

# North Bay Water Reuse Program Sonoma Valley County Sanitation District Treatment Plant

## PUMPING AND PIPING UPGRADES

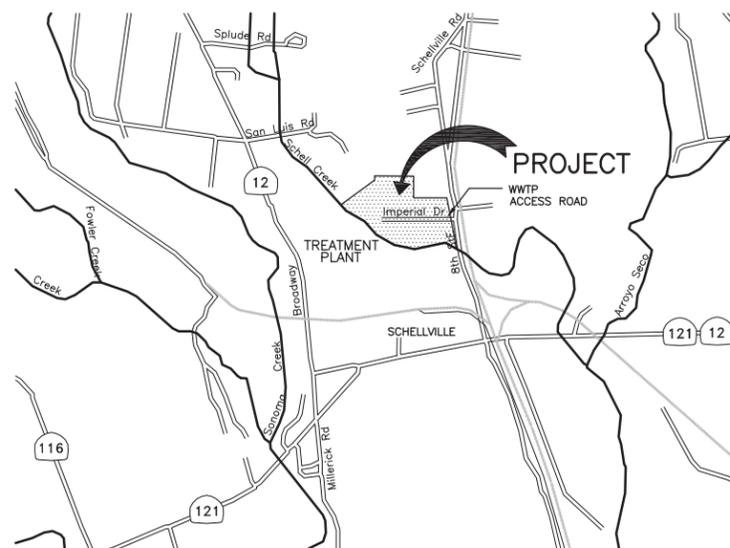
Contract No. 71-712-7 #4

ISSUED FOR BIDS

June 16th, 2016



VICINITY MAP  
NTS



LOCATION MAP  
NTS

### SHEET LIST

#### GENERAL

- G01 COVER SHEET, LOCATION AND VICINITY MAPS, SHEET LIST, AND GENERAL NOTES
- G02 GENERAL NOTES, ABBREVIATIONS AND SYMBOLS
- G03 STANDARD DETAILS I
- G04 STANDARD DETAILS II
- G05 STANDARD DETAILS III

#### DEMOLITION

- D01 SITE DEMOLITION PLAN AND SECTION
- D02 SITE DEMOLITION PLAN

#### CIVIL

- C01 OVERALL PLANT SITE PLAN
- C02 18" EFFL AND 18" REW PIPELINE JOINT TRENCH PLAN AND PROFILE
- C03 EXISTING OUTFALL FLOW METER VAULT MODIFICATION PLAN
- C04 EXISTING OUTFALL FLOW METER VAULT MODIFICATION SECTIONS
- C05 SITE MODIFICATION PLANS, SECTIONS AND DETAILS
- C06 12" REW PIPELINE FROM R5 TO 8th STREET EAST PLAN AND PROFILE I
- C07 12" REW PIPELINE FROM R5 TO 8th STREET EAST PLAN AND PROFILE II
- C08 18" EFFL PIPELINE FROM OUTFALL FLOW METER VAULT TO R5 INLET PIPE PLAN AND PROFILE I
- C09 18" EFFL PIPELINE FROM OUTFALL FLOW METER VAULT TO R5 INLET PIPE PLAN AND PROFILE II
- C10 6" EXPORT PUMP STATION DRAIN PLAN AND PROFILE
- C11 EXPORT PUMPING STATION MODIFICATION PLAN AND SECTIONS
- C12 HYDROPNEUMATIC TANK PLAN AND SECTIONS
- C13 R5 INLET MODIFICATION PLAN AND SECTIONS

#### ELECTRICAL

- E01 SYMBOLS AND LEGEND
- E02 SYMBOLS AND LEGEND
- E03 ELECTRICAL SITE PLAN
- E04 SINGLE LINE, CONTROL DIAGRAMS AND PANEL SCHEDULE
- E05 EXPORT PUMP STATION AND MCC-R ELECTRICAL PLANS
- E06 EFFLUENT PUMP STATION AREA ELECTRICAL PLAN
- E07 ELECTRICAL DETAILS AND WIRING DIAGRAMS
- E08 ELECTRICAL DETAILS
- E09 DUCT BANK, WIRING AND CONDUIT SCHEDULES

#### INSTRUMENTATION

- I01 SYMBOLS AND LEGEND
- I02 EFFLUENT FLOW METER VAULT MODIFICATIONS
- I03 RESERVOIR R5 EXPORT PUMPS

### GENERAL NOTES

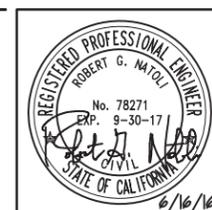
1. HORIZONTAL DATUM:  
CALIFORNIA COORDINATE SYSTEM ZONE 2, NAD 1983
2. VERTICAL DATUM:  
BASED ON MEAN SEA LEVEL DATUM OF 1929 (NGVD 29). A U.S.C. AND G.S. BRONZE DISK STAMPED "L 470 1951" FOUND APPROXIMATELY 1.0 MILE SOUTHEAST ALONG THE SOUTHERN PACIFIC RAILROAD COMPANY TRACKS FROM THE STATION AT SCHELLVILLE, AND 250'± NORTHWEST OF BURNDALE ROAD. BENCHMARK IS SET IN THE TOP OF THE NORTHWEST END OF THE NORTHEAST CONCRETE HEADWALL, 7.4' NORTHEAST OF THE NORTHEAST RAIL. ELEVATION 6.51'.
3. PROJECT BENCHMARK:  
A 1 1/2" BRONZE DISK STAMPED "SV-1 EL 23.43" AND SET IN THE CONCRETE BASE OF THE FLAGPOLE AT THE SOUTHEAST CORNER OF THE SONOMA VALLEY TREATMENT PLANT OPERATIONS BUILDING. ELEVATION 23.43'.



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	

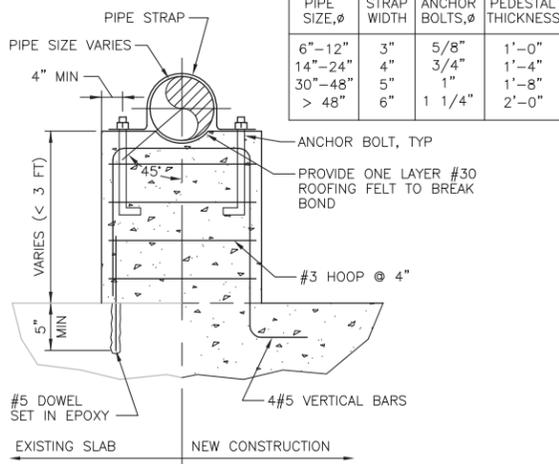


North Bay Water Reuse Program  
Sonoma Valley County Sanitation District  
Treatment Plant

PUMPING AND PIPING UPGRADES

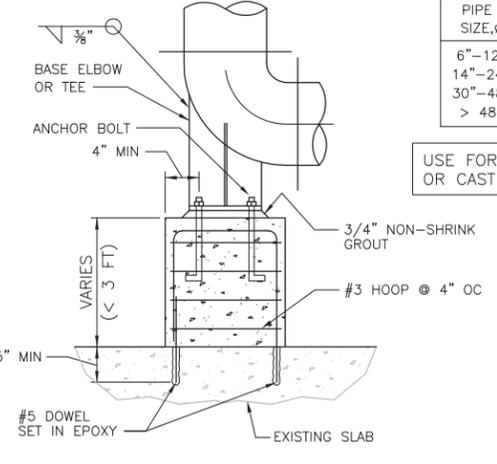
GENERAL	
<b>COVER SHEET, LOCATION AND VICINITY MAPS, SHEET LIST, AND GENERAL NOTES</b>	
FILENAME	144908_G01.dwg
SCALE	NONE
SHEET <b>G01</b>	





PIPE SIZE, Ø	STRAP WIDTH	ANCHOR BOLTS, Ø	PEDESTAL THICKNESS
6"-12"	3"	5/8"	1'-0"
14"-24"	4"	3/4"	1'-4"
30"-48"	5"	1"	1'-8"
> 48"	6"	1 1/4"	2'-0"

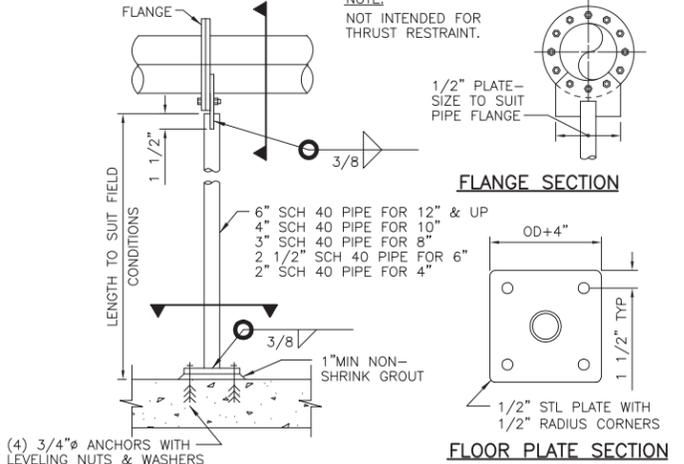
**CONCRETE PEDESTAL**  
NTS



PIPE SIZE, Ø	ANCHOR BOLTS, Ø
6"-12"	5/8"
14"-24"	3/4"
30"-48"	1"
> 48"	1 1/4"

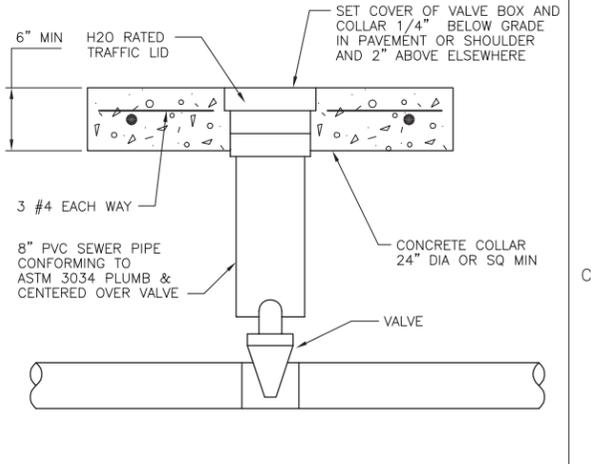
USE FOR DUCTILE IRON OR CAST IRON ONLY

**BASE ELBOW PEDESTAL**  
NTS

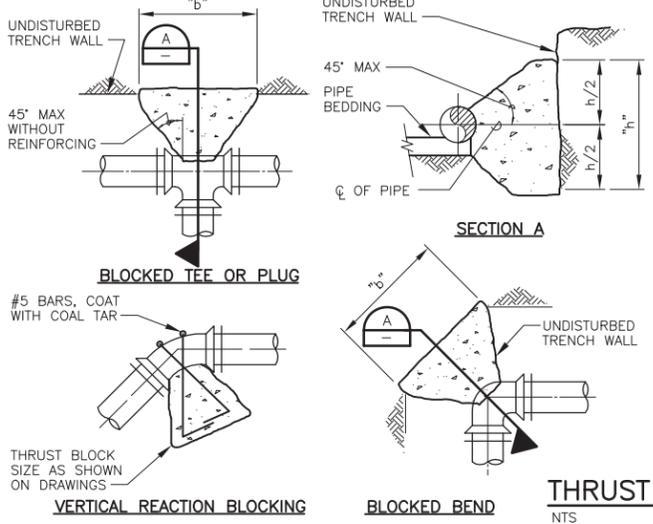


NOTE:  
NOT INTENDED FOR THRUST RESTRAINT.

**FLANGED PIPE SUPPORT**  
NTS



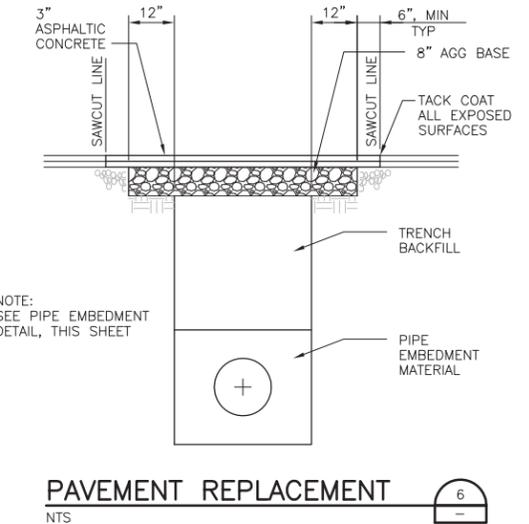
**VALVE BOX DETAIL**  
NTS



PIPE SIZE	LOCATION	"b" FT	"h" FT
3" & 4"	45° BEND	1	1
3" & 4"	90° BEND OR TEE	2	1
6"	45° BEND	2	1
6"	90° BEND OR TEE	2	2
8"	45° BEND	2	1.5
8"	90° BEND OR TEE	2.5	2.5
10"	45° BEND	2.5	2.5
10"	90° BEND OR TEE	3.5	3

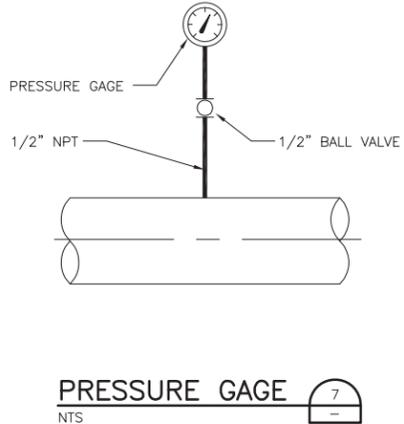
NOTE:  
THRUST BLOCKS SHALL NOT BE USED ON PIPES GREATER THAN 10" DIAMETER. RESTRAINED JOINTS TO BE USED ON PIPES 12" DIAMETER AND LARGER

**THRUST BLOCKING DETAILS**  
NTS

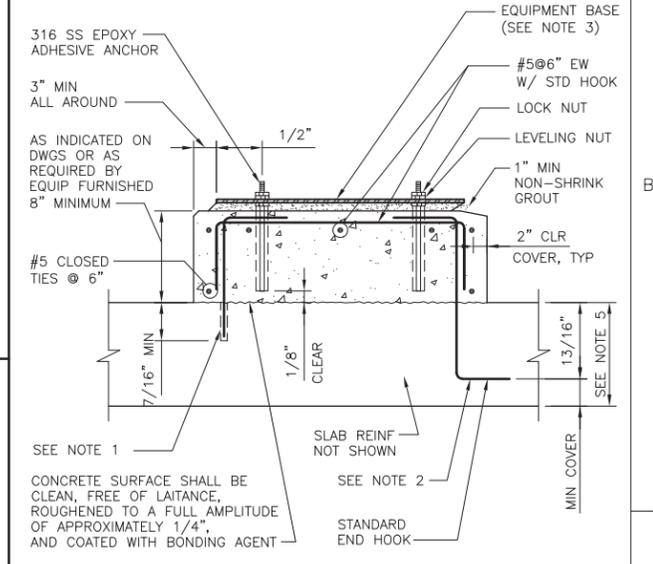


NOTE:  
SEE PIPE EMBEDMENT DETAIL, THIS SHEET

**PAVEMENT REPLACEMENT**  
NTS



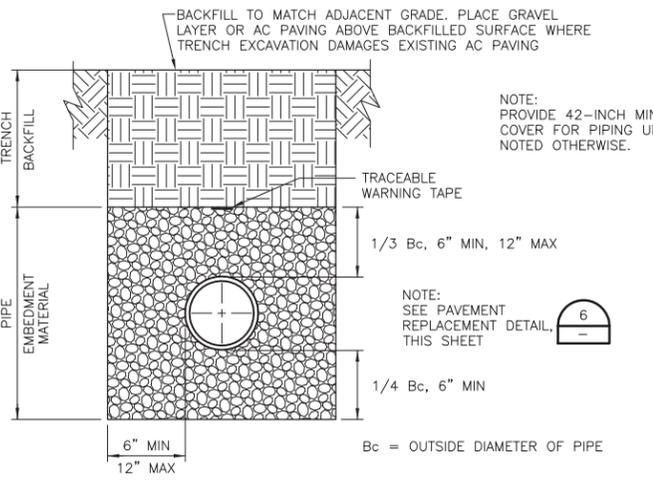
**PRESSURE GAGE**  
NTS



CONCRETE SURFACE SHALL BE CLEAN, FREE OF LAITANCE, ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY 1/4", AND COATED WITH BONDING AGENT

- NOTES:
- FOR NEW EQUIPMENT PADS ON EXISTING SLABS, DRILL INTO EXISTING SLAB AT 6" CENTERS AROUND PERIMETER OF EQUIPMENT PADS AND SET #5 HOOKED DOWELS IN EPOXY GROUT.
  - FOR EQUIPMENT PADS ON NEW SLABS, PROVIDE #5 DOWELS AT 6" CENTERS AROUND PERIMETER OF EQUIPMENT BASE.
  - EQUIPMENT DIMENSIONS SHALL BE AS INDICATED ON THE DRAWINGS OR AS DETERMINED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE ENGINEER.
  - EQUIPMENT BASES SHALL BE INSTALLED LEVEL. TOLERANCE IS 1/16".
  - WHERE CONCRETE SLAB THICKNESS WILL NOT PROVIDE MINIMUM COVER AS SPECIFIED ON DWGS, PROVIDE EXTRA THICKNESS OF CONCRETE.

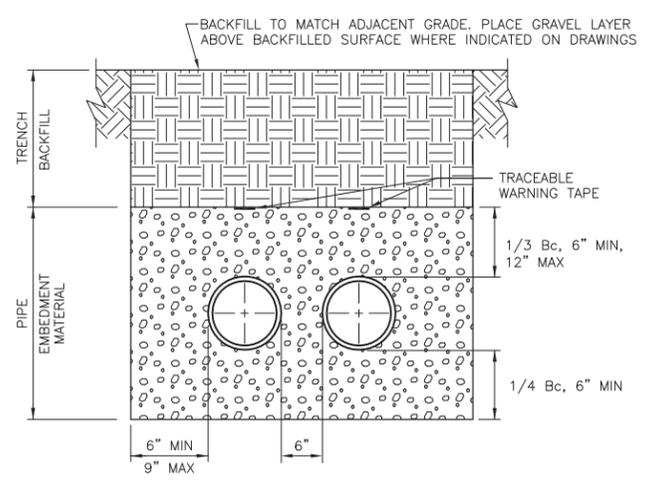
**EQUIPMENT PAD DETAIL**  
NTS



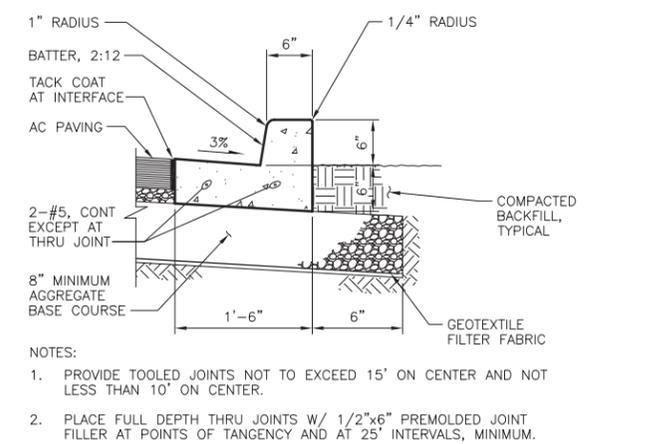
NOTE:  
PROVIDE 42-INCH MINIMUM COVER FOR PIPING UNLESS NOTED OTHERWISE.

NOTE:  
SEE PAVEMENT REPLACEMENT DETAIL, THIS SHEET

**PIPE EMBEDMENT/TRENCH DETAIL**  
NTS



**JOINT TRENCH**



- NOTES:
- PROVIDE TOOLED JOINTS NOT TO EXCEED 15' ON CENTER AND NOT LESS THAN 10' ON CENTER.
  - PLACE FULL DEPTH THRU JOINTS W/ 1/2"x6" PREMOLDED JOINT FILLER AT POINTS OF TANGENCY AND AT 25' INTERVALS, MINIMUM.

**CURB AND GUTTER**  
NTS



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A	6/16/16	ISSUED FOR BIDS

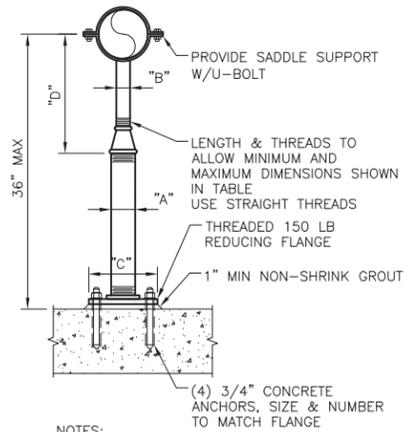
PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**  
**PUMPING AND PIPING UPGRADES**

GENERAL		STANDARD DETAILS I	
FILENAME	144908_G03.dwg	SHEET	G03
SCALE	NONE		



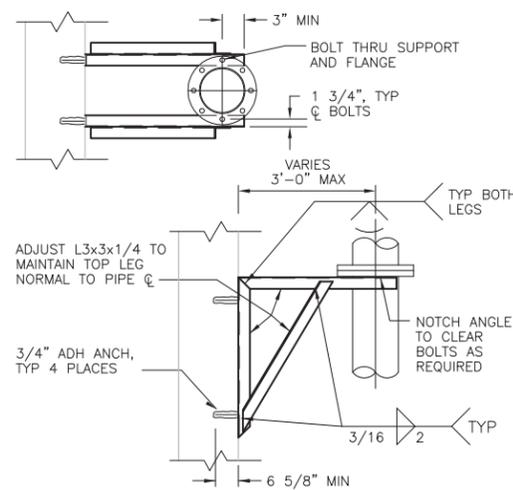
**FLOOR PIPE SUPPORT SCHEDULE  
DIMENSIONS IN INCHES**

PIPE SIZE	"A"	"B"	"C"	"D"		ANCHORS	
				MINIMUM	MAXIMUM	DIA	EMBED
≤ 2 1/2	2 1/2	1 1/2	9	8	13	5/8	5
3	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
3 1/2	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
4	3	2 1/2	9	9 1/2	14	5/8	5
6	3	2 1/2	9	10 1/2	15 1/2	5/8	5
8	3	2 1/2	9	11 1/2	16 1/2	5/8	5
10	3	2 1/2	9	13 1/2	18 1/2	5/8	5
12	3	2 1/2	9	15	19 1/2	5/8	5
14	4	3	11	16 1/2	20 1/2	3/4	6 5/8
16	4	3	11	17 1/2	22 1/2	3/4	6 5/8
18	6	3 1/2	13 1/2	19 1/2	24	3/4	6 5/8
20	6	3 1/2	13 1/2	21	25 1/2	3/4	6 5/8
24	6	4	13 1/2	23 1/2	28 1/2	3/4	6 5/8

- NOTES:
- HOT-DIP GALVANIZE AFTER FABRICATION.
  - PIPE SHALL BE SCHEDULE 40.

**ADJUSTABLE PIPE SUPPORT**

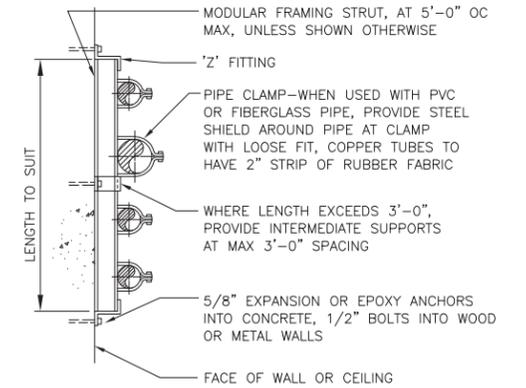
NTS



NOTE: ENTIRE ASSEMBLY TO BE 316 SST.

**RISER PIPE SUPPORT**

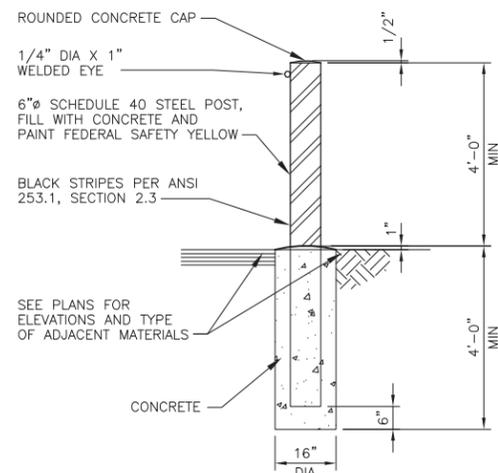
NTS



- NOTES:
- ENTIRE ASSEMBLY TO BE 316 SST.
  - NOT TO BE USED FOR PIPES 8" AND LARGER.

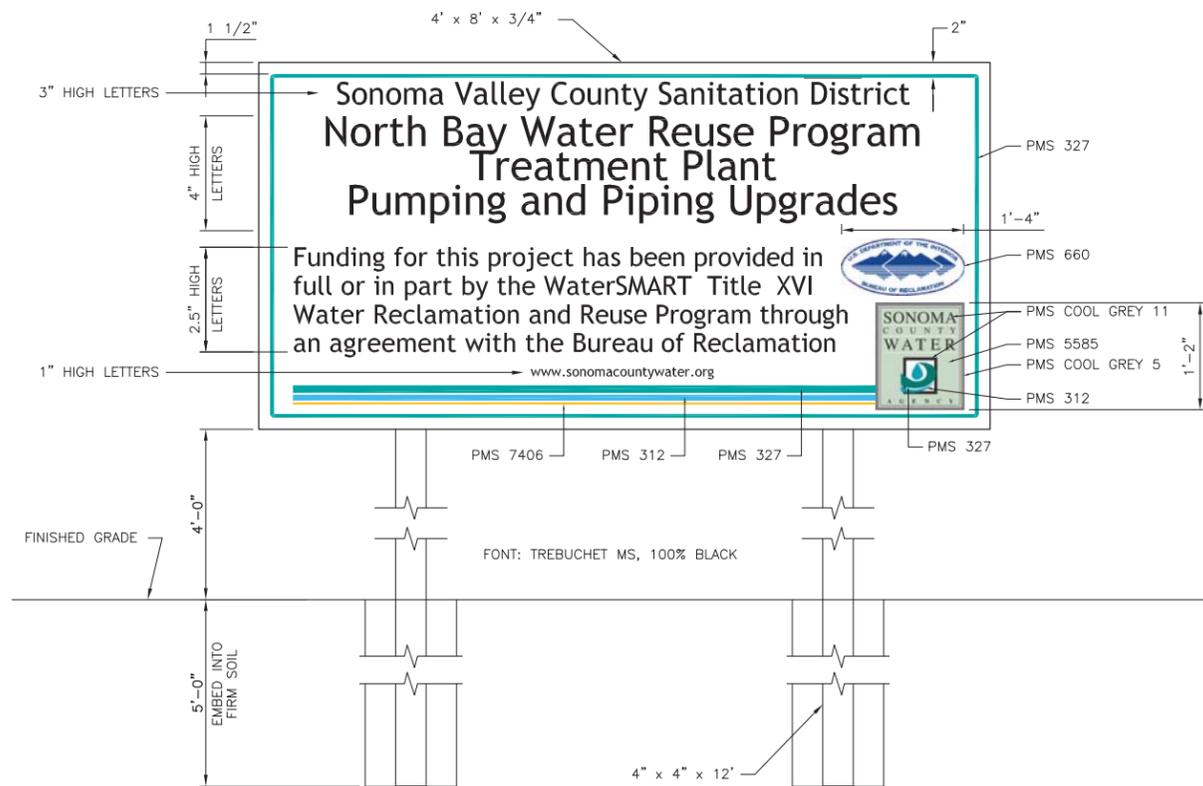
**SURFACE MOUNT MODULAR STRUT**

NO SCALE



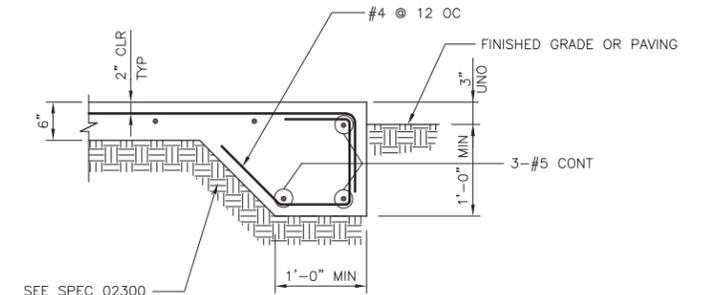
**BOLLARD DETAIL**

NO SCALE



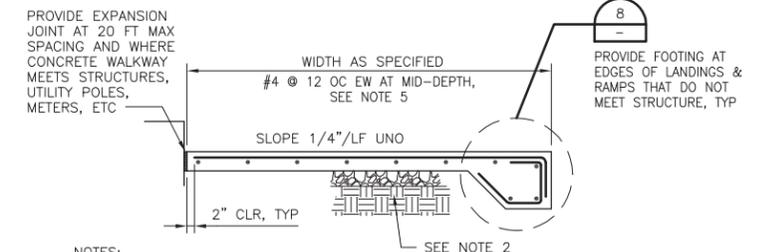
**PROJECT SIGN DETAIL**

NO SCALE



**TYPICAL SLAB EDGE**

NTS



NOTES:

- PROVIDE BROOM FINISH.
- PROVIDE TOOLED JOINTS AT 5 FOOT CENTERS IN PERPENDICULAR DIRECTIONS.
- PROVIDE 6" GRANULAR FILL UNDER CONCRETE SIDEWALKS AND LANDINGS, UNLESS OTHERWISE NOTED.
- PROVIDE 12" GRANULAR FILL UNDER CONCRETE PAVEMENT AND RAMPS, UNLESS NOTED OTHERWISE.
- #5 @ 8" OC EW AT MID-DEPTH AT CONCRETE PAVEMENT AND RAMPS, UNLESS NOTED OTHERWISE.
- 8" THICKNESS AT CONCRETE PAVEMENT AND RAMPS, UNLESS NOTED OTHERWISE.

**CONCRETE SIDEWALK,  
LANDINGS, AND RAMP DETAIL**

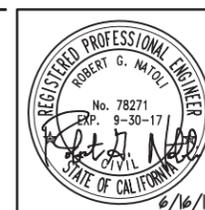
NTS



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A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	



**North Bay Water Reuse Program  
Sonoma Valley County Sanitation District  
Treatment Plant**

**PUMPING AND PIPING UPGRADES**

**GENERAL**

**STANDARD DETAILS II**

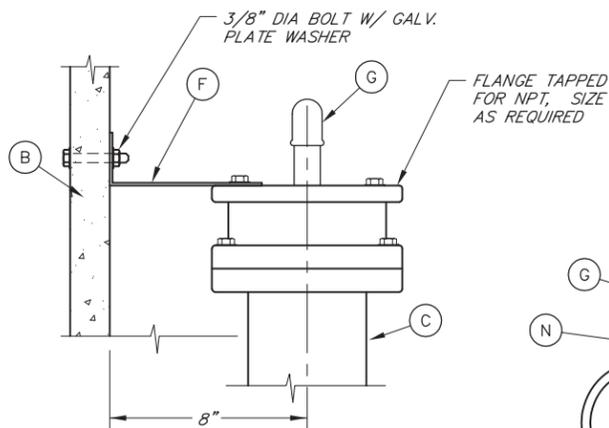
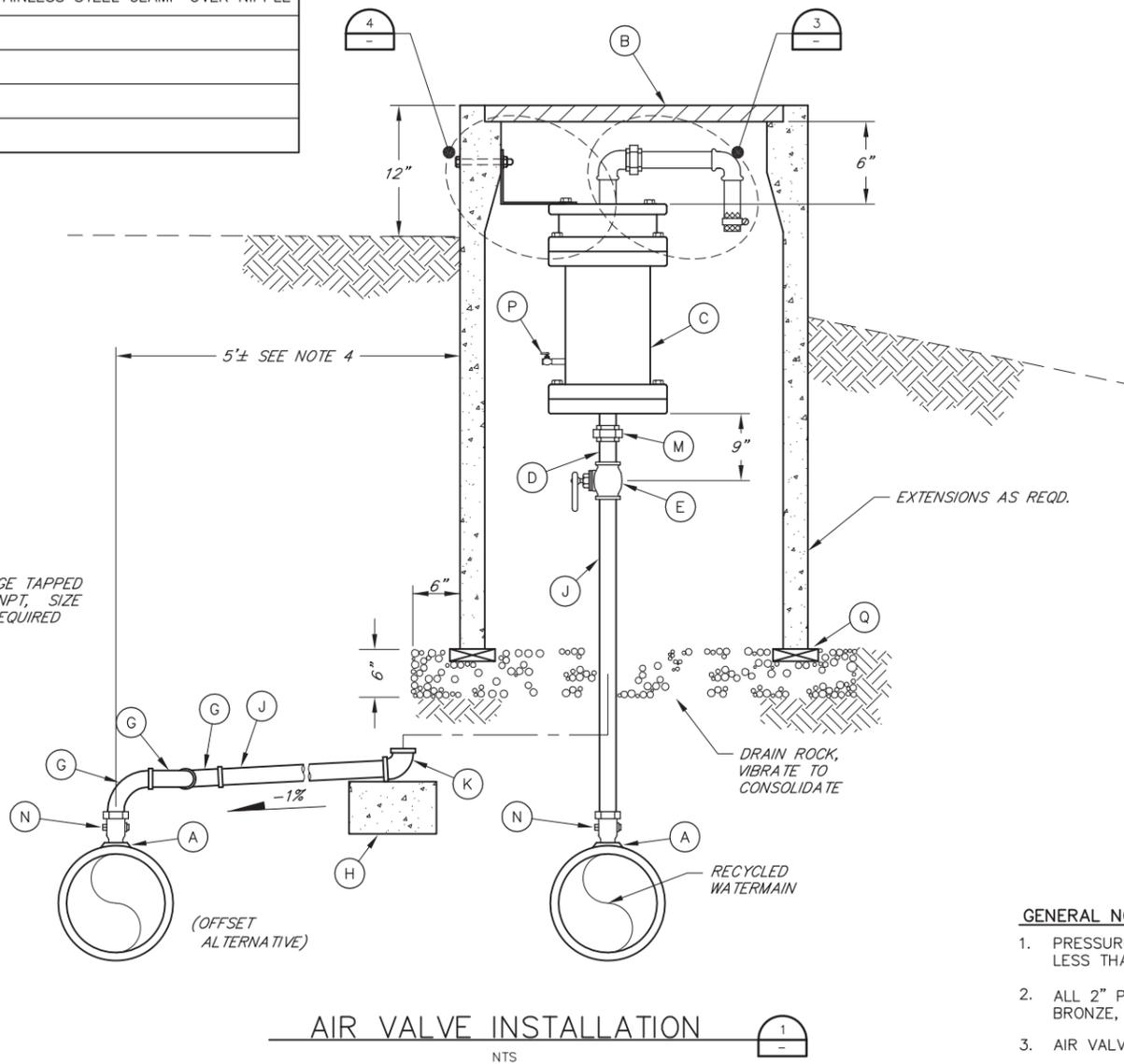
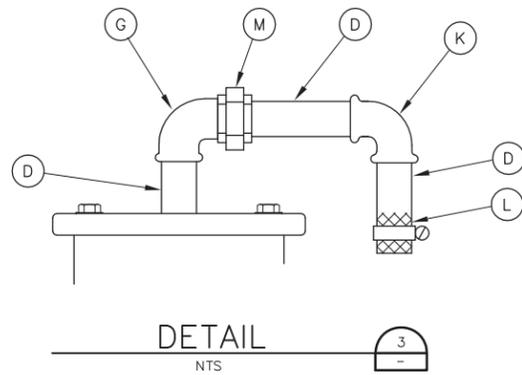


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SCALE	AS NOTED

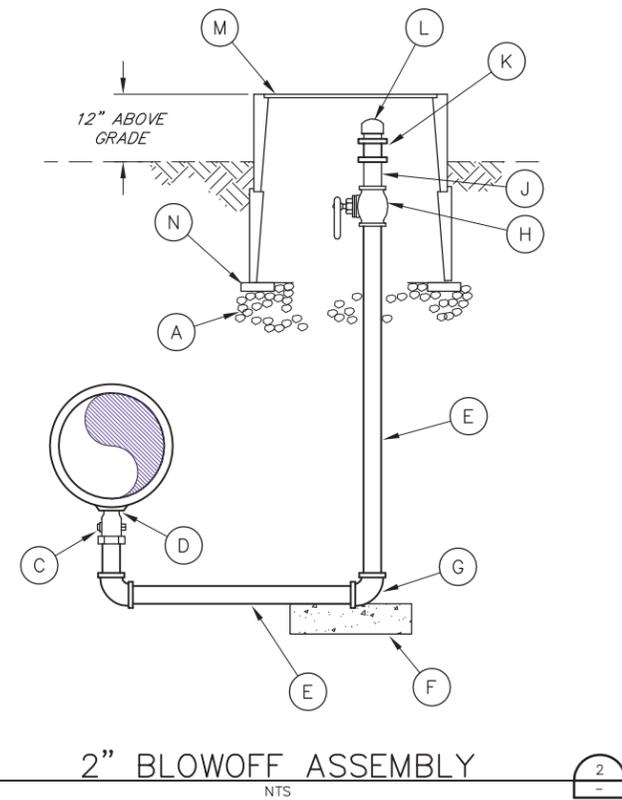
SHEET  
**G04**

LIST OF MATERIALS COMBINATION AIR VALVE ASSEMBLY	
A	BANDED SADDLE WITH NPT OUTLET, SST BANDS *
B	METER BOX WITH BOLT DOWN LID, 24" x 36" STACKED,
C	AIR RELEASE VALVE, SIZE AS NOTED ON PLAN AND PROFILE
D	NIPPLE *
E	BALL VALVE *
F	GALVANIZED STEEL L BRACKET, SIZED TO FIT (2 PER AIR VALVE)
G	90 DEG GALVANIZED STEEL STREET ELBOW *
H	CONC SUPPORT BLOCK 2" x 6" x 18"
J	SCH 40 GALVANIZED STEEL PIPE *
K	90 DEG GALVANIZED STEEL ELBOW *
L	#8 MESH STAINLESS STEEL SCREEN & UNIVERSAL STAINLESS STEEL CLAMP OVER NIPPLE
M	UNION *
N	CORPORATION STOP (MALE x FEMALE) NPT *
P	1/4" BALL VALVE (FPT x MPT)
Q	CONCRETE OR PVC SUPPORT BLOCK

\* SIZE TO MATCH AIR RELEASE VALVE DIAMETER



LIST OF MATERIALS BLOWOFF ASSEMBLY	
A	3/4" MINUS DRAIN ROCK, VIBRATE TO CONSOLIDATE
B	6" BLIND FLANGE DRILLED AND THREADED 2" NPT
C	2" CORPORATION STOP (MALE x FEMALE) NPT
D	BANDED SADDLE WITH 2" OUTLET, SST BANDS
E	2" DIA SCH 40 GALVANIZED STEEL PIPE, LENGTH AS NEEDED
F	SOLID CONC BEARING BLOCK, 4" x 8" x 16"
G	2" GALVANIZED STEEL 90 DEG ELBOW
H	2" BALL VALVE
J	2" DIA x 6" LONG THREADED NIPPLE
K	2" DIA COUPLING
L	2" MALE DRY DISCONNECT COUPLER WITH DUST COVER
M	CONCRETE METER BOX, WITH BOLT DOWN TRAFFIC COVER
N	CONCRETE OR PVC SUPPORT BLOCK



**GENERAL NOTES:**

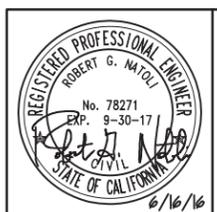
1. PRESSURE RATINGS OF EQUIPMENT SHOWN SHALL BE NO LESS THAN 150 psi.
2. ALL 2" PIPING, FITTINGS & VALVES SHALL BE BRASS, OR BRONZE, UNLESS OTHERWISE NOTED.
3. AIR VALVE VENT PIPE SHALL BE LOCATED IN BOX.
4. VALVE BOX FOR AIR VALVE SHALL BE LOCATED AS DIRECTED BY OWNER.



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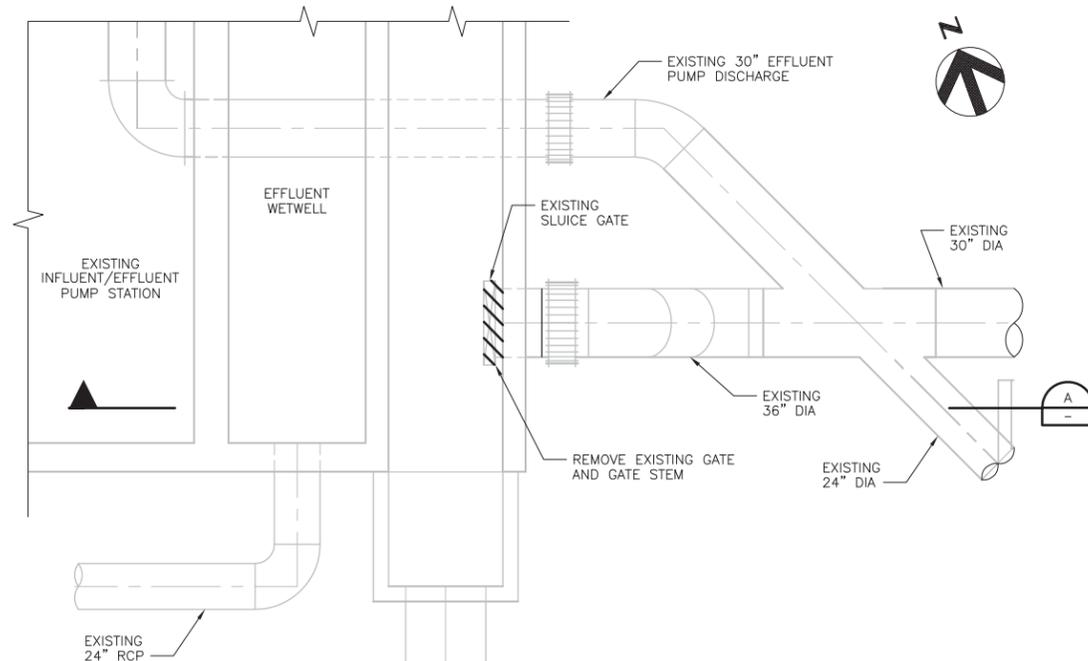
**PUMPING AND PIPING UPGRADES**

**GENERAL**  
**STANDARD DETAILS III**

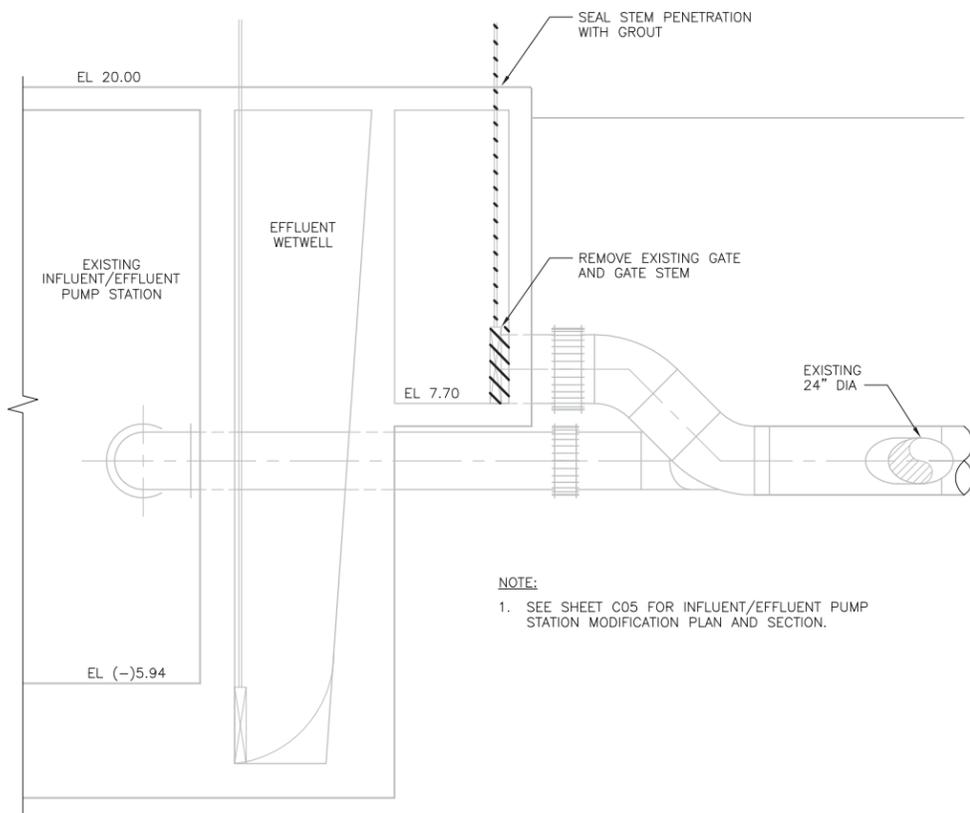
0 1" 2"

FILENAME	144908_G05.dwg
SCALE	AS NOTED

SHEET  
**G05**



**INFLUENT-EFFLUENT PUMP STATION  
DEMOLITION PLAN**  
1/4" = 1'-0"



**DEMOLITION SECTION**  
1/4" = 1'-0"

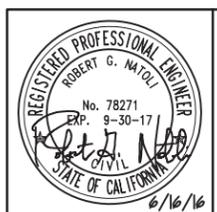
**NOTE:**  
1. SEE SHEET C05 FOR INFLUENT/EFFLUENT PUMP STATION MODIFICATION PLAN AND SECTION.



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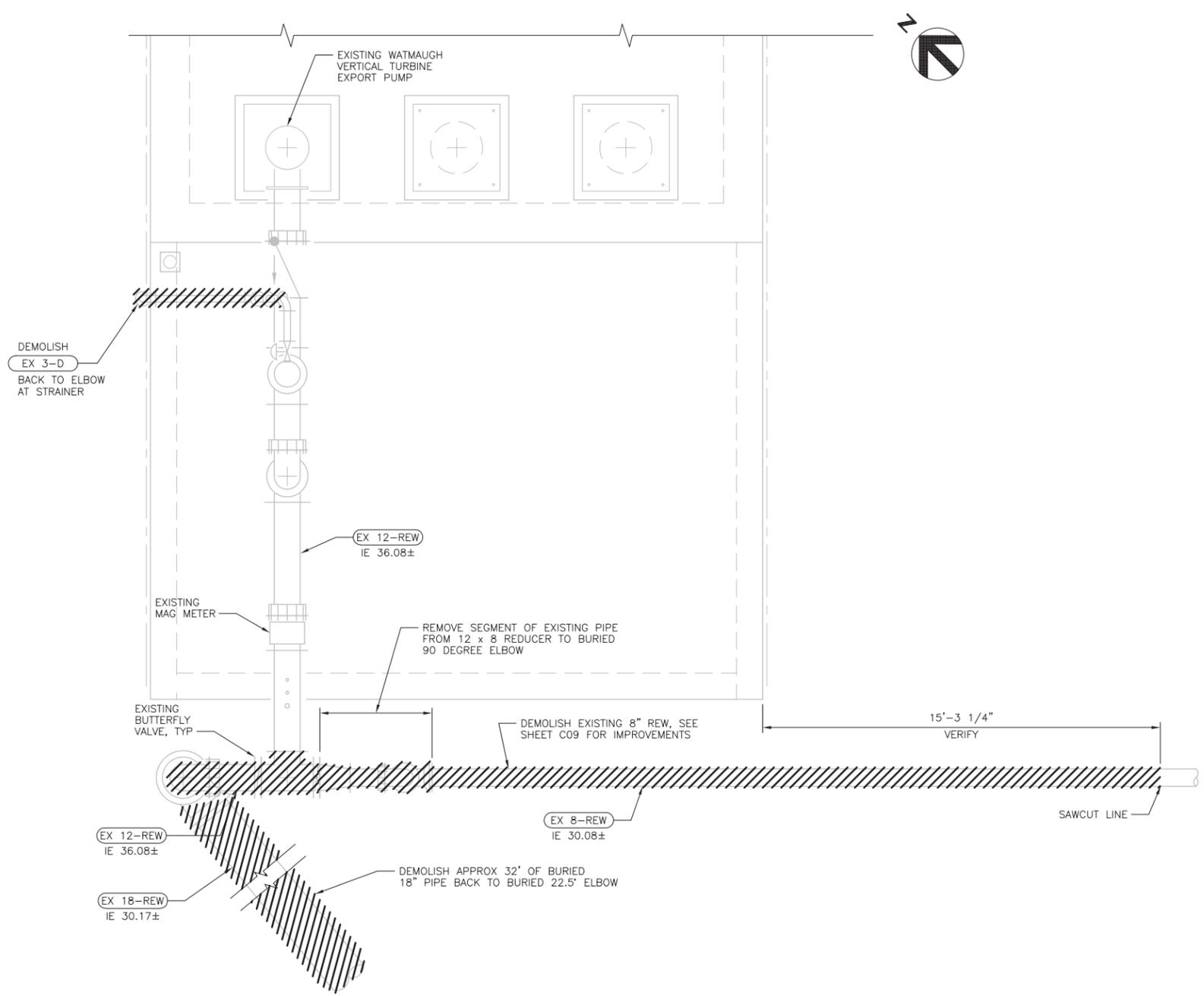
REVIEWED	_____
REVIEWED	_____



**North Bay Water Reuse Program  
Sonoma Valley County Sanitation District  
Treatment Plant**

**PUMPING AND PIPING UPGRADES**

<b>DEMOLITION</b>	
<b>SITE DEMOLITION PLAN AND SECTION</b>	
	FILENAME 144908_D01.dwg SCALE AS NOTED
SHEET <b>D01</b>	



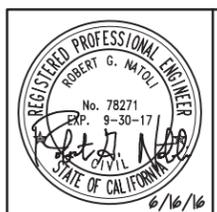
**RESERVOIR EXPORT PUMP STATION  
DEMOLITION PLAN**  
3/8" = 1'-0"



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DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____

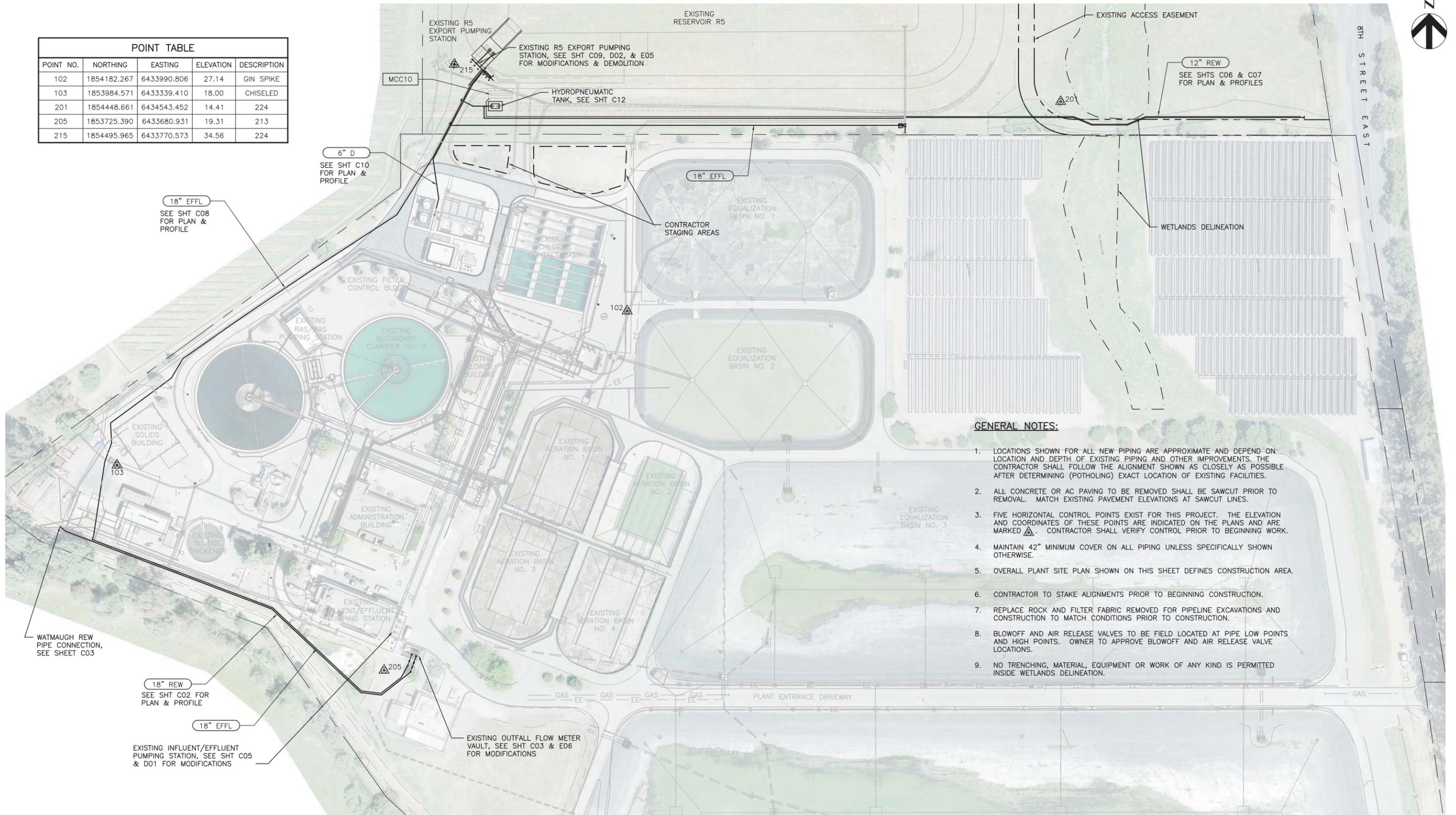


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**PUMPING AND PIPING UPGRADES**

<b>DEMOLITION SITE DEMOLITION PLAN</b>		FILENAME	144908_D02.dwg	SHEET	<b>D02</b>
		SCALE	AS NOTED		

POINT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
102	1854182.267	6433990.806	27.14	GIN SPIKE
103	1853984.571	6433339.410	18.00	CHISELED
201	1854448.661	6434543.452	14.41	224
205	1853725.390	6433680.931	19.31	213
215	1854495.965	6433770.573	34.56	224



**GENERAL NOTES:**

1. LOCATIONS SHOWN FOR ALL NEW PIPING ARE APPROXIMATE AND DEPEND ON LOCATION AND DEPTH OF EXISTING PIPING AND OTHER IMPROVEMENTS. THE CONTRACTOR SHALL FOLLOW THE ALIGNMENT SHOWN AS CLOSELY AS POSSIBLE AFTER DETERMINING (POTHOLING) EXACT LOCATION OF EXISTING FACILITIES.
2. ALL CONCRETE OR AC PAVING TO BE REMOVED SHALL BE SAWCUT PRIOR TO REMOVAL. MATCH EXISTING PAVEMENT ELEVATIONS AT SAWCUT LINES.
3. FIVE HORIZONTAL CONTROL POINTS EXIST FOR THIS PROJECT. THE ELEVATION AND COORDINATES OF THESE POINTS ARE INDICATED ON THE PLANS AND ARE MARKED  $\Delta$ . CONTRACTOR SHALL VERIFY CONTROL PRIOR TO BEGINNING WORK.
4. MAINTAIN 42" MINIMUM COVER ON ALL PIPING UNLESS SPECIFICALLY SHOWN OTHERWISE.
5. OVERALL PLANT SITE PLAN SHOWN ON THIS SHEET DEFINES CONSTRUCTION AREA.
6. CONTRACTOR TO STAKE ALIGNMENTS PRIOR TO BEGINNING CONSTRUCTION.
7. REPLACE ROCK AND FILTER FABRIC REMOVED FOR PIPELINE EXCAVATIONS AND CONSTRUCTION TO MATCH CONDITIONS PRIOR TO CONSTRUCTION.
8. BLOWOFF AND AIR RELEASE VALVES TO BE FIELD LOCATED AT PIPE LOW POINTS AND HIGH POINTS. OWNER TO APPROVE BLOWOFF AND AIR RELEASE VALVE LOCATIONS.
9. NO TRENCHING, MATERIAL, EQUIPMENT OR WORK OF ANY KIND IS PERMITTED INSIDE WETLANDS DELINEATION.

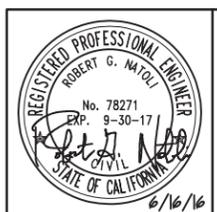
**OVERALL PLANT SITE PLAN**  
1" = 60'



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____

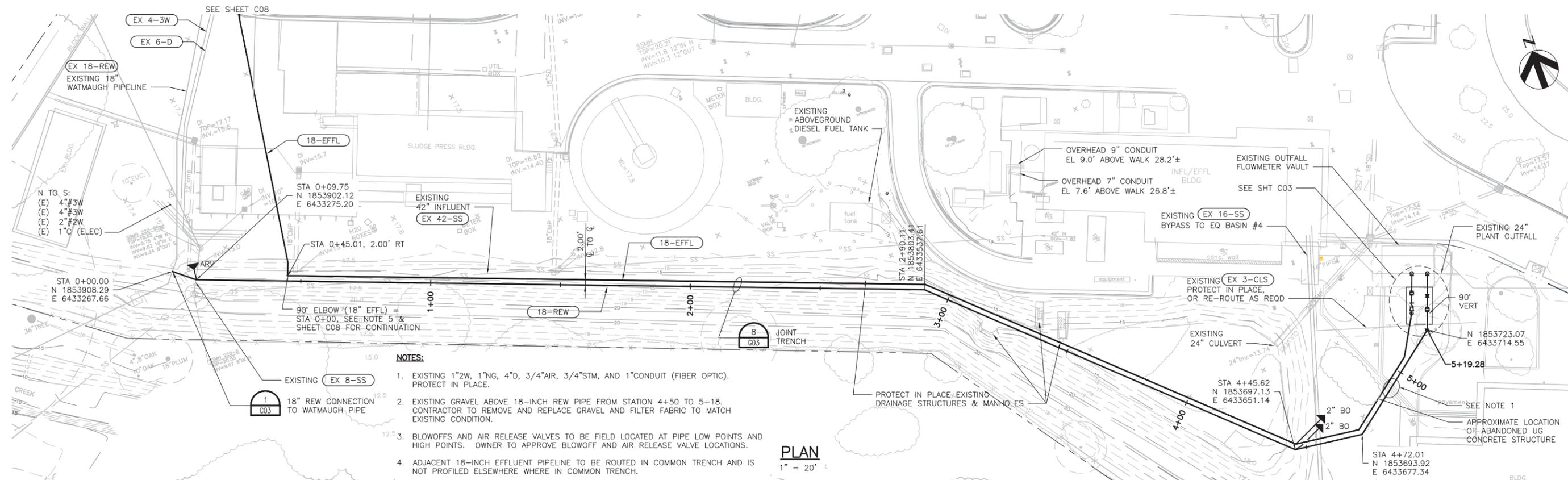


**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**  
**PUMPING AND PIPING UPGRADES**

**CIVIL**  
**OVERALL PLANT SITE PLAN**

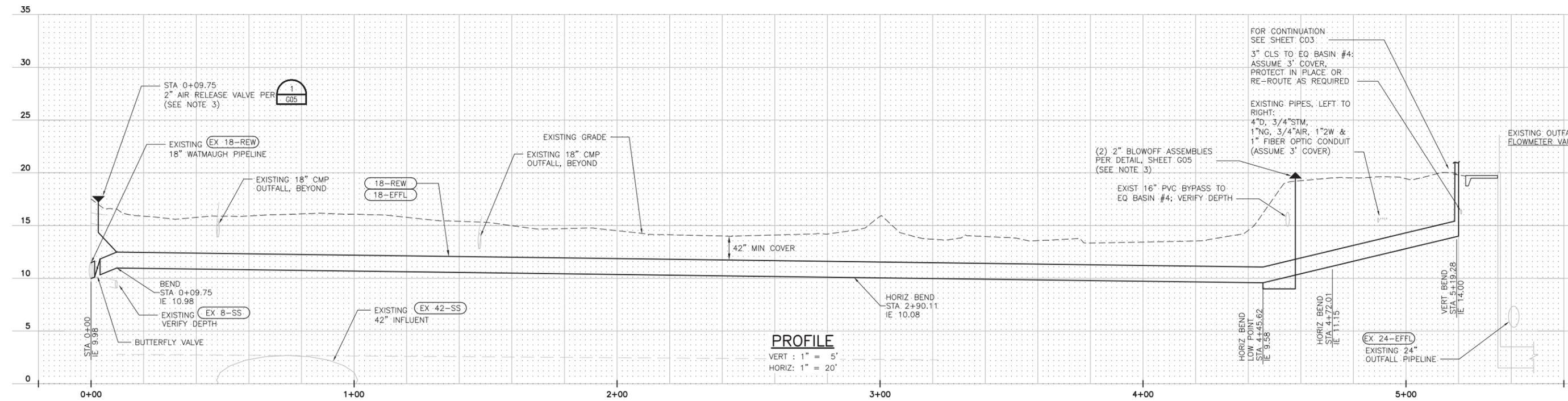
0 1" 2"

FILENAME	144908_C01.dwg	SHEET	C01
SCALE	AS NOTED		



- NOTES:**
- EXISTING 1"2W, 1"NG, 4"D, 3/4"AIR, 3/4"STM, AND 1"CONDUIT (FIBER OPTIC). PROTECT IN PLACE.
  - EXISTING GRAVEL ABOVE 18-INCH REW PIPE FROM STATION 4+50 TO 5+18. CONTRACTOR TO REMOVE AND REPLACE GRAVEL AND FILTER FABRIC TO MATCH EXISTING CONDITION.
  - BLOWOFFS AND AIR RELEASE VALVES TO BE FIELD LOCATED AT PIPE LOW POINTS AND HIGH POINTS. OWNER TO APPROVE BLOWOFF AND AIR RELEASE VALVE LOCATIONS.
  - ADJACENT 18-INCH EFFLUENT PIPELINE TO BE ROUTED IN COMMON TRENCH AND IS NOT PROFILED ELSEWHERE WHERE IN COMMON TRENCH.
  - SEE SHEETS C08 & C09 FOR CONTINUATION OF 18-INCH EFFL, NO LOCAL HIGH POINT ON 18-INCH EFFL PERMITTED UNTIL STATION 7+36± AS SHOWN ON SHEET C09.
  - SEE GENERAL NOTES ON SHEET C01.

**PLAN**  
1" = 20'



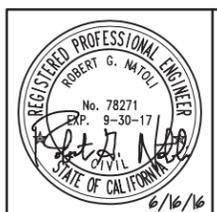
**PROFILE**  
VERT: 1" = 5'  
HORIZ: 1" = 20'



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	



**North Bay Water Reuse Program**  
Sonoma Valley County Sanitation District  
Treatment Plant  
**PUMPING AND PIPING UPGRADES**

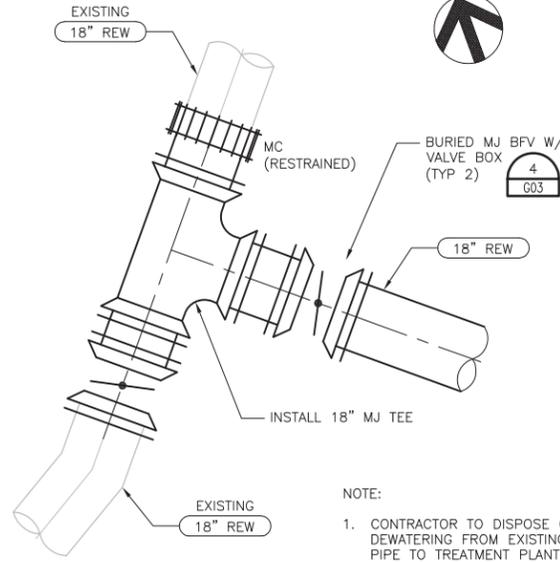
CIVIL

**18" EFFL AND 18" REW PIPELINE  
JOINT TRENCH PLAN AND PROFILE**

0 1" 2"

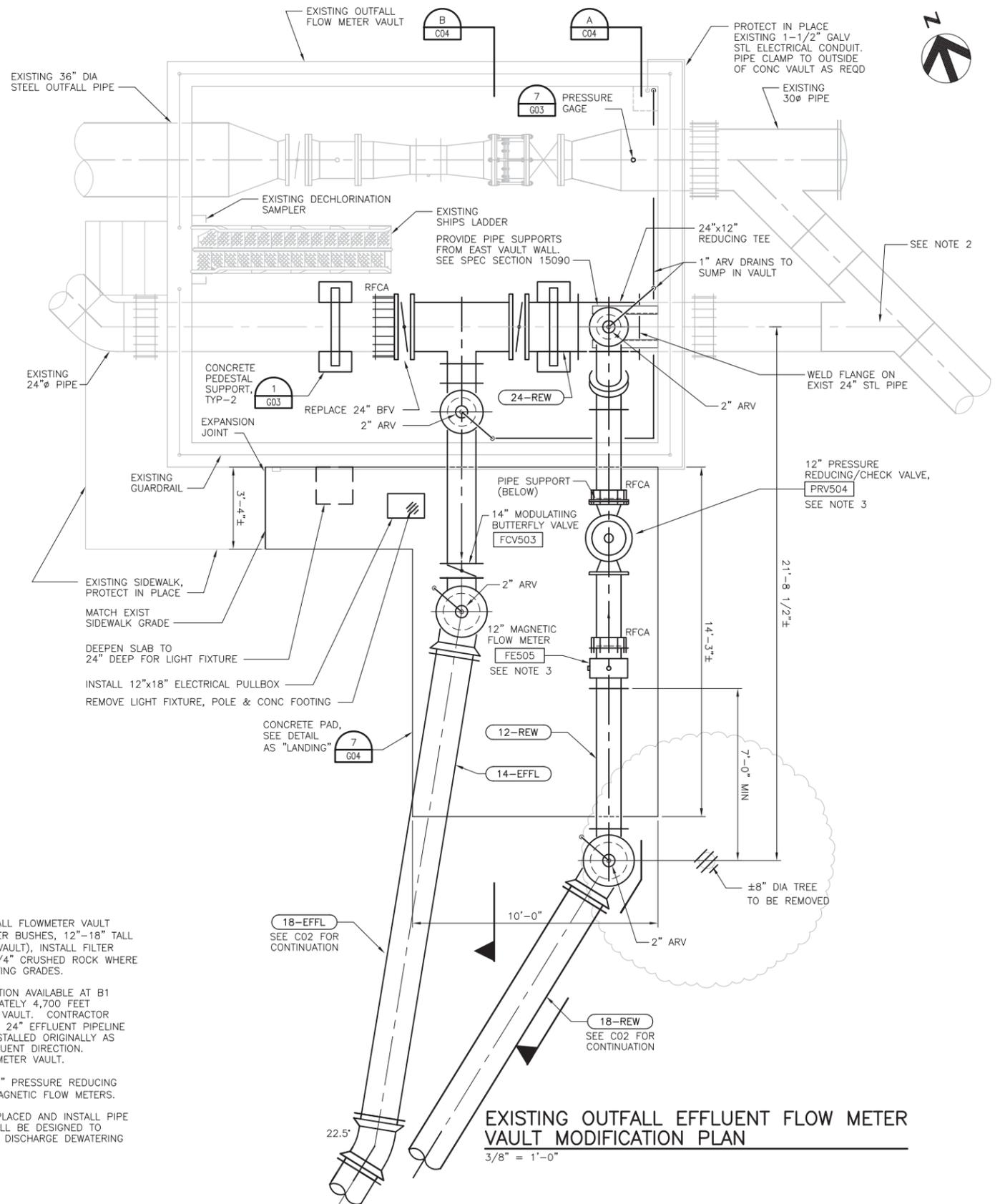
FILENAME: 144908\_C02.dwg  
SCALE: AS NOTED

SHEET  
**C02**



**WATMAUGH CONNECTION DETAIL**  
NO SCALE

NOTE:  
1. CONTRACTOR TO DISPOSE OF PIPELINE DEWATERING FROM EXISTING 18-INCH REW PIPE TO TREATMENT PLANT DRAIN SYSTEM.



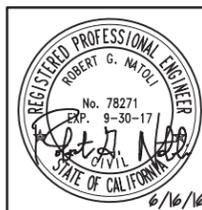
- NOTES:
1. REMOVE VEGETATION AROUND OUTFALL FLOWMETER VAULT (APPROX. 5' WIDE STRIP OF JUNIPER BUSHES, 12"-18" TALL ALONG SOUTH AND EAST SIDE OF VAULT), INSTALL FILTER FABRIC AND 4" THICK LAYER OF 3/4" CRUSHED ROCK WHERE VEGETATION REMOVED. MATCH EXISTING GRADES.
  2. DOWNSTREAM EFFLUENT PIPE ISOLATION AVAILABLE AT B1 JUNCTION BOX WHICH IS APPROXIMATELY 4,700 FEET DOWNSTREAM OF THE FLOW METER VAULT. CONTRACTOR RESPONSIBLE FOR DEWATERING THE 24" EFFLUENT PIPELINE FOR CONSTRUCTION. PIPE WAS INSTALLED ORIGINALLY AS GRAVITY LINE AND SLOPES TO EFFLUENT DIRECTION. CONTRACTOR MAY DEWATER FROM METER VAULT.
  3. PROVIDE INSULATING JACKET ON 12" PRESSURE REDUCING CHECK VALVE AND 12" AND 14" MAGNETIC FLOW METERS.
  4. CUT OUT PIPE SEGMENT BEING REPLACED AND INSTALL PIPE PLUGS IF NECESSARY. PLUGS SHALL BE DESIGNED TO WITHSTAND PRESSURE OF 35 PSI. DISCHARGE DEWATERING TO PLANT DRAIN SYSTEM.



ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
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DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

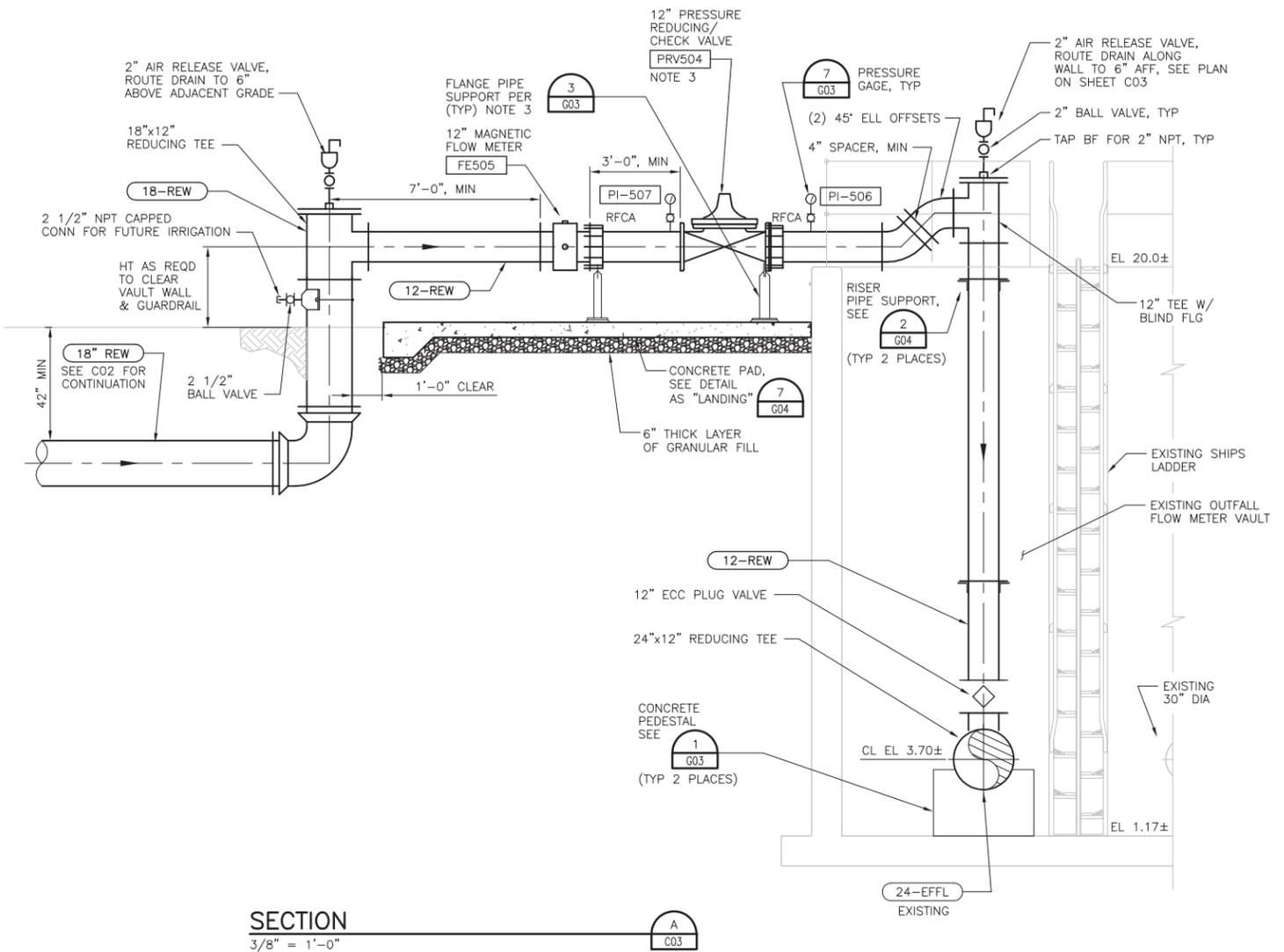
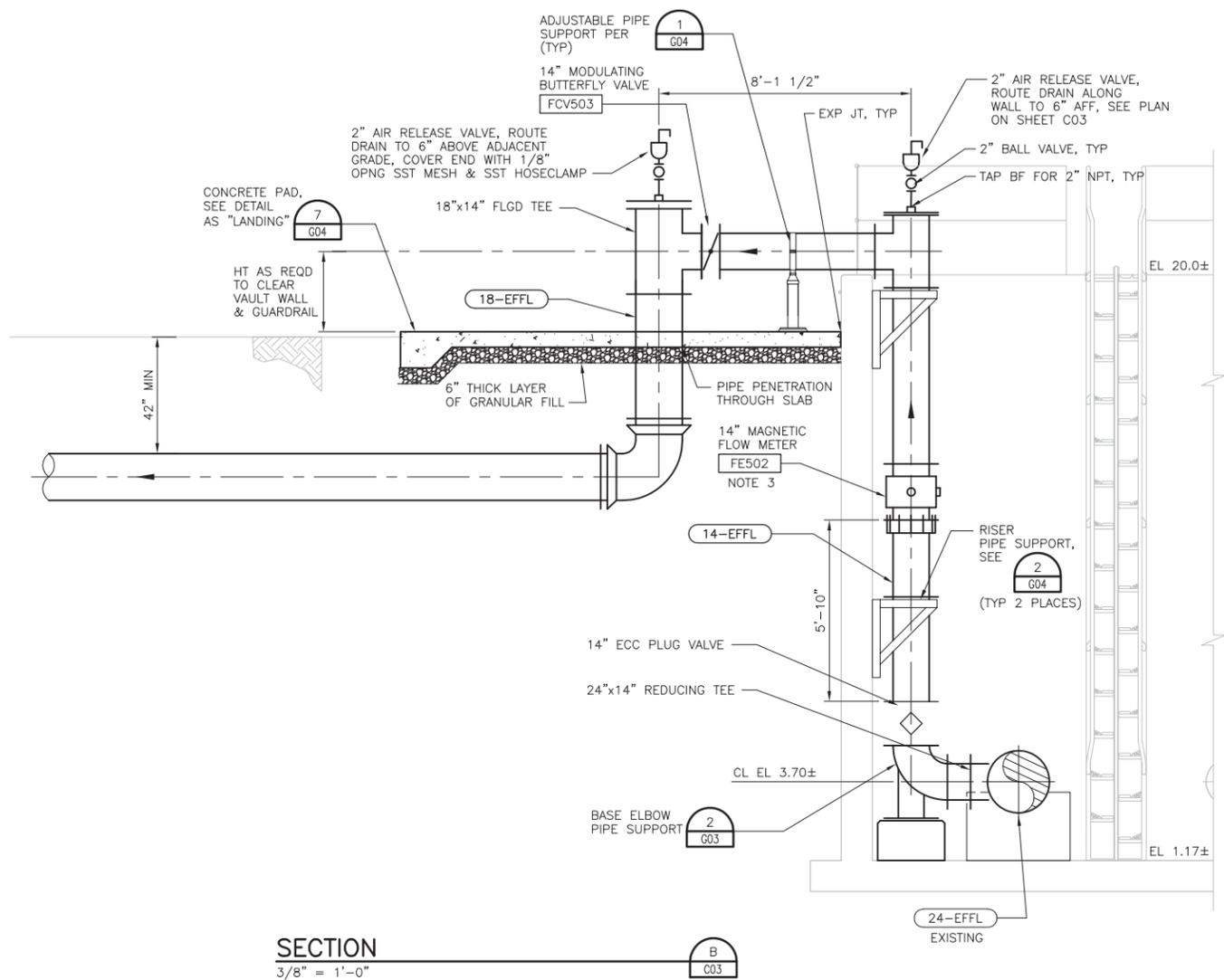
REVIEWED	
REVIEWED	



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

**PUMPING AND PIPING UPGRADES**

CIVIL	
<b>EXISTING OUTFALL FLOW METER VAULT MODIFICATION PLAN</b>	
FILENAME	144908_C03.dwg
SCALE	AS NOTED
SHEET	C03



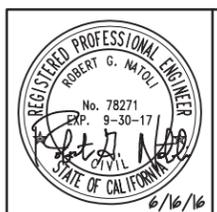
- NOTES:
1. REMOVE VEGETATION AROUND OUTFALL FLOWMETER VAULT (APPROX. 5' WIDE STRIP OF JUNIPER BUSHES, 12"-18" TALL ALONG SOUTH AND EAST SIDE OF VAULT), INSTALL FILTER FABRIC AND 4" THICK LAYER OF 3/4" CRUSHED ROCK WHERE VEGETATION REMOVED. MATCH EXISTING GRADES.
  2. DOWNSTREAM EFFLUENT PIPE ISOLATION AVAILABLE AT B1 JUNCTION BOX WHICH IS APPROXIMATELY 4,700 FEET DOWNSTREAM OF THE FLOW METER VAULT. CONTRACTOR RESPONSIBLE FOR DEWATERING THE 24" EFFLUENT PIPELINE FOR 12" REW CONSTRUCTION.
  3. PROVIDE INSULATING JACKET ON 12" PRESSURE REDUCING CHECK VALVE AND 12" AND 14" MAGNETIC FLOW METERS.



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

**PUMPING AND PIPING UPGRADES**

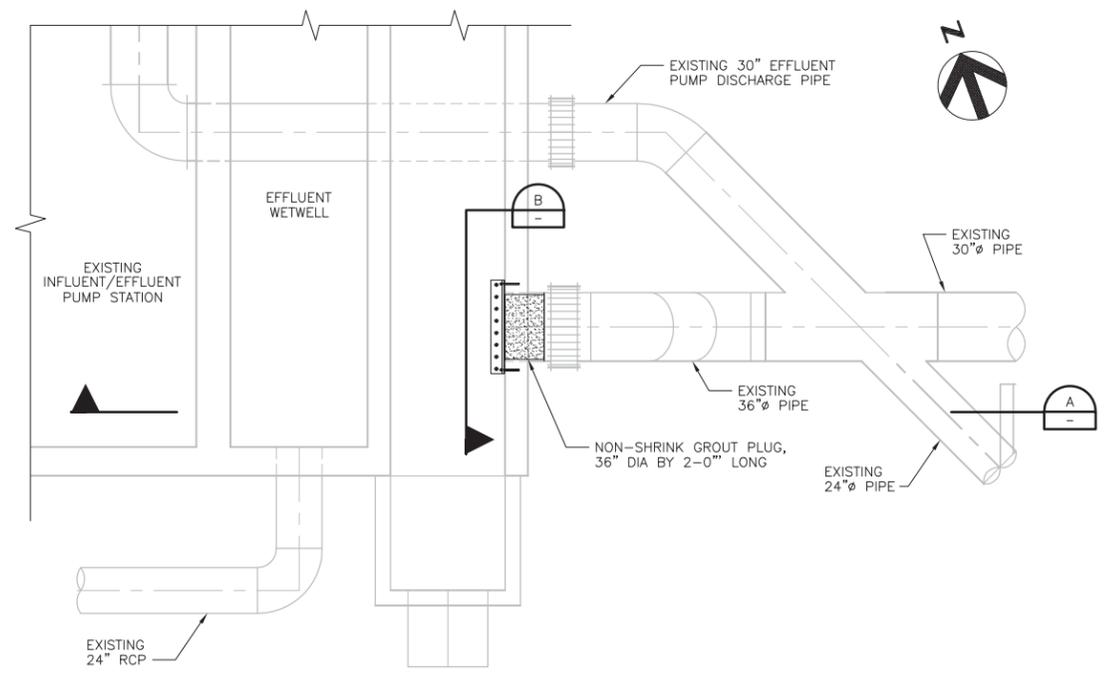
**CIVIL**

**EXISTING OUTFALL FLOW METER VAULT MODIFICATION SECTIONS**

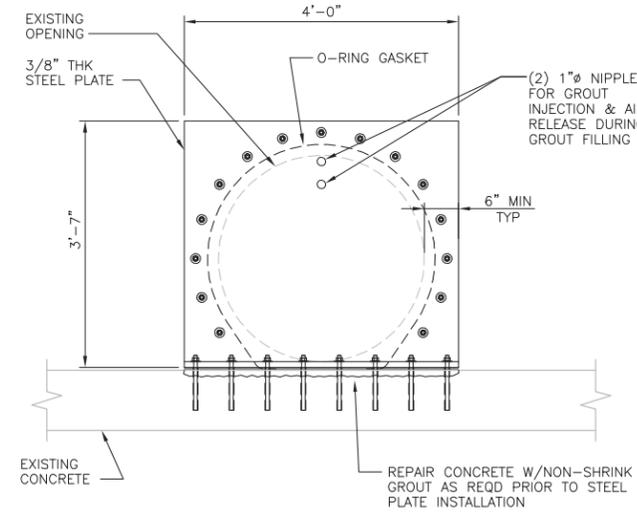
SCALE AS NOTED

FILENAME 144908\_C04.dwg

SHEET **C04**

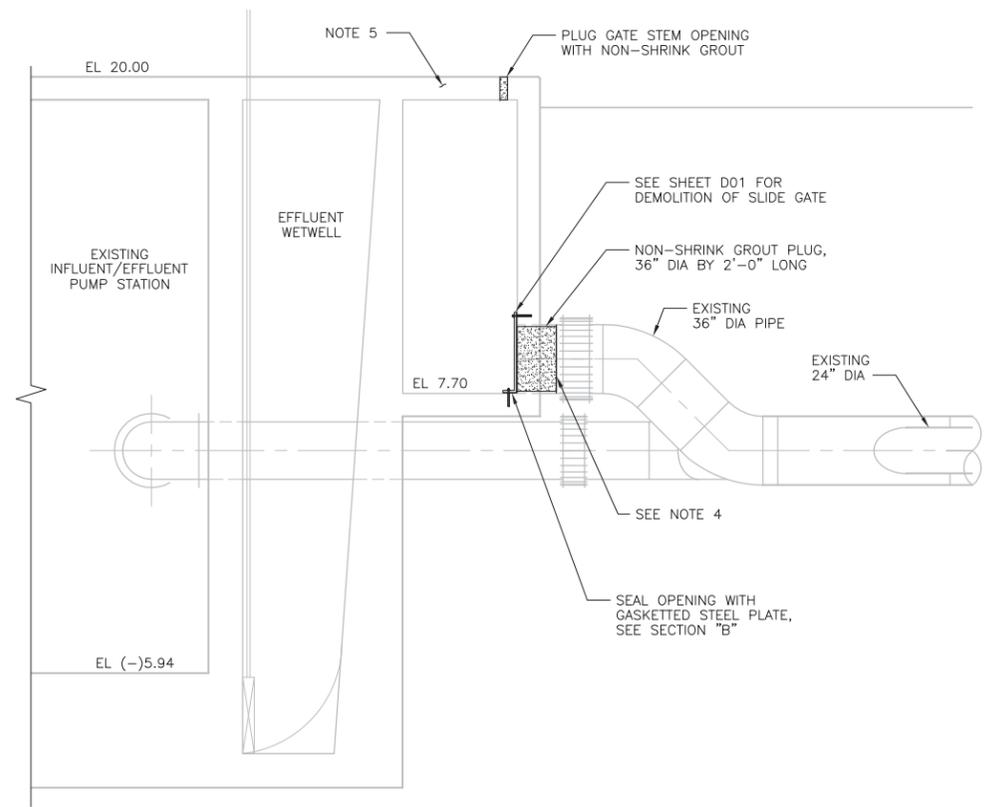


**INFLUENT-EFFLUENT PUMP STATION PLAN**  
 1/4" = 1'-0"



- NOTES:
1. PROVIDE 3/8" DIAMETER EPOXY ANCHOR BOLTS AT 6" ON CENTER MAXIMUM SPACING 6" EMBEDMENT DEPTH AROUND OPENING.
  2. O-RING GASKET TO BE 1/2" CROSS-SECTIONAL DIAMETER, BUNA-N RUBBER. INSTALL APPROXIMATELY 3-INCHES FROM EPOXY ANCHORS AND EDGE OF EXISTING 36-INCH OPENING.
  3. O-RING GASKET TO PROVIDE A WATER-TIGHT SEAL.
  4. PROVIDE 3/8" THICK, 36" DIAMETER PLATE INSIDE PIPE TO PREVENT GROUT FROM FLOWING DOWN PIPE. WELD TO INTERIOR OF EXISTING 36" STEEL PIPE. CONTRACTOR TO FIELD VERIFY INSIDE DIAMETER OF EXISTING PIPE.
  5. ACCESS TO SLIDE GATE REPLACEMENT CHANNEL IS VIA 3' x 5' GRATING OPENING IN THE TOP SLAB OF THE CHANNEL. GRATING IS LOCATED APPROXIMATELY 8- FEET NORTH OF CENTERLINE OF SLIDE GATE.

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



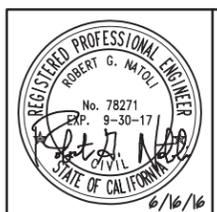
**SECTION**  
 1/4" = 1'-0"



ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

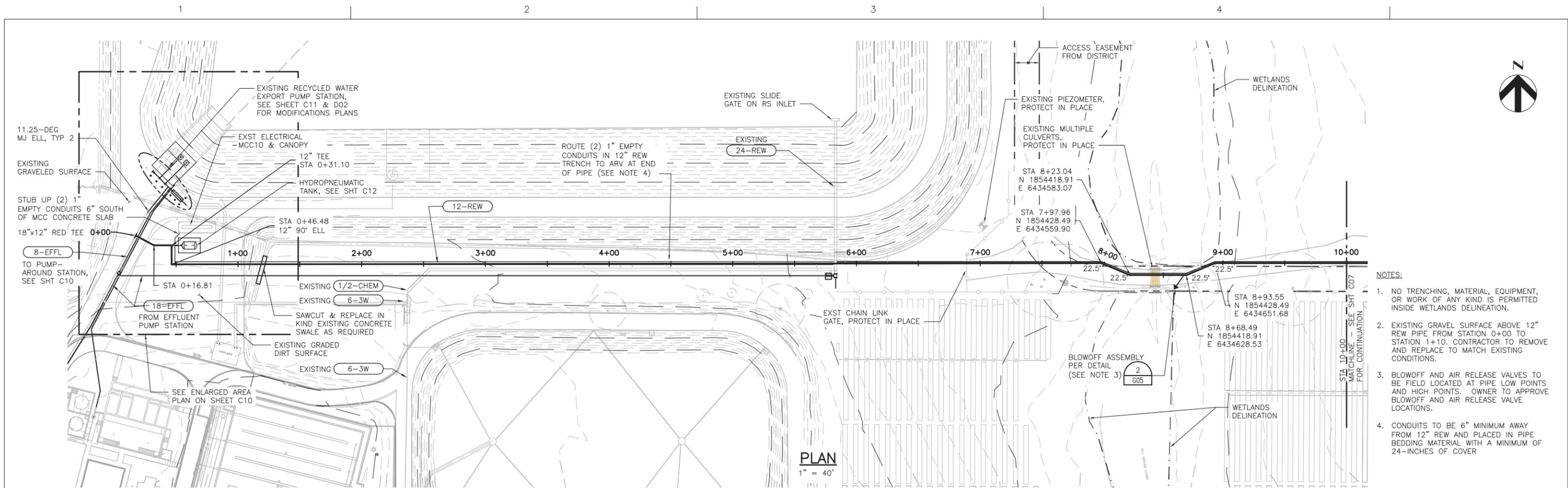
**PUMPING AND PIPING UPGRADES**

**CIVIL**

**SITE MODIFICATION PLANS, SECTIONS, AND DETAILS**

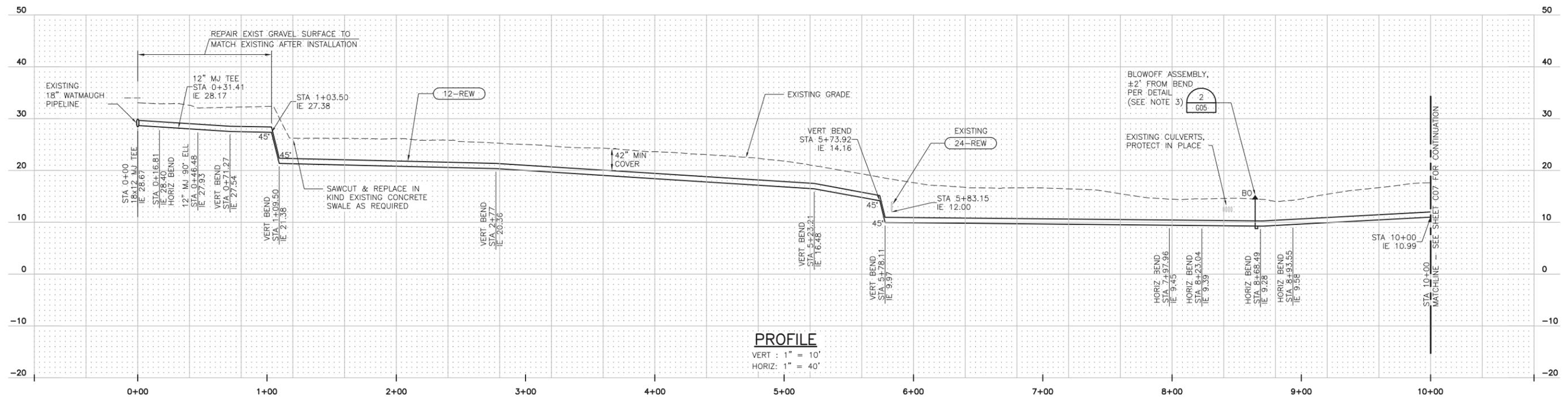
FILENAME	144908_C05.dwg
SCALE	AS NOTED

SHEET	C05
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- NOTES:**
- NO TRENCHING, MATERIAL, EQUIPMENT, OR WORK OF ANY KIND IS PERMITTED INSIDE WETLANDS DELINEATION.
  - EXISTING GRAVEL SURFACE ABOVE 12" REW PIPE FROM STATION 0+00 TO STATION 1+10. CONTRACTOR TO REMOVE AND REPLACE TO MATCH EXISTING CONDITIONS.
  - BLOWOFF AND AIR RELEASE VALVES TO BE FIELD LOCATED AT PIPE LOW POINTS AND HIGH POINTS. OWNER TO APPROVE BLOWOFF AND AIR RELEASE VALVE LOCATIONS.
  - CONDUITS TO BE 6" MINIMUM AWAY FROM 12" REW AND PLACED IN PIPE BEDDING MATERIAL WITH A MINIMUM OF 24-INCHES OF COVER

**PLAN**  
1" = 40'



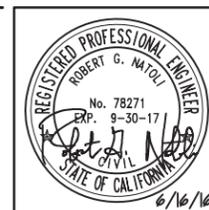
**PROFILE**  
VERT : 1" = 10'  
HORIZ : 1" = 40'



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

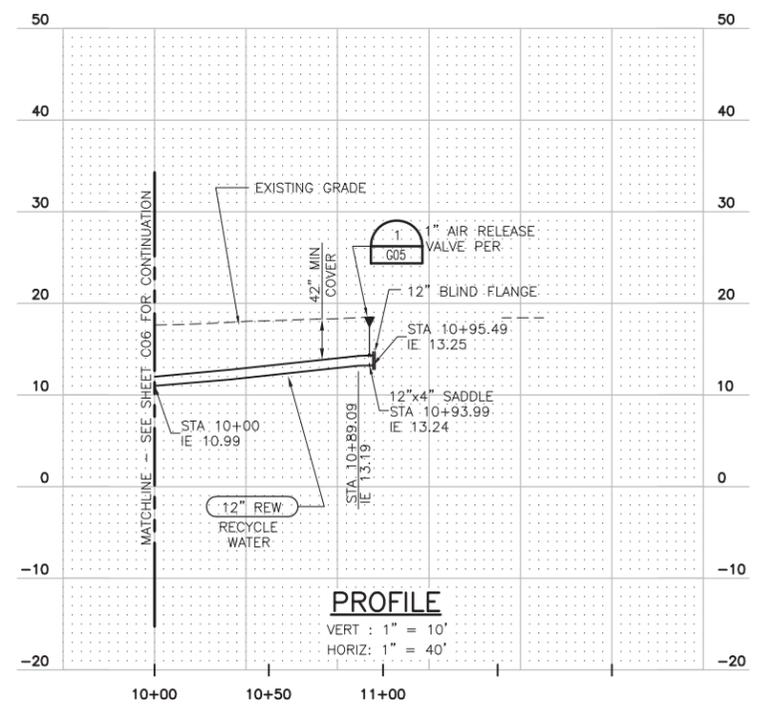
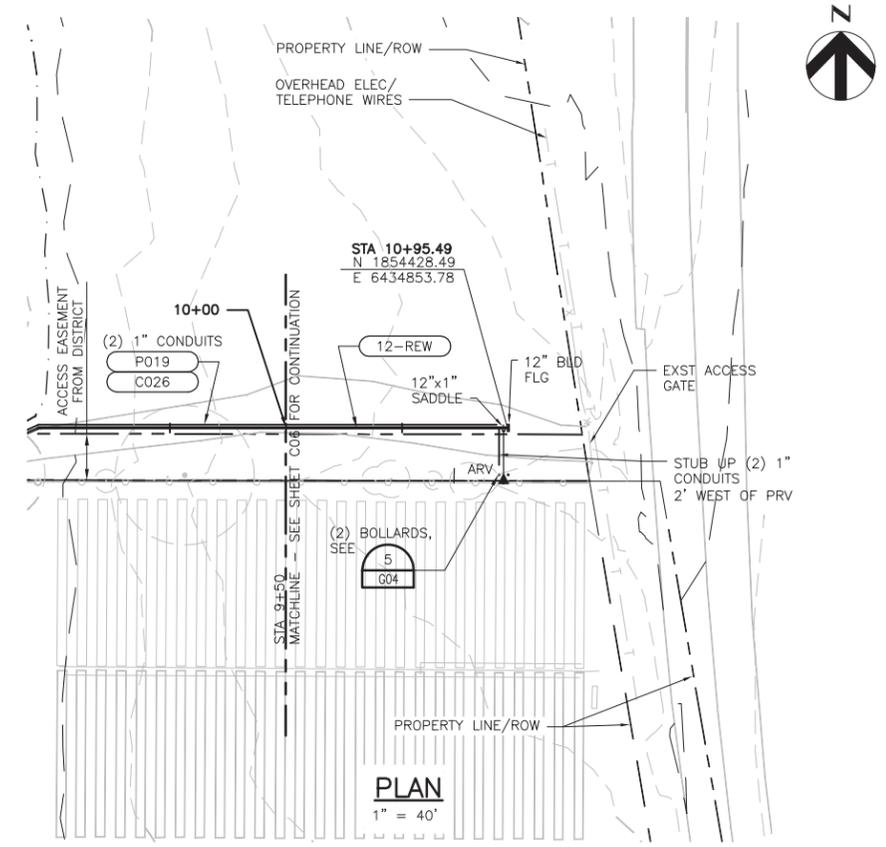
PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	



**North Bay Water Reuse Program**  
Sonoma Valley County Sanitation District  
Treatment Plant  
**PUMPING AND PIPING UPGRADES**

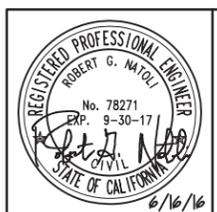
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<b>12" REW PIPELINE FROM R5 TO 8th STREET EAST PLAN AND PROFILE I</b>	
FILENAME	144908_C06.dwg
SCALE	AS NOTED
SHEET	C06



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

**PUMPING AND PIPING UPGRADES**

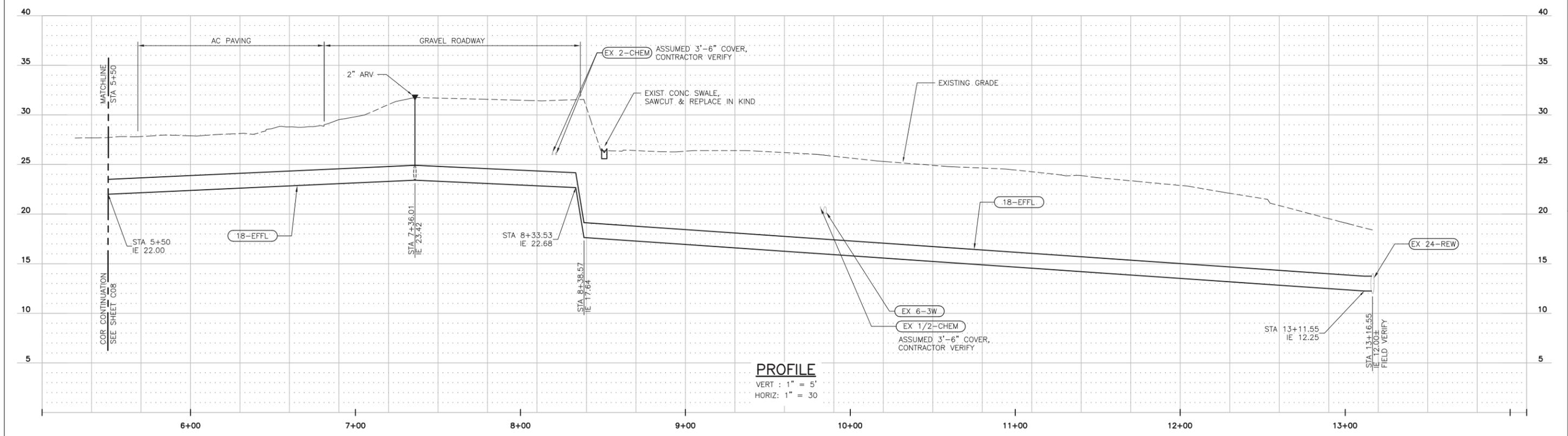
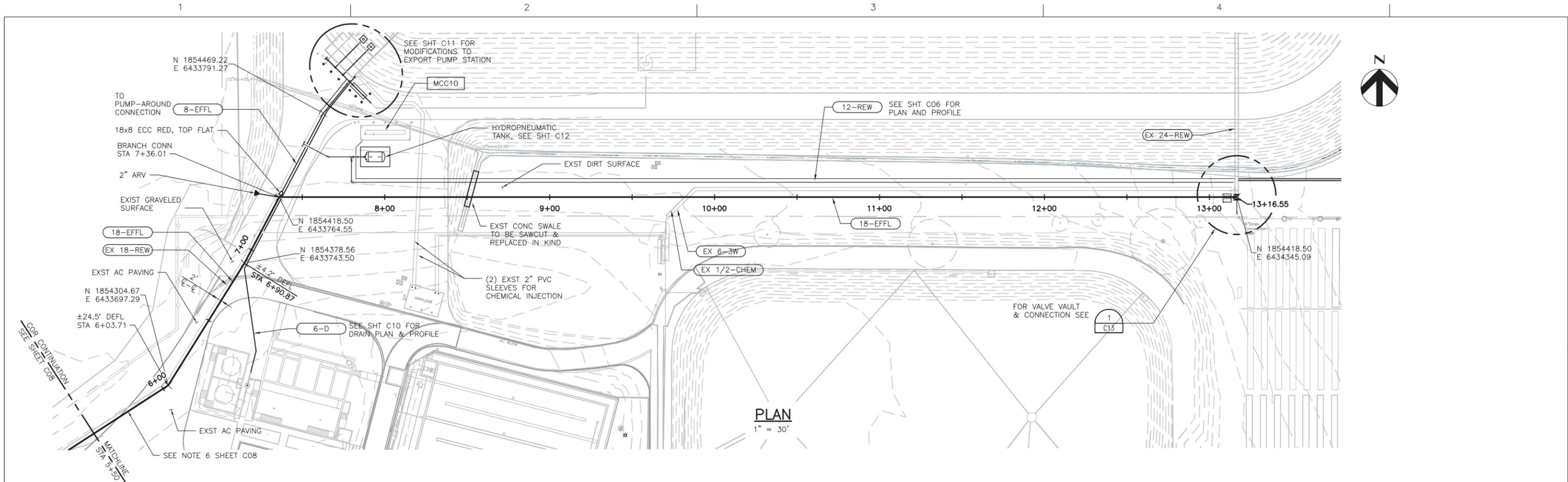
**CIVIL**

**12" REW PIPELINE FROM R5 TO 8th STREET EAST**  
**PLAN AND PROFILE II**

0 1" 2"

FILENAME	144908_C07.dwg	SHEET	C07
SCALE	AS NOTED		

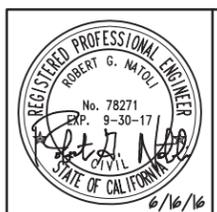




ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____



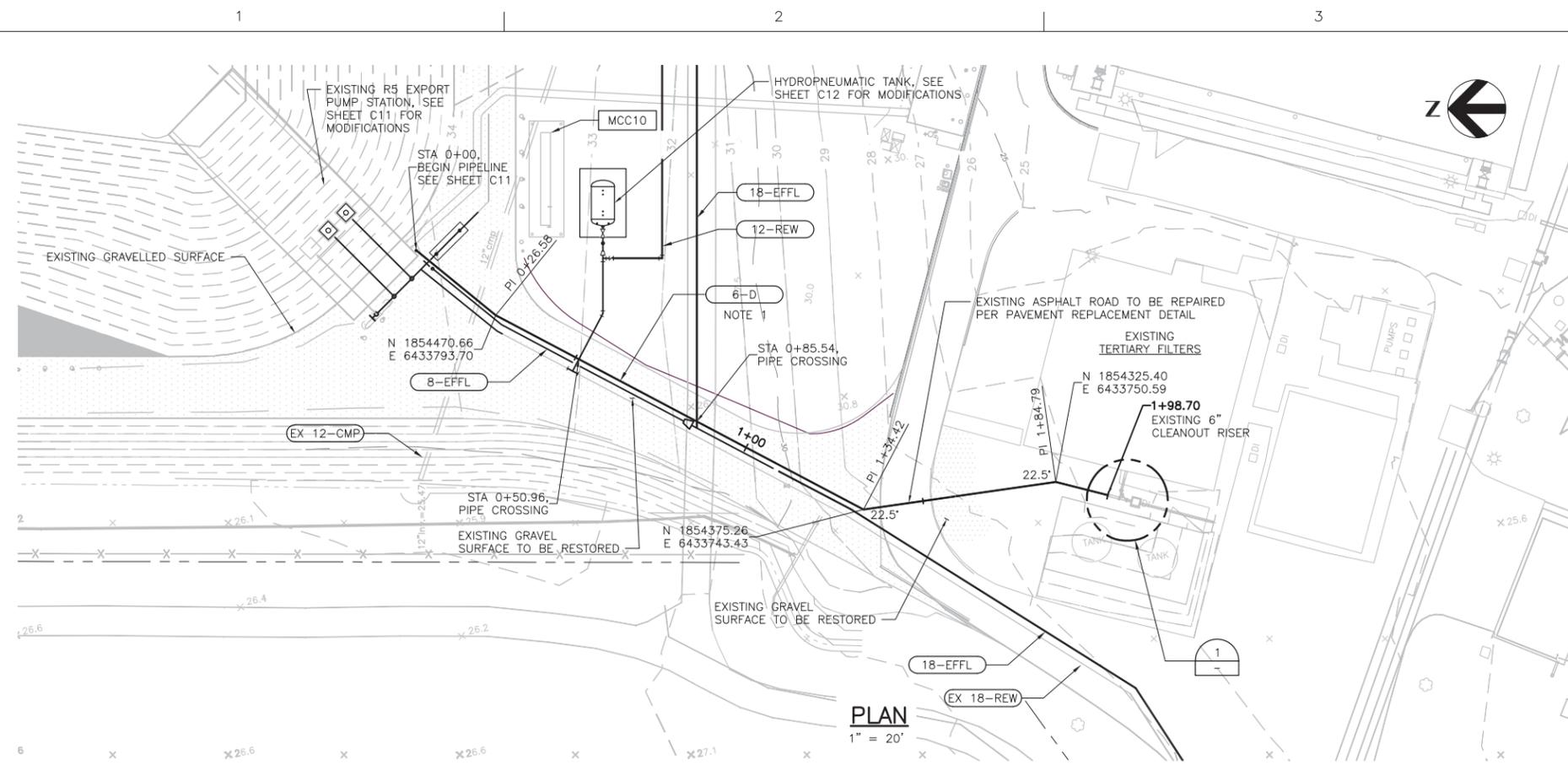
**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

**PUMPING AND PIPING UPGRADES**

**CIVIL**  
**18" EFFL PIPELINE FROM OUTFALL FLOW METER VAULT TO R5 INLET PIPE PLAN AND PROFILE II**

0 1" 2"

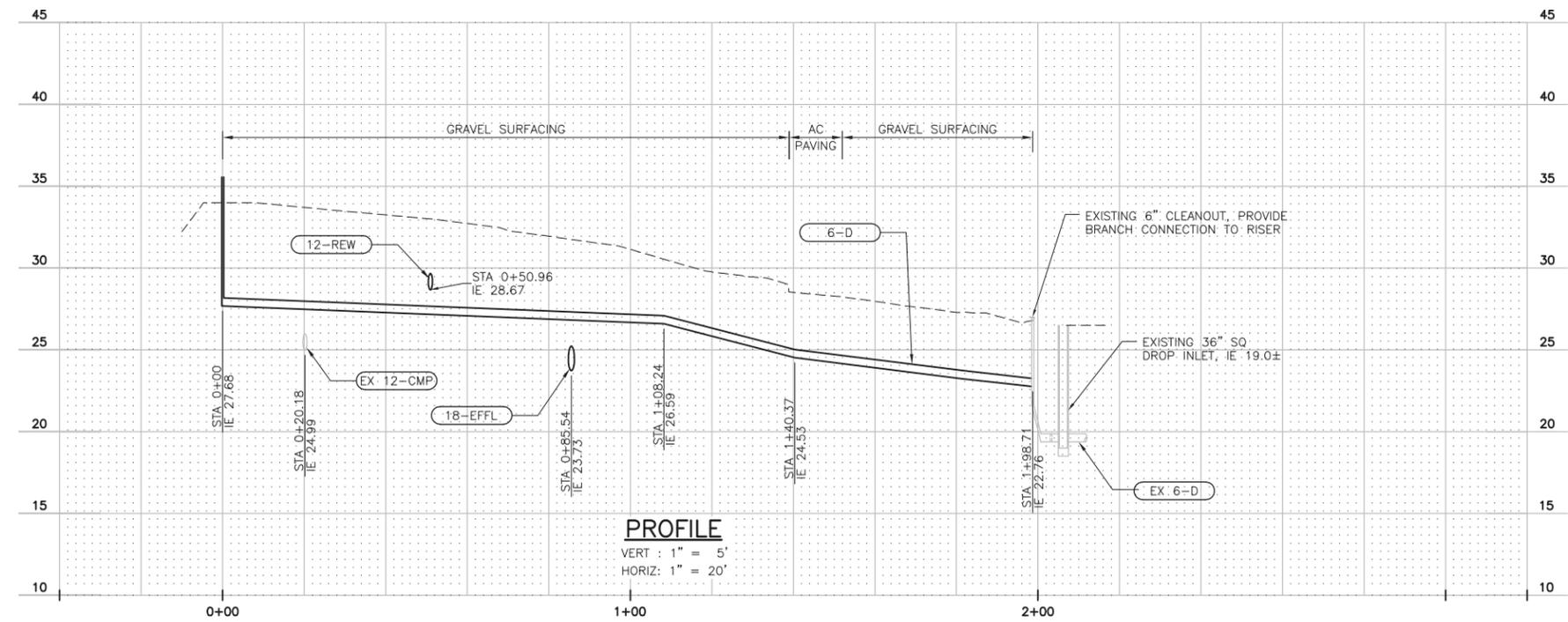
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SCALE	AS NOTED		



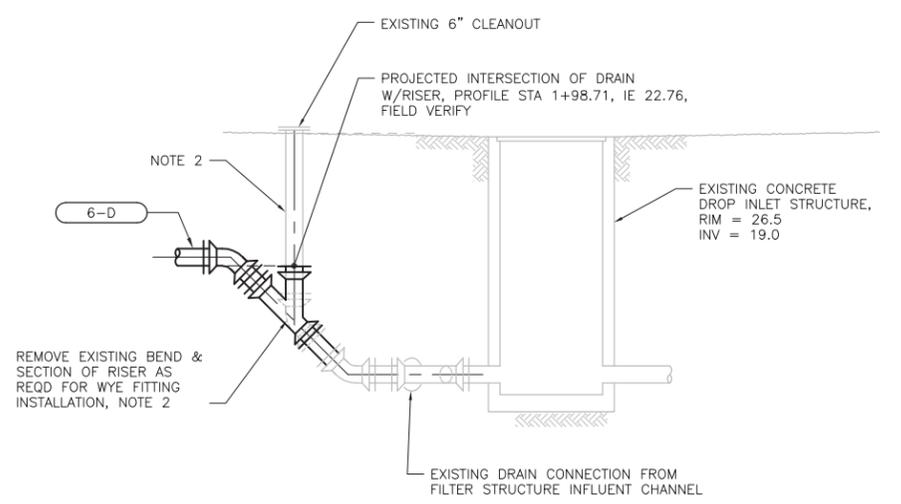
**PLAN**  
1" = 20'

**NOTES:**

1. SLOPE 6" DRAIN AT 0.5% MINIMUM SLOPE WITH NO LOCAL HIGHPOINTS OR LOWPOINTS BETWEEN CLEANOUT CONNECTION AND R5 EXPORT PUMP STATION.
2. FIELD VERIFY EXISTING CLEANOUT PIPE MATERIAL AND FITTING LOCATIONS.



**PROFILE**  
VERT : 1" = 5'  
HORIZ : 1" = 20'



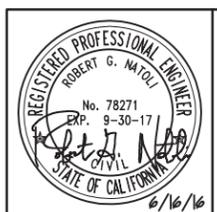
**DETAIL**  
3/8" = 1'-0"



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

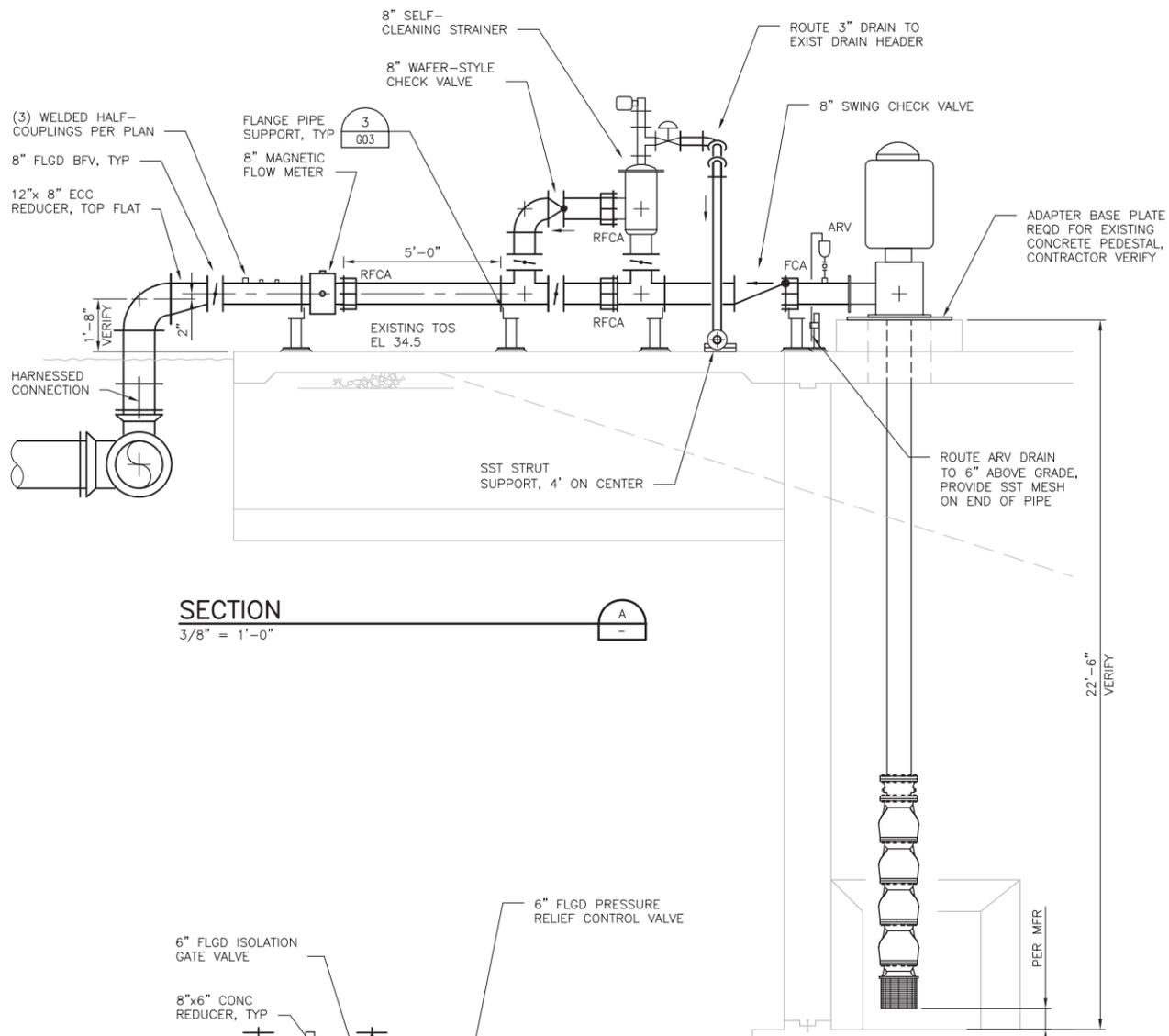
PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____

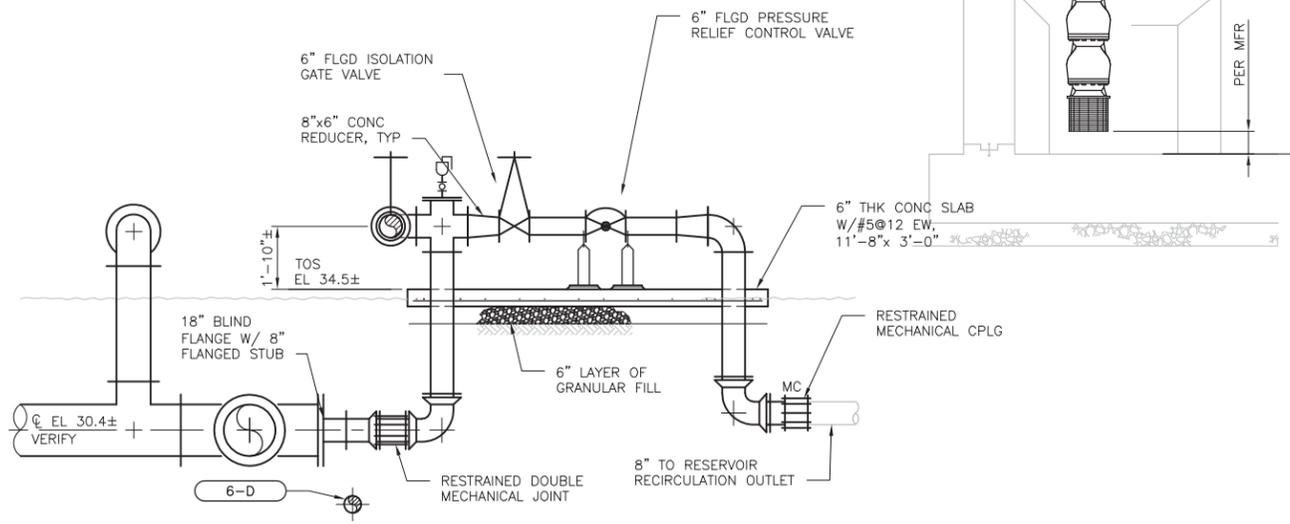


**North Bay Water Reuse Program**  
Sonoma Valley County Sanitation District  
Treatment Plant  
**PUMPING AND PIPING UPGRADES**

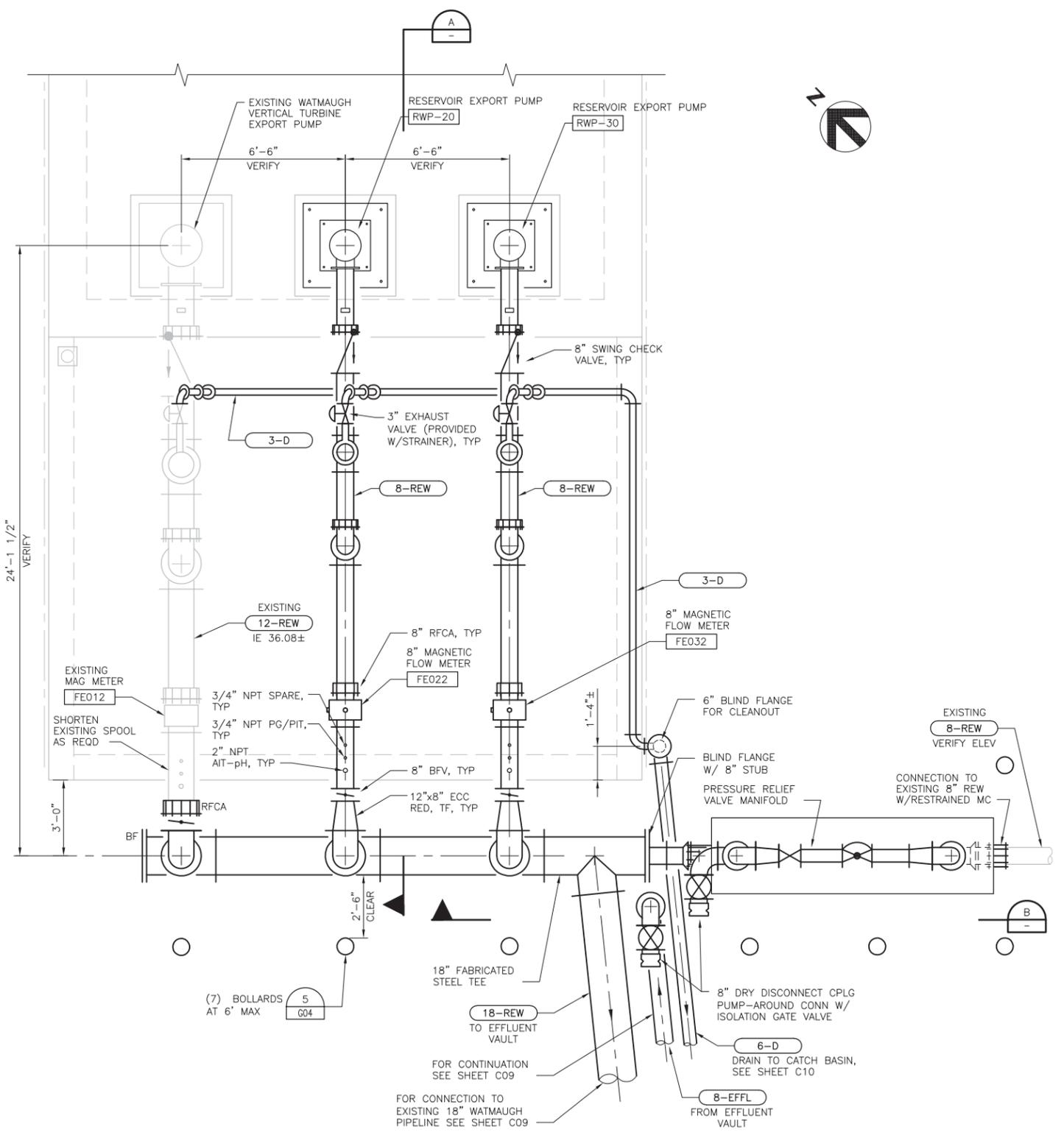
CIVIL	
<b>6" EXPORT PUMP STATION DRAIN PLAN AND PROFILE</b>	
FILENAME	144908_C10.dwg
SCALE	AS NOTED
SHEET <b>C10</b>	



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



**PRESSURE REDUCING STATION SECTION**  
3/8" = 1'-0"



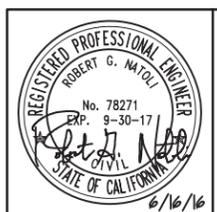
**RESERVOIR EXPORT PUMPING STATION MODIFICATIONS PLAN**  
3/8" = 1'-0"



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

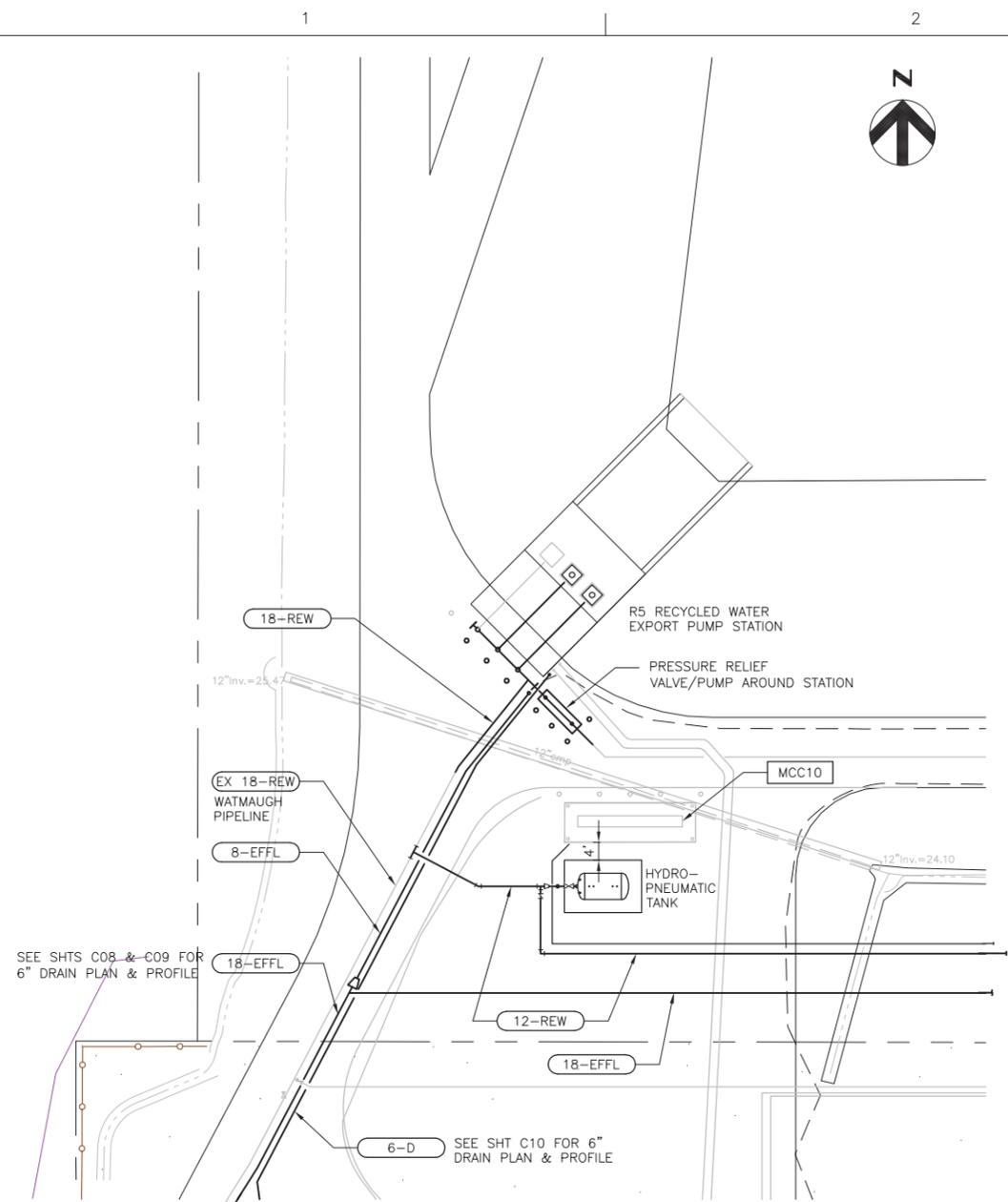
PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	

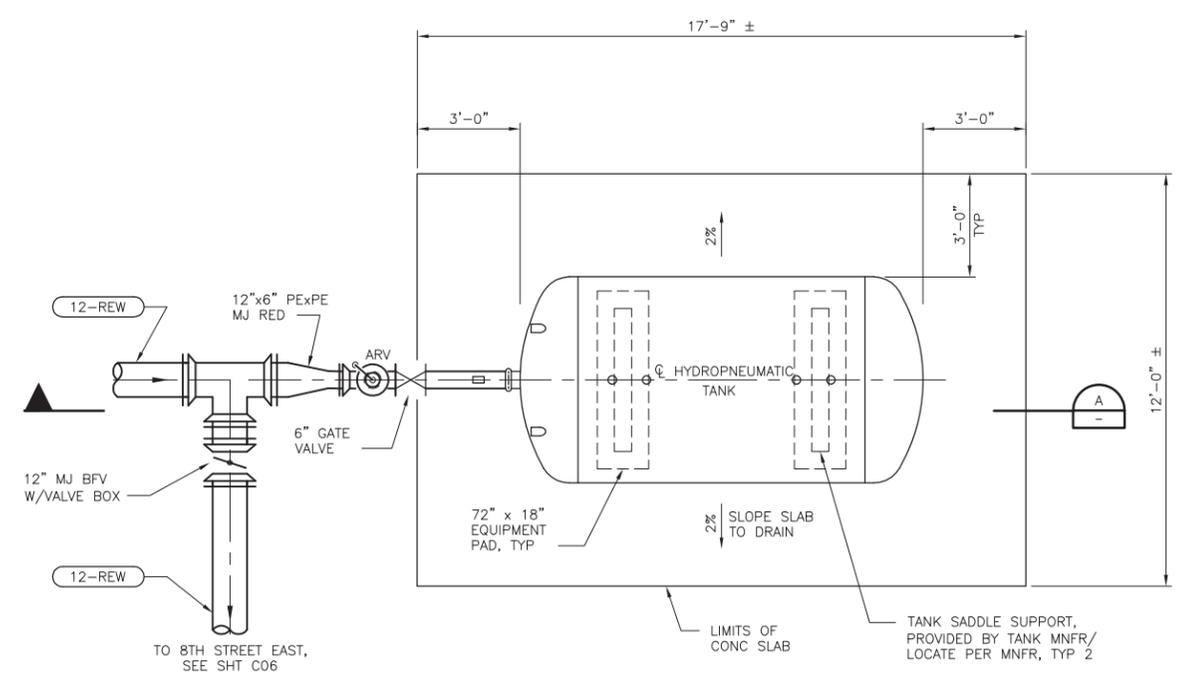


**North Bay Water Reuse Program**  
Sonoma Valley County Sanitation District  
Treatment Plant  
**PUMPING AND PIPING UPGRADES**

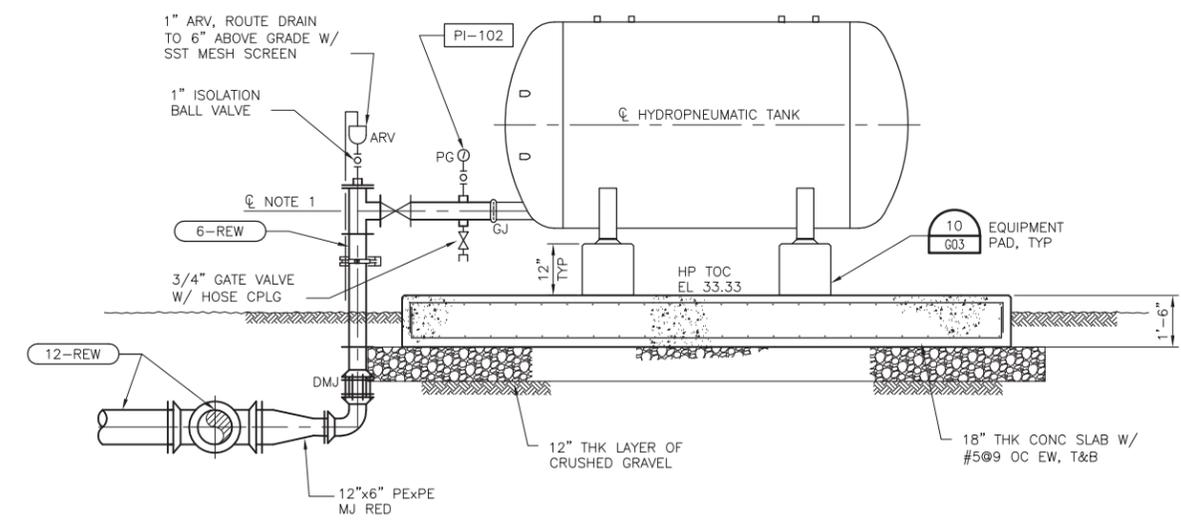
CIVIL	
<b>EXPORT PUMPING STATION MODIFICATION PLAN AND SECTIONS</b>	
FILENAME	144908_C11.dwg
SCALE	AS NOTED
SHEET	C11



**HYDROPNEUMATIC TANK ENLARGED AREA PLAN**  
1" = 20'



**HYDROPNEUMATIC TANK PLAN**  
3/8" = 1'-0"



NOTE:  
1. COORDINATE CENTERLINE ELEVATION WITH EQUIPMENT PAD AND MANUFACTURER PROVIDED SADDLE SUPPORT AND TANK DIMENSIONS.

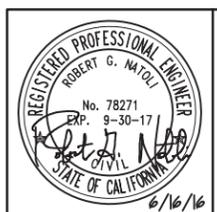
**TANK AND PAD SECTION**  
3/8" = 1'-0"



ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	CRAIG OLSON, PE
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DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	

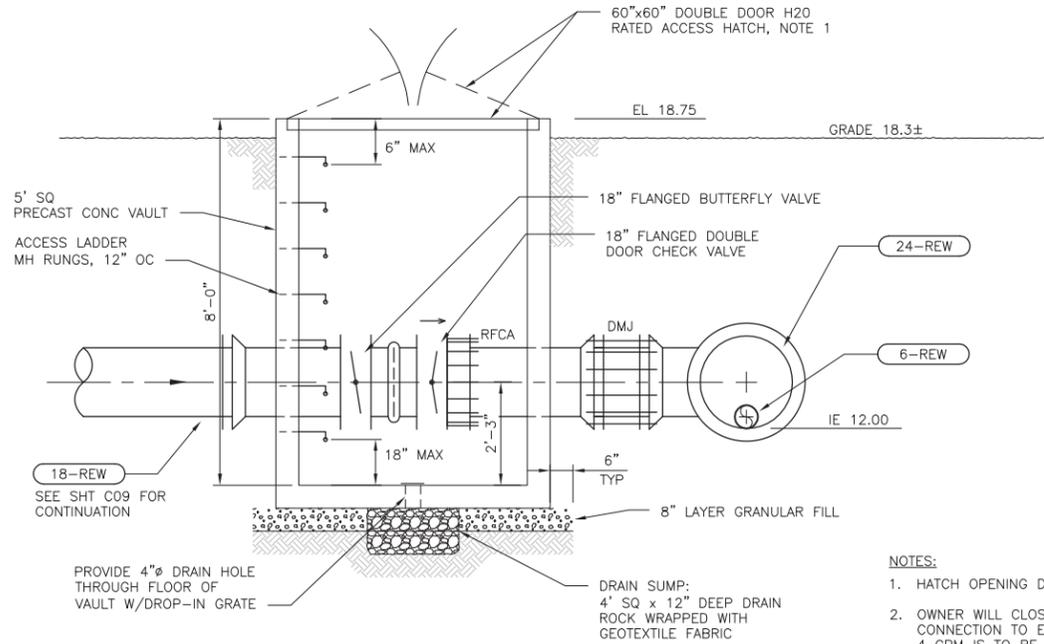


**North Bay Water Reuse Program**  
Sonoma Valley County Sanitation District  
Treatment Plant  
**PUMPING AND PIPING UPGRADES**

CIVIL  
**HYDROPNEUMATIC TANK PLAN AND SECTIONS**

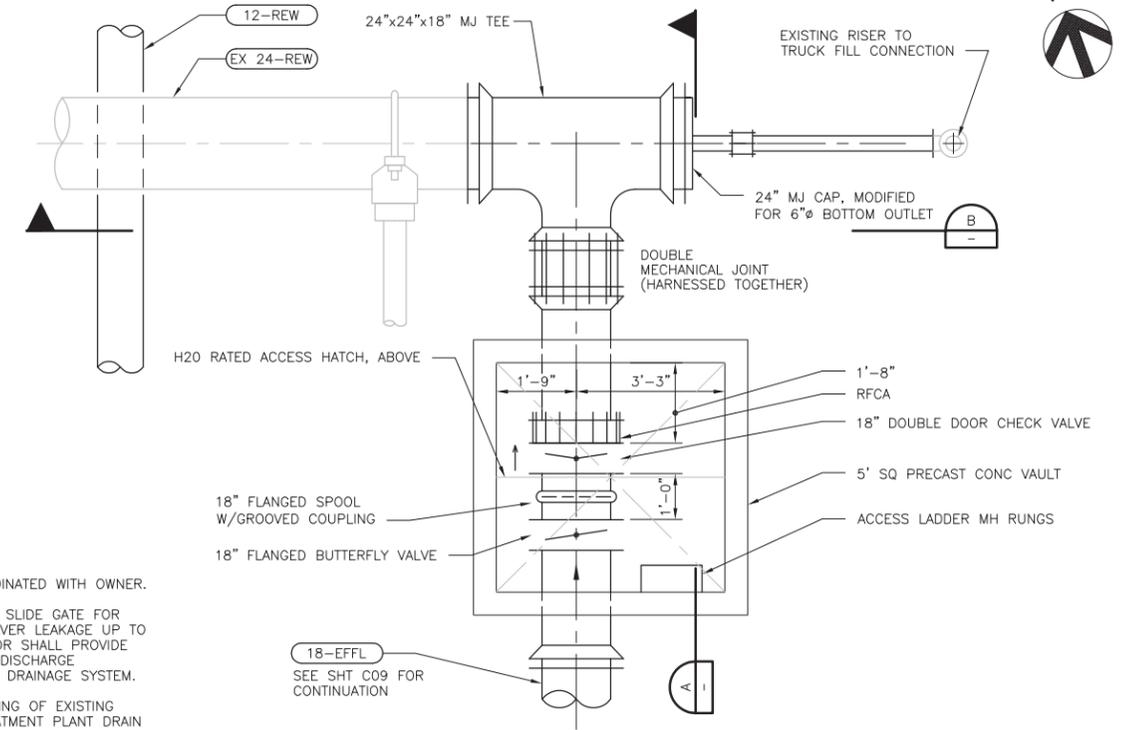
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SCALE AS NOTED

FILENAME 144908\_C12.dwg  
SHEET C12

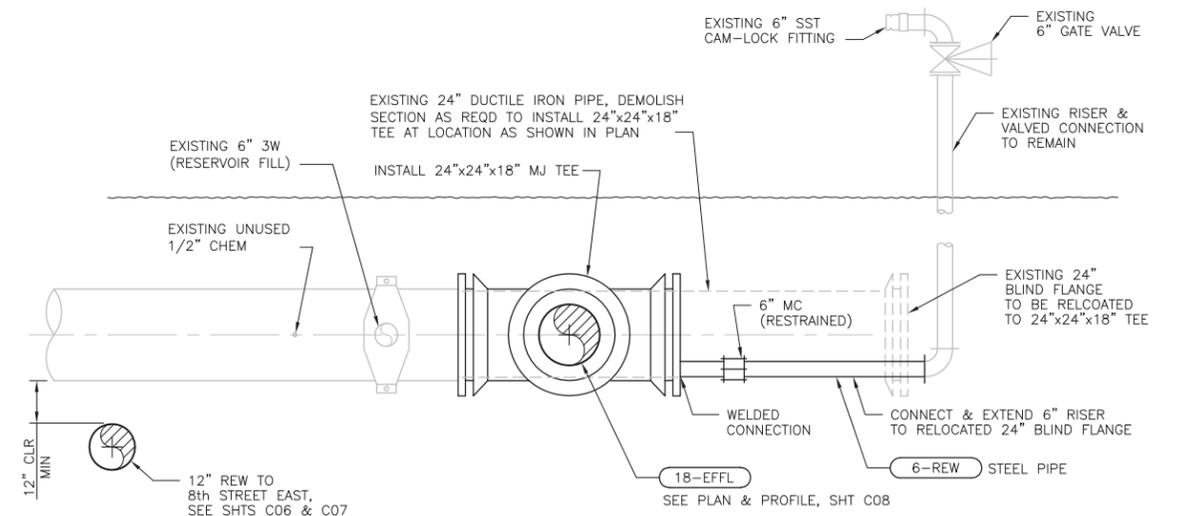


**SECTION A**  
1/2" = 1'-0"

- NOTES:**
- HATCH OPENING DIRECTION TO BE COORDINATED WITH OWNER.
  - OWNER WILL CLOSE RESERVOIR R5 INLET SLIDE GATE FOR CONNECTION TO EXISTING 24-REW, HOWEVER LEAKAGE UP TO 4 GPM IS TO BE EXPECTED. CONTRACTOR SHALL PROVIDE DEWATERING PUMPS AS NECESSARY AND DISCHARGE DEWATERING WATER TO TREATMENT PLANT DRAINAGE SYSTEM.
  - CONTRACTOR RESPONSIBLE FOR DEWATERING OF EXISTING 24-REW PIPE AND DISCHARGING TO TREATMENT PLANT DRAIN SYSTEM.



**R5 INLET PIPE CONNECTION DETAIL**  
1/2" = 1'-0"



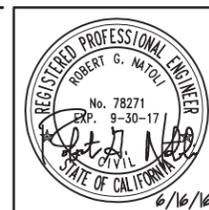
**SECTION B**  
1/2" = 1'-0"



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	
REVIEWED	



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**  
**PUMPING AND PIPING UPGRADES**

<b>CIVIL</b>	
<b>R5 INLET MODIFICATION</b> <b>PLAN AND SECTIONS</b>	
FILENAME	144908_C13.dwg
SCALE	AS NOTED
SHEET	<b>C13</b>

**SYMBOLS LEGEND**

**POWER**

LOW VOLTAGE CIRCUIT BREAKER (CB). RATINGS AND NO. OF POLES AS SHOWN. WHEN SPECIFIC TYPE IS REQUIRED, X INDICATES TYPE.  
TYPES:  
MCCB - MOLDED CASE  
ICCB - INSULATED CASE  
LVP - LOW VOLTAGE POWER  
MCP - MOTOR CIRCUIT PROTECTOR (RATING PER CONNECTED LOAD)

GROUND FAULT PROTECTION

MEDIUM VOLTAGE CIRCUIT BREAKER

FUSE, SIZE AND NUMBER OF FUSES AS NOTED  
CUTOUT, CURRENT RATING, FUSE SIZE AND NUMBER OF POLES AS NOTED

FUSED CUTOUT, CURRENT RATING, FUSE SIZE AND NUMBER OF POLES AS NOTED

FUSIBLE SWITCH, CURRENT RATING, FUSE SIZE AND QUANTITY AS NOTED

NON-FUSED SWITCH, CURRENT RATING AND NUMBER OF POLES AS NOTED

DISCONNECT OR DRAWOUT CONNECTION

THERMAL OVERLOAD ELEMENT

THERMAL OVERLOAD RELAY CONTACT

MOTOR WITH DESIGN HORSEPOWER (WHEN INDICATED)

GENERATOR

TRANSFER SWITCH, CURRENT RATING AND NUMBER OF POLES AS NOTED.  
ATS - AUTOMATIC  
MTS - MANUAL

TRANSFORMER  
Δ 3 PHASE, 3 WIRE DELTA CONNECTION  
Y 3 PHASE, 4 WIRE GROUNDED WYE CONNECTION

SWITCHBOARD OR PANELBOARD. NAME, VOLTAGE, PHASE, NUMBER OF WIRES WHEN INDICATED.

NON-MOTOR LOAD WITH DESIGN KVA, KW OR AMPS

CONTROL POWER TRANSFORMER (CPT)

VOLTAGE TRANSFORMER (VT OR PT)

CURRENT TRANSFORMER (CT)

UTILITY WATT-HOUR METER PER UTILITY REQUIREMENTS

DIGITAL METERING PACKAGE

RUN TIME METER

POWER FACTOR CAPACITOR

GROUND

LIGHTNING ARRESTER

TRANSIENT VOLTAGE SURGE SUPPRESSOR

ELECTRICAL CONNECTION

NO ELECTRICAL CONNECTION

SOLENOID VALVE

CONTROL/RELAY COIL, X INDICATES TYPE, Y INDICATES LOOP NO. WHEN USED  
TYPES:  
CR - CONTROL RELAY  
DP - DEFINITE PURPOSE RELAY  
LC - LIGHTING CONTACTOR  
M - MOTOR STARTER  
PC - PHOTO CELL  
TC - TIME CLOCK  
TR - TIMING RELAY

NORMALLY OPEN CONTACT (N.O.)

NORMALLY CLOSED CONTACT (N.C.)

NORMALLY OPEN TIME DELAY RELAY CONTACT, WITH TIME DELAY ON CLOSING AFTER COIL IS ENERGIZED

NORMALLY CLOSED TIME DELAY RELAY CONTACT, WITH TIME DELAY ON OPENING AFTER COIL IS ENERGIZED

NORMALLY OPEN TIME DELAY RELAY CONTACT, WITH TIME DELAY ON OPENING AFTER COIL IS DE-ENERGIZED

NORMALLY CLOSED TIME DELAY RELAY CONTACT, WITH TIME DELAY ON OPENING AFTER COIL IS DE-ENERGIZED

NORMALLY OPEN TEMPERATURE SWITCH, CLOSE ON RISING TEMPERATURE

NORMALLY CLOSED TEMPERATURE SWITCH, OPEN ON RISING TEMPERATURE

NORMALLY OPEN FLOW SWITCH, CLOSE ON INCREASING FLOW

NORMALLY CLOSED FLOW SWITCH, OPEN ON INCREASING FLOW

NORMALLY OPEN LEVEL SWITCH, CLOSE ON RISING LEVEL

NORMALLY CLOSED LEVEL SWITCH, OPEN ON RISING LEVEL

NORMALLY OPEN PRESSURE SWITCH, CLOSE ON INCREASING PRESSURE

NORMALLY CLOSED PRESSURE SWITCH, OPEN ON INCREASING PRESSURE

NORMALLY OPEN LIMIT SWITCH, CLOSE ON REACHING LIMIT

NORMALLY CLOSED LIMIT SWITCH, OPEN ON REACHING LIMIT

FIELD WIRING EXTERNAL TO CONTROL PANEL

INTERLOCK, X INDICATES TYPE  
TYPES:  
E - ELECTRICAL M - MECHANICAL K - KEY

3 POSITION SELECTOR SWITCH, MAINTAINED CONTACTS, UNLESS OTHERWISE NOTED, 2 POSITION SIMILAR

NORMALLY OPEN PUSHBUTTON, MOMENTARY CONTACT UNLESS OTHERWISE NOTED

NORMALLY CLOSED PUSHBUTTON, MOMENTARY CONTACT UNLESS OTHERWISE NOTED

INDICATING LIGHT, X INDICATES LENS COLOR

PUSH TO TEST INDICATING LIGHT, X INDICATES LENS COLOR

LENS COLORS:  
R - RED Y - YELLOW  
G - GREEN W - WHITE  
B - BLUE A - AMBER

**EQUIPMENT**

MAIN SWITCHBOARD

DISTRIBUTION PANEL BOARD

COMBINATION METER/MAIN SERVICE PANEL

BRANCH CIRCUIT PANEL BOARD, SURFACE OR FLUSH MOUNTED

LIGHTING CONTROL PANEL

SIGNAL TERMINAL CABINET OR CONTROL PANEL SURFACE OR FLUSH MOUNTED

SIGNAL TERMINAL BACKBOARD

CONCRETE UNDERGROUND HAND HOLE (NUMBER DENOTES CHRISTY SIZE)

SEPARATELY MOUNTED CIRCUIT BREAKER, SEE ELECTRICAL ONE LINE DIAGRAM OR SCHEDULE FOR DESCRIPTION

MAGNETIC MOTOR STARTER AND SEPARATELY MOUNTED COMBINATION MAGNETIC MOTOR STARTER.

MOTOR CONTROLLER AND SEPARATELY MOUNTED MOTOR CONTROLLER WITH SHORT CIRCUIT PROTECTION AND DISCONNECT.

MOTOR STARTER AND CONTROLLER  
SUBSCRIPTS:  
A - MAGNETIC STARTER NEMA SIZE  
B - STARTER TYPE  
NONE - FULL VOLTAGE  
NON-REVERSING (FNVR)  
FVR - FULL VOLTAGE REVERSING  
2S - TWO SPEED  
RVAT - REDUCED VOLTAGE AUTO TRANSFORMER  
C - CONTROL DIAGRAM OR CONTROLS SCHEDULE NUMBER (IF REQUIRED)  
D - CONTROLLER TYPE  
VFD - VARIABLE FREQUENCY DRIVE  
SS - SOLID STATE  
DISCONNECT OR SAFETY SWITCH

SEPARATELY MOUNTED COMBINATION MOTOR STARTER OR CONTROLLER, SEE ELECTRICAL ONE LINE DIAGRAM OR SCHEDULE FOR DESCRIPTION

DUPLEX RECEPTACLE, 15A 125V 2P 3W, GROUNDING TYPE, MOUNTING HEIGHT: +18\" AFF UON

DUPLEX RECEPTACLE - SPLIT WIRED, SWITCHED

DUPLEX RECEPTACLE - EMERGENCY POWER

DUPLEX RECEPTACLE - CEILING MOUNTED

FLOOR RECEPTACLE, 15A 125V 2P 3W, GROUNDING TYPE, FLUSH TYPE UON

DOUBLE DUPLEX RECEPTACLE, 15A 125V 2P 3W, GROUNDING TYPE, MOUNTING HEIGHT: +18\" AFF UON

SINGLE RECEPTACLE, 20A 125V 2P 3W, GROUNDING TYPE, MOUNTING HEIGHT: +18\" AFF UON

SPECIAL PURPOSE RECEPTACLE AS DESIGNATED  
SEE 'SPECIAL SYMBOLS' ON EACH SHEET

JUNCTION BOX, CODE SIZED UON

FLOOR JUNCTION BOX

MOTOR CONNECTION

CEILING EXHAUST FAN

WATER HEATER

SUMP PUMP

TEST PORT

GROUND ROD

THERMOSTAT (SEE MECHANICAL DRAWINGS) MOUNTING HEIGHT: +48\" AFF UON

**GENERAL NOTES**

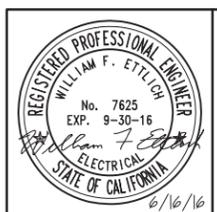
- THIS IS A STANDARD ELECTRICAL SHEET. ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT.
- IN GENERAL CONDUIT ROUTING IS NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS INCLUDING THOSE SHOWN ON ONE-LINES AND HOME RUNS. SEE SPECIFICATIONS FOR CONDUIT INSTALLATION REQUIREMENTS. CONDUIT ROUTINES AND STUB-UP LOCATIONS THAT ARE SHOWN ARE APPROXIMATE, EXACT ROUTINGS SHALL BE AS REQUIRED FOR EQUIPMENT FURNISHED.
- WHEN BRANCH CIRCUITS ARE NOT SHOWN ON THE PLANS THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS AND CONDUCTORS REQUIRED. CONDUIT AND CONDUCTOR SIZES SHALL BE THE SAME AS THE HOMERUN FOR THE BRANCH CIRCUIT.
- SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH DRAWING FOR USAGE.
- SEE PROJECT EQUIPMENT AND PIPING SYSTEMS DRAWING FOR SYMBOLS AND ABBREVIATIONS SPECIFIC TO THE PROJECT.



PROJECT MANAGER	CRAIG OLSON, PE
	W. ETTLICH
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

REVIEWED	
REVIEWED	



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

**PUMPING AND PIPING UPGRADES**

**ELECTRICAL**  
**SYMBOLS AND LEGEND**

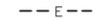
0 1" 2"

FILENAME	144908_E01.dwg
SCALE	NONE

SHEET  
**E01**

**SYMBOLS LEGEND**

**CONDUIT**

-  CONDUIT TURNING UP
  -  CONDUIT TURNING DOWN
  -  HOME RUN TO PANEL, 2 #12, 1 #12G in 3/4" C UNLESS OTHERWISE NOTED
  -  CIRCUIT HASH MARKS (WHEN INDICATED), LONG, SHORT, SINGLE DOT AND DOUBLE DOT REPRESENT PHASE, NEUTRAL, EQUIPMENT GROUND AND ISOLATED EQUIPMENT GROUND RESPECTIVELY. #12 IN 3/4" CONDUIT UNLESS OTHERWISE INDICATED
  -  CIRCUIT CONTINUATION
  -  CONDUIT STUBBED OUT AND CAPPED
  -  CONDUIT TAG OR CIRCUIT NUMBER - WIRE AND CONDUIT SIZE AS SPECIFIED IN CIRCUIT SCHEDULE ON THE DRAWINGS
  -  CONDUIT INSTALLED ABOVE GRADE
  -  CONDUIT INSTALLED UNDERGROUND OR UNDER SLAB
  -  EXISTING CONDUIT TO REMAIN
  -  EXISTING UNDERGROUND CONDUIT TO BE RECONDUCTORED
  -  FLEXIBLE CONDUIT WHIP TO LIGHT FIXTURE OR EQUIPMENT
  -  INDICATES CIRCUIT BREAKER I.D.
  -  INDICATES BRANCH PANEL
- CONDUIT HOME RUN TO DESIGNATED PANEL, TERMINAL, OR CONTROL CABINET
- EXAMPLES:
- COMMA INDICATES MULTIPLE SINGLE POLE CIRCUIT: THE MINIMUM CONDUIT SIZE IS 3/4".
- L1-6,8      L1-10/12
- ↑                      ↑
- INDICATES MULTI-POLE CIRCUIT

**COMMUNICATION**

-  TRANSFORMER
  -  SELECTOR SWITCH
  -  PUSHBUTTON
  -  INSTRUMENTATION/CONTROL DEVICE
  -  ALARM BELL
  -  ALARM HORN
  -  ALARM FLASHING LIGHT
  -  ALARM BELL AND FLASHING LIGHT COMBINATION UNIT
  -  ALARM HORN AND FLASHING LIGHT COMBINATION UNIT
  -  CCTV CAMERA
  -  INTERCOM CALL IN SWITCH - MOUNTING HEIGHT: +48" AFF, UON
  -  TELEPHONE/DATA OUTLET, FLUSH TYPE UON MOUNTING HEIGHT: +18" AFF UON
  -  SURFACE RACEWAY WITH POWER AND TELEPHONE/DATA RECEPTACLES AS INDICATED
  -  CATV OUTLET - MOUNTING HEIGHT: +96" AFF UON
  -  AUDIO/VIDEO OUTLET - MOUNTING HEIGHT: +18" AFF UON
- ↑ DENOTES # OF TELEPHONE JACKS
- ↑ DENOTES # OF DATA JACKS

**SWITCHING**

-  DENOTES SWITCH
-  TIMER SWITCH - MOUNTING HEIGHT: +48" AFF, UON
-  DENOTES SWITCH
-  DENOTES RELAY
-  DIMMER SWITCH - MOUNTING HEIGHT: +48" AFF, UON
-  OCCUPANCY SENSOR, CEILING MOUNTED, LINE VOLTAGE
-  OCCUPANCY SENSOR, CEILING MOUNTED, LOW VOLTAGE
-  OCCUPANCY SENSOR, WALL MOUNTED, LINE VOLTAGE, 1-CIRCUIT - MOUNTING HEIGHT: +48" AFF, UON
-  OCCUPANCY SENSOR, WALL MOUNTED, LINE VOLTAGE, 2-CIRCUIT - MOUNTING HEIGHT: +48" AFF, UON
-  PHOTO CONTROL SWITCH - MOUNT ON BUILDING EXTERIOR
-  TIME CLOCK FOR LIGHTING CONTROL

**LIGHTING**

-  PHOTOCELL
  -  CEILING/PENDANT MOUNTED FLUORESCENT FIXTURE
  -  WALL MOUNTED FLUORESCENT FIXTURE
  -  CEILING/PENDANT MOUNTED FLUORESCENT FIXTURE NORMAL/EMERGENCY
  -  WALL MOUNTED FLUORESCENT FIXTURE NORMAL/EMERGENCY
  -  EMERGENCY LIGHT, REMOTE MOUNTED HEAD
  -  AREA OR ROADWAY LIGHT - POLE MOUNTED
  -  TOGGLE SWITCH
  -  RECESSED DOWN LIGHT FIXTURE
  -  RECESSED DIRECTIONAL FIXTURE (ARROW INDICATES AIMING)
  -  SURFACE, PENDANT OR OTHER FIXTURE
  -  WALL-MOUNTED HID, INCANDESCENT, OR COMPACT FLUORESCENT FIXTURE
  -  EXIT SIGN, SINGLE FACE WITH DIRECTIONAL ARROWS AS INDICATED
  -  EXIT SIGN, DOUBLE FACE WITH DIRECTIONAL ARROWS AS INDICATED
  -  EXIT SIGN, LOW LEVEL
  -  COMBINATION EXIT/EMERGENCY LIGHT FIXTURE MOUNTING HEIGHT: +8'-0" AFF, UON
  -  EMERGENCY FIXTURE MOUNTING HEIGHT: +8'-0" AFF, UON
  -  DENOTES FIXTURE CONNECTED TO EMERGENCY CIRCUIT
  -  OUTDOOR SITE LIGHT, POLE MOUNTED LUMINAIRE ARROW INDICATES AIMING DIRECTION, IF APPLICABLE
  -  BOLLARD OR POST-TOP FIXTURE
- LIGHTING FIXTURE SUBSCRIPTS:
- X - INDICATES FIXTURE TYPE PER LIGHTING FIXTURE SCHEDULE
- Y - INDICATES CIRCUIT NUMBER FROM PANELBOARD
- Z - INDICATES CONTROLLING SWITCH (IF REQUIRED)
- Y - INDICATES CONTROLLING SWITCH (IF REQUIRED)

**ABBREVIATIONS**

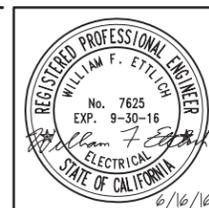
- |  |                                      |
|--|--------------------------------------|
| (D) DEMOLISH                                 | J, JB JUNCTION BOX                   |
| (E) EXISTING                                 | KAIC KILO-AMPS INTERRUPTING CAPACITY |
| (F) FUTURE                                   | KV KILOVOLT                          |
| (N) NEW                                      | KVA KILOVOLT-AMP                     |
| A AMPERES                                    | KW KILOWATT                          |
| AC ALTERNATING CURRENT                       | KWH KILOWATT-HOUR                    |
| AF AMP FRAME                                 | LV LOW VOLTAGE                       |
| AFB ABOVE FINISHED FLOOR                     | MCB MAIN CIRCUIT BREAKER             |
| AFG ABOVE FINISHED GRADE                     | MCC MOTOR CONTROL CENTER             |
| AHU AIR HANDLING UNIT                        | MCP MOTOR CIRCUIT PROTECTOR          |
| AIC AMPS INTERRUPTING CAPACITY               | MDF MAIN DISTRIBUTION FACILITY       |
| ANN ANNUNCIATOR                              | MFR MANUFACTURER                     |
| ATS AUTOMATIC TRANSFER SWITCH                | MH METAL HALIDE                      |
| AWG AMERICAN WIRE GAUGE                      | MLO MAIN LUGS ONLY                   |
| BAT BATTERY                                  | MV MEDIUM VOLTAGE                    |
| BFG BELOW FINISH GRADE                       | NC NORMALLY CLOSED                   |
| CATV CABLE TELEVISION                        | NF NON-FUSED                         |
| C CONDUIT                                    | NIC NOT IN CONTRACT                  |
| CB CIRCUIT BREAKER                           | NL NIGHT LIGHT                       |
| CCTV CLOSED CIRCUIT TELEVISION               | NO NORMALLY OPEN                     |
| CO CUTOUT                                    | NTS NOT TO SCALE                     |
| CPT CONTROL POWER TRANSFORMER                | OC ON CENTER                         |
| CT CURRENT TRANSFORMER                       | PA PUBLIC ADDRESS                    |
| CU COPPER                                    | PFC POWER FACTOR CAPACITOR           |
| DC DIRECT CURRENT                            | PT POTENTIAL TRANSFORMER             |
| EF EXHAUST FAN                               | PVC POLYVINYL CHLORIDE               |
| EGU ENGINE GENERATOR UNIT                    | PB PULL BOX, ELECTRICAL              |
| EM EMERGENCY                                 | RECP RECEPTACLE, OUTLET              |
| EMT ELECTRICAL METALLIC CONDUIT              | RGS RIGID GALVANIZED STEEL           |
| ENT ELECTRICAL NON-METALLIC CONDUIT          | RVSS REDUCED VOLTAGE SOFT START      |
| FA FIRE ALARM                                | RTU REMOTE TERMINAL UNIT             |
| FACP FIRE ALARM CONTROL PANEL                | TV TELEVISION MONITOR (SET)          |
| FC FAN COIL                                  | TVSS TRANS. VOLT. SURGE SUPPRESSOR   |
| FCO FUSED CUTOUT                             | UF UNDER FLOOR                       |
| FU FUSE                                      | UG UNDERGROUND                       |
| FVNR FULL VOLTAGE NON-REVERSING              | UON UNLESS OTHERWISE NOTED           |
| GND GROUND                                   | UPS UNINTERRUPTIBLE POWER SUPPLY     |
| GFCI GROUND FAULT CIRCUIT INTERRUPTER        | V VOLT                               |
| GFI GROUND FAULT INTERRUPTER                 | VA VOLT-AMP                          |
| GFR GROUND FAULT RELAY                       | VFD VARIABLE FREQUENCY DRIVE         |
| GSW GANG SWITCH                              | WP WEATHERPROOF                      |
| HID HIGH INTENSITY DISCHARGE                 | XFMR TRANSFORMER                     |
| HP HORSEPOWER                                |                                      |
| HPS HIGH PRESSURE SODIUM                     |                                      |
| HVAC HEATING, VENTILATION & AIR-CONDITIONING |                                      |
| IDF INTERMEDIATE DISTRIBUTION FACILITY       |                                      |
| IG ISOLATED GROUND                           |                                      |



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PROJECT MANAGER	CRAIG OLSON, PE W. ETTLICH
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

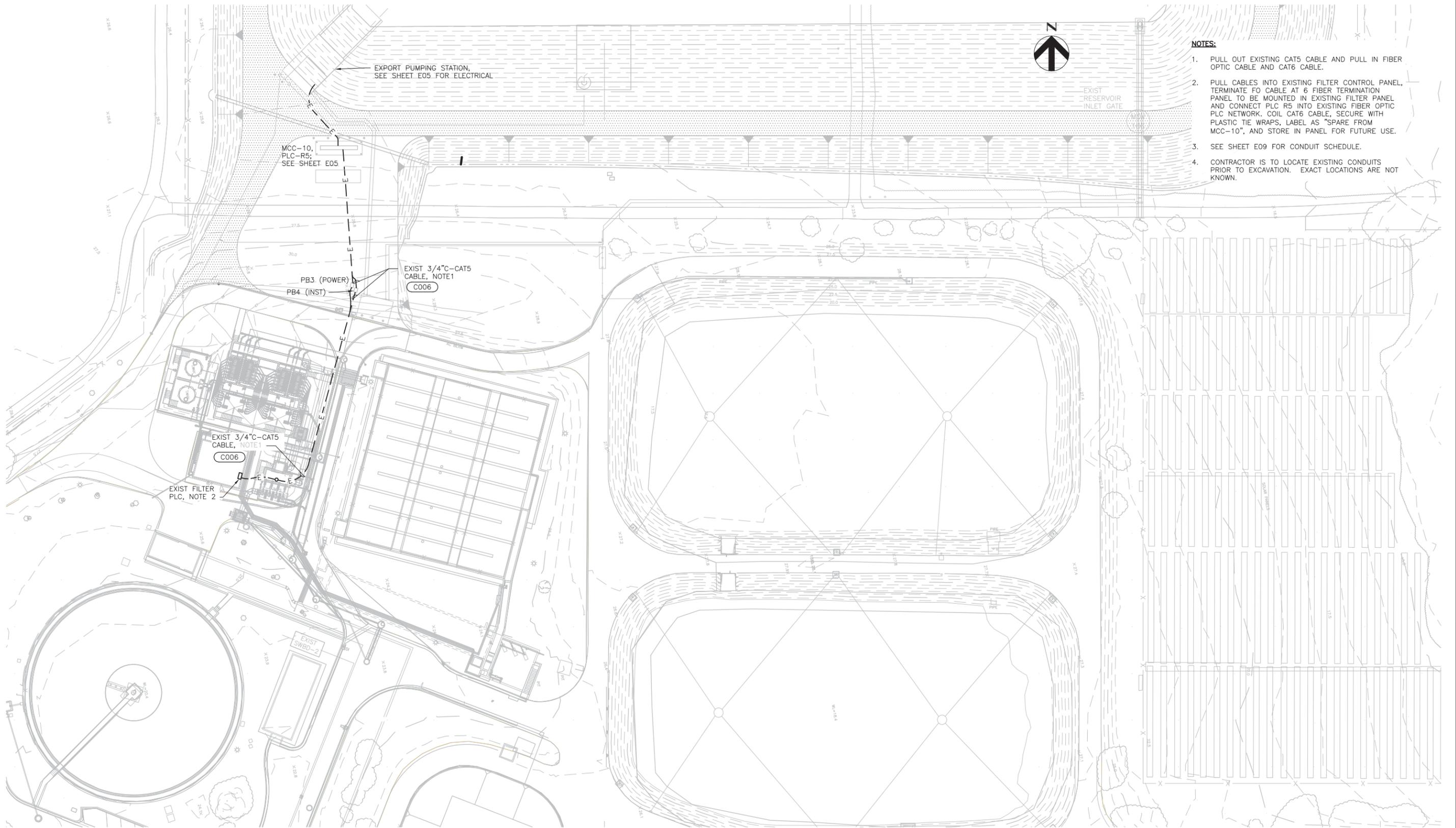
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**North Bay Water Reuse Program  
Sonoma Valley County Sanitation District  
Treatment Plant**

**PUMPING AND PIPING UPGRADES**

<b>ELECTRICAL</b>		FILENAME	144908_E02.dwg	SHEET	E02
<b>SYMBOLS AND LEGEND</b>		SCALE	NONE		



- NOTES:**
1. PULL OUT EXISTING CAT5 CABLE AND PULL IN FIBER OPTIC CABLE AND CAT6 CABLE.
  2. PULL CABLES INTO EXISTING FILTER CONTROL PANEL. TERMINATE FO CABLE AT 6 FIBER TERMINATION PANEL TO BE MOUNTED IN EXISTING FILTER PANEL AND CONNECT PLC R5 INTO EXISTING FIBER OPTIC PLC NETWORK. COIL CAT6 CABLE, SECURE WITH PLASTIC TIE WRAPS, LABEL AS "SPARE FROM MCC-10", AND STORE IN PANEL FOR FUTURE USE.
  3. SEE SHEET E09 FOR CONDUIT SCHEDULE.
  4. CONTRACTOR IS TO LOCATE EXISTING CONDUITS PRIOR TO EXCAVATION. EXACT LOCATIONS ARE NOT KNOWN.



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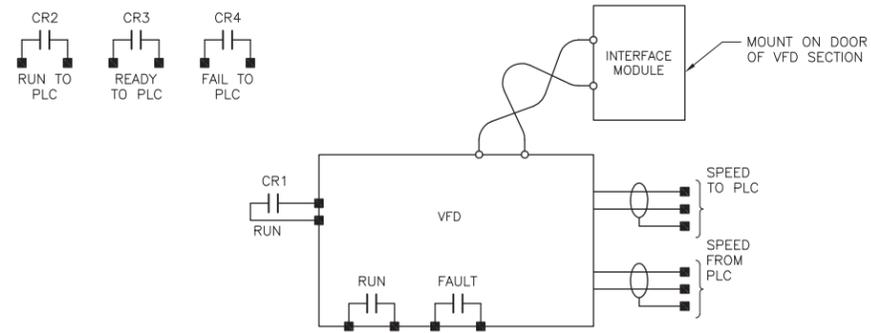
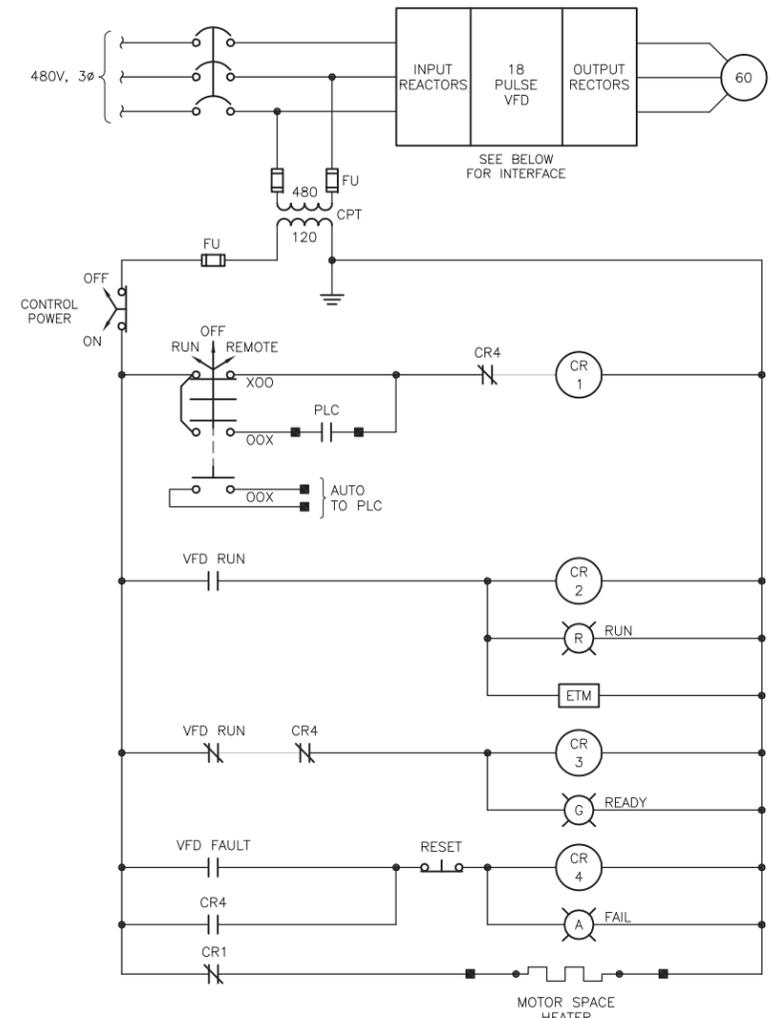
**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

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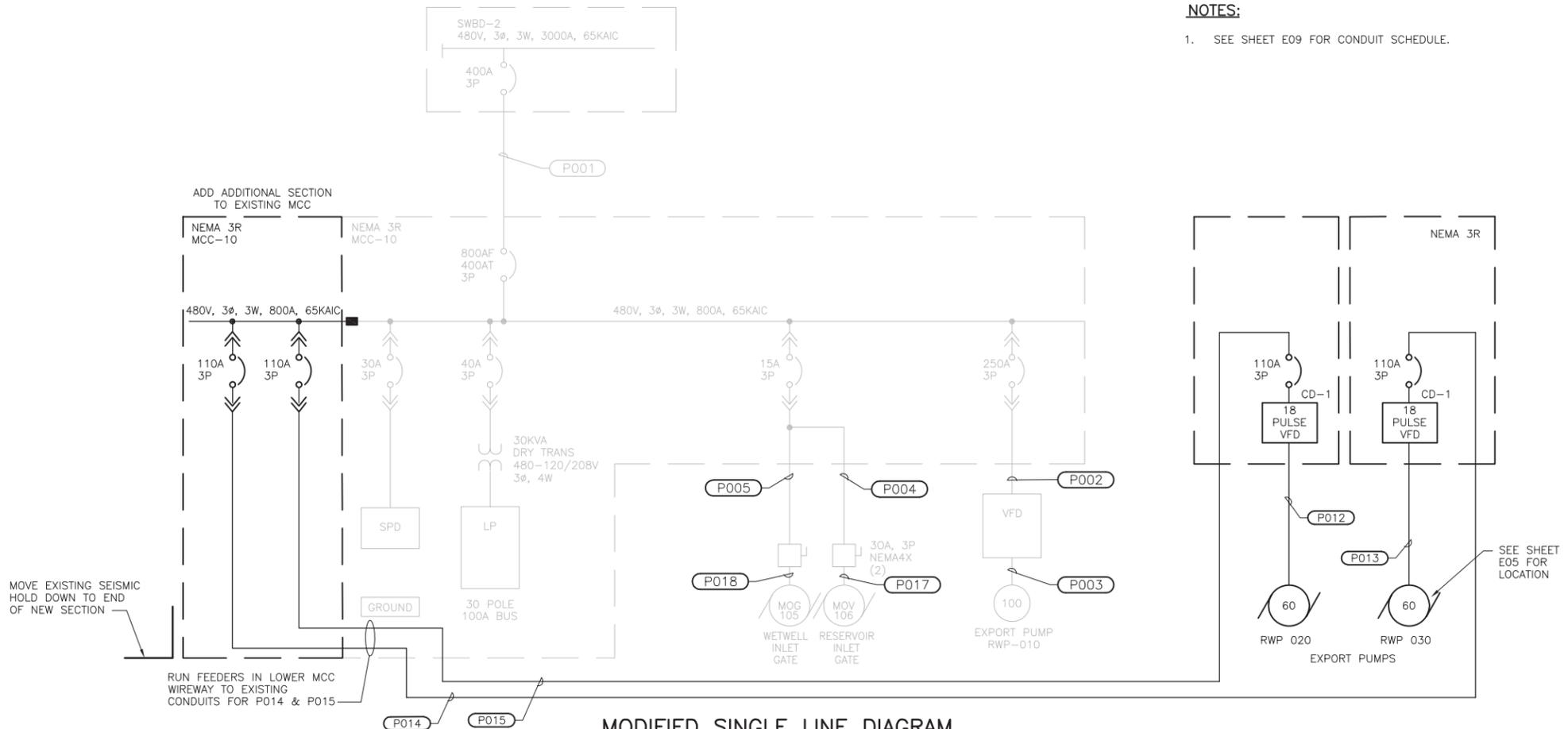
**PUMPING AND PIPING UPGRADES**

<b>ELECTRICAL</b>	
<b>ELECTRICAL SITE PLAN</b>	
	FILENAME 144908_E03.dwg SCALE 1" = 30'-0"
SHEET <b>E03</b>	

**NOTES:**  
 1. SEE SHEET E09 FOR CONDUIT SCHEDULE.



**CD-1: EXPORT PUMP**  
 NO SCALE (RWP020 AND RWP030)



**MODIFIED SINGLE LINE DIAGRAM**  
 NOT TO SCALE

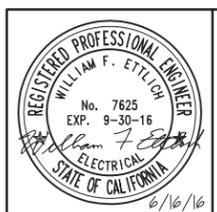
PANEL: EXIST LP		FEEDER ENTRANCE: BOTTOM			MOUNTING: MCC-10			
SERVICE:		SERVICE ENTRANCE LABEL: NO						
MAIN DEVICE:								
CKT NO.	CIRCUIT IDENTIFICATION	CB AMPS	VA PER PHASE			CB AMPS	CIRCUIT IDENTIFICATION	CKT NO.
			A	B	C			
1	OUTLETS	20/1	500	200		20/1	RTU-R	2
3	OUTLETS	20/1		500	500	20/1	RTU-R	4
5	LIGHTS	20/1			600	200		6
7	AIT-014, AIT-024, AIT-034	20/1	100	200		20/3	STRAINERS	8
9	BLADDER MONITOR, BM103	20/1		100	200			10
11	SPACE	.			200	20/1	FIT-012, FIT-022, FIT-032	12
13	SPACE	.				.	SPACE	14
15	SPACE	.				.	SPACE	16
17	SPACE	.				.	SPACE	18
19	SPACE	.				.	SPACE	20
21	SPACE	.				.	SPACE	22
23	SPACE	.				.	SPACE	24
15	SPACE	.				.	SPACE	26
27	SPACE	.				.	SPACE	28
29	SPACE	.				.	SPACE	30
EST TOTAL VA PER PHASE			1000	1200	1000			
EST TOTAL PANELBOARD VA			3200					



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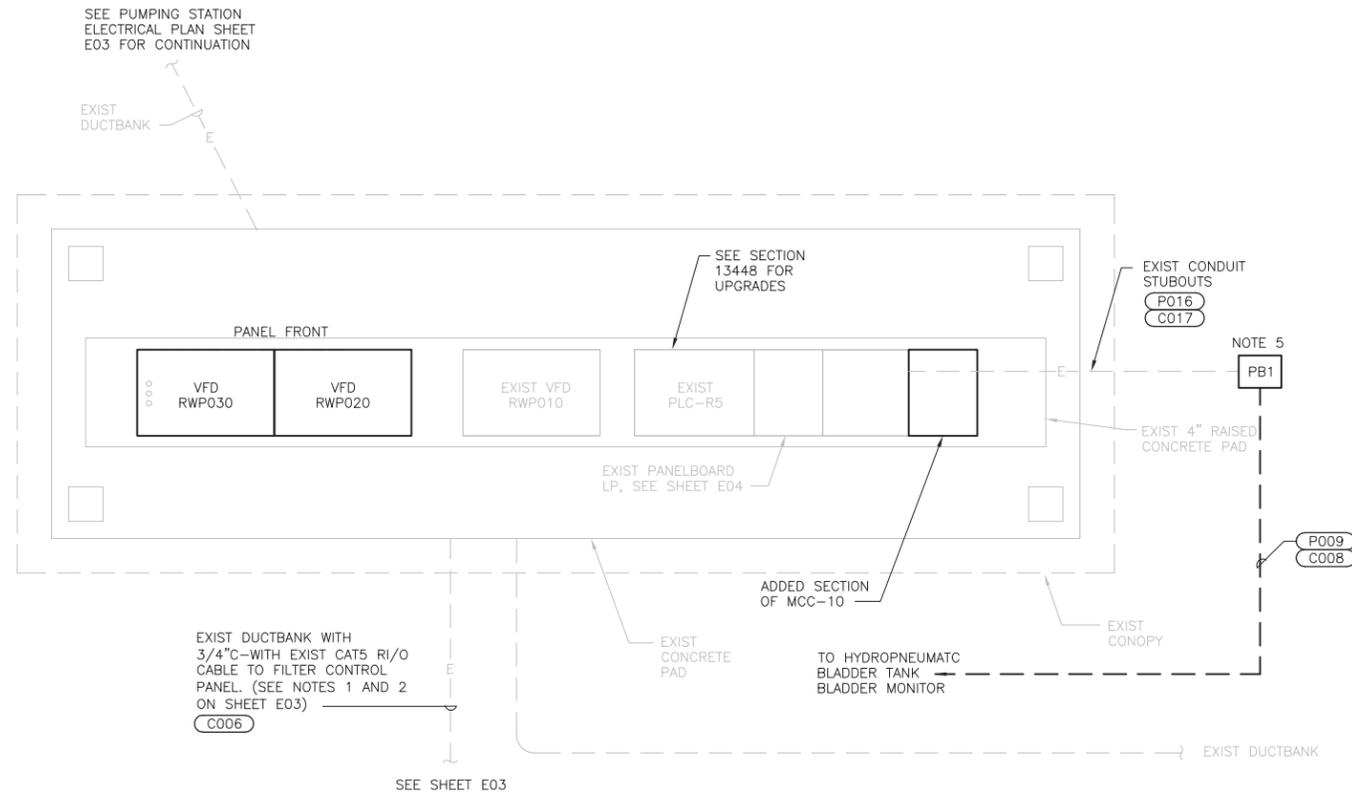
**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**  
**PUMPING AND PIPING UPGRADES**

**ELECTRICAL**  
**SINGLE LINE, CONTROL DIAGRAMS AND PANEL SCHEDULE**

0 1" 2"

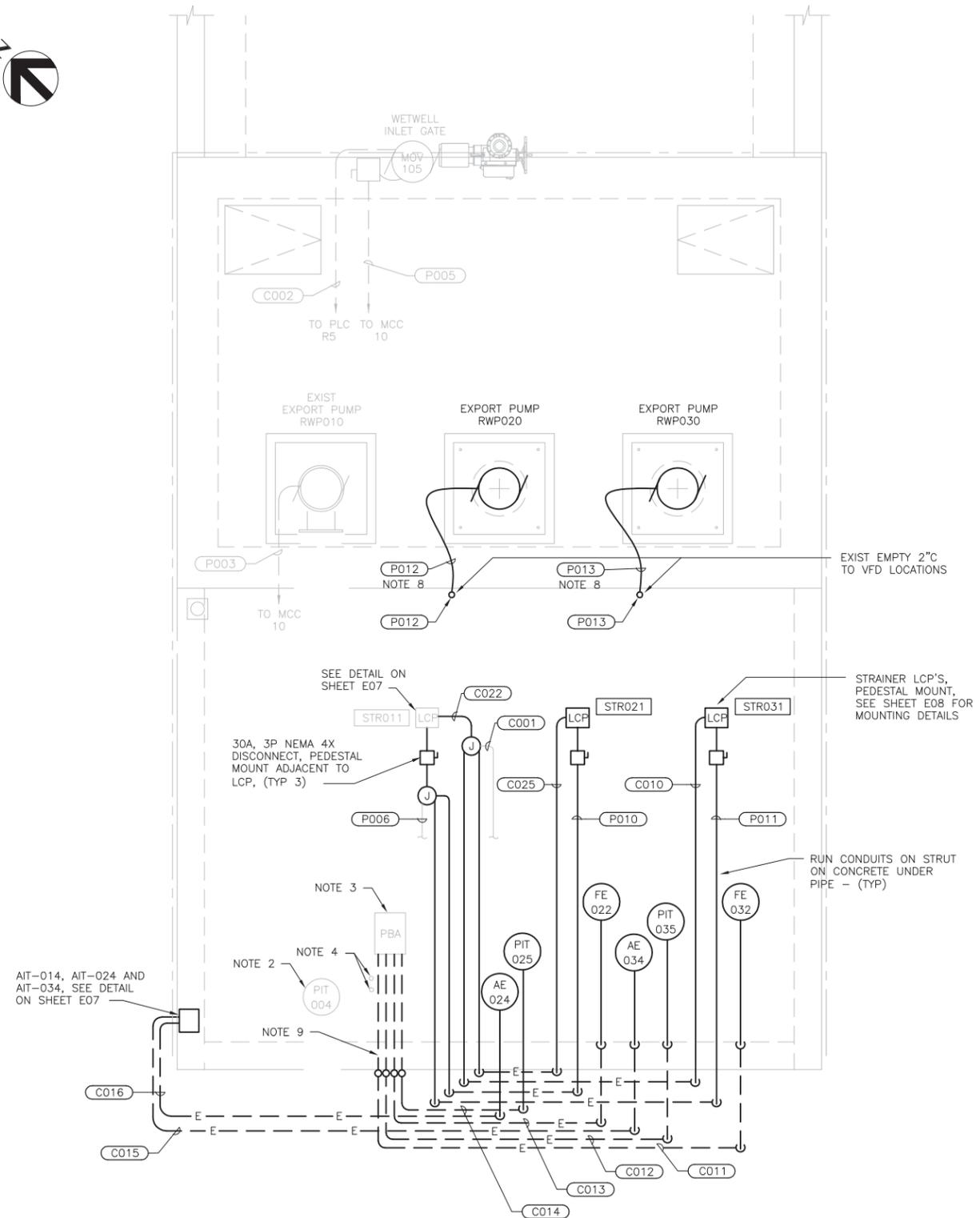
FILENAME	144908_E04.dwg	SHEET	E04
SCALE	NONE		

- NOTES:
- SEE SHEET E09 FOR CONDUIT AND WIRE SCHEDULE.
  - MOVE EXISTING PIT004 AND RE-TAG PIT025.
  - EXISTING PBA WITH 1 1/4" C TO PLC-R5 PLUG HOLE ON TOP FOR PIT004.
  - TWO EXISTING 3/4" C - ONE TO MCC-10 AND ONE TO PLC-R5 AVAILABLE FOR USE IF NEEDED.
  - INSTALL 18"x24" PULLBOX ONTO EXISTING 4-2" UNDERGROUND CONDUIT STUBOUTS.
  - OUTDOOR AREAS AND UNDER CANOPY CLASSIFIED AS WET.
  - SEE NOTE 4, SHEET E03.
  - MAKE FINAL 2" CONDUIT AND WIRE CONNECTION TO MOTOR.
  - RUN CONDUITS ALONG TOP OF CONCRETE SLAB ON STRUT.



**MCC-10/PLC-R5 DETAIL**  
3/8" = 1'-0"

OUTDOOR AREAS AND UNDER CANOPY CLASSIFIED AS WET



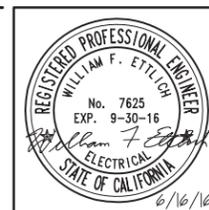
**EXPORT PUMP STATION ELECTRICAL PLAN**  
3/8" = 1'-0"



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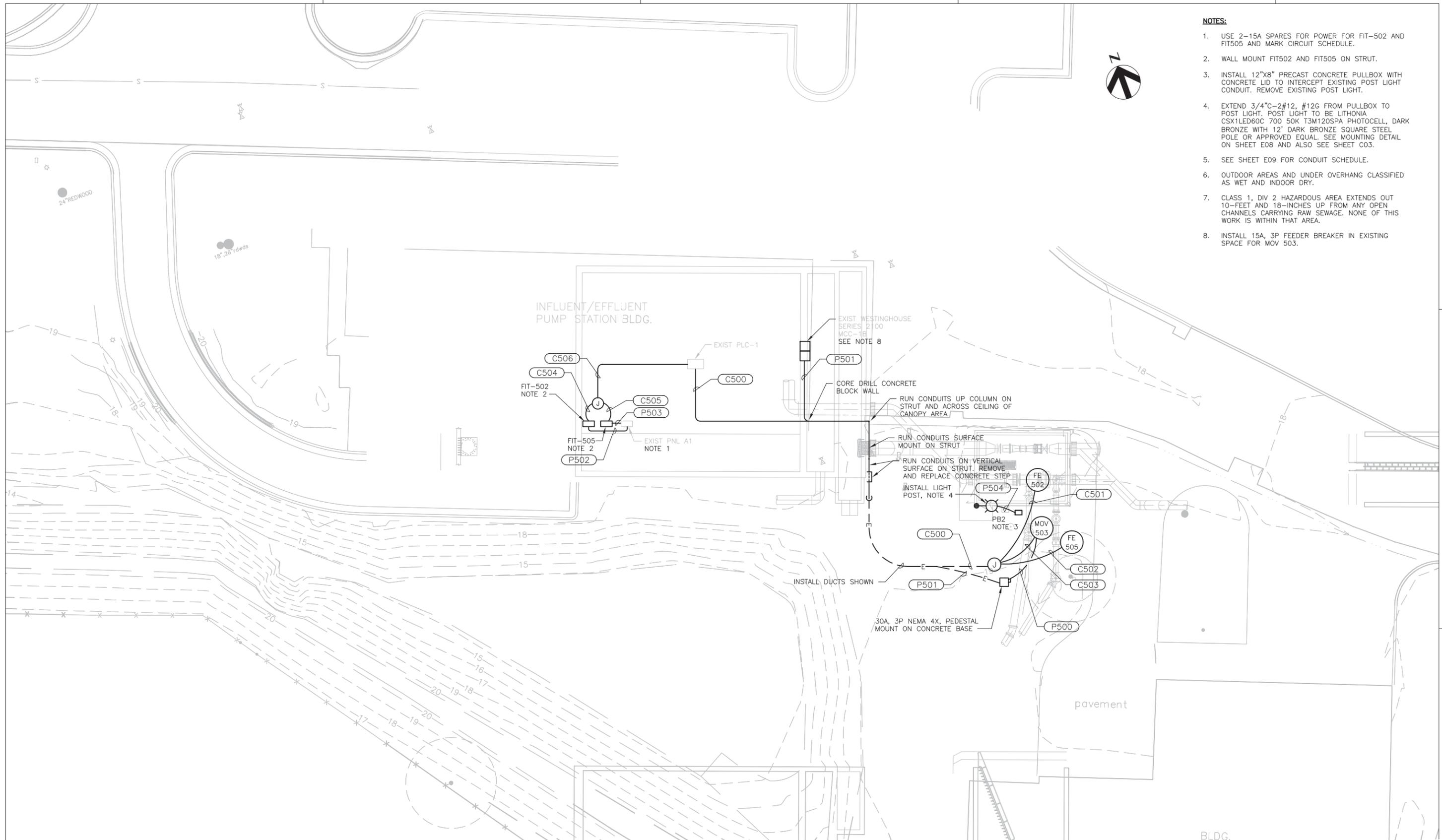
REVIEWED	_____
REVIEWED	_____



**North Bay Water Reuse Program**  
Sonoma Valley County Sanitation District  
Treatment Plant

**PUMPING AND PIPING UPGRADES**

<b>ELECTRICAL</b>	
<b>EXPORT PUMP STATION AND MCC-R ELECTRICAL PLANS</b>	
FILENAME	144908_E05.dwg
SCALE	NONE
SHEET	<b>E05</b>



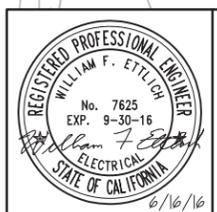
- NOTES:**
1. USE 2-15A SPARES FOR POWER FOR FIT-502 AND FIT505 AND MARK CIRCUIT SCHEDULE.
  2. WALL MOUNT FIT502 AND FIT505 ON STRUT.
  3. INSTALL 12"x8" PRECAST CONCRETE PULLBOX WITH CONCRETE LID TO INTERCEPT EXISTING POST LIGHT CONDUIT. REMOVE EXISTING POST LIGHT.
  4. EXTEND 3/4"C-2#12, #12G FROM PULLBOX TO POST LIGHT. POST LIGHT TO BE LITHONIA CSX1LED60C 700 50K T3M120SPA PHOTOCELL, DARK BRONZE WITH 12" DARK BRONZE SQUARE STEEL POLE OR APPROVED EQUAL. SEE MOUNTING DETAIL ON SHEET E08 AND ALSO SEE SHEET C03.
  5. SEE SHEET E09 FOR CONDUIT SCHEDULE.
  6. OUTDOOR AREAS AND UNDER OVERHANG CLASSIFIED AS WET AND INDOOR DRY.
  7. CLASS 1, DIV 2 HAZARDOUS AREA EXTENDS OUT 10- FEET AND 18-INCHES UP FROM ANY OPEN CHANNELS CARRYING RAW SEWAGE. NONE OF THIS WORK IS WITHIN THAT AREA.
  8. INSTALL 15A, 3P FEEDER BREAKER IN EXISTING SPACE FOR MOV 503.



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A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

**PUMPING AND PIPING UPGRADES**

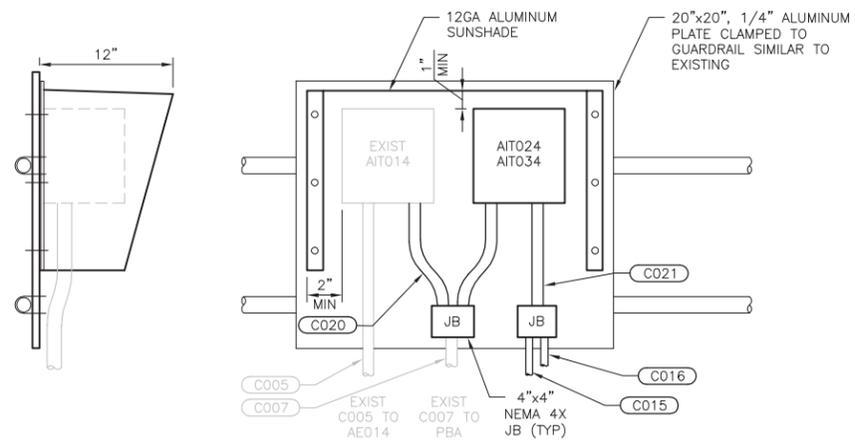
**ELECTRICAL**

**EFFLUENT PUMP STATION AREA ELECTRICAL PLAN**

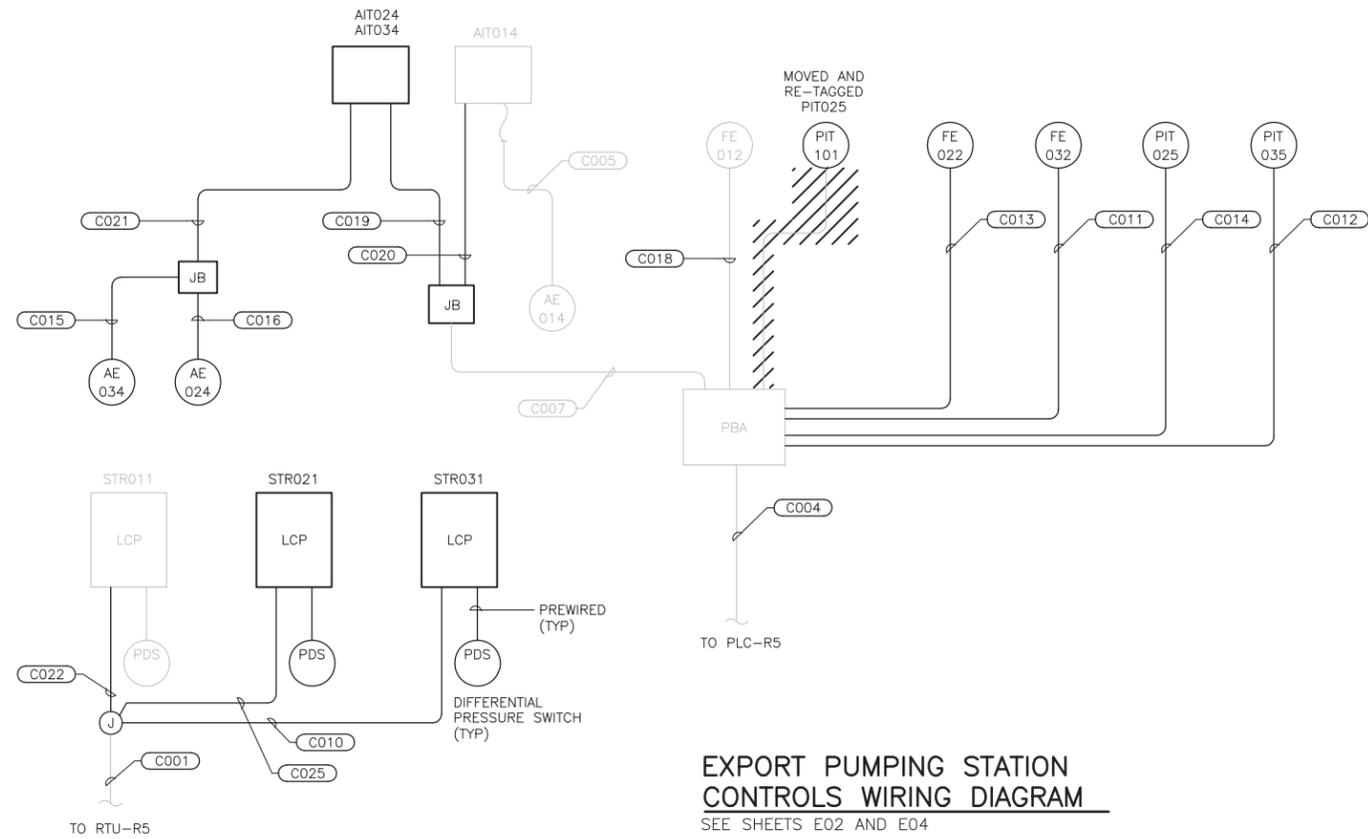
0 1" 2"

FILENAME 144908\_E06.dwg  
 SCALE 1" = 10'-0"

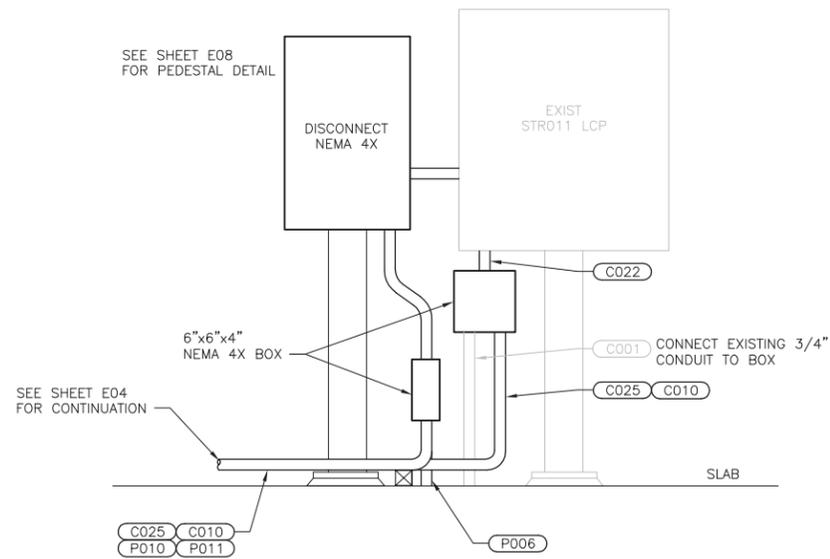
SHEET  
**E06**



**EXPORT PUMPING STATION  
PH TRANSMITTER MOUNTING**  
NTS



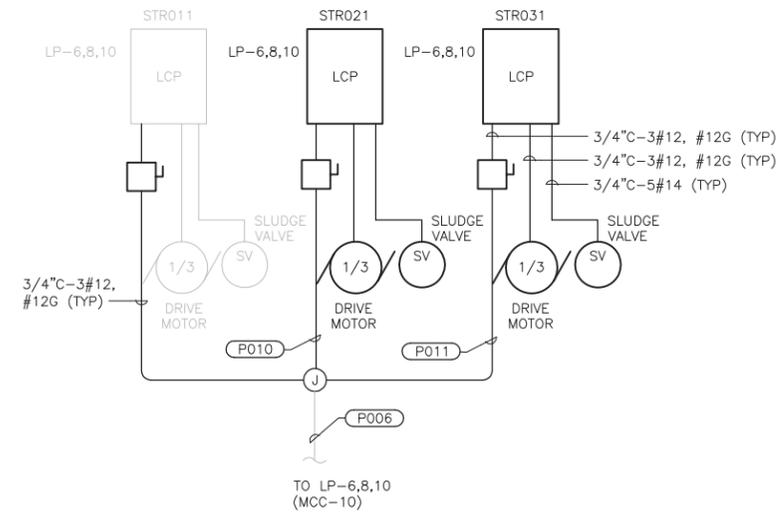
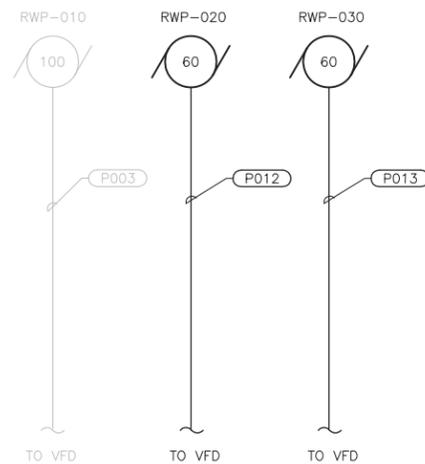
**EXPORT PUMPING STATION  
CONTROLS WIRING DIAGRAM**  
SEE SHEETS E02 AND E04



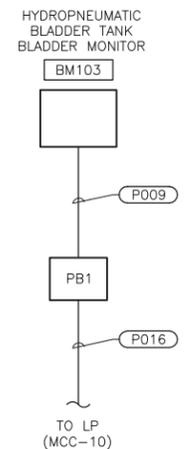
**EXPORT PUMPING STATION  
STR011 WIRING MODIFICATIONS**  
TYPICAL FOR STR021 AND STR031 EXCEPT CONDUIT  
ARRANGEMENT DIFFERS, SEE POWER AND CONTROLS WIRING  
DIAGRAMS.

**NOTES:**

- SEE SHEET E09 FOR CONDUIT SCHEDULE.



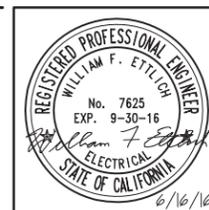
**EXPORT PUMPING STATION  
POWER WIRING DIAGRAM**  
SEE SHEETS E04 AND E05



ISSUE	DATE	DESCRIPTION
A	-6/16/16	-ISSUED FOR BIDS

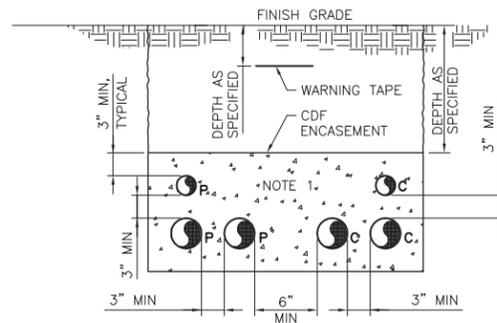
PROJECT MANAGER	CRAIG OLSON, PE W. ETTLICH
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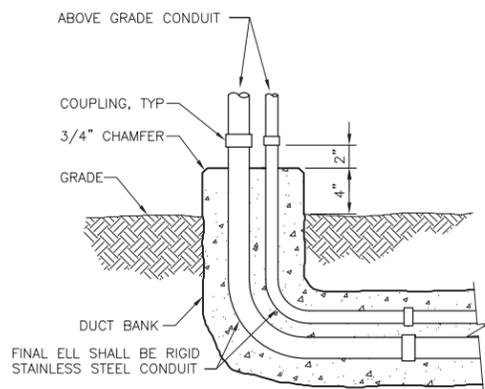
**North Bay Water Reuse Program  
Sonoma Valley County Sanitation District  
Treatment Plant**  
**PUMPING AND PIPING UPGRADES**

<b>ELECTRICAL</b>	
<b>ELECTRICAL DETAILS AND WIRING DIAGRAMS</b>	
FILENAME	144908_E07.dwg
SCALE	NONE
SHEET	E07



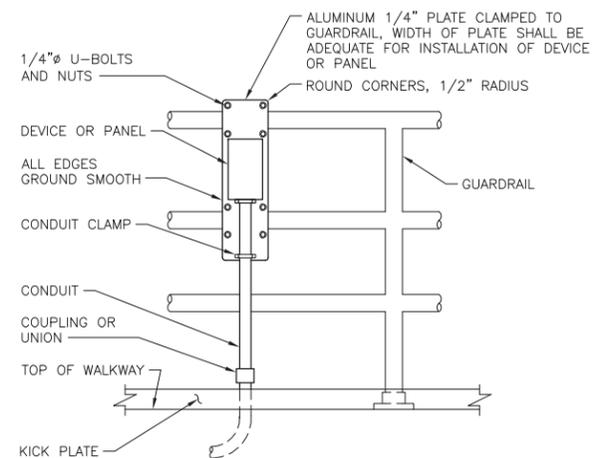
- NOTES:
1. NUMBER OF CONDUITS AS REQUIRED FOR THE APPLICATION.
  2. P SUBSCRIPT ELECTRICAL POWER OR CONTROL CONDUIT.
  3. C SUBSCRIPT COMMUNICATION (TELEPHONE, DATA, INSTRUMENTATION) CONDUIT.
  4. TRENCHING AND BACKFILL IN ACCORDANCE WITH SECTION 02316.

**CONCRETE ENCASED DUCT BANK SECTION**  
NTS

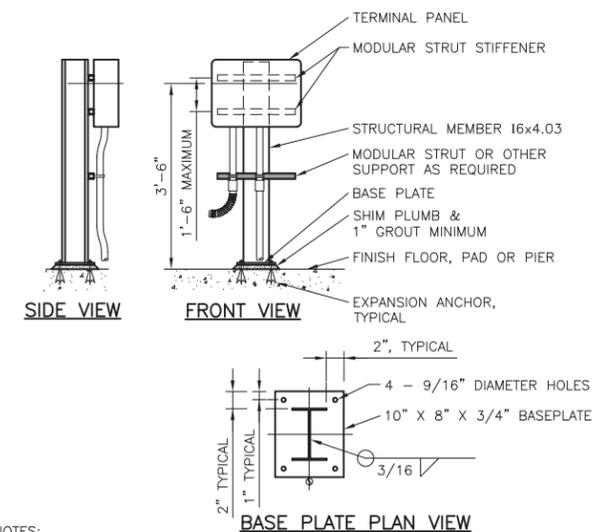


- NOTE:
1. SEE DUCT BANK SECTION DETAIL FOR ADDITIONAL REQUIREMENTS.

**CONDUIT TRANSITION TO ABOVE GRADE (EXTERIOR)**  
NTS



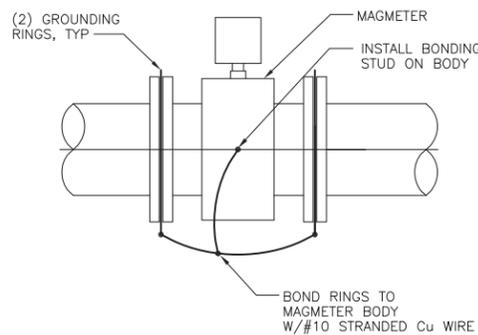
**GUARDRAIL MOUNTED DEVICE**  
NTS



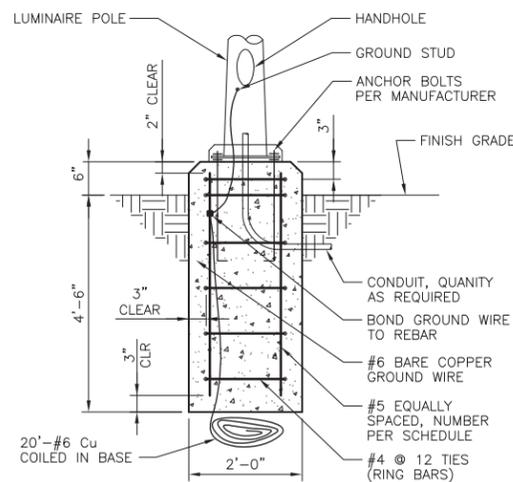
- NOTES:
1. EQUIPMENT LOAD SHALL NOT EXCEED 200 LBS.
  2. PEDESTAL ASSEMBLY MATERIAL: ALUMINUM, PER SPECIFICATION 05505.
  3. ANCHORS: STAINLESS STEEL, 1/2" DIAMETER, 3 1/2" EMBEDMENT, PER SPECIFICATION 09905.
  4. PROTECT SURFACES WITH DISSIMILAR MATERIALS IN ACCORDANCE WITH SPECIFICATION 09905.
  5. ATTACH EACH MODULAR STRUT AND STIFFENER TO STRUCTURAL MEMBER WITH A MINIMUM OF TWO 3/8 INCH DIAMETER STAINLESS STEEL ROUND HEAD MACHINE SCREWS WITH LOCK WASHER AND NUT.
  6. ATTACH PLATE TO EACH STIFFENER WITH A MINIMUM OF THREE 3/8 INCH DIAMETER STAINLESS STEEL FLAT HEAD (COUNTER SUNK) MACHINE SCREWS USING CHANNEL NUTS WITH SPRINGS.

**EQUIPMENT PEDESTAL FED FROM BELOW**  
NTS

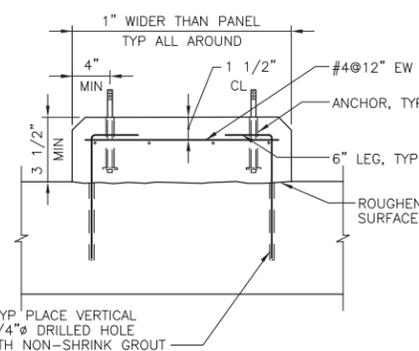
NOTE: INSTALL BONDING JUMPERS ON EXISTING FE012.



**MAGNETIC FLOW METER INSTALLATION**  
NTS



**LIGHT POLE FOUNDATION**



- NOTES:
1. PROVIDE ABOVE PAD UNDER EQUIPMENT SUPPORTED ON STRUCTURAL OR ELEVATED SLABS. ALSO PROVIDE FOR ELECTRICAL & MECHANICAL EQUIPMENT WEIGHING LESS THAN 5000 LBS.

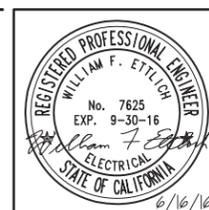
**ELECTRICAL PAD**  
NTS



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**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**  
**PUMPING AND PIPING UPGRADES**

<b>ELECTRICAL</b>		FILENAME	144908_E08.dwg	SHEET	<b>E08</b>
<b>ELECTRICAL DETAILS</b>		SCALE	NONE		

CONDUIT/WIRE SCHEDULE, POWER

CONDUIT TAG	SIZE, IN	FILL	ORIGIN	TERMINATION
P001	4 (E)	3#500kMIL, #1/0G, (EF)	EXIST SWBD-2	MCC-10
P002	2 (E)	3#4/0, #8G (EF)	RWP010 VFD	MCC-10
P003	2 (E)	3#4/0, #8G, 2#12 (EF)	RWP010	RWP010 VFD
P004	3/4 (E)	3#12, #12G (EF)	RESERVOIR GATE DISC	MCC-10
P005	3/4 (E)	3#12, #12G (EF)	INLET GATE DISC	MCC-10
P006	3/4 (E)	3#12, #12G (EF)	STR011 DISC	LP-6, 8, 10
P007	1 1/4 (E)	3#12, #12G (EF)	SITE LIGHT	LP-5
P008	3/4 (E)	2#12, #12G (EF)	FIT-001	LP-12
P009	1	3#12, #12G	PB-1	BM103
P010	3/4	3#12, #12G	STR021 DISC	STR011 POWER JB
P011	3/4	3#12, #12G	STR031 DISC	STR011 POWER JB
P012	2 (E)	3#3, #6G, 2#12	RWP020	RWP020 VFD
P013	2 (E)	3#3, #6G, 2#12	RWP030	RWP030 VFD
P014	2 (E)	3#3, #6G	MCC-10	RWP030 VFD
P015	2 (E)	3#3, #6G	MCC-10	RWP020 VFD
P016	2	2#12, #12G	LP-9	PB1
P017	3/4 (E)	3#12, #12G (EF)	RESERVOIR GATE	RESERVOIR GATE DISC
P018	3/4 (E)	3#12, #12G (EF)	INLET GATE	INLET GATE DISC
P019	1	EMPTY	MCC-10	SEE C06 AND C07
P500	3/4	3#12, #12G	MOV 503	MOV 503 DISC
P501	3/4	3#12, #12G	MOV 503 DISC	MCC-1B
P502	3/4	2#12, #12G	FIT 502	PANEL A1
P503	3/4	2#12, #12G	FIT 505	PANEL A1
P504	3/4	2#12, #12G	PB 2	LIGHT POST

(E) EXISTING CONDUIT  
(EF) EXISTING FILL, NO CHANGE

CONDUIT/WIRE SCHEDULE, CONTROL

CONDUIT TAG	SIZE, IN	FILL	ORIGIN	TERMINATION
C001	3/4 (E)	12#16	STR011, STR021, STR031	PLC-R5
C002	3/4 (E)	4#16 (EF)	WETWELL INLET GATE MOV105	PLC-R5
C003	3/4 (E)	TSP (EF)	LE003	PLC-R5
C004	1 1/4 (E)	5-6TSP, 3 MFR CABLE, 2#16	PBA	PLC-R5
C005	3/4 (E)	MFR CABLE (EF)	EXIST AE014	EXIST AIT014
C006	3/4 (E)	CAT6 AND FO CABLE	EXIST FILTER PLC	PLC-R5
C007	3/4 (E)	3-TSP	EXIST AIT014, AIT024, AIT034, JB	PBA
C008	3/4	2#16	PB1	BM103
C009	3/4 (E)	2-TSP, 6#16, 2#12 (EF)	RWP-010 VFD	PLC-R5
C010	3/4	4#16	STR031 LCP	STR031 LCP JB
C011	3/4	MFR CABLE	FE 032	PBA
C012	3/4	TSP	PIT 035	PBA
C013	3/4	MFR CABLE	FE 022	PBA
C014	3/4	TSP	PIT 025	PBA
C015	3/4	MFR CABLE	AE 034	JB
C016	3/4	MFR CABLE	AE 024	JB
C017	2 (E)	2#16	PB1	PLC-R5
C018	3/4 (E)	MFR CABLE (EF)	EXIST FE 012	PBA
C019	3/4	2-TSP, 4#16	AIT024, AIT034	JB
C020	3/4	TSP, 2#16	EXIST AIT014	JB
C021	3/4	2-MFR CABLES	JB	AIT024, AIT034
C022	3/4	4#16	STR011 LCP	STR011 LCP JB
C023	1 1/2 (E)	2TSP, 6#16, 2#12	RWP 020 VFD	PLC-R5
C024	1 1/2 (E)	2TSP, 6#16, 2#12	RWP 030 VFD	PLC-R5
C025	3/4	4#16	STR021 LCP	STR021 LCP JB
C026	1	EMPTY	MCC-10	SEE C06 AND C07
C500	1	2-MFR CABLES, 2TSP, 2#16	FIELD INSTRUMENT JB	PLC-1
C501	3/4	MFR CABLES	FE 502	JB
C502	3/4	MFR CABLES	FE 505	JB
C503	1	3#12, 4#16	MOV 303	JB
C504	3/4	TSP	FIT 502	JB
C505	3/4	TSP	FIT 505	JB
C506	1	2 TSP	JB	PLC-1

(E) EXISTING CONDUIT  
(EF) EXISTING FILL, NO CHANGE

NOTES:

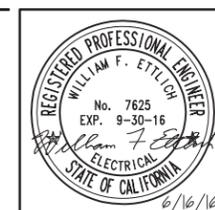
1. ALL CONDUITS LISTED IN THE TABLES ARE TO BE TAGGED, SEE SECTION 16130.



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DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

---

**PUMPING AND PIPING UPGRADES**

**ELECTRICAL**

**DUCT BANK, WIRING AND CONDUIT SCHEDULES**

FILENAME	144908_E09.dwg
SCALE	NONE

SHEET	E09
-------	-----

INSTRUMENT SYMBOLOGY	
	LOCALLY MOUNTED FIELD INSTRUMENTATION
	MOUNTED ON PANEL FRONT
	MOUNTED INSIDE PANEL
	FRONT PANEL MOUNTED ON AUXILIARY PANEL (SUBSCRIPT INDICATES PANEL)
	MOUNTED INSIDE AUXILIARY PANEL
	PILOT LIGHT
	INSTRUMENT FUNCTIONS SHARING COMMON HOUSING
	COMPLEX INTERLOCK AS DEFINED IN CONTROL DIAGRAM OR IN SPECIFICATIONS
	SHARED DISPLAY, SHARED CONTROL, FIELD MOUNTED
	SHARED DISPLAY, SHARED CONTROL AT PRIMARY LOCATION - NORMALLY ACCESSIBLE TO OPERATOR (SCADA WORKSTATION)
	SHARED DISPLAY, SHARED CONTROL AT AUXILIARY LOCATION - NORMALLY ACCESSIBLE TO OPERATOR (IPC, HMI)
	PROGRAMMABLE LOGIC CONTROL, PRIMARY LOCATION - NORMALLY INACCESSIBLE TO OPERATOR

**PRIMARY ELEMENT SYMBOLOGY**

	SONIC OR ULTRASONIC FLOWMETER
	MAGNETIC FLOWMETER
	MOTOR ACTUATED GATE
	MOTOR ACTUATED VALVE

INSTRUMENT IDENTIFICATION LETTERS				
FIRST LETTER		SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ALARM		
B	BURNER, COMBUSTION			
C			CONTROL	CLOSED
D	DIFFERENTIAL			
E	VOLTAGE	SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE			
				RATIO (FRACTION)
G		GLASS, VIEWING DEVICE		
H	HAND			HIGH
I	CURRENT (ELECTRICAL)	INDICATE		
J	POWER			
K	TIME, TIME SCHEDULE		CONTROL STATION	
L	LEVEL	LIGHT		LOW
M	MOISTURE			MIDDLE, INTERMEDIATE
N				
O		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM	POINT (TEST) CONNECTION		
Q	QUANTITY			INTEGRATE, TOTALIZE
R	RADIATION	RECORD		
S	SPEED, FREQUENCY		SWITCH	
T	TEMPERATURE		TRANSMIT	
U	MULTIVARIABLE	MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECH. ANALYSIS		VALVE DAMPER, LOUVER	
W	WEIGHT, FORCE	WELL		
X				X-AXIS
Y	EVENT, STATE OR PRESENCE		RELAY, COMPUTE, CONVERT	Y-AXIS
Z	POSITION, DIMENSION		DRIVER, ACTUATOR UNCLASSIFIED FINAL CONTROL ELEMENT	Z-AXIS

ACTUATOR SYMBOLOGY		TYPES OF POWER SUPPLY	
	OPERATOR ABBREVIATIONS: M = MOTOR P = PNEUMATIC S = SOLENOID	A PLANT COMPRESSED AIR IA INSTRUMENT AIR ES ELECTRICAL SUPPLY NG NATURAL GAS HYD HYDRAULIC	
	FLOAT OPERATOR	AC 120VAC POWER	
	SPRING-OPPPOSED SINGLE-ACTING PNEUMATIC CYLINDER	480 480VAC POWER	
	DOUBLE-ACTING PNEUMATIC CYLINDER	DC 24VDC POWER	
	PNEUMATIC DIAPHRAGM		
	PNEUMATIC DIAPHRAGM WITH POSITIONER		
		PLC INTERFACES	
		↑ ANALOG INPUT (4-20mA DC)	↓ ANALOG OUTPUT (4-20mA DC)
		↑ DISCRETE INPUT (24VDC)	↓ DISCRETE OUTPUT (DRY CONTACT 120VAC)

CONTROL SWITCH NOTATION ABBREVIATIONS		
	XXX	ACKNOWLEDGE
	ACK	ACKNOWLEDGE
	ESTOP	EMERGENCY STOP
	FAIL	FAILURE
	FOR	FORWARD-OFF-REVERSE
	FR	FORWARD-REVERSE
	FS	FAST-SLOW
	HA	HAND-AUTO
	HOA	HAND-OFF-AUTO
	HOR	HAND-OFF-REMOTE
	LL	LEAD-LAG
	LLS	LEAD-LAG-STANDBY
	LOR	LOCAL-OFF-REMOTE
	LR	LOCAL-REMOTE
	LS	LEAD-STANDBY
	MA	MANUAL-AUTO
	OAC	OPEN-AUTO-CLOSE
	OC	OPEN-CLOSE
	OO	ON-OFF
	OSC	OPEN-STOP-CLOSE
	RJ	RUN-JOG
	RJR	RUN-JOG-REVERSE
	SIL	SILENCE

VALVE AND GATE SYMBOLOGY	
	AIR-RELEASE VACUUM VALVE ARV = AIR RELEASE VALVE VAC = VACUUM
	BV - BALL VALVE
	BFV - BUTTERFLY VALVE
	CV - CHECK VALVE
	DDCV - DOUBLE-DISK CHECK VALVE
	BCV - BALL CHECK VALVE
	DV - DIAPHRAGM VALVE
	GV - GATE VALVE
	GLV - GLOBE VALVE
	KGV - KNIFE GATE VALVE
	NV - NEEDLE VALVE
	PNV - PINCH VALVE
	PV - PLUG VALVE
	TWBV - THREE-WAY BALL VALVE
	TWPV - THREE-WAY PLUG VALVE
	PRV - PRESSURE-REDUCING VALVE
	PRV - PRESSURE-REGULATING VALVE
	PRV - PRESSURE-RELIEF VALVE
	TWCV - THREE-WAY CONTROL VALVE
	Y-STRAINER
	FLEX COUPLING
	DRAIN

PROCESS AND INSTRUMENTATION ABBREVIATIONS			
AI	ANALOG INPUT	LCP	LOCAL CONTROL PANEL
AO	ANALOG OUTPUT	LO	LUBE OIL
BD	BLOWDOWN	LOX	LIQUID OXYGEN
BS	BISULFITE	LPA	LOW PRESSURE AIR
BSCR	BANDSCREEN	LPDG	LOW PRESSURE DIGESTER AIR
BYP	BYPASS	MA	MURIATIC ACID
BWW	BACKWASH	ML	MIXED LIQUOR
C	CHILLED WATER	MXR	MIXER
CA	COMPRESSED AIR	N2	NITROGEN GAS
CHEMD	CHEMICAL DRAIN	NG	NATURAL GAS
CL2	CHLORINE (ANALYZER MODIFIER)	NOX	NITROGEN OXIDE (ANALYZER MODIFIER)
CLS	CHLORINE SOLUTION	O2	OXYGEN (ANALYZER MODIFIER)
CMP	COMPACTOR	O3	OZONE
CND	CONDENSER	OF	OVERFLOW
CO	CARBON MONOXIDE (ANALYZER MODIFIER)	OG	OFF GAS
CO2	CARBON DIOXIDE (ANALYZER MODIFIER)	OI	OPERATOR INTERFACE
COMB	COMBUSTIBLES (ANALYZER MODIFIER)	OW	OZONATED WATER
COND	CONDUCTIVITY (ANALYZER MODIFIER)	P	PROPANE
CSL	CAUSTIC SOLUTION	P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
CT	CALCIUM THIOSULFATE	PD	PLANT DRAIN
CW	CITY WATER	PE	PRIMARY EFFLUENT
CWR	COOLING WATER RETURN	PERM	PERMEATE
CWS	COOLING WATER SUPPLY	PI	PRIMARY INFLUENT
D	DRAIN	PMP	PUMP
DC	DIGESTER CLEANING	POL	POLYMER
DEN	DENSITY	POTW	POTABLE WATER
DG	DIGESTER GAS	PS	PRIMARY SLUDGE
DI	DIGITAL INPUT	PW	PLANT WATER
DO	DIGITAL OUTPUT	RAS	RETURN ACTIVATED SLUDGE
DO	DISSOLVED OXYGEN (ANALYZER MODIFIER)	REC	RECIRCULATION
DS	DIGESTER SLUDGE	RS	RAW SEWAGE
E/P	VOLTAGE TO PNEUMATIC	RW	RECLAIMED WATER
FA	FOUL AIR	S	SCUM
FD	FLOOR DRAIN	SAM	SAMPLE
FECL2	FERROUS CHLORINE	SC	SLUDGE CAKE
FECL3	FERRIC CHLORINE	SCR	SCREENINGS
FE	FILTER EFFLUENT	SD	SANITARY DRAIN
FF	FILTER FEED	SE	SECONDARY EFFLUENT
FO	FUEL OIL	SEW	SEWER
FW	FEED WATER	SHC	SODIUM HYPOCHLORITE
GOX	GASEOUS OXYGEN	SI	SECONDARY INFLUENT
GR	GRIT	SN	SUPERNATANT
H2O2	HYDROGEN PEROXIDE	SO	SLOPE OIL
H2S	HYDROGEN SULFIDE (ANALYZER MODIFIER)	SOD	SLOPE OIL DRAIN
HCL	HYDROCHLORIC ACID	SS	SUSPENDED SOLIDS (ANALYZER MODIFIER)
HCL	HYDROGEN CHLORIDE (ANALYZER MODIFIER)	SW	SEALED WATER
HPA	HIGH PRESSURE AIR	SWR	SOFTENED WATER
HPDG	HIGH PRESSURE DIGESTER AIR	TFE	TRICKLING FILTER CLARIFIER EFFLUENT
HW	HOT WATER	TFI	TRICKLING FILTER CLARIFIER INFLUENT
HWR	HOT WATER RETURN	TURB	TURBIDITY (ANALYZER MODIFIER)
HWS	HOT WATER SUPPLY	TWAS	TRICKENED WASTE ACTIVATED SLUDGE
I/O	INPUT/OUTPUT	UVV	ULTRA-VIOLET DISINFECTED WATER
I/P	CURRENT TO PNEUMATIC	V	VENT
IA	INSTRUMENT AIR	WAN	WIDE AREA NETWORK
IW	INSTRUMENT WATER	WAS	WASTE ACTIVATED SLUDGE
JOS	JOINT OUTFALL SEWER	WW	WASH WATER
JWR	JACKET WATER RETURN		
JWS	JACKET WATER SUPPLY		

**LINE TYPES**

	MAIN PROCESS LINE
	SECONDARY PROCESS LINE
	AUXILIARY PROCESS LINE
	DIRECTION OF FLOW
	PNEUMATIC SIGNAL
	ELECTRICAL SIGNAL
	480V POWER
	HYDRAULIC SIGNAL
	SOFTWARE OR DATA LINK
	SIGNAL CONNECTION
	CROSSOVER - NO CONNECTION
	CAPILLARY
	ETHERNET I/O DATA LINK
	DEVICENET DATA LINK
	SERIAL RS232 LINK
	FIBER OPTIC

**CROSS REFERENCE SYMBOLOGY**

	SEQUENCE NUMBER	CONTINUATION FROM SHEET I-XXXX
	SEQUENCE NUMBER	CONTINUATION TO DRAWING SHEET I-XXXX

**GENERAL NOTES**

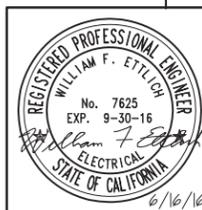
- THIS IS A STANDARD INSTRUMENTATION SYMBOLOGY AND ABBREVIATIONS SHEET. LISTING OF SYMBOLS AND ABBREVIATIONS DOES NOT IMPLY ALL SYMBOLS AND ABBREVIATIONS HAVE BEEN USED ON THIS PROJECT.
- SEE PROCESS, MECHANICAL AND PLUMBING LEGEND DRAWINGS FOR MISCELLANEOUS PIPING SYMBOLS.
- SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH DRAWING FOR USAGE.
- VALVE SYMBOLS SHOWN HERE ARE APPLICABLE ONLY TO INSTRUMENTATION DIAGRAMS. SEE PROCESS, MECHANICAL AND PLUMBING LEGEND SHEET FOR VALVE SYMBOLS USED ELSEWHERE ON THE DRAWINGS.



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE W. ETTLICH
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

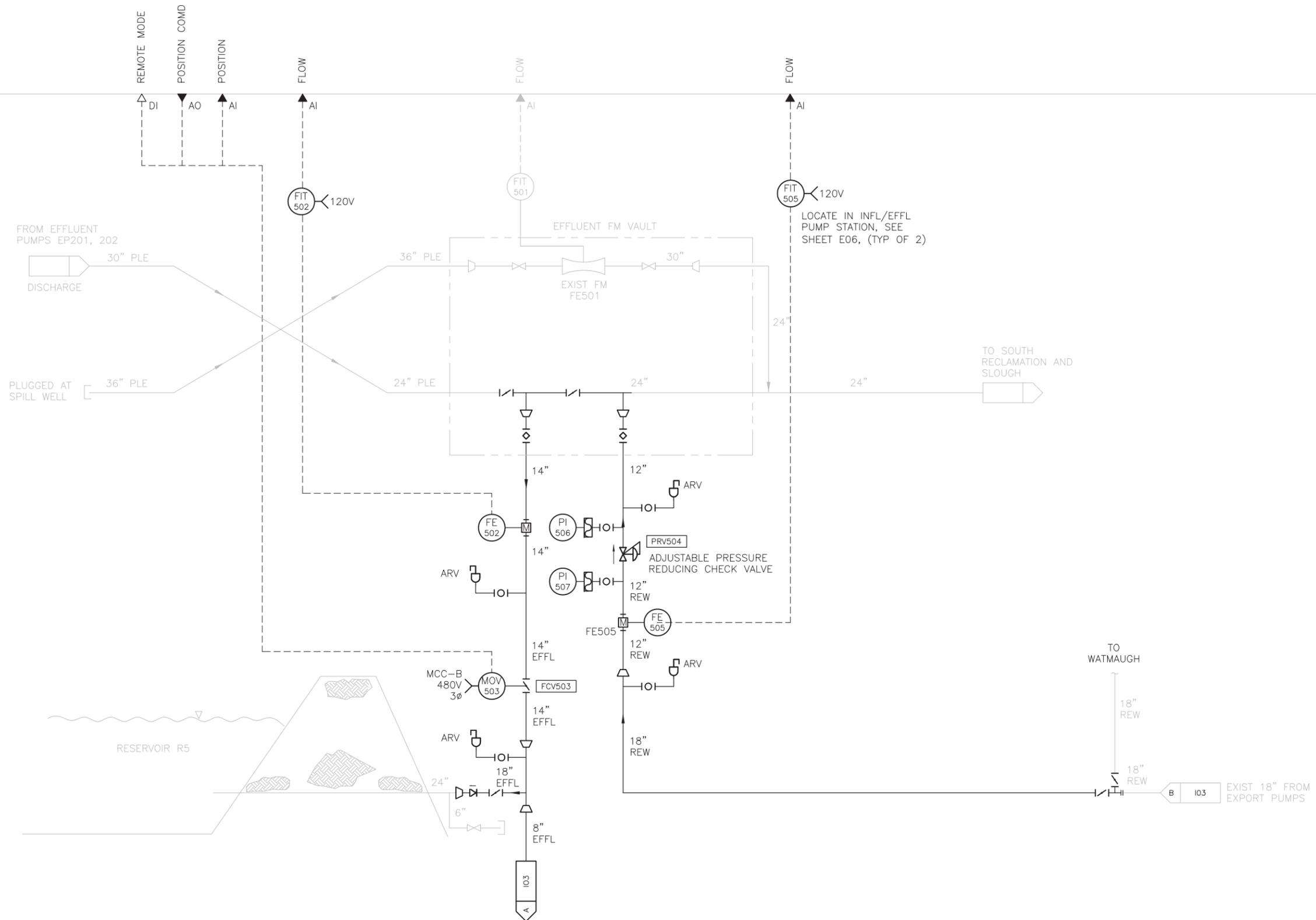
REVIEWED	
REVIEWED	



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**  
**PUMPING AND PIPING UPGRADES**

ELECTRICAL	
SYMBOLS AND LEGEND	
FILENAME	144908_I01.dwg
SCALE	NONE
SHEET	I01

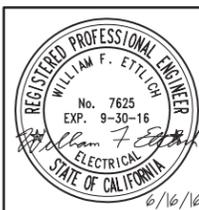
EXISTING PLC-1  
INF/EFFL PUMP  
BUILDING



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE W. ETTLICH
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____



**North Bay Water Reuse Program**  
**Sonoma Valley County Sanitation District**  
**Treatment Plant**

**PUMPING AND PIPING UPGRADES**

**P&ID**

**EFFLUENT FLOW METER VAULT MODIFICATIONS**

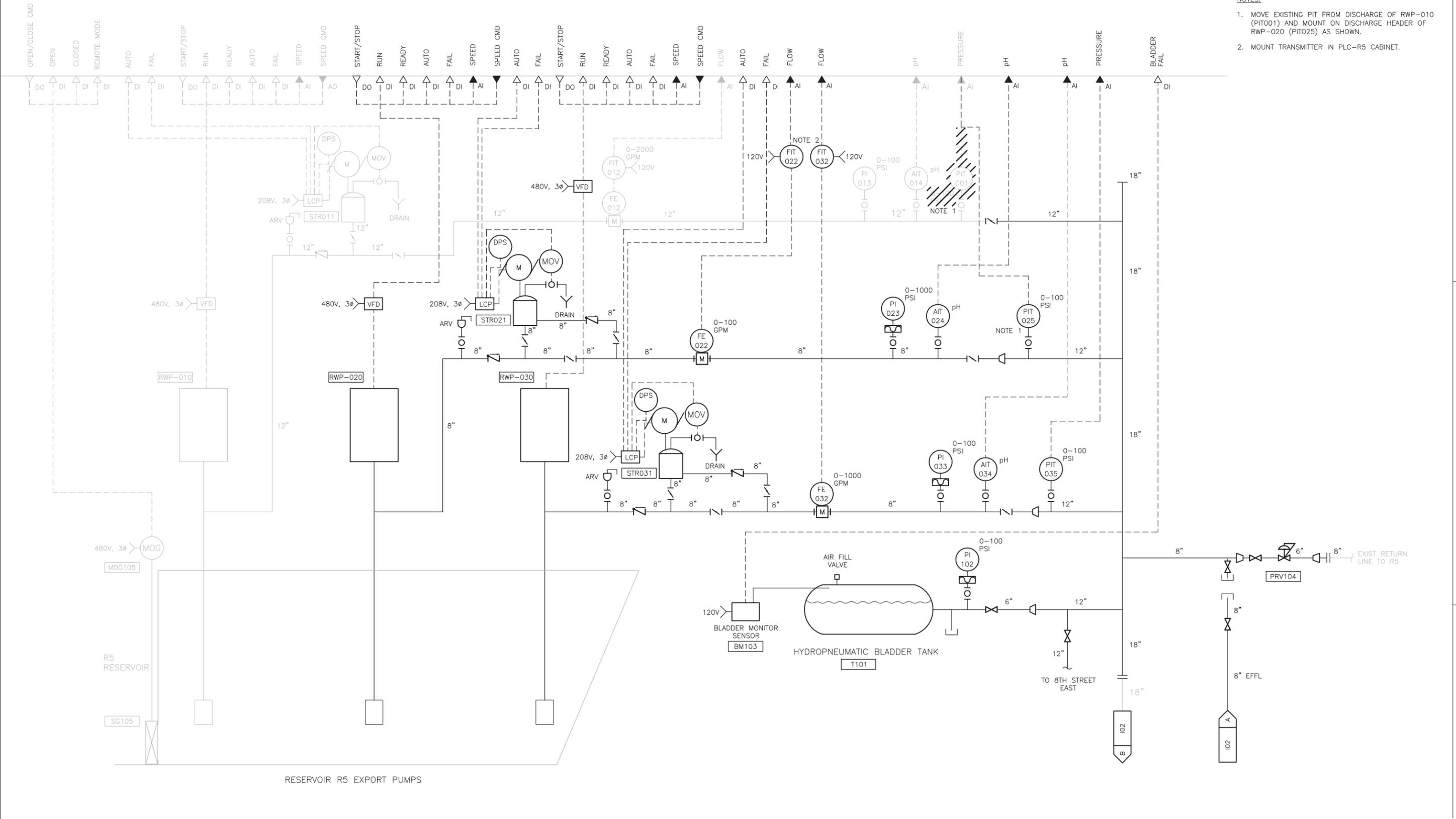
0 1" 2"

FILENAME	144908_I02.dwg	SHEET	102
SCALE	NONE		

EXISTING PLC-R5  
IR5 RESERVOIR

NOTES:

1. MOVE EXISTING PIT FROM DISCHARGE OF RWP-010 (PIT001) AND MOUNT ON DISCHARGE HEADER OF RWP-020 (PIT025) AS SHOWN.
2. MOUNT TRANSMITTER IN PLC-R5 CABINET.



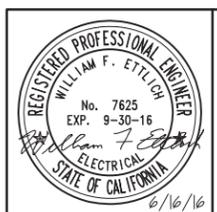
RESERVOIR R5 EXPORT PUMPS



ISSUE	DATE	DESCRIPTION
A	6/16/16	ISSUED FOR BIDS

PROJECT MANAGER	CRAIG OLSON, PE W. ETTLICH
DESIGNED	R. NATOLI, PE
CHECKED	M. BECK, PE
DRAWN	P. VAN MEURS
PROJECT NUMBER	9240-144908
DISTRICT PROJECT	..

REVIEWED	_____
REVIEWED	_____



**North Bay Water Reuse Program**  
Sonoma Valley County Sanitation District  
Treatment Plant  
**PUMPING AND PIPING UPGRADES**

**P&ID**  
**RESERVOIR R5 EXPORT PUMPS**

FILENAME	144908_I03.dwg	SHEET	103
SCALE	NONE		