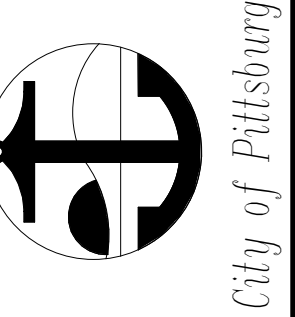


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ERIK ZALKIN
RCE: 07532, Exp. 12/31/15
Date:

ACCEPTED FOR USE BY:
KEITH HALVORSON
City Engineer
Date:



GENERAL PHASE 1A
COVER SHEET

BY: DRAWN: BC
CHECKED: EZ
REVIEWED: RS
DATE: 07/24/14
SCALE: 12" = 1'-0"

DATE	REV	DESCRIPTION

SHEET NO.
1 OF 50
SHEET:
G-1

CONTRACT DOCUMENTS FOR THE CONSTRUCTION OF

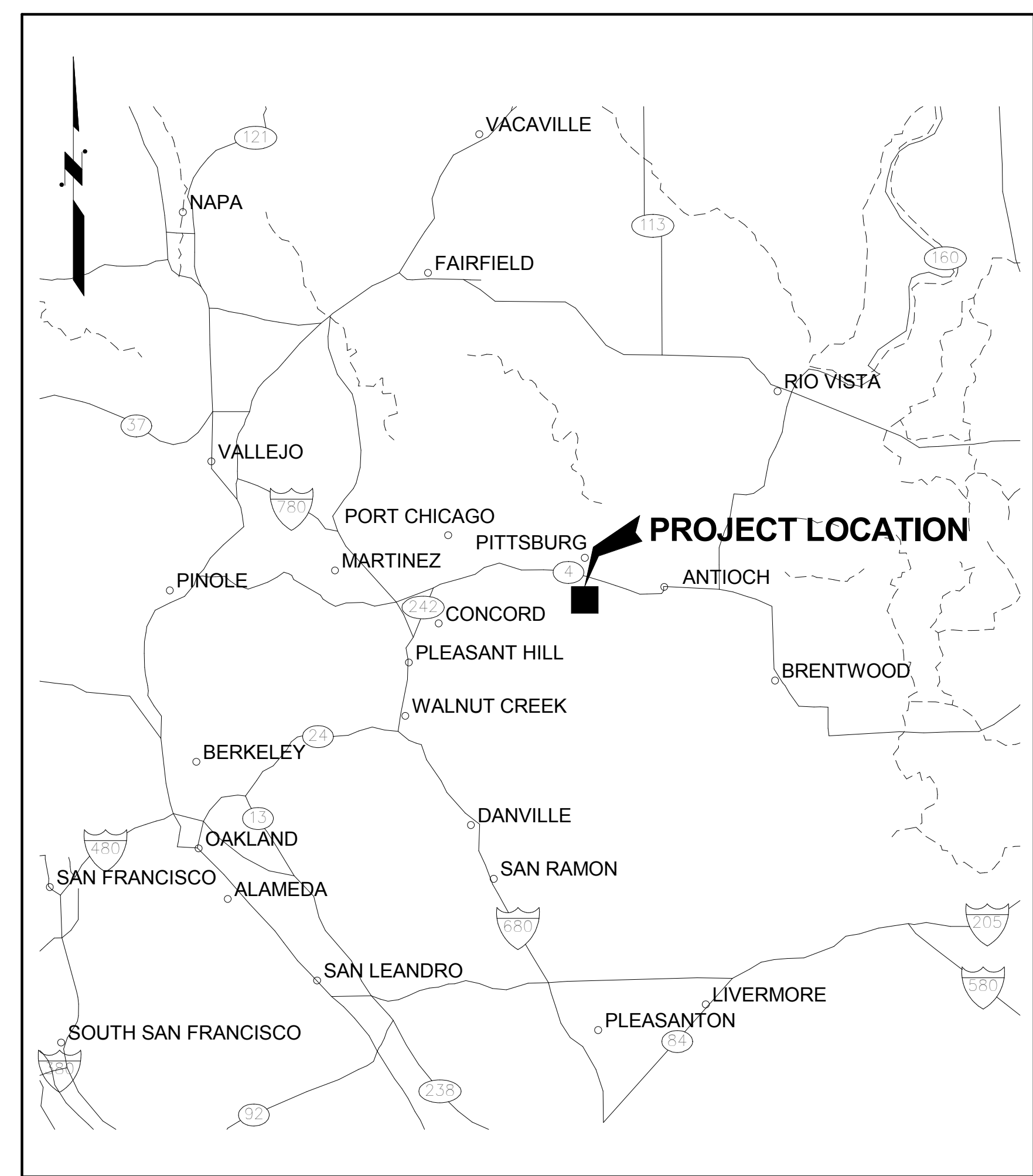
CONTRACT NO. 2012-16A

WATER TREATMENT PLANT CAPITAL IMPROVEMENTS

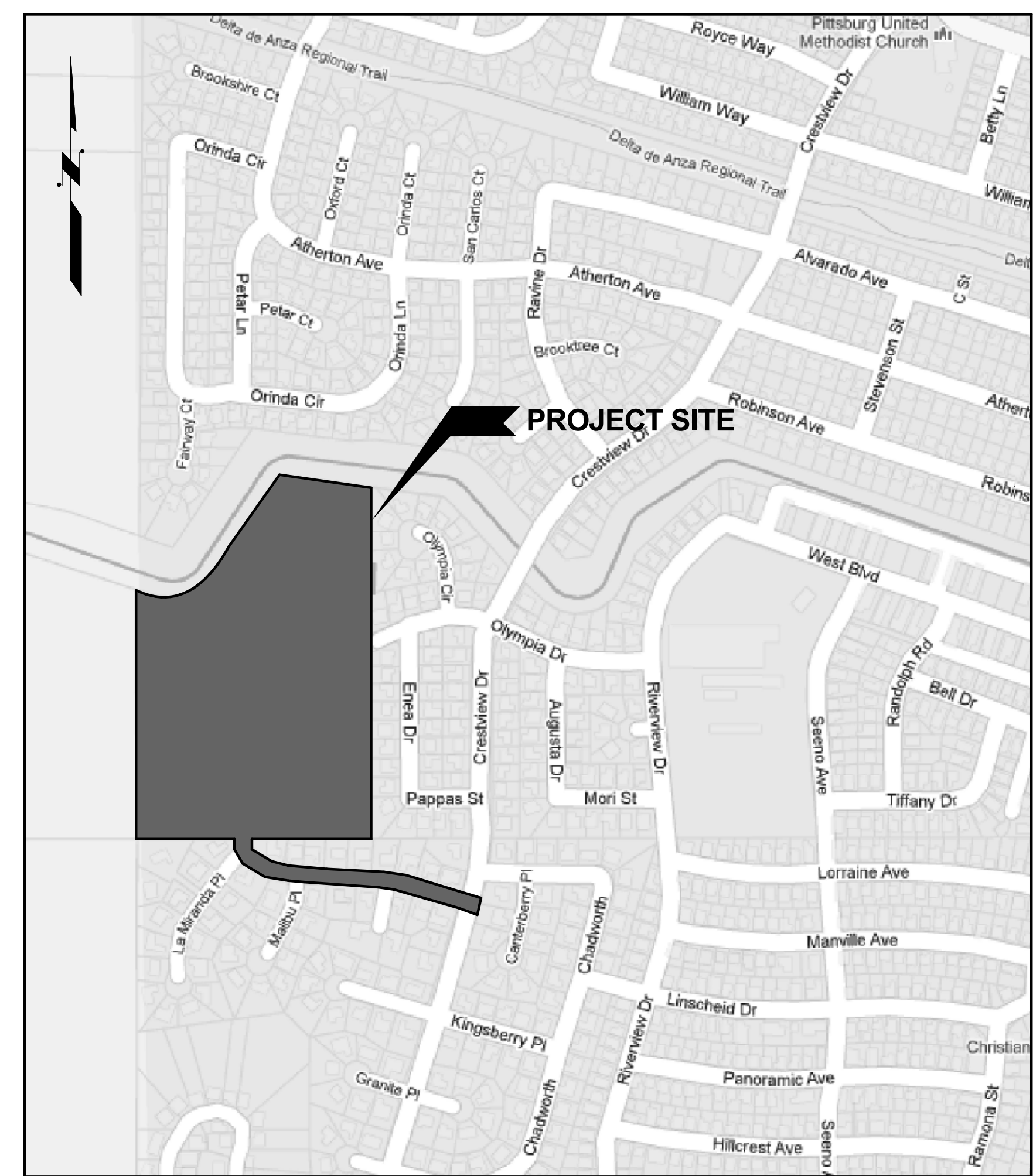
PHASE 1A

PITTSBURG, CALIFORNIA

JULY 2014



VICINITY MAP



LOCATION MAP

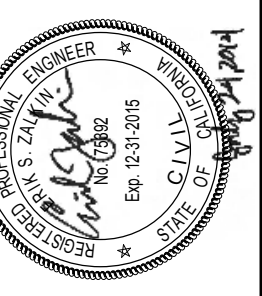


FINAL DESIGN
 JULY 2014

FINAL DESIGN
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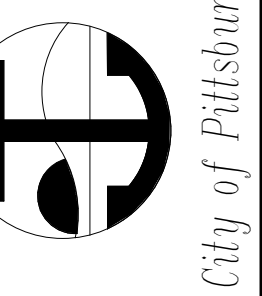
DRAWING NUMBER	SHEET NUMBER	SHEET TITLE
GENERAL		
1	G-1	COVER SHEET
2	G-2	INDEX OF DRAWINGS
3	G-3	DEMOLITION PLAN AND NEW FACILITIES SITE PLAN
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5	G-5	STANDARD ABBREVIATIONS 2
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STRUCTURAL		
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21	S-2	STRUCTURAL NOTES 1
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31	S-700	UPPER POND PARTITION WALL ISOMETRIC
32	S-701	UPPER POND PARTITION WALL PLAN & ELEVATION
33	S-702	UPPER POND PARTITION WALL SECTIONS AND DETAILS

DRAWING NUMBER	SHEET NUMBER	SHEET TITLE
PROCESS AND INSTRUMENTATION		
34	P-1	PROCESS SYMBOLS
35	P-2	PROCESS EQUIPMENT, VALVES AND PIPELINE SYMBOLS
36	P-3	INSTRUMENT SYMBOLS AND IDENTIFICATION SYSTEMS
37	P-701	UPPER POND SLUDGE STORAGE AND DECANTING
MECHANICAL		
38	M-1	WALL AND FLOOR PENETRATIONS
39	M-2	DRAIN AND CLEANOUT DETAILS
40	M-3	UTILITY STATIONS
41	M-701	UPPER POND PLAN AND ELEVATION
42	M-702	UPPER POND SECTIONS AND DETAILS
43	M-703	SLUDGE FORCEMAIN OUTLET ASSEMBLIES
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44	E-1	LEGEND AND SYMBOLS SHEET 1
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48	E-5	OVERALL PARTIAL SITE PLAN
49	E-701	UPPER POND POWER PLAN
INSTRUMENTATION		
50	I-1	INSTRUMENTATION DETAILS



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 ERIK ZALKIN
 RCE: 076392, Exp. 12/31/15
 Date: _____

ACCEPTED FOR USE BY:
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 City Engineer
 Date: _____



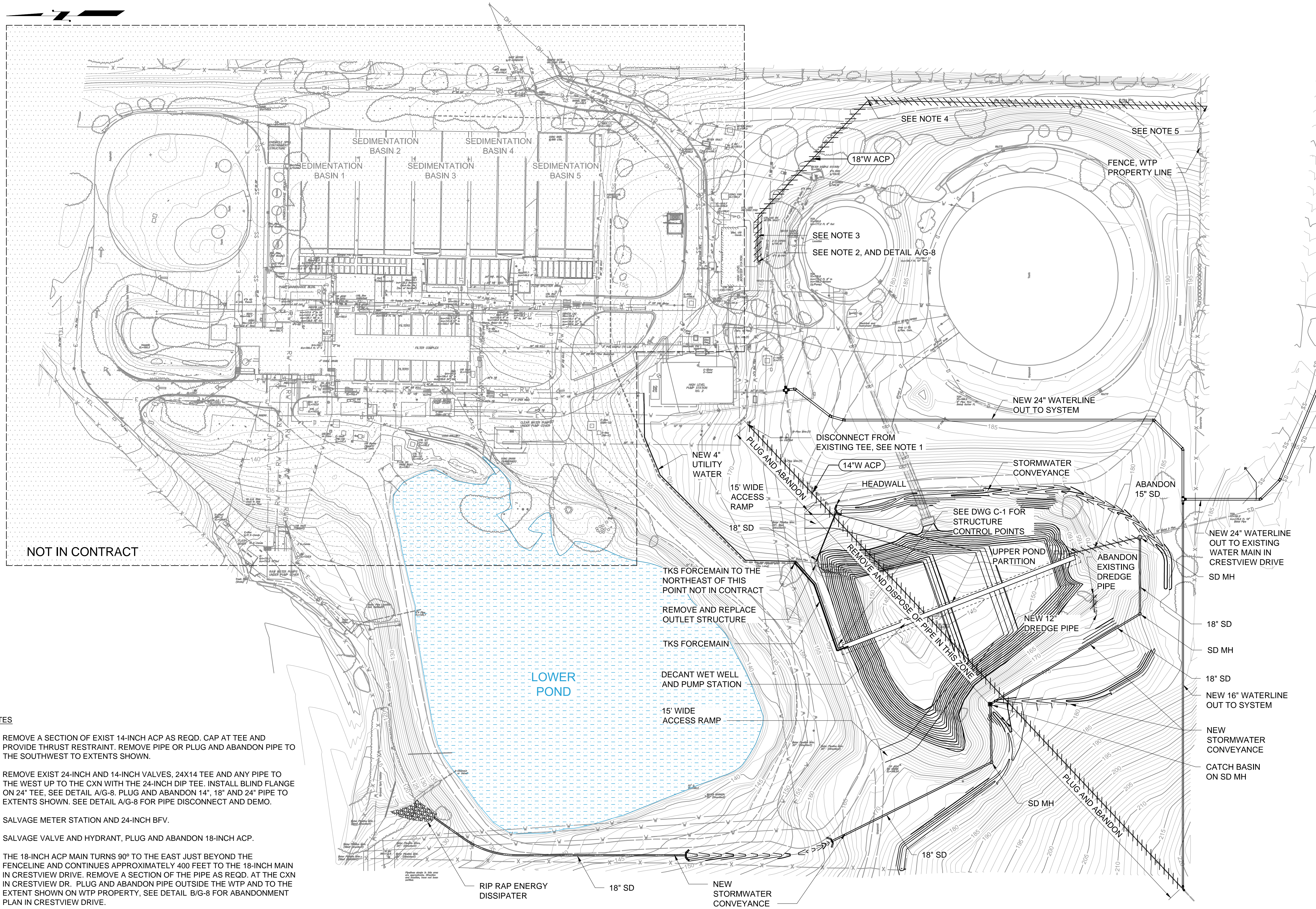
GENERAL PHASE 1A
INDEX OF DRAWINGS

BY	DRAWN: BC
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DATE:	03/06/13
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DATE	REV	DESCRIPTION

SHEET NO.
2 OF **50**
 SHEET:
G-2

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NOTES

- REMOVE A SECTION OF EXIST 14-INCH ACP AS REQD. CAP AT TEE AND PROVIDE THRUST RESTRAINT. REMOVE PIPE OR PLUG AND ABANDON PIPE TO THE SOUTHWEST TO EXTENTS SHOWN.
- REMOVE EXIST 24-INCH AND 14-INCH VALVES, 24X14 TEE AND ANY PIPE TO THE WEST UP TO THE CXN WITH THE 24-INCH DIP TEE. INSTALL BLIND FLANGE ON 24\" TEE, SEE DETAIL A/G-8. PLUG AND ABANDON 14\", 18\" AND 24\" PIPE TO EXTENTS SHOWN. SEE DETAIL A/G-8 FOR PIPE DISCONNECT AND DEMO.
- SALVAGE METER STATION AND 24-INCH BFV.
- SALVAGE VALVE AND HYDRANT, PLUG AND ABANDON 18-INCH ACP.
- THE 18-INCH ACP MAIN TURNS 90° TO THE EAST JUST BEYOND THE FENCELINE AND CONTINUES APPROXIMATELY 400 FEET TO THE 18-INCH MAIN IN CRESTVIEW DRIVE. REMOVE A SECTION OF THE PIPE AS REQD. AT THE CXN IN CRESTVIEW DR. PLUG AND ABANDON PIPE OUTSIDE THE WTP AND TO THE EXTENT SHOWN ON WTP PROPERTY, SEE DETAIL B/G-8 FOR ABANDONMENT PLAN IN CRESTVIEW DRIVE.

NOT IN CONTRACT


PLOT DATE: 7/24/2014 1:51:45 PM CAD User: BC
 PATH AND FILENAME: \\BCVCK\FP01\Projects\1430001\43879 - Pittsburg WTP Improvements Ph 1\CADD\1-MODELS\Pittsburg Common Contract -ADMIN-1A.rvt

ABBREVIATION	DEFINITION
A	
A	AMPERE
A/C	AIR CONDITIONING
AA	ATOMIC ABSORPTION UNIT
AB	ANCHOR BOLT, AGGREGATE BASE
AC	ASPHALT CONCRETE, ALTERNATING CURRENT, AIR CONDITIONER
ACC	AREA CONTROL CENTER
ACP	ASBESTOS CEMENT PIPE
ACST	ACOUSTIC
ADWF	AVERAGE DRY WEATHER FLOW
AF	AIR FILTER
AHU	AIR HANDLING UNIT
AIT	ANALYZER INDICATING TRANSMITTER
AL	ALUMINUM
ALT	ALTERNATE
ALUM	ALUMINUM
AMD	AIR MONITORING DEVICE
ANC	ANCHOR
APPROX	APPROXIMATE(LY)
AR	ALARM RELAY
AS	AIR SUPPLY
ASSY	ASSEMBLY
ATM	ATMOSPHERE
ATS	ANODE TEST STATION
AV	ANGLE VALVE
AVG	AVERAGE
B	
BAV	BALL VALVE
BC	BEGINNING OF CURVE
BCOP	BARE COPPER
BCR	BEGINNING OF CURVE RETURN
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLK	BLOCK
BM	BEAM, BENCHMARK
BOD	BIOCHEMICAL OXYGEN DEMAND
BOT	BOTTOM
BTS	BAND TEST STATION
BTU	BRITISH THERMAL UNIT
BV/BAV	BALL VALVE
BVC	BEGINNING OF VERTICAL CURVE
C	
CAB	DIRECT BURIAL CABLE
CAP	CAPACITY
CB	CATCH BASIN
C-C	CENTER TO CENTER
CCP	CONCRETE CYLINDER PIPE
CCSP	CONCRETE LINED AND COATED STEEL PIPE
CD	CEILING DIFFUSER
CDR	CONDUCTOR, CONDENSER
CED	CEILING EXHAUST DIFFUSER
CER	CEILING EXHAUST REGISTER
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CIP	CAST IRON PIPE
CIRC	CIRCUMFERENCE
CJ	CONSTRUCTION JOINT
CKPL	CHECKER PLATE
CKV	CHECK VALVE / BALL VALVE
CL	CLEARANCE
CL2	CHLORINE
CLG	CHLORINE GAS SYSTEM
CLR	CLEAR, CHLORINATOR
CM	MANUAL CONTROL STATION
CMA	MANUAL-AUTO CONTROL STATION
CMC	CEMENT MORTAR COATED
CML	CEMENT MORTAR LINED
CMP	CORRUGATED METAL PIPE
CMP-AC	CORRUGATED METAL PIPE ASPHALT COATED
CNTL	CONTROL
CO	CLEANOUT
CO2	CARBON DIOXIDE
COD	CHEMICAL OXYGEN DEMAND
COL	COLUMN
CONC	CONCRETE
COND	CONDUCTIVITY, CONDUCTOR, CONDENSATE
CONN	CONNECTION
CONT	CONTINUED(OUS)
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CXN	CONNECTION

ABBREVIATION	DEFINITION
CREJ	CORRUGATED RUBBER EXPANSION JOINT
CRF	CHEMICAL FEEDER
CRN	CRANE
CSD	CEILING SUPPLY DIFFUSER
CSP	CORRUGATED STEEL PIPE
CTR	CONTRACTOR, CENTER
CTS	CORROSION TEST STATION
CU	CONTROL UNIT, COPPER, CUBIC
D	
D	DRAIN
DB	DUCT BANK
DET	DETAIL
DF	DRINKING FOUNTAIN
DFD	DUCT FIRE DAMPER
DG	DOOR GRILLE
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGRAM
DIFF	DIFFERENTIAL
DIP	DUCTILE IRON PIPE
DLD	DEDICATED LAND DISPOSAL
DM	DAMPER MOTOR
DN	DOWN
DO	DISSOLVED OXYGEN
DR	DRAIN ROCK, DOOR
DT	DRAIN TRAP, DRIP TRAP
DWG	DRAWING
DWLS	DOWELS
E	
EA	EXHAUST AIR, EACH
EAT	ENTERING AIR TEMPERATURE
EC	END OF CURVE, EVAPORATIVE COOLER
ECC	ECCENTRIC
EDU	EDUCTOR
EE	EACH END
EF	EACH FACE
EFF	EFFLUENT
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELL	ELBOW
EMBD	EMBEDDED
EMT	ELECTRICAL METALIC TUBING
EP	EDGE OF PAVEMENT, ELECTRIC/PNEUMATIC CONVERTER
EPR	EVAPORATOR
EPWWF	EQUALIZED PEAK WET WEATHER FLOW
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EXISTING SURFACE, ELECTRICAL SERVICE
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EW T&B	EACH WAY, TOP AND BOTTOM
EWEF	EACH WAY EACH FACE
EWT	ENTERING WATER TEMPERATURE
EX	EXTRA
EXG	EXHAUST GRILLE
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
F	
F	FAHRENHEIT, FACE, FUSE(D), FAN
FAB	FABRICATE(D)(TION)
FAI	FRESH AIR INTAKE
FB	FLAT BAR, FLOOR BEAM
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FCR	FINE CRUSHED ROCK
FCV	FLOW CONTROL VALVE
FE/FIT	FLOW INDICATING TRANSMITTER
FF	FAR FACE
F-F	FACE TO FACE
FH	FIRE HYDRANT, FLATHEAD
FHD	FLATHEAD
FI	ROTOMETER
FIN	FINISHED
FL	FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE(D)
FLR	FLOOR
FM	FORCE MAIN

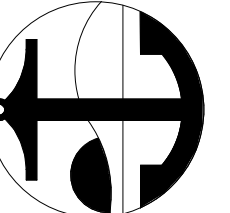
ABBREVIATION	DEFINITION
FMH	FLEXIBLE METAL HOSE
FO	FAIL OPEN
FPC	FLEXIBLE PIPE COUPLING
FPC-T	FLEXIBLE PIPE COUPLING TO TAKE TENSION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PIPE
FRS	FREEZESTAT
FS	FLOW SWITCH, FAR SIDE
FSH	FLOW SWITCH HIGH
FSL	FACULTATIVE SLUDGE LAGOON, FLOW SWITCH LOW
FT	FEET
FTG	FOOTING
FTGS	FITTINGS
FUT	FUTURE
FZT	FREEZESTAT
G	
GA	GAGE
GALV	GALVANIZED
GB	GRADE BREAK
GBV	GLOBE VALVE
GD	GUARD
GEN	GENERAL
GL	GLASS
GLV	GLOBE VALVE
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR	GRADE
GRD	GROUND
GRT	GROUT
GRTG	GRATING
GSKT	GASKET
GSP	GALVANIZED STEEL PLATE
GV	GATE VALVE
H	
HD	HEAVY DUTY
HDG	HOT-DIPPED GALVANIZED
HDOT	HEAVY DUTY OILTIGHT
HDPE	HIGH DENSITY POLYETHYLENE
HER	HEADER
HOA	HAND-OFF-AUTO
HOR	HORIZONTAL
HP	HIGH PRESSURE, HIGH POINT, HORSEPOWER
HR	HANDRAIL, HEAT RESERVOIR, HOUR
HST	HOIST
HT	HEIGHT, HIGH
HTV	HIGH TEMPERATURE VENT
HV	HOSE VALVE, HEATING AND VENTILATING UNIT
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HWTR	HIGH WATER
HYD	HYDRAULIC
HYDT	HYDRANT
I	
I	INTEGRAL CONTROL
ID	INSIDE DIAMETER
IF	INSIDE FACE
IJTS	INSULATED JOINT TEST STATION
IL	INDICATING LAMP
IN	INCH
INF	INFLUENT
INJ	INJECTOR
INS	INSULATE(D)(ION)
INSTR	INSTRUMENTATION
INT	INTERIOR
INTER	INTERMEDIATE
INV	INVERT
IT	INSTRUMENT TAP
J	
JST	JOIST
JT	JOINT
K	
K	KIP (1000 POUNDS)
KO	KNOCK OUT
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT

ABBREVIATION	DEFINITION
L	
L	LENGTH
LAM	LAMINATED
LAT	LEAVING AIR TEMPERATURE, LATERAL, LATITUDE
LB	POUND
LEV	LEVEL
LG	LONG
LOS	LOCKOUT STOP
LP	LOW PRESSURE, LIGHTING PANEL
LS	LEVEL SWITCH
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LTG	LIGHTING
LWR	LOWER
M	
MAN	MANUAL(LY)
MAX	MAXIMUM
MBH	THOUSAND BTU'S PER HOUR
MCM	THOUSAND CIRCULAR MILLS
MECH	MECHANICAL
MFR	MANUFACTURE(R)
MG/L	MILLIGRAMS PER LITER
MGD	MILLION GALLONS PER DAY
MILSPEC	MILITARY SPECIFICATION
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MILLILITER
MTR, M	MOTOR
MUL/DIV	MULTIPLY/DIVIDE
MV	MUD VALVE, MILLIVOLT
MW	MONITORING WELL
N	
N	NEUTRAL, NORTH
NA	NONAUTOMATIC
NAOH	SODIUM HYDROXIDE
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBER
NOX	NITRATES AND NITRITES
NPSH	NET POSITIVE SUCTION HEAD
NRS	NONRISING STEM
NS	NEAR SIDE
NTS	NOT TO SCALE
O	
OA	OUTSIDE AIR, OVERALL
OAI	OUTSIDE AIR INTAKE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OL	OVERLOAD
OPNG	OPENING
OPP	OPPOSITE
ORP	OXIDATION REDUCTION POTENTIAL
ORU	ODOR REDUCTION UNIT
OSA	OUTSIDE AIR
(STANDARD ABBREVIATIONS P-Z ARE LOCATED ON DRAWING G-5).	

PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
 RCE: 076392, Exp. 12/31/15

ACCEPTED FOR USE BY:
KEITH HALVORSON
 City Engineer



City of Pittsburg

STANDARD ABBREVIATIONS 1

GENERAL PHASE 1A

BY	DRAWN: BC	CHECKED: EZ	REVIEWED: RS	DATE: 02/25/13	SCALE: 12" = 1'-0"
DESCRIPTION					
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DATE					

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4 OF **50**

SHEET:
G-4

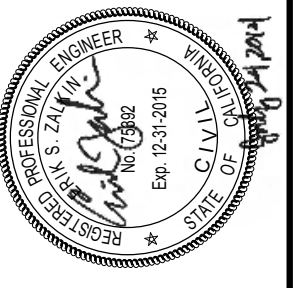
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ABBREVIATION	DEFINITION
(STANDARD ABBREVIATIONS A-O ARE LOCATED ON DRAWING G-4).	
P	
P	PUMP, PHASE, PROCESS
P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
PAR	PARALLEL
PBU	POLYMER BLEND UNIT
PC	PLAIN CONCRETE, PIPE COUPLING
PCC	PLANT CONTROL CENTER
PCHV	PINCH VALVE
PCP	PLAIN CONCRETE PIPE
PC-T	PIPE COUPLING TO TAKE TENSION
PCU	PHOTOELECTRIC CONTROL UNIT
PE	PNEUMATIC/ELECTRICAL CONVERTER
PERC	PERCOLATION
PF	POWER FACTOR, PRESSURIZED FLOW
PG	PRESSURE GAGE
PI	PRESSURE INDICATOR, POINT OF INTERSECTION
PIT	PRESSURE INDICATING TRANSMITTER
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL	PROPERTY LINE, PIPELINE, PLATE
PLYWD	PLYWOOD
PNL	PANELBOARD
POC	POINT OF CURVE, POINT OF CONNECTION
PP	POWER POLE
PRD	PRESSURE RELIEF DAMPER
PRES	PRESSURE
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REGULATING (REDUCING) VALVE
PS	PRESSURE SENSOR
PSF	POUNDS PER SQUARE FOOT
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PSL	PIPE SLEEVE
PV	PLUG VALVE, PROCESS VARIABLE
PVC	POLYVINYL CHLORIDE
PVT	PAVEMENT
Q	
Q	RATE OF FLOW
QCPLG	QUICK COUPLING
R	
R	RADIUS, RISER
R/C	REINFORCED CONCRETE
RA	RETURN AIR
RAF	ROLL TYPE AIR FILTER
RCDR	RECORDER
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RDWY	ROADWAY
REC	RECEIVER
RECD	RECEIVED
RECP	RECEPTACLE
RED	REDUCE(R)
REG	REGULATOR
REINF	REINFORCE, REINFORCING
REL	RELAY
REM	REMOVE, REMOVABLE
REQ'D	REQUIRED
RFCA	RESTRAINED FLANGED COUPLING ADAPTER
RGS	RIGID GALVANIZED STEEL
RL	REDUCED LEVEL
RM	ROOM
RP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RT	RIGHT
RTP	REINFORCED THERMOSET POLYESTER
RTU	REMOTE TERMINAL UNIT
RWL	RAINWATER LEADER
RWP	RAINWATER PIPE
S	
S	SOUTH
SB	SIGNAL BOX
SCD	SCUPPER DRAIN
SCH	SCHEDULE
SCR	SCRUBBER
SD	SPLITTER DAMPER
SECT	SECTION
SFT	WATER SOFTENER
SG	SUPPLY GRILLE
SHT	SHEET

ABBREVIATION	DEFINITION
SIM	SIMILAR
SL	SLOPE
SG	SLIDE GATE
SN	SCREEN
SO2	SULFUR DIOXIDE
SOV	SOLENOID VALVE
SP	SPACE, SET POINT, STATIC PRESSURE, STOP
SPEC	SPECIFICATION(S)
SPG	SPACING
SPL	SPLICE
SQ	SQUARE
SRV	SAFETY RELIEF VALVE
SSFH	STAINLESS STEEL FLAT HEAD
SSK	SERVICE SINK
STA	STATION
STD	STANDARD, STORM DRAIN
STIFF	STIFFENER
STL	STEEL
STRUCT	STRUCTURE
SUB	SUBSTITUTE
SUPT	SUPPORT
SURF	SURFACE
SYM	SYMMETRICAL
T	
T	TRAP
T & B	TOP AND BOTTOM
T/B	TOP OF BANK
TC	TOP OF CURB
TCL	TOTALLY CLOSED
TD	TIME DELAY RELAY, TANK DRAIN, TEMPERATURE DIFFERENCE
TE	TOTALLY ENCLOSED, THICKENER EFFLUENT
TI	TEMPERATURE INDICATOR
TOA	TEST-OFF-AUTO
TP	TANGENT POINT
TPG	TOPPING
TPLX	TRIPLEXED
TR	STAIR TREAD
TRM	TRANSMITTER
TRN	TRANSDUCER
TTE	TOTE
TUV	TELESCOPING VALVE
TV	THERMOSTATIC VALVE
TYP	TYPICAL
U	
UB	UTILITY BOX
UG	UNDER GROUND
UL	ULTIMATE LOAD
UN	UNION
UP	UTILITY POLE
US	UTILITY STATION
USS	UNIT SUBSTATION
V	
V	VOLTS
VAC	VOLTS ALTERNATING CURRENT
VAR	VARIABLE, VARIABLE
VB	VALVE BOX
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE, VENDOR CONTROL PANEL
VD	VOLUME DAMPER
VDC	VOLTS DIRECT CURRENT
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VP	VAPOR PRESSURE
VSC	VARIABLE SPEED CONTROLLER
VSD	VARIABLE SPEED DRIVE
VTR	VENT THROUGH ROOF

ABBREVIATION	DEFINITION
W	
W	WITH
W/O	WITHOUT
WC	WATER CLOSET, WATER COLUMN
WCO	WALL CLEANOUT
WD	WOOD
WEG	WALL EXHAUST GRILLE
WER	WALL EXHAUST REGISTER
WF	WIDE FLANGE
WI	WROUGHT IRON
WS	WATER SURFACE
WSR	WALL SUPPLY REGISTER
WSTP	WATERSTOP
WT	WATERTIGHT
WWF	WELDED WIRE FABRIC
X	
X	SPARE CONDUIT
XFMR	TRANSFORMER
XLP	CROSS LINKED POLYETHYLENE
XP	EXPLOSION PROOF
Y	
YCO	YARD CLEANOUT
Z	
ZS	(LIMIT) SWITCH

ABBREVIATION	DEFINITION

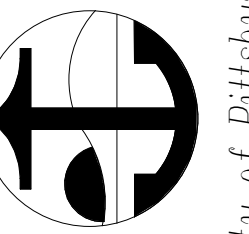


PREPARED UNDER THE DIRECTION OF:

ERIK ZALKIN
RCE: 076392, Exp. 12/31/15
Date: _____

ACCEPTED FOR USE BY:

KEITH HALVORSON
City Engineer
Date: _____



City of Pittsburgh

GENERAL PHASE 1A

STANDARD ABBREVIATIONS 2

BY	BY DRAWN: BC
CHECKED:	CHECKED: EZ
REVIEWED:	REVIEWED: RS
DATE:	DATE: 02/25/13
SCALE:	SCALE: 12" = 1'-0"

DESCRIPTION

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DATE

SHEET NO.
5 OF 50
SHEET:

G-5

PLOT DATE: 7/24/2014 1:51:47 PM CAD User: BC CURRENT REVISION: A
 PATH AND FILENAME: \\BCV\CKFP01\Projects\1430001\43879 - Pittsburg WTP Improvements Ph 1\CAD\1-MODELS\Pittsburg Common Contract-ADMIN-1A.rvt

GENERAL SYMBOLS

	PROPERTY LINE
	MATCH LINE
	CENTER LINE
	SECTION OUTLINE, BOUNDARY
	PIPING
	EXISTING PIPING TO BE ABANDONED OR REMOVED UNDER THIS CONTRACT. ABANDONED WHEN NOT IN CONFLICT WITH NEW CONSTRUCTION WORK
	FENCE
	CONCRETE CURB AND GUTTER
	FUTURE EQUIPMENT, MATERIALS OR PIPING
	BURIED FACILITIES
	BARRIER WALL
	DAYLIGHT LINE FOR GRADING
	SWALE OR DITCH
	TOP OF SLOPE EMBANKMENT TOE OF SLOPE
	EXPANSION JOINT CONCRETE PAVEMENT
	DUMMY CONSTRUCTION JOINT CONCRETE PAVEMENT
	PIPING SLOPE (0.1 FT VERTICAL TO 1 FT HORIZONTAL)
	GRADE CONTOUR
	RAILROAD (SINGLE TRACK)
	RAILROAD (DOUBLE TRACK)
	PNEUMATIC PIPING
	CONCRETE MOWING STRIP
	RETAINING WALL
	HANDRAIL
	HVAC EXHAUST VENT
	SOIL BORING AND DESCRIPTION
	MONUMENT OR BENCH MARK
	SPOT ELEVATION
	ELEVATION
	FIRE EXTINGUISHER (NUMBER INDICATES EXTINGUISHER NUMBER)
	UTILITY STATION
	HOSE RACK
	DOOR NUMBER
	ROOM NAME
	ROOM NUMBER
	AT
	AND
	ROUND OR DIAMETER
	PLATE OR PROPERTY LINE
	ANGLE

MATERIALS

	EXISTING EQUIPMENT OR MATERIALS TO BE REMOVED UNDER THIS CONTRACT
	REINFORCEMENT, IN SECTION
	REINFORCEMENT, IN PLAN OR ELEVATION
	CONCRETE
	PRECAST CONCRETE
	MORTAR, GROUT, OR PLASTER
	CONCRETE BLOCK
	BRICK OR CAST IRON
	GRATING, SPAN
	CHECKER PLATE
	STEEL OR STAINLESS STEEL
	ALUMINUM
	OPENING OR DEPRESSION IN SLAB OR WALL
	OPENING WITH GRATING COVER
	OPENING WITH CHECKER PLATE COVER
	AC PAVEMENT
	NEW GRAVEL (MAY BE SCREENED FOR CLARITY)
	WOOD
	TERRAZZO OR ARTIFICIAL STONE
	TILE
	TO BE BUILT FOR FUTURE REMOVAL
	RIGID INSULATION
	NEOPRENE
	PLASTIC LINING
	AC PAVEMENT (EL)
	NATURAL GROUND OR GRADE
	ROCK
	JOINT FILLER

CROSS REFERENCING SYSTEM

PLAN TITLE
 3/16" ARIAL
2 TOP PLAN
 SCALE: 1" = 1'-0"
 1/8" ARIAL
 1/8" ARIAL WITH 3/16" DIA CIRCLE

NOTE:
 ALL ADDITIONAL PLANS, SECTIONS, LARGE SCALE PLANS, DETAILS, INTERIORS, ELEVATIONS SHALL BE SEQUENTIALLY INDEXED NUMBERED FROM REFERENCED PLAN.

SECTION CUTS

FULL SECTION
 SECTION NUMBER, SEQUENTIALLY NUMBERED THROUGH OUT THE REFERENCED PLAN
 DRAWING WHERE SECTION IS SHOWN

SHORT SECTION
 SECTION NUMBER, SEQUENTIALLY NUMBERED THROUGH OUT THE REFERENCED PLAN
 DRAWING WHERE SECTION IS SHOWN

SECTION TITLE
 3/16" ARIAL
2.1 SECTION
 SCALE: 1" = 1'-0"
 1/8" ARIAL
 1/8" ARIAL WITH 3/16" DIA CIRCLE

DETAIL CALLOUT

DETAIL NUMERIC AND ALPHA, SEQUENTIALLY LETTERED THROUGHOUT THE REFERENCED PLAN
 DRAWING WHERE DETAIL IS SHOWN

AREA TO BE DETAILED IS CIRCLED WITH LEADER TO DETAIL CALLOUT

BY CALLOUT

SEE DETAIL B/M-1

BY NOTE

DETAIL TITLE
 3/16" ARIAL
2.B CENTER WELL DETAIL
 SCALE: 1" = 1'-0"
 1/8" ARIAL
 1/8" ARIAL WITH 3/16" DIA CIRCLE

STANDARD DETAIL CALLOUT

S41 NOTE: ALL LEADERS ARE 30 OR 60 DEGREES

STANDARD DETAIL TITLE

S41 BOLTED COVER PLATE AND SUPPORTS

KEYNOTES

4 NOTE: ALL LEADERS ARE 30 OR 60 DEGREES

MISCELLANEOUS

NORTH ARROW

WATER SURFACE

REVISION CLOUD

REVISION TAG

DRAWING NUMBER SYSTEM

M-701

SEQUENTIAL NUMBER
 DISCIPLINE

DISCIPLINE
 G GENERAL
 C CIVIL
 S STRUCTURAL
 P PROCESS
 E ELECTRICAL
 I INSTRUMENTATION

GENERAL NOTES

- FOR ADDITIONAL SYMBOLS, SEE DRAWINGS S-1, P-1, P-2, E-1, AND E-2.
- SYMBOLS ARE FOR REFERENCE ONLY, NOT ALL SYMBOLS ARE USED IN THESE CONTRACT DRAWINGS.
- EXISTING PIPING IS DESIGNATED BY SERVICE RATHER THAN MATERIAL TYPE. MATERIAL TYPES, IF KNOWN, APPEAR OUTSIDE THE PIPING CALLOUT BUBBLE, AND MAY NOT BE THE SAME MATERIAL TYPES SPECIFIED FOR NEW PIPING.
- ABBREVIATIONS USED IN THIS CONTRACT DOCUMENT CONFORM TO ANSI Y1.1, UNLESS NOTED OTHERWISE ON DRAWINGS.
- ALL STANDARD DETAILS APPLY TO ALL THE CONTRACTORS WORK WHETHER SPECIFICALLY REFERENCED OR NOT.
- SEE FRONT END SHEETS FOR EACH DISCIPLINES STANDARD SYMBOLS, ETC.
- SEE ADDITIONAL GENERAL NOTES THROUGHOUT DRAWING SET.
- WORK ON THIS CONTRACT IS SHOWN WITH DARK LINES. EXISTING INFRASTRUCTURE IS DEPICTED WITH LIGHT LINES. EXCEPTION IS SCREENED BACKGROUNDS ON DISCIPLINE DRAWINGS.

Brown and Caldwell

PROFESSIONAL ENGINEER
 ERIC ZALKIN
 R.C.E. 076392, Exp. 12/31/15

ACCEPTED FOR USE BY:
 KEITH HALVORSON
 City Engineer

GENERAL PHASE 1A
 GENERAL SYMBOLS, MATERIALS,
 CROSS REFERENCING SYSTEM,
 DRAWING NUMBER SYSTEM, AND
 MISCELLANEOUS SYMBOLS

DATE	REV	DESCRIPTION

BY DRAWN: BC
 CHECKED: EZ
 REVIEWED: RS
 DATE: 03/11/13
 SCALE: 1" = 1'-0"

SHEET NO.
6 OF 50

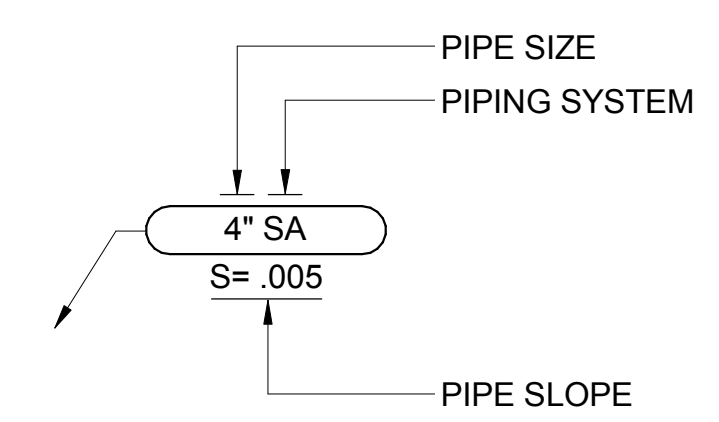
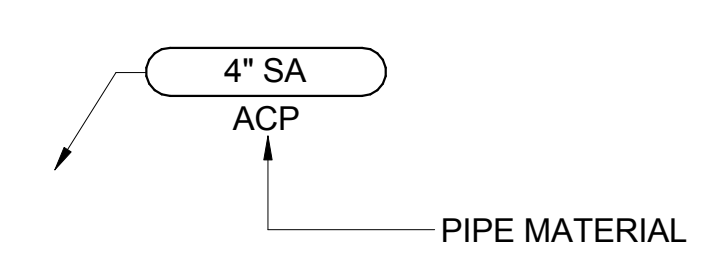
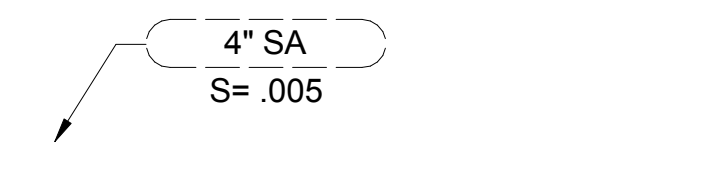
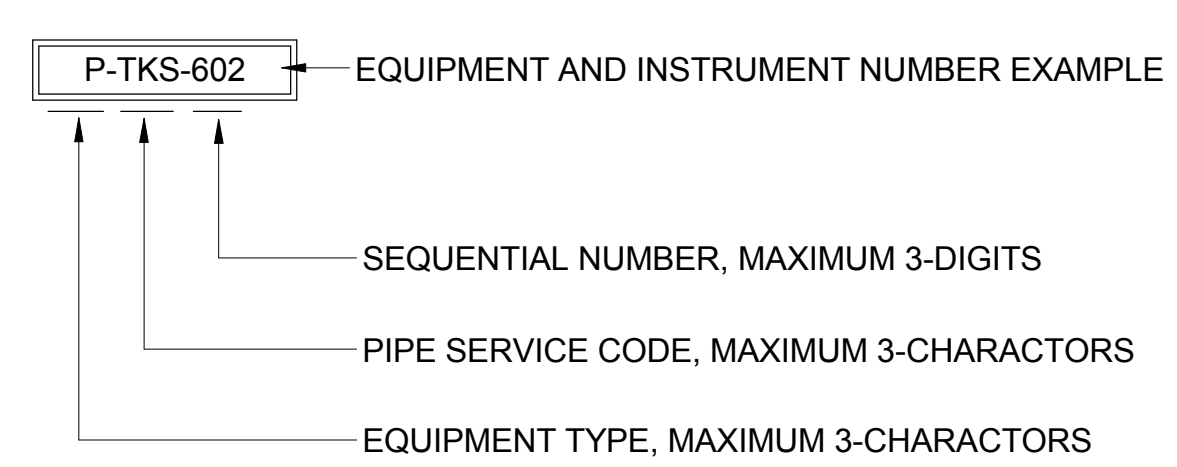
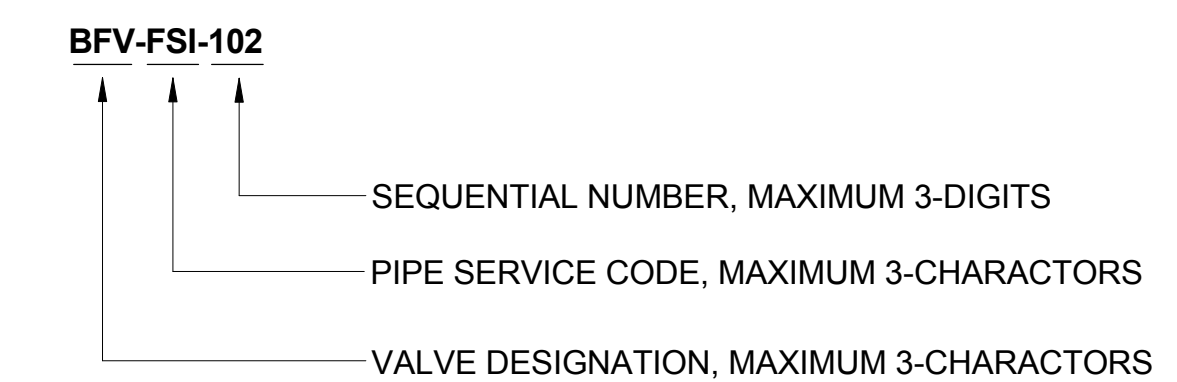
SHEET:
G-6


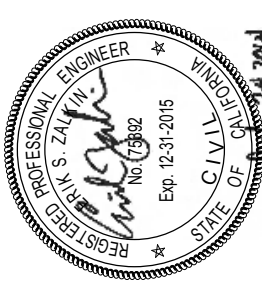
Pittsburg Common Contract-ADMIN

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PIPING SYSTEMS	
ABBREVIATION	DEFINITION
1W	POTABLE CITY WATER
2W	NON-POTABLE CITY WATER
2WS	SOFTENED NON-POTABLE CITY WATER
A	
A/NP	ANIONIC/NONIONIC POLYMER
AAS	AMMONIA SOLUTION
AAV	AMMONIA VACUUM
C	
CC	CORROSION CONTROL
CLD	CHLORINE DIOXIDE
CP	CATIONIC POLYMER
D	
DW	DECANT WATER
E	
ED	EQUIPMENT DRAIN
F	
FSI	FLOCCULATION/SEDIMENTATION INFLUENT
G	
G	GAS, EXISTING
H	
HA	HYDROFLUOSILICIC ACID
I	
IA	INSTRUMENT AIR
L	
LA	LIQUID ALUM
N	
NG	NATURAL GAS
P	
PA	PLANT AIR
PAC	POWDERED ACTIVATED CARBON
POL	POLYMER EMULSION
PP	POTASSIUM PERMANGANATE
PSO	POLYMER SOLUTION
R	
RCY	RECYCLE WATER
RW	RAW WATER
S	
SA	SAMPLE SYSTEM
SC	SPARE CHEMICAL
SCL	SODIUM CHLORITE
SD	STORM DRAIN (REPLACE EXIST SD)
SS	SANITARY SEWER
SSL	SETTLED SLUDGE
SW	SETTLED WATER
T	
TKS	THICKENED SLUDGE
TW	TREATED WATER
U	
UA	UTILITY AIR
UW	UTILITY WATER, EXISTING (H=HOT, C=COLD)
V	
V	VENT
VA	VACUUM
VS	STEAM VENT
W	
W	WATER
WEW	WELL WATER
WW	WASTE FILTER WASHWATER

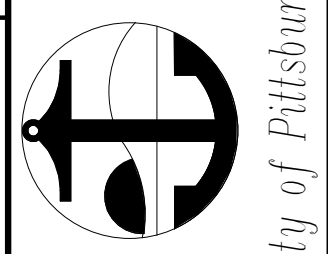
EQUIPMENT PREFIXES			
ABBREVIATION	DEFINITION	ABBREVIATION	DEFINITION
A			
AF	AIR FILTER	MEE	MISCELLANEOUS ELECTRICAL EQUIPMENT
AHU	AIR HANDLING UNIT	MH	MANHOLE
B			
B	BLOWER	MIE	MISCELLANEOUS INSTRUMENTATION EQUIPMENT
BE	FLAME ELEMENT	MME	MISCELLANEOUS MECHANICAL EQUIPMENT
BLR	BOILER	MOP	MOTOR OPERATOR
BRN	BURNER	MVU	MOBILE VENTILATION UNIT
BSN	BAR SCREEN	MX	MIXER
C			
C	CRANE	O	
CAF	COMBUSTION AIR FAN	ORF	ODOR REMOVAL FILTER
CC	COOLING COIL	ORT	ODOR REMOVAL TOWER
CDU	CONDENSING UNIT	OSC	ODOR SCRUBBER
CFR	CHEMICAL FEEDER	P	
CHR	CHILLER	P	PUMP
COF	COOLING AIR FAN	PB	PULL BOX (ELECT)
COM	COMMUNOTOR	PLC	PROGRAMMABLE LOGIC CONTROLLER
CON	CONVEYOR	PNL	PANEL
CP	COMPRESSOR	POP	PNEUMATIC OPERATOR
CR	CONTACTOR	PRV	PRESSURE RELIEF VALVE
CSN	COMMUNUTING SCREEN	PS	PRESSURE SWITCH
CTF	CENTRIFUGE	PSH	PRESSURE SWITCH HIGH
CV	CONTROL VALVE	PSL	PRESSURE SWITCH LOW
CYL	CYLINDER	PSV	POP SAFETY VALVE
D			
DE	DENSITY METER	PTR	PRINTER
DPR	DAMPER	PVL	PRESSURE VESSEL
DS	DISCONNECT SWITCH	PVU	PANELVIEW DISPLAY
DU	DRIVE UNIT	S	
DX	DIRECT EXPANSION COIL	S	SILENCER
E			
E	ENGINE	SBR	SCRUBBER
EG	ENGINE ALTERNATIVE UNIT	SC	SCREEN
F			
FA	FLAME ARRESTOR	SD	SMOKE DETECTOR
FB	FIRE (ALARM) BELL	SEP	SEPARATOR
FC	FLAME CHECK	SG	SLUICE GATE MANUAL
FD	FIRE DAMPER	SI	SPEED INCREASER
FE	FLOW METER	SLG	SLIDE GATE
FG	FLAP GATE	SMX	SLURRY MIXER
FLC	FLOCCULATOR	SR	SPEED REDUCER
FLP	FLUID POWER UNIT	ST	STEAM TRAP
FLT	FILTER	SUB	SUBSTATION
FMX	FLASH MIXER	SV	SOLENOID VALVE
FN	FAN	SW	SWITCH
FP	FILTER PRESS	SWB	SWITCHBOARD
FRS	FREEZESTAT	SWR	SWITCHGEAR
FS	FLOW SWITCH	T	
FSH	FLOW SWITCH HIGH	T	TANK
FSL	FLOW SWITCH LOW	TB	TERMINAL BOX (ELECT)
FT	FREEZE TANK	TBN	TURBINE
G			
G	POWER ACTUATED GATE	TCP	TEMPERATURE CONTROL POINT
GDR	GRINDER	TFR	TRANSFORMER
GEN	GENERATOR	TS	TEMPERATURE SWITCH
GRV	GRAVITY RELIEF VENT	TSH	TEMPERATURE SWITCH HIGH
H			
H	HOIST	TSL	TEMPERATURE SWITCH LOW
HC	HEATING COIL	TST	THERMOSTAT
HEX	HEAT EXCHANGER	U	
HH	HANDHOLE (ELECT)	UH	UNIT HEATER
HRB	HEAT RECOVERY BOILER	V	
HS	HAND SWITCH	V	POWER ACTUATED VALVE ISOLATING
HTR	HEATER	VAF	VENTILATION AIR FILTER
I			
ICN	INCINERATOR	VDS	DIGESTER SLUDGE VALVE
IND	LEAK DETECTOR	VFC	VARIABLE FREQUENCY CONTROLLER
IR	INLET RELIEF	VFT	VACUUM FILTER
J			
JB	JUNCTION BOX (ELECT)	VHS	HARVESTED SLUDGE VALVE
L			
LI	LEVEL INDICATOR	VP	VACUUM PUMP
LS	LEVEL SWITCH	VSC	VARIABLE SPEED COUPLING (ECC)
LSH	LEVEL SWITCH HIGH	VSN	SUPERNATANT VALVE
LSL	LEVEL SWITCH LOW	VV	VARIABLE VOLUME BOX
LV	LOUVER	W	
M			
M	MOTOR	WHR	WASHER
MC	MAGNETIC CLUTCH	WKS	WORKSTATION
MCC	MOTOR CONTROL CENTER	WW	WIREWAY
MD	MOTORIZED DAMPER	X	
MDM	MODEM	X	
X			
XSW	TRANSFER SWITCH	Z	
Z			
ZS	POSITION SWITCH	ZS	

PIPING DESIGNATIONS	
<p>NEW PIPING</p> 	
<p>EXISTING PIPING</p> 	
<p>FUTURE PIPING</p> 	
<p>NOTE: 1. SEE PIPING SYSTEM SPECIFICATIONS 15050 FOR PIPING, VALVES, AND FITTINGS.</p>	
EQUIPMENT DESIGNATIONS	
	
VALVE DESIGNATIONS	
	
GENERAL NOTES	
<p>1. FOR INSTRUMENTATION SYMBOLS AND IDENTIFICATION, SEE DRAWING P-001. 2. NOT ALL PIPING SYSTEMS SHOWN ARE USED IN THIS DESIGN.</p>	

PREPARED UNDER THE DIRECTION OF:
 ERIK ZALKIN
 R.C.E. 076392, Exp. 12/31/15
 Date: _____

ACCEPTED FOR USE BY:
 KEITH HALVORSON
 City Engineer
 Date: _____



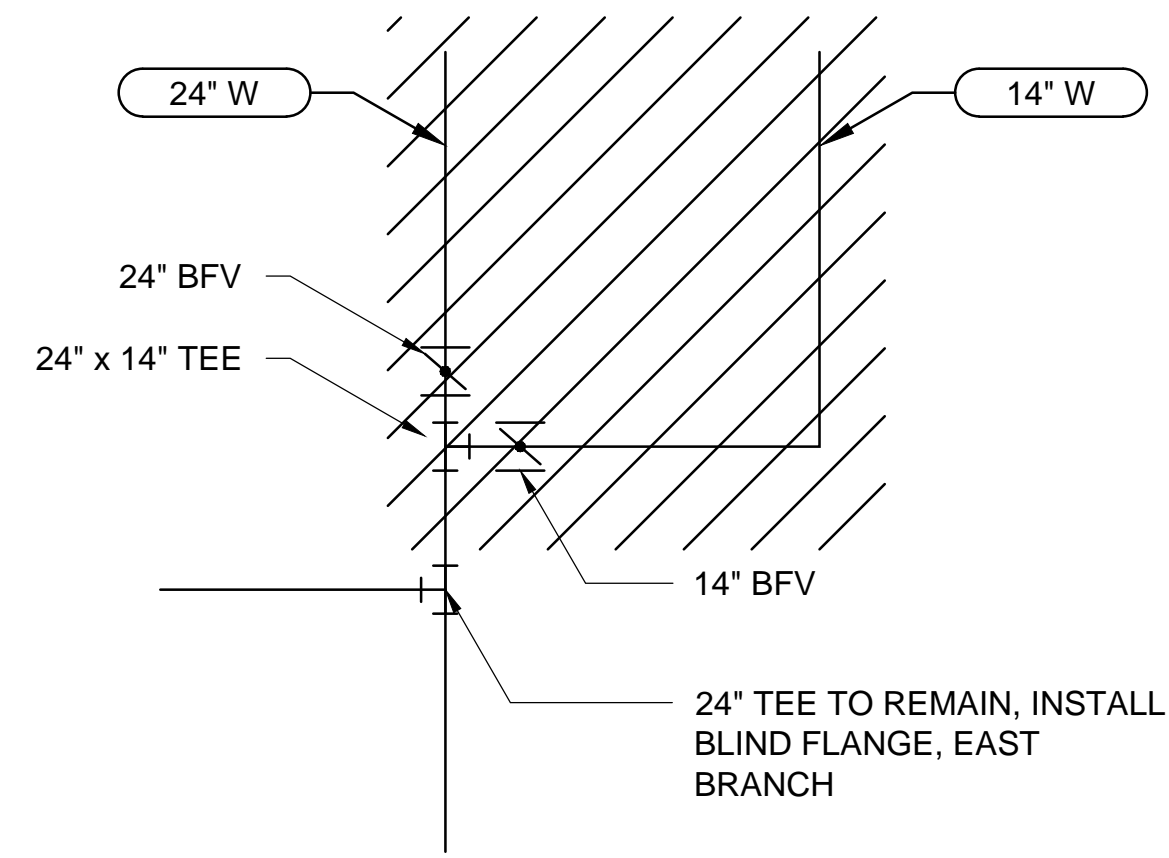
City of Pittsburg

GENERAL PHASE 1A
PIPING, EQUIPMENT, VALVE, AND EQUIPMENT PREFIXES

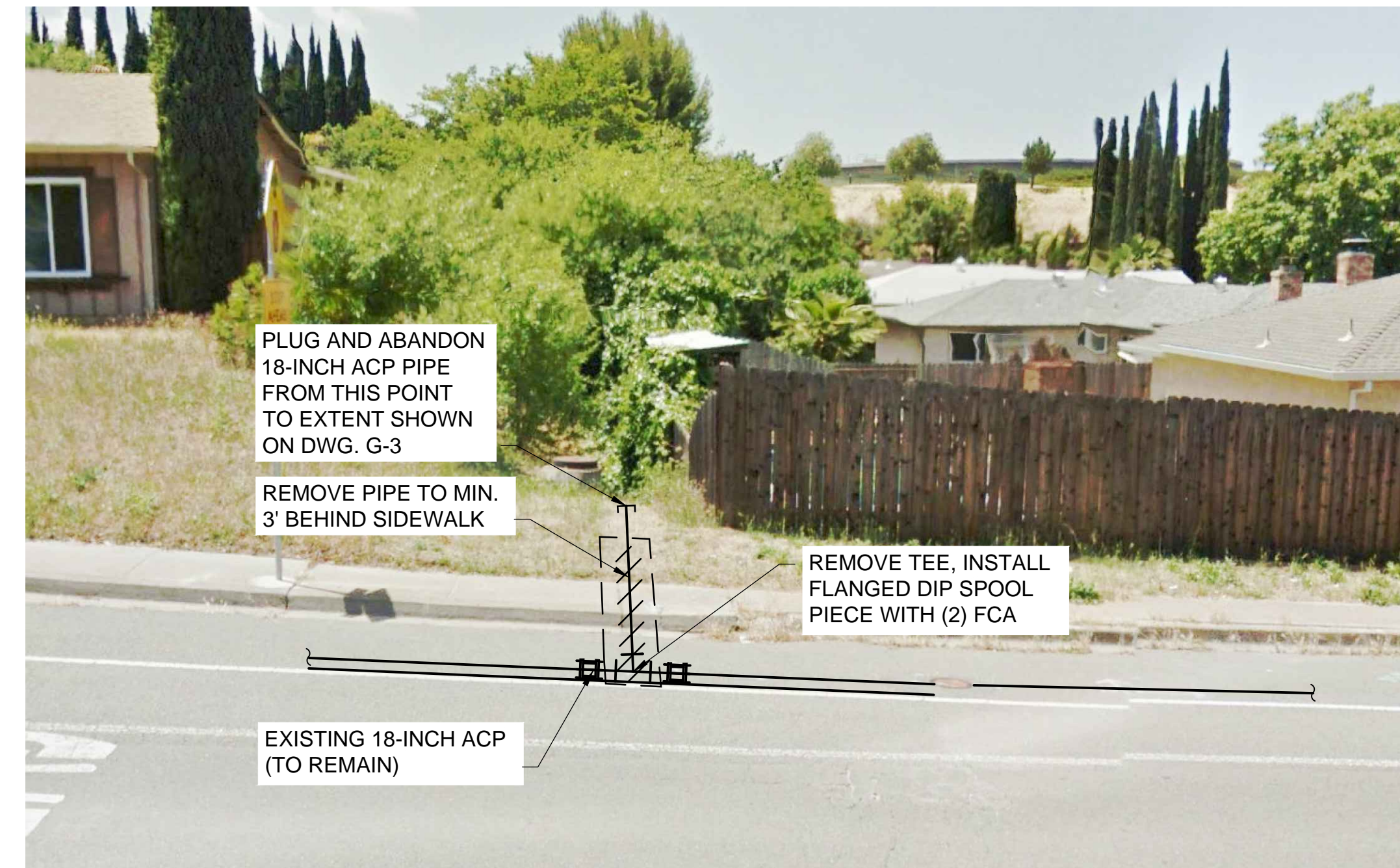
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REVIEWED:	RS
DATE:	02/28/13
SCALE:	12" = 1'-0"

DESCRIPTION	REV	DATE

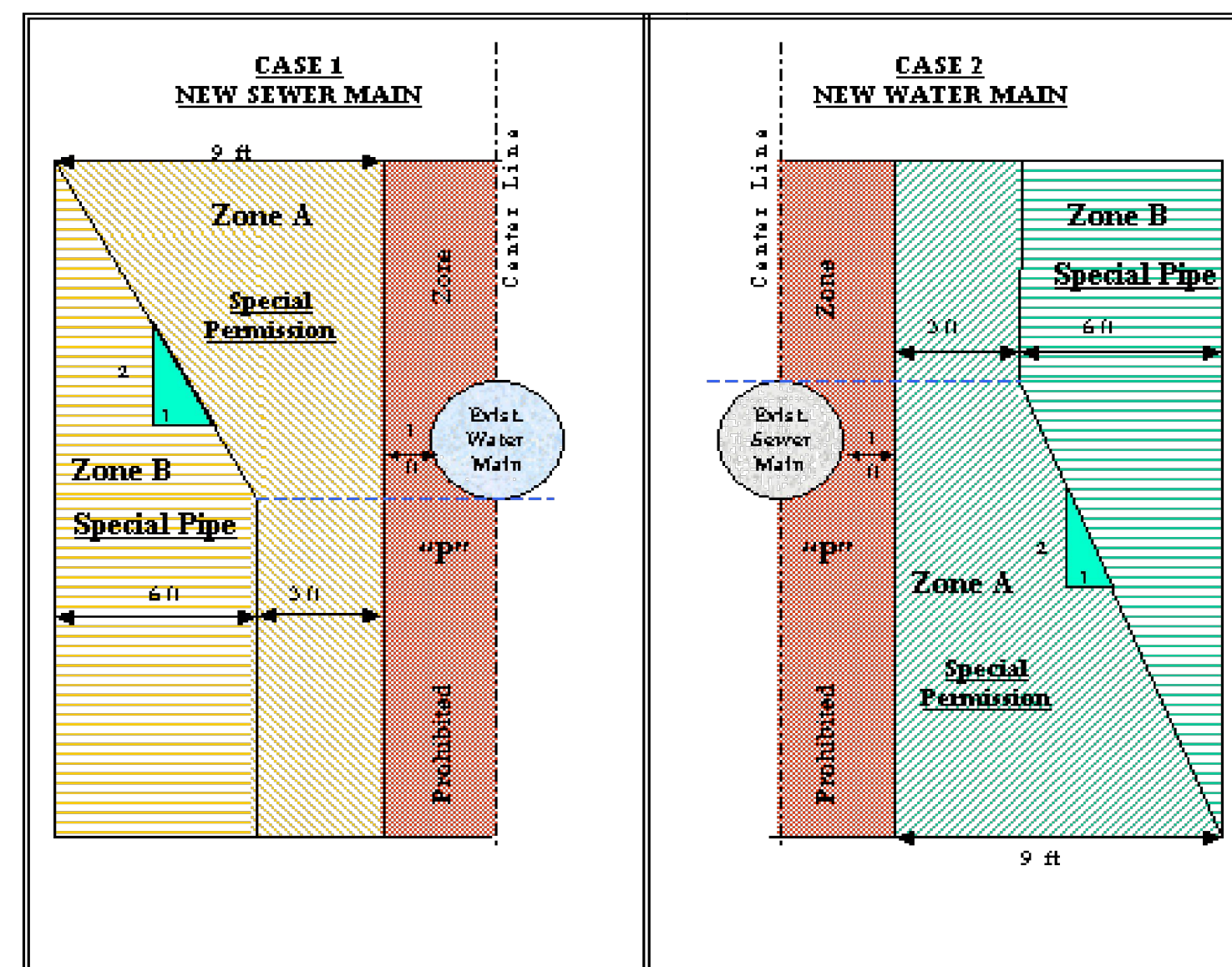
SHEET NO.
7 OF **50**
 SHEET:
G-7



PIPELINE DISCONNECT AND DEMOLITION
DETAIL A
 G-3
 NTS



DEMOLITION AND ABANDONMENT OF EXISTING 18-INCH ACP WATER MAIN AT JUNCTION IN CRESTVIEW DRIVE BETWEEN CHATWORTH AND PAPPAS STREET
DETAIL B
 G-3
 NTS



NOTE: ZONES IDENTICAL ON EITHER SIDE OF CENTER LINE.

ZONE "P" IS A PROHIBITED ZONE, SECTION 64630 (E) (2) CALIFORNIA CODE OF REGULATIONS, TITLE 22 (CURRENT); OR SECTION 64572 (A) CALIFORNIA CODE OF REGULATIONS, TITLE 22 (PROPOSED).

FIGURE 1
 PARALLEL CONSTRUCTION

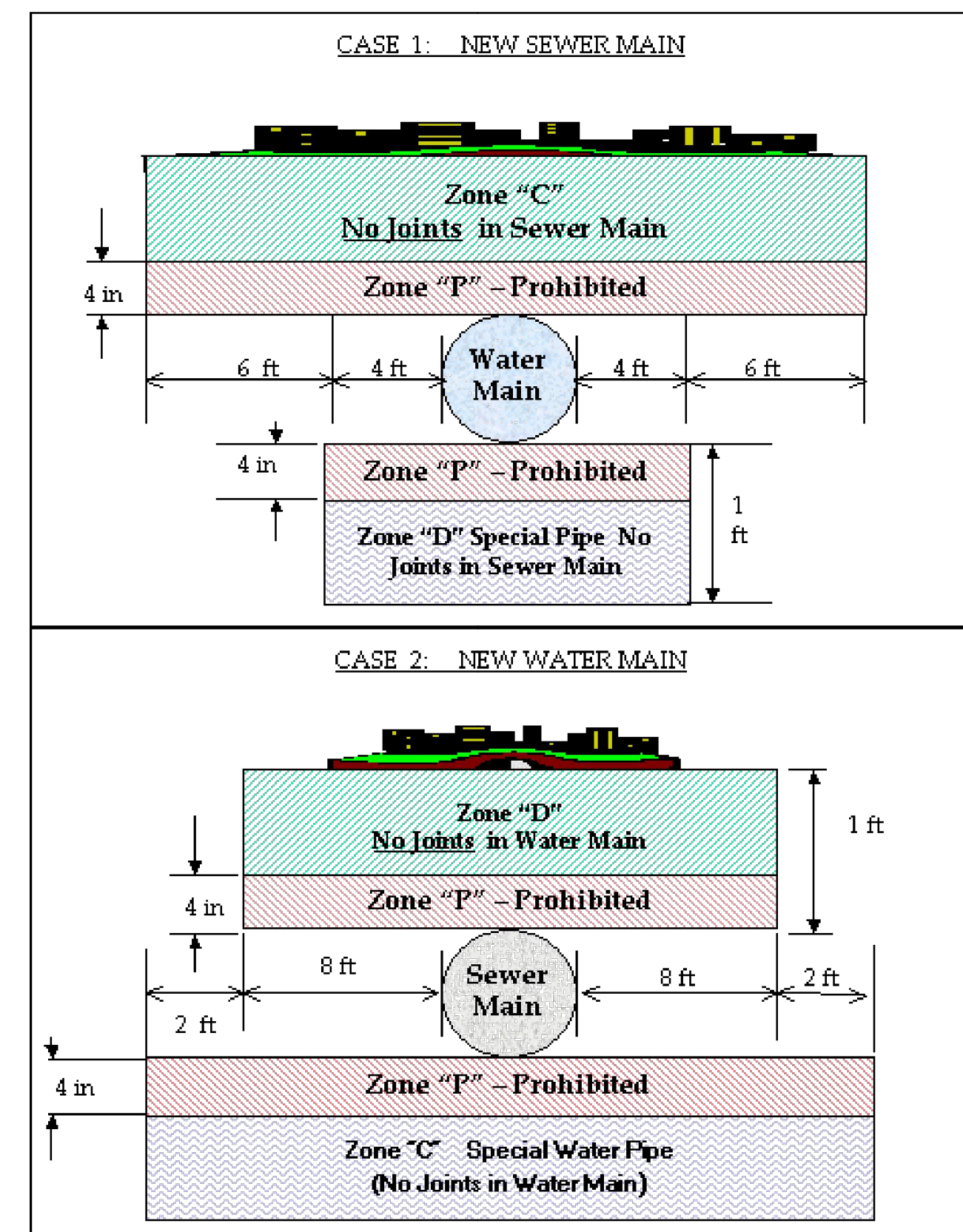
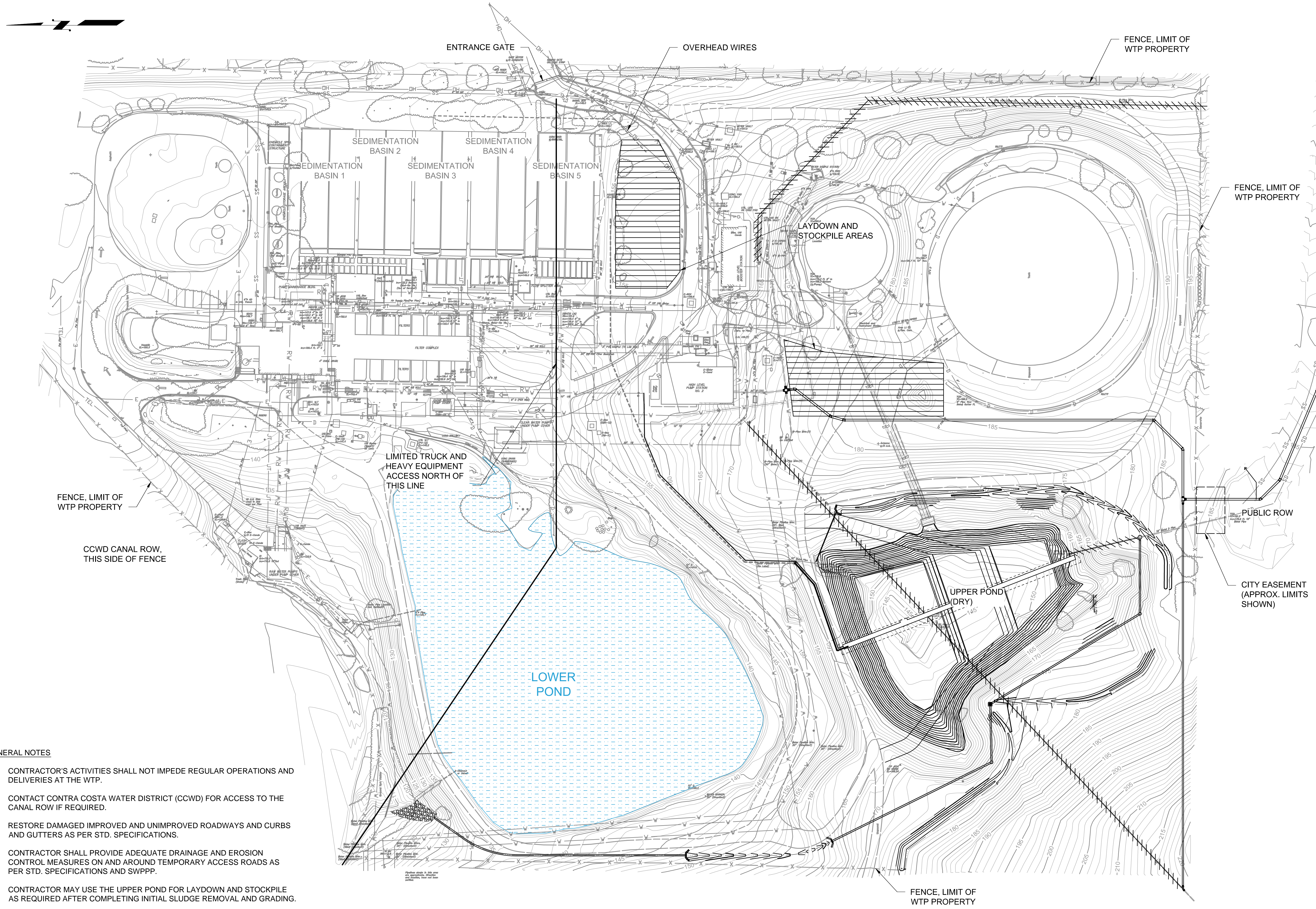


FIGURE 2
 CROSSINGS

Path: \\Bevick\p01\Projects\143800\143879 - Pittsburg WTP Improvements Ph 1\CADD\2 SHEETS\G-GENERAL - Pittsburg WTP Improvements Ph 1\CADD\2 SHEETS\G-GENERAL - File Name: 143879-SF-01-G-08.dwg Plot Date: July 24, 2014 - 12:32 PM CADD User: Lambert, Tait

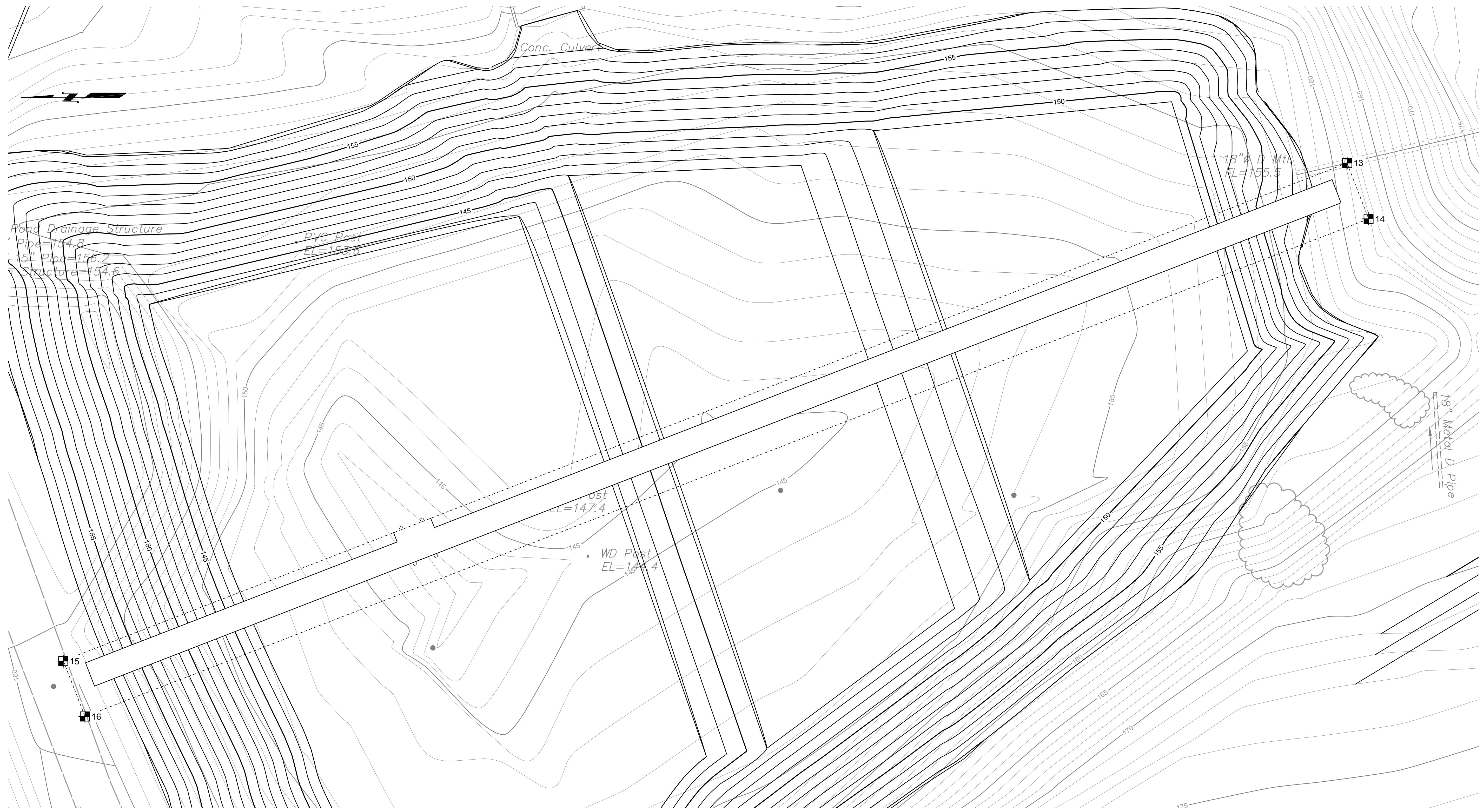
DATE	REV	DESCRIPTION



- GENERAL NOTES**
- CONTRACTOR'S ACTIVITIES SHALL NOT IMPEDE REGULAR OPERATIONS AND DELIVERIES AT THE WTP.
 - CONTACT CONTRA COSTA WATER DISTRICT (CCWD) FOR ACCESS TO THE CANAL ROW IF REQUIRED.
 - RESTORE DAMAGED IMPROVED AND UNIMPROVED ROADWAYS AND CURBS AND GUTTERS AS PER STD. SPECIFICATIONS.
 - CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE AND EROSION CONTROL MEASURES ON AND AROUND TEMPORARY ACCESS ROADS AS PER STD. SPECIFICATIONS AND SWPPP.
 - CONTRACTOR MAY USE THE UPPER POND FOR LAYDOWN AND STOCKPILE AS REQUIRED AFTER COMPLETING INITIAL SLUDGE REMOVAL AND GRADING.

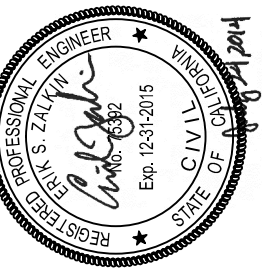
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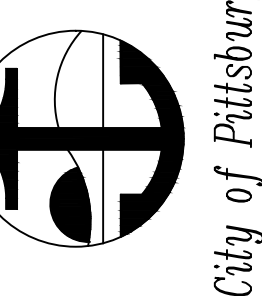
UPPER POND PARTITION
PLAN
 SCALE: 1" = 10'

STRUCTURE CONTROL POINT TABLE			
POINT	STRUCTURE	NORTHING	EASTING
13	POND PARTITION	2191668.86	6156748.78
14	POND PARTITION	2191664.55	6156737.58
15	POND PARTITION	2191926.22	6156648.89
16	POND PARTITION	2191921.87	6156637.78



PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
 P.E. No. 12315
 State of Ohio
 Date: _____

ACCEPTED FOR USE BY:
KEITH HALVORSON
 City Engineer
 Date: _____



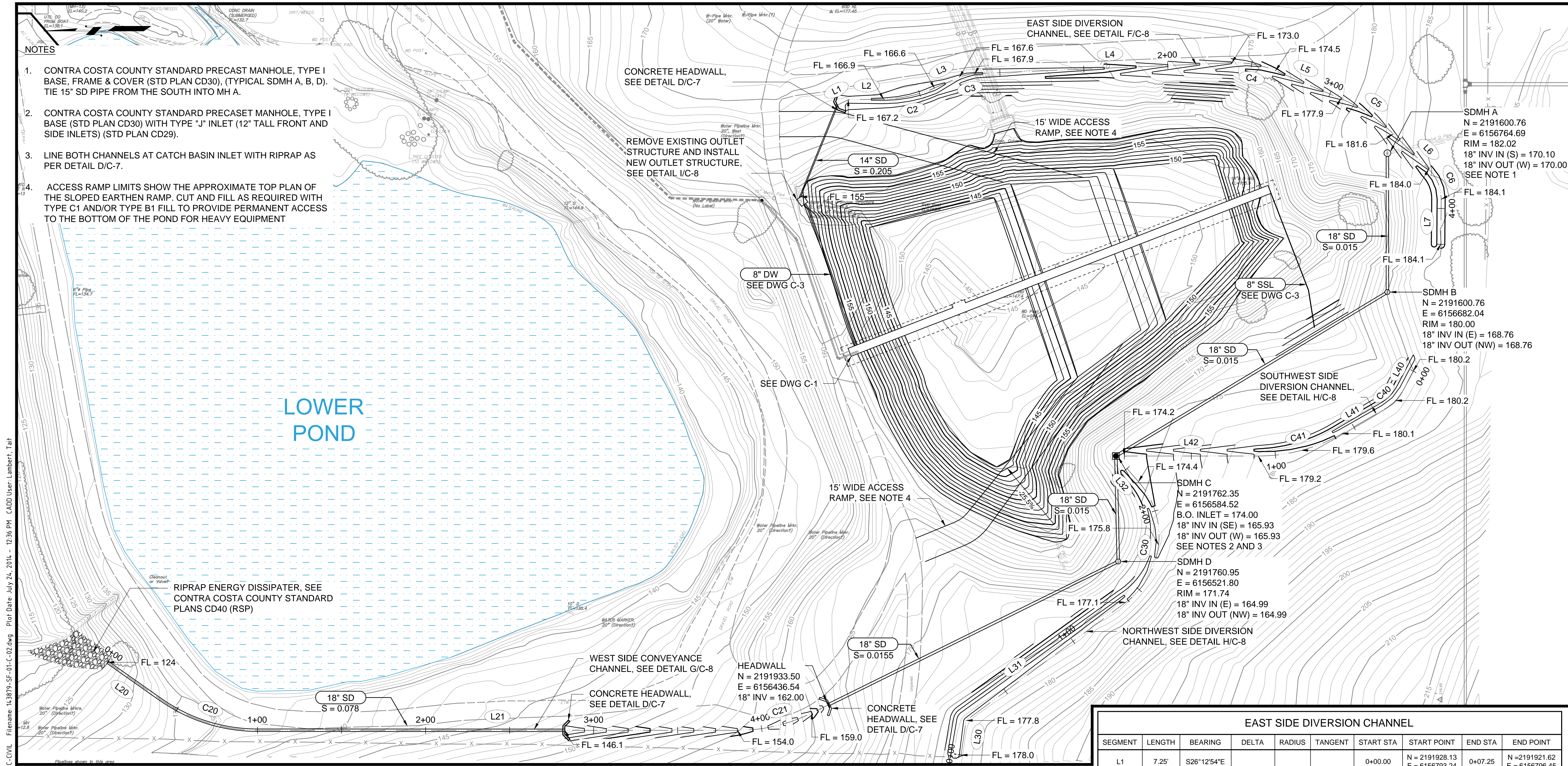
CIVIL PHASE 1A
STRUCTURE CONTROL POINT PLAN

BY: DRAWN:TRL
 CHECKED:ESZ
 REVIEWED:MMA
 DATE: Jul 24, 2014
 SCALE: AS SHOWN

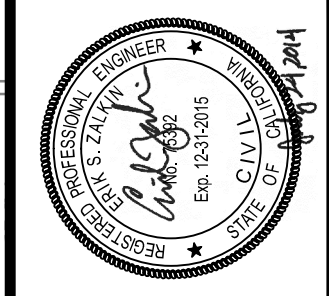
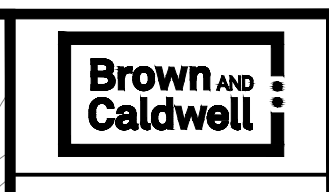
DATE	REV	DESCRIPTION

SHEET NO.
10 of 50

SHEET:
C-1

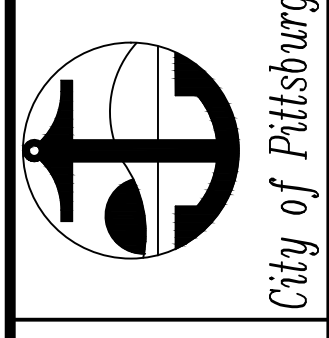


- NOTES**
- CONTRA COSTA COUNTY STANDARD PRECAST MANHOLE, TYPE I BASE, FRAME & COVER (STD PLAN CD30), (TYPICAL SDMH A, B, D). TIE 15" SD PIPE FROM THE SOUTH INTO MH A.
 - CONTRA COSTA COUNTY STANDARD PRECAST MANHOLE, TYPE I BASE (STD PLAN CD30) WITH TYPE "J" INLET (12" TALL FRONT AND SIDE INLETS) (STD PLAN CD29).
 - LINE BOTH CHANNELS AT CATCH BASIN INLET WITH RIPRAP AS PER DETAIL D/C-7.
 - ACCESS RAMP LIMITS SHOW THE APPROXIMATE TOP PLAN OF THE SLOPED EARTHEN RAMP. CUT AND FILL AS REQUIRED WITH TYPE C1 AND/OR TYPE B1 FILL TO PROVIDE PERMANENT ACCESS TO THE BOTTOM OF THE POND FOR HEAVY EQUIPMENT



PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
P.E. C75592, Exp. 12/31/15

ACCEPTED FOR USE BY:
KEITH HALVORSON
City Engineer



CIVIL PHASE 1A
DRAINAGE AND GRADING PLAN

Path: \\Beverly\p01\Projects\14-3000\143879 - Pittsburg WTP Improvements\Ph 1\CADD\2-SHEETS\C-CIVIL File: 143879-SF-01-C-02.dwg Plot Date: July 24, 2014 12:36 PM CADD User: Lambert, Tait

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L20	38.62'	S35°07'27"W				0+00.00	N = 2192362.37 E = 6156461.85	0+38.62	N = 2192330.78 E = 6156439.63
C20	61.29'		035°06'54"	100.00'	31.64'	0+38.62	N = 2192330.78 E = 6156439.63	0+99.91	N = 2192273.26 E = 6156421.42
L21	285.70'	S00°00'33"W				0+99.91	N = 2192273.26 E = 6156421.42	3+85.60	N = 2191987.56 E = 6156421.37
C21	45.91'		026°18'17"	100.00'	23.37'	3+85.60	N = 2191987.56 E = 6156421.37	4+31.52	N = 2191943.25 E = 6156431.72

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L40	12.07'	N62°08'52"W				0+00.00	N = 2191585.37 E = 6156635.01	0+12.07	N = 2191591.01 E = 6156624.34
C40	16.89'		032°15'46"	30.00'	8.68'	0+12.07	N = 2191591.01 E = 6156624.34	0+28.97	N = 2191602.58 E = 6156612.34
L41	29.15'	N29°53'06"W				0+28.97	N = 2191602.58 E = 6156612.34	0+58.11	N = 2191627.85 E = 6156597.82
C41	52.16'		029°53'06"	100.00'	26.69'	0+58.11	N = 2191627.85 E = 6156597.82	1+10.27	N = 2191677.68 E = 6156584.52
L42	79.67'	N00°00'00"E				1+10.27	N = 2191677.68 E = 6156584.52	1+89.94	N = 2191757.35 E = 6156584.52

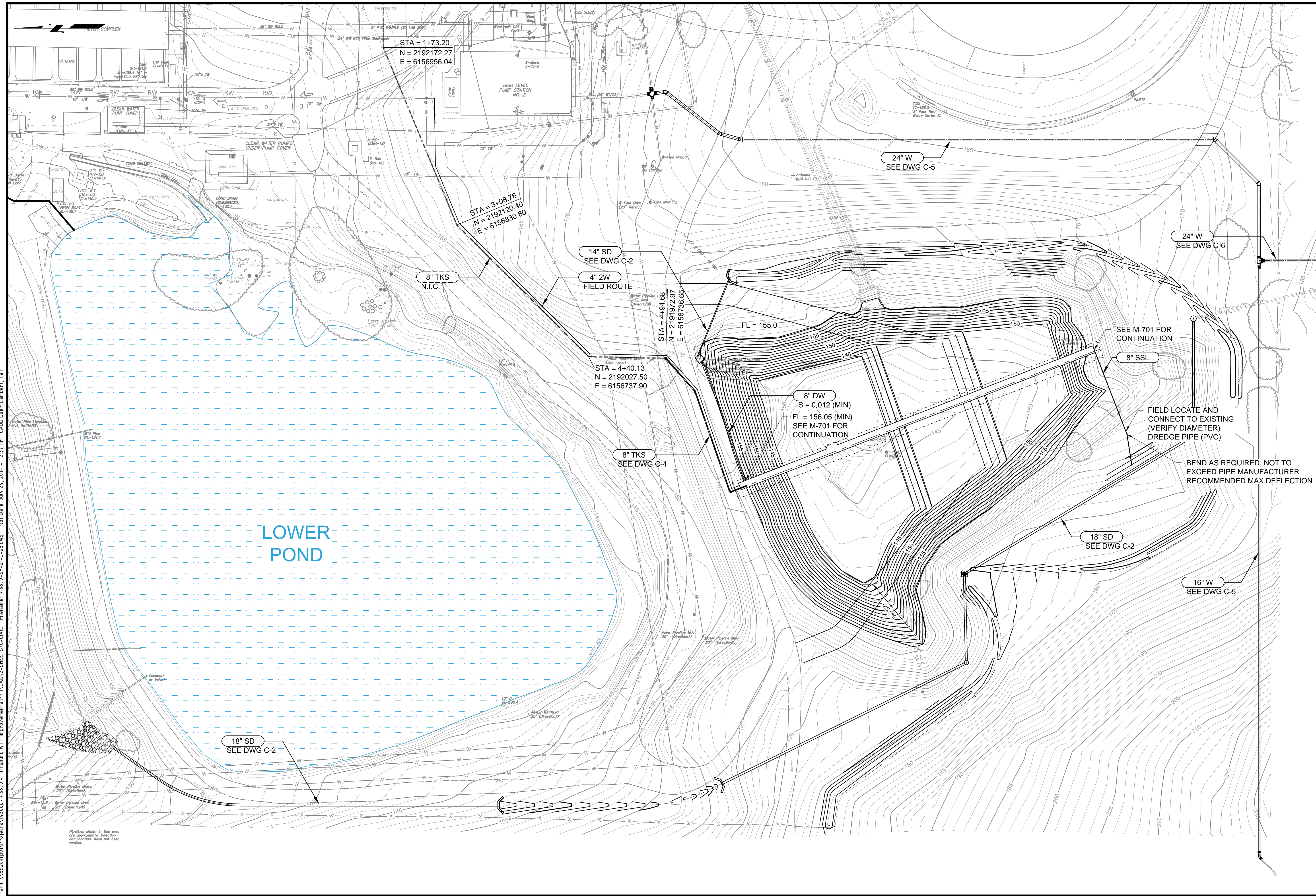
SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L30	20.81'	S81°34'29"E				0+00.00	N = 2191854.55 E = 6156406.66	0+20.81	N = 2191851.50 E = 6156427.25
L31	118.12'	S36°28'51"E				0+20.81	N = 2191851.50 E = 6156427.25	1+38.93	N = 2191756.52 E = 6156497.48
C30	81.21'		094°57'25"	49.00'	53.43'	1+38.93	N = 2191756.52 E = 6156497.48	2+20.14	N = 2191748.92 E = 6156569.31
L32	10.35'	N48°33'45"E				2+20.14	N = 2191748.92 E = 6156569.31	2+30.49	N = 2191755.77 E = 6156577.06

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	TANGENT	START STA	START POINT	END STA	END POINT
L1	7.25'	S26°12'54"E				0+00.00	N = 2191928.13 E = 6156793.24	0+07.25	N = 2191921.62 E = 6156796.45
L2	20.95'	S01°02'23"E				0+07.25	N = 2191921.62 E = 6156796.45	0+28.20	N = 2191900.67 E = 6156796.83
C2	31.26'		022°23'16"	80.00'	15.83'	0+28.20	N = 2191900.67 E = 6156796.83	0+59.46	N = 2191870.32 E = 6156803.41
L3	16.30'	S23°25'38"E				0+59.46	N = 2191870.32 E = 6156803.41	0+75.76	N = 2191855.36 E = 6156809.89
C3	9.16'		021°00'06"	25.00'	4.63'	0+75.76	N = 2191855.36 E = 6156809.89	0+84.92	N = 2191846.48 E = 6156811.93
L4	153.23'	S02°25'32"E				0+84.92	N = 2191846.48 E = 6156811.93	2+38.16	N = 2191693.39 E = 6156818.41
C4	26.72'		025°30'53"	60.00'	13.58'	2+38.16	N = 2191693.39 E = 6156818.41	2+64.88	N = 2191667.32 E = 6156813.66
L5	42.19'	S23°05'21"W				2+64.88	N = 2191667.32 E = 6156813.66	3+07.07	N = 2191628.51 E = 6156797.11
C5	37.82'		021°40'00"	100.00'	19.14'	3+07.07	N = 2191628.51 E = 6156797.11	3+44.88	N = 2191597.32 E = 6156776.14
L6	29.74'	S44°45'21"W				3+44.88	N = 2191597.32 E = 6156776.14	3+74.62	N = 2191576.20 E = 6156755.20
C6	19.93'		045°41'02"	25.00'	10.53'	3+74.62	N = 2191576.20 E = 6156755.20	3+94.55	N = 2191568.80 E = 6156737.25
L7	26.78'	N89°33'37"W				3+94.55	N = 2191568.80 E = 6156737.25	4+21.33	N = 2191569.01 E = 6156710.47

BY	DATE	DESCRIPTION

CHECKED: ESZ
 REVIEWED: CMP
 DATE: Jul 24, 2014
 SCALE: 1" = 30'
 SHEET NO. 11 OF 50
 SHEET: C-2

Path: \\Bevick\p01\Projects\143879-SF-01-C-03.dwg File: 143879-SF-01-C-03.dwg Plot Date: July 24, 2014 - 12:37 PM CADD User: Lambert, Tait



Brown and Caldwell

PROFESSIONAL ENGINEER
No. 15379BIS
Exp. 12/31/15
C.V. License No. 1414

PREPARED UNDER THE DIRECTION OF:

ERIK ZALKIN
RCE, C7592, Exp. 12/31/15

ACCEPTED FOR USE BY:

KEITH HALVORSON
City Engineer

DATE: _____

City of Pittsburgh

CIVIL PHASE 1A

DATE	REV	DESCRIPTION

BY: DRAWN: TRL
CHECKED: ESZ
REVIEWED: CMP
DATE: Jul 24, 2014

SCALE: 1" = 30'

SHEET NO.

12 OF 50

SHEET:

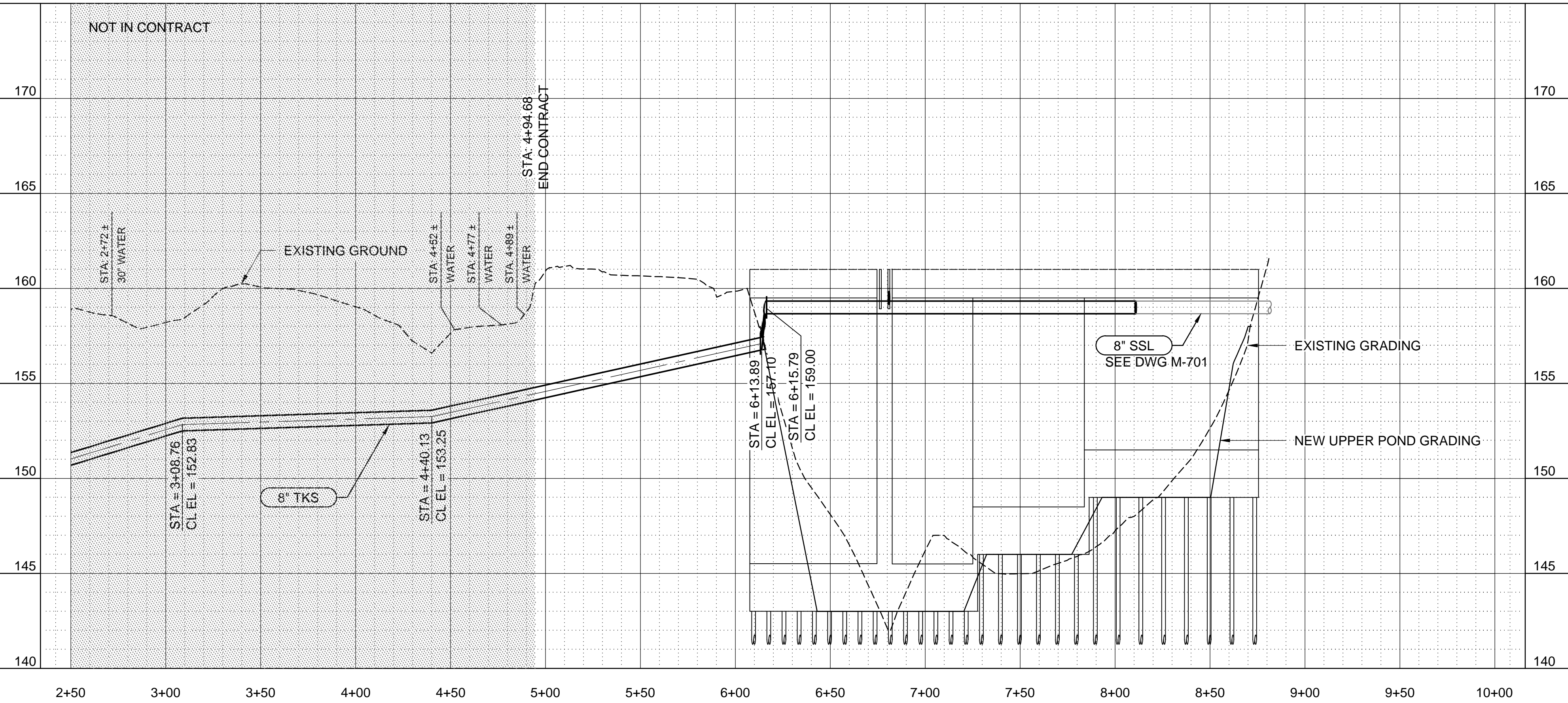
C-3

YARD PIPING PLAN

Path: \\Bevick\p01\Projects\143000\143879 - Pittsburg WTP Improvements Ph 1\CAD\2 SHEETS\C-CIVIL File: 143879-SF-01-C-04.dwg Plot Date: July 24, 2014 12:38 PM CADD User: Lambert, Tai



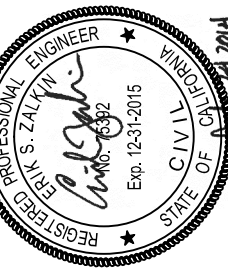
PLAN
SCALE: 1" = 40'



PROFILE
SCALE H: 1" = 40'
V: 1" = 4'

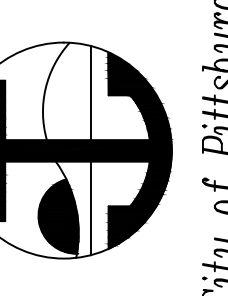
NOTES

1. INSTALL 45° FLANGED FITTING AND TAPPED PLUG AND BLOW-OFF ASSEMBLY AS PER CITY STANDARD WATER DETAIL W-8, ELIMINATE BUTTERFLY VALVE.



PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
P.E. C75582, Exp. 12/31/15
Date: _____

ACCEPTED FOR USE BY:
KEITH HALVORSON
City Engineer
Date: _____



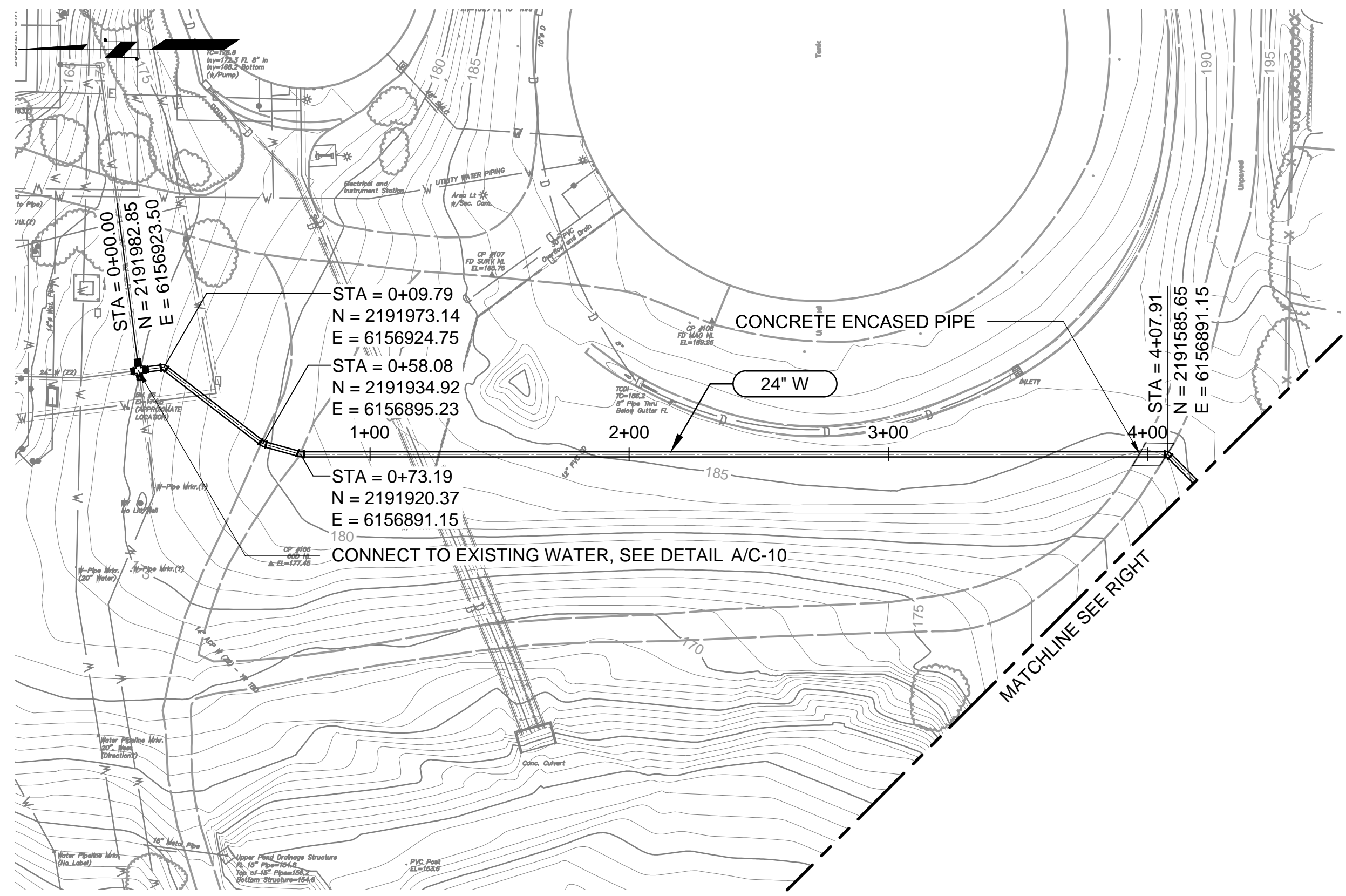
CIVIL PHASE 1A
**THICKENED SLUDGE FORCE MAIN
PLAN AND PROFILE**

BY	DRAWN:TRL
CHECKED:ESZ	
REVIEWED:OMP	
DATE:	Jul 24, 2014
SCALE:	AS SHOWN

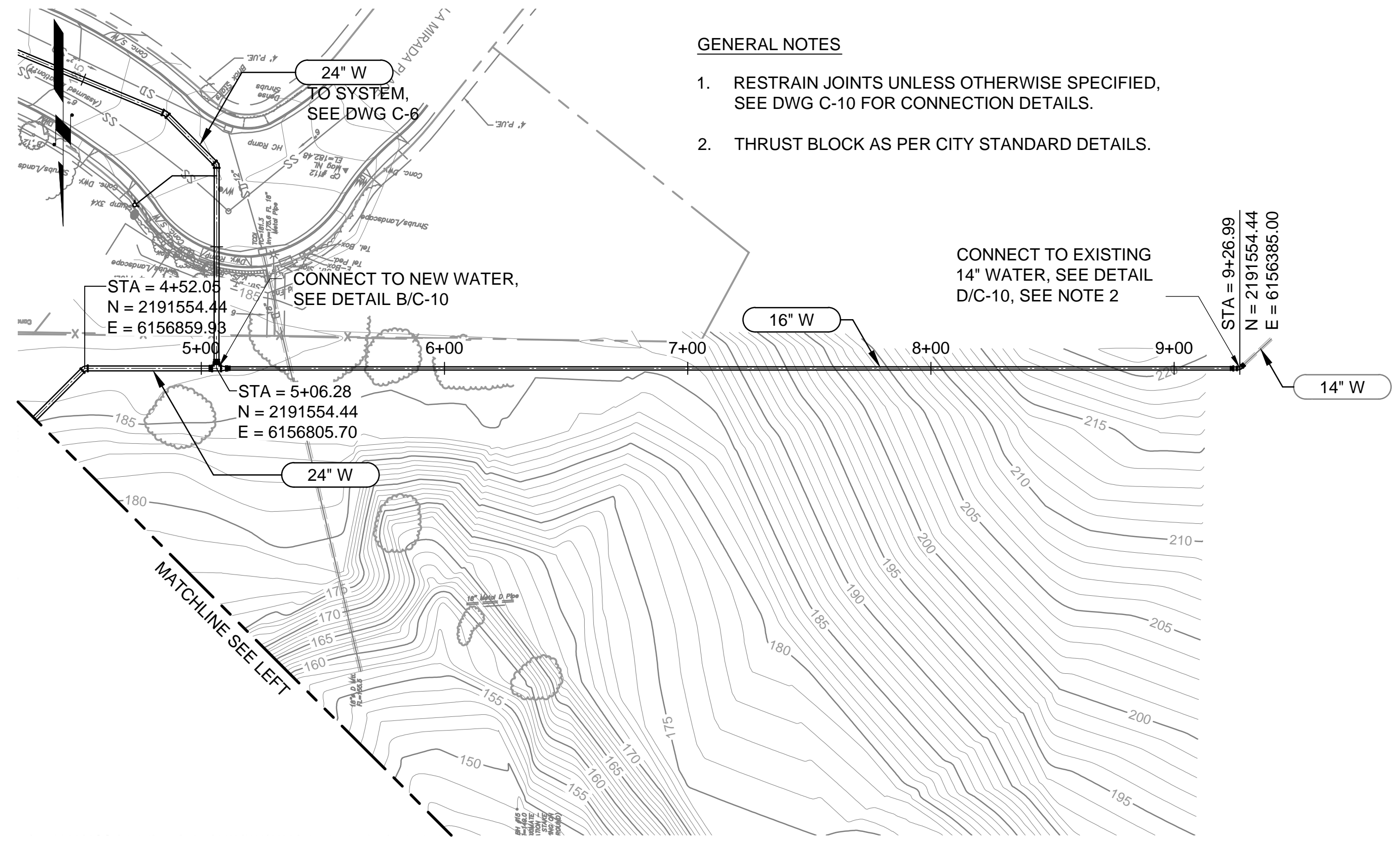
SHEET NO.
13 OF 50
SHEET:

C-4

Path: \\Beverly\p01\Projects\143000\143879 - Pittsburgh WTP Improvements Ph 1\CAD - Filename: 143879-SF-01-C-05.dwg Plot Date: July 24, 2014 - 12:39 PM CADD User: Lambert, Tai



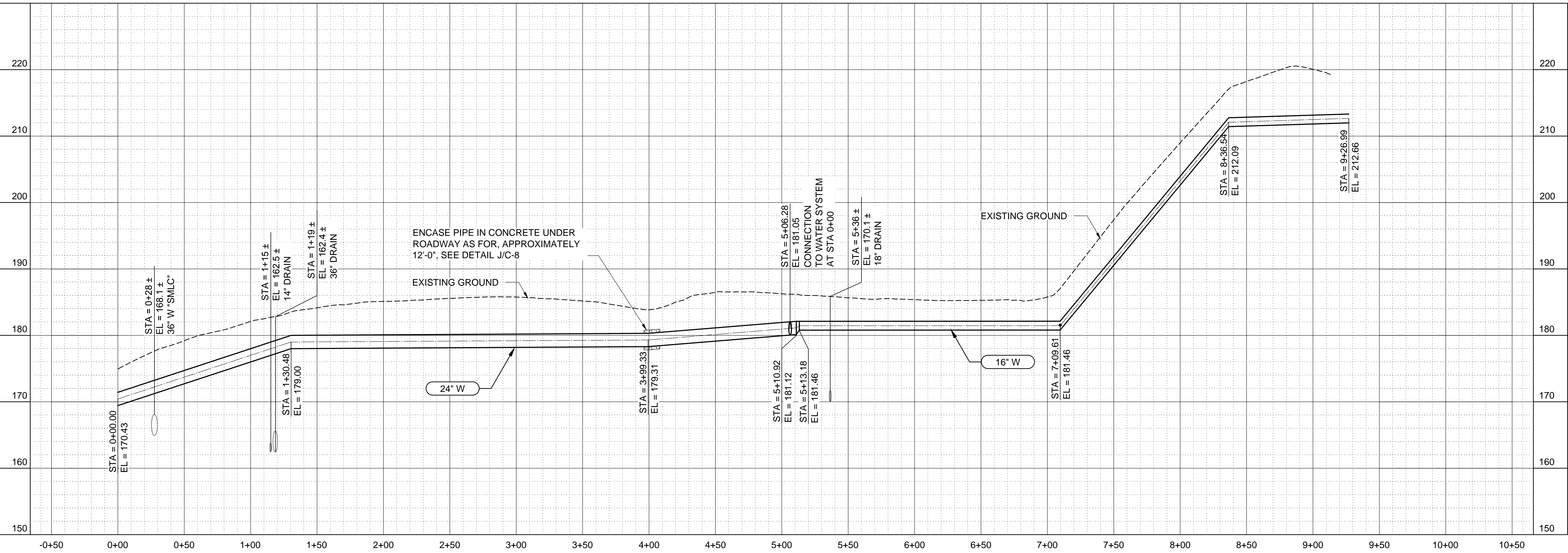
PLAN
SCALE: 1" = 40'



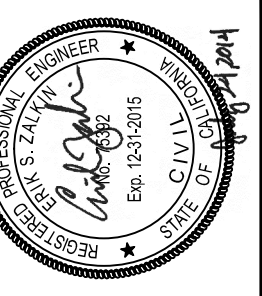
PLAN
SCALE: 1" = 40'

GENERAL NOTES

1. RESTRAIN JOINTS UNLESS OTHERWISE SPECIFIED, SEE DWG C-10 FOR CONNECTION DETAILS.
2. THRUST BLOCK AS PER CITY STANDARD DETAILS.

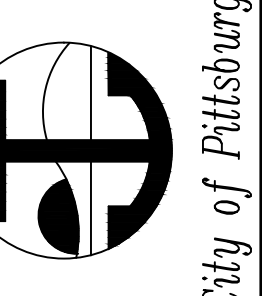


PROFILE
SCALE: HORIZONTAL: 1" = 40'
VERTICAL: 1"=8'



PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
P.E., C.E., P.E. No. 15378, Exp. 12/31/15

ACCEPTED FOR USE BY:
KEITH HALVORSON
City Engineer



CIVIL PHASE 1A
**24-INCH AND 16-INCH PIPELINE
PLAN AND PROFILE**

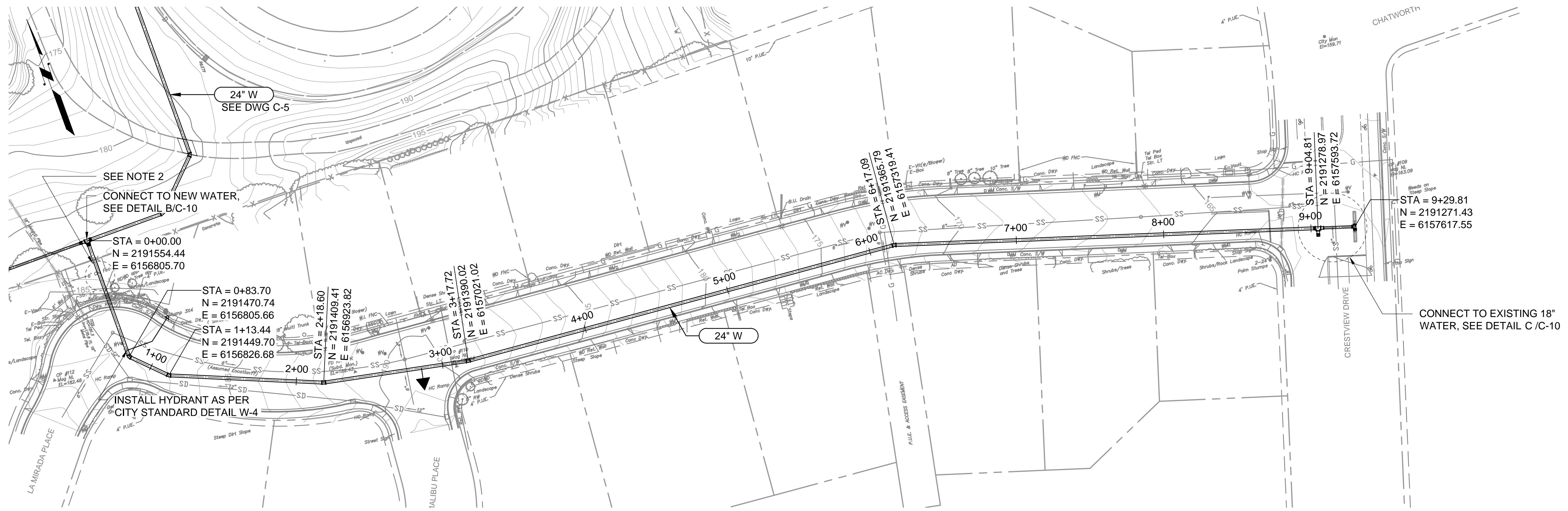
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DATE:	Jul 24, 2014
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DATE	REV	DESCRIPTION

SHEET NO.
14 OF 50

SHEET:
C-5

Path: \\Beverly\p01\Projects\143000\143879 - Pittsburg WTP Improvements Ph 1\CAAD\2-SHEETS\C-CIVIL File: 143879-SF-01-C-06.dwg Plot Date: July 24, 2014 12:39 PM CAAD User: Lambert, Tai



NOTES

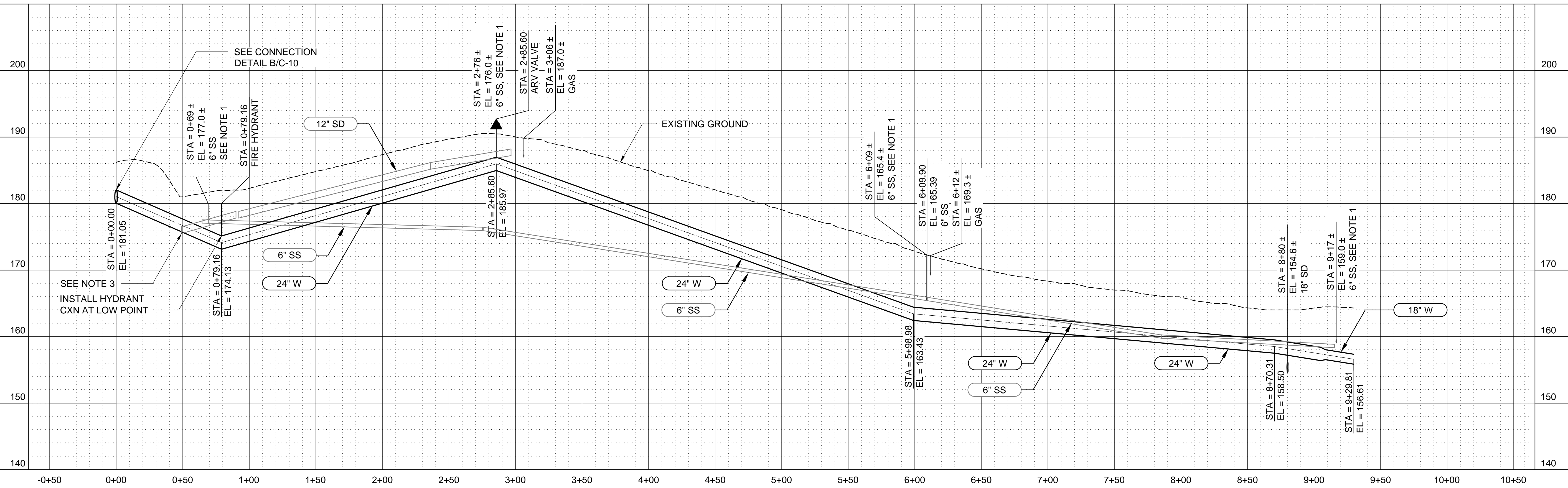
- SEE FIGURES 1 AND 2 ON SHT G-8 FOR CRITERIA FOR THE SEPARATION OF WATER MAINS AND GRAVITY SANITARY SEWERS AS PER CALIFORNIA DEPARTMENT OF HEALTH SERVICES.
- CONTRACTOR SHALL DOCUMENT THE CONDITIONS OF THE YARD PRIOR TO CONSTRUCTION AND SHALL RESTORE THE YARD TO THE SAME CONDITIONS.

3. SEE DETAIL A/C-7 FOR T-CUT TRENCH IN PAVED AREAS

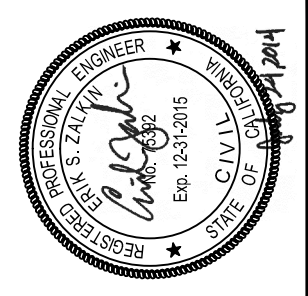
PLAN
SCALE: 1" = 40'

GENERAL NOTES

- RESTRAIN JOINTS UNLESS OTHERWISE SPECIFIED, SEE DWG C-10 FOR CONNECTION DETAILS

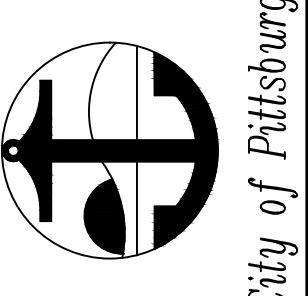


PROFILE
SCALE: HORIZONTAL: 1" = 40'
VERTICAL: 1" = 8'



PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
P.E., C75392, Exp. 12/31/15

ACCEPTED FOR USE BY:
KEITH HALVORSON
City Engineer



24-INCH PIPELINE PLAN AND PROFILE

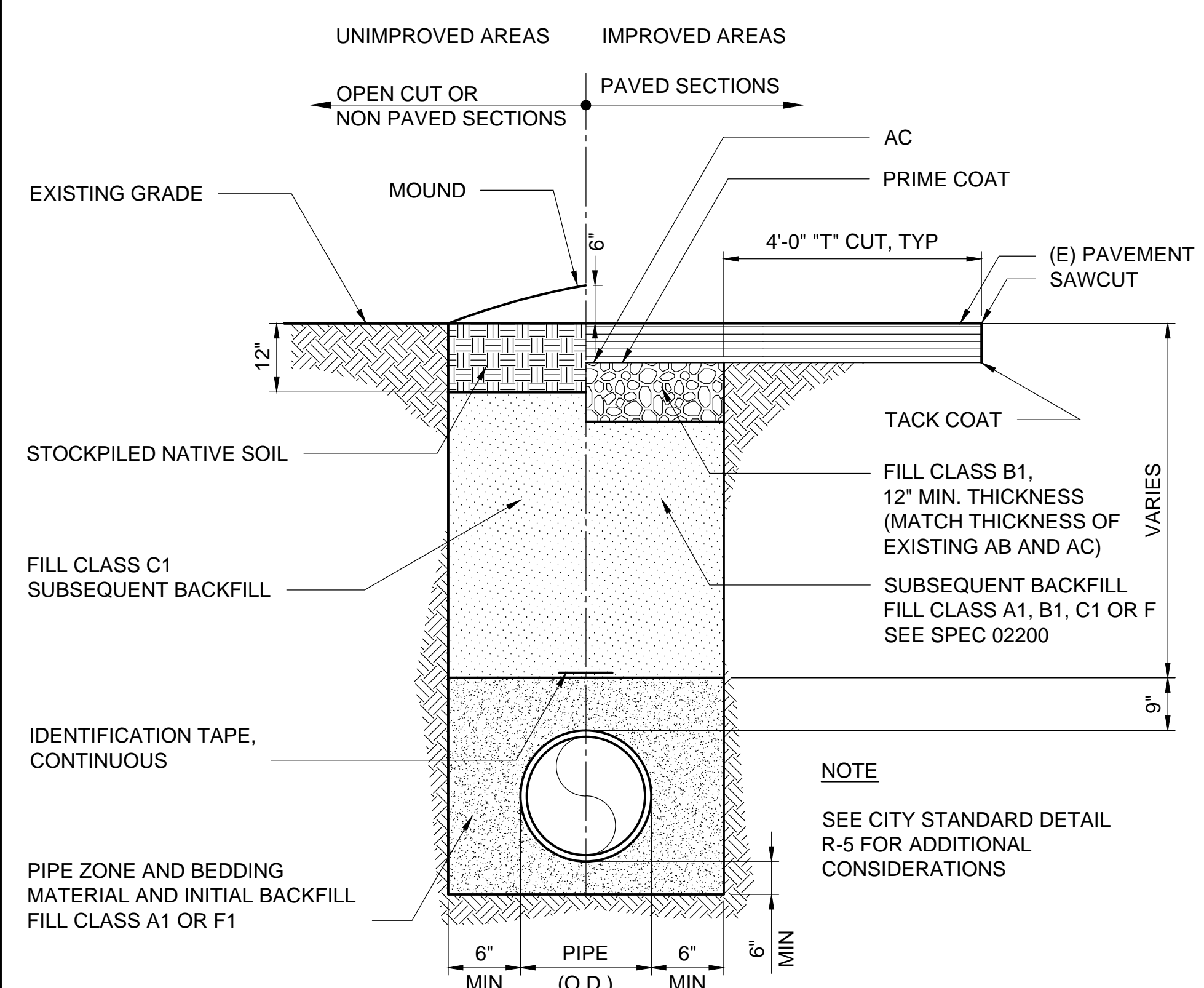
BY	DRAWN:TRL
CHECKED:ESZ	
REVIEWED:OMP	
DATE:	Jul 24, 2014
SCALE:	AS SHOWN

DESCRIPTION	
REV	
DATE	

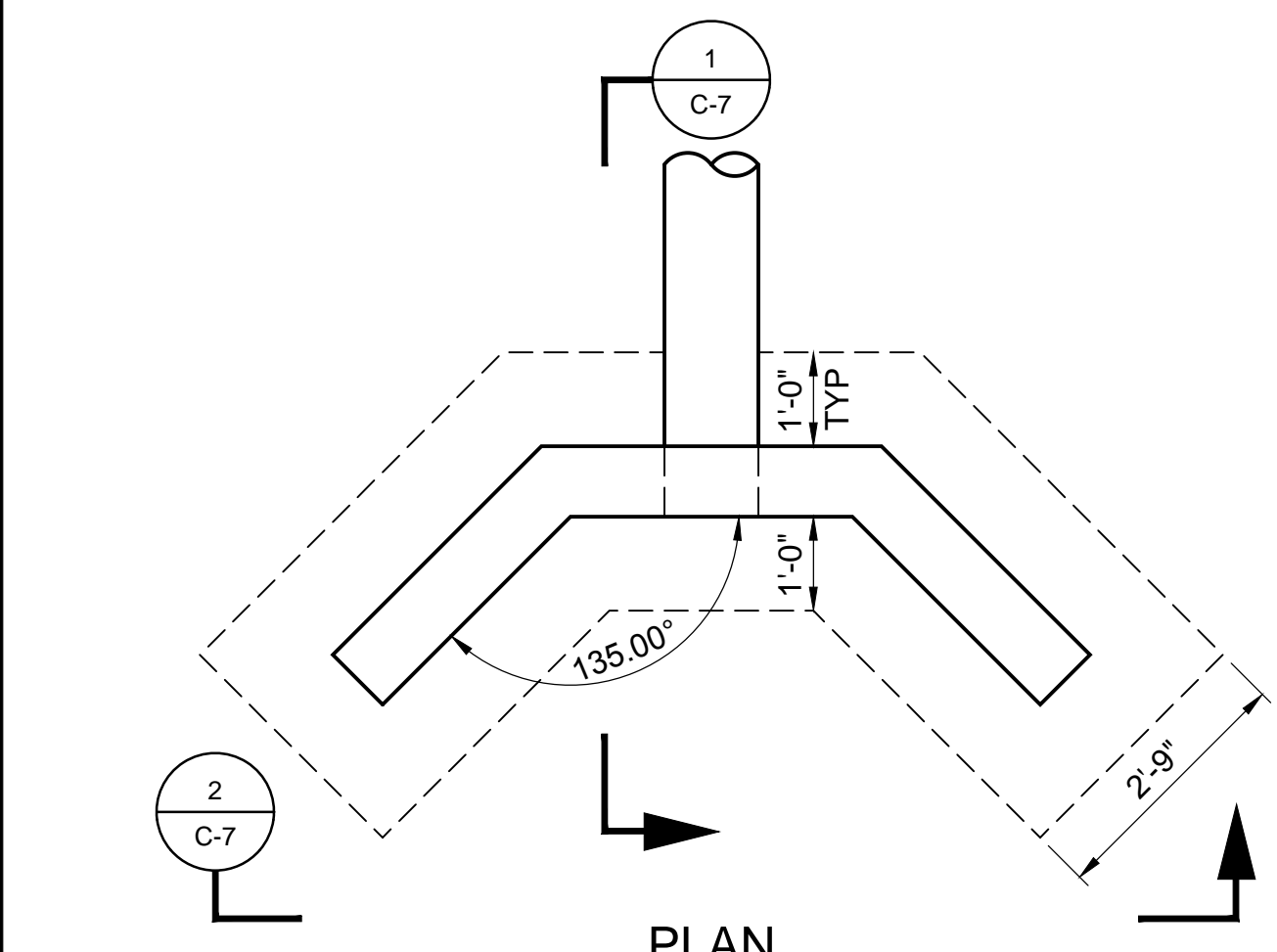
SHEET NO.
15 OF 50

C-6

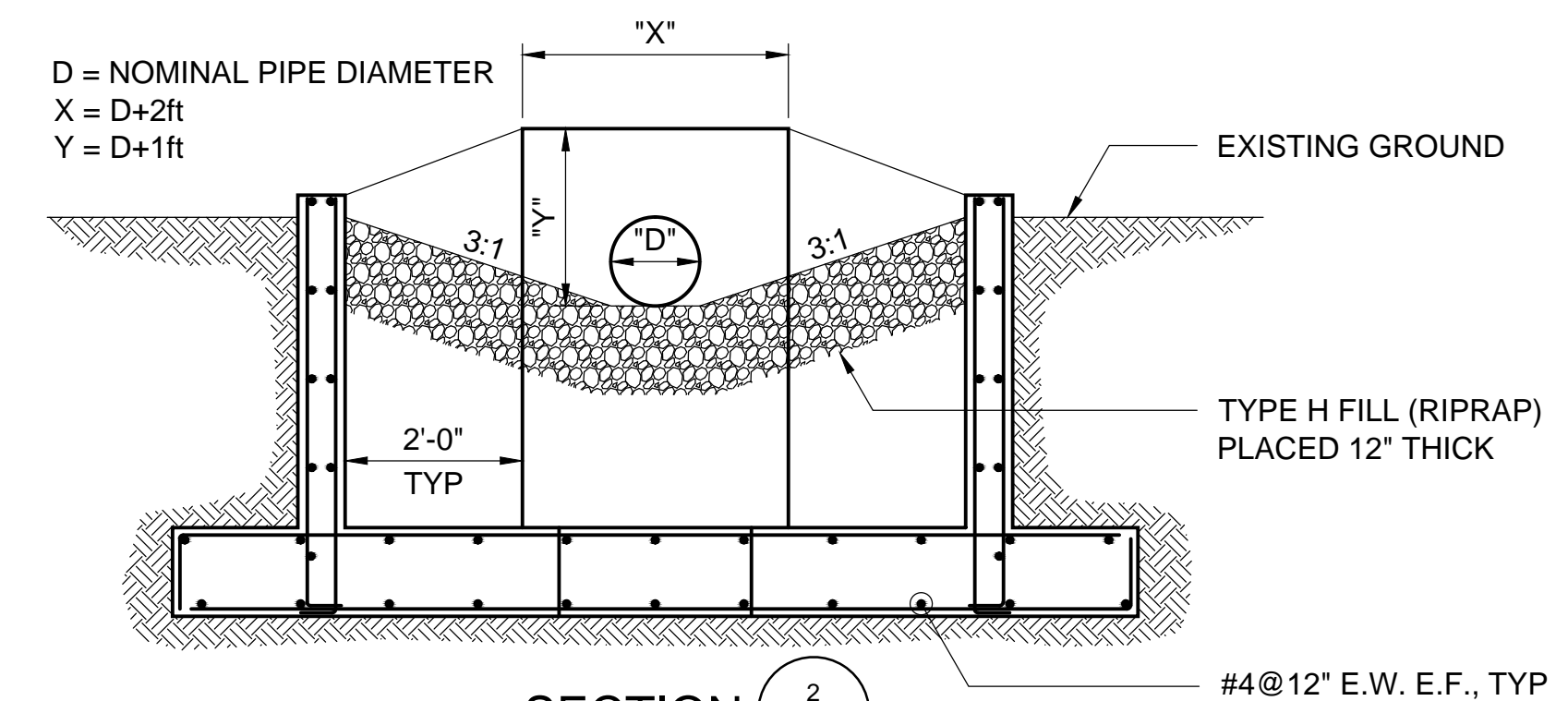
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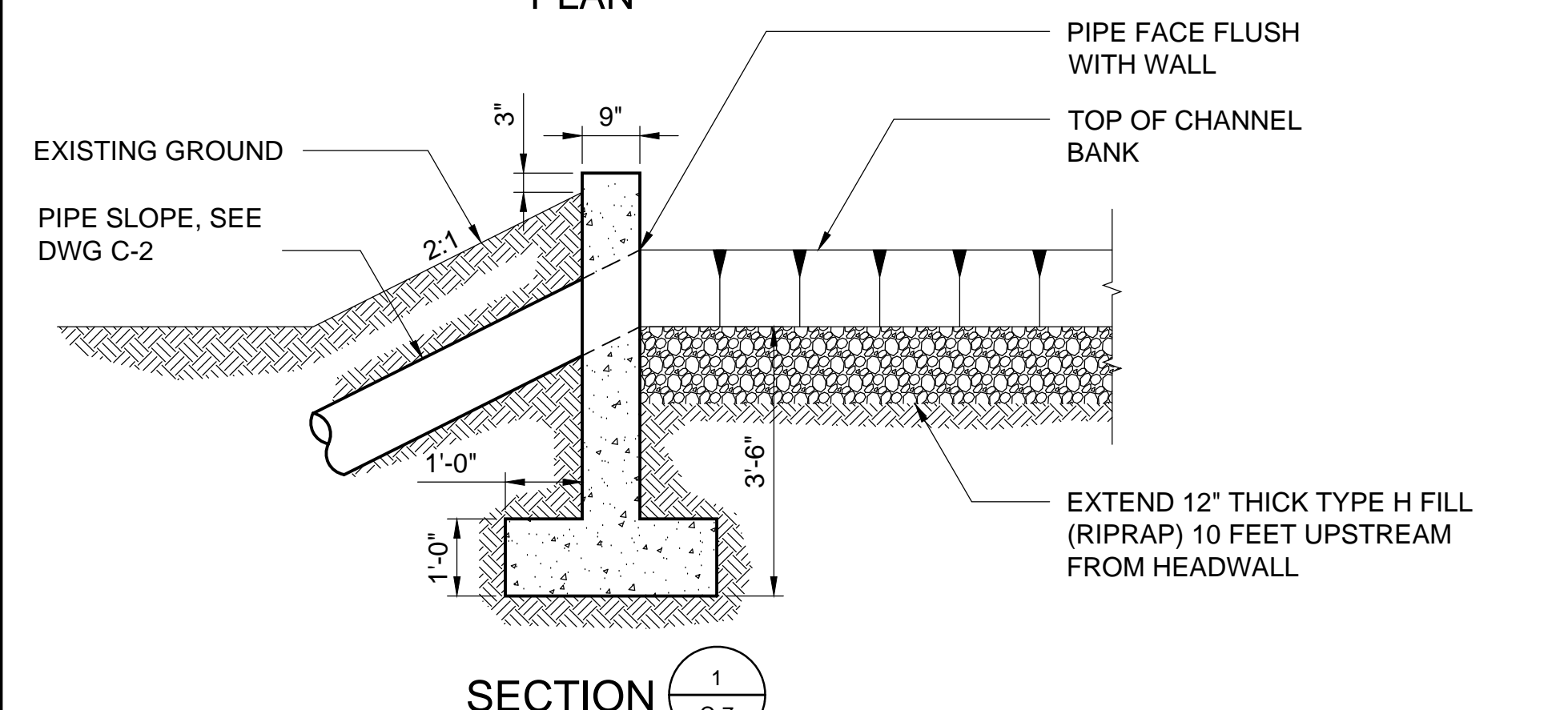
DETAIL A
VAR
NOT TO SCALE



PLAN



SECTION 2
C-7
NO SCALE

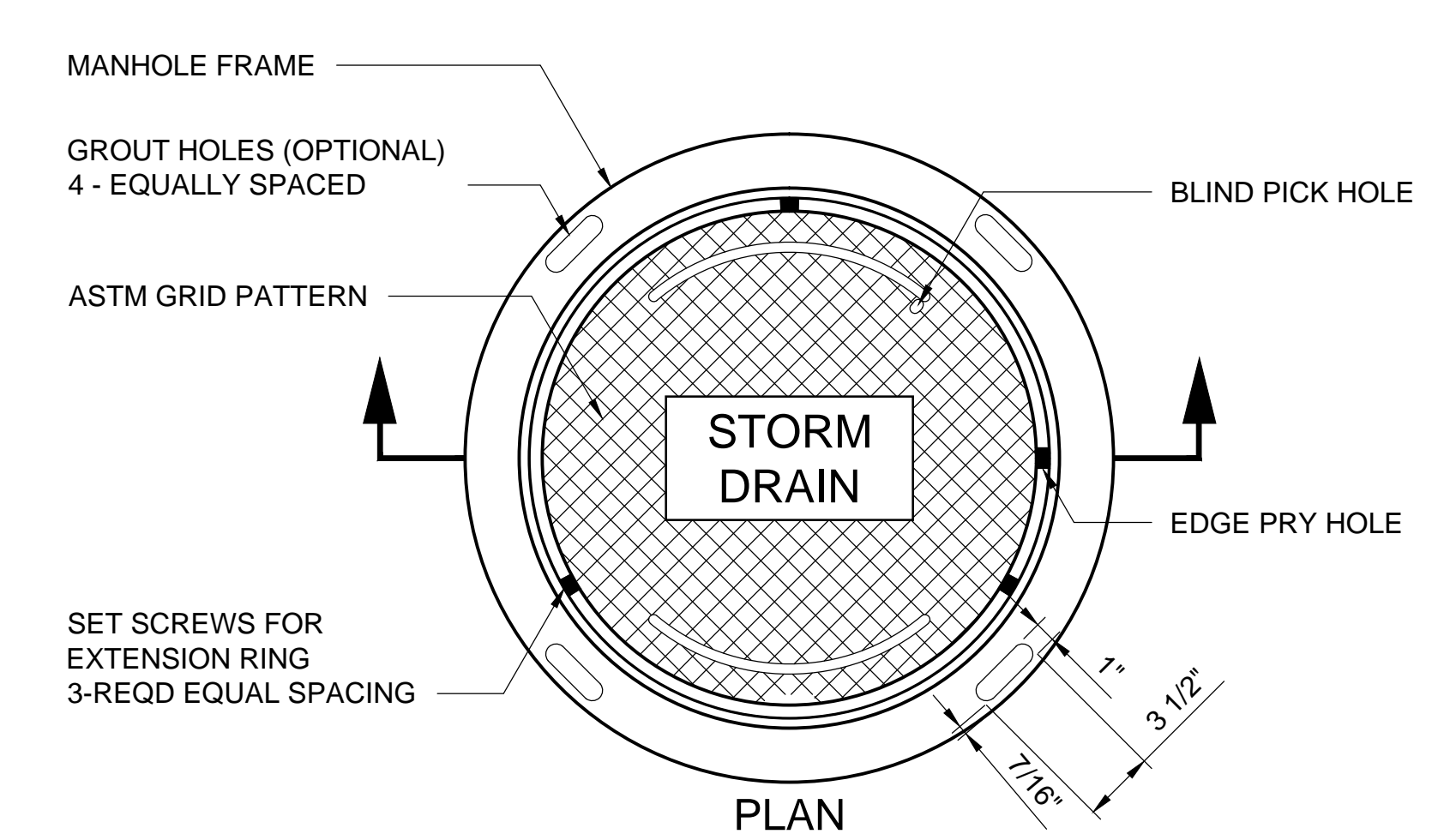


SECTION 1
C-7
NO SCALE

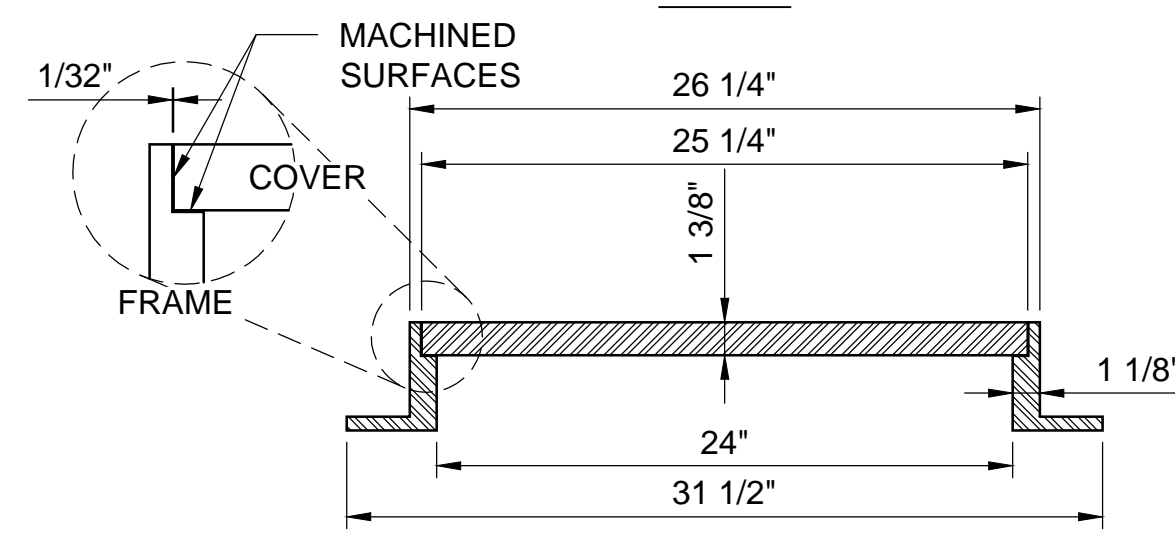
DETAIL D
C-2
NOT TO SCALE

NOTES

1. ALL REINFORCED CONCRETE SHALL BE CLASS II (590 lbs. PC PER CUBIC YARD).
2. ALL CONCRETE JOINTS SHALL BE CLEANED WETTED, AND MORTARED PRIOR TO SETTING NEXT SECTION. JOINTS SHALL THEN BE PATCHED, TROWELED, AND BRUSHED SMOOTH.
3. TYPE I MANHOLE BASES ARE FOR USE WITH PIPES TO 24" IN DIAMETER AND WHERE THERE IS SUFFICIENT COVER TO USE MINIMUM LENGTH MANHOLE BARREL, ECCENTRIC CONE, AND COVER FRAME. TYPE II MANHOLE BASES (STD PIN CD31) ARE FOR USE WITH PIPES TO 42" IN DIAMETER. TYPE III MANHOLE BASES (STD PIN CD32) ARE FOR USE WITH PIPES TO 60" IN DIAMETER. MANHOLE BASES FOR PIPES LARGER THAN 60" IN DIAMETER SHALL REQUIRE A SPECIAL DESIGN.
4. FRAME AND EXTENSION RINGS MUST BE SECURED BY PAVEMENT OR CONCRETE BLOCK.
5. MANHOLE COVER FRAME SHALL BE ADJUSTED TO CONFORM TO GRADE AND CROSS SLOPE OF PAVEMENT.
6. MANHOLE FRAME AND COVER SHALL BE PHOENIX IRON (OAKLAND) MODEL P-1090 OR SOUTH BAY FOUNDRY (LODI) MODEL A-640 OR APPROVED EQUIVALENT.
7. USE OF EXTENSION RINGS ARE LIMITED BY 18" MAXIMUM MANHOLE THROAT LENGTH. EXTENSION RINGS ARE ALLOWED FOR CONFORMS TO PAVEMENT OVERLAYS ONLY.
8. NO STEPS ARE TO BE INSTALLED IN ANY STRUCTURES. (MH, CB, VAULTS, ETC.).

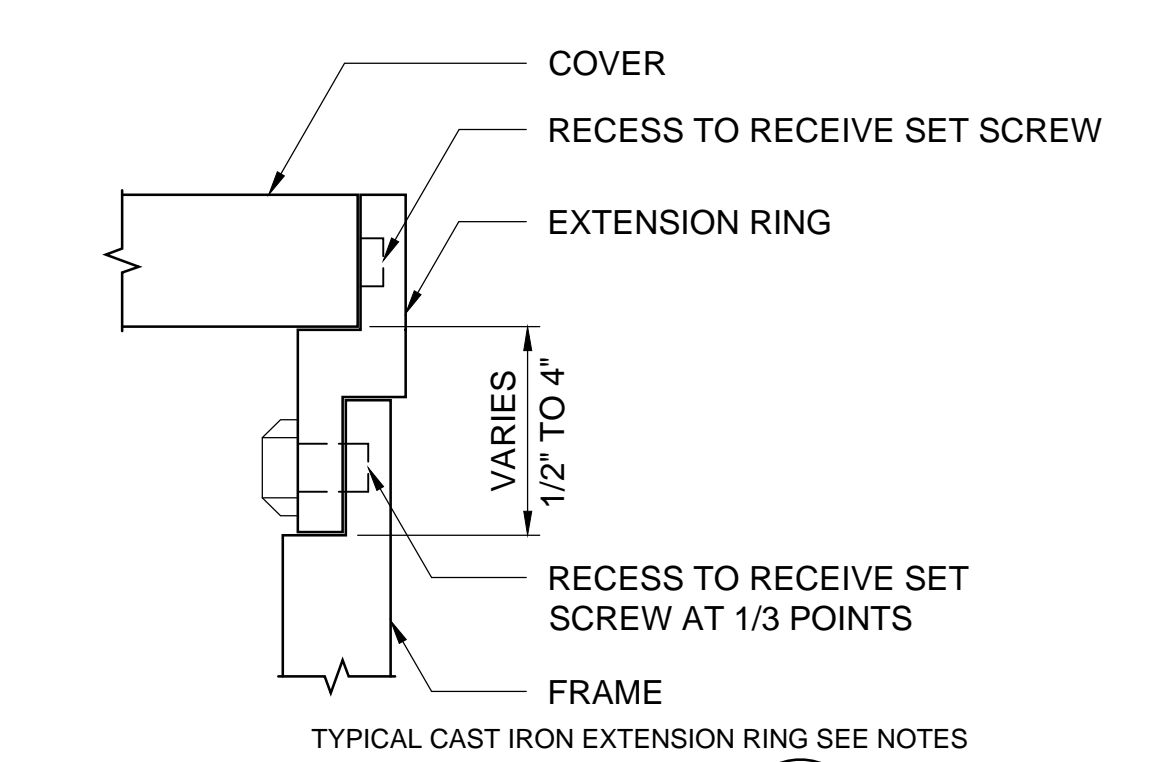


PLAN

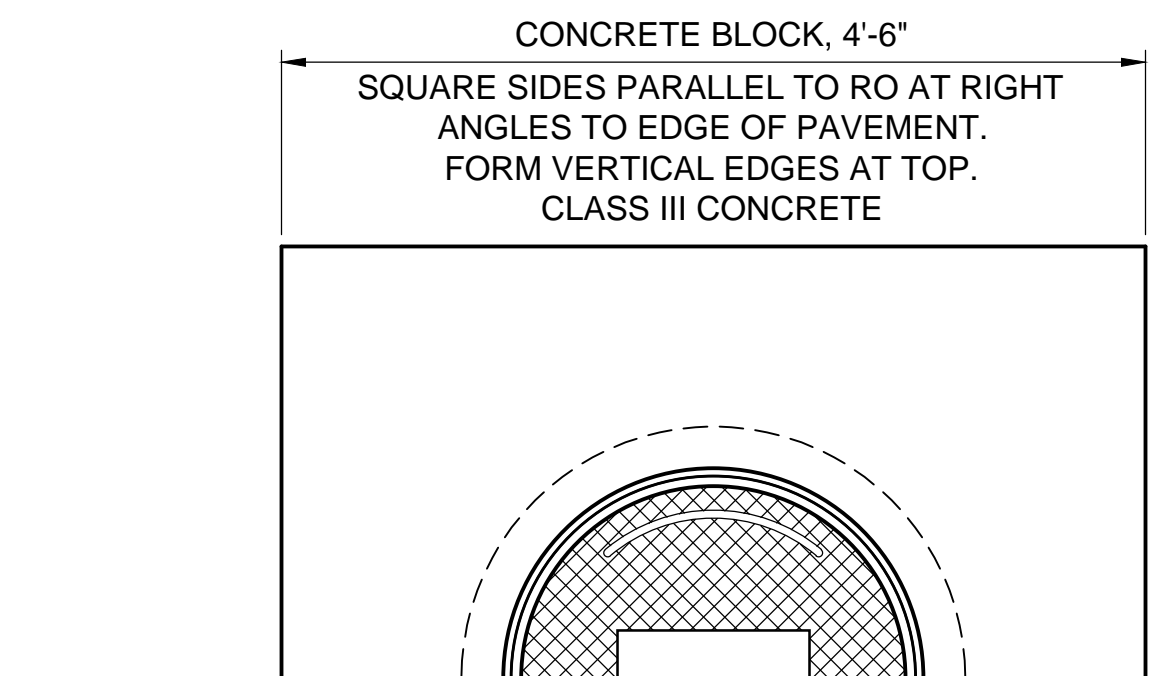


SECTION

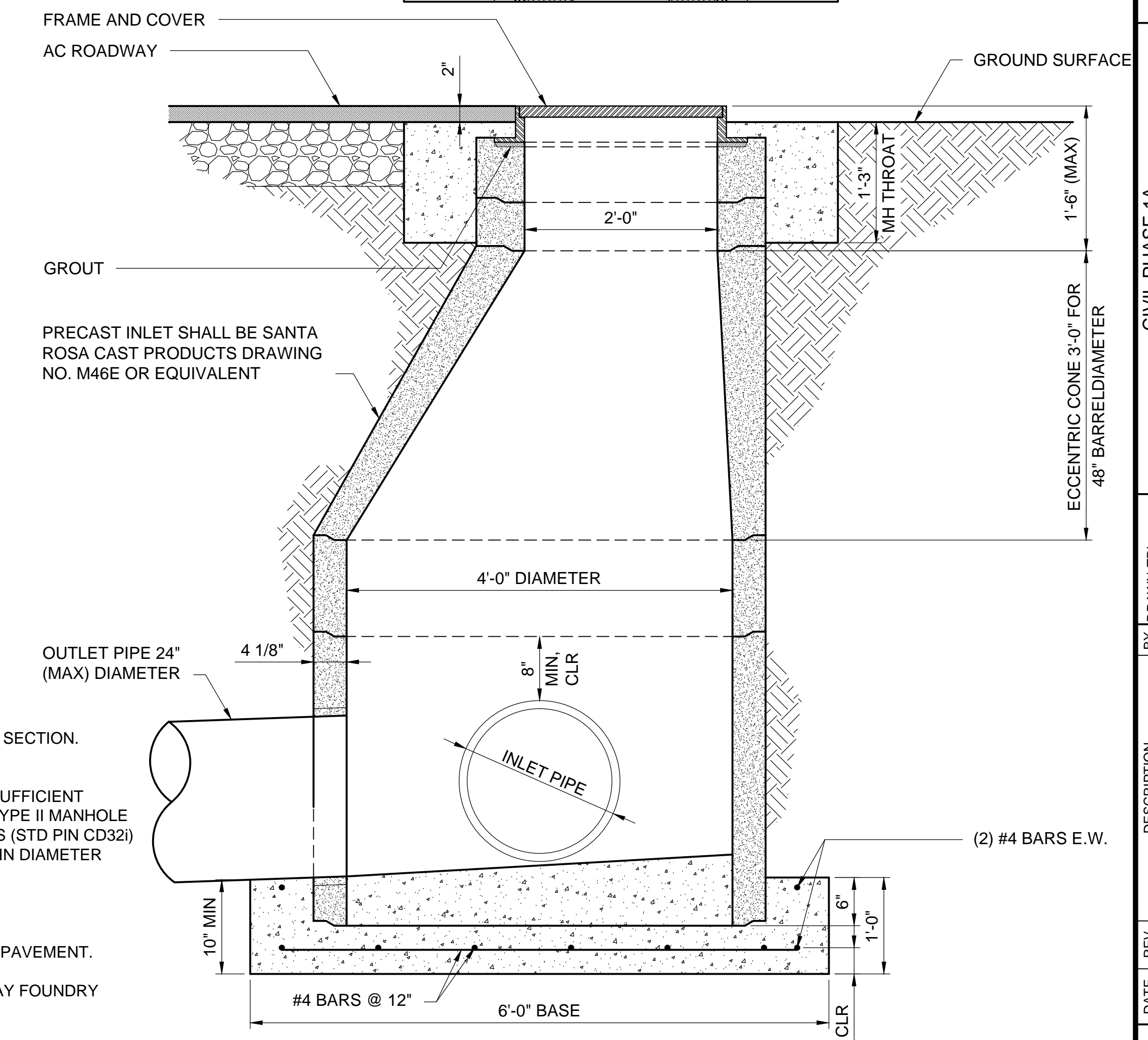
TYPICAL FRAME AND COVER SEE NOTES
DETAIL B
C-7
NOT TO SCALE



DETAIL C
C-7
NOT TO SCALE



DETAIL E
VAR
NOT TO SCALE



PRECAST MANHOLE WITH TYPE II BASE SEE NOTES

DETAIL E
VAR
NOT TO SCALE

Brown and Caldwell

PREPARED UNDER THE DIRECTION OF:

ERIK ZALKIN
RCE, C7592, Exp. 12/31/15

ACCEPTED FOR USE BY:

KEITH HALVORSON
City Engineer

City of Pittsburgh

CIVIL PHASE 1A

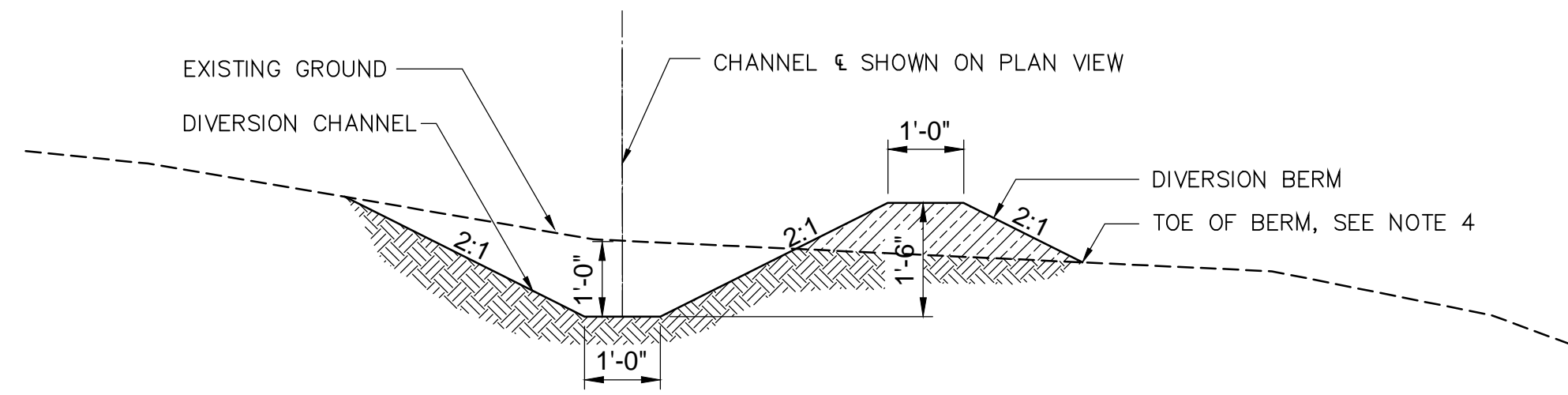
CIVIL DETAILS 1

BY	DATE	DESCRIPTION

SHEET NO.
16 OF 50

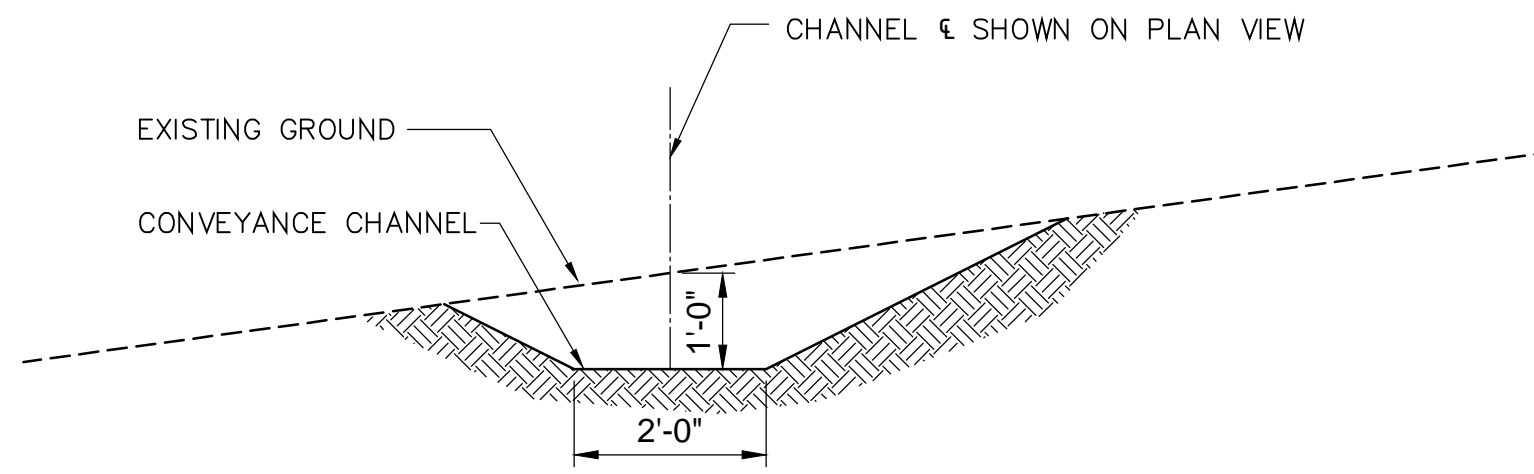
SHEET:
C-7

Path: \\Beverly\Projects\143000\143879 - Pittsburg WTP Improvements\Ph 1\CAAD\2 SHEETS\C-CIVIL File Name: 143879-SF-01-C-DTL.dwg Plot Date: July 24, 2014 - 12:40 PM CADD User: Lambert, Jait



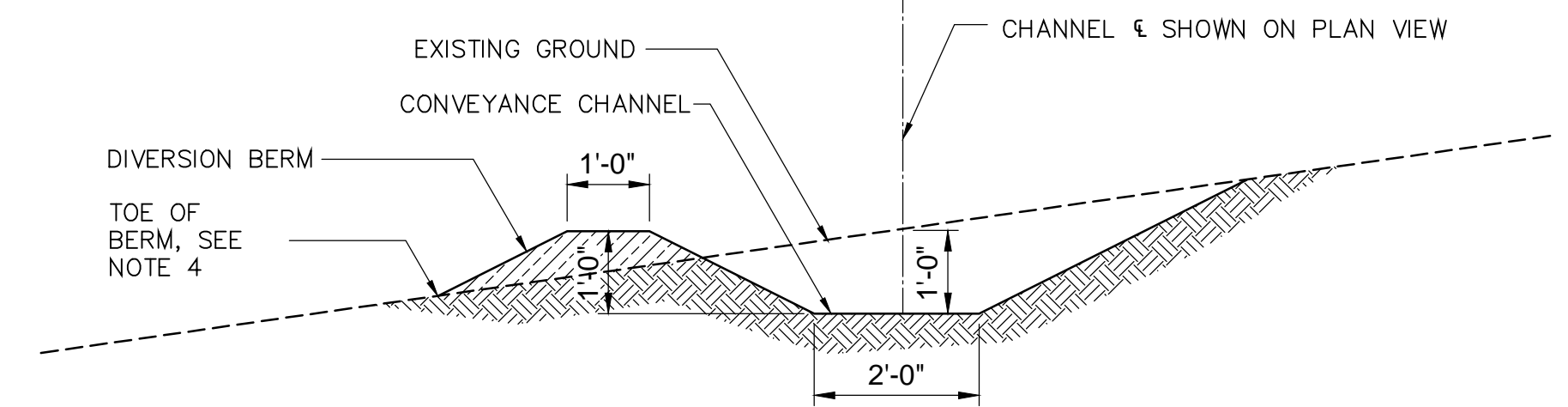
- NOTES**
- SECTION IS LOOKING UPSTREAM.
 - USE SOIL EXCAVATED FROM CHANNEL FOR BERM CONSTRUCTION.
 - REMOVE VEGETATION FROM DIVERSION CHANNEL / BERM FOOTPRINT AND DISPOSE, DO NOT USE IN BERM FILL.
 - PLACE COIR WATTLE ALONG THE TOE OF THE BERM FOR ENTIRE LENGTH.
 - LONGITUDINAL CHANNEL SLOPE TO MATCH EXISTING GROUND SLOPE ON THE CENTERLINE SHOWN.

EAST SIDE DIVERSION CHANNEL
TYPICAL SECTION
DETAIL $\frac{F}{C-2}$
SCALE: 1/2" = 1'-0"



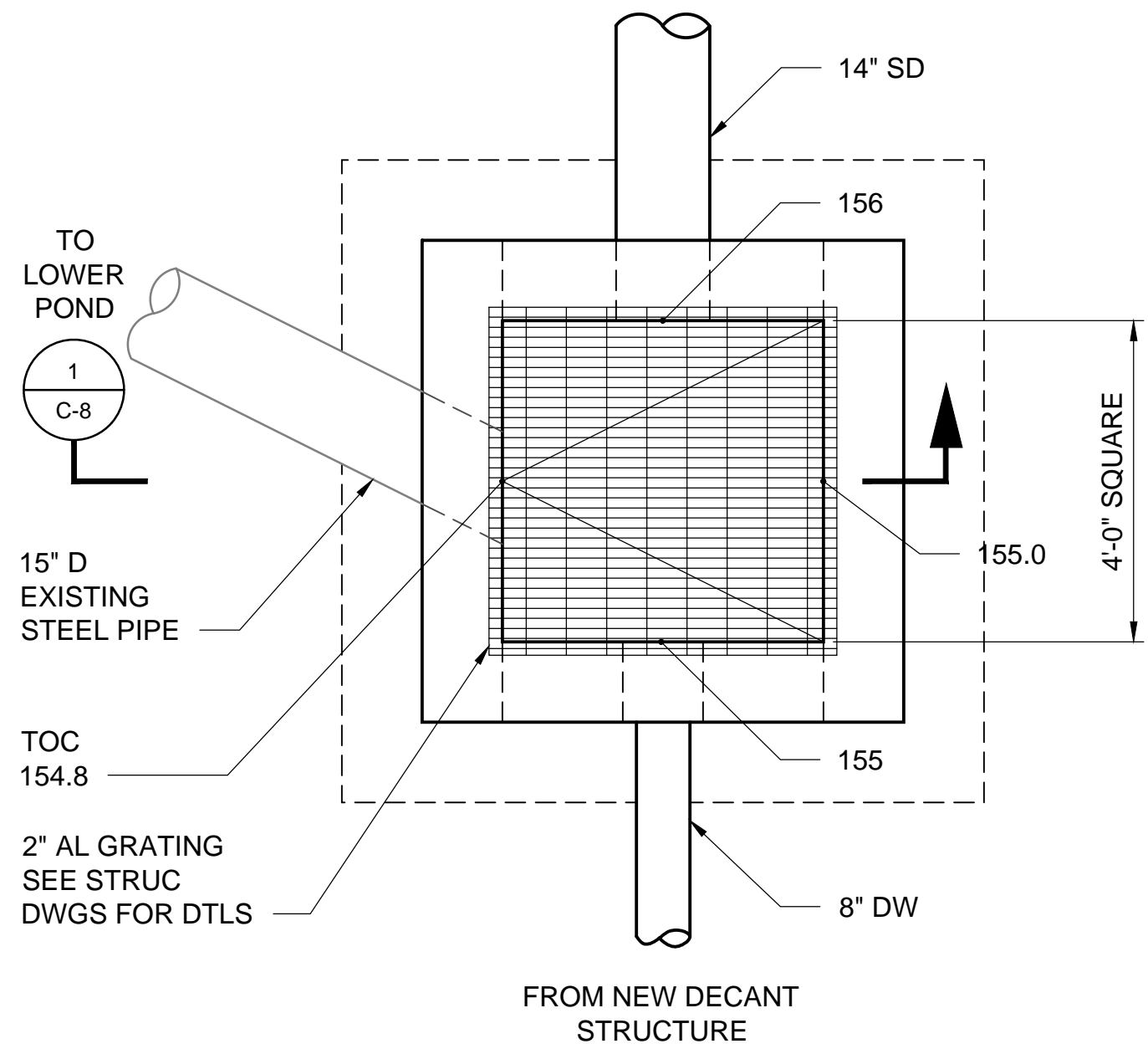
- NOTES**
- SECTION IS LOOKING UPSTREAM.
 - REMOVE VEGETATION FROM DIVERSION CHANNEL / BERM FOOTPRINT AND DISPOSE, DO NOT USE IN BERM FILL.
 - LONGITUDINAL CHANNEL SLOPE TO MATCH EXISTING GROUND SLOPE ON THE CENTERLINE SHOWN.

WEST SIDE CONVEYANCE CHANNEL
TYPICAL SECTION
DETAIL $\frac{G}{C-2}$
SCALE: 1/2" = 1'-0"



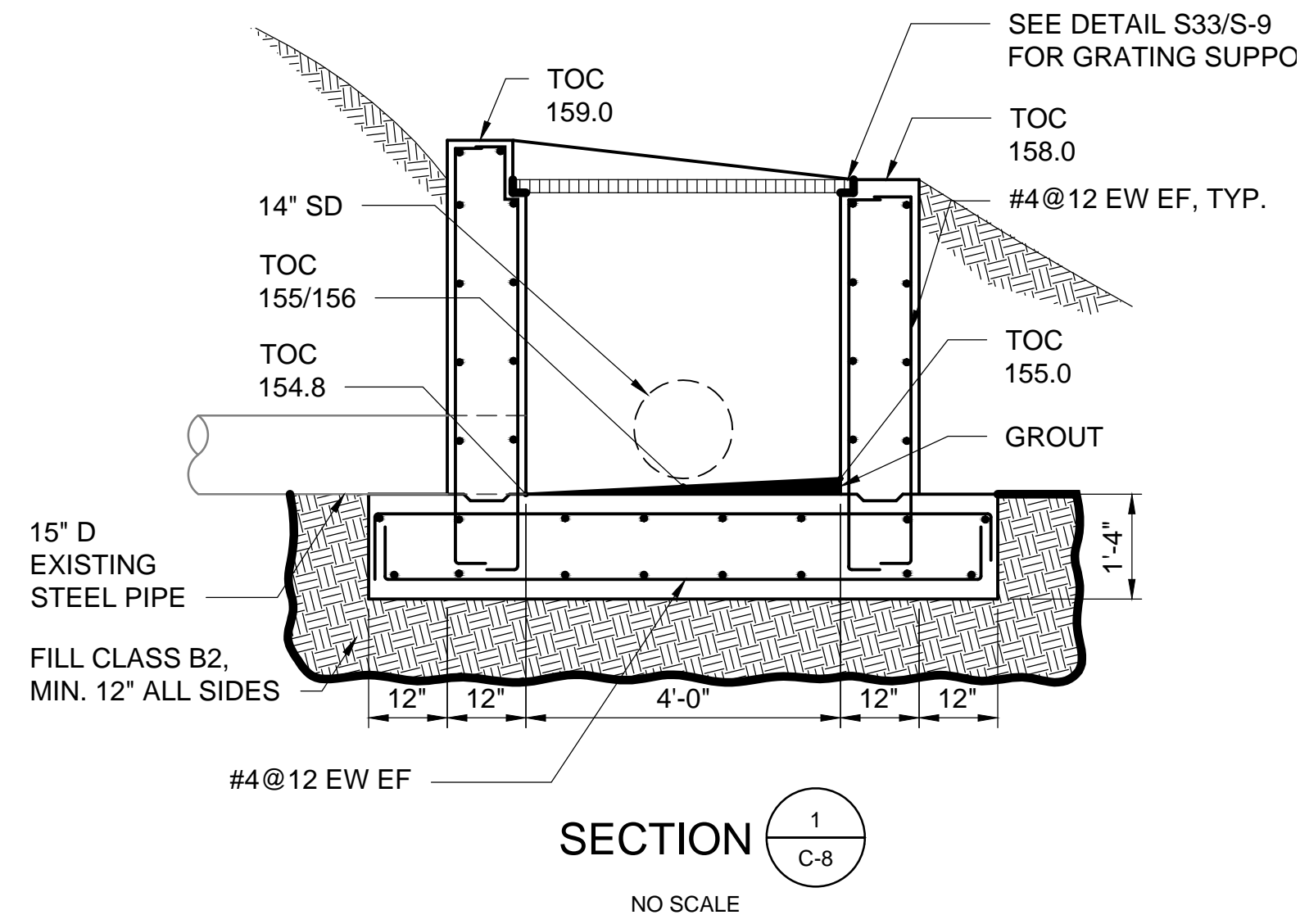
- NOTES**
- SECTION IS LOOKING UPSTREAM.
 - USE SOIL EXCAVATED FROM CHANNEL FOR BERM CONSTRUCTION.
 - REMOVE VEGETATION FROM DIVERSION CHANNEL / BERM FOOTPRINT AND DISPOSE, DO NOT USE IN BERM FILL.
 - PLACE COIR WATTLE ALONG THE TOE OF THE BERM FOR ENTIRE LENGTH.
 - LONGITUDINAL CHANNEL SLOPE TO MATCH EXISTING GROUND SLOPE ON THE CENTERLINE SHOWN.

NORTHWEST AND SOUTHWEST
SIDE DIVERSION CHANNEL TYPICAL
SECTION
DETAIL $\frac{H}{C-2}$
SCALE: 1/2" = 1'-0"

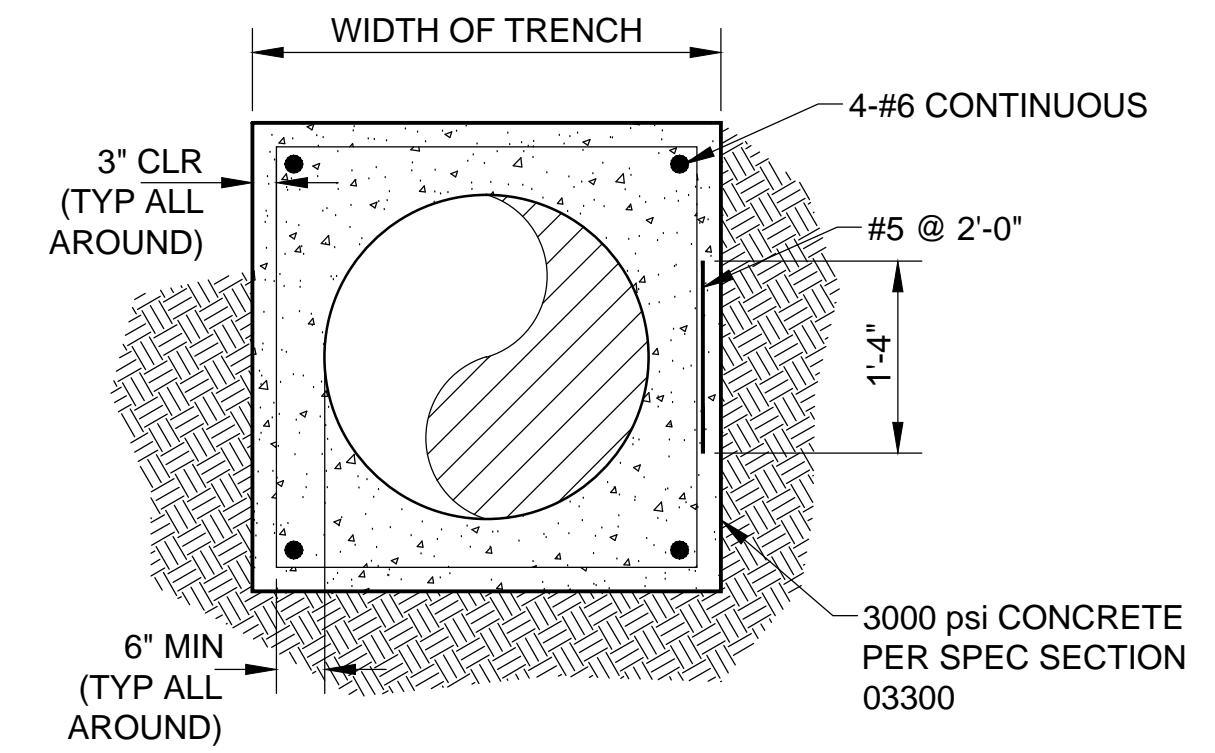


PLAN

OUTLET STRUCTURE
DETAIL $\frac{I}{C-2}$
NO SCALE



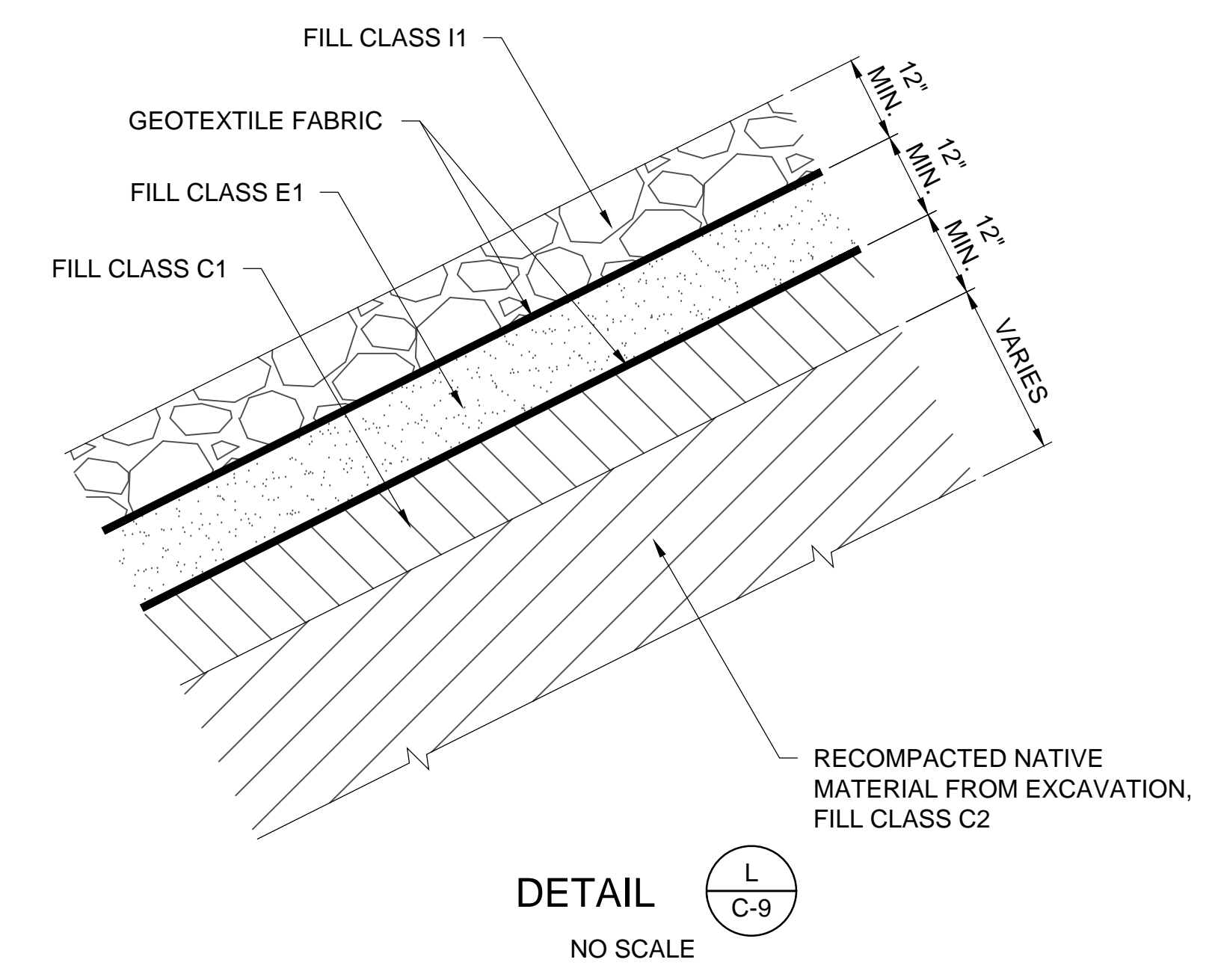
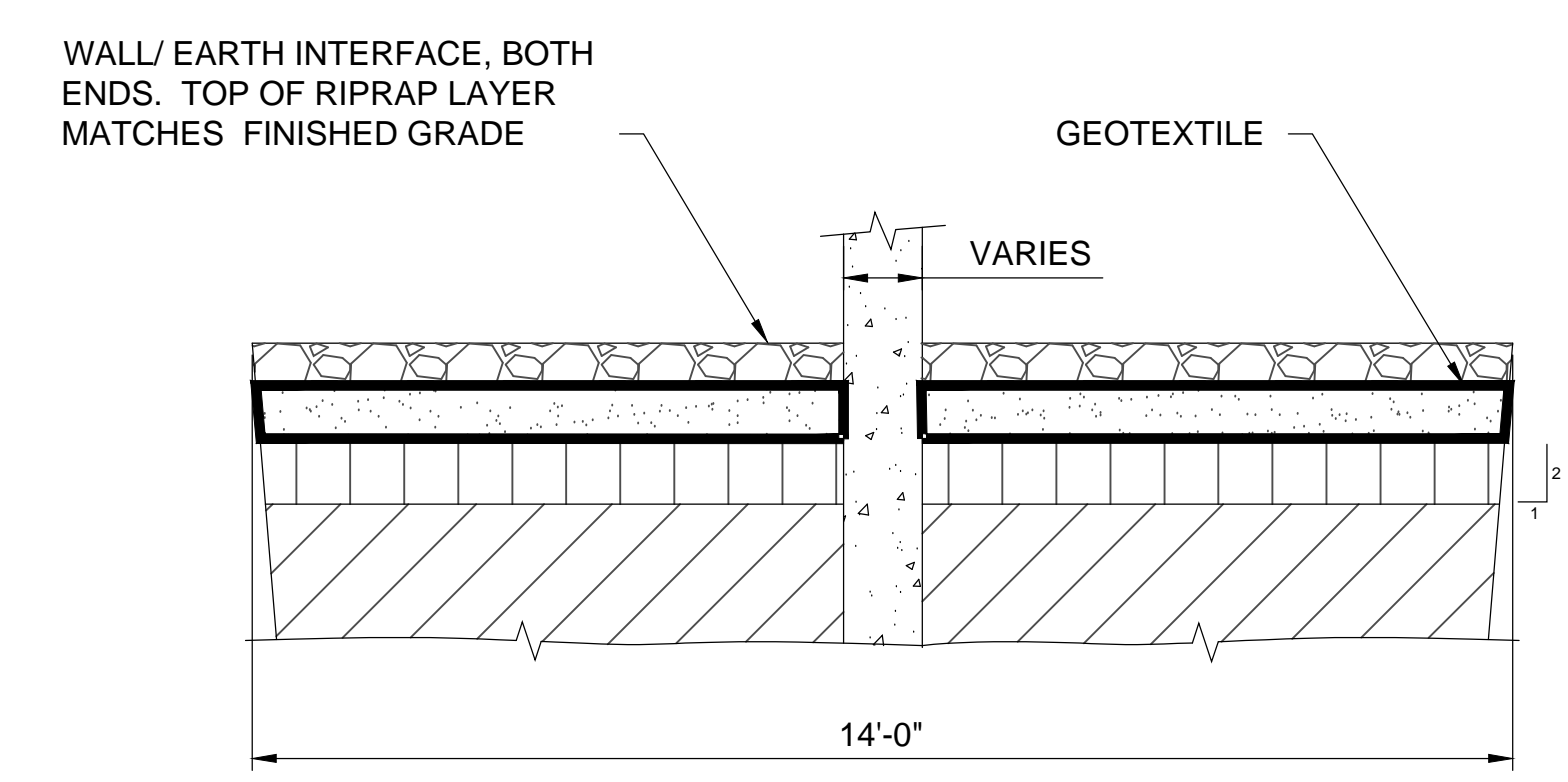
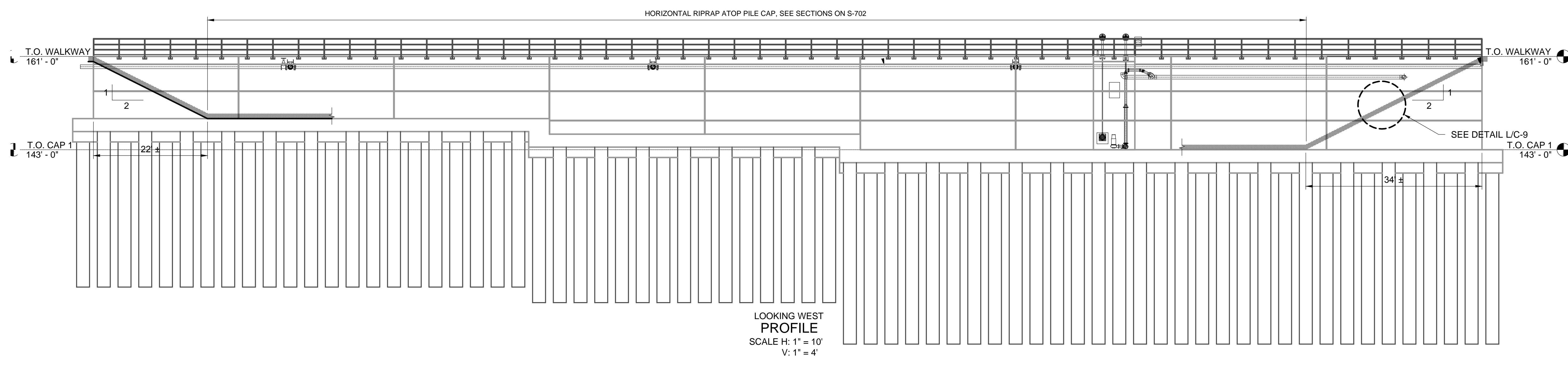
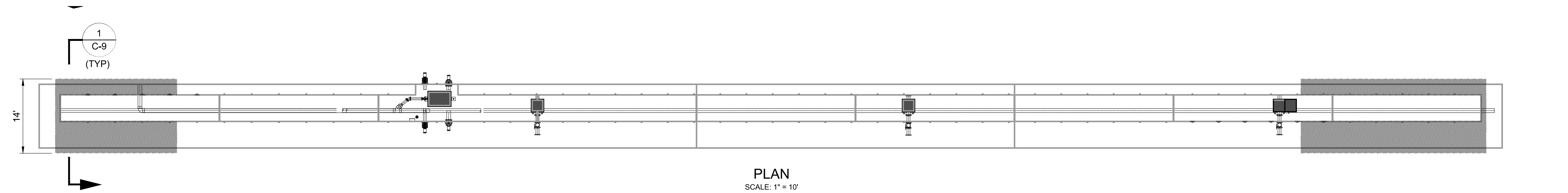
SECTION 1
 $\frac{1}{C-8}$
NO SCALE



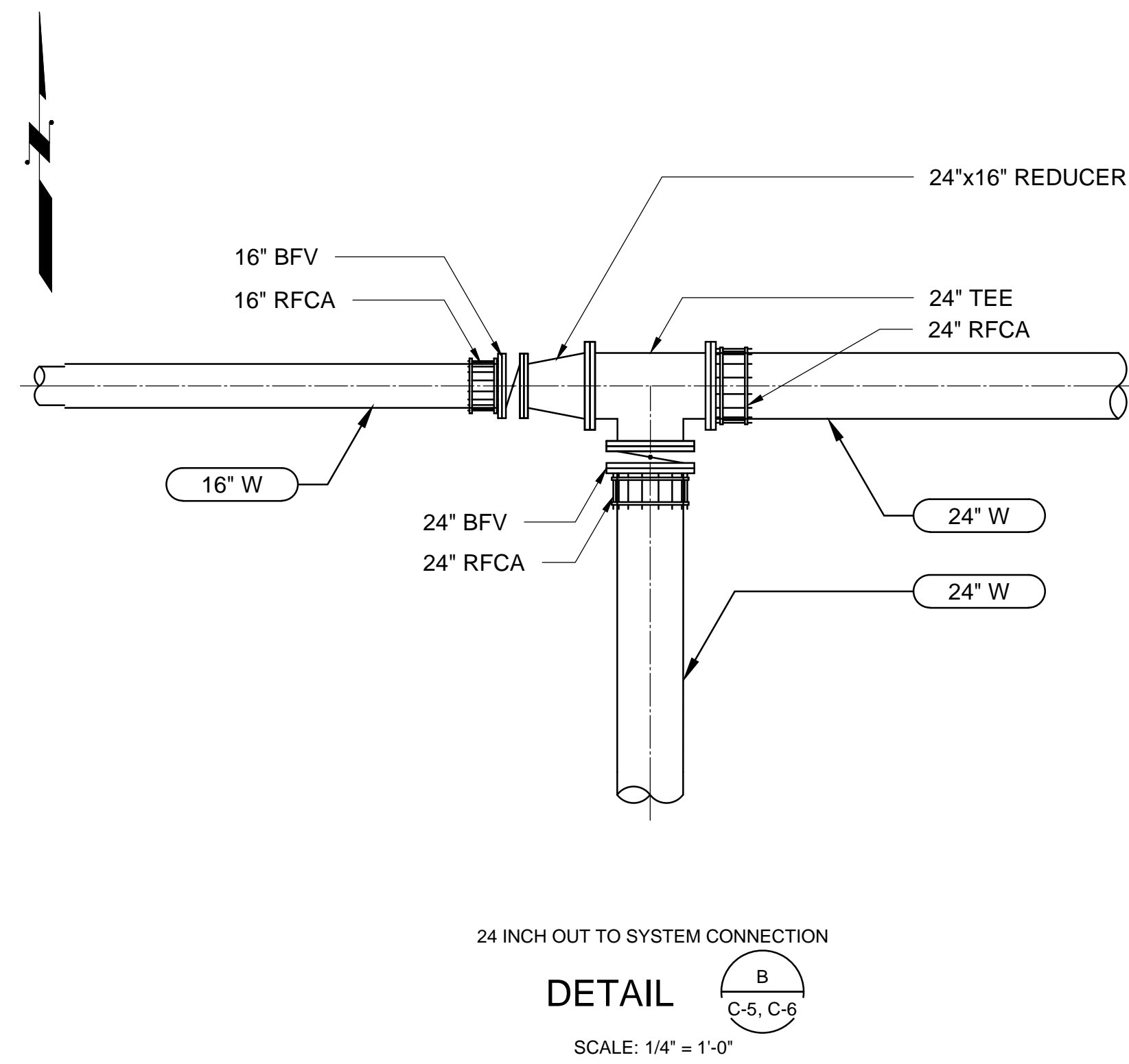
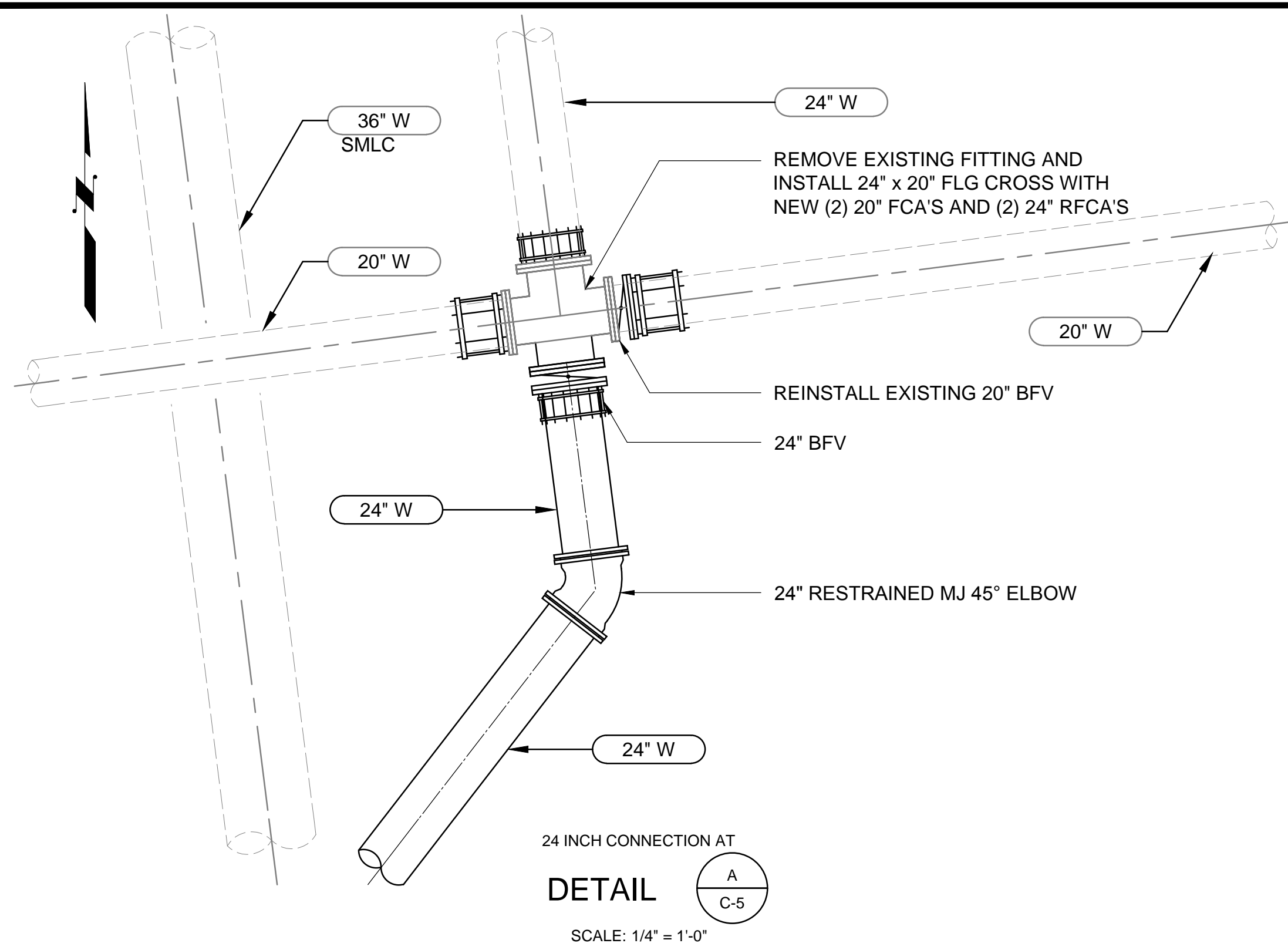
CONCRETE PIPE ENCASEMENT
DETAIL $\frac{J}{C-5}$
SCALE: 1/2" = 1'-0"

DATE	REV	DESCRIPTION	BY	DATE	SCALE

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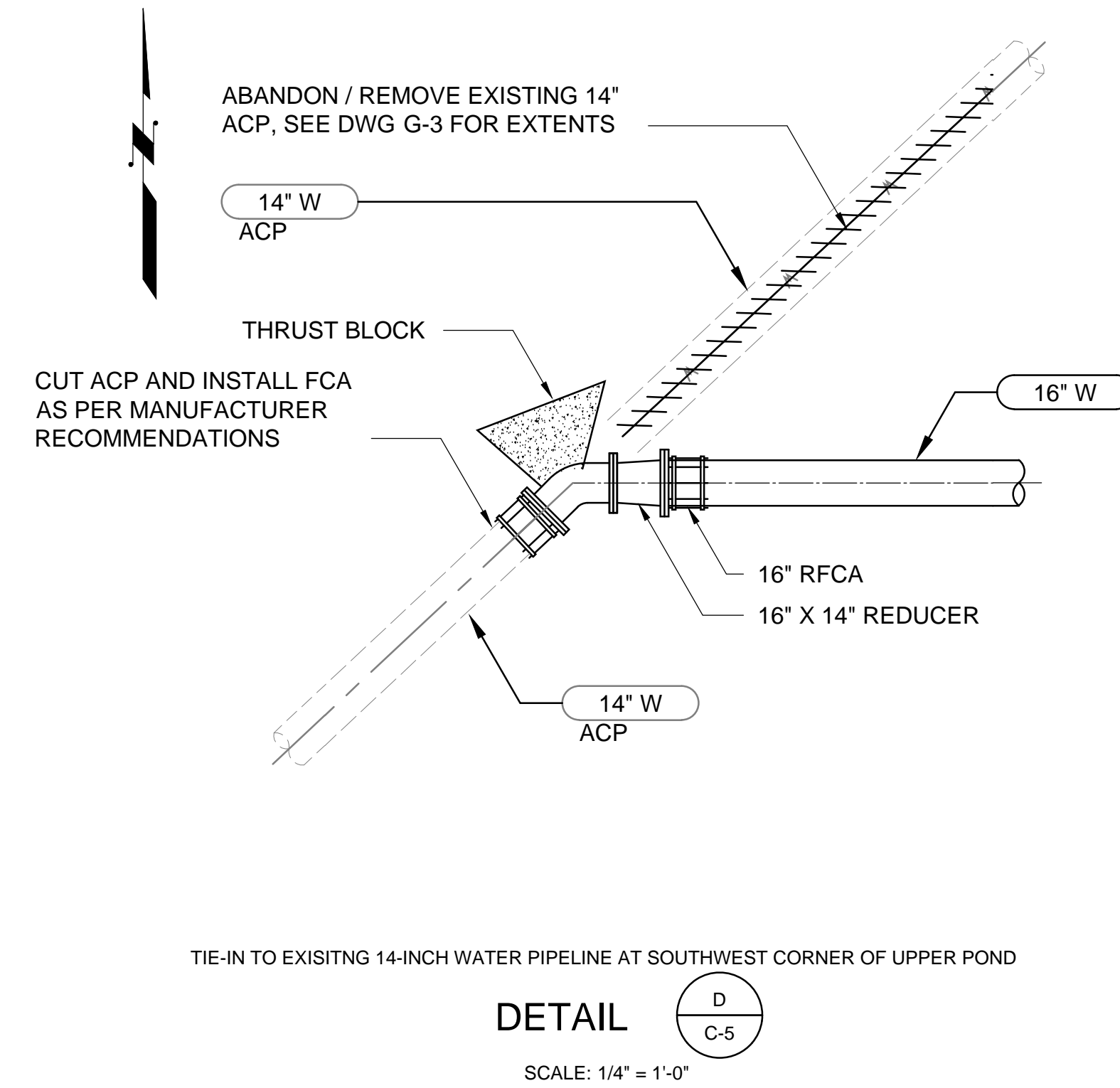
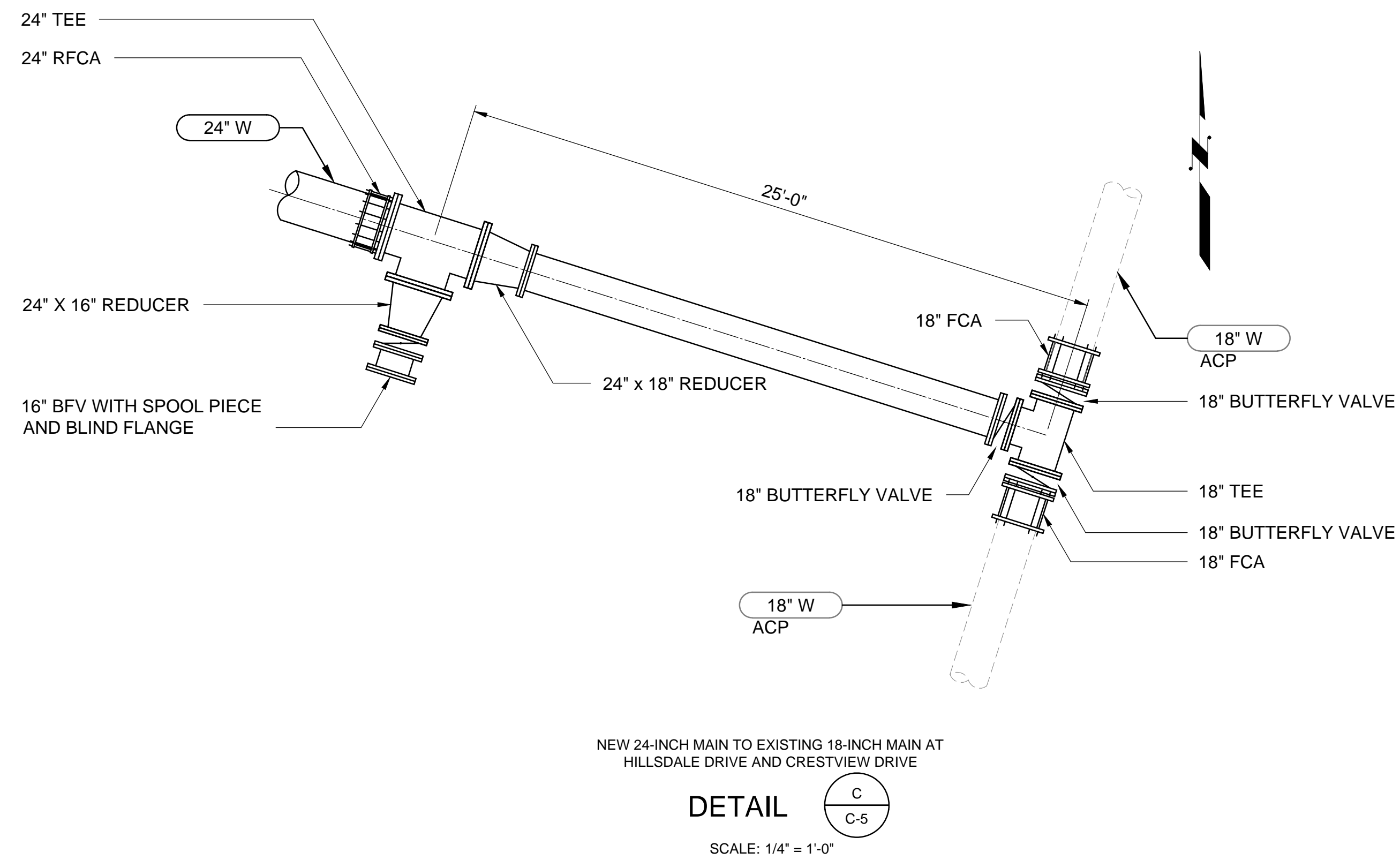


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GENERAL NOTES

- FOR NEW CONSTRUCTION RESTRAIN JOINTS AS SHOWN. USE EITHER RFCA OR RESTRAINED MJ.



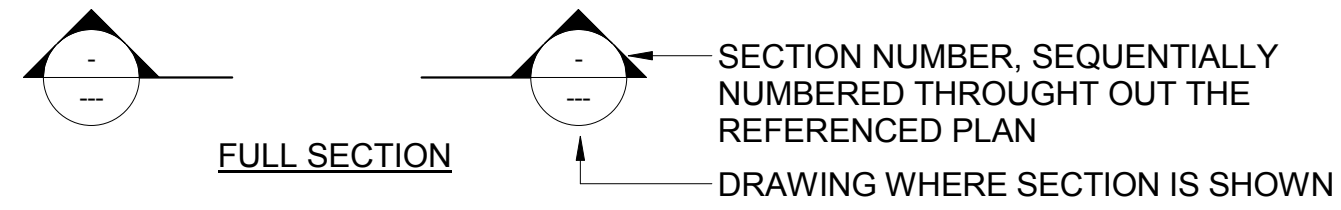
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ABBREVIATIONS

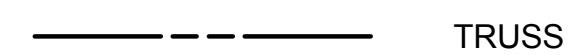
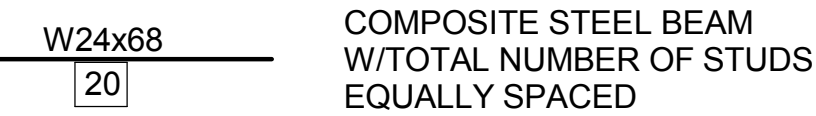
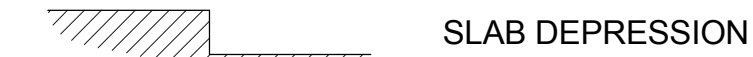
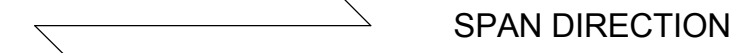
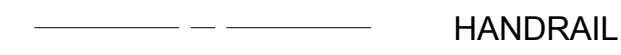
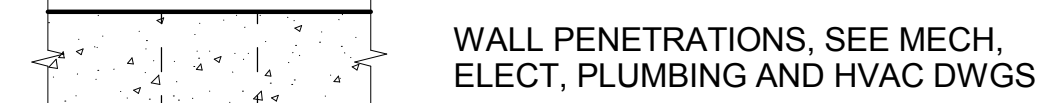
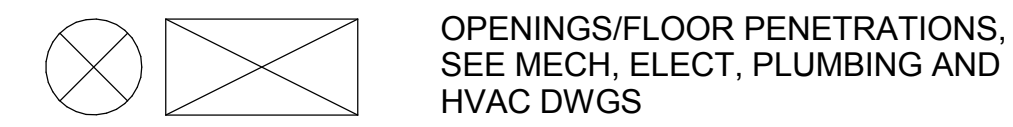
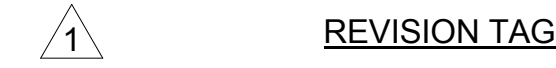
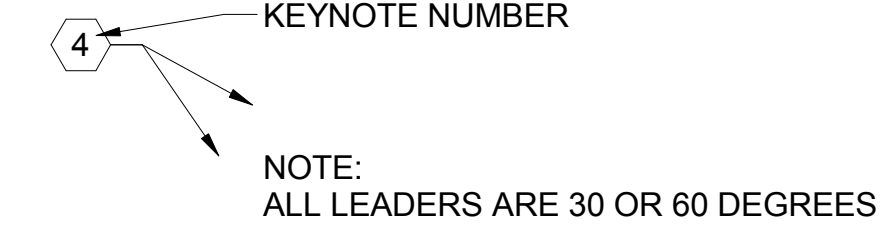
ABBREV	DESCRIPTION	ABBREV	DESCRIPTION
AB	ANCHOR BOLT	FB	EXTREME FIBER BENDING STRESS
ABC	AGGREGATE BASE COURSE	FD	FLOOR DRAIN
ACI	AMERICAN CONCRETE INSTITUTE	FDN	FOUNDATION
ADH	ALTERNATE DIRECTION OF HOOK	FF	FINISHED FLOOR
ADJ	ADJACENT	FG	FINISHED GRADE
AE	ARCHITECT ENGINEER	FIN	FINISH
AGG	AGGREGATE	FOC	FACE OF CONCRETE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	FT	FOOT OR FEET
AL	ALUMINUM	FTG	FOOTING
ALT	ALTERNATE	FUT	FUTURE
ANCH	ANCHOR, ANCHORAGE	GA	GAUGE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	GALV	GALVANIZED
AP	ALTERNATELY PLACED	GL	GLULAM
APPROX	APPROXIMATE	GR	GRAVEL, GRANULAR
ARCH	ARCHITECTURAL	GW	GYPSUM WALL BOARD
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	GYP	GYPSUM
@	AT	H	HIGH
AWS	AMERICAN WELDING SOCIETY	H1E	HOOK ONE END (STD 90° OR 180° HOOK)
B	BOTTOM	H2E	HOOK BOTH ENDS (STD 90° OR 180° HOOK)
BB	BOND BEAM	HORIZ	HORIZONTAL
BC	BOTTOM CHORD	HP	HIGH POINT
BD	BOARD	HAS	HEADED ANCHOR STUD
BAL	BALANCE	HR	HAND RAIL
BEG	BEGIN (NING)	HSB	HIGH STRENGTH BOLT
BET	BETWEEN	HSS	HOLLOW STRUCTURAL SECTION
BLDG	BUILDING	HT	HEIGHT
BLK	BLOCK	HVAC	HEATING, VENTILATION & AIR CONDITIONING
BLW	BELOW	IBC	INTERNATIONAL BUILDING CODE
BM	BEAM, BENCH MARK	ICBO	INTERNATIONAL COUNCIL OF BUILDING OFFICIALS
BOF	BOTTOM OF FOOTING	ID	INSIDE DIAMETER
BP	BASE PLATE	IF	INSIDE FACE
BRDG	BRIDGING	IN	INCH (ES)
BRG	BEARING	INT	INTERIOR, INTERMEDIATE
BS	BOTH SIDES	JT	JOINT
BSMT	BASEMENT	K	KIP (S)
C	CHANNEL, COMPRESSION	KSI	KIPS PER SQUARE INCH
CBC	CALIFORNIA BUILDING CODE	L	LONG, LENGTH, ANGLE
C/C	CENTER TO CENTER	LBS	POUNDS
CDF	CONTROLLED DENSITY FILL	Ld	DEVELOPMENT LENGTH
CG	CENTER OF GRAVITY	LLH	LONG LEG HORIZONTAL
CIP	CAST IN PLACE	LLV	LONG LEG VERTICAL
CIRC	CIRCUMFERENCE, CIRCUMFERENTIAL	LP	LOW POINT
CJ	CONSTRUCTION JOINT, CONTROL JOINT	LSH	LONG SLOTTED HOLE
CJP	COMPLETE JOINT PENETRATION	LT	LIGHT
CL	CLEAR	LVL	LEVEL (ING)
CM	CENTIMETER	MAX	MAXIMUM
CMU	CONCRETE MASONRY UNIT	MB	MACHINE BOLT
COL	COLUMN	MC	MOMENT CONNECTION
COMP	COMPRESSION, COMPRESSIVE	MECH	MISCELLANEOUS CHANNEL
COMPO	COMPOSITE	MEMB	MECHANICAL MEMBER
CONC	CONCRETE, CONCENTRATED	MET	METAL
CONN	CONNECT (ION)	MEZZ	MEZZANINE
CONST	CONSTRUCT (ION) (ED)	MFR	MANUFACTURE (R) (ED)
CONT	CONTINUE, CONTINUOUS	MID	MIDDLE
CONTR	CONTRACTOR	MIN	MINIMUM
CRSI	CONCRETE REINFORCING STEEL INSTITUTE	MISC	MISCELLANEOUS
CTR	CENTER	MO	MASONRY OPENING
CY	CUBIC YARD	N	NORTH, NEW
D	DEPTH, DEEP	NIC	NOT IN CONTRACT
DBA	DEFORMED BAR ANCHOR	NO OR #	NUMBER
DBL	DOUBLE	NTS	NOT TO SCALE
DEG	DEGREE	OC	ON CENTER (S)
DEM	DEMOLISH, DEMOLITION	OCSD	ORANGE COUNTY SANITATION DISTRICT
DET	DETAIL	OD	OUTSIDE DIAMETER
DIA, □	DIAMETER	OF	OUTSIDE FACE
DIAG	DIAGRAM, DIAGONAL	OPNG	OPENING
DIM	DIMENSION (ED)	OPP (HD)	OPPOSITE (HAND)
DO	DITTO	OSL	OUTSTANDING LEG
DS	DOWN SPOUT	PAR	PARALLEL
DWG	DRAWING (S)	PCA	PORTLAND CEMENT ASSOCIATION
DWL	DOWEL (ED)	PCF	POUNDS PER CUBIC FOOT
E	EAST, MODULUS OF ELASTICITY	PC (S)	PIECE (S)
EA	EACH	PED	PEDESTRIAN
EF	EACH FACE	PERIM	PERIMETER
EJ	EXPANSION JOINT	PL	PROPERTY LINE, PLACE (D)
EL	ELEVATION	PLF	POUNDS PER LINEAR FOOT
ELEC	ELECTRICAL	PR	PAIR
ELEV	ELEVATOR	PRJ	PROJECTION
ENCL	ENCLOSURE, ENCLOSED	PSF	POUNDS PER SQUARE FOOT
ENG	ENGINEER (ING)	PSI	POUNDS PER SQUARE INCH
EQ	EQUAL, EQUILIBRIUM	PT	POINT
EQUIP	EQUIPMENT	PVC	POLYVINYL CHLORIDE
EST	ESTIMATE (D)	PVMT	PAVEMENT
EW	EACH WAY	QTY	QUANTITY
EXC	EXCAVATE (D), EXCAVATION		
EXIST	EXISTING		
EXP	EXPANSION		
EXT	EXTERNAL, EXTERIOR		

ABBREV	DESCRIPTION
R	RADIUS, RADIAL (LY), RISER, REACTION
RD	ROOF DRAIN
RE	REFER TO
RECT	RECTANGULAR
REF	REFERENCE
REINF	REINFORCEMENT OR REINFORCING
REQ'D, REQD	REQUIRED
REV	REVISION, REVISED
RO	ROUGH OPENING
S	SOUTH
SCHED	SCHEDULE (D)
SDI	STEEL DECK INSTITUTE
SE	STRUCTURAL ENGINEER
SEAOC	STRUCTURAL ENGINEERS ASSOCIATION OF CALIFORNIA
SEOR	STRUCTURAL ENGINEER OF RECORD
SECT	SECTION
SF	SQUARE FOOT
SHT	SHEET
SI	SQUARE INCH
SIM	SIMILAR
SJI	STEEL JOINT INSTITUTE
SL	SLOPE
SLNT	SEALANT
SOG	SLAB ON GRADE
SP	SPACE, SPACING
SPECS	SPECIFICATIONS
SQ	SQUARE
ST	STEEL
SST	STAINLESS STEEL
STAG	STAGGERED
STD	STANDARD
STRUC	STRUCTURAL OR STRUCTURE
SYM	SYMMETRY, SYMMETRICAL
T	TOP, TENSION, TORSION
T&B	TOP AND BOTTOM
TC	TOP CHORD
TEMP	TEMPERATURE OR TEMPORARY
THD	THREAD (ED)
THK	THICK
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE (SLAB, BEAM, COLUMN, ETC)
TOF	TOP OF FOOTING
TOG	TOP OF GRAVEL, GRATING
TOGB	TOP OF GRADE BEAM
TOL	TOP OF LEDGER
TOM	TOP OF MASONRY
TOP	TOP OF PIER
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES
UNO, UON	UNLESS OTHERWISE NOTED
V	SHEAR FORCE, VELOCITY
VER	VERIFY
VERT	VERTICAL
VIF	VERIFY IN FIELD
W	WIDTH, WIDE, WEST
W/	WITH
WD	WOOD
WF	WIDE FLANGE
W/O	WITHOUT
WP	WATERPROOFING
WS	WATERSTOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC

SECTIONS

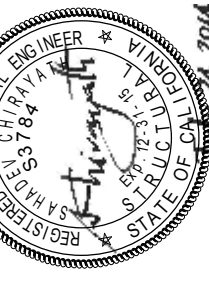


KEYNOTES



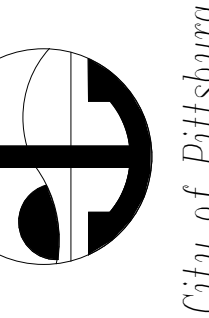
NOTES:

1. ABBREVIATIONS AND SYMBOLS INDICATED ON THIS SHEET PERTAIN ONLY TO THE STRUCTURAL SHEETS.
2. ABBREVIATIONS AND SYMBOLS THAT PERTAIN TO DISCIPLINES OTHER THAN STRUCTURAL ARE DEFINED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS.
3. NOT ALL ABBREVIATIONS AND SYMBOLS ARE USED.



PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
 P.E. No. 123115
 Date: _____

ACCEPTED FOR USE BY:
KEITH HALVORSON
 City Engineer
 Date: _____



STRUCTURAL PHASE 1A

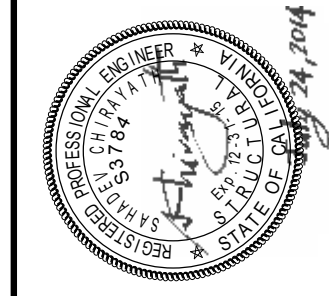
ABBREVIATIONS, SYMBOLS AND LEGENDS

BY	DRAWN: RB	CHECKED: EZ	REVIEWED: RM	DATE: 10/07/13	SCALE: 1" = 1'-0"
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REV	DESCRIPTION

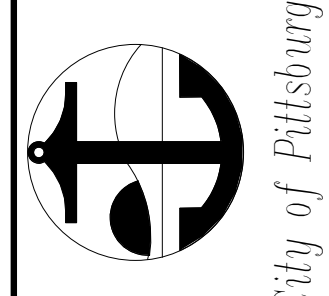
SHEET NO.
20 OF 50

SHEET:
S-1



PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
 P.E. 1231715, Exp. 12/31/15
 Date: _____

ACCEPTED FOR USE BY:
KEITH HALVORSON
 City Engineer
 Date: _____



STRUCTURAL PHASE 1A

STRUCTURAL NOTES 1

BY	BC	CHECKED	EZ	REVIEWED	RM	DATE	08/27/13	SCALE
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DATE	REV	DESCRIPTION

SHEET NO.
21 OF **50**
 SHEET:

S-2

CONCRETE (CONTINUED)

- C 4 CONCRETE COVER
 CONCRETE COVER FOR REINFORCING BARS SHALL CONFORM TO ACI 350 AND AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER:
 1. CONCRETE CAST AGAINST EARTH3"
 2. CONCRETE EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER2"
 3. CONCRETE NOT EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER1-1/2"
- C 5 BAR DEVELOPMENT AND LAP SPLICE LENGTH
 SEE TABLE AT THE END OF THESE STRUCTURAL NOTES. IN SLABS, BEAMS, GIRDERS AND HORIZONTAL REINFORCING AT WALLS, SPLICES OF ADJACENT REINFORCING STEEL BARS SHALL BE STAGGERED AT LEAST ONE SPLICE LENGTH, UNLESS OTHERWISE SPECIFIED.
- C 6 WELDING REINFORCING BARS
 ALL REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706. REBAR WELDING SHALL BE IN ACCORDANCE WITH AWS D1.4.
- C 7 STANDARD HOOKS
 BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF PARAGRAPH 7.1 ACI-318. PROVIDE STANDARD HOOK IN BARS WHICH TERMINATE AT WALL OR SLAB INTERSECTIONS THAT PROVIDE LESS THAN THE SPECIFIED DEVELOPMENT LENGTH.
- C 8 CHAMFERS
 EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.
- C 9 ANCHOR BOLTS
 ANCHOR BOLTS SHALL BE STAINLESS STEEL TYPE 316 MATERIAL UNLESS OTHERWISE NOTED (SEE SPECIFICATIONS).
- C 10 INSERTS
 PROVIDE ANCHORAGE INSERTS ON CONCRETE WALLS AND CONCRETE CEILINGS IN GALLERIES, PIPE CHASES, TUNNELS AS REQUIRED BY MECHANICAL AND ELECTRICAL INSTALLATIONS. USE UNISTRUT P3200 SERIES HOT DIP GALVANIZED OR EQUAL UNLESS OTHERWISE SPECIFIED.
- C 11 COMPATIBLE FINISHES
 CURING COMPOUNDS AND OTHER SURFACE TREATMENTS, CONCRETE ADMIXTURES AND SUB-SLAB DRAINAGE SHALL BE REVIEWED BY CONTRACTOR AND CERTIFIED COMPATIBLE WITH FINISHES TO BE APPLIED LATER IN THE CONSTRUCTION SEQUENCE.

GROUT

- GR 1 PRECISION NON-SHRINK CEMENT GROUT FOR STRUCTURAL STEEL COLUMNS
 MASTERFLOW 928 GROUT OR EQUAL APPROVED BY OWNER.
- GR 2 EQUIPMENT GROUTING
 SEE MECHANICAL SPECIFICATIONS AND SPECIFICATION SECTION 03600, GROUT.
- GR 3 EPOXY ADHESIVE GROUT AT ANCHORS INTO CONCRETE: HILTI HIT-RE
 500-SD EPOXY ADHESIVE ANCHOR SYSTEM BY HILTI INC. OR EQUAL APPROVED BY ENGINEER OF RECORD.

DOWELS

- DL 1 LOCATE HOLES IN EXISTING CONCRETE TO MISS MAIN REINFORCING BARS, STIRRUPS AND EMBEDMENTS. THIS MAY INVOLVE RELOCATING DOWELS FROM POSITIONS SHOWN. NOTIFY THE OWNER OF ANY DOWEL RELOCATIONS. PRIOR TO DRILLING HOLES, FIELD VERIFY AND MARK THE LOCATION OF NEARBY EXISTING REINFORCING BARS, STIRRUPS AND EMBEDMENTS USING A PACHOMETER. IF THEY ARE HIT DURING DRILLING, NOTIFY THE OWNER.
- DL 2 CLEAN AND PREPARE HOLES IN ACCORDANCE WITH THE EPOXY MANUFACTURER'S RECOMMENDATIONS. AS A MINIMUM, BLOW COMPRESSED OIL-FREE AIR FROM THE BOTTOM OF HOLE TOWARDS THE SURFACE. DRY AND CLEAN HOLE OF CONTAMINANTS.
- DL 3 PRESSURE GROUT ALL HOLES DEEPER THAN TWO FEET. SUBMIT PROCEDURE AND TECHNIQUE FOR PRESSURE GROUTING TO OWNER FOR APPROVAL PRIOR TO PLACING EPOXY.
- DL 4 FILL EACH HOLE WITH A SUFFICIENT AMOUNT OF EPOXY TO COMPLETELY SURROUND THE DOWEL. INSERT THE DOWEL AFTER THE EPOXY IS PLACED IN THE HOLE.

FOUNDATION

- F 1 DESIGN BASIS
 FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT BY JACOBS ASSOCIATES, PROJECT NO. 5003.0 DATED 06-13-2013 ADDENDUM 1 DATED 9-06-2013, AND DRILLED PIER LPILE ANALYSIS DATED 4-22-2014. CONTRACTOR SHALL FOLLOW THE PROJECT SPECIFICATIONS AND TAKE INTO CONSIDERATION RECOMMENDATIONS CONTAINED IN THE REPORT. NOTIFY ENGINEER OF RECORD OF CONFLICTS BETWEEN SPECIFICATIONS AND THE REPORT RECOMMENDATIONS FOR RESOLUTION.
- F 2 MINIMUM FOUNDATION PREPARATION
 ALL NEW FOUNDATIONS AND SLAB ON GRADE FLOORS SHALL BE SUPPORTED ON 12 INCHES OF CALTRANS CLASS 2 AGGREGATE BASE.
- F 3 DIFFERING CONDITIONS
 FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE INDICATED IN THE REPORT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER. CONTRACTOR IS RESPONSIBLE FOR REPLACING WORK CONDUCTED AFTER SUCH NOTIFICATION BUT BEFORE CONSTRUCTION MANAGER PROVIDES ADDITIONAL DIRECTIONS.
- F 4 EXCAVATION SAFETY
 CONTRACTOR SHALL DESIGN / PROVIDE ALL CRIBBING, SHORING AND BRACING REQUIRED FOR SAFETY AND TO ALLOW CONSTRUCTION OF THE WORK PRESENTED HEREIN.
- F 5 STRUCTURAL BACKFILL WHERE INDICATED
 UNLESS OTHERWISE, NOTED STRUCTURAL BACKFILL SHALL BE PLACED IN UNIFORM LAYERS AND SHALL BE BROUGHT UP UNIFORMLY AROUND THE STRUCTURE. ADDITIONALLY, BACKFILL SHALL BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF FOUNDATION WALLS. SEE SPECIFICATION 02200 FOR ADDITIONAL INFORMATION.

CONCRETE

- C 1 APPLICABLE CODES
 CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301-10 "SPECIFICATIONS FOR STRUCTURAL CONCRETE", AND THE FOLLOWING CODES:
 ACI 318-11 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
 ACI 350-06 (FOR LIQUID CONTAINING STRUCTURES) - "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES"
- C 2 REINFORCING STEEL DETAILS
 ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP-66), LATEST EDITION.
- C 3 DESIGN STRENGTH
 1. STRUCTURAL CAST-IN-PLACE CONCRETE EXCEPT AS NOTED IN ITEM 2 BELOW
f_c = 4,500 PSI
 2. REINFORCED STEELASTM A615, GRADE 60
 DEFORMED BARS UNLESS OTHERWISE NOTED

GENERAL

- G 1 SCOPE
 THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY. NOT ALL TYPICAL DETAILS APPLY.
- G 2 PRECEDENCE
 IF THERE IS A CONFLICT BETWEEN PROJECT SPECIFICATIONS AND STRUCTURAL DRAWINGS, INCLUDING STRUCTURAL NOTES, CONTACT THE ENGINEER FOR CLARIFICATION. SPECIFIC NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- G 3 DIMENSIONS
 STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO THE MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION DIMENSIONS AND NOTIFYING THE ENGINEER OF DISCREPANCIES IN A TIMELY FASHION.
- G 4 PROVISIONS FOR EQUIPMENT
 MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SPECIFIED ON THE STRUCTURAL DRAWINGS, BUT SPECIFIED ON OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO PLACING CONCRETE.
- G 5 MEANS, METHODS & CONSTRUCTION LOADS
 CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF CONSTRUCTION, AND SHALL MAKE ADEQUATE PROVISION TO MAINTAIN THE INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION. DETERMINATION OF AND PROVISIONS FOR CONSTRUCTION LOADING SHALL BE PROVIDED BY THE CONTRACTOR.
- G 6 SAFETY
 CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO ENSURE THE SAFETY OF WORKERS AND VISITORS TO THE SITE, INCLUDING BUT NOT LIMITED TO SHORING, BRACING AND ACCESS RESTRICTION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES AND STANDARDS.
- G 7 DRAINAGE SURFACES
 SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/8" TO 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.
- G 8 OPENINGS
 OPENINGS THROUGH NEW AND EXISTING WALLS AND SLABS FOR PIPES, DUCTS, CONDUITS, ETC., ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AND PROVIDE THESE OPENINGS IN ACCORDANCE WITH THE OTHER CONTRACT DOCUMENTS.

DESIGN CRITERIA

- D 1 GOVERNING BUILDING CODE
 CONSTRUCTION SHALL BE IN ACCORDANCE WITH 2013 CALIFORNIA BUILDING CODE (CBC). THIS CODE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR CONTRACT PROVISIONS ARE MORE RESTRICTIVE.
- D 2 LIVE LOADS
 WALKWAYS100 PSF
- D 3 WIND
 BASIC WIND SPEED100 MPH
 EXPOSURE CATEGORYD
 IMPORTANCE FACTORI = 1.15
 TOPOGRAPHIC FACTORK_{zt} = 1.0
- D 4 SEISMIC
 SITE COEFFICIENTSF_a = 1.0, F_v = 1.30
 GROUND MOTION AT 5% DAMPING.....S_{MS} = 1.50 g
S_{MII} = .078 g
 SITE CLASSC
 DESIGN ACCEL, SHORT PERIODS_{DS} = 1.0 g
 DESIGN ACCEL, 1-SEC PERIODS_{D1} = 0.52 g
 STRUCTURAL OCCUPANCY CATEGORYIV
 SEISMIC IMPORTANCE FACTOR (PER OCSD)I = 1.25
 BASINS AND VAULTS:
 GROUND SUPPORTED REINFORCED CONCRETE TANKS
 WITH NON-SLIDING BASE (ASCE 7-10, TABLE 15.4-2) R = 2
Ω₀ = 2

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ALUMINUM

- A 1 APPLICABLE CODE**
 ALUMINUM CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ALUMINUM DESIGN MANUAL OF THE ALUMINUM ASSOCIATION.
- A 2 MATERIAL**
- ALUMINUM STRUCTURAL SHAPES SHALL BE ALLOY 6061-T6 PER ASTM B308.
 - ALUMINUM PIPE AND TUBING SHALL BE ALLOY 6061-T6 PER ASTM B241.
 - ALUMINUM PLATE SHALL BE ALLOY 6061-T6 PER ASTM B209.
 - ALUMINUM RAISED PATTERN (CHECKERED PLATE) PLATE SHALL BE ALLOY 6061-T6 TREAD PLATE PER ASTM B632.
- A 3 DISSIMILAR MATERIALS**
 WHERE ALUMINUM IS IN CONTACT WITH CONCRETE OR MASONRY SURFACES, CONTACT SURFACE SHALL BE COATED WITH A HEAVY COAT OF ALKALI-RESISTANT BITUMINOUS PAINT OR WITH A ZINC DICHROMATE PRIMER.

ALUMINUM GRATING

- AG-1** UNLESS OTHERWISE NOTED, ALL GRATING AND GRATING STAIR TREADS SHALL BE ALUMINUM.
- AG 2** ALUMINUM GRATING AND TREADS SHALL BE OF ALLOY 6061-T6 CONFORMING TO ASTM B221. SEE STANDARD DETAIL FOR GRATING THICKNESS UNLESS NOTED OTHERWISE ON THE DRAWINGS. THE MINIMUM BEARING BAR WIDTH SHALL BE 3/16".
- AG 3** ALUMINUM GRATING SHALL BE ANCHORED TO SUPPORT FRAMING WITH 1/4" DIAMETER SELF TAPPING STAINLESS STEEL SCREWS PLACED THROUGH STAINLESS STEEL U-CLIPS ENGAGING TWO MAIN BEARING BARS. MINIMUM FOUR CLIPS PER GRATING PANEL. MAXIMUM DISTANCE BETWEEN CLIPS SHALL BE THREE FEET.

FRP GRATING

- FG 1** FIBERGLASS REINFORCED PLASTIC (FRP) GRATING SHALL BE "CHEMGRATE" (VE-25 RESIN), OR EQUAL APPROVED BY OWNER, WITH 1 1/2" SQUARE GRID x 1 1/2" DEEP, UON, WITH AN ANTI-SKID SURFACE SURFACE AND FIRE RESISTIVE RESIN.
- FG 2** FRP EMBEDMENT ANGLES, "EZ ANGLE" BY FIBERGRATE COMPOSITE STRUCTURES OR EQUAL APPROVED BY OWNER, SHALL BE USED AT SUMPS AND TRENCHES WITH FRP GRATING.
- FG 3** FRP STAIR TREADS SHALL BE 1 1/2" THICK "FIBERTRED" OR "CHEMTRED" PANELS BY FIBERGRATE COMPOSITE STRUCTURES OR EQUAL APPROVED BY OWNER, WITH BARS AT 1 1/2" x 6" GRID, ANTI-SLIP GRIT TOP SURFACE AND A 1 1/2" WIDE GRITTED NOSING STRIP, UON.
- FG 4** FRP GRATING AND STAIR TREADS SHALL BE SECURED TO THE STRUCTURE WITH TYPE 316 STAINLESS STEEL CLIPS AND FASTENERS AT MAXIMUM 48" SPACING, MINIMUM 4 CLIPS PER PIECE OF GRATING (8 CLIPS MINIMUM FOR 4' x 12' PANELS), UON.

FRP STRUCTURES

- FS 1** FIBERGLASS REINFORCED PLASTIC (FRP) PLATFORMS, STAIRS, STRINGERS, RAILINGS, LADDERS AND SUPPORT STRUCTURES SHALL BE MANUFACTURED FROM VINYL ESTER RESIN. FLAME SPREAD TO BE LESS THAN 25 PER ASTM E84 AND SHALL BE SELF-EXTINGUISHING PER ASTM D635. ALL FRP STRUCTURES SHALL BE MANUFACTURED WITH A ULTRA-VIOLET (UV) INHIBITOR. IN ADDITION, AN INDUSTRIAL GRADE POLYURETHANE UV RESISTANT COATING SHALL BE FACTORY APPLIED TO ALL FRP PRODUCTS AND FABRICATIONS.
- FS 2** FRP STRUCTURES SHALL BE CONNECTED WITH TYPE 316 STAINLESS STEEL BOLTS.
- FS 3** PULTRUDED FRP STRUCTURAL SHAPE SHALL HAVE THE FOLLOWING MINIMUM ULTIMATE COUPON PROPERTIES:
- TENSILE STRESS IN LONGITUDINAL DIRECTION.....30,000 PSI
 - COMPRESSIVE STRESS IN LONGITUDINAL DIRECTION.....30,000 PSI
 - FLEXURAL STRESS IN LONGITUDINAL DIRECTION.....30,000 PSI
 - SHORT BEAM SHEAR IN LONGITUDINAL DIRECTION.....4,500 PSI
 - TENSILE STRESS IN TRANSVERSE DIRECTION.....7,000 PSI
 - COMPRESSIVE STRESS IN TRANSVERSE DIRECTION.....5,000 PSI
 - FLEXURAL STRESS IN TRANSVERSE DIRECTION.....10,000 PSI
 - MODULUS OF ELASTICITY, FULL SECTION.....2,800 KSI

SPECIAL INSPECTION

- SI 1** AN INDEPENDENT TESTING COMPANY RETAINED BY THE OWNER AND APPROVED BY THE BUILDING OFFICIAL SHALL INSPECT THE FOLLOWING (SEE EXPANDED LIST ON DRAWINGS S-4 AND S-5.
- SOIL COMPACTION AT FOUNDATIONS.
 - REINFORCING BAR, CONCRETE PLACEMENT AND TAKING OF CONCRETE TEST SPECIMENS.
 - ANCHOR BOLTS.
 - FIELD WELDING OF STRUCTURAL STEEL AND ALUMINUM.
 - SHOP WELDING OF STRUCTURAL STEEL EXCEPT WHERE WELDING IS DONE IN AN APPROVED FABRICATOR'S SHOP IN ACCORDANCE WITH THE PROVISIONS OF THE GOVERNING BUILDING CODE.
 - EXPANSION ANCHOR INSTALLATION.
 - ANCHORS INSTALLED USING EPOXY ADHESIVE.
 - HIGH STRENGTH BOLTING.
 - MASONRY CONSTRUCTION.
 - MECHANICAL AND ELECTRICAL EQUIPMENT, PERIODIC SPECIAL INSPECTION OF STRUCTURAL COMPONENTS FOR SEISMIC RESISTANCE:
 - ANCHORAGE OF ELECTRICAL EQUIPMENT.
 - EMERGENCY AND STANDBY POWER SYSTEMS.
 - PIPING SYSTEMS INTENDED TO CARRY FLAMMABLE, COMBUSTIBLE OR HIGHLY TOXIC CONTENTS AND THEIR ASSOCIATED UNITS.
 - HVAC DUCTWORK THAT WILL CONTAIN HAZARDOUS MATERIALS.
 - INSTALLATION OF COMPONENTS WHERE THE COMPONENT IMPORTANCE FACTOR IS 1.5.
 - ELECTRICAL MOTORS, TRANSFORMERS, SWITCHGEAR UNIT SUBSTATIONS AND MOTOR CONTROL CENTERS.
 - TANKS, HEAT EXCHANGERS AND PRESSURE VESSELS.
 - EQUIPMENT USING COMBUSTIBLE ENERGY SOURCES.
 - EQUIPMENT VIBRATION ISOLATION SYSTEMS.

- SI 2** CONTRACTOR SHALL NOTIFY THE TESTING COMPANY FOR ALL INSPECTIONS.

STRUCTURAL OBSERVATION

- SO 1** THE OWNER SHALL RETAIN A REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS. THE CONSTRUCTION MANAGER SHALL NOTIFY THE OWNER AT LEAST 48 HOURS BEFORE A DESIGNATED WORK IS TO BE COVERED. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- SO 2** REQUIRED STRUCTURAL OBSERVATIONS INCLUDE:
- STRUCTURAL FILL AND DEEP FOUNDATIONS.
 - FOUNDATIONS PREPARED FOR CONCRETE PLACEMENT.
 - COMPLETION OF BEARING WALLS PRIOR TO COVER-UP WITH NON-STRUCTURAL ELEMENTS.
 - COMPLETION OF LATERAL FORCE RESISTING ELEMENTS INCLUDING MOMENT CONNECTIONS, BRACING, DIAPHRAGMS, AND OTHER ELEMENTS.

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS (IN INCHES) FOR UNCOATED BARS IN NORMAL-WEIGHT CONCRETE WITH $f_c' = 4,000$ PSI OR HIGHER

THIS TABLE IS GOOD ONLY FOR CENTER/CENTER SPACING OF REINFORCING BARS EQUAL TO THE MINIMUM SHOWN OR GREATER. NO TRANSVERSE REINFORCING ASSUMED.

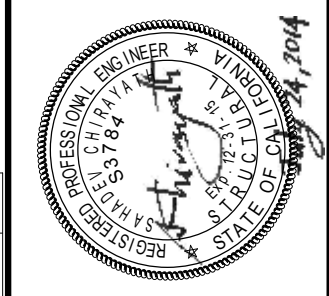
BAR SIZE	APPLICATION	CONCRETE COVER = 0.75 IN.			CONCRETE COVER = 1.00 IN.			CONCRETE COVER = 1.50 IN.			CONCRETE COVER = 2.00 IN.			CONCRETE COVER = 3.00 IN.		
		TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING
#3	DEVELOPMENT LAP SPLICE	12 16	12 16	2.00 2.25	12 16	12 16	2.50 2.75	12 16	12 16	3.50 3.75	12 16	12 16	4.50 4.75	12 16	12 16	6.50 6.75
#4	DEVELOPMENT LAP SPLICE	19 24	15 19	2.00 2.50	15 20	12 16	2.50 3.00	15 20	12 16	3.50 4.00	15 20	12 16	4.50 5.00	15 20	12 16	6.50 7.00
#5	DEVELOPMENT LAP SPLICE	28 37	21 28	2.25 2.75	22 29	17 22	2.75 3.25	19 24	15 19	3.75 4.25	19 24	15 19	4.75 5.25	19 24	15 19	6.75 7.25
#6	DEVELOPMENT LAP SPLICE	37 48	29 37	2.25 3.00	31 40	24 31	2.75 3.50	22 29	17 22	3.75 4.50	22 29	17 22	4.75 5.50	22 29	17 22	6.75 7.50
#7	DEVELOPMENT LAP SPLICE	60 78	46 60	2.50 3.25	50 64	38 50	3.00 3.75	37 48	28 37	4.00 4.75	33 42	25 33	5.00 5.75	33 42	25 33	7.00 7.75
#8	DEVELOPMENT LAP SPLICE	74 96	57 74	2.50 3.50	62 80	48 62	3.00 4.00	47 60	36 47	4.00 5.00	37 48	29 37	5.00 6.00	37 48	29 37	7.00 8.00
#9	DEVELOPMENT LAP SPLICE	90 117	69 90	2.75 3.75	76 98	58 76	3.25 4.25	57 74	44 57	4.25 5.25	46 60	36 46	5.25 6.25	42 55	32 42	7.25 8.25
#10	DEVELOPMENT LAP SPLICE	108 142	83 109	2.75 4.00	92 120	70 92	3.25 4.50	70 91	54 70	4.25 5.50	57 74	44 57	5.25 6.50	47 61	36 47	7.25 8.50
#11	DEVELOPMENT LAP SPLICE	127 168	98 130	3.00 4.25	108 144	83 111	3.50 4.75	84 110	64 85	4.50 5.75	68 90	53 69	5.50 6.75	52 68	40 52	7.50 8.75

NOTES:

- TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE .
- TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318-08, SECTIONS 12.2.3 AND 12.15, RESPECTIVELY.
- LAP SPLICE LENGTHS ARE LAP CLASS B = $1.3 l_d$ (ACI 318-08, SECTION 12.15.1).
- TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 IN. OF FRESH CONCRETE CAST BELOW THE BARS.

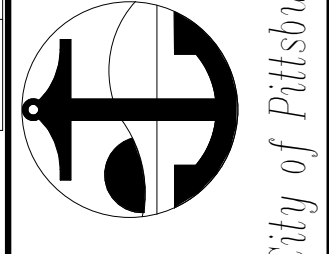
STRUCTURAL DEFERRED SUBMITTALS (CBC 2013, SECTION 107.3.4.2)

- SDS 1** THE CONTRACTOR SHALL SUBMIT DRAWINGS AND CALCULATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER LICENSED IN CALIFORNIA TO THE ENGINEER FOR REVIEW. STRUCTURAL DEFERRED SUBMITTALS INCLUDE:
- PRECAST-PRESTRESSED CONCRETE ELEMENTS INCLUDING:
 - SITE STRUCTURES AND VAULTS.
 - ANCHOR BOLTS FOR ALL EQUIPMENT ANCHORAGE.
 - GUARDRAILS AND HANDRAILS.
 - FLOOR AND ROOF ACCESS HATCHES.
 - ALTERNATE ROOF DECK FASTENING (IF USED).
 - FRP PLATFORMS AND FRP SUPPORT STRUCTURES.
 - EQUIPMENT ACCESS PLATFORMS AS SPECIFIED.
 - CONSTRUCTION SHORING.



PREPARED UNDER THE DIRECTION OF:
 ERIK ZALKIN
 RCE: 076392, Exp. 12/31/15
 Date: _____

ACCEPTED FOR USE BY:
 KEITH HALVORSON
 City Engineer
 Date: _____



STRUCTURAL PHASE 1A
 STRUCTURAL NOTES 2

BY	REV	DATE	DESCRIPTION
BC			
EZ			
RS			
08/27/13			

DATE	REV	DESCRIPTION

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TABLE 1

REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
SOILS	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X	
	VERIFY SOIL MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY		X	
	PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X	
	PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X	SEE TABLE 3
	VERIFY USE OF DRAIN ROCK BEHIND RETAINING WALLS		X	
CONCRETE	INSPECT FORMWORK FOR LOCATION AND DIMENSIONS OF MEMBER BEING FORMED		X	
	VERIFY MATERIAL FOR REINFORCEMENT		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	REINFORCING STEEL PLACEMENT		X	
	INSPECT ANCHORS TO BE CAST IN CONCRETE	X		PRIOR TO AND DURING CONCRETE PLACEMENT
	INSPECT POST-INSTALLED CONCRETE ANCHORS	X		INSPECTION TO CONFORM TO CBC AND TO ANCHOR MANUFACTURER'S RECOMMENDATIONS AND ICC REPORTS
	VERIFY USE OF REQUIRED CONCRETE MIX DESIGN(S)		X	
	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND TEMPERATURE OF CONCRETE	X		CONTINUOUS DURING PREPARATION OF SAMPLES
	CONCRETE PLACEMENT	X		
	INSPECTION FOR MAINTENANCE OF CURING PROCEDURES AND TEMPERATURE		X	VERIFY APPROPRIATE CURING METHOD HAS BEEN IMPLEMENTED AFTER EACH POUR
	VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM STRUCTURAL SLABS AND BEAMS		X	
CEMENTITIOUS GROUTING OF BASE PLATES AND EPOXY GROUTING FOR EQUIPMENT MOUNTING	X			

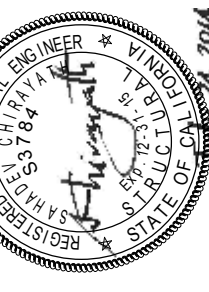
TABLE 1

REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
STRUCTURAL STEEL AND ALUMINUM	FABRICATION OF STRUCTURAL ELEMENTS			FABRICATOR SHALL BE APPROVED IN ACCORDANCE WITH IBC, CHAPTER 17 TO PERFORM WORK WITHOUT SPECIAL INSPECTION
	VERIFY MATERIAL OF ANCHOR BOLTS AND THREADED RODS		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS
	VERIFY MATERIAL OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS
	VERIFY MATERIAL FOR STRUCTURAL STEEL AND ALUMINUM SHAPES, PLATES, BARS, ETC.		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	VERIFY MATERIALS FOR WELD FILLER MATERIALS		X	
	VERIFY WELDER QUALIFICATIONS		X	CONTRACTOR TO SUBMIT WELDERS CERTIFICATES
	VERIFY USE OF PROPER WELDING PROCEDURES		X	
	INSPECT COMPLETE AND PARTIAL-PENETRATION GROOVE WELDS, MULTI-PASS FILLET WELDS, AND SINGLE-PASS FILLET WELDS GREATER THAN 5/16"	X		
	INSPECT SINGLE-PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16"		X	VISUALLY INSPECT ALL WELDS
	INSPECT HIGH-STRENGTH BEARING-TYPE BOLTED CONNECTIONS		X	
	INSPECT HIGH-STRENGTH SLIP CRITICAL-TYPE BOLTED CONNECTIONS	X		
	VERIFY TYPE, DEPTH AND GAGE OF DECKING AND GRATING		X	
	INSPECT INSTALLATION (ATTACHMENT) OF DECKING AND GRATING		X	
	INSPECT WELDING OF HEADED STUDS IN COMPOSITE STRUCTURAL SLABS		X	
	INSPECT FRAME AND TRUSSES TO VERIFY THAT BRACING, STIFFENERS, MEMBER LOCATIONS AND JOINT DETAILS COMPLY WITH APPROVED CONSTRUCTION DRAWINGS		X	

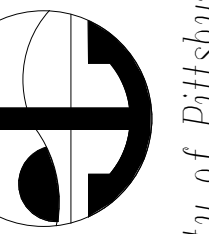
QUALITY ASSURANCE NOTES

- THE QUALITY OF THE WORKMANSHIP AND THE QUALITY OF THE MATERIALS OF CONSTRUCTION ARE GOVERNED BY THE CALIFORNIA BUILDING CODE, 2013 EDITION (CBC).
- ALL NEW STRUCTURES AND MODIFICATIONS TO EXISTING STRUCTURES TO BE CONSTRUCTED AS A PART OF THIS PROJECT ARE CLASSIFIED AS OCCUPANT CATEGORY III, WASTE WATER TREATMENT FACILITY, IN ACCORDANCE WITH THE CBC. THE STRUCTURES ARE CLASSIFIED AS SEISMIC DESIGN CATEGORY D.
- TO ASSURE THE QUALITY OF THE CONSTRUCTION OF THIS PROJECT, STRUCTURAL TESTS, SPECIAL INSPECTION AND STRUCTURAL OBSERVATION WILL BE PERFORMED IN ACCORDANCE WITH CBC, CHAPTER 17.
- WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE CONTINUOUS, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED AND PROVIDING FULL-TIME OBSERVATION OF THE WORK REQUIRING SPECIAL INSPECTION.
- WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE PERIODIC, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK (PRIOR TO THE NEXT CONSTRUCTION TASK).
- SPECIAL INSPECTIONS ARE IN ADDITION TO INSPECTIONS BY THE OWNER. CONSTRUCTION IS SUBJECT TO INSPECTION BY THE OCSD. COORDINATE WITH OCSD AND ENGINEER OF RECORD TO DETERMINE REQUIRED INSPECTIONS.
- CONTRACTOR SHALL PROVIDE ACCESS TO THE WORK FOR REQUIRED INSPECTIONS. CONTRACTOR SHALL PROVIDE NOTIFICATION IN ADVANCE OF REQUIRED INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS.



ERIK ZALKIN
 P.E. 076392, Exp. 12/31/15
 Date: _____

KEITH HALVORSON
 City Engineer
 Date: _____



STRUCTURAL PHASE 1A
 SPECIAL INSPECTIONS NOTES 1

BY DRAWN: BC
 CHECKED: EZ
 REVIEWED: RS
 DATE: 08/27/13
 SCALE:

DATE	REV	DESCRIPTION

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TABLE 1 (Continued)

REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
FRP	VERIFY MATERIAL FOR FRP SHAPES, PLATES, BAR, ETC.		X	
	VERIFY BOLTS, NUTS AND WASHERS USED AT FRP CONNECTIONS		X	
	VERIFY TYPE AND DEPTH OF FRP GRATING		X	
	INSPECT ATTACHMENT OF FRP GRATING TO SUPPORTS		X	

TABLE 2

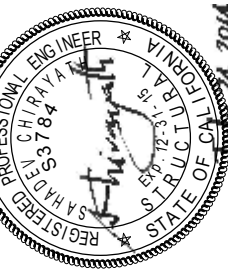
REQUIRED SPECIAL INSPECTIONS - NONSTRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
ARCHITECTURAL	INSPECT WELDING OF GUARD AND HANDRAIL SYSTEMS		X	
	EXTERIOR WALL PANELS AND THEIR ANCHORAGE		X	
	SUSPENDED CEILING AND THEIR ANCHORAGE		X	
MECHANICAL	INSPECT ANCHORAGE OF FIRE SPRINKLER SYSTEM		X	
	INSPECT ANCHORAGE OF ALL MECHANICAL SYSTEMS (INCLUDING EQUIPMENT PIPING, DUCT WORK, ETC.) REQUIRING STANDBY POWER		X	
	CERTIFICATE OF COMPLIANCE FOR ALL MECHANICAL EQUIPMENT REQUIRING STANDBY POWER			EQUIPMENT MANUFACTURER SHALL PROVIDE CERTIFICATE OF COMPLIANCE
ELECTRICAL	INSPECT ANCHORAGE OF ELECTRICAL EQUIPMENT FOR STANDBY POWER		X	
	INSPECT ANCHORAGE OF ALL OTHER ELECTRICAL EQUIPMENT REQUIRING STANDBY POWER		X	
	CERTIFICATE OF COMPLIANCE FOR ALL ELECTRICAL EQUIPMENT FOR STANDBY POWER AND ALL ELECTRICAL EQUIPMENT REQUIRING STANDBY POWER			EQUIPMENT MANUFACTURER SHALL PROVIDE CERTIFICATE OF COMPLIANCE
	EMERGENCY LIGHTING		X	

TABLE 3

REQUIRED TESTING FOR SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	TESTING		REMARKS
	CODE OR STANDARD REFERENCE	FREQUENCY	
GEOTECHNICAL			
PREPARED SUBGRADE DENSITY	ASTM D6938	EACH 300 SF OF PREPARED SUBGRADE	PER GEOTECHNICAL REPORT
FILL IN-PLACE DENSITY	ASTM D6938	EACH 300 SF OF EACH LIFT PLACED EACH DAY	PER GEOTECHNICAL REPORT
CONCRETE			
CONCRETE COMPRESSIVE STRENGTH	ASTM C31,ASTM C39,ASTM C172	SEE SPECIFICATION 03300	
CONCRETE SLUMP	ASTM C143	WHENEVER CYLINDERS ARE CAST	
CONCRETE AIR CONTENT	ASTM C231	WHENEVER CYLINDERS ARE CAST	
CONCRETE TEMPERATURE	ASTM C1064	WHENEVER CYLINDERS ARE CAST	
CEMENTITIOUS AND EPOXY GROUT COMPRESSIVE STRENGTH	ASTM C942 (CEMENTITIOUS) ASTM C579 (EPOXY)		TEST 2" CUBES FOR EACH GROUT SHIPMENT TO THE FIELD

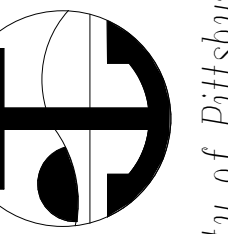


PREPARED UNDER THE DIRECTION OF:

ERIK ZALKIN
 P.E. 076392, Exp. 12/31/15
 Date: _____

ACCEPTED FOR USE BY:

KEITH HALVORSON
 City Engineer
 Date: _____



STRUCTURAL PHASE 1A

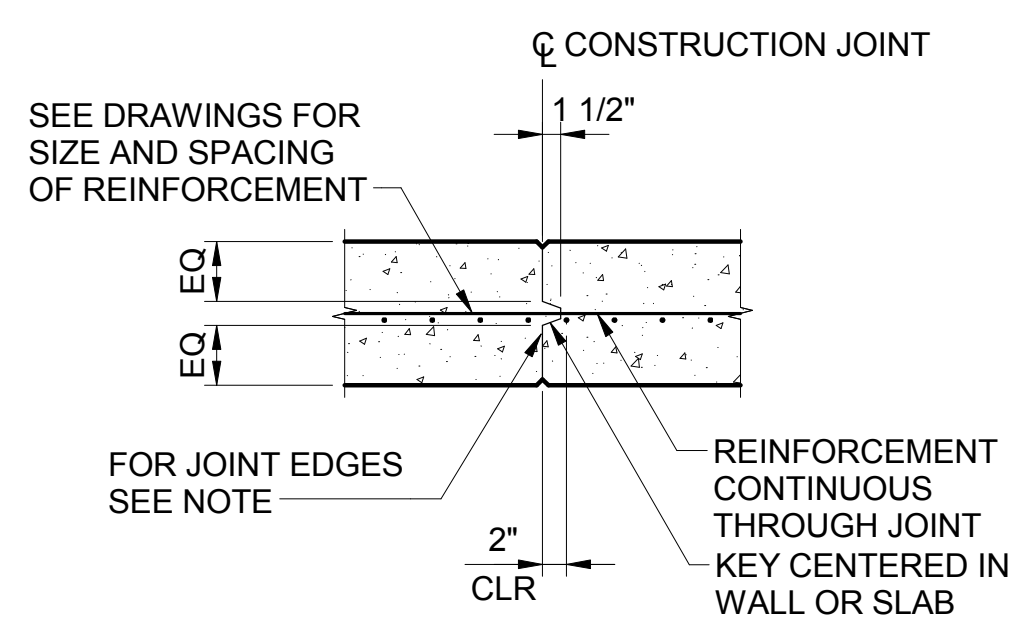
SPECIAL INSPECTIONS NOTES 2

BY	DRAWN: BC
CHECKED: EZ	
REVIEWED: RS	
DATE: 08/27/13	
SCALE:	

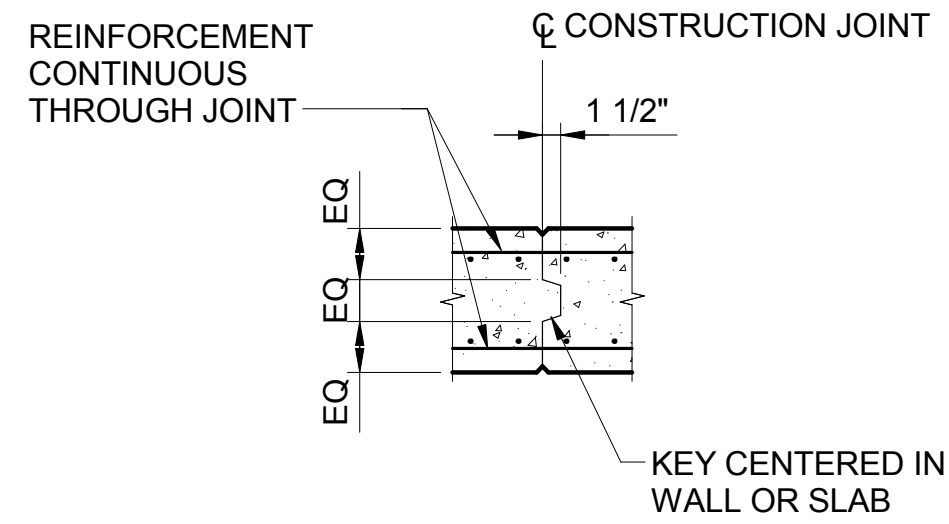
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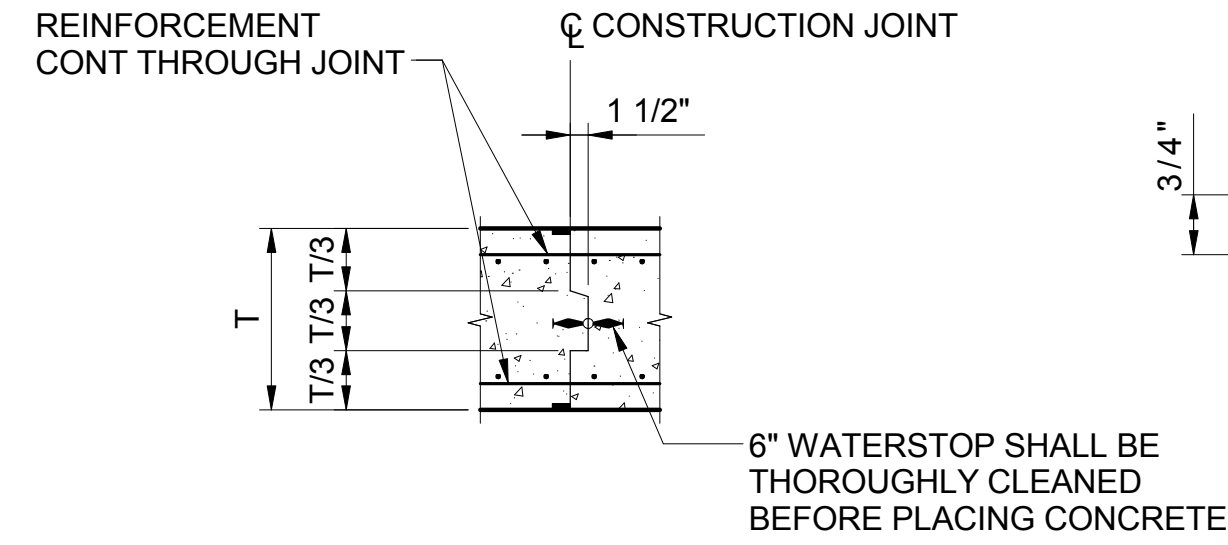
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S1 NON-WATER BEARING WALL OR SLAB

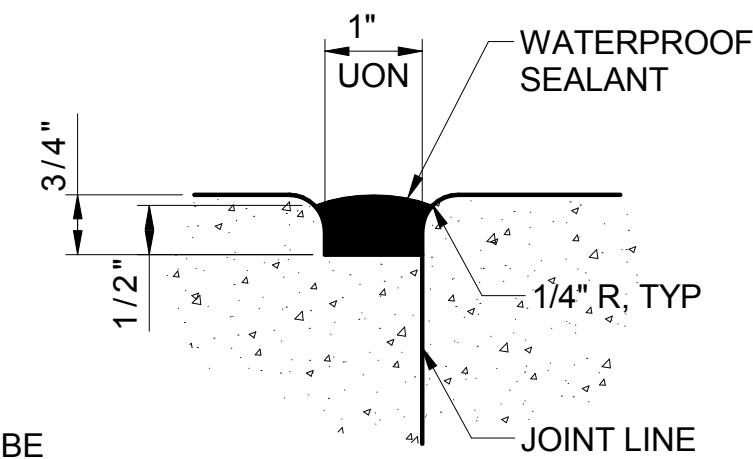


S1 WATER BEARING SLAB LESS THAN 12" THICK



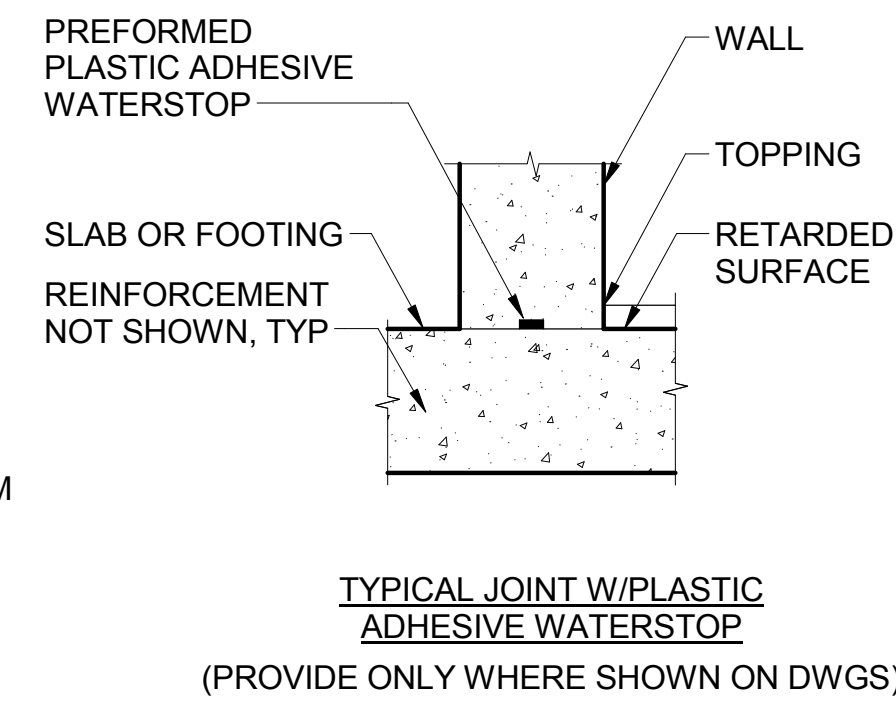
S1 NON-WATER BEARING WALL OR SLAB

S1 WATER BEARING WALL OR SLAB 12" THICK OR GREATER

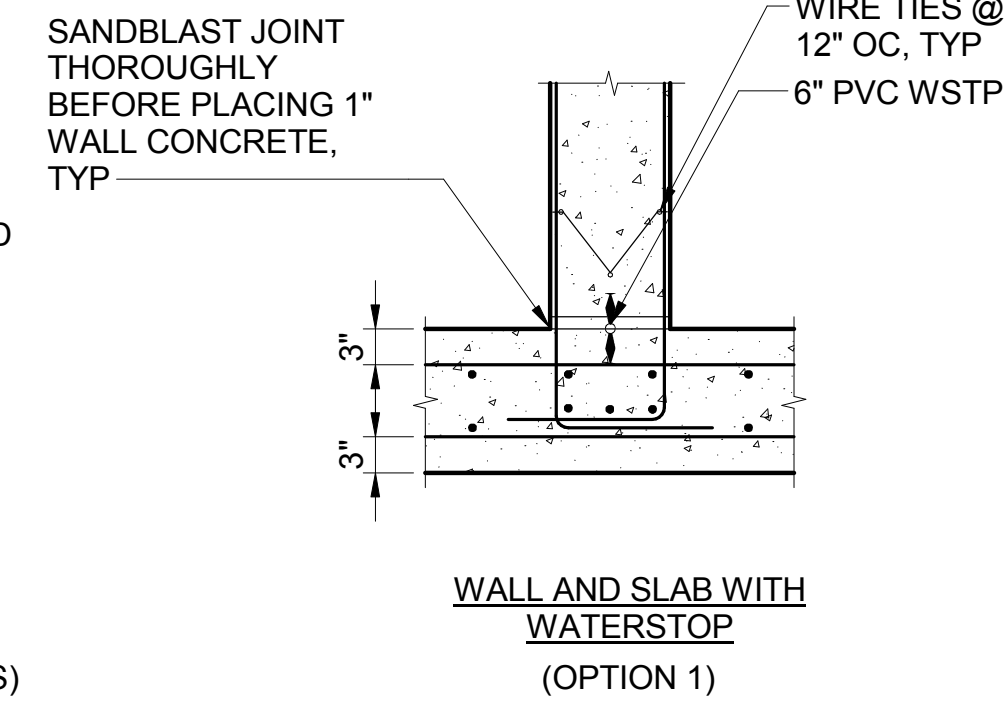


S1 SEALANT DETAIL

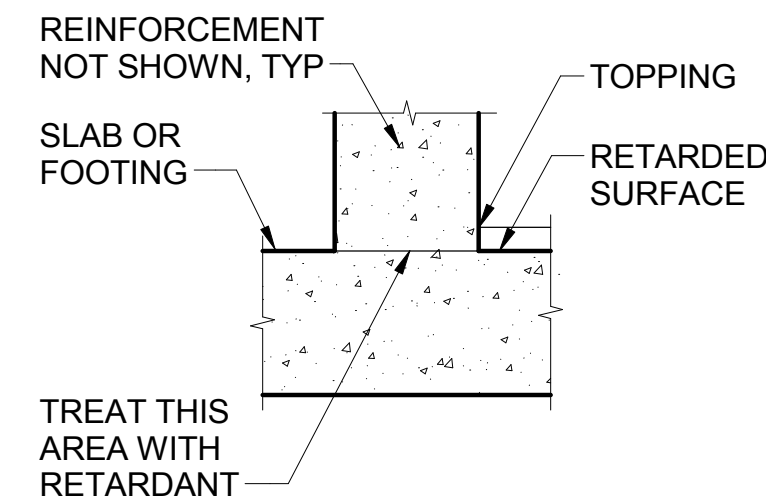
- NOTES:
1. SANDBLAST JOINT AND REINFORCEMENT. APPLY BONDING AGENT TO CONCRETE PRIOR TO PLACING CONCRETE FOR NEXT SLAB OR WALL.
 2. FOR WALLS, FROM ALL JOINT EDGES AT 1/4" CHAMFER.
 3. FOR SLABS, EDGE TOP OF EXPOSED SLAB JOINT EDGES AT 1/4" RADIUS.
 4. FOR UNDERSIDE OF EXPOSED SLABS, FROM JOINT EDGES AT 1/4" CHAMFER.



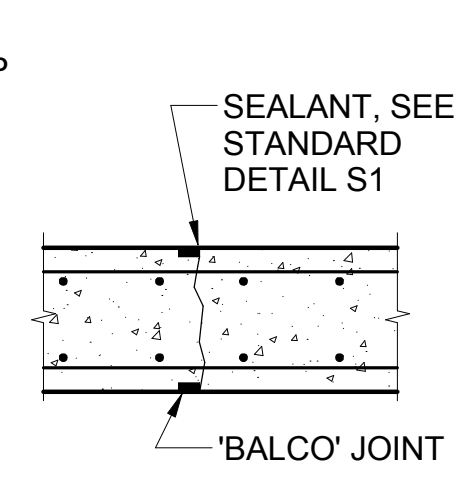
S2 TYPICAL JOINT W/PLASTIC ADHESIVE WATERSTOP (PROVIDE ONLY WHERE SHOWN ON DWGS)



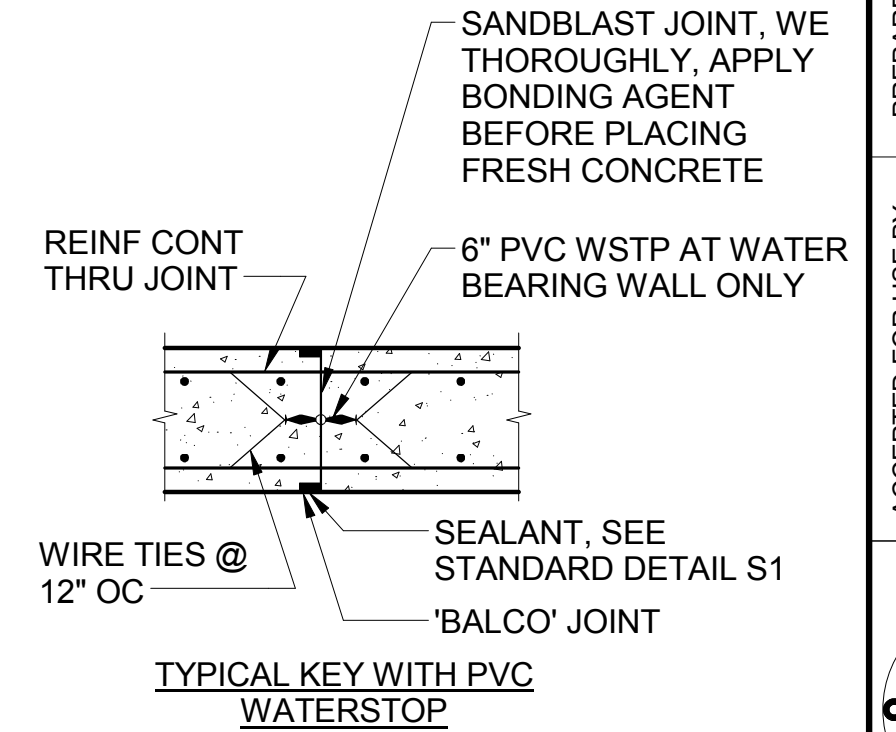
S2 WALL AND SLAB WITH WATERSTOP (OPTION 1)



S2 TYPICAL JOINT WITH PVC WATERSTOP (OPTION 2)



S2 BALCO JOINT



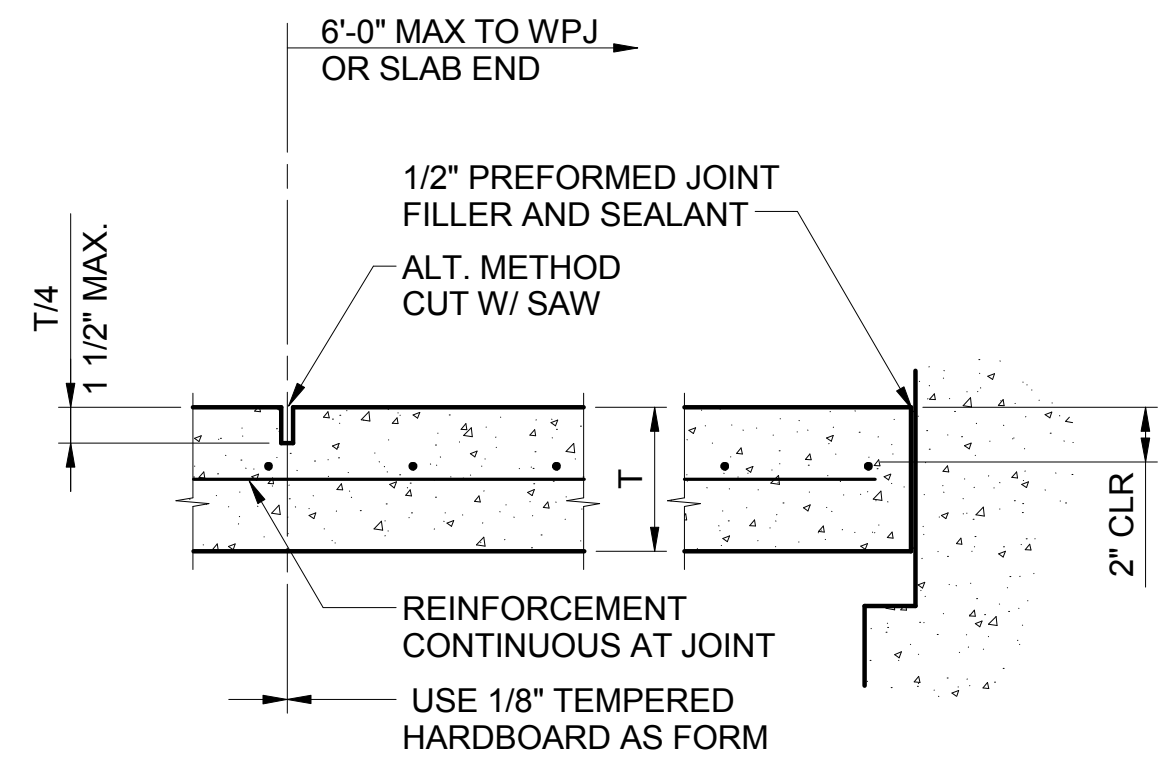
S2 TYPICAL KEY WITH PVC WATERSTOP

S2 HORIZONTAL CONSTRUCTION JOINTS IN WALLS

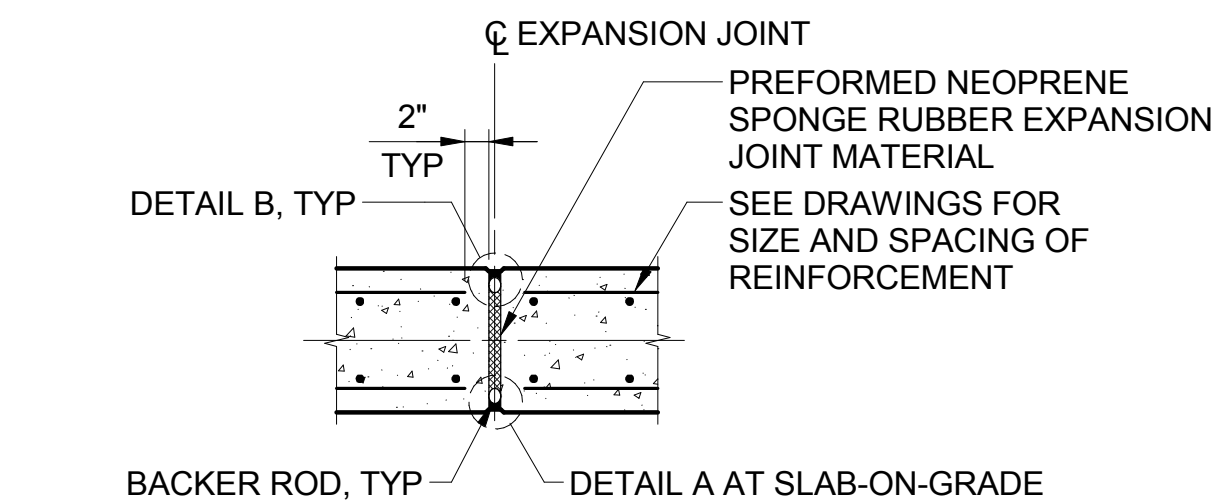
S2 VERTICAL CONSTRUCTION JOINTS IN WALLS

S1 TYPICAL CONSTRUCTION JOINTS

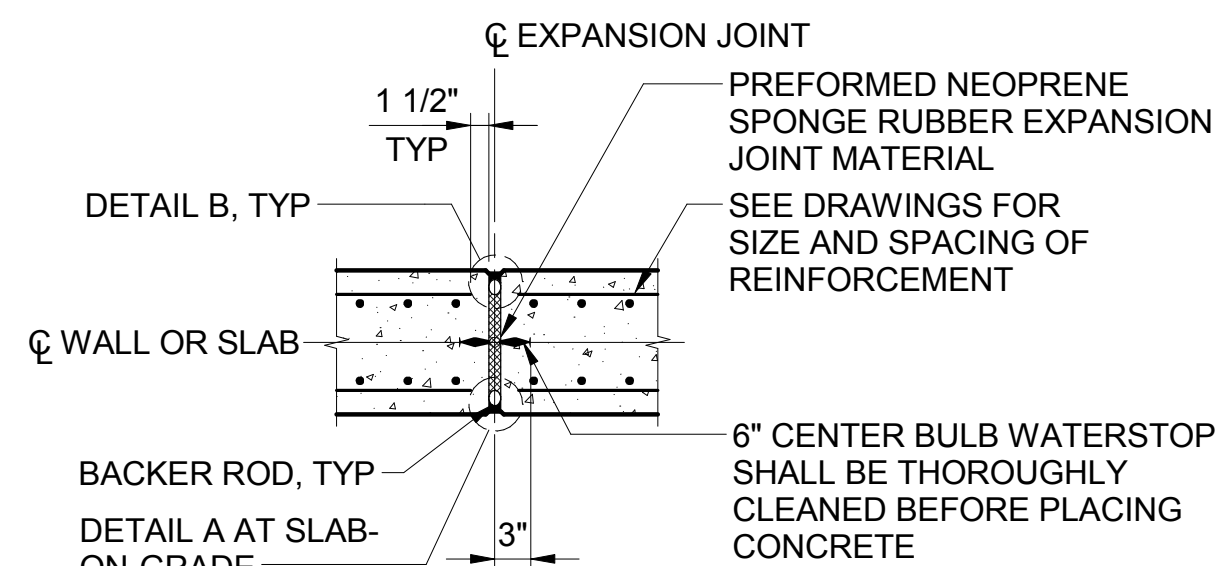
S2 TYPICAL CONSTRUCTION JOINTS - WALLS



S5 ISOLATION AND WEAKENED PLANE JOINT AT FLOOR SLABS ON GRADE



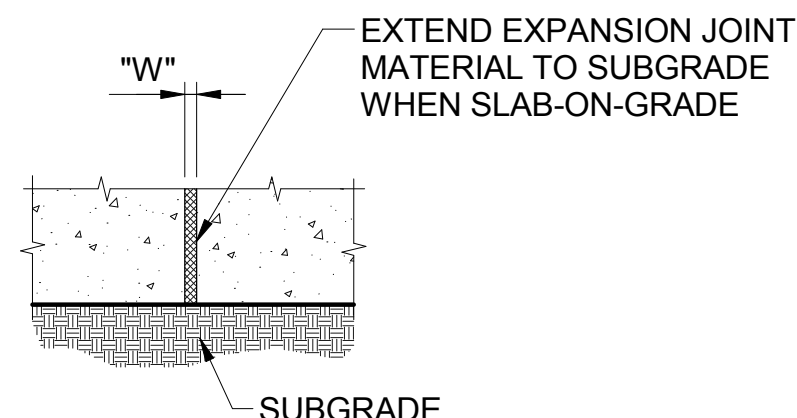
S6 NON-WATER BEARING WALL OR SLAB



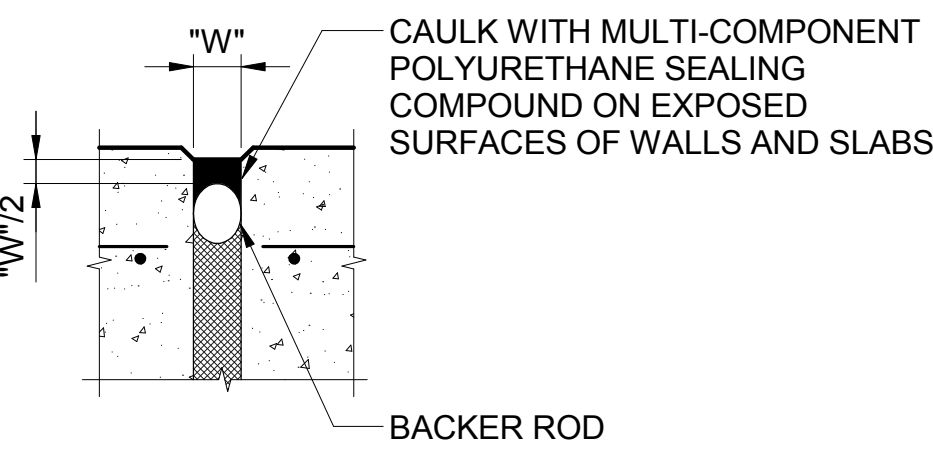
S6 WATER BEARING WALL OR SLAB

- NOTES:
1. SLABS ON GRADE SHALL BE THICKENED AT JOINT PER TYPICAL DETAIL 20.
 2. FOR WALL, FORM ALL JOINT EDGES AT 1/4" CHAMFER.
 3. FOR SLABS, EDGE TOP EXPOSED SLAB JOINT AT 1/4" RADIUS.
 4. FOR UNDER SIDE OF EXPOSED SLABS, FORM JOINT EDGES AT 1/4" CHAMFER.
 5. "W" = 1" UNLESS OTHERWISE NOTED ON THE DRAWINGS.

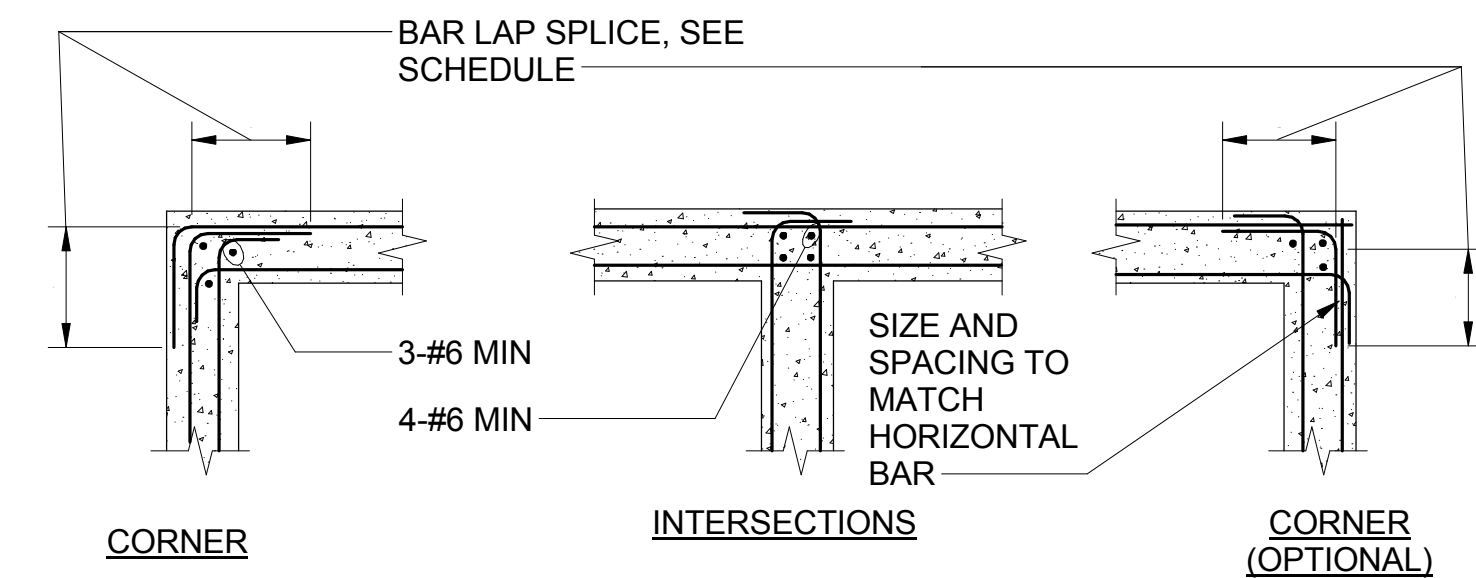
S6 TYPICAL EXPANSION JOINTS



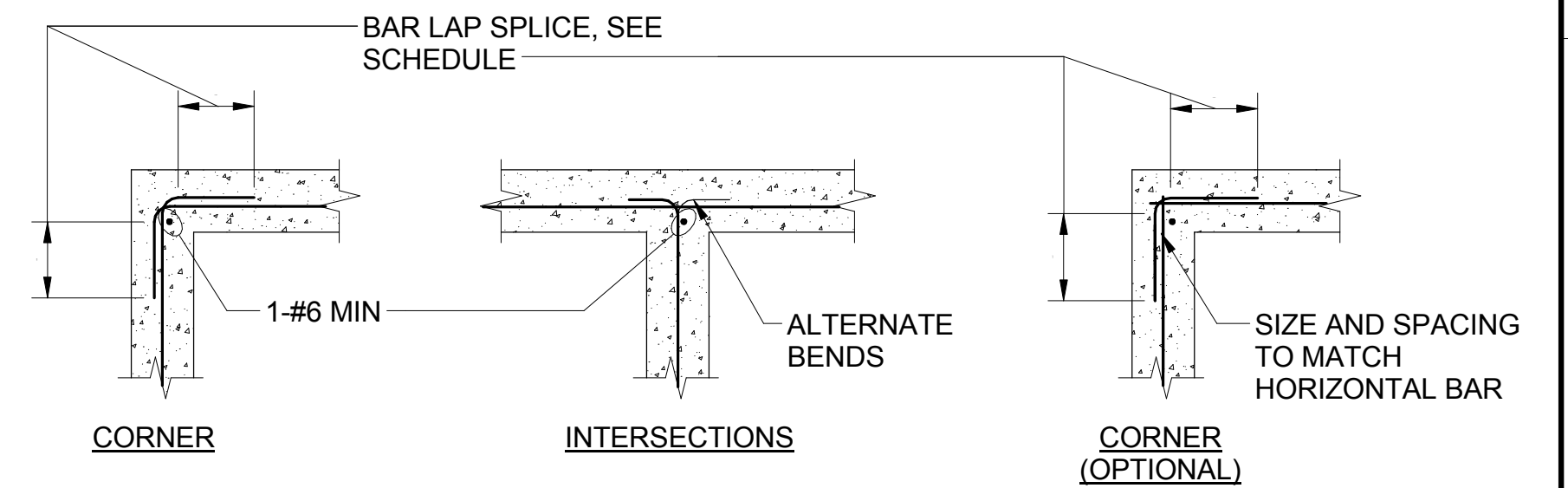
S6 DETAIL A NO SCALE



S6 DETAIL B NO SCALE



S8 DOUBLE LAYER OF REINFORCING



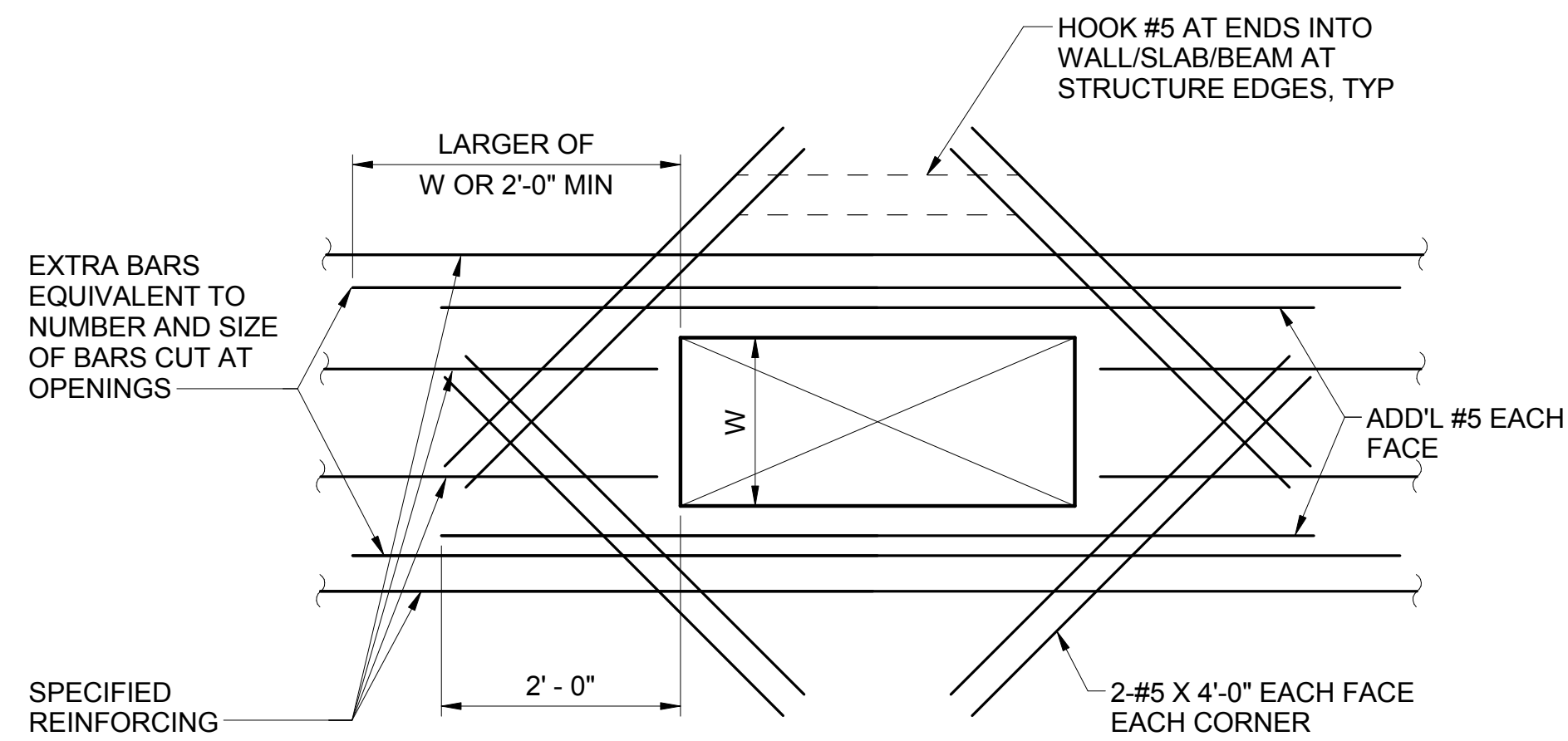
S8 SINGLE LAYER OF REINFORCING

- NOTES:
1. ALL 90° BENDS SHALL BE STANDARD HOOKS PER ACI 315 U.O.N.
 2. SEE OTHER DETAILS AND NOTES FOR SIZE AND SPACING OF REINFORCING.
 3. LAP AND HOOK FOOTING BARS AT CORNERS AND INTERSECTIONS SAME AS FOR WALLS EXCEPT THAT ADDED VERTICAL AT CORNERS AND INTERSECTIONS ARE NOT REQUIRED.

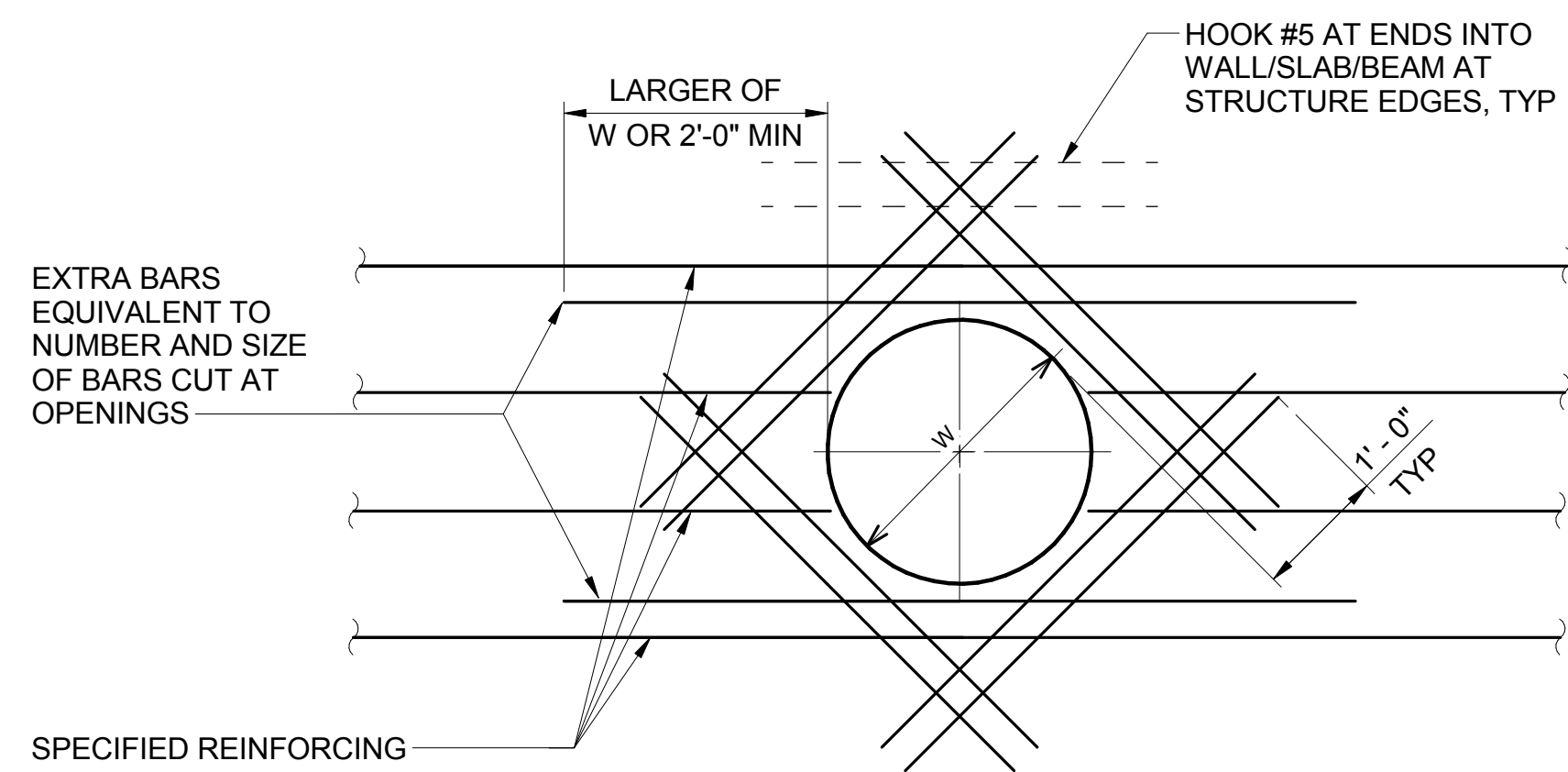
S8 REINFORCING STEEL AT WALL INTERSECTIONS

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REINFORCEMENT AT SLAB AND WALL OPENINGS

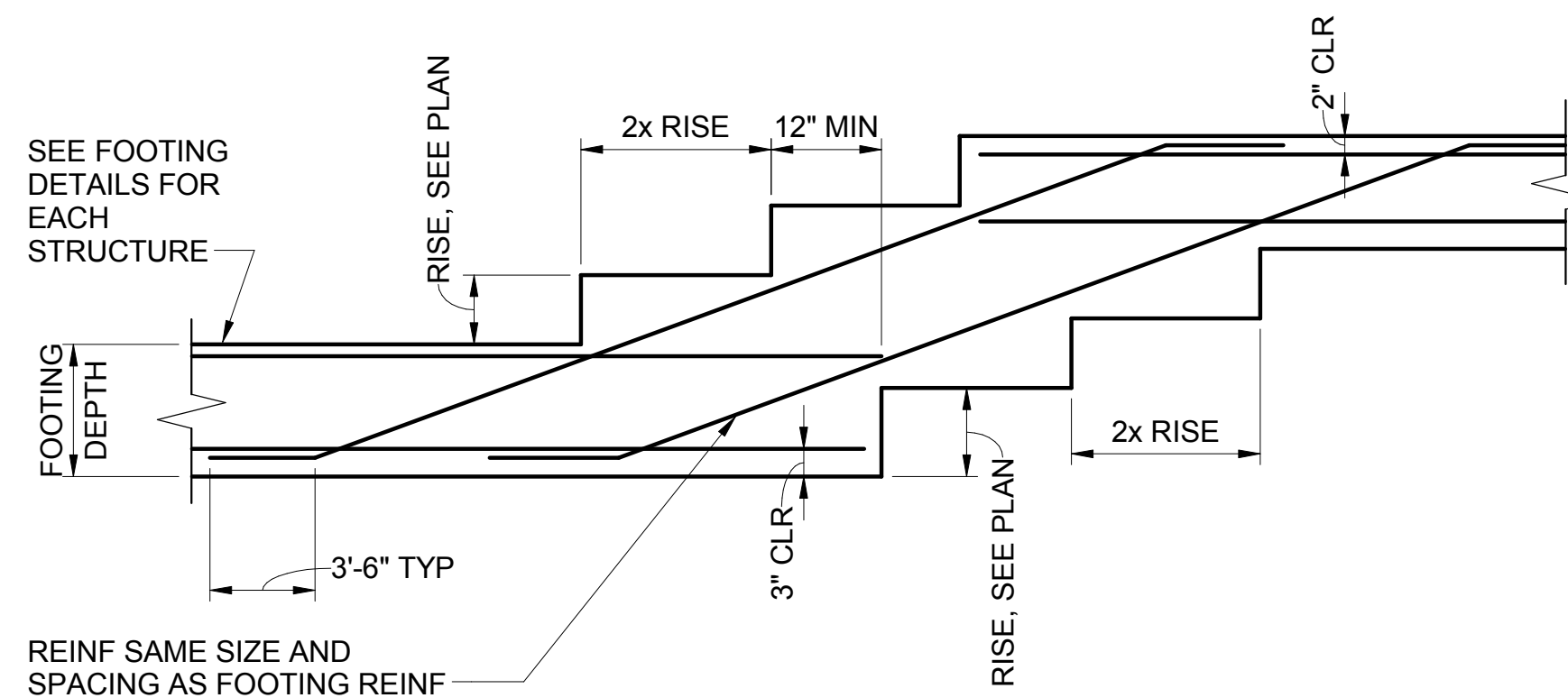


FOR CIRCULAR OPENINGS

NOTES:

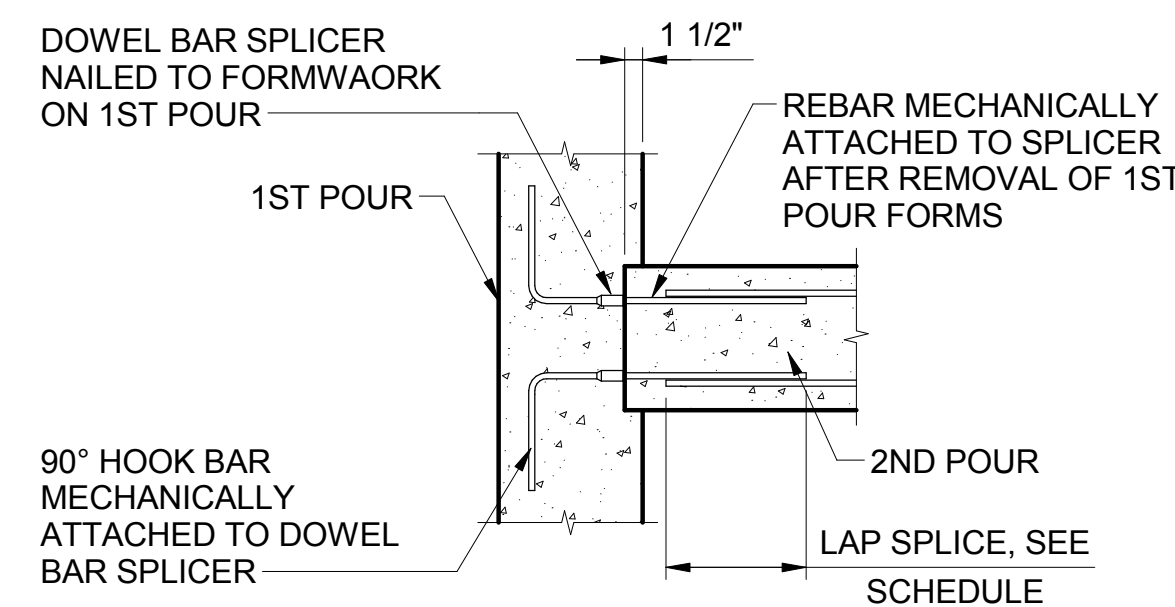
1. TRANSVERSE REINFORCEMENT NOT SPECIFIED, BUT SHALL BE TREATED IN THE SAME MANNER AS BARS SHOWN.
2. W= DIMENSION OF OPENING PERPENDICULAR TO BARS CUT. FOR CIRCULAR OPENINGS, W=DIAMETER.
3. SEE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS FOR SLAB AND WALL OPENINGS NOT SPECIFIED ON STRUCTURAL DRAWINGS.
4. SUPPLEMENTARY REINFORCING NOT REQUIRED WHEN SPECIFIED REINFORCING IS NOT CUT.
5. ALL OPENINGS IN WALLS AND SLABS LARGER THAN 8" IN ANY DIRECTION SHALL CONFORM TO DETAIL.

S9 REINFORCEMENT AT SLAB AND WALL OPENINGS

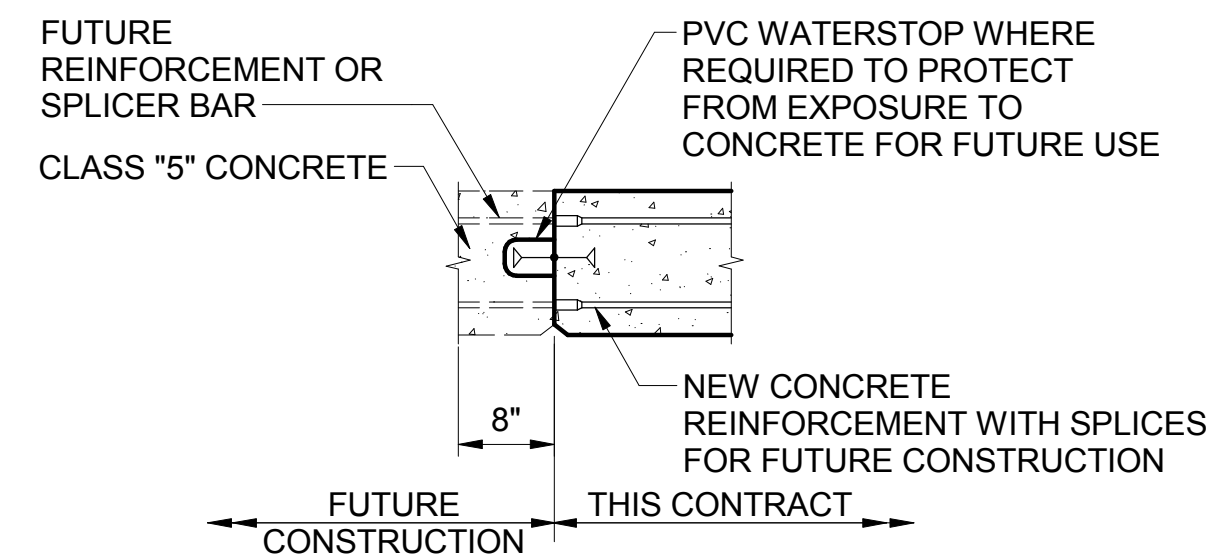


- NOTES:**
1. STEPS SHALL BE 1 VERTICAL (MAXIMUM) TO 2 HORIZONTAL UNLESS OTHERWISE NOTED.
 2. LOCATE STEPS AS REQUIRED TO MAINTAIN FOOTING CONTROL, ELEVATIONS SHOWN ON PLAN.

S10 TYPICAL STEPPED FOOTING



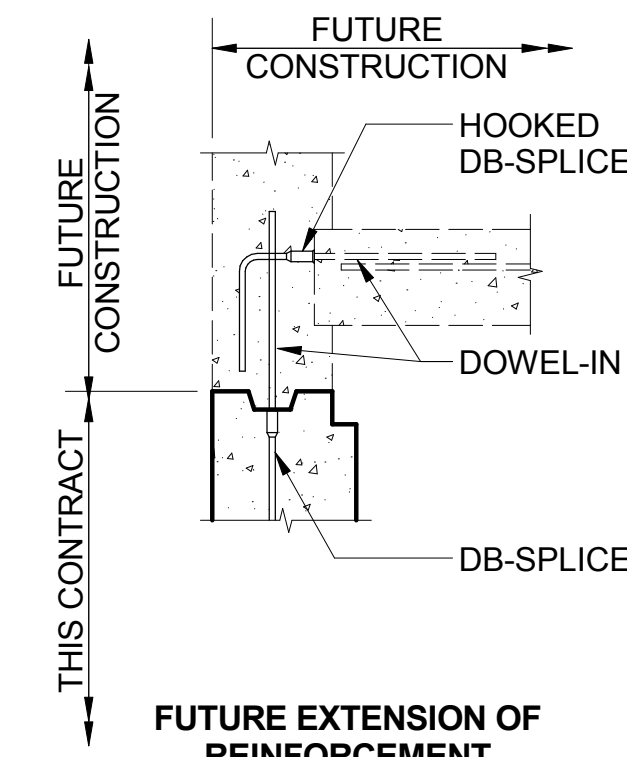
AT WALL INTERSECTION



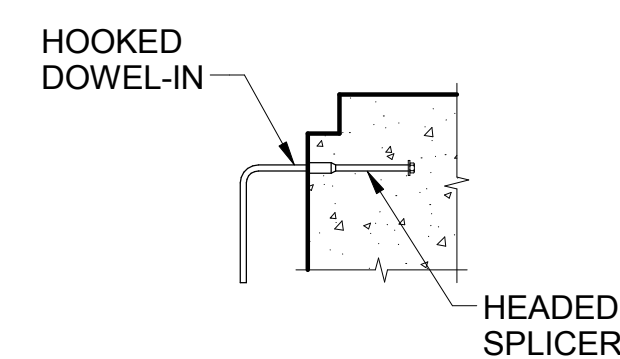
AT FUTURE EXTENSION OF REINFORCEMENT

- NOTES:**
1. SPLICE LOCATIONS SHALL BE AS SHOWN IN SPECIFIC DRAWINGS.
 2. MINIMUM COVER SHALL BE MEASURED TO THE OUTSIDE OF THE SPLICER FLANGE.
 3. DOWEL BAR SPLICER AND DOWEL-IN SIZES SHALL BE RATED FOR 1.25FY OF GRADE OF REINFORCEMENT USED.

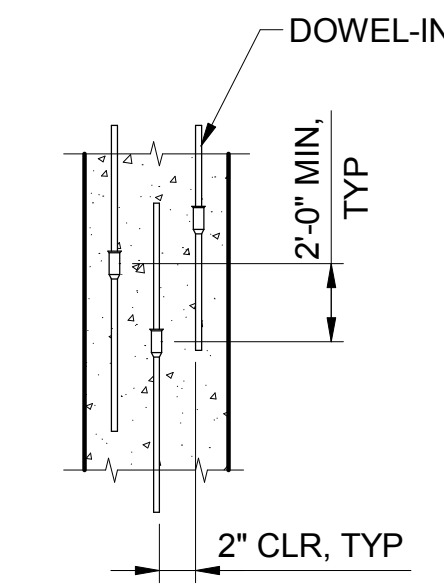
S11 DOWEL BAR SPLICES



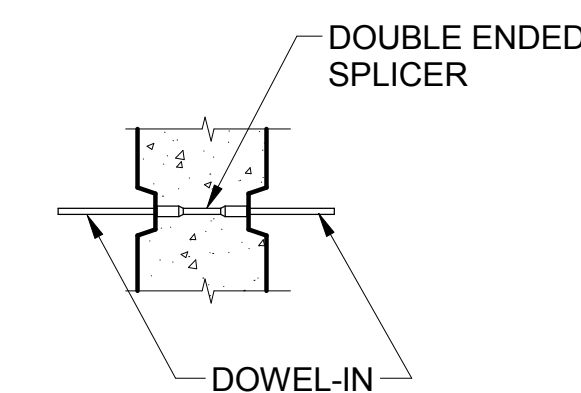
FUTURE EXTENSION OF REINFORCEMENT



HEADED SPLICER



MECHANICAL SPLICER

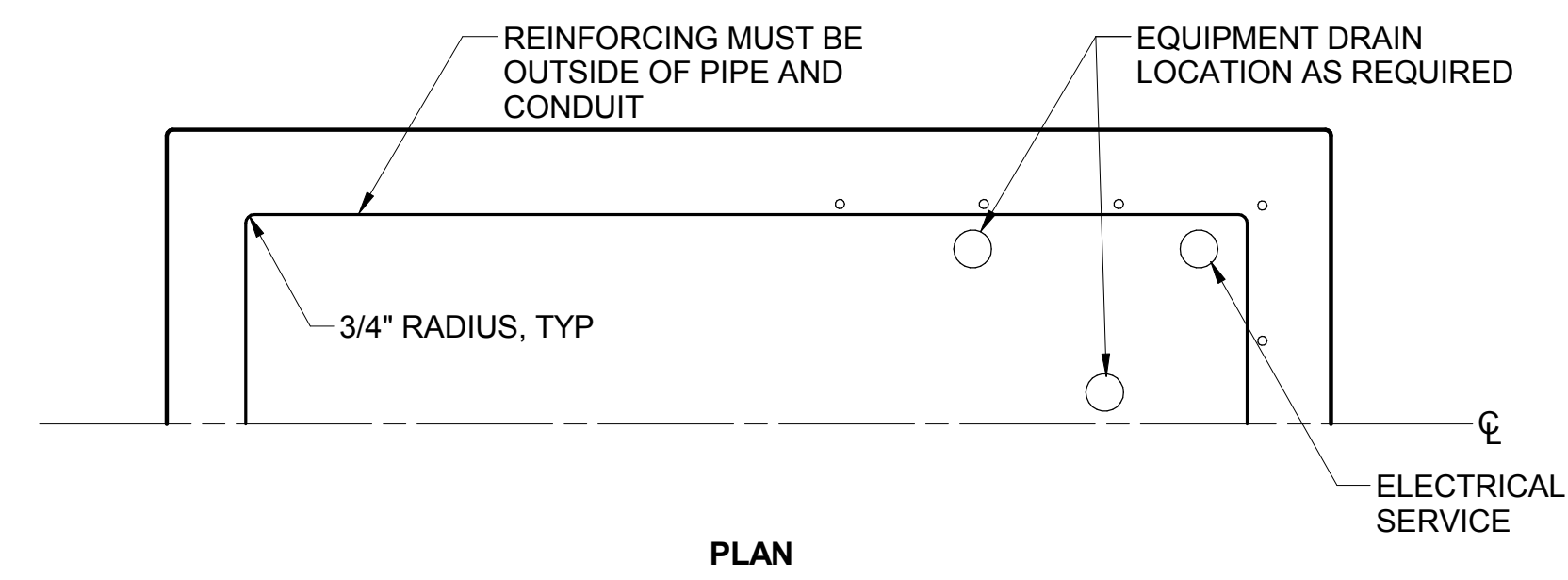


DOUBLE ENDED SPLICER

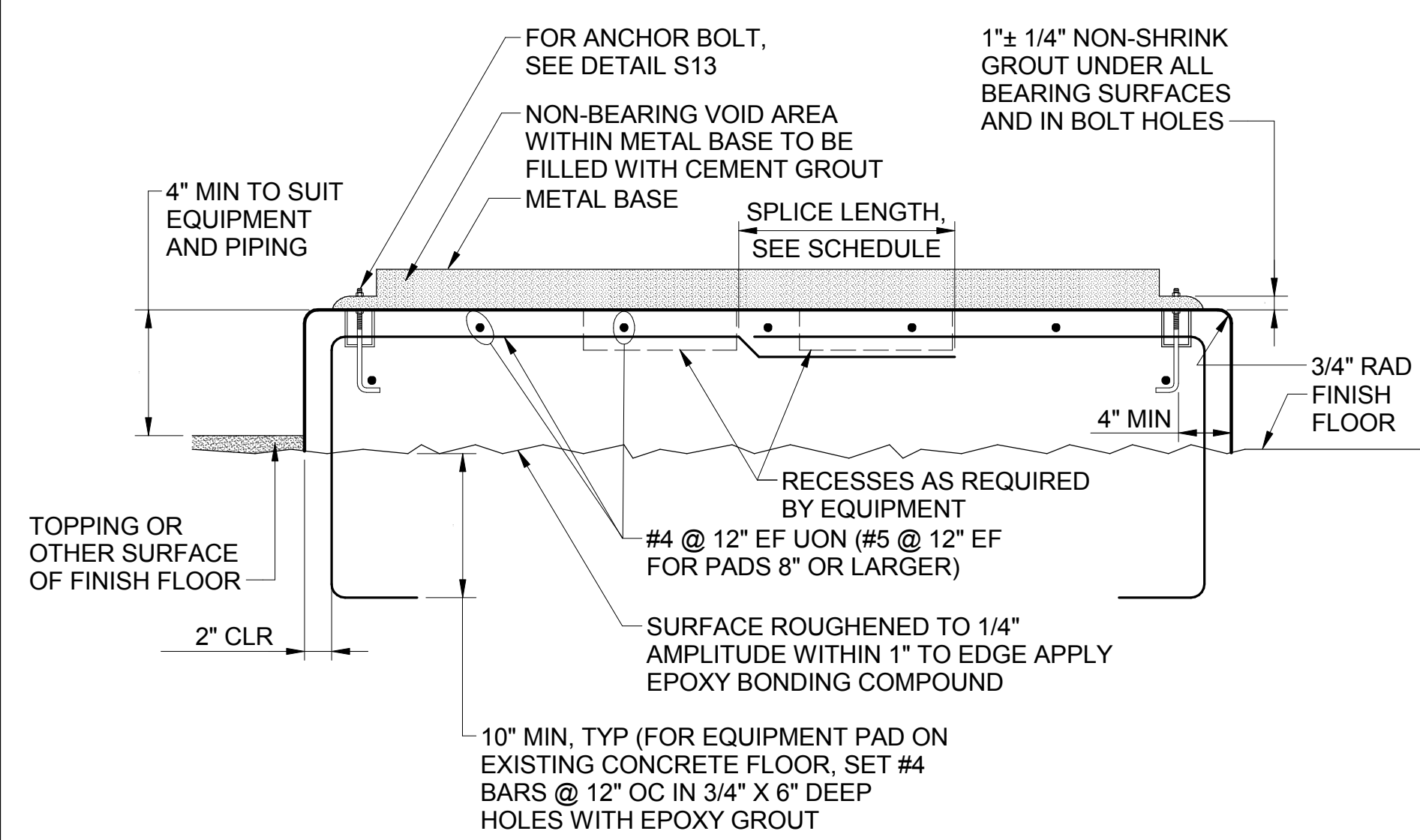
DATE	REV	DESCRIPTION

DATE	REV	DESCRIPTION

PLOT DATE: 7/24/2014 1:51:50 PM CAD User: BC PATH AND FILENAME: \\BCV\CKFP01\Projects\143000143879 - Pittsburg WTP Improvements Ph 1\CAD\1-MODELS\Pittsburg Common Contract -ADMIN-1A.rvt

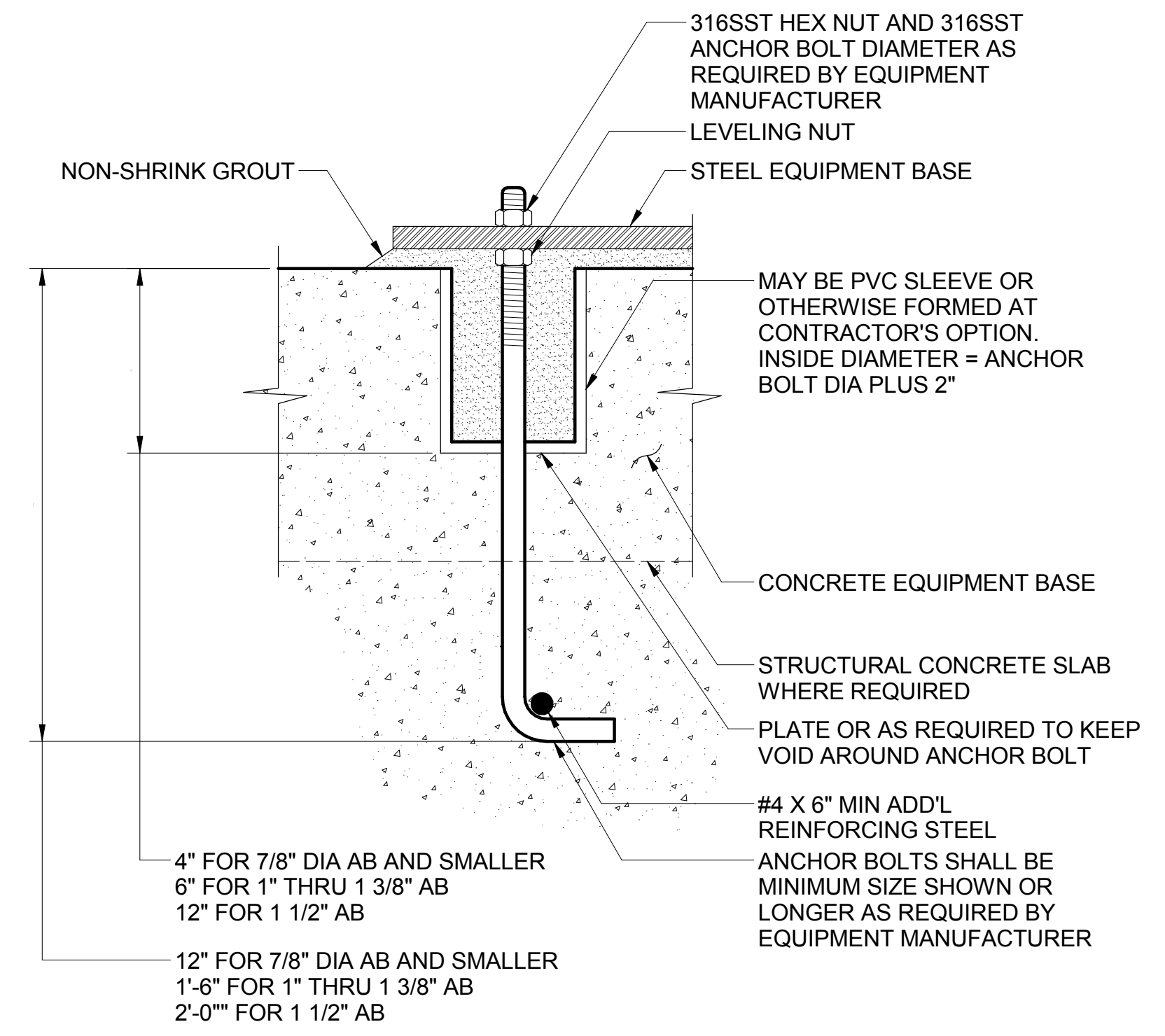


PLAN



SECTION

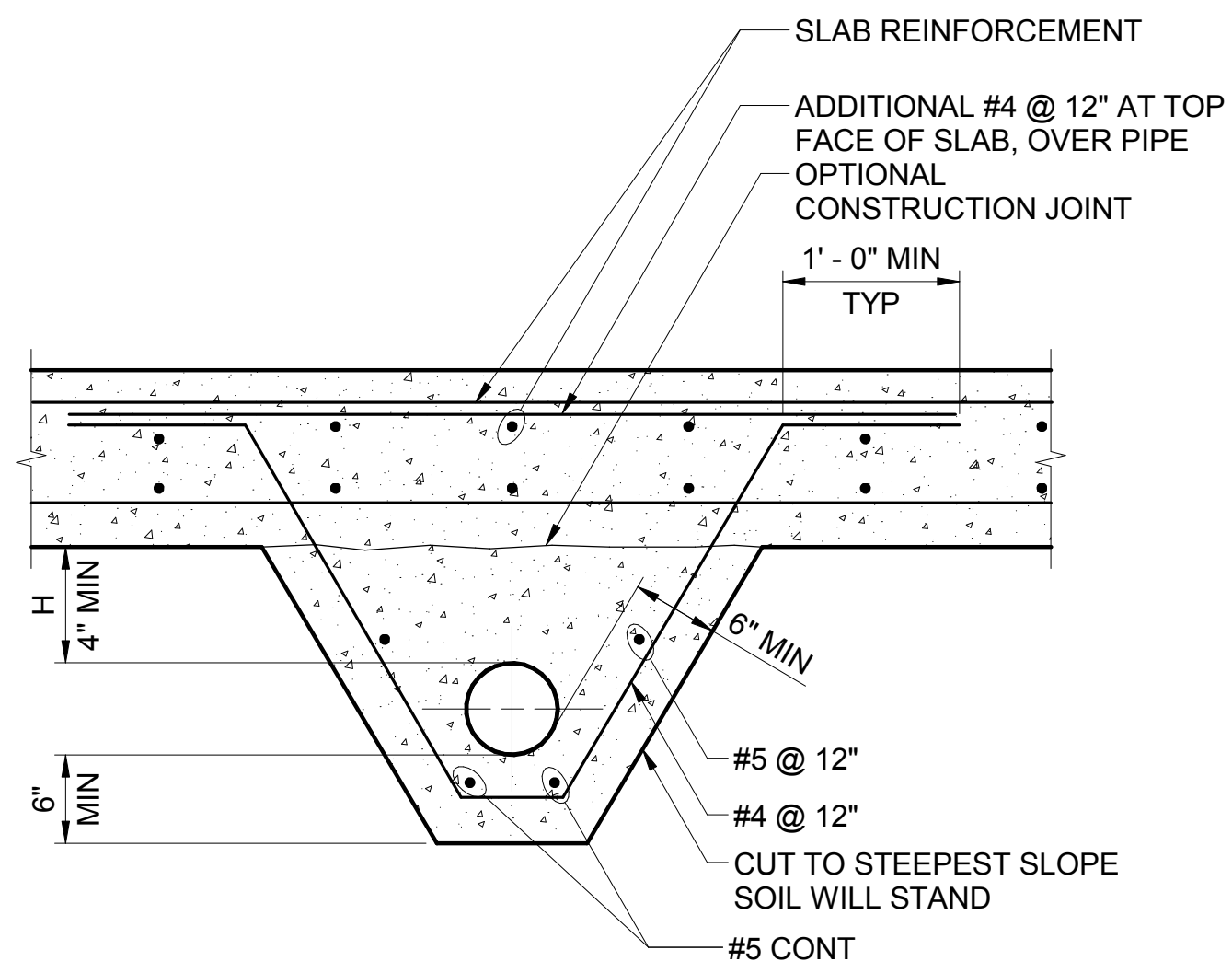
S12 EQUIPMENT BASE



NOTES:

- EQUIPMENT VENDOR TO SUBMIT ANCHOR BOLT CALCULATIONS STAMPED BY A CIVIL/STRUCTURAL ENGINEER IN ACCORDANCE WITH ANCHOR BOLTS SPECIFICATIONS.
- ALL EQUIPMENT, INCLUDING TANKS, SHALL HAVE A CONCRETE BASE TO SUIT.
- ANCHOR BOLTS SHALL BE SIZED FOR THE EQUIPMENT LOAD PLUS SEISMIC LOADS.
- ANCHOR BOLTS SHALL BE SET IN POCKETS, EITHER PIPE OR BLOCKOUTS. SEE STANDARD DETAILS. ANCHOR BOLTS SHALL PENETRATE STRUCTURAL SLAB AS REQ'D TO MEET MINIMUM EMBEDMENT SPECIFIED.
- DRILLED HOLES WITH ANCHOR BOLT SET IN EPOXY GROUT MAY BE USED IN LIEU OF HOOKED BOLTS. EXPANSION SHIELD TYPE BOLTS SHALL NOT BE USED.
- ALL PENETRATIONS FOR CONDUIT AND PIPING SHALL BE WITHIN CONCRETE EQUIPMENT PAD. PAD TO BE CONFIGURED ACCORDINGLY.
- IN-LIEU OF THIS DETAIL, SUBMIT ALTERNATIVE DETAIL FOR APPROVAL AS PART OF EQUIPMENT SUBMITTAL.

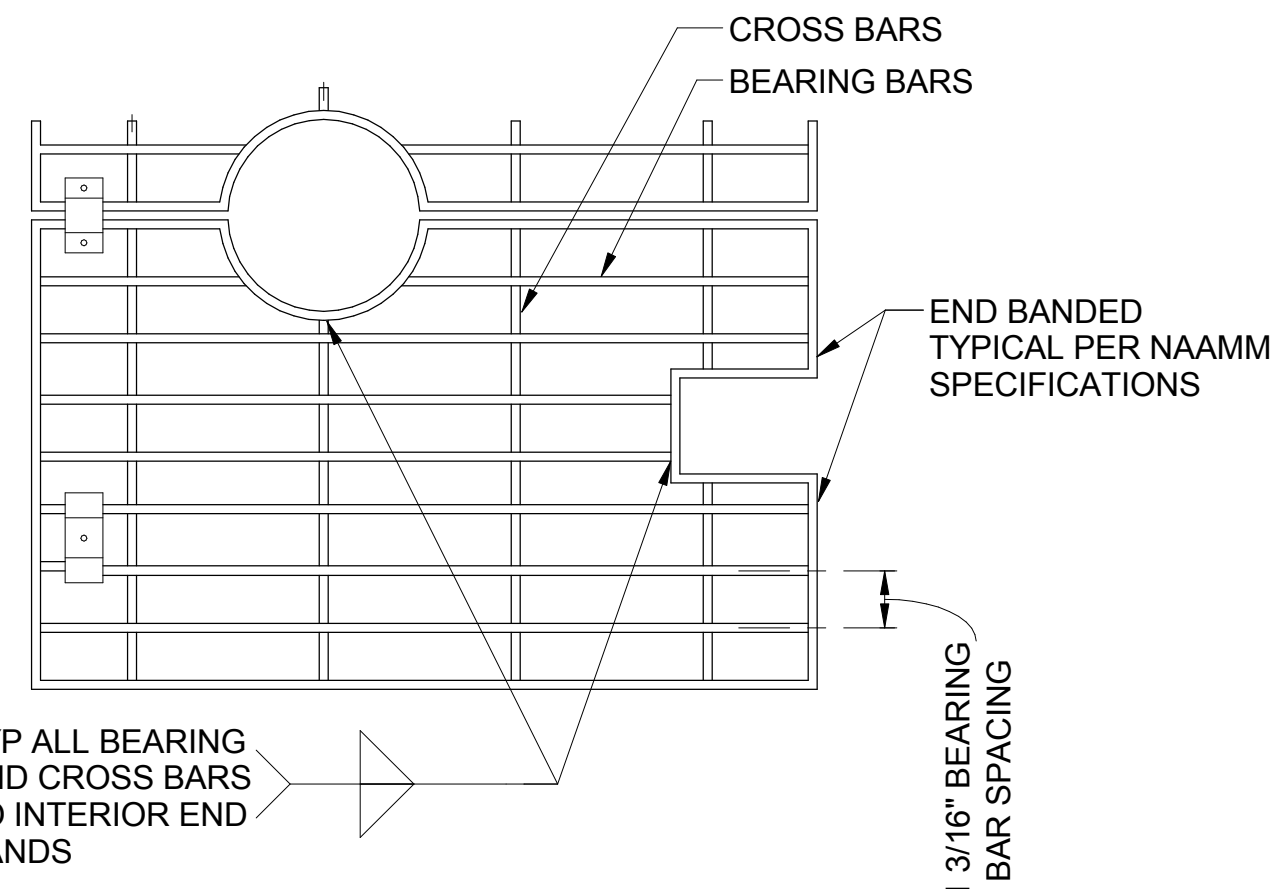
S13 ANCHOR BOLT FOR EQUIPMENT



NOTES:

- WHERE H < 2'-6", PROVIDE REINFORCEMENT TIED TO SLAB AS SHOWN UNLESS OTHERWISE NOTED ON DWG.
- WHERE H < 2'-6", ENCASE PIPE IN CONCRETE WITHOUT REINFORCEMENT. PROVIDE 6" MIN CLEAR ALL AROUND

S19 PIPE ENCASEMENT

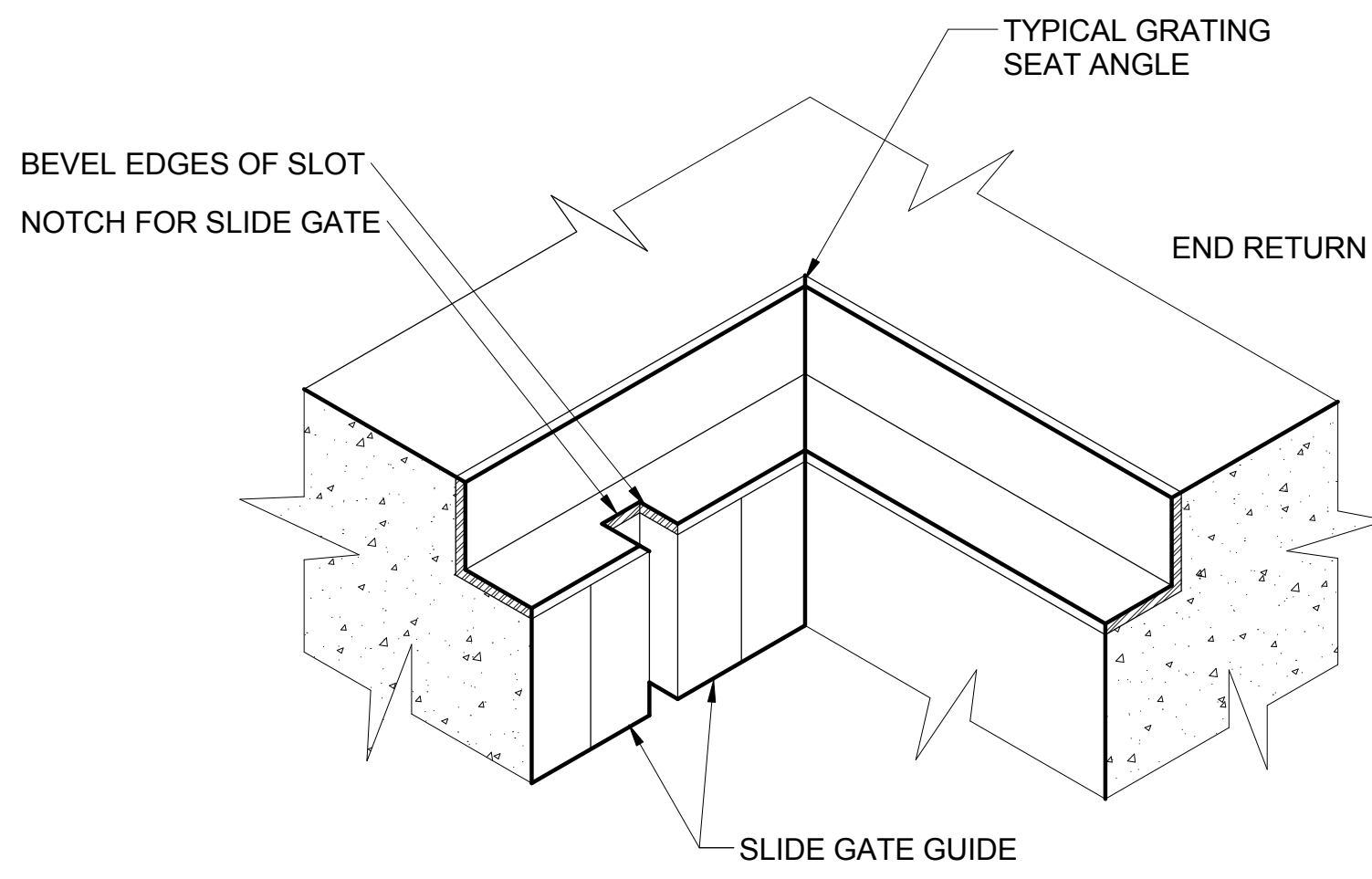


ALUMINUM GRATING SCHEDULE	
BEARING BAR SIZE (MIN)	CLEAR SPAN (MAX)
1 1/2" X 3/16"	UP TO 4'-0"
1 3/4" X 3/16"	4'-6"
2" X 3/16"	5'-6"
2 1/4" X 3/16"	6'-0"
2 1/2" X 3/16"	6'-6" MAX

NOTES:

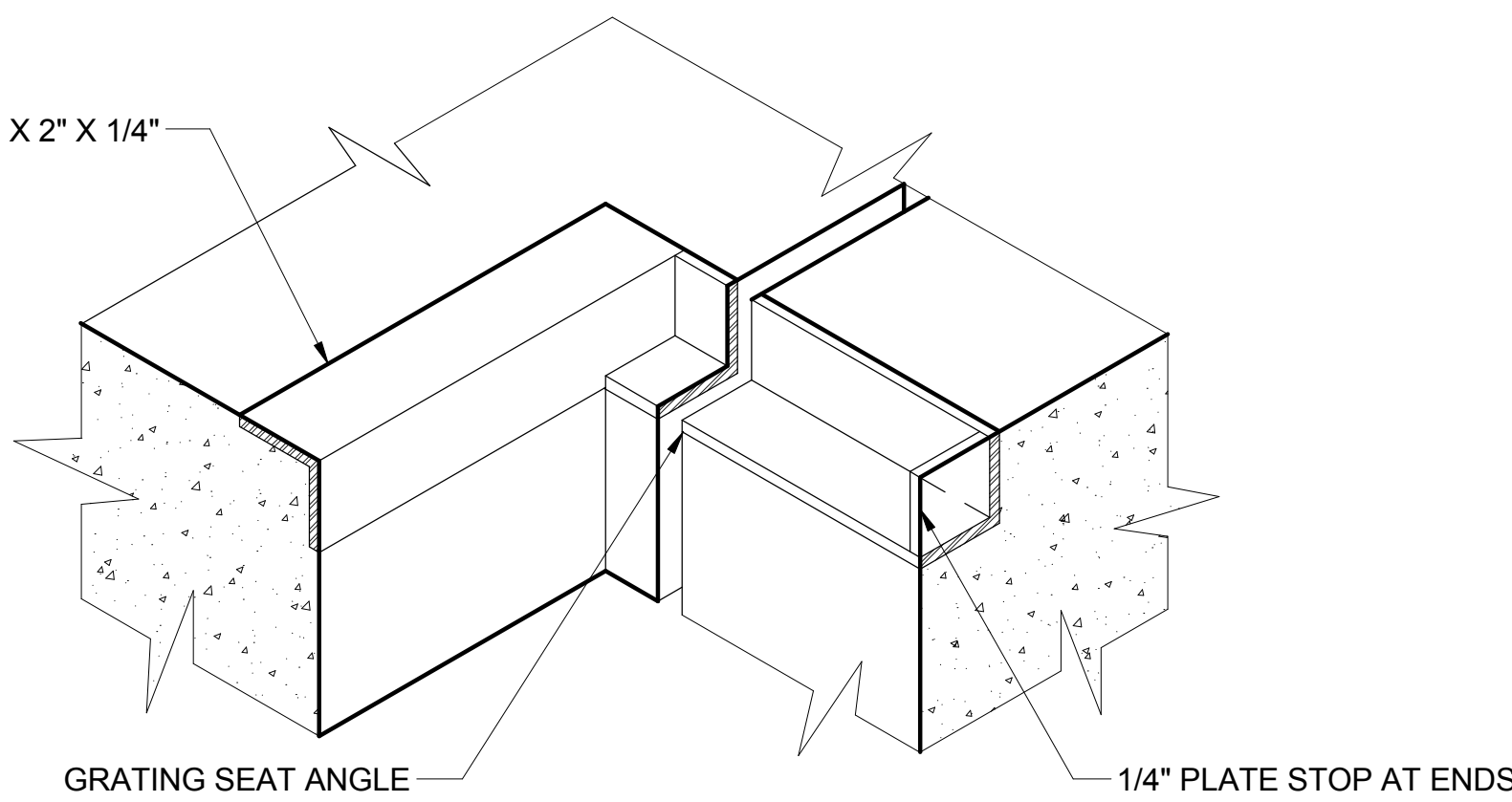
- UNLESS OTHERWISE SPECIFIED GRATING SHALL BE ALUMINUM. EACH GRATING PANEL SHALL HAVE A MAXIMUM WEIGHT OF 80 POUNDS.
- ALUMINUM GRATING SHALL CONFORM TO THE METAL BAR GRATING OF NAAMM, AND SHALL BE SWAGED AND FORGED.
- UNLESS OTHERWISE SPECIFIED, PROVIDE FOUR (4) GRATING CLIPS APPROXIMATELY 4" FROM THE CORNERS OF EACH PIECE. ADJACENT PIECES MAY BE ANCHORED WITH ONE CLIP AND TWO (2) STUDS, SEE GRATING CLIP DETAIL 2 (STANDARD DETAIL S37).
- ALL GRATING SHALL BE JOB MEASURED PRIOR TO FABRICATION TO FIT RESPECTIVE SUPPORTS PREVIOUSLY SET IN CONCRETE.
- CLEAR SPAN SHALL BE PLAN DIMENSION, FACE TO FACE OF OPENING.
- GRATING SURFACE SHALL BE NON-SLIP.

S31 GRATING PLAN (ALUMINUM GRATING)



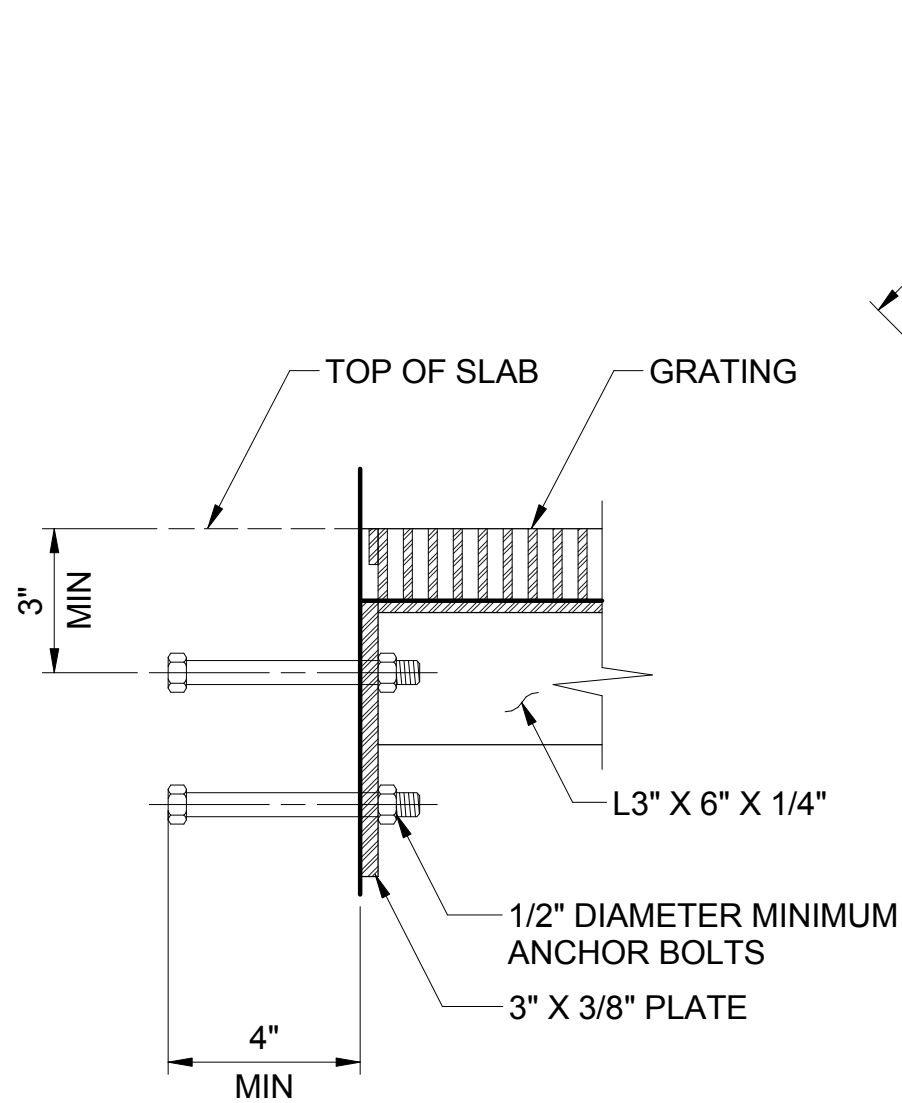
- NOTE:
1. GRATING SUPPORT ANGLE SHALL BE STAINLESS STEEL TYPE 316.

S34 GRATING SUPPORT AT SLIDE GATE

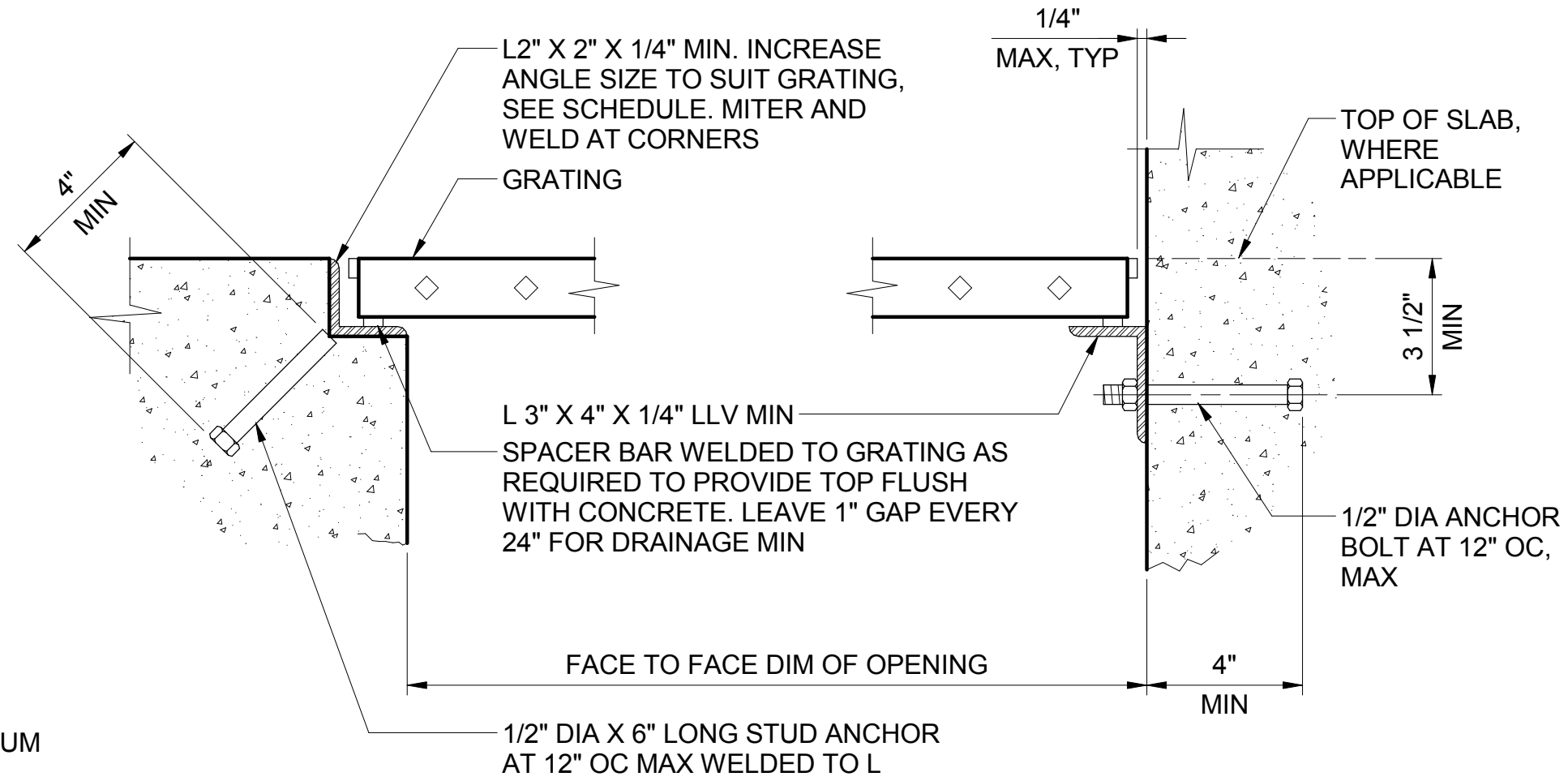


- NOTE:
1. GRATING SUPPORT ANGLE SHALL BE STAINLESS STEEL TYPE 316.

S35 GRATING SUPPORT END RETURN

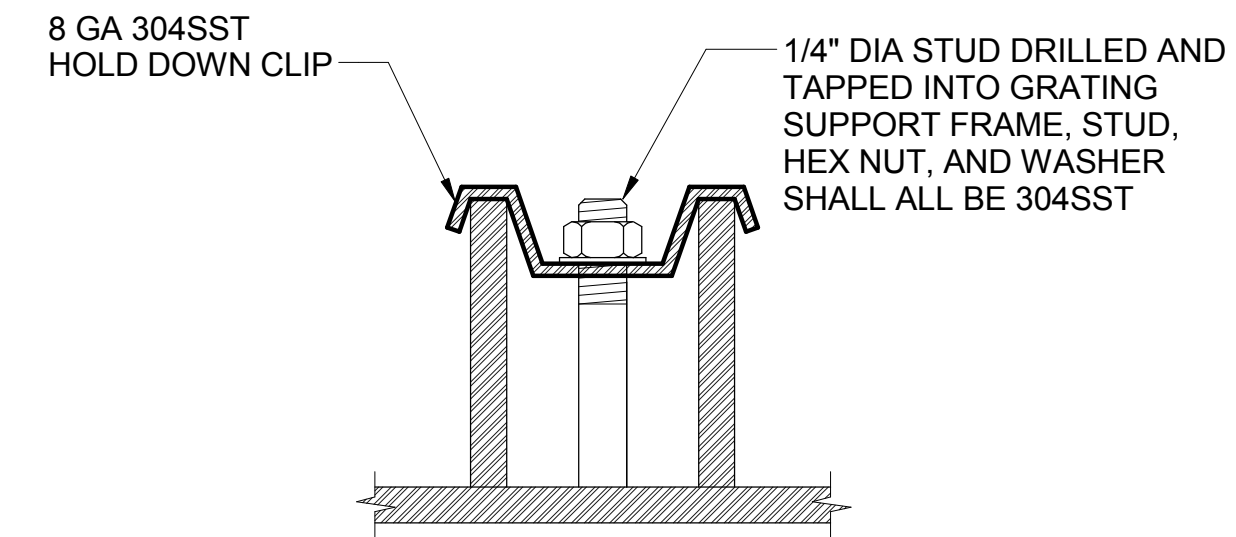


S32 GRATING SUPPORT

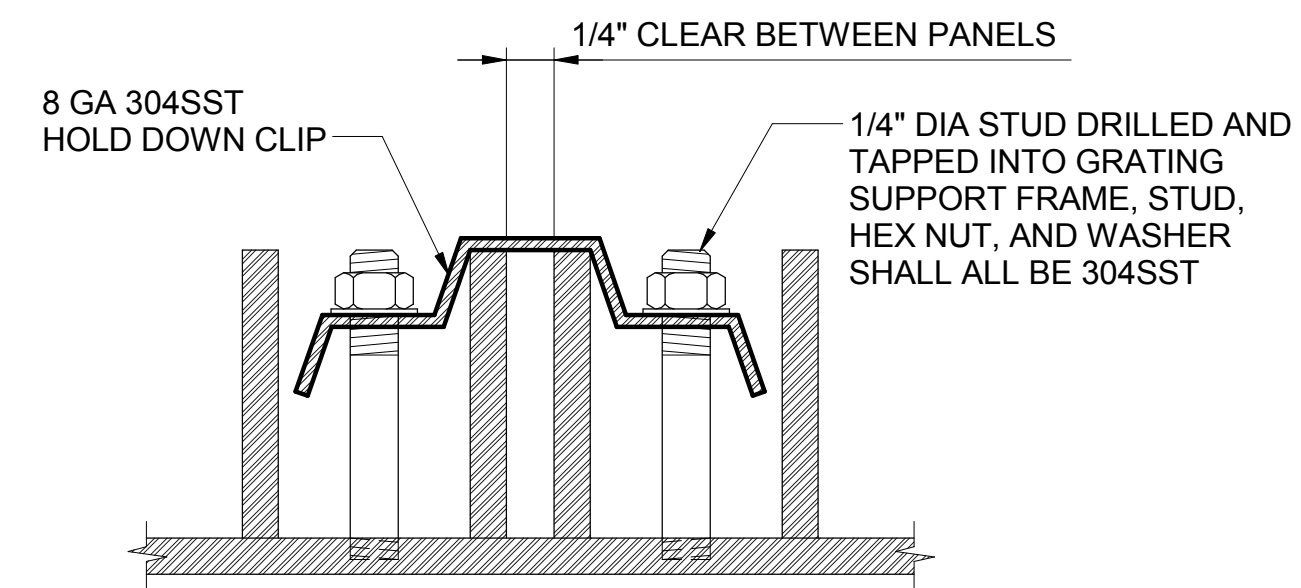


- NOTE:
1. ALL EMBEDDED HARDWARE (ANGLES AND ANCHOR BOLTS) SHALL BE STAINLESS STEEL TYPE 316

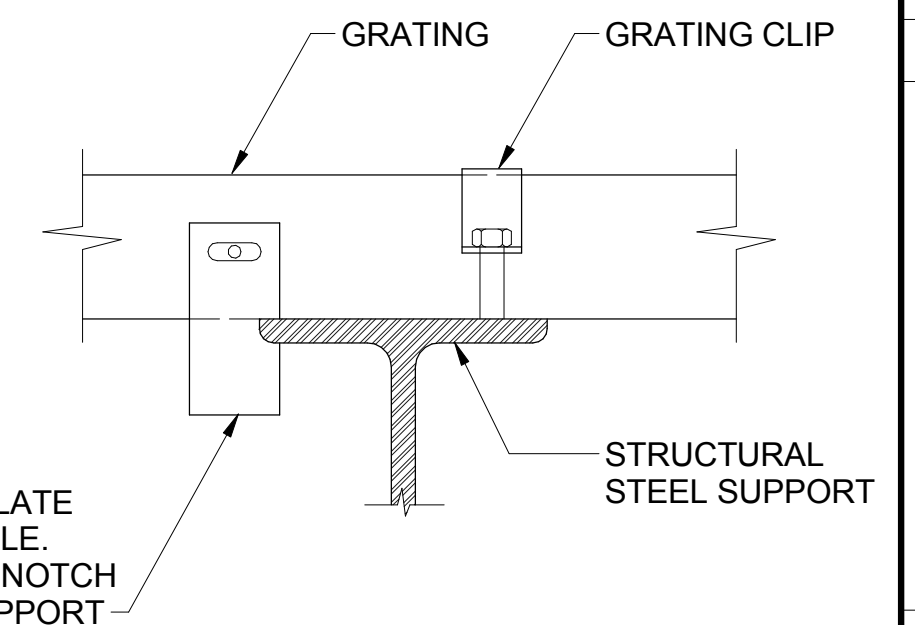
S33 GRATING SUPPORT AT CONCRETE



S36 GRATING CLIP 1



S37 GRATING CLIP 2

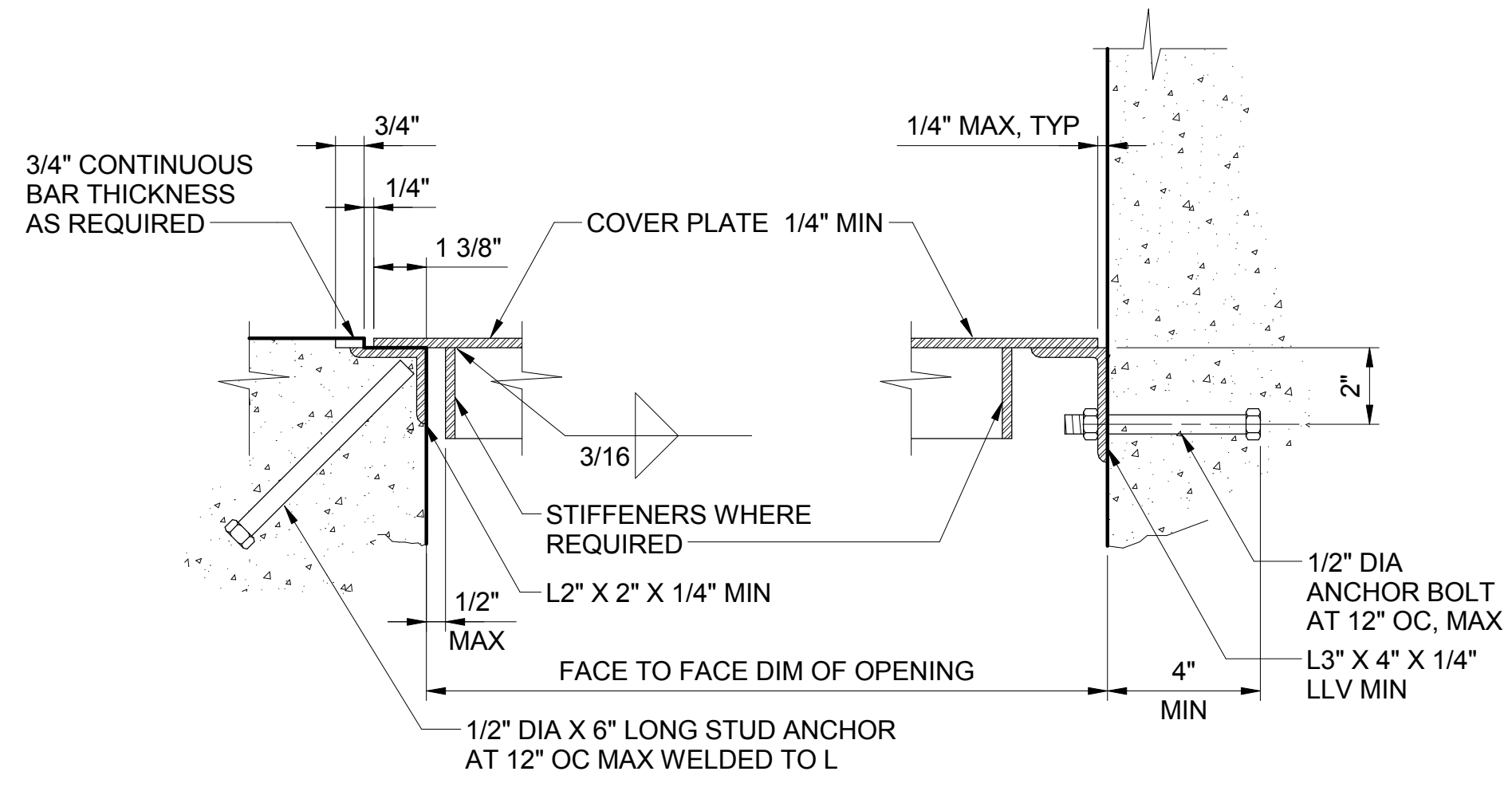


- OPTIONAL 3/8" STEEL PLATE CLIP WITH SLOTTED HOLE. BOLT TO GRATING AND NOTCH TO FIT FLANGE AND SUPPORT

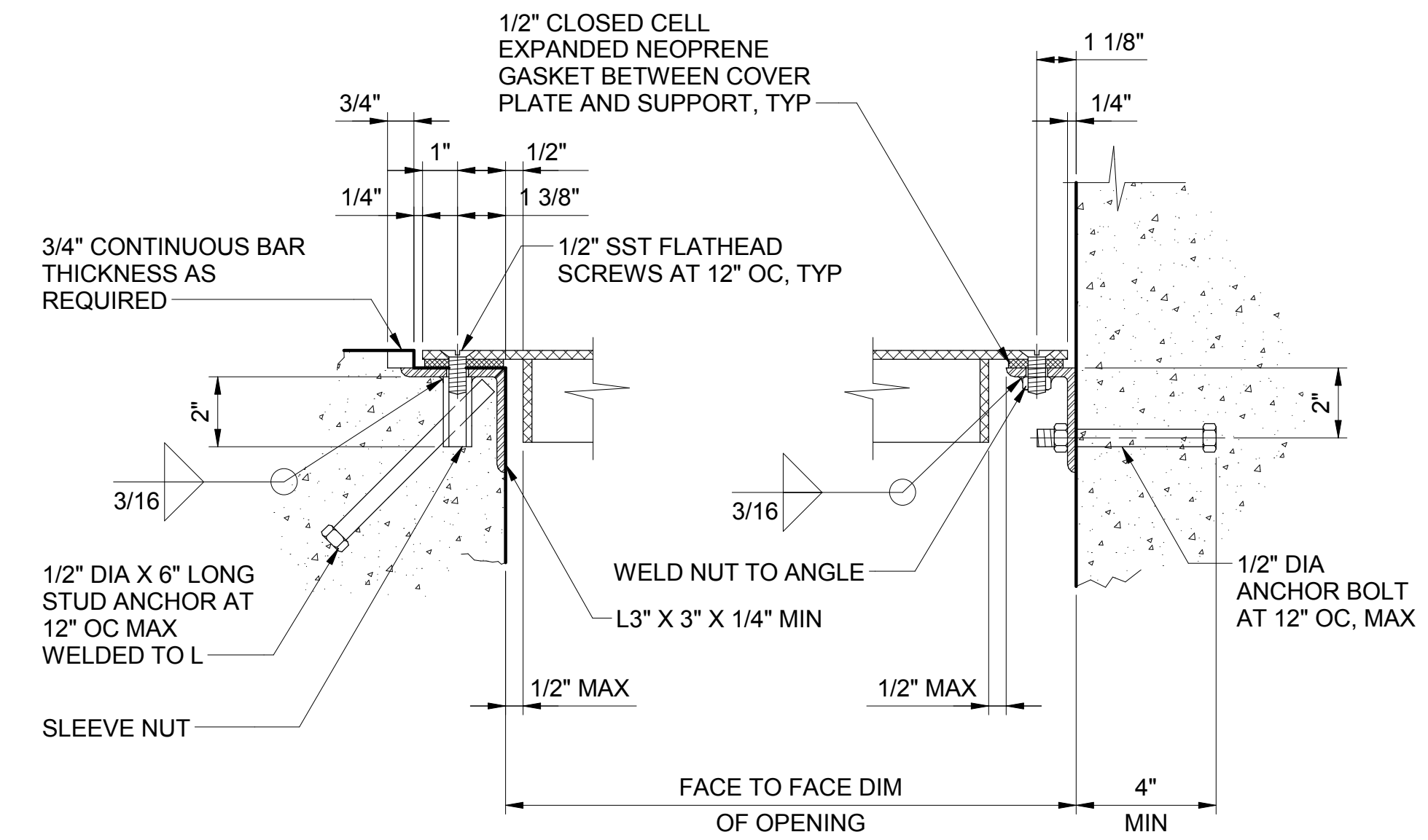
S38 GRATING CLIP

REV	DESCRIPTION

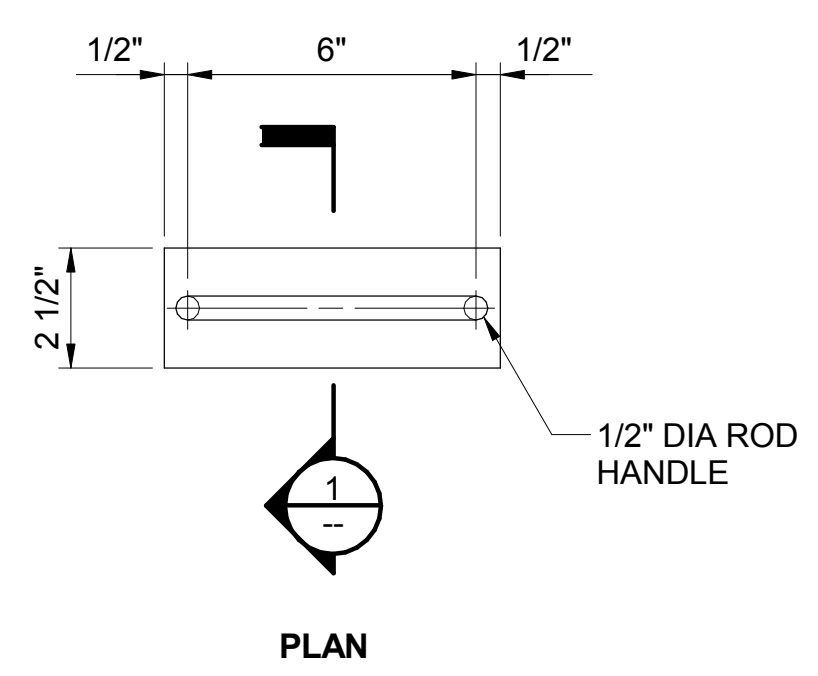
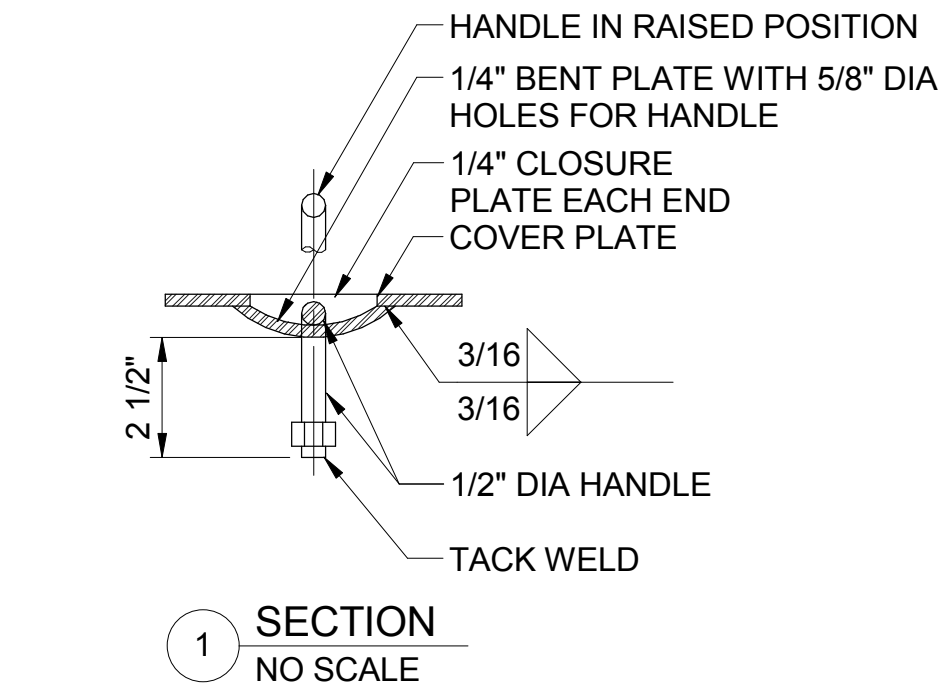
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 PATH AND FILENAME: \\BC\WORK\Projects\1430001\43879 - Pittsburg WTP Improvements Ph 1\CAD\1-MODELS\Pittsburg Common Contract -ADMIN-1A.rvt



S40 LOOSE COVER PLATE AND SUPPORTS



S41 BOLTED COVER PLATE AND SUPPORTS

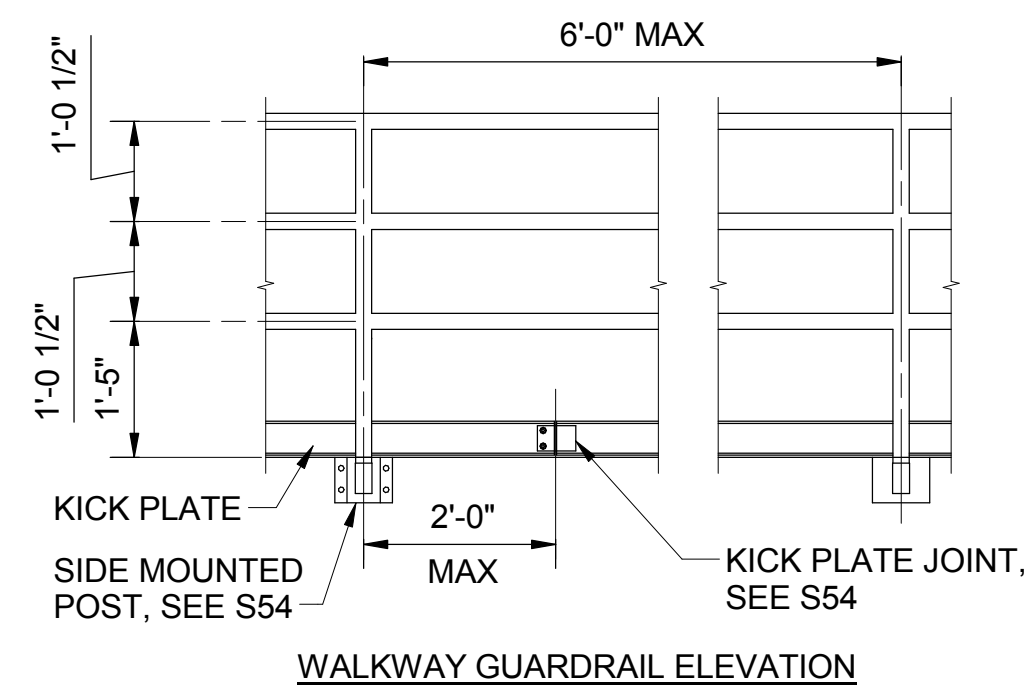


NOTE:
 1. ALUMINUM OR GALVANIZED STEEL AS SPECIFIED.

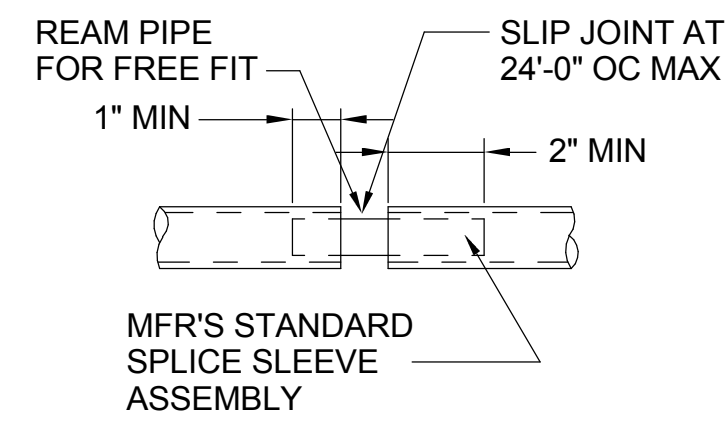
S42 TYPE "A" HANDLE

BY	DRAWN: BC
CHECKED:	EZ
REVIEWED:	RS
DATE:	08/27/13
SCALE:	3" = 1'-0"

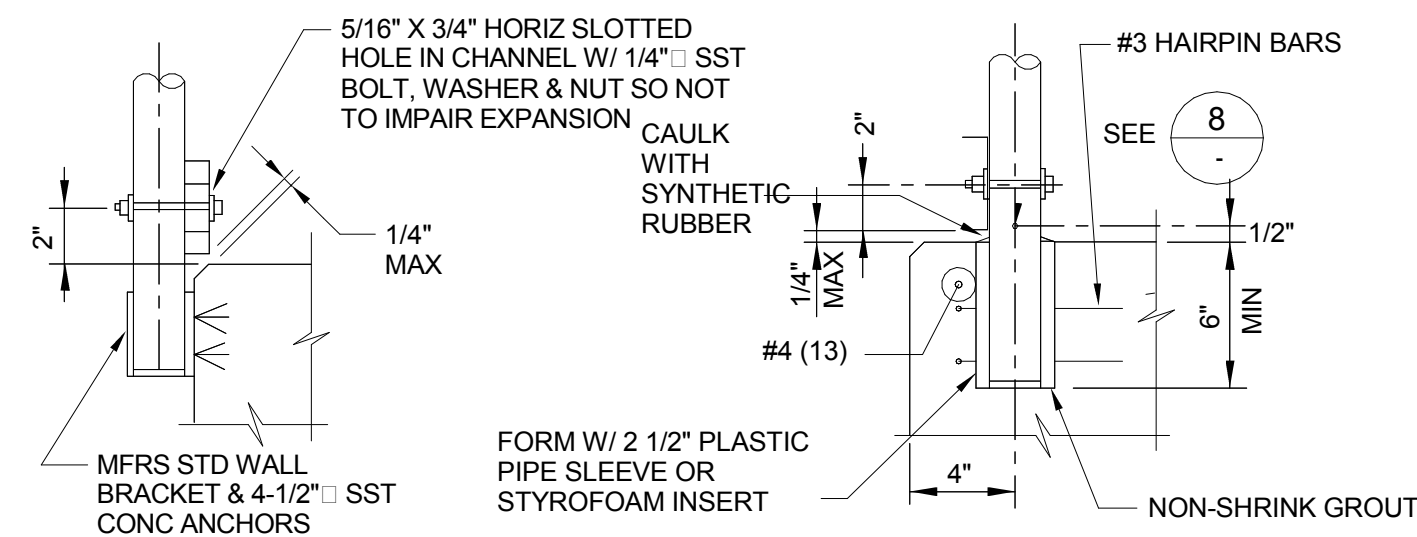
DATE	REV	DESCRIPTION



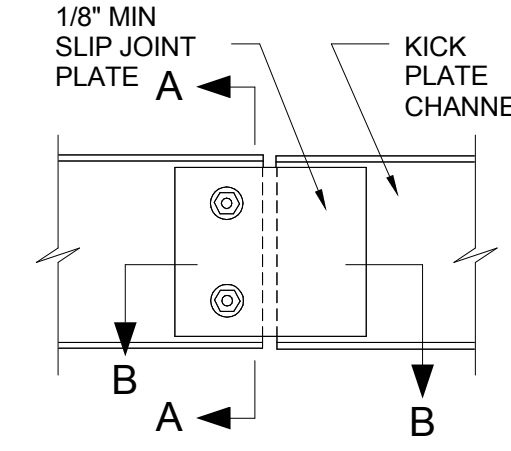
S49 CONTINUOUS GUARDRAIL



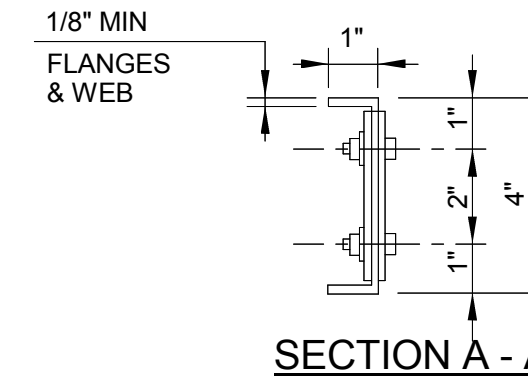
RAIL SLIP JOINT



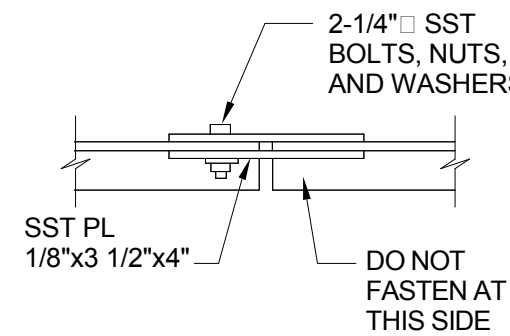
S54 GUARDRAIL DETAILS



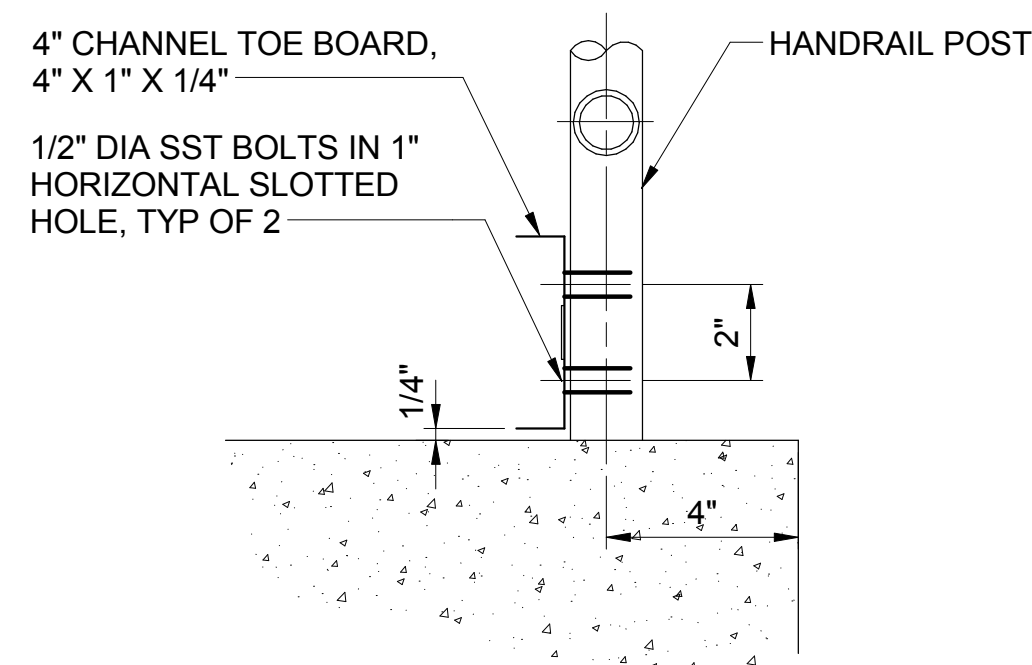
KICK PLATE JOINT



SECTION A - A

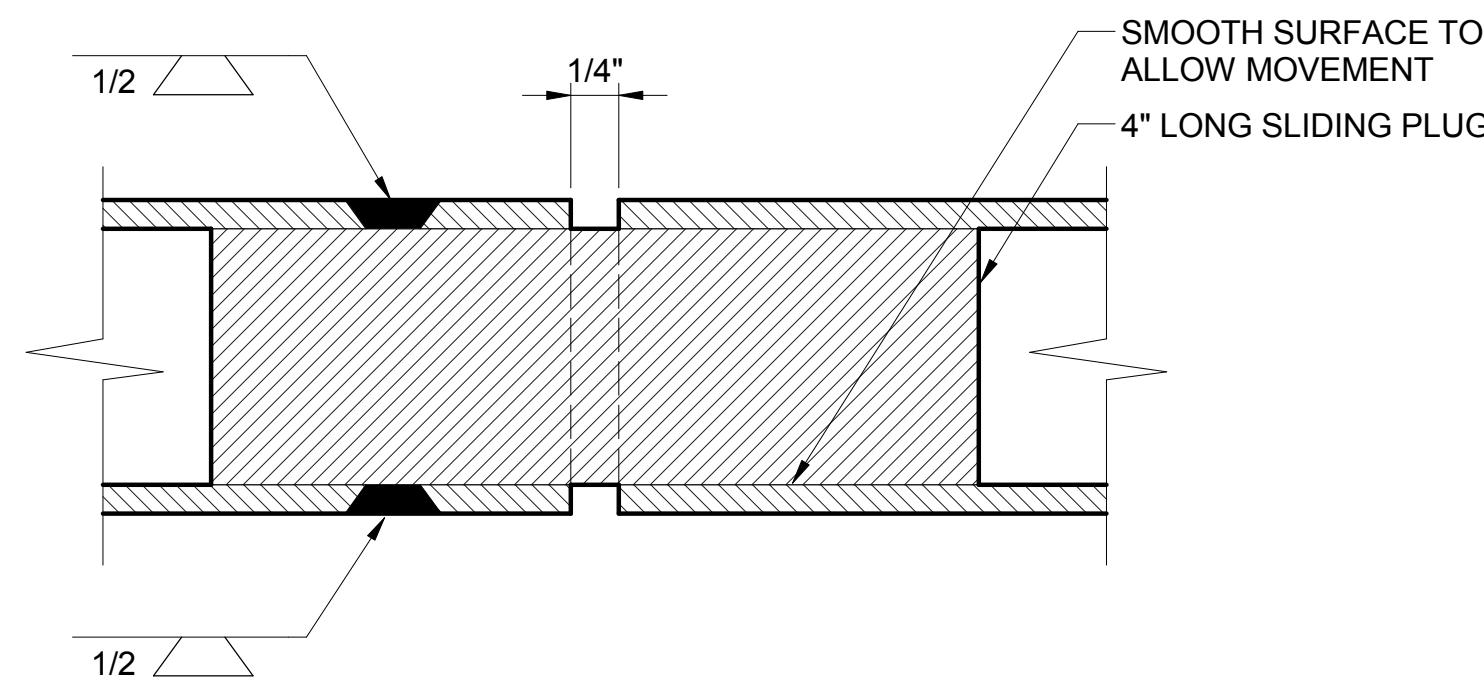


SECTION B - B



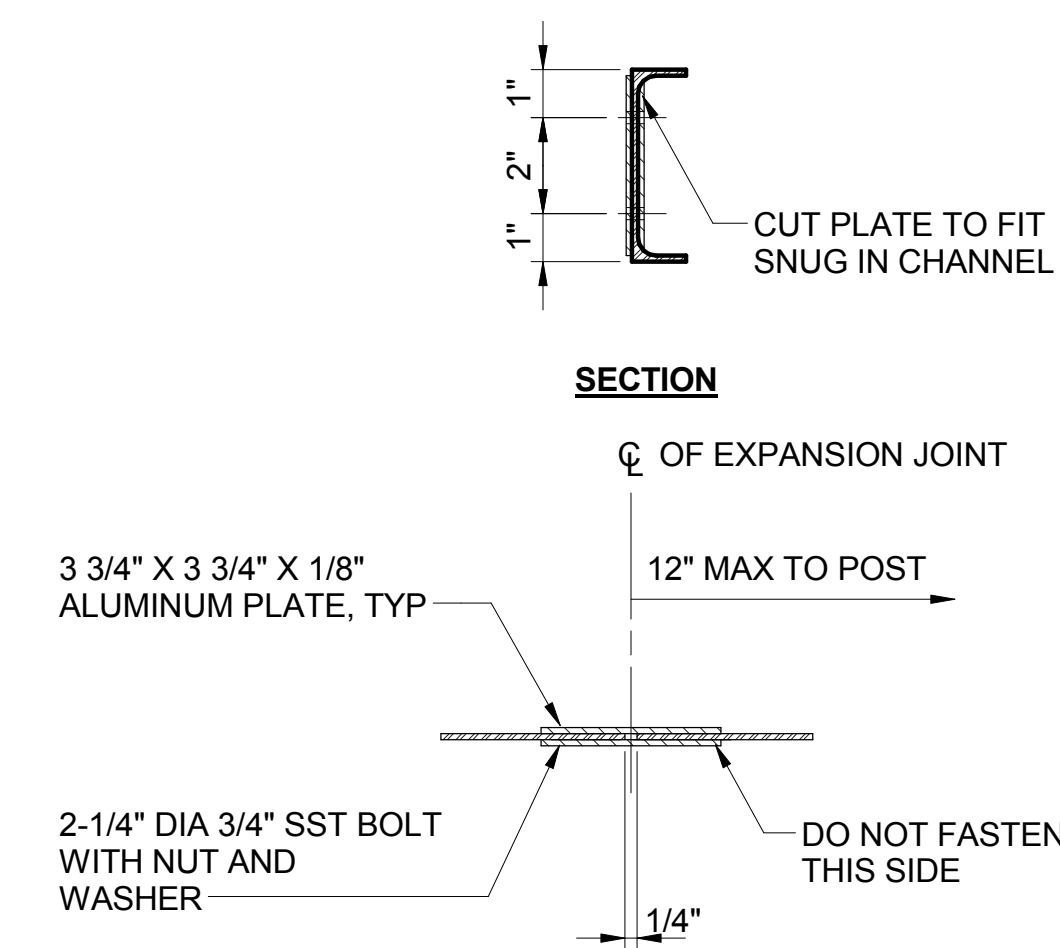
NOTE:
1. FOR HANDRAIL POST CONNECTION, SEE OTHER DETAILS.

S55 TOE BOARD TO POST CONNECTION



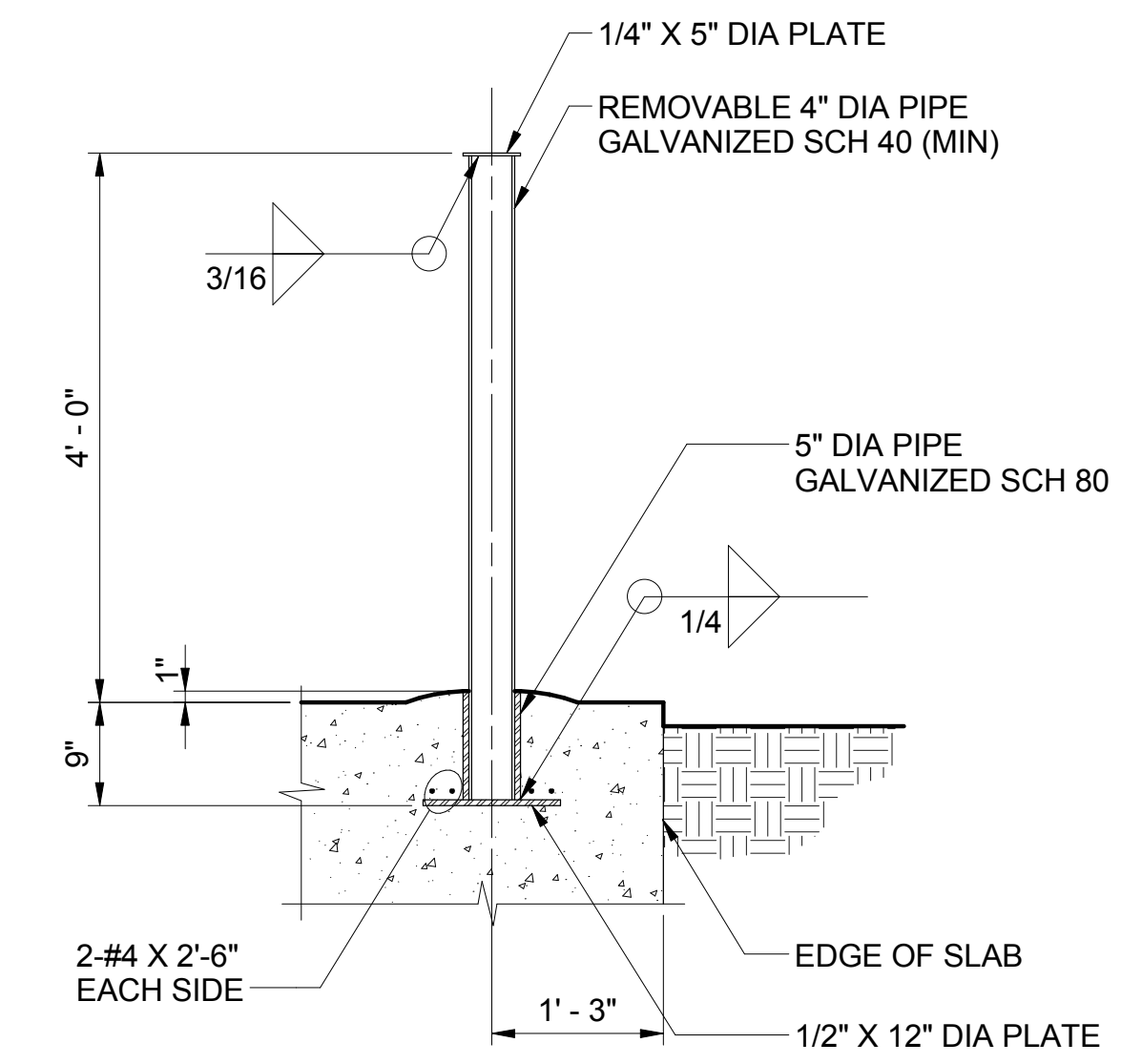
NOTES:
1. MECHANICAL ATTACHMENT MAY BE SUBSTITUTED FOR WELDING.
2. GRIND WELDS SMOOTH.

S56 HANDRAIL EXPANSION JOINT



PLAN VIEW THRU WEB

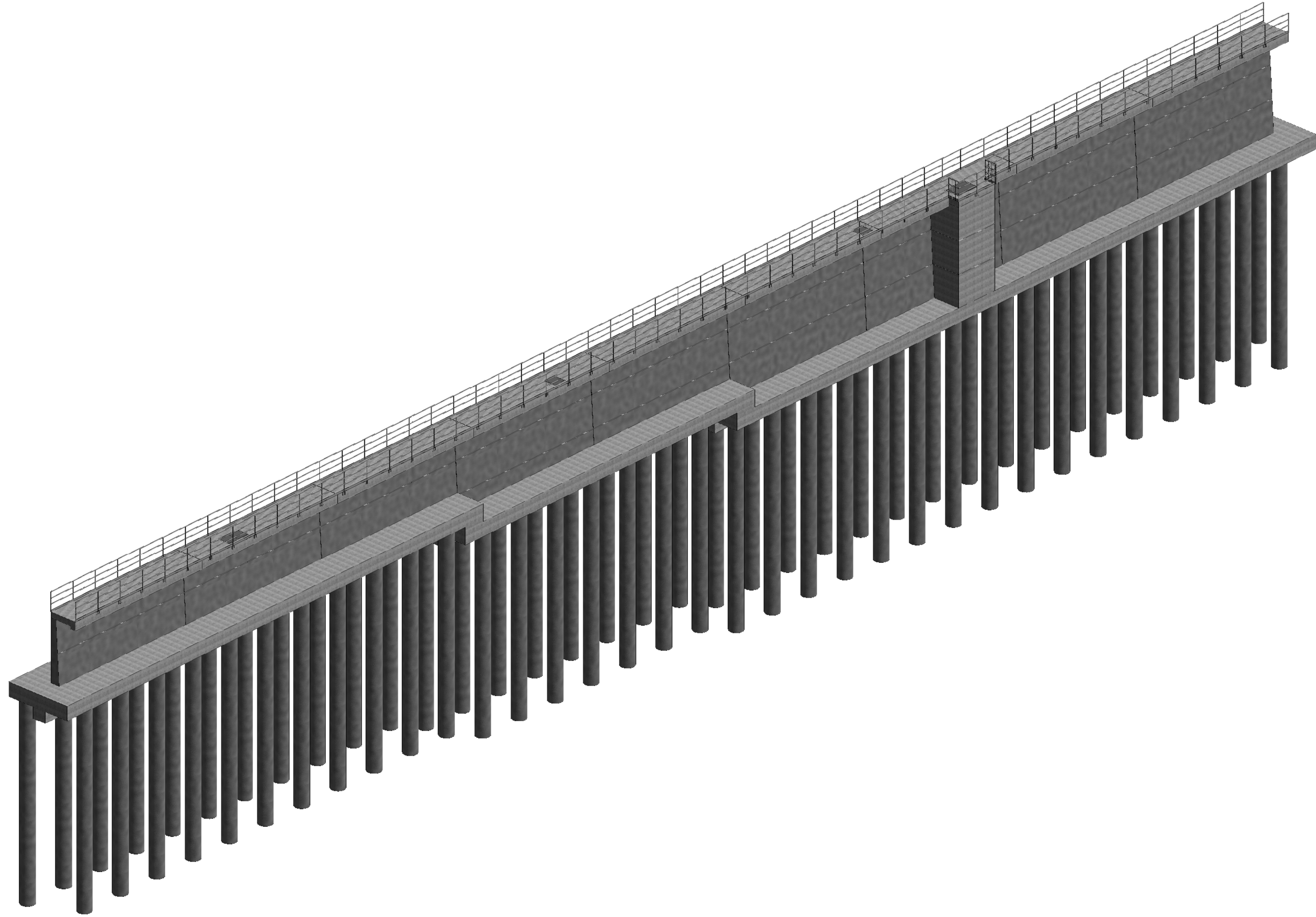
S57 TOE BOARD EXPANSION JOINT



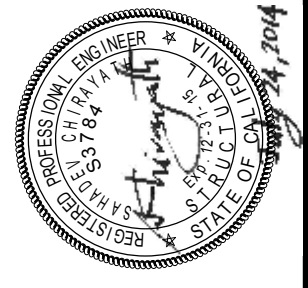
NOTE:
1. POST TO BE PAINTED YELLOW AFTER FABRICATION.

S58 REMOVABLE GUARD POST ANCHORAGE

DATE	REV	DESCRIPTION

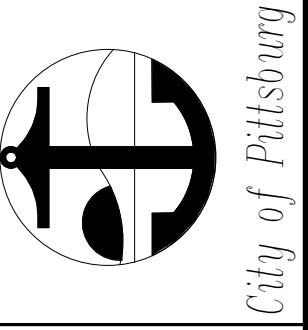


1 ISOMETRIC
 SCALE:



PREPARED UNDER THE
 DIRECTION OF:
 ERIK ZALKIN
 RCE: 075592, Exp. 12/31/15
 Date:

ACCEPTED FOR USE BY:
 KEITH HALVORSON
 City Engineer
 Date:



STRUCTURAL PHASE 1A

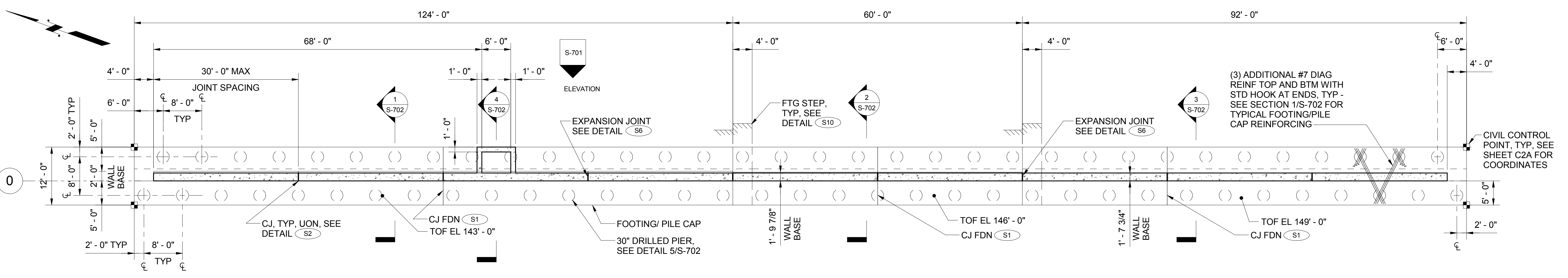
UPPER POND PARTITION WALL
 ISOMETRIC

DATE	REV	DESCRIPTION	BY	DRAWN: RB	CHECKED: EQ	REVIEWED: EQ	DATE: 10/14/13	SCALE:

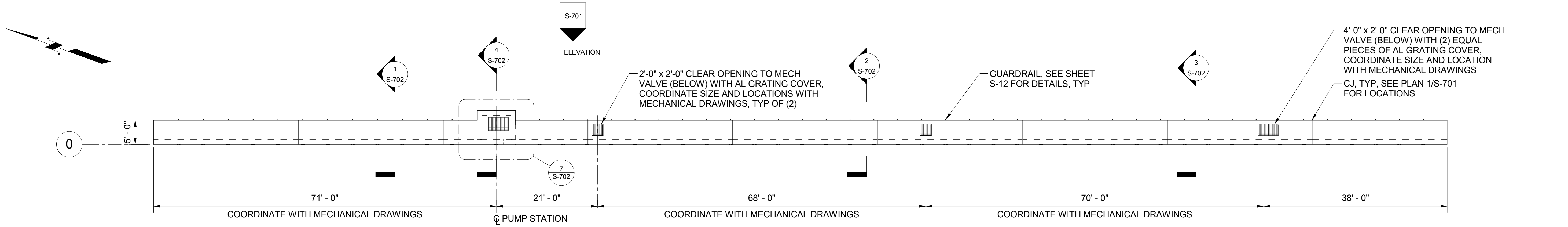
SHEET NO.
 31 OF 50

SHEET:
 S-700

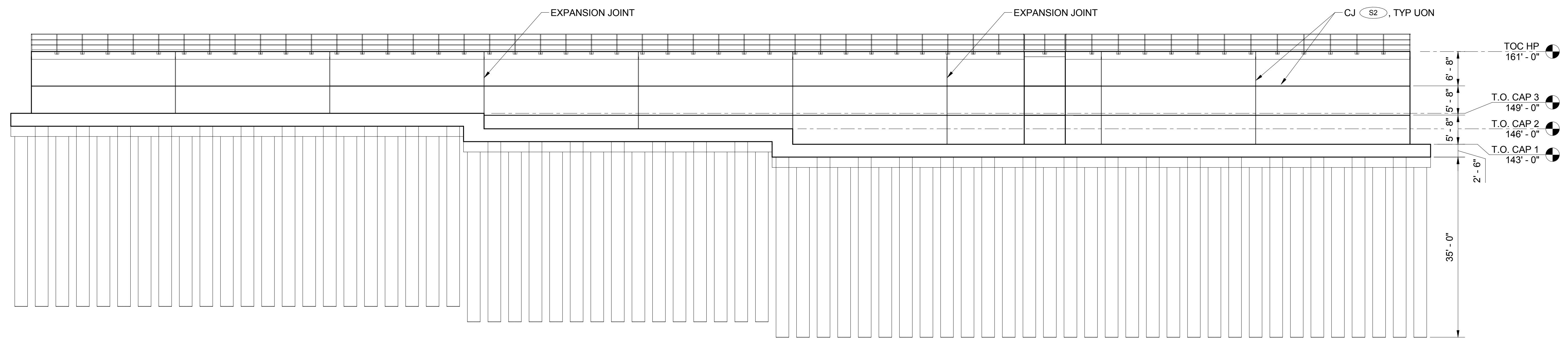
PLOT DATE: 7/24/2014 1:45:25 PM
 CAD User: SB
 PATH AND FILENAME: \\BCKWCKP01\Projects\1430001\43879 - Pittsburg WTP Improvements Ph 1\CAD\1-MODELS\Retaining Wall.rvt



1 PLAN AT PILE CAP
 SCALE: 3/32" = 1'-0"



2 PLAN AT EL 161.00
 SCALE: 3/32" = 1'-0"

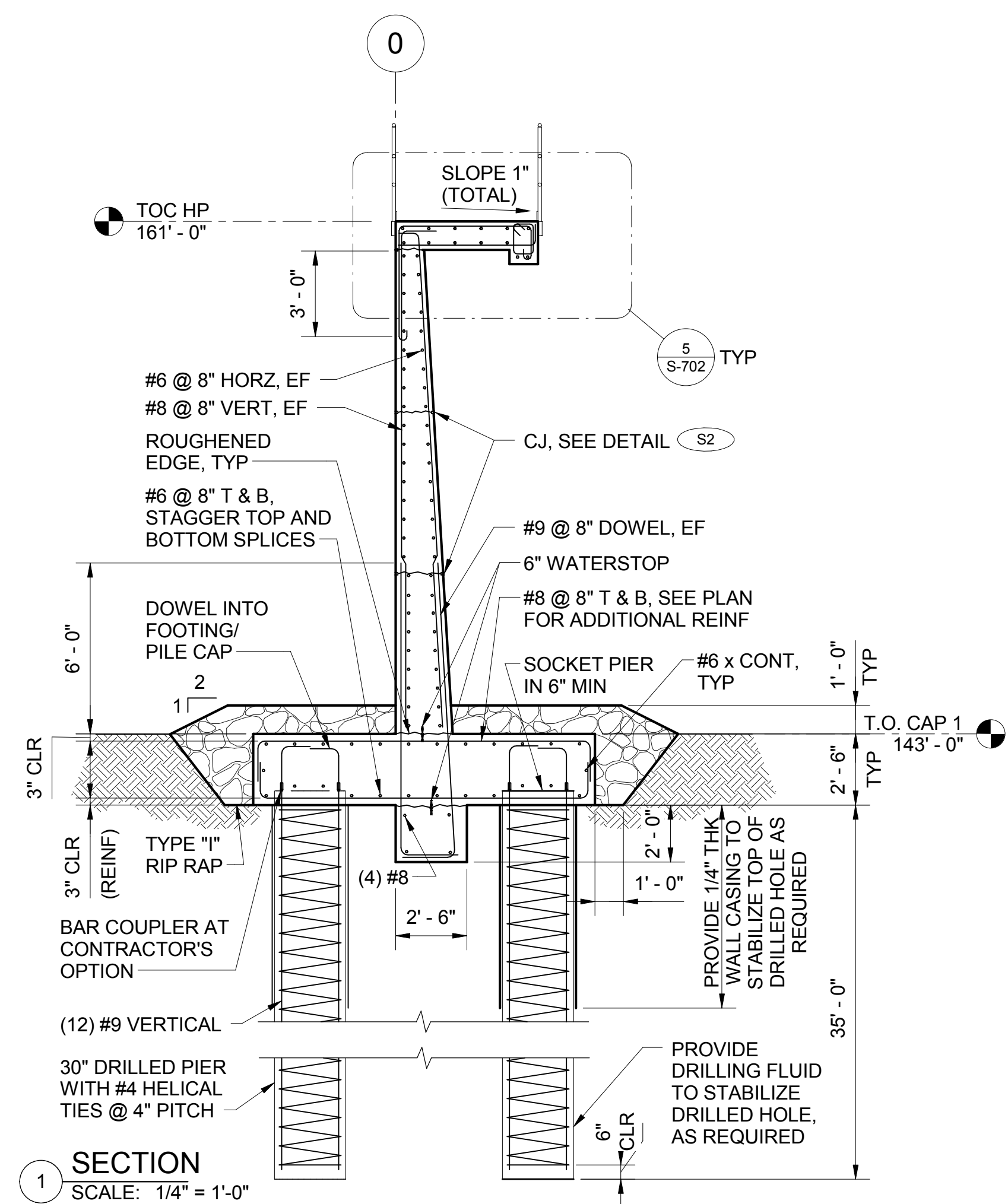


B ELEVATION
 SCALE: 3/32" = 1'-0"

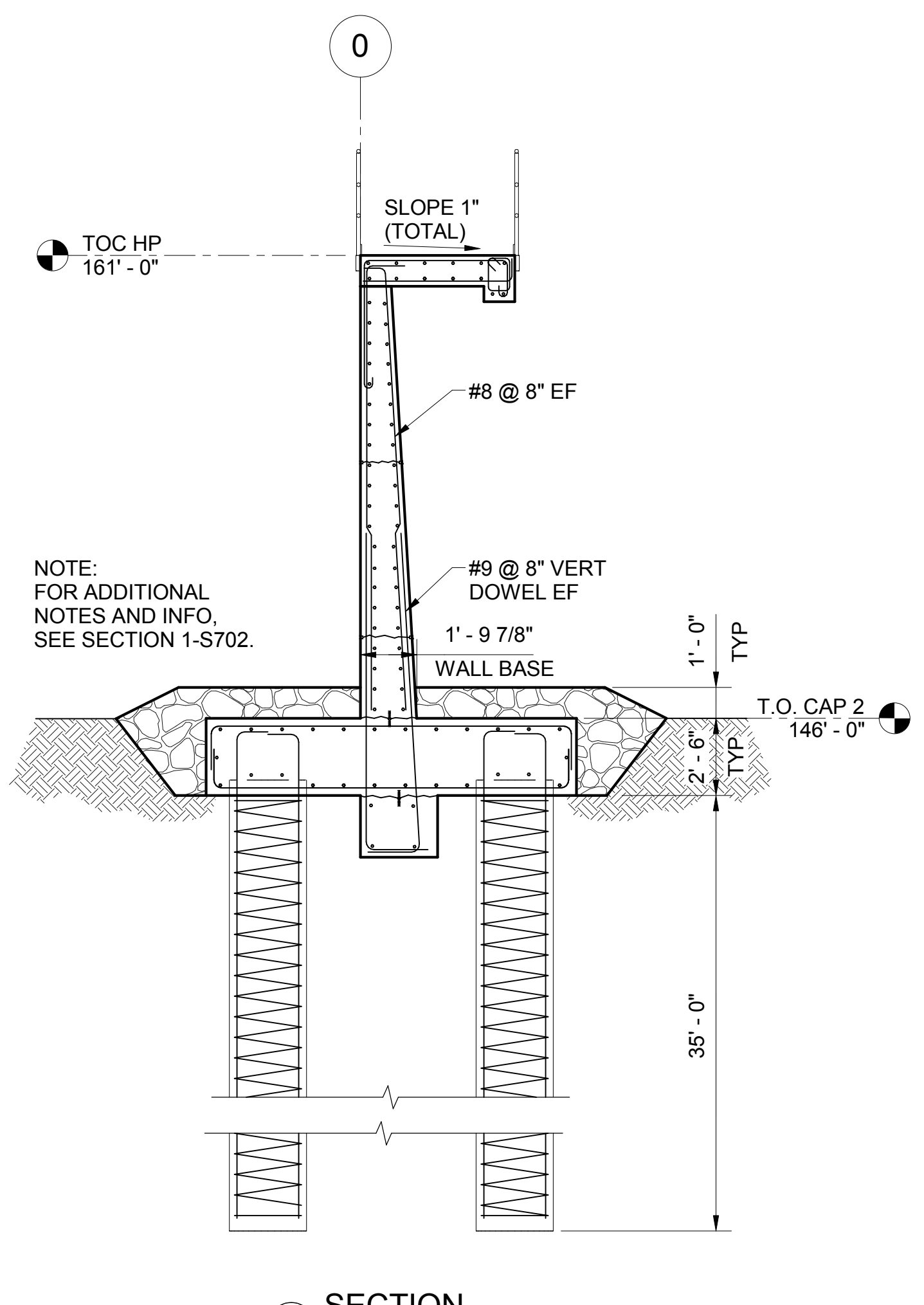
BY	DRAWN: RB
CHECKED: EQ	
REVIEWED: EQ	
DATE: 04/16/13	
SCALE: 3/32" = 1'-0"	

DATE	REV	DESCRIPTION

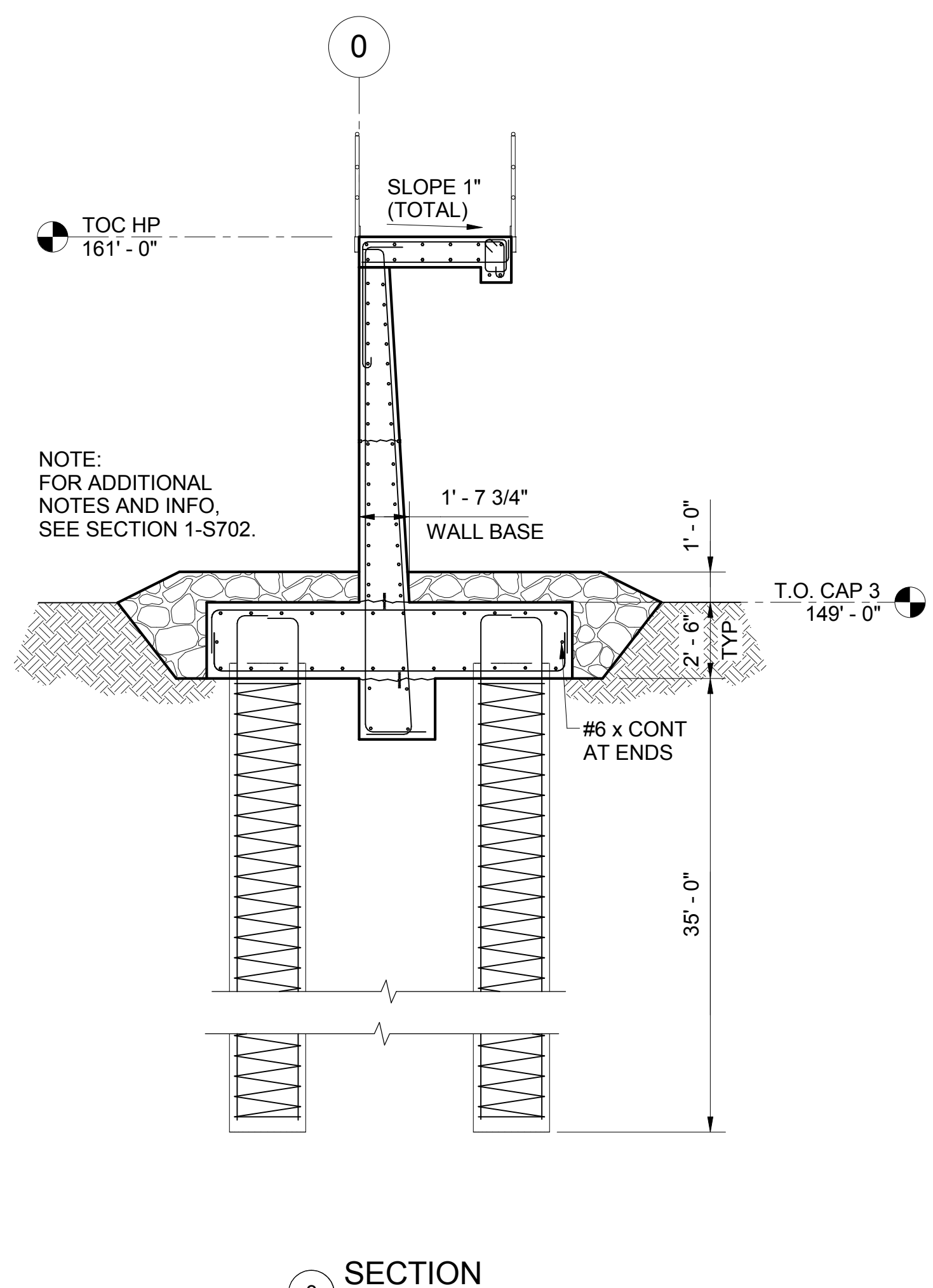
PLOT DATE: 7/24/2014 1:45:25 PM
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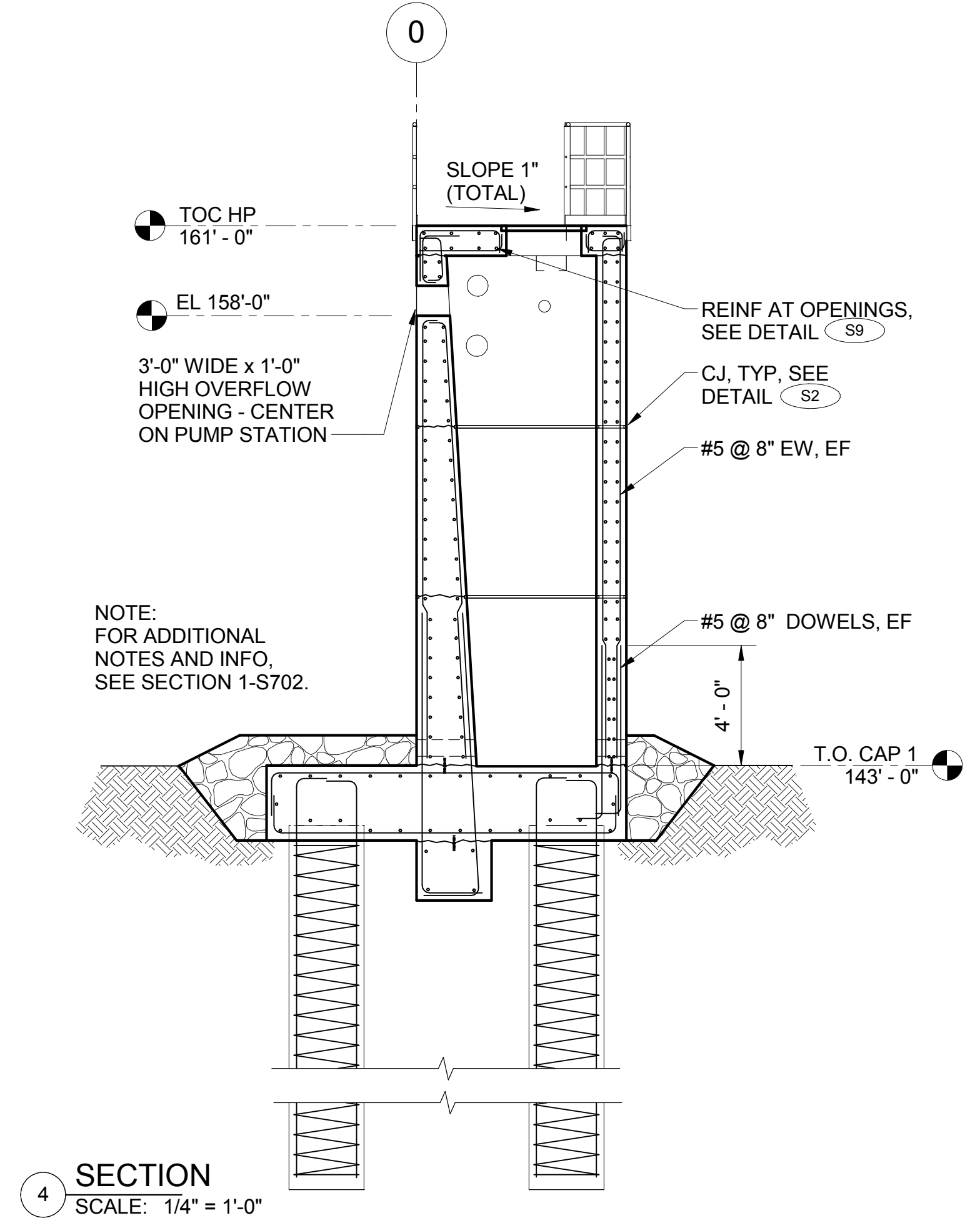
1 SECTION
 SCALE: 1/4" = 1'-0"



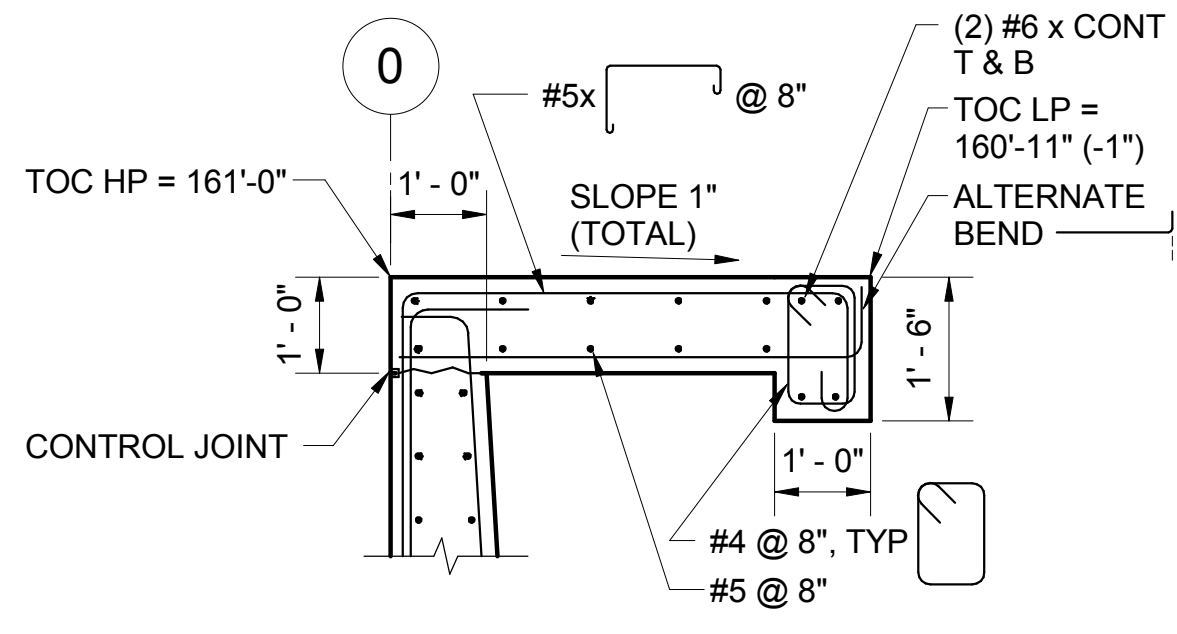
2 SECTION
 SCALE: 1/4" = 1'-0"



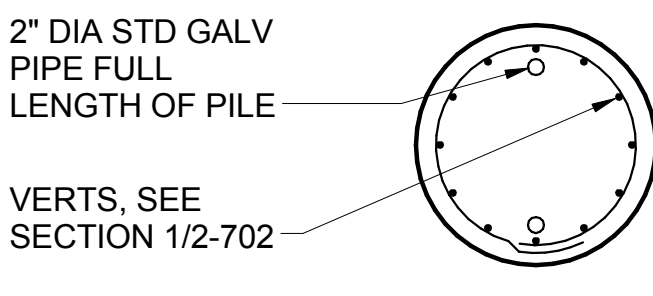
3 SECTION
 SCALE: 1/4" = 1'-0"



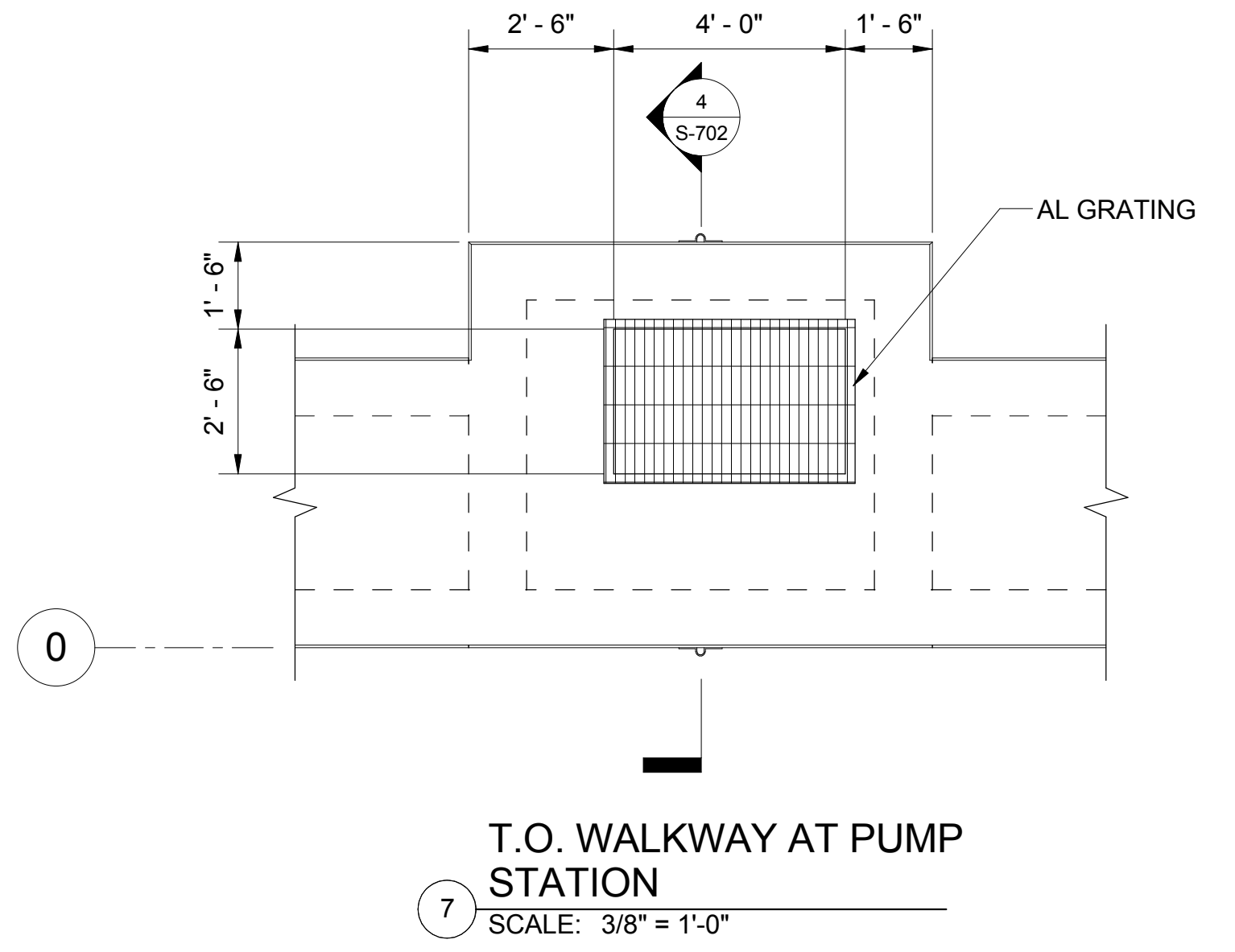
4 SECTION
 SCALE: 1/4" = 1'-0"



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



6 PILE PLAN
 SCALE: 1/2" = 1'-0"



7 T.O. WALKWAY AT PUMP STATION
 SCALE: 3/8" = 1'-0"

Brown and Caldwell

PREPARED UNDER THE DIRECTION OF:
 ERIK ZALKIN
 RCE #73592, Exp. 12/31/15

ACCEPTED FOR USE BY:
 KEITH HALVORSON
 City Engineer

STRUCTURAL PHASE 1A

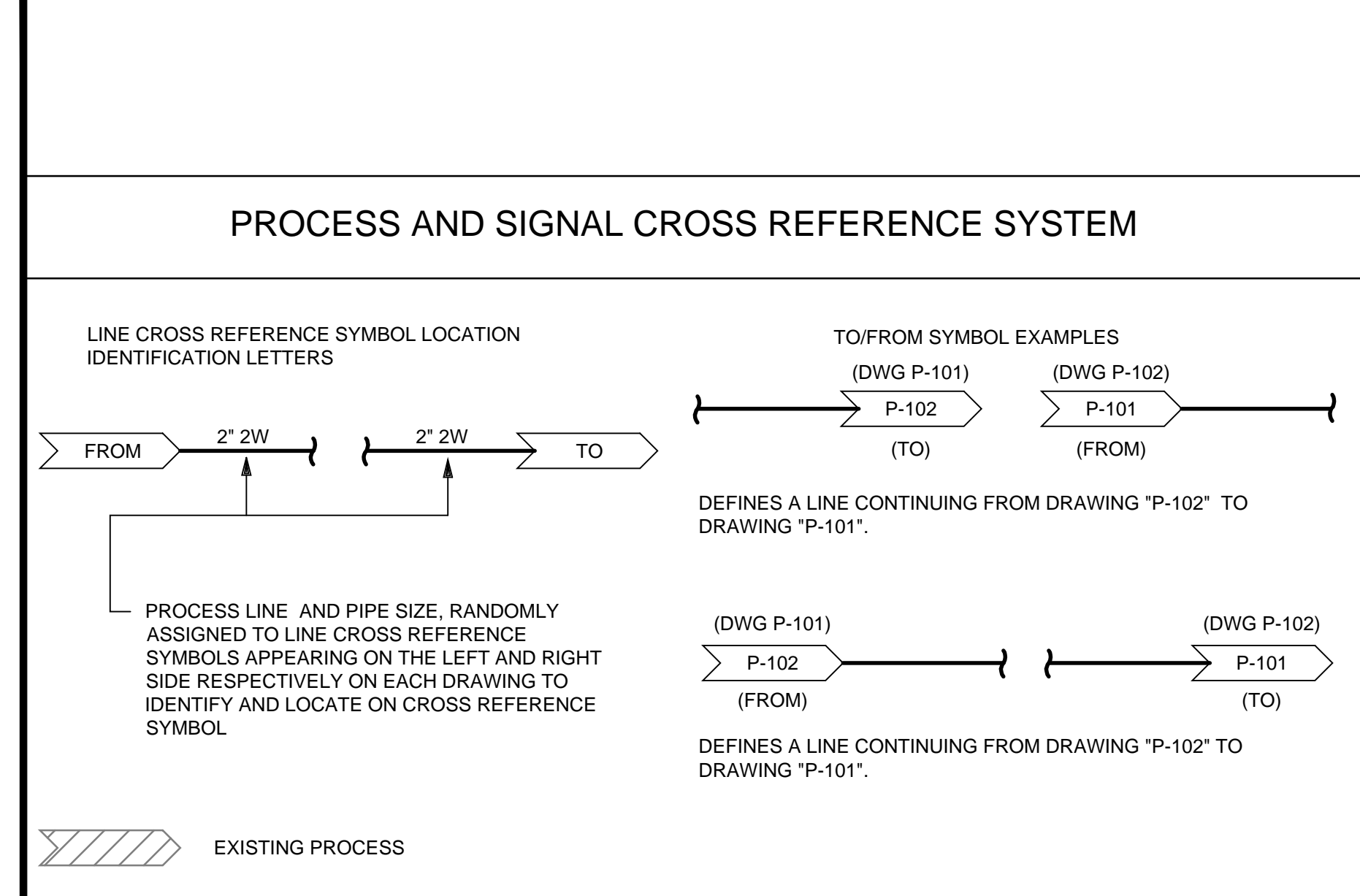
UPPER POND PARTITION WALL SECTIONS AND DETAILS

DATE	REV	DESCRIPTION

BY DRAWN: RB
 CHECKED: EQ
 REVIEWED: EQ
 DATE: 04/16/13
 SCALE: As indicated

SHEET NO. 33 OF 50
 SHEET: S-702

Retaining Wall.rvt



PROCESS LINES

	NEW PRIMARY PROCESS FLOW
	NEW SECONDARY PROCESS FLOW
	NEW UTILITY PROCESS FLOW
	FUTURE
	EXISTING PROCESS FLOW, EQUIPMENT, OR SIGNAL PATH (SCREENED)
	NEW/EXISTING CONNECTIONS
	TEMPORARY PIPING
	PROCESS AREA
	VENDOR PACKAGE BOUNDARY

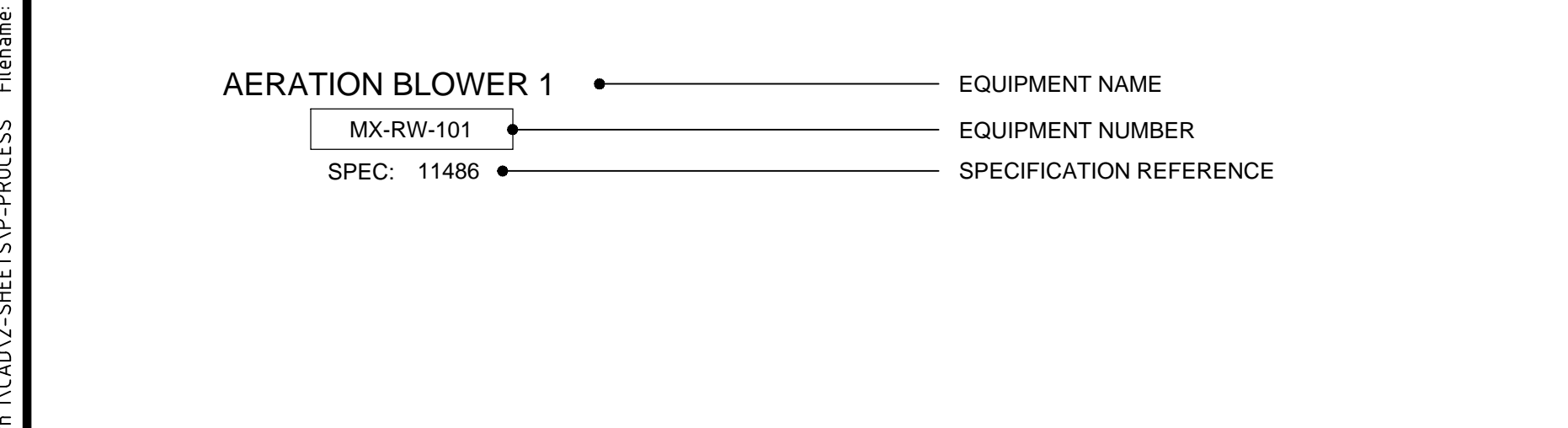
PIPING SYSTEMS

ABBREVIATION	SERVICE	ABBREVIATION	SERVICE	ABBREVIATION	SERVICE
A	AERATION AIR	GAS	GASOLINE	SDS	SULFUR DIOXIDE SOLUTION
AA	AGITATION AIR, ANHYDROUS AMMONIA	GAV	GAS VAPOR RETURN	SDV	SULPHUR DIOXIDE VACUUM
AAS	ANHYDROUS AMMONIA	GC	GAS CIRCULATION	SE	SECONDARY EFFLUENT
AFE	AIR FLOTATION EFFLUENT	GR	GAS CIRCULATION GRIT	SEP	SEPTAGE
AL	ALUM	HA	HYDROFLUORIC ACID	SN	SUPERNATANT
AW	APPLIED WATER	HHR	HIGH PRESSURE HYDRAULIC OIL	SOV	SOLENOID VALVE
B	BRINE	HRS	HEAT RESERVOIR RETURN	SS	SECONDARY SLUDGE
BA	BACKWASH AIR	HRW	HEAT RESERVOIR SUPPLY	SSC	SECONDARY SCUM
BC	BIOFILTER CIRCULATION	HSG	RECIRCULATING POTABLE HOT WATER	SSL	SETTLED SLUDGE
BCTL	BOILER CHEMICAL TREATMENT, LOW PRESSURE	HWS	HIGH PRESSURE SLUDGE GAS	STA	STARTING AIR
BCTM	BOILER CHEMICAL TREATMENT, MEDIUM PRESSURE	HW	POTABLE HOT WATER	STD	STORM DRAIN
BCL	BOILER BLOWDOWN, LOW PRESSURE	HWR	LOW TEMPERATURE HEATING RETURN	STML	STEAM, LOW PRESSURE
BDM	BOILER BLOWDOWN, MEDIUM PRESSURE	HWS	LOW TEMPERATURE HEATING SUPPLY	STMM	STEAM, MEDIUM PRESSURE
BFE	BIOFILTER EFFLUENT	IA	INSTRUMENT AIR	SW	SETTLED WATER
BFL	BIOFILTER FEEDWATER, LOW PRESSURE	JWR	JACKET WATER RETURN	TD	TANK DRAIN
BFM	BIOFILTER FEEDWATER, MEDIUM PRESSURE	JWS	JACKET WATER SUPPLY	TE	THICKENER EFFLUENT
BW	BACKWASH WATER	LOR	LUBE OIL RETURN	TKS	THICKENED SLUDGE
CC	CORROSION CONTROL	LOS	LUBE OIL SUPPLY	TLV	TELESCOPING VALVE
CCW	CONDENSER COOLING WATER	LOW	LUBE OIL WASTE	TO	THICKENER OVERFLOW
CD	CHEMICAL DRAIN	LSG	LOW PRESSURE SLUDGE GAS	TS	TRANSFER SLUDGE
CEN	CENTRATE	ML	MIXED LIQUOR	TSC	THICKENED SCUM
CF	CENTRIFUGE FEED	MS	MIXED SLUDGE	TWAS	THICKENED WASTE ACTIVATED SLUDGE
CKV	CHECK VALVE	MSG	MEDIUM PRESSURE SLUDGE GAS	V	VENT
CL	CONDENSATE, LOW PRESSURE	MTWR	MEDIUM TEMPERATURE HEATING RETURN	VA	VACUUM
CLD	CHLORINE DIOXIDE	MTWS	MEDIUM TEMPERATURE HEATING SUPPLY	VC	CHEMICAL VENT
CLG	CHLORINE GAS	NG	NATURAL GAS	VFD	VARIABLE FREQUENCY DRIVE
CLL	CHLORINE LIQUID	NH ₃ S	AMMONIA SOLUTION	VP	PETROLEUM VENT
CLS	CHLORINE SOLUTION	OF	OVERFLOW	VSL	STEAM VENT, LOW PRESSURE
CLV	CHLORINE VACUUM	OLP	OXYGEN LOW PRESSURE	VSM	STEAM VENT, MEDIUM PRESSURE
CM	CONDENSATE, MEDIUM PRESSURE	PAC	POWDERED ACTIVATED CARBON	WAS	WASTE ACTIVATED SLUDGE
CS	CIRCULATING SLUDGE	PD	PUMPED DRAINAGE	WEW	WELL WATER
CSO	CAUSTIC SODA	PE	PRIMARY EFFLUENT	WML	WASTE MIXED LIQUOR
CWR	CHILLED WATER RETURN	POL	POLYMER	1W	POTABLE WATER (CITY WATER)
CWS	CHILLED WATER SUPPLY	PS	PRIMARY SLUDGE	1WS	POTABLE SOFT WATER
D	DRAIN	PSC	PRIMARY SCUM	2W	NONPOTABLE CITY WATER
DIW	DEIONIZED WATER	RAS	RETURN ACTIVATED SLUDGE	2WHP	NO. 2 WATER HIGH PRESSURE
DS	DIGESTED SLUDGE	RCY	RECYCLE	2WL	LANDSCAPE IRRIGATION
DSF	DIESEL FUEL	RS	RAW SEWAGE	2WS	SOFTENED NONPOTABLE CITY WATER
DSS	SCREENED DIGESTED SLUDGE	RW	RAW WATER	3W	NO.3 WATER (SECONDARY EFFLUENT)
DW	DISTILLED WATER, DECANT WATER	RWP	RAINWATER PIPE	3WHP	NO. 3 WATER HIGH PRESSURE
EE	ENGINE EXHAUST	RWR	RECLAIMED WATER	3WLC	NO. 3 WATER LOW PRESSURE
ES	EQUALIZED SLUDGE	SA	SERVICE AIR	3WLP	NO. 3 WATER LOW PRESSURE
F	FLOAT	SCR	STEAM CLEAN RINSE	3WS	NO. 3 SPRAY WATER
FA	FOUL AIR	SCS	STEAM CLEAN SUPPLY		
FBR	FILTER BACKWASH RETURN	SD	SANITARY DRAIN		
FBW	FILTER BACKWASH	SDG	SULFUR DIOXIDE GAS		
FC	FERRIC CHLORIDE	SDL	SULFUR DIOXIDE LIQUID		
FCV	FLOW CONTROL VALVE				
FLT	FILTRATE				
FSI	FLOC/SED INFLUENT				
FS	FLOTATION SLUDGE				
FW	FILTERED WATER				

EQUIPMENT PREFIXES

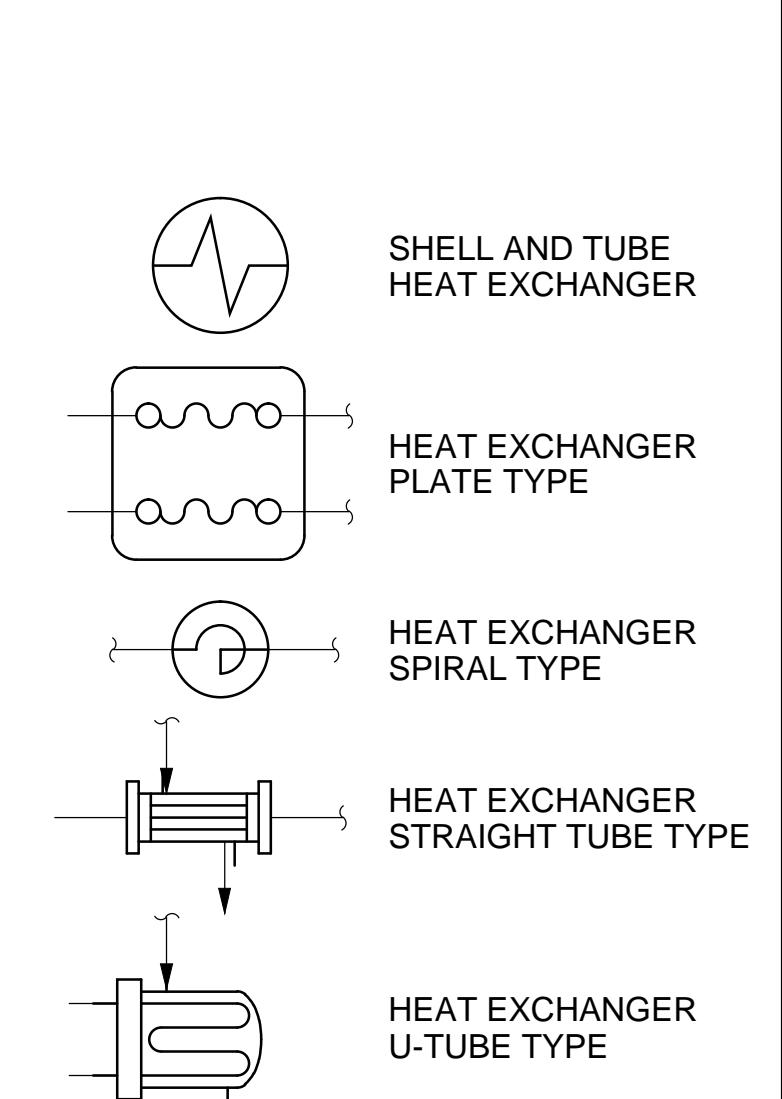
DESIGNATION	EQUIPMENT	DESIGNATION	EQUIPMENT
A	AERATOR	M	MOTOR
ACC	AIR CONDITION COIL	MCC	MOTOR CONTROL CENTER
ACU	AIR CONDITIONING UNIT	MEE	MISCELLANEOUS ELECTRICAL EQUIPMENT
AD	AIR DRYER	MIE	MISCELLANEOUS INSTRUMENTATION EQUIPMENT
AF	AIR FILTER	MME	MISCELLANEOUS MECHANICAL EQUIPMENT
AHC	AIR HANDLING UNIT W/COIL	MOP	MOTOR OPERATOR
AHU	AIR HANDLING UNIT	MSP	MOTOR STARTER PANEL
ASC	ADJUSTABLE SPEED CONTROL	MUX	MULTIPLEXER
ASD	ADJUSTABLE SPEED DRIVE	MX	MIXER
ATS	AUTOMATIC TRANSFER SWITCH	MZ	MULTIZONE UNIT
B	BLOWER	ORT	ODOR REMOVAL TOWER
BAV	BALL VALVE	P	PUMP
BCV	BALL CHECK VALVE	PBD	PANELBOARD, ELECTRICAL
BFP	BELT FILTER PRESS	PC	PROCESS OR PERSONAL COMPUTER
BFV	BUTTERFLY VALVE	PEJ	PNEUMATIC EJECTOR
BLR	BOILER	PLC	PROGRAMMABLE LOGIC CONTROLLER
BNR	BURNER	PNL	PANEL
BP	BACKFLOW PREVENTER	POP	PNEUMATIC OPERATOR
BSN	BAR SCREEN	PV	PLUG VALVE
C	COIL	PVL	PRESSURE VESSEL
CDR	CONDENSER	RCY	RECYCLE RECEIVER
CFR	CHEMICAL FEEDER	REC	RECYCLE RECEIVER
CHR	CHILLER	SCN	SCREEN (BAR, ETC.)
CKV	CHECK VALVE	SCR	SCRUBBER
COL	COLLECTOR	SEP	SEPARATOR
COM	COMMUNICATOR	SLG	SLIDE GATE
CON	CONVEYOR	SLR	SILENCER
CP	COMPRESSOR	SMP	SAMPLER
CRN	CRANE	SOV	SOLENOID VALVE
CTF	CUTTHROAT FLUME	SS	SAND SEPARATOR
CV	CONTROL VALVE	ST	STEAM TRAP
CYL	CYLINDER	SUB	SUBSTATION
DIS	DISTRIBUTOR	SWBD	SWITCHBOARD
DPR	DAMPER	SWGR	SWITCHGEAR
DS	DISCONNECT SWITCH	T	TANK
DU	DRIVE UNIT	TBN	TURBINE
E	ENGINE	TCV	TEMPERATURE CONTROL VALVE
EB	ENGINE BLOWER MODULE	TFR	TRANSFORMER
EG	ENGINE GENERATOR MODULE	TLV	TELESCOPING VALVE
EPR	EVAPORATOR	TM	TIMER
F	FAN	TRS	TRANSFER SWITCH
FCV	FLOW CONTROL VALVE	UH	UNIT HEATER
FLC	FLOCCULATOR	US	UTILITY STATION
FLT	FILTER	VCP	VENDOR CONTROL PANEL
FP	FILTER PRESS	VEN	VENTILATOR
FPU	FLUID POWER UNIT	VP	VARIABLE FREQUENCY DRIVE
FUR	FURNACE	VP	VACUUM PUMP
GEN	GENERATOR	WH	WATER HEATER
GDR	GRINDER	WHR	WASHER
GT	GATE	WSR	WATER SOFTENER UNIT
H	HOIST		
HEX	HEAT EXCHANGER		
HOP	HYDRAULIC OPERATOR		
HP	HEAT PUMP		
HPU	HYDRAULIC POWER UNIT		
HTR	HEATER		
HTT	HEAT TRACER TAPE		
HV	HAND OPERATED VALVE		
INU	INJECTOR		
LVR	LOUVER		

EQUIPMENT IDENTIFICATION SYSTEM

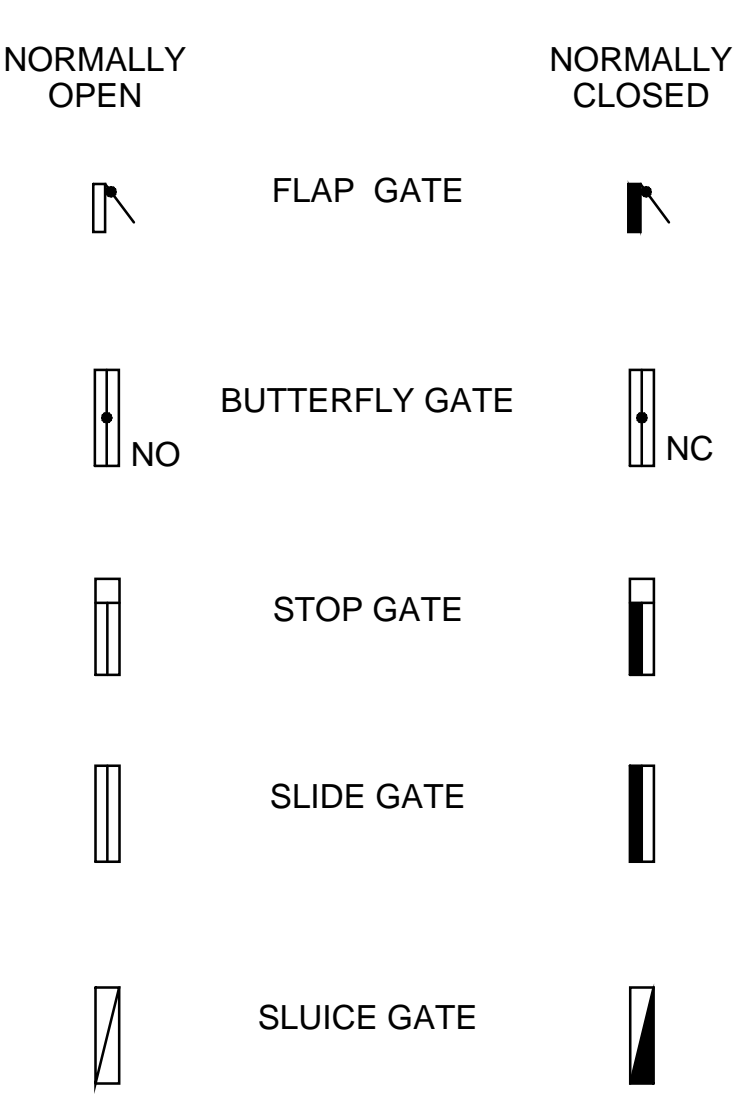


- GENERAL NOTES:
- THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
 - SEE DRAWING P-2 AND P-3 FOR ADDITIONAL SYMBOLS.
 - SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.
 - SEE DRAWINGS G-005 AND G-006 FOR ADDITIONAL PIPING SYSTEM ABBREVIATIONS AND EQUIPMENT PREFIXES.

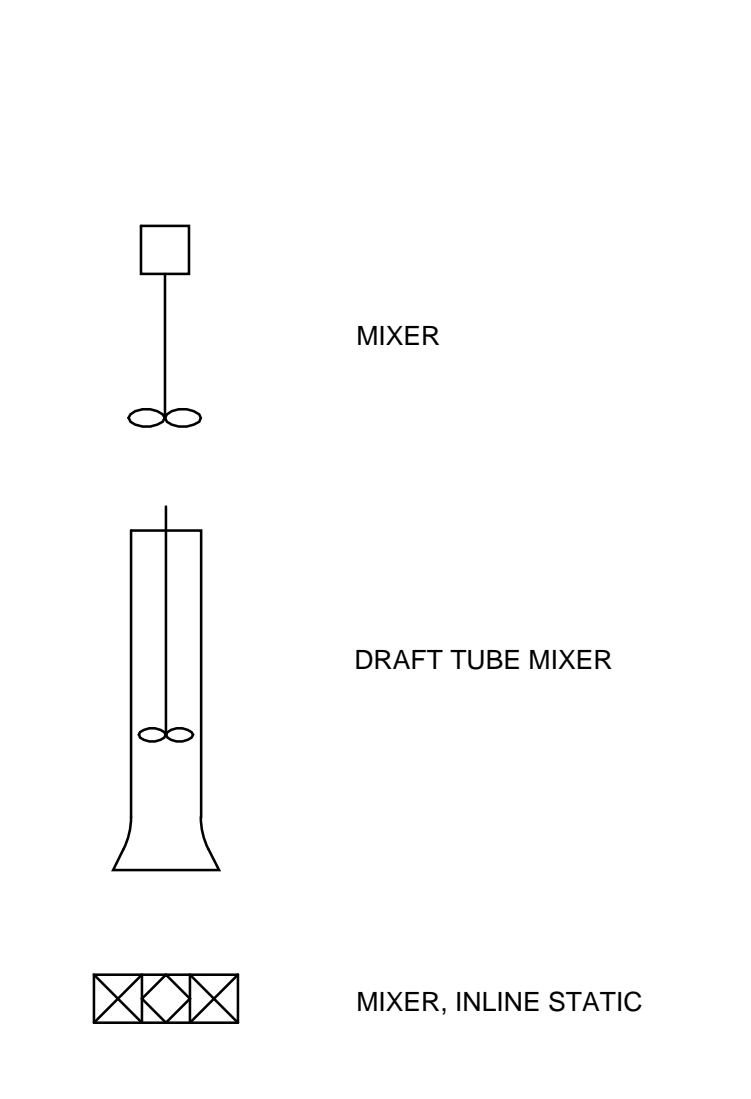
HEAT EXCHANGERS



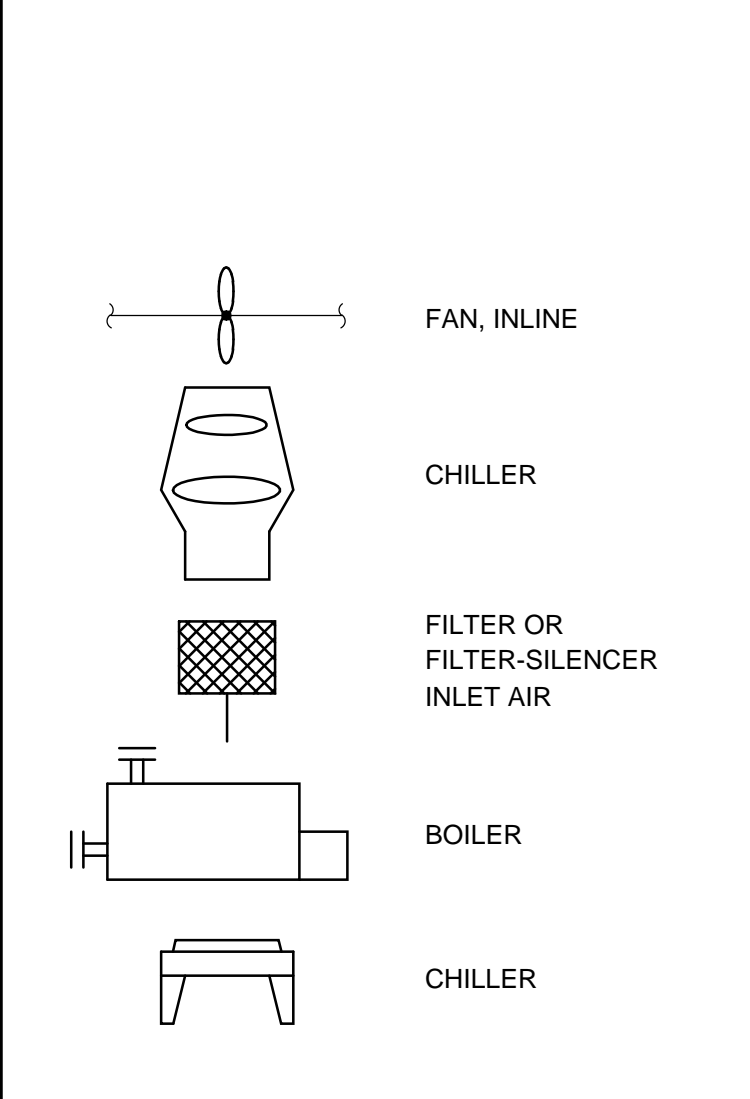
SLIDE AND SLUICE GATES



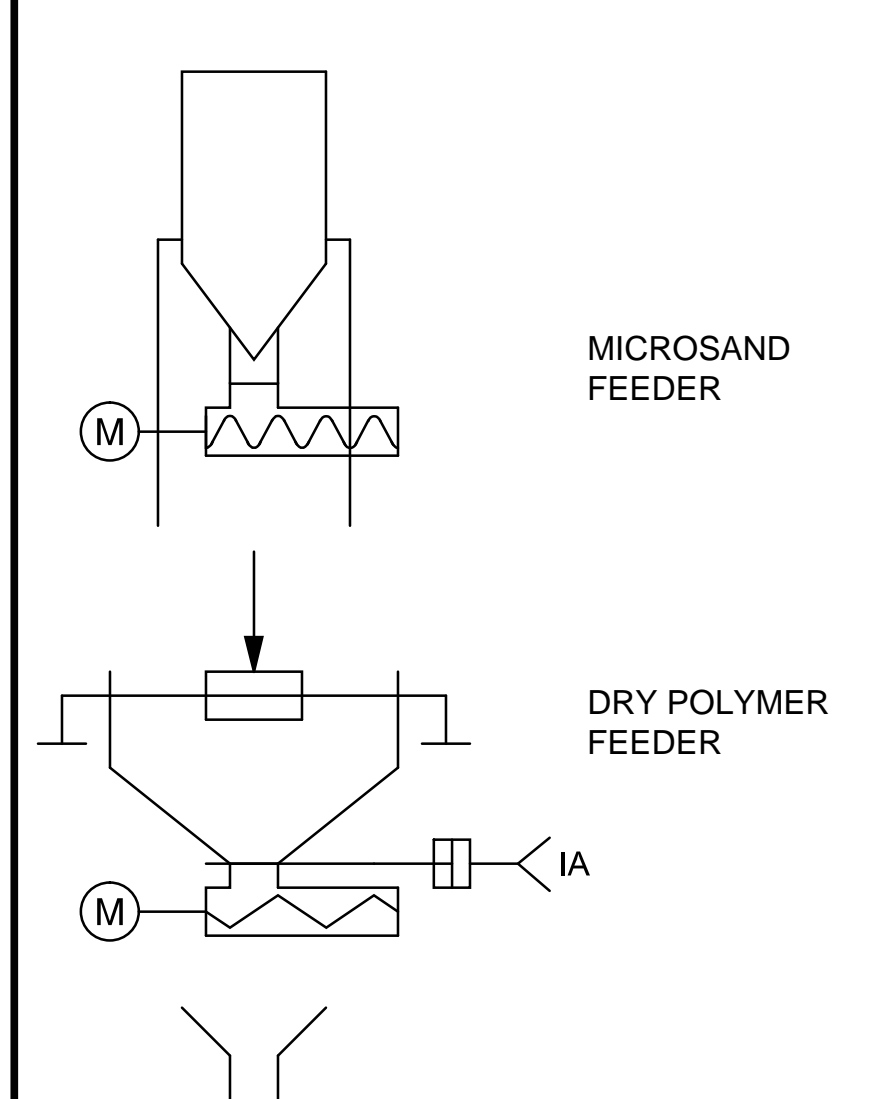
MIXERS



HVAC RELATED



FEEDERS



PUMPS		SCREENINGS/CONVEYORS	
	PUMP, CENTRIFUGAL		SCREEN, FINE OR BAR
	PUMP, DIAPHRAGM		SCREEN, ROTARY OVERFLOW
	PUMP, GEAR		CLASSIFIER OR GRIT WASHER
	PUMP, METERING		CONVEYOR
	PUMP, PERISTALTIC		HYDROCYCLONE
	PUMP, PROGRESSING CAVITY		SCREENINGS PRESS
	PUMP, ROTARY LOBE		GRIT SEPARATOR
	PUMP, SUBMERSIBLE		GRIT CYCLONE
	PUMP, JET		VORTEX TYPE GRIT SEPARATOR
	PUMP, VERTICAL		

MISCELLANEOUS EQUIPMENT	
	SILENCER
	REDUCED PRESSURE BACKFLOW PREVENTER
	BURNER, WASTE GAS
	HEAT TRACE
	DIFFUSER HEADER
	SPRAY NOZZLES
	MIST ELIMINATOR
	SAMPLER
	JET NOZZLE
	SPRAY NOZZLE
	RECEIVER OR PRESSURE VESSEL
	TANK, NON-PRESSURE TYPE
	TANK, DOUBLE-WALLED
	MOTORIZED STRAINER
	ULTRAVIOLET BANK
	TRUCK
	CUTTHROAT FLUME

SLUDGE, SCUM AND SOLIDS EQUIPMENT	
	GRINDER
	INLINE GRINDER
	HOPPER
	SUBMERGED LAUNDRER
	BAFFLE
	SUBMERGED ORIFICE WITH V-NOTCH WEIR
	LAUNDRER AND WEIR
	SCUM TIPPING TROUGH
	HELICAL SKIMMER
	CENTRIFUGE
	SLUDGE SCRAPER
	CHAIN AND FLIGHT COLLECTOR (CROSS)
	CHAIN AND FLIGHT COLLECTOR (LONGITUDINAL)
	GRAVITY BELT THICKENER
	CIRCULAR CENTER FEED COLLECTOR MECHANISM
	BELT FILTER PRESS
	ROTATING DRUM THICKENER
	SLUDGE DEWATERING SCREW PRESS
	GRAVITY THICKENER

BLOWERS/COMPRESSORS	
	BLOWER OR CENTRIFUGAL FAN
	BLOWER OR COMPRESSOR, LIQUID RING
	BLOWER OR COMPRESSOR, ROTARY LOBE
	COMPRESSOR, ROTARY SCREW
	COMPRESSOR, ROTARY SLIDING VANE
	COMPRESSOR, PISTON

MOTORS AND POWER	
	ADJUSTABLE SPEED CONTROLLER (ELEC)
	ADJUSTABLE FREQUENCY DRIVE
	ADJUSTABLE SPEED DRIVE (MECH)
	VARIABLE FREQUENCY DRIVE (AC)
	VARIABLE SPEED DRIVE (DC)
	SOLENOID
	MOTOR
	ENGINE
	EJECTOR, PNEUMATIC
	GENERATOR

GENERAL NOTES:

- THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS AND IDENTIFICATIONS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
- FOR INSTRUMENT SYMBOLS AND IDENTIFICATIONS REFER TO P-003.
- SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.

PIPE LINE DEVICES	
	TRAP
	SEDIMENT TRAP
	GAS DRIP TRAP
	SEPARATOR/ DRYER
	PIPELINE FILTER
	RUPTURE DISK (VACUUM RELIEF)
	RUPTURE DISK (PRESSURE RELIEF)
	CONNECTION BETWEEN NEW AND EXISTING PIPING
	UNION
	QUICK CONNECTOR
	CAP OR PLUG
	BLIND FLANGE
	FLEX CONNECTOR
	FABRIC EXPANSION JOINT
	VENT TO ROOF
	VENT
	STEAM VENT
	AUTOMATIC VENT
	MANUAL VENT
	STRAINERS
	FOOT VALVE
	AIR SEPARATOR
	DRAIN
	DRAIN VALVE
	CALIBRATION CHAMBER
	PULSATION DAMPENNER
	ROTAMETER
	INJECTOR
	FLAME TRAP
	FLAME TRAP WITH THERMO SHUTOFF ASSEMBLY
	FLAME CHECK
	SAMPLING AND FLUSHING CONNECTIONS
	SUCTION DIFFUSER
	TEMPERATURE WELL
	FLOW STRAIGHTENING VANES
	PRA PRESSURE REDUCING ASSEMBLY
	AMMONIA UNION
	DAMPER
	SIGHT GLASS
	PIG LAUNCHER/ RECEIVER
	REDUCER
	FLEX COUPLING

VALVES	
	NORMALLY OPEN
	NORMALLY CLOSED
	GATE VALVE
	PLUG VALVE
	BALL VALVE
	GLOBE VALVE
	NEEDLE VALVE
	KNIFE GATE VALVE
	DIAPHRAGM VALVE
	BUTTERFLY VALVE
	ANGLE VALVE
	THREE WAY VALVE
	FOUR WAY VALVE
	FLOAT VALVE
	PINCH VALVE
	BALANCING COCK
	THERMOSTATICALLY CONTROLLED VALVE
	DOUBLE LEAF CHECK VALVE
	CHECK VALVE
	BALL CHECK VALVE
	PUMP DISCHARGE VALVE
	GAUGE OR ROOT VALVE
	PRESSURE AND VACUUM RELIEF VALVE
	VACUUM RELIEF VALVE
	PRESSURE RELIEF VALVE
	IN-LINE SPRING LOADED RELIEF VALVE
	PRESSURE REGULATING VALVE (SELF-CONTAINED)
	BACK PRESSURE REGULATING VALVE (SELF-CONTAINED)
	FUSIBLE LINK
	SOLENOID VALVE
	DIAPHRAGM OPERATED VALVE
	PRESSURE BALANCE OPERATED VALVE
	MOTOR OPERATED VALVE
	MOTOR OPERATED VALVE, MODULATING
NOTE: USE VALVE BODY SYMBOL TO MATCH TYPE OF VALVE.	
	PISTON OPERATED VALVE
	TELESCOPING VALVE
	MUD VALVE
	ANTI SIPHON VALVE
	LIFT CHECK VALVE
	BRAIDED FLEX CONNECTOR

DATE	REV	DESCRIPTION

FUNCTIONAL IDENTIFICATION

VARIABLE	MEASURED OR INITIATING VARIABLE DESCRIPTION	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSE
D	DENSITY, SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE, SOLENOID		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	FIRE, SMOKE		GLASS		
H	HAND				HIGH
I	CURRENT, ELECTRIC		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE, HUMIDITY, MOTION	MOMENTARY			MIDDLE, INTERMEDIATE
N	EQUIPMENT STATUS				
O	DISSOLVED OXYGEN		ORIFICE		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE, TORQUE		WELL		
X	UNCLASSIFIED	X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

TYPICAL INSTRUMENT IDENTIFICATION

- FIELD MOUNTED INSTRUMENT
- FACE MOUNTED INSTRUMENT ON MAIN PANEL, OPERATOR ACCESSIBLE
- INSTRUMENT MOUNTED ON/IN MAIN PANEL, OPERATOR INACCESSIBLE
- FACE MOUNTED INSTRUMENT ON FIELD PANEL, OPERATOR ACCESSIBLE
- INSTRUMENT MOUNTED ON/IN FIELD PANEL, OPERATOR INACCESSIBLE
- FIELD MOUNTED MULTIFUNCTION INSTRUMENT WITH SHARED HARDWARE (USED FOR "DISTRIBUTED CONTROL SYSTEMS")
- FACE MOUNTED MULTIFUNCTION INSTRUMENT WITH SHARED HARDWARE (USED FOR "DISTRIBUTED CONTROL SYSTEMS")
- COMPUTER FUNCTION
- INTERLOCKING OR SEQUENTIAL CONTROL FUNCTION
- PROGRAMMABLE LOGIC CONTROL FUNCTION
- PILOT LIGHT
- DISCRETE INPUT
- DISCRETE OUTPUT
- ANALOG INPUT
- ANALOG OUTPUT

- TYPICAL ANALOG HARDWIRED I/O GROUPING
- TYPICAL ANALOG HARDWIRED I/O GROUPING
- TYPICAL DISCRETE HARDWIRED I/O GROUPING
- TYPICAL DISCRETE HARDWIRED I/O GROUPING

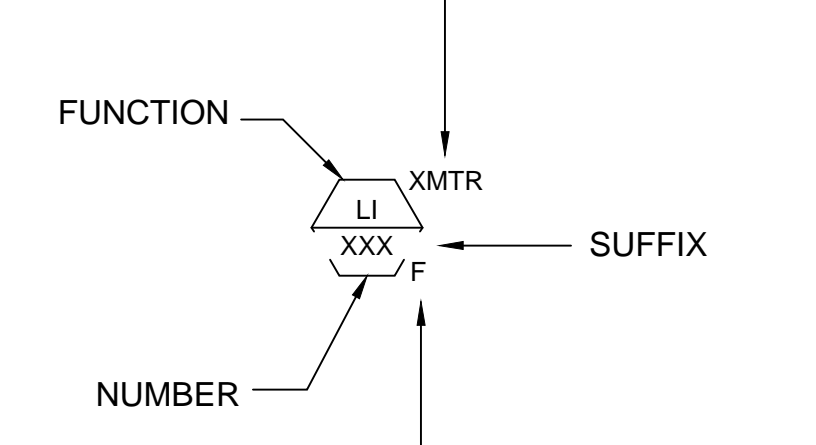
NETWORK I/O LEGEND

DEVICE TYPE DEFINITIONS FOR NETWORK I/O BLOCK

INSTRUMENTATION	
MVM	MOTORIZED VALVE - VARIABLE
MVOC	MOTORIZED VALVE - OPEN/CLOSE
PVOC	PNEUMATIC VALVE - OPEN/CLOSE
XMTR	TRANSMITTER
SW	SWITCH (TSL, FSL, LSL, etc.)
DO	DIGITAL OUTPUT (EV, PANEL LIGHT, etc.)
PVM	PRESSURE VALVE MODULATING

MOTOR CONTROL	
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE (DC)
CSR	CONSTANT SPEED - REVERSIBLE
CS	CONSTANT SPEED - STANDARD
CS2	CONSTANT SPEED - 2 SPEED
CSSHV	CONSTANT SPEED - HVAC
CS2HV	CONSTANT SPEED - 2 SPEED HVAC
RVR	REDUCE VOLTAGE - REVERSIBLE

SPECIFICATION 17833 DEFINES PARAMETERS BEING COMMUNICATED TO CONTROL SYSTEM



NETWORK TYPE

F	FOUNDATION FIELDBUS
D	DEVICENET
E	ETHERNET
P	PROFIBUS
M-RTU	MODBUS RTU
M-TCP	MODBUS TCP
CIP	CONTROL INDUSTRIAL PROTOCOL
E-SNMP	SIMPLE NETWORK MANAGEMENT PROTOCOL

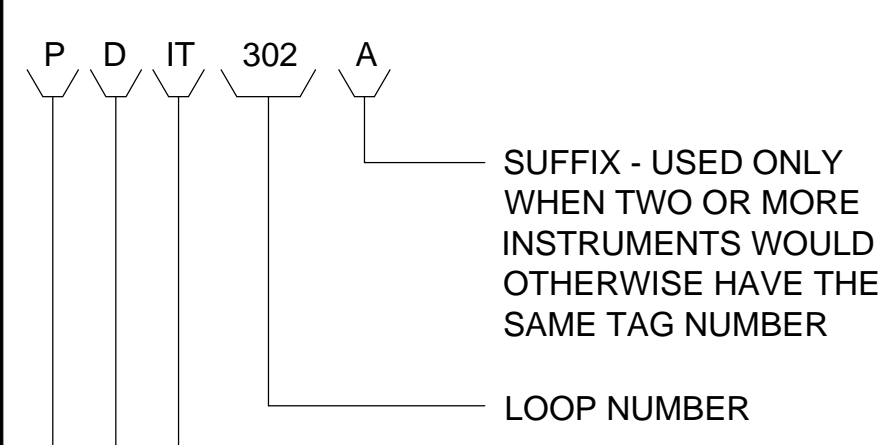
PRIMARY ELEMENT SYMBOLS

- ORIFICE PLATE
- VENTURI OR FLOW TUBE
- NOZZLE FLOW
- PITOT TUBE
- PROPELLER OR TURBINE METER
- FLUME
- WEIR
- VARIABLE AREA FLOW INDICATOR (ROTAMETER)
- DIAPHRAGM SEAL
- IN-LINE ANNULAR SEAL
- FLOW ELEMENT INTEGRAL WITH TRANSMITTER (MASS FLOW, ETC)
- CAMERA (CCTV)
- MAGNETIC FLOWMETER
- SONIC FLOWMETER (DOPPLER OR TRANSIT TIME)
- POSITIVE DISPLACEMENT METER
- THERMAL FLOW ELEMENT
- VORTEX FLOW ELEMENT
- CORIOLIS FLOW ELEMENT
- FLOAT LEVEL ELEMENT
- ULTRASONIC LEVEL ELEMENT
- BUBBLER LEVEL TUBE
- SUBMERSIBLE LEVEL TRANSMITTER
- HYDROSTATIC LEVEL PROBE
- RADAR OR ULTRASONIC LEVEL ELEMENT
- ANNUBAR
- AVERAGING PITOT TUBE

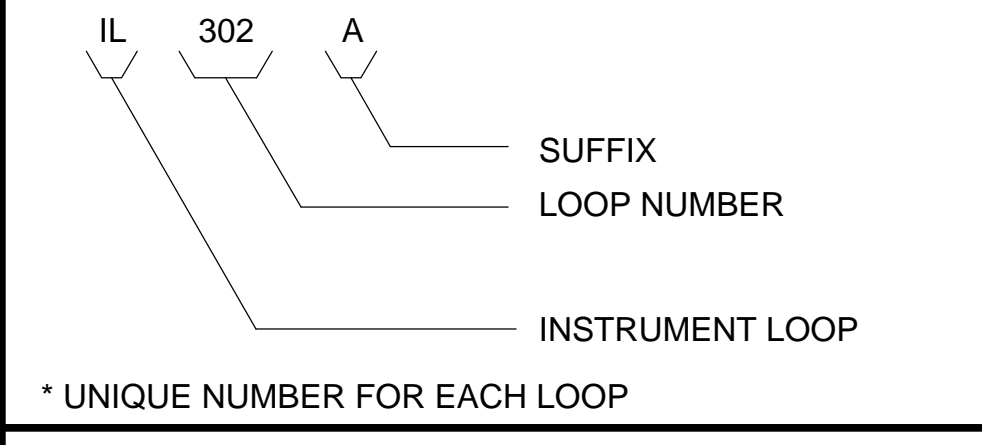
INSTRUMENT SIGNAL SYMBOLS

- INSTRUMENT SUPPLY, PROCESS TAPS
 - PNEUMATIC SIGNAL
 - ELECTRICAL SIGNAL (ANALOG OR DISCRETE)
 - FIELDBUS (DEVICENET OR FOUNDATION)
 - CAPILLARY TUBE OR FILLED SYSTEM
 - ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)
 - ELECTROMAGNETIC OR SONIC SIGNAL (UNGUIDED)
 - SOFTWARE OR DATA LINK
 - MECHANICAL LINK
 - HYDRAULIC
 - ELECTRIC POWER
 - ELECTRIC POWER SUPPLY 120 VAC 60 HZ UNLESS OTHERWISE NOTED. (e.g. 480ES FOR 480VAC)
 - SERVICE AIR SUPPLY
 - INSTRUMENT QUALITY AIR SUPPLY
 - WATER SUPPLY C1, C2, C3, ETC.
- GENERAL NOTES:
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INSTRUMENT TAG NUMBERS



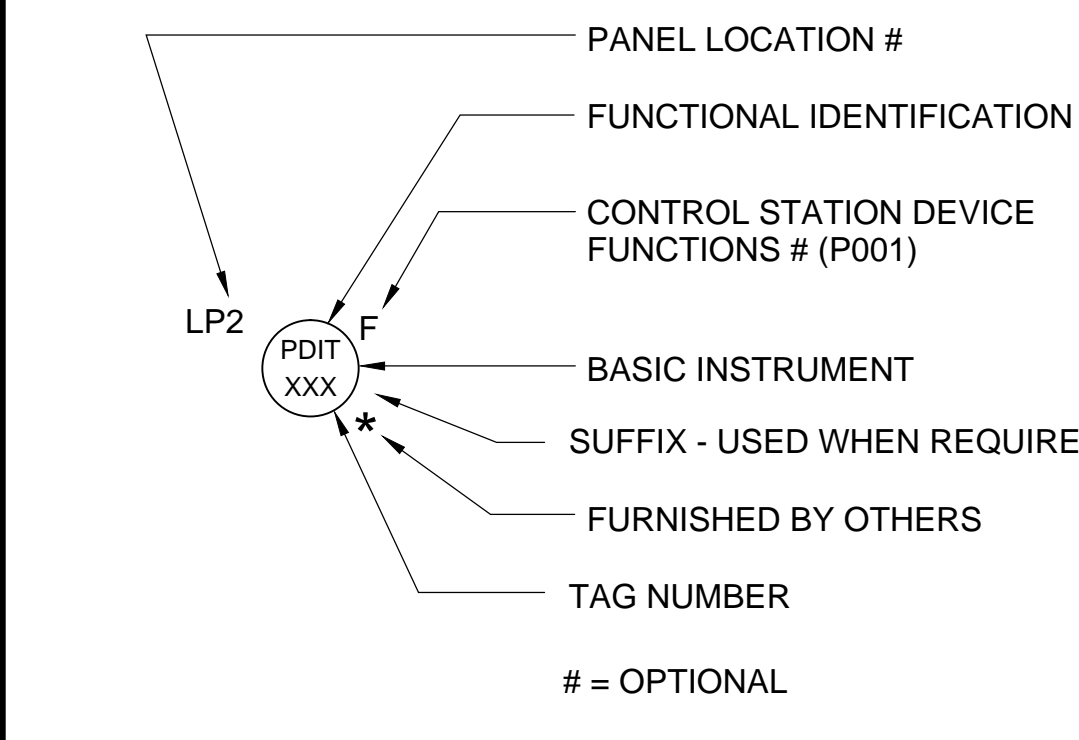
INSTRUMENT LOOP IDENTIFICATION



MISCELLANEOUS SYMBOLS

- MCC (MOTOR CONTROL/STARTER)
- PURGE OR FLUSHING DEVICE
- RESET FOR LATCH-TYPE OPERATOR
- SEAL WATER CONTROL UNIT

TYPICAL INSTRUMENT IDENTIFICATION

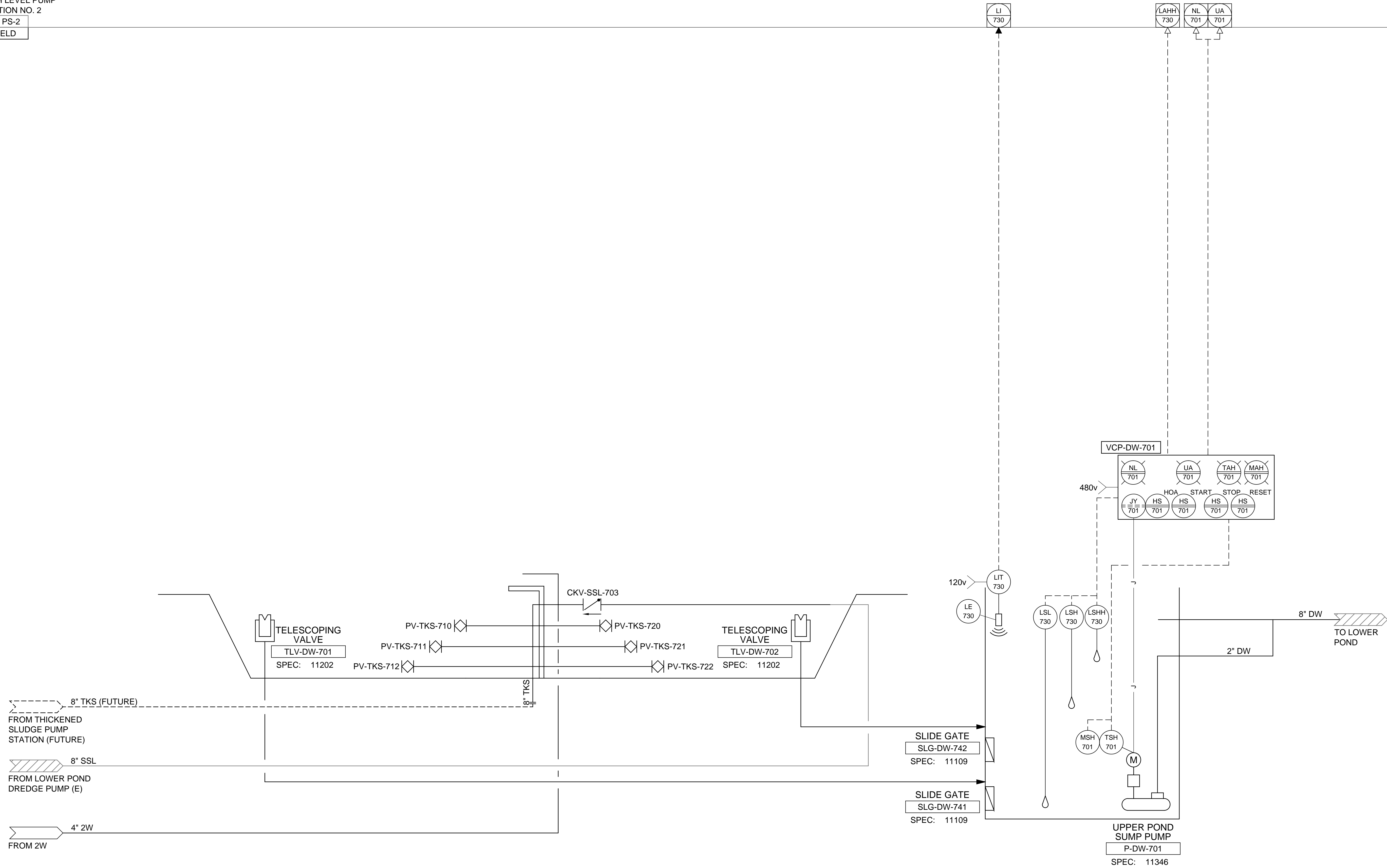


INSTRUMENTATION SYMBOLS

- ULTRASONIC FLOW ELEMENT (MULTIPLE ELEMENTS)
- THERMAL FLOW ELEMENT
- PROPELLER OR TURBINE METER
- FLUME
- ANNUBAR
- MAGNETIC FLOWMETER
- VORTEX FLOWMETER
- CORIOLIS FLOWMETER
- WEIR
- W/DIAPHRAGM SEAL AND CAPILLARY
- W/DIAPHRAGM SEAL WELDED
- COMPENSATED FLOWMETER
- SONIC FLOWMETER (DOPPLER OR TRANSIT TIME)
- ORIFICE W/FLANGE TAPS
- ORIFICE W/PIPE TAPS
- ORIFICE PLATE
- NOZZLE
- VENTURI OR FLOW TUBE
- LOCAL W/DIAPHRAGM SEAL
- IN-LINE PRESSURE SENSOR
- DIAPHRAGM SEAL FLANGED/THREADED

Path: \\Beverly\Projects\143879 - Pittsburg WTP Improvements\Ph 1\CAD\2 SHEETS\PROCESS - Filename: 143879-SF-P-701.dwg Plot Date: July 24, 2014 - 12:43 PM CADD User: Lambert, Tai

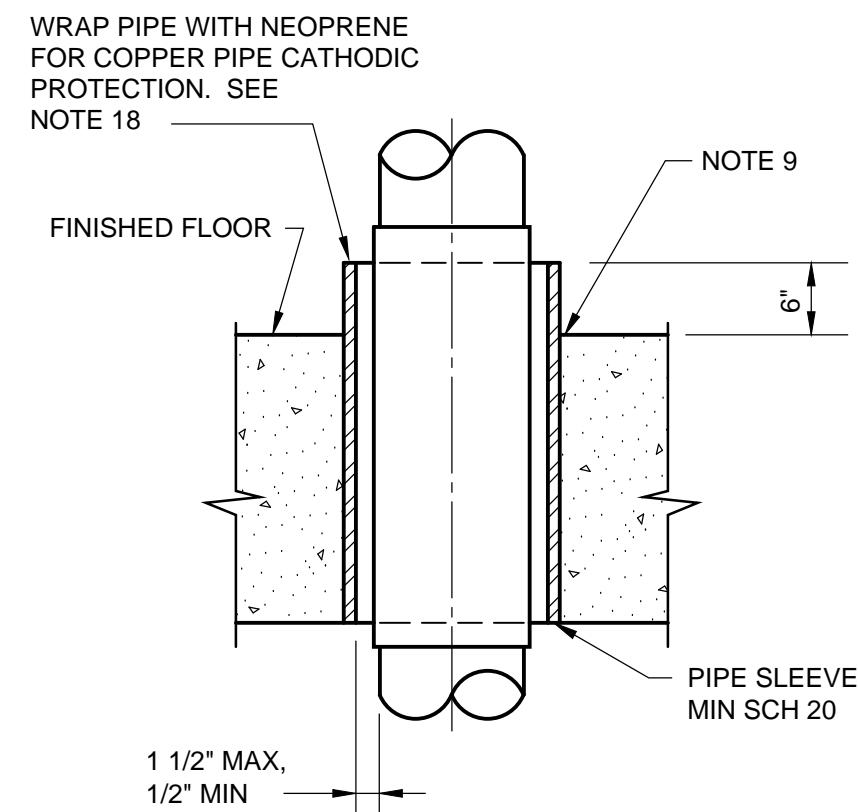
EXISTING PLC @
HIGH LEVEL PUMP
STATION NO. 2
(E) PS-2
FIELD



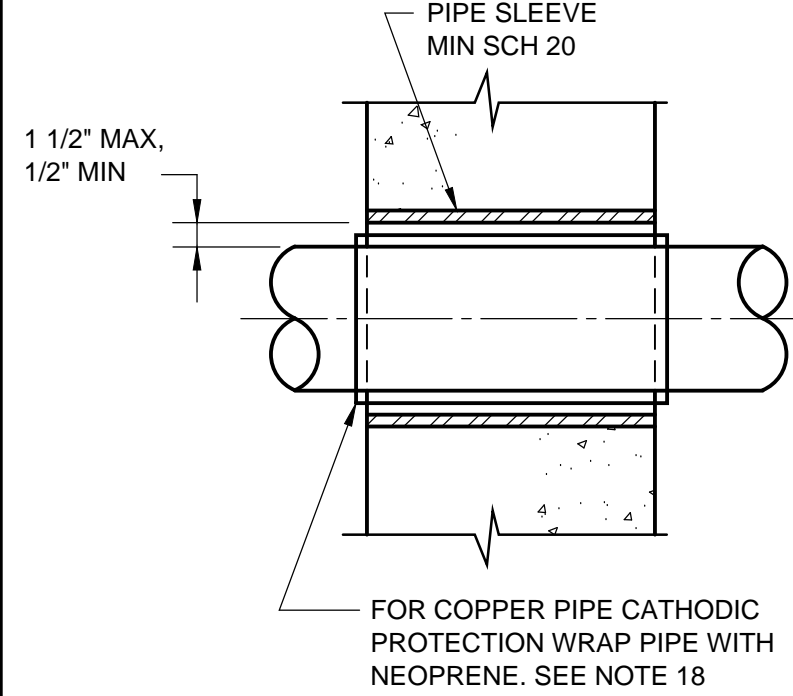
BY	DRAWN:RJM
CHECKED:CB	
REVIEWED:RB	
DATE:	Jul 24, 2014
SCALE:	AS SHOWN

DATE	REV	DESCRIPTION

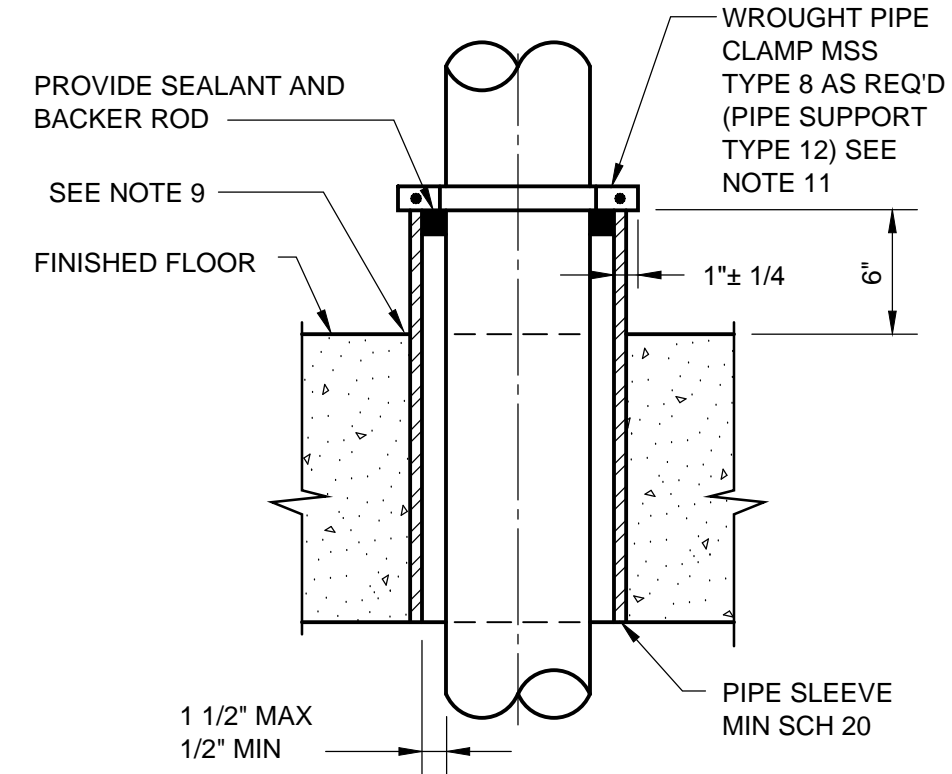
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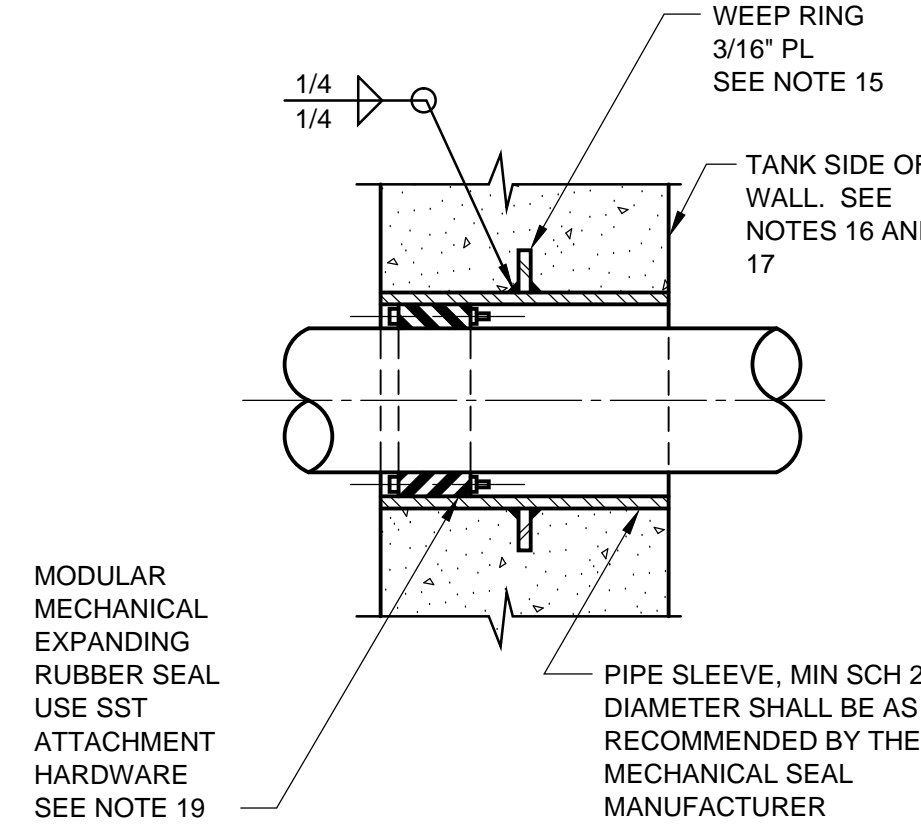
**TYPE A
PIPE PENETRATION
FOR FLOORS**



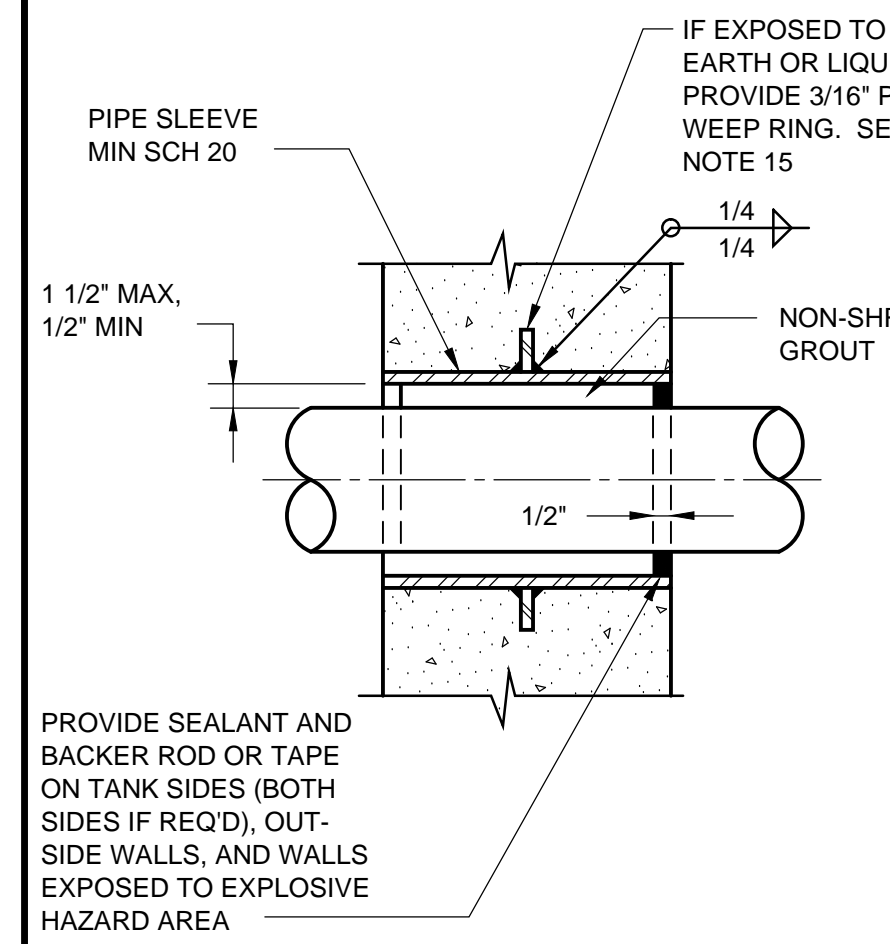
**TYPE B
PIPE PENETRATION
FOR WALLS**



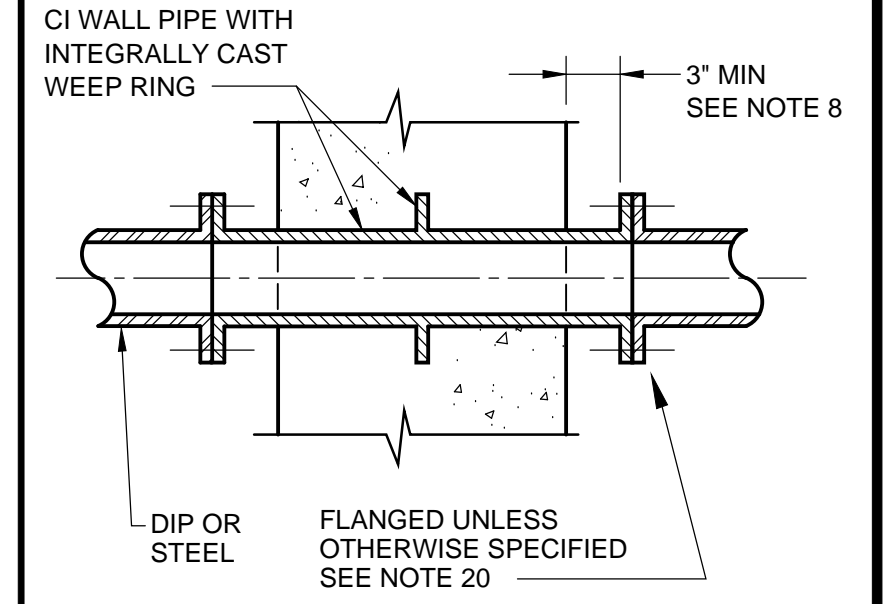
**TYPE C
PIPE PENETRATION
FOR FLOORS AND CEILINGS**



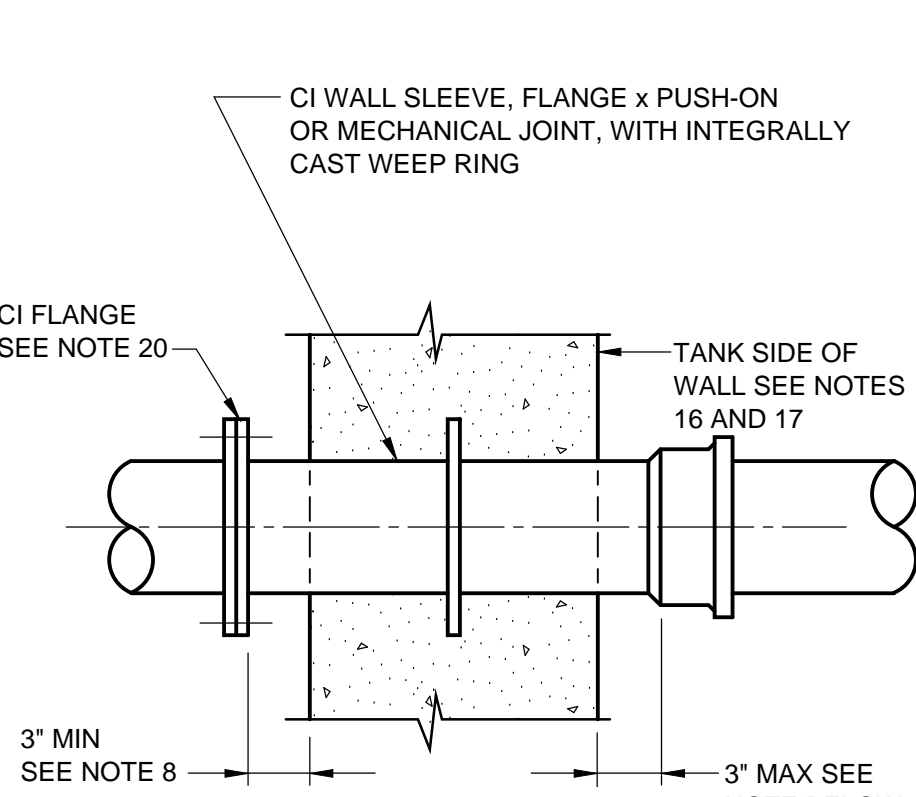
**TYPE D
PIPE PENETRATION
FOR WALLS**



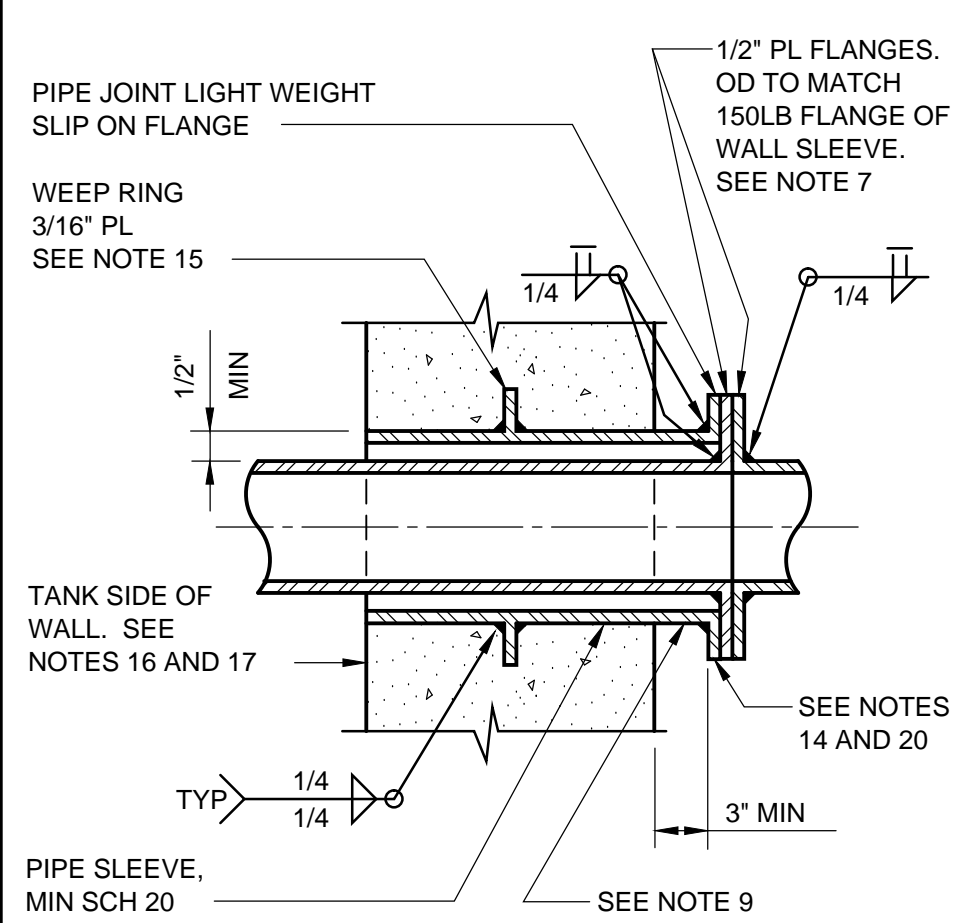
**TYPE E
PIPE PENETRATION
FOR WALLS**



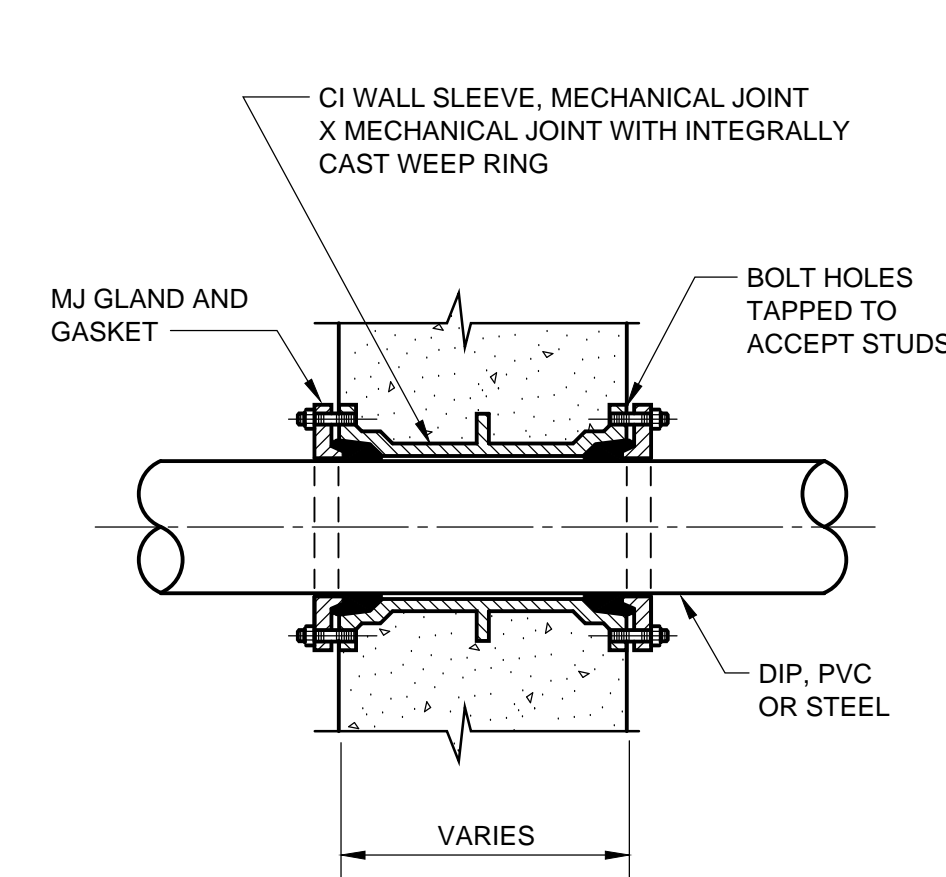
**TYPE F
PIPE PENETRATION
FOR WALLS**



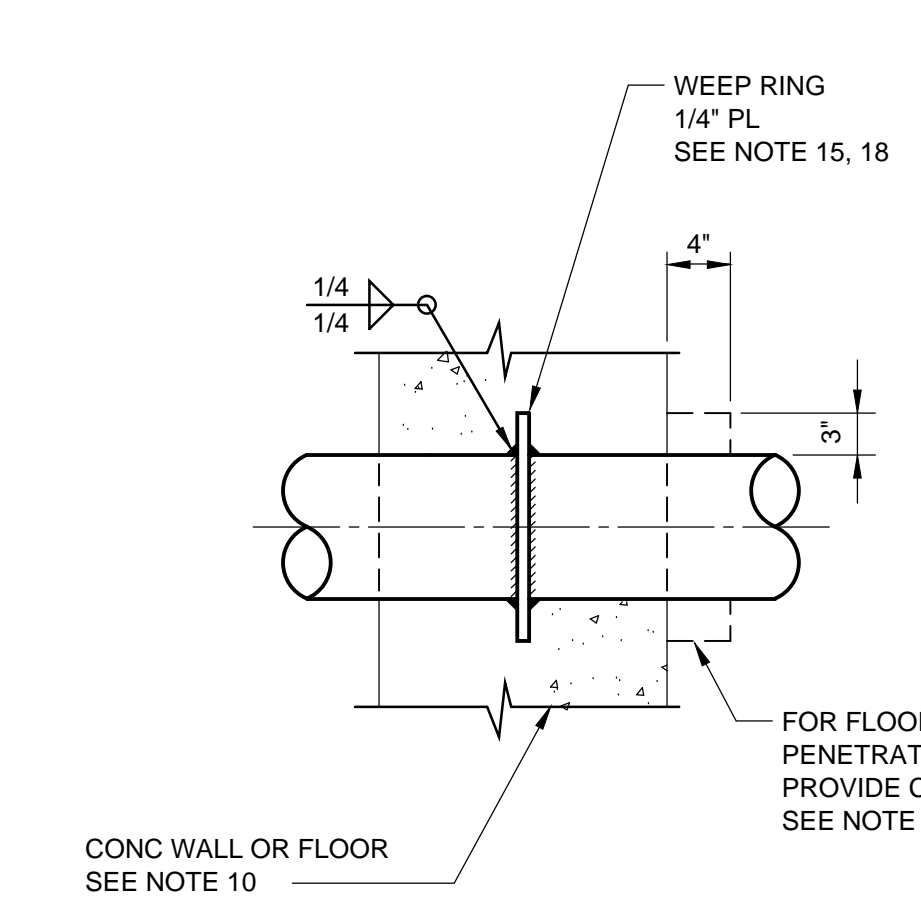
**TYPE G
PIPE PENETRATION
FOR FLOORS**



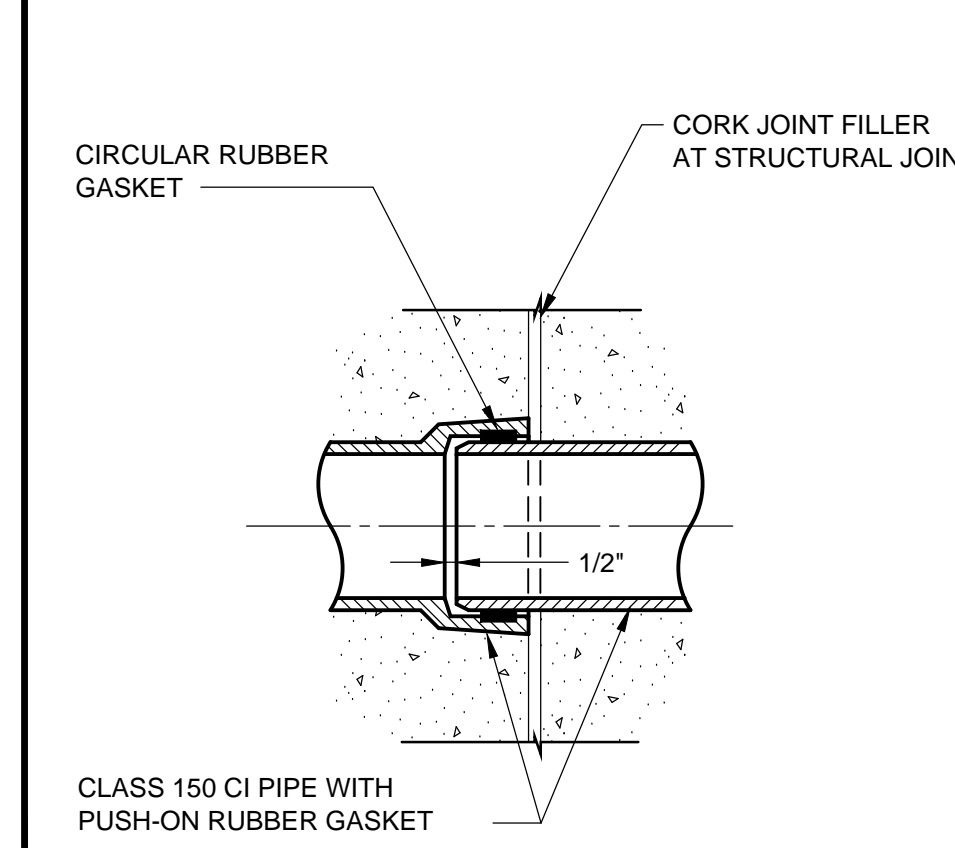
**TYPE H
PIPE PENETRATION
FOR WALLS, FLOORS AND CEILINGS**



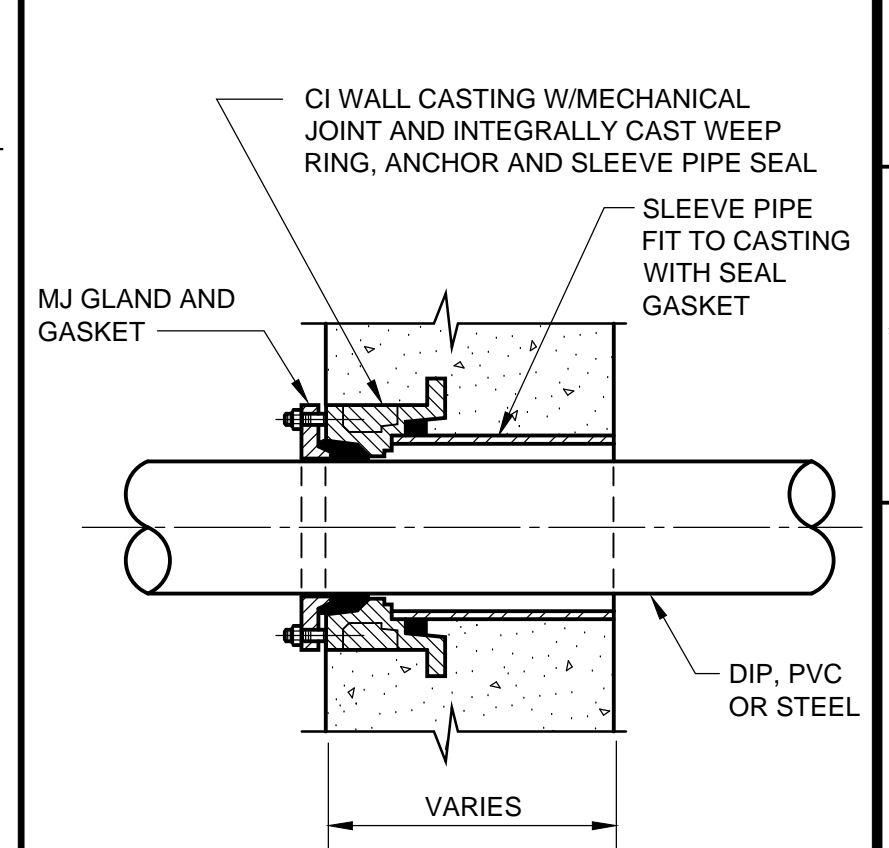
**TYPE J
PIPE PENETRATION
FOR WALLS**



**TYPE K
PIPE PENETRATION
FOR WALLS, FLOORS AND CEILINGS**



**TYPE L
PIPE PENETRATION
AT STRUCTURAL JOINTS
FLEXIBLE JOINT FOR DRAINAGE LINES**



**NOTE:
THIS PENETRATION SHALL BE AS MANUFACTURED BY OMNI-SLEEVE, OR EQUAL.**

**TYPE M
PIPE PENETRATION
FOR WALLS**

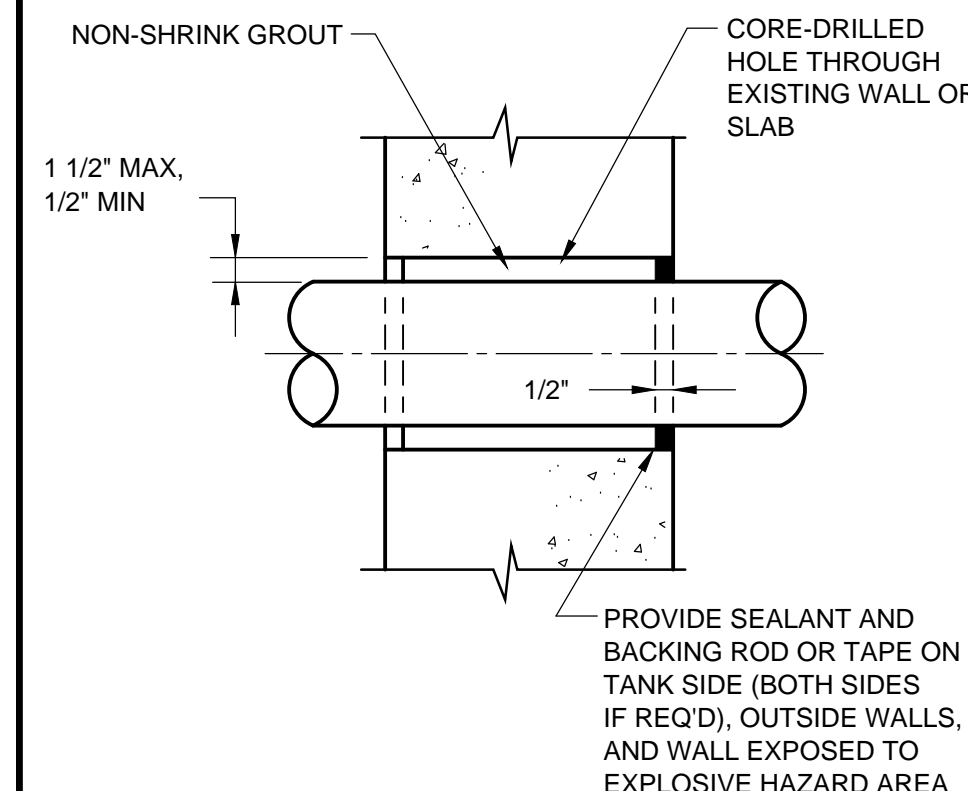
TABLE OF PIPE PENETRATION TYPES							
CONDITION			PIPE MATERIAL TYPE				
	FROM	TO	STATUS	STEEL	CAST IRON	COPPER	PLASTIC
1	TANK	TANK BELOW WS	NEW	E,H,J OR K	E,F,G OR J	E	E OR J
			EXIST	X1 OR X2	X1 OR X2	X1 OR X2	X1 OR X2
2	TANK	TANK ABOVE WS	NEW	D,E OR M	D,E OR M	D OR E	D,E OR M
			EXIST	X1 OR X2	X1 OR X2	X1 OR X2	X1 OR X2
3	PASSAGE	TANK BELOW WS	NEW	E,H,J OR K	E,F,G OR J	E	E OR J
			EXIST	X1 OR X2	X1 OR X2	X1 OR X2	X1 OR X2
4	PASSAGE	TANK ABOVE WS	NEW	A,C,D,E OR M	A,C,D,E OR M	D OR E	A,C,D,E OR M
			EXIST	X1 OR X2	X1 OR X2	X1 OR X2	X1 OR X2
5	PASSAGE	PASSAGE SEE NOTE 6	NEW	A, B OR C	A, B OR C	A, B OR C	A, B OR C
			EXIST	X1 OR X2	X1 OR X2	X1 OR X2	X1 OR X2
6	PASSAGE	OUTSIDE WALL	NEW	D,E OR J	D,E,G OR J	D OR E	D,G OR J
			EXIST	X1 OR X2	X1 OR X2	X1 OR X2	X1 OR X2
7	PASSAGE	ROOF	ALL	AS SHOWN ON ARCHITECTURAL DETAIL DRAWINGS			
8	TANK	OUTSIDE WALL	NEW	D,E,F OR J	D,E,F,G OR J	D OR E	D,E OR J
			EXIST	X1 OR X2	X1 OR X2	X1 OR X2	X1 OR X2

GENERAL NOTES:

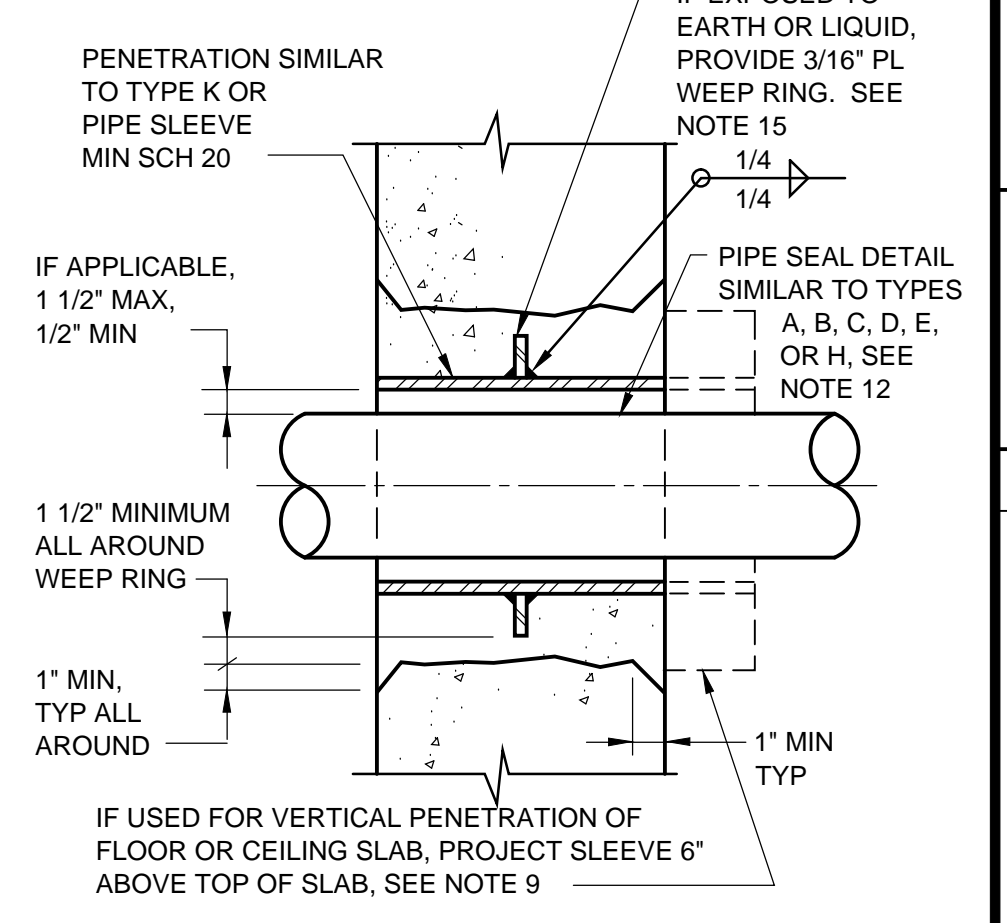
- THE MATERIAL PRESENTED ON THIS DRAWING IS FOR REFERENCE USE. SOME OF THE DETAILS OR INFORMATION PRESENTED MAY NOT BE REQUIRED AS PART OF THIS CONTRACT.

PIPE PENETRATION NOTES:

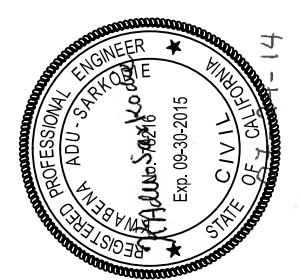
- WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, PENETRATIONS SHALL CONFORM TO TABLE AT LEFT, EXCEPT AS OTHERWISE SPECIFIED.
- IN TABLE AT LEFT, "TANK" SHALL MEAN ANY PART OF A STRUCTURE CONTAINING LIQUID, OR IN CONTACT WITH THE EARTH.
- IN TABLE AT LEFT, "PASSAGE" SHALL MEAN ANY ROOM, GALLERY, TUNNEL, OR SIMILAR ENCLOSURE.
- IN TABLE AT LEFT, WATER SURFACE "WS" SHALL MEAN AN ELEVATION 9-INCHES ABOVE MAXIMUM WATER SURFACE SHOWN.
- ALL STEEL SLEEVES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
- IN CONDITION 5, TYPE E,H,J, OR K SHALL BE USED WHERE ONE SIDE CONTAINS EXPLOSION PROOF EQUIPMENT, WHERE FLOODING IS POSSIBLE, OR WHERE SPECIFIED (TYPE E ONLY FOR COPPER).
- SEAL FLANGES SHALL BE FACED AND DRILLED TO 150 POUND STANDARD, EACH JOINT SHALL BE FULL FACE GASKETED.
- WHERE SPECIFIED, CAST IRON FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS.
- PROVIDE CURB WHERE PENETRATING FLOOR, EXCEPT FOR PENETRATION TYPES A, C, AND H. CURB SHALL BE 4" HIGH BY 3" WIDE.
- PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS.
- WHEN MSS TYPE 8 PIPE CLAMP IS USED FOR COPPER PIPE, CLAMP SHALL BE PLASTIC COATED BY MFR.
- TYPE X2 PENETRATION FOR EXISTING STRUCTURES SHOWS SLEEVE INSTALLATION DETAIL ONLY. USE TYPE A,B,C,D,E,H OR K DETAILS FOR ACTUAL PENETRATION.
- INSULATION SHALL NOT EXTEND THROUGH SLEEVES, UNLESS OTHERWISE SPECIFIED.
- WHERE CAST IRON PIPE IS EMBEDDED IN CONCRETE AT AN EXPANSION JOINT, USE TYPE L PENETRATION DETAIL.
- WEEP RINGS SHALL HAVE A MINIMUM DIAMETER 3 INCHES GREATER THAN THE OUTSIDE PIPE DIAMETER.
- "TANK SIDE OF WALL" SHALL MEAN SIDE OF WALL NORMALLY EXPOSED TO LIQUID, EARTH, OR OUTSIDE ATMOSPHERE.
- SEAL WITH MASTIC SEALANT WHERE WALL IS EXPOSED TO LIQUID, EARTH OR AN EXPLOSION HAZARD AREA.
- FOR COPPER PIPE IN A "PASSAGE" TO "PASSAGE" CONDITION (SEE TABLE AT LEFT), PROVIDE A FULL 360 DEGREE WRAP OF 1/16 INCH THICK NEOPRENE. BOND NEOPRENE TO PIPE WITH A COMPATIBLE WATERPROOF ADHESIVE. EXTEND NEOPRENE 1 INCH MINIMUM BEYOND LIMITS OF PENETRATION SLEEVE.
- WHEN MODULAR MECHANICAL EXPANDING RUBBER SEAL IS USED ON COPPER PIPE, PROVIDE GLASS REINFORCED NYLON PRESSURE PLATES IN PLACE OF STANDARD STEEL UNITS.
- FLANGE BOLT HOLES SHALL EQUALLY STRADDLE THE VERTICAL CENTER-LINE OF THE FLANGE TO ASSURE PROPER CONNECTION TO ADJOINING PIPE, VALVES AND FITTINGS.
- CORROSION PROTECTION MEASURES ARE REQUIRED FOR DIP, STEEL AND STAINLESS STEEL PIPES THAT TRANSITION FROM A BURIED CONDITION INTO A TUNNEL OR STRUCTURE. SEE SECTIONS 15050, 15061, 15062, 15067 AND OUTSIDE PIPING DRAWINGS.
- UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS, THIS DRAWING SHALL BE USED BY THE CONTRACTOR TO DETERMINE WALL AND FLOOR PENETRATIONS. WHERE SPECIFIED, THE INDICATED WALL AND FLOOR PENETRATION SHALL BE USED. SUBMIT WALL AND FLOOR PENETRATIONS AS PART OF THE PIPING LAYOUT IN SECTION 15050.



**TYPE X1
PIPE PENETRATION
FOR EXISTING WALLS, FLOORS AND CEILINGS**



**TYPE X2
PIPE PENETRATION
FOR EXISTING WALLS, FLOORS AND CEILINGS**

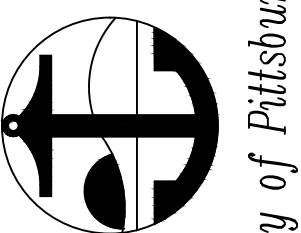


PREPARED UNDER THE DIRECTION OF:

ERIK ZALKIN
P.E., C.E.S., Exp. 12/31/15
Date: _____

ACCEPTED FOR USE BY:

KEITH HALVORSON
City Engineer
Date: _____



MECHANICAL PHASE 1A

WALL AND FLOOR PENETRATIONS City of Pittsburgh

BY	DRAWN:TRL
CHECKED:CB	
REVIEWED:RB	
DATE:	Jul 24, 2014
SCALE:	AS SHOWN

DESCRIPTION	REV	DATE

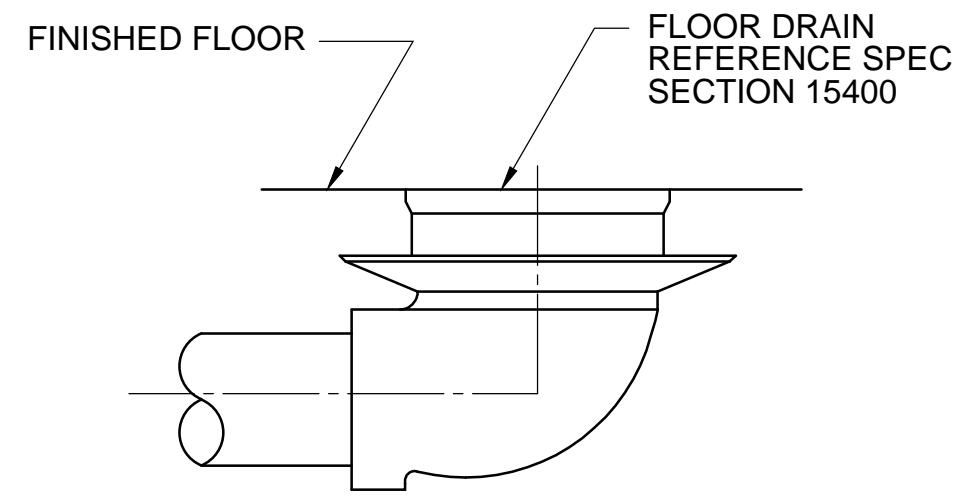
SHEET NO.

38 OF 50

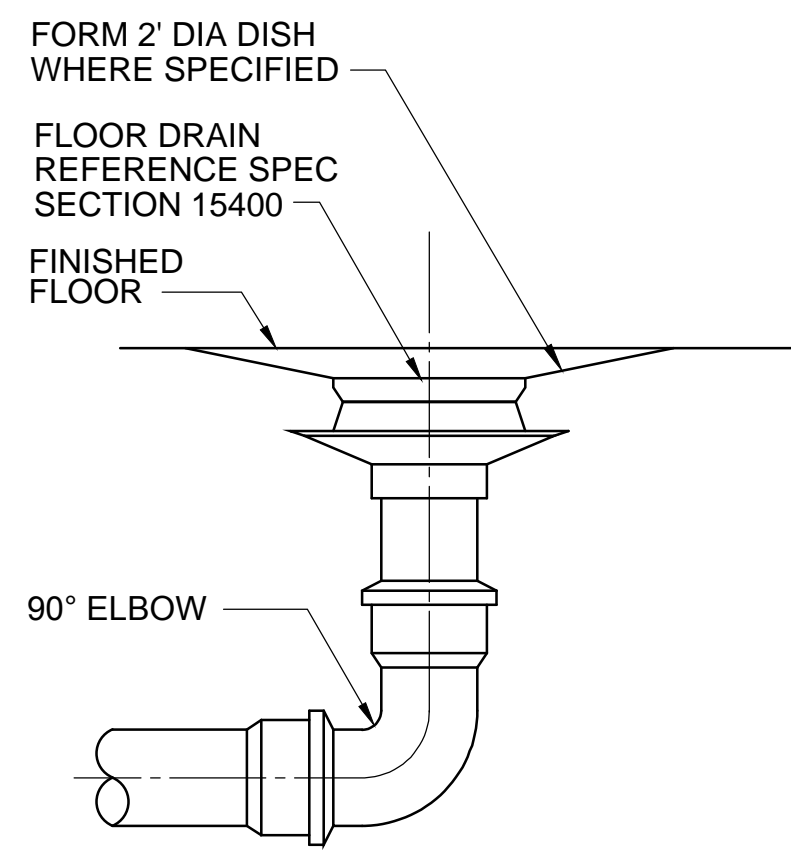
SHEET:

M-1

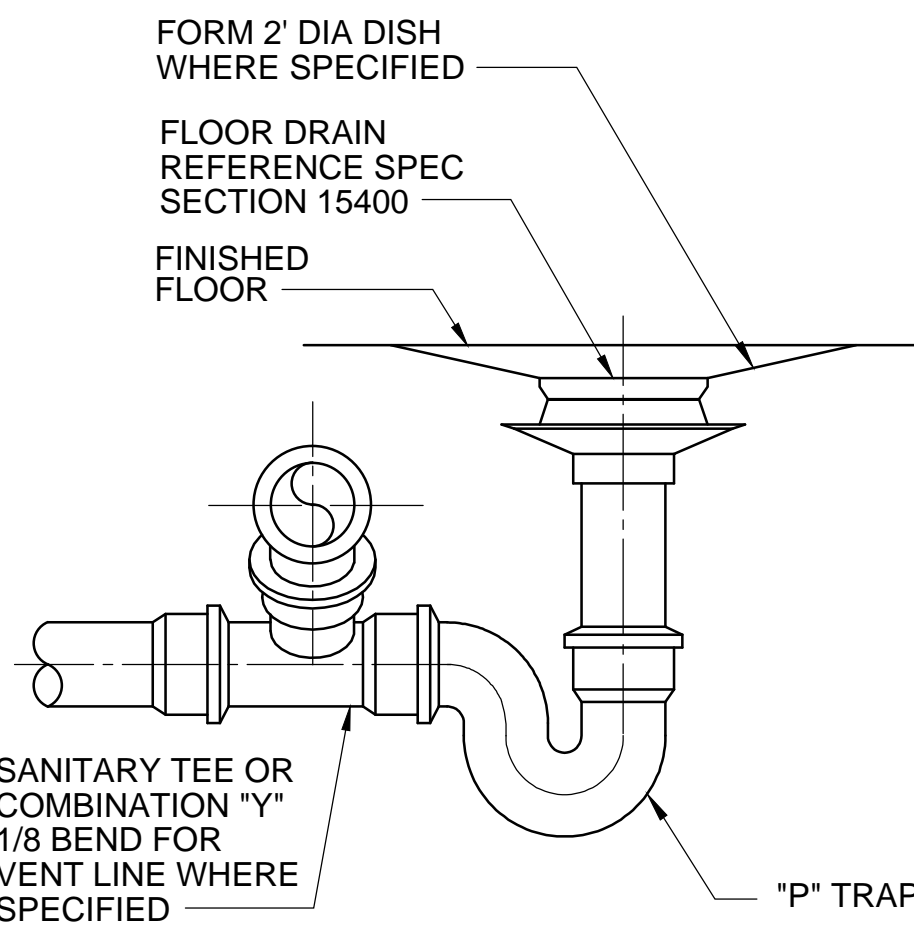
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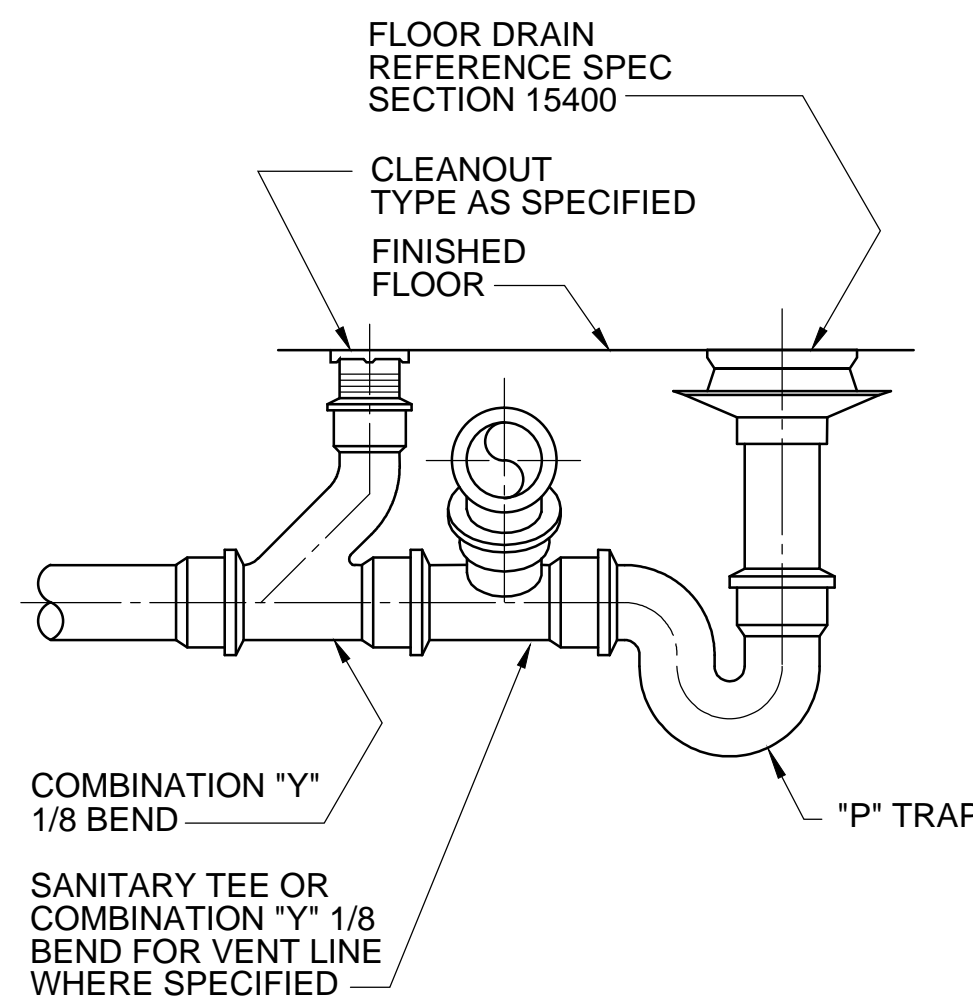
TYPE I FLOOR DRAIN
SEE NOTE 5



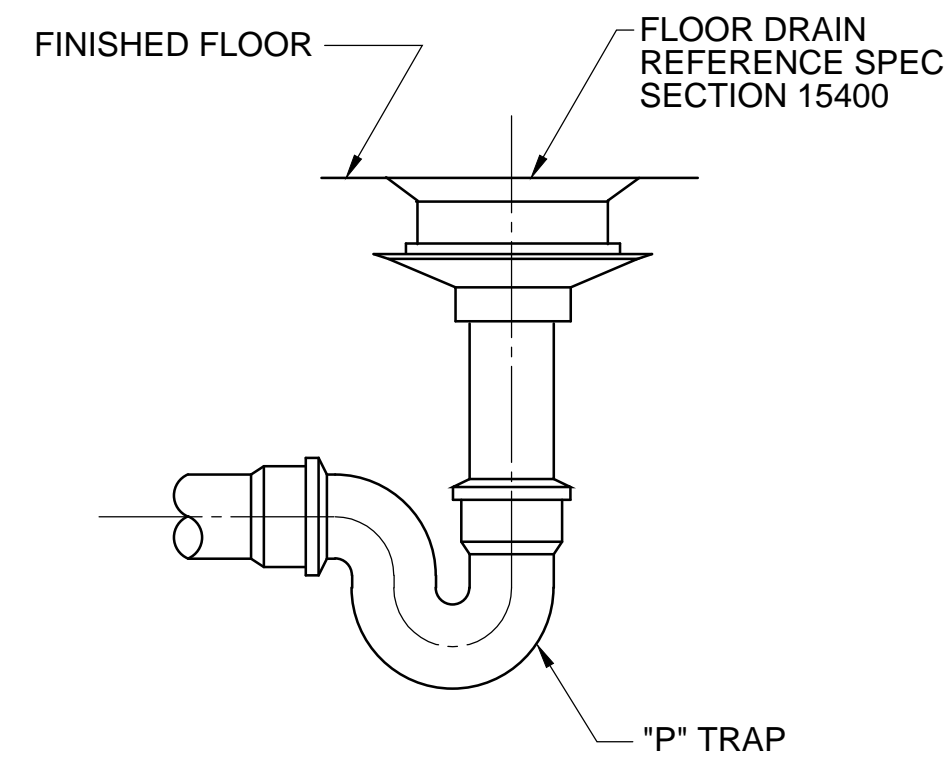
TYPE II FLOOR DRAIN



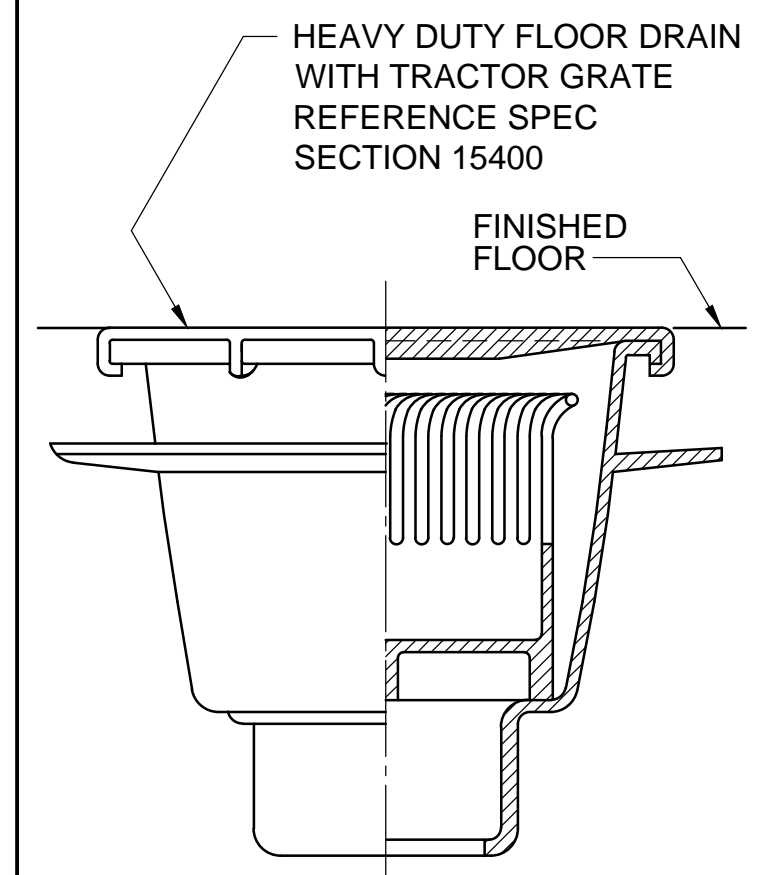
TYPE III FLOOR DRAIN



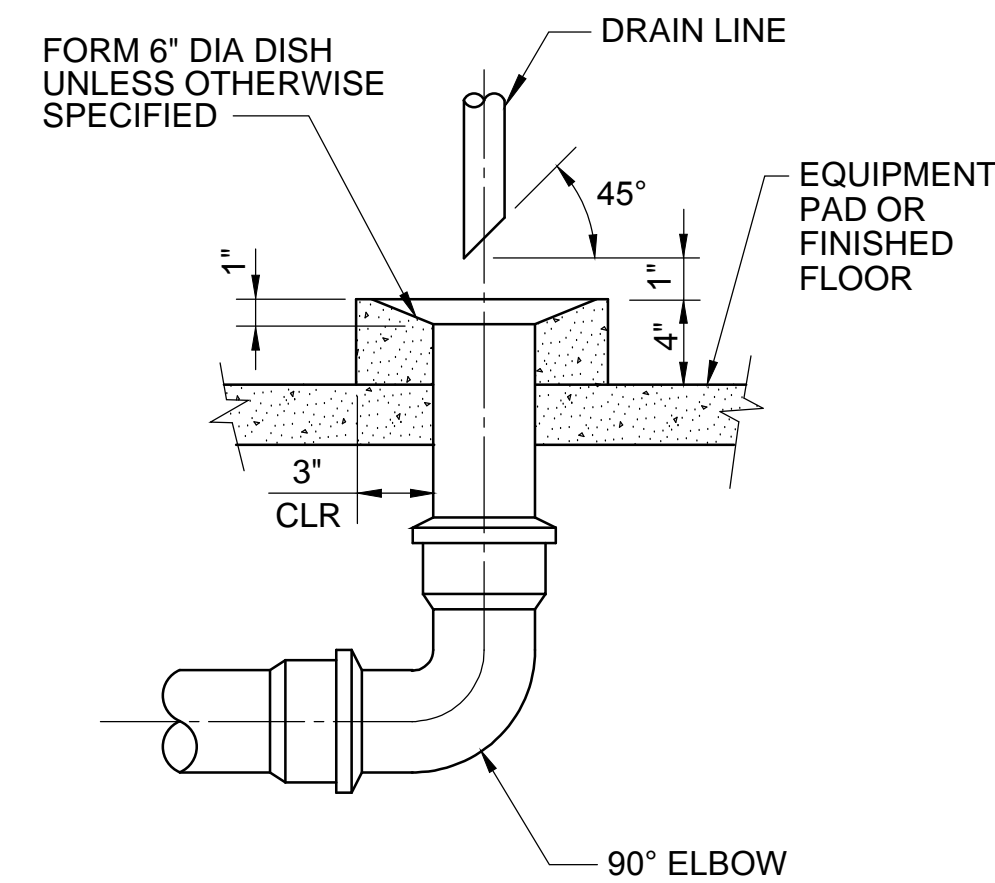
TYPE IV FLOOR DRAIN
SEE NOTE 5



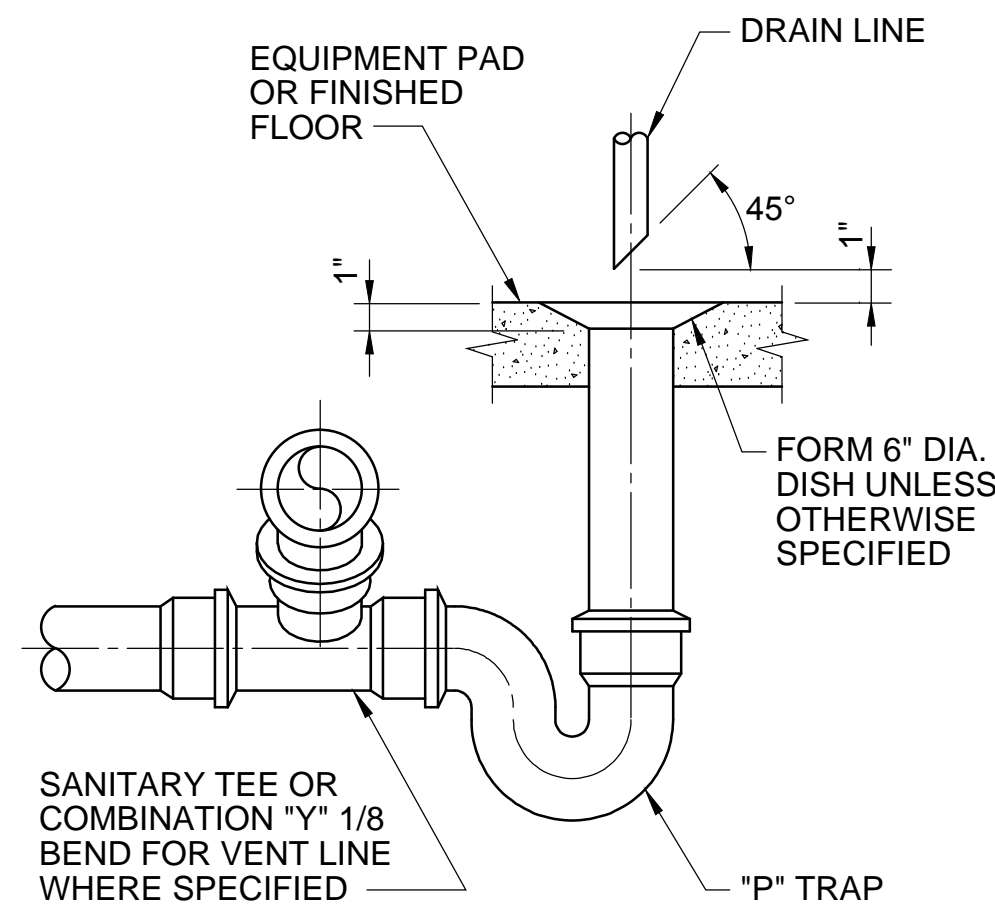
TYPE V FLOOR DRAIN
SEE NOTE 5



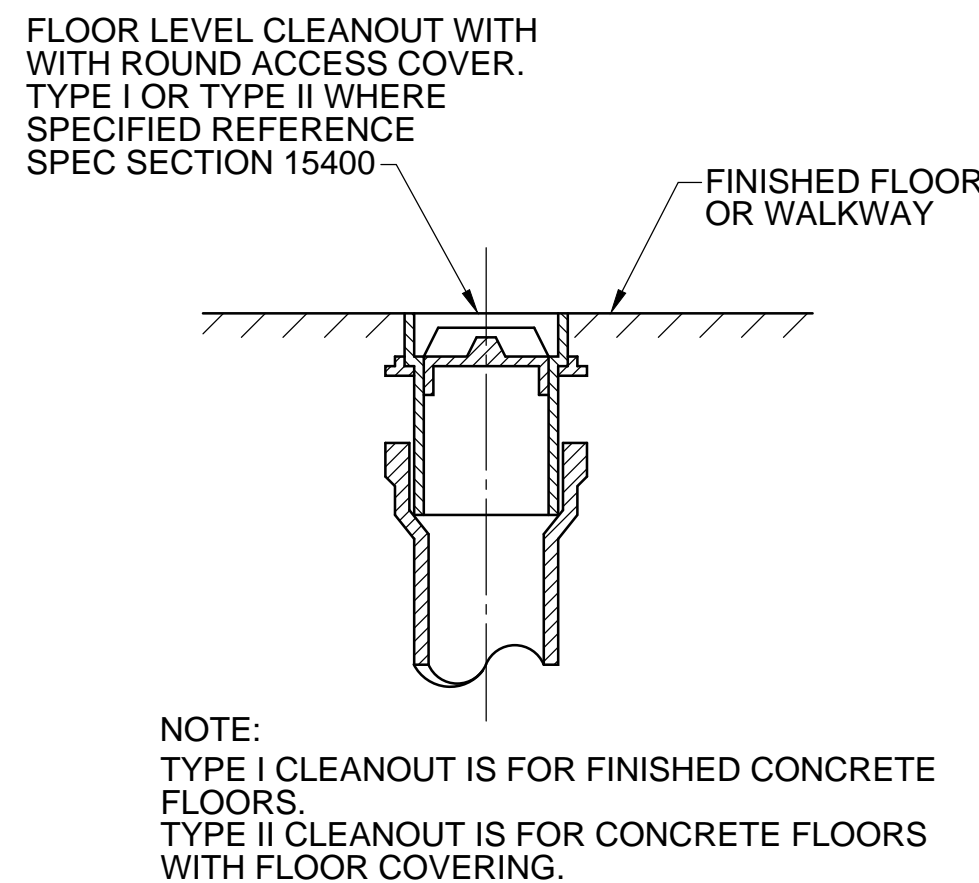
TYPE VI FLOOR DRAIN
SEE NOTE 5



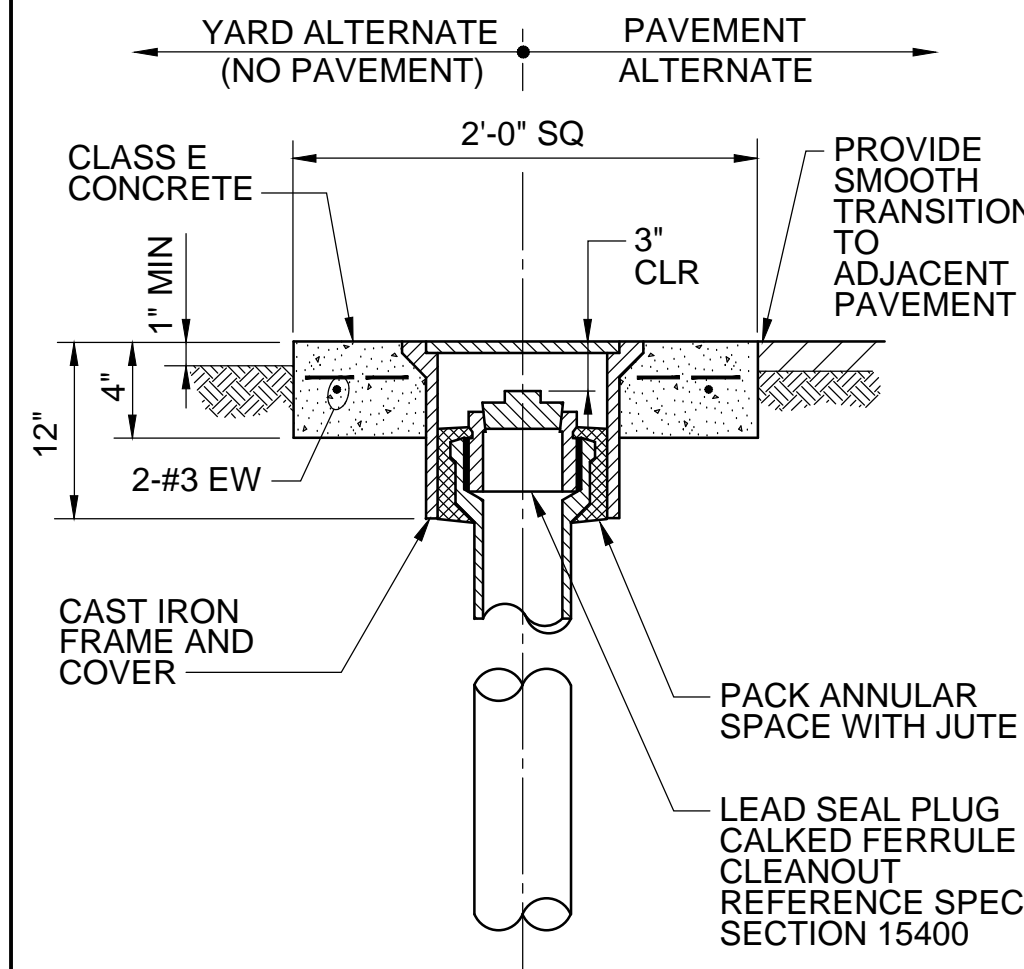
TYPE I EQUIPMENT DRAIN



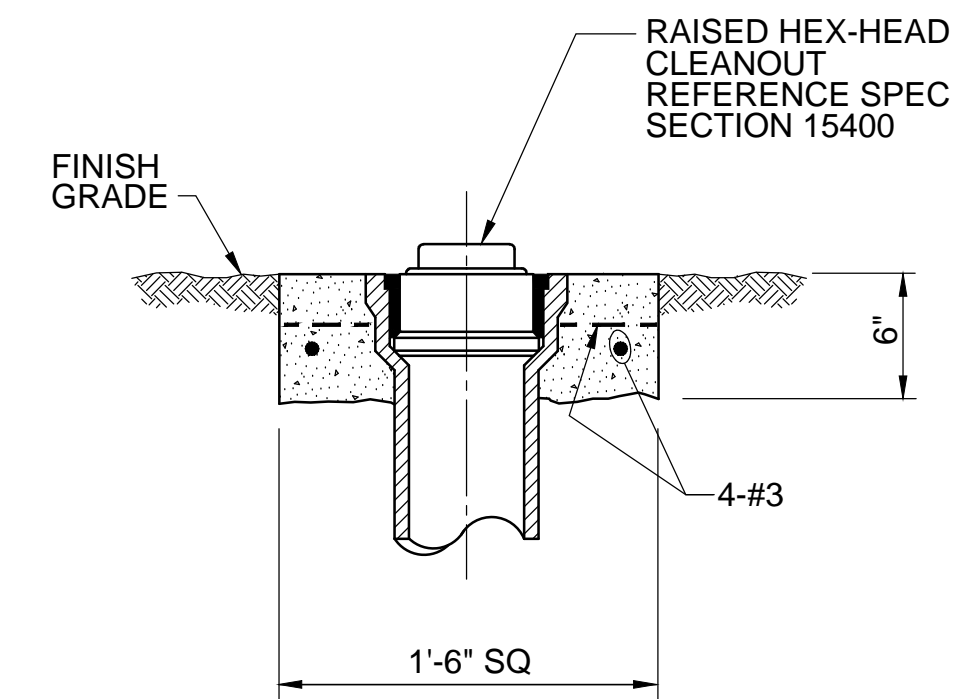
TYPE II EQUIPMENT DRAIN



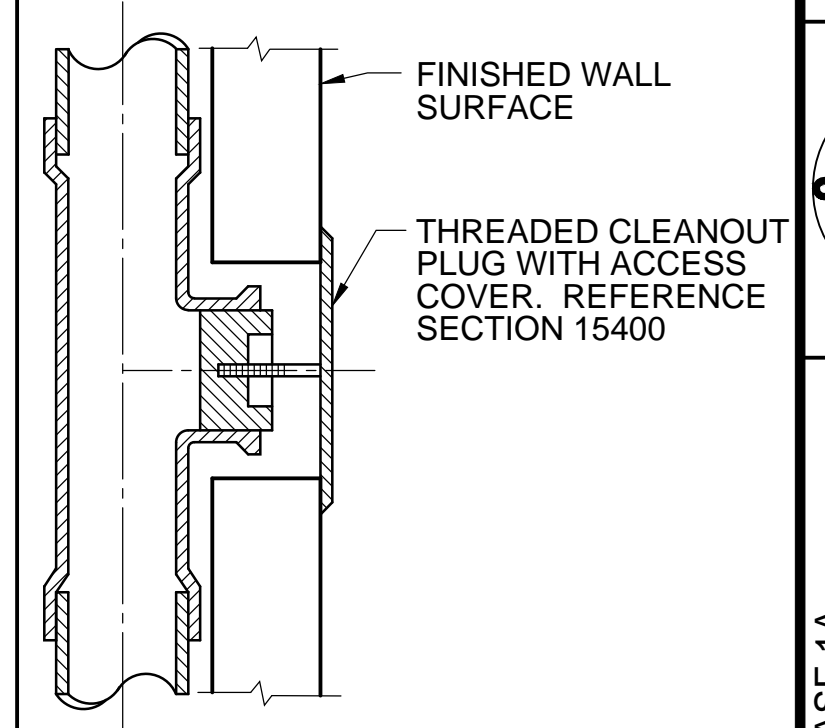
TYPE I AND II CLEANOUT



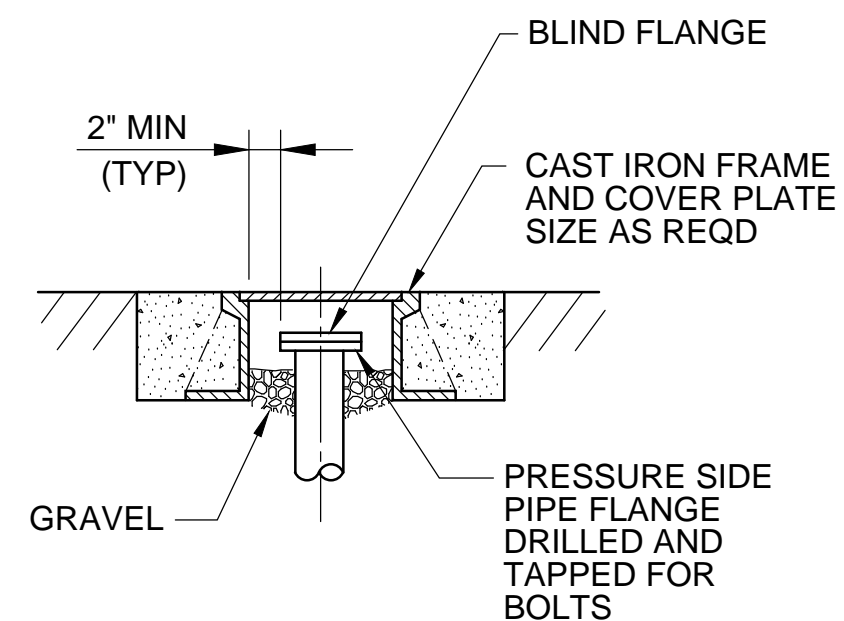
TYPE III CLEANOUT



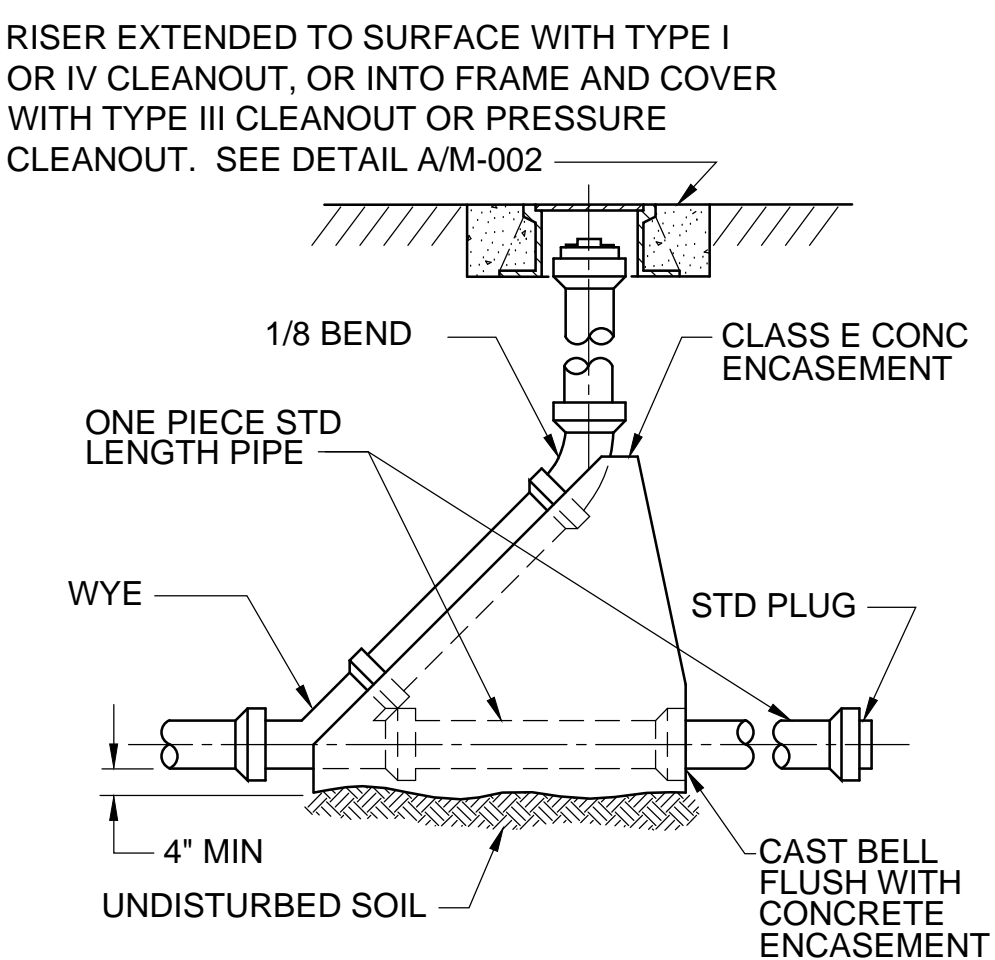
TYPE IV CLEANOUT



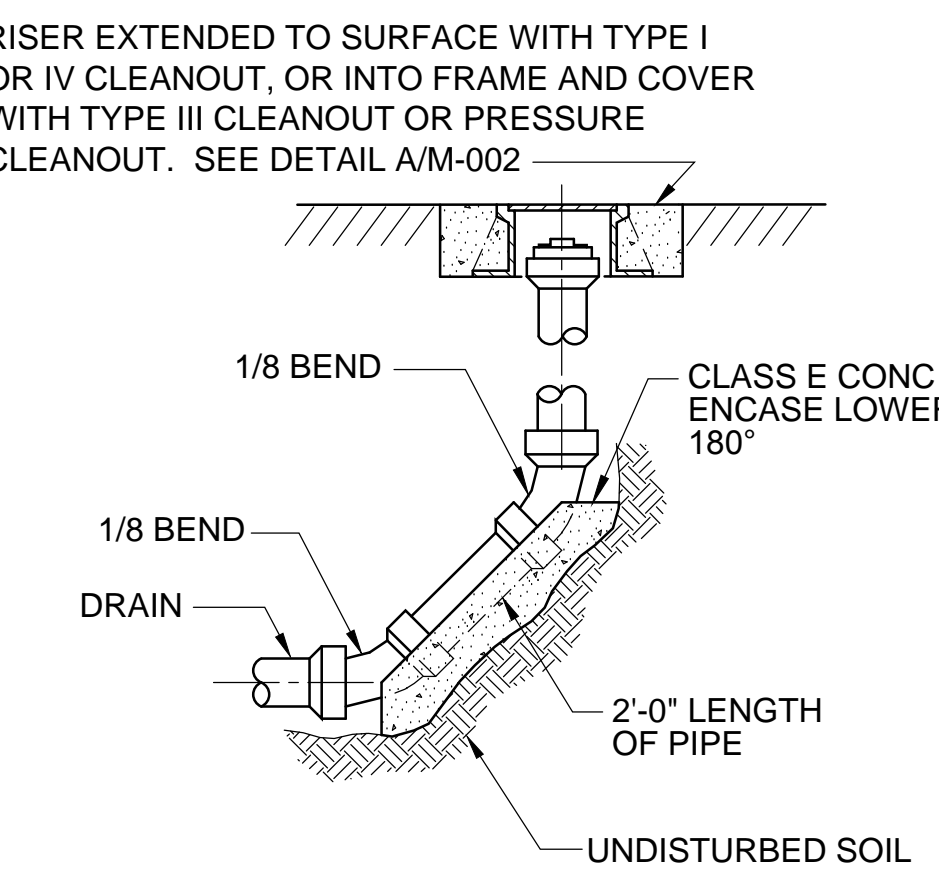
TYPE V CLEANOUT



DETAIL A
PRESSURE CLEANOUT
SCALE: NONE

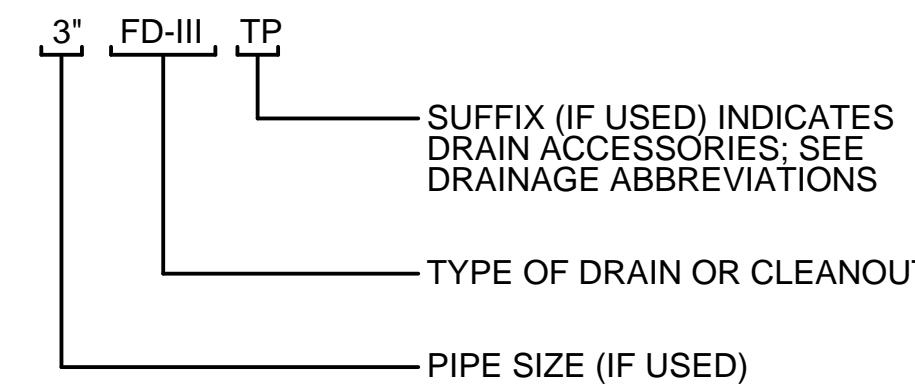


DETAIL B
CLEANOUT (EXTENDIBLE)
SCALE: NONE

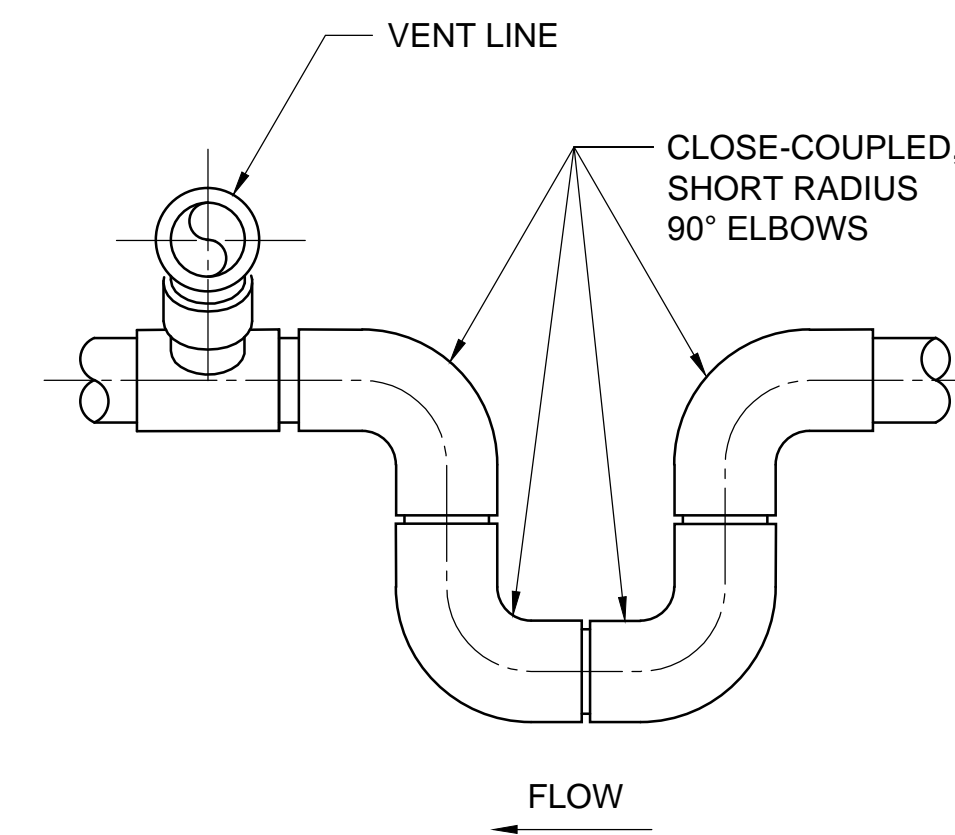


DETAIL C
CLEANOUT (LINE END)
SCALE: NONE

DRAINAGE ABBREVIATIONS	
CO	CLEANOUT
ED	EQUIPMENT DRAIN
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
RD	ROOF DRAIN
SCD	SCUPPER DRAIN
T	TRAP
TP	TRAP PRIMER
V	VENT
VTR	VENT THROUGH ROOF
WCO	WALL CLEANOUT
YCO	YARD CLEANOUT



DRAINAGE DESIGNATION SYSTEM



DETAIL D
FABRICATED U-BEND
SCALE: NONE

- DRAINAGE NOTES:**
- UNLESS OTHERWISE SPECIFIED, AND EXCEPT IN PEDESTRIAN AREAS SUCH AS OFFICES, LABORATORY AREAS, WASHROOMS, JANITOR ROOMS, ETC., ALL FLOOR DRAINS AND CLEANOUTS SHALL BE PROVIDED WITH GALVANIZED DUCTILE GRATES AND COVERS.
 - HORIZONTAL DRAINAGE SHALL HAVE A SLOPE OF 1/4 INCH PER FOOT OR AS SPECIFIED.
 - CLEANOUTS AND VENTS FOR HORIZONTAL DRAINAGE PIPES SHALL BE PROVIDED AN ACCORDANCE WITH APPLICABLE PLUMBING CODE.
 - THIS DRAWING IS GENERAL IN NATURE. SOME DRAINS AND CLEANOUTS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
 - WHERE SHOWN ON THE CONTRACT DRAWINGS, PROVIDE TYPE I, IV, V, AND VI WITH A FORMED 2'-0" DIAMETER DISH AS ILLUSTRATED ON TYPE II AND III FLOOR DRAINS.

PROFESSIONAL ENGINEER
No. 100-000000
Exp. 09/30/2015
CIVIL
STATE OF MISSOURI

PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
P.E. C75392, Exp. 12/31/15

ACCEPTED FOR USE BY:
KEITH HALVORSON
City Engineer

MECHANICAL PHASE 1A

City of Pittsburg

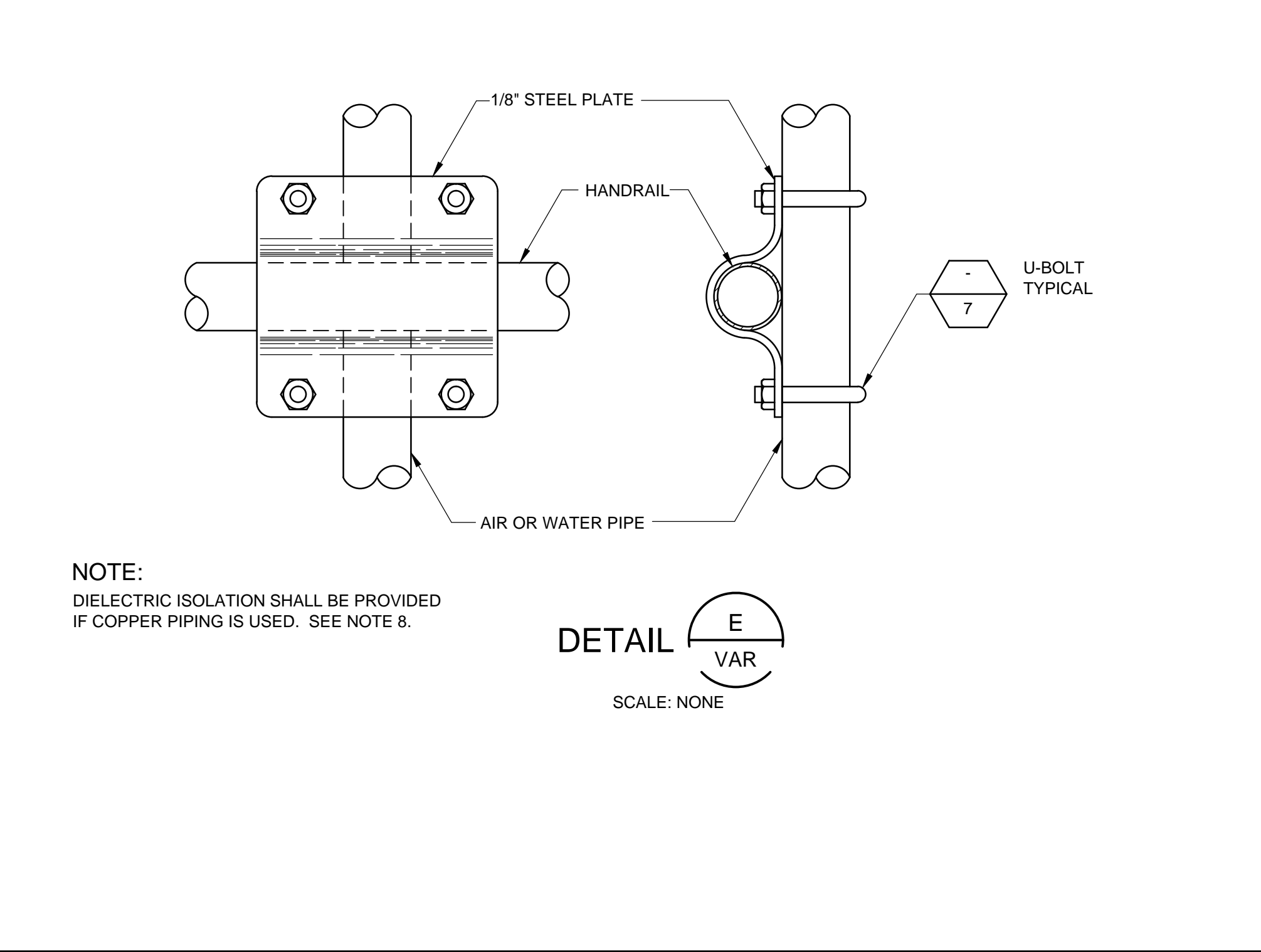
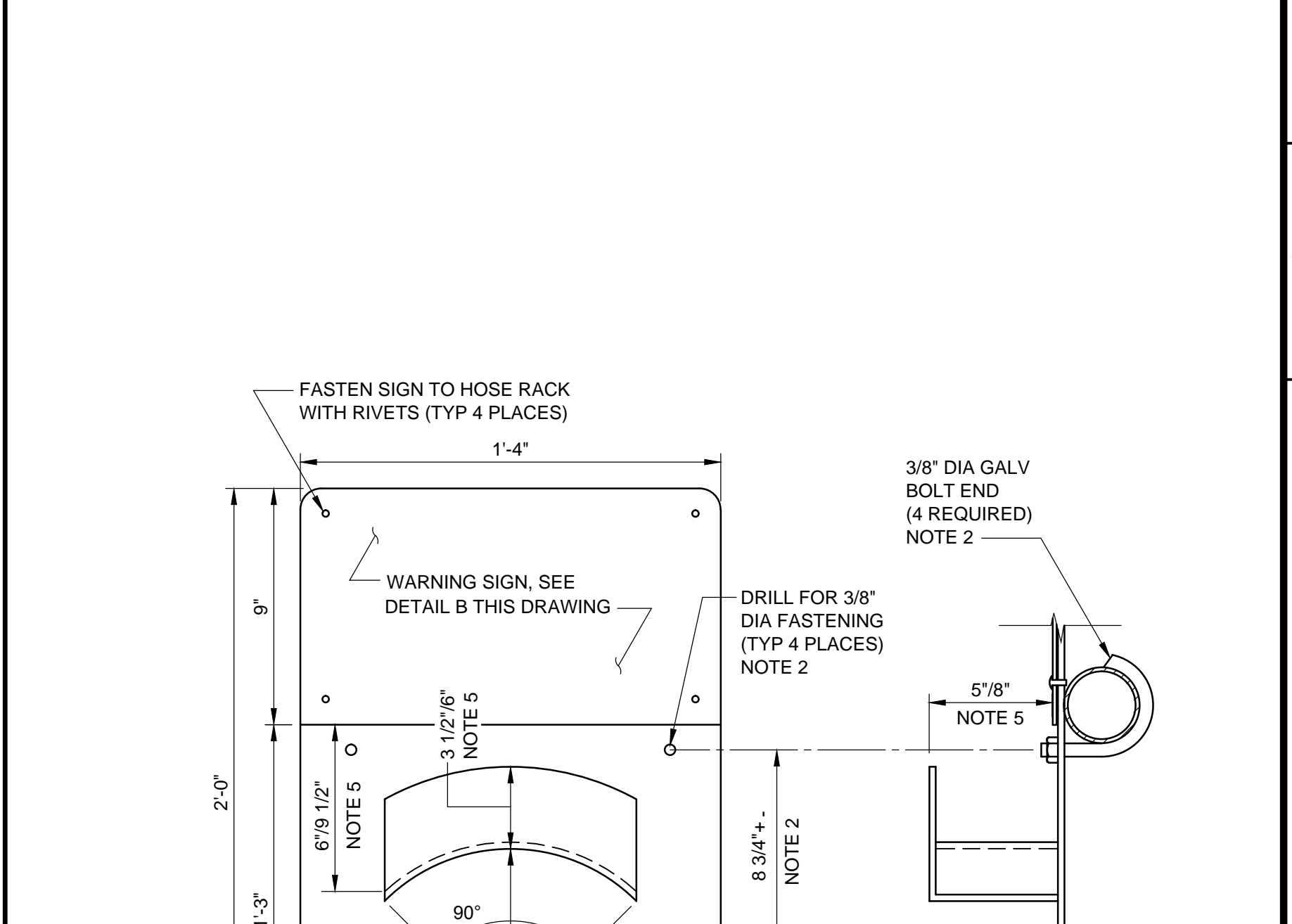
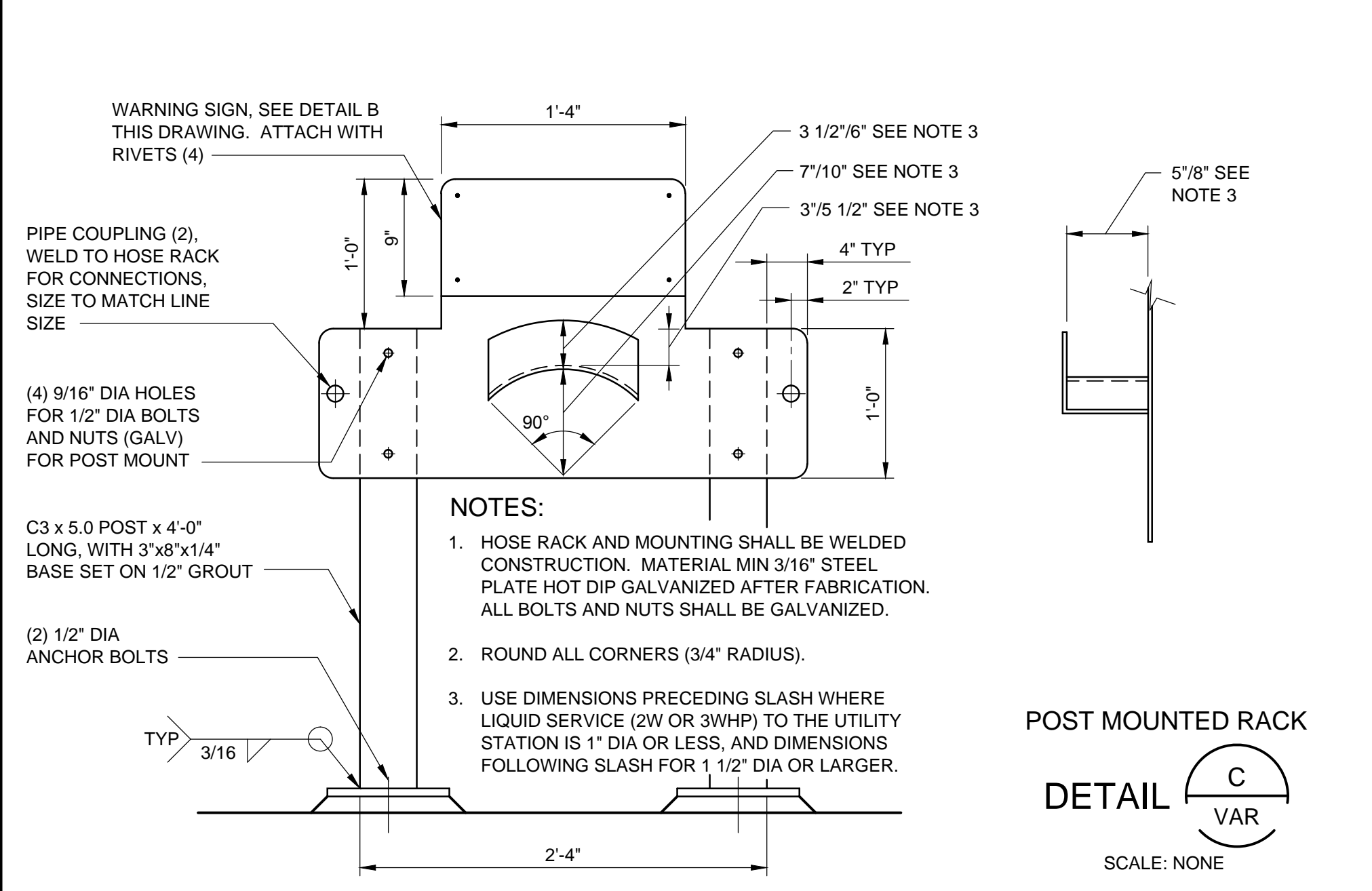
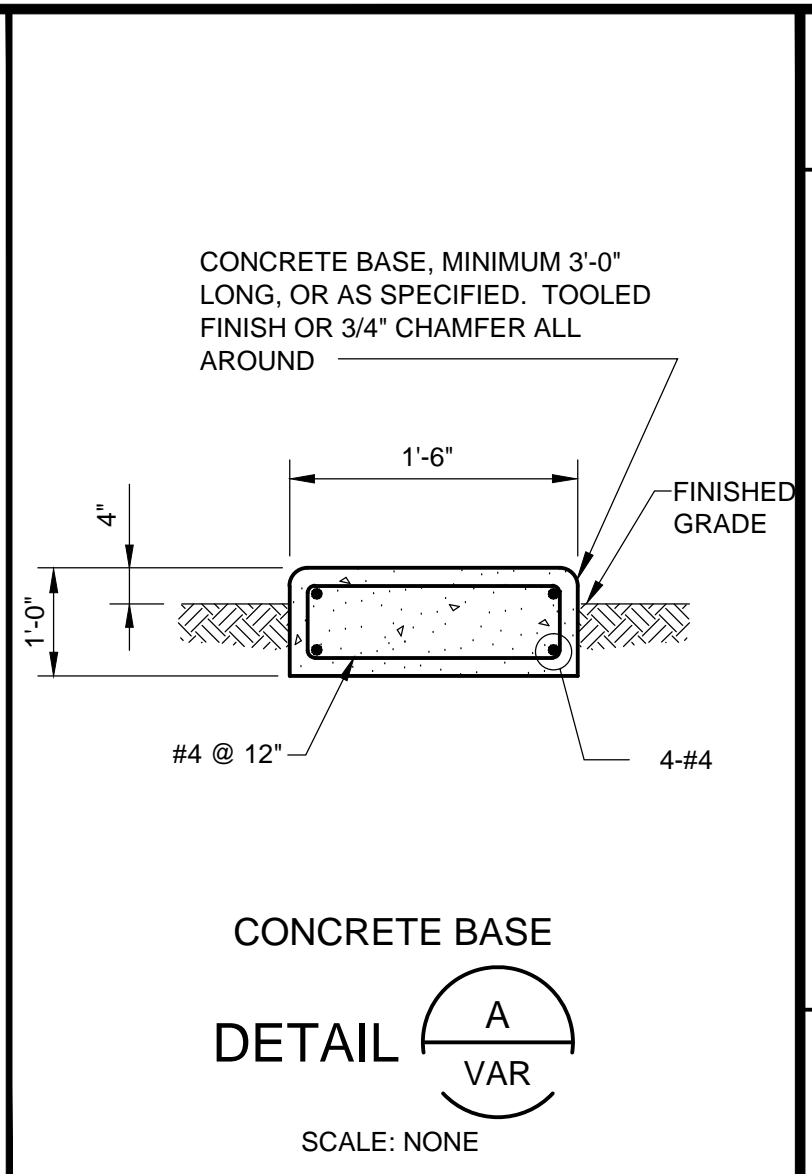
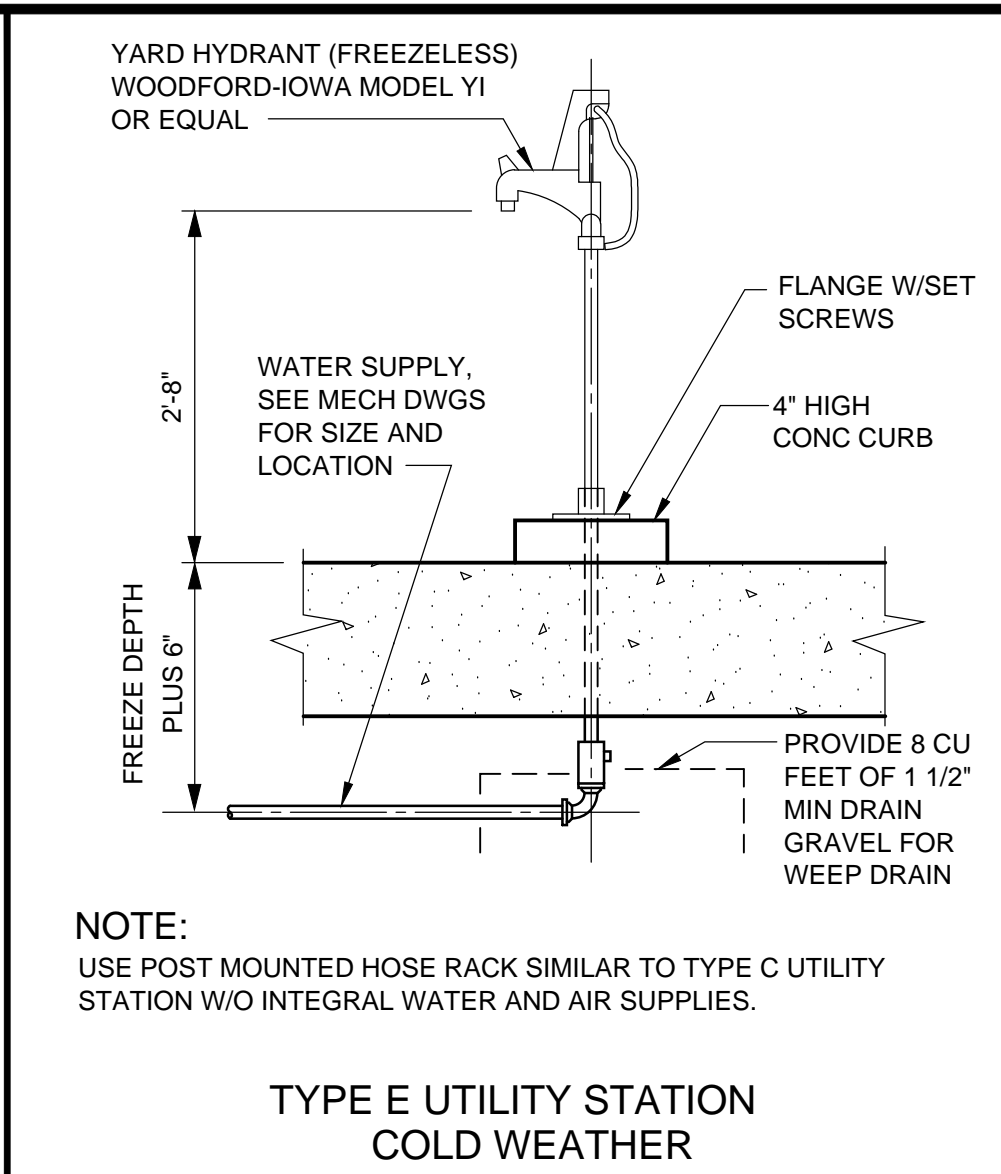
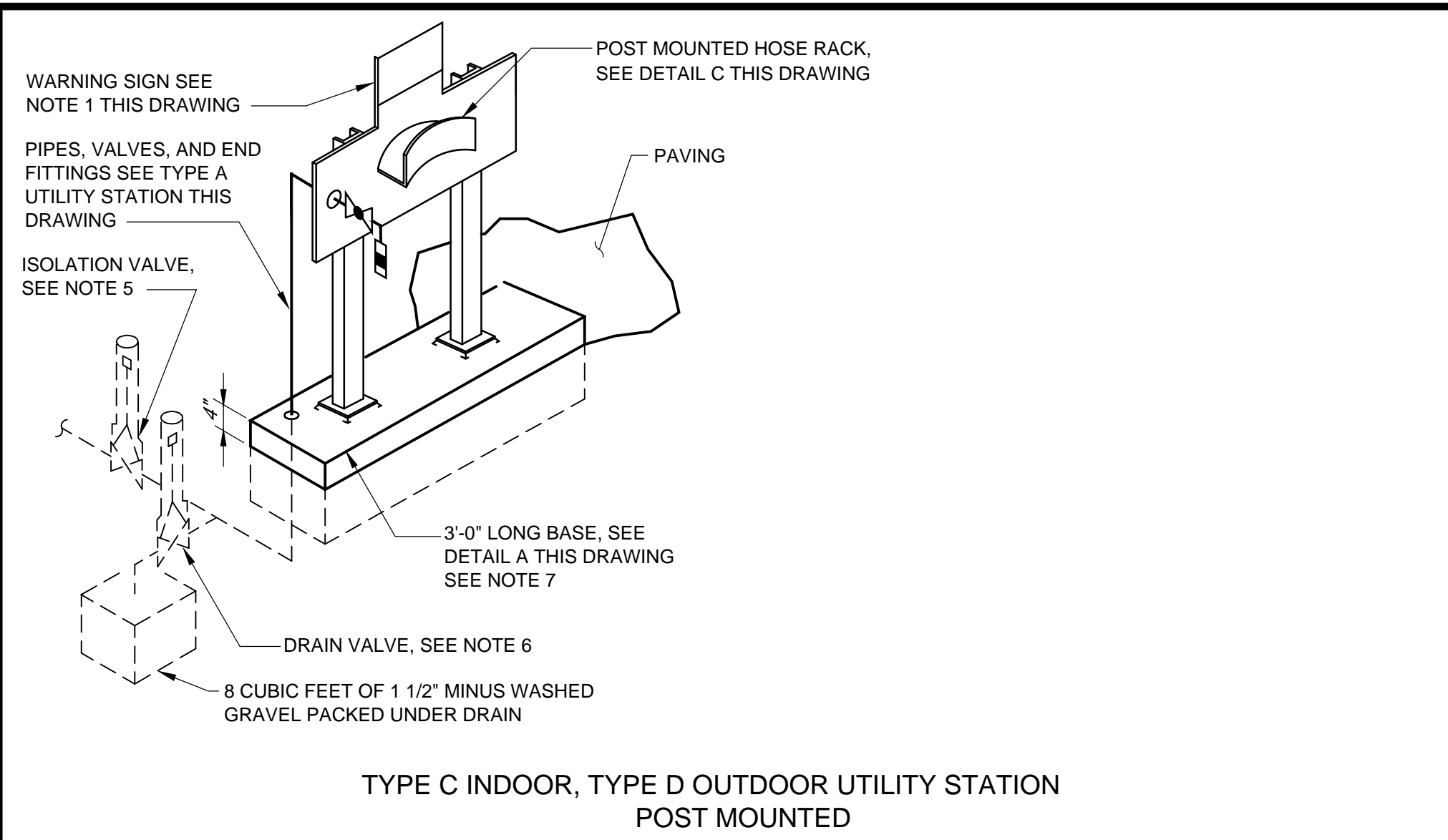
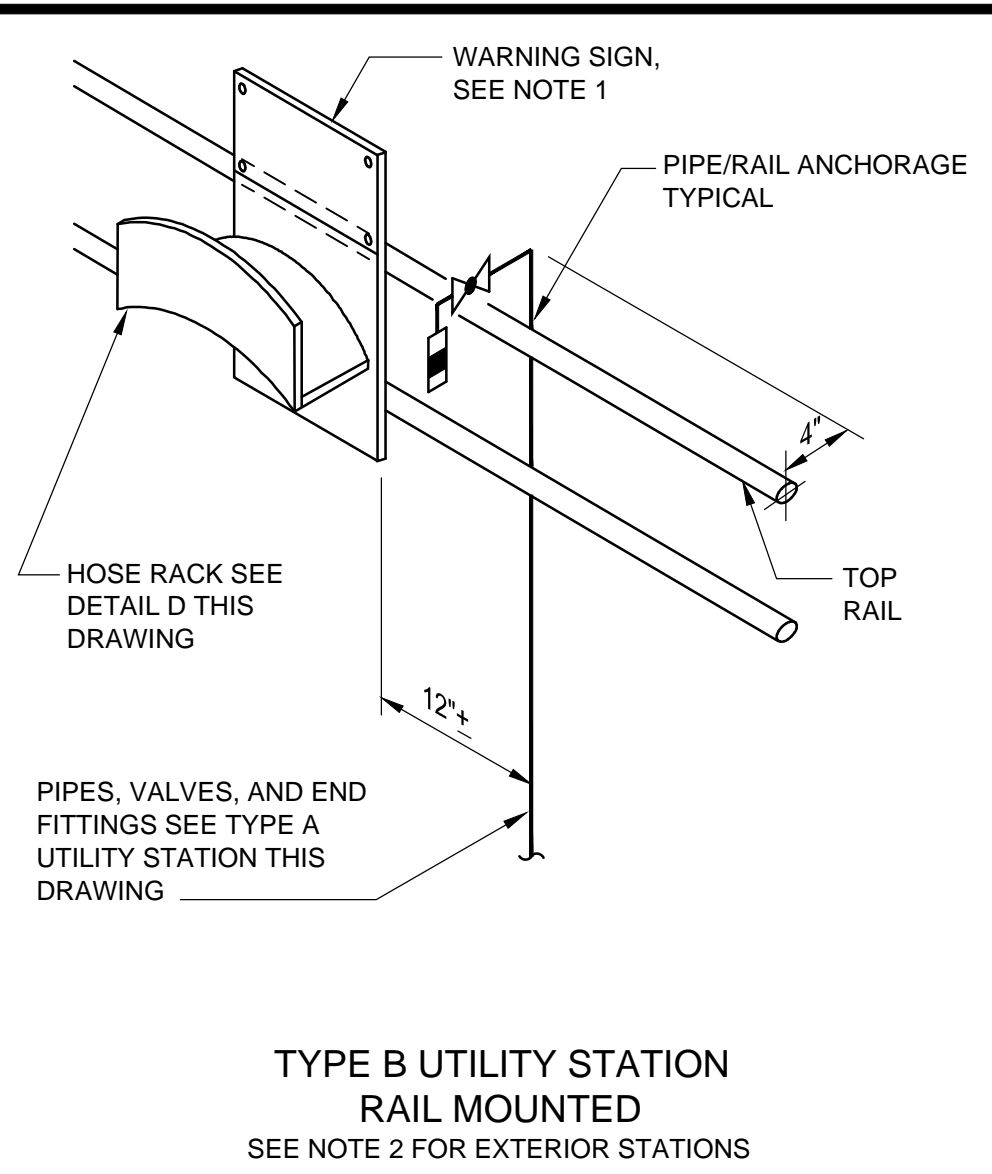
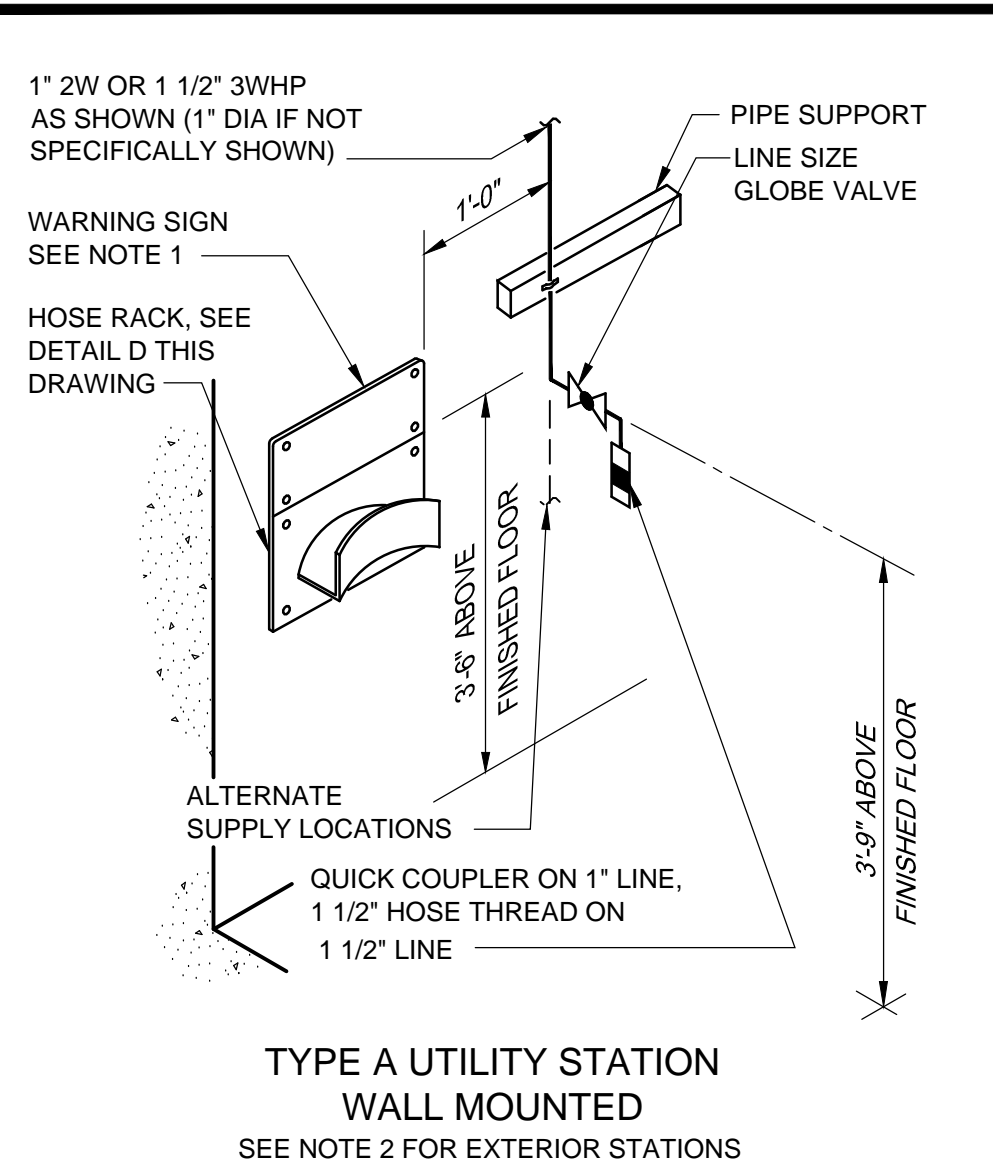
DRAIN AND CLEANOUT DETAILS

BY	DRW:TRL
CHECKED	CB
REVIEWED	RB
DATE	Jul 24, 2014
SCALE	AS SHOWN

SHEET NO. **39** OF **50**

SHEET: **M-2**

Path: \\Beckwith\p01\Projects\143000\143879 - Pittsburg WTP Improvements Ph 1\CAD\2-SHEETS\M-MECHANICAL File: 143879-SF-01-M-03.dwg Plot Date: July 24, 2014 - 12:44 PM CADD User: Lambert, Tai



- UTILITY STATION NOTES:**
- PROVIDE ALL UTILITY STATIONS WITH WARNING SIGN THAT READS "DANGER-DO NOT DRINK THIS WATER" DISPLAYED IN A PROMINENT PLACE AT THE UTILITY STATION. SEE DETAIL B.
 - PROVIDE EXTERIOR UTILITY STATION WATER PIPING WITH WINTER DRAINS TO PREVENT FREEZING. FOR EXPOSED PIPES THAT ARE SUPPLIED FROM BURIED WATER PIPES, SLOPE EXPOSED PIPE BACK TO BURIED DRAIN VALVE. PROVIDE ISOLATION VALVE, DRAIN VALVE AND ROCK SUMP SIMILAR TO TYPE D UTILITY STATION. FOR EXPOSED PIPES THAT ARE SUPPLIED FROM A ROOM, GALLERY, TUNNEL OR OTHER OCCUPIED AREA, PROVIDE ISOLATION VALVE, DRAIN VALVE AND DRAIN LINE IN OCCUPIED AREA. ROUTE DRAIN PIPE TO 1 INCH ABOVE FLOOR AT NEAREST WALL AT NEAREST FLOOR DRAIN.
 - NOT USED
 - PROVIDE HOSE RACK SIMILAR TO DETAIL D WITH CHANNEL POSTS SIMILAR TO DETAIL C FOR WATER ONLY TYPE E UTILITY STATION.
 - INSTALL ISOLATING VALVE WITH EXTENSION STEM AND VALVE BOX WITH COVER MARKED "WATER."
 - INSTALL DRAIN VALVE WITH EXTENSION STEM AND VALVE BOX WITH COVER MARKED "DRAIN."
 - PROVIDE TYPE D UTILITY STATION WITH CONCRETE BASE AS SHOWN. TYPE C UTILITY STATION POST MOUNTED RACK IS SECURED TO INTERIOR SLAB WITH ANCHOR BOLTS AS SHOWN ON DETAIL C.
 - PROVIDE DIELECTRIC ISOLATION BETWEEN PIPE AND HANDRAIL WHEN PIPING IS COPPER. WRAP 1/16 THICK NEOPRENE A FULL 360° AROUND PIPE. BOND TO PIPE WITH A COMPATIBLE WATERPROOF ADHESIVE. EXTEND NEOPRENE 1/2 INCH BEYOND STEEL CLAMP PLATE ON EACH SIDE.

MECHANICAL PHASE 1A

UTILITY STATIONS

BY	DRAWN:TRL
CHECKED:CB	
REVIEWED:RB	
DATE:	JUL 24, 2014
SCALE:	AS SHOWN
DESCRIPTION	
REV	
DATE	
SHEET NO.	40 OF 50
SHEET:	M-3

ACCEPTED FOR USE BY: KEITH HALVORSON, City Engineer

PREPARED UNDER THE DIRECTION OF: ERIK ZALKIN, RCSE, C75392, Exp. 12/31/15

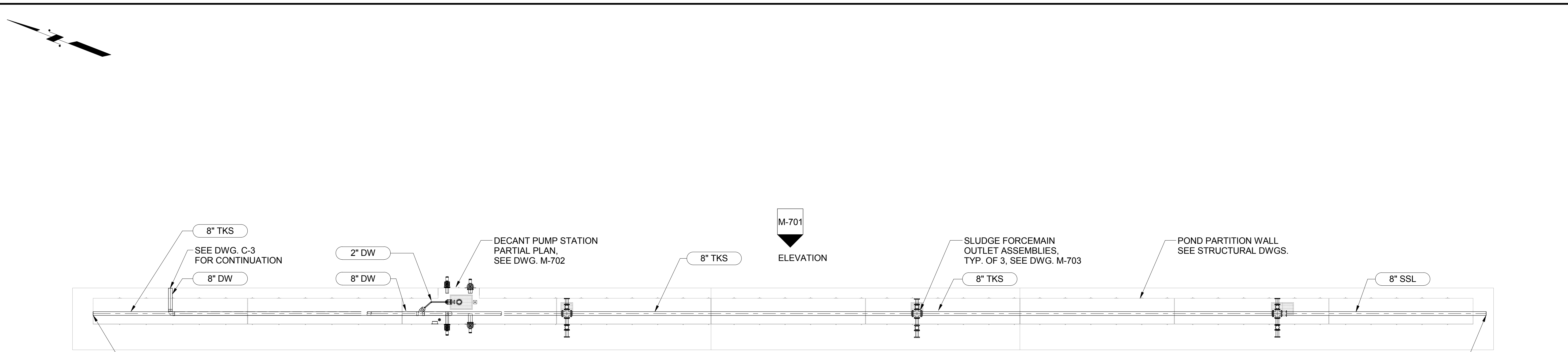
DATE: _____

PROFESSIONAL ENGINEER, CIVIL ENGINEERING, STATE OF ILLINOIS, No. 089-0815, Exp. 06/30/2015

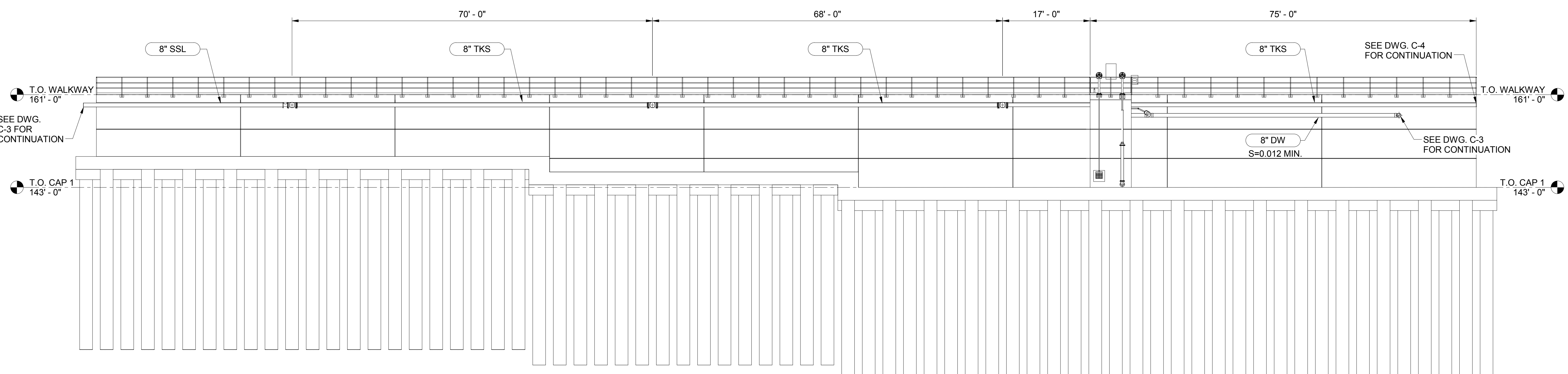
Brown and Caldwell

143879-SF-01-M-03.DWG

PLOT DATE: 7/24/2014 1:41:36 PM CAD User: KA
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OVERALL PLAN
 SCALE: 1" = 10'-0"



1 ELEVATION
 SCALE: 1" = 10'-0"

Brown and Caldwell

PROFESSIONAL ENGINEER
 STATE OF MISSOURI
 No. 000000000
 EXPIRES 06/30/15

PREPARED UNDER THE DIRECTION OF:
 ERIK ZALKIN
 R.C.E. 075392, Exp. 12/31/15
 Date: _____

ACCEPTED FOR USE BY:
 KEITH HALVORSON
 City Engineer
 Date: _____

City of Pittsburg

MECHANICAL PHASE 1B

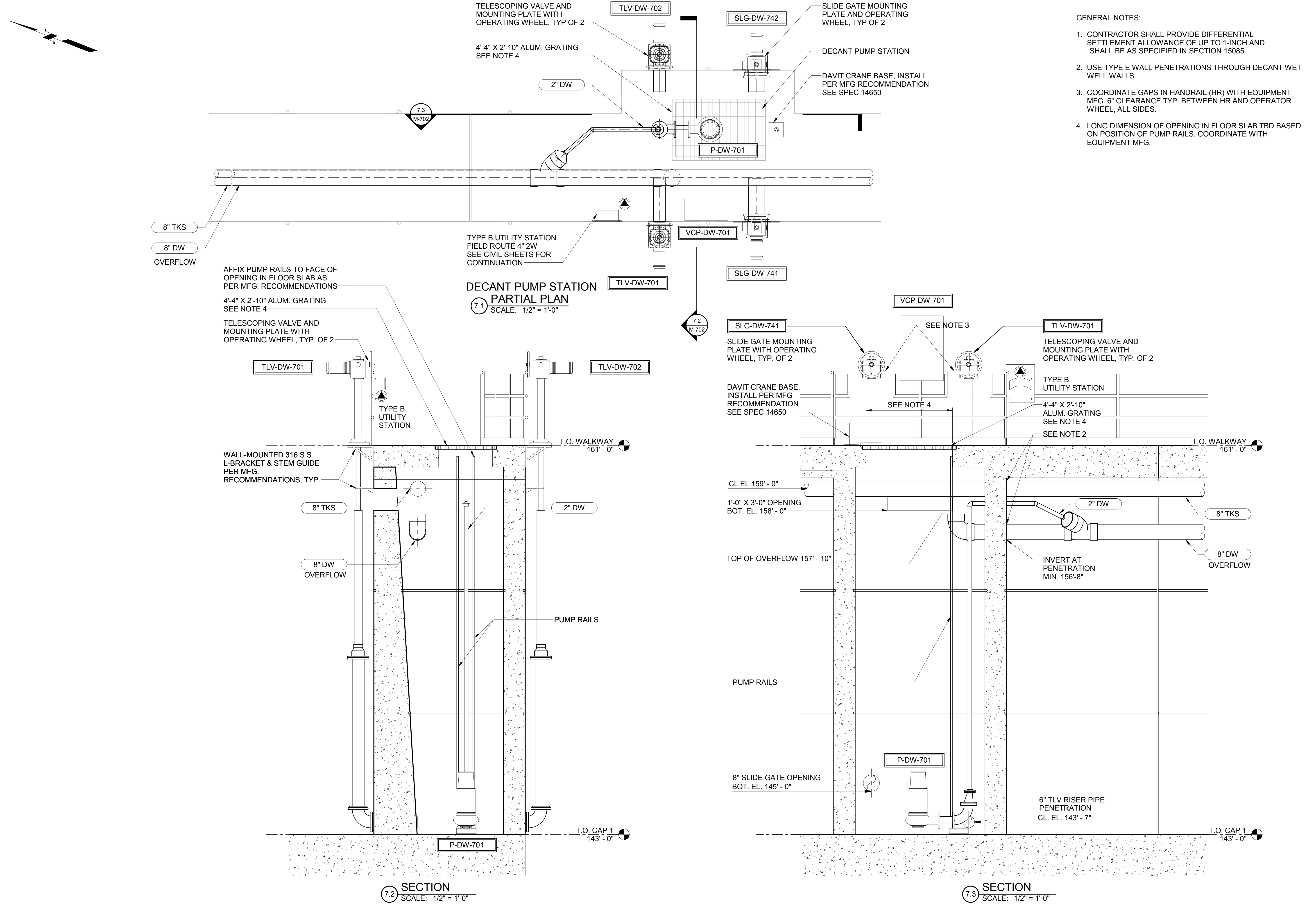
UPPER POND PLAN AND ELEVATION

DATE	REV	DESCRIPTION	BY	DRAWN:	GS	CHECKED:	BF	REVIEWED:	EZ	DATE:	06/04/14	SCALE:	1" = 10'-0"


SHEET NO.
41 OF **50**

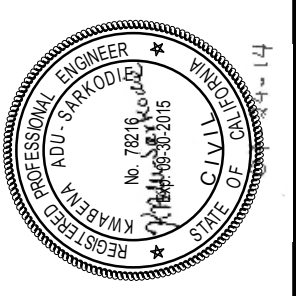
SHEET:
M-701

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 CAD User: KA



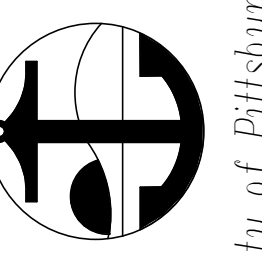
- GENERAL NOTES:
1. CONTRACTOR SHALL PROVIDE DIFFERENTIAL SETTLEMENT ALLOWANCE OF UP TO 1-INCH AND SHALL BE AS SPECIFIED IN SECTION 15085.
 2. USE TYPE E WALL PENETRATIONS THROUGH DECANT WET WELL WALLS.
 3. COORDINATE GAPS IN HANDRAIL (HR) WITH EQUIPMENT MFG. 6" CLEARANCE TYP. BETWEEN HR AND OPERATOR WHEEL, ALL SIDES.
 4. LONG DIMENSION OF OPENING IN FLOOR SLAB TBD BASED ON POSITION OF PUMP RAILS. COORDINATE WITH EQUIPMENT MFG.





PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
 P.E. 075392, Exp. 12/31/15

ACCEPTED FOR USE BY:
KEITH HALVORSON
 City Engineer



City of Pittsburg

MECHANICAL PHASE 1B

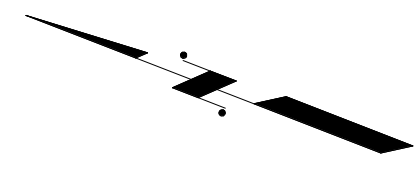
UPPER POND SECTIONS AND DETAILS

DATE	REV	DESCRIPTION	BY	DRAWN: GS	CHECKED: BF	REVIEWED: EZ	DATE: 09/05/13	SCALE: 1/2" = 1'-0"

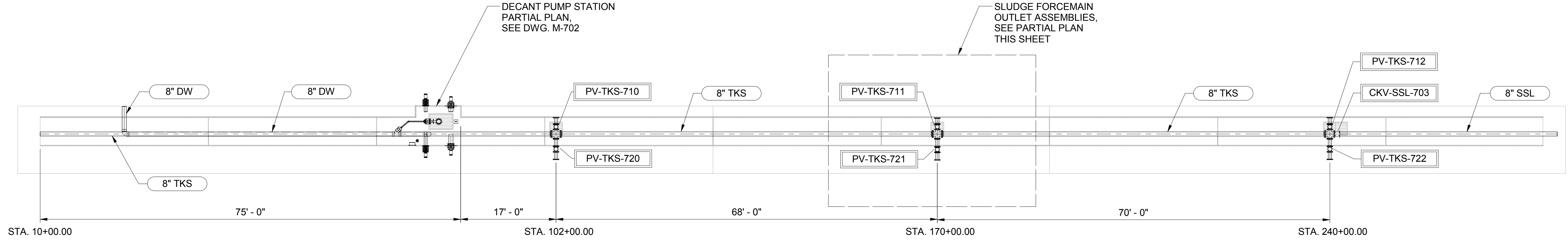
SHEET NO.
42 OF 50

SHEET:
M-702

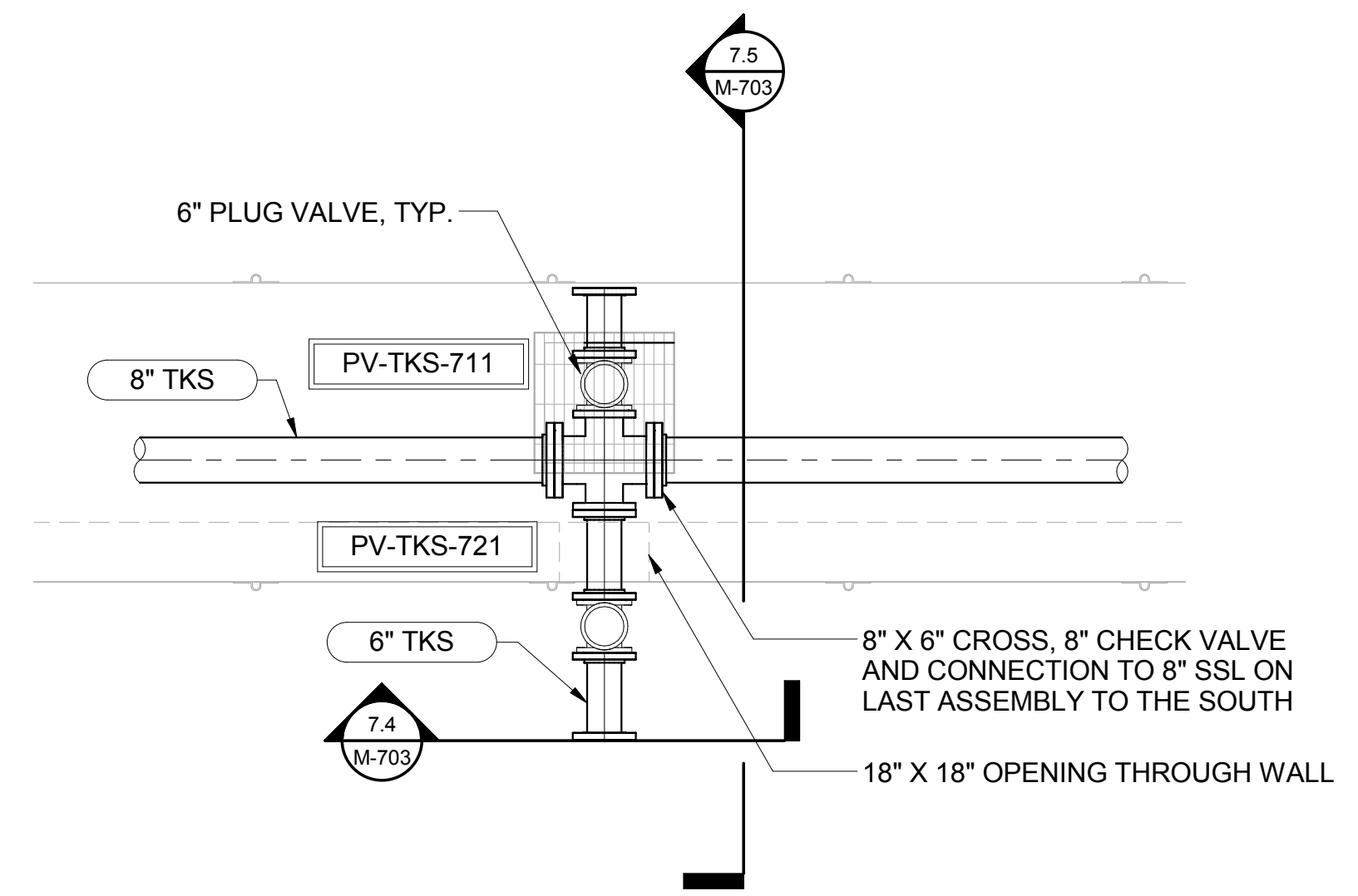
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 CAD User: KA



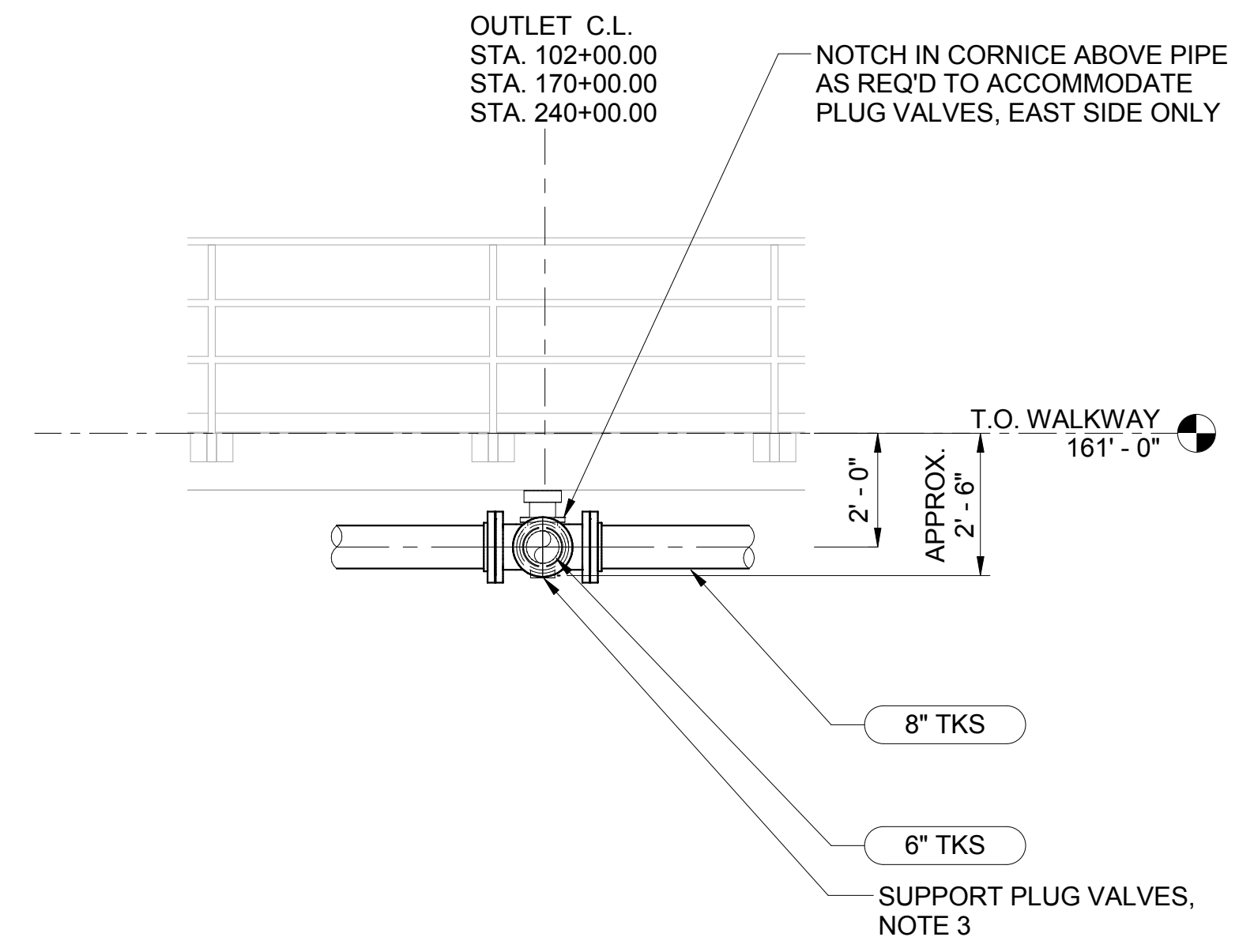
- GENERAL NOTES:
1. SLUDGE FORCEMAIN OUTLET ASSEMBLIES LOCATED AT STA. 102+00.00, STA. 170+00.00 AND STA. 240+00.00 (3 TOTAL).
 2. PROVIDE PLUG VALVES WITH WRENCH NUT.
 3. PROVIDE NEOPRENE MAT UNDER PLUG VALVES, MIN. 1/4" THICK IF PLUG VALVE IS SUPPORTED ON A PLATFORM.
 4. STATIONING IS RELATIVE TO THE TOP OF THE WALL AS SHOWN.



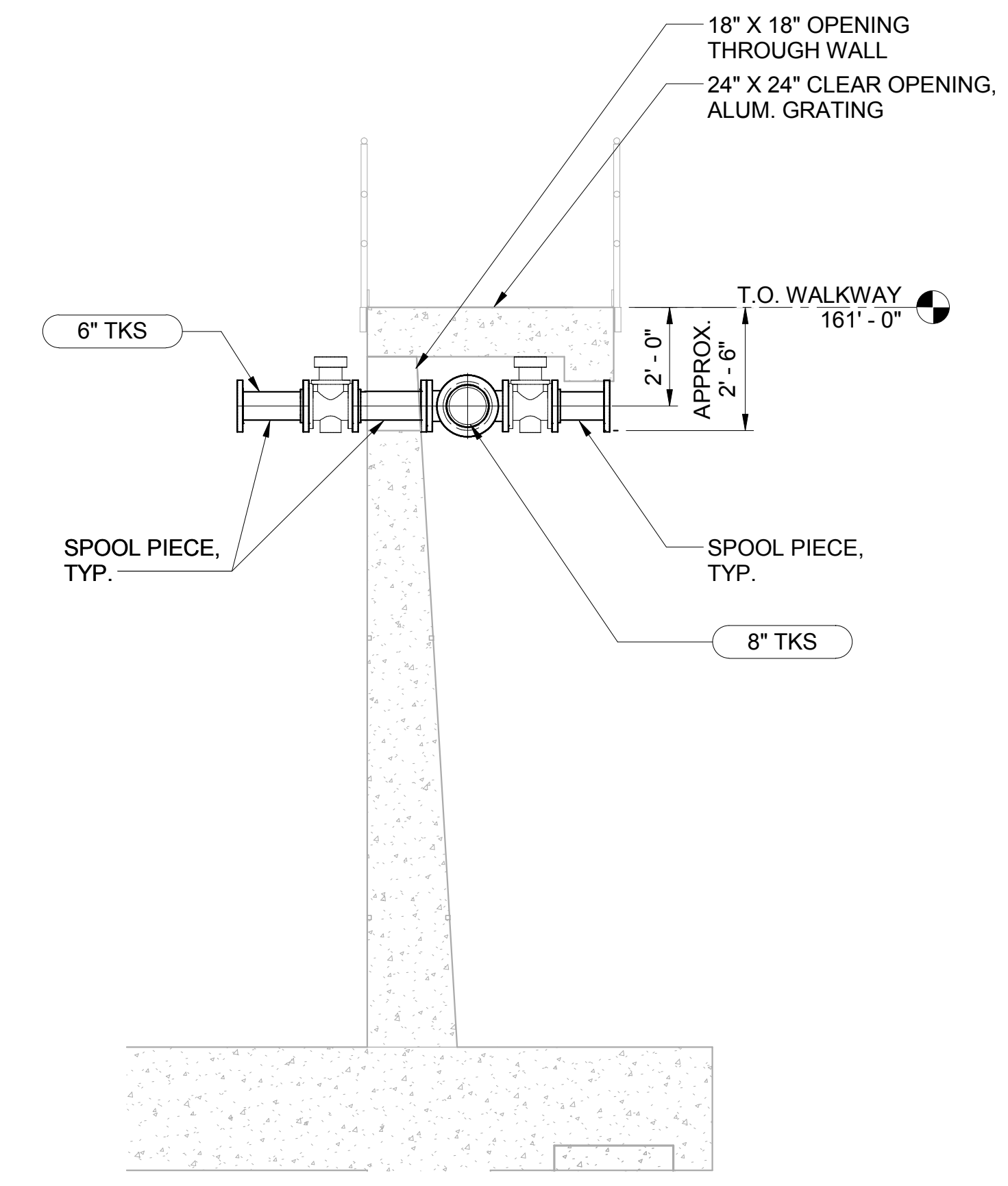
OVERALL PLAN
 SCALE: 1" = 10'-0"



PARTIAL PLAN
 SCALE: 3/8" = 1'-0"



SECTION 7.4
 NO SCALE



SECTION 7.5
 SCALE: 3/8" = 1'-0"

Brown Caldwell

PROFESSIONAL ENGINEER
 STATE OF MISSISSIPPI
 No. 10000
 EXPIRES 12/31/15

PREPARED UNDER THE DIRECTION OF:
 ERIK ZALKIN
 RCE: 07592, Exp. 12/31/15

ACCEPTED FOR USE BY:
 KEITH HALVORSON
 City Engineer

MECHANICAL PHASE 1B

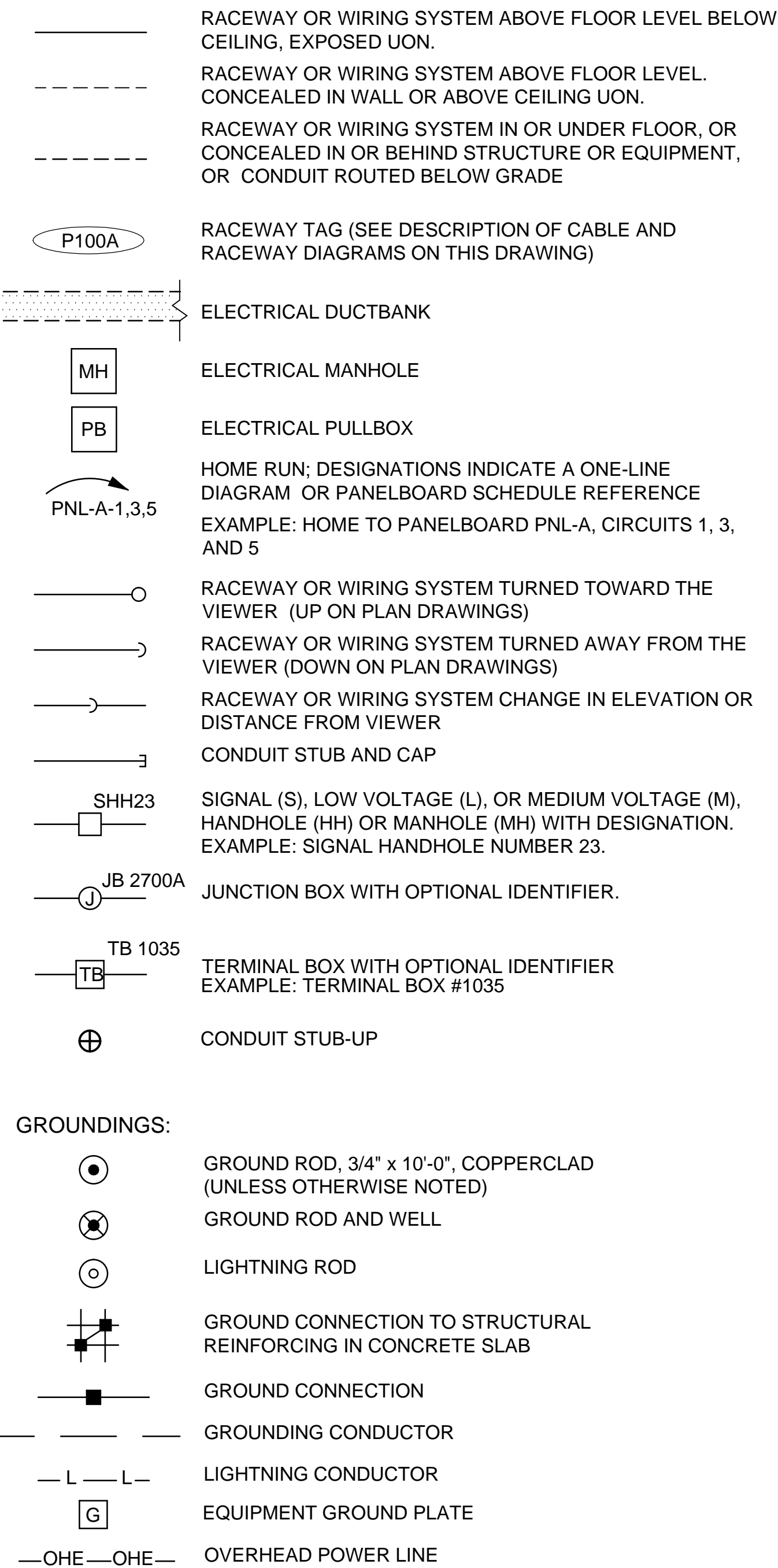
SLUDGE FORCEMAIN OUTLET ASSEMBLIES

DATE	REV	DESCRIPTION	BY	DRAWN: GS	CHECKED: BF	REVIEWED:	DATE: 05/16/14	SCALE: As indicated

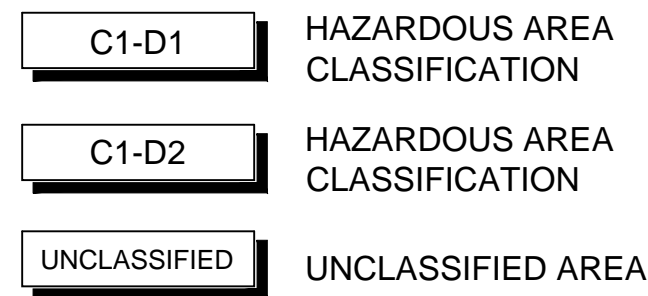
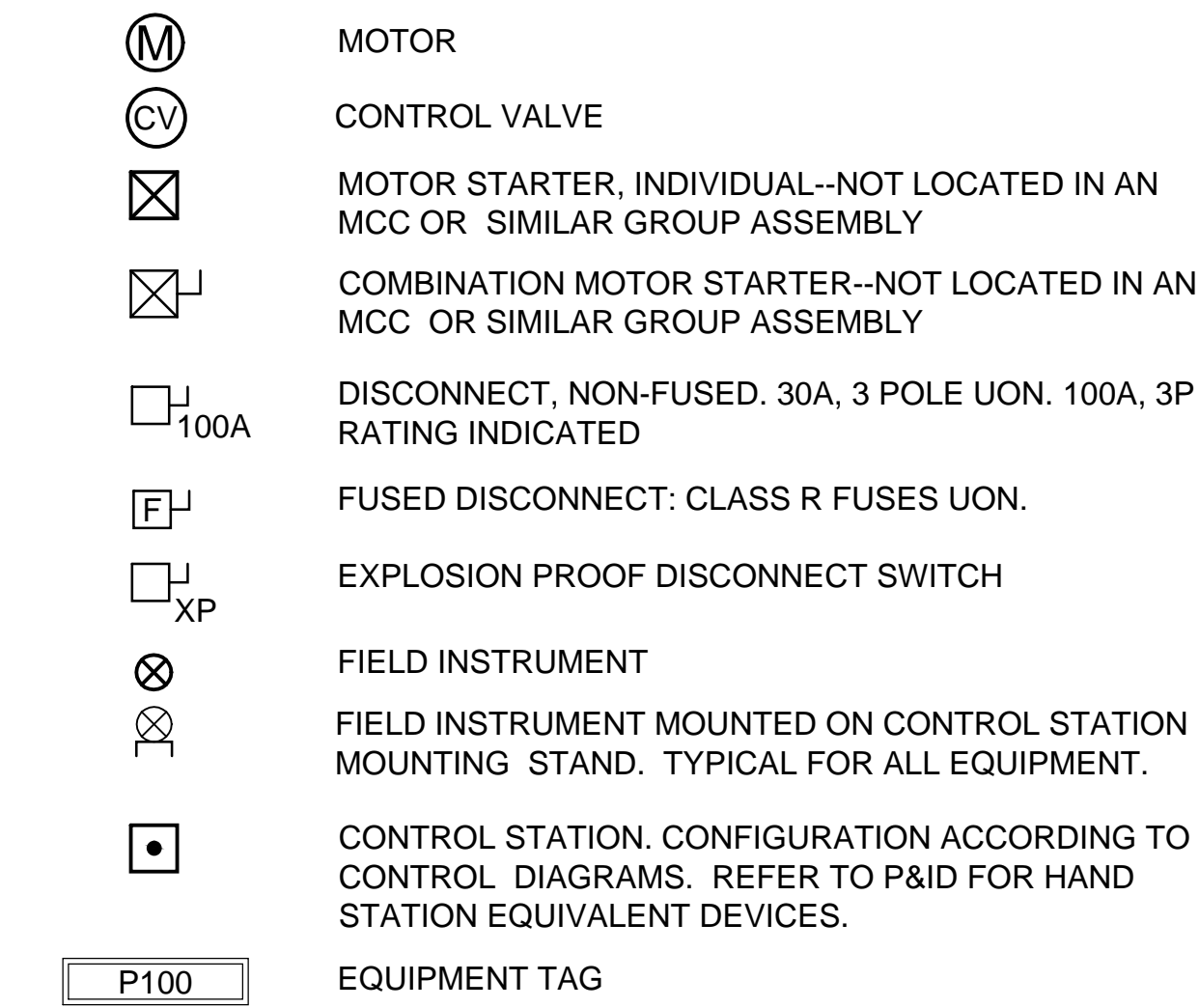
SHEET NO. 43 OF 50
 SHEET: M-703

SYMBOLS:

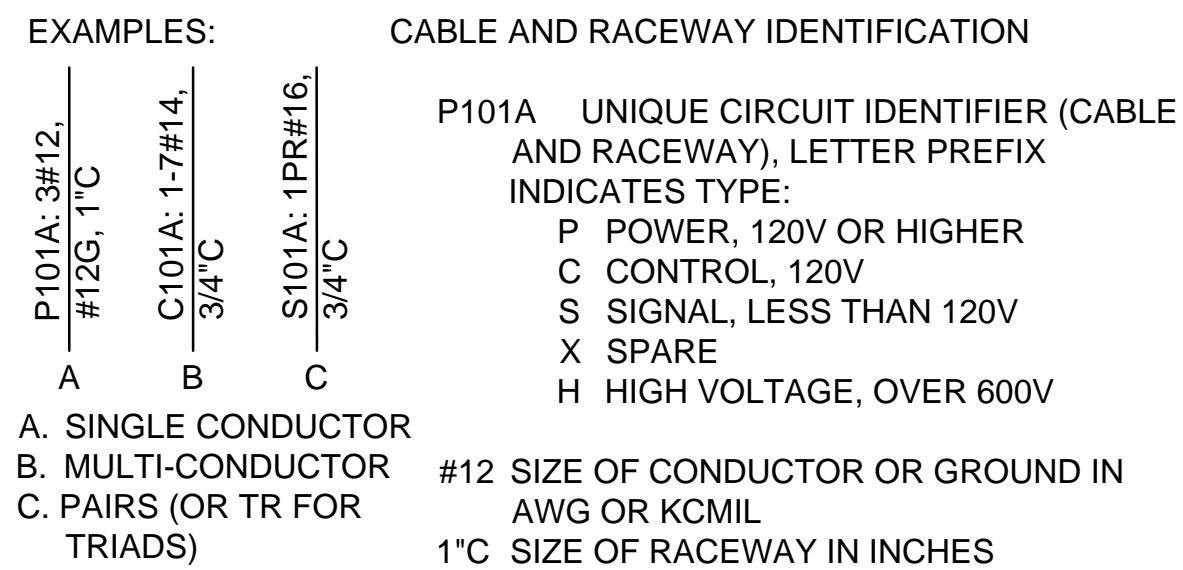
CIRCUIT AND RACEWAYS:



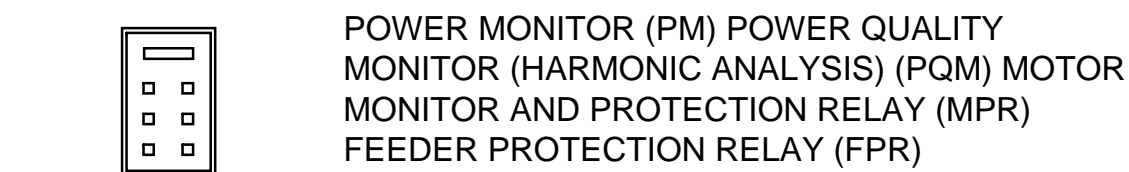
MOTOR AND EQUIPMENTS:



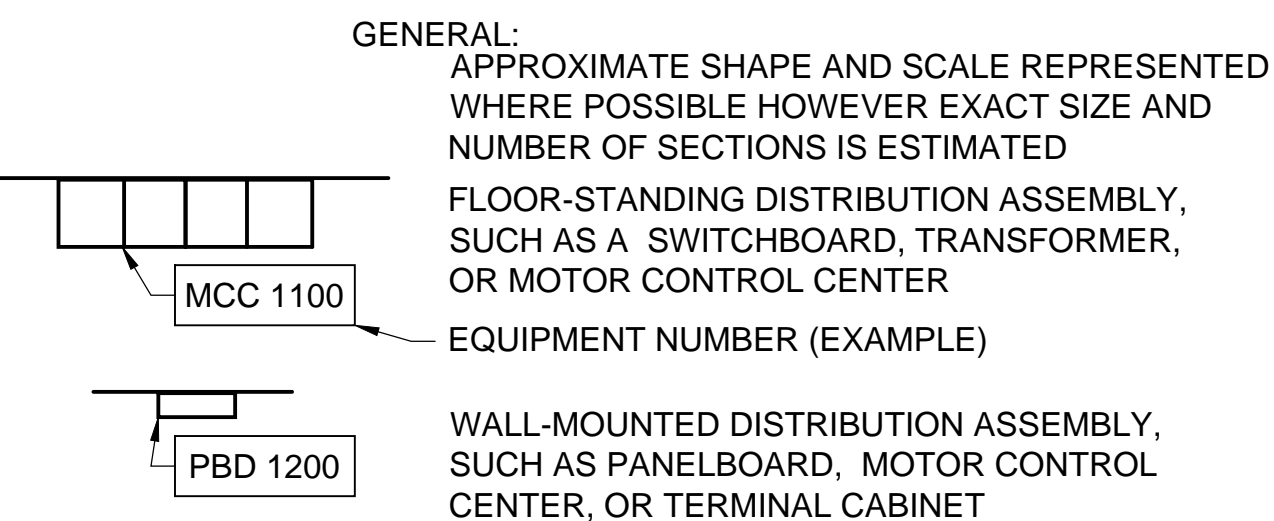
CABLE AND RACEWAY DIAGRAMS



METERING (ANSI/IEEE FUNCTIONS AS SPECIFIED):



DISTRIBUTION EQUIPMENTS:

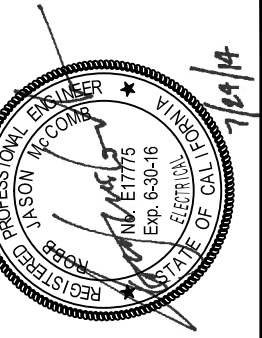


ABBREVIATIONS:

NOTES:

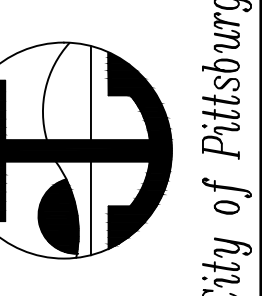
- IN GENERAL, ABBREVIATIONS USED IN ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ANSI Y1.1-1972. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION, OR ARE AMENDMENTS TO ANSI Y1.1-1972 AND ABBREVIATIONS DEFINED ON OTHER DRAWINGS. IN CASE OF CONFLICT THESE ABBREVIATIONS SHALL TAKE PRECEDENCE.
- THE FOLLOWING ABBREVIATIONS ARE NOT TO BE CONFUSED WITH EQUIPMENT NUMBERING PREFIXES LISTED ON GENERAL DRAWINGS OR OTHER CONTRACT DOCUMENTS.

A	AMP(S), AMPERE(S)	ICOM	INTERCOM	P	POLE, PHASE
AMP	AMP	ID	INSIDE DIAMETER	PB	PUSHBUTTON, PULLBOX
AC	ALTERNATING CURRENT	IMC	INDIVIDUAL MOTOR	PCP	PROCESS CONTROL PANEL
AFF	ABOVE FINISHED FLOOR	IMC	INTERMEDIATE METAL	PF	POWER FACTOR
AHAP	AS HIGH AS POSSIBLE	INS	INCANDESCENT	PH	PHASE
AIC	AMPS INTERRUPTING CAPACITY, SYMM.	INTLK	INTERLOCK	PLC	PROGRAMMABLE LOGIC CONTROLLER
AL	ALUMINUM	INST	INSTANTANEOUS	PMM	POWER METERING MODULE
ARCH	ARCHITECT(URAL)	I/O	INPUT-OUTPUT	PNL	PANEL
ASYM	ASYMMETRICAL	IPB	INSTRUMENT PULLBOX	PP	POWER PANEL
AUTO	AUTOMATIC	JB	JUNCTION BOX	PR	PAIR
AUX	AUXILIARY	KCMIL	1000 CIRCULAR MIL	PRI	PRIMARY
AWG	AMERICAN WIRE GAUGE	KV	KILOVOLT	PSL	PRESSURE SWITCH-LOW
BC	BARE COPPER	KVA	KILOVOLT-AMPERE	PT	POTENTIAL TRANSFORMER
BLDG	BUILDING	KVAR	KILOVOLT-AMPERE REACTIVE	PVC	POLYVINYL CHLORIDE
BOT	BOTTOM	KW	KILOWATT	PWR	POWER
C	CONDUCTOR, CONDUIT	KWH	KILOWATT-HOUR	QSB	QUARTZ STANDBY
CB	CIRCUIT BREAKER	L	LONG	RCPT	RECEPTACLE
CKT	CIRCUIT	LCP	LOCAL CONTROL PANEL	REF	REFERENCE
CLG	CEILING	LHH	LOW VOLTAGE HANDHOLE	REQD	REQUIRED
CM	CENTIMETERS	LMH	LOW VOLTAGE MANHOLE	RE STL	REINFORCING STEEL
CND	CONDUIT	LP	LEGEND PLATE	RMS	ROOT MEAN SQUARE
C.O.	CONDUIT ONLY, SPARE	LT	LONG TIME	RTD	RESISTANCE
CONC	CONCRETE	LTG	LIGHTING	RTU	REMOTE TERMINAL UNIT
CPT	CONTROL POWER TRANSFORMER	LV	LOW VOLTAGE	SA	SURGE ARRESTOR
CNTL	CONTROL	M	METER	SCR	SILICON CONTROLLED RECTIFIER
CORD	CORD, PULL CORD	MA	MILLIAMPERE	SD	SMOKE DETECTOR
CT	CURRENT TRANSFORMER	MBS	MANUAL BYPASS SWITCH	SEC	SECONDARY
CU	COPPER	MCC	MOTOR CONTROL CENTER	SEL	SELECTOR
DB	DUCT BANK, DIRECT BURIAL	MCP	MOTOR CIRCUIT PROTECTOR	SHH	SIGNAL HANDHOLE
DC	DIRECT CURRENT, DATA CABLE	MPC	MINI POWER CENTER	SPD	SURGE PROTECTION DEVICE
DCU	DISTRIBUTED CONTROL UNIT	MECH	MECHANICAL	SPEC	SPECIFICATION
DET	DETAIL	MFR	MANUFACTURE(R)	SPKR	SPEAKER
DIAG	DIAGRAM	MH	MANHOLE	SS	SOLID STATE STARTER
DISC	DISCONNECT	MH	METAL HALIDE	ST	SHORT TIME
DWG	DRAWING	MIC	MICROPHONE	SUB	SUBSTATION
EA	EACH	MIS	MANAGEMENT	SW	SWITCH
EC	EMPTY CONDUIT	MIS	INFORMATION STATION	SWBD	SWITCHBOARD
ECP	EQUIPMENT CONTROL PANEL	MISC	MISCELLANEOUS	SWGR	SWITCHGEAR
EDB	ELECTRICAL DUCTBANK	MM	MILLIMETER	SYMM	SYMMETRICAL SYSTEM
EG	ENGINE GENERATOR SET	MMH	MEDIUM VOLTAGE MANHOLE	TB	TERMINAL BOX
EL	ELEVATION	MOV	MOTOR OPERATED VALVES	TEL	TELEPHONE
ELEC	ELECTRIC(AL)	MTS	MANUAL TRANSFER SWITCH	TEMP	TEMPERATURE
EMH	ELECTRICAL MANHOLE	MV	MILLIVOLT, MEDIUM VOLTAGE	TFR	TRANSFORMER
EMER	EMERGENCY	MVMC	MEDIUM VOLTAGE MOTOR CONTROL	TRI	TRIAD
ENCL	ENCLOSURE/ENCLOSED	N/A	NOT APPLICABLE	TV	TELEVISION
EPB	ELECTRICAL PULLBOX	N.C.	NORMALLY CLOSED	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
EQUIP	EQUIPMENT	NEUT,N	NEUTRAL	TYP	TYPICAL
EX, (E)	EXISTING	NF	NON-FUSED	U/G	UNDERGROUND
FDR	FEEDER	NIC	NOT IN CONTRACT	UON	UNLESS OTHERWISE NOTED
FL	FLUORESCENT	N.O.	NORMALLY OPEN	UPS	UNINTERRUPTABLE POWER SUPPLY
FLA	FULL LOAD AMPS	NO.	NUMBER	V	VOLT
FLEX	FLEXIBLE CONDUIT	NOM	NOMINAL	VA	VOLTAMPERE
F.O.	FAIL OPEN	NP	NAMEPLATE	VAR	VOLTAMPERE REACTIVE
FO	FIBER OPTIC	NTS	NOT TO SCALE	VC	VACUUM CONTACTOR
FUT	FUTURE	OC	ON CENTER	VND	VENDOR (SUPPLIED CABLE)
GDR	GROUNDING RESISTOR	OCC	OPERATION CONTROL CENTER	XFMR	TRANSFORMER
GEC	GROUND ELECTRODE CONDUCTOR	OD	OUTSIDE DIAMETER	XMTR	TRANSMITTER
GF	GROUND FAULT	OH	OVERHEAD	W	WATT, WIRE, WIDE
GFI	GROUND FAULT INTERRUPTER	OIS	OPERATOR INTERFACE STATION	W/	WITH
GND, G	GROUND	OT	OILTIGHT	W/O	WITHOUT
GRS	GALVANIZED RIGID STEEL	OWS	OPERATOR WORKSTATION	WW	WIREWAY
H	HIGH			WG	WITH GROUND
HGT	HEIGHT			WP	WEATHERPROOF
HH	HANDHOLE			XP	EXPLOSION PROOF
HID	HIGH INTENSITY DISCHARGE			Z	IMPEDANCE
HP	HORSEPOWER				
HPS	HIGH PRESSURE SODIUM				
HTR	HEATER				
HV	HIGH VOLTAGE				
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING				
HZ	HERTZ (CYCLES PER SECOND)				



ERIK ZALKIN
 P.E. No. 123115
 Date: _____

KEITH HALVORSON
 City Engineer
 Date: _____



LEGEND AND SYMBOLS SHEET 1

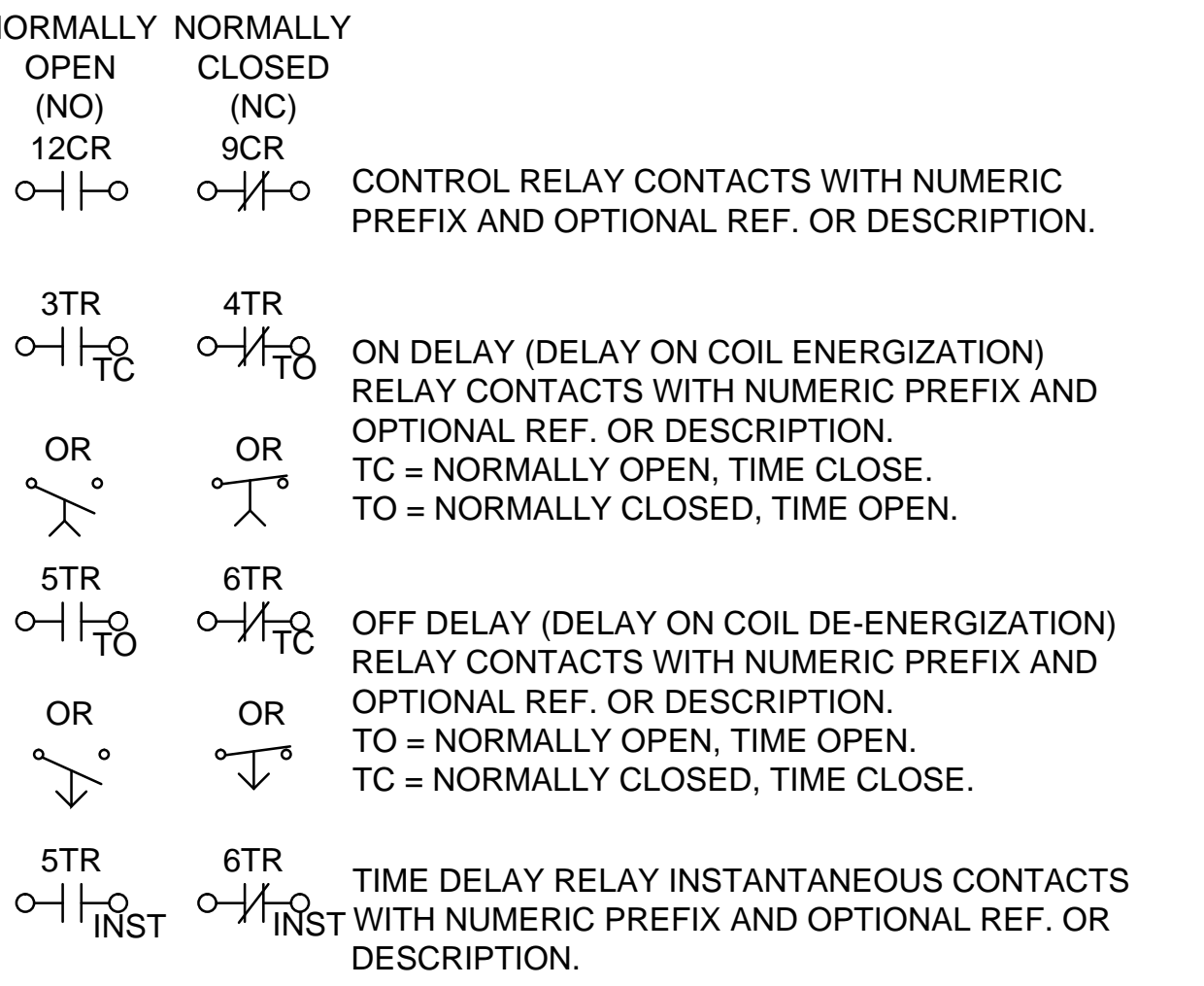
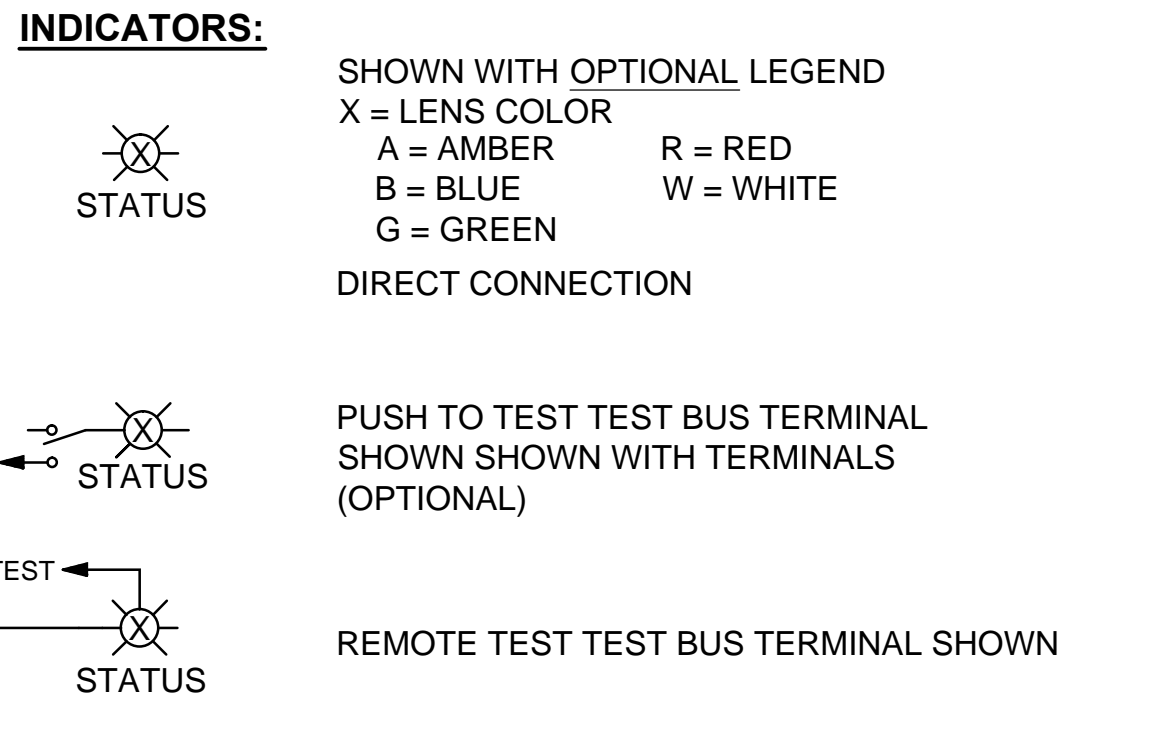
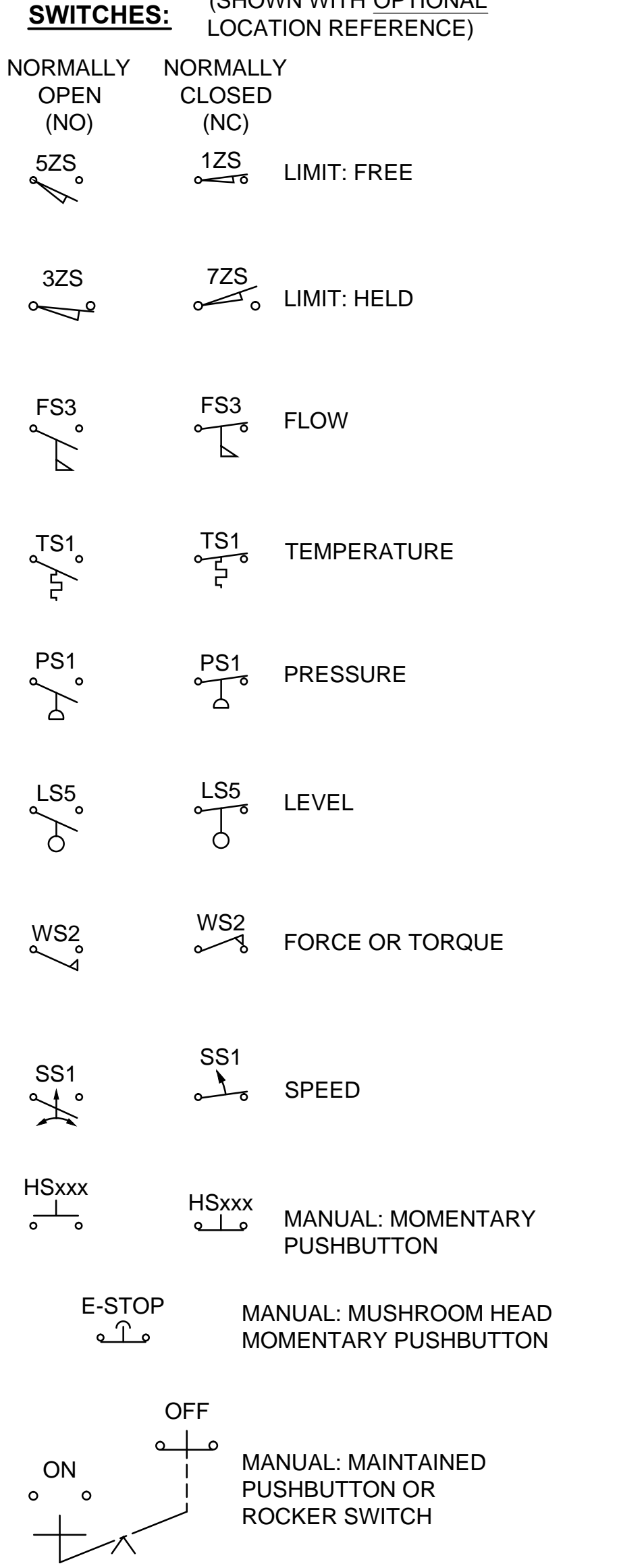
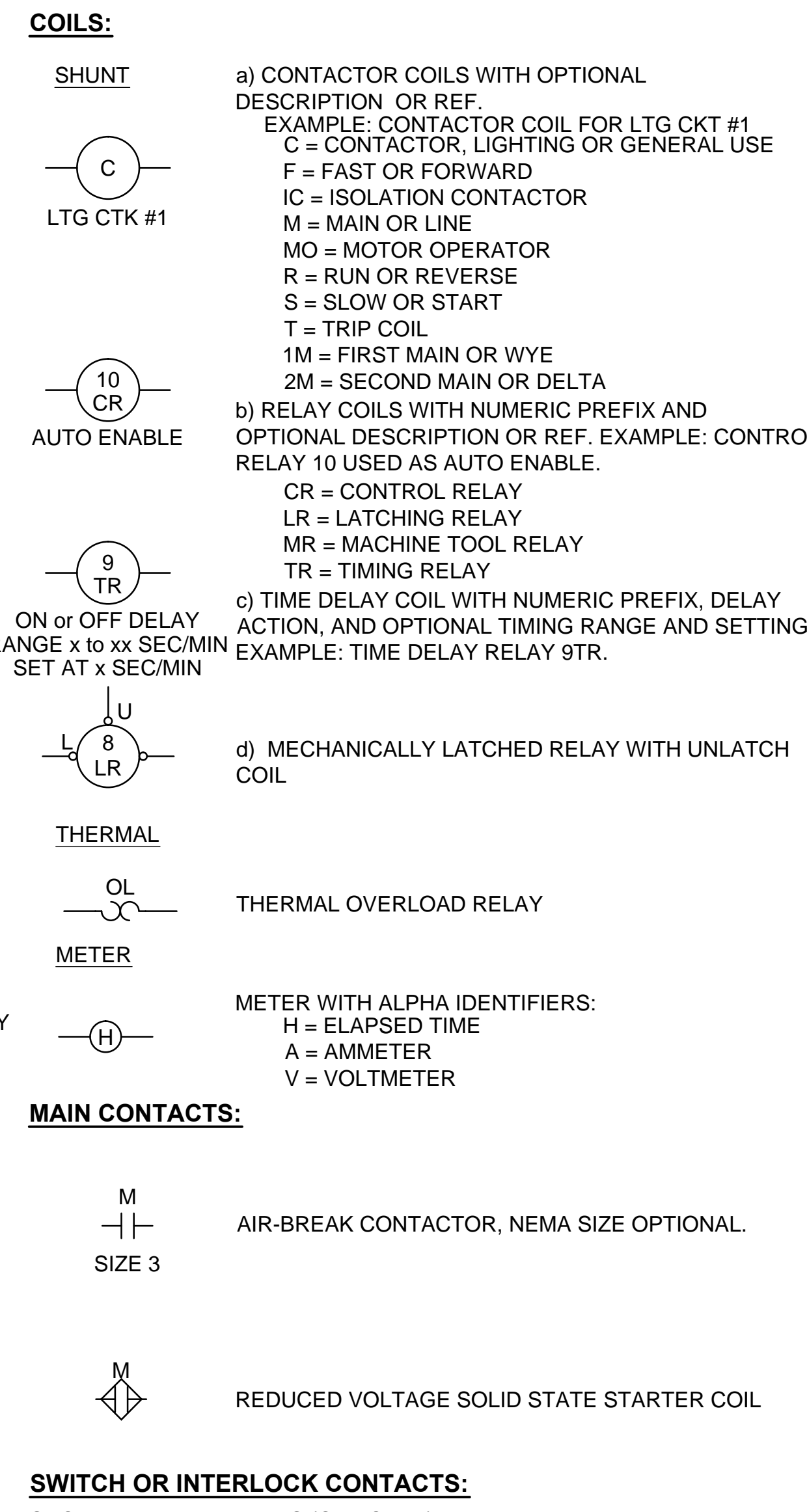
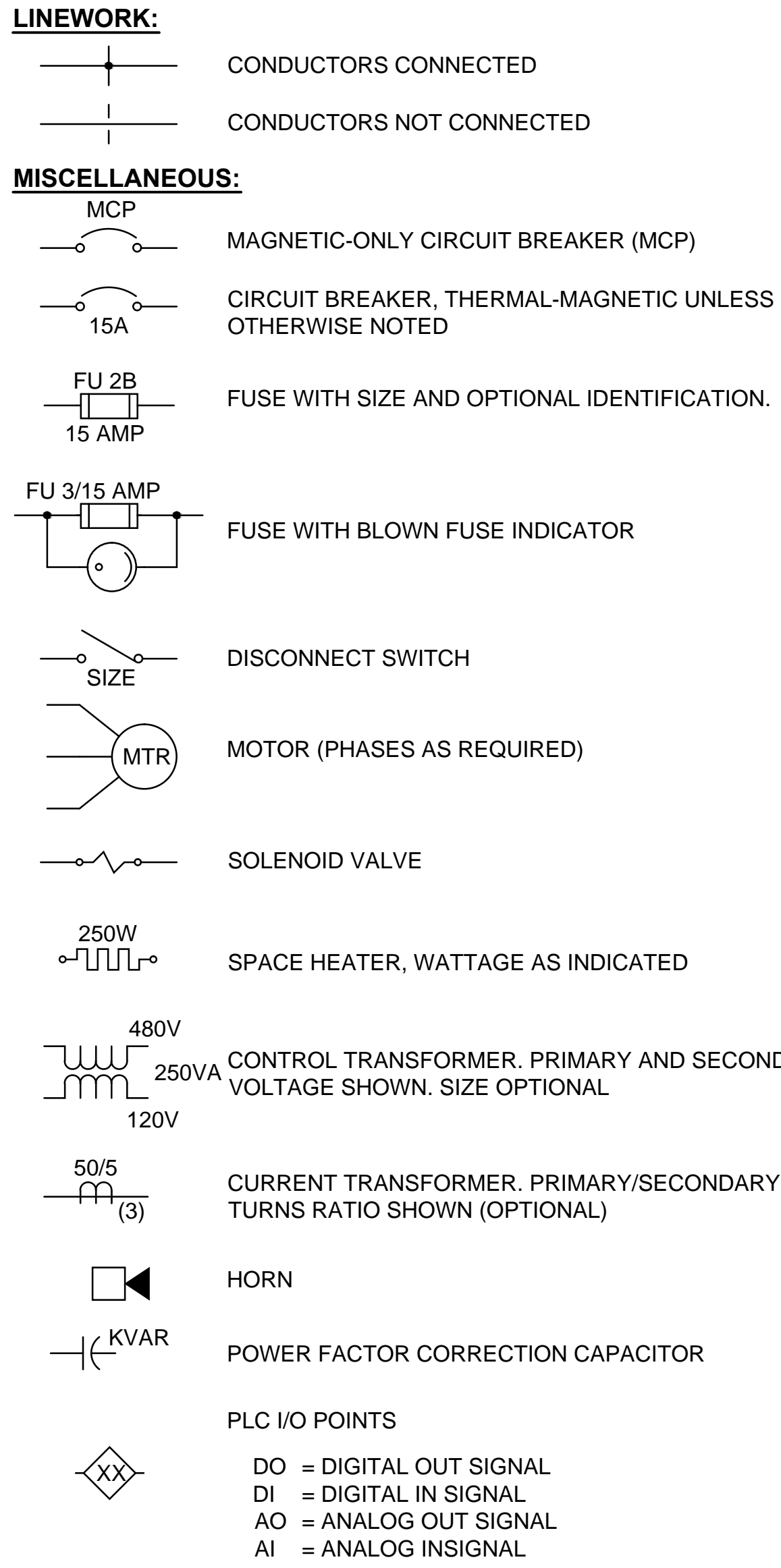
BY	DRAWN/RJM	CHECKED/CB	REVIEWED/CLR	DATE: Jul 24, 2014	SCALE: AS SHOWN
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DESCRIPTION	REV	DATE

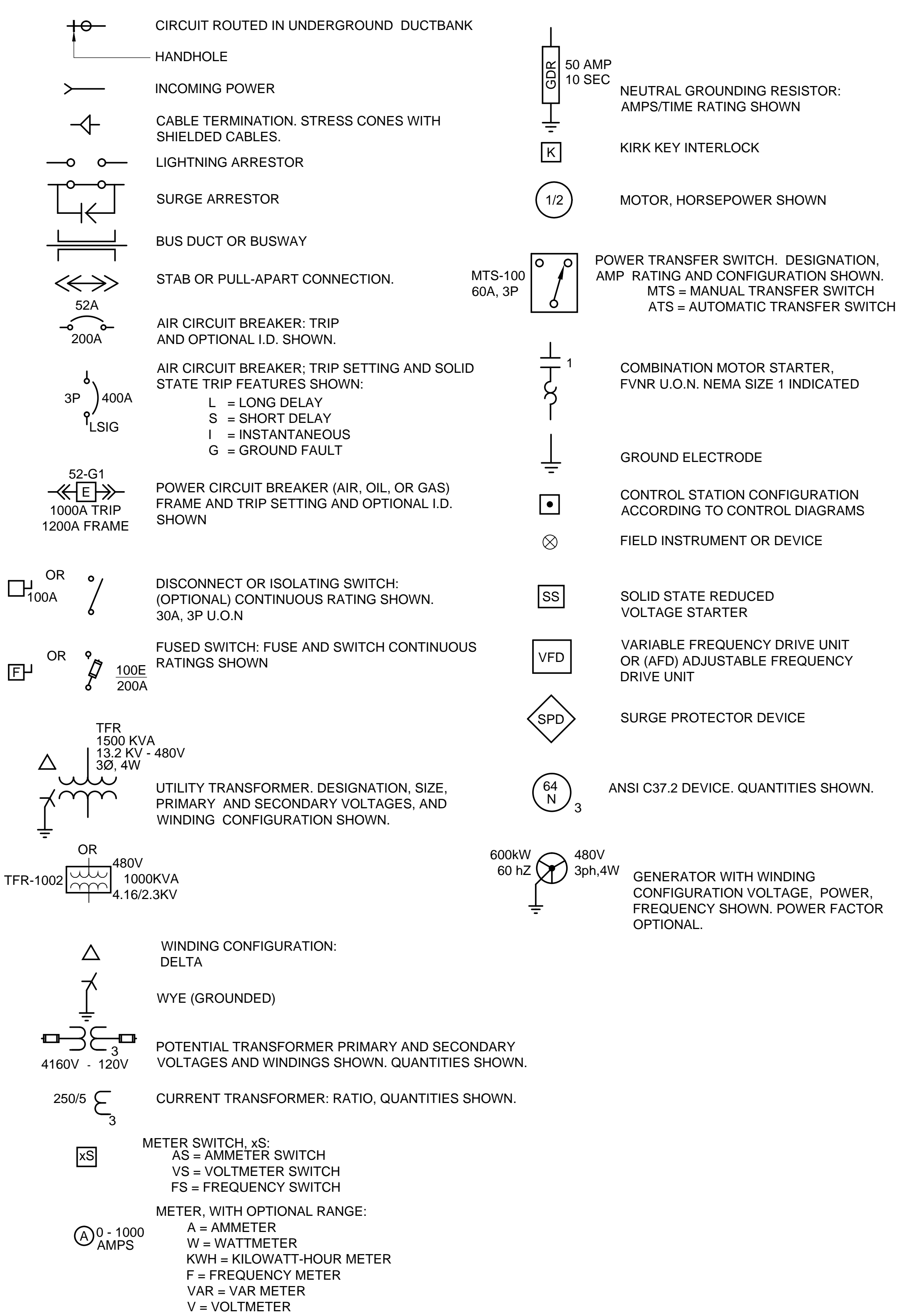
SHEET NO.
 44 OF 50
 SHEET:
 E-1

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CONTROL DIAGRAMS:

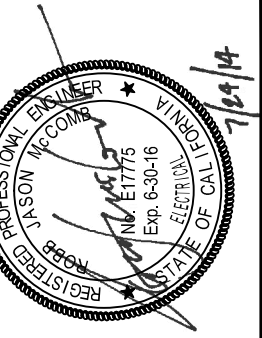


ONE LINE DIAGRAMS:



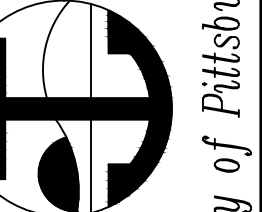
GENERAL NOTES:

1. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE. NOT ALL SYMBOLS OR ABBREVIATIONS SHOWN ON DRAWINGS E1 AND E2 ARE USED IN SUBSEQUENT DRAWINGS.



PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
P.E., C75592, Exp. 12/31/15

ACCEPTED FOR USE BY:
KEITH HALVORSON
City Engineer



ELECTRICAL PHASE 1A
LEGEND AND SYMBOLS SHEET 2

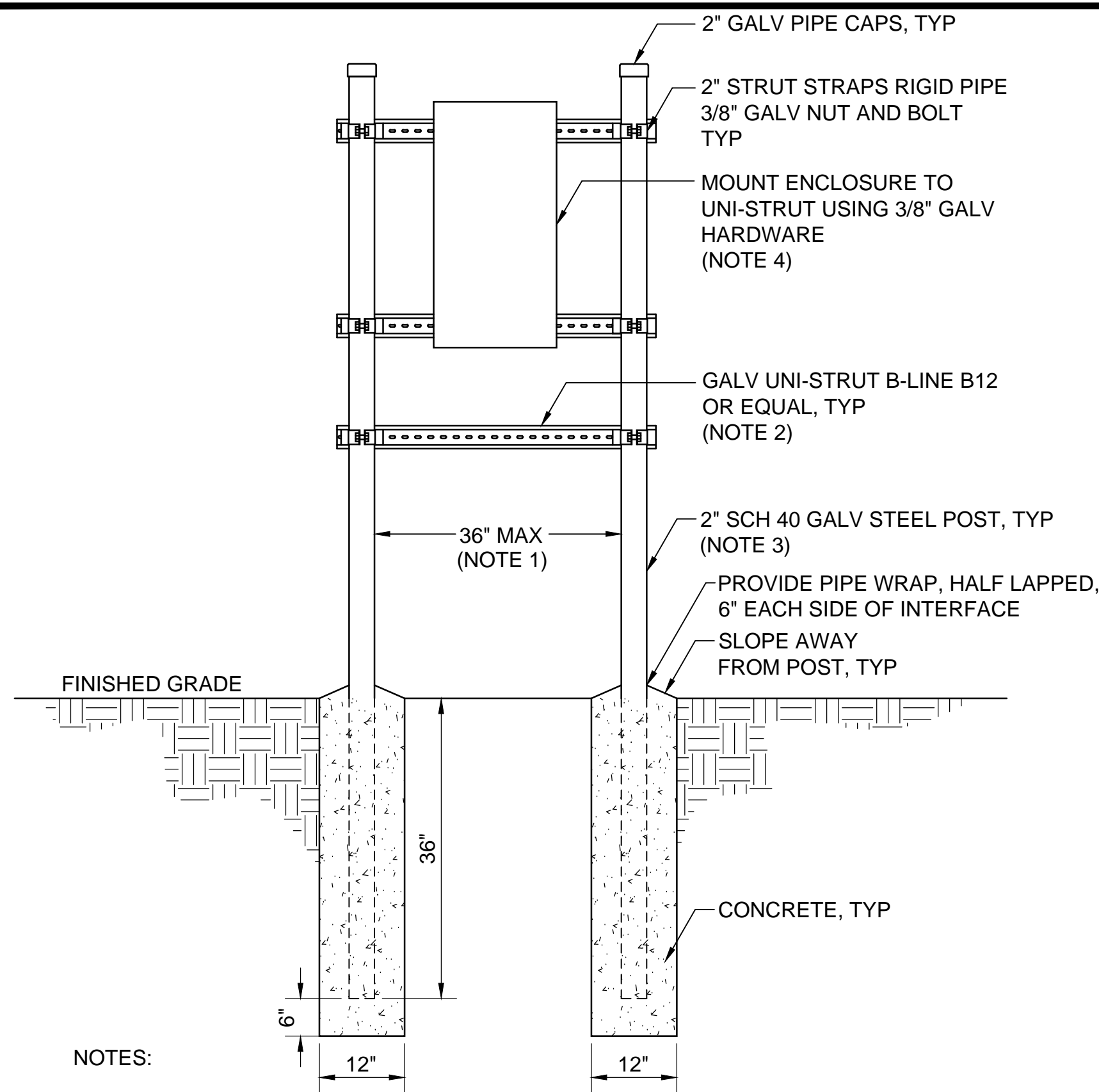
BY	DRAWN:RJM	CHECKED:CB	REVIEWED:DLR	DATE: Jul 24, 2014	SCALE: AS SHOWN
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REV	DESCRIPTION

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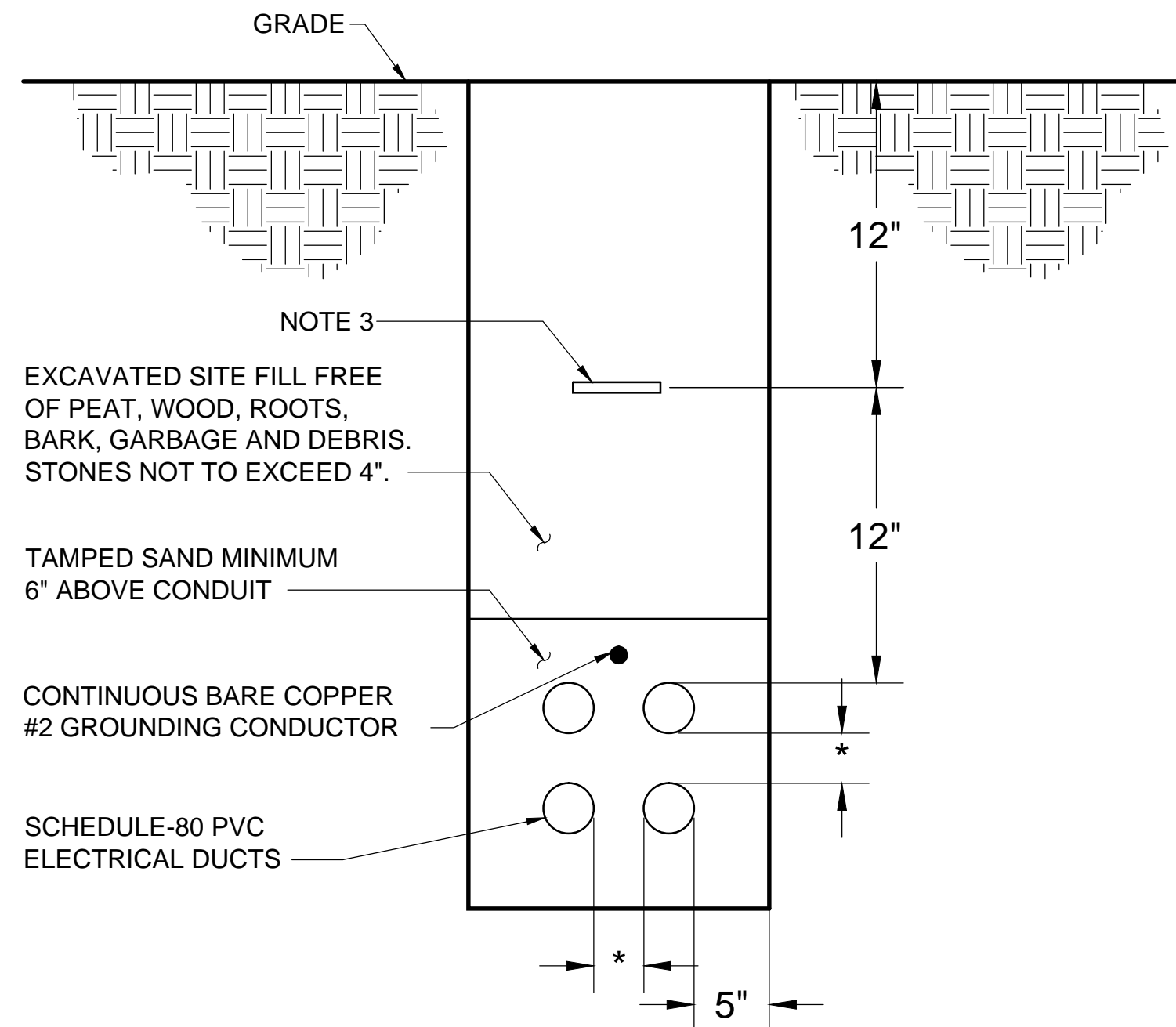
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- NOTES:
1. PROVIDE ADDITIONAL POSTS IF WIDER THAN 24".
 2. PROVIDE ADDITIONAL UNI-STRUT AND HARDWARE FOR DIFFERENT EQUIPMENT SIZES AND TO SUPPORT CONDUITS.
 3. PROVIDE 3" GRS POSTS FOR HEAVY EQUIPMENT.
 4. MOUNT INDICATORS OR EQUIPMENT OPERATING HANDLES 4' ABOVE FINISHED GRADE OR PLATFORM.

TYPICAL EQUIPMENT RACK

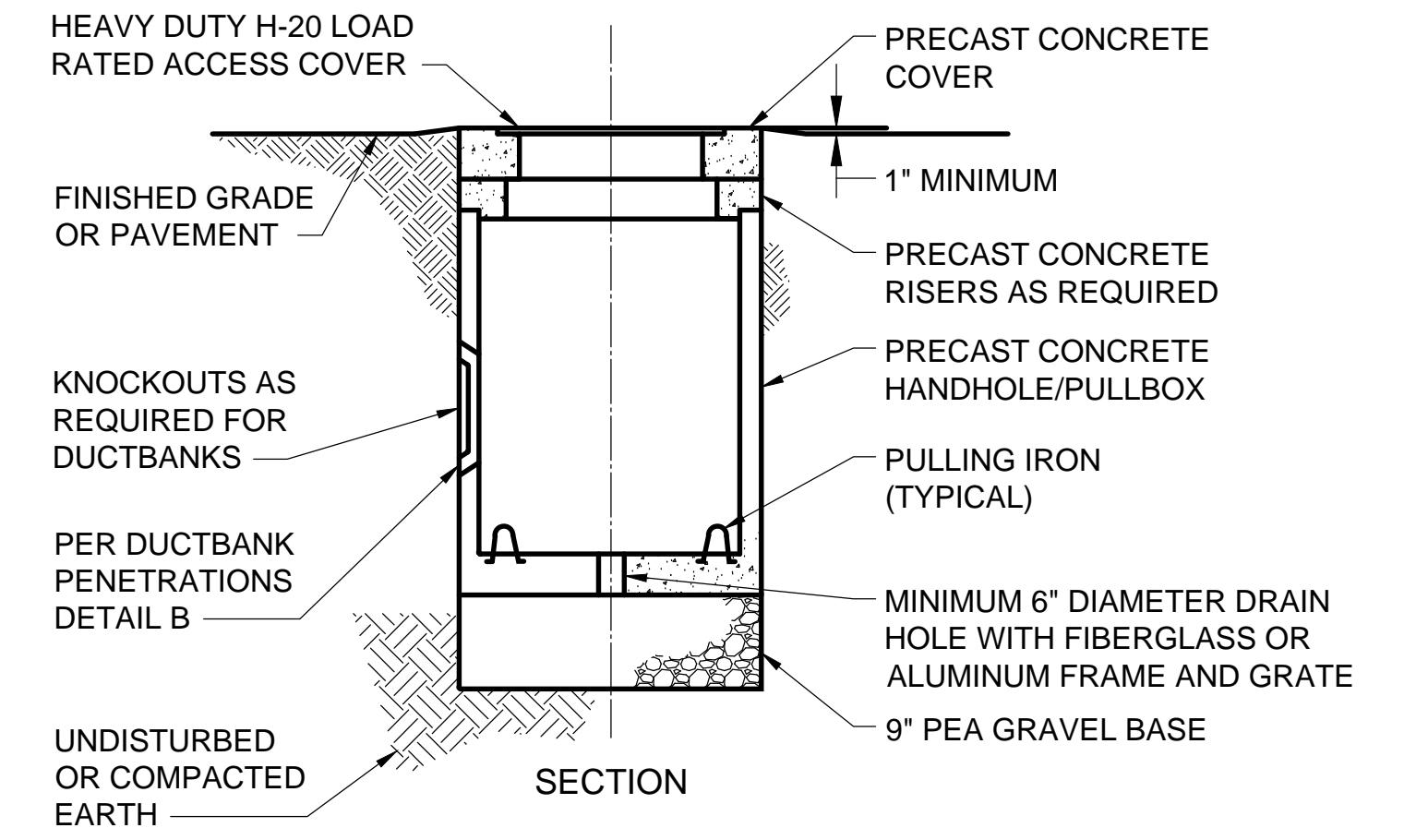
DETAIL A
VAR
SCALE: NONE



- NOTES:
1. REFER TO SPECIFICATION DIVISION 16 FOR DIRECT BURIED RACEWAY CONSTRUCTION REQUIREMENTS.
 2. NUMBER AND SIZE OF ELECTRICAL DIRECT BURIED RACEWAYS AS INDICATED ON DRAWINGS OR SCHEDULES.
 3. OSHA APPROVED 2" WIDE RED WARNING TAPE (BRADY IDENTOLINE OR EQUAL).
 4. DIMENSIONS ARE MINIMUM.
 5. SADDLE-TYPE CONDUIT SPACERS REQUIRED EVERY 8' (CARLON SNAP-LOC, SNAP-N-STAC, OR EQUAL).
- *PROVIDE 2" SEPARATION FOR CONDUITS LESS THAN 4".

DIRECT BURIED DUCTBANK

DETAIL B
VAR
SCALE: NONE



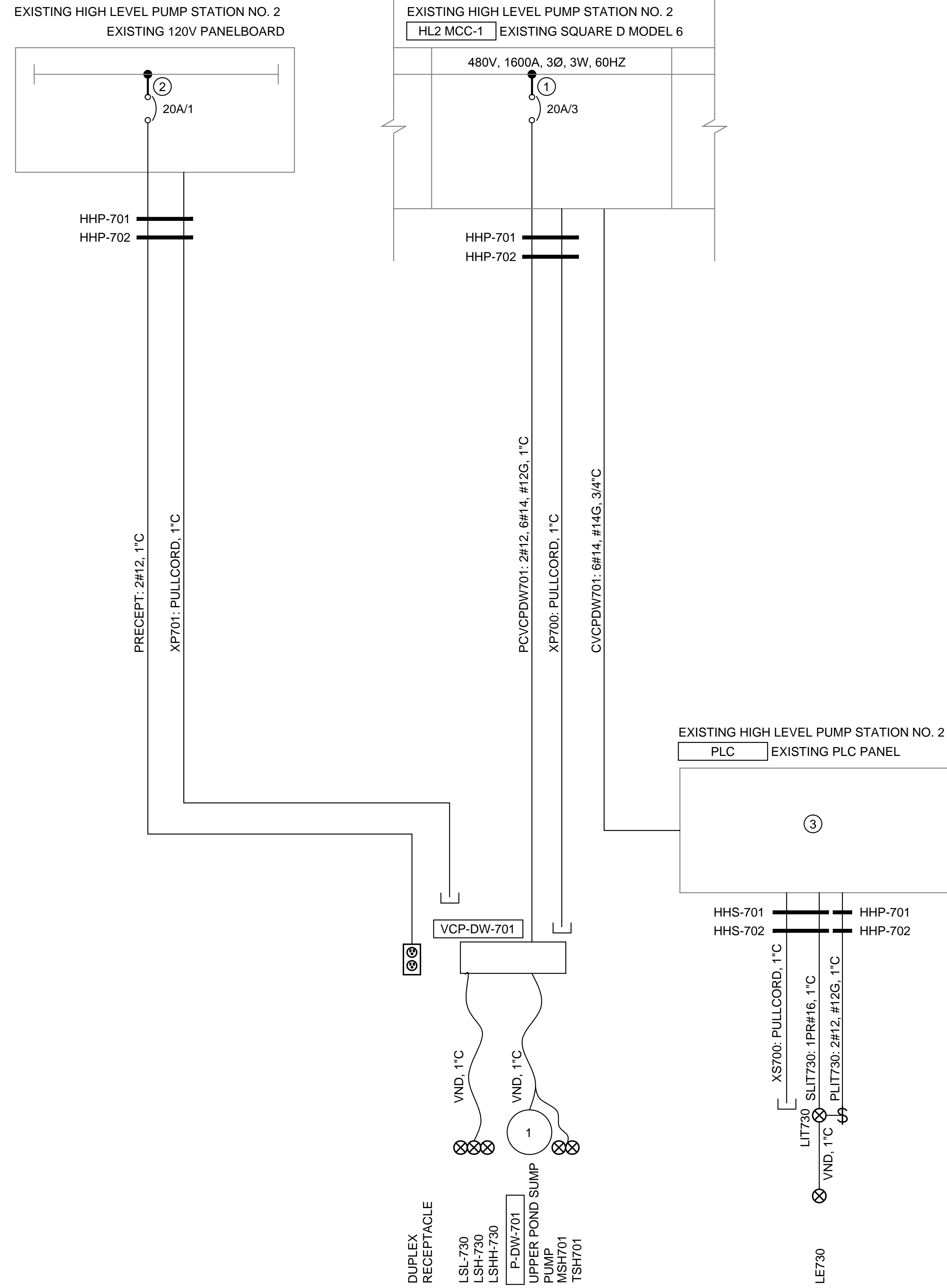
- NOTES:
1. HANDHOLE/PULLBOX DEPTH, SIZE AND LOCATION PER DRAWINGS.
 2. DIMENSIONS AS SHOWN ON DWGS.
 3. BOND DUCTBANK GROUND CONDUCTORS TOGETHER.
 4. MANHOLE INTERIOR SPACE: CLASSIFIED AS CORROSIVE AREA PER SPECIFICATION DIVISION 16.

HANDHOLE/PULLBOX

DETAIL C
VAR
SCALE: NONE


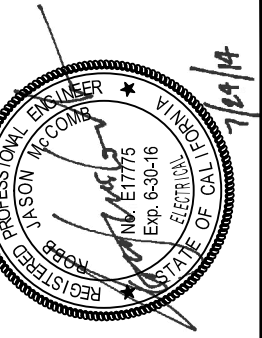
BY	DRAWN:RJM
CHECKED:CB	
REVIEWED:DLR	
DATE: Jul 24, 2014	
SCALE: AS SHOWN	

DATE	REV	DESCRIPTION



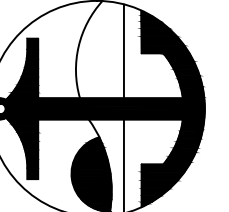
KEYNOTES:

- ① PROVIDE A NEW 20A, 3-POLE BREAKER IN THE EXISTING SPARE BUCKET IN THE MCC LOCATED IN THE HIGH LEVEL PUMP STATION NO. 2. CIRCUIT BREAKER SHALL MATCH EXISTING MANUFACTURER OF MOTOR CONTROL CENTER. REMOVE EXISTING SPARE 30A BREAKER AND STARTER AND SALVAGE TO THE OWNER.
- ② PROVIDE A NEW 20A, 1-POLE BREAKER IN THE EXISTING 120V PANELBOARD. BREAKER SHALL MATCH EXISTING BREAKERS AND PANELBOARD MANUFACTURER.
- ③ TERMINATE FIELD WIRES AT PANEL TERMINAL BLOCKS. COORDINATE WITH CITY FOR TERMINATING SIGNAL WIRES AT AVAILABLE SPARE I/O. REFER TO DIVISION 17 FOR MORE DETAILS REGARDING THE CONFIGURATION AND PROGRAMMING OF THE EXISTING SCADA SYSTEM TO INCORPORATE THESE SIGNALS.

PREPARED UNDER THE DIRECTION OF:
ERIK ZALKIN
 P.E. C75392, Exp. 12/31/15
 Date: _____

ACCEPTED FOR USE BY:
KEITH HALVORSON
 City Engineer
 Date: _____



City of Pittsburgh

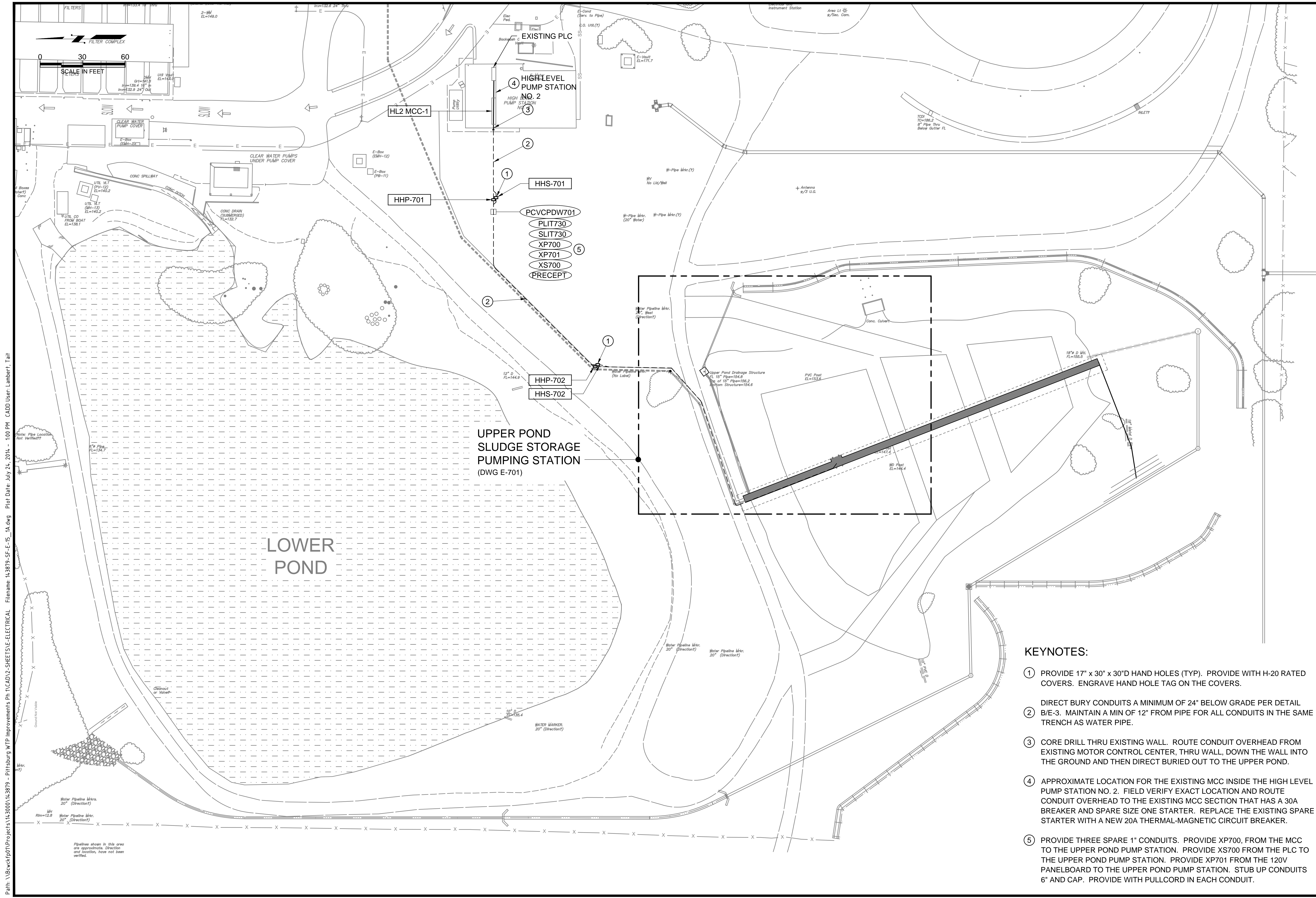
ELECTRICAL PHASE 1A

ONE LINE DIAGRAM

DATE	REV	DESCRIPTION	BY	DRAWN:RJM	CHECKED:CB	REVIEWED:DLR	DATE: Jul 24, 2014	SCALE: AS SHOWN

SHEET NO.
47 OF 50

SHEET:
E-4



Path: \\Bevick\p01\Projects\143000\143879 - Pittsburg WTP Improvements Ph. 1\CAD\2-SHEETS-E-ELECTRICAL - Filenane: 143879-SF-E-15_1A.dwg Plot Date: July 24, 2014 - 1:00 PM CADD User: Lambert, Tait

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ERIK ZALKIN
 P.E. C7592, Exp. 12/31/15

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KEITH HALVORSON
 City Engineer

ELECTRICAL PHASE 1A

OVERALL PARTIAL SITE PLAN

SHEET NO. 48 OF 50

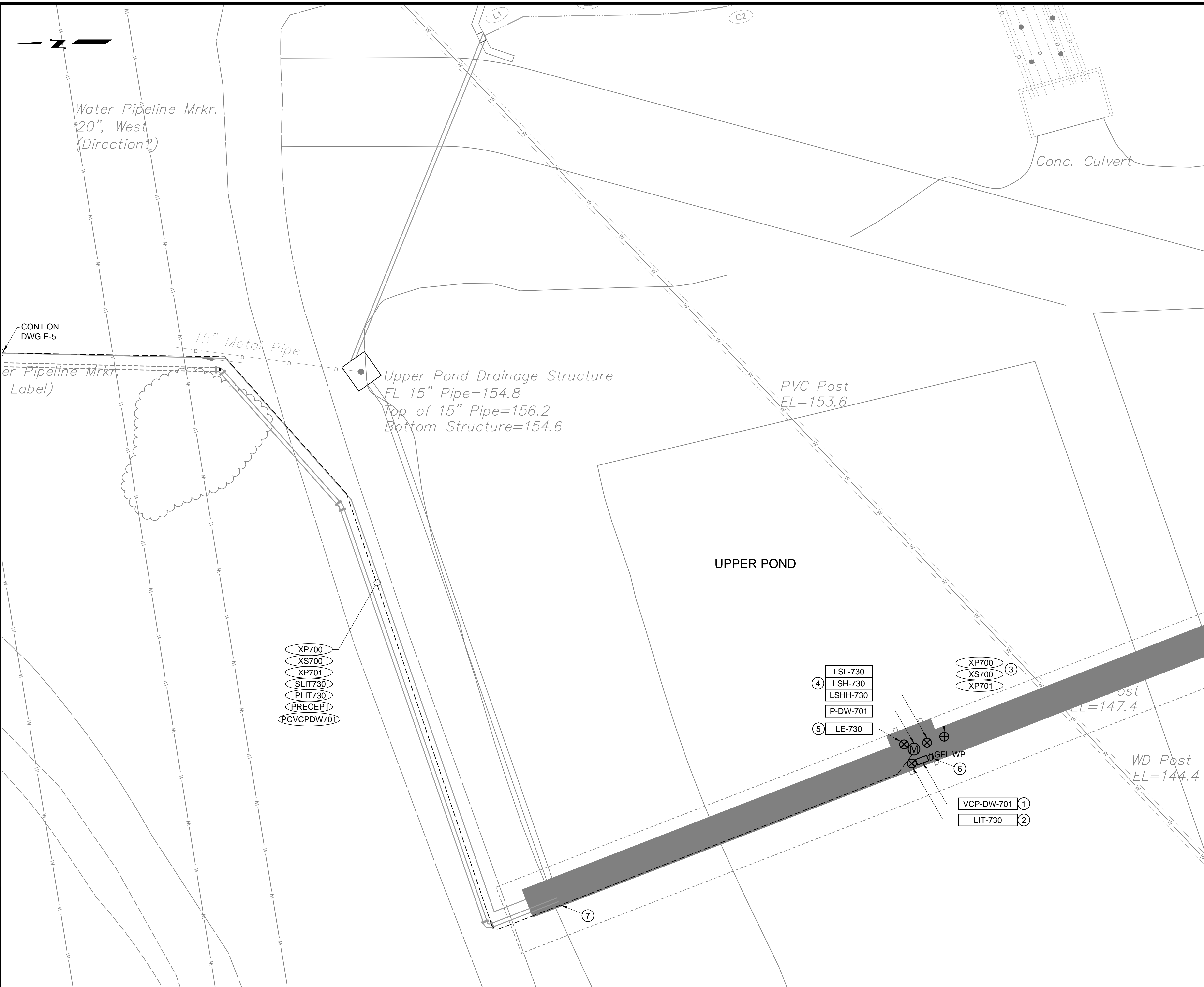
BY: DRAWN: RJM CHECKED: CB REVIEWED: DLR DATE: Jul 24, 2014 SCALE: AS SHOWN

SHEET NO. 48 OF 50

E-5

- KEYNOTES:**
- ① PROVIDE 17" x 30" x 30" HAND HOLES (TYP). PROVIDE WITH H-20 RATED COVERS. ENGRAVE HAND HOLE TAG ON THE COVERS.
 - ② DIRECT BURY CONDUITS A MINIMUM OF 24" BELOW GRADE PER DETAIL B/E-3. MAINTAIN A MIN OF 12" FROM PIPE FOR ALL CONDUITS IN THE SAME TRENCH AS WATER PIPE.
 - ③ CORE DRILL THRU EXISTING WALL. ROUTE CONDUIT OVERHEAD FROM EXISTING MOTOR CONTROL CENTER, THRU WALL, DOWN THE WALL INTO THE GROUND AND THEN DIRECT BURIED OUT TO THE UPPER POND.
 - ④ APPROXIMATE LOCATION FOR THE EXISTING MCC INSIDE THE HIGH LEVEL PUMP STATION NO. 2. FIELD VERIFY EXACT LOCATION AND ROUTE CONDUIT OVERHEAD TO THE EXISTING MCC SECTION THAT HAS A 30A BREAKER AND SPARE SIZE ONE STARTER. REPLACE THE EXISTING SPARE STARTER WITH A NEW 20A THERMAL-MAGNETIC CIRCUIT BREAKER.
 - ⑤ PROVIDE THREE SPARE 1" CONDUITS. PROVIDE XP700, FROM THE MCC TO THE UPPER POND PUMP STATION. PROVIDE XS700 FROM THE PLC TO THE UPPER POND PUMP STATION. PROVIDE XP701 FROM THE 120V PANELBOARD TO THE UPPER POND PUMP STATION. STUB UP CONDUITS 6" AND CAP. PROVIDE WITH PULLCORD IN EACH CONDUIT.

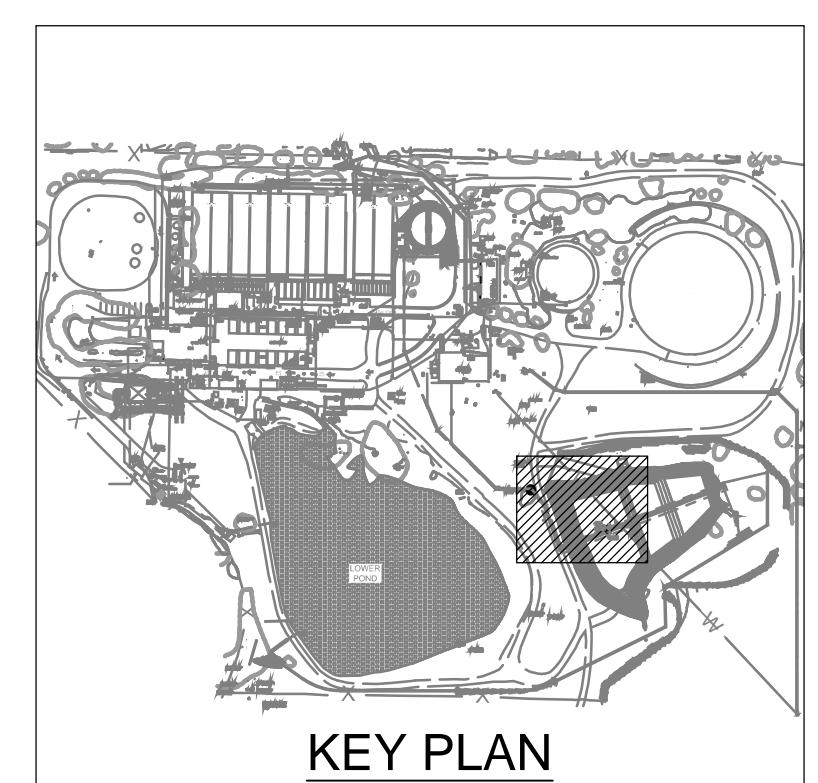
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- KEYNOTES:**
- ① COORDINATE INSTALLATION OF CONTROL PANEL WITH MECHANICAL AND STRUCTURAL DRAWINGS. MOUNT CONTROL PANEL ON EQUIPMENT RACK, DETAIL A/E-3.
 - ② MOUNT LEVEL TRANSMITTER, LIT-730, NEXT TO CONTROL PANEL ON EQUIPMENT STAND.
 - ③ STUB UP SPARE CONDUITS, XP700, XP701 AND XS700 6" AND CAP.
 - ④ INSTALL LEVEL SWITCHES PER DETAIL B/I-1.
 - ⑤ INSTALL IN SUMP PER MANUFACTURER'S INSTRUCTIONS. WALL MOUNT TRANSMITTER ELEMENT TO AVOID OBSTACLES THAT MAY INTERFERE WITH SIGNAL.
 - ⑥ PROVIDE A DUPLEX, 120V, 20A RECEPTACLE. RECEPTACLE SHALL BE GFI AND HAVE A "WET IN USE" WEATHERPROOF COVER. MOUNT THE RECEPTACLE ON THE CONTROL PANEL MOUNTING STAND AT A MINIMUM OF 24" ABOVE FINISHED GRADE.
 - ⑦ ROUTE GRS CONDUIT EXPOSED ALONG THE WEST SIDE TOP OF THE CONCRETE WALL. SUPPORT CONDUIT A MIN OF EVERY 10'.

- XP700
- XS700
- XP701
- SLIT730
- PLIT730
- PRECEPT
- PCVCPDW701

- ④ LSL-730
- LSH-730
- LSHH-730
- P-DW-701
- ⑤ LE-730
- ③ XP700
- XS700
- XP701
- ⑥ VCP-DW-701 ①
- LIT-730 ②

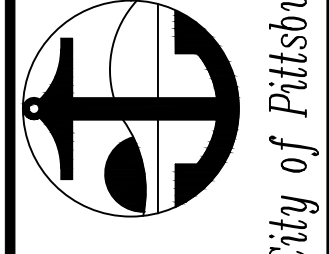






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ERIK ZALKIN
P.E. C75592, Exp. 12/31/15

ACCEPTED FOR USE BY:
KEITH HALVORSON
City Engineer



City of Pittsburg

ELECTRICAL PHASE 1A

UPPER POND POWER PLAN

BY	DATE	DESCRIPTION

SCALE: 1/8" = 1'-0"

DATE: Jul 24, 2014

REVIEWED:DLR

CHECKED:CB

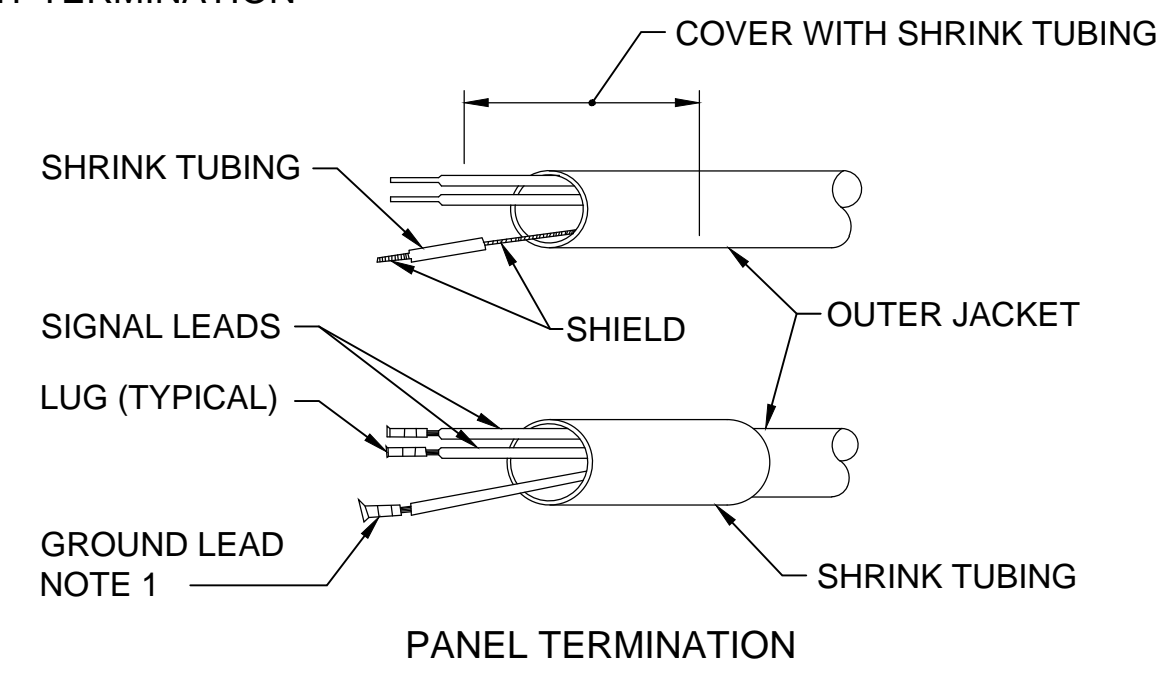
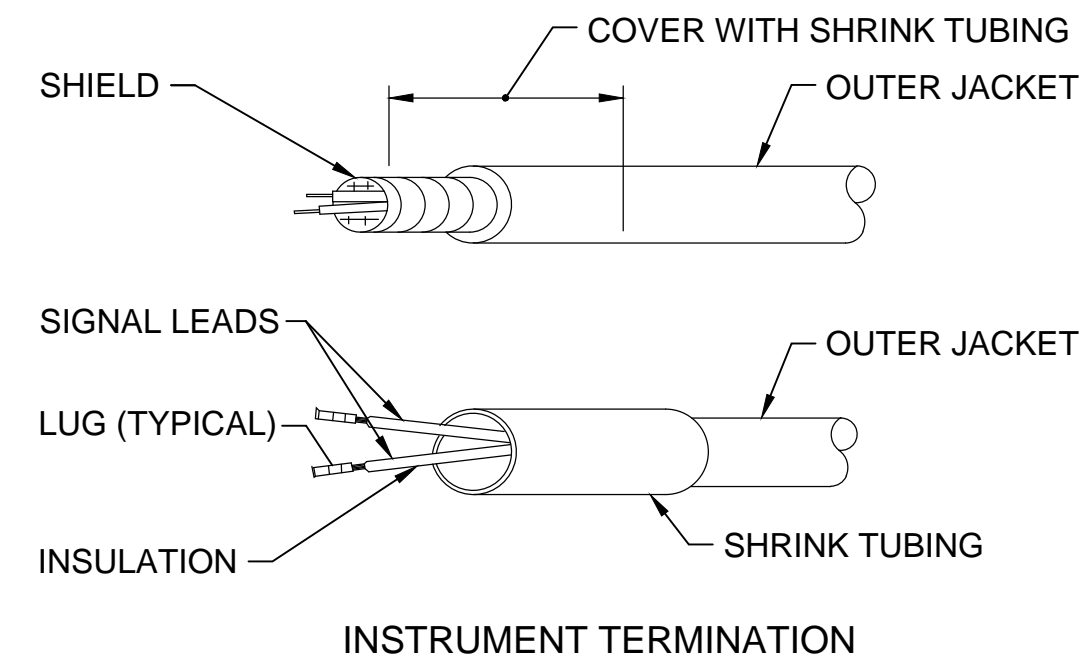
DRAWN:RJM

SHEET NO.

49 OF 50

SHEET:

E-701

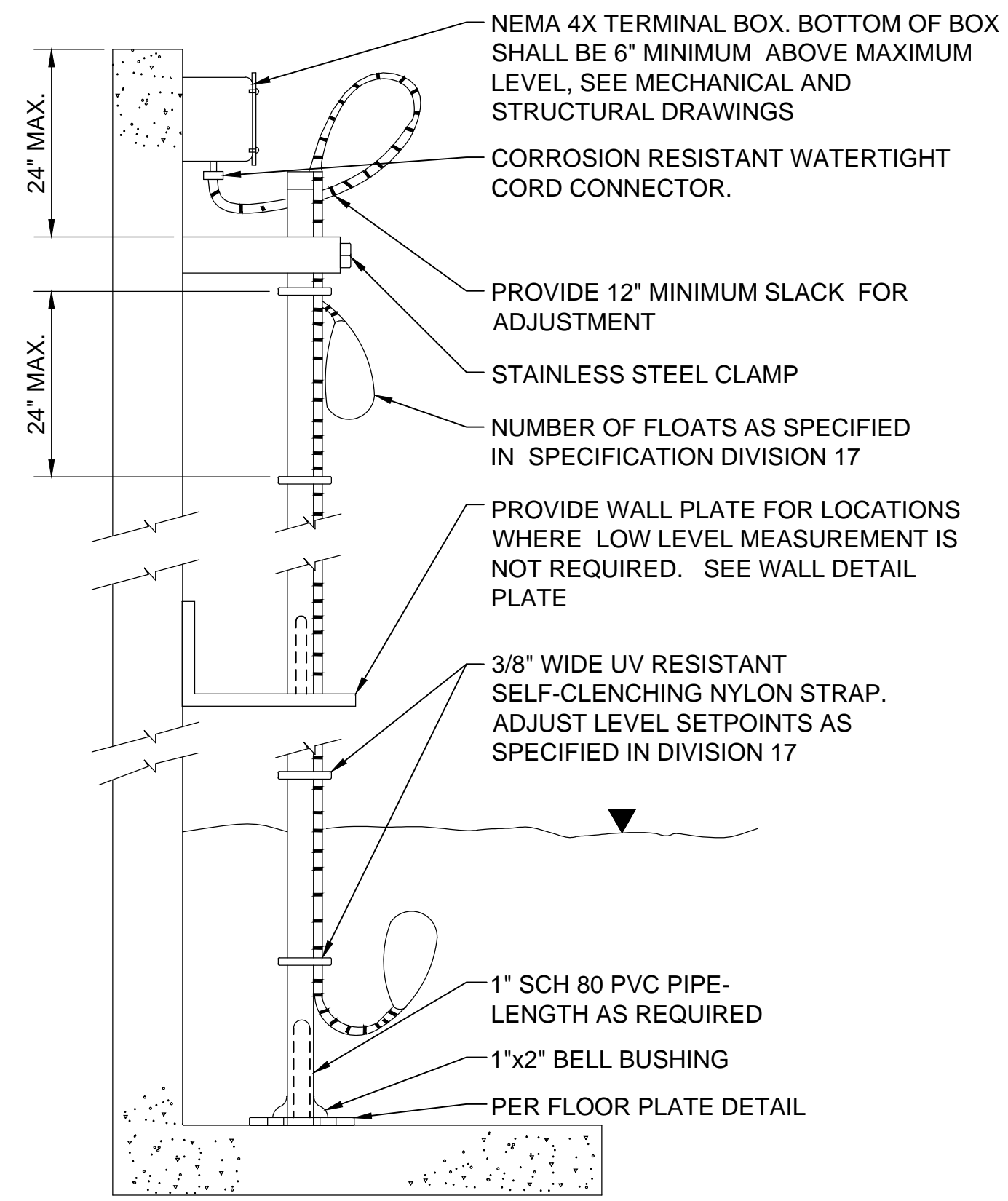


NOTE:
1. GROUND SHIELD AT PANEL NOT AT INSTRUMENT.

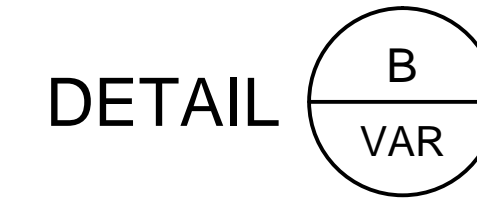
SHIELDED CABLE TERMINATION



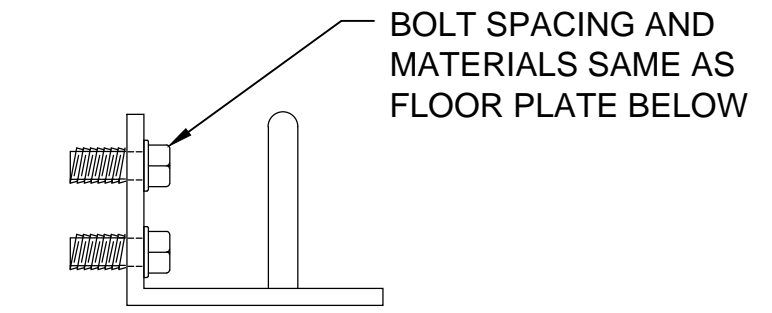
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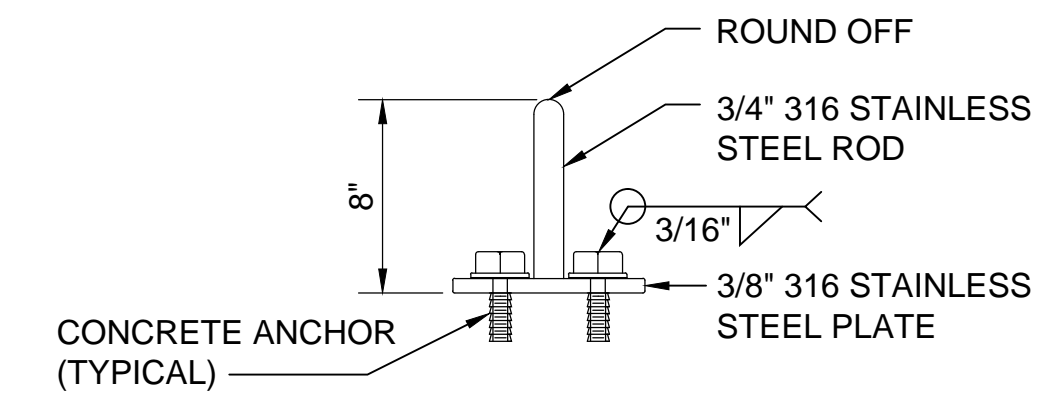
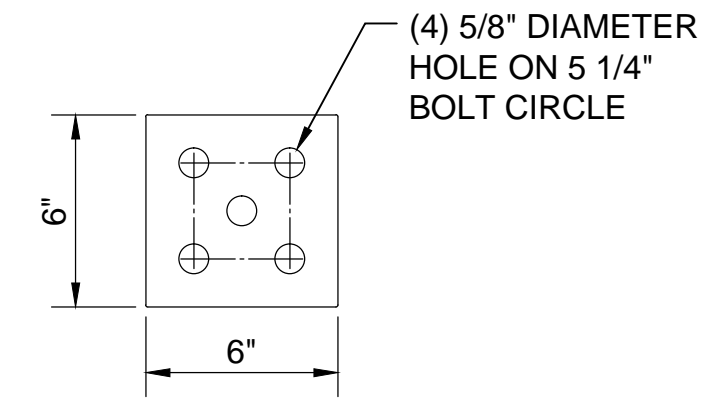
PUMP CONTROL LEVEL SWITCHES



SCALE: NONE



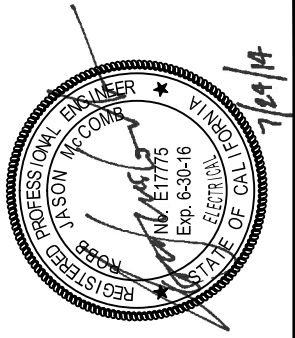
WALL PLATE DETAIL



ATTACH TO FLOOR WITH STAINLESS STEEL ANCHORS (4) AND 1/2"x4" 316 STAINLESS STEEL BOLTS AND FLAT WASHERS (4)

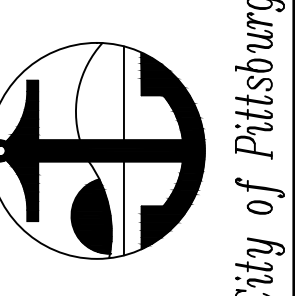
FLOOR PLATE DETAIL

Path: \\Bevick\p01\Projects\143000\143879 - Pittsburg WTP Improvements Ph 1\CAD\2-SHEETS\INSTRUMENTATION - Pittsburg WTP Improvements Ph 1\CAD\2-SHEETS\SF-1-01_1A.dwg File: 143879-SF-1-01_1A.dwg Plotted: July 24, 2014 - 12:48 PM CADD User: Lambert, Tait



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City Engineer
Date: _____



INSTRUMENTATION PHASE 1A
INSTRUMENTATION DETAILS 1

BY	DRAWN:RJM
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REVIEWED	DLR
DATE	Jul 24, 2014
SCALE	AS SHOWN

DATE	REV	DESCRIPTION

SHEET NO.
50 OF 50
SHEET: