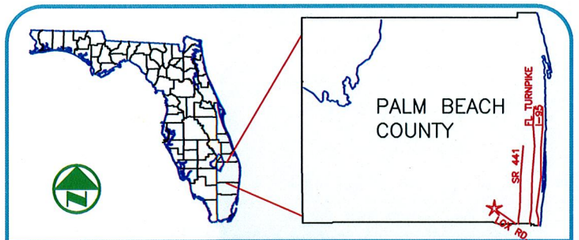
HILLSBORO
AQUIFER STORAGE AND RECOVERY
PILOT PROJECT

Prepared for

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

LOCATION MAP



HILLSBORO SITE

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT · PROTECTOR OF THE EVERGLADES SINCE 1949

In Cooperation With

US Army Corps of Engineers®

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PROCESS LINE SYMBOLS

PROCESS FLOW AND DIRECTION, CONNECTION TO PROCESS FLOW, MECHANICAL LINK OR INSTRUMENT SUPPLY

FLOW MEASUREMENT SYMBOLS

FQI — FLOW TOTALIZING INDICATOR (MAGNETIC FLOW METER)

PUMPS & COMPRESSORS

COMPRESSOR

EDUCTOR

VERTICAL TURBINE PUMP

NOTE:
THESE CONSTRUCTION PLANS HAVE BEEN DESIGNED USING AN AMIAD FILTRATION SYSTEM. THE CONTRACTOR MAY SELECT ANOTHER SCREEN-TYPE FILTRATION SYSTEM WHICH MEETS THE SPECIFICATIONS. MODIFICATIONS TO THE PROCESS PIPING, VALVING, CONTROLS, PUMPS, SLAB SIZE, ELECTRICAL SYSTEM, AND OTHER APPURTENANT FEATURES AND DIMENSIONS MAY BE REQUIRED TO FACILITATE INSTALLATION OF ANOTHER TYPE OF SCREEN FILTRATION SYSTEM. COSTS FOR ALL SUCH MODIFICATIONS, INCLUDING, BUT NOT LIMITED TO, PRODUCTION OF FABRICATION DRAWINGS, SUBMITTAL OF CALCULATIONS, AND SUBMITTAL OF LAYOUT DRAWINGS AND PROOF OF PERFORMANCE FOR ENGINEER'S APPROVAL SHALL BE INCLUDED IN THE CONTRACTOR'S BID. REFER TO SPEC SECTION 15109, FILTER EQUIPMENT SKID.

CIVIL

EXISTING CONTOUR

PROPOSED CONTOUR

CHAINLINK FENCE

FLANGED PIPE JOINT (ABOVE GROUND)

MECHANICAL JOINT (RESTRAINED) (BELOW GROUND)

RJ	RESTRAINED JOINT
FXF	FLANGED BY FLANGED PIPE JOINT
OC	ON CENTER
	SOIL BORING
ASR	AQUIFER STORAGE AND RECOVERY
ARV	AIR RELEASE VALVE
FXPE	FLANGED BY PLAIN END PIPE JOINT
L4X4X½	STEEL ANGLE MEASURING 4" X 4" X ½" THICK
C8X11.5	STEEL CHANNEL MEASURING 8" WIDE AND 11.5 LBS. PER FOOT
W8X24	STEEL BEAM MEASURING 8" HIGH AND 24 LBS. PER FOOT
RECHARGE	PUMPING WATER FROM CANAL AND INTO ASR WELL, VIA TREATMENT
RECOVERY	PUMPING WATER FROM ASR WELL INTO CANAL
DIP	DUCTILE IRON PIPE
BFV	BUTTERFLY VALVE
GV	GATE VALVE
UV	ULTRAVIOLET DISINFECTION SYSTEM
(L)	LIMIT SWITCH EQUIPPED

VALVES & GATES

BUTTERFLY

GATE

KNIFE GATE

SWING CHECK

BALL

GLOBE

3-WAY GLOBE

BALL CHECK

BACKPRESSURE SUSTAINING

PULSATION DAMPENER

PRESSURE GAUGE W/ SNUBBER & ISOLATION VALVE

ORIFICE PLATE

MOTOR OPERATED BUTTERFLY

SOLENOID CONTROL

3-WAY SOLENOID

NEEDLE VALVE

PINCH VALVE

DIAPHRAGM ACTUATED

ARV — AIR RELEASE VALVE

VACUUM BREAKER RELIEF VALVE

SAMPLE TAP

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PROJECT HILLSBORO ASR PILOT PROJECT
SYMBOLS AND ABBREVIATIONS

TASK

ORIGINAL March 2005
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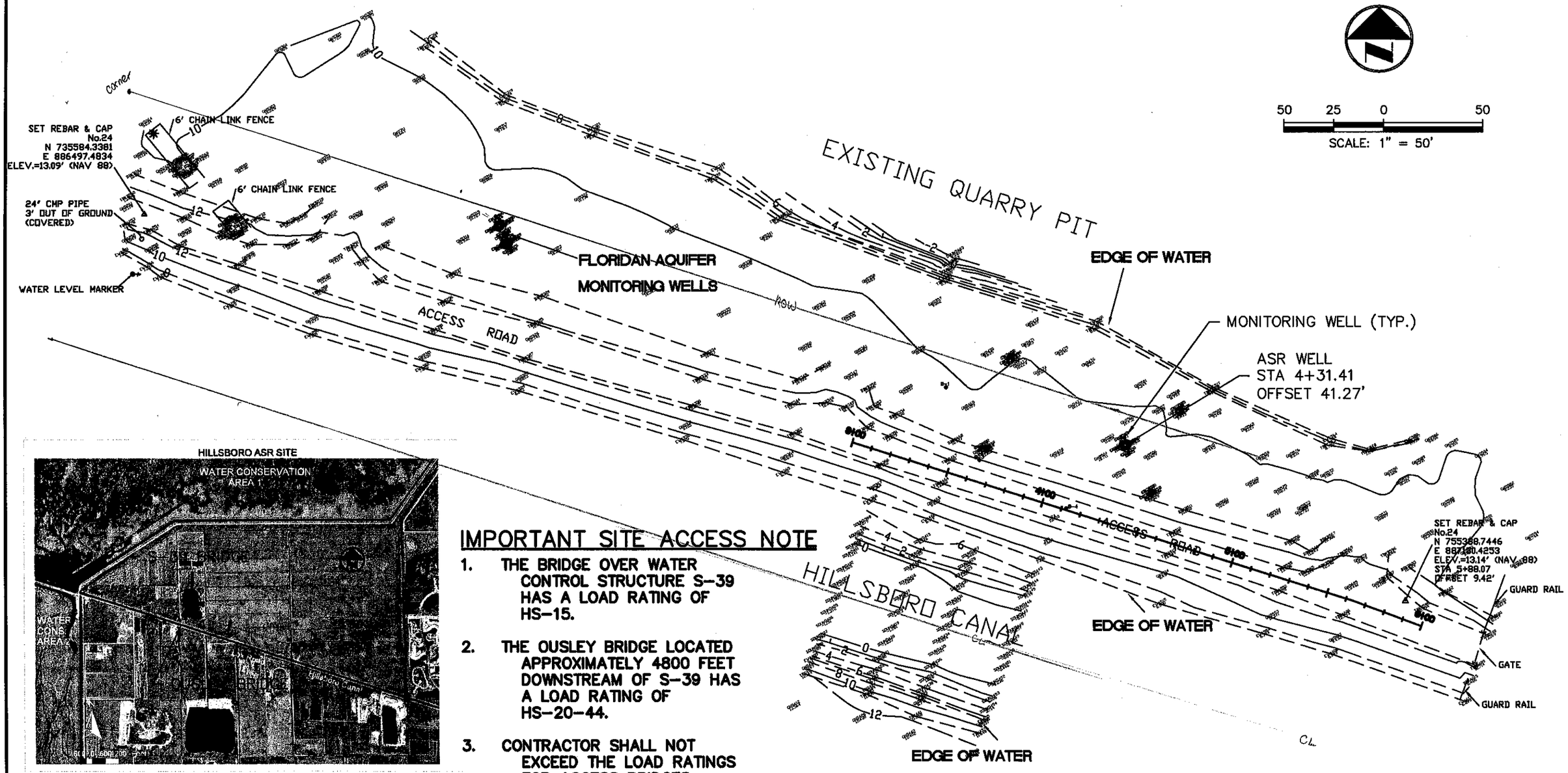
G-2



HILLSBORO ASR SITE

IMPORTANT SITE ACCESS NOTE

1. THE BRIDGE OVER WATER CONTROL STRUCTURE S-39 HAS A LOAD RATING OF HS-15.
2. THE OUSLEY BRIDGE LOCATED APPROXIMATELY 4800 FEET DOWNSTREAM OF S-39 HAS A LOAD RATING OF HS-20-44.
3. CONTRACTOR SHALL NOT EXCEED THE LOAD RATINGS FOR ACCESS BRIDGES.

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PROJECT HILLSBORO ASR PILOT PROJECT
SITE SURVEY

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G-3

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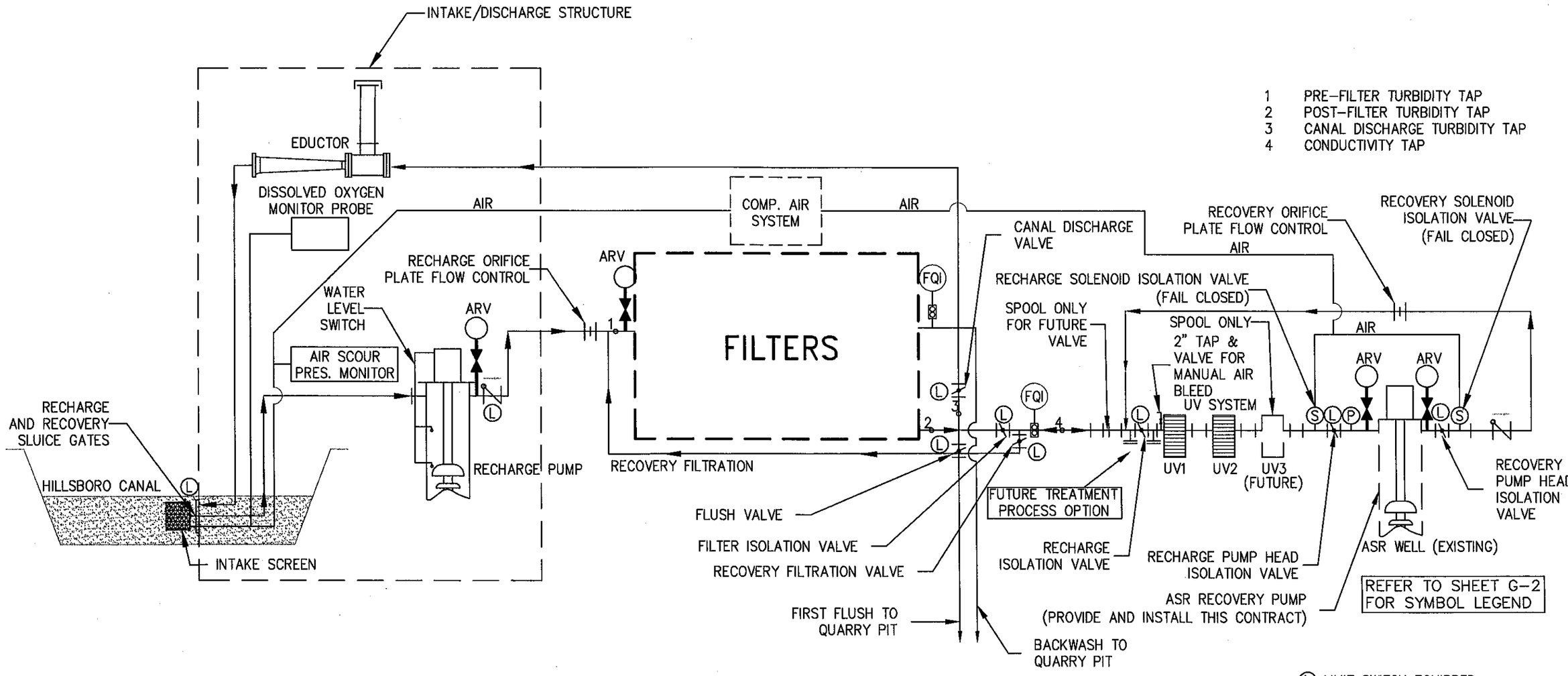

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PROJECT HILLSBORO ASR PILOT PROJECT

PROCESS SCHEMATIC

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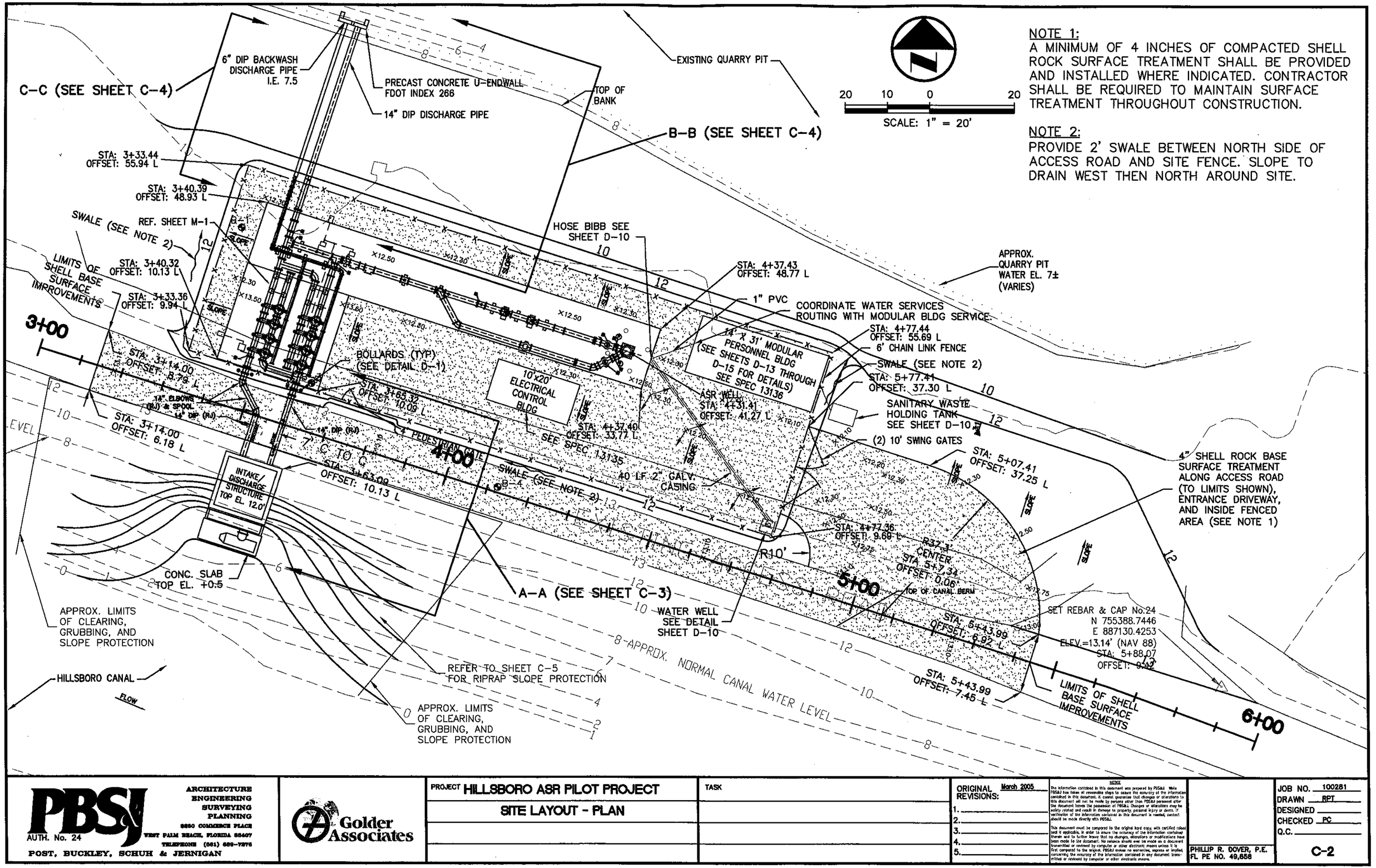

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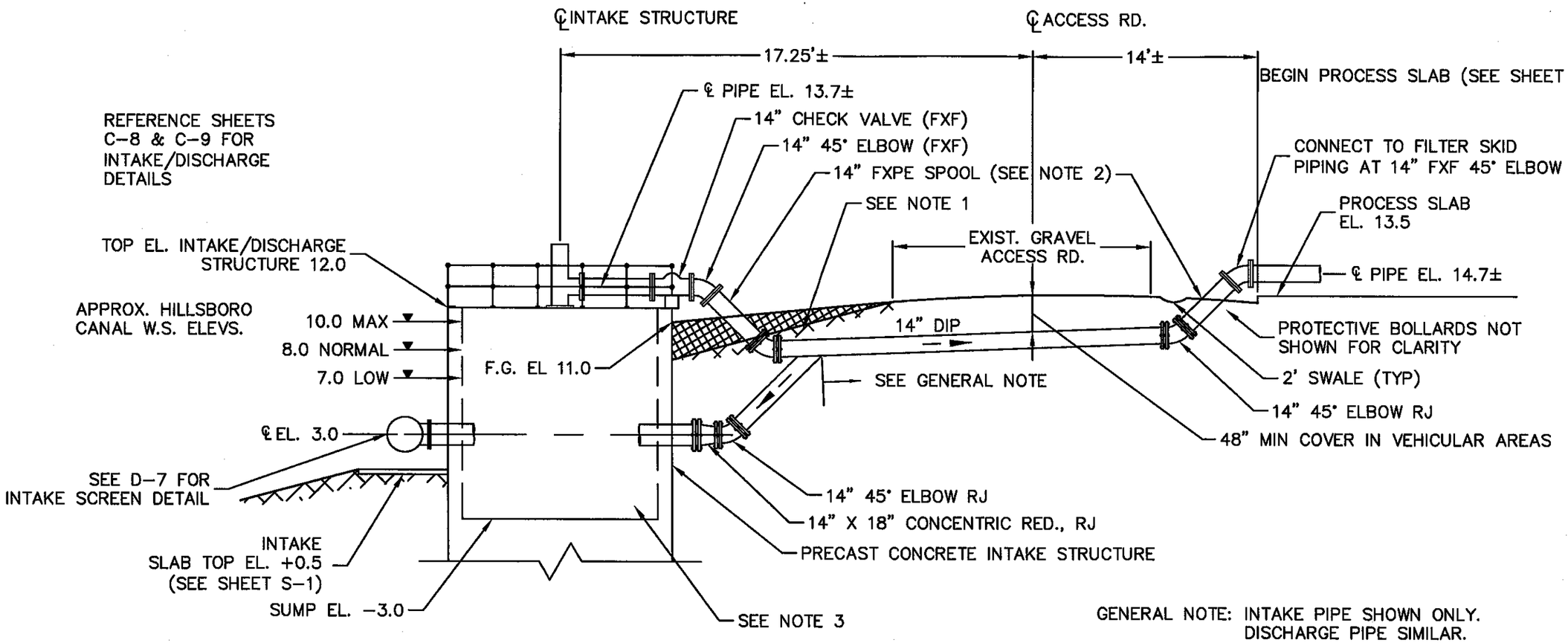
C-2

NOTE 1:
CROSS HATCHING INDICATES SELECT FILL TO BE PLACED & COMPACTED TO 95% STD. PROCTOR. RESTORE DISTURBED AREA, INCLUDING FILL, PER GRASSING SPEC.

NOTE 2:
14" SPOOL (FXPE). BEGIN TRANSITION FROM BITUMASTIC COATED MECHANICAL (RJ) D.I.P. TO SHOP-PRIMED FLANGED PIPE.

NOTE 3:
INTERNAL INTAKE STRUCTURE COMPONENTS AND SUMP FILLET NOT SHOWN FOR CLARITY.



A-A
NOT TO SCALE

GENERAL NOTE: INTAKE PIPE SHOWN ONLY. DISCHARGE PIPE SIMILAR.

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PROJECT HILLSBORO ASR PILOT PROJECT
INTAKE LINE SECTION

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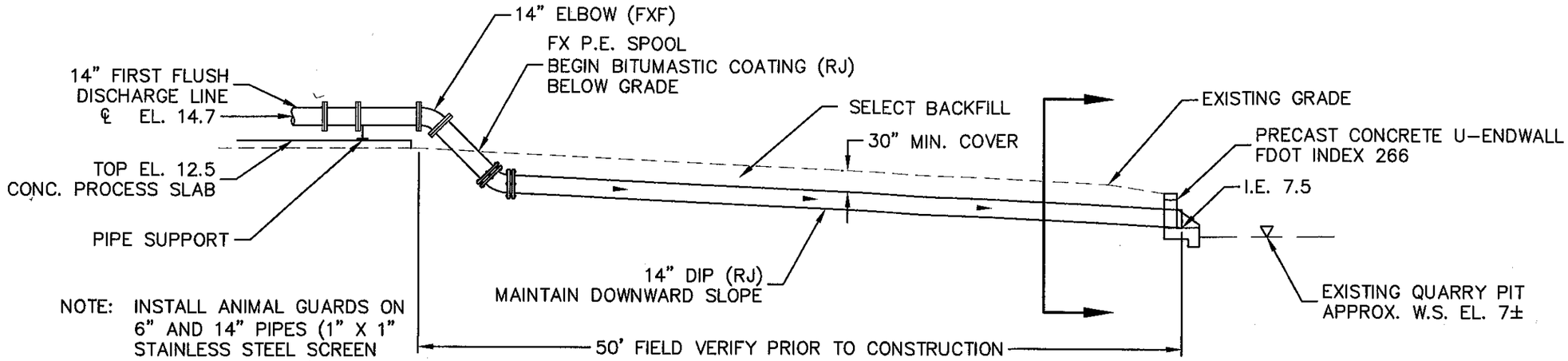
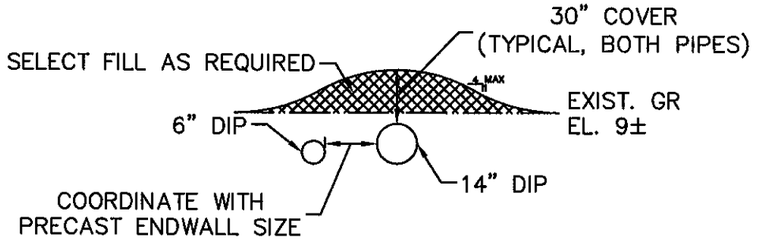


NOTE: INSTALL ANIMAL GUARDS ON 6" AND 14" PIPES (1" X 1" STAINLESS STEEL SCREEN OR APPROVED EQ.)

NOTE: ALL ABOVE GRADE PIPING TO BE SHOP PRIMED AND FIELD FINISH COATED.

FIRST FLUSH LINE B-B

NOT TO SCALE



TYPICAL SECTION

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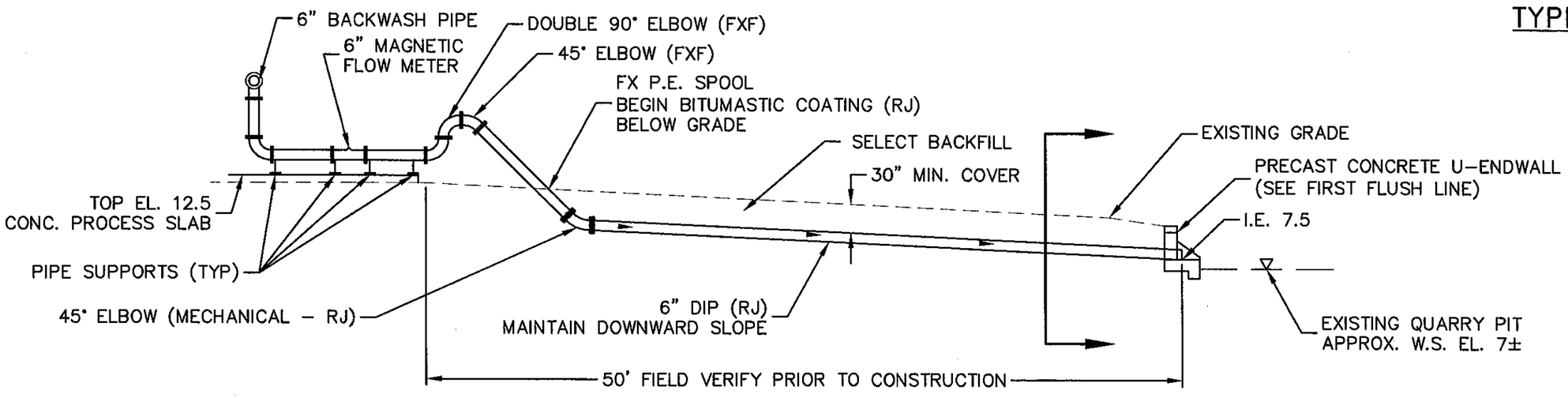

BACKWASH LINE C-C

NOT TO SCALE

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PROJECT HILLSBORO ASR PILOT PROJECT

DISCHARGE LINE SECTION

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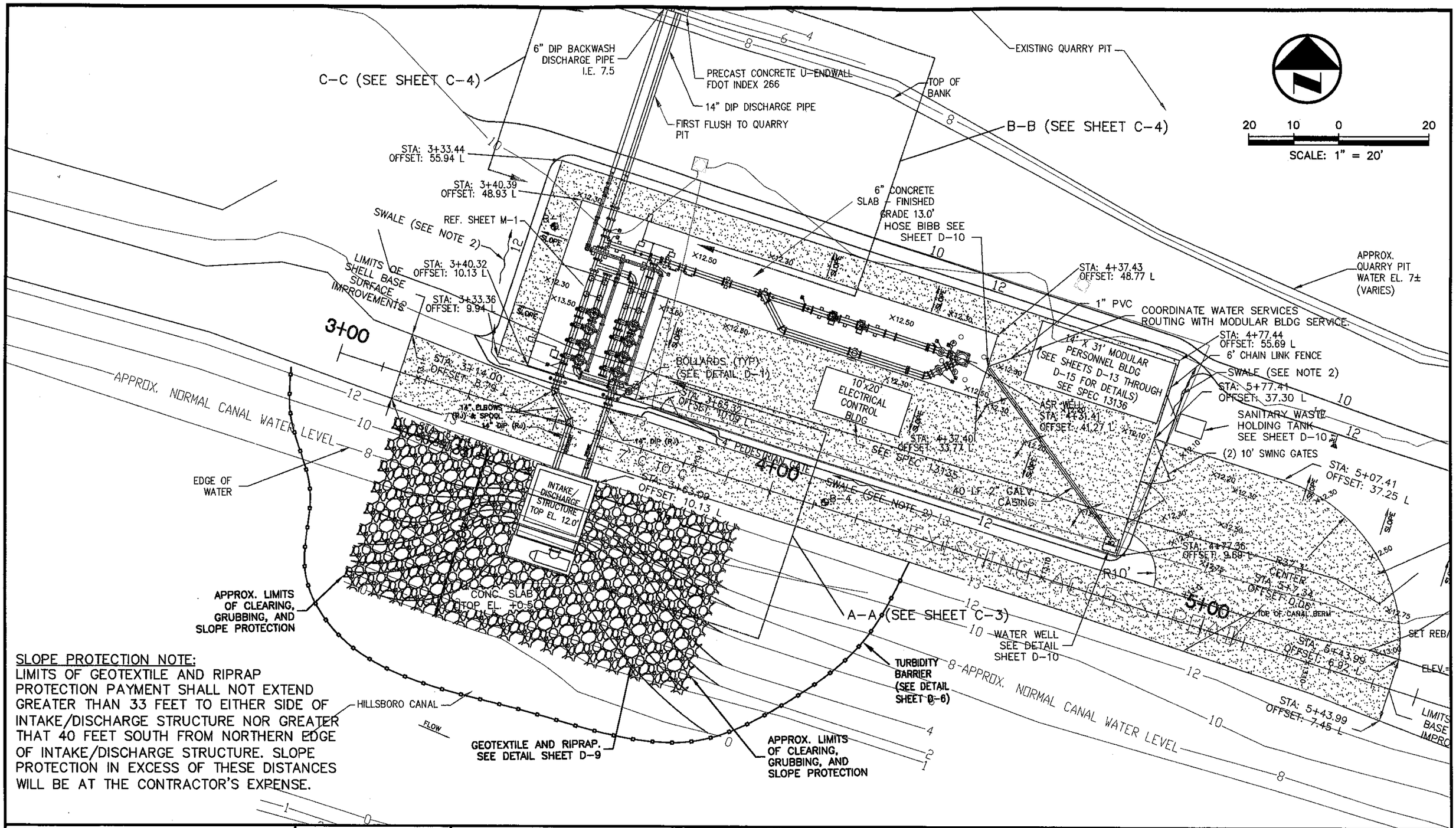
C-4



SLOPE PROTECTION NOTE:
LIMITS OF GEOTEXTILE AND RIPRAP PROTECTION PAYMENT SHALL NOT EXTEND GREATER THAN 33 FEET TO EITHER SIDE OF INTAKE/DISCHARGE STRUCTURE NOR GREATER THAT 40 FEET SOUTH FROM NORTHERN EDGE OF INTAKE/DISCHARGE STRUCTURE. SLOPE PROTECTION IN EXCESS OF THESE DISTANCES WILL BE AT THE CONTRACTOR'S EXPENSE.

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PROJECT HILLSBORO ASR PILOT PROJECT

EROSION AND SEDIMENT CONTROL PLAN

TASK

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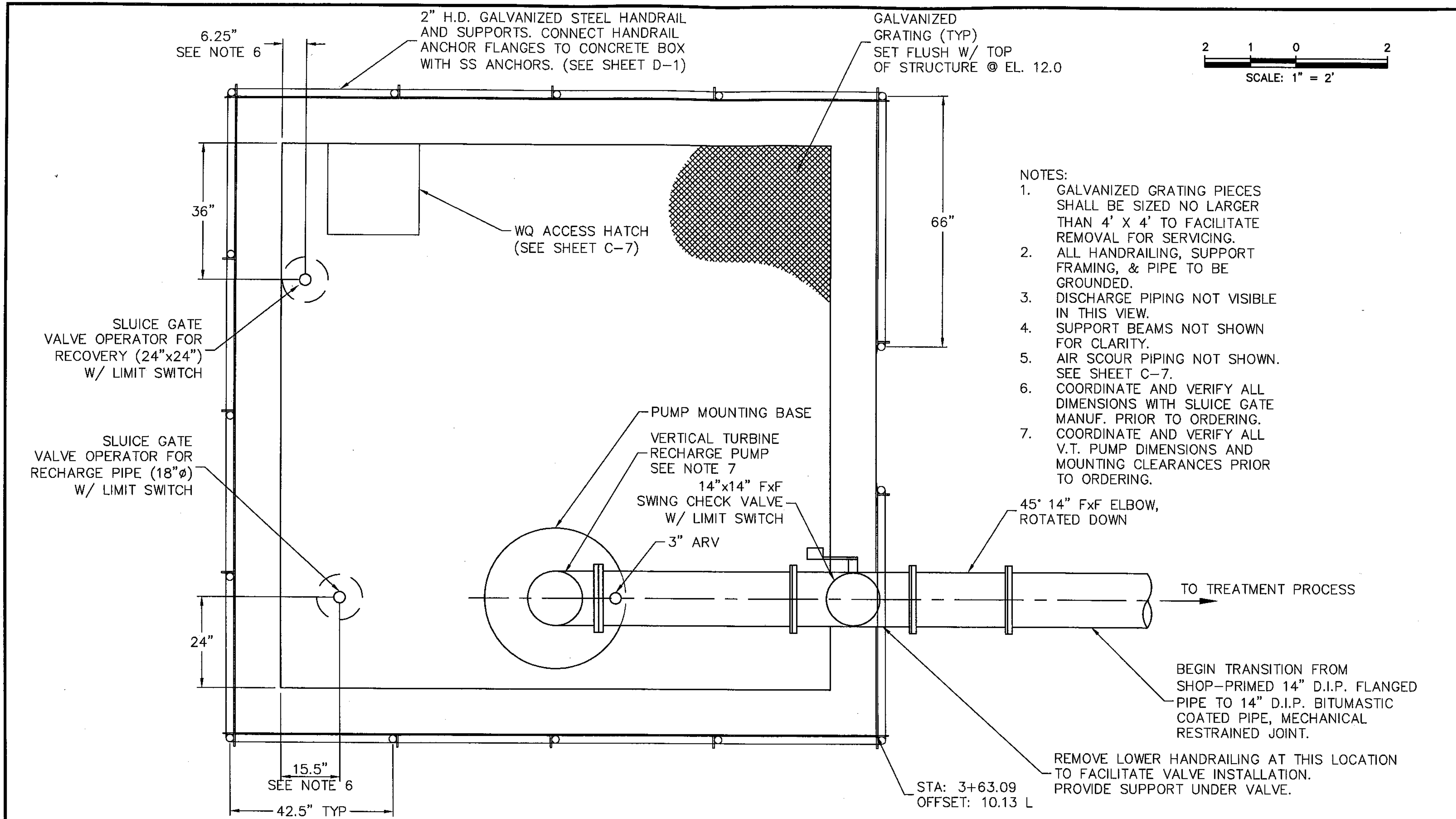
C-5



2" H.D. GALVANIZED STEEL HANDRAIL AND SUPPORTS. CONNECT HANDRAIL ANCHOR FLANGES TO CONCRETE BOX WITH SS ANCHORS. (SEE SHEET D-1)
6.25"
SEE NOTE 6
GALVANIZED GRATING (TYP) SET FLUSH W/ TOP OF STRUCTURE @ EL. 12.0
2 1 0 2
SCALE: 1" = 2'
36"
66"
WQ ACCESS HATCH (SEE SHEET C-7)
SLUICE GATE VALVE OPERATOR FOR RECOVERY (24"x24") W/ LIMIT SWITCH
SLUICE GATE VALVE OPERATOR FOR RECHARGE PIPE (18"ø) W/ LIMIT SWITCH
PUMP MOUNTING BASE
VERTICAL TURBINE RECHARGE PUMP SEE NOTE 7
14"x14" FxF SWING CHECK VALVE W/ LIMIT SWITCH
3" ARV
45° 14" FxF ELBOW, ROTATED DOWN
TO TREATMENT PROCESS
24"
BEGIN TRANSITION FROM SHOP-PRIMED 14" D.I.P. FLANGED PIPE TO 14" D.I.P. BITUMASTIC COATED PIPE, MECHANICAL RESTRAINED JOINT.
REMOVE LOWER HANDRAILING AT THIS LOCATION TO FACILITATE VALVE INSTALLATION. PROVIDE SUPPORT UNDER VALVE.
15.5"
SEE NOTE 6
42.5" TYP
STA: 3+63.09
OFFSET: 10.13 L

NOTES:

1. GALVANIZED GRATING PIECES SHALL BE SIZED NO LARGER THAN 4' X 4' TO FACILITATE REMOVAL FOR SERVICING.
2. ALL HANDRAILING, SUPPORT FRAMING, & PIPE TO BE GROUNDED.
3. DISCHARGE PIPING NOT VISIBLE IN THIS VIEW.
4. SUPPORT BEAMS NOT SHOWN FOR CLARITY.
5. AIR SCOUR PIPING NOT SHOWN. SEE SHEET C-7.
6. COORDINATE AND VERIFY ALL DIMENSIONS WITH SLUICE GATE MANUF. PRIOR TO ORDERING.
7. COORDINATE AND VERIFY ALL V.T. PUMP DIMENSIONS AND MOUNTING CLEARANCES PRIOR TO ORDERING.

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PROJECT HILLSBORO ASR PILOT PROJECT

INTAKE - DISCHARGE STRUCTURE

TOP LAYOUT

TASK

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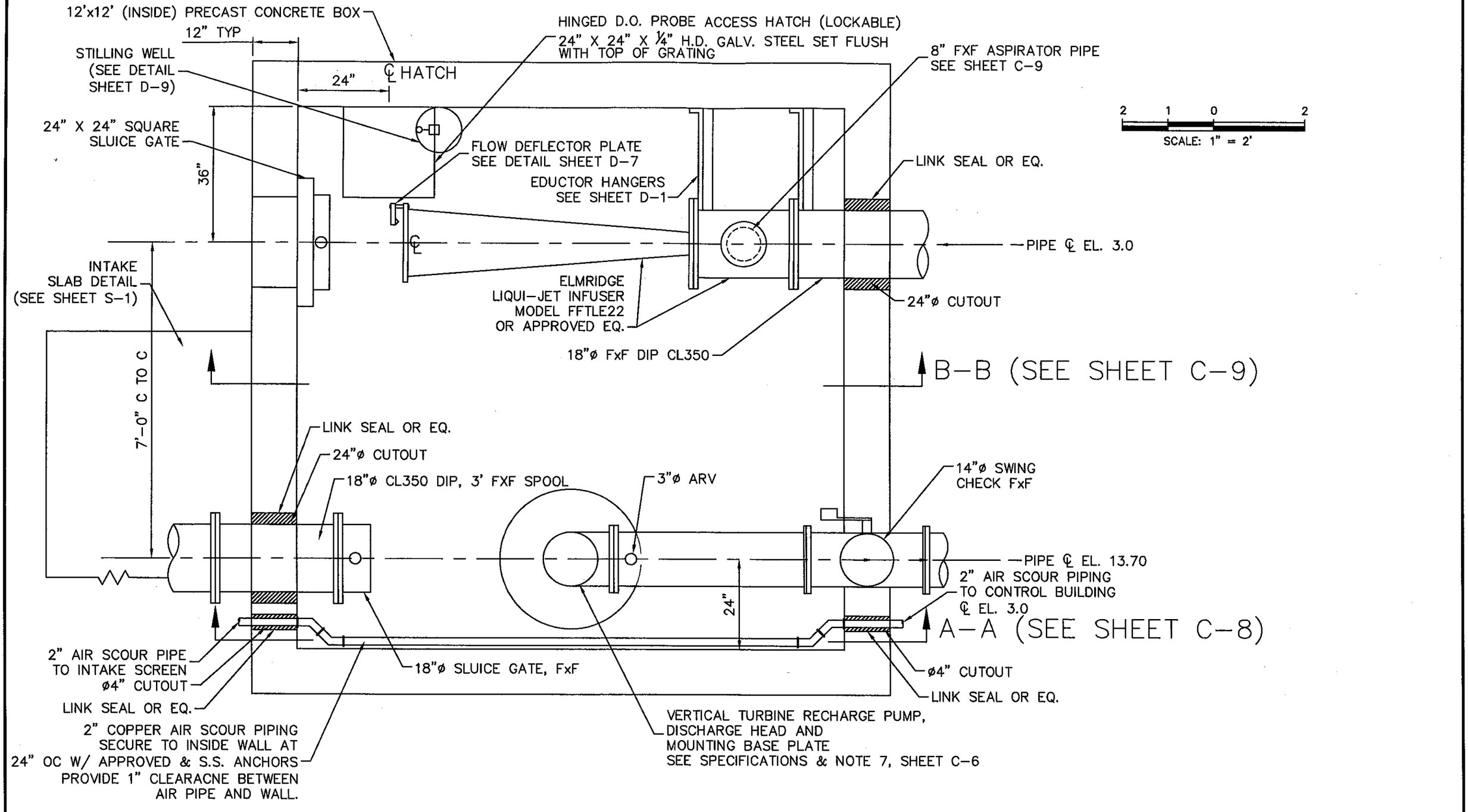
C-6



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PROJECT **HILLSBORO ASR PILOT PROJECT**

INTAKE - DISCHARGE STRUCTURE DETAILS

TASK

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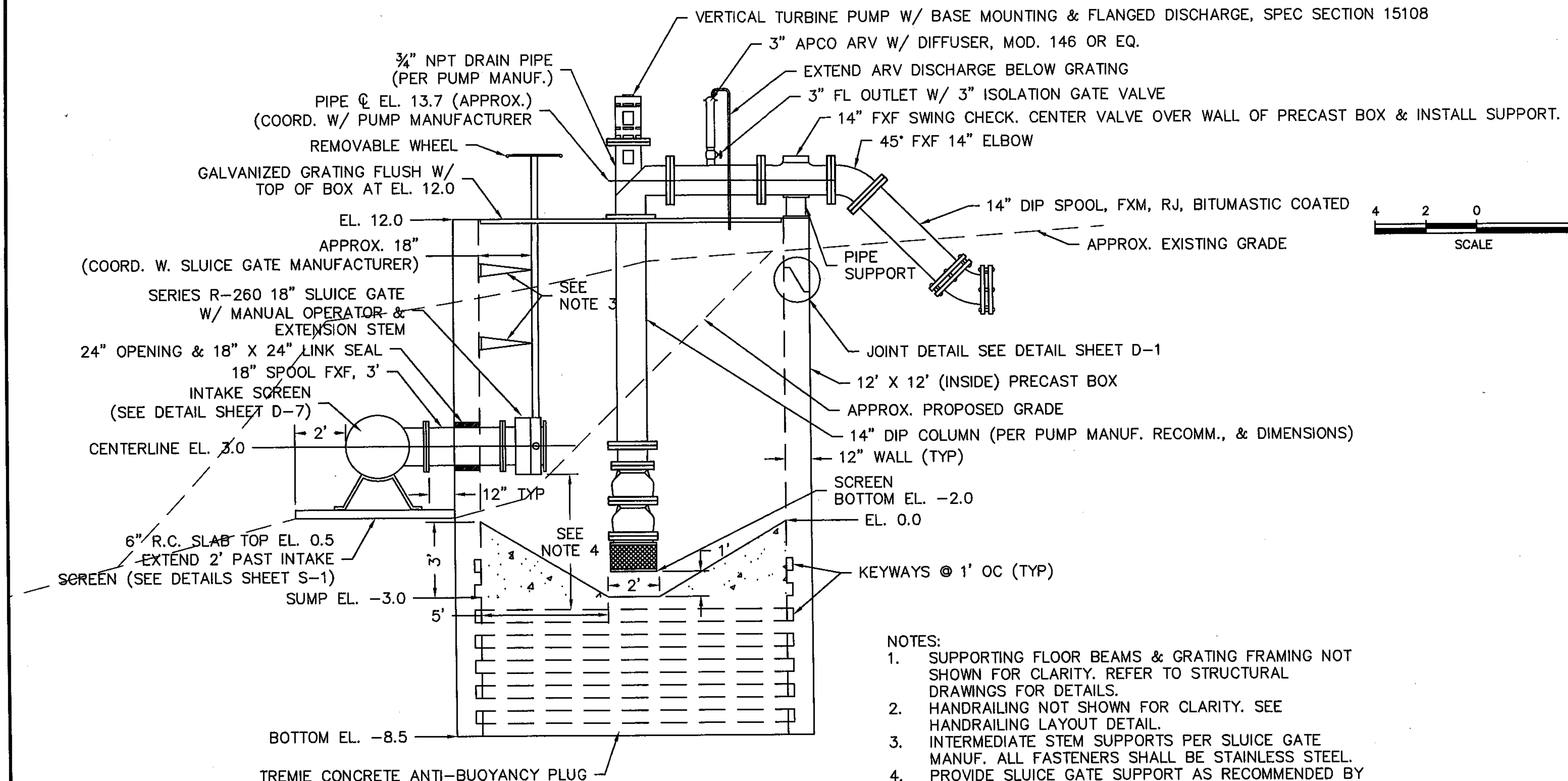
C-7



SECTION A-A

NOTES:
1. SUPPORTING FLOOR BEAMS & GRATING FRAMING NOT SHOWN FOR CLARITY. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
2. HANDRAILING NOT SHOWN FOR CLARITY. SEE HANDRAILING LAYOUT DETAIL.
3. INTERMEDIATE STEM SUPPORTS PER SLUICE GATE MANUF. ALL FASTENERS SHALL BE STAINLESS STEEL.
4. PROVIDE SLUICE GATE SUPPORT AS RECOMMENDED BY MANUFACTURER.
5. AIR SCOUR PIPING NOT SHOWN FOR CLAIRITY.

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PROJECT HILLSBORO ASR PILOT PROJECT
SECTION A-A - INTAKE-DISCHARGE STRUCTURE

TASK

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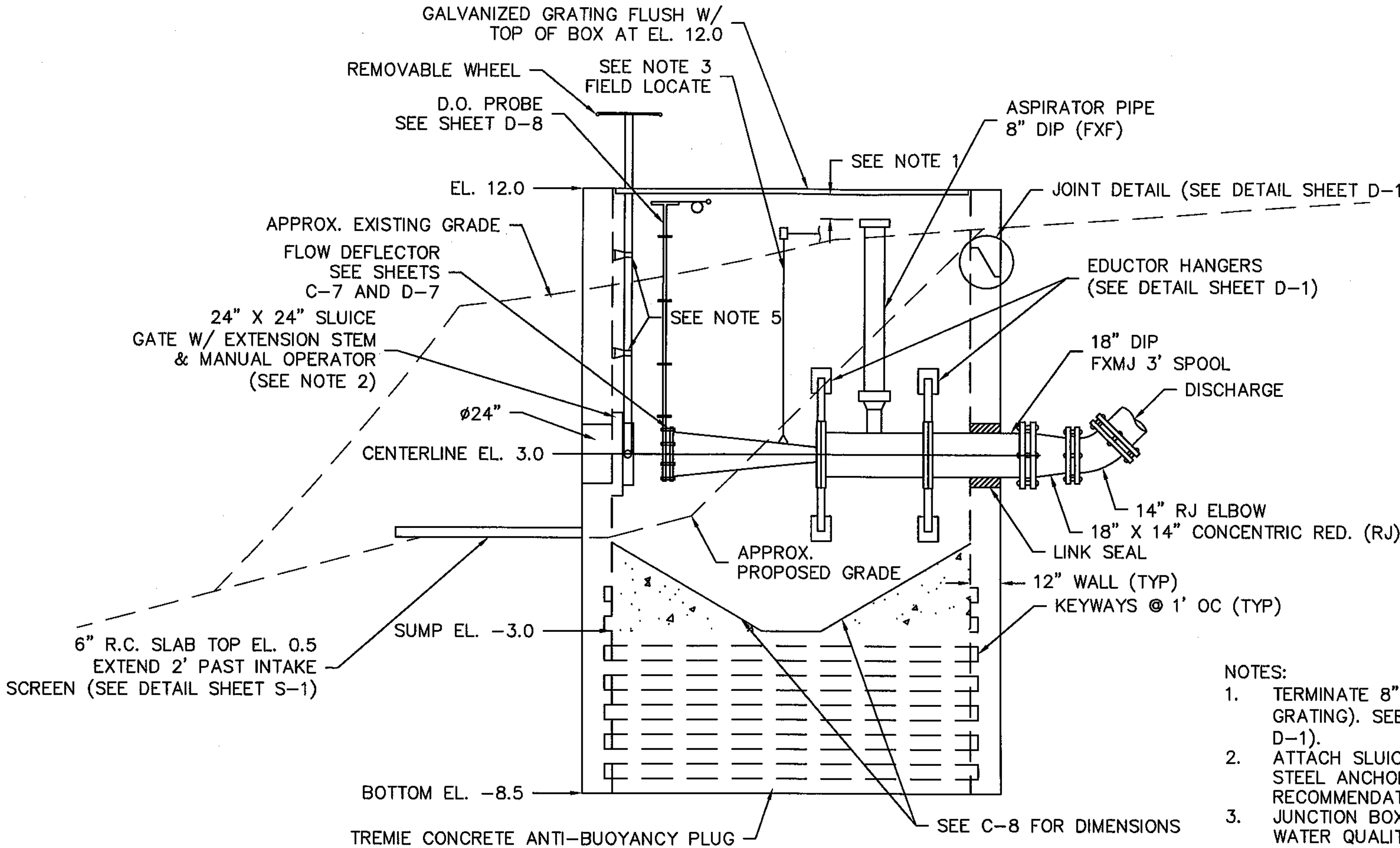
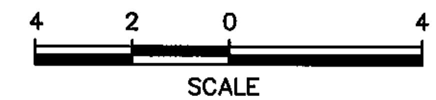
C-8



GALVANIZED GRATING FLUSH W/
TOP OF BOX AT EL. 12.0
REMOVABLE WHEEL
SEE NOTE 3
FIELD LOCATE
D.O. PROBE
SEE SHEET D-8
ASPIRATOR PIPE
8" DIP (FXF)
SEE NOTE 1
EL. 12.0
JOINT DETAIL (SEE DETAIL SHEET D-1)
APPROX. EXISTING GRADE
FLOW DEFLECTOR
SEE SHEETS
C-7 AND D-7
EDUCTOR HANGERS
(SEE DETAIL SHEET D-1)
24" X 24" SLUICE
GATE W/ EXTENSION STEM
& MANUAL OPERATOR
(SEE NOTE 2)
SEE NOTE 5
18" DIP
FXMJ 3' SPOOL
DISCHARGE
ø24"
CENTERLINE EL. 3.0
14" RJ ELBOW
18" X 14" CONCENTRIC RED. (RJ)
LINK SEAL
APPROX.
PROPOSED GRADE
12" WALL (TYP)
KEYWAYS @ 1' OC (TYP)
SUMP EL. -3.0
6" R.C. SLAB TOP EL. 0.5
EXTEND 2' PAST INTAKE
SCREEN (SEE DETAIL SHEET S-1)
BOTTOM EL. -8.5
TREMIE CONCRETE ANTI-BUOYANCY PLUG
SEE C-8 FOR DIMENSIONS

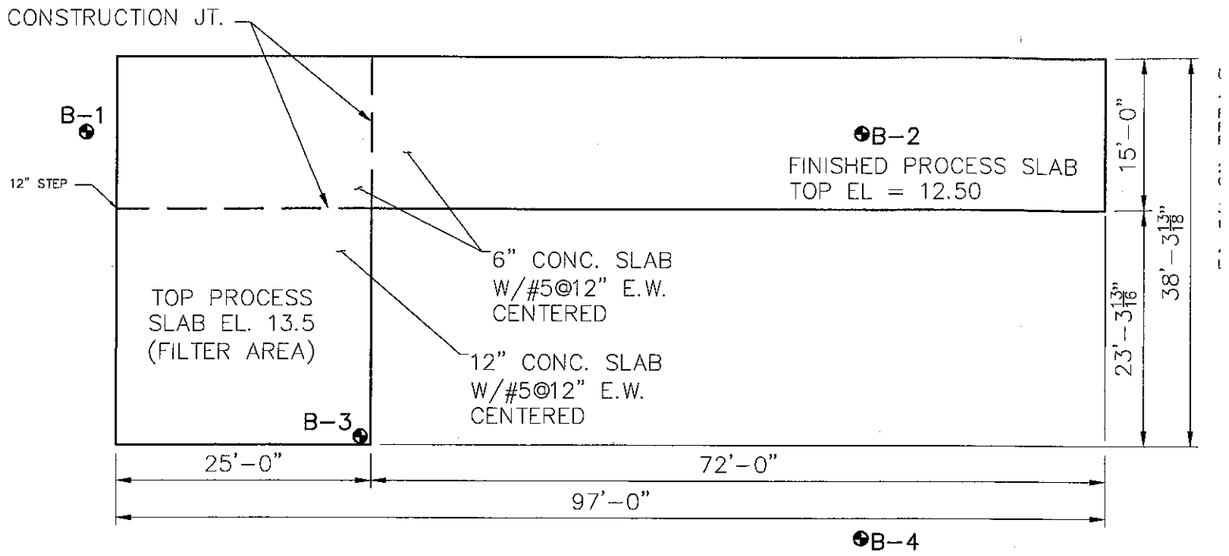


SECTION B-B

NOTES:

1. TERMINATE 8"ø AIR INLET PIPE AT EL. 11.0 (12" BELOW GRATING). SEE AIR SUCTION PROTECTION DETAIL (SHEET D-1).
2. ATTACH SLUICE GATE TO PRECAST BOX USING STAINLESS STEEL ANCHOR BOLTS PER MANUFACTURER RECOMMENDATION.
3. JUNCTION BOX, CONDUIT & QUICK RELEASE UNION FOR WATER QUALITY SENSOR. ALL FASTENERS TO BE STAINLESS STEEL. SEE SPECS & ELECTRICAL PLAN.
4. HANDRAILING NOT SHOWN FOR CLARITY.
5. INTERMEDIATE STEM SUPPORTS PER SLUICE GATE MANUF. ALL FASTENERS SHALL BE STAINLESS STEEL.

PBSJ AUTH. No. 24 ARCHITECTURE ENGINEERING SURVEYING PLANNING 3230 COMMERCE PLACE WEST PALM BEACH, FLORIDA 33407 TELEPHONE (561) 689-7275 POST, BUCKLEY, SCHUH & JERNIGAN	Golder Associates	PROJECT HILLSBORO ASR PILOT PROJECT SECTION B-B - INTAKE-DISCHARGE STRUCTURE	TASK	ORIGINAL March 2005 REVISIONS: 1. 2. 3. 4. 5.	PHILLIP R. DOVER, P.E. FL PE NO. 49,856	JOB NO. 100281 DRAWN RPT DESIGNED CHECKED PC Q.C. C-9



PLAN

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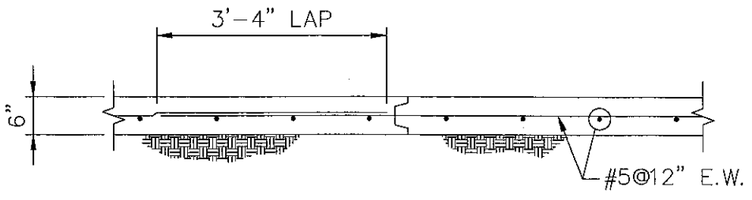
SCALE



CONSTRUCTION JOINT DETAIL

NOT TO SCALE

NOTES:

1. SEE TECHNICAL SPECIFICATIONS AND GEOTECH REPORT FOR LIMITS AND DEPTH OF MUCK REMOVAL AND REPLACEMENT WITH COMPACTED STRUCTURAL FILL BENEATH THE SLAB.

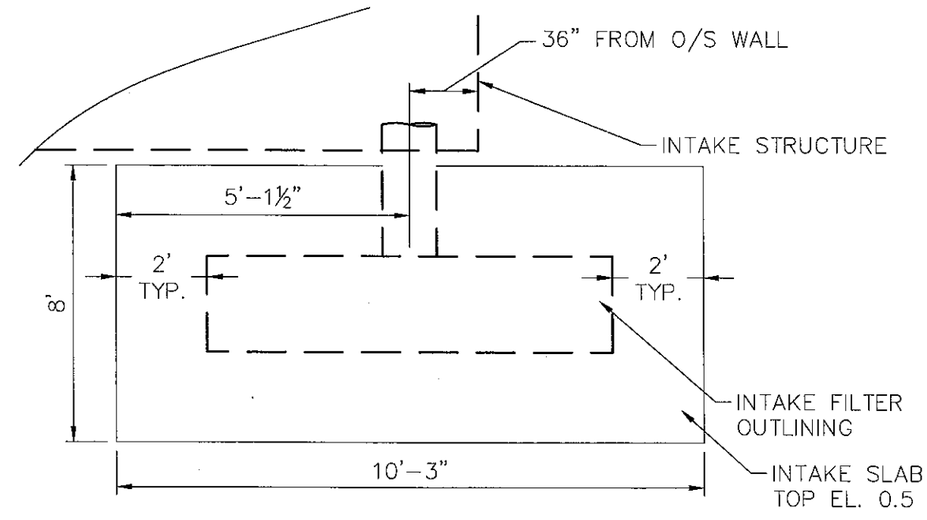
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.

3. CONCRETE MINIMUM 28 DAY COMPRESSIVE STRENGTH, f'c = 4000 PSI.

4. SEE MECHANICAL DRAWINGS FOR EQUIPMENT LAYOUT AND SUPPORTS.

LEGEND

SOIL BORING LOCATION



INTAKE SLAB DETAIL

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PROCESS SLAB

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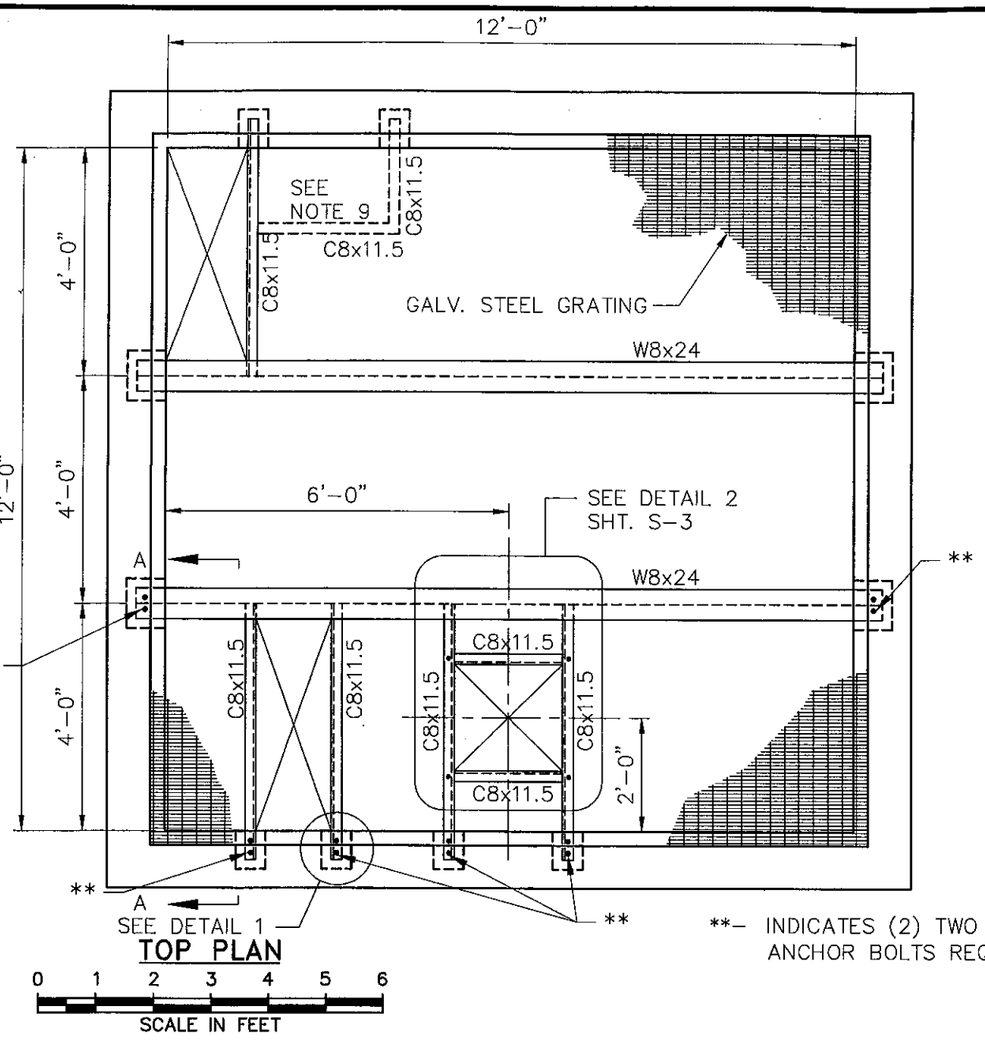
S-1



**- INDICATES (2) TWO ANCHOR BOLTS REQ'D

NOTES:

1. CONTRACTOR SHALL VERIFY THE MECHANICAL EQUIPMENT DIMENSIONS WILL FIT AND BOLT UP PROPERLY TO STEEL FRAMING PLAN AS PROVIDED AND DIMENSIONED PRIOR TO SHOP DRAWING PREPARATION AND FABRICATION OF THE STEEL MEMBERS.

2. CONTRACTOR SHALL COORDINATE LOCATION OF BEAM BLOCK-OUTS WITH WET WELL PRECAST CONCRETE SUPPLIER PRIOR TO SHOP DRAWING PREPARATION OR PRECAST TOP FABRICATION.

3. CONTRACTOR SHALL COORDINATE DIMENSIONS FOR BLOCK-OUTS, THAT SUPPORT BEAMS AND GRATING, IN TOP OF PRECAST WET WELL BOX SUCH THAT GRATING FITS FLUSH WITH TOP SURFACE.

4. GALVANIZED METAL GRATING SHALL BE A MAXIMUM 1" THICK AND SUPPORT A UNIFORM LIVE LOAD NOT LESS THAN 150 PSF.

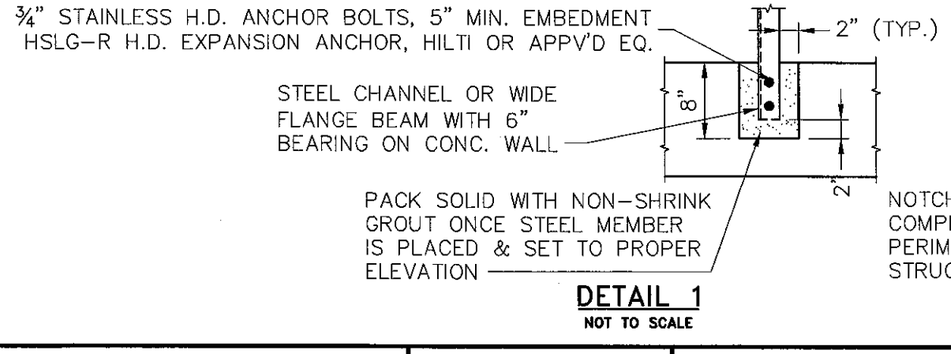
5. STRUCTURAL STEEL WIDE FLANGES, CHANNELS, PLATES, ANGLES, ETC. SHALL MEET REQUIREMENTS OF ASTM A36 WITH MINIMUM YIELD STRENGTH OF 36 KSI. ALL STEEL SHALL BE SHOP PRIMED AND PAINTED WITH ZINC RICH PAINT. AREAS SCRATCHED DURING ASSEMBLY IN THE FIELD SHALL BE TOUCHED UP.

6. BOLTS SHALL MEET REQUIREMENTS OF ASTM A307.

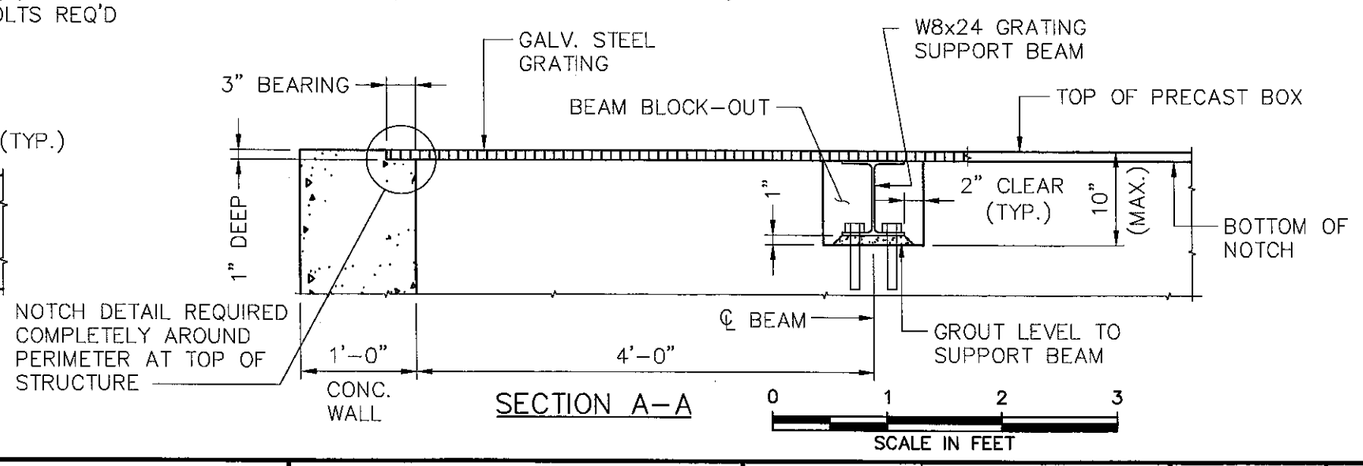
7. NON-SHRINK GROUT: PROVIDE A PREPACKAGED CEMENTITIOUS GROUT MANUFACTURED FOR STRUCTURAL USE. USE ONLY NON-METALLIC FORMULATIONS THAT ARE NOT GAS PRODUCING, METAL OXIDIZING OR EXPANSIVE AGGREGATE GROUTS. GROUT SHALL PROVIDE A MINIMUM 1 DAY COMPRESSIVE STRENGTH OF 2500 PSI WITH A TIME OF FINAL SET NO GREATER THAN 8 HOURS. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR STORAGE AND PROCEDURES FOR MIXING, PLACING AND APPLICATION OF THE NON-SHRINK GROUT.

8. WELDING SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS) SPECIFICATIONS. USE E70.XX ELECTRODES.

9. D.O. PROBE ACCESS HATCH (18" X 18"). PROVIDE H.D. STEEL HINGES AND LOCKABLE HASP (FLUSH WITH TOP OF GRATING).



DETAIL 1
NOT TO SCALE



SECTION A-A

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PROJECT HILLSBORO ASR PILOT PROJECT
INTAKE - DISCHARGE STRUCTURE
FRAMING AND GRATING PLAN

TASK

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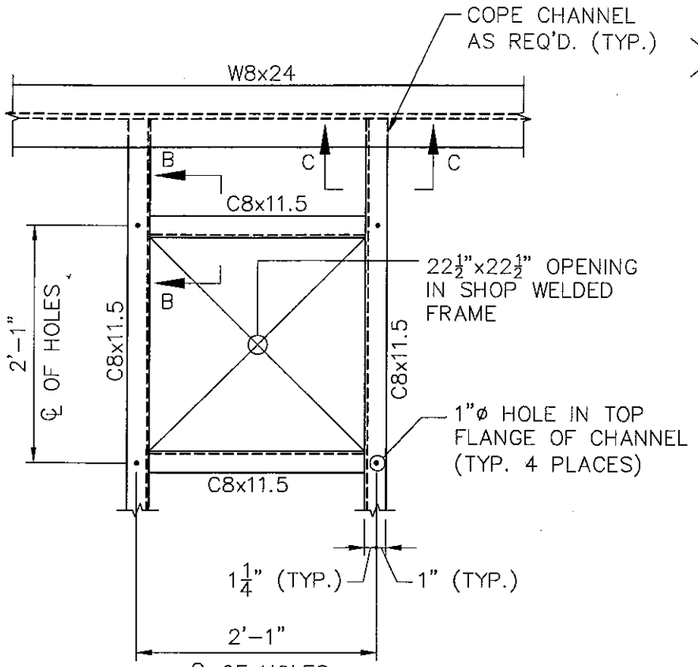
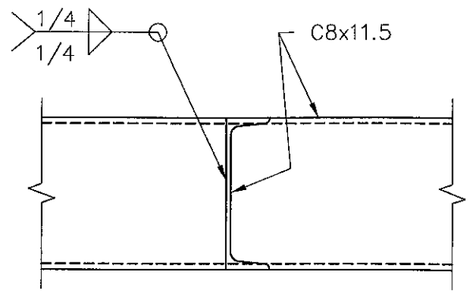


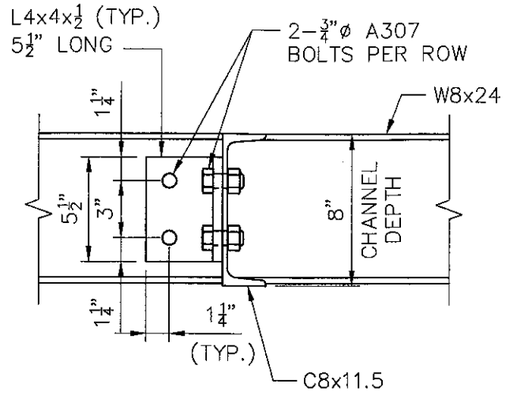
DETAIL 2 – STRUCTURAL FRAMING FOR RECHARGE PUMP BASE

1' 6" 0 1'
SCALE



SECTION B–B CHANNEL TO CHANNEL CONNECTION

NOT TO SCALE



SECTION C–C CHANNEL TO WIDE FLANGE CONNECTION

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PROJECT HILLSBORO ASR PILOT PROJECT

STRUCTURAL DETAILS

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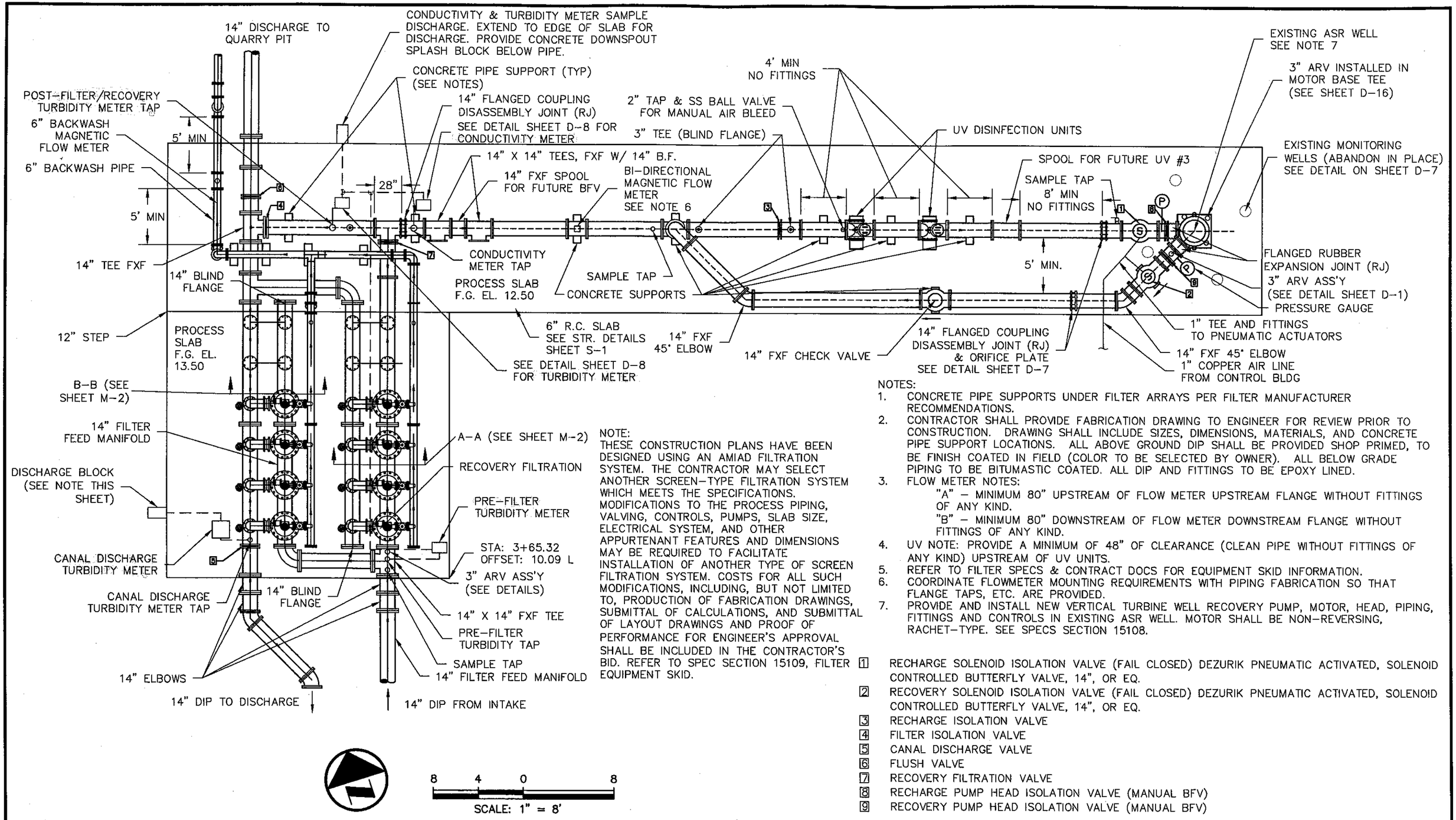
S-3



NOTE:
THESE CONSTRUCTION PLANS HAVE BEEN DESIGNED USING AN AMIAD FILTRATION SYSTEM. THE CONTRACTOR MAY SELECT ANOTHER SCREEN-TYPE FILTRATION SYSTEM WHICH MEETS THE SPECIFICATIONS. MODIFICATIONS TO THE PROCESS PIPING, VALVING, CONTROLS, PUMPS, SLAB SIZE, ELECTRICAL SYSTEM, AND OTHER APPURTENANT FEATURES AND DIMENSIONS MAY BE REQUIRED TO FACILITATE INSTALLATION OF ANOTHER TYPE OF SCREEN FILTRATION SYSTEM. COSTS FOR ALL SUCH MODIFICATIONS, INCLUDING, BUT NOT LIMITED TO, PRODUCTION OF FABRICATION DRAWINGS, SUBMITTAL OF CALCULATIONS, AND SUBMITTAL OF LAYOUT DRAWINGS AND PROOF OF PERFORMANCE FOR ENGINEER'S APPROVAL SHALL BE INCLUDED IN THE CONTRACTOR'S BID. REFER TO SPEC SECTION 15109, FILTER EQUIPMENT SKID.

NOTES:
1. CONCRETE PIPE SUPPORTS UNDER FILTER ARRAYS PER FILTER MANUFACTURER RECOMMENDATIONS.
2. CONTRACTOR SHALL PROVIDE FABRICATION DRAWING TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION. DRAWING SHALL INCLUDE SIZES, DIMENSIONS, MATERIALS, AND CONCRETE PIPE SUPPORT LOCATIONS. ALL ABOVE GROUND DIP SHALL BE PROVIDED SHOP PRIMED, TO BE FINISH COATED IN FIELD (COLOR TO BE SELECTED BY OWNER). ALL BELOW GRADE PIPING TO BE BITUMASTIC COATED. ALL DIP AND FITTINGS TO BE EPOXY LINED.
3. FLOW METER NOTES:
   "A" – MINIMUM 80" UPSTREAM OF FLOW METER UPSTREAM FLANGE WITHOUT FITTINGS OF ANY KIND.
   "B" – MINIMUM 80" DOWNSTREAM OF FLOW METER DOWNSTREAM FLANGE WITHOUT FITTINGS OF ANY KIND.
4. UV NOTE: PROVIDE A MINIMUM OF 48" OF CLEARANCE (CLEAN PIPE WITHOUT FITTINGS OF ANY KIND) UPSTREAM OF UV UNITS.
5. REFER TO FILTER SPECS & CONTRACT DOCS FOR EQUIPMENT SKID INFORMATION.
6. COORDINATE FLOWMETER MOUNTING REQUIREMENTS WITH PIPING FABRICATION SO THAT FLANGE TAPS, ETC. ARE PROVIDED.
7. PROVIDE AND INSTALL NEW VERTICAL TURBINE WELL RECOVERY PUMP, MOTOR, HEAD, PIPING, FITTINGS AND CONTROLS IN EXISTING ASR WELL. MOTOR SHALL BE NON-REVERSING, RACHET-TYPE. SEE SPECS SECTION 15108.

1. RECHARGE SOLENOID ISOLATION VALVE (FAIL CLOSED) DEZURIK PNEUMATIC ACTIVATED, SOLENOID CONTROLLED BUTTERFLY VALVE, 14", OR EQ.
2. RECOVERY SOLENOID ISOLATION VALVE (FAIL CLOSED) DEZURIK PNEUMATIC ACTIVATED, SOLENOID CONTROLLED BUTTERFLY VALVE, 14", OR EQ.
3. RECHARGE ISOLATION VALVE
4. FILTER ISOLATION VALVE
5. CANAL DISCHARGE VALVE
6. FLUSH VALVE
7. RECOVERY FILTRATION VALVE
8. RECHARGE PUMP HEAD ISOLATION VALVE (MANUAL BFV)
9. RECOVERY PUMP HEAD ISOLATION VALVE (MANUAL BFV)

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PROJECT HILLSBORO ASR PILOT PROJECT

FILTER AND EQUIPMENT LAYOUT

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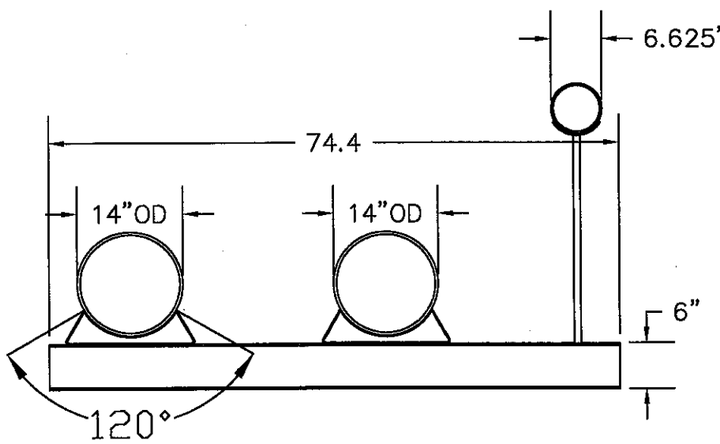
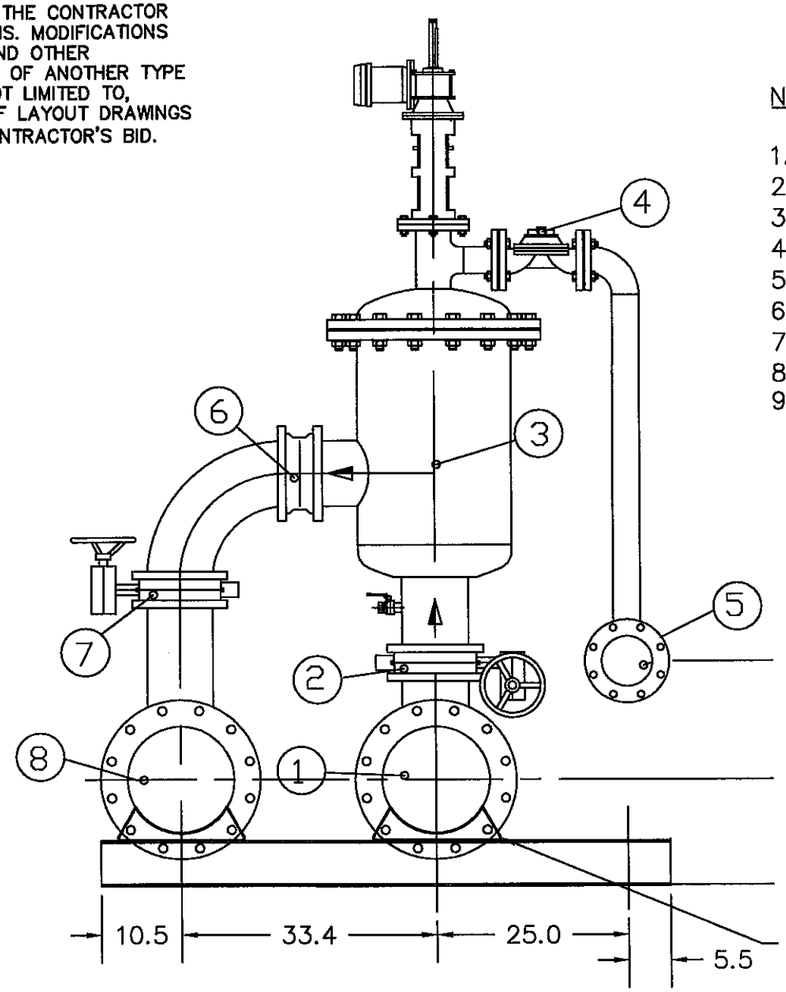
NOTE:
THESE CONSTRUCTION PLANS HAVE BEEN DESIGNED USING AN AMIAD FILTRATION SYSTEM. THE CONTRACTOR MAY SELECT ANOTHER SCREEN-TYPE FILTRATION SYSTEM WHICH MEETS THE SPECIFICATIONS. MODIFICATIONS TO THE PROCESS PIPING, VALVING, CONTROLS, PUMPS, SLAB SIZE, ELECTRICAL SYSTEM, AND OTHER APPURTENANT FEATURES AND DIMENSIONS MAY BE REQUIRED TO FACILITATE INSTALLATION OF ANOTHER TYPE OF SCREEN FILTRATION SYSTEM. COSTS FOR ALL SUCH MODIFICATIONS, INCLUDING, BUT NOT LIMITED TO, PRODUCTION OF FABRICATION DRAWINGS, SUBMITTAL OF CALCULATIONS, AND SUBMITTAL OF LAYOUT DRAWINGS AND PROOF OF PERFORMANCE FOR ENGINEER'S APPROVAL SHALL BE INCLUDED IN THE CONTRACTOR'S BID. REFER TO SPEC SECTION 15109, FILTER EQUIPMENT SKID.



FILTER & MANIFOLD SUPPORT



NO. KEY

1. 14" INLET MANIFOLD
2. 8" INLET BUTTERFLY VALVE
3. 8" EBS FILTER
4. 3" FLUSHING VALVE
5. 6" FLUSHING MANIFOLD
6. 8" NON-RETURN VALVE
7. 8" OUTLET BUTTERFLY VALVE
8. 14" OUTLET MANIFOLD
9. W6x15 SUPPORT

℄ BACKWASH PIPE EL. 16.0
(PIPE SUPPORTS TO BE PROVIDED BY FILTER MANUFACTURER AND ARE NOT SHOWN FOR CLARITY)
℄ 14" PIPE EL. 14.7

PROCESS SLAB EL. 13.50

PIPE SUPPORT RAIL BY FILTER MANUFACTURER

MODULE ASSY SIDE VIEW

TYPICAL FILTER DETAIL

NOT TO SCALE

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PROJECT HILLSBORO ASR PILOT PROJECT
FILTER SECTION

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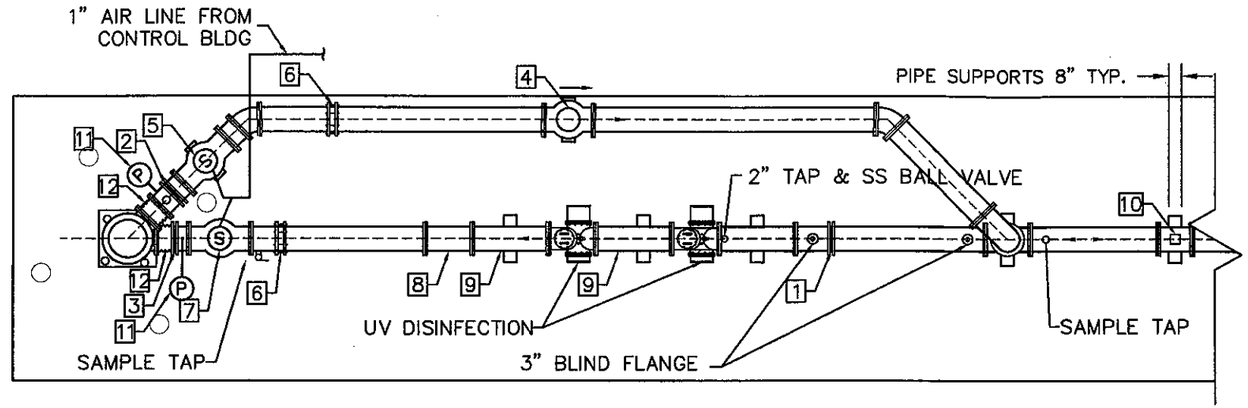
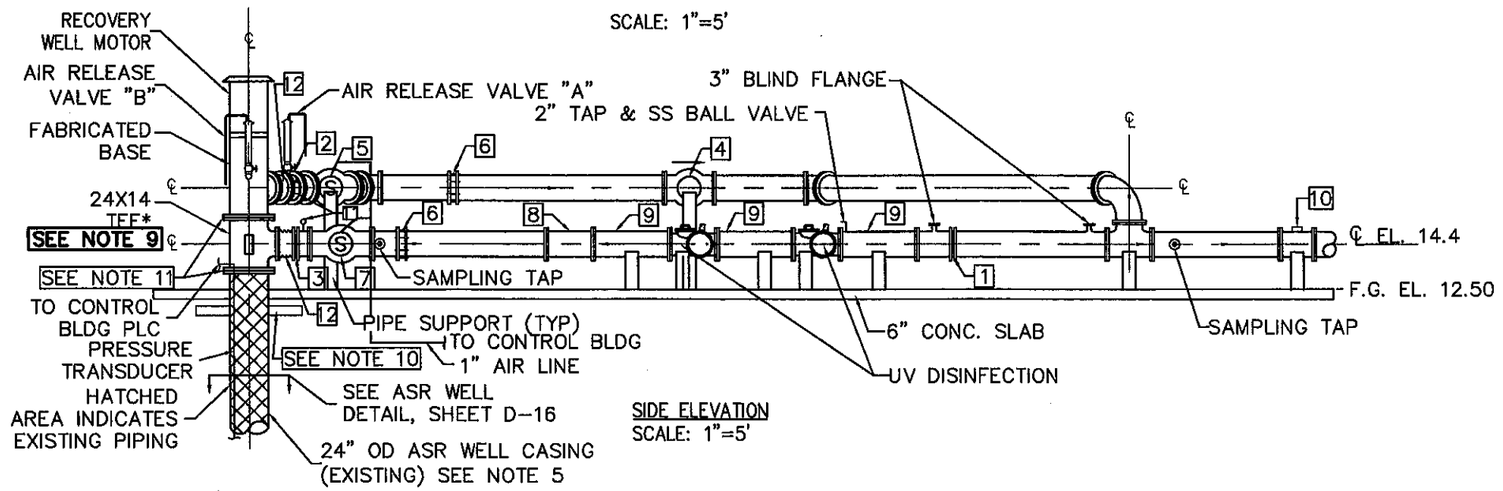


SCALE: 1"=5'



SIDE ELEVATION
SCALE: 1"=5'

NOTE: CONTRACTOR SHALL VERIFY BOLT SPACING ON FLANGE OF WELLHEAD PRIOR TO PLACING RECOVERY PUMP/DISCHARGE BASE ORDER.

ALL ABOVE GROUND D.I. PIPE, FITTINGS, AND VALVES SHALL BE SHOP PRIMED AND FIELD PAINTED. COLOR TO BE SELECTED BY OWNER.

* PUMP MANUFACTURER TO PROVIDE ADAPTER FITTINGS TO CONNECT RECOVERY PUMP TO EXISTING ASR WELL CASING. (SEE SHEET D-16)

NOTES:

1. AIR RELEASE VALVE "A" (3" FXF) SHALL BE CONNECTED TO 14" PUMP DISCHARGE. AIR RELEASE VALVE "B" (3" FXF) SHALL BE CONNECTED TO THE PUMP HEAD (INTAKE) TO FACILITATE VENTING THE ANNULAR SPACE BETWEEN THE PUMP OUTER CASING AND THE PUMP COLUMN. SEE DETAIL SHEET D-1.
2. FACTORY EPOXY LINING FOR D.I. PIPE AND FITTINGS.
3. FLANGES 125# STD FOR PROCESS PIPING. COORDINATE WITH ALL EQUIP. MANUF. TO INSURE COMPATIBILITY.
4. TORUSEAL GASKETS STD. FOR ALL FLANGED PIPE AND FITTINGS.
5. ASR PUMP SETTING DEPTH (BOWL BOTTOM) ELEVATION (-) 140.0 NGVD
6. SLAB AND PIPING SUPPORT REINFORCEMENT NOT SHOWN FOR CLARITY. REFER TO STRUCTURAL DRAWINGS.
7. CONDUIT STUB UPS AND CONTROLS NOT SHOWN FOR CLARITY. REFER TO ELECTRICAL DRAWINGS.
8. EXISTING MONITORING WELLS IN THIS AREA NOT SHOWN FOR CLARITY. ABANDON IN PLACE.
9. THIS IS AN ARTESIAN WELL WITH AN APPROXIMATE AT-GRADE PRESSURE OF +10 PSI. PLAN CONSTRUCTION ACCORDINGLY.
10. EXISTING CONC. SLAB & BOLLARDS AT ASR WELL TO BE DEMOLISHED. APPROX. EXIST. SLAB TOP EL. 11.3±.
11. EXIST. ASR WELL BLIND FLANGE & VALVE MAY BE REMOVED & TEMP. REINSTALLED ON TOP OF NEW 24" X 14" TEE TO FACILITATE PIPING CONSTRUCTION PRIOR TO ARRIVAL & INSTALLATION OF FABRICATED RECOVERY PUMP WELL HEAD.

[1] RECHARGE ISOLATION VALVE

[2] RECOVERY PUMP HEAD ISOLATION VALVE

[3] RECHARGE PUMP HEAD ISOLATION VALVE

[4] 14" FXF RECOVERY CHECK VALVE

[5] RECOVERY SOLENOID ISOLATION VALVE, PNEUMATIC ACTUATED

[6] FLANGED COUPLING DISASSEMBLY JOINT AND ORIFICE PLATE

[7] RECHARGE SOLENOID ISOLATION VALVE, PNEUMATIC ACTUATED

[8] SPOOL FOR FUTURE UV #3

[9] 4 FT. SPOOL

[10] BI-DIRECTIONAL MAGNETIC FLOW METER

[11] PRESSURE GAUGE ASSEMBLY. SEE SPEC SECTION 15102-2.02 (D).

[12] FLANGED RUBBER EXPANSION JOINT, FULLY RESTRAINED

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PROJECT HILLSBORO ASR PILOT PROJECT

WELLHEAD PIPING

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ELECTRICAL PLAN/LAYOUT

SYMBOL	DESCRIPTION
TTC	TELEPHONE TERMINAL CABINET
	TERMINAL JUNCTION BOX
	ELECTRICAL EQUIPMENT
	CEILING MOUNTED DOWNLIGHT LUMINAIRE – SEE SCHEDULE FOR TYPE
	FLOURESCENT LUMINAIRE, SURFACE OR LAY IN TYPE SEE SCHEDULE FOR TYPE
	LUMINAIRE AND POLE – SEE SCHEDULE FOR TYPE
	WALL MOUNTED LUMINAIRE – SEE SCHEDULE FOR TYPE
	FLOOD LIGHTS – AIM IN THE DIRECTION SHOWN SEE SCHEDULE FOR TYPE
X	EXIT LIGHTS – SOLID SECTION IS DIRECTION OF FACE SEE SCHEDULE FOR TYPE
	EMERGENCY LIGHT WITH BATTERY PACK SEE SCHEDULE FOR TYPE
	LIGHTING FIXTURE POWER AND SWITCHING LEGEND
X Y Z (TYP)	X=FIXTURE TYPE Y=PANEL–CIRCUIT BRKR Z=SWITCH IF NO Z INDICATED, CONNECT DIRECTLY TO CIRCUIT BREAKER.
[B2]	CONDUIT/CONDUCTOR – REFER TO CIRCUIT SCHEDULE
LPA-2	HOME RUN – PANEL AND CIRCUIT NUMBER SHOWN
	EXPOSED CONDUIT AND CONDUCTORS*
	UNDERGROUND CONDUIT AND CONDUCTORS* NOTE: * ALL UNMARKED CONDUIT RUNS CONSIST OF 2#12, 1#12G IN 3/4"C.
YCX	YARD CONDUIT. REFER TO YARD CONDUIT SCHEDULE
DB	DIRECT BURIED CONDUIT
	CONDUIT, STUBBED AND CAPPED AS SHOWN
G	GROUND WIRE, 4/0 UNLESS OTHERWISE NOTED
	6 FOOT GROUND WIRE PIGTAIL, 4/0 UNLESS OTHERWISE NOTED
	GROUND ROD – 5/8" x 20' COPPER CLAD UNLESS OTHERWISE NOTED
S	WALL SWITCH: 2- DOUBLE POLE P- PILOT LIGHT 3- THREE WAY K- KEY OPERATED 4- FOUR WAY D- DIMMER WP-WEATHERPROOF CRE- CORROSION RESISTANT
	CONVENIENCE RECEPTACLE – 20A DUPLEX UNLESS SPECIFIED OTHERWISE WP-WEATHERPROOF C- CLOCK HANGER TL-TWIST LOCK CRE-CORROSION RESISTANT GFI-GROUND FAULT INTERRUPTER
	CONVENIENCE RECEPTACLE – 20A QUADROPLEX UNLESS SPECIFIED OTHERWISE
	CONVENIENCE RECEPTACLE – 20A DUPLEX UNLESS SPECIFIED OTHERWISE. LOCATED ABOVE COUNTER TOP GFI-GROUND FAULT INTERRUPTER
30	RECEPTACLE, SPECIAL PURPOSE – AMPERAGE AS INDICATED.
	TELEPHONE/DATA RECEPTACLE (OUTLET BOX, 18" AFF) W – WALL MOUNTED, 54" AFF
	TELEPHONE/DATA RECEPTACLE MOUNTED FLUSH IN FLOOR
J	JUNCTION BOX NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. 4X = NEMA 4X SS
F	FIRE ALARM PULL STATION
F	FIRE ALARM HORN/STROBE LIGHT
F	FIRE ALARM STROBE LIGHT
W	ELEVATOR WARNING LIGHT
SD	FIRE ALARM SMOKE DETECTOR
HD	FIRE ALARM HEAT DETECTOR
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
BD R	BEAM DETECTOR, T=TRANSMITTER, R=RECEIVER
SD D	DUCT SMOKE DETECTOR
RTU	REMOTE TEST UNIT

ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
A	AMMETER, AMPERE
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AS	AMMETER SWITCH, AMPERE SENSOR
ASU	AIR SUPPLY UNIT
ATS	AUTOMATIC TRANSFER SWITCH
BC	BYPASS CONTACTOR
BRKR	BREAKER
C	CONDUIT, CONTACTOR
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CMS	COMBINATION MOTOR STARTER
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DIV	DIVISION
EF	EXHAUST FAN
EG	ELECTRICAL GROUND
ETM	ELAPSED TIME METER
EXST	EXISTING
FDR	FEEDER
F, FU	FUSE
FI	FLOW INDICATOR
FLR	FLOOR
FLUOR	FLUORESCENT
FM	FLOW METER
FS	FLOAT SWITCH, FLOW SWITCH
FT	FLOW TRANSMITTER
FUT	FUTURE
FVNR	FULL VOLTAGE NON–REVERSING STARTER
FVR	FULL VOLTAGE REVERSING
G	GREEN, GROUND
GALV	GALVANIZED
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND/OFF/AUTO
HOR	HAND/OFF/REMOTE
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING, VENTILATING & AIR CONDITIONING
IC	INTERRUPTING CAPACITY
I & C	INSTRUMENTATION AND CONTROL
INST	INSTANTANEOUS
IP	INSTRUMENT PANEL (PANELBOARD)
J, J–BOX	JUNCTION BOX
K	KEY INTERLOCK
KK	KIRK KEY INTERLOCK
LA	LIGHTNING ARRESTER
LC	LIGHTING CONTACTOR
LP	LIGHTING PANEL (PANELBOARD)
LR	LOCAL/REMOTE, LATCHING RELAY
LS	LIMIT SWITCH
LT FLEX	LIQUID TIGHT FLEX CONDUIT
LTG	LIGHTING
M	MAGNETIC CONTACTOR COIL OR MOTOR
MA	MILLIAMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MERC	MERCURY VAPOR
MH	MOTOR HEATER, MANHOLE
MLO	MAIN LUGS ONLY
MPZ	MINI POWER ZONE
MS	MOTOR STARTER
MSC	MANUFACTURER SUPPLIED CABLE
MT	MOUNT
MTD	MOTOR TEMPERATURE DETECTOR
MTS	MANUAL TRANSFER SWITCH
N	NEUTRAL
NC	NORMALLY CLOSED
NEMA	NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION
NO	NORMALLY OPEN
NP	NAMEPLATE
NTS	NOT TO SCALE
OL	OVERLOAD RELAY
P	POLE
PB	PULL BOX, PUSHBUTTON STATION
PC	PHOTOCELL
PH	PHASE
PM	PHASE MONITOR,POWER METER
PNL	PANEL
PP	POWER PANEL (480VAC)
PR	PAIR
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE CONDUIT
RCPT	RECEPTACLE
RMS	ROOT MEAN SQUARE
RS	RIGID STEEL CONDUIT
RGS	RIGID GALVANIZED STEEL CONDUIT
RTU	REMOTE TELEMETRY UNIT
SC	SURGE CAPACITOR
SF	SUPPLY FAN
SH	SPACE HEATER
S/N	SOLID NEUTRAL
SPD	SPEED
SSRVS	SOLID STATE REDUCED VOLTAGE STARTER
SST	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
T	THERMOSTAT
TB	TERMINAL BOARD
TDR	TIME DELAY RELAY
TJB	TERMINAL JUNCTION BOX
TS	THERMAL SWITCH
TSP	TWISTED SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UVR	UNDER VOLTAGE RELAY
V	VOLTMETER, VOLT
VFD	VARIABLE FREQUENCY DRIVE
VS	VOLTMETER SWITCH
W	WATT
WHD	WATTHOUR DEMAND METER
WP	WEATHERPROOF
XFMR	TRANSFORMER

ONE LINE DIAGRAMS, RISER DIAGRAMS AND SCHEMATICS

SYMBOL	DESCRIPTION
5	MOTOR, SQUIRREL CAGE INDUCTION UNLESS OTHERWISE NOTED – HORSEPOWER INDICATED
	OVERLOAD RELAY HEATER
1	MAGNETIC STARTER WITH NEMA SIZE INDICATED
M	MOTOR CIRCUIT PROTECTOR, MAGNETIC, 3 POLE UNLESS INDICATED OTHERWISE.
400	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.
400 225	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
100	SWITCH – CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
400 600	DRAWOUT CIRCUIT BREAKER, LOW VOLTAGE 600= FRAME RATING, 400=TRIP SETTING
400 600	DRAWOUT CIRCUIT BREAKER, MEDIUM VOLTAGE 600= FRAME RATING, 400=TRIP SETTING
600 400	DRAWOUT FUSED SWITCH, LOW OR MEDIUM VOLTAGE 600= FRAME RATING, 400=FUSE RATING
(3)	CURRENT TRANSFORMER, NUMBER OF WINDINGS INDICATED
480–120/208V 15 KVA, 3Ø K–4 RATED	TRANSFORMER, VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE
	LIGHTNING ARRESTER
	CAPACITOR OR SURGE CAPACITOR
M	UTILITY METER
G	GENERATOR
X 0–600V	METER SCALE RANGE SHOWN IF REQUIRED A - AMPS PM - PHASE MONITOR V - VOLTS P - POWER METER
	FUSE
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
	GROUND
CPT 120V	CONTROL TRANSFORMER
GFR	GROUND FAULT RELAY WITH C.T.
	PUSH–BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
	PUSH–BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
	PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK
	REMOTE DEVICE
A	INDICATING LIGHT – LETTER INDICATES COLOR A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE
A	PUSH TO TEST AND CONNECT INDICATING LIGHT SCHEMATIC DIAGRAMS ONLY A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE
S_M	MANUAL MOTOR STARTER SWITCH, NEMA 4X UNLESS OTHERWISE NOTED. NUMBER OF POLES AS REQUIRED
PB 4X	PUSH–BUTTON STATION, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. 4X = NEMA 4X 316 STAINLESS STEEL ENCLOSURE. SEE CONTROL DIAGRAMS FOR TYPE PUSH BUTTON REQUIRED
30 4X	NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 316 STAINLESS STEEL
F 40 60 4X	FUSED DISCONNECT SWITCH, SIZE INDICATED (60 = SWITCH RATING: 40 = FUSE RATING) 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 316 STAINLESS STEEL
LC 30 4X	LIGHTING CONTACTOR, CURRENT RATING INDICATED, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM FOR NUMBER OF POLES. 4X = NEMA 4X 316 STAINLESS STEEL
2 4X	MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 12 ENCLOSURE, UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM. 4X = NEMA 4X 316 STAINLESS STEEL
2 4X	COMBINATION (FUSE OR CIRCUIT BREAKER AS INDICATED). MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL SCHEMATIC DIAGRAM. 4X = NEMA 4X 316 STAINLESS STEEL
	ELECTRIC RESISTANCE HEATER
ETM	ELAPSED TIME METER
CRX	CONTACT – NORMALLY OPEN WITH COIL INDICATED
CRX	CONTACT – NORMALLY CLOSED WITH COIL INDICATED
CRX	CONTROL RELAY, X=SEQUENTIAL NUMBER
LRX (L)	LATCHING RELAY, X=SEQUENTIAL NUMBER L - LATCH, U - UNLATCH
TDX NOTC	TIME DELAY RELAY, X=SEQUENTIAL NUMBER NOTC=NORMALLY OPEN TIMED CLOSED NOTO=NORMALLY OPEN TIMED OPEN AFTER CLOSE NCTO=NORMALLY CLOSED TIMED OPEN NCTC=NORMALLY CLOSED TIMED CLOSED AFTER OPEN
	TEMPERATURE
	OPENS ON RISING TEMPERATURE, CLOSES ON FALLING TEMPERATURE
	CLOSES ON RISING TEMPERATURE, OPENS ON FALLING TEMPERATURE
H O A XOO OOX	SELECTOR SWITCH: MAINTAINED CONTACT WITH CONTACT POSITION INDICATED, CHART IDENTIFIES OPERATION

	POSITION		
CKT.	HAND	OFF	AUTO
1	X	O	O
2	O	O	X

X - CLOSED CONTACT
O - OPEN CONTACT

GENERAL

SYMBOL	DESCRIPTION
	CONNECTION POINT TO EQUIPMENT SPECIFIED, FURNISHED AND INSTALLED UNDER OTHER SECTIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS SECTION.
1"C,2#12,1#12G 1"C,1–25/C TYPE 1	INDICATES RACEWAY AND CIRCUIT CONDUCTORS. FIRST NUMBER IS RACEWAY SIZE. THE FOLLOWING NUMBERS ARE THE CONDUCTOR QUANTITIES, SIZES, AND TYPES.
////	DEMOLITION TO BE REMOVED OR DELETED

LINE WEIGHT
NEW — EXISTING

NOTE:
THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE UTILIZED ON PROJECT.

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PROJECT HILLSBORO ASR PILOT PROJECT

ELECTRICAL SYMBOLS AND LEGEND

TASK

ORIGINAL April 2005
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E-1

GENERAL NOTES AND SPECIFICATIONS:

1. SEE SECTION 16010 FOR SCOPE OF WORK.
2. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR TO INSTALL THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS. ITEMS NOT SHOWN BUT OBVIOUSLY NECESSARY FOR COMPLETION OF THE WORK SHALL BE INCLUDED.
3. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, LOCAL CODES, SOUTH FLORIDA WATER MANAGEMENT STANDARDS, FLORIDA BUILDING CODE, ALL PALM BEACH COUNTY CODES.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS AND TO INCLUDE ALL FEES AS PART OF HIS BID IF NOT OTHERWISE NOTED.
5. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE ENGINEER AND OWNER.
6. THE CONTRACTOR SHALL, BEFORE SUBMITTING HIS BID, VISIT THE SITE OF THE PROJECT AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS. NO ALLOWANCE WILL BE MADE FOR EXISTING CONDITIONS OR FAILURE OF THE CONTRACTOR TO OBSERVE THEM.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH ALL LOCAL UTILITIES, INCLUDING THE POWER AND TELEPHONE UTILITIES TO MEET ALL OF THEIR INSTALLATION REQUIREMENTS. ALL FEES, LABOR, EQUIPMENT OR MATERIALS NECESSARY TO MEET THESE REQUIREMENTS IS TO BE INCLUDED IN THE BID. THE CONTRACTOR SHALL OBTAIN, DELIVER AND INSTALL ALL CONDUITS, PULL-BOXES AND EQUIPMENT AS REQUIRED BY THE UTILITIES TO THEIR SPECIFICATIONS.
8. ALL EQUIPMENT AND MATERIAL SHALL BE UNUSED AND U.L. LISTED. ALL REFERENCES TO A PARTICULAR MANUFACTURER ARE GIVEN ON AN "APPROVED EQUAL" BASIS.
9. THE CONTRACTOR IS RESPONSIBLE TO TEST ALL SYSTEMS INSTALLED OR MODIFIED UNDER THIS PROJECT AND REPAIR OR REPLACE ALL DEFECTIVE WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER.
10. ALL EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.
11. ALL CONDUCTORS SHALL BE COPPER. NO ALUMINUM ALLOWED UNLESS SPECIFICALLY INDICATED ON DRAWINGS.
12. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL ELECTRICAL & CONTROL EQUIPMENT AND MATERIAL.
13. ALL CONTROL PANELS SHALL BE CONSTRUCTED BY A UL 508A APPROVED PANEL VENDOR AND SHALL BEAR A UL 508A LABEL ON THE PANEL.
14. THE DRAWINGS ARE NOT INTENDED TO SHOW THE EXACT LOCATION OF CONDUIT RUNS. THESE ARE TO BE COORDINATED WITH THE OTHER TRADES SO THAT CONFLICTS ARE AVOIDED PRIOR TO INSTALLATIONS.
15. ALL LOCATIONS OF EQUIPMENT, PANELS ETC. ARE SHOWN FOR ILLUSTRATION PURPOSES. CONTRACTOR SHALL VERIFY AND COORDINATE EXACT LOCATION AND SIZE WITH ALL SUBCONTRACTORS AND EQUIPMENT SUPPLIERS PRIOR TO ANY INSTALLATION AND THEN INSTALL AS SUCH WITH CORRESPONDING CONDUIT STUB-UPS.
16. SEE OTHER DISCIPLINE DRAWINGS FOR COORDINATION OF ALL DRAWINGS. ANY CONFLICTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION AND MOVEMENT OF CONDUITS OR OTHER ELECTRICAL EQUIPMENT SHALL BE ACCOMPLISHED WITHOUT ANY ADDITIONAL COST FOR THE OWNER.
17. LOCATIONS OF MANHOLES, HANDHOLES AND PULL BOXES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH EXISTING AND NEW PIPING OR CONDUIT AND ADJUST ACCORDINGLY.
18. NOT ALL CONDUITS SHOWN ON RISER AND ONE-LINE DIAGRAMS ARE SHOWN ON BUILDING LAYOUTS. CONTRACTOR SHALL SUPPLY ALL CONDUITS AND CABLES AS SHOWN ON RISER AND ONE-LINE DIAGRAMS.
19. ALL CIRCUITS SHALL BE IDENTIFIED IN JUNCTION BOXES, PULL BOXES, CONTROL PANELS, PANELBOARDS, LIGHTING POLES, CONTROLLERS AND SERVICE POINTS. IDENTIFICATION SHALL MATCH PANELBOARD SCHEDULES.
20. EXPOSED RUNS OF CONDUITS SHALL BE INSTALLED WITH RUNS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS, WITH RIGHT ANGLE TURNS CONSISTING OF SYMMETRICAL BENDS OR PULL BOXES AS INDICATED ON THE DRAWINGS. BENDS AND OFFSETS SHALL BE AVOIDED WHERE POSSIBLE.
21. INSTRUMENTATION IS LOW VOLTAGE SIGNALS SUCH AS 4-20MA, TELEPHONE COMMUNICATION, FIRE ALARM COMMUNICATION. POWER CONDUIT SHALL ONLY CROSS INSTRUMENTATION CONDUIT PERPENDICULARLY AT RIGHT ANGLES WITH 6" SEPARATION.
22. CONDUCTOR PULLING TENSIONS SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL PULL BOXES TO MEET MANUFACTURER'S REQUIREMENTS.
23. MINIMUM DISTANCE ALLOWED BETWEEN POWER CONDUITS AND INSTRUMENTATION CONDUITS SHALL BE:

VOLTAGE	DISTANCE
4160V	3 FT
480V	2 FT
120V	1 FT

24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUIT AND WIRING INSTALLATION FOR ALL VENDOR PROVIDED EQUIPMENT (PACKAGE SYSTEMS). IF THE SHOP DRAWINGS DIFFER FROM THE DESIGNED FACILITIES, THE CONTRACTOR SHALL REDESIGN THE FACILITIES AND SUBMIT THE REVISED DESIGN FOR THE ENGINEER'S APPROVAL ALONG WITH THE SHOP DRAWINGS. THERE SHALL BE NO ADDITIONAL COST TO THE OWNER FOR THE REDESIGN NOR FOR ANY ADDITIONAL CONDUITS AND WIRING. DURING SUBMITTAL THE CONTRACTOR SHALL VERIFY ALL SUPPLIED BREAKER SIZES FOR ALL PACKAGED SYSTEMS SUCH AS HVAC, EXHAUST FANS, MIXERS, CHEMICAL PUMPS ETC. AND MODIFY ALL BREAKERS IN MCC'S AND PANELBOARDS ACCORDINGLY WITHOUT ANY ADDITIONAL COST TO THE OWNER.
25. ALL EXCAVATIONS FOR CONDUITS, HANDHOLES, MANHOLES AND PULLBOXES NEAR EXISTING PIPING, CONDUIT AND EQUIPMENT SHALL BE HAND EXCAVATED AND COORDINATED WITH ENGINEER.
26. MINIMUM DEPTH FROM TOP OF DUCTBANKS OR CONDUITS TO FINISHED GRADE SHALL BE 24" UNLESS OTHERWISE NOTED.
27. WARNING TAPE SHALL BE INSTALLED DIRECTLY ABOVE ALL UNDERGROUND CONDUITS. SEE SPECIFICATION SECTION 16110 FOR WARNING TAPE AND INSTALLATION REQUIREMENTS.
28. CONTRACTOR SHALL RESTORE SIDEWALKS, ROADWAYS, SOD AND SPRINKLER SYSTEM PIPING TO MATCH EXISTING, AFTER THE COMPLETION OF THE CONDUIT AND PULLBOX INSTALLATION.
29. GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH NEC, ARTICLE 250. THE GROUNDING SYSTEM TEST SHALL NOT EXCEED A RESISTANCE OF 10 OHMS AFTER A 48 HOUR DRY SPAN. ADDITIONAL GROUNDING TO MEET THIS REQUIREMENT SHALL BE INSTALLED AT NO EXTRA COST. GROUNDING AND BONDING SHALL BE INSTALLED AS PER SPECIFICATION SECTION 16450.
30. AN EQUIPMENT GROUND WIRE SIZED PER NEC SHALL BE PULLED IN ALL ELECTRICAL CONDUITS, POWER AND CONTROL, WHETHER OR NOT INDICATED ON THE PLANS.
31. ALL ENCLOSURES, TJB, WIREWAY, PULL BOXES ETC. SHALL CONTAIN A GROUNDING BUS. CONNECT ALL RACEWAY BONDS TO THIS BUS VIA GROUNDING BUSHING AND EXTEND BONDING JUMPER FROM THIS BUS TO THE ENCLOSURE.
32. PRIMARY BUILDING GROUNDING SHALL BE AN EMBEDDED GRID OF MINIMUM #4/0 AWG WIRE INSTALLED IN THE FOUNDATION AND AROUND THE BUILDING PERIMETER TO FORM A COMPLETE LOOP. SECONDARY GROUND CONNECTIONS TO ALL METAL EQUIPMENT, HAND RAILS, STRUCTURAL STEEL, CONCRETE PADS, REBAR ETC. SHALL HAVE A MINIMUM #2 STRANDED COPPER CONDUCTOR BONDED USING APPROVED LUGS OR EXOTHERMIC CONNECTIONS. ALL EQUIPMENT GROUNDING CONDUCTORS PENETRATING CONCRETE SLABS OR FINISHED GRADE SHALL BE PROTECTED AT EACH LOCATION FOR CONNECTION TO EQUIPMENT.
33. GROUND SURROUNDING YARD FENCE AND ALL YARD LIGHTING FIXTURES WITH MINIMUM #4 STRANDED COPPER CONDUCTORS BELOW GRADE TO SITE GROUNDING GRID PER NFPA 54/70.
34. ALL CONCRETE ENCASED DUCTBANKS SHALL CARRY A MINIMUM #4/0 AWG BARE COPPER GROUND WIRE, OVER THE ENTIRE LENGTH, WHICH SHALL BE CONNECTED TO THE SITE GROUNDING GRID AND GROUND RODS LOCATED CONNECTING MANHOLES, HANDHOLES OR PULL BOXES.
35. CONTRACTOR SHALL CORE DRILL EXISTING CONCRETE WALLS, FLOORS, MANHOLES, HANDHOLES AND PULL BOXES FOR CONDUIT PENETRATIONS. SEAL PENETRATIONS WITH NON-SHRINK GROUT OR APPROPRIATE FIRE RATED DEVICES WHERE APPLICABLE.
36. ALL CONDUITS PENETRATING RATED FIRE WALLS OR RATED FIRE FLOORS SHALL BE INSTALLED WITH U.L. APPROVED DEVICES TO MAINTAIN THE FIRE RATING OF THE WALL OR FLOOR PENETRATED.
37. PROVIDE CONDUIT DUCT SEAL AT ALL CONDUIT ENDS.
38. ALL SPARE CONDUITS SHALL BE SEALED WITH A CAP AT BOTH ENDS AND A PULL STRING INSTALLED WITH IDENTIFICATION ON BOTH ENDS.
39. ALL RECEPTACLES SHALL BE INSTALLED 48" AFF UNLESS OTHERWISE NOTED. LIGHT SWITCHES SHALL BE MOUNTED 48" AFF UNLESS OTHERWISE NOTED.
40. ALL RECEPTACLES WITHIN 6' OF A SINK SHALL BE GFI.
41. FLEXIBLE CONDUITS SHALL BE USED TO TERMINATE ALL MOTORS AND OTHER VIBRATING EQUIPMENT AND SHALL BE BETWEEN 18" AND 3' IN LENGTH.
42. ELECTRICAL PULL BOXES WITHOUT BOTTOMS SHALL BE SUPPLIED WITH PVC JUNCTION BOXES AND A STEEL TRAFFIC-RATED COVER MARKED "ELECTRICAL" OR "SIGNAL".
43. TYPEWRITTEN PANEL SCHEDULES SHALL BE INSTALLED IN EACH PANELBOARD, AND TYPEWRITTEN TERMINAL BLOCK SCHEDULES IN EACH CONTROL CABINET.
44. ALL TVSS SHALL BE INTEGRAL TO THE NEW EQUIPMENT SHOWN AND SUPPLIED AS ONE UNIT AND ONE U.L. ENTITY.
45. AS PART OF THE ELECTRICAL SUBMITTAL, CONTRACTOR SHALL PROVIDE A SCALED LAYOUT DRAWING OF THE ELECTRICAL ROOM SHOWING SIZES OF ALL EQUIPMENT AND THEIR SPATIAL RELATIONSHIPS.
46. BRANCH CIRCUITS EXCEEDING 100 FT IN LENGTH SHALL BE WIRED WITH MINIMUM #10 AWG WIRES.
47. ALL MATERIAL IN DESIGNATED CORROSIVE AREAS SHALL BE NEMA 4X STAINLESS STEEL OR NON-METALLIC.
48. ALL OUTDOOR LIGHTING FIXTURE ENCLOSURES SHALL BE OF COPPER FREE CONSTRUCTION.
49. CONTRACTOR SHALL BALANCE PANELBOARD LOADS AT THE END OF THE PROJECT.

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PROJECT HILLSBORO ASR PILOT PROJECT

ELECTRICAL NOTES

TASK

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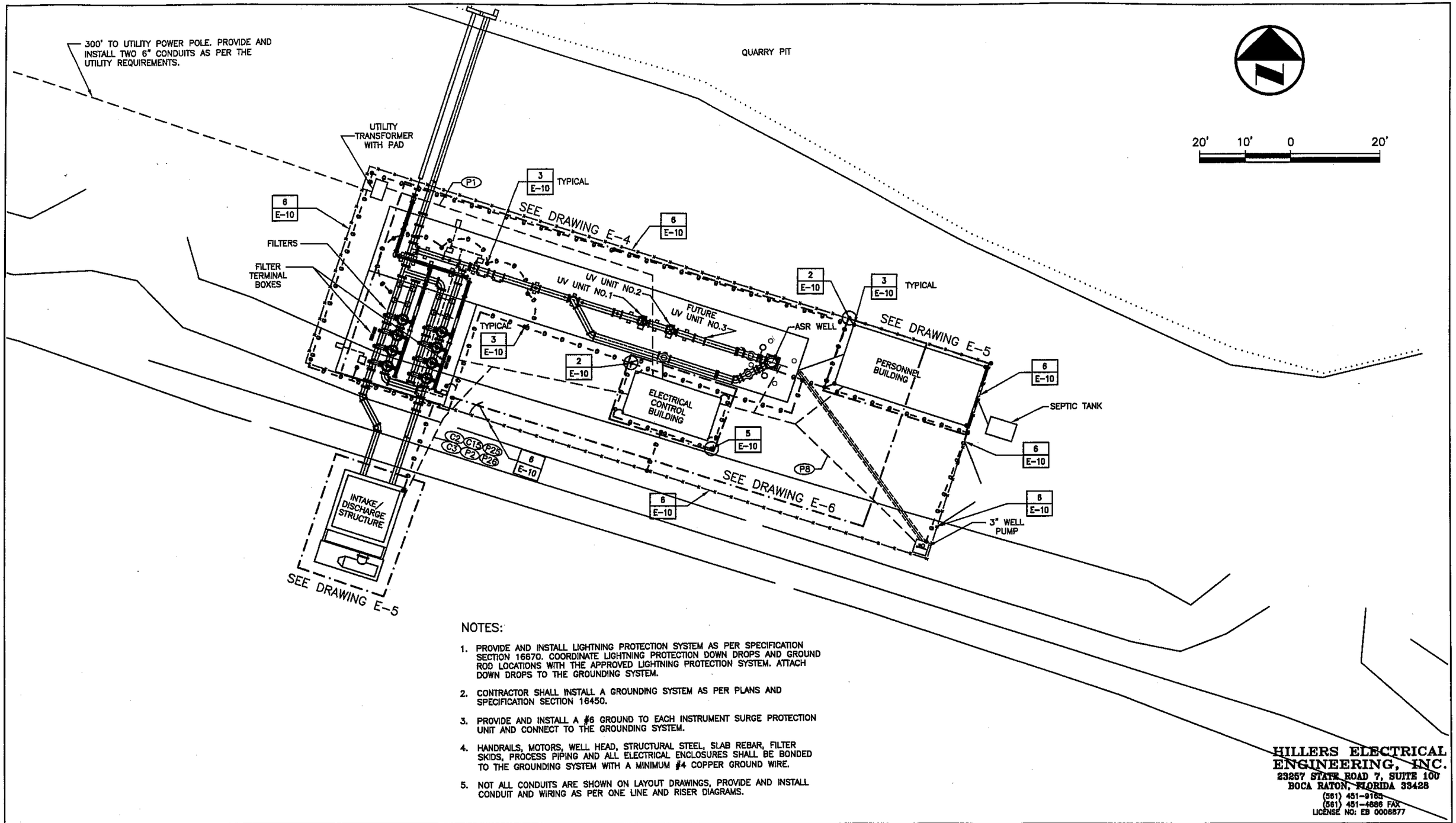
E-2



NOTES:

1. PROVIDE AND INSTALL LIGHTNING PROTECTION SYSTEM AS PER SPECIFICATION SECTION 16670. COORDINATE LIGHTNING PROTECTION DOWN DROPS AND GROUND ROD LOCATIONS WITH THE APPROVED LIGHTNING PROTECTION SYSTEM. ATTACH DOWN DROPS TO THE GROUNDING SYSTEM.
2. CONTRACTOR SHALL INSTALL A GROUNDING SYSTEM AS PER PLANS AND SPECIFICATION SECTION 16450.
3. PROVIDE AND INSTALL A #6 GROUND TO EACH INSTRUMENT SURGE PROTECTION UNIT AND CONNECT TO THE GROUNDING SYSTEM.
4. HANDRAILS, MOTORS, WELL HEAD, STRUCTURAL STEEL, SLAB REBAR, FILTER SKIDS, PROCESS PIPING AND ALL ELECTRICAL ENCLOSURES SHALL BE BONDED TO THE GROUNDING SYSTEM WITH A MINIMUM #4 COPPER GROUND WIRE.
5. NOT ALL CONDUITS ARE SHOWN ON LAYOUT DRAWINGS, PROVIDE AND INSTALL CONDUIT AND WIRING AS PER ONE LINE AND RISER DIAGRAMS.

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PROJECT HILLSBORO ASR PILOT PROJECT

TASK

ELECTRICAL SITE PLAN

ORIGINAL April 2005
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E-3

BACKWASH MAGNETIC FLOW METER FE 380

FLUSH VALVE ZSO 51 ZSC 52

TURBIDITY METER AIT 371

CONDUCTIVITY METER AIT 372

CONDUCTIVITY ELEMENT AE 372

FILTER ISOLATION VALVE ZSO 61 ZSC 62

RECOVERY FILTRATION VALVE ZSO 71 ZSC 72

FUTURE METALS TREATMENT

RECHARGE ISOLATION VALVE ZSC 81 ZSO 82

UV UNIT NO.1

UV UNIT NO.2

UV UNIT NO.3 FUTURE

RECHARGE SOLENOID ISOLATION VALVE ZSO 91 ZSC 92 SV 93

RECHARGE PUMP HEAD ISOLATION VALVE ZSC 94 ZSO 95

LT 210

ASR WELL

PERSONNEL BUILDING

FIT 380

FLOW ELEMENT FE 340

FIT 340

RECOVERY PUMP HEAD ISOLATION VALVE ZSC 223 ZSO 224

RECOVERY PUMP CHECK VALVE ZSC 213

RECOVERY SOLENOID ISOLATION VALVE ZSO 221 ZSC 220 SV 222

LP-10

1 E-10

ELECTRICAL CONTROL BUILDING

SEE DRAWING E-6

TO 3" WELL

CANAL DISCHARGE TURBIDITY METER AIT 214

DISSOLVED OXYGEN METER AIT 373

CANAL DISCHARGE VALVE ZSO 41 ZSC 42

PRE-FILTER TURBIDITY METER AIT 370

TO INTAKE/ DISCHARGE STRUCTURE

JB

TJB

BJT

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17

P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16 P18 P19 P20 P21 P22 P23 P24 P25 P26

8' 4' 0 8'

GENERAL NOTES

1. NOT ALL CONDUITS ARE SHOWN ON LAYOUT DRAWINGS, PROVIDE AND INSTALL CONDUIT AND WIRING AS PER ONE LINE AND RISER DIAGRAMS.

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PROJECT HILLSBORO ASR PILOT PROJECT

ASR WELL PIPING PLAN

ELECTRICAL PLAN

TASK

ORIGINAL April 2005
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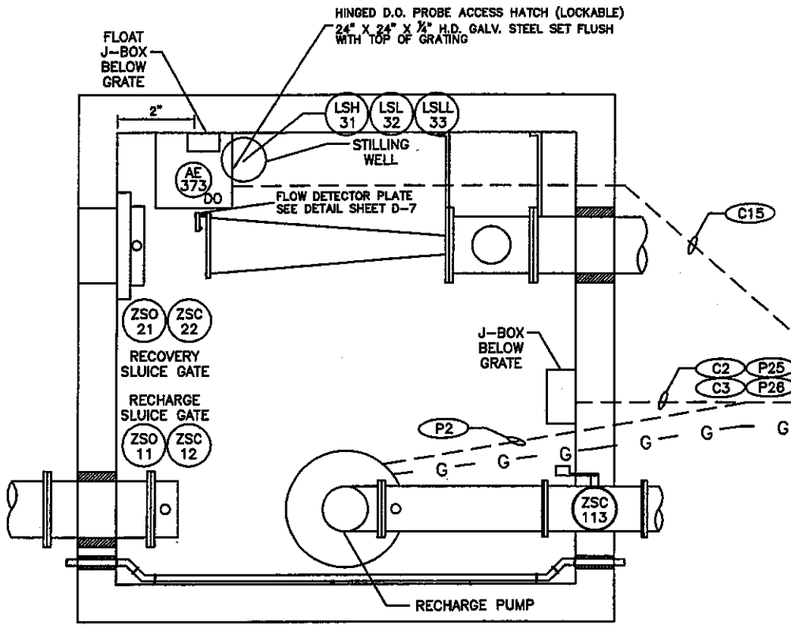
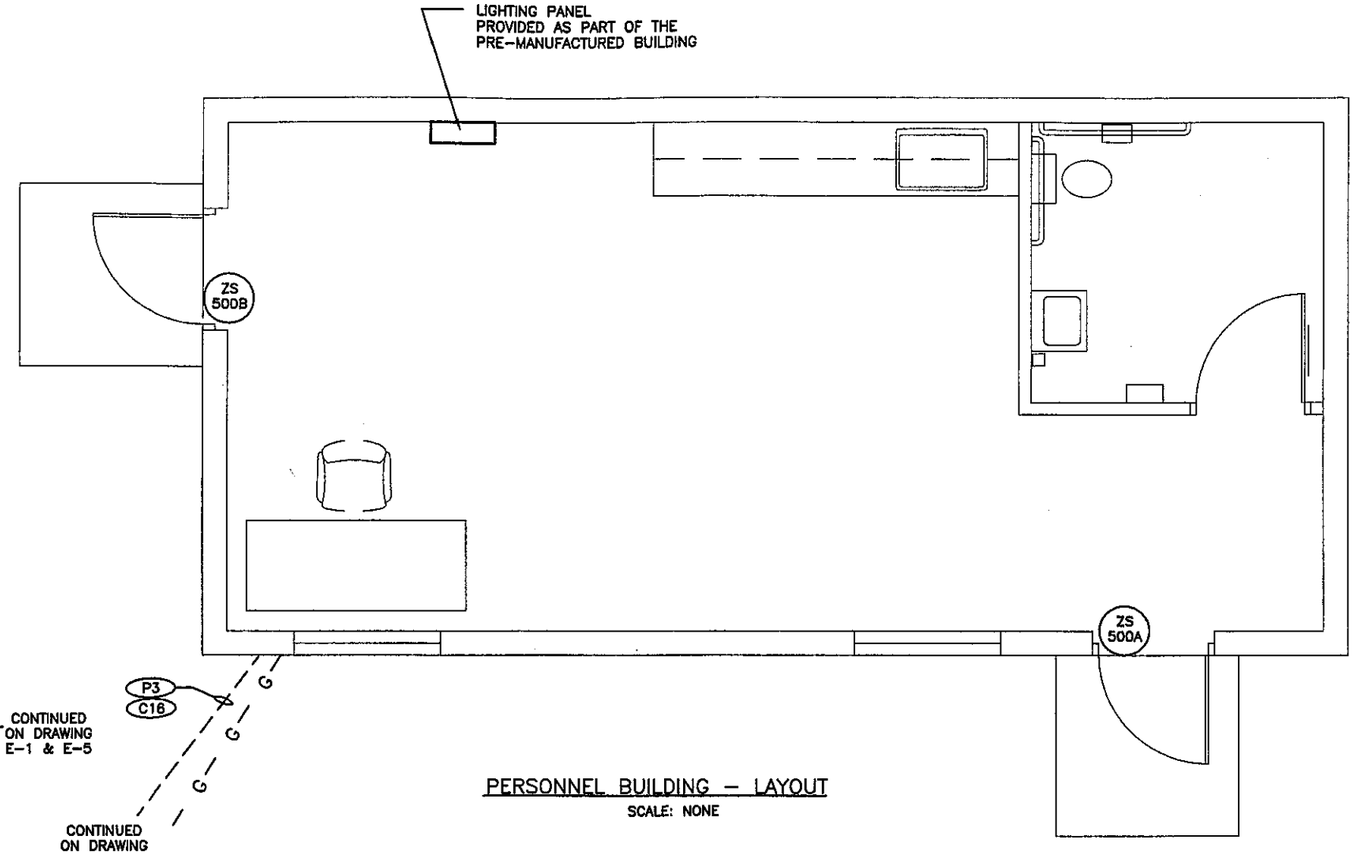
E-4



INTAKE/DISCHARGE STRUCTURE LAYOUT

24" 0 2' 6'



PERSONNEL BUILDING – LAYOUT

SCALE: NONE

GENERAL NOTES

1. NOT ALL CONDUITS ARE SHOWN ON LAYOUT DRAWINGS, PROVIDE AND INSTALL CONDUIT AND WIRING AS PER ONE LINE AND RISER DIAGRAMS.
2. COORDINATE THE LOCATION OF EQUIPMENT WITH THE MECHANICAL DRAWINGS, APPROVED SHOP DRAWINGS AND MANUFACTURER INFORMATION BEFORE INSTALLING CONDUIT.
3. GROUND ALL METAL EQUIPMENT AND GRATING TO THE GROUND SYSTEM TO INCLUDE BUT NOT LIMITED TO STRUCTURE AND BUILDING STEEL, HANDRAILS, HATCHES, PIPING, SLUICE GATES AND ELECTRICAL ENCLOSURES.
4. HANDRAILS AND GRATING NOT SHOWN FOR CLARITY.

PERSONNEL BUILDING NOTES

1. BUILDING SHOWN AS A REFERENCE ONLY SEE SPECIFICATIONS AND SHOP DRAWINGS FOR PRE-MANUFACTURED PERSONNEL BUILDING AND COORDINATE ELECTRICAL FOR BUILDING INSTALLATION.
2. COORDINATE THE LOCATION OF THE LIGHTING PANEL WITH THE APPROVED SHOP DRAWINGS AND INSTALL CONDUIT AND CABLE AS REQUIRED.
3. PERSONNEL BUILDING LIGHTING AND RECEPTACLES BY BUILDING MANUFACTURER.
4. PROVIDE AND INSTALL TAMPER SWITCHES ZS 500A AND ZS 500B, INCLUDE CONDUIT, WIRING AND TERMINATIONS FOR A COMPLETE AND WORKING SYSTEM.

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PROJECT HILLSBORO ASR PILOT PROJECT

INTAKE/DISCHARGE STRUCTURE

PERSONNEL BUILDING

TASK

ORIGINAL April 2005
REVISIONS:
1.
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JOB NO. 100281
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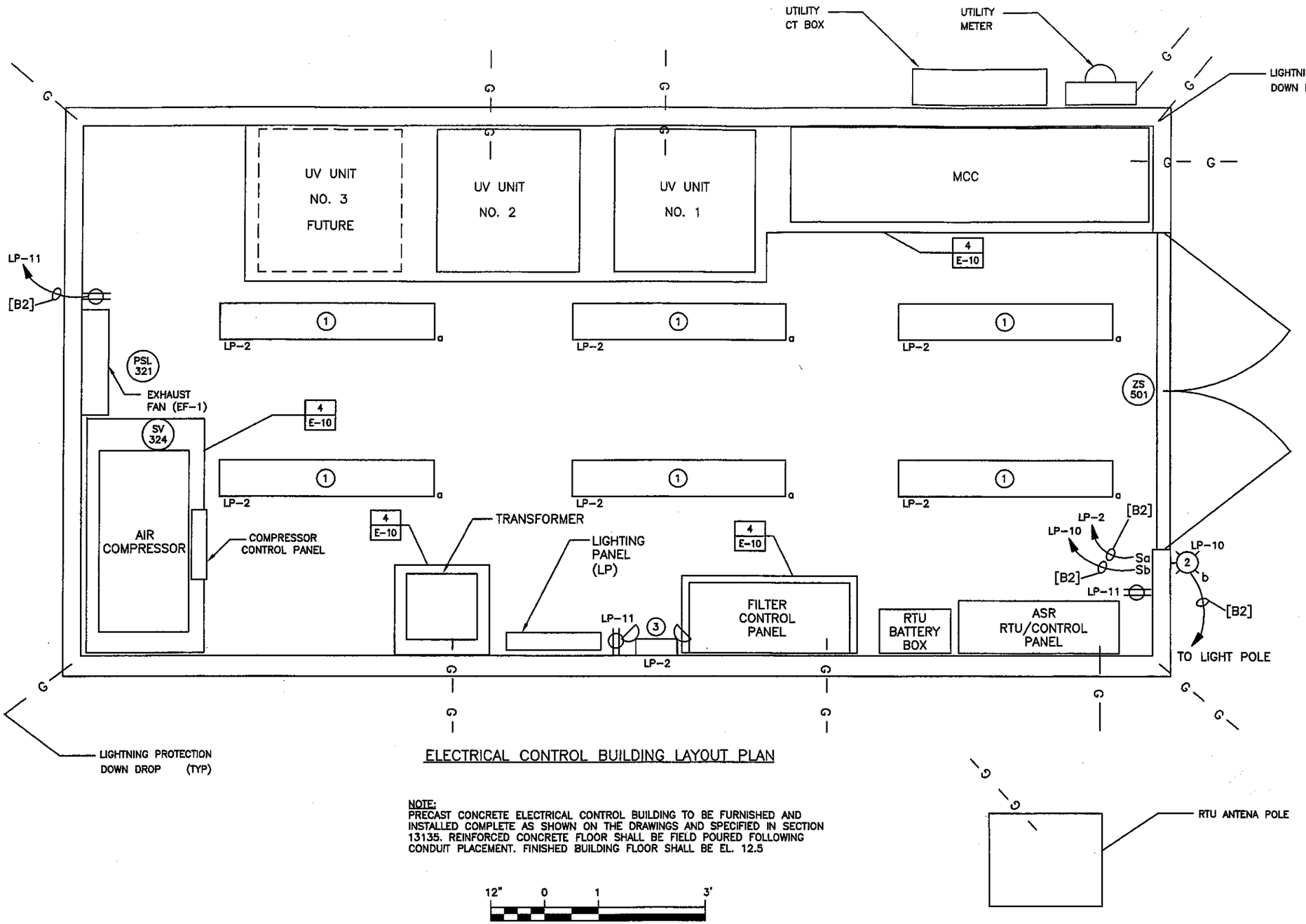
DESIGNED R.L.C.
CHECKED P.F.H.
Q.C. P.R.D.

E-5



ELECTRICAL CONTROL BUILDING LAYOUT PLAN

NOTE:
PRECAST CONCRETE ELECTRICAL CONTROL BUILDING TO BE FURNISHED AND INSTALLED COMPLETE AS SHOWN ON THE DRAWINGS AND SPECIFIED IN SECTION 13135. REINFORCED CONCRETE FLOOR SHALL BE FIELD POURED FOLLOWING CONDUIT PLACEMENT. FINISHED BUILDING FLOOR SHALL BE EL. 12.5

NOTES:

1. CONNECT ALL EQUIPMENT GROUNDS TO THE GROUNDING SYSTEM LOOP.
2. PROVIDE AND INSTALL LIGHTNING PROTECTION SYSTEM. CONNECT LIGHTNING PROTECTION SYSTEM DOWN DROPS TO GROUND LOOP.
3. COORDINATE WITH THE LIGHTNING PROTECTION CONTRACTOR AND INSTALL GROUND RODS TO MEET SYSTEM REQUIREMENTS.
4. BOND SLAB REBAR AND BUILDING STEEL TO THE GROUND LOOP.
5. NOT ALL CONDUITS SHOWN ON BUILDING LAYOUT, PROVIDE AND INSTALL CONDUIT AND WIRING AS PER ONE LINE AND RISER DIAGRAMS.
6. PROVIDE AND INSTALL CT BOX AND METER CAN AS PER UTILITY REQUIREMENTS.

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PROJECT HILLSBORO ASR PILOT PROJECT
ELECTRICAL CONTROL ROOM PLAN

TASK

ORIGINAL April 2005
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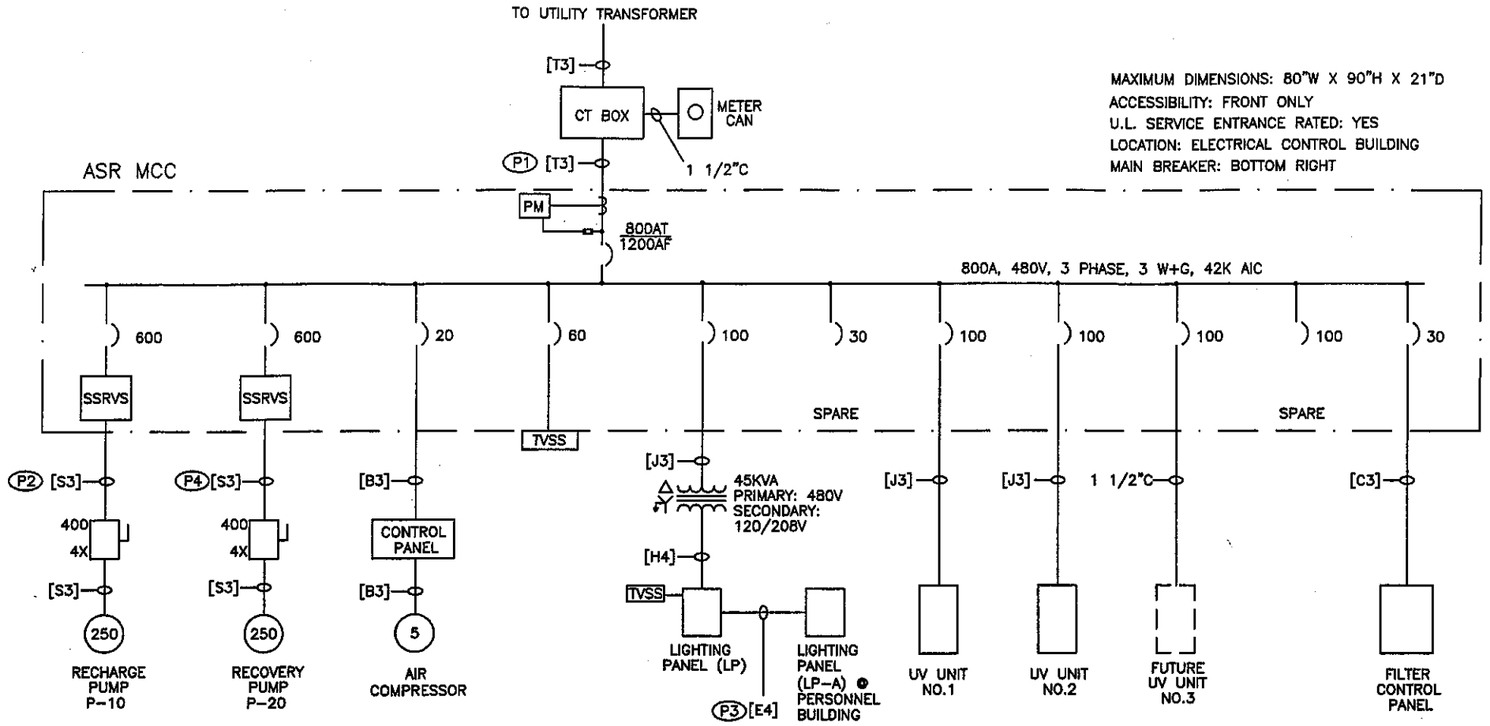
E-6



SERVICE CALCULATION
480V, 3 PHASE

EQUIPMENT	INSTALLED HP/KVA	MAXIMUM DEMAND AMPS AT 480V
RECHARGE PUMP	250 HP	302 A
RECOVERY PUMP	250 HP	0 A
AIR COMPRESSOR	5 HP	7.6 A
LIGHTING PANEL / TRANSFORMER	45 KVA	45 A
UV UNIT #1	54 KVA	65 A
UV UNIT #2	54 KVA	65 A
FILTER CONTROL PANEL	2 KVA	1.5 A
SUB TOTAL		486.1 A
25% OF LARGEST MOTOR		75.5 A
TOTAL LOAD		561.6 A
TOTAL LOAD (FROM ABOVE TABLE)	467 KVA	561.6 A
FUTURE UV UNIT NO.3	54 KVA	65 A
FUTURE MOTORIZED VALVES	3 KVA	3 A
FUTURE METALS TREATMENT UNITS	10 KVA	14 A
FUTURE TOTAL LOAD	536 KVA	643.6 A

[B2] – [3/4"C, 2#12, 1#12G]
[B3] – [1"C, 3#12, 1#12G]
[C3] – [1"C, 3#10, 1#10G]
[D3] – [1"C, 3#6, 1#8G]
[E4] – [2"C, 4#2, 1#6G]
[J3] – [1 1/2"C, 3#2, 1#6G]
[H4] – [2"C, 4#1, 1#4G]
[K3] – [1 1/2"C, 3#1/0, 1#6G]
[S3] – [3 1/2"C, 3–500KCM, 1#2G]
[T3] – 3 SETS[3"C, 3–350KCM, 1#4/0 N/G]

LIGHTING PANEL (LP)

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A B C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
8.0			ASR CONTROL PANEL	1	20	1–2	20	1	LIGHT –ELEC. ROOM INTERIOR	3.5		
	3.0		CANAL DISCHARGE TURB. METER	1	20	3–4	20	1	BACKWASH FLOW METER		3.0	
		0.5	CONDUCTIVITY METER	1	20	5–6	20	1	BI–DIRECTIONAL FLOW METER			0.5
0.5			PRE–FILTER TURB. METER	1	20	7–8	20	1	POST–FILTER TURB. METER	0.5		
	0.5		DISSOLVED OXYGEN METER	1	20	9–10	20	1	OUTSIDE LIGHTING		3.0	
		6.0	RECEPTACLES	1	20	11–12	20	1	FUTURE RECOVERY SLUICE GATE			5.8
7.0			EXHAUST FAN	1	20	13–14	20	1	FUTURE RECHARGE SLUICE GATE	5.8		
	5.8		FUTURE RECOVERY FILTRATION VALVE	1	20	15–16	20	1	FUTURE RECHARGE ISOLATION VALVE		5.8	
		5.8	FUTURE CANAL DISCHARGE VALVE	1	20	17–18	20	1	FUTURE FLUSH VALVE			5.8
5.8			FUTURE FILTER ISOLATION VALVE	1	20	19–20	20	1	SPARE	–		
	–		TVSS	3	30	21–22	20	1	SPARE		–	
		–				23–24	20	1	SPARE			–
–						25–26	60	3	SPARE	–		
	8		3" WELL PUMP 1 HP	2	20	27–28			SPARE		–	
		8				29–30			SPARE			–
–			SPARE	1	20	31–32	20	1	SPARE	–		
	–		SPARE	1	20	33–34	20	1	SPARE		–	
		–	SPARE	1	20	35–36	20	1	SPARE			–
–			SPARE	1	20	37–38	100	3	PERSONNEL BUILDING	58		
	–		SPARE	2	20	39–40					62	
		–				41–42						55

TOTAL AMPS: BUS A 89.1 BUS B 91.1 BUS C 87.4 CONNECTED Kva 32.2

RATED VOLTAGE: ■ 120/208 □ 277/480 3 PHASE, 4 WIRE | BRANCH POLES □ 12 □ 24 □ 30 ■ 42
RATED AMPS: ■ 125 □ 225 □ 400 □ _____ | CABINET: ■ SURFACE □ FLUSH
NEUTRAL BUS ■ 100% □ 150% □ 200% | ■ GROUND BUS | ■ HINGED DOOR | ■ KEYED DOOR LATCH | LOCATION: ELECTRICAL CONTROL BUILDING
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES | □ TVSS | ENCLOSURE TYPE ■ NEMA 1 □ NEMA 3R □ NEMA 4X □ _____
□ MAIN LUGS ONLY | MAIN 125 AMPS ■ BREAKER | □ _____ TO BE GFI BREAKERS
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF ____10,000 AMPS SYMMETRICAL.
APPROVED MF'RS. SQUARE D, GE, CUTLER–HAMMER, ALLEN–BRADLEY, SIEMANS | COPPER BUSSES | MAIN LUGS _____ SETS SIZE: _____

LUMINAIRE SCHEDULE

TYPE	VOLTS	DESCRIPTION	MANUFACTURER	CATALOG NO	LAMPS	MOUNTING	REMARKS
1	120	2–32W INDUSTRIAL FLOURESCENT	DAYBRITE	IA232–120–1/2EB–FKR173	2–32T8/35K FLUOR	SURFACE	PROVIDE WIRE GUARD
2	120	WALL MOUNTED FIXTURE	SPAULDING	WGRI–M150–120–DBZ	1–150W MH	SURFACE	
3	120	COMPACT EMERGENCY LIGHTING UNIT	DAYBRITE	CAX6	2–5W HALOGEN	SURFACE	
4	120	EXIT LIGHT, EZ–SNAP LED SERIES THERMOPLASTIC CONSTRUCTION.	DAYBRITE	CXXL–3–R–W–DR	LED LAMPS	SURFACE	SINGLE FACE

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PROJECT HILLSBORO ASR PILOT PROJECT
ONE LINE DIAGRAM AND
PANEL SCHEDULE

TASK

ORIGINAL April 2005
REVISIONS:
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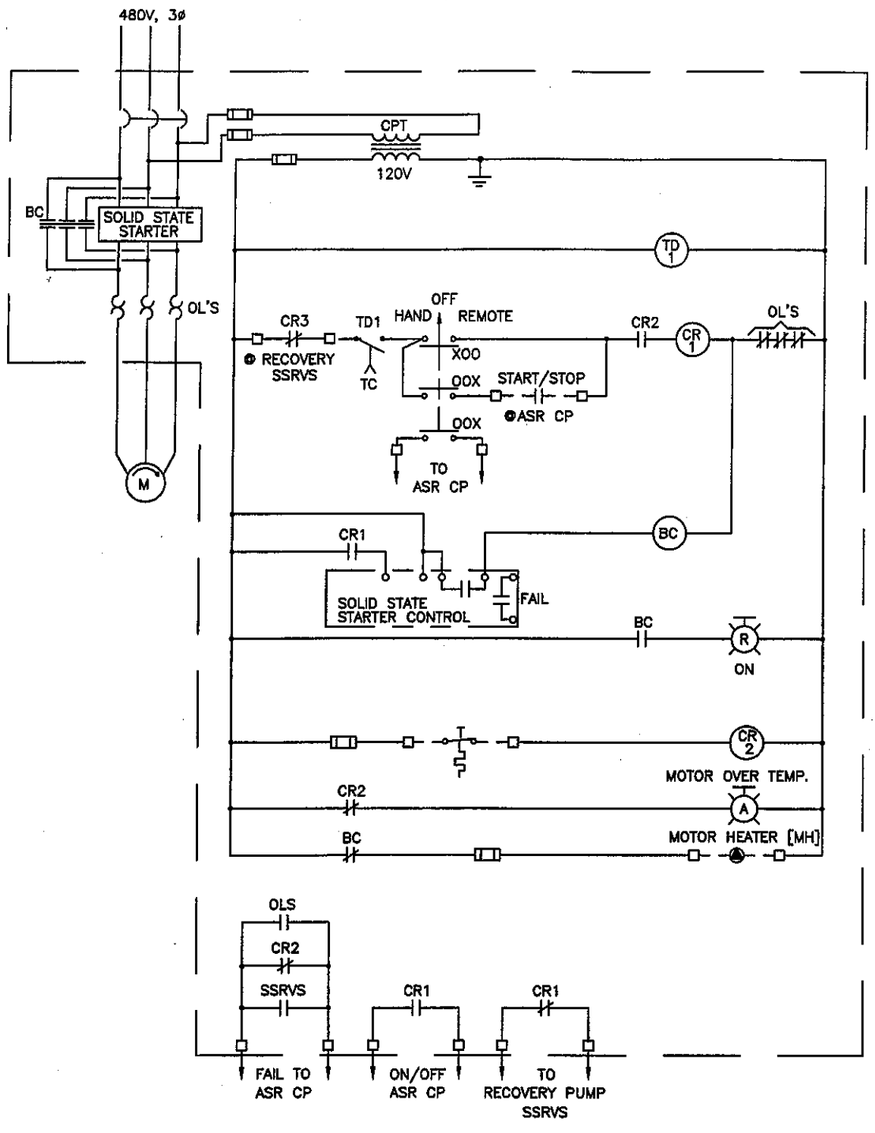
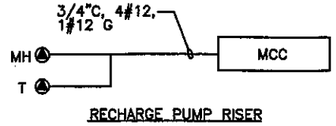
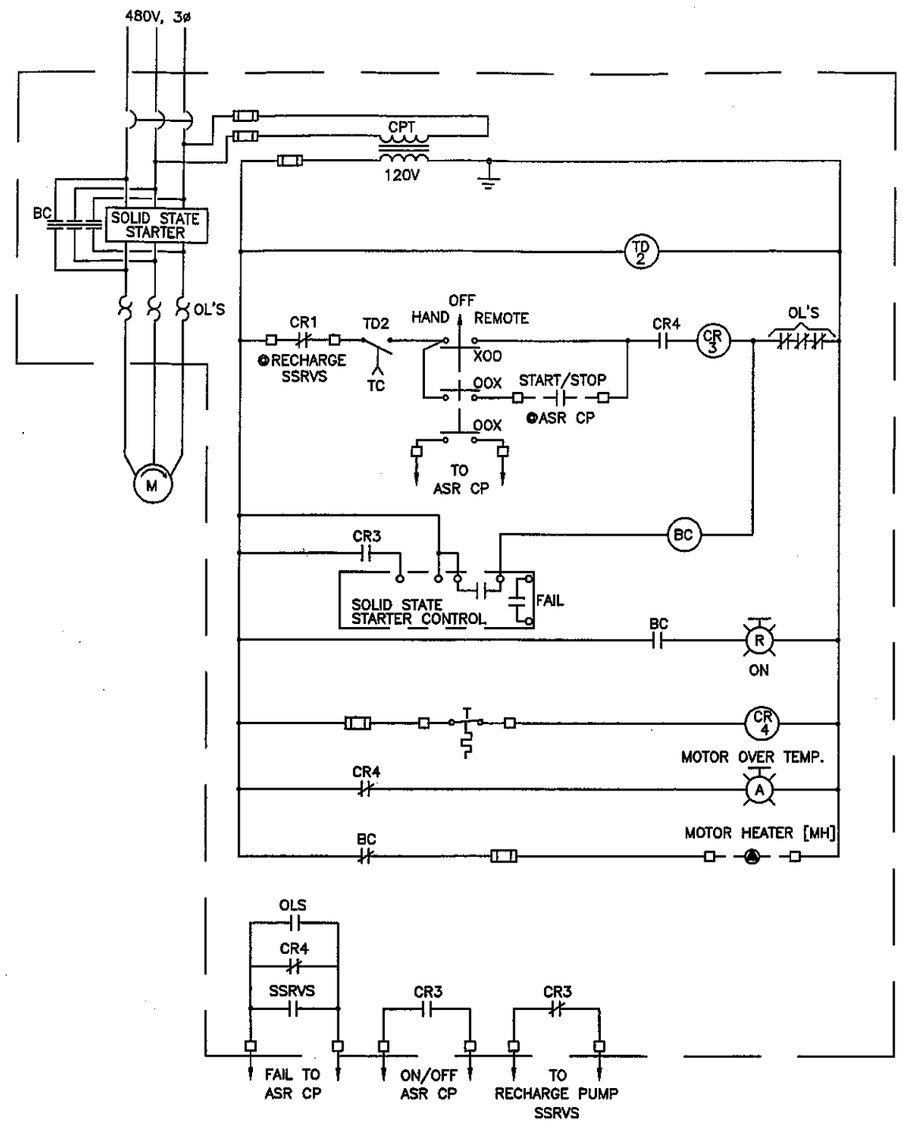
E-7



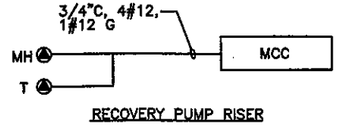
RECHARGE PUMP SCHEMATIC



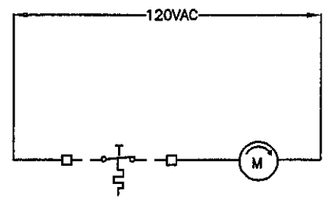
RECHARGE PUMP RISER



RECOVERY PUMP SCHEMATIC



RECOVERY PUMP RISER



EXHAUST FAN SCHEMATIC

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PROJECT HILLSBORO ASR PILOT PROJECT

SCHEMATICS AND RISER DIAGRAMS

TASK

ORIGINAL REVISIONS: April 2005
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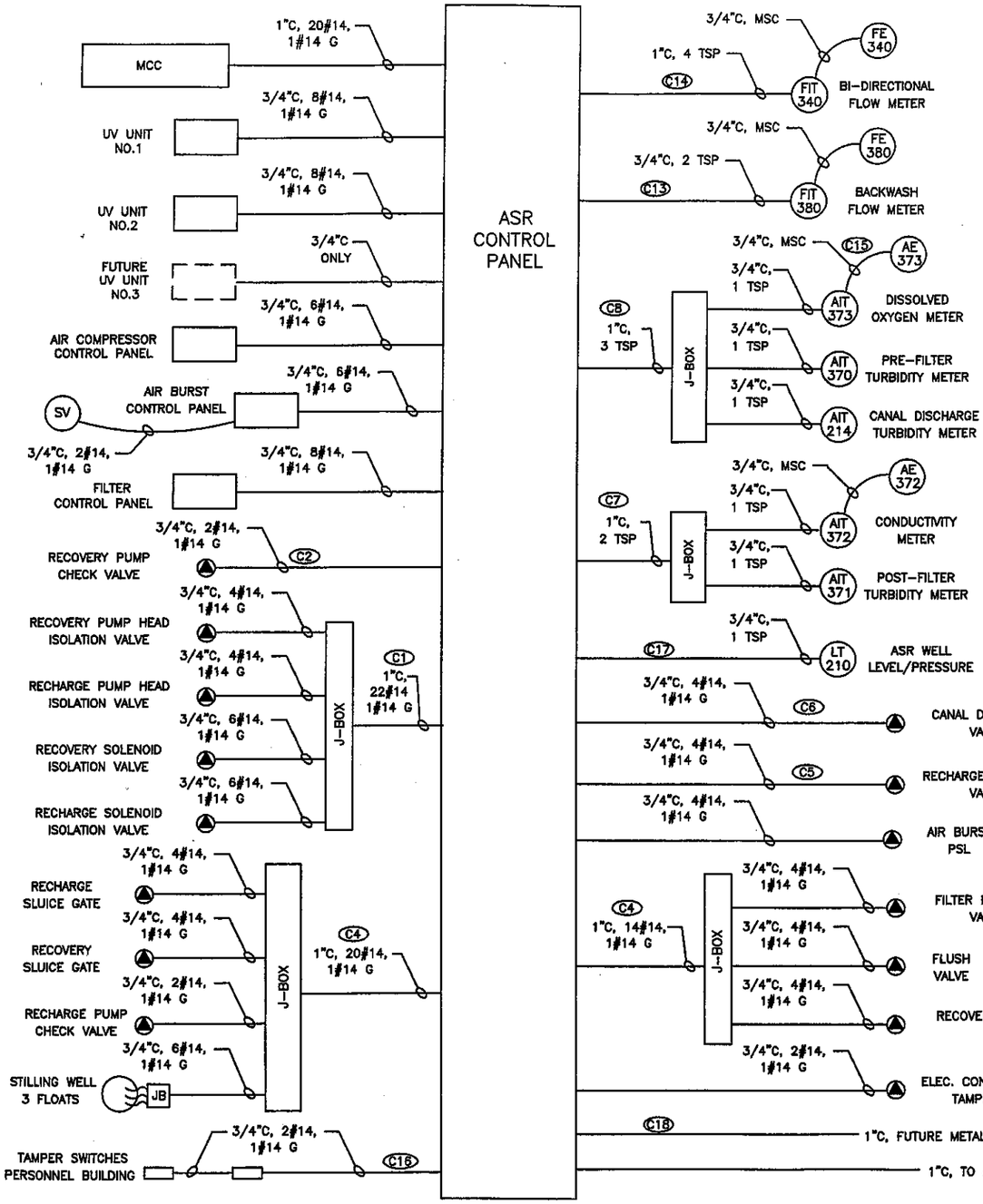
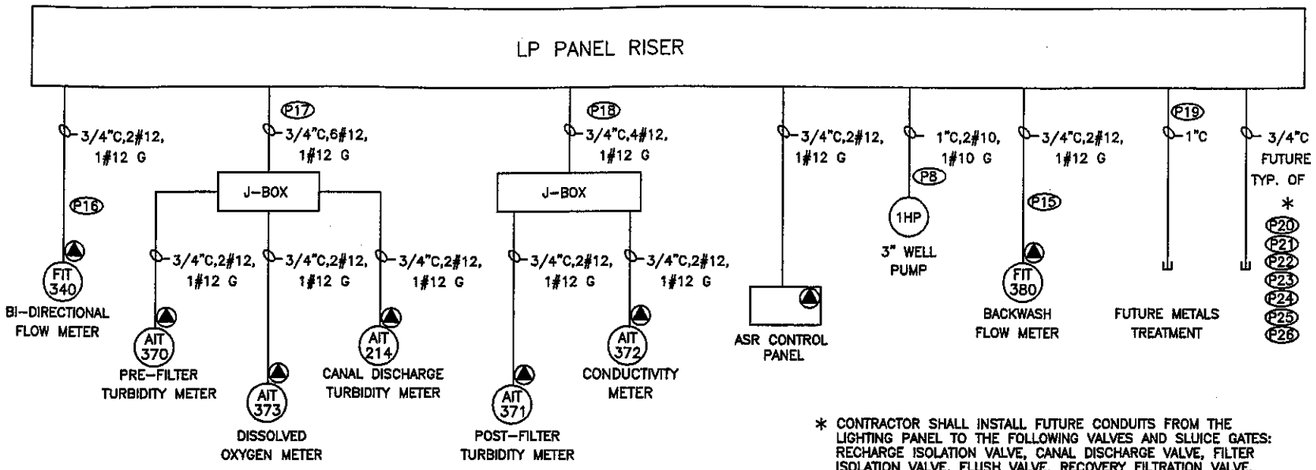
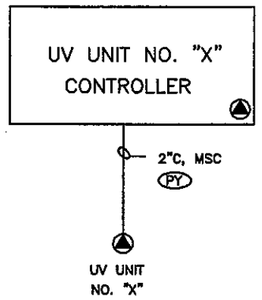


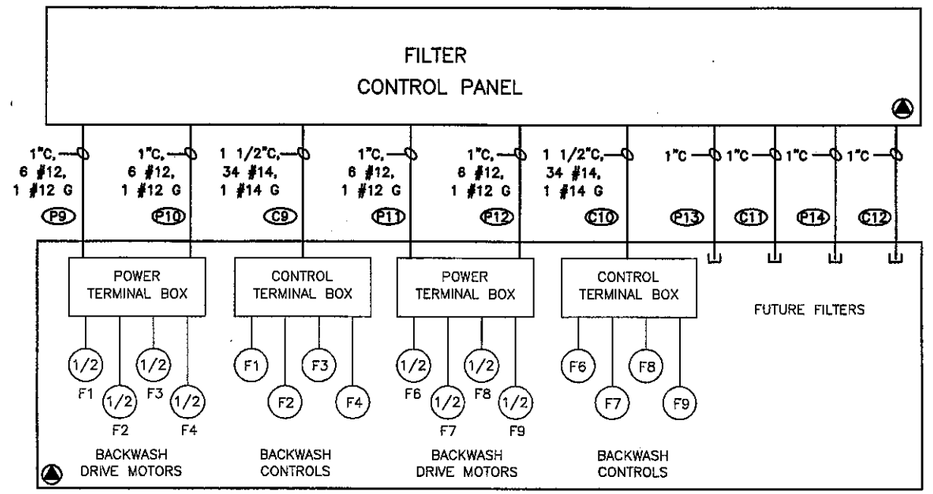


* CONTRACTOR SHALL INSTALL FUTURE CONDUITS FROM THE LIGHTING PANEL TO THE FOLLOWING VALVES AND SLUICE GATES: RECHARGE ISOLATION VALVE, CANAL DISCHARGE VALVE, FILTER ISOLATION VALVE, FLUSH VALVE, RECOVERY FILTRATION VALVE, RECHARGE SLUICE GATE AND RECOVERY SLUICE GATE.



UV UNIT NO. "X"
SYSTEM RISER

"X" = 1,2 AND FUTURE 3
"Y" = 5,6,7



FILTER SYSTEM SKID

NOTES

1. CONTRACTOR SHALL COORDINATE WITH EQUIPMENT MANUFACTURERS AND APPROVED SHOP DRAWINGS FOR CONDUIT AND WIRING REQUIREMENTS OF EQUIPMENT SUPPLIED.
2. PROVIDE AND INSTALL ALL CONDUIT, FITTINGS AND WIRING TO MEET THE MANUFACTURER'S REQUIREMENTS
3. CONTRACTOR SHALL COORDINATE WITH THE INSTRUMENTATION CONTRACTOR FOR LOCATION AND CONDUIT AND CABLE REQUIREMENTS FOR THE INSTRUMENTATION SYSTEM.

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PROJECT HILLSBORO ASR PILOT PROJECT

RISER DIAGRAMS

TASK

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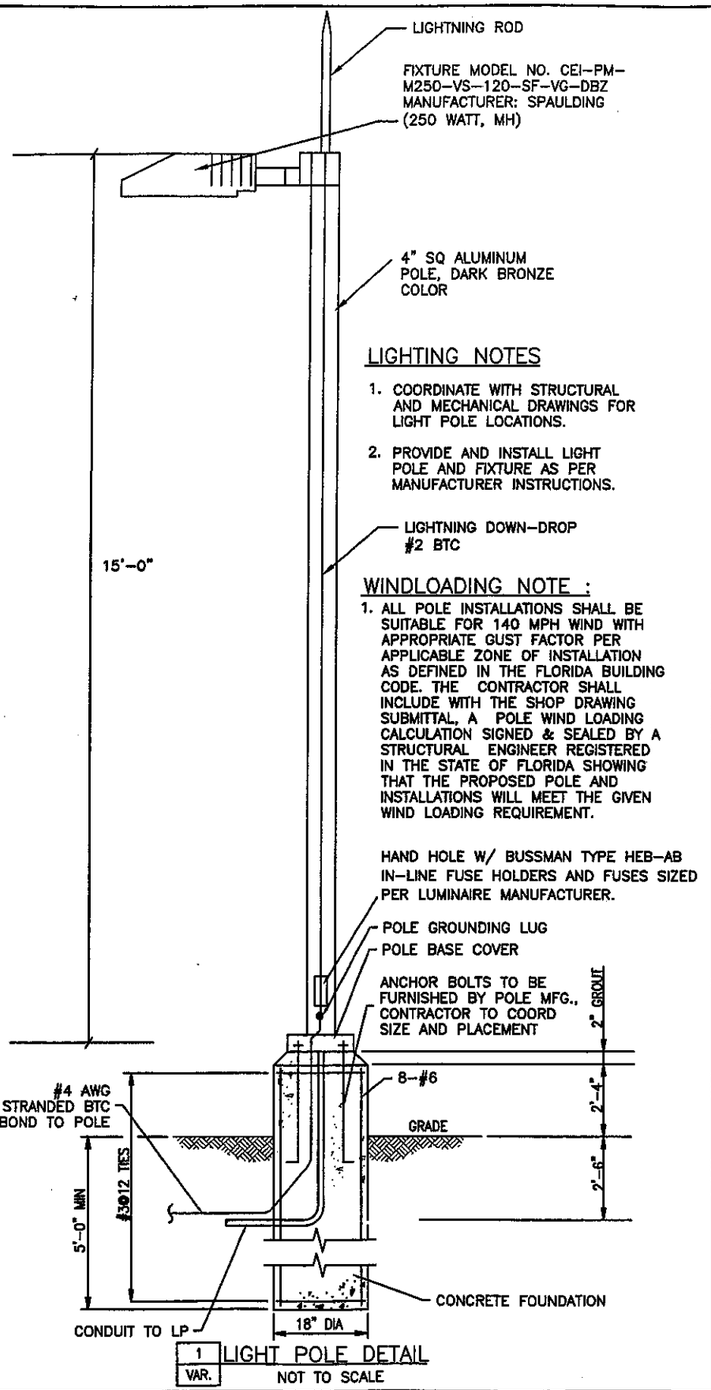


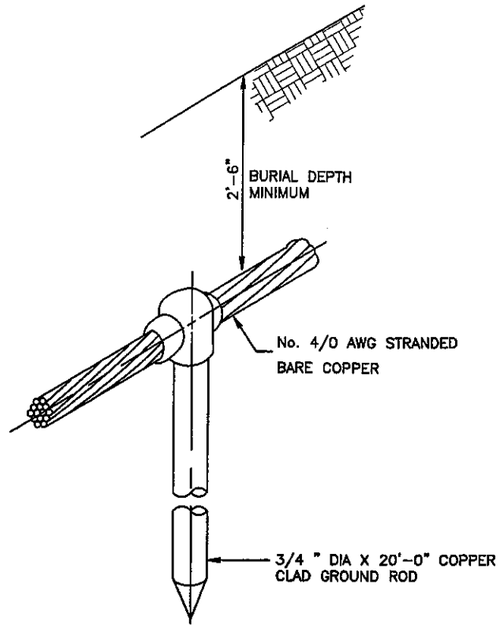
LIGHTING NOTES

1. COORDINATE WITH STRUCTURAL AND MECHANICAL DRAWINGS FOR LIGHT POLE LOCATIONS.
2. PROVIDE AND INSTALL LIGHT POLE AND FIXTURE AS PER MANUFACTURER INSTRUCTIONS.

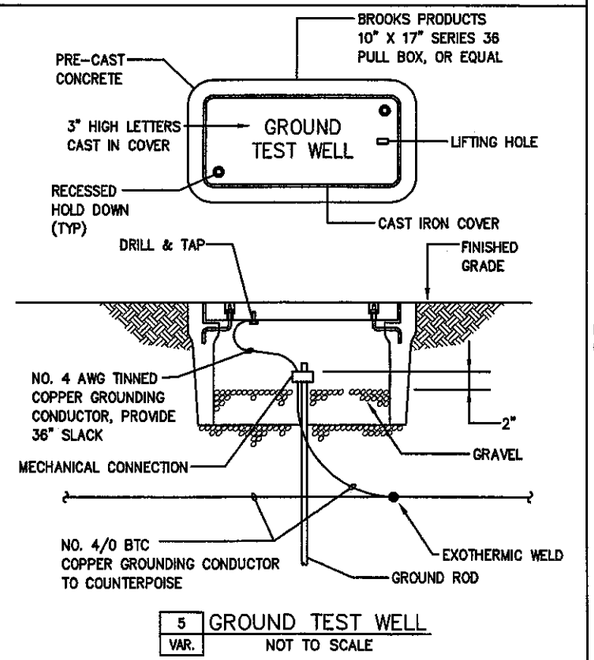
WINDLOADING NOTE :

1. ALL POLE INSTALLATIONS SHALL BE SUITABLE FOR 140 MPH WIND WITH APPROPRIATE GUST FACTOR PER APPLICABLE ZONE OF INSTALLATION AS DEFINED IN THE FLORIDA BUILDING CODE. THE CONTRACTOR SHALL INCLUDE WITH THE SHOP DRAWING SUBMITTAL, A POLE WIND LOADING CALCULATION SIGNED & SEALED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF FLORIDA SHOWING THAT THE PROPOSED POLE AND INSTALLATIONS WILL MEET THE GIVEN WIND LOADING REQUIREMENT.

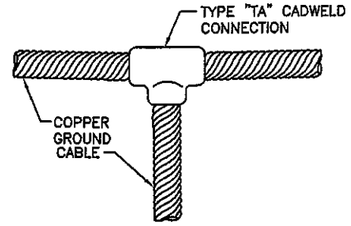
1 VAR. LIGHT POLE DETAIL
NOT TO SCALE



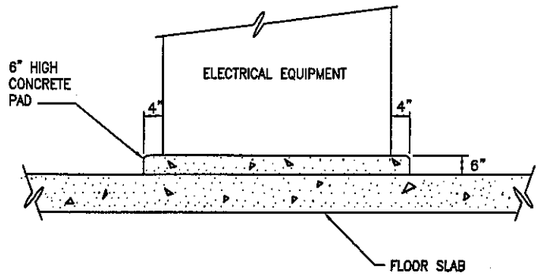
2 VAR. GROUND ROD DETAIL
NOT TO SCALE



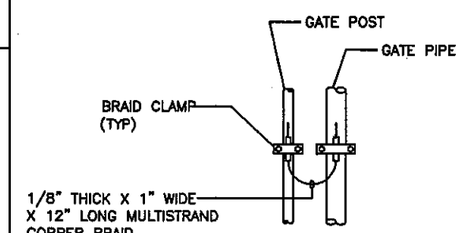
5 VAR. GROUND TEST WELL
NOT TO SCALE

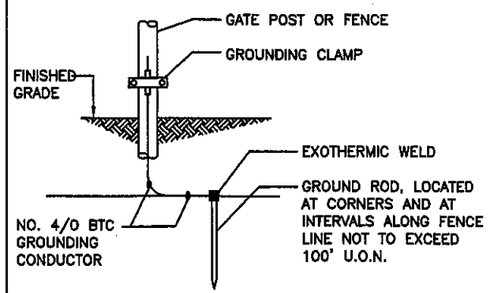


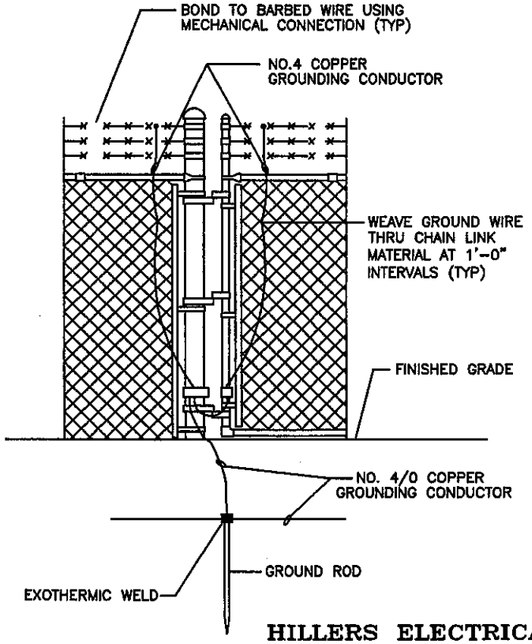
3 VAR. GROUND CABLE CONNECTION
NOT TO SCALE



4 VAR. EQUIPMENT HOUSE KEEPING PAD
NOT TO SCALE







6 VAR. TYPICAL GATE OR FENCE POST GROUNDING DETAIL
SCALE: NONE

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PROJECT HILLSBORO ASR PILOT PROJECT

ELECTRICAL DETAILS

TASK

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E-10

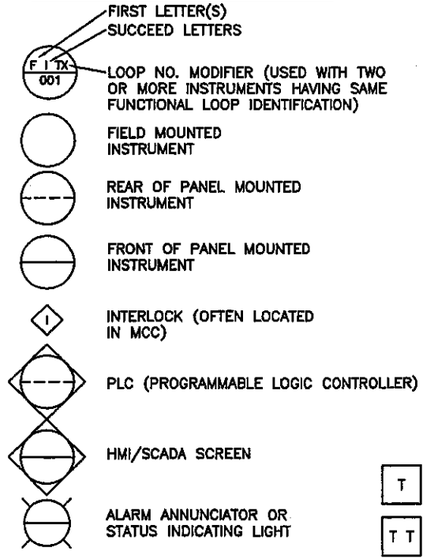
INSTRUMENTATION LEGEND

INSTRUMENT SOCIETY OF AMERICA TABLE

LETTER	FIRST LETTER: PROCESS OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER
A	ANALYSIS (*)		ALARM		USERS CHOICE (*)
B	BURNER FLAME		USERS CHOICE (*)	USERS CHOICE (*)	
C	CONDUCTIVITY			CONTROL	CLOSE
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	STROKE		USERS CHOICE (*)	USERS CHOICE (*)	NORMAL
O	LOOP VEH. DETECTOR		OFFICE		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT		INTEGRATE		
R	RATIO		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (*)		MULTIFUNCTION (*)		
V	VISCOSITY			VALVE	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED (*)		UNCLASSIFIED (*)	UNCLASSIFIED (*)	UNCLASSIFIED (*)
Y	PHOTO CELL		LIGHT SOURCE	RELAY OR COMPUTE (*)	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(*) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL

INSTRUMENT IDENTIFICATION



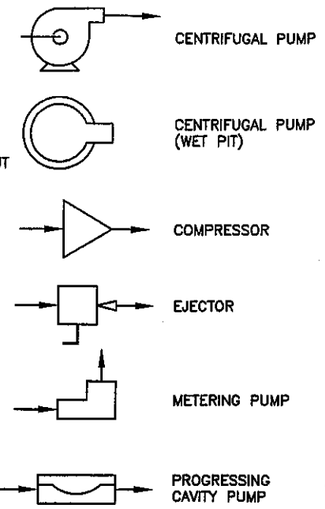
NOTES:

1. COMPONENTS AND PANELS SHOWN WITH A DIAMOND (◆) ARE TO BE PROVIDED UNDER SECTION "INSTRUMENTATION & CONTROLS".
2. COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (**) ARE TO BE PROVIDED AS PART OF A PACKAGED OR MECHANICAL SYSTEM.
3. COMPONENTS AND PANELS WHICH HAVE NO SYMBOL ATTACHED TO IT ARE EXISTING.
4. COMPONENTS AND PANELS SHOWN WITH A HEXAGON (⬢) ARE EXISTING TO BE MODIFIED AND/OR RELOCATED.
5. COMPONENTS AND PANELS SHOWN WITH A SQUARE (■) ARE FUTURE.
6. DURING SHOP DRAWING PREPARATION, THE CONTRACTOR SHALL FIELD VERIFY ALL THE EXISTING ANALOG AND DISCRETE POINTS FOR DETAILED INTERFACE AND INCLUDE IT AS PART OF SUBMITTAL.
7. THE SINGLE INSTRUMENT & CONTROL SUPPLIER SHALL HAVE A U.L. 508A APPROVED SHOP. ALL PROCESS TUBING AND ISOLATION VALVES SHALL BE 1/4"– 316 S.S., UNLESS OTHERWISE NOTED.
8. ALL CONTROL PANELS SHALL BE FURNISHED AND INSTALLED WITH A 1P–15A CIRCUIT BREAKER.

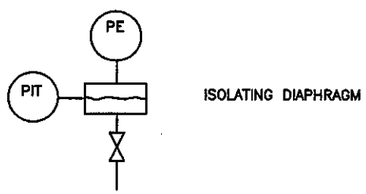
INSTRUMENT ABBREVIATION

ACC	ACCELATOR
BFP	BELT FILTER PRESS
CL2	CHLORINE
CLW	CLEARWELL
COM	COMMON
COND	CONDUCTIVITY
CP	CONTROL PANEL
DI, AI	DISCRETE INPUT, ANALOG INPUT
DO, AO	DISCRETE OUTPUT, ANALOG OUTPUT
D.O.	DISSOLVED OXYGEN
DR	DISTANCE RELAY
EFFL	EFFLUENT
EP	ELECTRICAL PANEL
ES	EMERGENCY STOP
ETM	ELAPSED TIME METER
FD	CHEMICAL FEEDER
FIL	FILTER
GEN	GENERATOR
HLO	HIGH–LOW–OFF
HLOR	HIGH–LOW–OFF–REMOTE
HOA	HAND–OFF–AUTO
HOTC	HAND–OFF–TIMER–COMPUTER
H/L	HIGH/LOW
HSP	HIGH SERVICE PUMP
INFL	INFLUENT
JP	JOCKEY PUMP
LOS	LOCK–OUT–STOP
LPU	LINE PROTECTION UNIT
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
ME	MISCELLANEOUS EQUIPMENT
M.G.	MILLION GALLON
MOV	MOTOR OPERATED VALVE
OCA	OPEN–CLOSE–AUTO
OC	OPEN–CLOSE
OCA	OPEN–CLOSE–AUTO
OO	ON–OFF
O/R	OFF–REMOTE
ORP	OXIDATION REDUCTION POTENTIAL
OSC	OPEN–STOP–CLOSE
OSCR	OPEN–STOP–CLOSE–REMOTE
PH	HYDROGEN ION CONCENTRATION
PRES	PRESSURE
RES	RESTORE
RF	RF (ADMITTANCE) LEVEL MONITOR
RIP	REMOTE I/O PANEL
R/L	REMOTE/LOCAL
RSP	REMOTE SETPOINT
SA	SURGE ARRESTER
SEC	SECONDARY
SL	SLAKER
SF	SONIC FLOWMETER
SP	SETPOINT
SS	START/STOP
ST	STEP
STOR	STORAGE
SUS	SUSPENDED SOLIDS
TD	THERMAL DISPERSION
TP	TRANSFER PUMP
TURB	TURBIDITY
VFD	VARIABLE FREQUENCY DRIVE

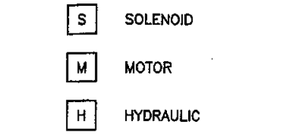
PUMPS & COMPRESSORS



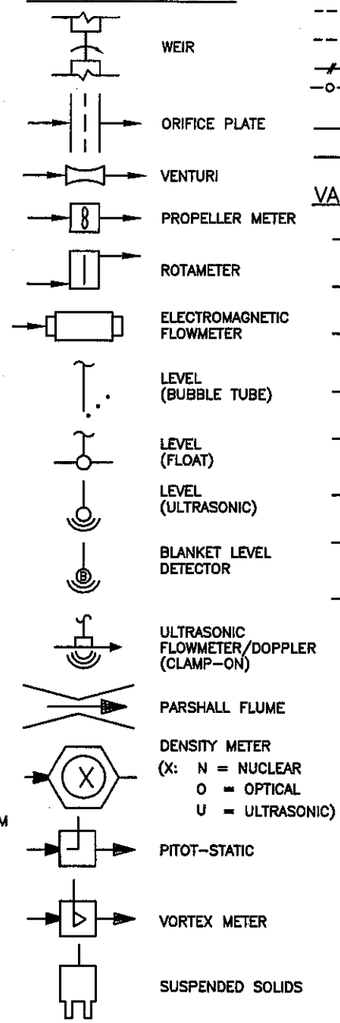
PRIMARY ELEMENTS



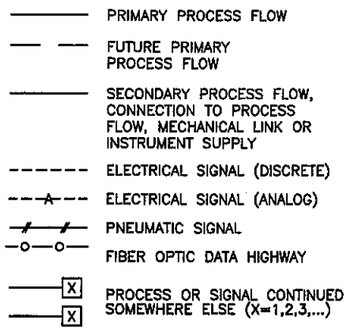
ACTUATOR OR OPERATORS



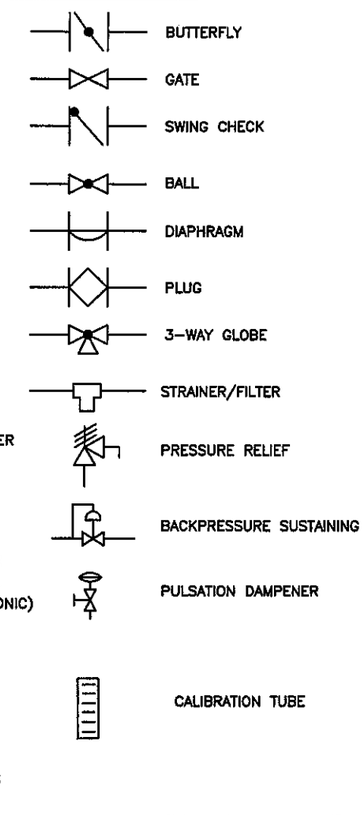
PRIMARY ELEMENTS



INSTRUMENT LINE SYMBOLS



VALVES & GATES



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PROJECT HILLSBORO ASR PILOT PROJECT

INSTRUMENTATION LEGEND AND SYMBOLS

TASK

ORIGINAL April 2005
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INDEX

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JOB NO. 100261
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CHECKED P.F.H.
Q.C. P.R.D.

I-1

EXISTING REMOTE SFWMD SCADA

AIR PRESSURE LOW QA 321 | COMPRESSOR ON QI 322 | COMPRESSOR FAIL QA 323 | AIR BURST SYSTEM ON QI 332 | AIR BURST SYSTEM FAIL QA 333 | RECHARGE SLUICE GATE OPEN/CLOSED ZSO 11 | RECOVERY SLUICE GATE OPEN/CLOSED ZSO 21 | DISSOLVED OXYGEN AIT 373 | WATER LEVEL HIGH QA 31 | WATER LEVEL LOW QA 32 | WATER LEVEL LOW LOW QA 33 | RECHARGE PUMP FAIL QA 101 | RECHARGE PUMP ON QI 102 | RECHARGE PUMP IN REMOTE QI 104 | RECHARGE PUMP START/STOP HS 106 | CHECK VALVE CLOSED ZSC 113 | CANAL DISCHARGE VALVE OPEN/CLOSED ZSO 41 | CANAL DISCHARGE TURBIDITY AIT 214 | PRE-FILTER TURBIDITY AIT 370 | HOA HS 301 | FILTER SYSTEM FAIL QA 302 | FILTER SYSTEM ON QI 303

◆ LOCAL HMI

AIR PRESSURE LOW QA 321 | COMPRESSOR ON QI 322 | COMPRESSOR FAIL QA 323 | AIR BURST SYSTEM ON QI 332 | AIR BURST SYSTEM FAIL QA 333 | RECHARGE SLUICE GATE OPEN/CLOSED ZSO 11 | RECOVERY SLUICE GATE OPEN/CLOSED ZSO 21 | DISSOLVED OXYGEN AIT 373 | WATER LEVEL HIGH QA 31 | WATER LEVEL LOW QA 32 | WATER LEVEL LOW LOW QA 33 | RECHARGE PUMP FAIL QA 101 | RECHARGE PUMP ON QI 102 | RECHARGE PUMP IN REMOTE QI 104 | RECHARGE PUMP START/STOP HS 106 | CHECK VALVE CLOSED ZSC 113 | CANAL DISCHARGE VALVE OPEN/CLOSED ZSO 41 | CANAL DISCHARGE TURBIDITY AIT 214 | PRE-FILTER TURBIDITY AIT 370 | HOA HS 301 | FILTER SYSTEM FAIL QA 302 | FILTER SYSTEM ON QI 303 | ASR OPERATION MODE SELECTION HS

RADIO CONNECTION

◆ ASR CONTROL PANEL (PLC/RTU)

AIR PRESSURE LOW QA 321 | COMPRESSOR ON QI 322 | COMPRESSOR FAIL QA 323 | AIR BURST SYSTEM ON QI 332 | AIR BURST SYSTEM FAIL QA 333 | RECHARGE SLUICE GATE OPEN ZSO 11 | RECHARGE SLUICE GATE CLOSED ZSC 12 | RECOVERY SLUICE GATE OPEN ZSO 21 | RECOVERY SLUICE GATE CLOSED ZSC 22 | DISSOLVED OXYGEN AIT 373 | WATER LEVEL HIGH QA 31 | WATER LEVEL LOW QA 32 | WATER LEVEL LOW LOW QA 33 | RECHARGE PUMP FAIL QA 101 | RECHARGE PUMP ON QI 102 | RECHARGE PUMP IN REMOTE QI 104 | RECHARGE PUMP START/STOP HS 106 | CHECK VALVE CLOSED ZSC 113 | CANAL DISCHARGE VALVE OPEN ZSO 41 | CANAL DISCHARGE VALVE CLOSED ZSC 42 | CANAL DISCHARGE TURBIDITY AIT 214 | PRE-FILTER TURBIDITY AIT 370 | START/STOP HS 301 | FILTER SYSTEM FAIL QA 302 | FILTER SYSTEM ON QI 303

COMPRESSOR CONTROL PANEL ** FAIL QA 323 | ON QL 322 | HOR HS 320

AIR BURST CONTROL PANEL ** FAIL QA 333 | ON QL 332 | HOR HS 330

FAIL QA 101 | ON QL 102 | HOR HS 104 | RESET HS 105 | MCC

FILTER SYSTEM CONTROL PANEL **

120V AIT 373 DO | LSH 31 | LSL 32 | LSLL 33

ZSO 21 ** | ZSC 22 **

EDUCTOR | AE 373 | STILLING WELL

RECOVERY SLUICE GATE

ZSO 11 ** | ZSC 12 **

RECHARGE SLUICE GATE

INTAKE SCREEN

INTAKE/DISCHARGE STRUCTURE

RECHARGE PUMP P-10

ZSC 113 **

ZSO 41 ** | ZSC 42 **

CANAL DISCHARGE VALVE

120V TURB. AIT 214 | AE 214

120V TURB. AIT 370 | AE 370

FILTRATION UNIT

FILTRATION UNIT

PSL 321 | CS NEW AIR COMPRESSOR M-30

S AIR BURST SOLENOID VALVE (SV-331)

A TO/FROM DWG I-3

B FROM DWG I-3

C TO DWG I-3

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PROJECT HILLSBORO ASR PILOT PROJECT

P+ID DIAGRAM

SHEET 1

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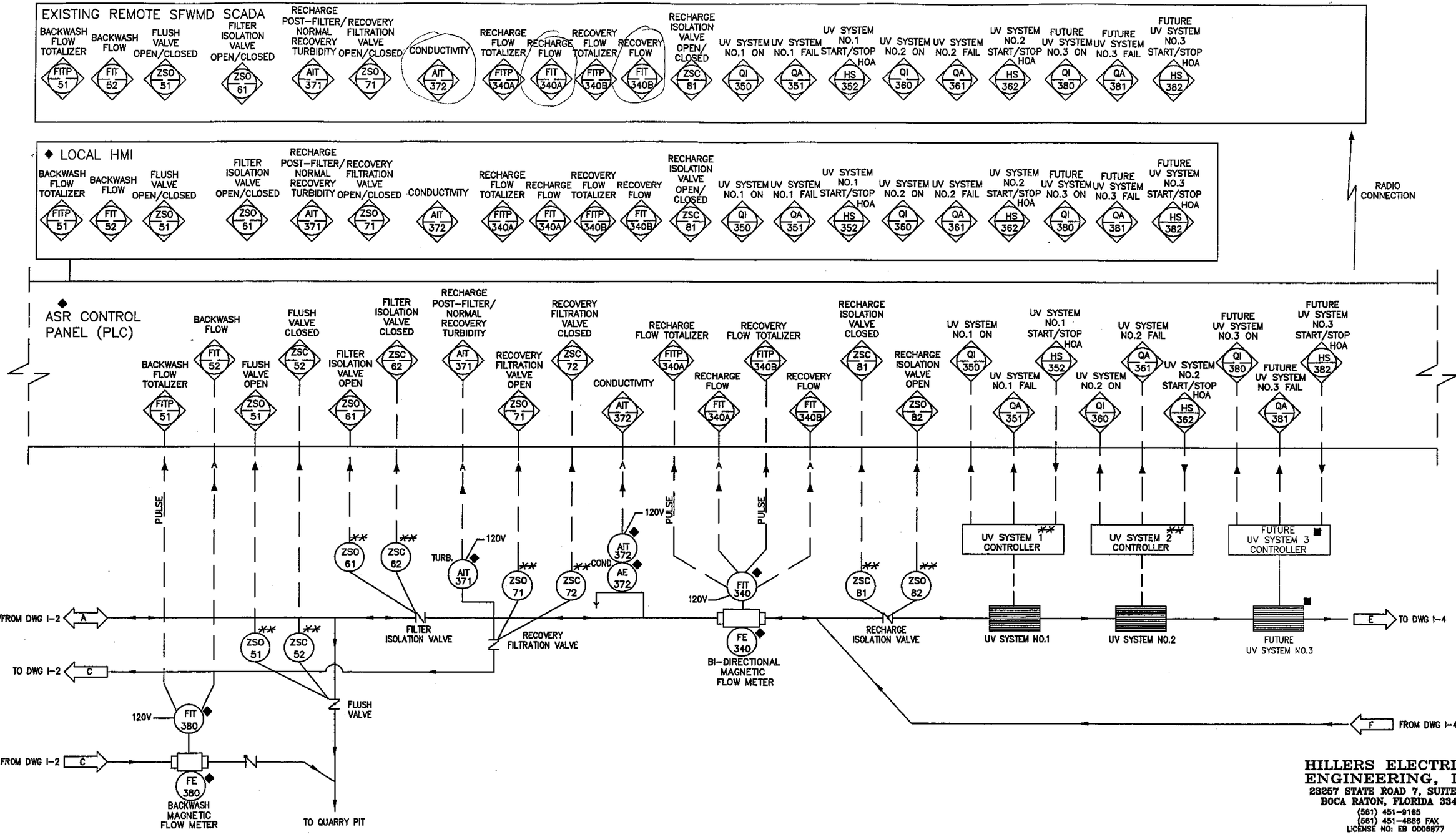
I-2



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P+ID DIAGRAM

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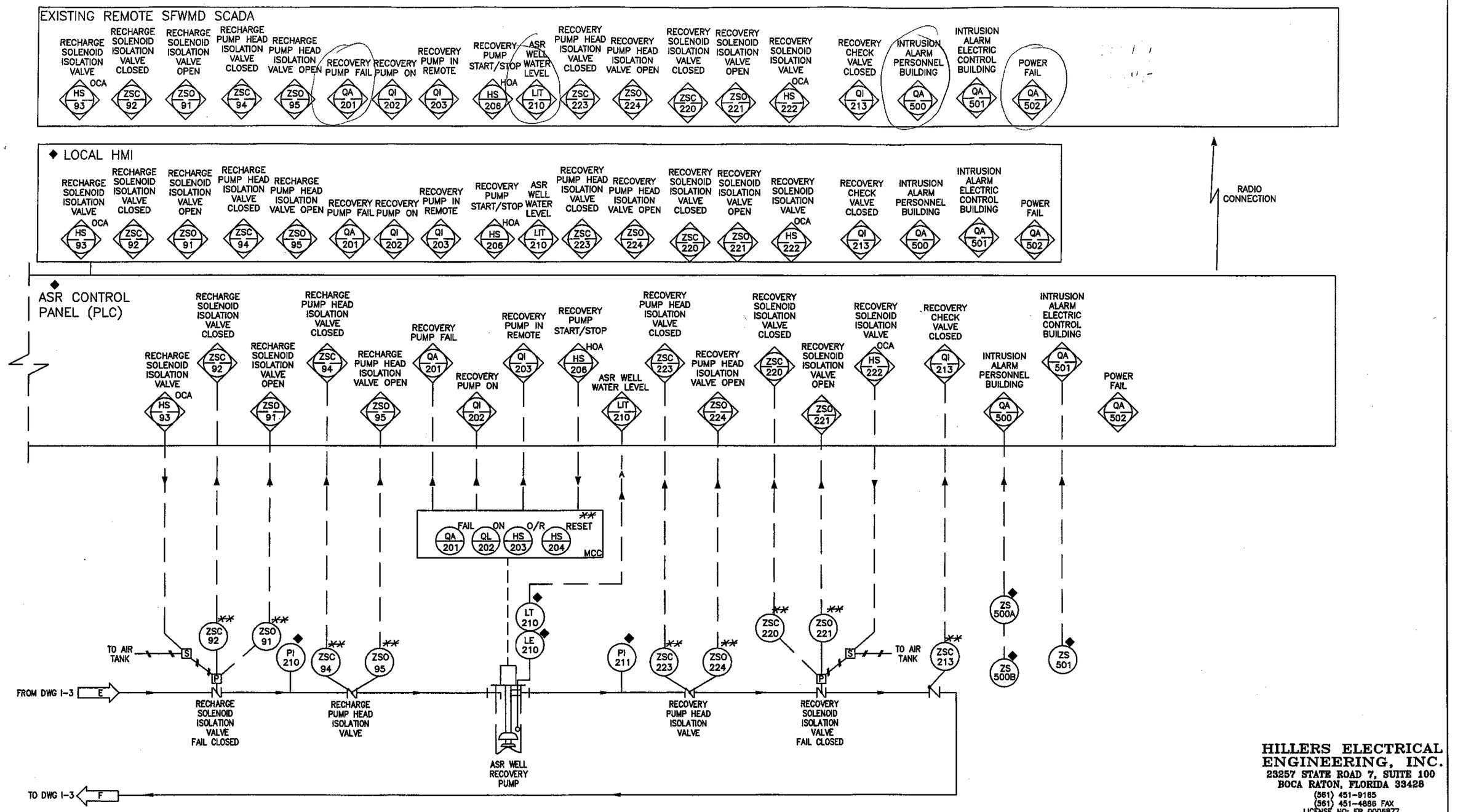
I-3



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PROJECT HILLSBORO ASR PILOT PROJECT

P+ID DIAGRAM

SHEET 3

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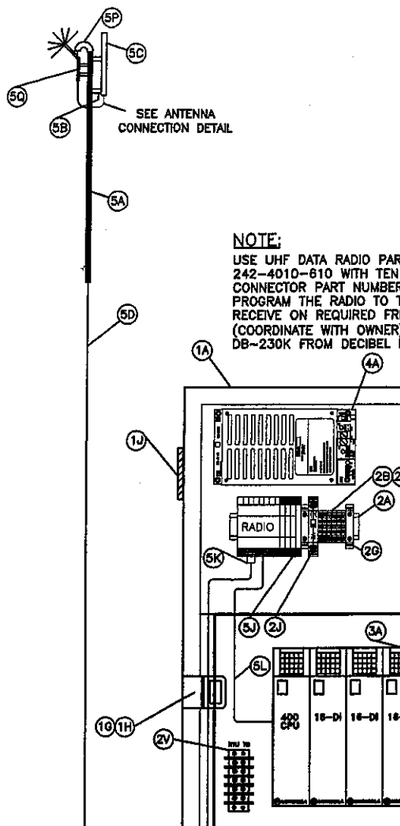
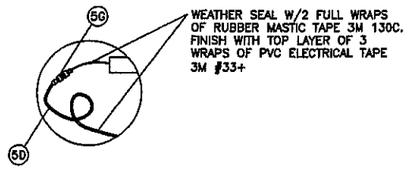
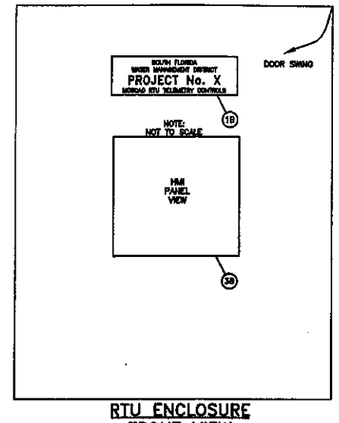
I-4





ANTENNA CONNECTION DETAIL

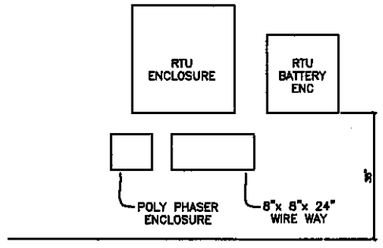
NOTE:
USE UHF DATA RADIO PART NUMBER 242-4010-610 WITH TEN PIN WIRE CONNECTOR PART NUMBER 023-3410-109. PROGRAM THE RADIO TO TRANSMIT AND RECEIVE ON REQUIRED FREQUENCY (COORDINATE WITH OWNER). USE ANTENNA DB-230K FROM DECIBEL PRODUCTS.



RTU ENCLOSURE FRONT VIEW
X= HILLSBORO ASR

RTU ENCLOSURE COMPONENT LAYOUT- 120 VOLT POWER

NOTE:
COMPONENT LAYOUT SHOWN ABOVE IS DISTRICT STANDARD LAYOUT THAT CONTRACTOR SHALL FOLOW AS CLOSE AS POSSIBLE. CONTRACTOR IS RESPONSABLE TO ADJUST ACCORDINGLY PANEL SIZE, PLC RACK SIZE, NUMBER OF I/O MODULES, NUMBER OF TERMINALS, POWER SUPPLY, FUSES ETC, AND ADD ALL PARTS NECCESSARY FOR COMPLETE AND WORKING SYSTEM.



TYPICAL CONTROL BUILDING EQUIPMENT LAYOUT ELEVATION VIEW

GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND APPLICABLE LOCAL CODES AND ORDINANCES.
2. NO SUBSTITUTIONS IN REGARDS TO MANUFACTURER AND PART NUMBERS LISTED IN THE RTU SYSTEM COMPONENTS TABLE ARE ALLOWED WITHOUT WRITTEN REQUEST AND DISTRICT APPROVAL.
3. CONDUCTOR IDENTIFICATION FOR POWER, CONTROL, AND INSTRUMENT CONDUCTORS FOR THE RTU PANEL WIRING SHALL BE AS FOLLOWS:

   a. ALL CONDUCTORS IN THE PANEL SHALL BE PERMANENTLY IDENTIFIED WITH MACHINE PRINTED WRAP AROUND WIRE MARKERS AT TERMINATION POINTS. PART # BRADY DAT-7-292-1 OR EQUAL.

   b. CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE NEC REGARDING AMPACITY AND VOLTAGE DROP CONSIDERATIONS. MINIMUM CONDUCTOR SIZES ARE BELOW.

   i. POWER BLACK (HOT) #12 AWG MIN
   WHITE (NEUTRAL) #12 AWG MIN
   ii. AC CONTROLS RED (HOTS) #14 AWG MIN
   GRAY (NEUTRALS) #14 AWG MIN
   iii. DC CONTROLS DARK BLUE #16 AWG MIN
   iv. INST LOOPS YELLOW #16 AWG MIN
   v. GROUNDS GREEN #14 AWG MIN
   ALL CONDUCTORS SHALL HAVE TYPE MTW OR SIS INSULATION
4. EACH TERMINAL AND FUSE BLOCK SECTION SHALL BE IDENTIFIED BY ITS TERMINAL BLOCK ID AND INDIVIDUAL TERMINAL BLOCK NUMBERS.
5. IDENTIFY EACH RELAY AND RELAY BASE WITH ITS RELAY ID. PROVIDE A SPARE RELAY OF EACH VOLTAGE. SPARE RELAYS SHALL BE PLACED LOOSE IN THE BOTTOM OF THE RTU PANEL.
6. ALL RTU PANEL EQUIPMENT AND COMPONENTS SHALL BE IDENTIFIED WITH MACHINE ENGRAVED PHENOLIC TAGS AS FOLLOWS:

   a. PHENOLIC TAGS SHALL BE WHITE WITH BLACK LETTERING

   b. MINIMUM TEXT HEIGHT SHALL BE 3/16"

   c. EACH TAG SHALL CLEARLY IDENTIFY THE PANEL AND EACH OF ITS MAIN COMPONENTS INCLUDING:

   i. SITE SPECIFIC RTU PANEL NAME AND DESCRIPTION (REFERENCE RTU ENCLOSURE FRONT VIEW)
   ii. TERMINAL BLOCK ID(S)
   iii. CIRCUIT BREAKER ID(S)
   iv. INSTRUMENT INDICATOR/CONTROLLER ID(S)
   v. EACH CONTROL RELAY (AT ITS BASE)
   vi. ANY SPECIAL INSTRUCTIONS OR SAFETY HAZARDS SHALL BE CLEARLY IDENTIFIED
7. FURNISH AND INSTALL SUITABLE INSULATED RING TERMINALS, LOCK WASHER, AND 1/4" SS NUT TO CONNECT WIRING TO BATTERIES.
8. RADIOS, MODEMS, VHF AMPLIFIER, AND ANTENNAS ARE SITE SPECIFIC COMPONENTS. MODIFY COMPONENTS LIST AS REQUIRED.
9. ALL MATERIALS SHALL BE UN-USED AND HAVE THE MANUFACTURER'S/DISTRIBUTOR'S FULL WARRANTY AT THE TIME OF DELIVERY.

⊕ - KEYED NOTE, SEE SHEET I-6, *=REF #

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PROJECT HILLSBORO ASR PILOT PROJECT
ASR CONTROL PANEL DETAILS
SHEET 1

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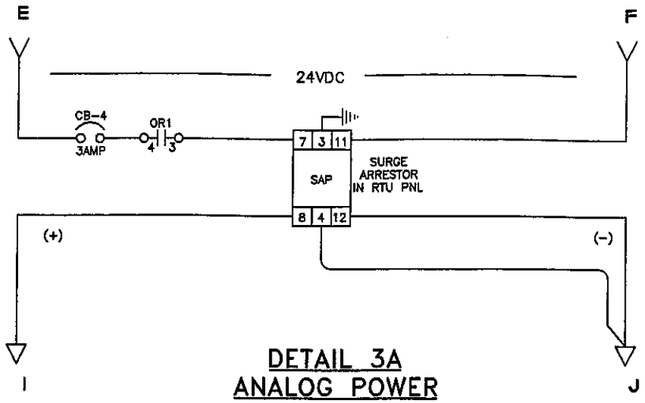
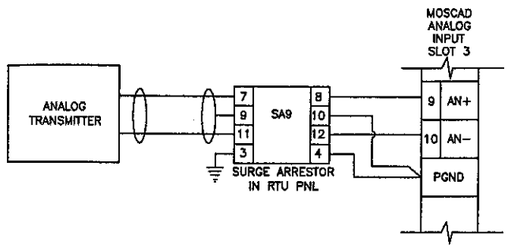
I-5

REF #	MANUFACTURER	PART #	DESCRIPTION
1A	HOFFMAN		SIZE ENCLOSURE ACCORDINGLY
1B	FURNISHED BY CONTRACTOR	CUSTOM	3"x10" PHENOLIC TAG
1C	PANDUIT	E1.5x1.5 DG6	1-1/2"x1-1/2" WIREWAY
1D	PANDUIT	C1.5DG6	1-1/2" WIREWAY COVER
1E	BURNDY	KC22B1	TYPE SP SERVICE GRD POST CONNECTOR
1F	HESCO	HE500S	AC SURGE ARRESTOR
1G	SHEET METAL	CUSTOM	TAMPER SWITCH BRACKET
1H	MICRO SWITCH	1DM401	TAMPER SWITCH
1J	HOFFMAN	AVK33	4"x4" LOUVER WITH FILTER
2A	PHOENIX CONTACT	08 01 73 3	DIN RAIL
2B	PHOENIX CONTACT	30 04 36 2	TERMINAL BLOCK
2C	PHOENIX CONTACT	30 03 02 0	TERMINAL BLOCK END COVER
2D	PHOENIX CONTACT	30 04 26 5	FUSED TERMINAL BLOCK
2E	PHOENIX CONTACT	28 56 03 2	MCR PLUG TRAB PLUG (24VDC ANALOG)
2F	PHOENIX CONTACT	28 56 11 3	MCR PLUG TRAB BASE ELEMENT
2G	PHOENIX CONTACT	08 00 88 6	END CLAMPS
2H	PHOENIX CONTACT	09 14 43 9	1 AMP CIRCUIT BKR - 1 POLE
2J	PHOENIX CONTACT	09 14 47 1	3 AMP CIRCUIT BKR - 1 POLE
2K	PHOENIX CONTACT	09 14 49 7	5 AMP CIRCUIT BKR - 1 POLE
2L	PHOENIX CONTACT	09 14 54 9	15 AMP CIRCUIT BKR - 1 POLE
2M	PHOENIX CONTACT	08 00 30 7	TERMINAL STRIP MARKER
2N	PHILIPS (NEWARK)	PR01-2K2(08WX6181)	1 WATT 2.2K 5% RESISTOR
2P	ALLEN-BRADLEY	700-HN 121	RELAY BASE
2Q	ALLEN-BRADLEY	700-HK36A1	120 VAC ISOLATION RELAY
2R	ALLEN-BRADLEY	700-HK36Z24	24 VDC RELAY
2S	PHOENIX CONTACT	28 14 11 3	MCR UNIVERSAL TRANSDUCER
2T	PHOENIX CONTACT	30 04 03 2	KNIFE DISCONNECT
2U	CUTLER HAMMER	68K5	GROUND BAR
2V	MARATHON	KULKA 672 6P 03	5 POLE TERMINAL BOARD, 600V
2W	ALLEN BRADLEY	700-HK36Z12	12 VDC RELAY
2X	BUSSMAN	MDL-15	15A SLOW BLOW FUSE
2Y	BUSSMAN	AGC-1	1A FAST ACTING GLASS FUSE
2Z	BUSSMAN	AGC-10	10A FAST ACTING GLASS FUSE
2AA	BUSSMAN	AGC-5	5A FAST ACTING GLASS FUSE
2AB	BUSSMAN	AGC-2	2A FAST ACTING GLASS FUSE
2AC	PHOENIX CONTACT	28 56 02 9	MCR PLUG TRAB PLUG (12VDC ANALOG)
2AD	PHOENIX CONTACT	09 15 83 2	6 AMP CIRCUIT BREAKER - 1 POLE
3A	MOTOROLA		FULL MOSCAD ON STANDARD MODULE PANEL
		OPTION V051	MOSCAD CPU 420
		OPTION V051	19" RACK MOUNT CONFIGURATION
		OPTION V329 QTY(4)	16 DI AC/DC 10-28V MODULES
		OPTION V616 QTY(1)	16 DO EE MODULE
		OPTION V278 QTY(2)	8 AI 4-20 MA MODULES
3B	MAPLE SYSTEMS		HMI1550H GRAPHIC TOUCH SCREEN
4A	SECURITY POWER	SPS-20	12/24 VDC POWER SUPPLY
4B	POWER BATTERY CO.	PRC-1255S	TWO 12 VOLT 50 AH BATTERY
4C	BUSSMAN	HFB	FUSE HOLDER
4D	BUSSMAN	MDL-15	15 AMP SLOW BLOW FUSE
4E	WEIGMAN	RSC161610	16"x16"x10" NEMA 3R ENCLOSURE
4F	HOFFMAN	ANMV3	ENCLOSURE VENTILATOR
4G	ARMORLITE	MC INTERLOCKED ARMOR CABLE	4 COND. #14 AWG STRANDED CABLE
4H	ARMORLITE	GRIP CONNECTOR	CORD FITTING (SIZE TO FIT)
4J	IDEC	PS5R-C24	120VAC/24VDC POWER SUPPLY
5A	ANTENNA POLE	SEE MAST DETAILS	---
5B	DECIBEL PRODUCTS	SEE MAST DETAILS	ANTENNA MOUNTING CLAMP INCLUDED W/ANTENNA
5C	DECIBEL PRODUCTS	DB-230K	ANTENNA WITH MOUNTING HARDWARE
5D	TIMES MICROWAVE SYSTEMS	LMR-400UF	LMR ANTENNA CABLE IN RIGID CONDUIT
5E	HOFFMAN	A-1008CHNF	10"x8"x4"CHNF BOX
5F	POLYPHASER (TESSCO)	IS-50NX-C2	SURGE ARRESTOR
5G	RF INDUSTRIES	44728 (RFN-1028-SI)	N FEMALE CONNECTOR FOR LMR
5H	RF INDUSTRIES	35834(RFN-1006-31)	N MALE CONNECTOR FOR LMR
5J	UHF DATA RADIO	INTEGRA TR 242-4010-610	MOSCAD RADIO
5K	RF INDUSTRIES	RSA-3000-C2	SMA MALE CRIMP PLUG FOR LMR 200 CABLE
5L	DATA RADIO	023-3410-109	10 PIN CONNECTOR, DISCRETE WIRE ASSY.
5M	RF INDUSTRIES	RFN-1005-2N	N MALE CONNECTOR FOR LMR-200 CABLE
5N	TIMES MICROWAVE SYSTEMS	LMR-200	FLEXIBLE ANTENNA CABLE IN RIGID CONDUIT
5P		METAL	WEATHER HEAD
5Q	TOWER JACK	TOWER GUARD	STATIC DISCHARGER
6A	HOFFMAN	A-8064NFSS	8"X6"X4" S.S. NEMA 4X ENCLOSURE
6B	HOFFMAN	A-8P8SS	S.S. BACK PANEL

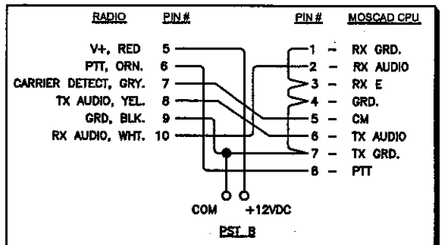
RTU SYSTEMS COMPONENT LIST



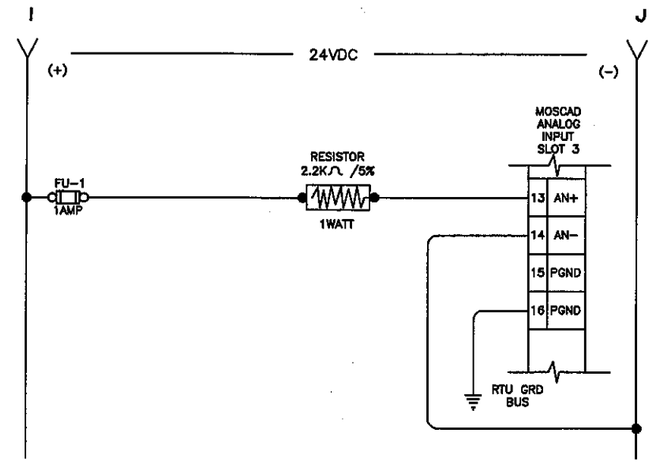
DETAIL 3A ANALOG POWER PULSE CIRCUIT



DETAIL RTU ANALOG INPUT (TYPICAL)



TERMINATIONS FOR 10 PIN RADIO INTERFACE CABLE, ITEM (5L)



DETAIL 3F RTU ANALOG INPUT D.C. SYSTEM VOLTAGE

LEGEND:

- CIRCUIT BREAKER
- FUSE
- DOOR SWITCH
- GROUND CONNECTION
- RELAY CONTACT
- RELAY
- TERMINAL BLOCK POINT IN GATE CONTROL PANEL
- TERMINAL BLOCK POINT IN GEN-SET
- TERMINAL BLOCK POINT IN TRANSFER SWITCH
- TERMINAL BLOCK IN RTU ENCLOSURE

NOTE:
DETAILS SHOWN ON THIS SHEET ARE DISTRICT STANDARD WIRING DETAILS THAT CONTRACTOR SHALL FOLLOW AND MODIFY ACCORDINGLY FOR WIRING DIAGRAMS, LOOP SHEETS, PANEL SUBMITTALS, AND ALL OTHER REQUIRED DOCUMENTATION WHERE APPLICABLE.

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PROJECT HILLSBORO ASR PILOT PROJECT
ASR CONTROL PANEL DETAILS
SHEET 2

TASK

ORIGINAL REVISIONS: April 2005
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FL PE NO. 41022

JOB NO. 100281
DRAWN S.P.H.
DESIGNED R.L.C.
CHECKED P.F.H.
Q.C. P.R.D.

I-6

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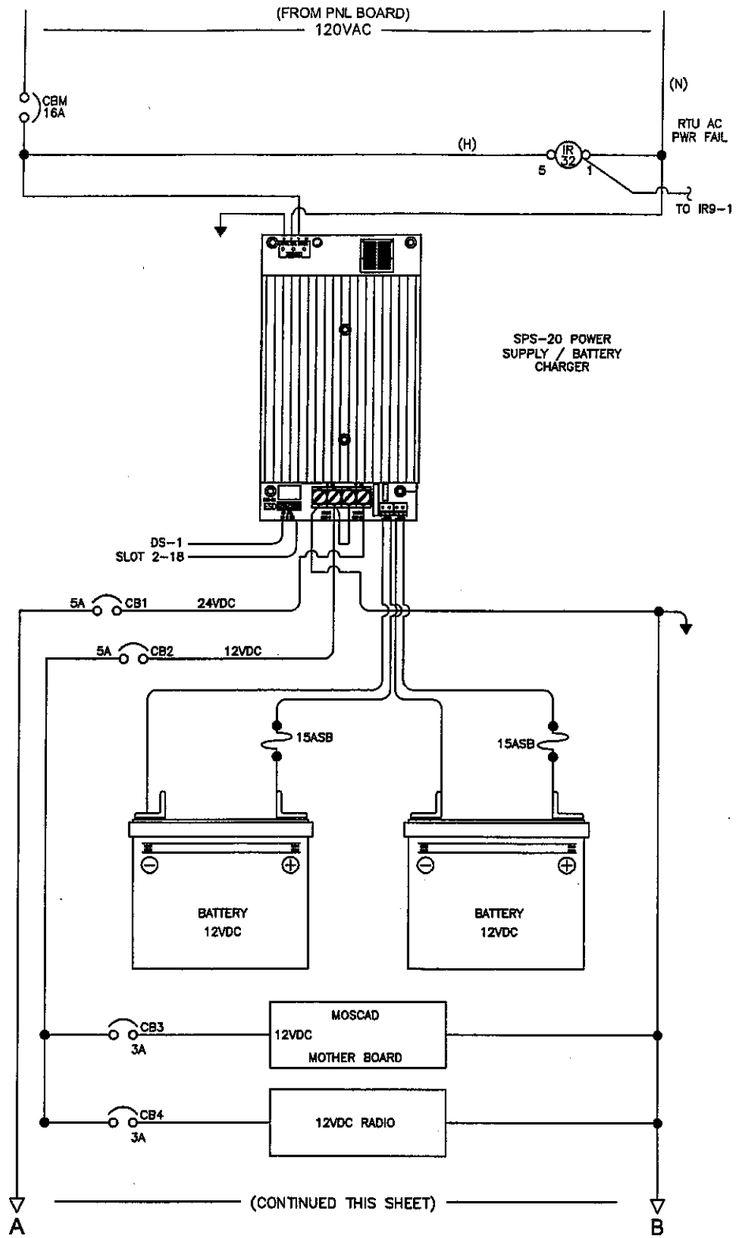
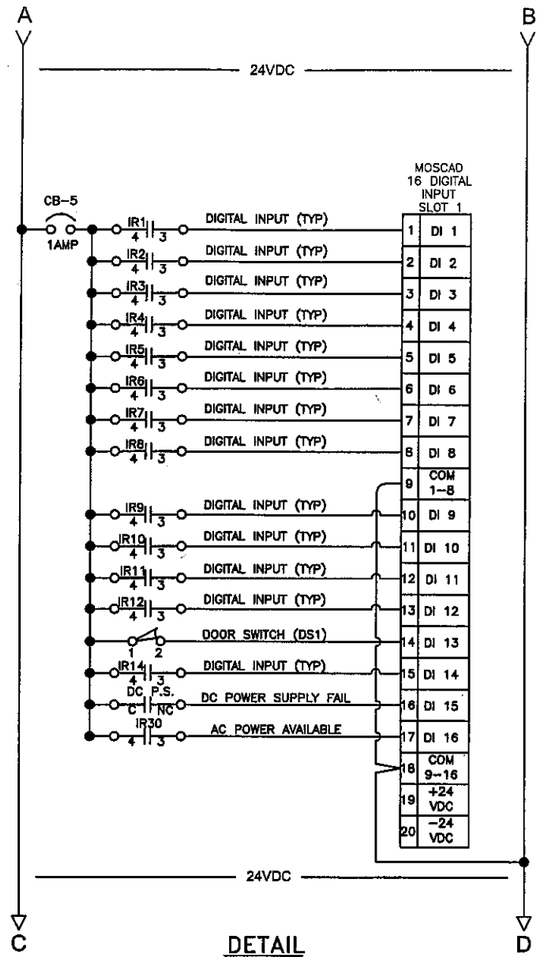
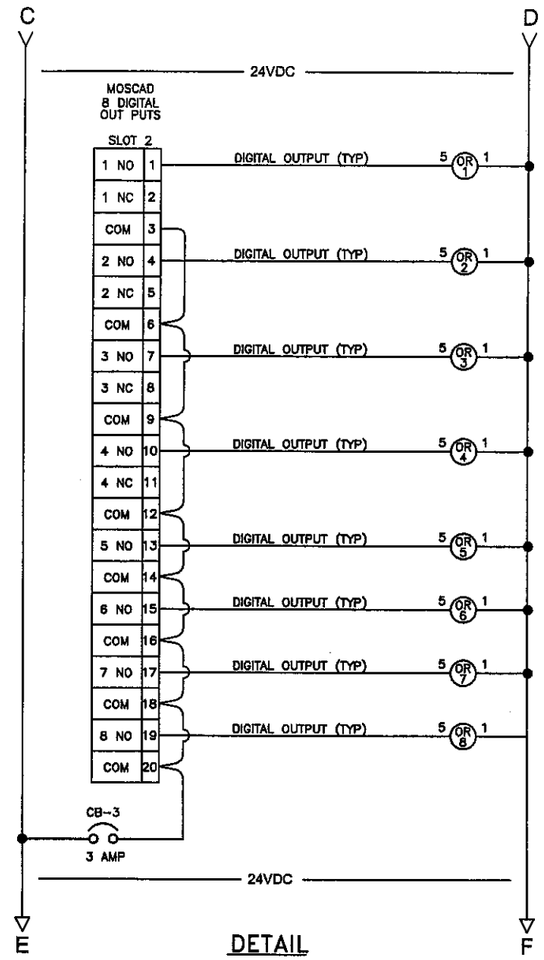


RTU POWER SUPPLY



DETAIL
RTU DIGITAL INPUTS
(TYPICAL)



DETAIL
RTU DIGITAL OUTPUTS
(TYPICAL)

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PROJECT HILLSBORO ASR PILOT PROJECT
ASR CONTROL PANEL DETAILS
SHEET 3

TASK

ORIGINAL April 2005
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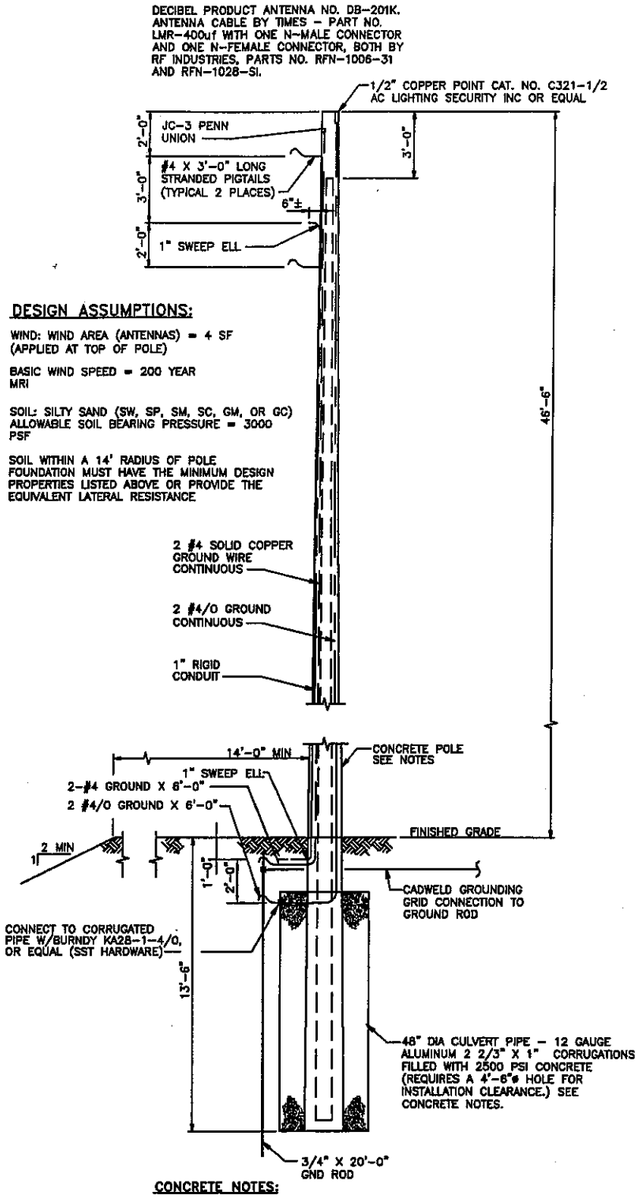


DESIGN ASSUMPTIONS:

WIND: WIND AREA (ANTENNAS) = 4 SF (APPLIED AT TOP OF POLE)

BASIC WIND SPEED = 200 YEAR MRI

SOIL: SILTY SAND (SW, SP, SM, SC, GM, OR GC) ALLOWABLE SOIL BEARING PRESSURE = 3000 PSF

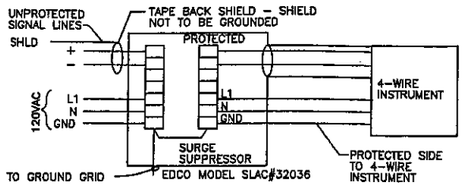
SOIL WITHIN A 14' RADIUS OF POLE FOUNDATION MUST HAVE THE MINIMUM DESIGN PROPERTIES LISTED ABOVE OR PROVIDE THE EQUIVALENT LATERAL RESISTANCE

CONCRETE NOTES:

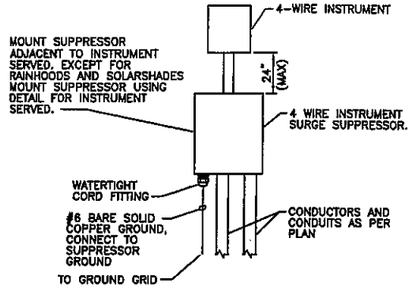
1. IF WATER IS PRESENT, PIPE CONCRETE TO BOTTOM OF HOLE AND WORK IT UP TO TOP. DO NOT ALLOW IT TO FREE POUR THRU WATER.
2. POLE MUST BE SET ON SOUND EARTH BASE.

ANTENNA POLE DETAIL

NOT TO SCALE

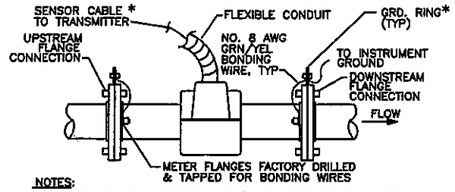


WIRING DIAGRAM



TYPE "B" SURGE SUPPRESSOR INSTALLATION 4-WIRE INSTRUMENT

NOT TO SCALE

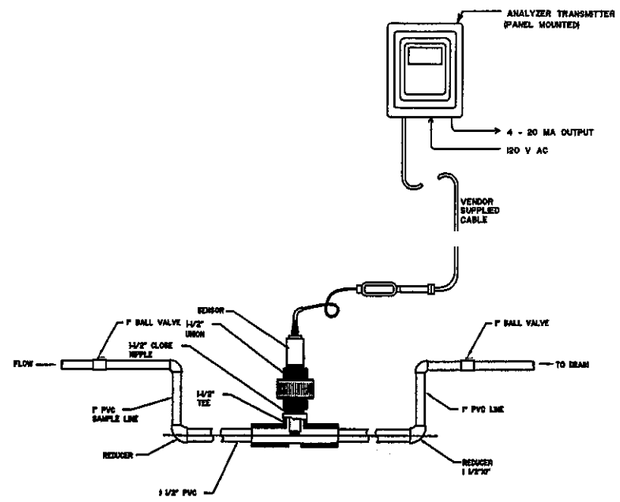


NOTES:

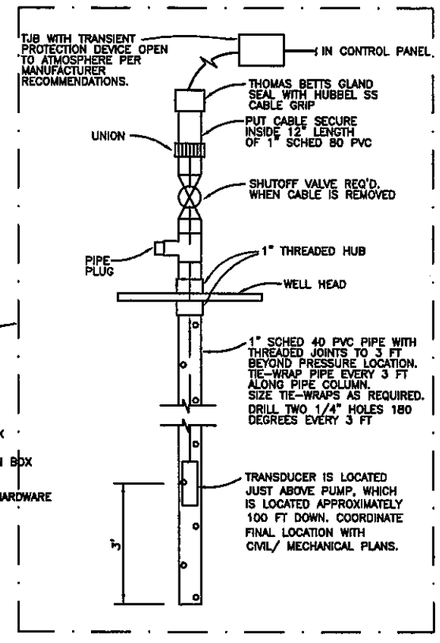
1. COMPONENTS DESIGNATED BY * ARE SUPPLIED BY INSTRUMENT MANUFACTURER.
2. IF PIPE IS NON-CONDUCTIVE BOND MAGMETER TO ONE OF THE FOLLOWING ACCEPTABLE GROUNDS:
   A) METALLIC WATER PIPE IF BURIED PORTION IS MORE THAN 10'.
   B) STRUCTURAL STEEL.

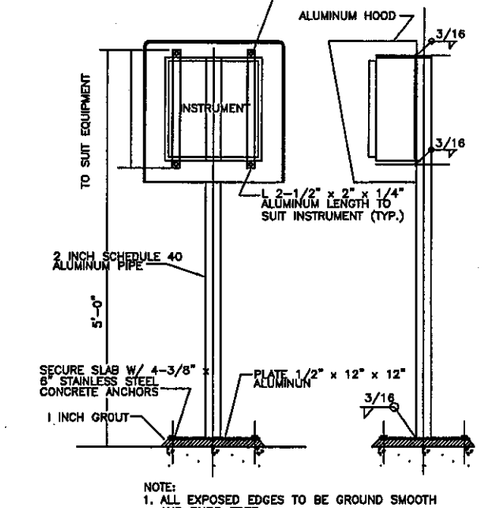
MAGNETIC FLOWMETER INSTALLATION DETAIL

NOT TO SCALE



ANALYTICAL SENSOR/TRANSMITTER INSTALLATION DETAIL



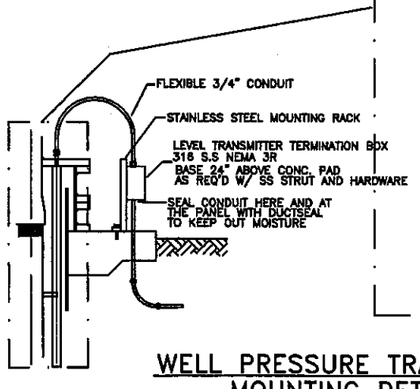


NOTE:

1. ALL EXPOSED EDGES TO BE GROUND SMOOTH AND BURR FREE.
2. PAINT ALL ALUMINUM IN CONTACT WITH CONCRETE ACCORDING TO SPECIFICATIONS FOR PAINTING.

TRANSMITTER INSTALLATION DETAIL

NOT TO SCALE



WELL PRESSURE TRANSDUCER MOUNTING DETAIL

NOT TO SCALE

COORDINATE WITH MECHANICAL DRAWINGS AND ADJUST ACCORDINGLY.

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PROJECT	HILLSBORO ASR PILOT PROJECT
	DETAILS
	SHEET 4
TASK	

ORIGINAL April 2005
REVISIONS:
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PAUL F. HILLERS, P.E.
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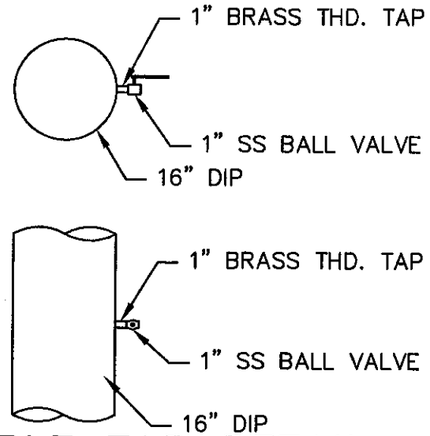
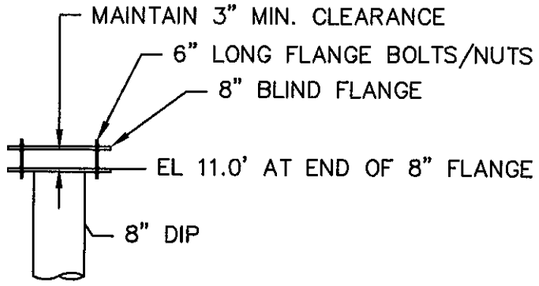
DESIGNED	R.L.C.
CHECKED	P.F.H.
Q.C.	X.X.X.

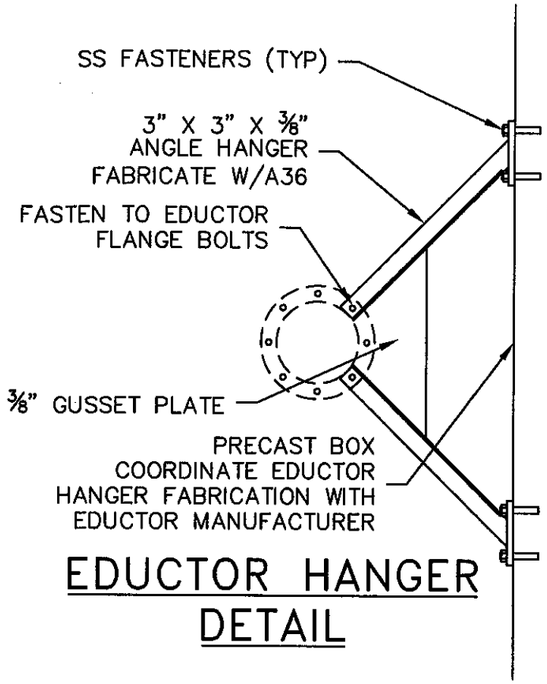


SAMPLE TAP DETAIL

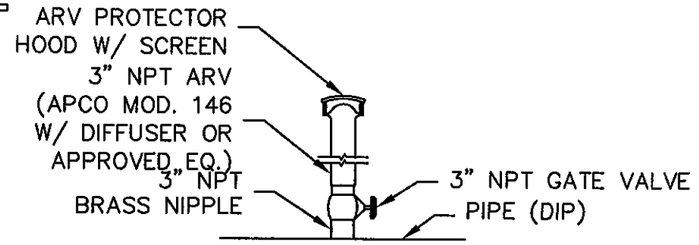
(COORDINATE WITH ENGINEER FOR TOP OR SIDE TAP LOCATION)



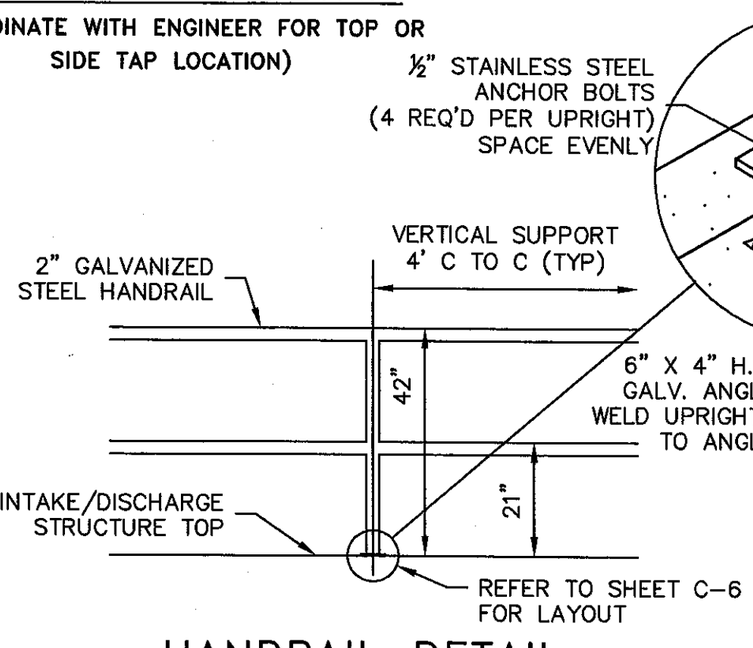
AIR SUCTION PROTECTION DETAIL



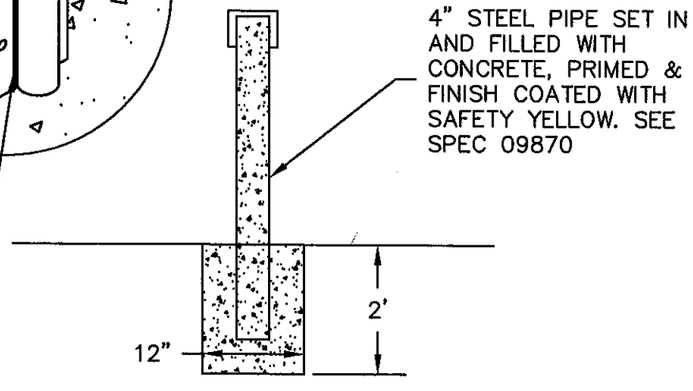
EDUCTOR HANGER DETAIL



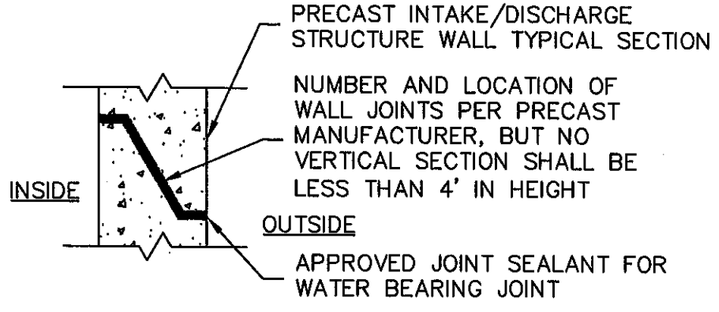
3" ARV ASSEMBLY DETAIL



HANDRAIL DETAIL



PIPE BOLLARD DETAIL



INTAKE/DISCHARGE STRUCTURE JOINTS SECTION

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PROJECT HILLSBORO ASR PILOT PROJECT

MECHANICAL DETAILS - 1 OF 2

TASK

ORIGINAL March 2005
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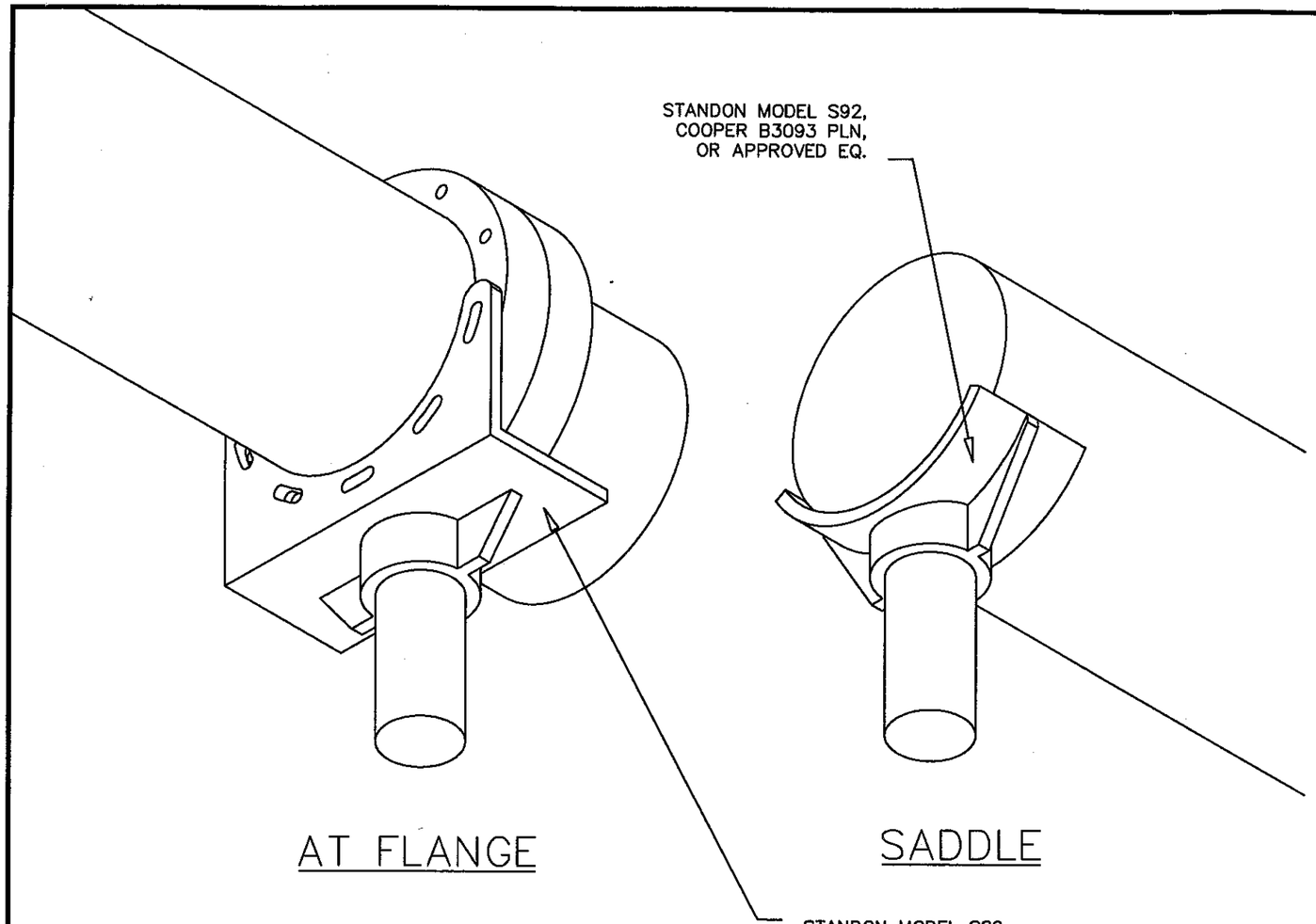
FL PE NO. 49,858

JOB NO. 100281
DRAWN RPT
DESIGNED JD
CHECKED
Q.C.

D-1

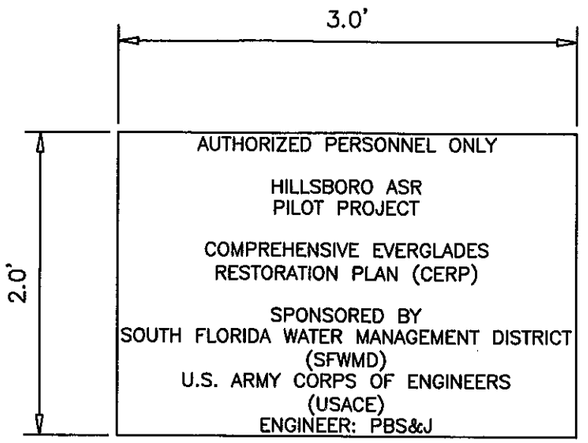


AT FLANGE

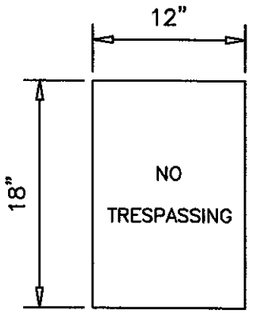
SADDLE

FLANGED PIPE SUPPORT DETAILS

PIPE SUPPORTS TO BE FURNISHED SHOP PRIMED. FINISH COAT TO BE FIELD APPLIED TO MATCH PIPING COLOR. ALL SUPPORTS TO BE FURNISHED WITH ADJUSTABLE UPRIGHTS AND BASES. SECURE BASES TO SLAB W/ SS RED HEAD ANCHORS, PER MANUF. RECOMMENDATIONS.



ONE SIGN REQUIRED



ALL LETTERS 1" HIGH.
SIGN TO BE MOUNTED
ON PERIMETER FENCE.
⅛" ALUM. PL

FOUR SIGNS REQUIRED

SIGN DETAILS

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PROJECT HILLSBORO ASR PILOT PROJECT

MECHANICAL DETAILS - 2 OF 2

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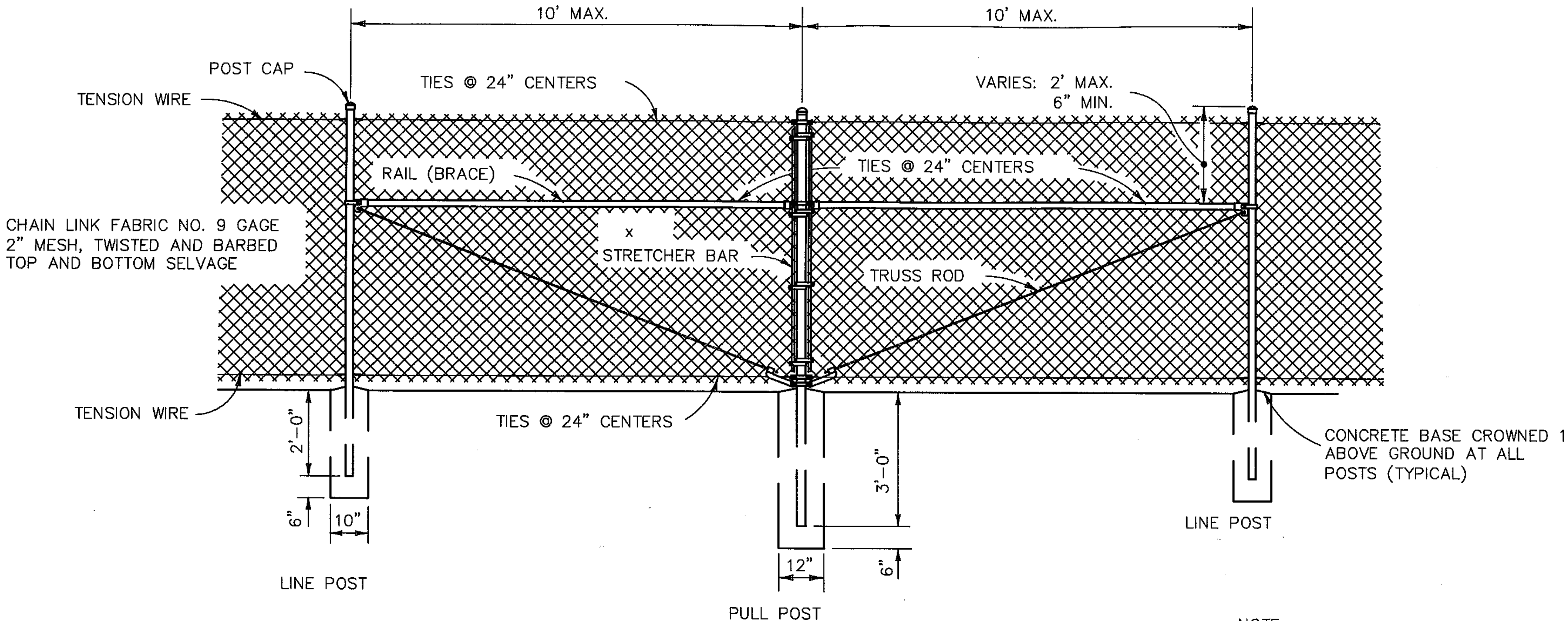

NOTE:
FENCE SHALL BE GROUNDED IN ACCORDANCE WITH SPEC SECTION 16450.

CHAIN-LINK FENCE DETAILS 1 OF 2

NTS

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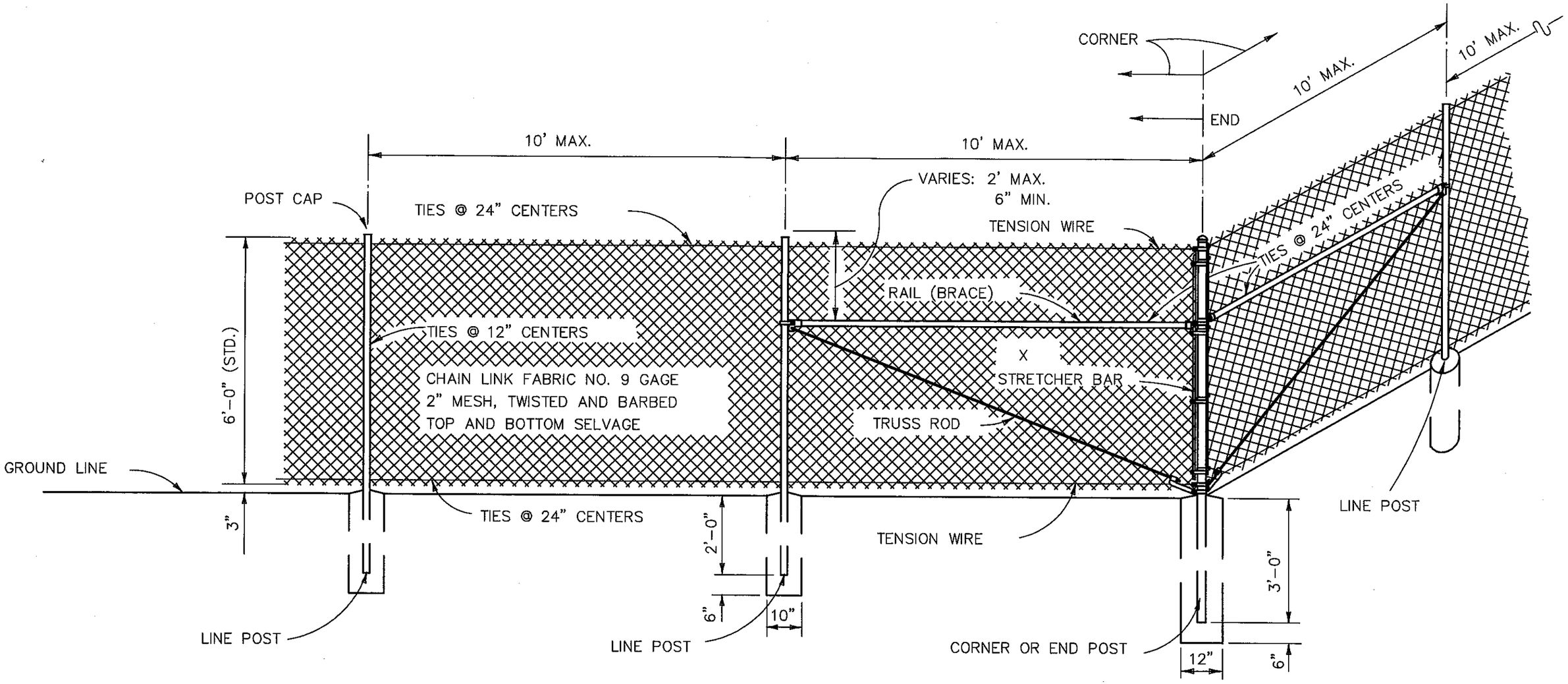
D-3



CHAIN-LINK FENCE DETAILS 2 OF 2

NTS

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PROJECT HILLSBORO ASR PILOT PROJECT

FENCING DETAILS - 2 OF 3

TASK

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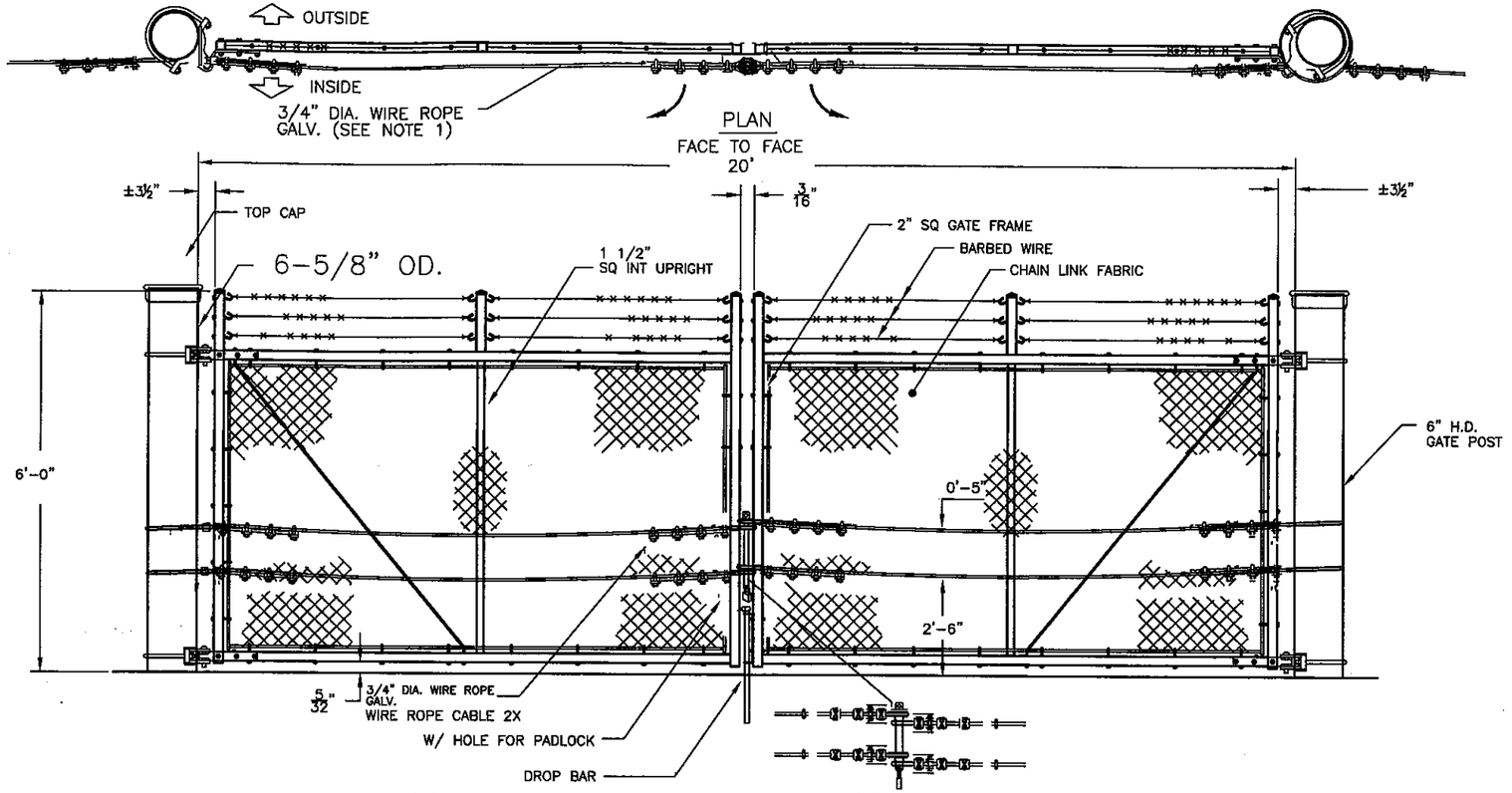


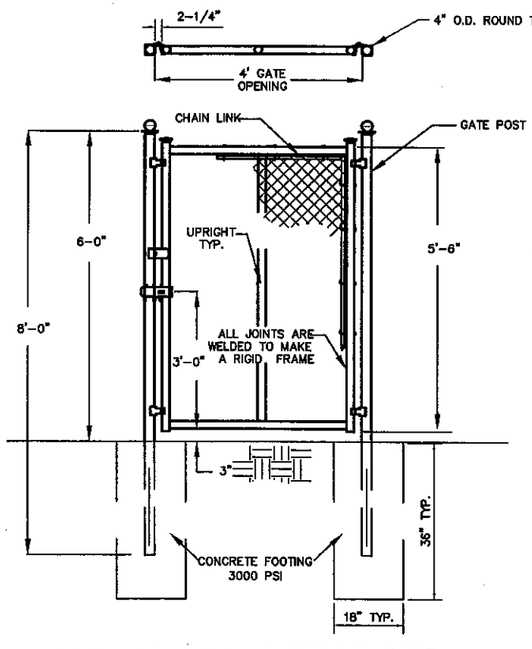
GATE ELEVATION, INSIDE LOOKING OUT – (4) BAYS SHOWN

***

NOTES: 1. FOOTING WIDTH TO BE (4)X POST WIDTH. MINIMUM DEPTH 36".
2. ALL MATERIALS (PIPE, FENCE FABRIC, CABLE, BARBED WIRE, HARDWARE AND FASTENERS) TO BE HOT-DIPPED GALVANIZED.

NOTES:
1. CABLES – U.S. DOMESTIC RR-W-410E 3/4" DIAMETER 6 X 19 CLASS WIRE ROPE, REGULAR LAY, EXTRA IMPROVED PLOW STEEL (EIPS), INDEPENDENT WIRE ROPE CORE (IWRC), CLASS A GALVANIZED IN ACCORDANCE WITH ASTM A741, & HAVE A MINIMUM BREAKING STRENGTH OF 58,800 POUNDS.

VEHICLE RESISTING DOUBLE SWING GATE W/ WIRE ROPE CABLE(S) AND BARBED WIRE



SINGLE SWING PEDESTRIAN GATE
N.T.S.

ROUND POST HINGE TYPICAL

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PROJECT HILLSBORO ASR PILOT PROJECT

FENCING DETAILS - 3 OF 3

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5.

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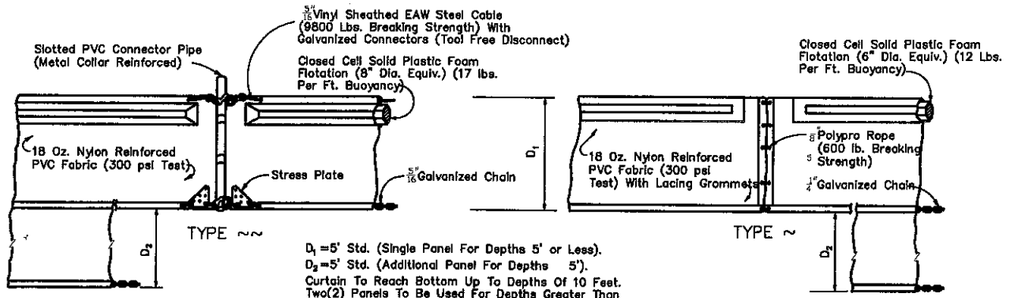
FL PE NO. 49,856

JOB NO. 100281
DRAWN RPT
DESIGNED
CHECKED PC
Q.C.

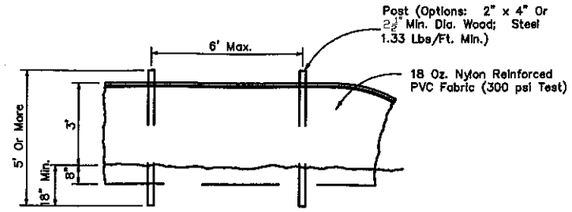
D-5



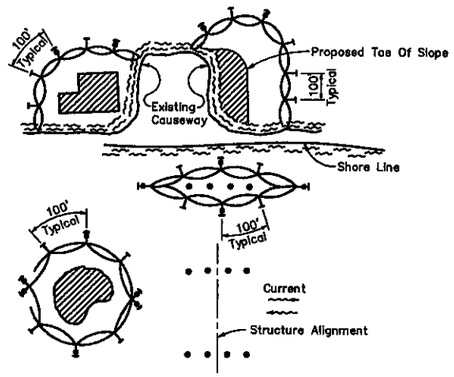
D_1 =5' Std. (Single Panel For Depths 5' or Less).
D_2 =5' Std. (Additional Panel For Depths 5').
Curtain To Reach Bottom Up To Depths Of 10 Feet. Two(2) Panels To Be Used For Depths Greater Than 10 Feet Unless Special Depth Curtains Specifically Called For In The Plans Or As Determined By The Engineer.

NOTICE: COMPONENTS OF TYPES ~ AND ~~ MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES ~ AND ~~ SHALL BE AS APPROVED BY THE ENGINEER.

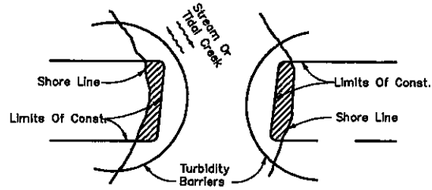
FLOATING TURBIDITY BARRIERS



STAKED TURBIDITY BARRIER



LEGEND
- Pile Locations
- Dredge Or Fill Area
- Mooring Buoy w/Anchor
- Anchor
- Barrier Movement Due To Current Action

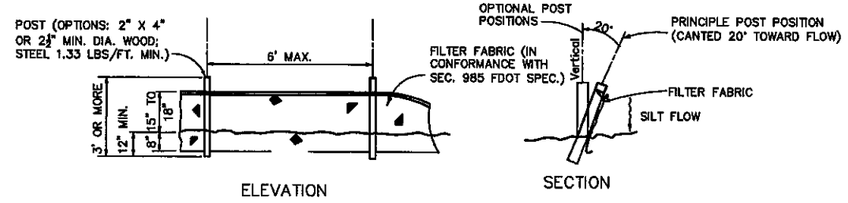


NOTES:
1. Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
2. Number and spacing of anchors dependent on current velocities.
3. Deployment of barrier around pile locations may vary to accommodate construction operations.
4. Navigation may require segmenting barrier during construction operations.
5. For additional information see Section 104 of the Standard Specifications.

Note:
Turbidity barriers for flowing streams and tidal creeks may be either floating, or staked types or any combinations of types that will suit site conditions and meet erosion control and water quality requirements. The barrier type(s) will be at the Contractors option unless otherwise specified in the plans, however payment will be under the pay item(s) established in the plans for Floating Turbidity Barrier and/or Staked Turbidity Barrier. Posts in staked turbidity barriers to be installed in vertical position unless otherwise directed by the Engineer.

TURBIDITY BARRIER APPLICATIONS

GENERAL NOTES
1. Floating turbidity barriers are to be paid for under the contract unit price for Floating Turbidity Barrier, LF.
2. Staked turbidity barriers are to be paid for under the contract unit price for Staked Turbidity Barrier, LF.



ELEVATION SECTION

NOTE: SILT FENCE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED SILT FENCE (LF).

FDOT INDEX 102
STAKED SILT FENCE TYPE III

DETAIL B
NTS

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PROJECT HILLSBORO ASR PILOT PROJECT
EROSION CONTROL DETAILS
TASK

ORIGINAL REVISIONS: March 2005
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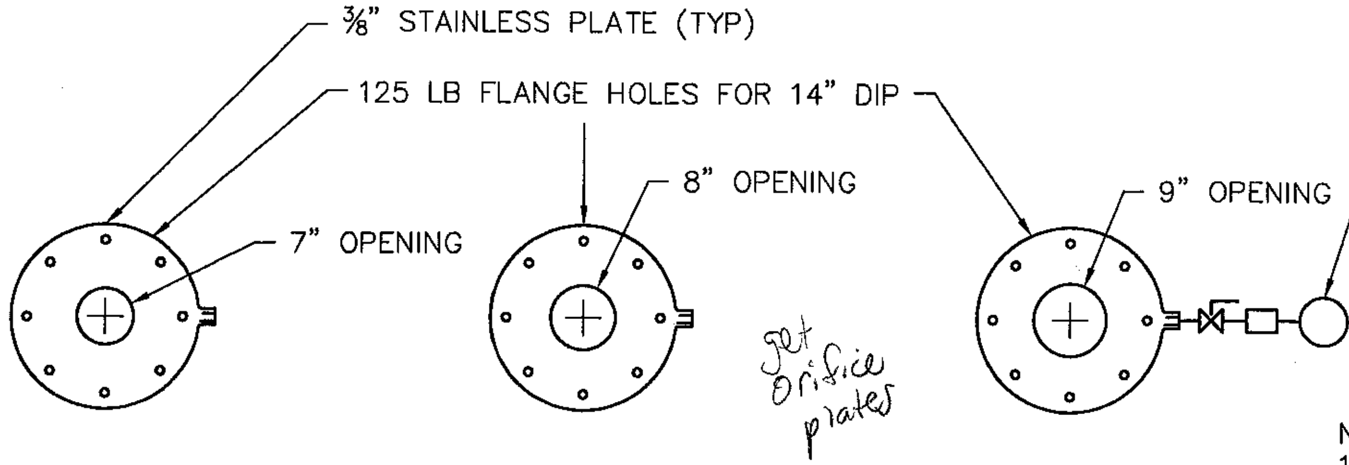
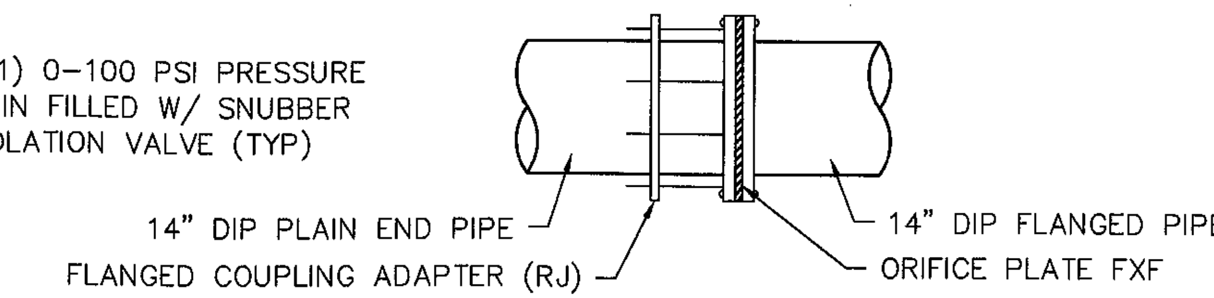


60% ORIFICE PLATE (3 MGD) | 75% ORIFICE PLATE (4 MGD) | 100% ORIFICE PLATE (5 MGD)

ORIFICE PLATE DETAIL

NOT TO SCALE

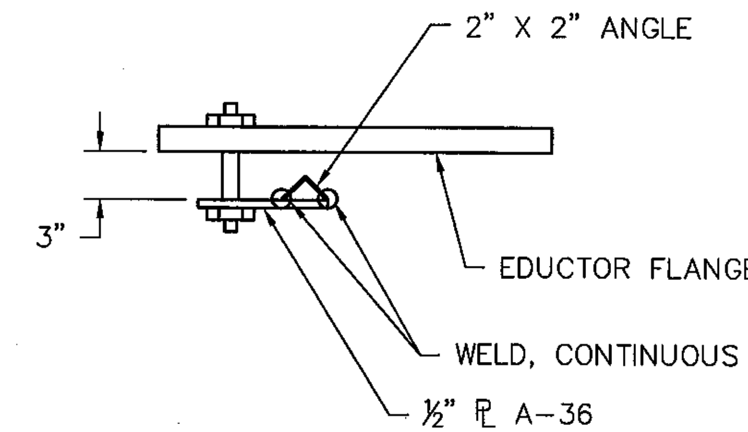


ORIFICE PLATE CONNECTION DETAIL

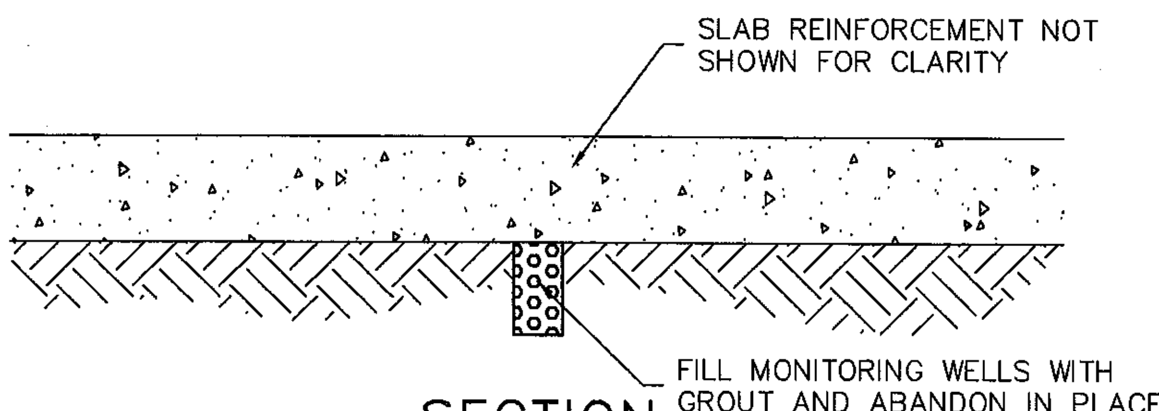
NOT TO SCALE

NOTES:

1. PROJECT TO BE CONSTRUCTED WITHOUT ORIFICE PLATES INSTALLED. CONTRACTOR SHALL PROVIDE THREE (3) ORIFICE PLATES TO OWNER TO SELF-INSTALL.
2. ONE (1) ORIFICE PLATE NEEDED FOR EACH. CLA-VAL MOD. #X52E, OR EQ.
3. CONTRACTOR TO PROVIDE ADEQUATE GAP IN PIPING FOR ORIFICE PLATE INSERTION.



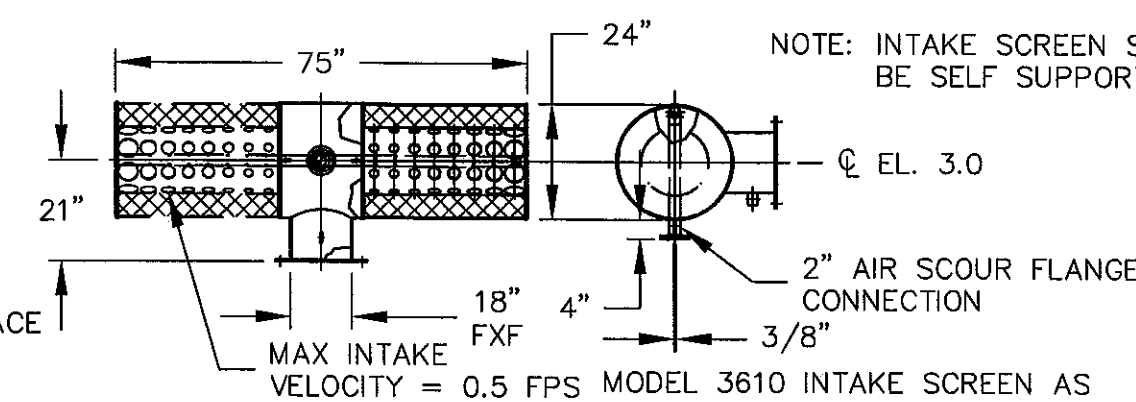
PLAN



SECTION

EXISTING MONITORING WELL GROUTING DETAIL

NOT TO SCALE

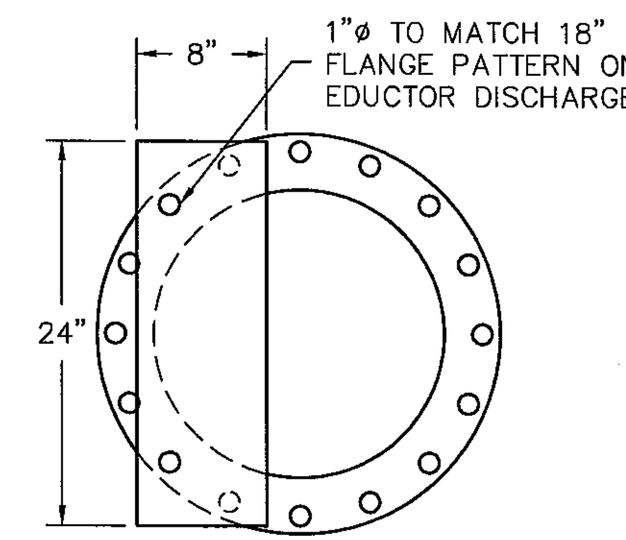


NOTE: INTAKE SCREEN SHALL BE SELF SUPPORTING

MODEL 3610 INTAKE SCREEN AS MANUF. BY HENDRICK SCREEN CO., OR APPROVED EQ.

INTAKE SCREEN DETAIL

NOT TO SCALE

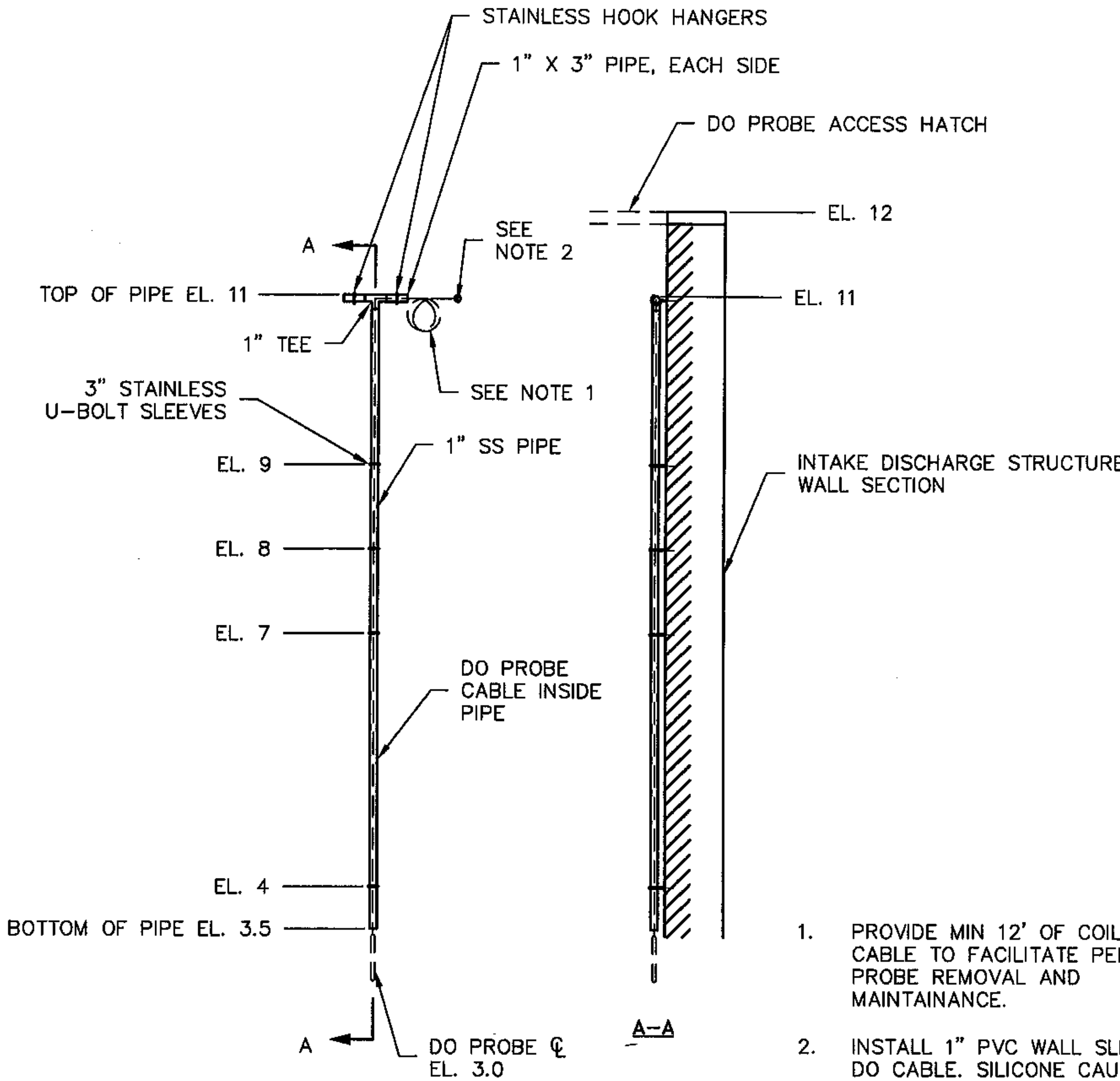


NOTE:
PROVIDE AND INSTALL USING 2 – 3/4" X 8" BOLTS W/ STEEL BUSHINGS TO MAINTAIN 3" OPENING.

DEFLECTOR PLATE DETAIL

NOT TO SCALE

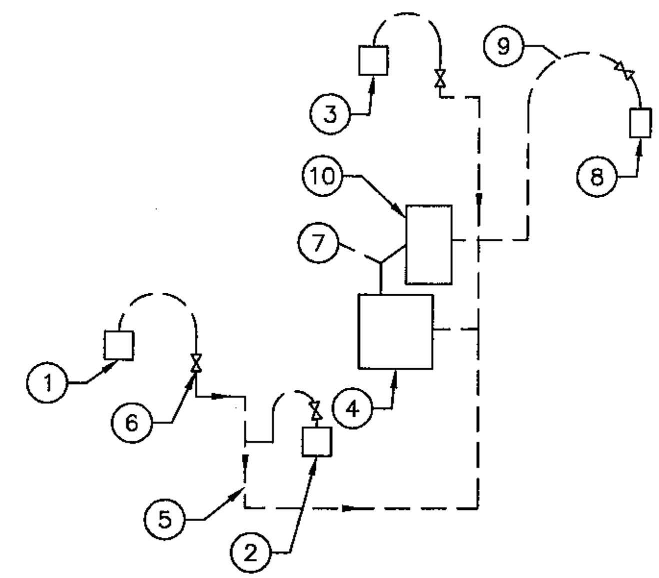
PBSJ ARCHITECTURE ENGINEERING SURVEYING PLANNING 5300 COMMERCE PLACE WEST PALM BEACH, FLORIDA 33407 TELEPHONE (561) 689-7275 AUTH. No. 24 POST, BUCKLEY, SCHUH & JERNIGAN	Golder Associates	PROJECT HILLSBORO ASR PILOT PROJECT MISCELLANEOUS DETAILS	TASK	ORIGINAL March 2005 REVISIONS: 1. 2. 3. 4. 5.	PHILLIP R. DOVER, P.E. FL PE NO. 49,858	JOB NO. 100281 DRAWN RPT DESIGNED CHECKED Q.C. D-7

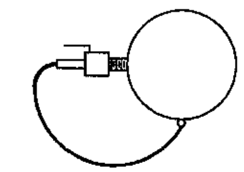


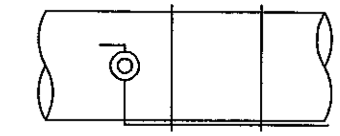
1. PROVIDE MIN 12' OF COILED CABLE TO FACILITATE PERIODIC PROBE REMOVAL AND MAINTAINANCE.
2. INSTALL 1" PVC WALL SLEEVE FOR DO CABLE. SILICONE CAULK ANNULAR SPACE.

DISSOLVED OXYGEN (D.O.) PROBE MOUNTING DETAIL

NOT TO SCALE







TURBIDITY METER TAP DETAIL

CONDUCTIVITY AND TURBIDITY SYSTEM SCHEMATIC

(1) CANAL DISCHARGE TURBIDITY TAP
(2) PRE FILTER TURBIDITY TAP
(3) POST FILTER TURBIDITY TAP
(4) TURBIDITY METER, MICROTOL 3 (SEE SPECS)
(5) ANNEALED COPPER TUBING, 0.032" WALL, DIA. PER TUBING MANUF. RECOMMENDATIONS
(6) S.S. BALL CONTROL VALVE, 3 REQ'D
(7) SAMPLE DISCHARGE (COMBINE TURBIDITY AND CONDUCTIVITY INTO COMMON DISCHARGE AND EXTEND TO EDGE OF SLAB)
(8) CONDUCTIVITY SAMPLE TAP
(9) ANNEALED COPPER TUBING, 0.032" WALL, DIA. PER CONDUCTIVITY MANUF. RECOMMENDATIONS
(10) CONDUCTIVITY METER (SEE SPECS)

NOTES:
1. STRAP TUBING TO PROCESS PIPES, FILTERS, FITTINGS, ETC. AS REQ'D FROM TAPS TO TURBIDITY METER.
2. COORDINATE PIPE TAP SIZE AND TUBING SIZE WITH TURBIDITY METER MANUF. RECOMMENDATIONS.
3. TAPS TO CONSIST OF SS NIPPLE, SS BALL CONTROL VALVE, SS, ELBOW, AND TUBING COMPRESSION FITTINGS.
4. REFER TO ELECTRICAL DRAWINGS FOR POWER AND DATA CABLE ROUTING DETAILS.
5. SEE SHEET M-1 FOR COMPONENT LAYOUT AND LOCATIONS.

CONDUCTIVITY AND TURBIDITY TAP AND MONITOR DETAILS

NOT TO SCALE

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PROJECT HILLSBORO ASR PILOT PROJECT
MISCELLANEOUS DETAILS

TASK

ORIGINAL March 2005
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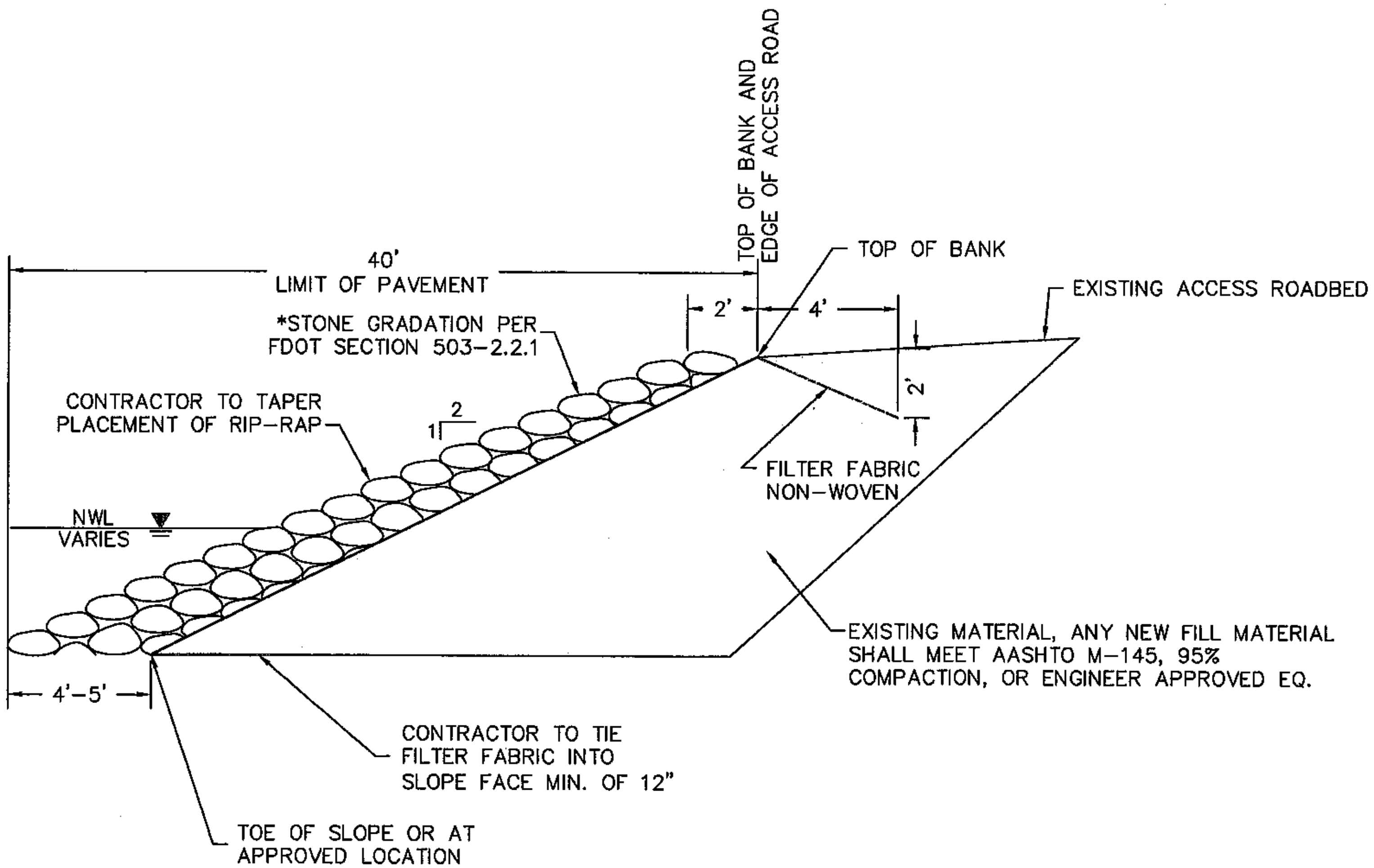
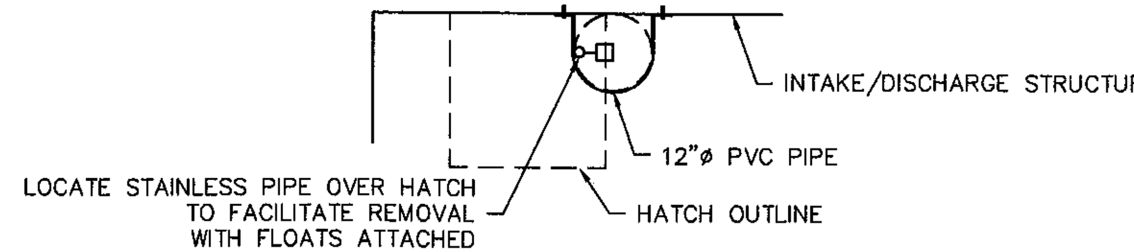


*STONE SHALL CONSIST OF WELL GRADED RIP RAP WITH A DSO=R" THAT CONTAINS STONES WITH A MINIMUM SPECIFIC GRAVITY OF 2.5. STONES SHALL BE PLACED TO INTERLOCK TIGHTLY WITH ONE ANOTHER AND AVOID EXPOSURE OF FILTER FABRIC.

NOTES:
1. FILTER FABRIC PER FDOT SPECIFICATION SECTION 985.

SIDESLOPE STABILIZATION – RIP RAP

NOT TO SCALE



PLAN

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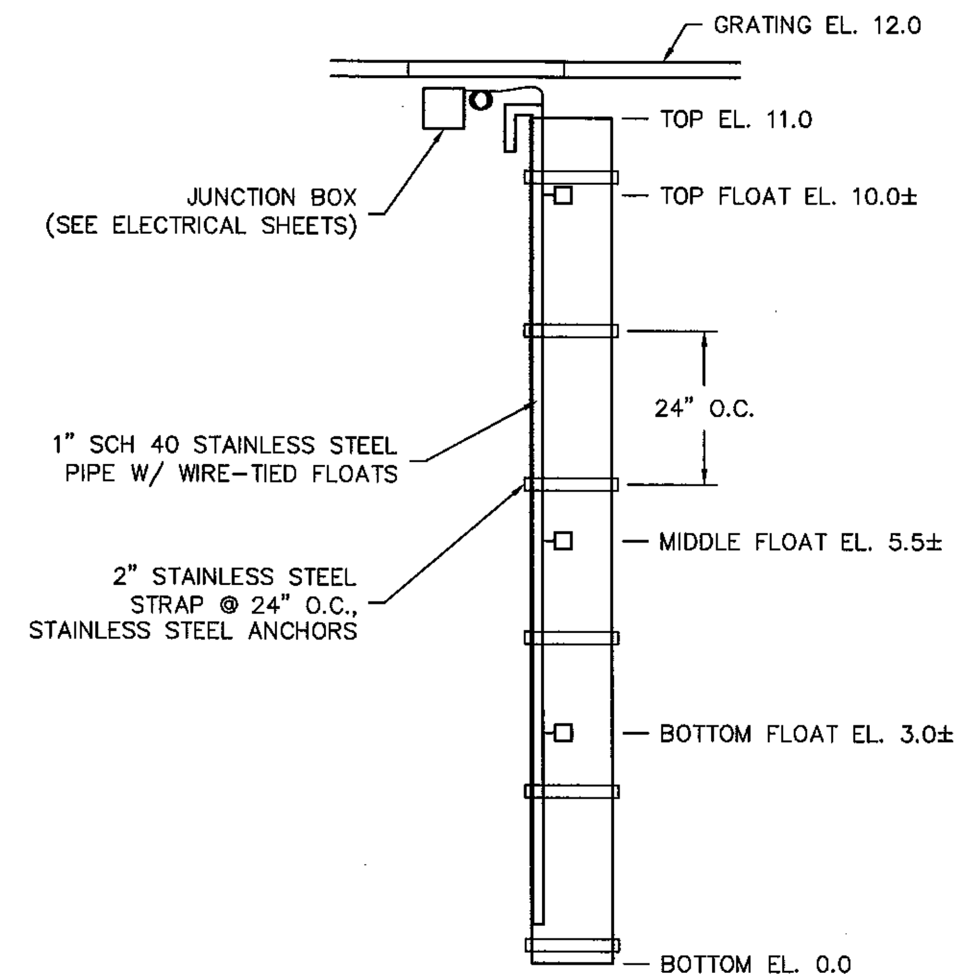

SECTION

NOT TO SCALE

STILLING WELL DETAIL

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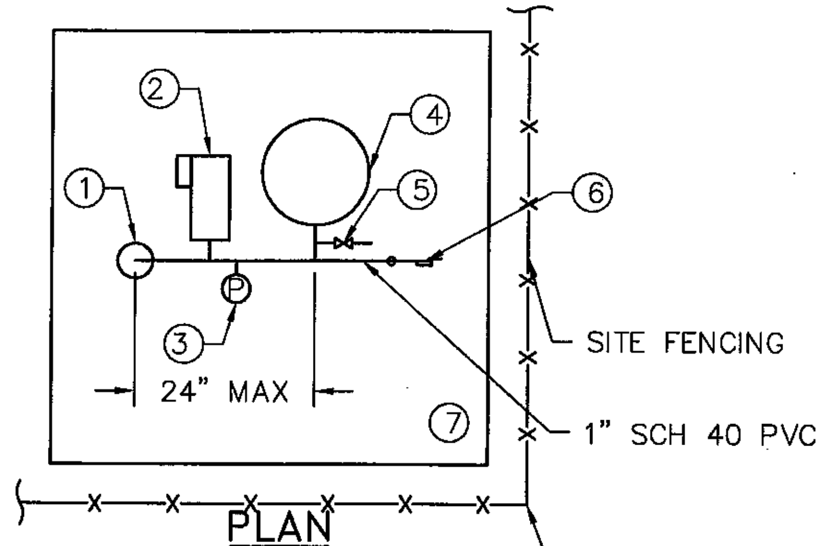
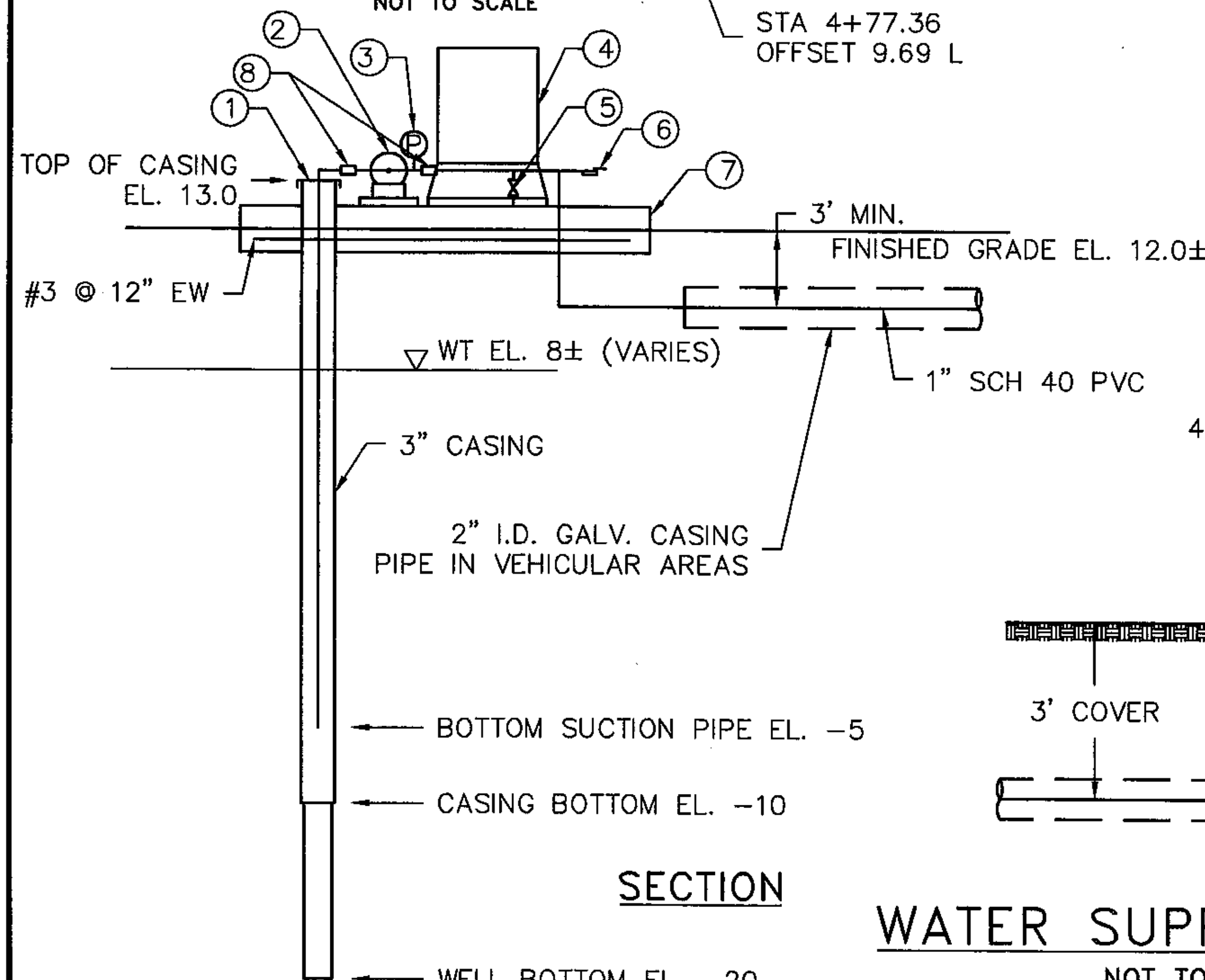


PLAN

NOT TO SCALE

1. 4" WELL AND CASING W/ SANITARY BOLT-ON COVER
2. JET PUMP, MOTOR AND PRESSURE SWITCH, RED JACKET SRJ 1 HP, OR EQ. ON PUMP MOUNTING BRACKET, ENDURO MOD. NO. AW39, OR EQ.
3. PRESSURE GAUGE (0-100 PSI)
4. AIR BLADDER TANK, ENDURO MOD. ET 100, 30-50 PSI, OR EQ.
5. ¾" HOSE BIBB DRAIN
6. 1" PRESSURE RELIEF VALVE
7. 6' X 6' X 4" R.C. PAD, TOP EL 12.2
8. 1" NPT DISASSEMBLY UNION



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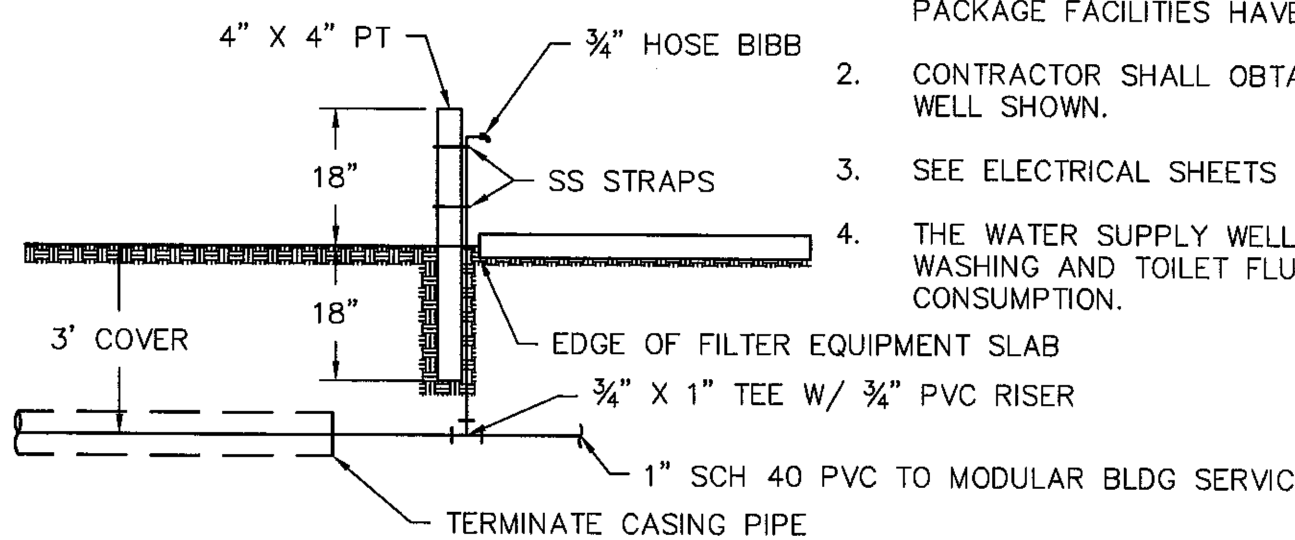
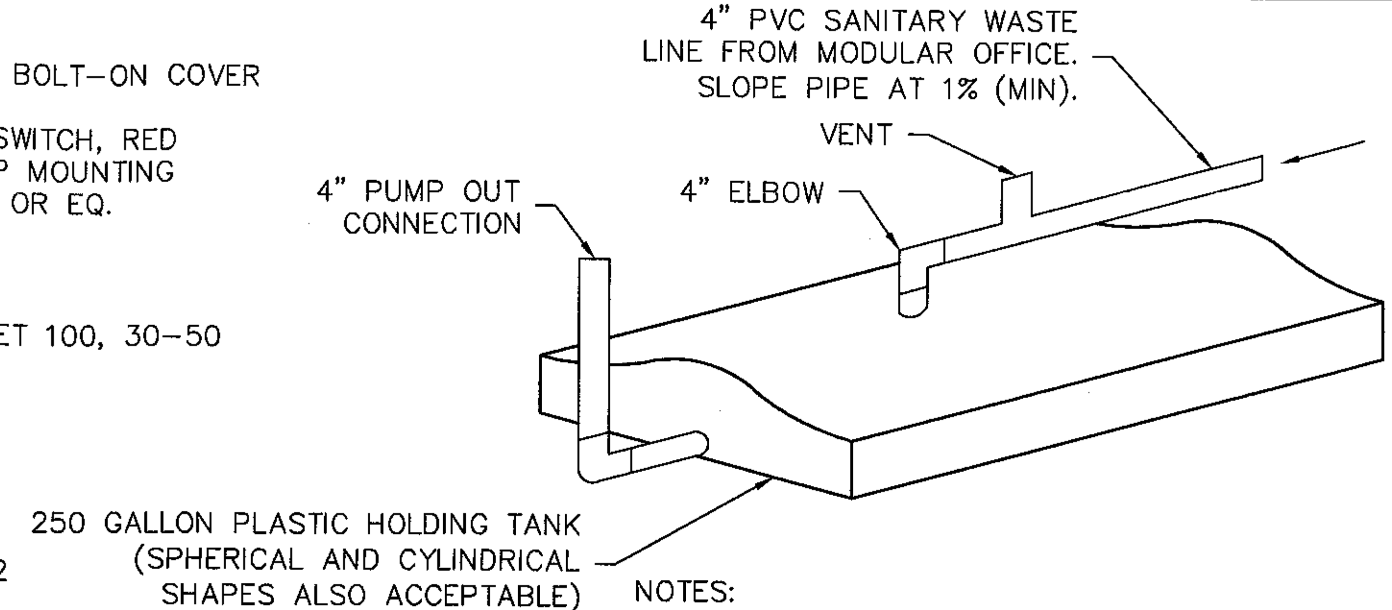


WATER SUPPLY DETAILS

NOT TO SCALE



NOTES:

1. TANK TO BE BURIED PER MANUF. RECOMMENDATIONS AND PROTECTED FROM FLOATATION.
2. EXTEND VENT AND PUMP OUT CONNECTIONS AT LEAST 1 FT ABOVE FINISHED GRADE.

SANITARY WATER HOLDING TANK DETAIL

NOT TO SCALE

NOTES:

1. SYSTEM PIPING SHOWN SCHEMATICALLY ONLY. NOT ALL VALVES, FITTINGS AND APPURTENANCES HAVE BEEN SHOWN. CONTRACTOR SHALL SATISFY HIMSELF TO INCLUDE VALVES, FITTINGS, AND APPURTENANCES WHICH ARE CUSTOMARILY USED AND WILL BE ANTICIPATED, WHETHER OR NOT SHOWN HEREIN OR SPECIFICALLY CALLED OUT. POTABLE WATER TREATMENT PACKAGE FACILITIES HAVE BEEN EXCLUDED FROM THIS CONTRACT.
2. CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED TO INSTALL WATER WELL SHOWN.
3. SEE ELECTRICAL SHEETS FOR WELL PUMP SERVICE FEED DETAILS.
4. THE WATER SUPPLY WELL IS INTENDED TO PROVIDE WATER FOR HAND WASHING AND TOILET FLUSHING AND IS NOT INTENDED FOR HUMAN CONSUMPTION.

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PROJECT HILLSBORO ASR PILOT PROJECT

MISCELLANEOUS DETAILS

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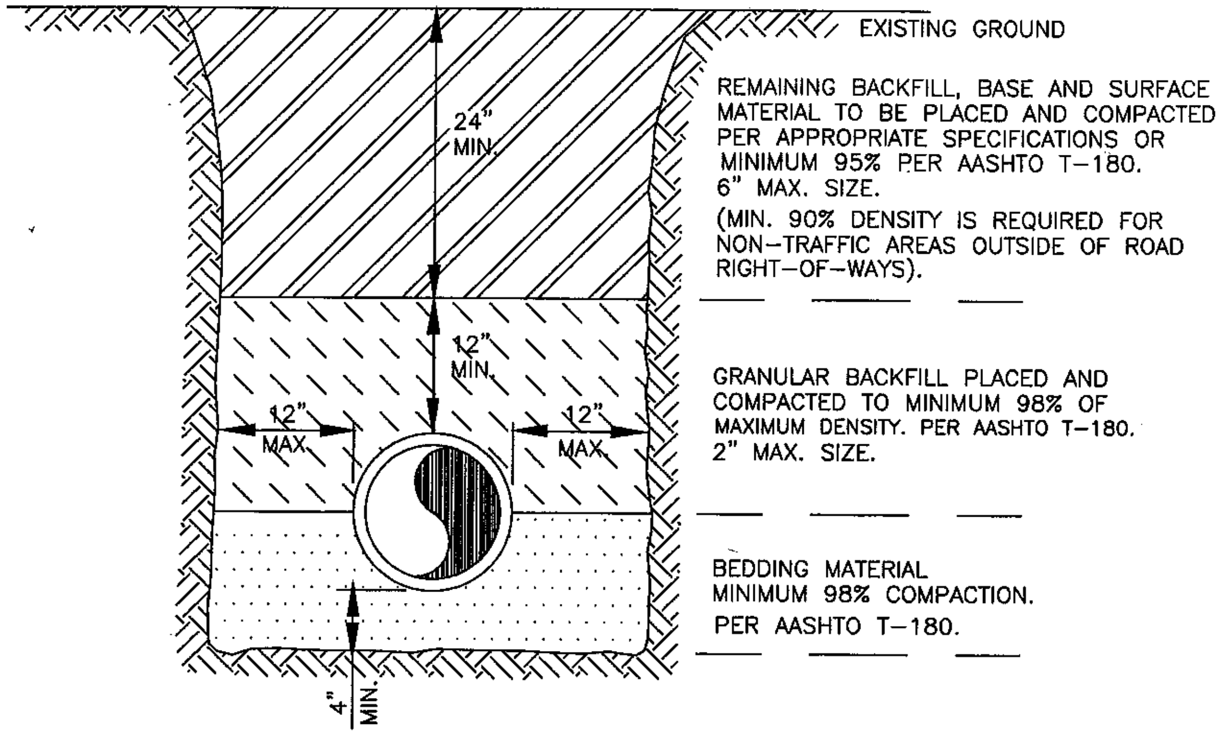
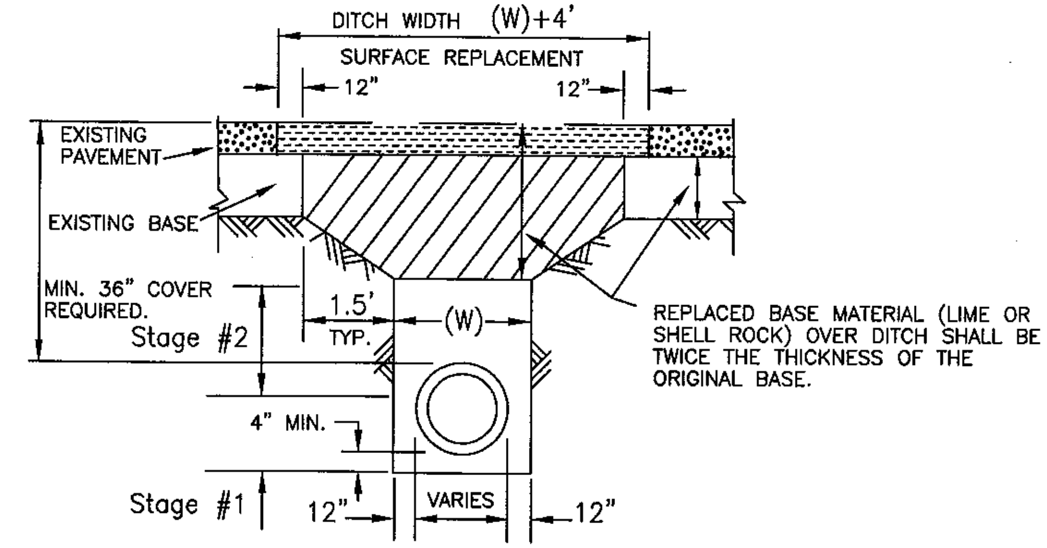


NOTES:

1. BEDDING SHALL CONSIST OF IN-SITU GRANULAR MATERIAL OR WASHED AND GRADED LIMEROCK 3/8"-7/8" SIZING, ONLY AT THE DIRECTION OF THE ENGINEER. UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS AND LARGER ROCKS SHALL BE REMOVED.
2. THE PIPE SHALL BE FULLY SUPPORTED FOR ITS ENTIRE LENGTH WITH APPROPRIATE COMPACTION UNDER THE PIPE HAUNCHES.
3. THE PIPE SHALL BE PLACED IN A DRY TRENCH.
4. BACKFILL SHALL BE FREE OF UNSUITABLE MATERIAL SUCH AS LARGE ROCK, MULCH AND DEBRIS.
5. DENSITY TESTS ARE REQUIRED IN 1 FOOT LIFTS ABOVE THE PIPE AT INTERVALS OF 100' MAXIMUM.
6. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE TRENCH SAFETY LAWS AND REGULATIONS.
7. SEE SEPARATE DETAIL FOR "PAVEMENT REPLACEMENT/PIPE INSTALLATION UNDER EXISTING ROADWAY – OPEN CUT."
8. THE AFFECTED AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AS REQUIRED.

TYPICAL TRENCH DETAIL FOR NON-VEHICULAR AREAS

NOT TO SCALE



DENSITY PROCEDURES:

THE BACKFILL FOR THE FIRST AND SECOND STAGES SHALL BE PLACED IN 6" LAYERS (COMPACTED THICKNESS) AND SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.

Stage #1

THE CONTRACTOR SHALL PROVIDE ADEQUATE COMPACTED FILL BENEATH THE HAUNCHES OF THE PIPE, USING MECHANICAL TAMPS SUITABLE FOR THIS PURPOSE. THIS COMPACTION APPLIES TO THE MATERIAL PLACED BENEATH THE HAUNCHES OF THE PIPE AND ABOVE ANY BEDDING REQUIRED.

Stage #2

THE CONTRACTOR SHALL OBTAIN A WELL-COMPACTED BED AND FILL ALONG THE SIDES OF THE PIPE AND TO A POINT INDICATING THE TOP OF SUB-GRADE MATERIAL.

GENERAL NOTES:

1. SEE NOTES FOR TYPICAL TRENCH DETAIL FOR BACKFILL AND BEDDING MATERIAL SPECIFICATIONS.
2. BASE MATERIAL SHALL BE PLACED IN 6" LAYERS AND EACH LAYER COMPACTED TO 98% OF MAXIMUM DENSITY PER AASHTO T-180.
3. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE. THE AFFECTED AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION.
4. EXCAVATABLE "FLOWABLE FILL" WITH ULTIMATE COMPRESSIVE STRENGTH BETWEEN 50 AND 150 PSI MAY BE USED TO SUBSTITUTE FOR THE BACKFILL AND BASE MATERIALS IF APPROVED BY ENGINEER.
5. THESE SPECIFICATIONS MAY BE SUPERSEDED BY THE PERMITTING AGENCY.

PIPE INSTALLATION UNDER EXISTING ROADWAY – OPEN CUT

NOT TO SCALE

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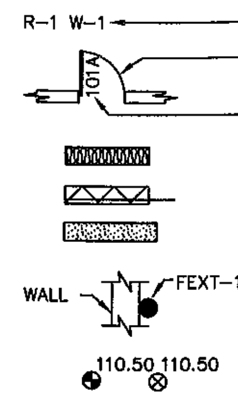
ARCHITECTURAL TYPICAL ABBREVIATIONS:

A.F.F.	ABOVE FINISH FLOOR
CONT.	CONTINUOUS
F.F.	FINISH FLOOR
F.F.E.	FINISH FLOOR ELEVATION
F.E.	FIRE EXTINGUISHER
FT.	FOOT
GB.	GRAB BAR
GWB	GYPSUM WALL BOARD
MAX.	MAXIMUM
N.I.C.	NOT IN CONTRACT
O.C.	ON CENTER
PTD	PAINTED
PJF	PREMOLDED JOINT FILLER
SIM.	SIMILAR
S.F.	SQUARE FEET
TYP.	TYPICAL
WIND.	WINDOW

ARCHITECTURAL / STRUCTURAL LEGEND



SYMBOL	LEGEND
R-1 W-1	WINDOW OR RELIGHT DESIGNATION
	DOOR DESIGNATION
	DOOR NUMBER SAME AS ROOM NUMBER
	BATT INSULATION
	STEEL STUD WALL (PLAN)
	GYPSUM WALLBOARD
WALL FEXT-1	FIRE EXTINGUISHER
110.50 110.50	SPOT ELEVATION

CODE COMPLIANCE DATA

GOVERNING CODES:

FLORIDA BUILDING CODE WITH 2002 AMENDMENTS (INCLUDES FLORIDA ACCESSIBILITY CODE, AND NFPA 101, LIFE SAFETY CODE)	2001 ED
FLORIDA MECHANICAL CODE	2001 ED
FLORIDA PLUMBING CODE	2001 ED
FLORIDA FUEL GAS CODE	
FLORIDA FIRE PREVENTION CODE	2001 ED
FLORIDA BUILDING CODE TEST PROTOCOLS FOR HIGH VELOCITY HURRICANE ZONE	2001 ED
CURRENTLY ADOPTED NATIONAL ELECTRIC CODE	2002 ED
NFPA 820, STD. FOR FIRE PROTECTION IN WATER TREATMENT AND COLLECTION FACILITIES	1999 ED

CONTROL BUILDING:

OCCUPANCY CLASSIFICATION:	B – BUSINESS OCCUPANCY
CONSTRUCTION TYPE:	TYPE IV, NON-COMBUSTIBLE, UNPROTECTED
ACTUAL FLOOR AREA:	450 SF TOTAL
ACTUAL HEIGHT:	15 FEET
ACTUAL NUMBER OF STORIES:	1
OCCUPANCY:	
ACTUAL OCCUPANCY	1 PERSON
EXIT ACCESS TRAVEL DISTANCE:	
PROPOSED MAXIMUM	30 FEET
EGRESS WIDTH:	
DOOR AND CORRIDORS	36 INCH MINIMUM PROVIDED
FIRE SEPARATION:	
EXTERIOR WALL RATING	ADJACENT BUILDINGS ARE A MINIMUM OF 25 FEET FROM THIS BUILDING IN ALL DIRECTIONS

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PROJECT HILLSBORO ASR PILOT PROJECT
PERSONNEL BUILDING ABBREV. AND LEGEND

TASK

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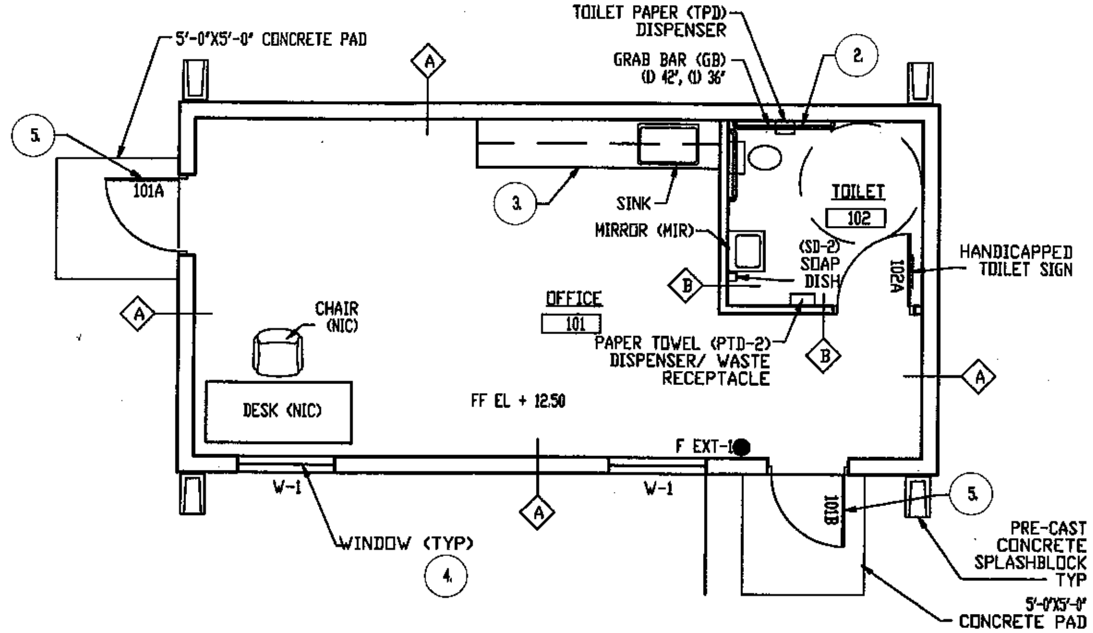
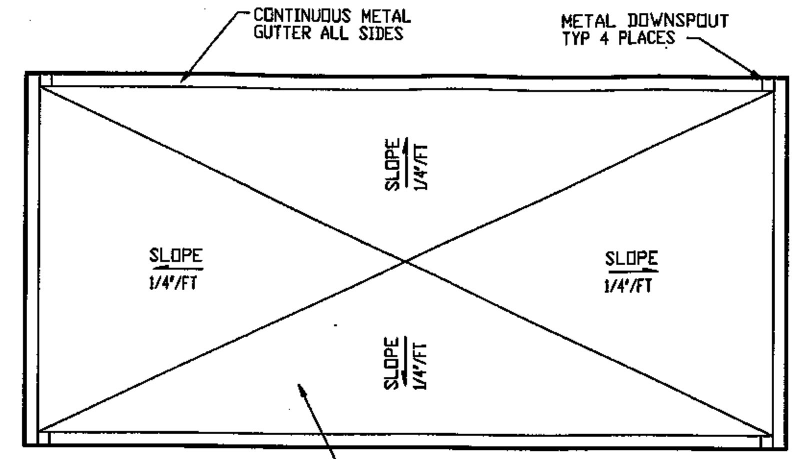
D-12



5'-0"X5'-0" CONCRETE PAD
TOILET PAPER (TPD) DISPENSER
GRAB BAR (GB) (1) 42", (1) 36"
101A
SINK
MIRROR (MIR)
TOILET
102
(SD-2) SOAP DISH
HANDICAPPED TOILET SIGN
102A
CHAIR (NIC)
OFFICE
101
PAPER TOWEL (PTD-2) DISPENSER/ WASTE RECEPTACLE
DESK (NIC)
FF EL + 12.50
F EXT-1
W-1
WINDOW (TYP)
101B
PRE-CAST CONCRETE SPLASHBLOCK TYP
5'-0"X5'-0" CONCRETE PAD

FLOOR PLAN



ROOF PLAN

SCALE: 1" = 8'

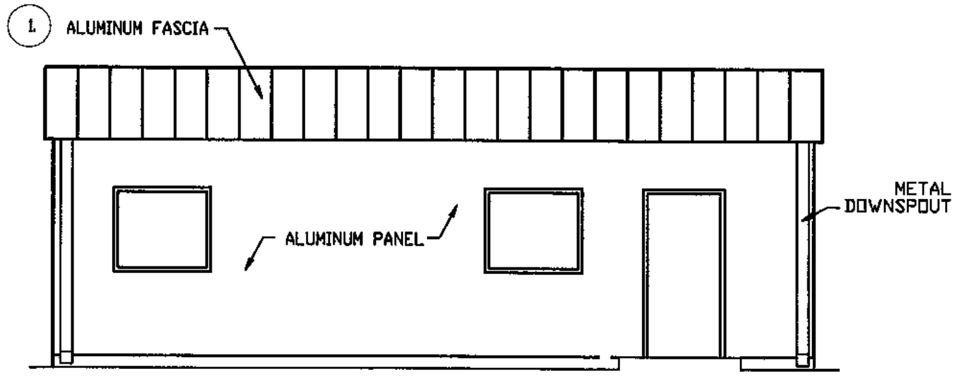
LEGEND

- (A) WALL TYPES
- (3) KEY NOTES
- F EXT-1 ABC TYPE FIRE EXTINGUISHER
- 60" ADA TURNING RADIUS
- (NIC) NOT IN CONTRACT

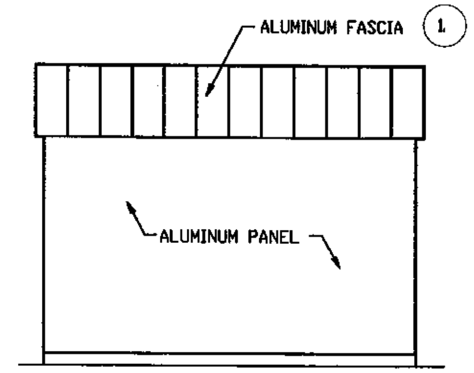
DESIGN LATERAL WIND PRESSURES			
		+	-
WINDOW	W1	45	50
DOOR	101A	45	50
DOOR	101B	45	50

GENERAL NOTES:

1. FOR CODE DATA AND LEGEND SEE SHEET D-12.
2. UNLESS OTHERWISE INDICATED, PLAN DIMENSIONS ARE TO, FACE OF STUDS AND FACE OF CONCRETE WALLS.
3. "FINISH FLOOR" REFERS TO TOP ON CONCRETE SLABS. FINISH FLOORING IS INSTALLED ABOVE THE FLOOR LINE.
4. REPETITIVE FEATURES ARE NOT DRAWN IN THEIR ENTIRETY AND SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.
5. WHERE DOOR IS LOCATED NEAR CORNER OF ROOM AND IS NOT LOCATED BY DIMENSION ON PLAN OR DETAILS, DIMENSION SHALL BE , 4" AT GWB WALLS.
7. LINE OF EXISTING GRADES, AS SHOWN ON THE BUILDING ELEVATIONS AND SECTIONS ARE APPROXIMATE. THEY ARE AT THE BUILDING FACE, OR ON THE SECTION END EXCEPT AS NOTED.
8. VERIFY ALL ROUGH-IN DIMENSIONS FOR EQUIPMENT PROVIDED IN THIS CONTRACT, OR BY OTHERS.
9. REFER TO STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CATEGORIES OR DRAWINGS FOR ADDITIONAL NOTES.
10. VERIFY SIZE AND LOCATION OF, AND PROVIDE: REQUIRED OPENINGS THROUGH FLOORS AND WALLS, ACCESS DOORS, FURRING, CURBS, ANCHORS AND INSERTS. PROVIDE ALL BASES AND BLOCKING REQUIRED FOR ACCESSORIES, MECHANICAL, ELECTRICAL AND OTHER EQUIPMENT.
11. FOR TOILET ROOM ACCESSORY AND ADA SIGNS, SEE DRAWING D-15.



FRONT ELEVATION

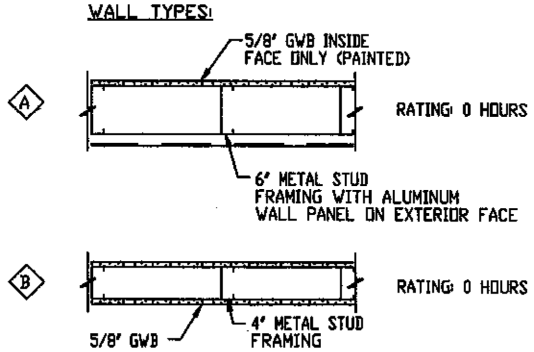


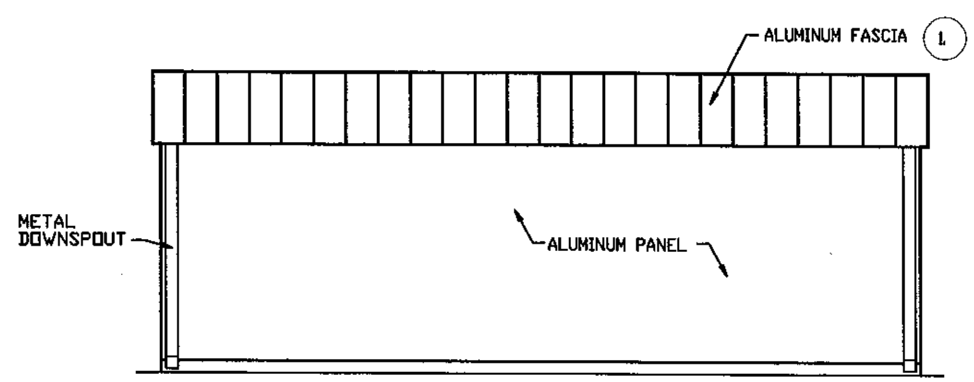
SIDE ELEVATION (TYP)

KEY NOTES:

1. FASCIA SHALL BE STANDING SEAM METAL PANELS OVER METAL FRAMING WITH INTEGRAL GUTTER AND DOWNSPOUT SYSTEM.
2. TOILET ROOM ACCESSORIES SHALL ADA COMPLIANT TYPE MOUNTED IN ACCORDANCE WITH THE 2001 FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION.
3. BASE AND UPPER CABINETS WITH PLASTIC LAMINATE ON ALL EXPOSED SURFACES.
   TOP OF COUNTER HEIGHT: 34" AFF MAX
   TOP OF UPPER CABINET: 8'-0" AFF
4. FIXED ALUMINUM WINDOW SYSTEM BY BUILDING MANUFACTURER.
5. HOLLOW METAL DOOR AND FRAME ASSEMBLY WITH DADE COUNTY NOTICE OF ACCEPTANCE, PROVIDE LOCKSET WITH LEVER HARDWARE, SUITABLE THRESHOLD, WEATHERSTRIPPING, RAIN DRIP, AND PARALLEL ARM CLOSER.

WALL TYPES:





BACK ELEVATION

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Golder Associates

PROJECT HILLSBORO ASR PILOT PROJECT

PERSONNEL BUILDING ELEVATIONS

TASK

ORIGINAL March 2005
REVISIONS:
1.
2.
3.
4.
5.

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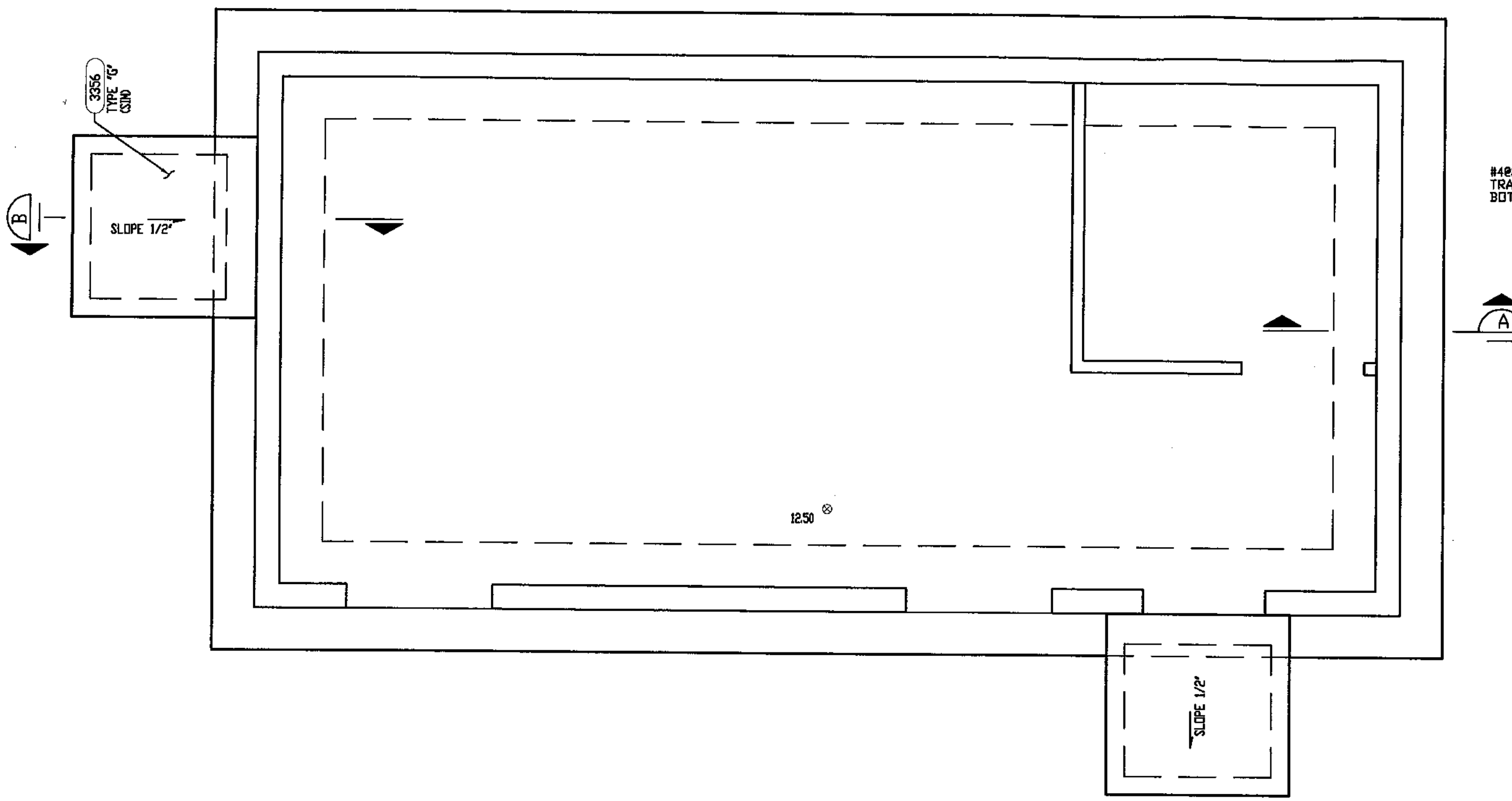
FL PE NO. 49,858

JOB NO. 100281
DRAWN RPT
DESIGNED
CHECKED
Q.C.

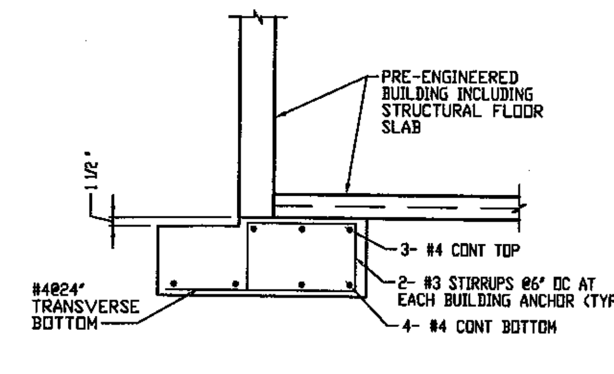
D-13



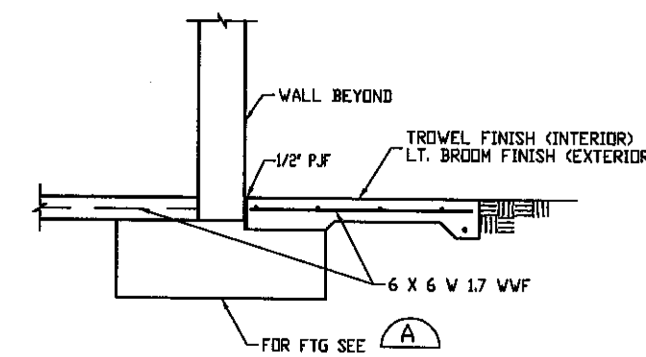
FOUNDATION PLAN

4 2 0 4

SCALE: 1" = 4'



SECTION A



SECTION B

BUILDING NOTES:

1. BUILDING TO BE DESIGNED FOR 130 MPH WIND LOADS IN ACCORDANCE WITH 2001 FLORIDA BUILDING CODE AND ASCE 7. SUBMIT CALCULATIONS ALONG WITH BUILDING SUBMITTAL SIGNED AND SEALED BY FLORIDA STRUCTURAL ENGINEER.

2. FLOOR SYSTEM TO BE DESIGNED FOR 50 PSF LIVE LOAD PLUS 20 PSF SUPERIMPOSED DEAD LOAD

3. ANCHORAGE DETAILS BETWEEN BUILDING AND CONC FOUNDATION SHALL BE SUBMITTED AS PART OF BUILDING SUBMITTAL. CONTRACTOR TO COORDINATE ALL EMBEDS AND/OR CAST-IN-PLACE BOLTS REQUIRED TO SECURE BUILDING TO FOUNDATION.

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PROJECT HILLSBORO ASR PILOT PROJECT

PERSONNEL BUILDING FOUNDATION PLAN

TASK

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D-14

DOOR SCHEDULE

NUMBER	HEIGHT	WIDTH
101A – EXTERIOR DOOR W/ LIGHT	7'	3' 4"
101B – EXTERIOR DOOR W/ LIGHT	7'	3' 4"
102A – INTERIOR DOOR	7'	3' 4"

WINDOW SCHEDULE

NUMBER	HEIGHT	WIDTH
W-1	3' 6"	4'

HARDWARE SCHEDULE

TYPE	QTY.
DOOR LOCKSET	3
DEADBOLT	2

PLUMBING FIXTURE SCHEDULE

FIXTURE	QTY.
UTILITIES SINK	1
BATHROOM SINK	1
TOILET	1
TOILET PAPER DISPENSER	1
MIRROR	1
SOAP DISH	1
PAPER TOWEL DISPENSER	1
WASTE RECEPTACLE	1
42" GRAB BAR	1
36" GRAB BAR	1
ADA SIGN	1

ADA SIGN
NOT TO SCALE

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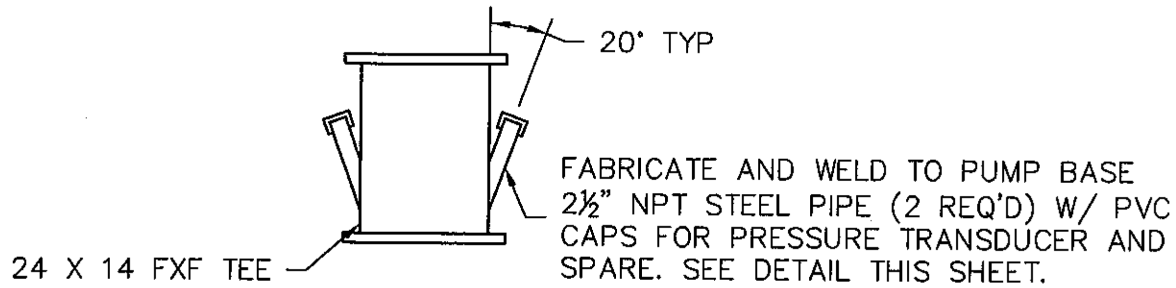
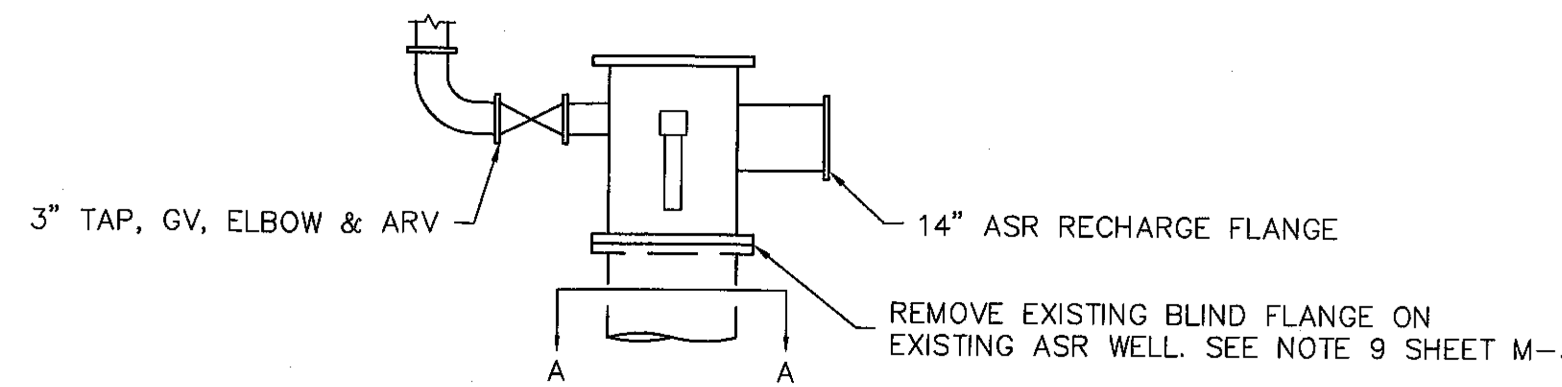
D-15



ASR RECOVERY PUMP BASE TEE DETAIL (SIDE)

NOT TO SCALE



FRONT

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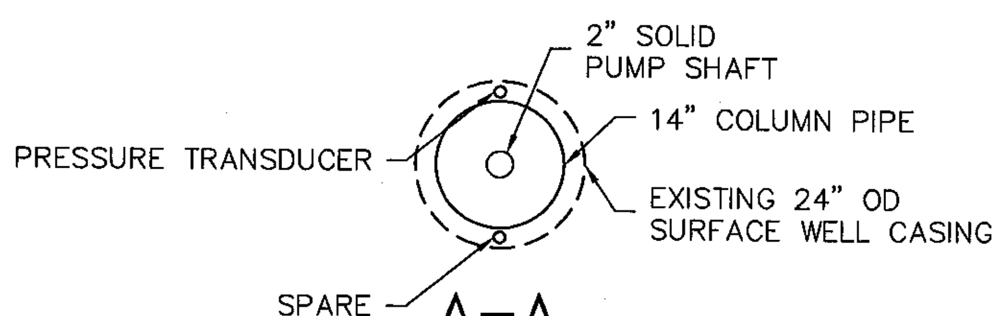
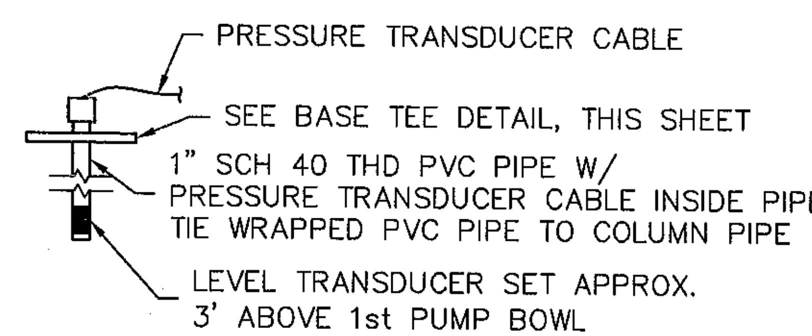


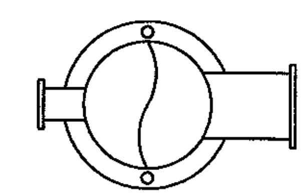
A–A

NOT TO SCALE



PRESSURE TRANSDUCER DETAIL

NOT TO SCALE



TOP

NOT TO SCALE

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PROJECT HILLSBORO ASR PILOT PROJECT

ASR RECOVERY PUMP DETAILS

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D-16