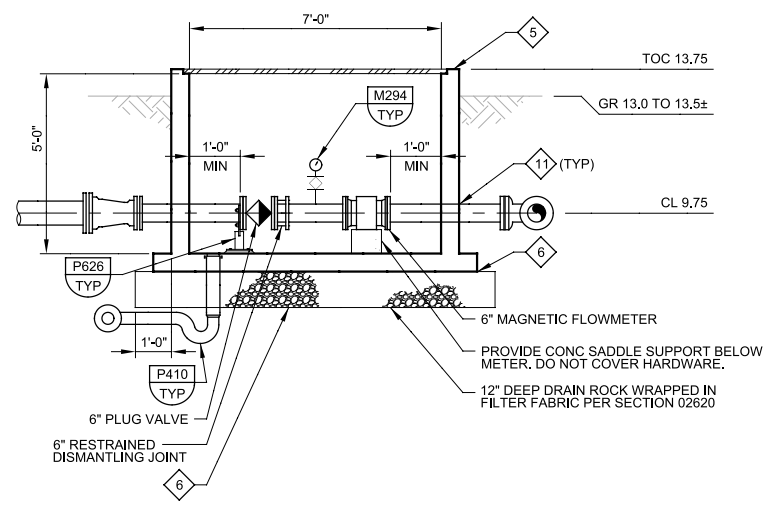
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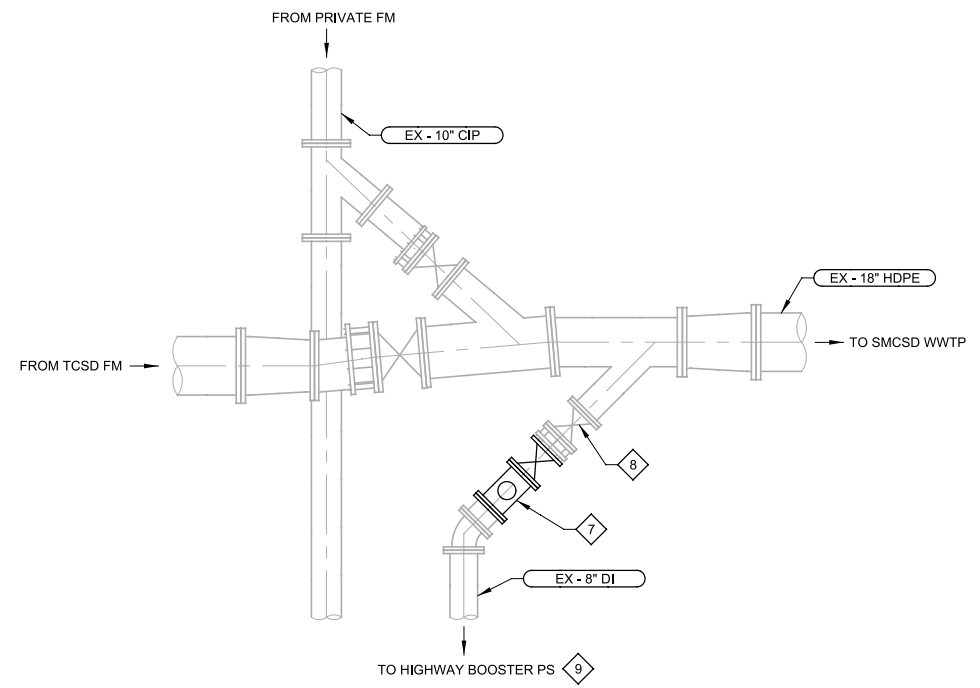
**A PUMP STATION PLAN**  
 SCALE: 3/8" = 1'-0"  
 FILE: 8231C10M100



**B SECTION**  
 SCALE: 3/8" = 1'-0"  
 FILE: 8231C10M300



**C FLOW METER VAULT SECTION**  
 SCALE: 3/8" = 1'-0"  
 FILE: 8231C10M301



**1 VALVE REPLACEMENT**  
 SCALE: 3/8" = 1'-0"  
 FILE: 8231C10M400

- GENERAL NOTES:**
1. PROVIDE GROUT PADS FOR INSTALLATION OF PIPE SUPPORTS ON CURVED SURFACES.
- KEY NOTES:**
- 1 AT HATCH, PROVIDE 2 TYPE 316 SST EYE BOLTS TO SUPPORT LIFTING CHAIN AND SUBMERSIBLE CABLES. COORDINATE LOCATION WITH MANUFACTURER AND OWNER.
  - 2 PROVIDE SST LIFTING GUIDE RAIL ASSEMBLY. SUPPORT PER MANUFACTURER RECOMMENDATION.
  - 3 PUMP INTAKE ELEVATION PER MANUFACTURER RECOMMENDATION.
  - 4 PROVIDE FLANGED 6" 316 SST PIPE THROUGH ROOF. CONNECT TO SCHEDULE 80 PVC GOOSENECK ELBOW WITH SST SCREEN.
  - 5 CONCRETE VAULTS SHALL BE PRECAST CONCRETE. CONTRACTOR TO SUBMIT PRECAST VAULT SHOP DRAWINGS AND CALCULATIONS PER SPECIFICATION 02085. VAULT SHALL BE H-20 TRAFFIC RATED WITH RECESSED, LOCKABLE, WATER TIGHT COVER. COVER SHALL BE 2-PIECE HINGED GALVANIZED STEEL CHECKER PLATE SUITABLE FOR H20 LOADING. ADD EXTENSIONS TO MATCH PIPE ELEVATIONS WITH CUSTOM BLOCKOUTS TO ACCOMMODATE PIPE DIAMETER.
  - 6 6" CAST-IN-PLACE CONCRETE SLAB WITH #4 AT 12" ON CENTER EW OR PRECAST CONCRETE SLAB PER UTILITY VAULT MANUFACTURER DESIGN.
  - 7 CONTRACTOR SHALL INSTALL LINE STOP ON 8" DIP IF DISTRICT IS UNABLE TO CLOSE EXISTING 8" GV FOR CLEANING AND CCTV OF FM.
  - 8 IF GATE VALVE DOES NOT FULLY SEAL, THE OWNER WILL ABANDON IN PLACE EXISTING 8" GATE VALVE AND CONTRACTOR SHALL INSTALL NEW 8" GATE VALVE PER SECTION 15115.
  - 9 SEE "CONNECTION NORTH OF HELIPORT" DRAWING FOR CONTINUATION. CCTV SHALL COVER 8" DIP FROM BYPASS VAULT AT THE PUMP STATION TO THE TEE NEAR OLD 16" CIP FM.
  - 10 MINIMUM UPSTREAM AND DOWNSTREAM DISTANCES SHALL MEET FLOW METER MANUFACTURER'S RECOMMENDATIONS.
  - 11 FILL OPENING WITH NON-SHRINK GROUT PER SECTION 03600.

REV	DATE	BY	DESCRIPTION

DESIGNED	JS
DRAWN	JLG
CHECKED	JW
DATE	MAY 2016

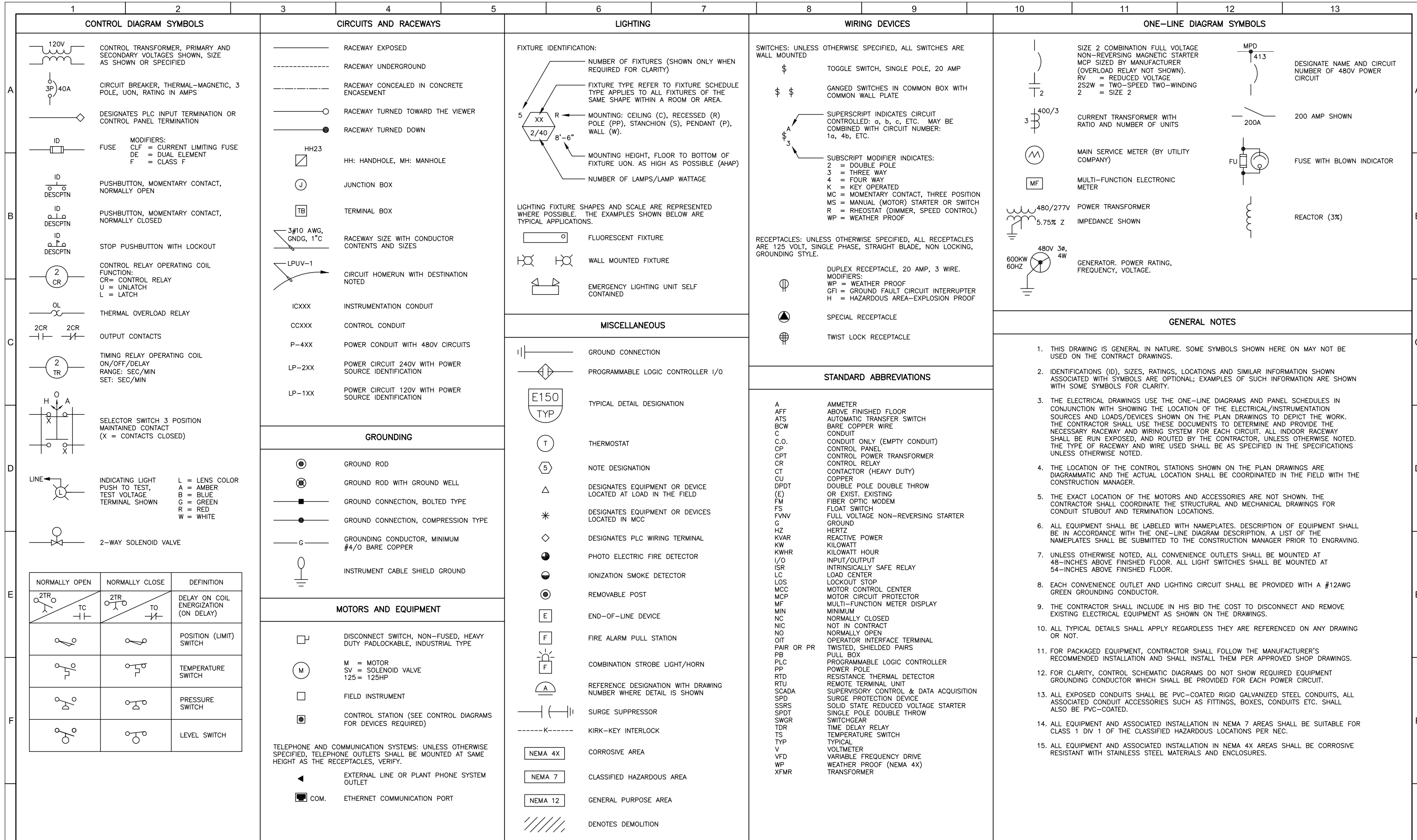
Digitally signed by James A. Wickstrom  
 Contact Info: Carollo Engineers, Inc.  
 Date: 2016.05.06 14:34:47-0700

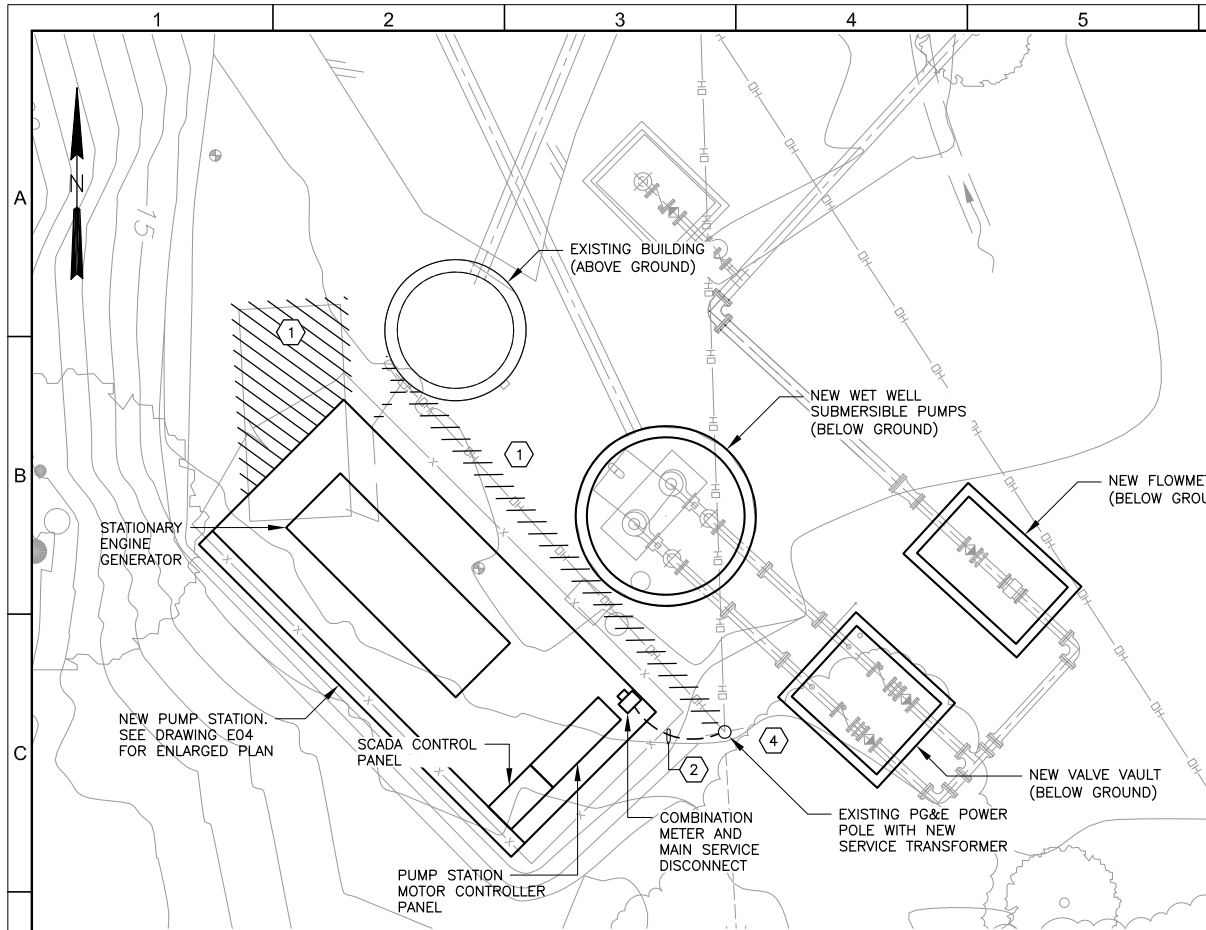


SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION  
 IMPROVEMENT PROJECT  
 MECHANICAL  
 HIGHWAY BOOSTER PUMP STATION  
 PLAN AND SECTIONS

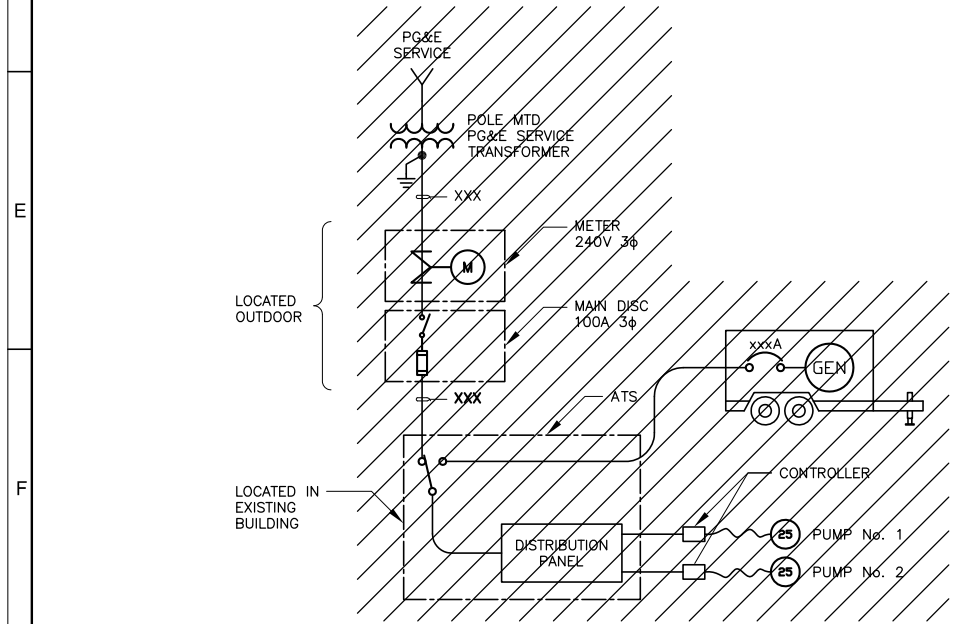
VERIFY SCALES  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 8231C.10  
 DRAWING NO. M01  
 SHEET NO. 20 OF 32

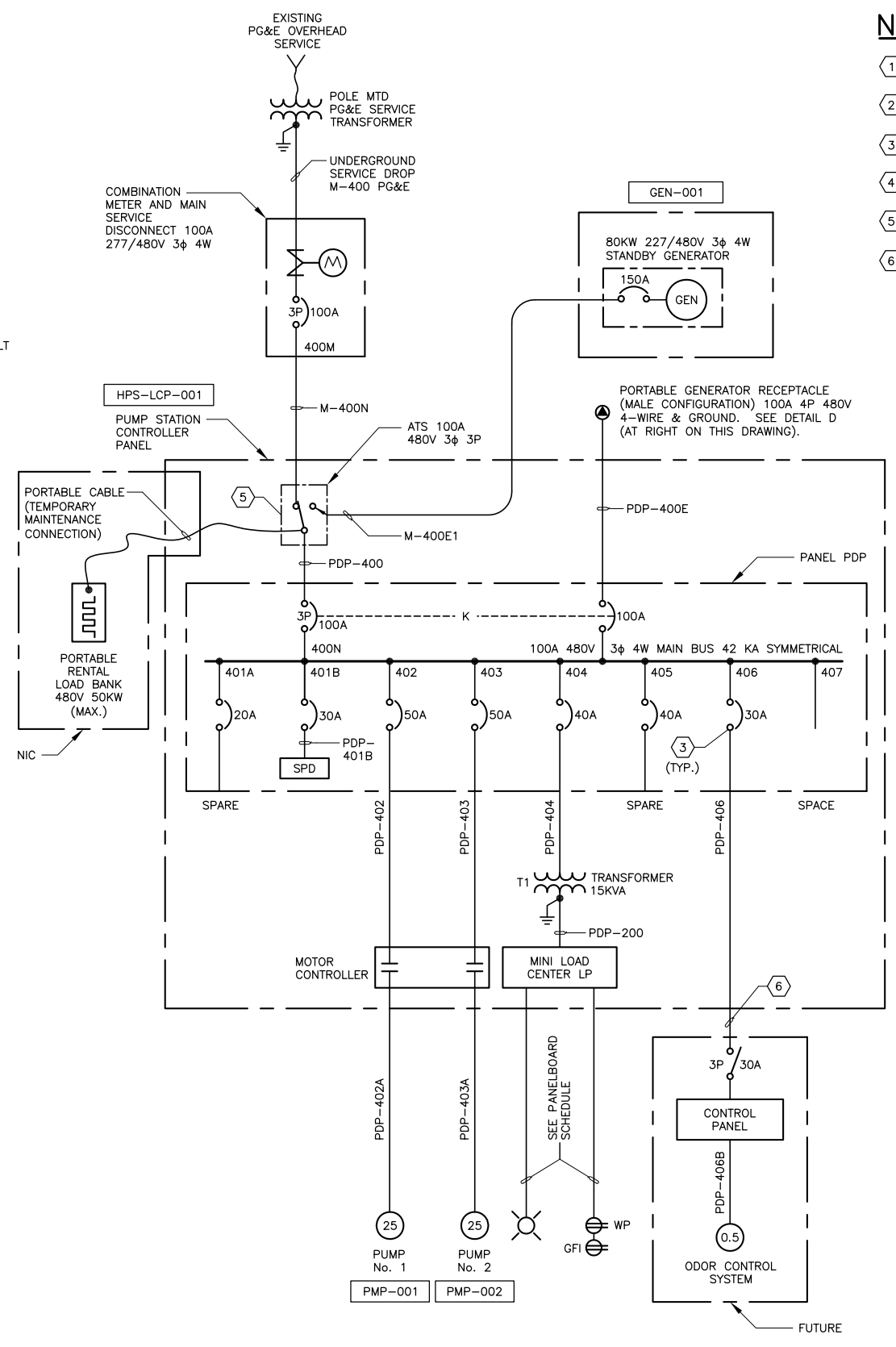




**A PARTIAL SITE PLAN**  
1" = 5'



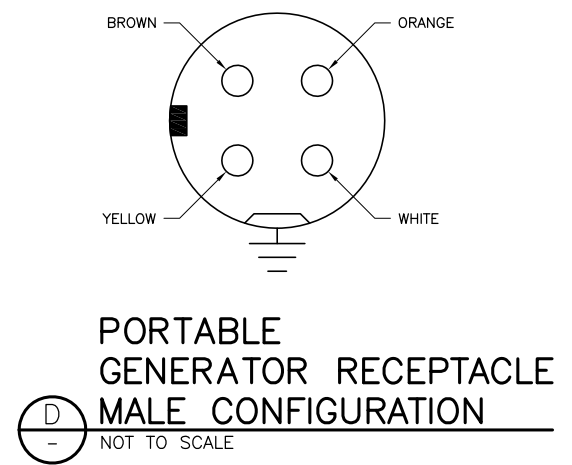
**B EXISTING SINGLE-LINE DEMOLITION**  
NOT TO SCALE



**C NEW SINGLE-LINE DIAGRAM**  
NOT TO SCALE

**NOTES:**

- 1 SEE DRAWING E08 FOR DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT AND ASSOCIATED WIRING.
- 2 3" PVC (EMPTY CONDUIT WITH PULL WIRE).
- 3 ALL BREAKERS SHOWN SHALL BE 480V 3-POLE.
- 4 CONTRACTOR SHALL CLEAR ALL BUSHES AROUND THE EXISTING PG&E POLE TO MAKE ROOM FOR REQUIRED SERVICE WORK.
- 5 THE ATS SHALL HAVE DOUBLE LUGS ON THE LOAD SIDE BUS FOR PROVISIONS TO BE CONNECTED TO PORTABLE LOAD BANK AS SHOWN.
- 6 STUB OUT CONDUIT AND CAP FOR FUTURE USE.



**D PORTABLE GENERATOR RECEPTACLE MALE CONFIGURATION**  
NOT TO SCALE

LOADS TABULATION PER NEC ARTICLE 430				
LOADS	RATING	VOLTAGE	PHASE	AMPERES
PUMP No. 1	25HP	480V	3	34
PUMP No. 2	25HP	480V	3	34
ODOR CONTROL SYSTEM	0.5HP	480V	3	1.1
TRANSFORMER T1	15KVA	480V	3	18
SUBTOTAL:				87.1 AMP
25% LARGEST LOAD = 34 x 0.25 =				8.5 AMP
TOTAL CONNECTED LOADS =				95.6 AMP
USE 100A AS STANDARD SIZE				

REV	DATE	BY	DESCRIPTION
1			
2			

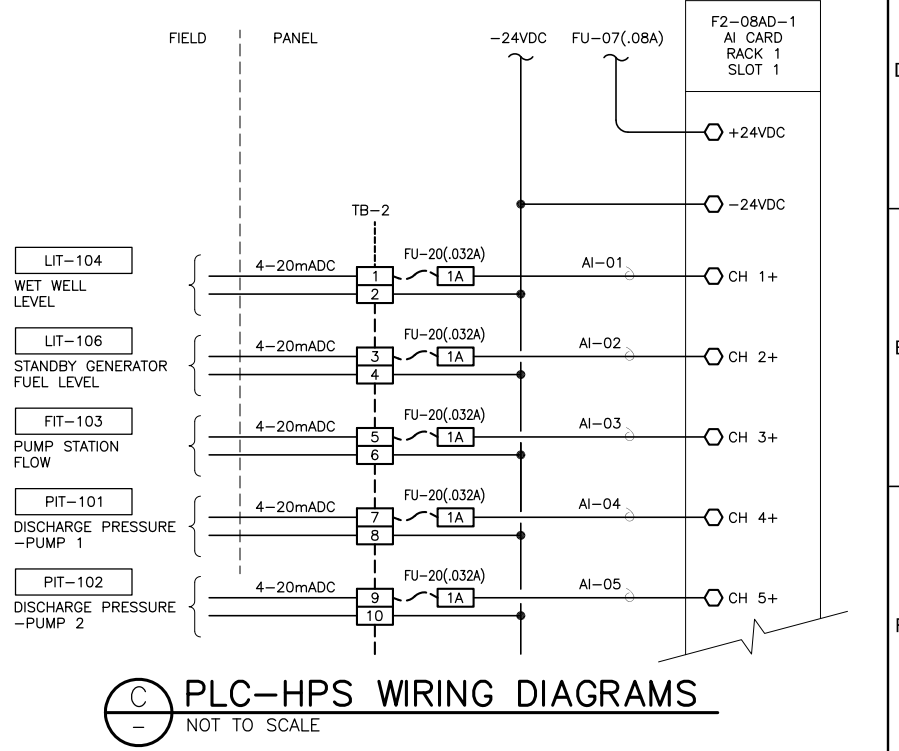
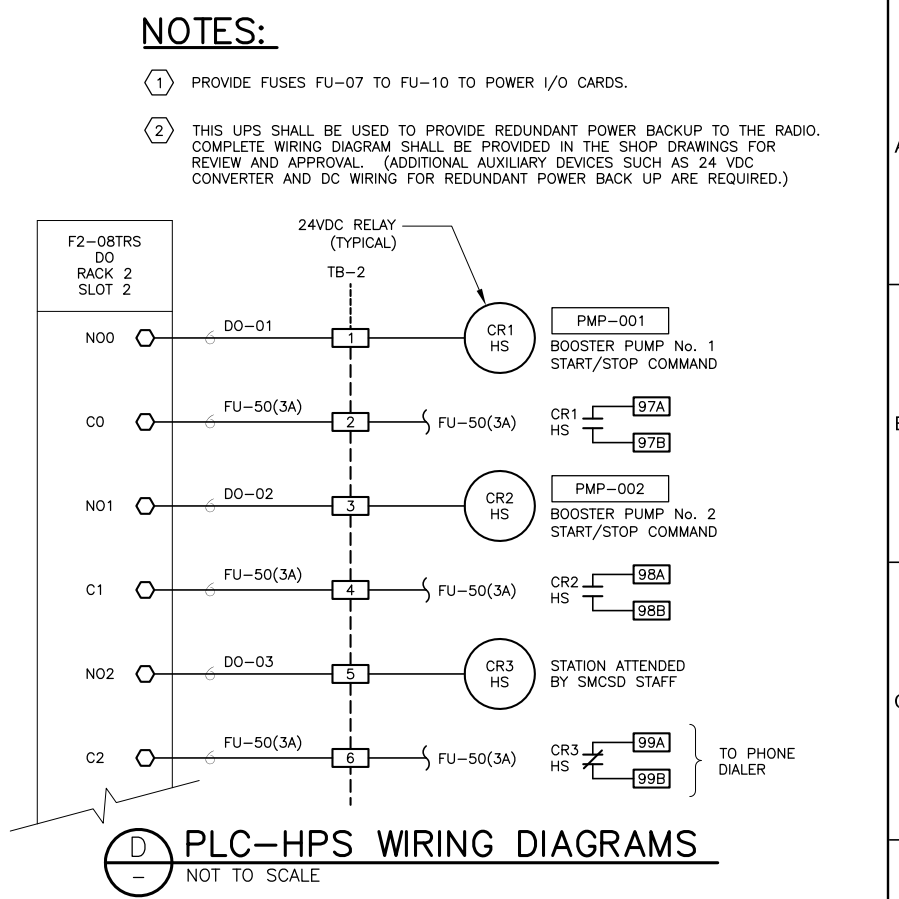
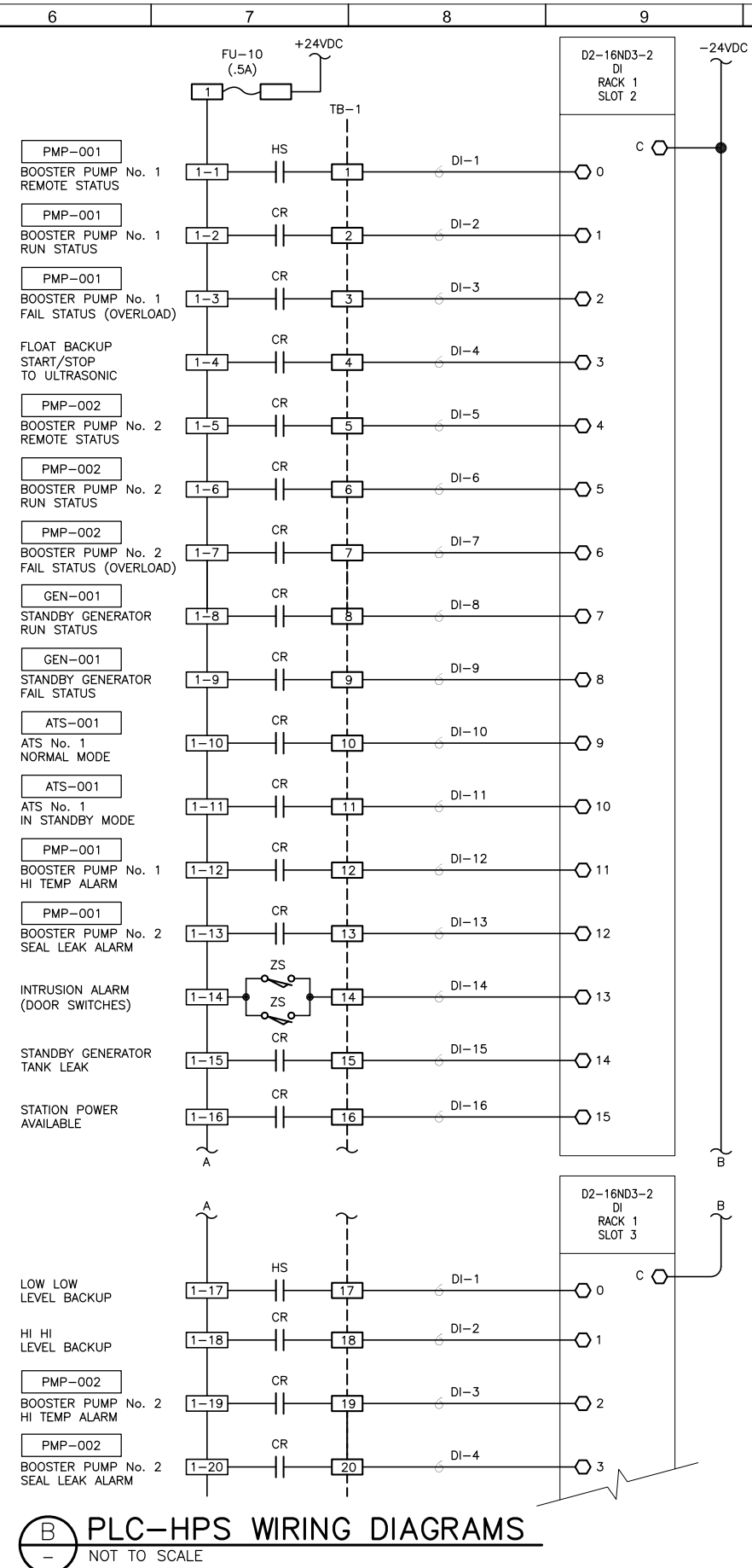
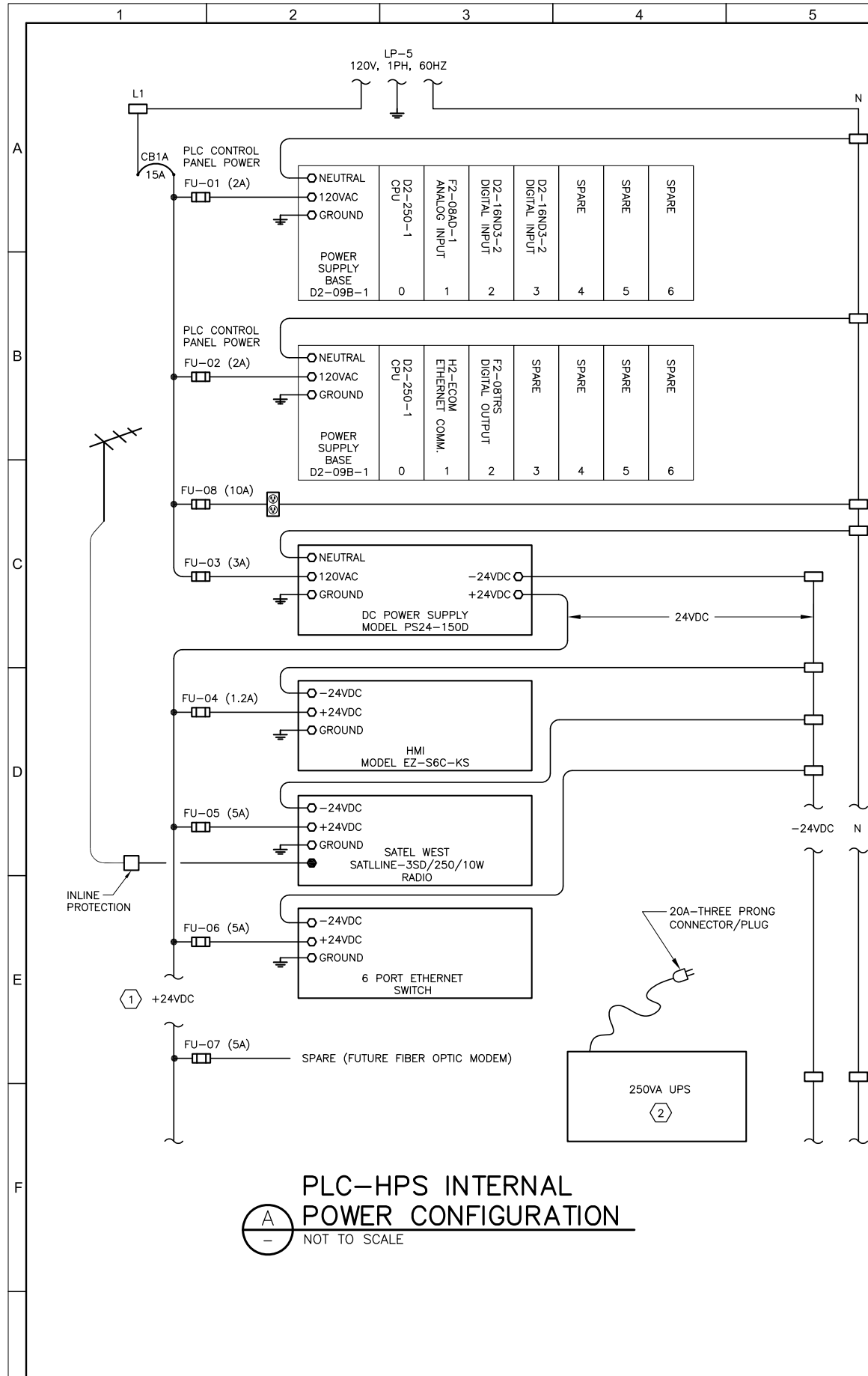
DESIGNED TP  
DRAWN LD  
CHECKED DTN  
DATE MAY 2016



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT  
ELECTRICAL  
SITE PLAN, MAIN POWER ONE - LINE DIAGRAM AND SIGNAL PLANS

VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 8231C.10  
DRAWING NO. E02  
SHEET NO. SHT 22 OF 32



DESIGNED TP	DATE MAY 2016
DRAWN LD	DATE
CHECKED DTN	DATE
DATE	

5/6/16

**carollo**

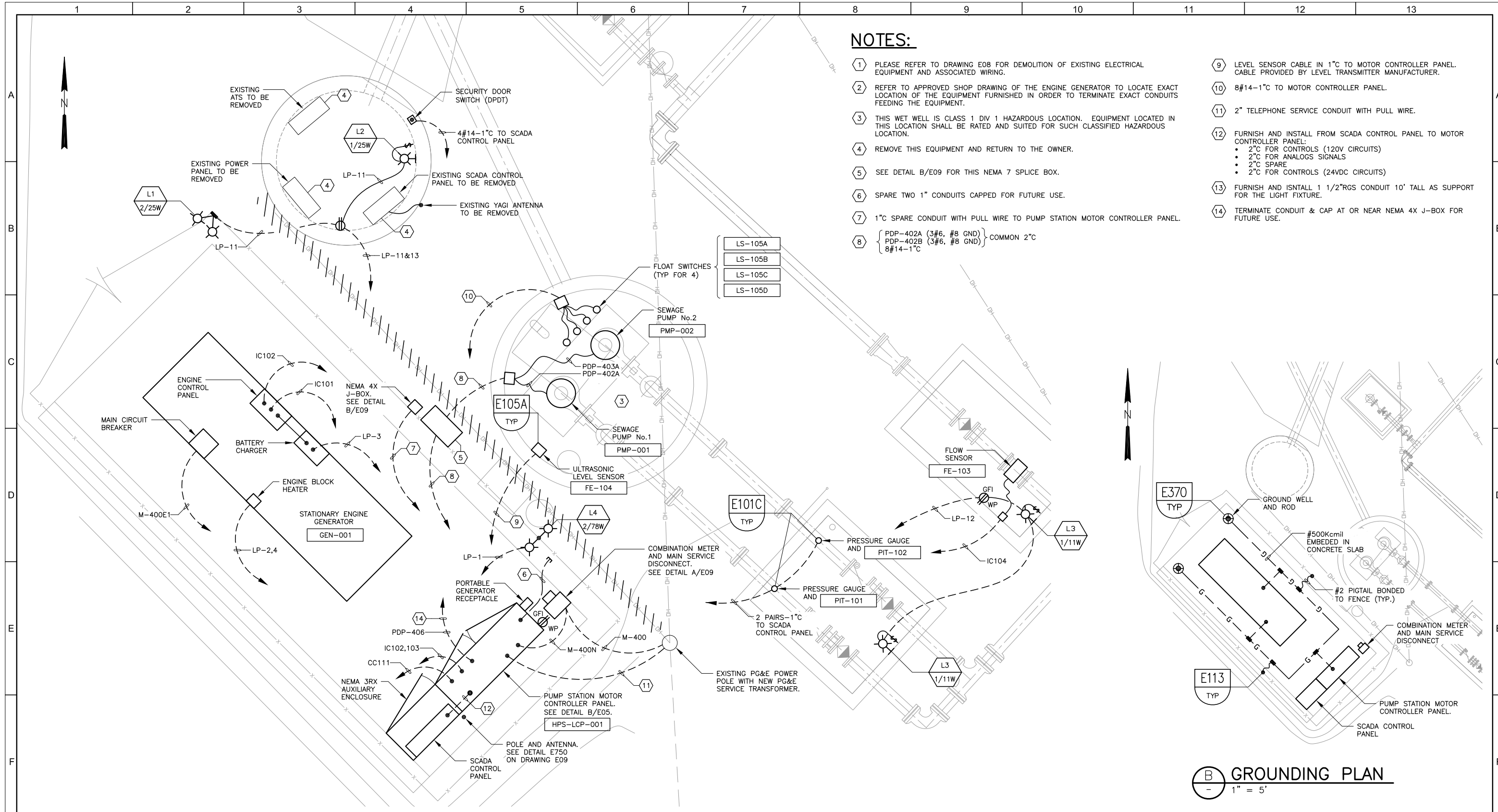
REGISTERED PROFESSIONAL ENGINEER  
ELECTRICAL  
STATE OF CALIFORNIA

SAUSALITO-MARIN CITY SANITARY DISTRICT

SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT  
ELECTRICAL  
NEW RTU PANEL, SCADA WIRING DIAGRAMS

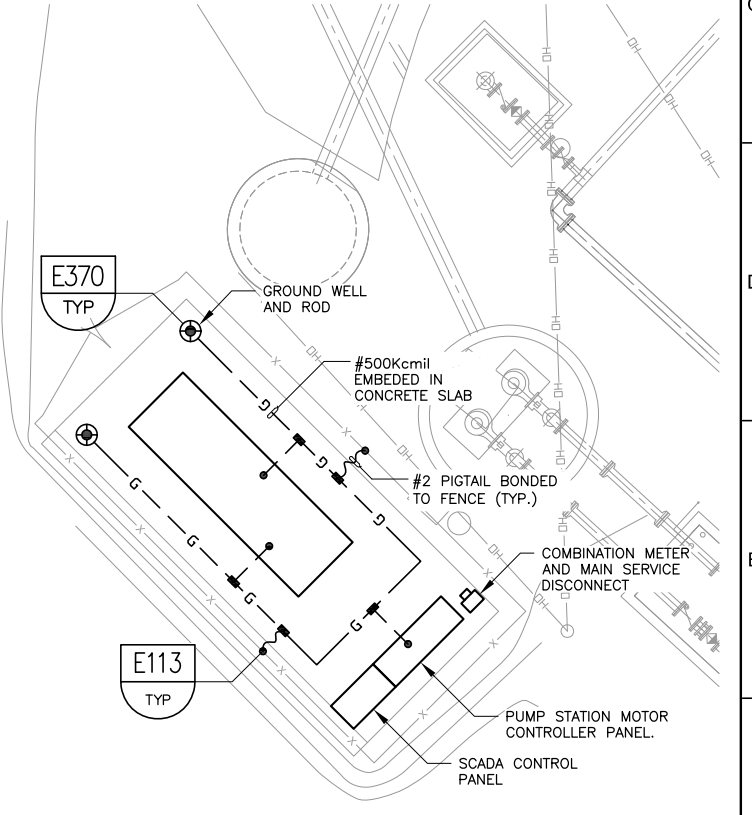
VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 8231C.10  
DRAWING NO. E03  
SHEET NO. SHT 23 OF 32



**NOTES:**

- ① PLEASE REFER TO DRAWING E08 FOR DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT AND ASSOCIATED WIRING.
- ② REFER TO APPROVED SHOP DRAWING OF THE ENGINE GENERATOR TO LOCATE EXACT LOCATION OF THE EQUIPMENT FURNISHED IN ORDER TO TERMINATE EXACT CONDUITS FEEDING THE EQUIPMENT.
- ③ THIS WET WELL IS CLASS 1 DIV 1 HAZARDOUS LOCATION. EQUIPMENT LOCATED IN THIS LOCATION SHALL BE RATED AND SUITED FOR SUCH CLASSIFIED HAZARDOUS LOCATION.
- ④ REMOVE THIS EQUIPMENT AND RETURN TO THE OWNER.
- ⑤ SEE DETAIL B/E09 FOR THIS NEMA 7 SPLICE BOX.
- ⑥ SPARE TWO 1" CONDUITS CAPPED FOR FUTURE USE.
- ⑦ 1" SPARE CONDUIT WITH PULL WIRE TO PUMP STATION MOTOR CONTROLLER PANEL.
- ⑧ { PDP-402A (3#6, #8 GND) } COMMON 2" C  
 { PDP-402B (3#6, #8 GND) }  
 8#14-1" C
- ⑨ LEVEL SENSOR CABLE IN 1" C TO MOTOR CONTROLLER PANEL. CABLE PROVIDED BY LEVEL TRANSMITTER MANUFACTURER.
- ⑩ 8#14-1" C TO MOTOR CONTROLLER PANEL.
- ⑪ 2" TELEPHONE SERVICE CONDUIT WITH PULL WIRE.
- ⑫ FURNISH AND INSTALL FROM SCADA CONTROL PANEL TO MOTOR CONTROLLER PANEL:  
 • 2" C FOR CONTROLS (120V CIRCUITS)  
 • 2" C FOR ANALOGS SIGNALS  
 • 2" C SPARE  
 • 2" C FOR CONTROLS (24VDC CIRCUITS)
- ⑬ FURNISH AND ISNTALL 1 1/2" RGS CONDUIT 10' TALL AS SUPPORT FOR THE LIGHT FIXTURE.
- ⑭ TERMINATE CONDUIT & CAP AT OR NEAR NEMA 4X J-BOX FOR FUTURE USE.



**(A) PUMP STATION PLAN-POWER & LIGHTING**  
 - 1" = 20'

**(B) GROUNDING PLAN**  
 - 1" = 5'

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED TP	
DRAWN LD	
CHECKED DTN	
DATE MAY 2016	
DATE 5/6/16	

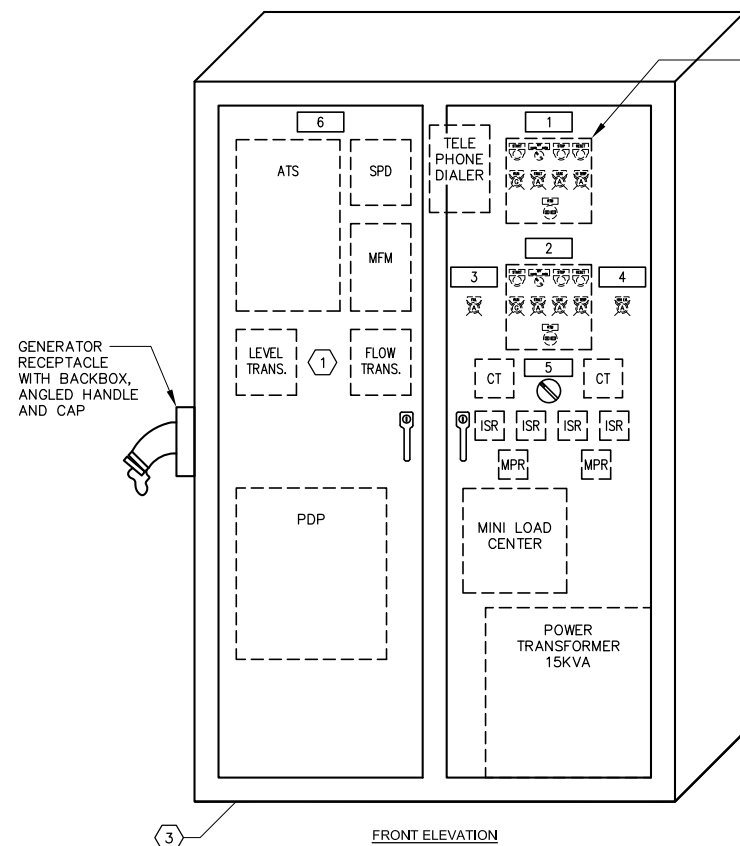


SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION  
 IMPROVEMENT PROJECT  
 ELECTRICAL  
 PUMP STATION - POWER, LIGHTING  
 AND SIGNAL PLANS

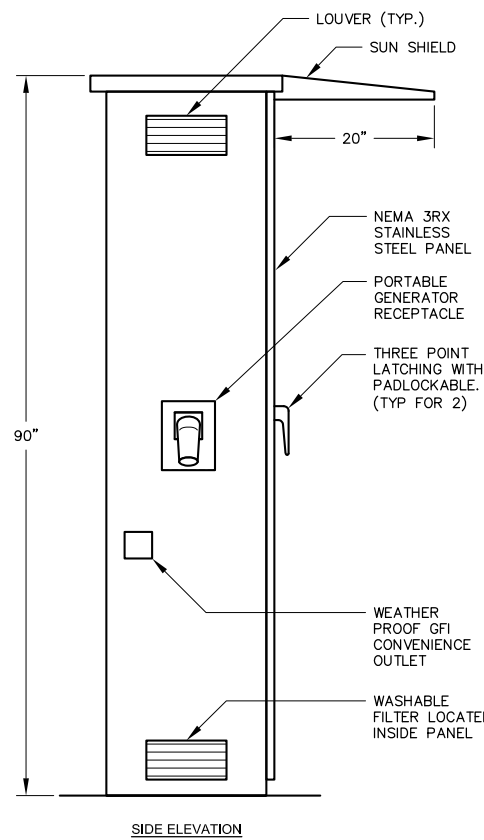
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 8231C.10
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DRAWING NO. E04
	SHEET NO. SHT 24 OF 32

PANEL LP		VOLTAGE/PHASE 120/208V, 3φ		MOUNTING SURFACE									
LOCATION STATION CONTROLLER PANEL		MAIN BRKR 50A		BUS 100A									
PANEL BKR'S BOLT-ON													
LOAD DESCRIPTION	WATTAGE			TRIP	CKT.	S/N	TRIP	WIRE	WATTAGE			LOAD DESCRIPTION	
	ØA	ØB	ØC						ØA	ØB	ØC		
SITE LIGHTING	80			20	1	A	2	20	180			MISC. OUTLETS	
BATTERY CHARGER		500		20	3	B	4	20		1000		GENERATOR JACKET HEATER	
SCADA CONTROL PANEL			1000	20	5	C	2P				1000		
FLOW METER	100			20	7		8	20				SPARE	
ULTRASONIC LEVEL TRANSMITTER		100		20	9		10	20		200		FLOAT BACKUP CONTROLS	
SCADA BLDG LIGHT & SECURITY LIGHT			100	20	11		12	20			212	OUTLET IN FLOWMETER VAULT	
SCADA BLDG OUTLET	180			20	13		14	20				SPACE	
SPARE				20	15		16	20					
				20	17		18	20					
				20	19		20	20					
				20	21		22	20					
				20	23		24	20					
SUBTOTAL	360	600	1100						180	1200	1212		
TOTAL VA = 4652				AMPERES = 12.9A									

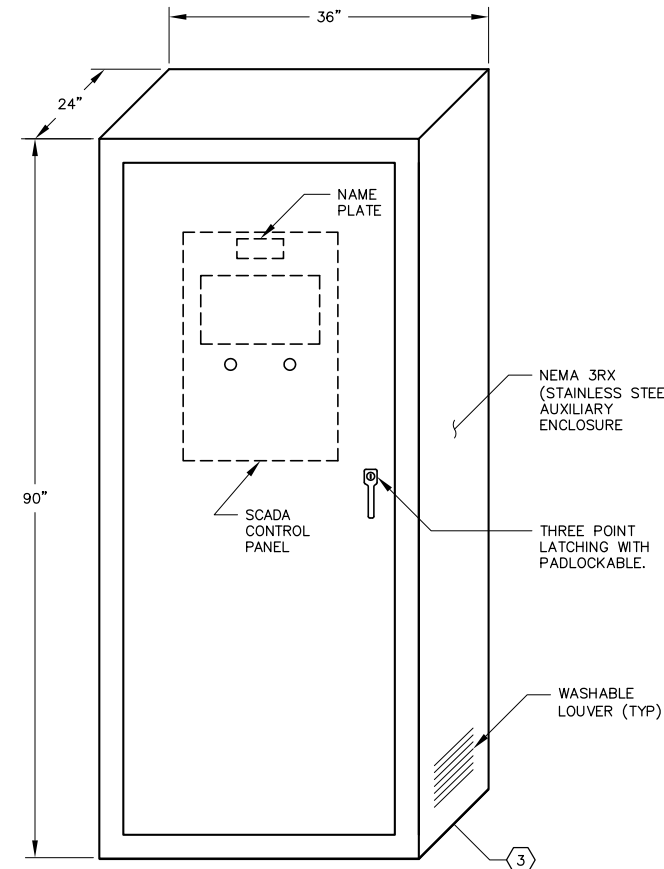
**A LIGHTING PANEL**  
NOT TO SCALE



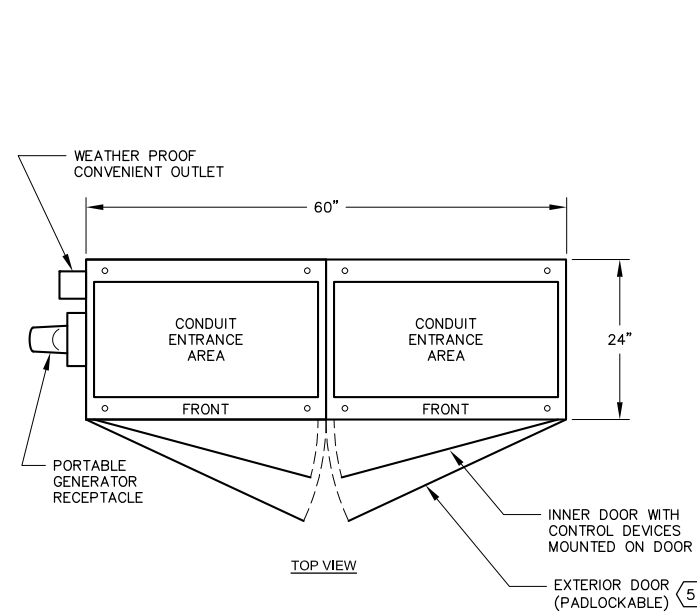
- NAMEPLATE LEGEND:
- BOOSTER PUMP No. 1
  - BOOSTER PUMP No. 2
  - PLC FAILURE ALARM
  - HI HI LEVEL ALARM
  - LOW LEVEL BYPASS SWITCH
  - MASTER NAMEPLATE: "HIGHWAY BOOSTER PUMP STATION LOCAL CONTROL PANEL"



**B PUMP STATION MOTOR CONTROLLER PANEL**  
NOT TO SCALE

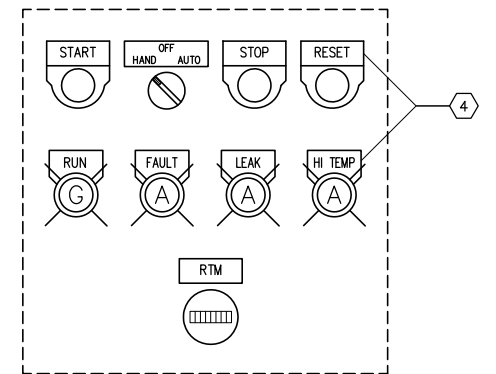


**D SCADA CONTROL PANEL**  
NOT TO SCALE



**NOTES:**

- REFER TO DETAIL C/E02 AND RELATED CONTROL SCHEMATIC DIAGRAMS SHOWN ON DRAWINGS E06 AND E07 FOR COMPLETE ACCOUNTING OF ALL DEVICES AND EQUIPMENT LOCATED INSIDE THIS MOTOR CONTROLLER PANEL.
- THE MOTOR CONTROLLER PANEL MANUFACTURER MAY REARRANGE THE EQUIPMENT LOCATED INSIDE THE PANEL AS REQUIRED BY THE COMPONENTS PROPOSED. SUBMIT SHOP DRAWING PER THE PROJECT SPECIFICATION FOR REVIEW AND APPROVAL.
- CAREFULLY CAULK ALL AROUND ENCLOSURE WITH HEAVY DUTY CAULKING MATERIAL TO PREVENT DUST, MOISTURE AND OR WATER FROM ENTERING THE ENCLOSURE.
- ALL THESE PILOT DEVICES SHALL BE SUITABLE FOR OUTDOOR IN INSTALLATION AND SHALL BE 30mm IN DIAMETER. ALL PILOT LIGHTS SHALL BE LED TYPE WITH PUSH-TO-TEST FUNCTION.
- PROVIDE A DOOR SWITCH (SPRING LOADED) SUCH THAT WHEN THE DOOR IS OPENED THE DOOR'S CONTACT SHALL CLOSE ACTIVATING INTRUSION ALARM.
- SCADA PANEL SHALL NOT EXCEED 30"W x 36"H x 12"D.



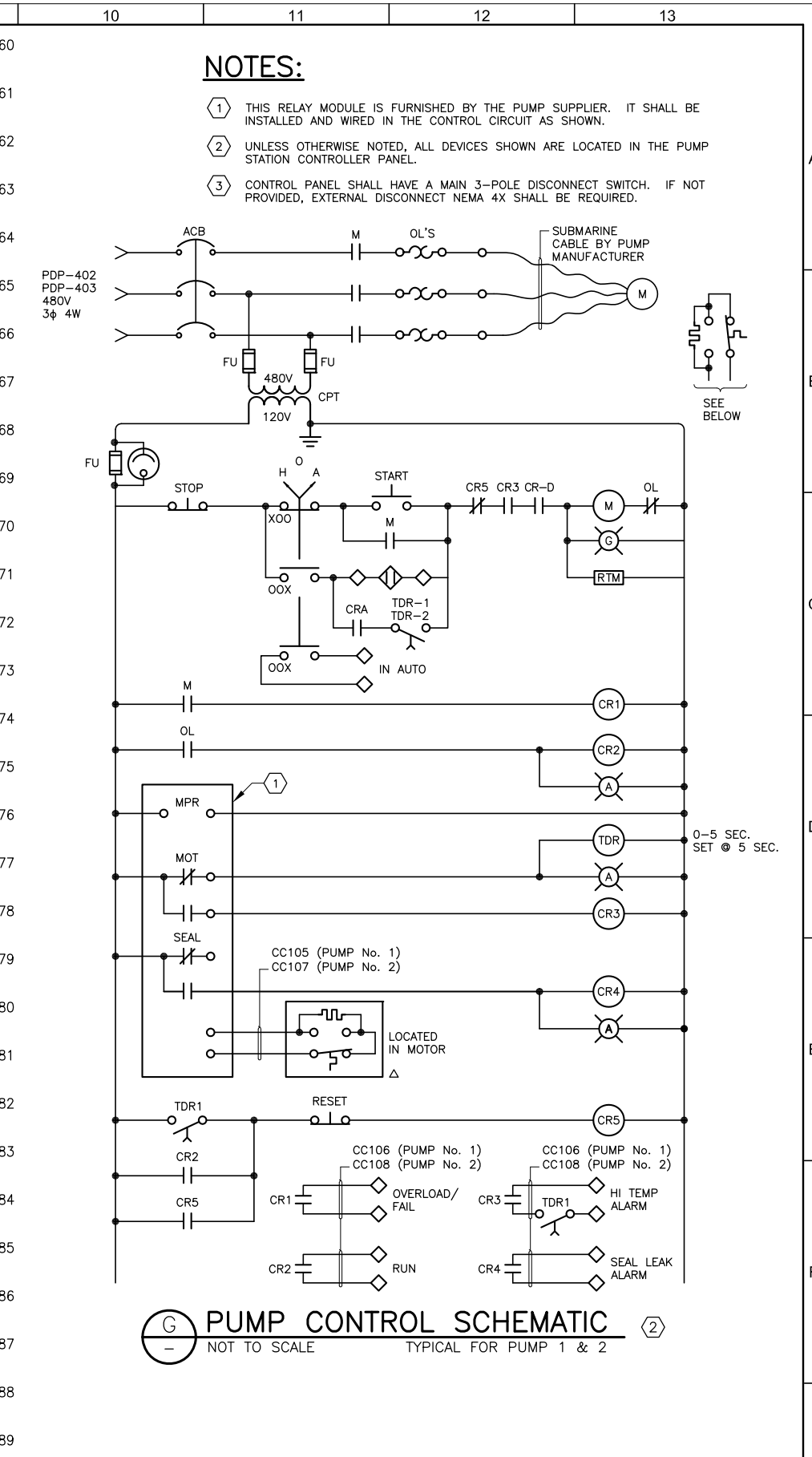
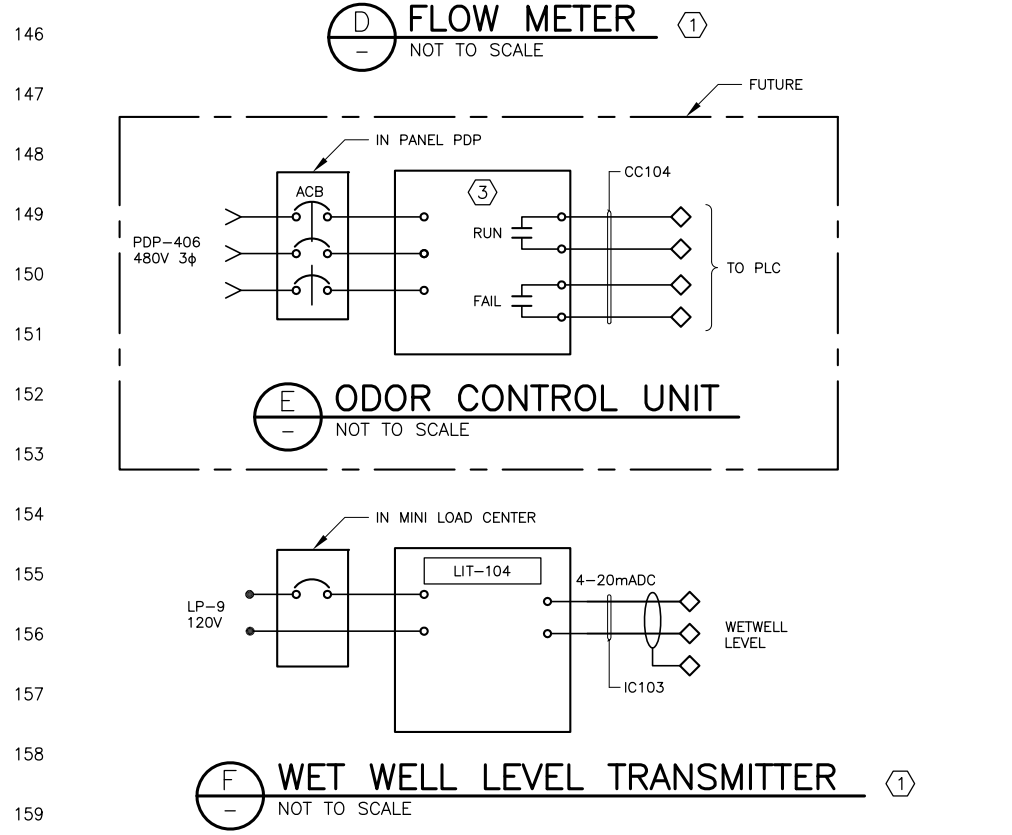
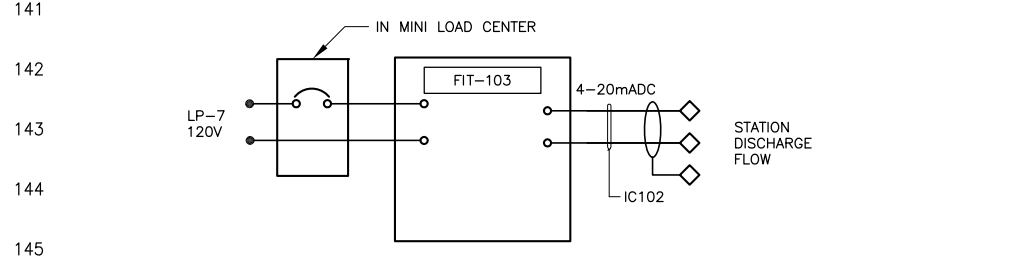
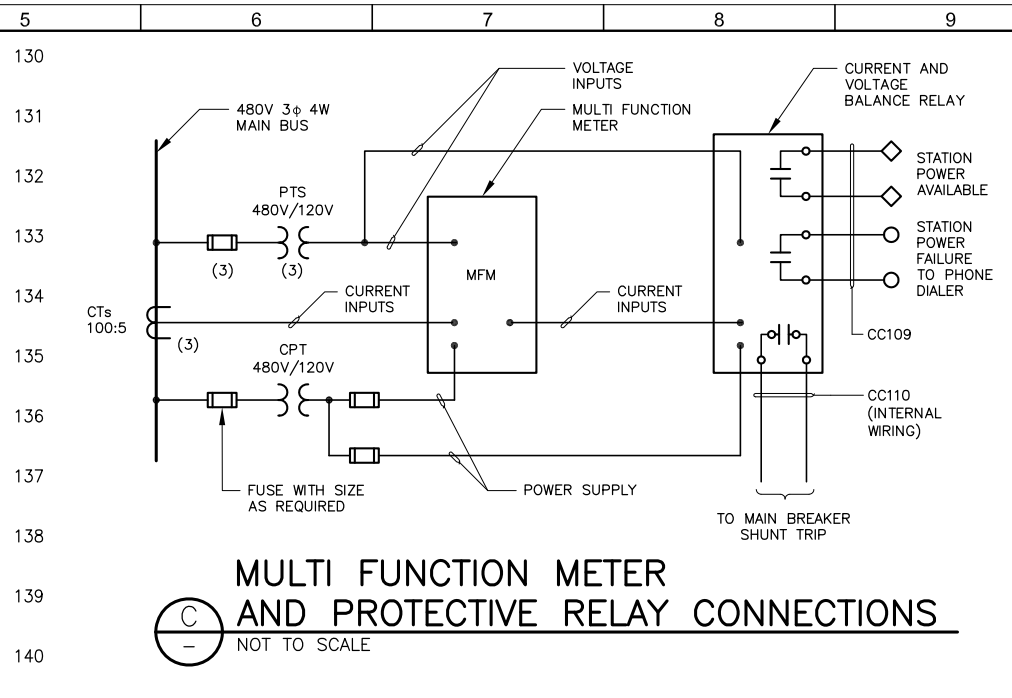
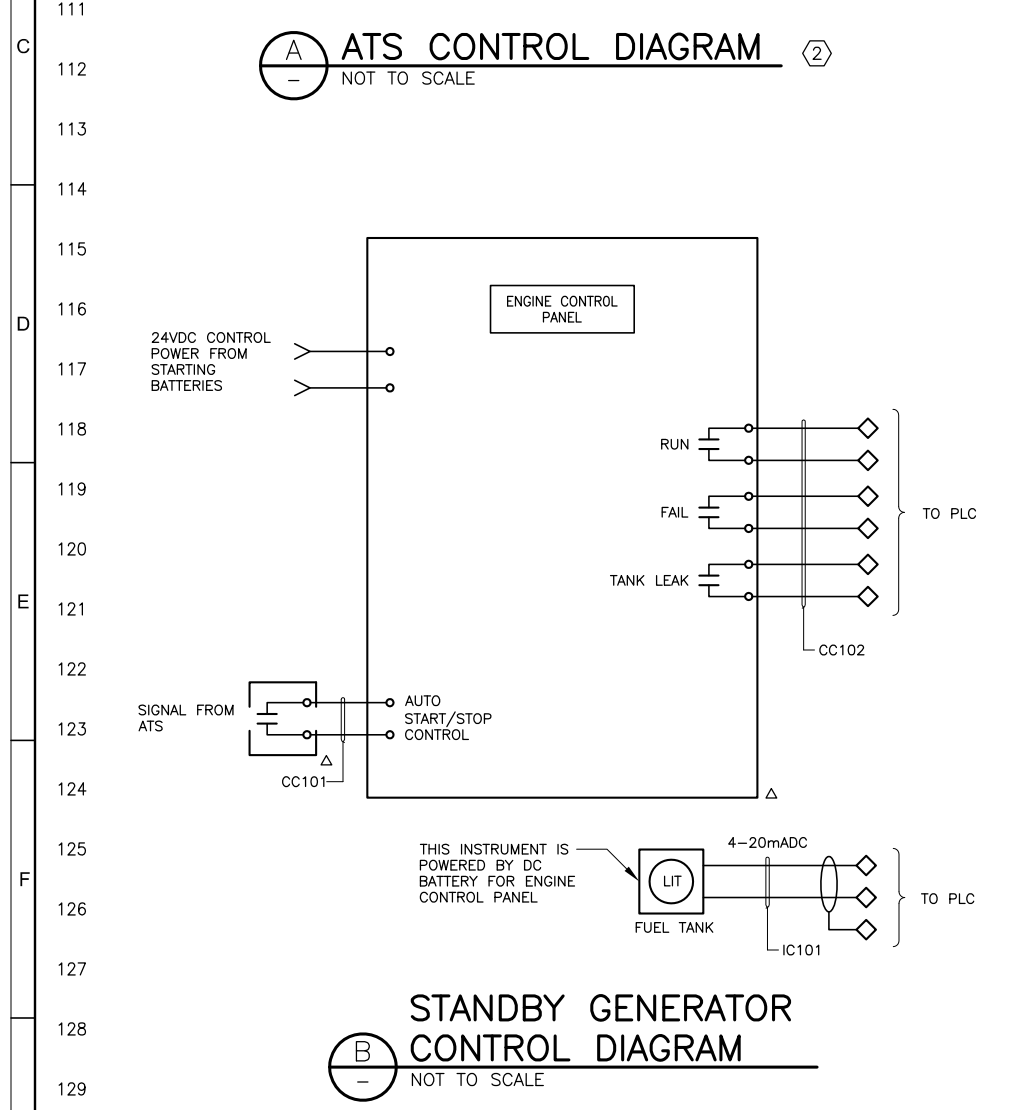
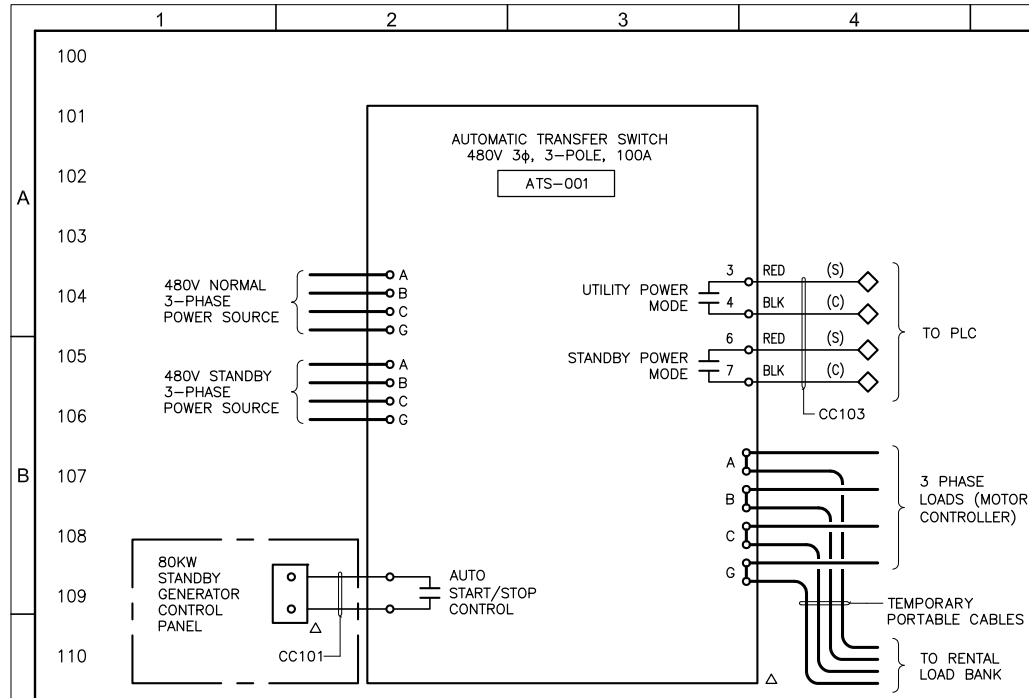
**C TYPICAL CONTROL DEVICES**  
NOT TO SCALE

REV	DATE	BY	DESCRIPTION
1			
2			
3			

DESIGNED TP	
DRAWN LD	
CHECKED DTN	
DATE MAY 2016	

SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT  
ELECTRICAL  
SERVICE EQUIPMENT, STARTER ELEVATION,  
GROUNDING DETAIL

VERIFY SCALES	JOB NO. 8231C.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. E05
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. SHT 25 OF 32

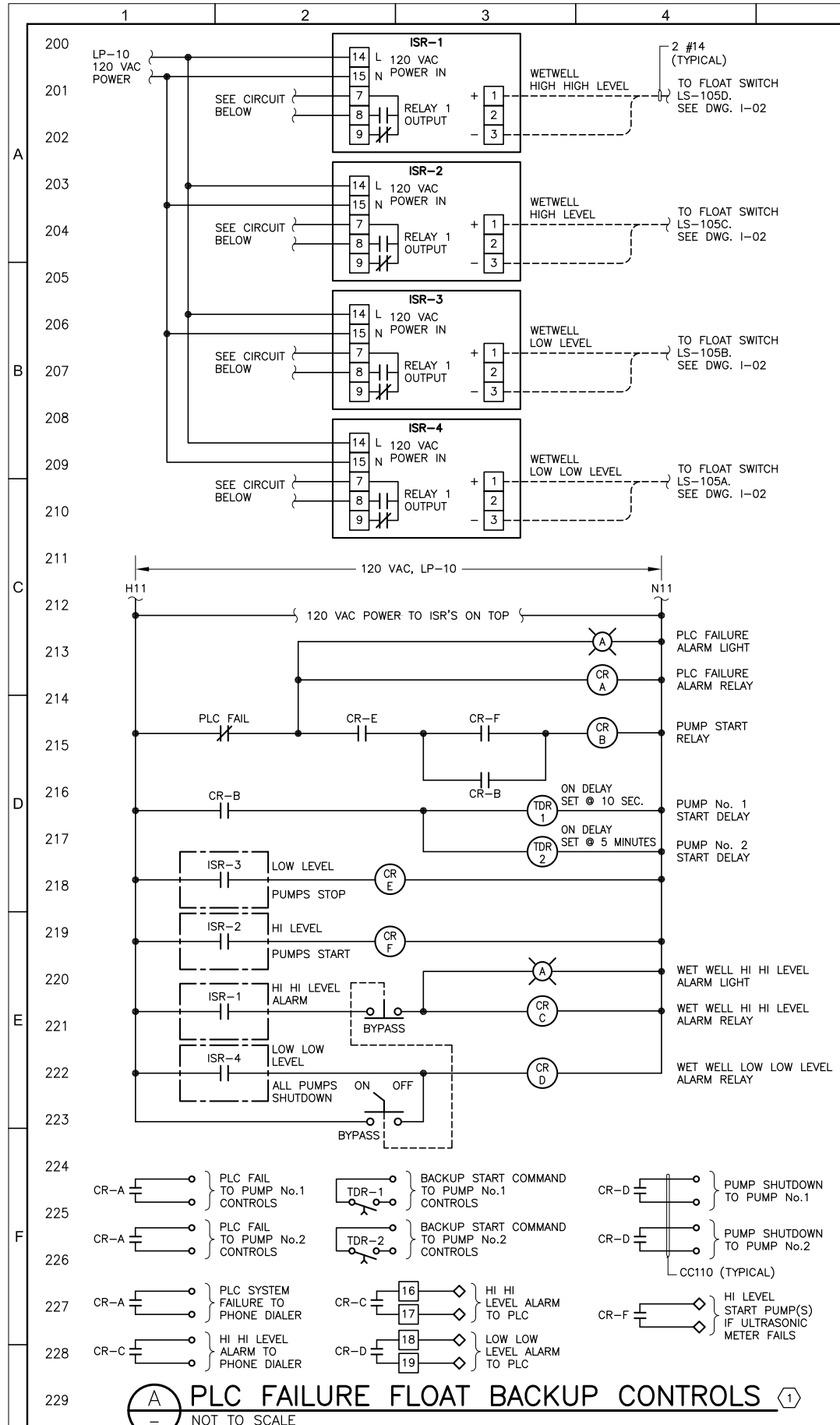


DESIGNED	TP
DRAWN	LD
CHECKED	DTN
DATE	MAY 2016

5/6/16

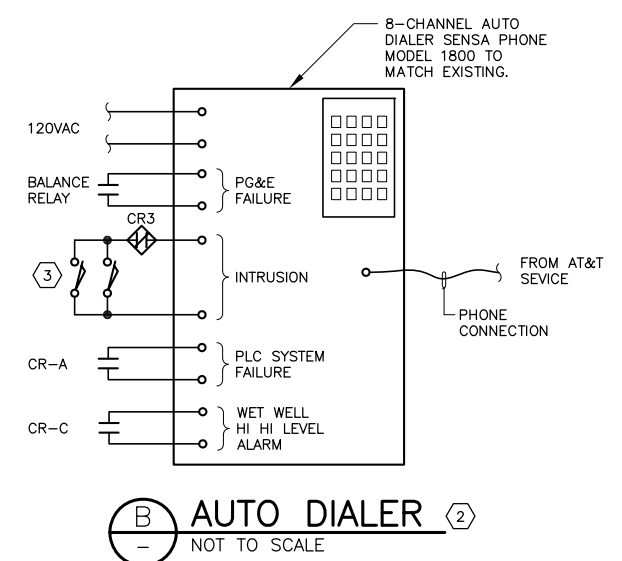


SAUSALITO-MARIN CITY SANITARY DISTRICT	VERIFY SCALES	JOB NO. 8231C.10
HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT	BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. E06
ELECTRICAL	0 1"	SHEET NO. SHT 26 OF 32
CONTROL SCHEMATIC DIAGRAMS	IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	
SHEET 1 OF 2		



- NOTES:**
- ① UNLESS OTHERWISE NOTED, ALL DEVICES SHOWN ARE LOCATED IN THE PUMP STATION MOTOR CONTROLLER PANEL.
  - ② THIS DIALER IS LOCATED IN THE PUMP STATION MOTOR CONTROLLER PANEL.
  - ③ THIS CONTACT IS TRIGGERED BY A DOOR SWITCH LOCATED INSIDE PUMP STATION MOTOR CONTROLLER PANEL. THE SECOND CONTACT IS FROM DOOR SWITCH LOCATED AT EXISTING BUILDING.
  - ④ THERE ARE ADDITIONAL CONDUITS SHOWN ON THE FLOOR PLANS WHICH SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR.

CABLE AND CONDUIT SCHEDULE ④						
CONDUIT #	CONDUIT SIZE	TYPE	FROM	TO	CABLES	NOTES
M-400	3"	PVC	PG&E POWER POLE	MAIN SERVICE METER & MAIN		BY PG&E
M-400N	2"	PVC	MAIN SERVICE METER & MAIN	ATS	4#1/0, #6 GND	PROVIDE PULL WIRE
M-400E1	2"	PVC	STANDBY GENERATOR	ATS	4#1/0, #6 GND	
PDP-400E	-	-	PANEL PDP	PORTABLE GENERATOR RECEPTACLE	4#2, #6 GND	INTERNAL WIRINGS
PDP-400	-	-	PANEL PDP	ATS	3#2, #6 GND	INTERNAL WIRINGS
PDP-401B	-	-	PANEL PDP	SURGE PROTECTION DEVICE	AS REQUIRED	INTERNAL WIRINGS
PDP-402	3/4"	-	PANEL PDP BREAKER	PUMP No.1 STARTER	1#6, #8 GND	
PDP-402A	3/4"	PVC	PUMP No.1 MOTOR	PUMP No.1 STARTER	1#6, #8 GND	
PDP-403	3/4"	-	PANEL PDP	PUMP No.2 STARTER	1#6, #8 GND	
PDP-403A	3/4"	PVC	PUMP No.2 MOTOR	PUMP No.2 STARTER	1#6, #8 GND	
PDP-404	3/4"	-	PANEL PDP BREAKER	TRANSFORMER T-1 PRIMARY	1#6, #8 GND	
PDP-406	1"	PVC	PANEL PDP BREAKER	ODOR CONTROL UNIT PANEL	3#10, #12 GND	
PDP-406B	1"	PVC	ODOR SYSTEM MOTOR	ODOR CONTROL UNIT PANEL	3#10, #12 GND	
PDP-200	1 1/2"	-	TRANSFORMER T-1 SECONDARY	MINI LOAD CENTER LP	4#10, #12 GND	
CC101	3/4"	PVC	ATS	GENERATOR CONTROL PANEL	4#14 (2 SPARES)	
CC102	3/4"	PVC	SCADA PLC PANEL	GENERATOR CONTROL PANEL	6#14	
CC103	3/4"	PVC	SCADA PLC PANEL	ATS	4#14	
CC104	3/4"	PVC	SCADA PLC PANEL	ODOR CONTROL UNIT PANEL	4#14	
CC105	3/4"	PVC	PUMP No.1 LEAK SENSOR	PUMP No.1 MOTOR PROTECTION RELAY	2#14	
CC106	3/4"	PVC	PUMP No.1 ALARM RELAYS	SCADA PLC PANEL	2#14	
CC107	3/4"	PVC	PUMP No.2 LEAK SENSOR	PUMP No.2 MOTOR PROTECTION RELAY	2#14	
CC108	3/4"	PVC	PUMP No.2 ALARM RELAYS	SCADA PLC PANEL	2#14	
CC109	3/4"	PVC	PHASE BALANCE RELAY	SCADA PLC PANEL	6#14 (2 SPARES)	
CC110	3/4"	PVC	PHASE BALANCE RELAY	MAIN BREAKER	2#14	
CC111	1 1/2"	PVC	FLOAT BACKUP CONTROL SYSTEM & INTRUSION	SCADA PLC PANEL	30#14 (2 SPARES)	
IC101	1"	PVC	FUEL TANK LEVEL TRANSMITTER	SCADA PLC PANEL	1 PAIR	
IC102	1"	PVC	FLOW TRANSMITTER & PRESSURE TRANSMITTER	SCADA PLC PANEL	2 PAIRS	
IC103	1"	PVC	WET WELL LEVEL TRANSMITTER	SCADA PLC PANEL	1 PAIR & 2 SPARE PAIRS	
IC104	1"	PVC	FLOW ELEMENT & PRESSURE TRANSMITTER	PUMP STATION CONTROLLER PANEL	CABLE BY FLOW TRANS. MANUFACTURER & 1 PAIR	



LIGHT FIXTURE SCHEDULE								
FIXTURE DESIGNATION	TYPE	QTY	VOLT	DESCRIPTION	MANUFACTURER	CAT. NUMBER	LAMPS	MOUNTING
L1 2/25W	LED	1	120V	DUAL HEAD, ADJUSTABLE LED FLOOD LIGHT WITH MOTION SENSOR AND PHOTOCELL CONTROL SUITABLE FOR OUTDOOR INSTALLATION AND WITH BRONZE FINISH	LITHONIA EQUIVALENT	OFRL-6LC-120V-MO-BZ	2/25W	STANCHION
L2 1/25W	LED	1	120V	WATER PROOF DIE CAST ALUMINUM BASE PLATE WITH POLYCARBONATE HOUSING AND LENS	LUMINAIRE LED EQUIVALENT	SWP610	1/25W	WALL
L3 1/11W	LED	2	120V	WALL MOUNTED, LED, VAPOR TIGHT WITH ALUMINUM HOUSING, FROSTED GLASS LENS AND VANDAL RESISTANT WIRE GUARD	HUBBLE EQUIVALENT	VWGL-1	1/11W	WALL
L4 2/78W	LED	1	120V	POLE MOUNTED LED TYPE WITH DIE-CAST ALUMINUM FRAME AND MOUNTING ARM AND 2 HEADS ON 15' HIGH 4" SQUARE BRONZE POLE WITH A WP SWITCH	RAB LIGHTING EQUIVALENT	ALED3T78	2/78W	POLE

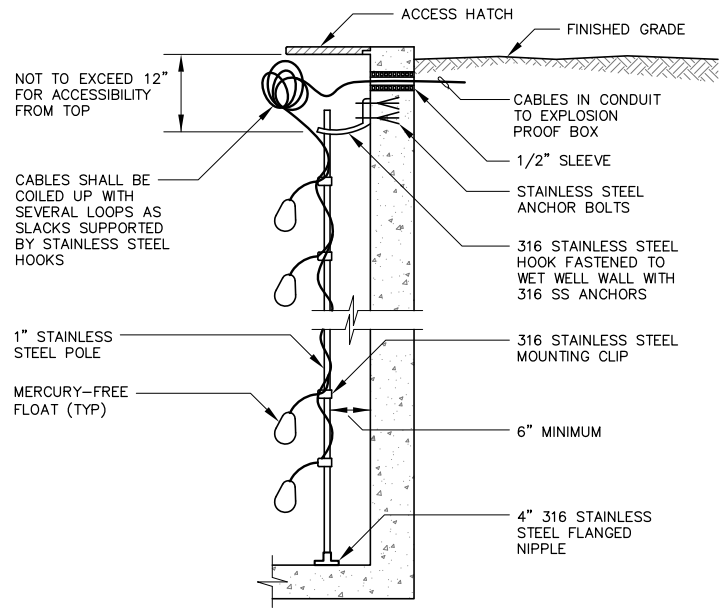
**A PLC FAILURE FLOAT BACKUP CONTROLS** ①  
NOT TO SCALE

**B AUTO DIALER** ②  
NOT TO SCALE

DESIGNED TP DRAWN LD CHECKED DTN DATE MAY 2016					SAUSALITO-MARIN CITY SANITARY DISTRICT HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT ELECTRICAL CONTROL SCHEMATIC DIAGRAMS SHEET 2 OF 2	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 8231C.10 DRAWING NO. E07 SHEET NO. SHT 27 OF 32
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**NOTES:**

1. THE FLOAT SWITCHES AND THE MOUNTING CLIPS ARE FURNISHED BY THE DISTRICT.
2. CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS EXCEPT FLOATS & CLIPS AS MENTIONED IN NOTE 1.
3. EXACT FLOAT ELEVATION SHALL BE AS DIRECTED IN THE FIELD.
4. CABLES SHALL BE NEATLY TIED TO SUPPORT POLE WITH NON-CORROSIVE CABLE TIES.



**E334** REMOVABLE FLOAT SWITCH ASSEMBLY MOUNTING  
TYP SCALE: NTS

**NOTES:**

- ① CONTRACTOR SHALL DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL AND CONTROL EQUIPMENT INCLUDING CONDUITS, CABLES, PIPING ETC. TO MAKE ROOM FOR NEW EQUIPMENT. REFER TO CIVIL DRAWINGS FOR ADDITIONAL REQUIREMENTS INCLUDING RESURFACING EXISTING FLOOR AND PAINTING ETC.  
RETURN EXISTING RTU AND ATS TO THE DISTRICT AND STORE AT DIRECTED LOCATION.
- ② DISCONNECT AND REMOVE:  
a. EXISTING PG&E METER SOCKET. RETURN REVENUE METER TO PG&E.  
b. EXISTING 200A 240V DISCONNECT SWITCH.  
c. EXISTING WOODEN POLE AND ASSOCIATED CONDUITS, CABLES & WIRINGS.
- ③ PRIOR TO RETURNING THIS RENTAL GENERATOR TO THE DISTRICT, CONTRACTOR SHALL REPLACE FOUR EXISTING TIRES AND RIMS WITH NEW, AND TOW IT TO THE DISTRICT'S MAIN PLANT AT 1 EAST ROAD SAUSALITO, CA.  
CONTRACTOR MAY NOT USE THE DISTRICT'S GENERATOR DURING CONSTRUCTION DUE TO LIMITED AIR PERMIT HOURS.  
CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE GENERATOR RESULTING FROM THE CONSTRUCTION ACTIVITIES.
- ④ FURNISH AND INSTALL NEW PLC ENCLOSURE AT THIS LOCATION. SEE DRAWING E03 FOR ADDITIONAL DETAILS.



**A** PHOTO 1 - DEMOLITION ①  
NOT TO SCALE



**B** PHOTO 2 - DEMOLITION ②  
NOT TO SCALE



**C** PHOTO 3 - DEMOLITION ③  
NOT TO SCALE



**D** EXISTING RTU LOCATION ④  
NOT TO SCALE

REV	DATE	BY	DESCRIPTION
1			
2			
3			

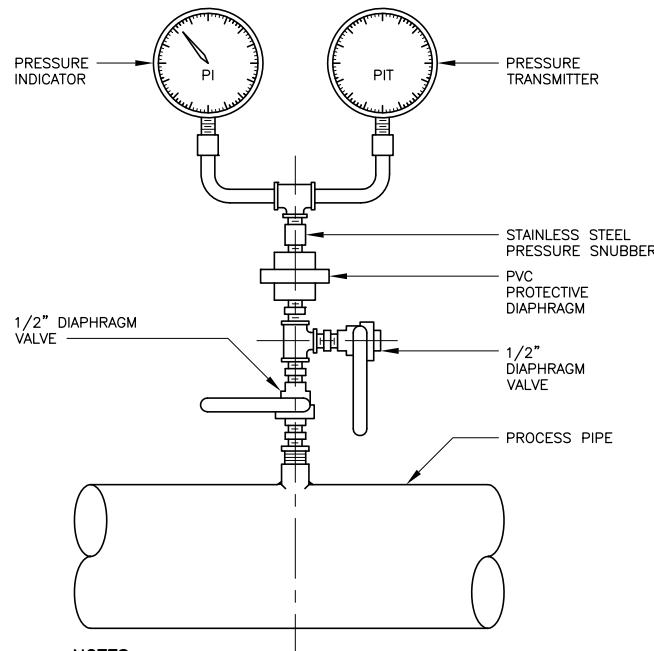
DESIGNED TP  
DRAWN LD  
CHECKED DTN  
DATE MAY 2016



SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION IMPROVEMENT PROJECT  
ELECTRICAL  
CONSTRUCTION DETAILS

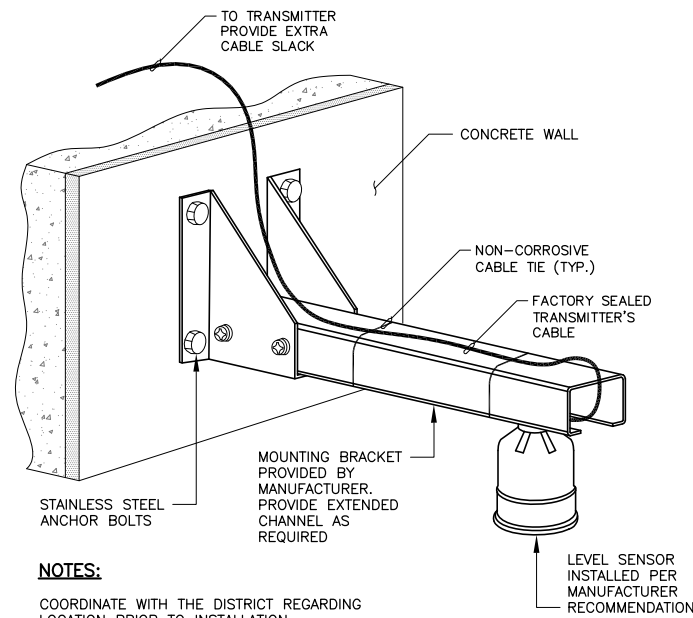
VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
0 1"  
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 8231C.10  
DRAWING NO. E08  
SHEET NO. SHT 28 OF 32



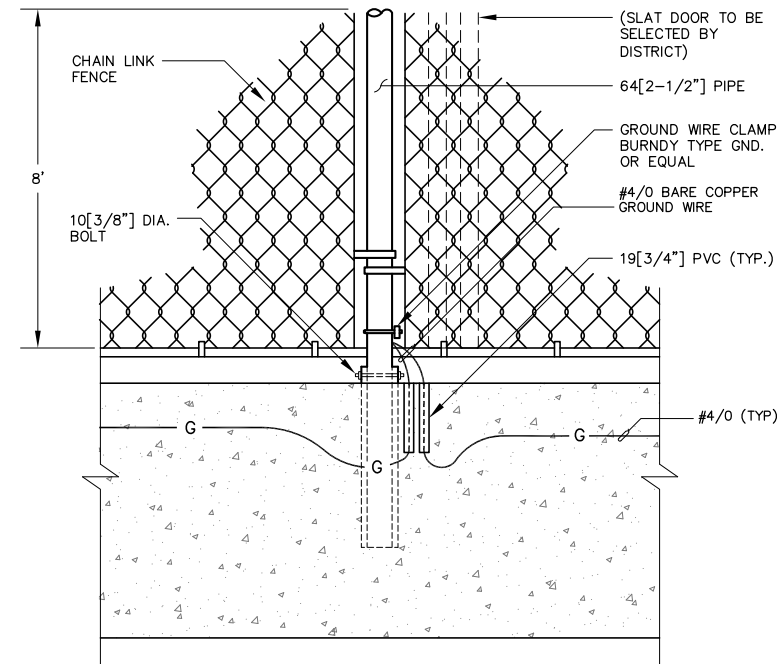
**NOTES:**  
 1. USE STAINLESS STEEL DIAPHRAGM SEALS AND VALVES.  
 2. ALL PIPING SHALL BE 316 STAINLESS STEEL.

**E101C** PRESSURE GAUGE  
 TYP SCALE: NTS  
 DETAIL FOR SEWAGE SERVICE



**NOTES:**  
 COORDINATE WITH THE DISTRICT REGARDING LOCATION PRIOR TO INSTALLATION

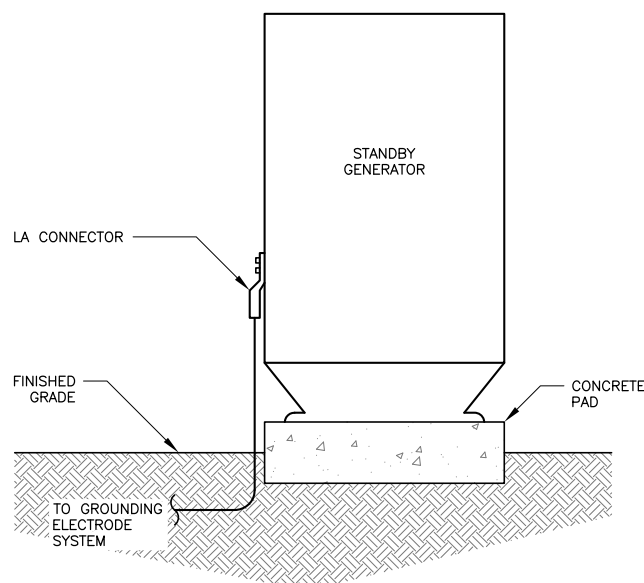
**E105A** ULTRASONIC SENSOR  
 TYP SCALE: NTS  
 FOR PUMPS' WETWELL



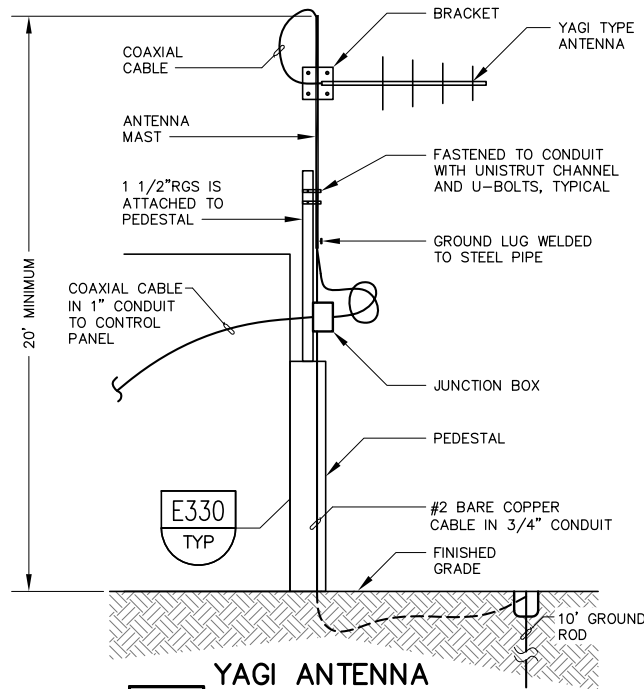
**E113** FENCE GROUNDING DETAIL  
 TYP SCALE: NTS

**NOTES:**

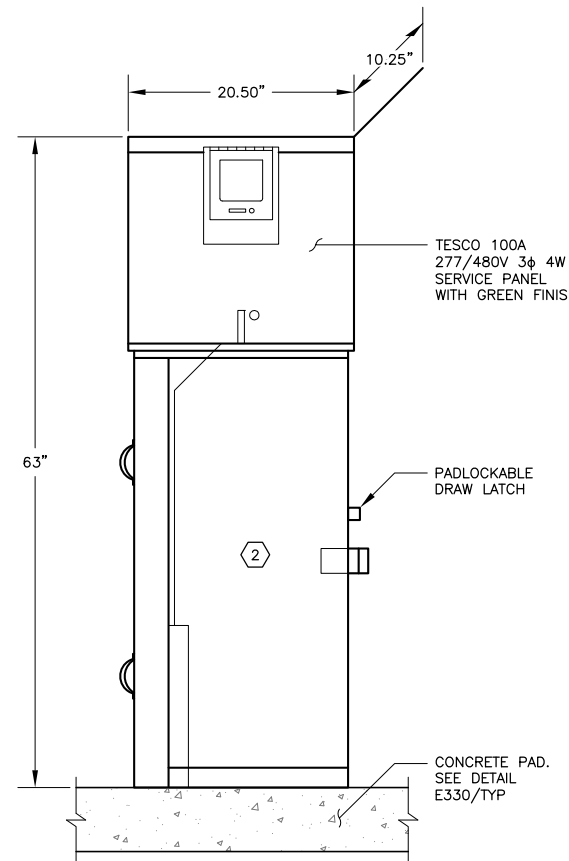
① FOR NON-CHEMICAL SERVICE, PVC PROTECTIVE DIAPHRAGM SEAL IS NOT REQUIRED.



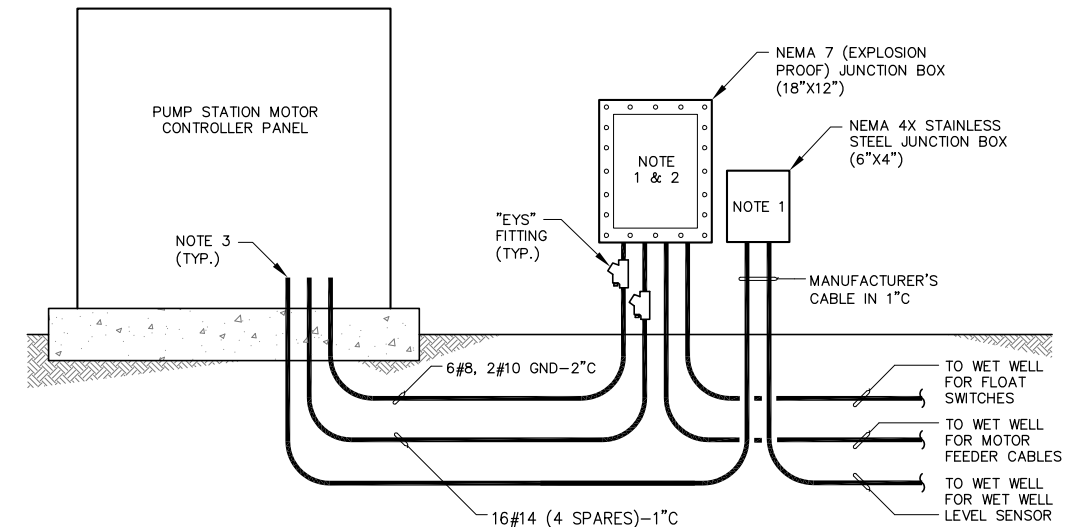
**E122** STATIONARY EQUIPMENT  
 TYP SCALE: NTS  
 GROUNDING CONNECTION



**E750** YAGI ANTENNA  
 TYP SCALE: NTS  
 MOUNTING DETAIL



**A** MAIN SERVICE EQUIPMENT PANEL



**NOTES:**

- FURNISH AND INSTALL SUPPORTS FOR THE JUNCTION BOXES USING STAINLESS STEEL CHANNELS FASTENED TO CONCRETE FOOTING IN SIMILAR MANNER AS DETAIL E330.
- THIS EXPLOSION PROOF UNCTION BOX SHALL BE SUITABLE FOR CLASS 1 DIV1 HAZARDOUS LOCATION, HINGED WITH STAINLESS STEEL HINGES. BOX SHALL BE SIZED FOR TWO OF 2" AND TWO OF 1" INCOMING CONDUITS.
- CONDUIT SHALL BE TERMINATED AT MINIMUM 4" ABOVE BOTTOM OF THE PANEL. FURNISH AND INSTALL DUCT SEALING COMPOUND, PERMANENTLY Pliable, NON-CRACKING, ASBESTOS FREE, NON-TOXIC TO SEAL THE CONDUIT TOP PREVENT MOISTURE FROM ENTERING THE ENCLOSURE.

**B** TYPICAL CONDUIT ROUTING DETAIL

REV	DATE	BY	DESCRIPTION
1			
2			
3			

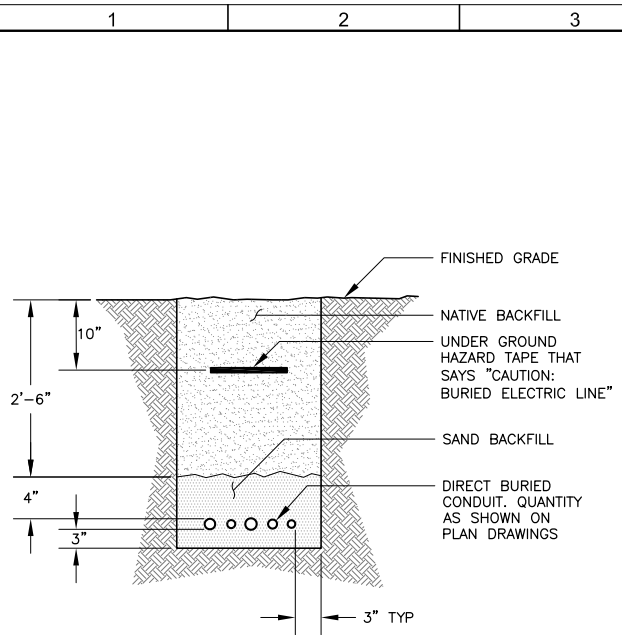
DESIGNED TP  
 DRAWN LD  
 CHECKED DTN  
 DATE MAY 2016



SAUSALITO-MARIN CITY SANITARY DISTRICT  
 HIGHWAY BOOSTER PUMP STATION  
 IMPROVEMENT PROJECT  
 ELECTRICAL  
 DEMOLITION AND ELECTRICAL  
 EQUIPMENT MODIFICATIONS

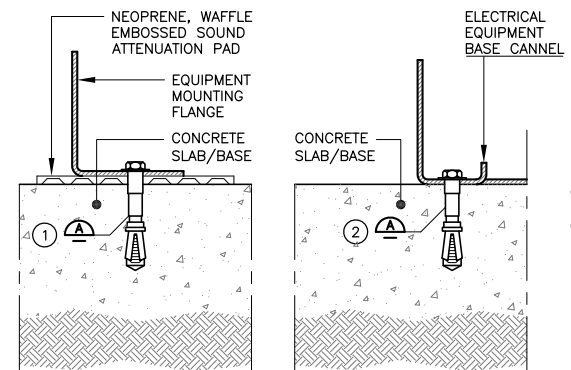
VERIFY SCALES  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1"  
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 8231C.10  
 DRAWING NO. E09  
 SHEET NO. SHT 29 OF 32

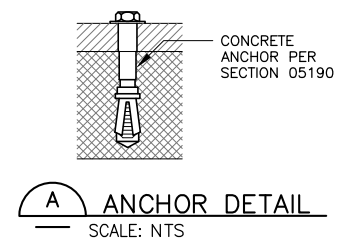


- NOTES:**
1. ALL DIMENSIONS ARE MINIMUM UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
  2. REFER TO SPECIFICATIONS FOR TRENCH BACKFILL REQUIREMENTS.

**E131 DIRECT BURIED CONDUIT**  
TYP SCALE: NTS

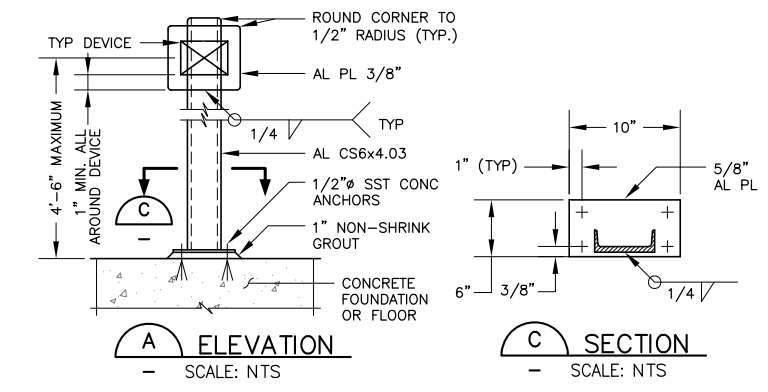


- NOTES:**
1. SHALL BE USED FOR TRANSFORMER ATTACHMENT.
  2. SHALL BE USED FOR MAIN SWITCHBOARD (MSB), MOTOR CONTROL CENTERS (MCC), AND DISTRIBUTION BOARDS.



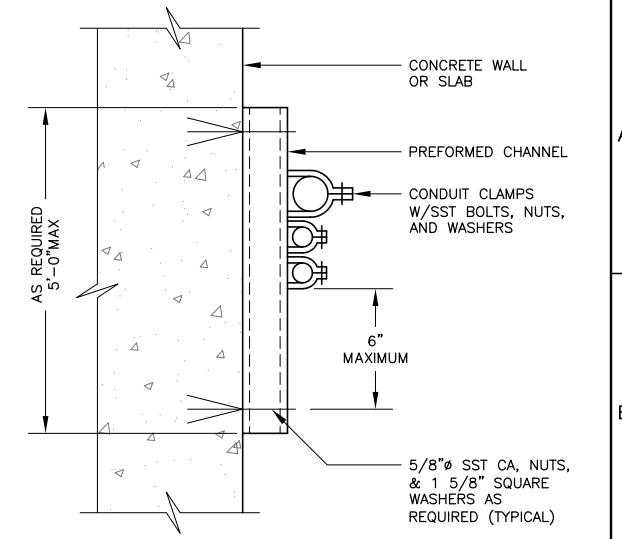
- NOTES:**
1. CONCRETE ANCHOR PER SECTION 05190

**E326 ELECTRICAL EQUIPMENT MOUNTING DETAIL**  
TYP SCALE: NTS



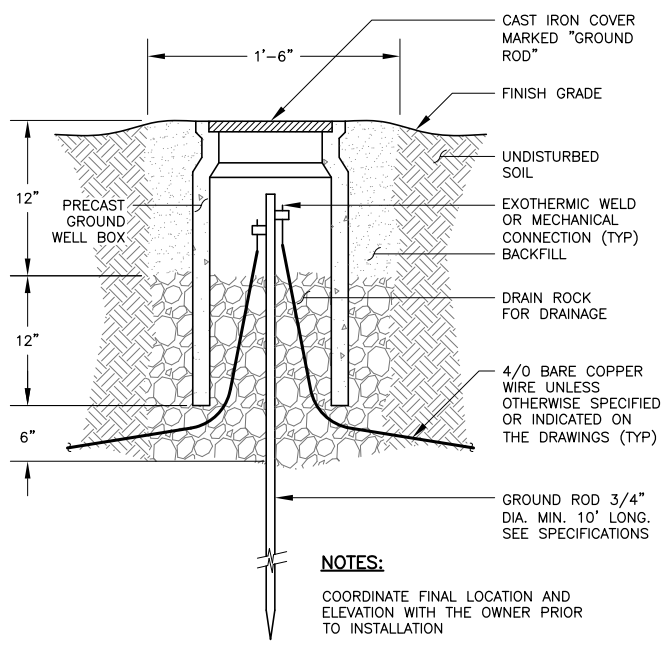
- NOTES:**
1. WHERE SEPARATE FOUNDATION IS REQUIRED, SEE B
  2. COAT ALUMINUM SURFACES IN CONTACT W/CONCRETE PER SPECS.
  3. USE SST FASTENERS FOR MOUNTING DEVICES.
  4. WEIGHT OF DEVICE(S) SHALL NOT EXCEED 100 POUNDS.

**E330 DEVICE SUPPORT AND MOUNTING**  
TYP SCALE: NTS



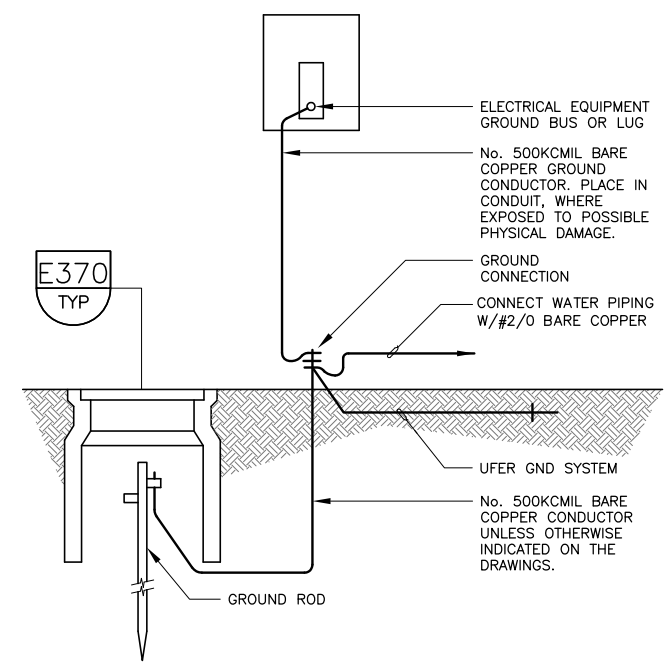
- NOTES:**
1. THIS DETAIL TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING.
  2. PREFORMED CHANNEL, FITTINGS, AND CLAMPS SHALL BE HOT-DIP GALVANIZED STEEL FOR NEMA 12 AREAS AND STAINLESS STEEL FOR NEMA 4X AREAS. FIELD COAT ALL CUTS PER SPECIFICATIONS.
  3. CHANNELS TO BE SPACED AT 5'-0" OC MAXIMUM.

**E340 CONDUIT SUPPORT**  
TYP SCALE: NTS

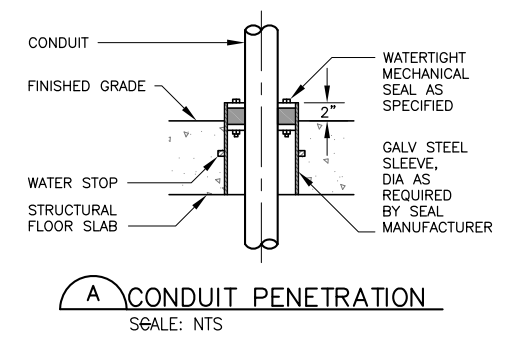


- NOTES:**
- COORDINATE FINAL LOCATION AND ELEVATION WITH THE OWNER PRIOR TO INSTALLATION

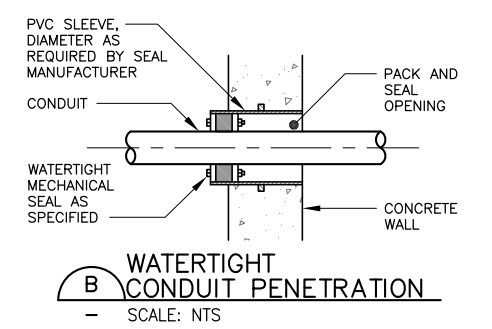
**E370 GROUND WELL**  
TYP SCALE: NTS



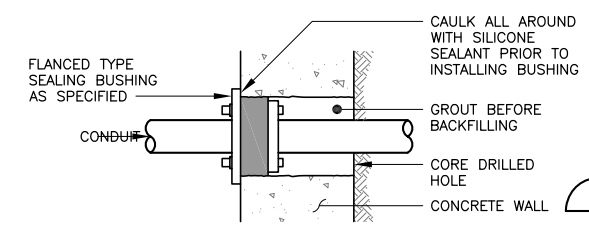
**E372 SERVICE GROUNDING DETAIL**  
TYP SCALE: NTS



**A CONDUIT PENETRATION**  
SCALE: NTS



**B WATERTIGHT CONDUIT PENETRATION**  
SCALE: NTS



**E418 DETAILED CONDUIT PENETRATION**  
TYP SCALE: NTS

REV	DATE	BY	DESCRIPTION
1			
2			

DESIGNED	TP
DRAWN	LD
CHECKED	DTN
DATE	MAY 2016

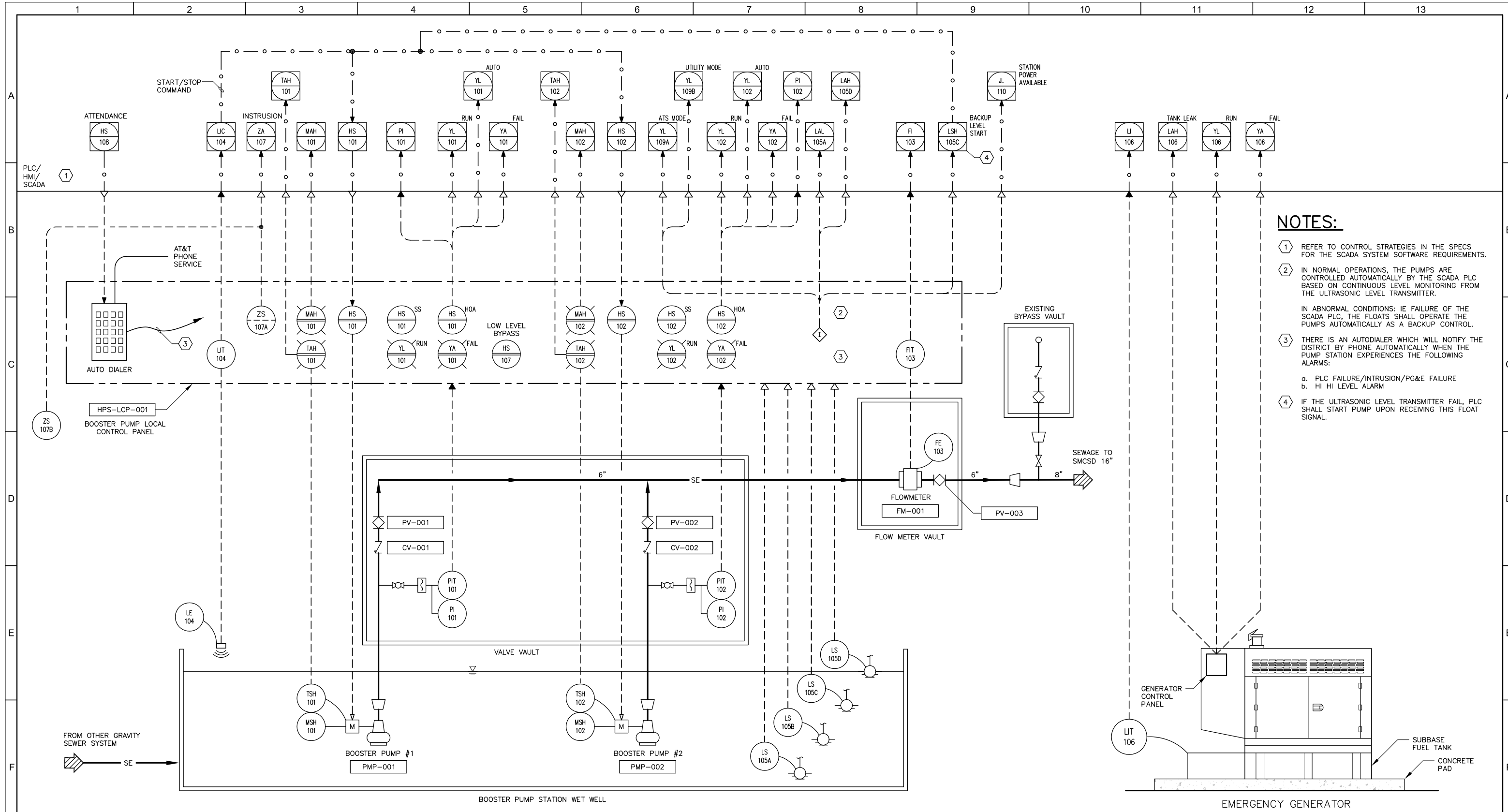


SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT  
ELECTRICAL  
TYPICAL DETAILS

VERIFY SCALES	JOB NO. 8231C.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. E10
0 1"	SHEET NO. SHT 30 OF 32
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	

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<p><b>EXAMPLE SYMBOLS</b></p> <p><b>SPECIAL CASES</b></p>			<p style="text-align:center;">FIRST LETTER(S)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>LETTER</th> <th>PROCESS OR INITIATING VARIABLE</th> <th>MODIFIER</th> <th>READOUT OR PASSIVE FUNCTION</th> <th>OUTPUT FUNCTION</th> <th>MODIFIER</th> </tr> </thead> <tbody> <tr><td>A</td><td>ANALYSIS (+)</td><td></td><td>ALARM</td><td></td><td></td></tr> <tr><td>B</td><td>BURNER FLAME</td><td></td><td>USERS CHOICE (+)</td><td>USERS CHOICE (+)</td><td>USERS CHOICE (+)</td></tr> <tr><td>C</td><td>CONDUCTIVITY</td><td></td><td></td><td>CONTROL</td><td></td></tr> <tr><td>D</td><td>DENSITY (S.G)</td><td>DIFFERENTIAL</td><td></td><td></td><td></td></tr> <tr><td>E</td><td>VOLTAGE</td><td></td><td>PRIMARY ELEMENT</td><td></td><td></td></tr> <tr><td>F</td><td>FLOW RATE</td><td>RATIO</td><td></td><td></td><td></td></tr> <tr><td>G</td><td>GAUGE</td><td></td><td>GLASS</td><td>GATE</td><td></td></tr> <tr><td>H</td><td>HAND (MANUAL)</td><td></td><td></td><td></td><td>HIGH</td></tr> <tr><td>I</td><td>CURRENT</td><td></td><td>INDICATE</td><td></td><td></td></tr> <tr><td>J</td><td>POWER</td><td>SCAN</td><td></td><td></td><td></td></tr> <tr><td>K</td><td>TIME OR SCHEDULE</td><td></td><td></td><td>CONTROL STATION</td><td></td></tr> <tr><td>L</td><td>LEVEL</td><td></td><td>LIGHT (PILOT)</td><td></td><td>LOW</td></tr> <tr><td>M</td><td>MOTION</td><td></td><td></td><td></td><td>MIDDLE</td></tr> <tr><td>N</td><td>USERS CHOICE (+)</td><td></td><td>USERS CHOICE (+)</td><td>USERS CHOICE (+)</td><td>USERS CHOICE (+)</td></tr> <tr><td>O</td><td>USERS CHOICE (+)</td><td></td><td>ORIFICE</td><td></td><td></td></tr> <tr><td>P</td><td>PRESSURE (OR VACUUM)</td><td></td><td>POINT (TEST CONNECTION)</td><td></td><td></td></tr> <tr><td>Q</td><td>QUANTITY OR EVENT(+)</td><td>INTEGRATE</td><td>INTEGRATE</td><td></td><td></td></tr> <tr><td>R</td><td>SPEED OR FREQUENCY</td><td>SAFETY</td><td>RECORD OR PRINT</td><td></td><td></td></tr> <tr><td>S</td><td>SPEED OR FREQUENCY</td><td>SAFETY</td><td></td><td>SWITCH</td><td></td></tr> <tr><td>T</td><td>TEMPERATURE</td><td></td><td></td><td>TRANSMIT</td><td></td></tr> <tr><td>U</td><td>MULTIVARIABLE (+)</td><td></td><td>MULTIFUNCTION (+)</td><td>MULTIFUNCTION (+)</td><td>MULTIFUNCTION (+)</td></tr> <tr><td>V</td><td>VISCOSITY</td><td></td><td></td><td>VALVE OR DAMPER</td><td></td></tr> <tr><td>W</td><td>WEIGHT OR FORCE</td><td></td><td>WELL</td><td></td><td></td></tr> <tr><td>X</td><td>UNCLASSIFIED (+)</td><td></td><td>UNCLASSIFIED (+)</td><td>UNCLASSIFIED (+)</td><td>UNCLASSIFIED (+)</td></tr> <tr><td>Y</td><td>EVENT</td><td></td><td>RELAY OR COMPUTE (+)</td><td></td><td></td></tr> <tr><td>Z</td><td>POSITION</td><td></td><td>DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT</td><td></td><td></td></tr> </tbody> </table>		LETTER	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER	A	ANALYSIS (+)		ALARM			B	BURNER FLAME		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)	C	CONDUCTIVITY			CONTROL		D	DENSITY (S.G)	DIFFERENTIAL				E	VOLTAGE		PRIMARY ELEMENT			F	FLOW RATE	RATIO				G	GAUGE		GLASS	GATE		H	HAND (MANUAL)				HIGH	I	CURRENT		INDICATE			J	POWER	SCAN				K	TIME OR SCHEDULE			CONTROL STATION		L	LEVEL		LIGHT (PILOT)		LOW	M	MOTION				MIDDLE	N	USERS CHOICE (+)		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)	O	USERS CHOICE (+)		ORIFICE			P	PRESSURE (OR VACUUM)		POINT (TEST CONNECTION)			Q	QUANTITY OR EVENT(+)	INTEGRATE	INTEGRATE			R	SPEED OR FREQUENCY	SAFETY	RECORD OR PRINT			S	SPEED OR FREQUENCY	SAFETY		SWITCH		T	TEMPERATURE			TRANSMIT		U	MULTIVARIABLE (+)		MULTIFUNCTION (+)	MULTIFUNCTION (+)	MULTIFUNCTION (+)	V	VISCOSITY			VALVE OR DAMPER		W	WEIGHT OR FORCE		WELL			X	UNCLASSIFIED (+)		UNCLASSIFIED (+)	UNCLASSIFIED (+)	UNCLASSIFIED (+)	Y	EVENT		RELAY OR COMPUTE (+)			Z	POSITION		DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT			<p style="text-align:center;">SUCCEEDING LETTERS</p>		<p><b>LINE LEGEND</b></p>			<p><b>ABBREVIATIONS &amp; LETTER SYMBOLS</b></p> <table style="width:100%;"> <tr><td>AI</td><td>ANALOG INPUT</td></tr> <tr><td>AM</td><td>AUTO-MANUAL</td></tr> <tr><td>AO</td><td>ANALOG OUTPUT</td></tr> <tr><td>CAM</td><td>COMPUTER-AUTO-MANUAL</td></tr> <tr><td>CM</td><td>COMPUTER-MANUAL</td></tr> <tr><td>CP-X</td><td>CONTROL PANEL NO.X</td></tr> <tr><td>CG</td><td>COMBUSTIBLE GAS</td></tr> <tr><td>CO</td><td>CARBON MONOXIDE</td></tr> <tr><td>CTEL</td><td>CONNECT TO EXISTING LINE</td></tr> <tr><td>CP/DCS</td><td>CONTROL PANEL/DCS</td></tr> <tr><td>DCS</td><td>DISTRIBUTED CONTROL SYSTEM</td></tr> <tr><td>DCU</td><td>DISTRIBUTED CONTROL UNIT</td></tr> <tr><td>DI</td><td>DISCRETE INPUT</td></tr> <tr><td>DO</td><td>DISCRETE OUTPUT</td></tr> <tr><td>(E)</td><td>EXISTING</td></tr> <tr><td>ES</td><td>EMERGENCY STOP</td></tr> <tr><td>FLP</td><td>FALL IN LAST POSITION</td></tr> <tr><td>FBM</td><td>FIELD BUS MODULE</td></tr> <tr><td>FM</td><td>FORCE MAIN</td></tr> <tr><td>FOR</td><td>FORWARD-OFF-REVERSE</td></tr> <tr><td>FP-W-X</td><td>FIELD PANEL No. W-X</td></tr> <tr><td></td><td>W = UNIT PROCESS NUMBER</td></tr> <tr><td></td><td>X = PANEL NUMBER</td></tr> <tr><td>FR</td><td>FORWARD-REVERSE</td></tr> <tr><td>FS</td><td>FAST-SLOW</td></tr> <tr><td>GBT</td><td>GRAVITY BELT THICKENER</td></tr> <tr><td>HW</td><td>HEADWORKS</td></tr> <tr><td>H2S</td><td>HYDROGEN SULFIDE</td></tr> <tr><td>HQA</td><td>HAND-OFF-AUTO</td></tr> <tr><td>HOR</td><td>HAND-OFF-REMOTE</td></tr> <tr><td>LA</td><td>LOCAL-AUTO</td></tr> <tr><td>LP/DCS</td><td>LOCAL PANEL-DISTRIBUTED CONTROL SYSTEM</td></tr> <tr><td>LOC</td><td>LOCAL (AT FIELD DEVICE)</td></tr> <tr><td>LOR</td><td>LEFT OFF RIGHT</td></tr> <tr><td>LOS</td><td>LOCKOUT STOP</td></tr> <tr><td>LP</td><td>LOCAL PANEL</td></tr> <tr><td>L/S</td><td>LEAD-STANDBY</td></tr> <tr><td>LR</td><td>LOCAL-REMOTE</td></tr> <tr><td>MA</td><td>MANUAL-AUTO</td></tr> <tr><td>MCC-X</td><td>MOTOR CONTROL CENTER-NO.X</td></tr> <tr><td>MW</td><td>MOTOR WINDINGS</td></tr> <tr><td>NS</td><td>NORTH-SOUTH</td></tr> <tr><td>OIT</td><td>OPERATOR INTERFACE TERMINAL</td></tr> <tr><td>O2</td><td>OXYGEN</td></tr> <tr><td>OC</td><td>OPEN-CLOSE (D)</td></tr> <tr><td>OCA</td><td>OPEN-CLOSE-AUTO</td></tr> <tr><td>OCR</td><td>OPEN-CLOSE-REMOTE</td></tr> <tr><td>OCU</td><td>ODOR CONTROL UNIT</td></tr> <tr><td>OO</td><td>ON-OFF-RTU REMOTE TERMINAL UNIT</td></tr> <tr><td>OOA</td><td>ON-OFF-AUTO</td></tr> <tr><td>OOR</td><td>ON-OFF-REMOTE</td></tr> <tr><td>ORP</td><td>OROXIDATION REDUCTION POTENTIAL</td></tr> <tr><td>OSC</td><td>OPEN-STOP-CLOSE</td></tr> <tr><td>REV</td><td>REVERSE</td></tr> <tr><td>SBD</td><td>SODIUM BISULFITE DRAIN</td></tr> <tr><td>SHD</td><td>SODIUM HYPOCHLORITE DRAIN</td></tr> <tr><td>SLOS</td><td>START-LOCKOUT-STOP</td></tr> <tr><td>S/D</td><td>SEDIMENTATION-DEWATERING</td></tr> <tr><td>S/D/C</td><td>SEDIMENTATION-DEWATERING-CLOSED</td></tr> <tr><td>SS</td><td>START-STOP</td></tr> <tr><td>SSC</td><td>SUPERVISORY SET POINT CONTROL</td></tr> <tr><td>VFD</td><td>VARIABLE FREQUENCY DRIVE</td></tr> <tr><td>VHC</td><td>VOLATILE HYDROCARBON</td></tr> <tr><td>*</td><td>PROVIDED AS PACKAGED EQUIPMENT</td></tr> </table>				AI	ANALOG INPUT	AM	AUTO-MANUAL	AO	ANALOG OUTPUT	CAM	COMPUTER-AUTO-MANUAL	CM	COMPUTER-MANUAL	CP-X	CONTROL PANEL NO.X	CG	COMBUSTIBLE GAS	CO	CARBON MONOXIDE	CTEL	CONNECT TO EXISTING LINE	CP/DCS	CONTROL PANEL/DCS	DCS	DISTRIBUTED CONTROL SYSTEM	DCU	DISTRIBUTED CONTROL UNIT	DI	DISCRETE INPUT	DO	DISCRETE OUTPUT	(E)	EXISTING	ES	EMERGENCY STOP	FLP	FALL IN LAST POSITION	FBM	FIELD BUS MODULE	FM	FORCE MAIN	FOR	FORWARD-OFF-REVERSE	FP-W-X	FIELD PANEL No. W-X		W = UNIT PROCESS NUMBER		X = PANEL NUMBER	FR	FORWARD-REVERSE	FS	FAST-SLOW	GBT	GRAVITY BELT THICKENER	HW	HEADWORKS	H2S	HYDROGEN SULFIDE	HQA	HAND-OFF-AUTO	HOR	HAND-OFF-REMOTE	LA	LOCAL-AUTO	LP/DCS	LOCAL PANEL-DISTRIBUTED CONTROL SYSTEM	LOC	LOCAL (AT FIELD DEVICE)	LOR	LEFT OFF RIGHT	LOS	LOCKOUT STOP	LP	LOCAL PANEL	L/S	LEAD-STANDBY	LR	LOCAL-REMOTE	MA	MANUAL-AUTO	MCC-X	MOTOR CONTROL CENTER-NO.X	MW	MOTOR WINDINGS	NS	NORTH-SOUTH	OIT	OPERATOR INTERFACE TERMINAL	O2	OXYGEN	OC	OPEN-CLOSE (D)	OCA	OPEN-CLOSE-AUTO	OCR	OPEN-CLOSE-REMOTE	OCU	ODOR CONTROL UNIT	OO	ON-OFF-RTU REMOTE TERMINAL UNIT	OOA	ON-OFF-AUTO	OOR	ON-OFF-REMOTE	ORP	OROXIDATION REDUCTION POTENTIAL	OSC	OPEN-STOP-CLOSE	REV	REVERSE	SBD	SODIUM BISULFITE DRAIN	SHD	SODIUM HYPOCHLORITE DRAIN	SLOS	START-LOCKOUT-STOP	S/D	SEDIMENTATION-DEWATERING	S/D/C	SEDIMENTATION-DEWATERING-CLOSED	SS	START-STOP	SSC	SUPERVISORY SET POINT CONTROL	VFD	VARIABLE FREQUENCY DRIVE	VHC	VOLATILE HYDROCARBON	*	PROVIDED AS PACKAGED EQUIPMENT
			LETTER	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER																																																																																																																																																																																																																																																																																																							
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DESIGNED	TP																						
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- NOTES:**
- 1 REFER TO CONTROL STRATEGIES IN THE SPECS FOR THE SCADA SYSTEM SOFTWARE REQUIREMENTS.
  - 2 IN NORMAL OPERATIONS, THE PUMPS ARE CONTROLLED AUTOMATICALLY BY THE SCADA PLC BASED ON CONTINUOUS LEVEL MONITORING FROM THE ULTRASONIC LEVEL TRANSMITTER.
  - 3 IN ABNORMAL CONDITIONS: IE FAILURE OF THE SCADA PLC, THE FLOATS SHALL OPERATE THE PUMPS AUTOMATICALLY AS A BACKUP CONTROL.
  - 4 THERE IS AN AUTODIALER WHICH WILL NOTIFY THE DISTRICT BY PHONE AUTOMATICALLY WHEN THE PUMP STATION EXPERIENCES THE FOLLOWING ALARMS:
    - a. PLC FAILURE/INTRUSION/PG&E FAILURE
    - b. HI HI LEVEL ALARM

**A HIGHWAY BOOSTER PUMP STATION**  
NOT TO SCALE

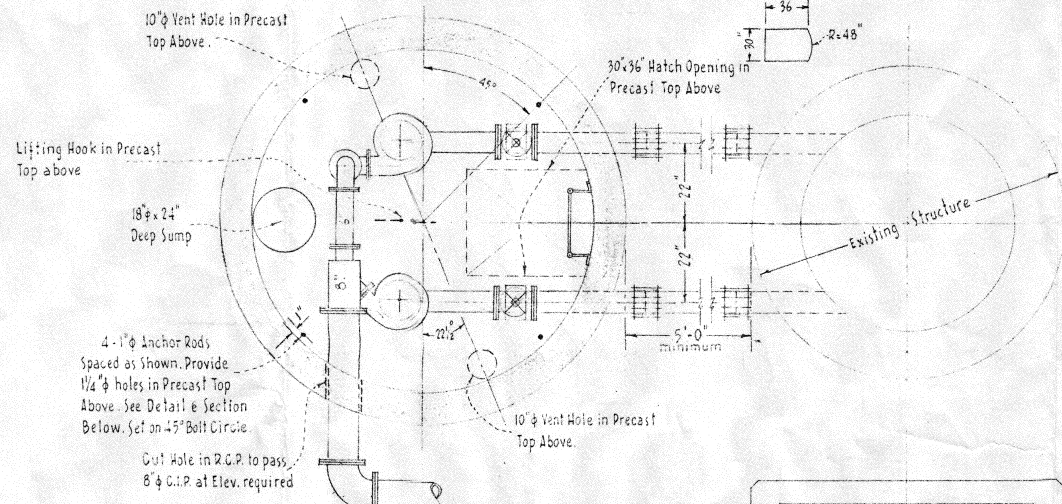
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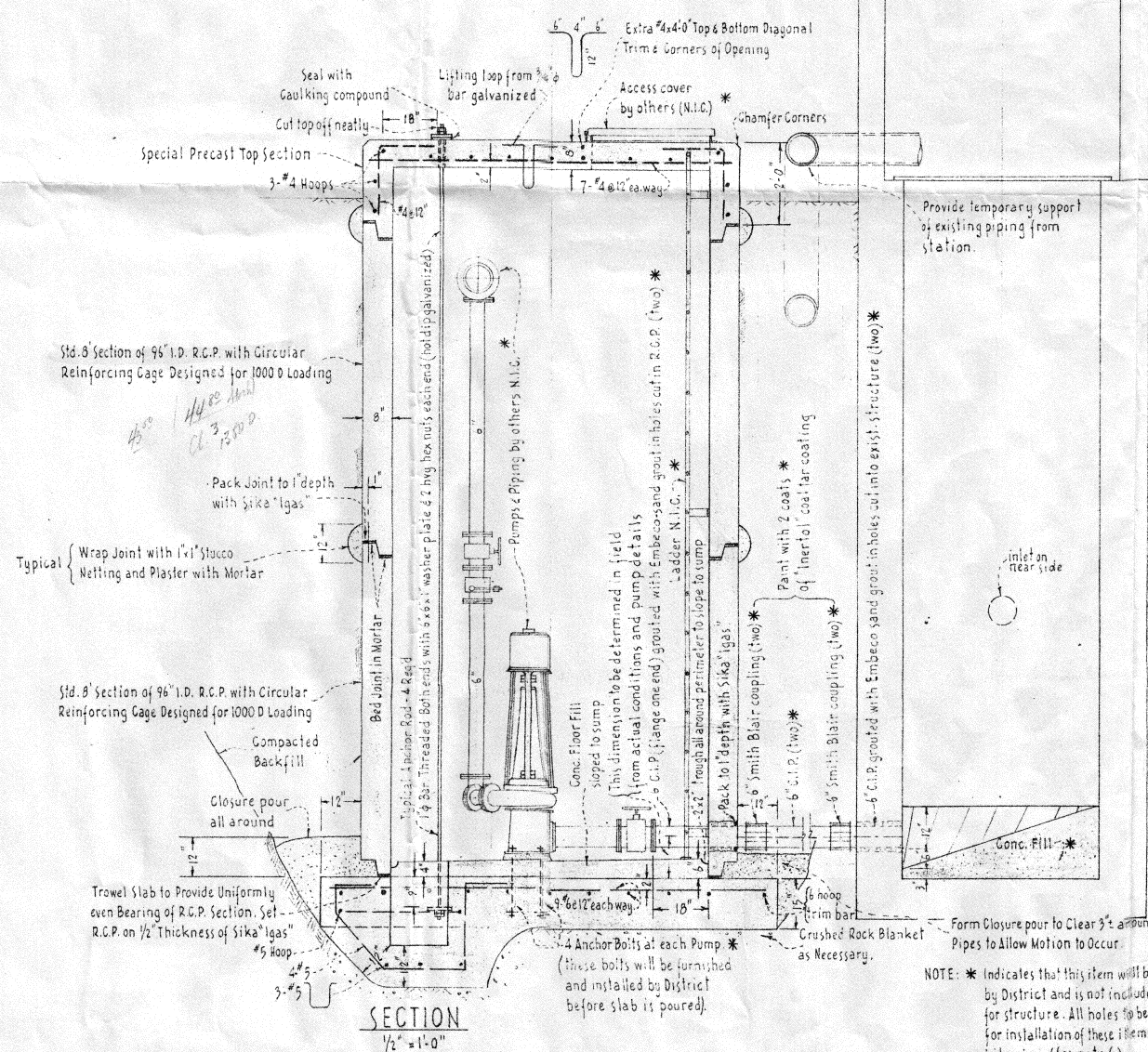


SAUSALITO-MARIN CITY SANITARY DISTRICT  
HIGHWAY BOOSTER PUMP STATION  
IMPROVEMENT PROJECT  
INSTRUMENTATION  
P&ID HIGHWAY BOOSTER PUMP STATION

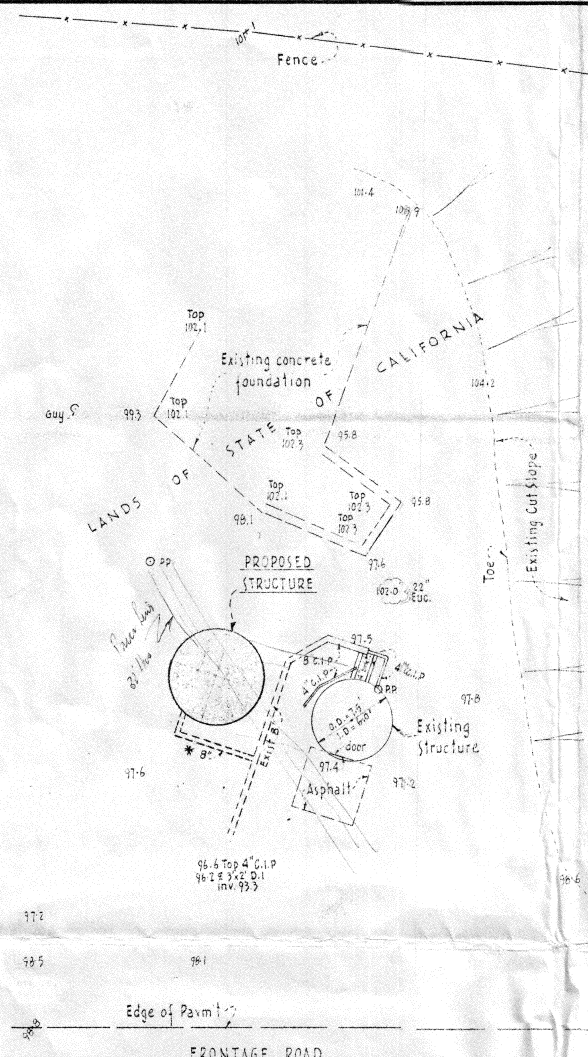
VERIFY SCALES	JOB NO. 8231C.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 102
0 1"	SHEET NO. SHT 32 OF 32
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	



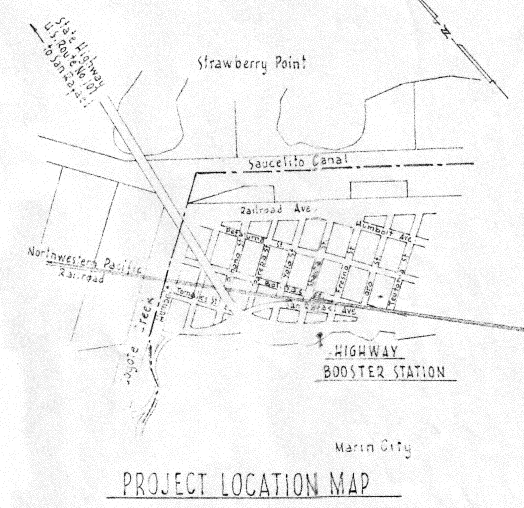
PLAN  
1/2" = 1'-0"



SECTION  
1/2" = 1'-0"



SITE PLAN  
1/8" = 1'-0"



NOTES

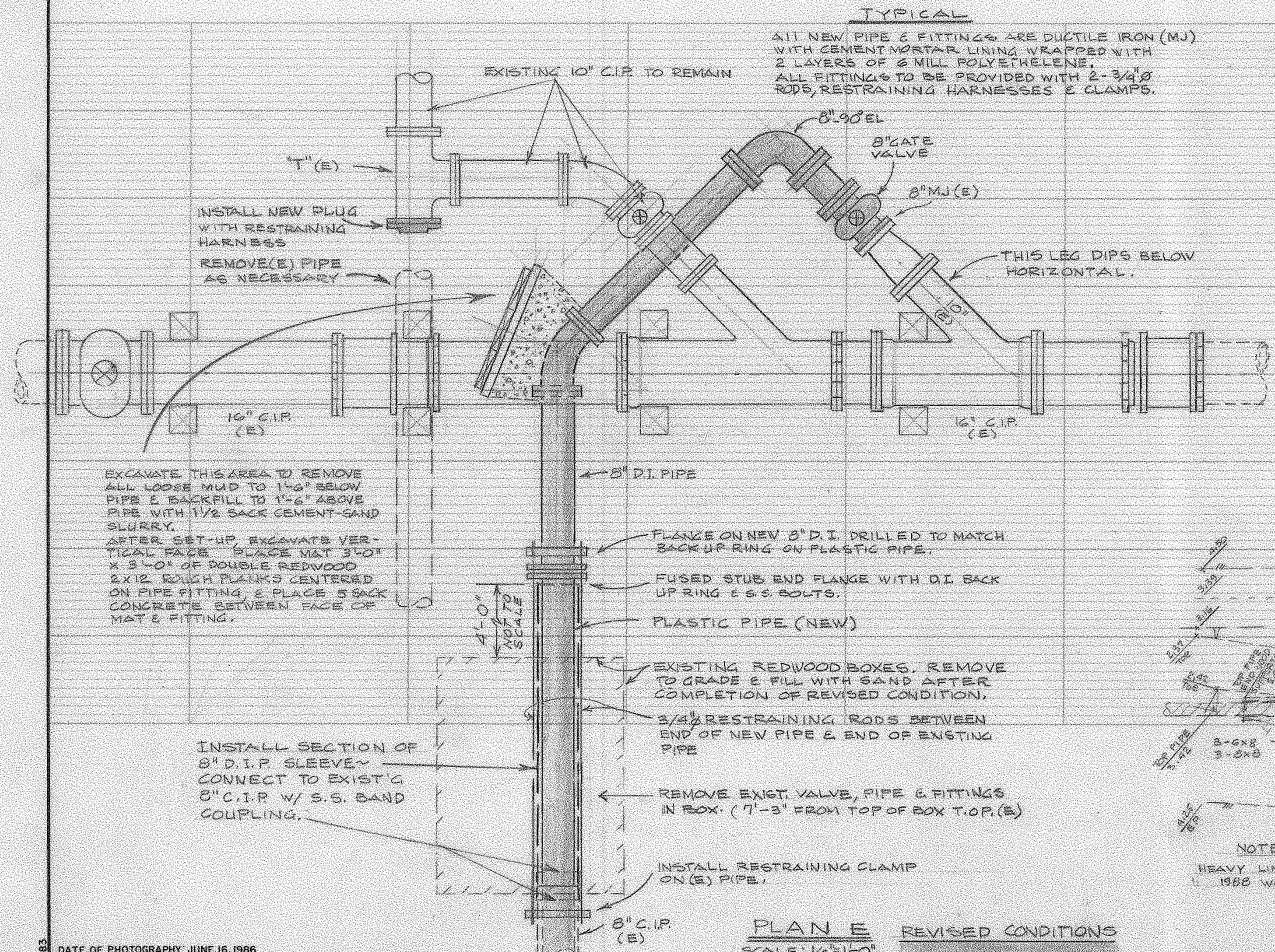
1. Work under this contract is limited to construction and backfill of the basic concrete structure plus cutting of miscellaneous holes in existing and new concrete as noted. Pumps & piping by District.
2. Concrete in place shall attain a minimum strength of 2500 p.s.i. 28 days after being placed.
3. Reinforcing steel shall be deformed intermediate grade made from new billet steel conforming to A.S.T.M. Specs A-15 & A-305.
4. Backfilling shall be brought up uniformly around the structure. All backfill shall be compacted to 90% minimum relative compaction.
5. The site shall be left in a neatly graded condition with provision for drainage away from the structures.
6. Contractor shall co-operate with District in scheduling his work to allow those items of work noted to be performed by District to be accomplished at proper times.

NO.		REVISION		DATE	
<b>WHITLOW, HOFFMAN &amp; ALBRITTON</b>					
CIVIL & STRUCTURAL ENGINEERS					
SAN RAFAEL DISTRICT ENGINEER CALIFORNIA			CALIFORNIA		
<b>PUMP PIT CONSTRUCTION DETAILS</b>					
<b>HIGHWAY BOOSTER STATION</b>					
<b>SITE PLAN, STRUCTURAL SECTIONS, PUMP OUTLINE</b>					
MARIN COUNTY CALIFORNIA					
SCALE: As Noted		DESIGN BY: BGA	SHEET NO.:	JOB NO. 2097.4	
DATE: APRIL, 1965		DRAWN BY: BGA	CHECKED BY:	DRW. NO. 1	
SAUSALITO MARIN CITY SANITARY DISTRICT					



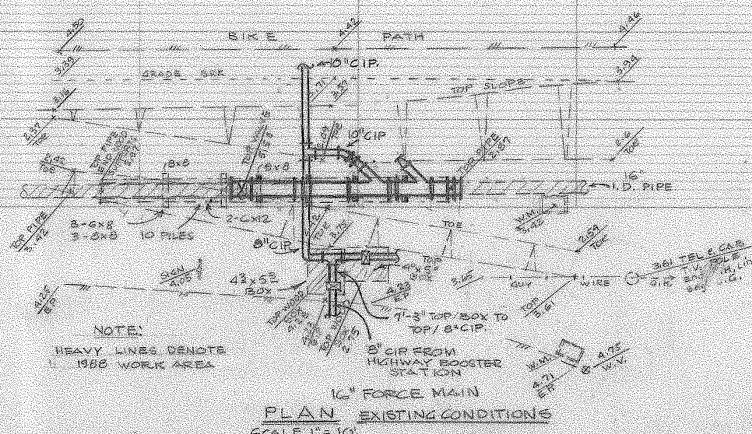
NEW PLASTIC PIPE TO BE INSERTED THRU EXISTING 8" C.I.P. PLASTIC PIPE IS 40" P.E. 6.625" O.D. S.D.R. 26, FUSED JOINTS APPROX. LENGTH OF SLEEVE IS 300" EXACT LENGTH TO BE DETERMINED AT TIME OF INSTALLATION.

SCALE: 1"=40'

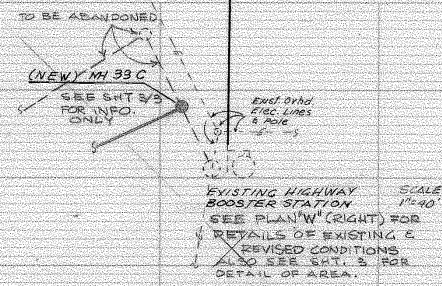


PLAN E REVISED CONDITIONS SCALE: 1/2"=1'-0"

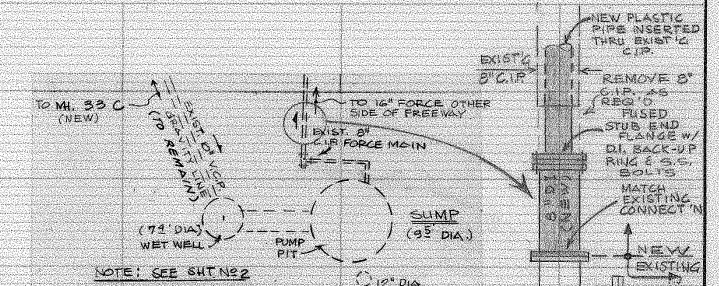
Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this Project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify, and hold the Owner and the Engineer harmless from any and all liability, real or alleged, in connection with the performance of work on this Project, excepting for liability arising from the sole negligence of the Owner or the Engineer.



PLAN W EXISTING CONDITIONS SCALE: 1"=10'



SCALE: 1"=40'



SCALE: 1"=10'

SCALE: 1/2"=1'-0"

NOTE: ALL WORK & MATERIAL TO COMPLY WITH REQUIREMENTS OF D.O.T. (CALTRANS) PERMIT NO. 0489-NUS 0874.

My Certificate Expires 12/31/92  
 REGISTERED CIVIL ENGINEER  
 BEN C. ALBRITTON  
 No. 8366  
 STATE OF CALIFORNIA

ALL WORK DEPICTED ON THIS DRAWING IS INCLUDED UNDER BID SCHEDULE C-1

NO.	REVISION	DATE

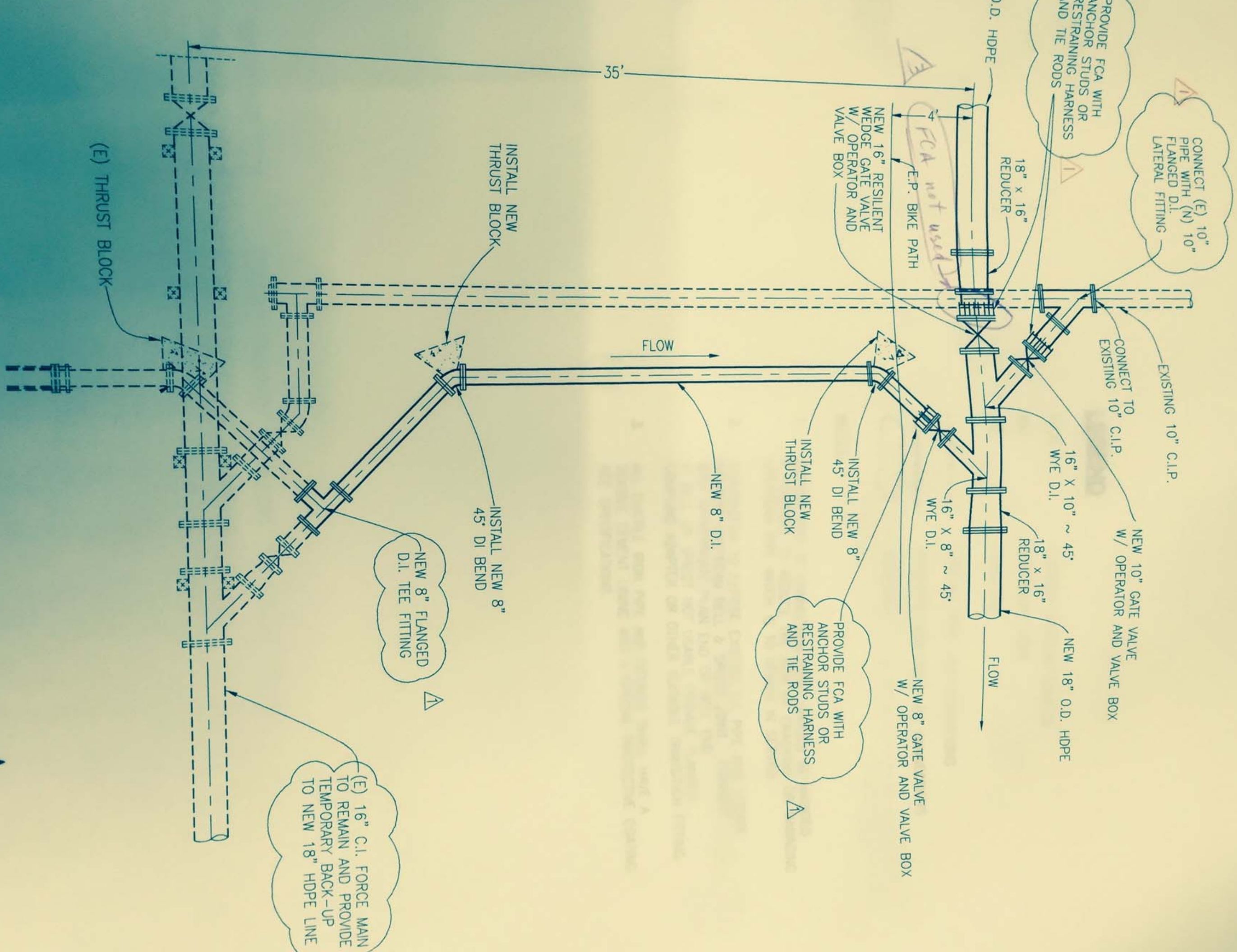
**PLASTIC FORCE MAIN INSERT HIGHWAY BOOSTER STATION**

Sausalito - Marin City Sanitary District

SCALE: AS SHOWN    DES. BY: B.C.A.    SHEET NO. 1/3    JOB NO. 2097.26(C)

DATE: 8-28-89    DRAWN: R.R.B.    CHECKED: B.C.A.    DRW. NO.

Ben C. Albritton: District Engineer



CONNECTION NORTH OF HELIPORT

SCALE 1/4" = 1'-0"

