DRAWING INDEX

TYPICAL DETAILS INDEX

99-C701		99-C707	
C001	TYPICAL WATERLINE TRENCH DETAIL	C022	APWA PLAN 360.1 RAISE FRAME TO GRADE
C002	TYPICAL VALVE BOX DETAIL	C023	APWA PLAN 413 COVER COLLAR FOR SANITARY SEWER MANHOLE
C003	TYPICAL 42" RCP PIPE W/ RETAINING WALL SECTION	C024	APWA PLAN 411 SANITARY SEWER MANHOLE
C004	TYPICAL 5' X 5' PRECAST BOX AT RETAINING WALL SECTION	C025	AUTHORIZED VEHICLES ONLY SIGN
		00.0700	
99-C702		99-C708	LAD IONT
C005	TYPICAL CHAIN LINK FENCE DETAILS	C026	LAP JOINT
		C027	BUTT WELD
99-C703		C028	BUTT STRAP SPLICE
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		C033	THERMITE WELD CONNECTION
99-C704			
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C012	CONCRETE COLLAR AND GROUT	C035	WIRE CONNECTION FOR STEEL & DUCTILE IRON PIPE
C013	APWA PLAN 303 44" FRAME AND COVER	C036	CATHODIC TEST STATION
		C037	FLUSH MOUNT TEST STATION
99-C705			
C014	APWA PLAN 206 CURB AND GUTTER CONNECTION	99-C710	
C015	EXTERIOR SLAB-ON-GRADE	C038	TYPICAL 42" HDPE PIPE SECTION
C016	APWA PLAN 205.2 CURB & GUTTER	C039	TYPICAL 42" RCP PIPE SECTION
C017	P315B - CAST-IN-PLACE CURB FACE AND INLET BOX	C040	TYPICAL PAVEMENT MARKING
		C041	TYPICAL DRY SUMP
		99-C711	
99-C706		C042	BURIED BALL VALVE (FOR NATURAL GAS PIPELINE)
C018	APWA PLAN 231 SIDEWALK	C042	NATURAL GAS PIPE TRENCH
C019	TYPICAL BOLLARD DETAIL	C043	CHEMICAL DUCT BANK TRENCH DETAIL
C020	AREA DRAIN INLET	C044	OFFEIGHEAL DOOF DANK TRENOFF DETAIL
C021	RAINGUTTER DOWNSPOUT CONNECTION DETAIL		



PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

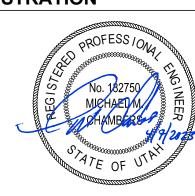
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AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

DETAILS
CIVIL
TYPICAL DETAILS
INDEX

DRAWING NUMBER

99-C700

- UNTREATED BASE COURSE PER UDOT 1 1/2" GRADATION

IMPROVED

UNIMPROVED -

STRIP TOP 6" AND REPLACE & -

COMPACT TO 90% MDD (ASTM D1557)

SLOPE MAY VARY WITH

OSHA REQUIREMENTS

ASTM D-1557

COMPACTED TRENCH

GEOTEXTILE FABRIC

(SEE NOTES 2 & 3)

BACKFILL 90% MIN

SOIL CONDITIONS &

(6" THICK IN RESIDENTIAL ROADWAY) RESTORE IMPACTED - INITIAL SAW CUT PAVEMENT SECONDARY SAW CUT (SEE NOTES 5 & 6) FULL DEPTH (TYP)

- CUT NEAT LINE IN EXISTING **GRANULAR BORROW** GRANULAR BORROW: ASPHALT & PRIME 12" MIN THICK 12" MIN THICK 3'-0" MIN T-PATCH

> 10' MIN 2" MILL & OVERLAY (UDOT ROW) COMPACTED TRENCH BACKFILL 95% MIN

> > TRACER WIRE

PLACE MAGNETIC MARKER TAPE 18" ABOVE ALL DIRECT BURY WATERLINES

ASTM D-1557

(TAPE TO TOP OF PIPE) BEDDING AND PIPE ZONE MATERIAL SHALL BE SAND FOR ALL PIPES EXCEPT STEEL

AND HDPE PIPE. BEDDING AND PIPE ZONE MINIMUM COMPACTION SHALL BE 95% MDD PER ASTM D-1557. FOR STEEL AND HDPE PIPE SHALL BE CLSM (SEE SPECIFICATIONS FOR COMPACTION REQUIREMENTS)

TYPICAL PIPELINE TRENCH DETAIL

DETAIL NOTES:

- 1. POLYWRAP AND TRACER WIRE SHALL BE INSTALLED IN ACCORDANCE WITH PROVO CITY DETAIL P-594. POLYWRAP ONLY REQUIRED ON BURIED DUCTILE IRON PIPE AND DUCTILE IRON FITTINGS.
- 2. IF THE SOILS AT THE BASE OF THE PIPELINE EXCAVATIONS CONSIST OF HIGHER CLAY CONTENT OR LOOSER SANDS, THEN IT MAY BE NECESSARY TO INCREASE THE THICKNESS OF THE BEDDING LAYER TO APPROXIMATELY 18 TO 24 INCHES WITH A NON-WOVEN GEOTEXTILE PLACED ON THE BASE OF THE TRENCH AND EXTENDING UP TO THE TOP OF THE PIPE ZONE, DEPENDING ON THE STABILITY OF THE SOIL AT THE TIME OF CONSTRUCTION.
- 3. ALONG THE TRANSMISSION MAIN TO STA. 11+75, INSTALL A NON WOVEN GEOTEXTILE THAT EXTENDS ALONG THE BOTTOM OF THE TRENCH AND EXTENDS VERTICALLY ALONG THE SIDES TO THE TOP OF THE PIPE ZONE.
- 4. IF T-PATCH WIDTH LEAVES 2' OR LESS ASPHALT REMAINING TO CURB OR GUTTER, THEN REMAINING ASPHALT SHALL BE INCLUDED IN T-PATCH SECONDARY SAW CUT.
- 5. RESTORE IMPACTED PAVEMENT, MATCH EXISTING PAVEMENT THICKNESS PLUS 1":
- 5.1 4" MIN IN RESIDENTIAL ROADWAY (8" MAX)
- 5.2 5" MIN IN COLLECTOR ROADWAY (8" MAX) 5.3 7" MIN IN UDOT ROW
- 6. ASPHALT SHALL BE:
 - 6.1 AC-10 (1/2") IN RESIDENTIAL ROADWAYS
 - 6.2 AC-10 (3/4") IN COLLECTOR ROADWAY 6.3 SMA OR HMA WITH MICRO-SURFACING
- 7. UDOT REQUIREMENTS:

IN UDOT ROW

- 7.1 BEDDING, PIPE ZONE AND TRENCH BACKFILLS WITHIN UDOT ROW.
- 7.2 OUTSIDE OF INITIAL SAWCUT FOR TRENCH.

CAST IRON LID MUST SAY "WATER" WATER EXISTING GROUND TYLER 562 VALVE BOX SURFACE (OR APPROVED EQUAL) SET CONCRETE 1/2" MIN TO 1/2" MAX BELOW PAVEMENT LIP ALL AROUND #4 HOOP STEEL CUT HOLE IN VALVE BOX JUST BELOW LID. ROUND CONCRETE INSERT 2 FEET OF TRACER WIRE AND COIL. COLLAR SPLICE IN THIS LOCATION IF NECESSARY 2-FOOT EXCESS 2" AWWA SQUARE TRACE WIRE OPERATING NUT 1/8" FLAT PLATE **CENTERING GUIDE** 3/4" DIA. STEEL SHAFT EXTENSION MACHINE TO MATCH NUT 6" CAST IRON SOIL PIPE **DETAIL NOTES:** VALVE OPERATING NUT SHALL #14 GAUGE COPPER BE WITHIN 3' TO FINISHED TRACE WIRE SURFACE. EXTENSION STEMS WITH ROCK SHIELDS SHALL BE ADAPTER TO FIT AWWA PROVIDED WHERE DEPTHS SQUARE NUT (PIN STEM EXCEED 4'. TO VALVE NUT TYP) 2. PROVIDE AN EPOXY PROTECTIVE COATING TO EXTERIOR SURFACE OF VALVE STEM RISER. 3. SEE PROVO CITY STANDARD DRAWING P-594 FOR ADDITIONAL INFORMATION ON INSTALLING

TYPICAL VALVE BOX DETAIL

RAINING / FENCE POST PER MANUFACTURER AND REVIEWED WITH BLOCK WALL DESIGNER (4' TO 8' TYP POST SPACING) GROUT POST INTO HOLES, REFER TO BLOCK MANUFACTURER FOR - 5' X 5' PRECAST INLET BOX (HEIGHT VARIES) GROUT REQUIREMENTS W/ 3' X 3' GRATE LANDSCAPE ROCK AC PAVEMENT GUTTER (SEE NOTE 1) PER DEAIL C701 **BLOCK SIZES TO** UNTREATED BE DETERMINED BASE COURSE BY WALL DESIGN TOP BLOCK DEPTH **ENGINEER** AS REQUIRED PER DESIGN DRAIN ROCK PER **BLOCK DESIGN** BACKFILL AROUND PRECAST REQUIREMENTS **BOX WITH TRENCH BACKFILL** COMPACTED TO 95% MDD PER ASTM D-1557 42" DIA RCP FINISH GRADE -EXISTING CLASS III GRADE EMBEDMENT DEPTH TO BE DETERMINED BY BLOCK WALL DESIGN ENGINEER LINE OF UNREINFORCED CONCRETE OR INFLUENCE CRUSHED STONE LEVELING PAD 3/4" WASHED DRAIN ROCK. PLACE NON-WOVEN GEOTEXTILE FABRIC PER MANUFACTURER DESIGN BETWEEN ROCKS AND NATIVE SOILS (6" MIN) CLSM BACKFILL BELOW WALL (ALL AROUND PRECAST BOX) 1.44. 44. 44 PROPERTY LINE 8'-0" MIN

ENGINEERS

PROJECT

VERIFY SCALE

VALVE AND POLYWRAPING PIPE.

BAR IS ONE INCH ON ORIGINAL DRAWING

PROVO RIVER WATER TREATMENT **PLANT**

CLIENT

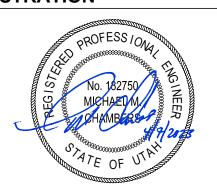
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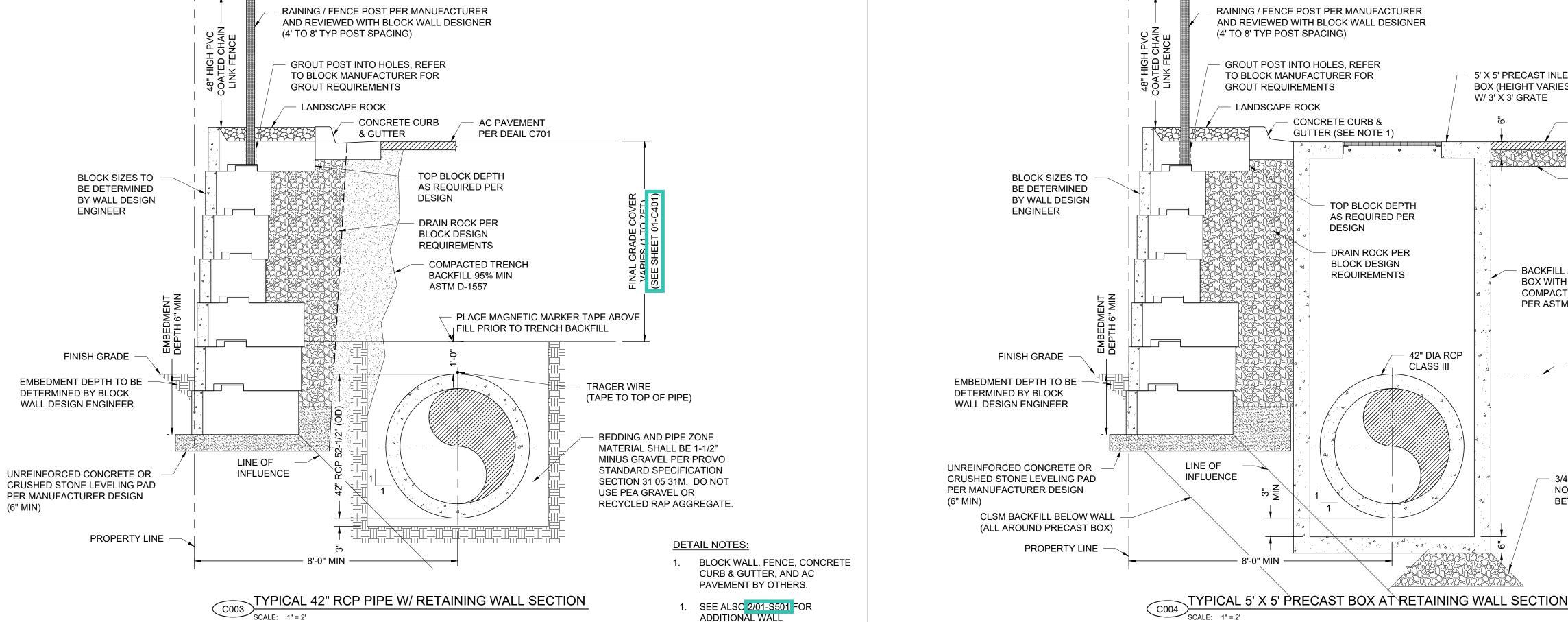
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SHEET TITLE

TYPICAL DETAILS SHEET 1

DRAWING NUMBER



REQUIREMENTS.

DETAIL NOTES:

PROVIDE SPILL PAN AND MODIFY

2. BLOCK WALL, FENCE, CONCRETE

CURB & GUTTER, AND AC

PAVEMENT BY OTHERS.

3. SEE ALSO 2/01-S501 FOR

ADDITIONAL WALL

REQUIREMENTS.

GUTTER WIDTH AS REQUIRED.

1 1/4" DIA PIPE (TYP)

HEIGHT

6 FEET

6 FEET

AND OVER

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

CORNER, END

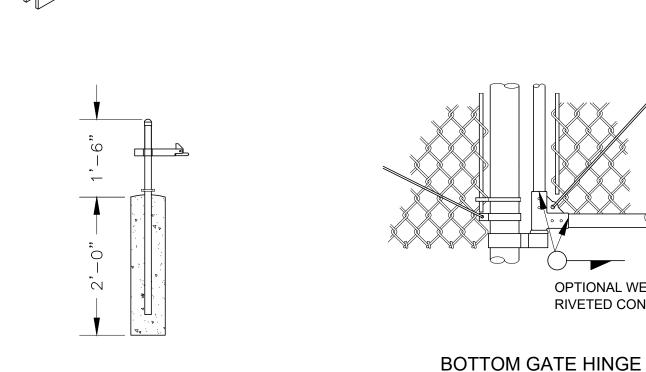
OR PULL POST

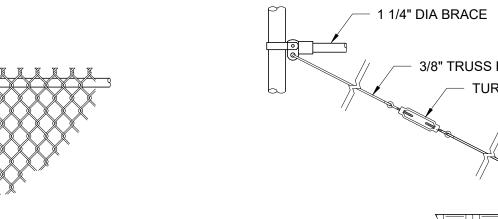
GENERAL SHEET NOTES:

- MATERIALS, CONSTRUCTION, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH PROJECT STANDARD SPECIFICATIONS.
- USE TYPE II TOP SUPPORT (TWISTED & BARBED SELVAGE).
- ALL STEEL PIPE MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION A 120 SCHEDULE 40 HOT DIPPED ZINC COATED HIGH TENSILE STEEL PIPE OR TRIPLE COATED PIPE MADE FROM STEEL CONFORMING TO ASTM 569.
- POSTS SHALL BE STEEL SCHEDULE 40 PIPE OR TRIPLE COATED HIGH TENSILE STEEL PIPE OF THE SIZE SHOWN IN THE CHART. WEIGHT IN POUNDS PER FOOT WITH A TOLERANCE OF 5%.
- LINE POSTS SHALL BE LOCATED AT EQUAL SPACING FOR EACH SEGMENT WITH A MAXIMUM SPACING AS FOLLOWS:
 - TANGENT SECTIONS TO 500-FOOT RADIUS NOT MORE THAN 10-FEET.
 - UNDER 500-FOOT RADIUS TO 200-FOOT RADIUS NOT MORE THAN 8-FEET.
 - UNDER 200-FOOT RADIUS TO 100-FOOT RADIUS NOT
 - MORE THAN 6-FEET.
 - UNDER 100-FOOT RADIUS NOT MORE THAN 5-FEET.
- TRUSS RODS AND BRACES SHALL NOT BE REQUIRED FOR FABRIC HEIGHT LESS THAN 5-FEET.
- TENSION WIRE SHALL BE 7 GAUGE ZINC- OR ALUMINUM-COATED COIL SPRING STEEL TENSION WIRE.

LINE

- ALL PIPES, WIRES AND FABRICS TO BE BLACK VINYL COATED PVC.
- SEE DETAIL (\$707) FOR FENCE TO CONCRETE WALL DETAIL.





SCALE: NTS

DROP ROD ASSEMBLY

SCALE: NTS

BRACES & TRUSS

RODS NOT REQUIRED

GATE POST GATE FRAME

1 1/2"

1 1/2"

2 1/2"

3 1/2"

2 1/2"

3 1/2"

6"

PIPE POST TIE

SCALE: NTS

TWISTED & BARBED

1 1/4" DIA

SINGLE TO 6' OR DOUBLE TO 12'

SINGLE OVER 6' OR DOUBLE TO 12'

SINGLE OVER 18' OR DOUBLE OVER 36'

SINGLE OVER 6' TO 8' OR DOUBLE OVER 12' TO 16'

SINGLE OVER 6' TO 12' OR DOUBLE OVER 12' TO 24'

SINGLE OVER 12' TO 18' OR DOUBLE OVER 24' TO 36'

SINGLE OVER 8' TO 12' OR DOUBLE 16' TO 24'

BRACE (TYP)

— 7 GAUGE STEEL

GATE OPENING

10" DIA

SELVAGE (TYPE II)

SCALE: NTS

CORNER, END

OR PULL POST

3/8" TRUSS ROD TURN-BUCKLE 1 1/4" DIA PIPE

BRACE AND TRUSS CONNECTIONS

500' MAX SEE NOTE 5

1 1/4" DIA BRACE (TYP)

9 GAUGE FABRIC

1/4" X 3/4" STRECHER

BAR (TYP) 3/8" TRUSS ROD WITH TURN-BUCKLE

- 1" OVER NATURAL GROUND

STRUCTURE

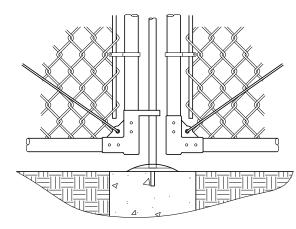
TYPICAL END BAY

6" OVER CONCRETE UNDER

1'-0" DIA

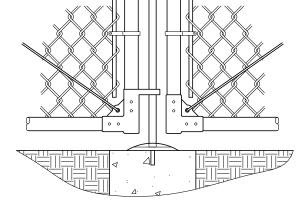
TOP GATE HINGE

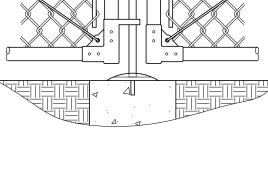
SCALE: NTS



GATE KEEPER POST

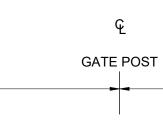
SCALE: NTS

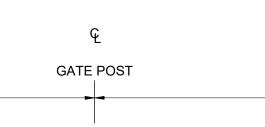






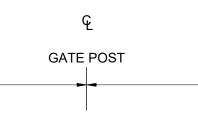






OPTIONAL WELDED OR

RIVETED CONSTRUCTION



AND GATE DETAIL

SCALE: NTS

3/8" TRUSS RODS (TYP)

- 1/8' X 3/4" BAND (TYP)

3/8" MIN NOMINAL DIA TRUSS RODS WITH TURN-BUCKLES (TYP). USE TRUSS RODS BOTH WAYS IF BOTH POSTS ARE

10'-0" MAX

GATE OR CORNER

REQUIRED GATES WILL BE IDNETIFIED BY WIDTH OF OPENING, HEIGHT AND EITHER SINGLE OR DOUBLE SWING

FABRIC POSTS

4'

3'

3'

3'

3'

HEIGHT DEPTH LENGTH OF END, CORNER OR PULL POST

END, CORNER, & PULL POSTS NOM. OUTSIDE ASTM TRIPLE A-120 COATED LINE POST HOLES 2.875" 2.875" 2.375"

8'-8" 7'-8" 5'-8" 2.375" 4'-8" 2.375"

5.79 5.79 3.65

NOM. OUTSIDE PIPE WEIGHT
ASTM TRIPLE
A-120 COATE 4.64 3.11 1 1/2" 3.65 3.11 1 1/2" 3.65 3.11 1 1/2"

SIZE OF POSTS

LINE POST MIN. SIZE

3.65

3.65

2.72

3.11

3.11

2.23

2.72 2.23

2.72 2.23

2.375"

2.375"

1.900"

1.900"

1.900"

CORNER, END

OR PULL POST

TYPICAL CHAIN LINK FENCE DETAILS



PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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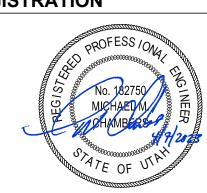
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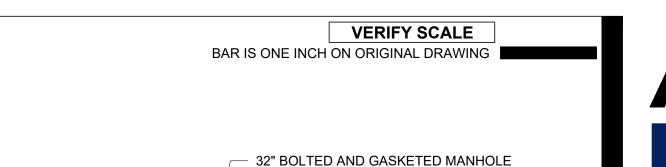
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SHEET TITLE

TYPICAL DETAILS SHEET 2

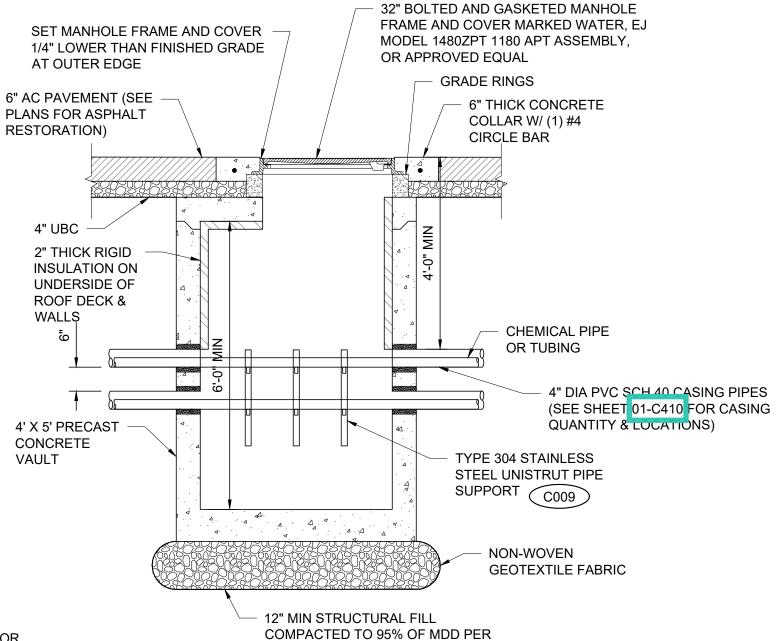


4'-0" 4" DIA PVC SCH 40 CASING PIPES CHEMICAL PIPE (SEE SHEET 01-C410 FOR PIPE QUANTITY & LOCATIONS) SUPPORT (C009) PIPE PENETRATION W/ CHEMICAL PIPE NON-SHRINK GROUT OR TUBING AT EXTERIOR D017 (SIZE PER PLAN) 4' X 5' PRECAST CONCRETE POLYCOATED 32" BOLTED AND GASKETED MANHOLE MANHOLE RUNGS FRAME AND COVER MARKED WATER, EJ MODEL 1480ZPT 1180 APT ASSEMBLY. (TYP) OR APPROVED EQUAL

> 1. SIZE, QUANTITY AND ORIENTATION OF PIPE SUPPORTS SHALL BE PROVIDED AS REQUIRED TO ADEQUATELY SUPPORT THE CHEMICAL PIPING OR TUBING IN EACH VAULT.

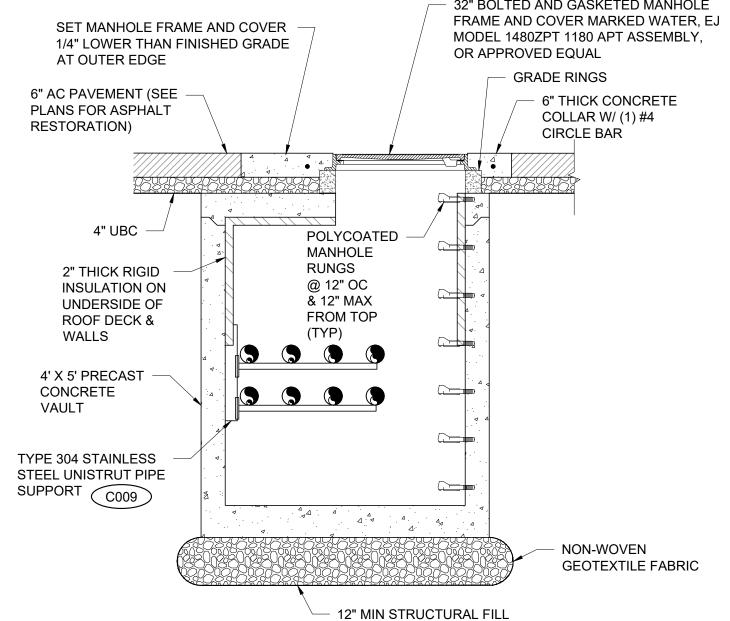
DETAIL NOTES:

- 2. CHEMICAL PIPING IS SHOWN SCHEMATICALLY ONLY, CONTRACTOR SHALL BE PROVIDED WITH BENDS AND / OR FITTINGS REQUIRED.
- 3. LOCATION OF MANHOLE RING AND COVER SHALL BE ADJUSTED TO AVOID CHEMICAL PIPING AS MUCH AS POSSIBLE.
- 4. CONTRACTOR SHALL PROVIDE SHOP DRAWING SUBMITTAL SHOWING PROPOSED LOCATION OF CASING PIPES, CHEMICAL PIPE LAYOUT, PIPE SUPPORTS, ELEVATIONS AND MANHOLE RING AND COVER LOCATION FOR EACH CHEMICAL PIPING VAULT FOR APPROVAL BY ENGINEER.
- 5. HARDWARE FOR LINK SEAL SHALL BE STAINLESS STEEL.



ASTM D-1557 OVER A NON-WOVEN GEOTEXTILE FABRIC

A SECTION SCALE: 1" = 2'



COMPACTED TO 95% OF MDD PER ASTM D-1557 OVER A NON-WOVEN GEOTEXTILE FABRIC

B | SECTION SCALE: 1" = 2'

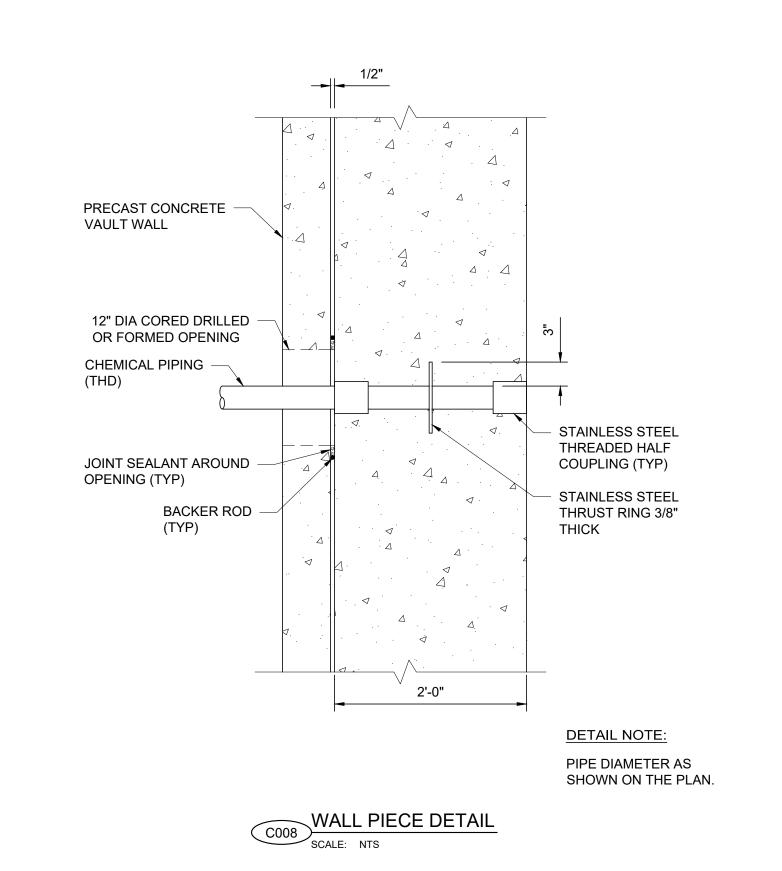
WALL PIECE DETAIL C008 CLEARWELL WALL TUBING SHALL BE REINFORCED PVC NSF 61 CERTIFIED, INSTALL BACKER ROD AND JOINT DURA-PURE OR APPROVED SEALANT ALONG TOP EDGE OF VAULT AND CLEARWELL WALL **EQUAL** 12" DIA CORED DRILLED OR FORMED OPENING CHEMICAL PIPE (SIZE PER PLAN) MALE COMPRESSION ADAPTER (NSF 61) 4" DIA PVC SCH 40 CASING PIPES (SEE SHEET 01-C410 FOR PIPE QUANTITY & LOCATIONS) 4' X 5' PRECAST CONCRETE 32" BOLTED AND GASKETED MANHOLE VAULT FRAME AND COVER MARKED WATER, EJ POLYCOATED MODEL 1480ZPT 1180 APT ASSEMBLY, MANHOLE RUNGS OR APPROVED EQUAL (TYP)

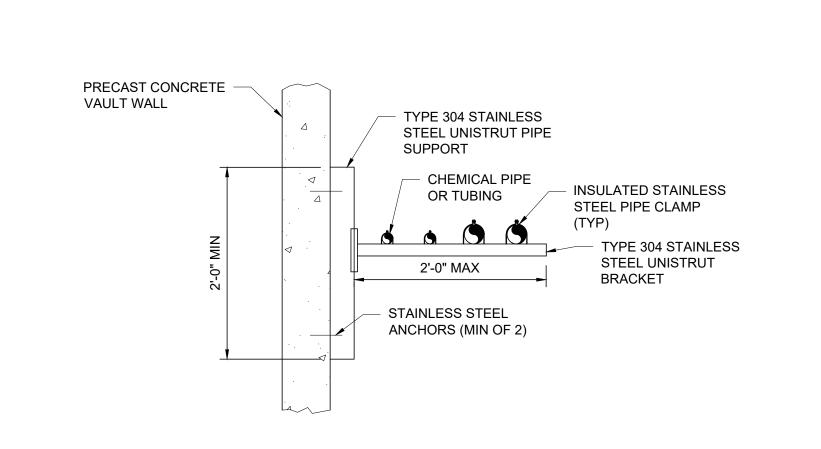
CHEMICAL VAULT TO CLEARWELL CONNECTION

SCALE: 1" = 2'

CHEMICAL PIPING VAULT

SCALE: 1" = 2'





CHEMICAL PIPE SUPPORT DETAIL



PROJECT

PROVO RIVER WATER TREATMENT PLANT

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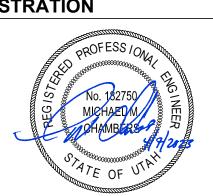
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SHEET TITLE

CIVIL TYPICAL DETAILS SHEET 3



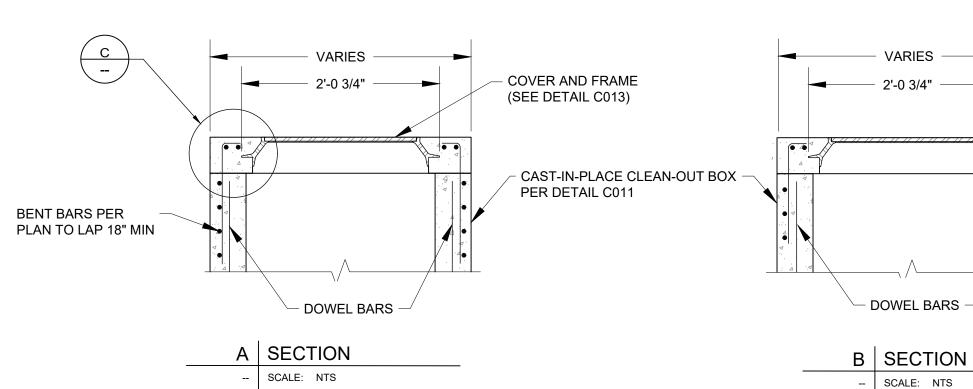
VARIES #5 @ 6" STORM DRAIN BENT #5 @ 7" BENT

PLAN

SCALE: NTS

- CONCRETE DECK 2" CLR (MIN) -1/4" RECESS FRAME & COVER **ASPHALT** MILD SLOPE ON RECESS 2" CLR MIN TYP

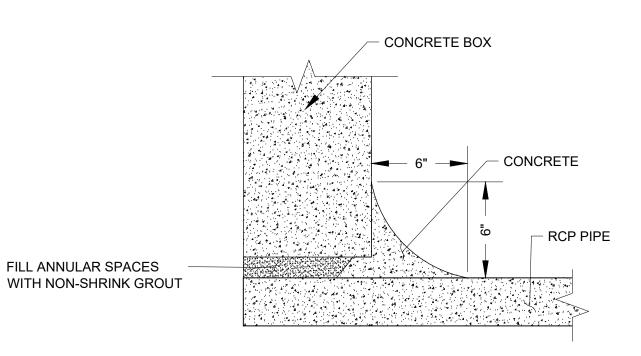
> C DETAIL -- SCALE: NTS



- 1. FIELD MEASURE AND VERIFY DIMENSIONS OF ALL STRUCTURES.
- 2. BACKFILL: PROVIDE AND PLACE PER APWA SECTION 31 23 23. COMPACT PER APWA SECTION 31 23 26 TO A MODIFIED PROCTOR DENSITY OF 95 PERCENT OR GREATER. MAXIMUM LIFT THICKNESS IS 8 INCHES BEFORE COMPACTION.
- 3. REINFORCEMENT: ASTM A 615, GRADE 60, DEFORMED STEEL. SEE APWA SECTION 03 20 00 REQUIREMENTS.
- 4. CONCRETE: CLASS 4000 PER APWA SECTION 03 30 04. PLACE CONCRETE PER APWA SECTION 03 30 10. CURE PER APWA **SECTION 03 39 00.**
- 5. COVER AND FRAME: FOR STORM DRAIN APPLICATION SEE PLAN NO. 303. ADJUST CONCRETE DIMENSIONS AT FRAME ACCORDINGLY.

CAST-IN-PLACE CLEAN-OUT BOX COVER

- 6. COVER AND FRAME TOP TO BE 1/4" BELOW TOP OF CONCRETE, CONCRETE TOP TO BE 1/4" BELOW TOP OF ASPHALT.
- 7. DOWEL BARS SHALL BE #5 @ 12" OC EMBED 7" IN EXISTING
- WALL WITH EPOXY GROUT.
- #5 BAR BENDS TO HAVE 1_8^7 " RADIUS.
- 9. ALL STEEL SHALL BE SAW-CUT. NO TORCH CUTS WILL BE ALLOWED.
- 10. CUTS SHALL BE CLEAN AND PERPENDICULAR TO THE LONG AXIS OF THE STEEL. 11. PROVIDE BOLT DOWN LIDS ON ALL NEW CLEANOUT BOXES.



CONCRETE COLLAR AND GROUT

NTS

CLEANOUT BOX

1. GENERAL

A. The drawing shows typical pipe connections. Refer to construction drawings for connection locations or refer to field location of existing piping when engineering pipe connection to the box.

2. PRODUCTS

- A. Base Course: Untreated base course, APWA Section 32 11 23. Do not use gravel as a base course without ENGINEER's permission.
- B. Backfill: Common fill, APWA Section 31 05 13. Maximum particle size 2-inches.
- C. Concrete: Class 4000, APWA Section 03 30 04.
- D. Reinforcement: Deformed, 60 ksi yield grade steel, ASTM A615. E. Stabilization-Separation Geotextile: High MARV, woven or non-woven, APWA
- Section 31 05 19. F. Ladder Rungs: Plastic, or plastic coated steel typically 8-inches wide.

3. EXECUTION

FIELD 2

FIT ∑

- #5 BENT BARS PER PLAN 🏻 🕇

HOOP TYPE BARS

- A. Foundation Stabilization: Get ENGINEER's permission to use a sewer rock or a sewer rock in a geotextile wrap to stabilize an unstable foundation.
- B. Base Course Placement: APWA Section 32 11 23. Maximum lift thickness is 8inches before compaction. Compaction is 95 percent or greater relative to a modified proctor density, APWA Section 31 23 26.
- C. Reinforcement: Center steel in walls and slabs with a minimum cover of 2-inches. Keep steel 2-inches clear around pipe and lid opening. Tie-bars required at all corners, vertical and horizontal. Tie-bars connecting two walls must match wall bar size and spacing. Tie-bars connecting walls to top and bottom slabs must match slab steel size and spacing.
- D. Concrete Placement: APWA Section 03 30 10. Adjust concrete dimensions at frame accordingly. Provide 1/2-inch radius edges. Apply a broom finish. Apply a
- E. Access: Eccentric access is shown. Before construction, verify if concentric access is required. Adjust reinforcement accordingly.
- F. Ladder Rungs: Required in boxes greater than 6 feet deep with eccentric access. Align rungs with location of access opening. Rungs not required in boxes with concentric access.
- G. Backfill: Provide backfill against all of the box walls. Pea gravel and recycled RAP aggregate is NOT ALLOWED. Water jetting is NOT allowed. Maximum lift thickness is 8-inches before compaction. Compaction is 95 percent or greater relative to a standard proctor density, APWA Section 31 23 26.

SEE DETAIL C013 FOR APWA PLAN 303, APWA PLAN 302 NOT USED.

APWA PLAN 331.2 CLEAN-OUT BOX (TYPE B)

44" Frame and cover

1. GENERAL

A. The frame and cover fits. 1) Cleanout box type B in Plan 331, and

2) Precast manhole in Plan 341.

2. PRODUCTS

A. Castings: Grey iron class 35 minimum, ASTM A48, coated with asphalt based paint or better (except on machined surfaces).

1) Cast the heat number on the frame and cover.

2) Give the frame and cover a machine finish so the cover will not rock. 3) $\sqrt{}$ designates a machine-finished surface.

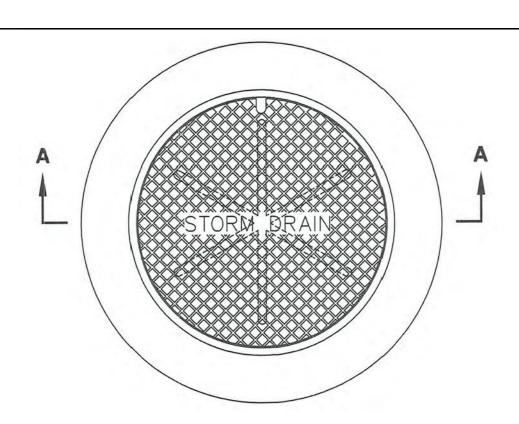
4) Cast the words "STORM DRAIN" on the cover in upper case flush with the

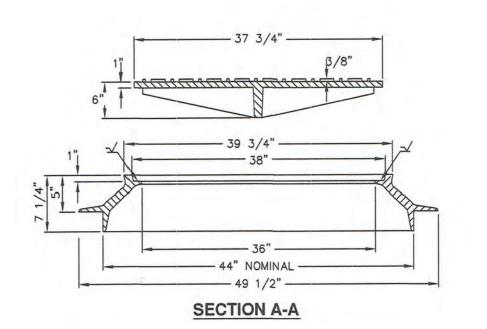
3. EXECUTION

A. Except in paved streets, provide locking manhole covers in easements, alleys, parking lots, and all other places. Drill and tap two holes to a depth of 1-inch at 90 degrees to pry hole and install 3/4 x 3/4-inch allen socket set screws.

1. FOR CLEANOUT BOX TYPE B, SEE DETAIL C011. 2. PRECAST MANHOLE PLAN 341 NOT USED.

APWA PLAN 303 44" FRAME AND COVER





PROJECT

VERIFY SCALE

2 ADDITIONAL BARS EACH SIDE OF OPENING (MINIMUM

BAR SPACING 3" O.C.)

4 ADDITIONAL DIAGONAL

39" LONG No.5 BARS

LADDER RUNG

SPACED @ 12"

/2 PIPE DIA. MINIMUM

4 ADDITIONAL DIAGONAL

39" LONG No.5 BARS -BASE COURSE

- BACKFILL

BAR IS ONE INCH ON ORIGINAL DRAWING

TYPE B

FKH + -1---

RAISE FRAME TO GRADE

WALL THICKNESS AND WALL STEEL

MAX. BOX WIDTH 6 FEET 8 FEET 9 FEET

MAX. BOX DEPTH 5 FEET 8 FEET 12 FEET 12 FEET

WALL THICKNESS 8 INCHES 8 INCHES 12 INCHES 12 INCHES

WALL CURTAIN STEEL #5 @ 12" #5 @ 6" #5 @ 6" #7 @ 9"

MODIFICATIONS FOR HIGH WATER TABLE

WALL THICKNESS 8 INCHES 10 INCHES 15 INCHES 12 INCHES WALL CURTAIN STEEL #5 @ 9" #5 @ 6" #5 @ 6" #6 @ 6"

(PLAN 360) -

No.5 BAR - 20

'L' BAR DETAIL

SEE PLANS FOR ELEVATION _ SEE TABLE FOR MAX DEPTH

PROVO RIVER WATER TREATMENT **PLANT**

CLIENT

PROVO CITY PUBLIC WORKS

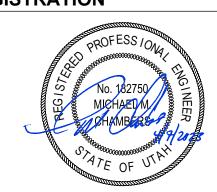
1377 South 350 East **Provo, UT 84606** Tel: (801) 852-6700



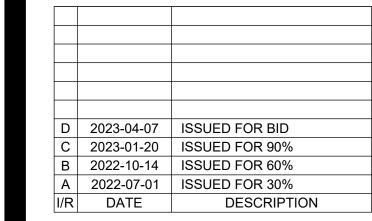
CONSULTANTS

756 East Winchester Street Salt Lake City, UT 84107 Tel: (801) 904-4000 Fax: (801) 904-4100 http:// www.aecom.com Hansen, Allen & Luce, Inc. 859 West South Jordan Pkwy, Ste 200 South Jordan, UT 84095 Tel: (801) 566-5599 http://www.hansenallenluce.com

REGISTRATION



ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

CIVIL TYPICAL DETAILS SHEET 4

Curb and gutter connection

1. GENERAL

A. Connect new curb and gutter to existing curb and gutter that has not been placed by CONTRACTOR.

2. PRODUCTS

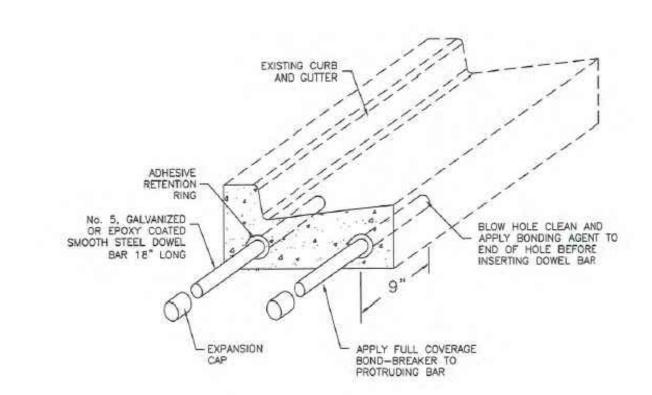
A. Reinforcement: Galvanized or epoxy coated, 60 ksi yield grade steel, ASTM A615. B. Adhesive: Epoxy adhesive grout, APWA Section 03 61 00.

C. Bond Breaker: Paraffin wax, lithium grease, or other semi-solid, inert lubricant. D. Expansion Cap: Plastic, with bar movement allowance of 1/2-inch.

3. EXECUTION

A. Ensure drill rigs (or jigs) are set at mid-depth of the gutter and horizontal to the surface. Make hole size large enough to account for dowel bar and adhesive. B. Clean holes and dowel bars of dirt, dust and particles. Ensure coating on bars have

- C. Place bonding agent in the back of each hole so adhesive flows out around each bar fully encasing it. DO NOT apply adhesive to end of the bar and then insert the bar into the hole.
- D. Insert dowels with at least one full turning motion and if necessary, place a grout retention disk on the dowel after insertion to contain adhesive.
- E. Apply complete coverage of bond-breaker on the protruding end of each dowel. F. Install expansion caps on protruding dowel bar ends.



APWA PLAN 206 CURB AND GUTTER CONNECTION C014

CURB AND GUTTER

1. GENERAL

A. Variance from specified dimensions and slopes must be acceptable to the ENGINEER. System configuration may be changed at ENGINEER's discretion. B. Additional requirements are specified in APWA Section 32 16 13.

2. PRODUCTS

- A. Base Course: Untreated base course, APWA Section 32 11 23. Do not use gravel as a base course without ENGINEER's permission.
- B. Expansion Joint Filler: 1/2-inch thick type F1 full depth, APWA Section 32 13 73. C. Concrete: Class 4000, APWA Section 03 30 04. If necessary, provide concrete that achieves design strength in less than 7 days. Use caution; however, as concrete
- crazing (spider cracks) may develop if air temperature exceeds 90 degrees F. D. Concrete Curing Agent: Clear membrane forming compound with fugitive dye (Type ID Class A), APWA Section 03 39 00.

3. EXECUTION

A. Base Course Placement: APWA Section 32 05 10. Thickness is 6-inches if flowline grade is 0.5 percent (s=0.005) or greater. If slope is less, provide 8-inches. Maximum lift thickness before compaction is 8-inches when using riding equipment or 6-inches when using hand held equipment. Compaction is 95 percent or greater relative to a modified proctor density, APWA Section 31 23 26.

B. Concrete Placement: APWA Section 03 30 10.

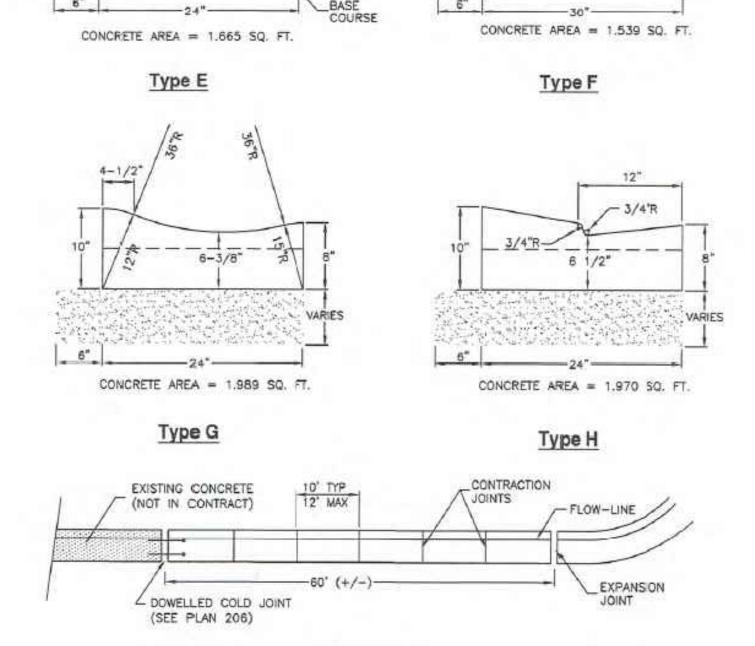
1) Install expansion joints vertical, full depth, with top of filler set flush with concrete surface. Install at the start or end of a street intersection curb return. Expansion joints are not required in concrete placement using slip-form construction.

2) Install contraction joints vertical, 1/8-inch wide or 1/4 slab thickness if the slab is greater than 8-inches thick. Match joint location in adjacent Portland-cement concrete roadway pavement.

3) Provide 1/2-inch radius edges. Apply a broom finish. Apply a curing agent.

C. Protection and Repair: Protect concrete from deicing chemicals during cure. Repair construction that does not drain. If necessary, fill flow-line with water to verify.

- 1. WHERE SPILL PAN IS NOTED ON THE DRAWING, CHANGE LIP OF GUTTER THICKNESS TO 6-INCHES AND SLOPE PAN 1-1/2" AWAY FROM CURB.
- 2. WHERE TRANSITION FROM CURB TO NO CURB IS REQUIRED, THE HORIZONTAL TRANSITION DISTANCE SHALL BE 24 INCHES. 3. TYPE F AND TYPE G CURB AND GUTTER NOT USED.



JOINT DETAIL

BACKFILL BEHIND CURB BEFORE PAVING AGAINST LIP OF GUTTER

BACKFILL-

SEE NOTE 1

2" CONTRACTION

5" BARS @ 16" OC, EW CENTERED IN SLAB (BEND @ CURB FACE) 6" OF 3/4" UBC COMPACTED TO 95% MAX DRY DENSITY (ASTM D1557) OVER FILL PER GEOTECHNICAL REPORT) 10"

3/4" CHAMFER

REQUIRED STAMPED HOOD, "DRAINS TO

ALL BOXES AND FRAMES MUST SUPPORT A

REFER TO THE APPROVED PROJECT PLANS FOR PIPE SIZE, LOCATION, SEDIMENT

DEPTH FROM OUTLET OF PIPE FLOW

LINE TO FLOOR OF INLET BOX IS 3.75

PRETREATMENT MANUFACTURERS

MINIMUM DEPTH FROM OUTLET OF

PIPE FLOW LINE TO FLOOR OF INLET

BOX IS 4.5 FEET OR DEEPER. FOLLOW

RECOMMENDATIONS MIN. BOX INSIDE

PRETREATMENT MANUFACTURERS

REQUIRED IN ADDITION TO INLET

STRUCTURE DESIGN. THE MINIMUM

LINE TO FLOOR OF INLET BOX IS 6.0

DEPTH FROM OUT LET PIPE FLOW

FEET. FOLLOW PRETREATMENT

UNLESS AN ALTERNATE PRETREATMENT

RECOMMENDATIONS. MIN. BOX

DEPTH, PRETREATMENT AND OTHER

STRUCTURE DESIGN REQUIREMENTS.

4.1 15" DIA. PIPE LATERAL, MINIMUM

FEET OR DEEPER. FOLLOW

INSIDE DEPTH IS 6 FEET.

4.2 18" DIA. PIPE AS NECESSARY,

4.3 *24" DIA. SPECIAL APPROVAL IS

DEPTH IS 7 FEET.

MANUFACTURERS

PLAN HAS BEEN APPROVED.

RECOMMENDATIONS

5. A SNOUT IS REQUIRED AT EVERY INLET

RIVER OR LAKE" WITH FISH LOGO.

HS-20 LOADING.

DETAIL NOTE:

- 1. REVEAL EDGE OF CONCRETE SLAB IN PAVED AREAS MAY VARY BASED ON PAVEMENT SLOPE REQUIREMENTS FOR DRAINAGE.
- 2. INSTALL 1/2" EXPANSION BOARD WHERE SLAB ABUTS AGAINST ANOTHER CONCRETE STRUCTURE.

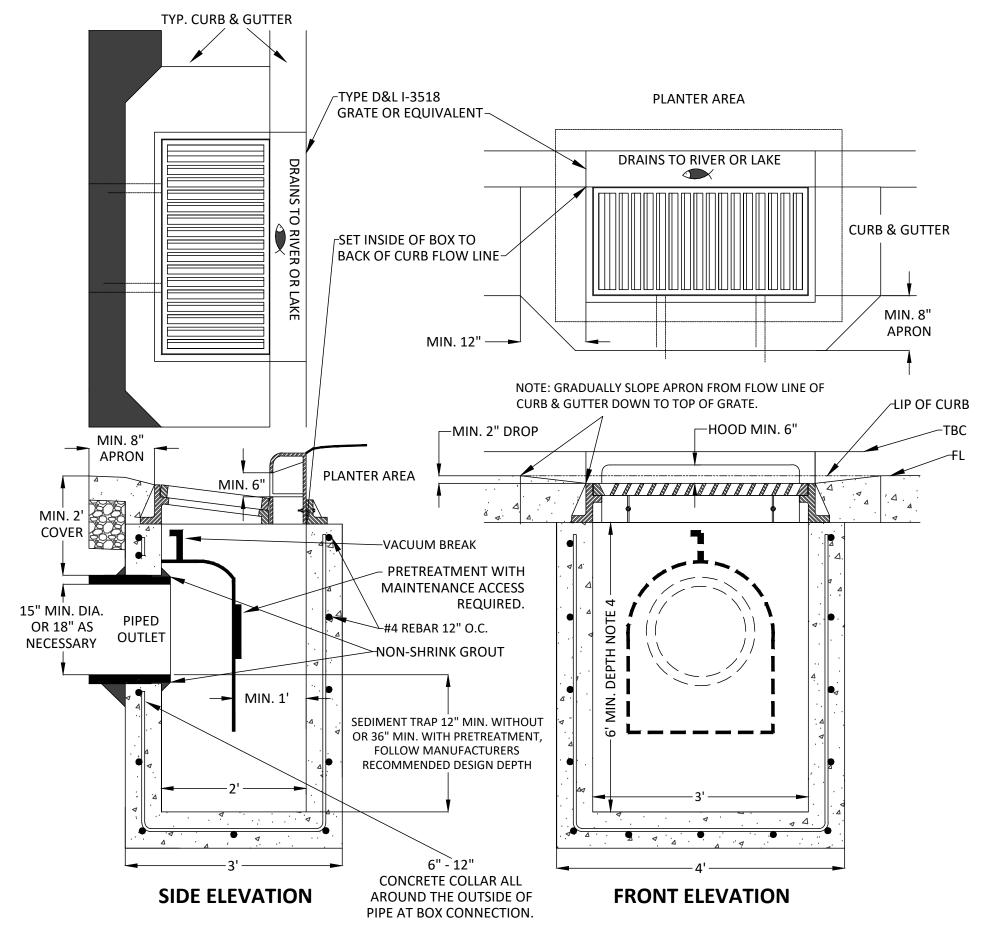
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING



TYP. CURB & GUTTER 1. FOR GRATE & FRAME DETAILS SEE D.&L. SUPPLY CATALOG #I-3518 OR EQUIVALENT.

P315B - CAST-IN-PLACE CURB FACE AND INLET BOX



PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

CLIENT

PROVO CITY **PUBLIC WORKS**

1377 South 350 East **Provo. UT 84606** Tel: (801) 852-6700

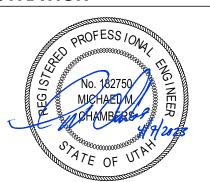


CONSULTANTS

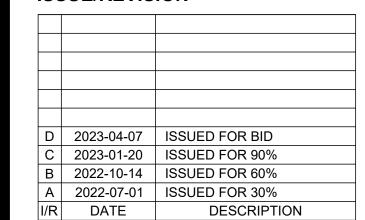
756 East Winchester Street Salt Lake City, UT 84107 Tel: (801) 904-4000 Fax: (801) 904-4100 http://www.aecom.com Hansen, Allen & Luce, Inc. 859 West South Jordan Pkwy, Ste 200 South Jordan, UT 84095 Tel: (801) 566-5599

http://www.hansenallenluce.com

REGISTRATION



ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

CIVIL TYPICAL DETAILS SHEET 5

DRAWING NUMBER

99-C705

APWA PLAN 205.2 CURB & GUTTER

SIDEWALK

1. GENERAL

A. Variance from specified dimensions and slopes must be acceptable to the ENGINEER. System configuration may be changed at ENGINEER's discretion. B. Additional requirements are specified in APWA Section 32 16 13.

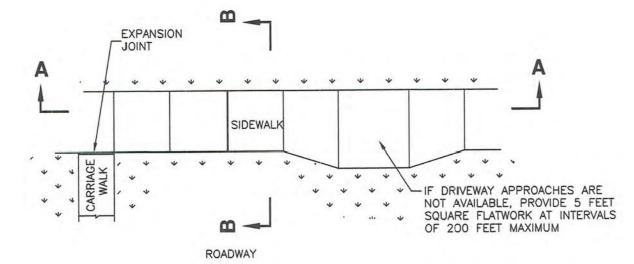
2. PRODUCTS

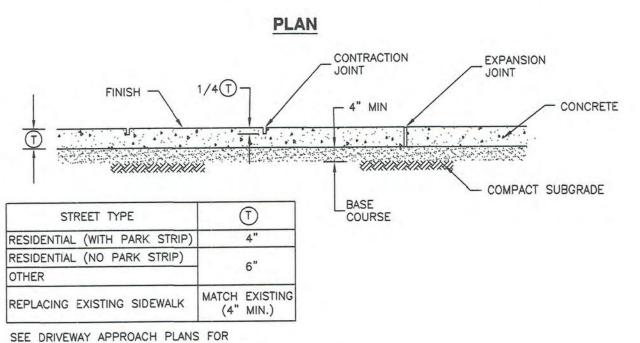
- A. Base Course: Untreated base course, APWA Section 32 11 23. Do not use gravel as a base course without ENGINEER's permission.
- B. Expansion Joint Filler: 1/2-inch thick type F1 full depth, APWA Section 32 13 73. C. Concrete: Class 4000, APWA Section 03 30 04. If necessary, provide concrete that achieves design strength in less than 7 days. Use caution; however, as concrete crazing (spider cracks) may develop if air temperature exceeds 90 degrees F.
- D. Concrete Curing Agent: Clear membrane forming compound with fugitive dye (Type ID Class A), APWA Section 03 39 00.

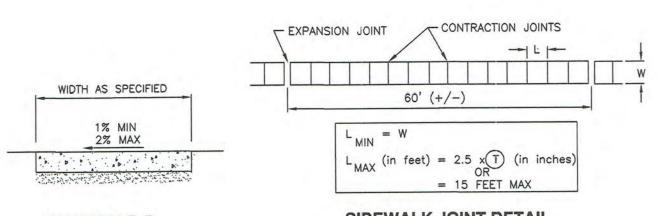
3. EXECUTION

A. Base Course Placement: APWA Section 32 05 10. Maximum lift thickness before compaction is 8-inches when using riding equipment or 6-inches when using hand held equipment. Compaction is 95 percent or greater relative to a modified proctor density, APWA Section 31 23 26.

- B. Concrete Placement: APWA Section 03 30 10. 1) Install expansion joints vertical, full depth, with top of filler set flush with concrete
- 2) Install contraction joints vertical, 1/8-inch wide or 1/4 slab thickness if the slab is greater than 8-inches thick. Maximum length to width ratio for non-square panels is 1.5 to 1. Maximum panel length (in feet) is 1.5 times the slab thickness
- (in inches). 3) Provide 1/2-inch radius edges. Apply a broom finish. Apply a curing agent.

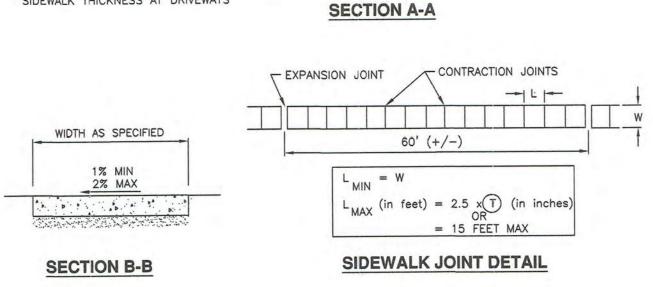


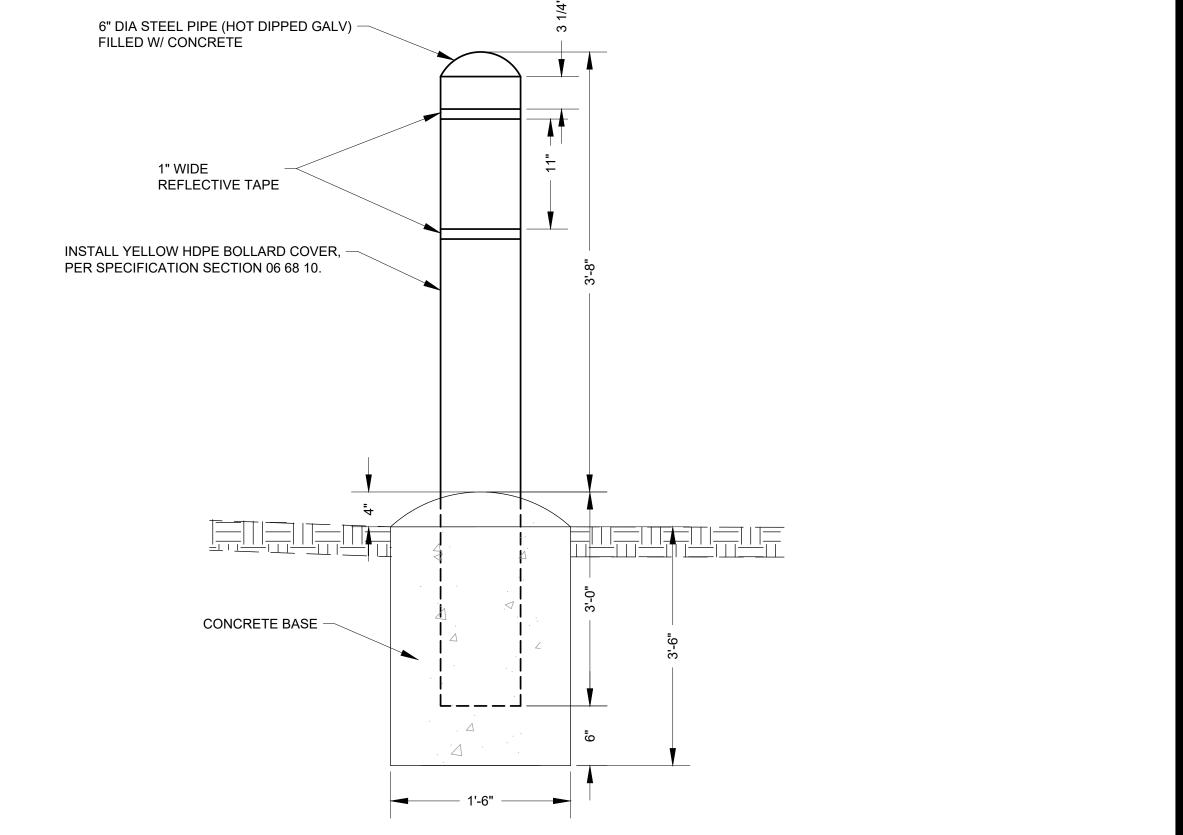




SIDEWALK THICKNESS AT DRIVEWAYS





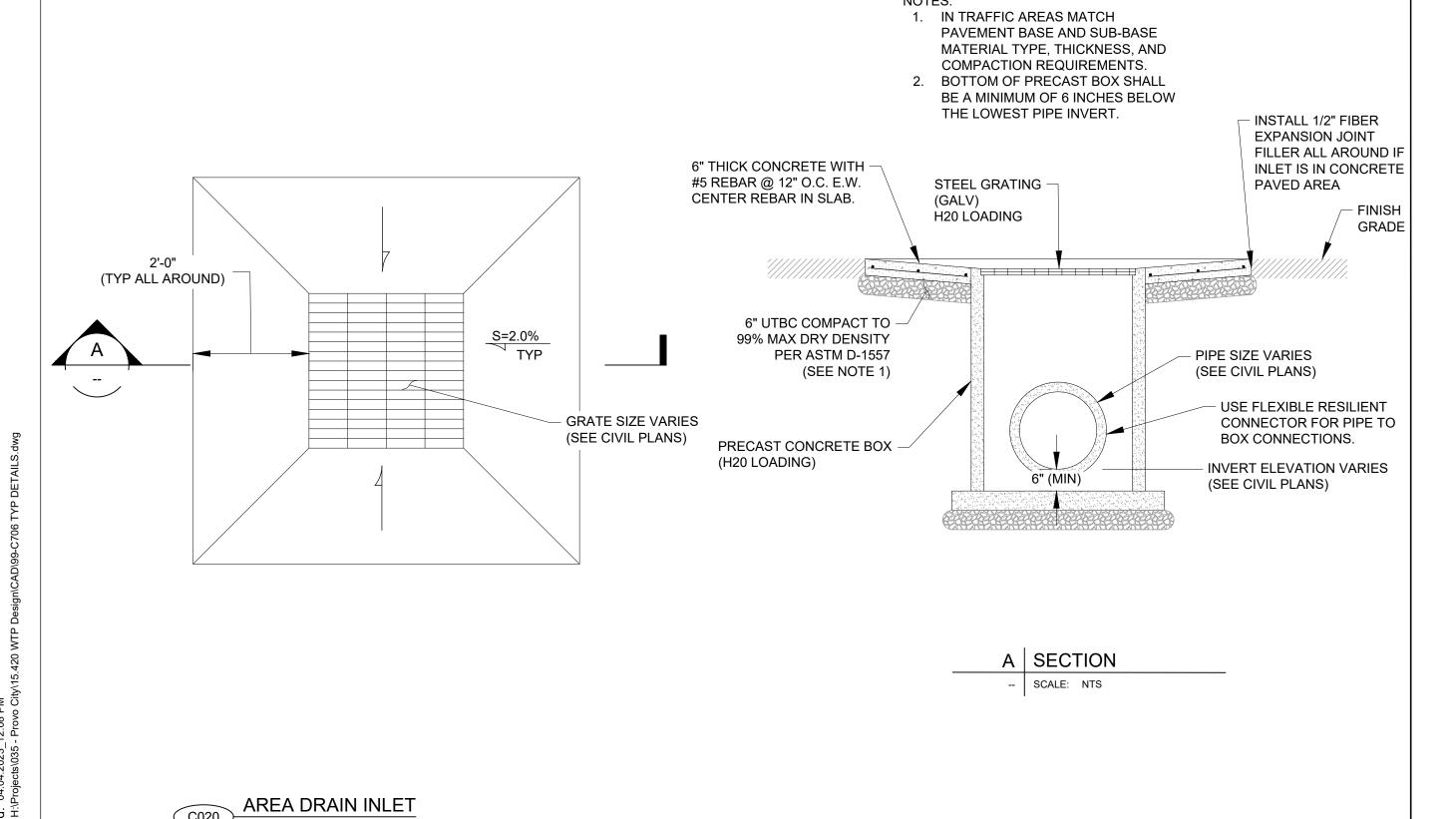


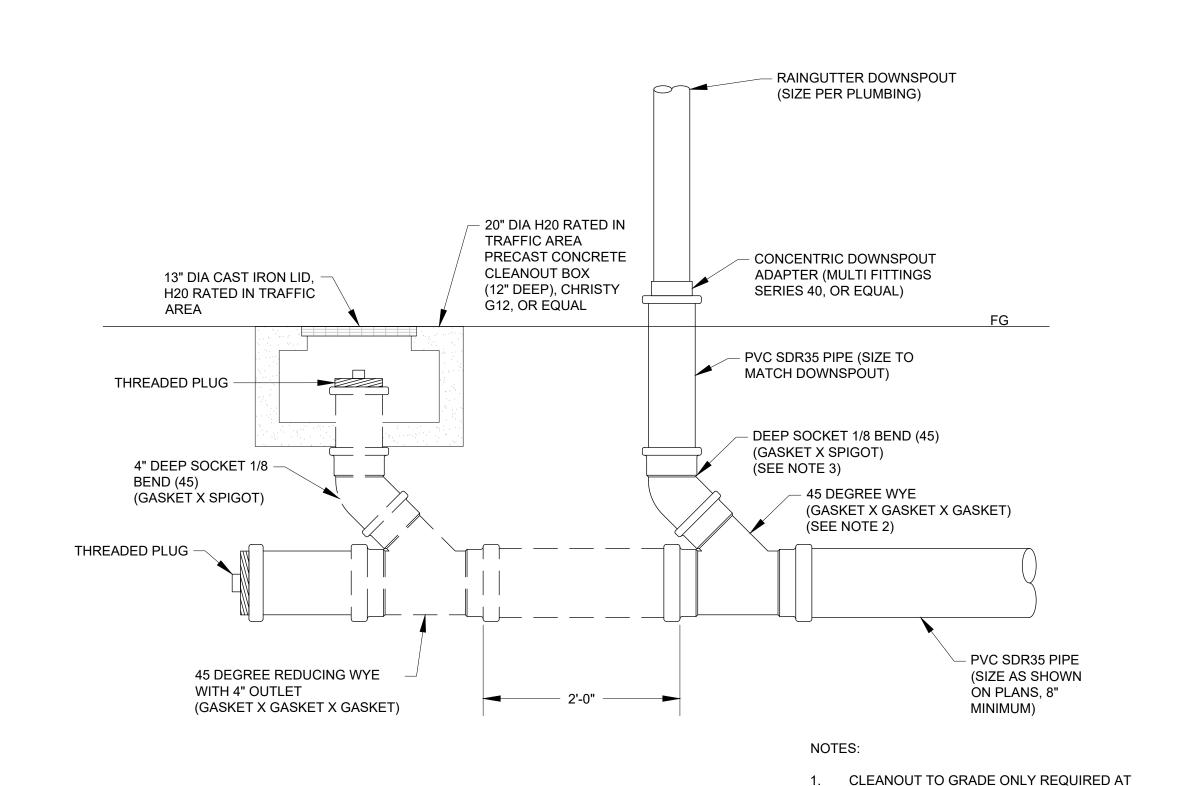
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING



RAINGUTTER DOWNSPOUT CONNECTION DETAIL





REGISTRATION

PROJECT

PLANT

CLIENT

PROVO RIVER

PROVO CITY

Provo, UT 84606

CONSULTANTS

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PUBLIC WORKS

1377 South 350 East

WATER TREATMENT



ISSUE/REVISION

D	2023-04-07	ISSUED FOR BID
С	2023-01-20	ISSUED FOR 90%
В	2022-10-14	ISSUED FOR 60%
Α	2022-07-01	ISSUED FOR 30%
I/R	DATE	DESCRIPTION

PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

CIVIL **TYPICAL DETAILS** SHEET 6

DRAWING NUMBER

99-C706

END OF EACH MAIN LINE RUN.

TO TIE INTO DOWNSPOUT.

TO BUILDING WALL.

ROTATE WYE AS NEEDED TO EXTEND PIPE

3. ADD ADDITIONAL PIPE OR BEND AS NEEDED

1. GENERAL

A. Grade rings are used in non-pressurized applications to adjust frame to grade.

2. PRODUCTS

A. Concrete: Class 4000, APWA Section 03 30 04. B. Reinforcement: Deformed, 60 ksi yield grade hoop steel, ASTM A615. 1) 2 1/2" High Rings: Provide two 1/4" diameter steel hoops tied with No. 14 AWS

gage wire, 8" on center. 2) 6" and 8" High Rings: Provide four 1/4" diameter steel hoops, tied with No. 14 AWS gage wire, 8" on center.

C. Gasket: Rubber-based, compressible.

3. EXECUTION

A. Ring Manufacture:

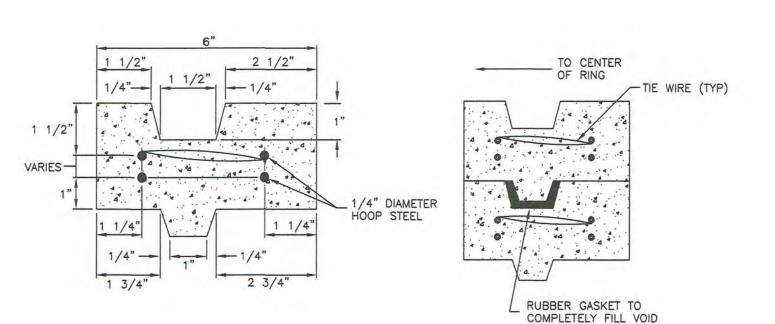
1) Fabrication, APWA Section 03 30 10. 2) Cure, APWA Section 03 39 00.

APWA PLAN 345 NOT USED.

B. Field Installation: Seat rings with a compressible gasket.

27", 30", 38" OR 44" 27", 30", 38" OR 44" 12" MAXIMUM_ 12" MAXIMUM 2.5" MINIMUM 2.5" MINIMUM CONCRETE CONE CONCRETE DECK ASTM C 478 (PLAN 345)

GRADE RING



RING DETAIL

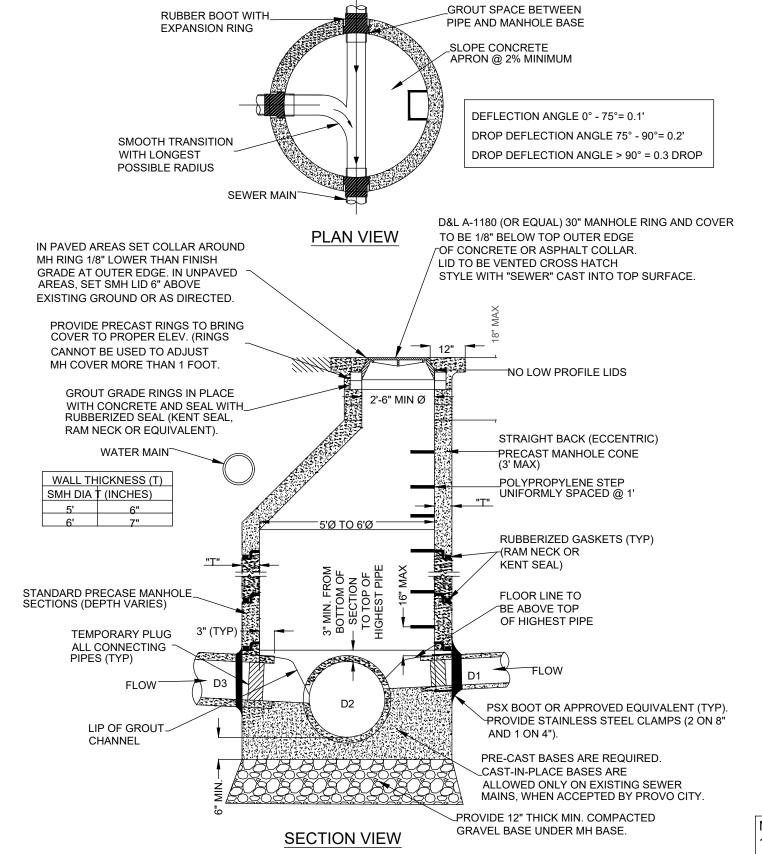
DECK SECTION

GASKET DETAIL

CONE SECTION

APWA PLAN 360.1 RAISE FRAME TO GRADE

PROVO CITY DETAIL P-411 SANITARY SEWER MANHOLE



SEE DETAIL C022 FOR APWA PLAN 360 GRADE RINGS DETAIL.

> SEE DETAIL C023 FOR APWA PLAN 413 CONCRETE COLLAR.

Cover collar for sanitary sewer manhole

1. GENERAL

A. In a pavement surface, the concrete will support the frame under traffic loadings.

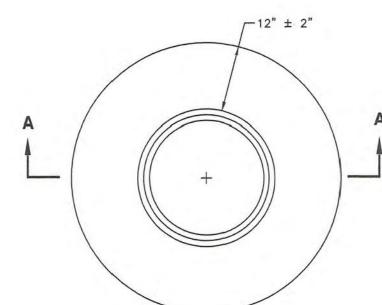
2. PRODUCTS

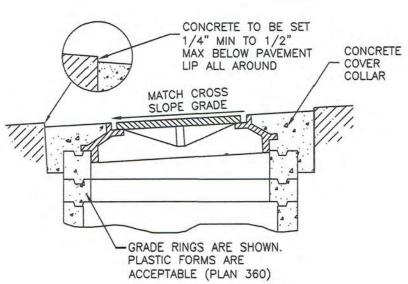
A. Concrete: Class 4000, APWA Section 03 30 04. B. Concrete Curing Agent: Type ID Class A (clear with fugitive dye), membrane forming compound, APWA Section 03 39 00.

3. EXECUTION

A. Pavement Preparation: Provide a neat vertical and concentric joint between the concrete collar and the bituminous payment surface. Clean edges of all dirt, oil, and loose debris.

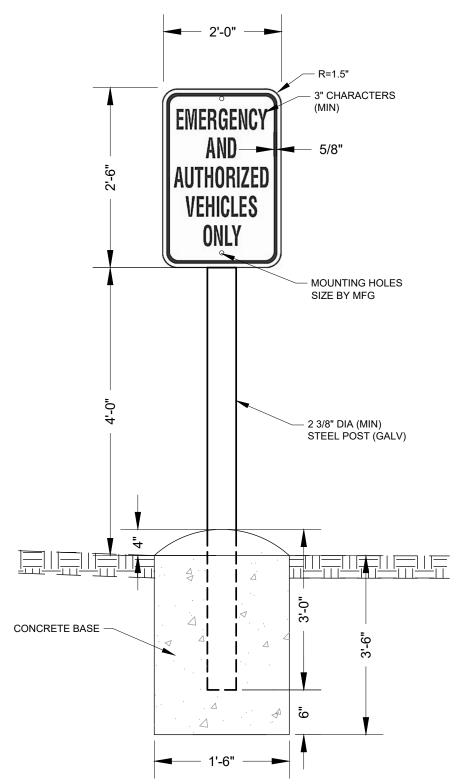
B. Concrete Placement: Fill the annular space around the frame and cover casting with concrete. Apply a broom finish. Apply a curing agent.





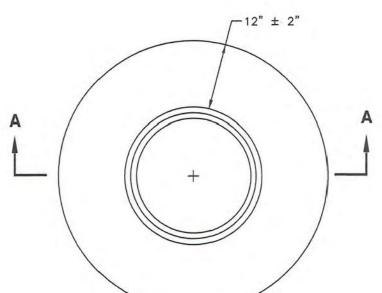
SECTION A-A

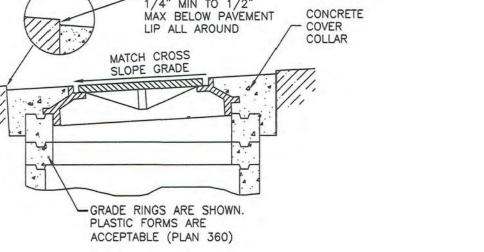
APWA PLAN 413 COVER COLLAR FOR SANITARY SEWER MANHOLE C023



DETAIL NOTES:

- ALL MOUNTING BRACKETS AND HARDWARE SHALL BE HOT-DIP GALVANIZED OR ZINC PLATED.
- 2. MOUNTING BRACKETS, BOLTS, AND NUTS SHALL BE PER THE MANUFACTURER.
- 3. SING SHALL HAVE RED CHARACTERS ON A WHITE BACKGROUND.





VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

CONSULTANTS

PROJECT

PLANT

CLIENT

PROVO RIVER

PROVO CITY

Provo, UT 84606 Tel: (801) 852-6700

PUBLIC WORKS

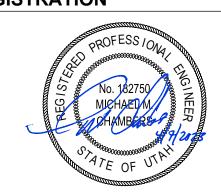
1377 South 350 East

WATER TREATMENT

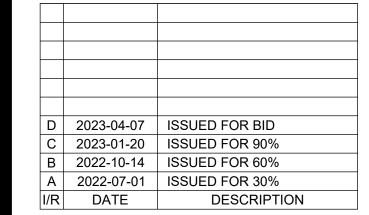
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WELCOME HOME

REGISTRATION



ISSUE/REVISION

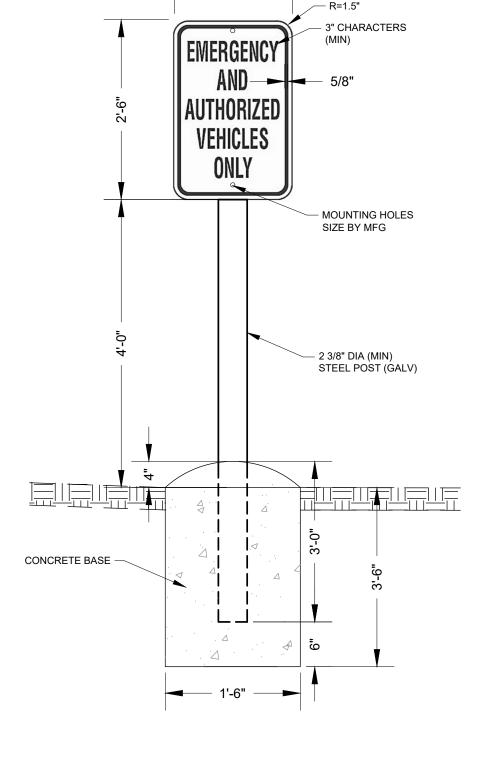


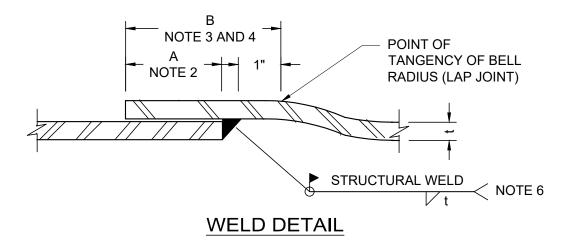
PROJECT NUMBER

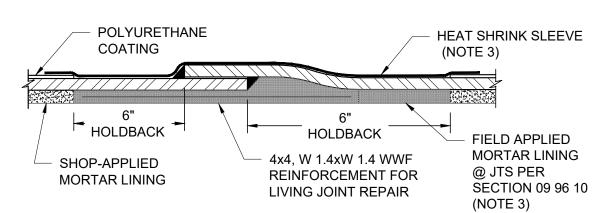
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

TYPICAL DETAILS SHEET 7



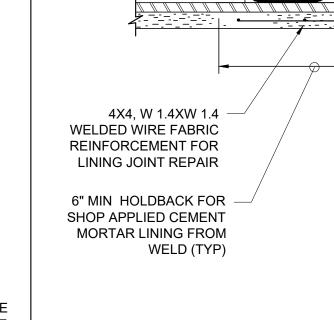




COATING & LINING REPAIR DETAIL

DETAIL NOTES:

- SINGLE WELD LAP JOINT TO BE USED FOR ALL BURIED PIPELINE JOINTS.
- DIMENSION "A" CORRESPONDS TO THE COMPLETED JOINT OVERLAP AFTER FINAL FIELD WELDING. DIMENSION "A" SHALL BE THE GREATER OF 3" OR 5T, MINIMUM.
- FOR STANDARD JOINTS, THE MINIMUM DIMENSION "B" SHALL BE AS REQUIRED TO PROVIDE THE MINIMUM OVERLAP DIMENSION "A" AND MAINTAIN THE INDICATED HOLDBACK FOR THE
- FOR SPECIAL TEMPERATURE CONTROL JOINTS, THE MINIMUM DIMENSION "B" SHALL BE INCREASED BY AT LEAST 3 INCHES. AT THE TIME OF INSTALLATION AND PRIOR TO WELDING, THE SPIGOT SHALL BE INSERTED INTO THE LENGTHENED BELL TO PROVIDE "A" +3 INCHES MINIMUM OVERLAP. SEE SPECIFICATIONS FOR SPECIAL TEMPERATURE CONTROL JOINT WELDING REQUIREMENTS.
- 5. FILLET WELDS FOR BELL AND SPIGOT LAP JOINTS SHOWN. FILLET WELDS ON OTHER JOINTS ARE SIMILAR.
- STRUCTURAL WELD MAY BE MADE ON THE INSIDE (AS SHOWN) OR OUTSIDE OF THE PIPE AT THE CONTRACTOR'S OPTION. WELD SIZE ON 1/2" THICK PIPE AT UNIVERSITY AVE CROSSING
- NEED ONLY BE 1/4". THE JOINTS SHALL BE FABRICATED AND INSTALLED TO BE WITHIN THE TOLERANCES INDICATED IN SPECIFICATION SECTION 33 92 10. THE TOLERANCE REQUIREMENTS SHALL
- APPLY TO BOTH STRAIGHT AND DEFLECTED JOINTS. HOLIDAY TEST THE HEAT SHRINK SLEEVE AFTER INSTALLATION PER SECTION 09 96 10.
- 9. INSPECTION OF ALL FIELD APPLIED INTERIOR MORTAR COATINGS MUST BE CONDUCTED PRIOR TO PLACING LINE IN SERVICE.
- 10. HEAT SHRINK SLEEVE SHALL OVERLAP SHOP APPLIED POLYURETHANE BY A MINIMUM OF 6".



3" MIN COATING HOLDBACK

SHOP APPLIED

COATING

POLYURETHANE

(TYP)

DETAIL NOTES:

1. HOLIDAY TEST THE HEAT SHRINK SLEEVE AFTER INSTALLATION AS SPECIFIED IN SECTION 09 96 10 OF THE SPECIFICATIONS. SLEEVE SHALL OVERLAP SHOP APPLIED TAPE WRAP A MINIMUM OF 3".

BACKING PLATE

CENTERED ON JOINT

SEE NOTE 1

FIELD APPLIED MORTAR LINING

AT JOINTS AS SPECIFIED IN

SPEC SECTION 09 96 10

HEAT SHRINK SLEEVE.

SHOP APPLIED

SHOP APPLIED

LINING

CEMENT MORTAR

TAPE WRAP (TYP)

2. INSPECTION OF ALL FIELD APPLIED INTERIOR MORTAR COATINGS MUST BE CONDUCTED PRIOR TO PLACING LINE IN SERVICE.

BUTT WELD

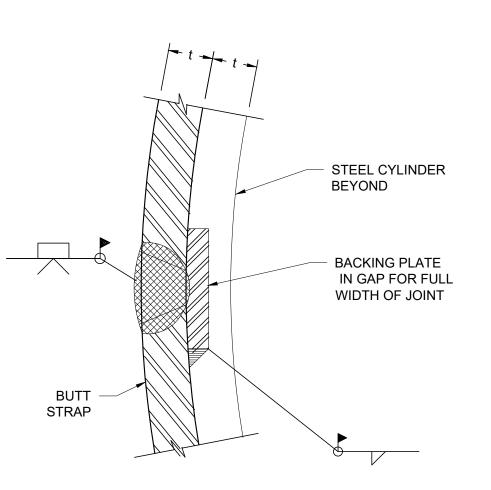


2. BEVEL ENDS OF BACKING PLATE AT BUTT STRAP PRIOR TO WELDING OR

BACK GOUGE AT CONTACT WITH ADJACENT CYLINDER PRIOR TO

1. LININGS AND COATINGS NOT SHOWN FOR CLARITY.

COMPLETING INSIDE FILLET WELD.



DETAIL NOTES:

4x4, W 1.4xW 1.4 WWF

REINFORCEMENT FOR

LIVING JOINT REPAIR

POLYURETHANE COATING

JOINT SHALL BE TESTED VIA AIR/SOAP SOLUTION TEST AT 40 PSI AIR PRESSURE IN ACCORDANCE WITH SECTION 33 92 10 IN ADDITION TO DYE PENETRANT OR MAGNETIC PARTICLE TESTING. IF LEAKS ARE DETECTED, REPAIR AND RETEST THE WELDS UNTIL THERE ARE NO DEFECTS. PLUG HOLES WITH A THREADED OR WELDED PLUG AT COMPOLETION OF TEST AND COAT AS SHOWN. TAP HOLES MAY BE ON INSIDE OR OUTSIDE OF JOINT.

BUTT STRAP WIDTH

(NOTE 3)

4" MIN

24" MAX

BACKING PLATE

FIELD APPLIED MORTAR

AT SPLICE

(NOTE 2)

LINING @ JTS PER

SECTION 09 96 10

(NOTE 6)

VERIFY SCALE

1/4" NPT PORT W/ 1/4"

HEAT SHRINK SLEEVE (NOTE 6)

STEEL PLUG (TYP, NOTE 1)

HOLDBACK ^F

SHOP-APPLIED MORTAR

LINING

OVERLAP = GREATER

OF 3" OR 5T

BAR IS ONE INCH ON ORIGINAL DRAWING

- 2. FOR FIELD WELDING OF INDIVIDUAL BUTT STRAP PIECES TO EACH OTHER, SEE DETAIL F
- 3. BUTT STRAP WIDTH SHALL CONFORM TO THE LIMITATIONS SHOWN FOR PIPE END SEPARATION AND STEEL OVERLAP REQUIREMENTS, UNO.
- 4. HOLIDAY TEST THE HEAT SHRINK SLEEVE AFTER INSTALLATION PER SECTION 09 96 10.
- 5. INSPECTION OF ALL FIELD APPLIED INTERIOR MORTAR COATINGS MUST BE CONDUCTED PRIOR TO PLACING LINE IN SERVICE.
- 6. HEAT SHRINK SLEEVE SHALL OVERLAP SHOP APPLIED POLYURETHANE COATING BY A MINIMUM OF 6".





PROVO RIVER WATER TREATMENT PLANT

CLIENT

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Tel: (801) 852-6700

WELCOME HOME

CONSULTANTS

756 East Winchester Street

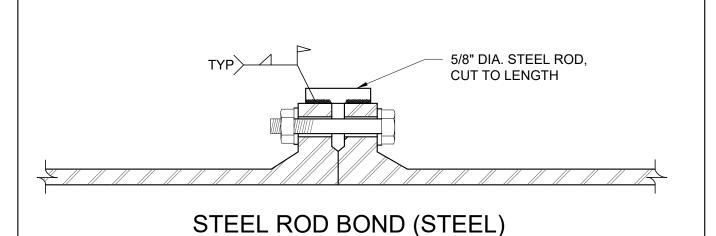
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WAX TAPE COAT FLANGE ASSEMBLY (NOTE 6) CRITICAL AIR GAP AT ENDS OF SLEEVE, MIN TYPE E, FULL FACE 1/16", MAX 1/2" STL GASKET WASHER THICKNESS INSULATING WASHER, SEE NOTE 1 AND 2 STEEL WASHER, TYP OF 4 PER STUD BOLT STUD BOLT HEX NUT -INSULATING SLEEVE DUCTILE IRON FLANGE FLANGE, WITH OVERSIZED **BOLT HOLES** PIPELINE STEEL FLANGE FILL GROOVE PIPE LINING, SEE NOTE 5 SEE NOTE 4

DETAIL NOTES:

- DOUBLE INSULATING WASHER SET FOR VAULT OR EXPOSED FLANGES.
- 2. SINGLE INSULATING WASHER SET FOR BURIED OR SUBMERGED FLANGES, PLACE INSULATORS ON UNPROTECTED SIDE OF FLANGE.
- 3. TEST COMPLETED JOINT FOR ELECTRICAL ISOLATION AS SPECIFIED AND REPAIR AS REQUIRED.
- 4. FILL INTERIOR GAP BETWEEN FLANGES WITH NSF-CERTIFIED DIELECTRIC FILLER OR SEALANT COMPATIBLE WITH SPECIFIED PIPE LINING.
- EXTEND SPECIFIED PIPE LINING TO FACE OF FLANGE AND COAT INTERIOR OF MORTAR LINED PIPE FOR TWO PIPE DIAMETERS WITH NSF APPROVED EPOXY AT 20 MILS DFT.
- 6. BURIED FLANGE ASSEMBLIES SHALL BE COATED WITH A WAX TAPE COATING SYSTEM AFTER INSTALLATION.

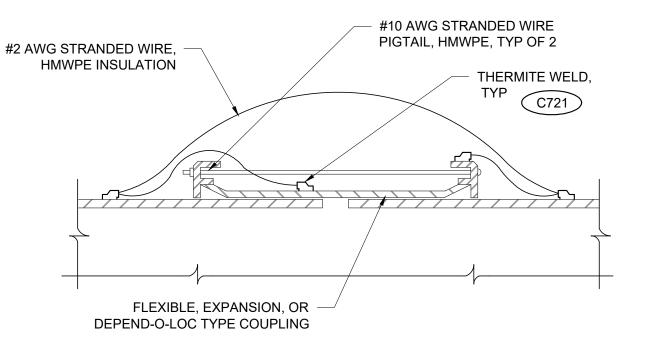




DETAIL NOTES:

- 1. ALL FLANGES SHOWN ON PLANS ARE TO BE INSULATED. DETAIL PROVIDED FOR CONVENIENCE IF CONTRACTOR ADDS BURIED STEEL FLANGES, WITH ENGINEERS APPROVAL.
- 2. INSTALL THREE BOND WIRES AT EACH JOINT, MINIMUM.
- 3. CLEAN WITH WIRE BRUSH OR SANDER AND COAT STEEL ROD AND WELDS WITH FAST CURE EPOXY.



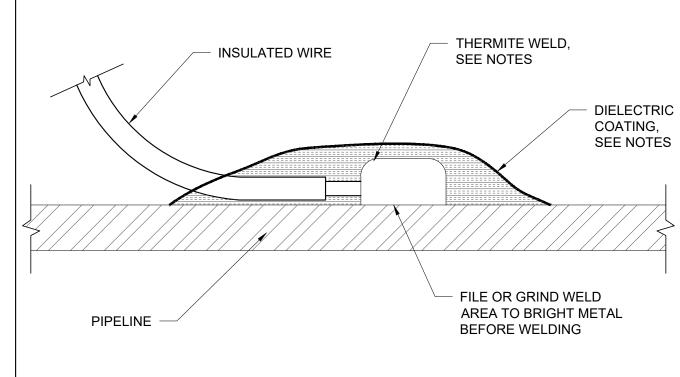


DETAIL NOTES:

DETAIL NOTES:

- COUPLING JOINT SHOWN, SIMILAR FOR RESTRAINED JOINTS, DEPEND-O-LOC, FLANGED ADAPTERS, AND OTHER TYPE DISMANTLING JOINTS.
- 2. INSTALL THREE BOND WIRES AT EACH JOINT, MINIMUM.
- 3. COAT WELDS WITH FAST CURE EPOXY.
- 4. AT CONTRACTOR'S OPTION SOLID COPPER STRAP MAY BE USED FOR JOINT BONDING. THE SOLID COPPER STRAP SHALL BE 1-1/4-INCH WIDTH BY 1/16-INCH THICK, EQUIVALENT TO A 1/0 AWG WIRE, WITH FIVE PUNCHED HOLES FOR THERMITE WELDING TO THE COUPLING FOLLOWER RINGS, MIDDLE RING, AND PIPE. SEE SPECIFICATIONS FOR ADDITIONAL



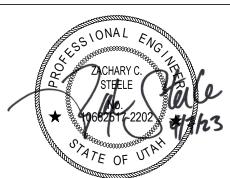


DETAIL NOTES:

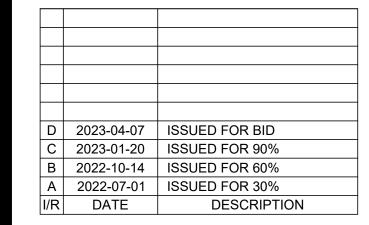
- 1. COPPER SLEEVE REQUIRED FOR #12 AWG OR SMALLER TEST WIRES..
- 2. WELDER AND CARTRIDGE SIZE VARIES ACCORDING TO PIPE AND WIRE SIZE AND PIPE MATERIAL, CONSULT WELDER MANUFACTURER FOR RECOMMENDED WELDER AND CARTRIDGE.
- 3. COAT COMPLETED WELDS, EXPOSED COPPER, AND EXPOSED METAL WITH FAST CURE EPOXY (PROTAL 7125).







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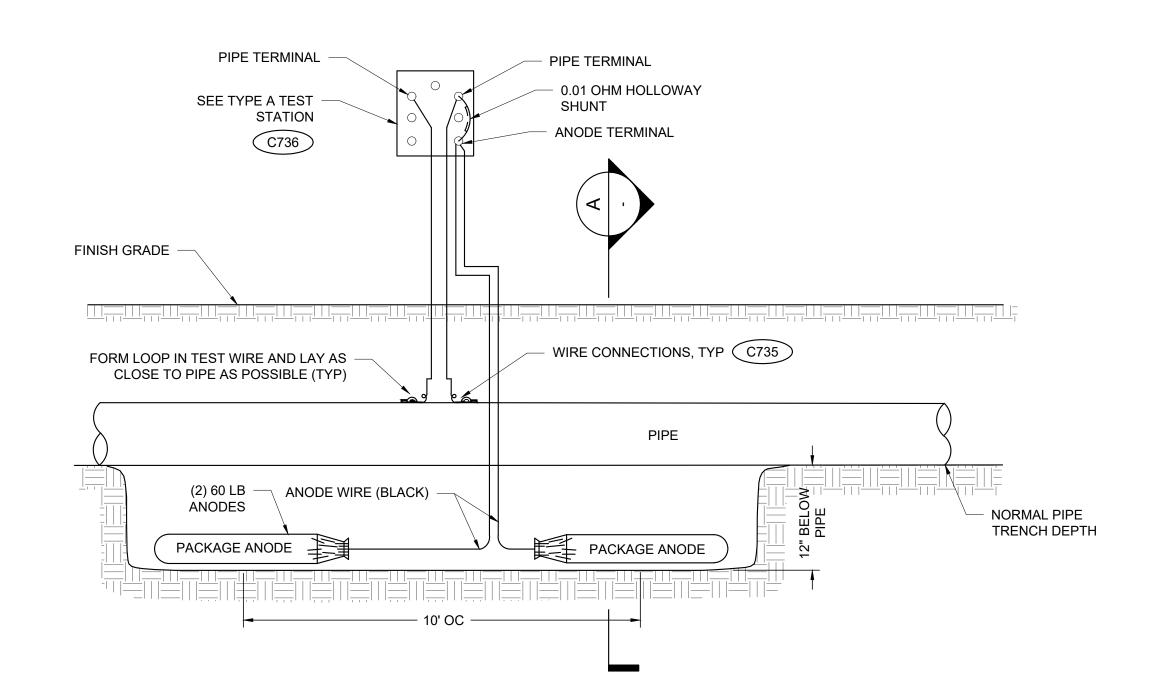
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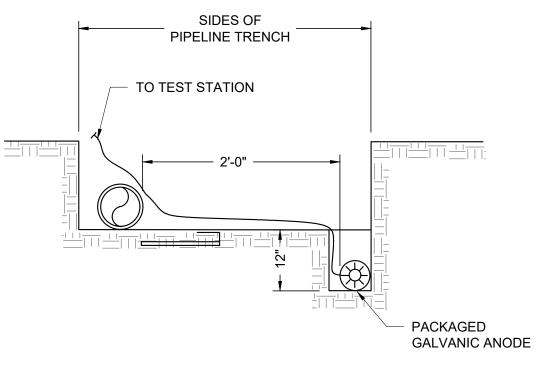
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

CIVIL TYPICAL DETAILS SHEET 8

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING



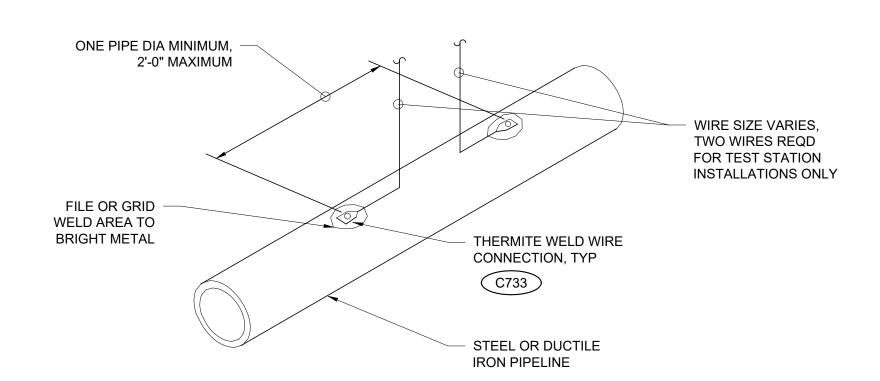


DETAIL NOTES:

A DETAIL

SCALE: NTS

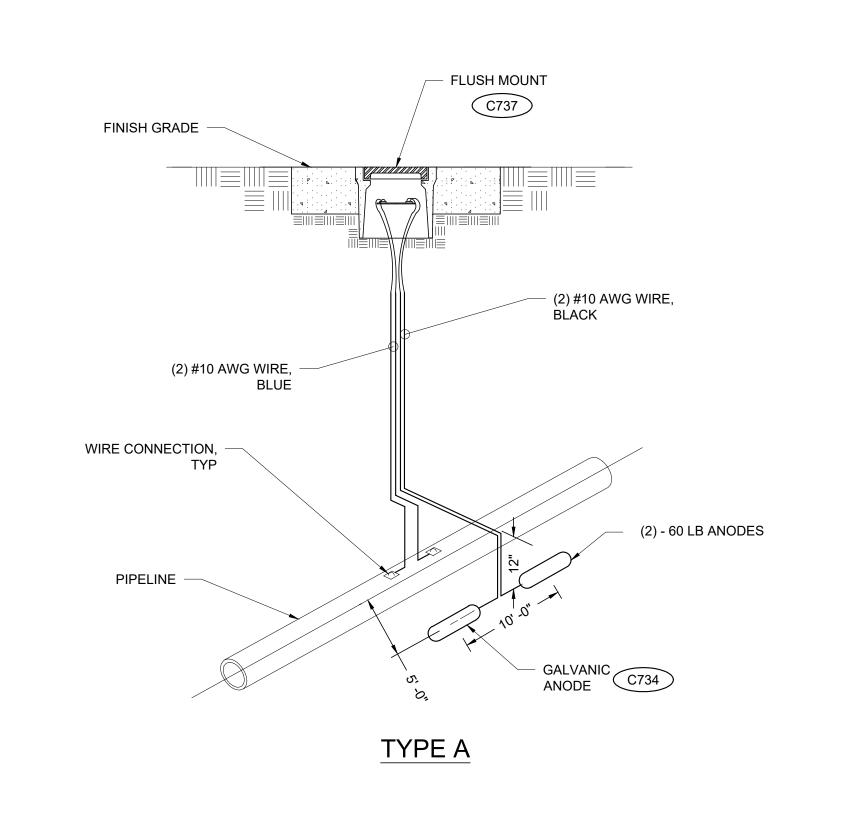
- 1. CADWELD CONNECTION TO BE PRIMED AND COATED AS SPECIFIED.
- 2. PACKED ANODE SHOULD BE COVERED WITH FINE SOIL CONTAINING NO ROCKS OR DIRT CLUMPS, HAND TAMPED.
- 3. WET PACKAGED ANODE PRIOR TO BACKFILLING.
- 4. BACKFILL ANODE IN NATIVE EXCAVATED SOIL. DO NOT ENCASE OR BURY ANODE IN CLSM.



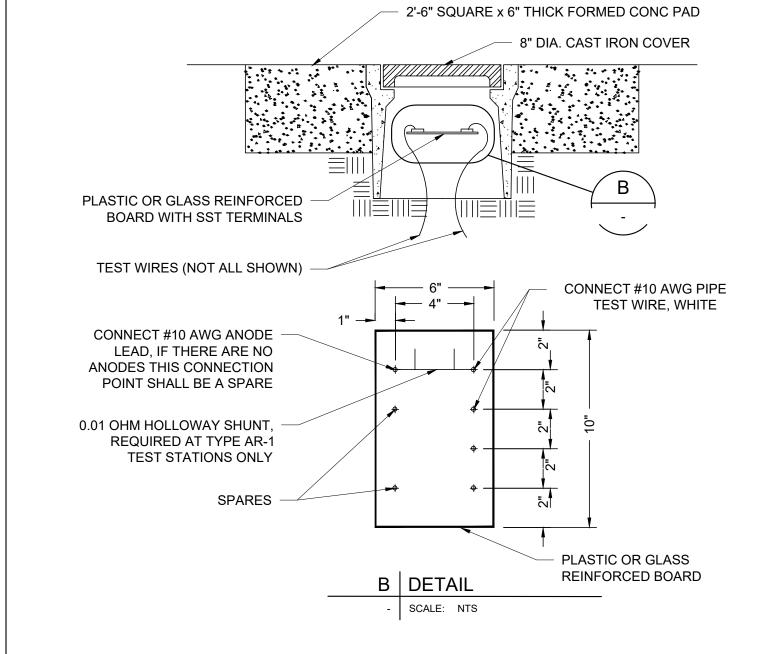
DETAIL NOTES:

- 1. COPPER SLEEVE REQUIRED FOR THERMITE WELDING OF #10 AWG AND SMALLER WIRE.
- 2. USE COOPER SLEEVE ON #2 AWG JOINT BONDING WIRES.
- 3. WELDER AND CARTRIDGE SIZE VARIES ACCORDING TO PIPE SIZE AND PIPE MATERIAL. CONSULT WELDER MANUFACTURER FOR RECOMMENDED WELDER AND CARTRIDGE.
- 4. COAT COMPLETED THERMITE WELD CONNECTIONS AS SPECIFIED.





CATHODIC TEST STATION



DETAIL NOTES:

GALVANIC ANODE INSTALLATION

- 1. COLOR CODE WIRE INSULATION AS SHOWN IN APPLICABLE TEST STATION DETAILS, CONNECT EACH TEST WIRE TO SEPARATE TERMINAL.
- 2. WIRE CONFIGURATION FOR FLUSH MOUNTED TEST STATIONS SIMILAR TO POST MOUNTED TEST STATIONS.
- 3. PROVIDE 18" SLACK IN TEST WIRES, MINIMUM.
- 4. TERMINALS SHALL BE 1/4" STAINLESS STEEL WITH LOCKING WASHER, TWO FLAT WASHERS, AND DOUBLE NUTS.
- 5. ALL WIRE CONNECTIONS TO BE WITH RING TONGUE COMPRESSION TERMINALS.



	CATHODIC PRO TEST—STA	
CTS #	SHEET REF	APPROX LOCATION
CTS-1	30-C301/30-D101	STA. 1+42
CTS-2	30-C305	STA. 18+28
CTS-3	30-C305	STA. 20+28

GENERAL CATHODIC PROTECTION NOTES:

- 1. ALL TEST OR ANODE WIRE CONNECTIONS TO PIPE SHALL BE AN EXOTHERMIC WELDED CONNECTION, SEE SHEET 99-C705.
- 2. PROVIDE INSULATING JOINT IN PIPE WHERE INDICATED ON THE DRAWINGS.
- 3. TEST ALL INSULATING JOINTS FOR ELECTRICAL ISOLATION AS SPECIFIED IN SECTION 26 42 00.

ENGINEERS

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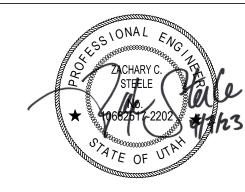
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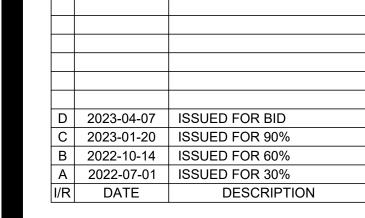
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SHEET TITLE

TYPICAL DETAILS SHEET 9

DRAWING NUMBER

99-C709

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

NOTES:

RESTORE 6-FOOT CHAIN LINK FENCE FILL WITH NATIVE MATERIAL, LOCATION OF EDGE OF MATCH EXISTING SLOPE OR ASPHALT AND FENCE WILL MAX SLOPE 3:1, COMPACT RESTORE IMPACTED PAVEMENT, VARY DEPENDING ON PIPE TO 85% MDD PER ASTM < MATCH EXISTING PAVEMENT LOCATION (SEE PLAN) D-1557 THICKNESS PLUS 1" (3" MIN) INITIAL SAW -SECONDARY SAW CUT CUT (TYP) FULL DEPTH (TYP) COMPACTED TRENCH BACKFILL 95% MIN ASTM D-1557 - 6" UBC PER APWA 3/4" GRADATION COMPACTED TO 95% MDD PER ASTM D-1557 PLACE MAGNETIC MARKER TAPE ABOVE FILL PRIOR TO PLACE UBC TRACER WIRE (TAPE TO TOP OF PIPE) BEDDING AND PIPE ZONE MATERIAL SHALL BE CLSM

TYPICAL 42" HDPE PIPE SECTION

SCALE: 1" = 2'

FILL WITH NATIVE MATERIAL, LOCATION OF EDGE OF MATCH EXISTING SLOPE OR ASPHALT AND FENCE WILL MAX SLOPE 3:1, COMPACT RESTORE IMPACTED PAVEMENT, VARY DEPENDING ON PIPE TO 85% MDD PER ASTM ~ MATCH EXISTING PAVEMENT LOCATION (SEE PLAN) D-1557 THICKNESS PLUS 1" (3" MIN) INITIAL SAW -SECONDARY SAW CUT FULL DEPTH (TYP) CUT (TYP) COMPACTED TRENCH BACKFILL 95% MIN ASTM D-1557 - 6" UBC PER APWA 3/4" GRADATION COMPACTED TO 95% MDD PER ASTM D-1557 PLACE MAGNETIC MARKER TAPE ABOVE FILL PRIOR TO PLACE UBC TRACER WIRE (TAPE TO TOP OF PIPE) BEDDING AND PIPE ZONE MATERIAL SHALL BE 1-1/2" MINUS GRAVEL PER PROVO STANDARD SPECIFICATION SECTION 31 05 31M. DO NOT USE PEA GRAVEL OR RECYCLED RAP AGGREGATE.

TYPICAL 42" RCP PIPE SECTION

 VAN ACCESSIBLE PARKING SIGN 3'-0" PLACE DIAGONAL - MAX RUNNING SLOPE 8.33% MARKINGS AT 45 MAX CROSS SLOPE 2% DEGREES AND CURBSIDE -SPACE 3 FEET APART STANDARD STANDARD STALL STALL **ACCESSIBLE** PAINTED -ISLAND **VARIES** (SEE PLAN)

TYPICAL PAVEMENT MARKING

SCALE: NTS

NOTES:

SHALL BE BLUE.

MARKING.

ALL PARKING MARKINGS SHALL BE 4 INCHES WIDE. HANDICAP STALL AND ACCESS AISLE MARKING PAINT

STANDARD STALL MARKING PAINT SHALL BE WHITE.

SPECIFICATION SECTION 32 17 23 - PAVEMENT

SLOPE IN ACCESSIBLE STALL OR LOADING ZONE

SHALL NOT BE MORE THAN 2% IN ANY DIRECTION.

4. INSTALL PAINT PER THE REQUIREMENTS OF

STAMPED "STORM DRAIN" MANHOLE COVER APWA STANDARD CAST IRON MANHOLE RING & 48" MIN ECCENTRIC LID STAMPED "STORM DRAIN". MANHOLE CON MIN 36" SEDIMENT TRAP DEPTH REQUIRED BACK FILL AS
PER ROADWAY AND FOLLOWS PRETREATMENT MANUFACTURERS RECOMMENDATIONS. PRE-TREATMENT IS REQUIRED ZONE PROVO WHENEVER GROUND WATER IS BEFORE DISCHARGE INTO SUMP STANDARD P-255 ENCOUNTERED THE PIT GRAVEL FOR OR EQUIVALENT TYPE OF MIN 15" PVC - LENGTH VARIABLE INFILTRATION MUST BEGIN ABOVE INFILTRATION STRUCTURES. GROUND WATER ELEVATION. STORM DRAIN OUTLET **RUNGS** APWA DRAINAGE GEOTEXTILES CLASS A INLET WHERE INDICATED ON THE PLANS MIN 2' 1 1/2" - 2" - 60" DIA SECTIONS WASHED GRAVEL STAMPED HOOD, "DRAINS TO TYP CURB & GUTTER GROUND WATER RIVER OR LAKE" WITH FISH LOGO (NOTE 3) NON-SHRINK CURB FACE INLET BOX DETAIL GROUT P-315 SERIES INSIDE TYPE D&L I-3518 GRATE OR **EQUIVALENT** STORM DRAIN STORM DRAIN OUTLET INLET STAMPED "STORM DRAIN" CONCRETE COLLAR ALL AROUND THE OUTSIDE OF PIPE AT BOX

AND SUMP

CONNECTION

TYPICAL DRY SUMP

ENGINEERS

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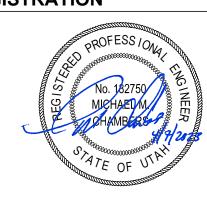
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Α	2022-07-01	ISSUED FOR 30%
I/R	DATE	DESCRIPTION

PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

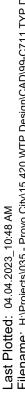
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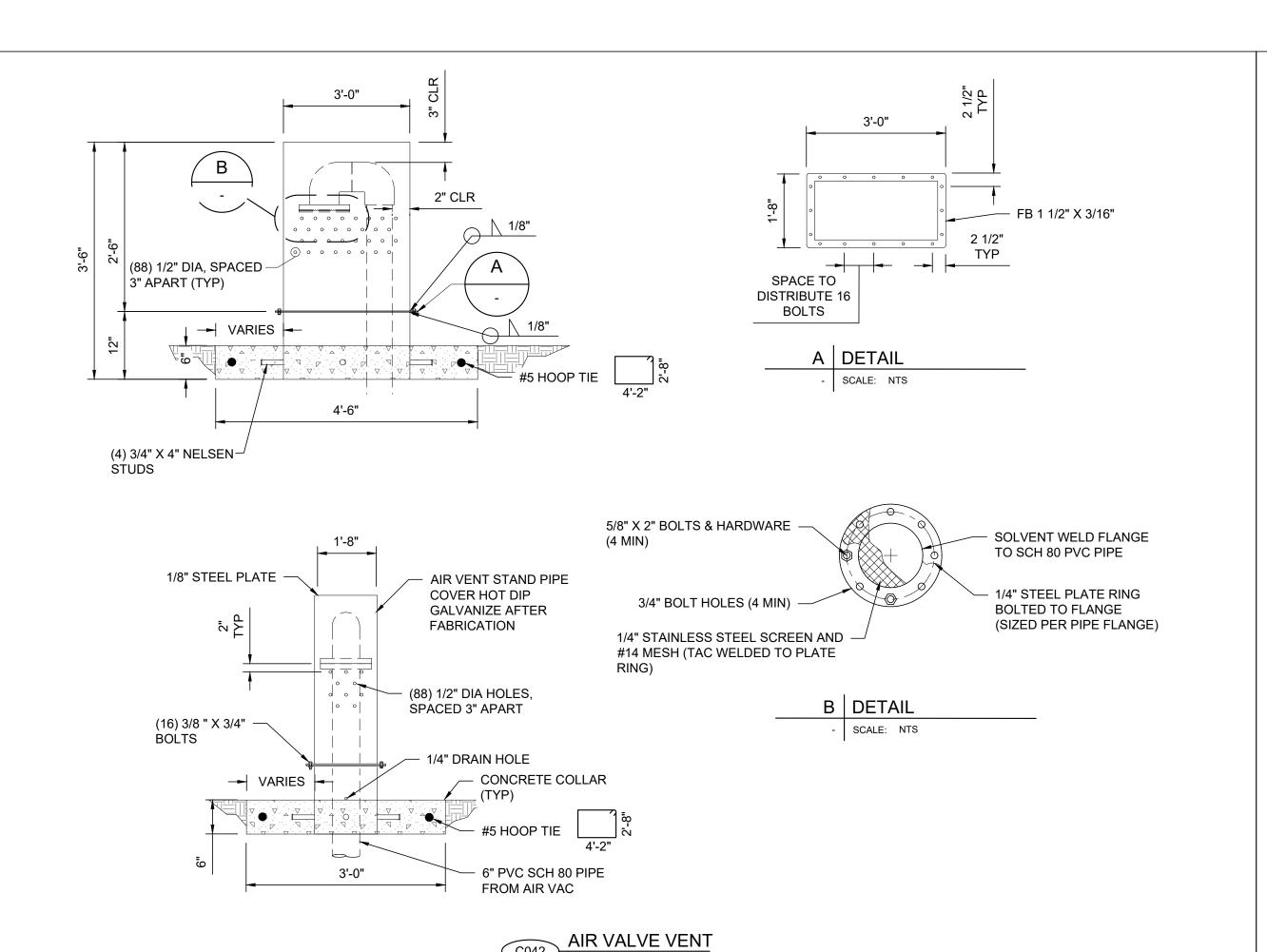
TYPICAL DETAILS SHEET 10

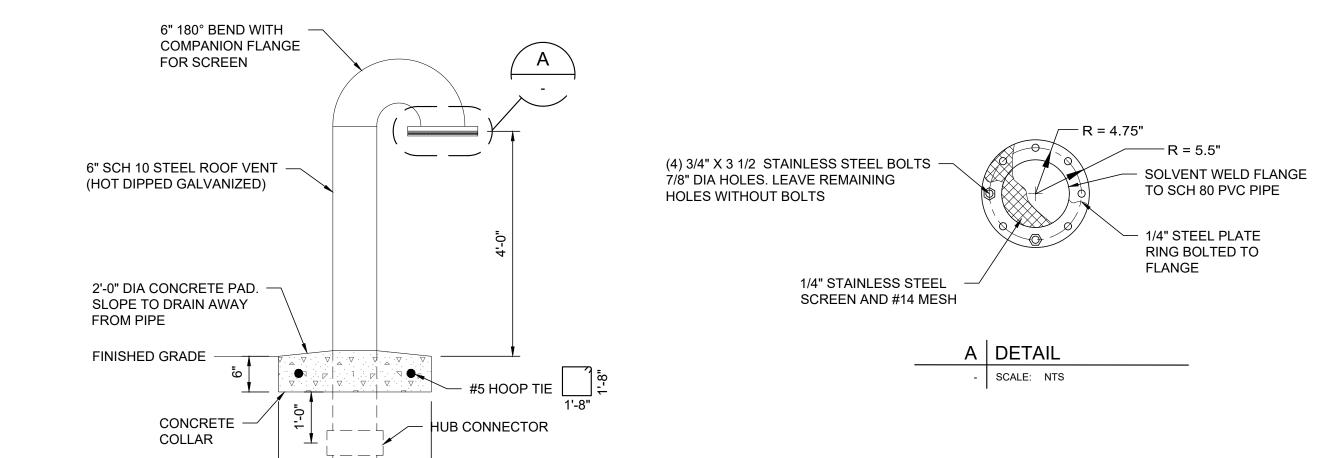
DRAWING NUMBER

99-C710

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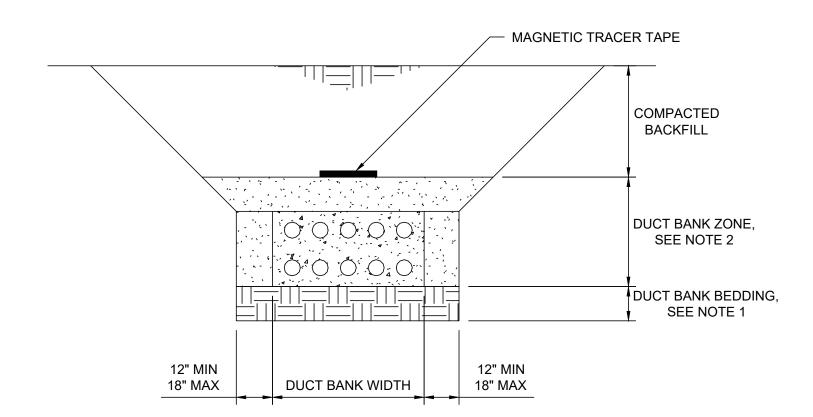




6" SCH 80 PVC PIPE

2'-0" SQ





NOT TO SCALE

DETAIL NOTES:

- 1. DUCT BANK BEDDING SHALL BE OVER EXCAVATED BY 12" AND COMPACTED TO 95%.
- 2. DUCT BANK ZONE SHALL BE CONTROLLED LOW STRENGTH MATERIAL TO TOP OF DUCT BANK. 12-INCHES ABOVE DUCT BANK SHALL BE NATIVE FILL SCREENED TO 3-INCH MINUS.
- 3. TRENCH MUST CONFORM WITH APPLICATION OSHA REQUIREMENTS.
- 4. SEE DETAIL C001 FOR ADDITIONAL TRENCH REQUIREMENTS.





PROJECT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

PROVO RIVER WATER TREATMENT **PLANT**

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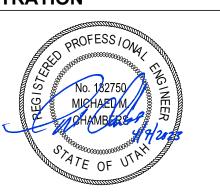
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000 04 07	ISSUED FOR BID
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SHEET TITLE

TYPICAL DETAILS SHEET 11

DRAWING NUMBER

99-C711



DRAWING INDEX

TYPICAL DETAILS INDEX

99-L701

L001 STOP & WASTE VALVE
L002 3/4" - 2" MAINLINE CONNECT
L003 BACKFLOW ENCLOSURE
L004 QUICK COUPLER
L022 TECH LINE FLUSHING VALVE
L023 TECH LINE GRID LAYOUT
L024 CONCRETE MOW STRIP

99-L702

L005 WALL MOUNT CONTROLLER
L006 INTERIOR CONTROLLER MOUNT
L007 TRENCHING DETAILS
L008 TYPICAL SLEEVING
L009 PVC-PE PIPE CONNECTION
L010 EMITTER DIST TUBING
L011 SHRUB DRIP - PLAN VIEW

99-L703

L012 SINGLE DRIP ASSEMBLY - PLAN
L013 DRIP VALVE ASSEMBLY
L014 CONCRETE BLOCK PLACEMENT
L015 MANUAL DRAIN VALVE

99-L704

L016 CONIFER PLANTING

L017 DECIDUOUS PLANTING

L018 SHRUB PLANTING

L019 TREE DRIP PLAN VIEW

L020 FLUSHING CAP

L021 PAVER INSTALL DETAIL



PROJECT

PROVO RIVER
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PROVO CITY
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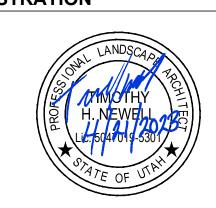
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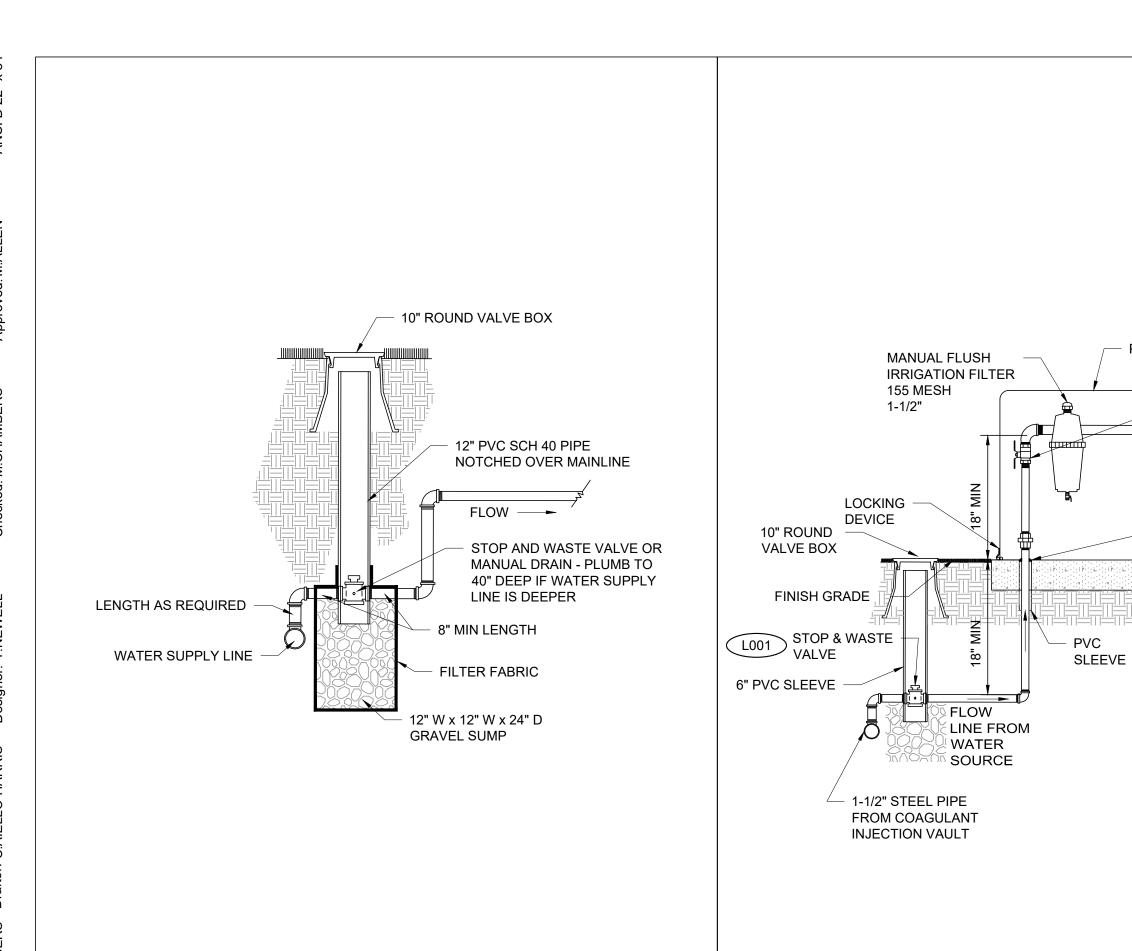
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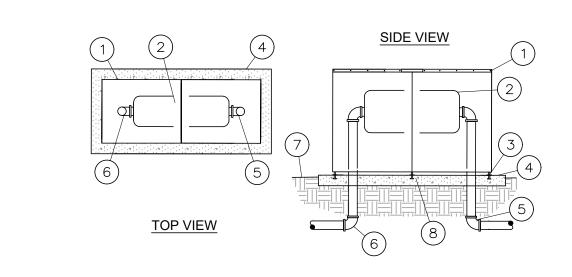
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SHEET TITLE

DETAILS
LANDSCAPE
TYPICAL DETAILS
INDEX

DRAWING NUMBER





KEYED NOTES

- 1. ALUMINUM PROTECTIVE ENCLOSURE
- . FILTER ASSEMBLY
- ANCHOR ROD (TYPICAL)
 POURED CONCRETE BASE 6" MINIMUM THICKNESS

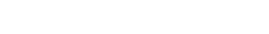
 EXTEND 4" BEYOND OUTSIDE DIMENSIONS OF

PROTECTIVE ENCLOSURE

1. RECOMMENDED MINIMUM FILTRATION: 120 MESH

2. PRESSURE AT FLUSH VALVE SHALL BE MIN 14.5 PSI

- ENCLOSURE5. WATER SERVICE INLET PIPING
- 6. WATER SERVICE INLET PIPING
- 7. FINISH GRADE
- 8. SUPPORT ROD (TYPICAL)





PVC SCH. 80 ELBOW FROM

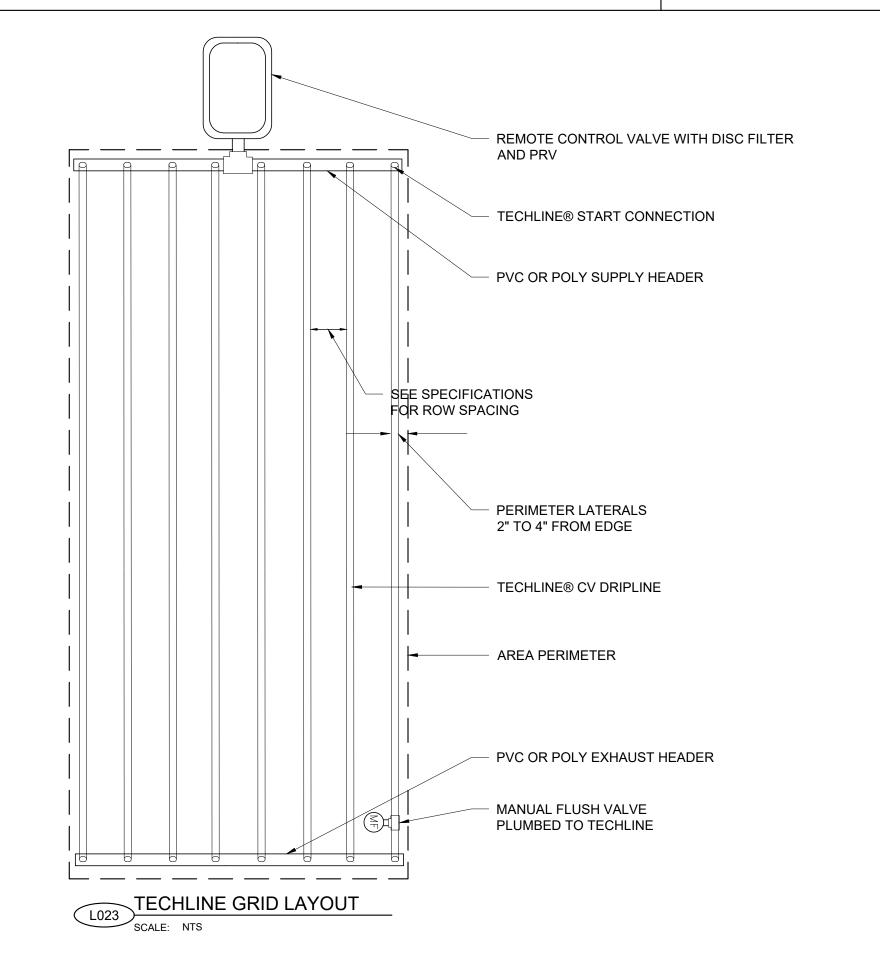
END OF MANIFOLD LINE



FINISH GRADE AUTO LINE FLUSHING VALVE #F-TLFV-1 8" ROUND VALVE BOX BRICK SUPPORTS (THREE) 3/4" GRAVEL SUMP (1 CUBIC FOOT)

TECHLINE FLUSHING VALVE
SCALE: NTS

STOP & WASTE VALVE



1-1/ 2" MAINLINE CONNECT

PROTECTIVE ENCLOSURE (L003)

ISOLATION VALVE

TEE WITH 1" PLUG FOR

10" ROUND

VALVE BOX

4" PVC

SCH 40

SLEEVE

PVC

- MANUAL

DRAIN

VALVE

L015

BLOWOUT WITH AIR

COMPRESSOR

SEALANT

- HINGE

BRUSH FINISH

4 REBAR CONTINUOUS

6 X 6 CONCRETE MOW STRIP

COMPACTED SOIL BASE

12 X 12 COMPACTED

AGREGATE BASE

CAST IN PLACE, PROVIDE CONTROL JOINTS AT NO LESS
 THAN EVERY 4 LINEAR FEET TO AVOID CRACKING

CONCRETE MOW STRIP

SCALE: 1" = 1'



PROJECT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

GROUND LEVEL

10" ROUND VALVE BOX

SINGLE LUG QUICK COUPLER

AND STABILIZER ELBOW

(NO HOLES)

3" DEPTH COMPACTED

PEA GRAVEL

WEED FABRIC

- LASCO G13S-208 DWING JOINT

- 2 BRICK PAVERS

PROVO RIVER
WATER TREATMENT
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1377 South 350 Fast

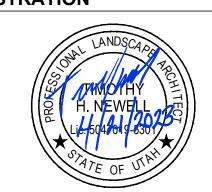
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SHEET TITLE

LANDSCAPE
TYPICAL DETAILS
SHEET 1

DRAWING NUMBER



PAVEMENT

TYPICAL SLEEVING

PAVING SURFACE

SURROUND ALL SLEEVING

PROVIDE 4" HORIZ SEPARATION

2. EXTEND ALL SLEEVING 12" MIN. B

3. REFER TO SLEEVING DIAGRAM FOR

EYOND EDGE OF PAVING.

SIZES OF ALL SLEEVING.

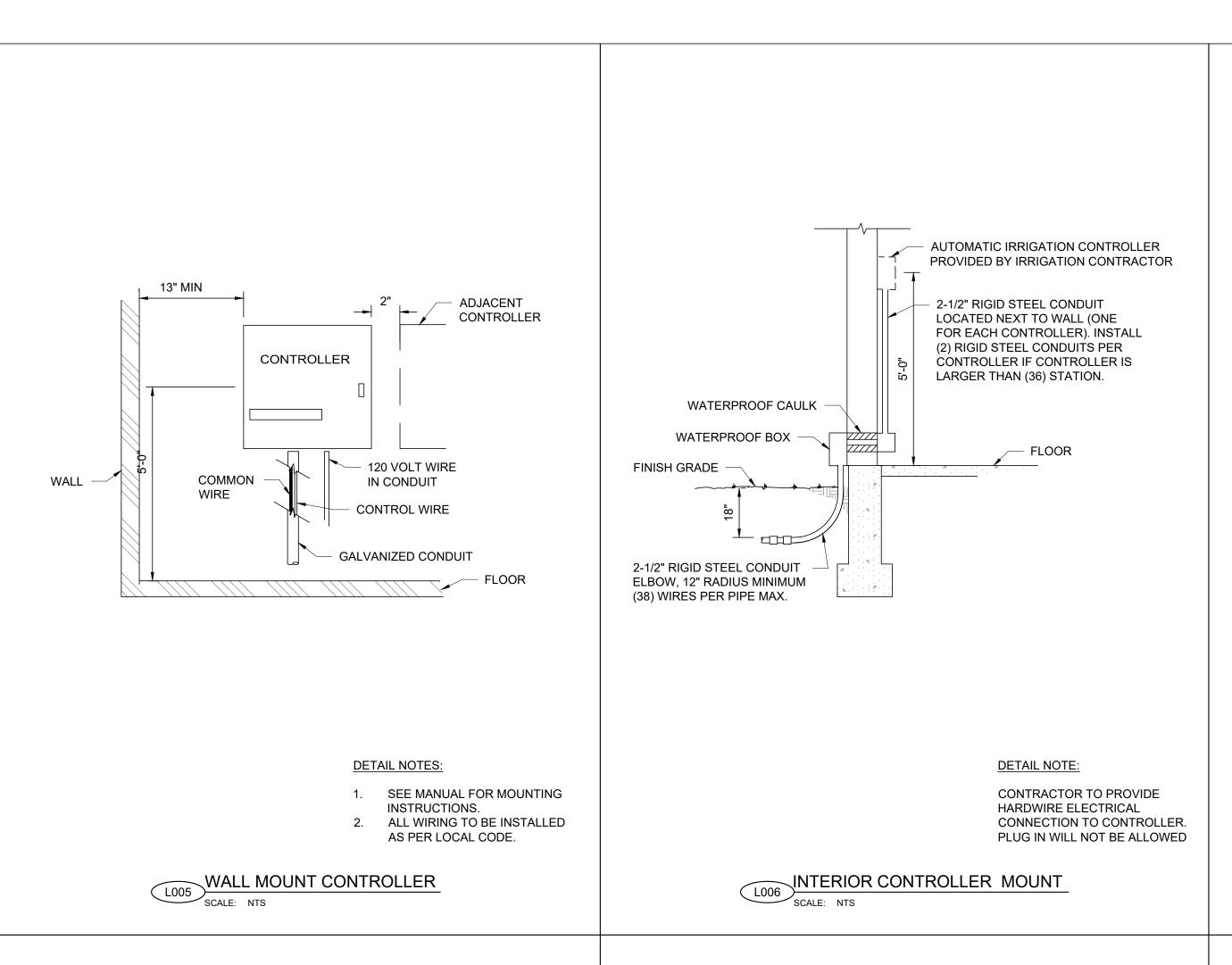
BETWEEN MAINLINE & LATERAL LINE.

WITH 2" MIN SAND

CONTROL WIRES IN

SEPARATE SLEEVE

DETAIL NOTES:

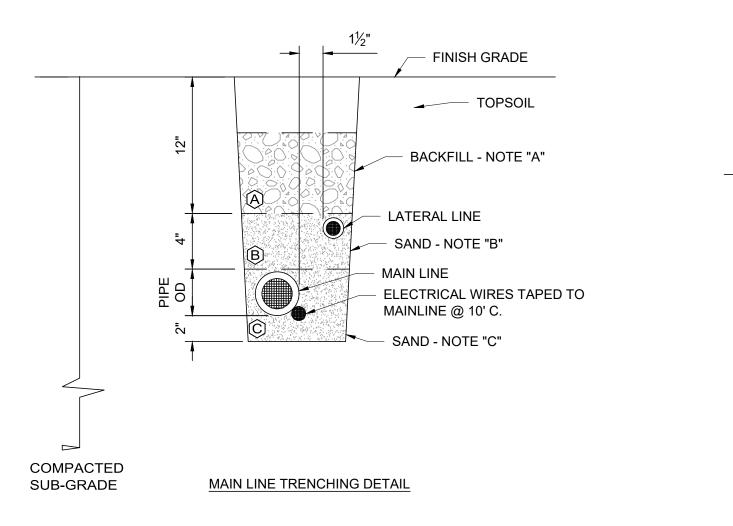


TOP OF MULCH

17mm x 3/4" FPT x 17mm

BARB TEE FEMALE ADAPTER

PVC LATERAL LINE



FINISH GRADE TOPSOIL BACKFILL - NOTE "A" LATERAL LINE SAND - NOTE "C"

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

LATERAL LINE TRENCHING DETAIL

<u>LEGEND</u>

- (A) USE EXCAVATED TRENCH MATERIAL NOT TO EXCEED 2" DIAMETER ROCKS.
- IN CASES WHERE LATERAL LINE IS INSTALLED IN MAIN LINE TRENCH, USE SAND TO BACKFILL TRENCH SO THAT LATERAL LINE IS 12" MIN. BELOW FINISH GRADE.
- USE SAND TO A DEPTH OF 2" TO BED ALL PVC PIPES AND ELECTRICAL WIRES,

TRENCHING DETAILS

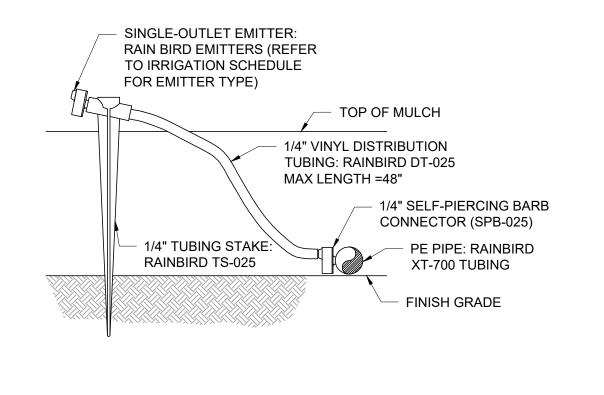
LEGEND

SCALE: NTS

DETAIL NOTES:

- - 2. LOCATE ALL TRENCHES 12" AWAY FROM ALL BUILDINGS, SIDEWALKS OR ANY HARD SURFACES. SETTLE ALL TRENCHES WITH WATER PRIOR TO INSTALLATION OF TOPSOIL. PROVIDE 2" HORIZ

- 1. LATERAL USE TO BE 10" DEEP AT MANIFOLD, 12" AT HEADS AND EVERYWHERE ELSE.
 - SEPARATION BETWEEN PIPES.



INSTALL 10" ROUND VALVE

INLINE DRIP TUBING/DRIP

DISTRIBUTION TUBING

UNDER WEED FABRIC

3/4" MALE NPT x 1/2"

- FLEXIBLE POLYTHYLENE

SCH. 40 TEE

OR ELBOW

BARB ADAPTER

1/2" MALE IPS

INSERT ELL

PVC-PE PIPE CONNECTION

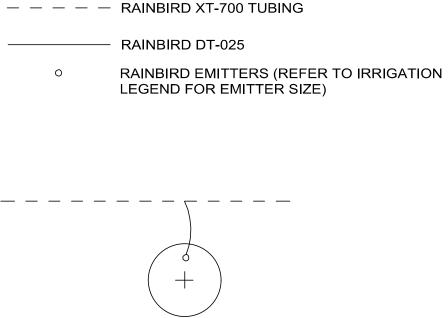
- FINISH GRADE

BOX AT CONNECTION

DETAIL NOTES:

- 1 USE RAINBIRD BUG GUN MODEL EMA-BG TO INSERT EMITTER DIRECTLY INTO XERI-TUBE TUBING.
- 2. INSTALL PE PIPE UNDER WEED BARRIER.

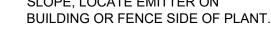
EMITTER DIST TUBING



DETAIL NOTES:

- 1. IF ON A SLOPE, LOCATE EMITTER UPHILL SIDE OF PLANT. IF NOT ON SLOPE, LOCATE EMITTER ON
- 2. EMITTER SHALL BE VISIBLE TO MAINTENANCE PERSONNEL.
- 3. EMITTER TO BE LOCATED 6" FROM BASE OF SHRUB AND 3" FROM BASE OF PERENNIAL.

SHRUB DRIP - PLAN VIEW SCALE: NTS





PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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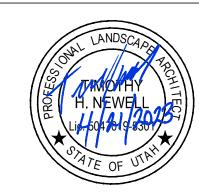


CONSULTANTS

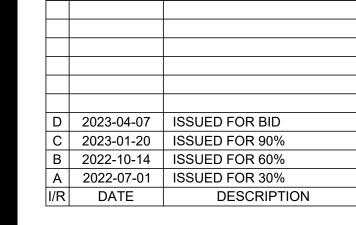
756 East Winchester Street Salt Lake City, UT 84107 Tel: (801) 904-4000 Fax: (801) 904-4100 http:// www.aecom.com Hansen, Allen & Luce, Inc. 859 West South Jordan Pkwy, Ste 200 South Jordan, UT 84095 Tel: (801) 566-5599

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ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

LANDSCAPE TYPICAL DETAILS SHEET 2

DRAWING NUMBER



10" ROUND

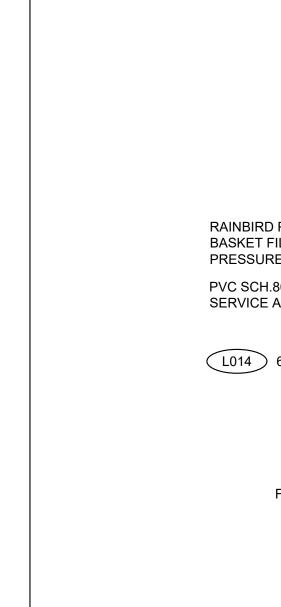
VALVE BOX

22" MIN

SINGLE DRIP ASSEMBLY - PLAN

CONCTETE BLOCK PLACEMENT

12" MIN



WATER PROOF CONNECTION (1 OF 2) RAINBIRD -PLASTIC VALVE BOX — 24" LINEAR LENGTH OF 100-PESB 12" DEEP STANDARD WIRE, COILED — TOP OF MULCH - FINISH GRADE RAINBIRD PRB-XCZ100 BASKET FILTER & PRESSURE REGULATOR ZONE ISOLATION VALVE PVC SCH.80 ACTION UNION FOR SERVICE ASSEMBLY (1 OF 2) (L014) 6" CMU - PVC MANIFOLD LINE FROM FILTER FABRIC 3" MIN DEPTH OF 3/4" WASHED GRAVEL UNDISTURBED OR COMPACTED SUB-GRADE

DETAIL NOTE:

- 1. 10" MIN LATERAL LINE DEPTH AT VALVE BOX, 12" MIN LATERAL LINE DEPTH EVERYWHERE
- 2. CONTRACTOR TO PROVIDE 2" CLEARANCE BETWEEN WIRE AND BLOCK.

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

3. CENTER ASSEMBLY INSIDE OF VALVE BOX.

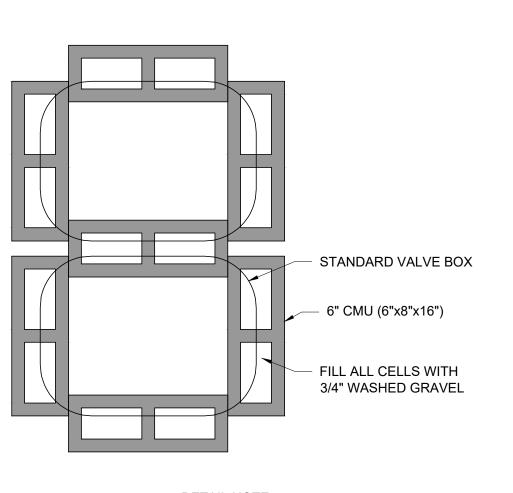
DRIP VALVE ASSEMBLY



SCALE: NTS





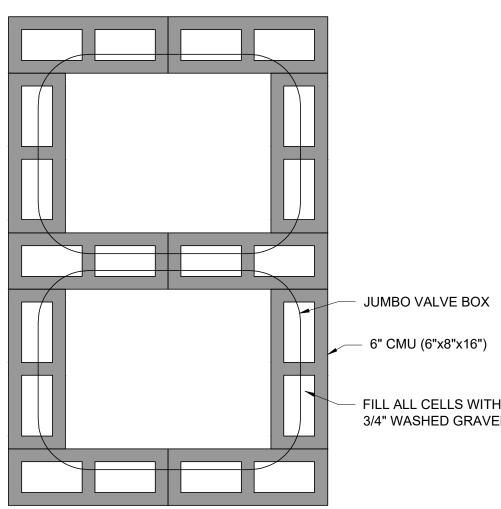


L013 DRIP VALVE

ASSEMBLY

DETAIL NOTE:

STANDARD VALVE BOX TO REST UPON 4 CMU BLOCKS (ONE FOR EACH SIDE). VALVE BOXES LOCATED ADJACENT TO EACH OTHER MAY SHARE A CMU.



PVC SCH 80 MALE ADAPTER

PVC SCH 80 SLIP TEE OR ELL

1" PVC SCH 80 TT90 W/ SCH 80

TOE NIPPLE TO MAIN LINE

- 1" x CL PVC SCH 80 TT NIPPLE

MAIN SUPPLY LINE

PVC BALL VALVE TT

DETAIL NOTE:

6 CMU BLOCKS (ONE FOR EACH SIDE). VALVE BOXES LOCATED ADJACENT TO EACH OTHER MAY SHARE CMU'S.

3/4" SCH 80 THREADED NIPPLE MANUAL DRAIN 3/4" SCH 80 THREADED - 2" SCH 40 PVC NIPPLE SLEEVE

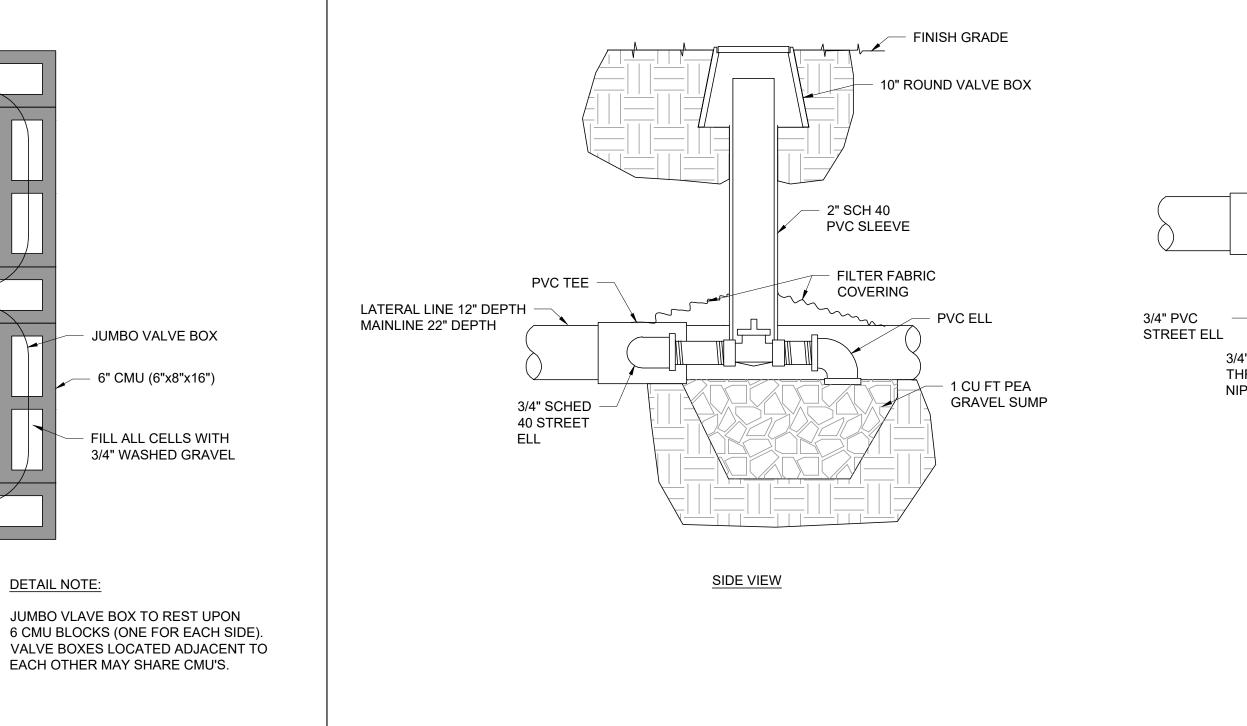
TOP VIEW

MANUAL DRAIN VALVE

LANDSCAPE TYPICAL DETAILS SHEET 3

DRAWING NUMBER

99-L703





PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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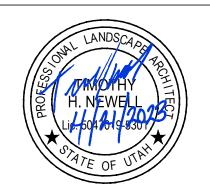
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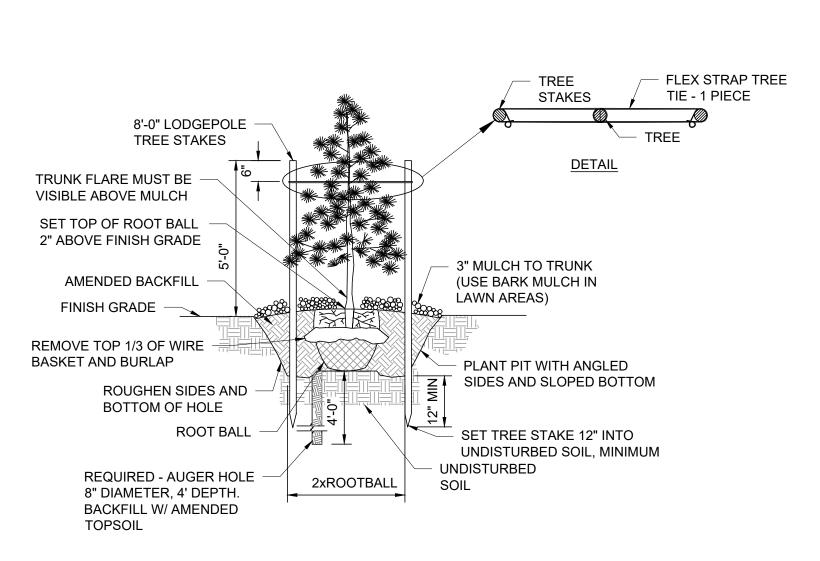


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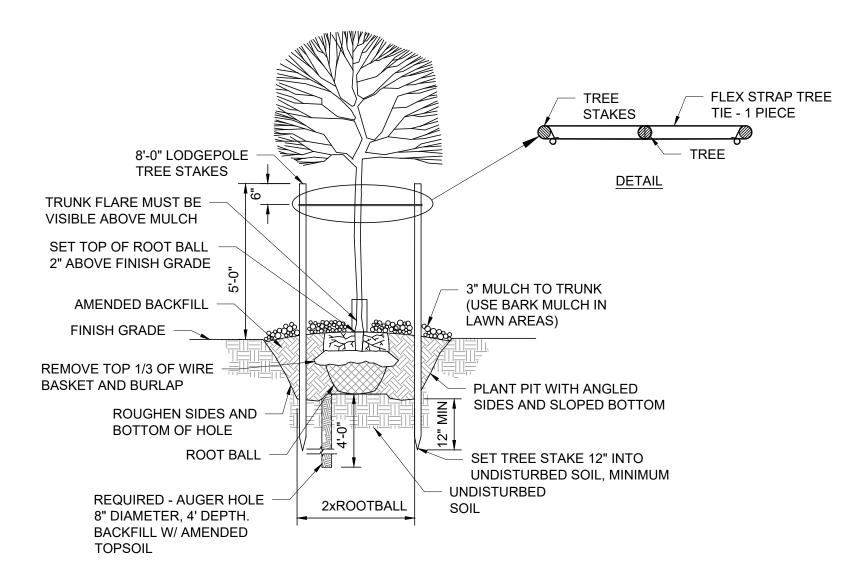
SHEET TITLE



DETAIL NOTES:

- 1. INSTALL TREE IN HOLE, ADD 1ST LAYER OF COMPACTED SOIL MIX. CUT AND REMOVE ALL BURLAP, TWINE AND WIRE FROM TOP 1/3 OF BALL, ADD SECOND LAYER OF SOIL MIX.
- 2. SOIL MIX FOR ALL TREE SHALL BE 30% EXISTING SOIL EXCAVATED FROM PLANT HOLE, 30% LOAMY TOPSOIL, 20% CLEAN COARSE SAND, 20% PEAT MOSS.
- 3. PLACE AGRIFORM TABLETS IN EACH PLANTING BIT, BURY AT 1/3 DEPTH OF ROOT BALL, PLACE 3 TABLETS IN EACH PIT, NO CLOSER THAN 18" APART.
- 4. DIAMETER OF TREE RING IN LAWN AREAS IS TO BE 2'-0" WIDER THEN DIAMETER OF CANOPY.

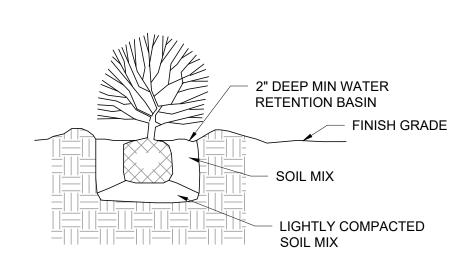




DETAIL NOTES:

- 1. INSTALL TREE IN HOLE, ADD 1ST LAYER OF COMPACTED SOIL MIX. CUT AND REMOVE ALL BURLAP, TWINE AND WIRE FROM TOP 1/3 OF BALL, ADD SECOND LAYER OF SOIL MIX.
- 2. SOIL MIX FOR ALL TREE SHALL BE 30% EXISTING SOIL EXCAVATED FROM PLANT HOLE, 30% LOAMY TOPSOIL, 20% CLEAN COARSE SAND, 20% PEAT MOSS.
- 3. PLACE AGRIFORM TABLETS IN EACH PLANTING BIT, BURY AT 1/3 DEPTH OF ROOT BALL, PLACE 3 TABLETS IN EACH PIT, NO CLOSER THAN 18" APART.
- 4. DIAMETER OF TREE RING IN LAWN AREAS IS TO BE 4'-0".

DECIDUOUS PLANTING SCALE: NTS



DETAIL NOTES:

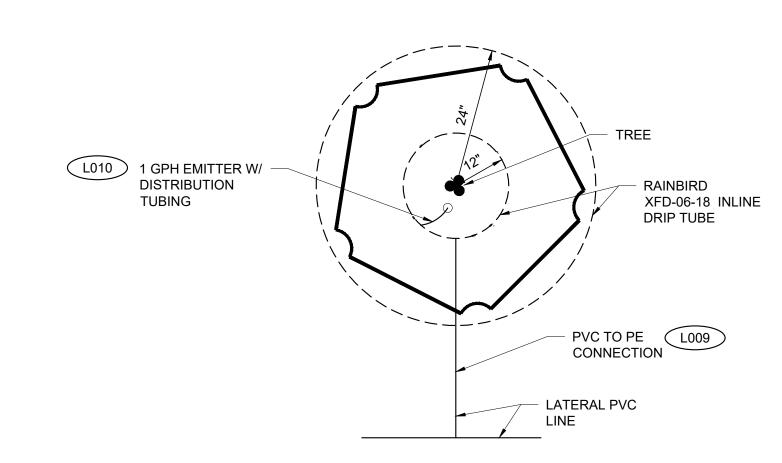
1. SOIL MIX FOR ALL TREE, SHRUBS AND GROUND COVER SHALL BE 30% EXISTING SOIL EXCAVATED FROM PLANT HOLE, 30% LOAMY TOPSOIL, 20% CLEAN COARSE SAND, 20% PEAT MOSS.

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

- 2. PLACE AGRIFORM TABS IN EACH PLANTING BIT, BURY 1/3 DEPTH OF BALL, PLACE TABS AS FOLLOWS: #1 SIZE - 1 TAB #5 SIZE - 2 TABS 1-1/2" CAL. & UP - 3 TABS PLACE TABS NO CLOSER THAN 18" APART.
- TYPICAL SHRUB PLANTING DEPTH: DEPTH OF BALL + 3" TYPICAL SHRUB PLANTING WIDTH: WIDTH OF BALL + 6".

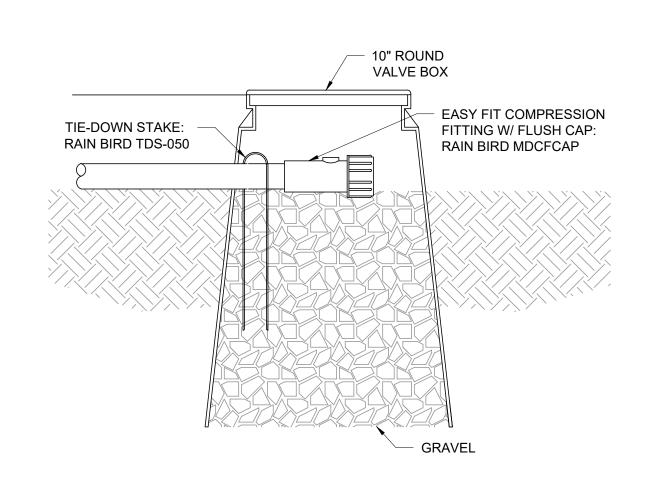
SHRUB PLANTING



DETAIL NOTE:

SET NETAFIM ON TOP OF FINISH GRADE. STAPLE TO GROUND AND COVER WITH WEED BARRIER AND MULCH.

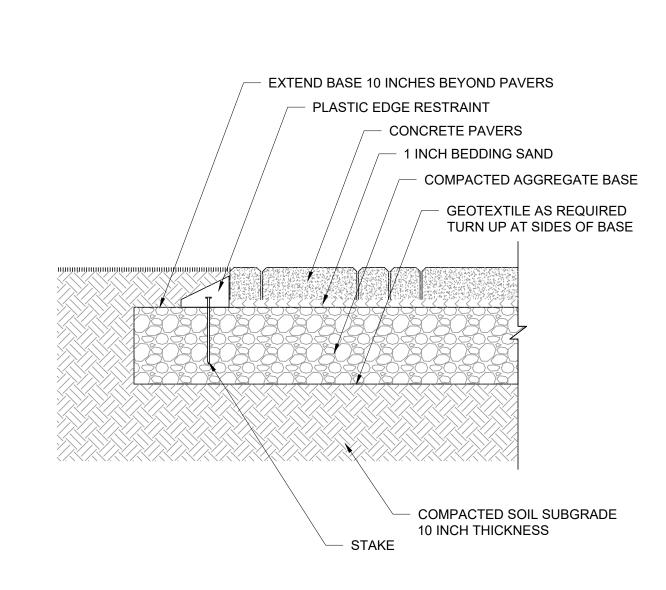
TREE DRIP PLAN VIEW



DETAIL NOTE: INSTALL FLUSH CAP AT LOW

POINT OF EACH DRIP AREA.

FLUSHING CAP



PAVER INSTALL DETAIL



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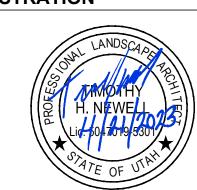


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REGISTRATION



ISSUE/REVISION

D	2023-04-07	ISSUED FOR BID
С	2023-01-20	ISSUED FOR 90%
В	2022-10-14	ISSUED FOR 60%
Α	2022-07-01	ISSUED FOR 30%
I/R	DATE	DESCRIPTION

PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

LANDSCAPE **TYPICAL DETAILS** SHEET 4

DRAWING NUMBER

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DRAWING INDEX STRUCTURAL TYPICAL DETAILS INDEX

S001 ADDITIONAL REINFORCING BARS

S002 CONSTRUCTION JOINT - WALL TO WALL

S003 CONSTRUCTION JOINT - WALL TO SLAB

S004 CONCRETE COVER FOR REINFORCEMENT STEEL S005 CONSTRUCTION JOINT - SLAB

S006 CONSTRUCTION JOINT W/ WATERSTOP - SLAB

S007 CONTROL JOINT - SLAB

S008 STANDARD HOOK & REINFORCEMENT LAP SPLICE

S015 CONSTRUCTION JOINT - SEALANT

S016 TYPICAL CURB DETAIL

S017 TYPICAL FLOOR HATCH CURB DETAIL

S018 DOOR LANDING DETAIL S019 WALL INTERSECTION / CORNER REINFORCING

S020 WALL TO ELEVATED SLAB JOINT

S021 EXTERIOR EQUIPMENT SLAB-ON-GRADE

S022 EQUIPMENT PAD DETAIL

S023 HOUSEKEEPING PAD

S025 WATERSTOP DETAILS

S026 WATERSTOP-FLAT STRIP

S027 VAPOR BARRIER DETAIL

S028 GROUT FILLET TERMINATION S029 CHILLER PAD REINFORCING DETAIL

S030 TRENCH DRAIN SLAB REINFORCING DETAIL

S032 LIFTING EYE BOLT

S033 RETROFIT WATERSTOP

S035 GRATING EDGE DETAIL

S036 GRATING FLUSH SUPPORT S037 CHECKER PLATE SUPPORT

S045 MASONRY CONTROL JOINT (MCJ PLAN) S046 MASONRY CONTROL JOINT (MCJ)

S047 MASONRY REINFORCING HOOKS AND LAP SPLICES

S048 MASONRY WALL

S049 MASONRY CORNER AND INTERSECTION REINFORCING

S050 MASONRY WALL LINTEL REINFORCING SCHEDULE

S051 TYPICAL MASONRY WALL REINFORCING

S055 INTERIOR WALL BRACING

S058 TYPICAL REINFORCED OPENINGS IN SLAB ON METAL DECK

S059 JOIST BEARING

S060 DECK CONNECTION BETWEEN JOISTS

S061 TYPICAL JOIST MODIFICATION AT CONCENTRATED LOADS S062 TYPICAL ROOF OPENING

S063 BEAM TO BEAM CONNECTION DETAIL

S064 BEAM SPLICE DETAIL

S065 BRIDGING CONNECTION

S066 BEAM TO COLUMN CONNECTION DETAIL

S070 PIPE ENCASEMENT ATTACHED TO SLAB DETAIL

S075 TYPICAL PERIMETER BEAM CONNECTION DETAIL

S071 PIPE ENCASEMENT - SECTION

S072 PIPE ENCASEMENT - ELEVATION

S073 BEAM COLUMN CONNECTION - STEEL S074 TRANSFORMER MOUNTING DETAIL

ENGINEERS

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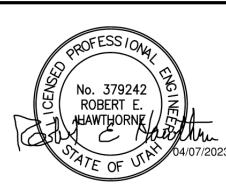


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REGISTRATION



ISSUE/REVISION

D 2023-06-09 ISSUED FOR BID - REV 1 C 2023-04-07 ISSUED FOR BID B 2023-01-20 ISSUED FOR 90%

DESCRIPTION

A 2022-10-14 ISSUED FOR 60%

PROJECT NUMBER

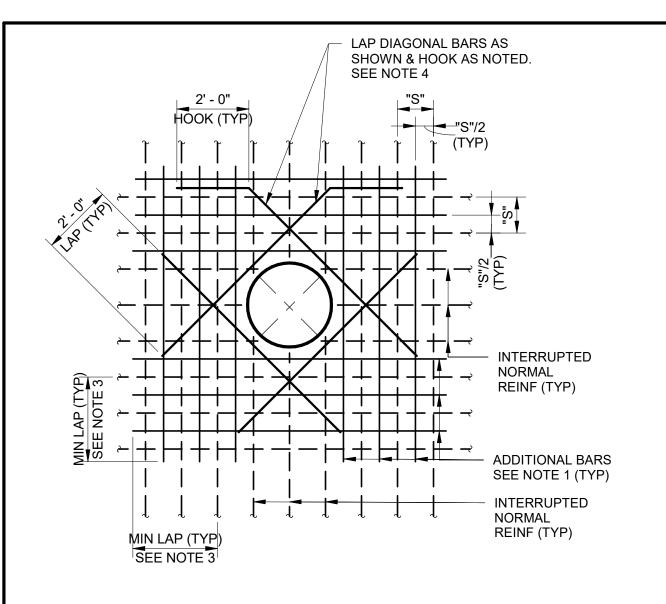
I/R DATE

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SHEET TITLE

WATER TREATMENT **STRUCTURAL** TYPICAL DETAILS INDEX

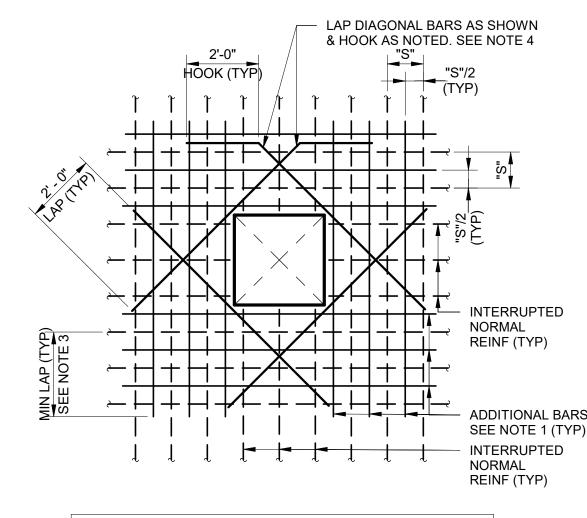
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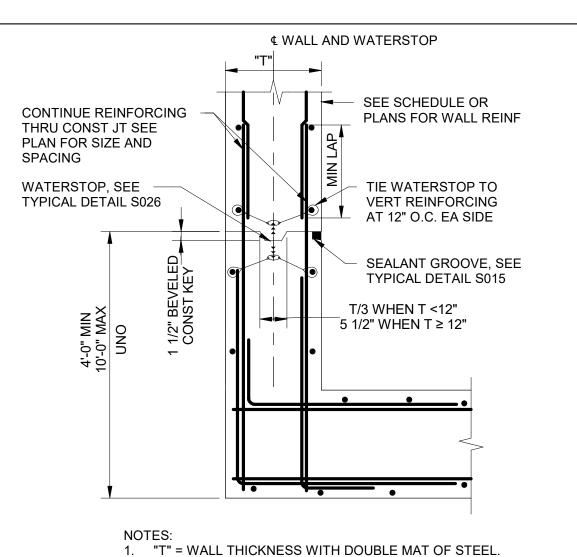
NOTES:

- NUMBER OF ADDITONAL REINF BARS AT EACH SIDE OF OPNG SHALL EQUAL HALF THE NUMBER OF INTERRUPTED BARS IN EACH LAYER OF REINF.
- 2. SIZE OF ADDITIONAL REINF BARS TO EQUAL SIZE OF INTERRUPTED REINF BARS.
- 3. PROVIDE STD HOOKS FOR BARS IF LAP LENGTH EXTENSION CANNOT BE OBTAINED AT JOINTS OR OTHER OBSTRUCTIONS PLACE ADDITIONAL BARS IN SAME PLANES AS INTERRUPTED
- 4. SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINF BAR CUT, UNO. LOCATE DIAGONALS IN EACH
- PLACE DIAGONAL BARS INSIDE NORMAL REINF.
- 6. ALL REINF TO CLEAR OPENING OR FLANGE COLLARS BY 2".
- 7. TWO OR MORE OPENINGS WITH 6" OR LESS BETWEEN THEM MAY BE A SINGLE OPENING.
- ADDITIONAL REINF NOT REQUIRED IF OPENING DOES NOT INTERRUPT REINF OR ON ANY SIDE WHERE OPENING IS BORDERED BY A BEAM.
- 9. DETAILS APPLY TO PENETRATION 8" DIA OR LARGER.

ADDITIONAL REINFORCING BARS



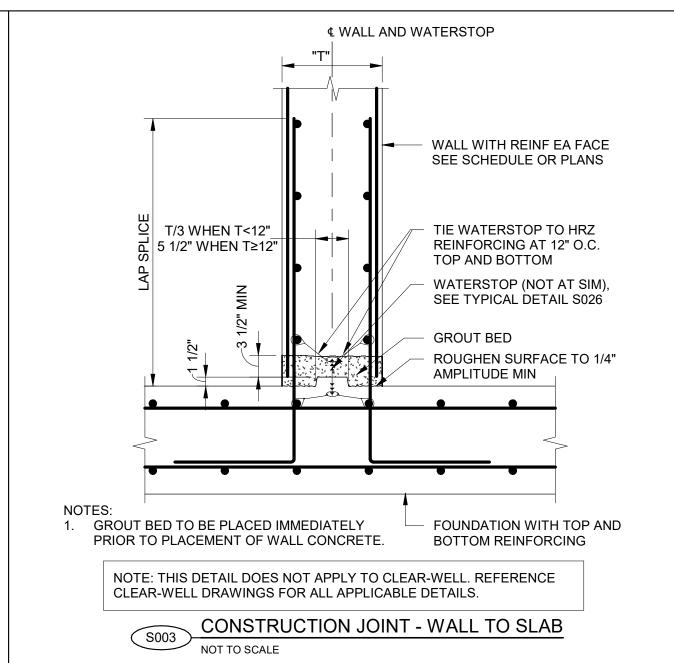
NOTE: THIS DETAIL DOES NOT APPLY TO CLEAR-WELL. REFERENCE CLEAR-WELL DRAWINGS FOR ALL APPLICABLE DETAILS.

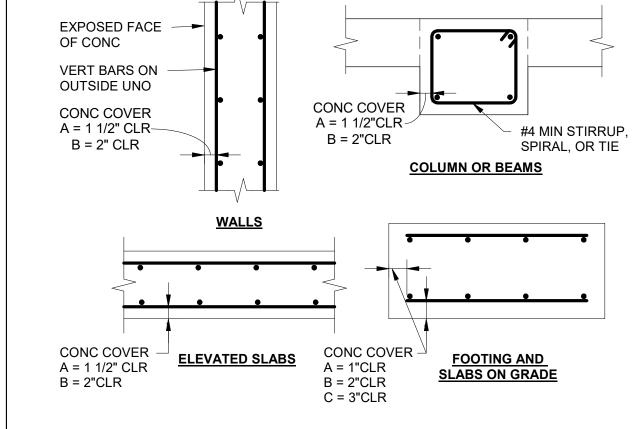


NOTE: THIS DETAIL DOES NOT APPLY TO CLEAR-WELL. REFERENCE

CONSTRUCTION JOINT - WALL TO WALL

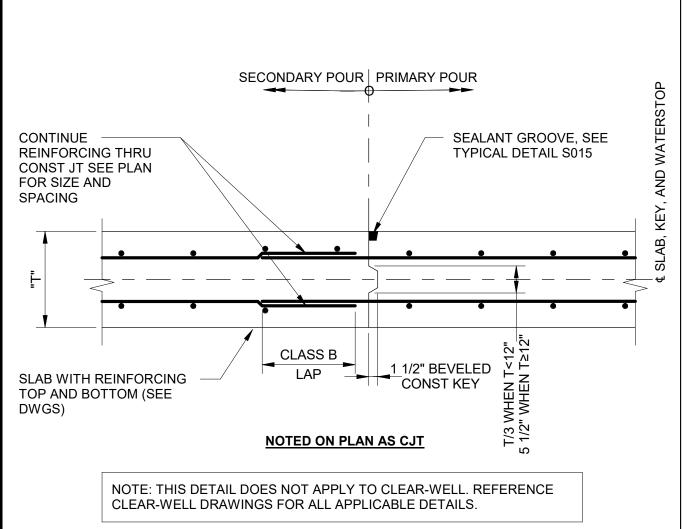
CLEAR-WELL DRAWINGS FOR ALL APPLICABLE DETAILS.





- A = NO EXPOSURE TO GROUND, WEATHER OR WATER AFTER FORM REMOVAL
- B = EXPOSURE TO GROUND, WEATHER OR WATER AFTER FORM REMOVAL. C = CONCRETE PLACED AGAINST GROUND.

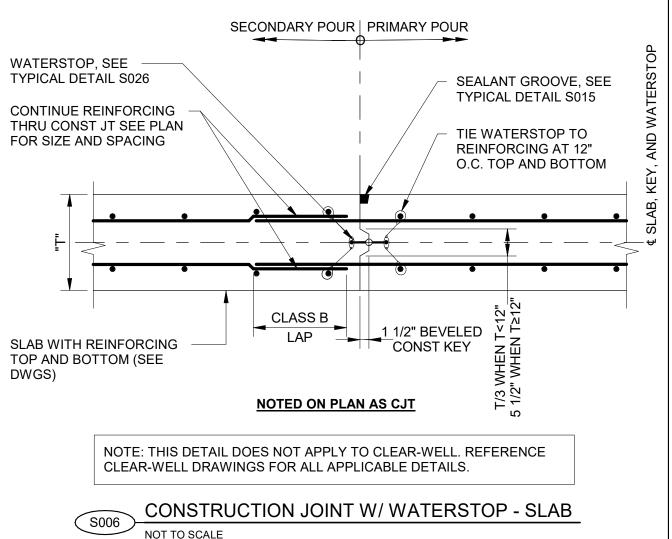
CONCRETE COVER FOR REINFORCEMENT STEEL

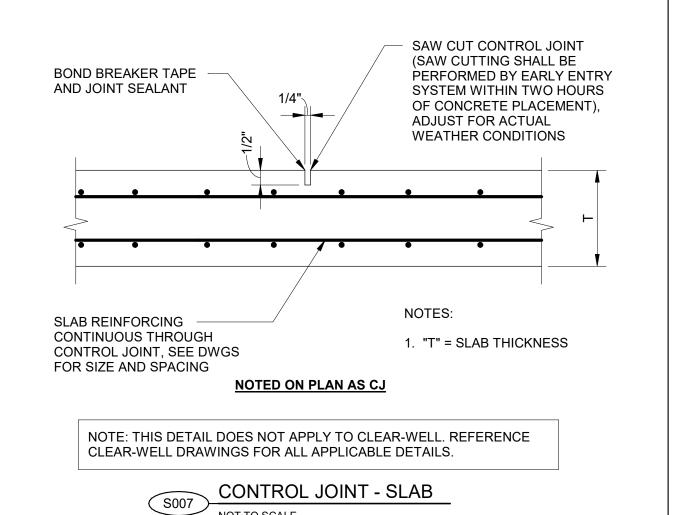


CONSTRUCTION JOINT - SLAB

S005

NOT TO SCALE

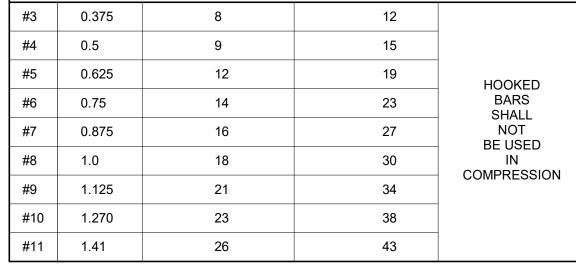


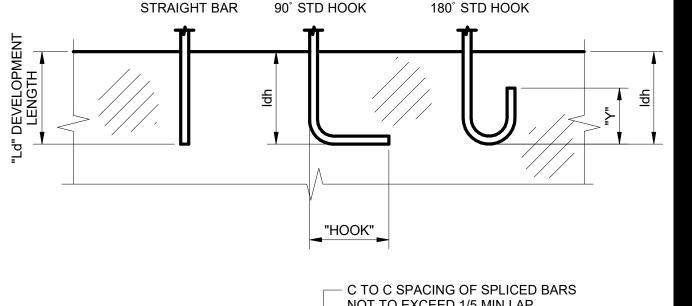


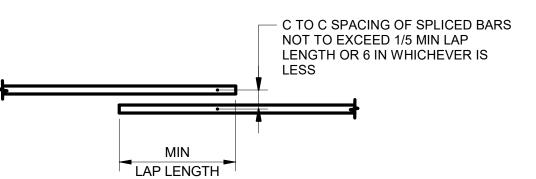
f'c = 4500 PSI fy = 60,000 PSI180° BAR DIAMETER DEVELOPMENT CLASS B LAP 90° STD STD SIZE LENGTH (Ld) SPLICE HOOK (db) (INCHES) HOOK (INCHES) (INCHES) (INCHES) "TOP" OTHER HOOK Idh "TOP" OTHER BARS BARS REINFORCING BARS IN TENSION 6 | 7 | 4 #3 0.375 23 18 #4 0.5 18 30 24 9 5 24 8 23 38 29 0.625 29 10 11 | 5 0.75 35 27 35 12 14 6 66 0.875 39 14 16 1.0 58 45 76 58 16 18 8 #9 1.128 51 85 20 | 11 66 19 #10 1.270 74 57 96 74 22 23 | 12 107 82 #11 1.41 82 63 24 | 25 | 13 REINFORCING BARS IN COMPRESSION #3 0.375 12

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING







NOTES:

- "TOP" BARS SHALL BE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
- CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED SHALL: A. NOT BE LESS THAN db , HAVE CLEAR COVER NOT LESS THAN d_b , AND STIRRUPS OR TIES THROUGHOUT L_d NOT LESS THAN THE CODE MINIMUM OR;
 - B. CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN 2db AND CLEAR COVER NOT LESS THAN d_b. WHERE d_b =DIAMETER OF REINFORCING BAR AND L_d = DEVELOPMENT LENGTH.
- 3. ALL LAP SPLICES SHALL BE CLASS B UNLESS NOTED OTHERWISE.
- 4. WHEN SPLICING BARS OF DIFFERENT SIZE, THE LENGTH OF LAP SHALL BE GOVERNED BY THE LARGER DIAMETER BAR.
- 5. SPLICES ARE TO BE MADE SO THAT THE GIVEN DISTANCES TO FACE OF CONCRETE WILL BE MAINTAINED.
- SPLICES SHALL BE STAGGERED TO GIVE 12 INCHES CLEAR BETWEEN ENDS OF ADJACENT SPLICES, IF BARS ARE SPACED CLOSER THAN 6 INCHES OR 6 BAR DIAMETERS.

STANDARD HOOK & REINFORCEMENT LAP SPLICE



PROJECT

PROVO RIVER WATER TREATMENT PLANT

CLIENT

PROVO CITY **PUBLIC WORKS**

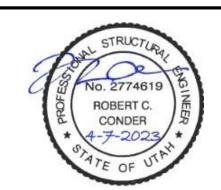
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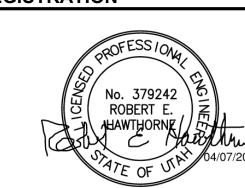
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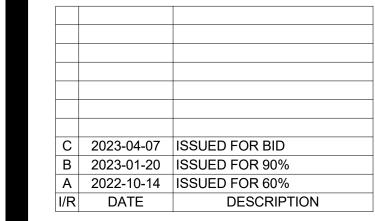
http://www.hansenallenluce.com



REGISTRATION



ISSUE/REVISION



PROJECT NUMBER

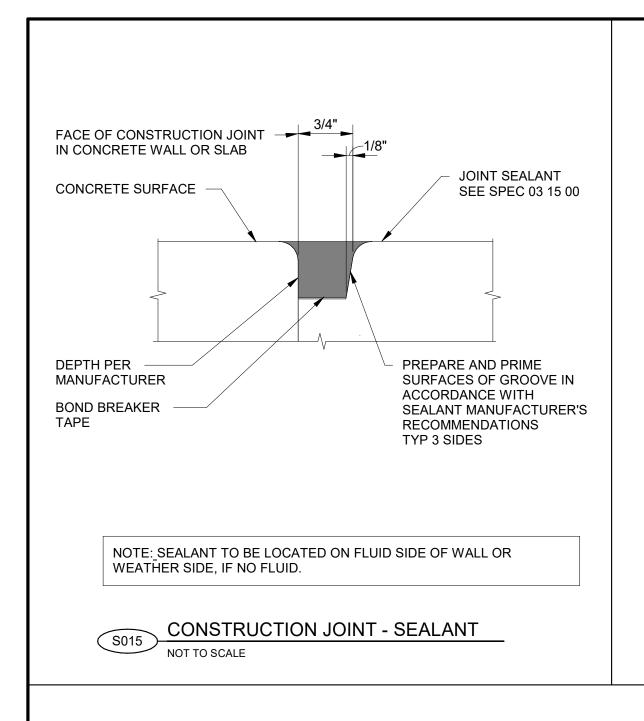
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

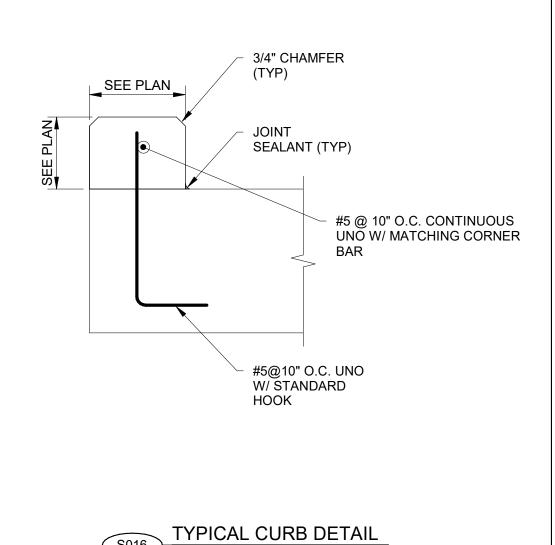
SHEET TITLE

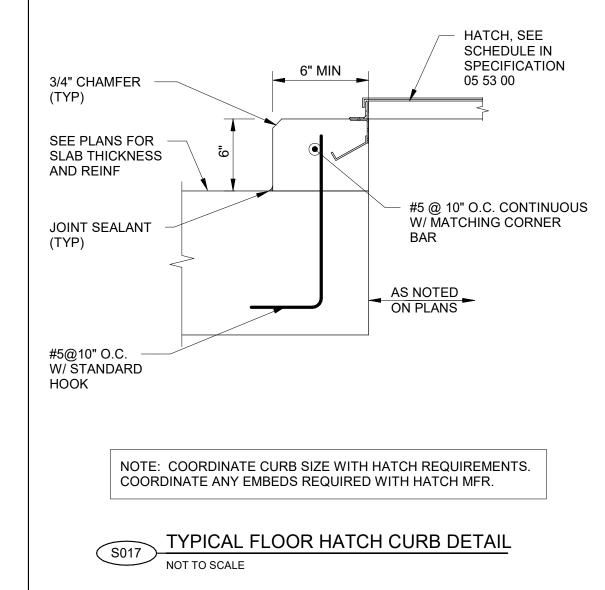
STRUCTURAL TYPICAL DETAILS SHEET 1

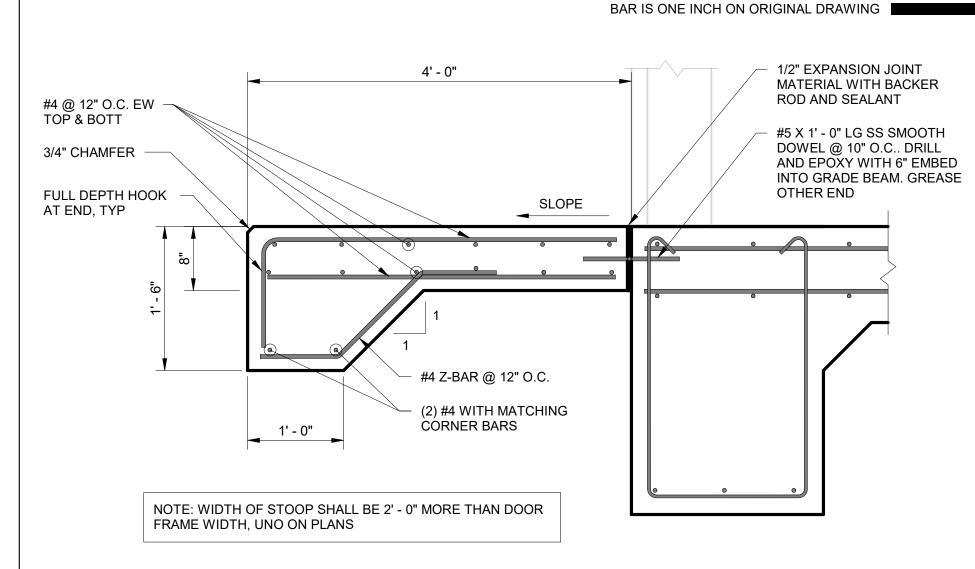
DRAWING NUMBER

10" UNO ON DWGS

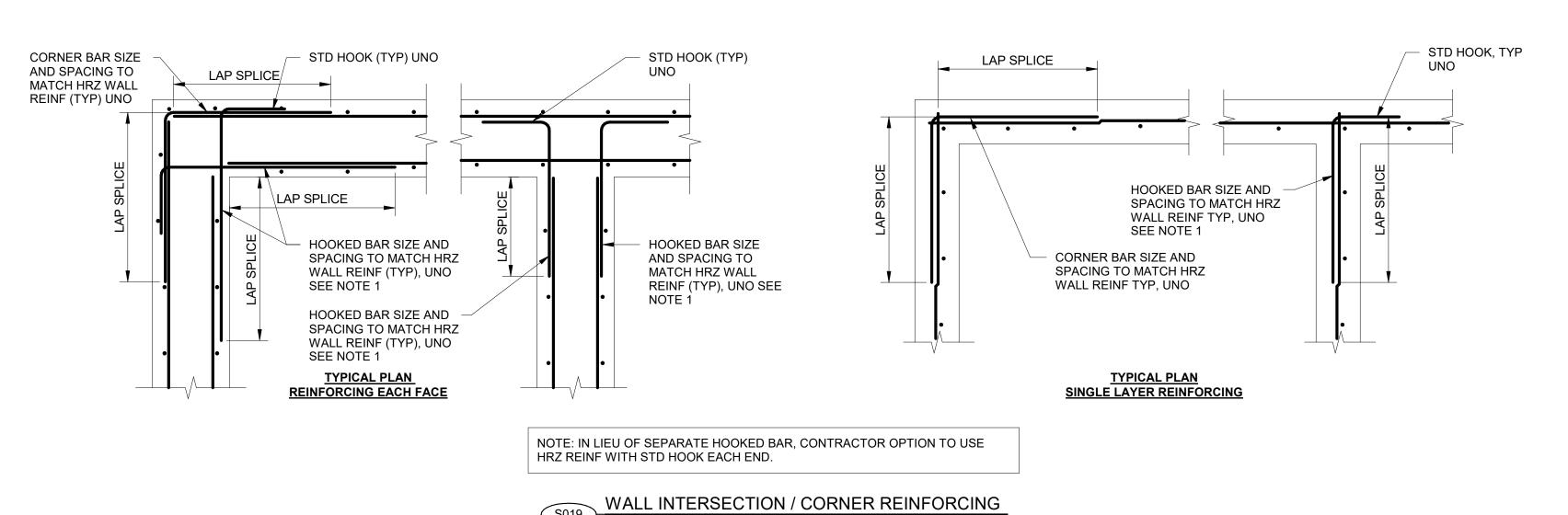


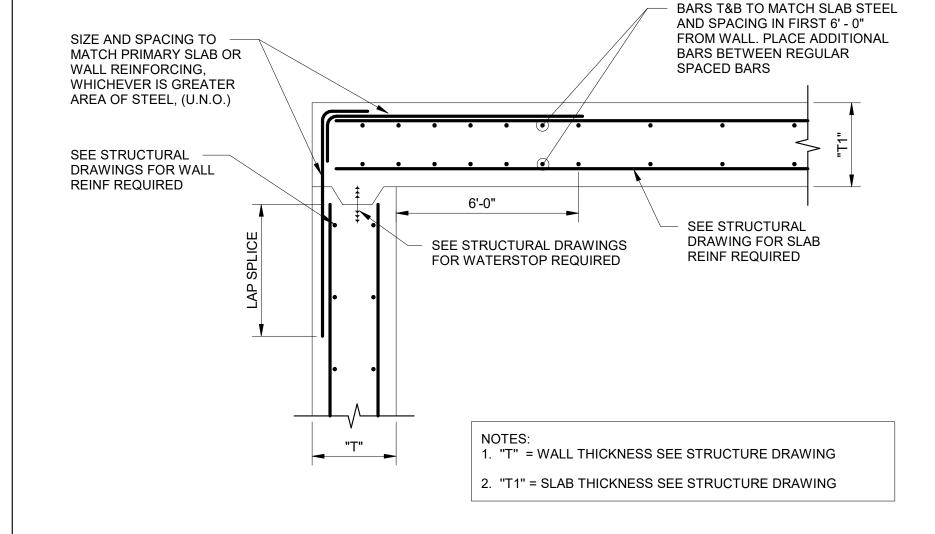


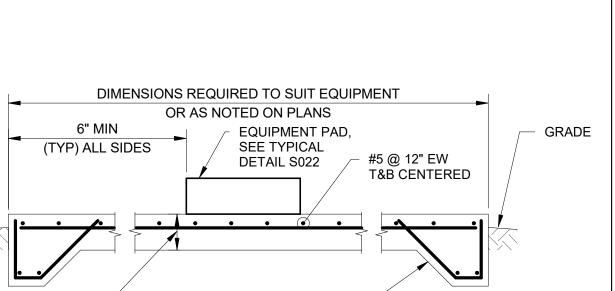




DOOR LANDING DETAIL



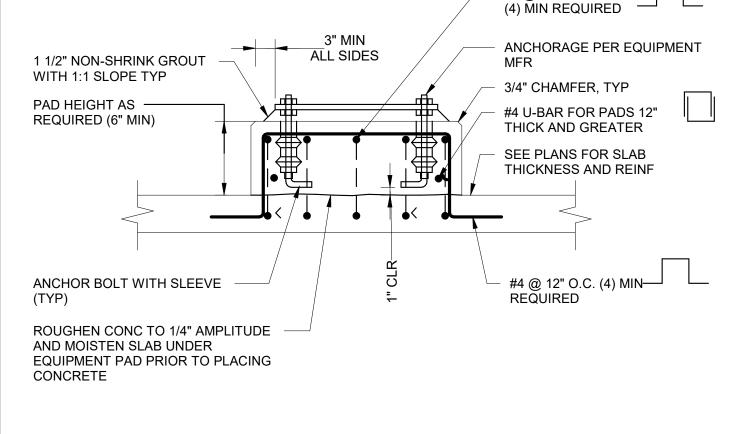




THICKENED EDGE, SEE

EXTERIOR EQUIPMENT SLAB-ON-GRADE

TYPICAL DETAIL S018

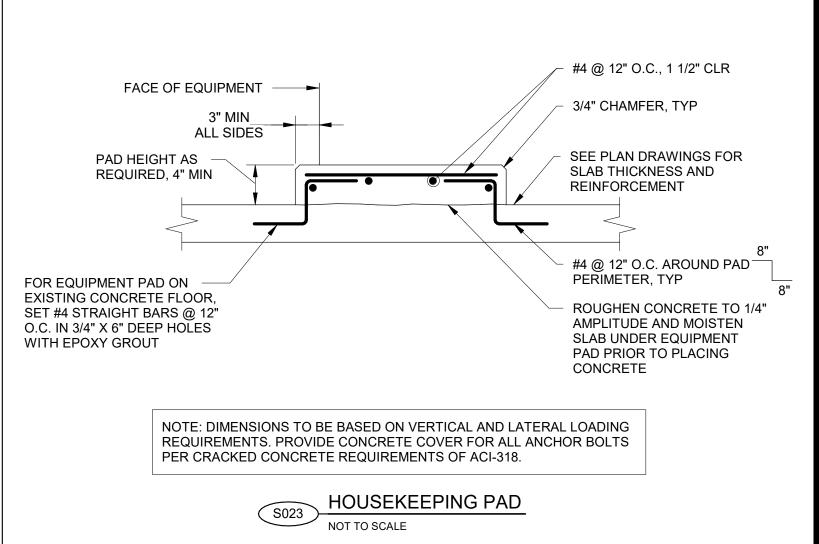


#4 @ 12" O.C.

EQUIPMENT PAD DETAIL

EQUIPMENT PAD NOTES:

- DIMENSIONS TO BE BASED ON VERTICAL AND LATERAL LOADING REQUIREMENTS. PROVIDE CONCRETE COVER FOR ALL ANCHOR BOLTS PER CRACKED CONCRETE REQUIREMENTS OF ACI-318.
- 2. THE SIZE, NUMBER, TYPE, LOCATION AND THE THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER. HOLD CONCRETE ANCHOR BOLTS IN POSITION WITH A TEMPLATE WHILE PAD IS BEING PLACED.
- 3. USE PIPE SLEEVES TO PROVIDE THE ANCHOR BOLT A MINIMUM MOVEMENT OF 1/2" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT AFTER EQUIPMENT IS INSTALLED.
- PIPE SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN THE ANCHOR BOLT DIAMETER.
- 5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS NOTED OTHERWISE ON THE PLANS.
- PROVIDE WEDGES OR SHIMS TO SUPPORT THE BASE WHILE THE NON-SHRINK GROUT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF. THE WEDGES OR SHIMS THAT REMAIN IN PLACE SHALL NOT BE EXPOSED TO VIEW.



WALL TO ELEVATED SLAB JOINT
NOT TO SCALE



ENGINEERS

PROJECT

VERIFY SCALE

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

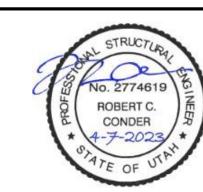
PROVO CITY
PUBLIC WORKS

1377 South 350 East Provo, UT 84606 Tel: (801) 852-6700

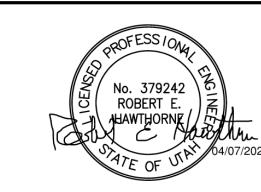


CONSULTANTS

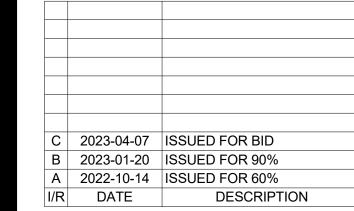
AECOM
756 East Winchester Street
Salt Lake City, UT 84107
Tel: (801) 904-4000 Fax: (801) 904-4100
http:// www.aecom.com
Hansen, Allen & Luce, Inc.
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REGISTRATION



ISSUE/REVISION



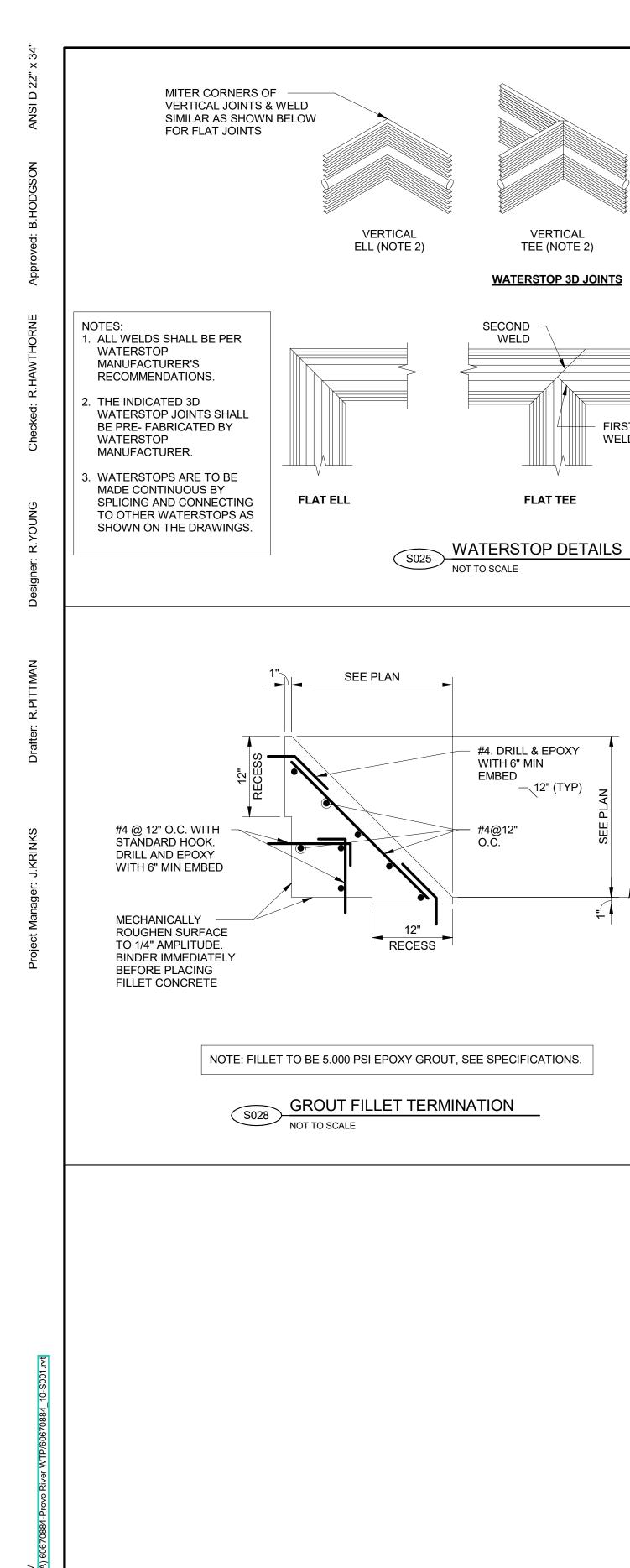
PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

STRUCTURAL
TYPICAL DETAILS
SHEET 2

DRAWING NUMBER



TEE (NOTE 2)

FLAT TEE

— 12" (TYP)

__ T.O.C

WELD

CROSS (NOTE 2)

FIRST WELD

SECOND

WELD .

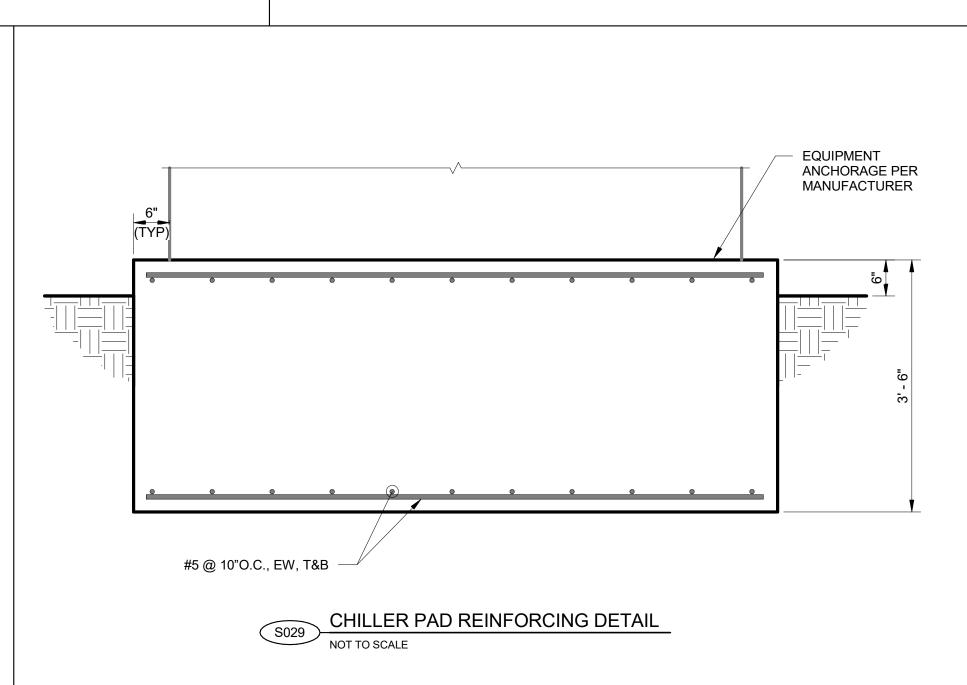
HIII THIRD WELD

ROOF SLAB

#4 BARS (2'-0" LONG) AT ALL SUPPORT LEGS

LIFTING EYE BOLT

FLAT CROSS



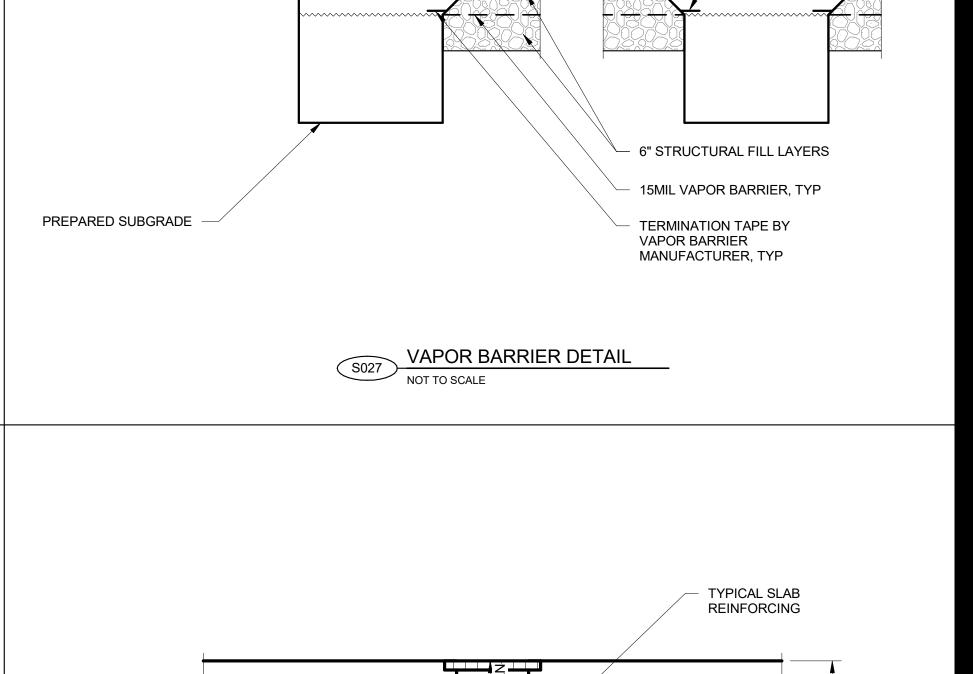
NOTE: CONTRACTOR TO COORDINATE WITH CLIENT AND ENGINEER FOR BEST PLACEMENT OF LIFTING EYES WITHIN VAULTS PRIOR TO CONCRETE PLACEMENT.

1. SEE TYPICAL DETAIL S025 FOR SPLICES.

WATERSTOP-FLAT STRIP

2. MATERIAL IS PVC.

3. USE 6" WS UNO.



SELECT FILL

6 SPACES

DAYTON T-1 SINGLE PICKUP

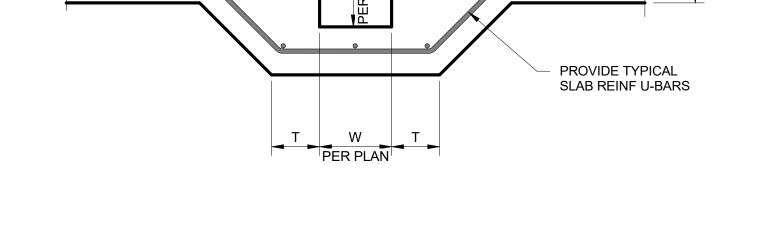
DECK REINFORCEMENT,

DAYTON EYE NUT WITH 1" DIA

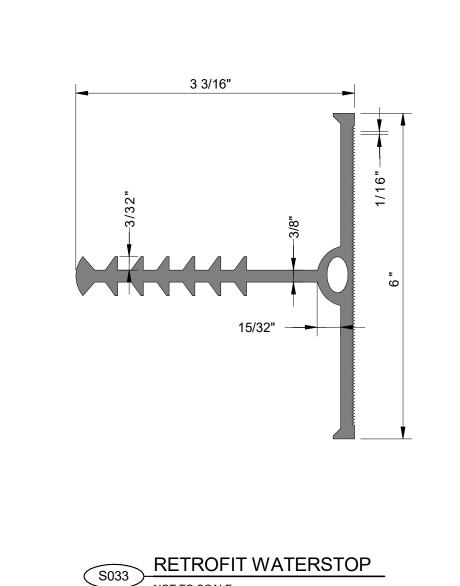
COIL BOLT (OR APPROVED

SEE PLAN

INSERT (OR APPROVED EQUAL)







NOT TO SCALE

ENGINEERS

PROJECT

VERIFY SCALE

2" MAX.

BAR IS ONE INCH ON ORIGINAL DRAWING

PROVO RIVER WATER TREATMENT **PLANT**

CLIENT

PROVO CITY PUBLIC WORKS 1377 South 350 East

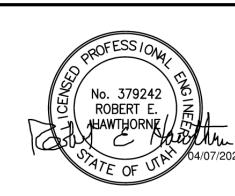
Provo, UT 84606 Tel: (801) 852-6700



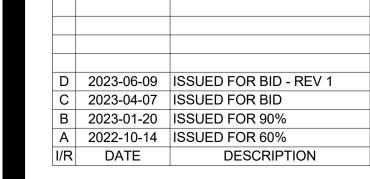
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REGISTRATION



ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

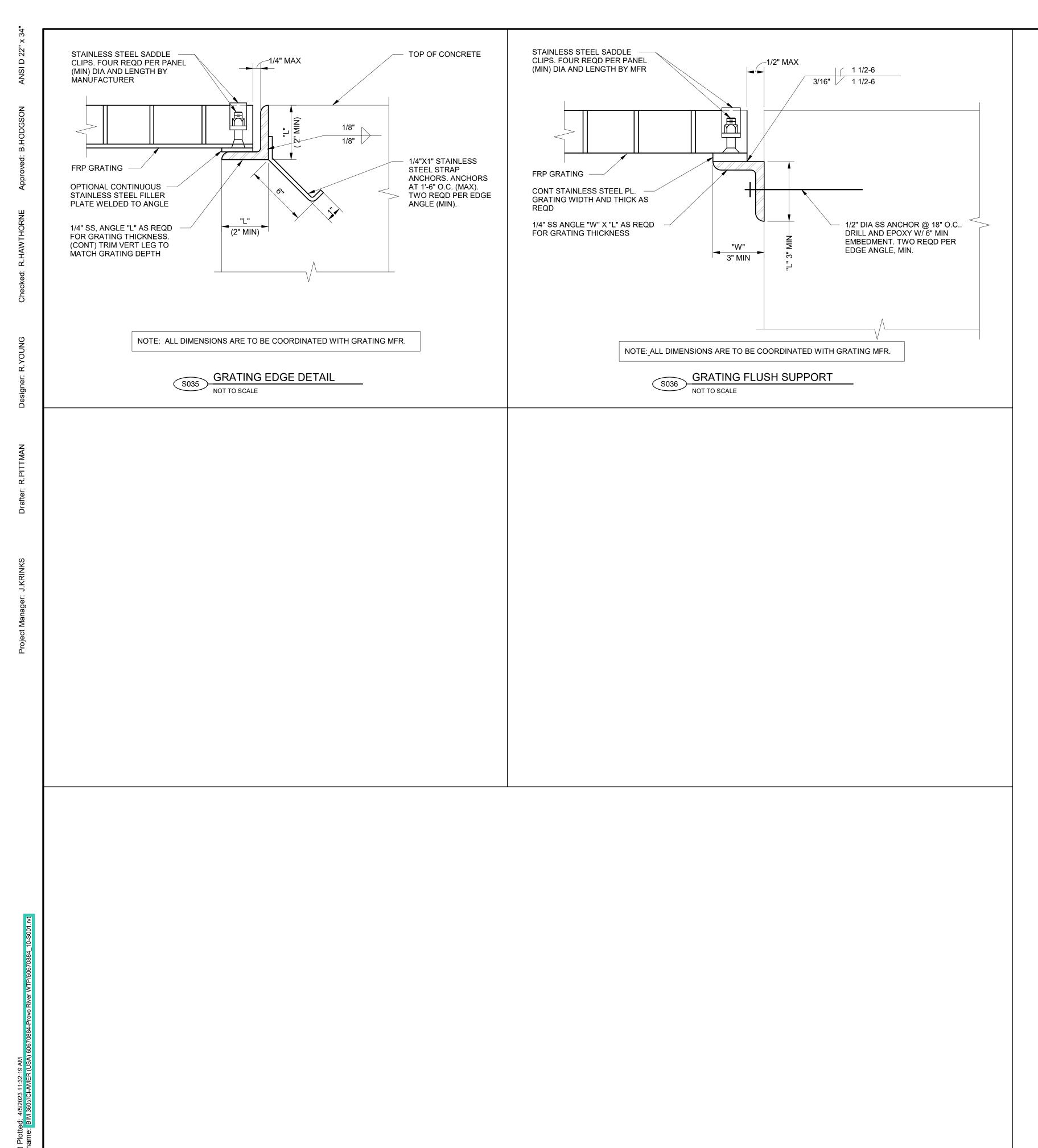
SHEET TITLE

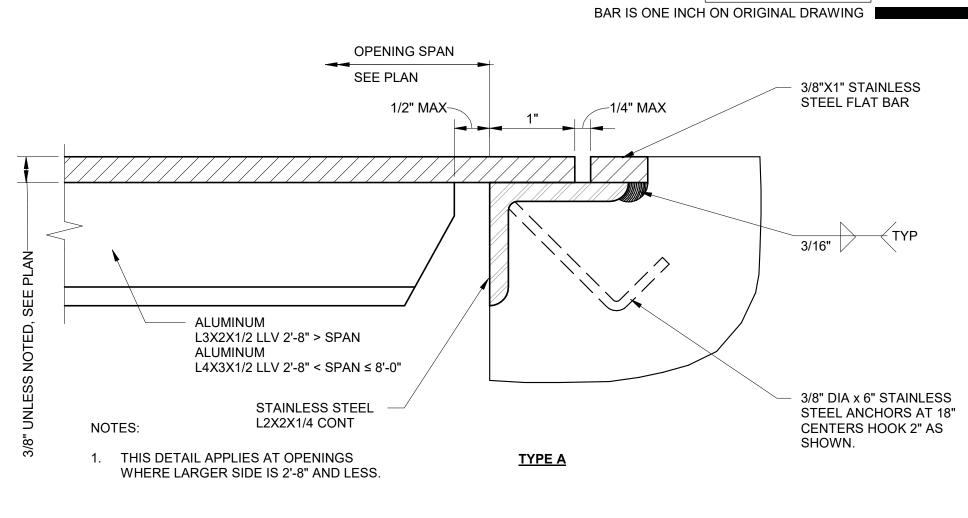
STRUCTURAL TYPICAL DETAILS SHEET 3

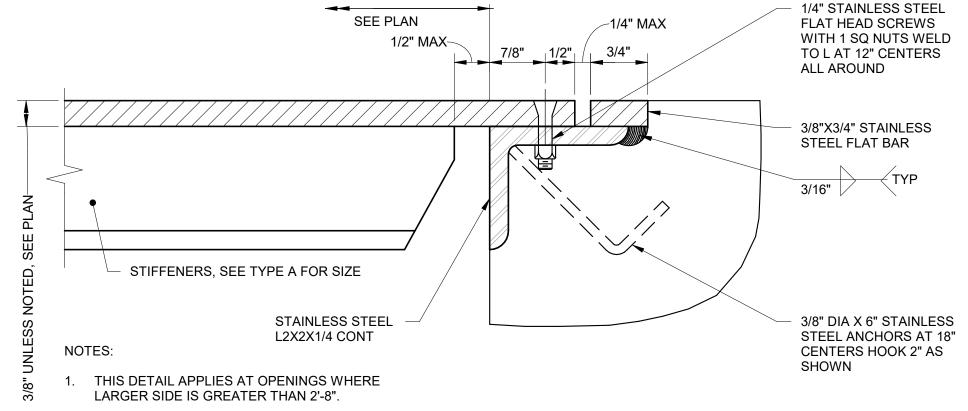
DRAWING NUMBER

99-S703

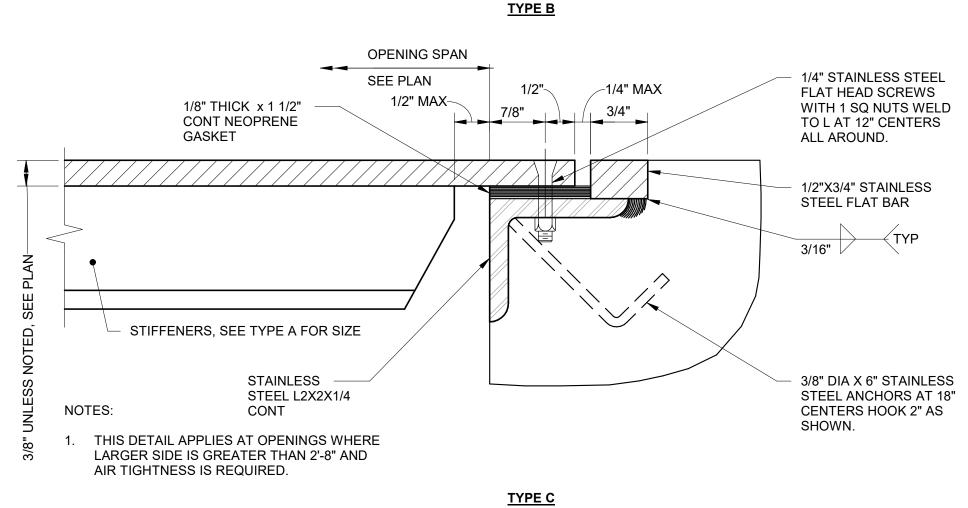
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OPENING SPAN



1. COVER PLATE AND STIFFENERS SHALL BE ALUMINUM PLATES & ANGLES.

- 2. COVER PLATES SHALL HAVE APPLICABLE LIFTING EYES.
- 3. STIFFENERS SHALL BE PLACED LONG LEG VERTICAL.
- 4. STIFFENERS SHALL BE PARALLEL TO THE SHORT EDGE OF OPENINGS.
- 5. THESE DETAILS ARE APPLICABLE TO NORMAL PROCESS LOADS ONLY.

CHECKER PLATE SUPPORT

ENGINEERS

PROJECT

VERIFY SCALE

PROVO RIVER WATER TREATMENT **PLANT**

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Provo, UT 84606 Tel: (801) 852-6700

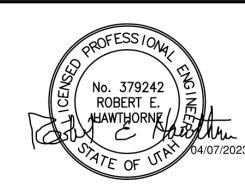


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REGISTRATION



ISSUE/REVISION

С	2023-04-07	ISSUED FOR BID
В	2023-01-20	ISSUED FOR 90%
Α	2022-10-14	ISSUED FOR 60%
I/R	DATE	DESCRIPTION

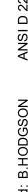
PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

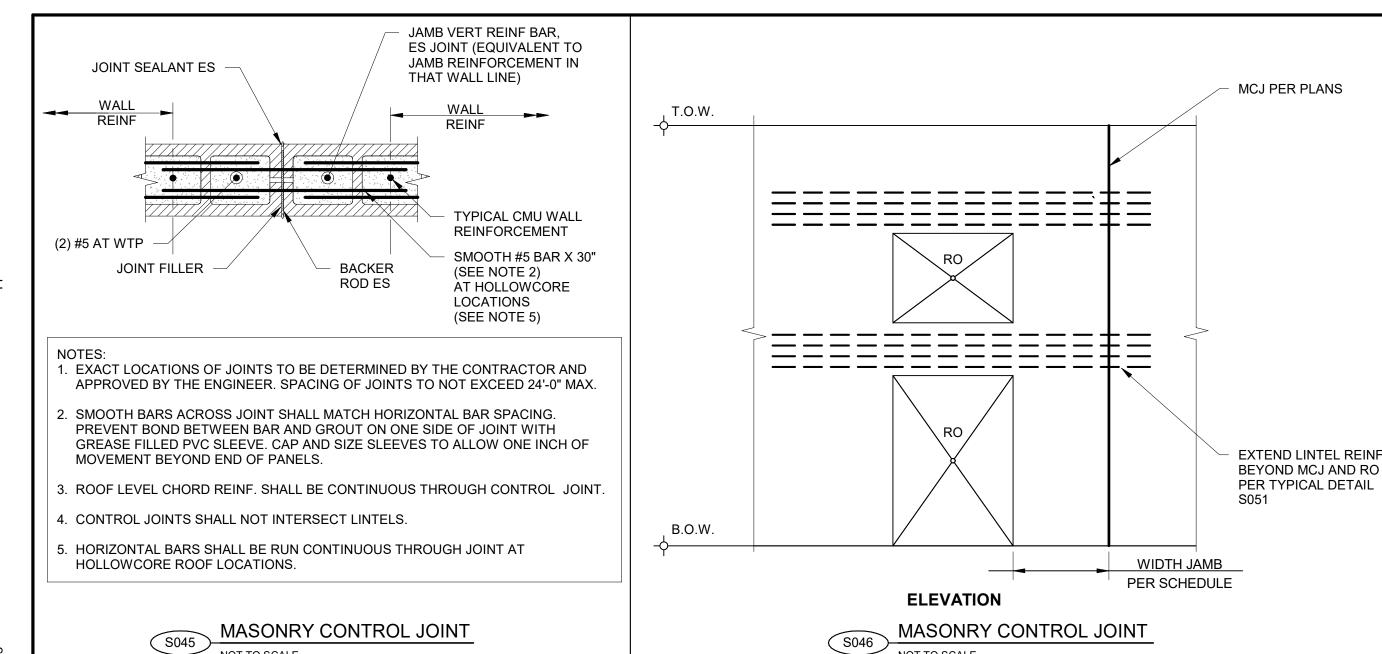
SHEET TITLE

STRUCTURAL **TYPICAL DETAILS** SHEET 4

DRAWING NUMBER

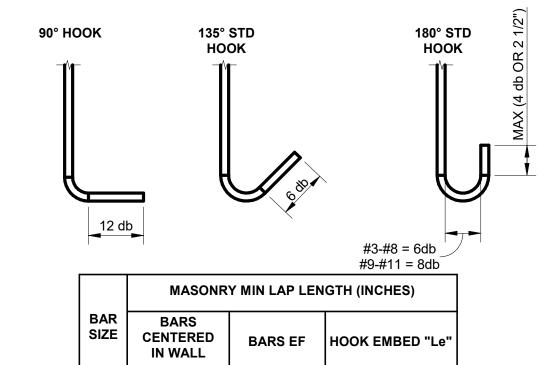






STD ACI HOOK LENGTH (TYP)

WALL REINF

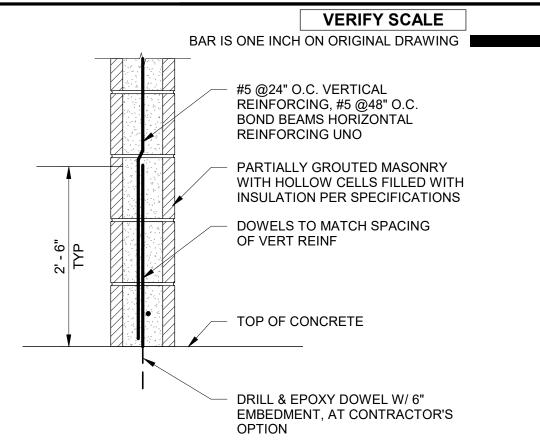


48db 48db 48db 48db 48db 12 48db 48db 48db 14 48db 48db 16

1. SEE DRAWINGS OR OBTAIN ENGINEER OF RECORD APPROVAL FOR LAP LENGTHS AND CONDITIONS NOT SHOWN.

2. db = BAR DIAMETERS.

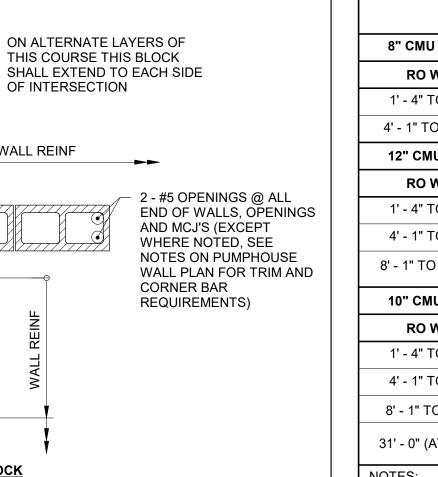
MASONRY REINFORCING HOOKS AND LAP SPLICES

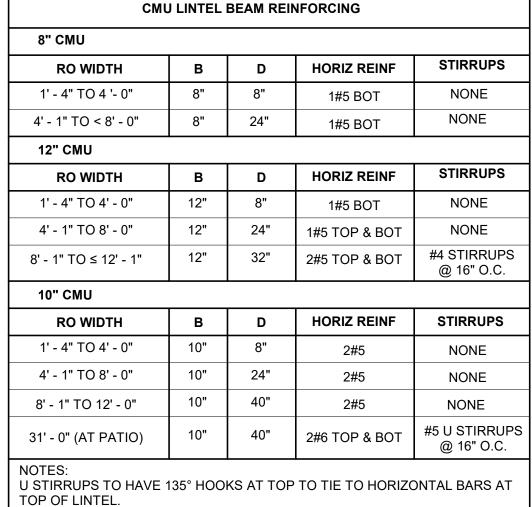


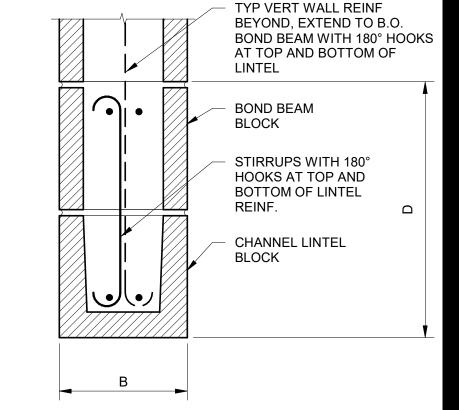
CONTRACTOR'S OPTIONS:

- 1. PROVIDE DOWELS, DRILL AND EPOXY W/ 6" EMBEDMENT, TYP FERROSCAN CONCRETE PRIOR TO DRILL AND EPOXY DOWEL INSTALLATION. DO NOT CUT OR DRILL THROUGH EXISTING **SLAB / BEAM REINFORCEMENT.**
- PROVIDE DOWELS, CAST-IN WITH SLAB / BEAM WITH STANDARD EMBEDMENT AND HOOK.

MASONRY WALL

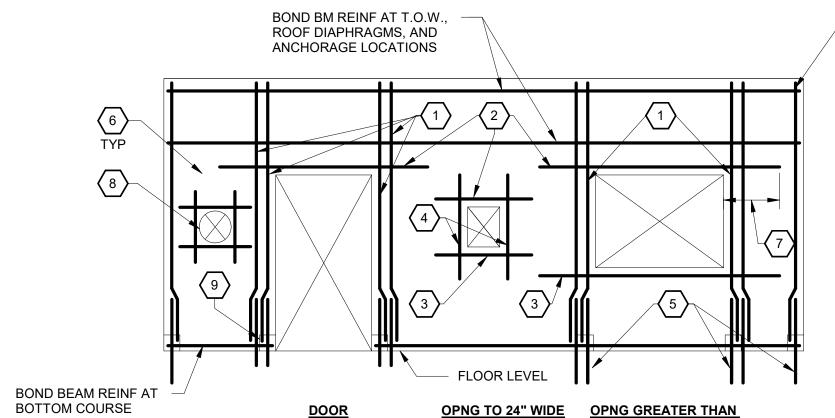






1. PROVIDE REINF AS INDICATED AT ALL OPENINGS. SPECIAL INSPECTION OF ALL LINTELS & BOND BEAMS IS REQUIRED. 3. PROVIDE 8" BEARING EACH END OF ROUGH OPENING. 4. 180° HOOKS REQUIRED AT ENDS OF ALL TERMINATING BARS.

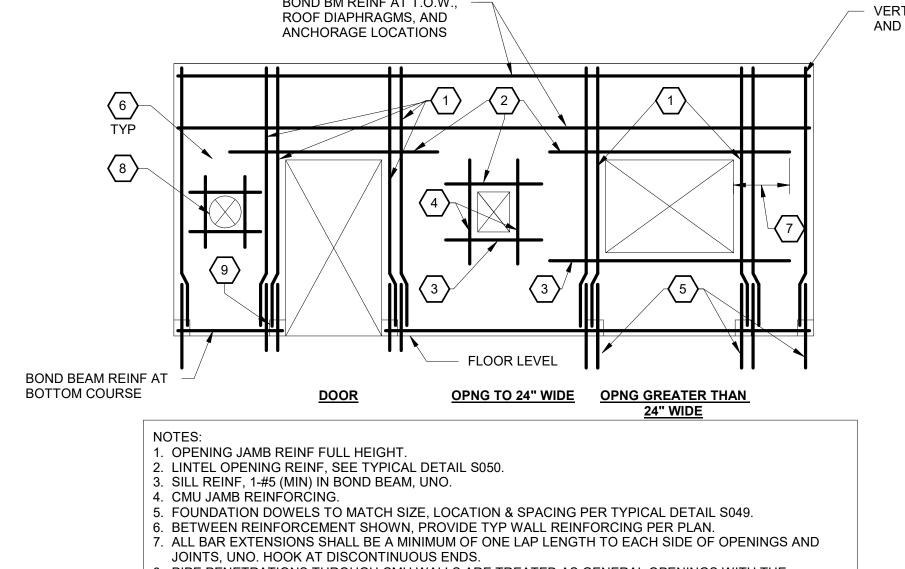
MASONRY WALL LINTEL REINFORCING SCHEDULE NOT TO SCALE

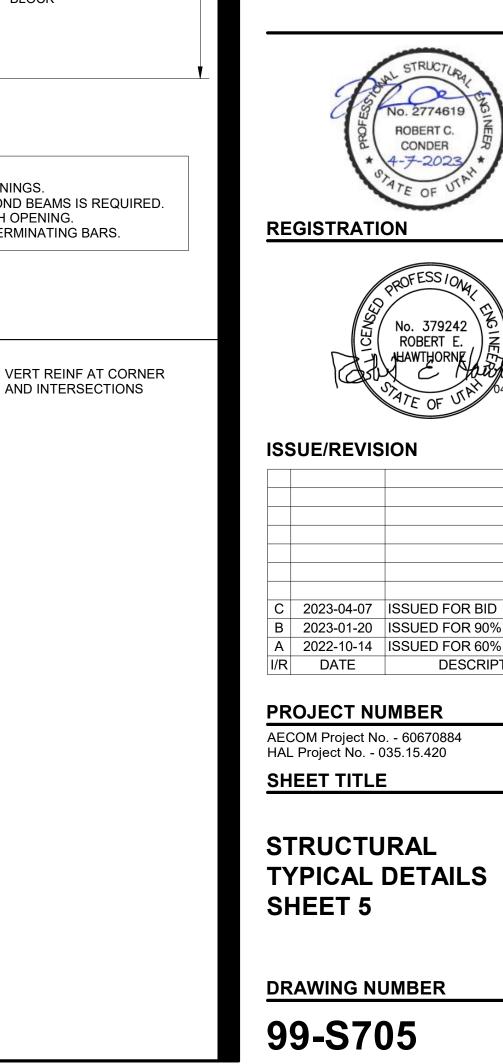


8. PIPE PENETRATIONS THROUGH CMU WALLS ARE TREATED AS GENERAL OPENINGS WITH THE DIAMETER OF THE WALL PENETRATION BEING CONSIDERED THE RO WIDTH.

9. CLEANOUTS TO BE PROVIDED PER TMS 602.

TYPICAL MASONRY WALL REINFORCING S051 NOT TO SCALE





TYPICAL DETAILS SHEET 5

ENGINEER

WATER TREATMENT

PROJECT

PLANT

CLIENT

PROVO RIVER

PROVO CITY

Provo, UT 84606 Tel: (801) 852-6700

CONSULTANTS

756 East Winchester Street

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ROBERT C. CONDER

No. 379242

ROBERT E.

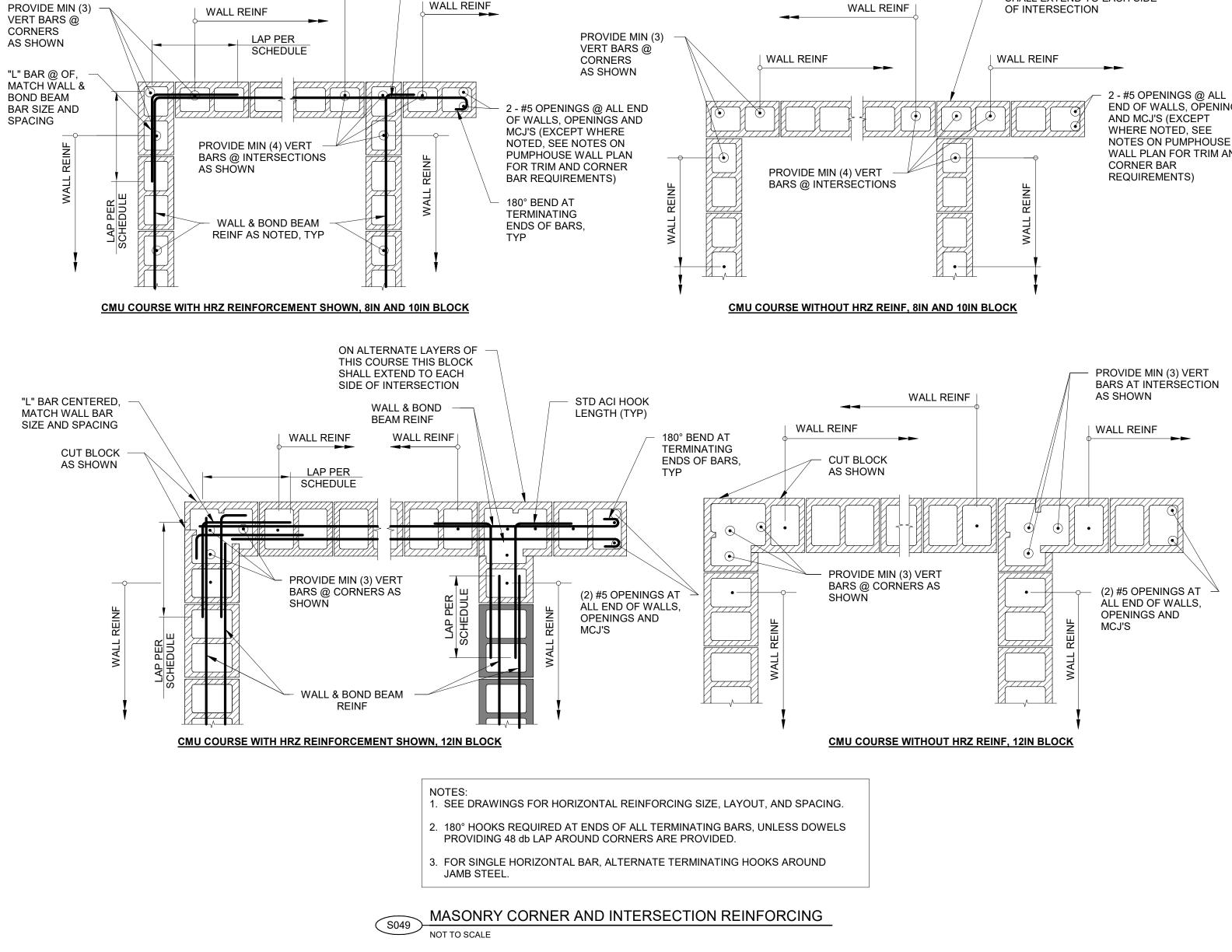
ALLAWTHORNE.

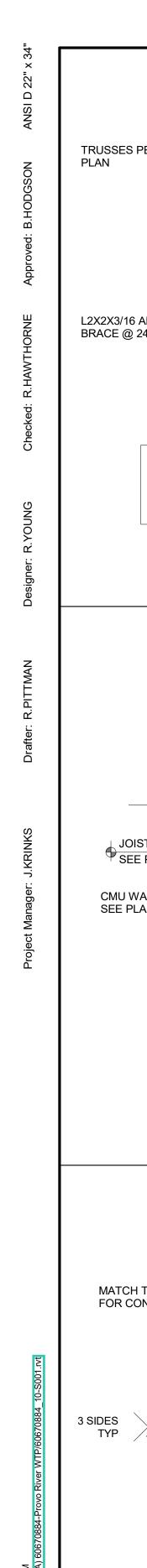
DESCRIPTION

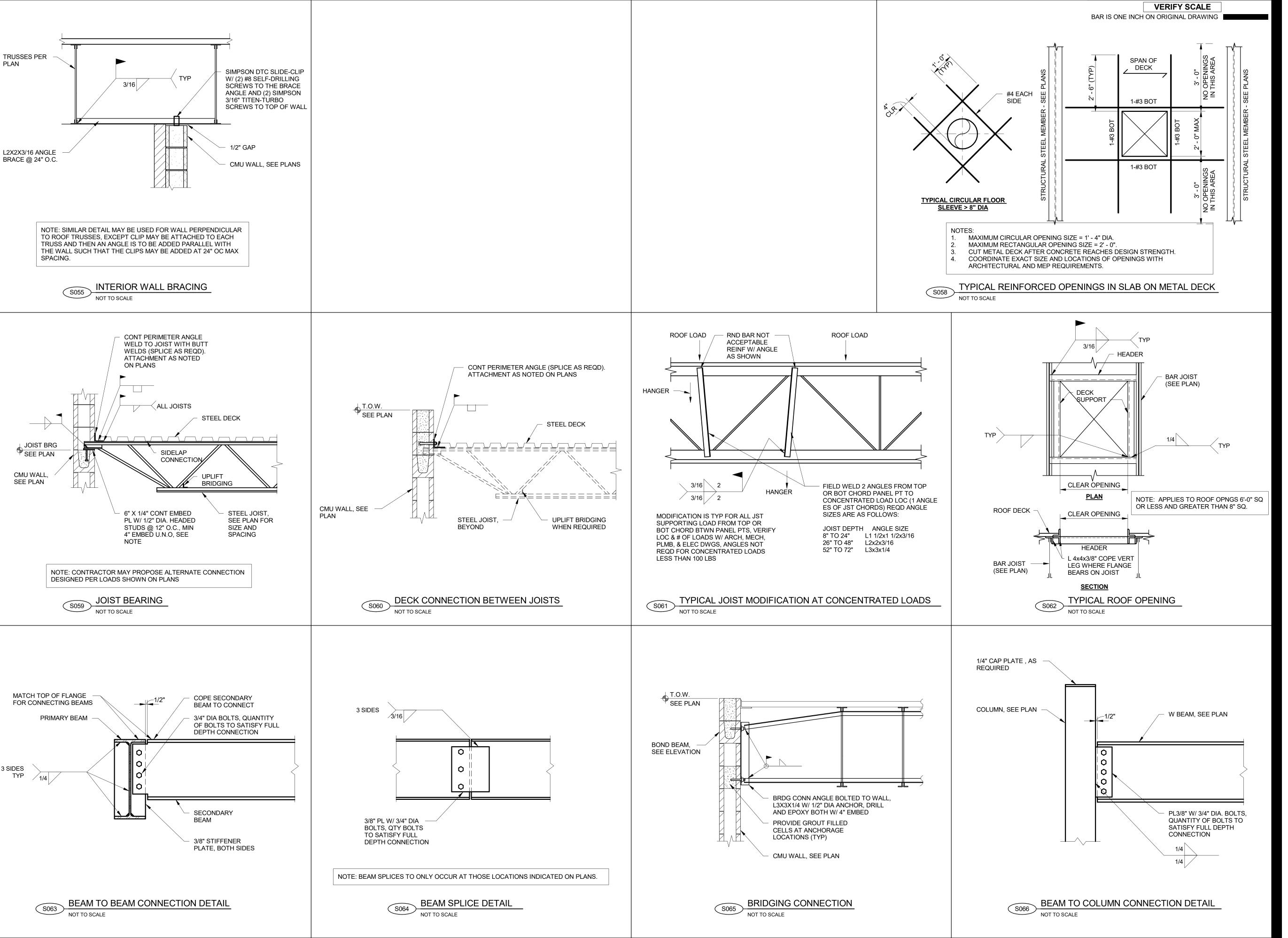
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1377 South 350 East

DRAWING NUMBER







AECOM HANSEN ALLEN & LUCEn

PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

ENGINEERS

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PROVO CITY
PUBLIC WORKS
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Provo, UT 84606

Tel: (801) 852-6700

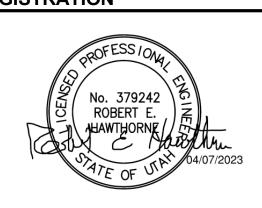


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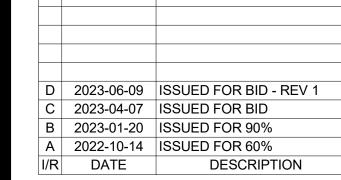
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REGISTRATION



ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

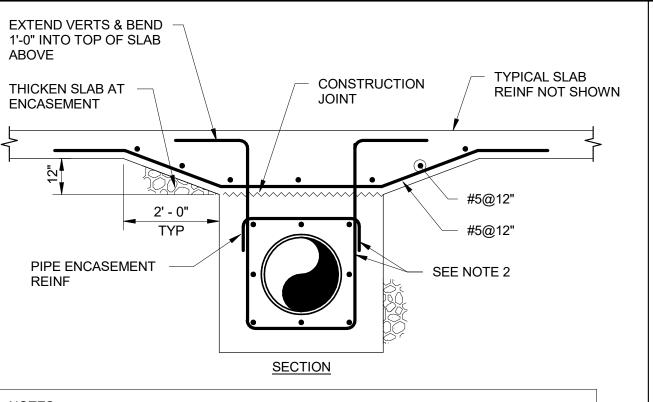
STRUCTURAL
TYPICAL DETAILS
SHEET 6

DRAWING NUMBER

99-S706

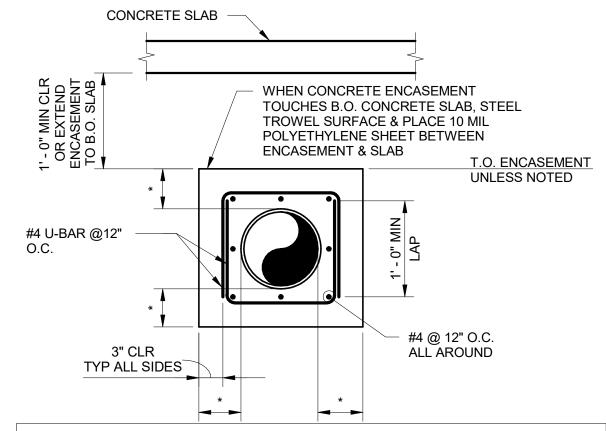
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- 1. TIE PIPE ENCASEMENT TO SLAB AS SHOWN WHEN DISTANCE BETWEEN PIPE ENCASEMENT AND BOTTOM OF SLAB IS LESS THAN 12IN AND WHERE INDICATED ON
- 2. FOR REINFORCEMENT AND COVER SEE TYPICAL DETAIL S004.
- 3. LONGITUDINAL CONSTRUCTION JOINTS ARE OPTIONAL.
- 4. WHERE THE FLOOR SLAB ABOVE THE ENCASEMENT IS GREATER THAN 12" THICKNESS, ENCASEMENTS MAY BE BROUGHT DIRECTLY UP TO THE BOTTOM OF SLAB WITHOUT TAPERING.

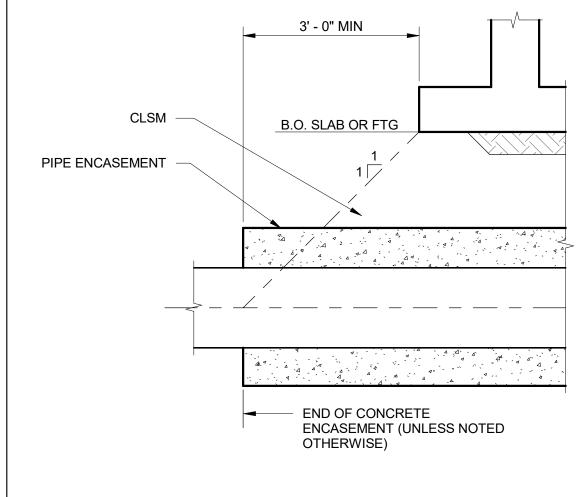




* = 8" MIN FOR PIPE \leq 24" DIA, 12" FOR PIPE > 24" DIA

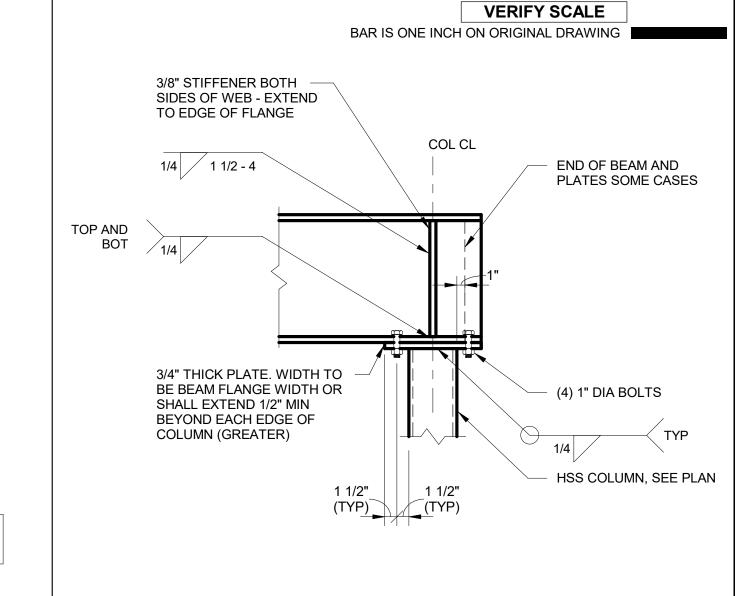
- CONCRETE ENCASEMENT SHALL BE TERMINATED AT PIPE JOINTS ONLY.
- 2. SEE PIPE ENCASEMENT (ELEVATION) FOR EXTENTS OF ENCASEMENT BEYOND STRUCTURE.
- 3. FOR MULTI PIPE, PROVIDE U-BARS AT EACH PIPE.

PIPE ENCASEMENT - SECTION



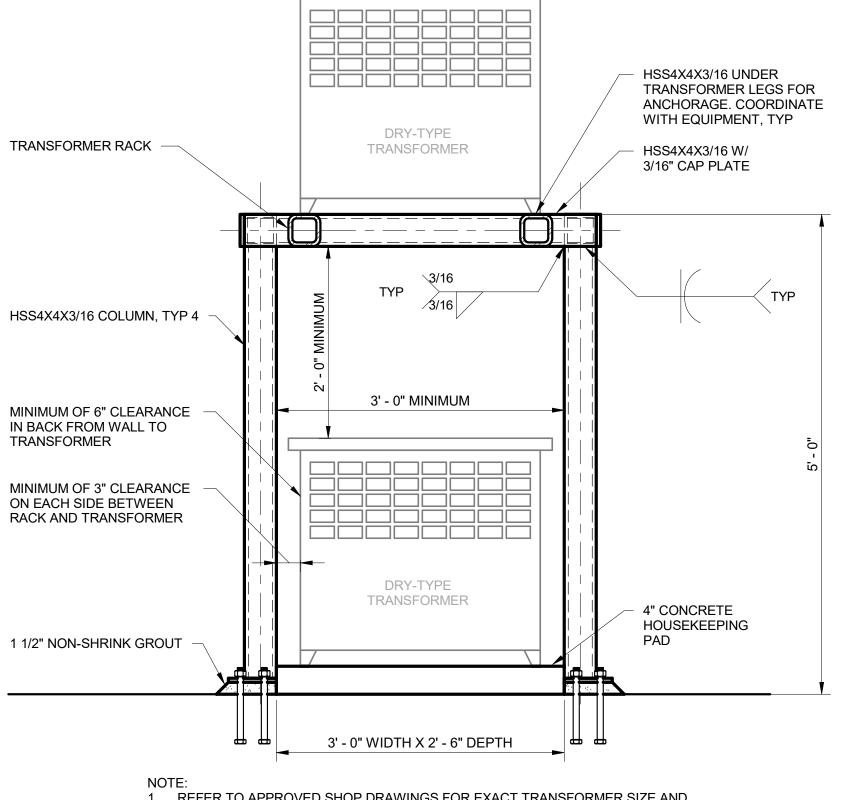
NOTE: EXTENT OF PIPE ENCASEMENT BEYOND EDGE OF STRUCTURE MINIMUM 3ft OR MINIMUM 1:1 ZONE AS SHOWN WHICHEVER IS GREATER.



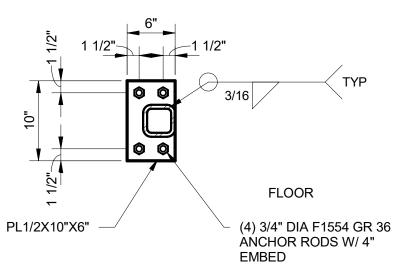


BEAM COLUMN CONNECTION - STEEL



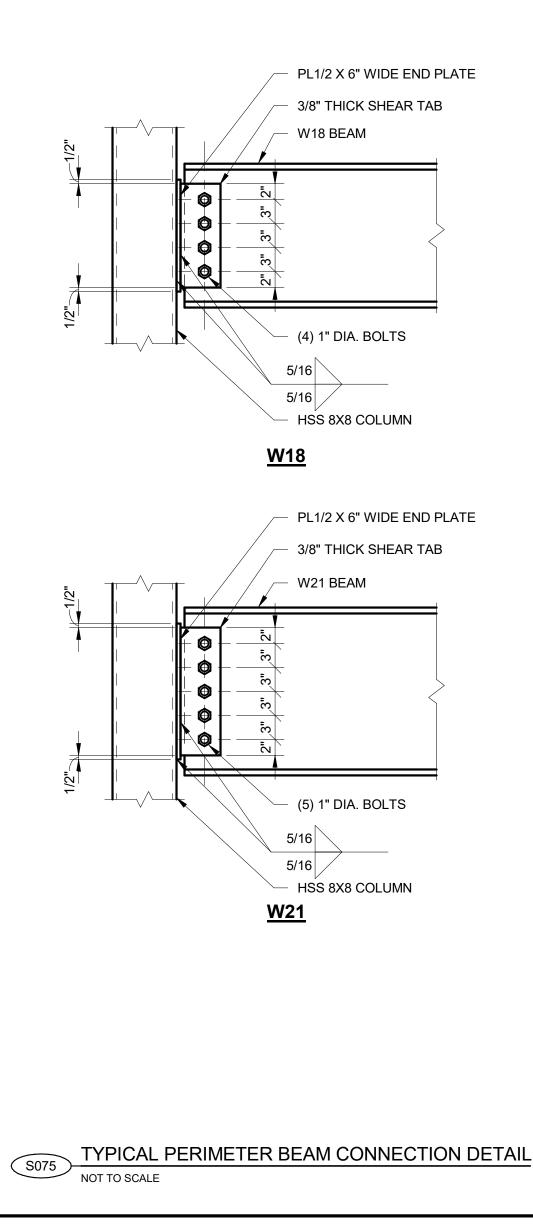


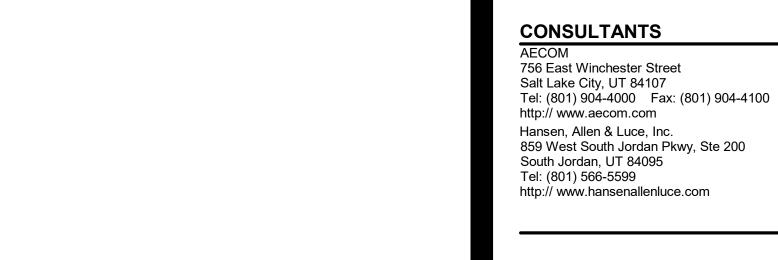
1. REFER TO APPROVED SHOP DRAWINGS FOR EXACT TRANSFORMER SIZE AND DIMENSIONS. ADJUST RACK SIZE ACCORDINGLY.



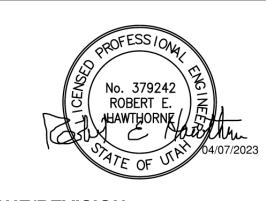
BASEPLATE DETAIL







REGISTRATION



ENGINEERS

WATER TREATMENT

PROJECT

PLANT

CLIENT

PROVO RIVER

PROVO CITY

Provo, UT 84606 Tel: (801) 852-6700

PUBLIC WORKS

WELCOME HOME

1377 South 350 East

ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

STRUCTURAL TYPICAL DETAILS SHEET 7

DRAWING NUMBER

A009A

99-A703

A028

A029

A030

A031

A032

A033

A034

A035

A036

A037

A038

A039

A040

99-A707

A042

A043

A044

A045

A046

A047

A048

A054

99-A709

A058

A059 A061

A062 A064

A065

A066

A066A

A075

A076

A078

A079

A080

A082

A084

A085

A087

A096

99-A708 A053

99-A706

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

DETAIL NO. **DETAIL DESCRIPTION**

99-A701 BASE PARTITIONS A001 TYPICAL STUD DEFLECTION A002 GYPSUM BOARD CONTROL JOINTS A003 PRIORITY WALLS A004 DOOR OPENING TYP FRAMING ELEVATION A005 NON-FULL HGT PTNS A006 PTN BLKG/BACKING A007 WDW/BLT OPENING TYP FRAMING ELEVATION 800A PUMP - FURRED OUT CMU 99-A702

ADA ACCESSIBLE PLUMBING ELEMENTS AND FACILITIES ADA ACCESSIBLE MANEUVERING CLEARANCES

ARCHITECTURAL TYPICAL DETAIL INDEX

A010 PIPE CHASE HOUSING @ MEMBRANE ROOF A011 ROOF HATCH DETAIL A013 PREFABRICATED ROOF EQUIPMENT CURB A014 MEMBRANE ROOF VENT FLASHING HORIZONTAL MEMBRANE @ WALL TRANSITION A015 A016 SQUARE TUBE ROOF PENETRATION A017 EQUIP ACCESS COVER @ MEMBRANE ROOFING A018 FALL ARREST ANCHOR AT STL STRUCTURE A019 ROOF AND OVERFLOW DRAIN 99-A704 A022 LADDER DETAIL

A022A SECTION DETAIL - LOUVER SCREEN WALL A023 FLOOR HATCH A025 **BOLTED BOLLARD DETAIL** A025A ELEVATION DETAIL - LVR SCREEN PANEL A026 LIFE SAFETY DAVIT BASE 99-A705

> STAIR TREAD @ CONC LANDING STAIR TOP CONNECTION TO STEEL LANDING STAIR BOTTOM CONNECTION TO STEEL LANDING STAIR TOP CONNECTION TO CONC LANDING STAIR LANDING CONNECTION TO CONCRETE STAIR LANDING CONNECTION TO CMU STAIR LANDING CONNECTION TO COLUMN TOP TREAD CONNECTION TO ALUM LANDING

HANDRAIL @ BOTTOM OF STAIRS ALUM STAIR RAILING INSIDE RAIL @ STAIR LANDING POST MOUNT SWING GATE STANDARD HANDRAIL RETURN @ STAIR TOP CONC STAIR TREADS

> SIDE MOUNTED GUARDRAIL GUARDRAIL ELEVATION TOP MOUNTED POST GUARDRAIL SPLICE GUARDRAIL MOUNTING PLATE REMOVABLE GUARDRAIL BRACKETS FIXED GUARDRAIL BRACKETS AL GUARDRAIL REMOVABLE - ELEVATION @ CURB

FRP GUARDRAIL REMOVABLE - EL @ HATCH CURB STAIR HANDRAIL AND GUARDRAIL CONSTRUCTION

GUARDRAIL AT PLATFORM DOOR HEAD OH @ EXTERIOR WALL DOOR HEAD @ EXTERIOR CMU WALL DOOR JAMB OH @ EXTERIOR WALL DOOR JAMB @ EXTERIOR CMU WALL DOOR SILL OH @ EXTERIOR WALL DOOR SILL @ EXTERIOR HM DR HEAD @ EXT MTL PANEL HM DR JAMB @ EXT MTL PANEL

99-A710 A067 DOOR HEAD @ INTERIOR PARTITION A068 DOOR HEAD @ INTERIOR CMU WALL A070 DOOR JAMB @ INTERIOR PARTITION A071 DOOR JAMB @ INTERIOR CMU WALL A073 DOOR SILL @ INTERIOR PARTITION A074 DOOR SILL @ INTERIOR CMU WALL 99-A711

> NFPA MATERIAL HAZARD IDENTIFICATION SIGN (S1) RESTROOM SIGNAGE (S2) SIGNAGE MOUNTING DIAGRAM ROOM NAME SIGNS (S3) STAIRWAY SIGNS (S4)

99-A712 EMERGENCY EYE WASH & SHOWER SIGNS (S5) EXTERIOR - FIRE DEPARTMENT CONNECTION (S6) FIRE EXTINGUISHER SIGN (S7) HATCH TO REMAIN CLOSED (S8) EXTERIOR - NON POTABLE (S9)

A088 EXTERIOR - NO TRESPASSING SIGN (S10) 99-A713 A089 EXTERIOR - NO SMOKING OR VAPING SIGN (S11) A090 CONFINED SPACE SIGN (S12) A091 REMOVABLE HATCH SIGN (S13) A092 **GUARDRAIL MOUNT**

A093 EXTERIOR - PUMP ROOM (S14) A094 EXTERIOR - FIRE ALARM CONTROL PANEL SIGN (S15) A095

ROOF ACCESS (S16) ELEC ROOM SIGNAGE (S17)

ENGINEERS

PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

CLIENT

PROVO CITY PUBLIC WORKS

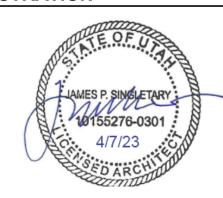
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CONSULTANTS

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REGISTRATION



ISSUE/REVISION

Α	2023-04-07	ISSUED FOR BID
I/R	DATE	DESCRIPTION

PROJECT NUMBER

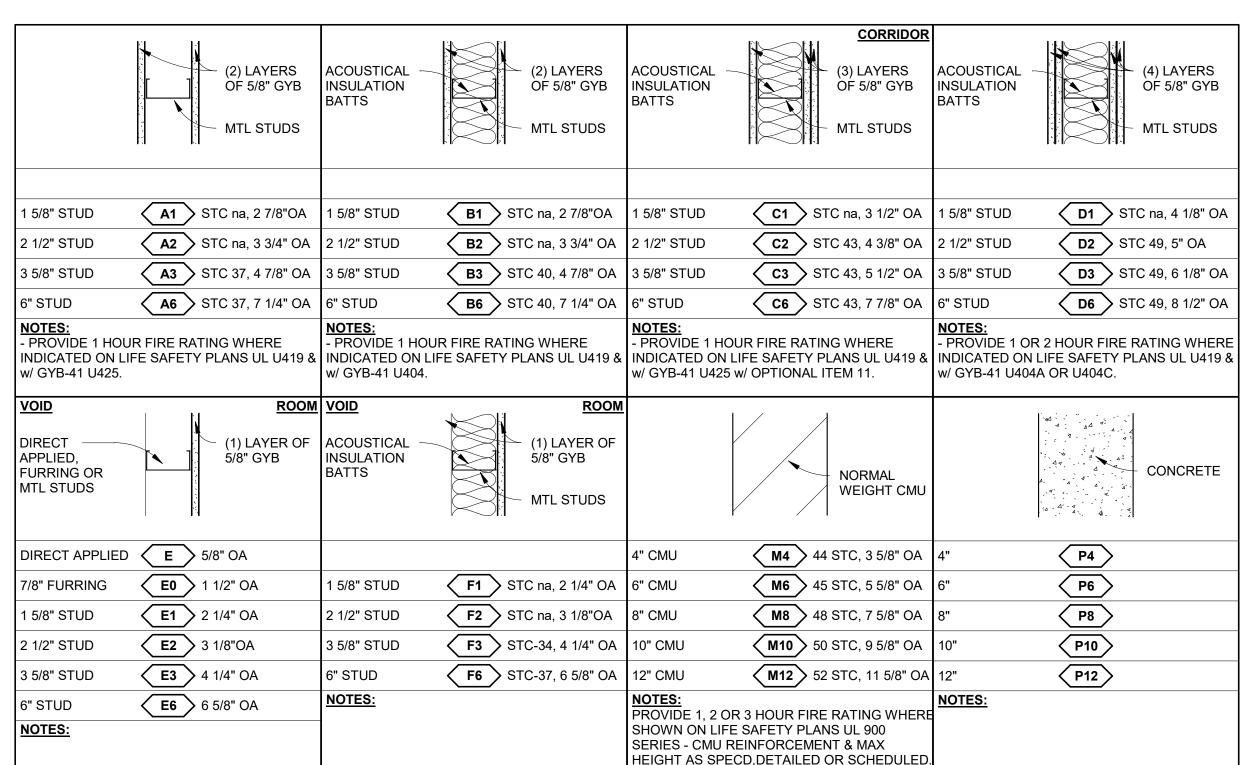
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

ARCHITECTURAL SHEET INDEX TYPICAL DETAILS

DRAWING NUMBER

BASE PARTITIONS



5/8" FL GYPSUM TAPE, PRIME & PAINT ALL EXPOSED INTERIOR SURFACES -5/8" FL GYPSUM BOARD, FULL HEIGHT 3-5/8" METAL STUDS @ 16" ON CENTER (24 GA) 3-1/2" SAFB INSULATION SEE PTN M10

SEE PLAN

PUMP - FURRED OUT CMU

2"X5"X1/16" METAL ANGLE -INSIDE STUD TRACK ON BOTH SIDES OF BACK TO BACK STUDS - DO NOT FASTEN TO STUDS REQD GAP FOR -DEFLECTION STUD TRACK TOP OF STUDS BACK TO BACK STUDS — + +

TYPICAL STUD DEFLECTION

LOWEST HIGHEST **PRIORITY** PRIORITY

PRIORITY 1 HIGHEST

PRIORITY 8 LOWEST

PRIORITY 2

PRIORITY 3

PRIORITY 4

PRIORITY 5

PRIORITY 6

PRIORITY 7

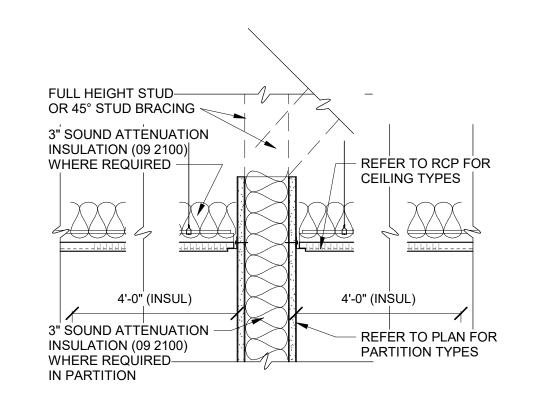
WALL PRIORITY LEGEND:

3 HR RATED WALL (PER IBC 707) 2 HR RATED FIRE/SMOKE BARRIER(PER IBC 709) 2 HR RATED FIRE BARRIER (PER IBC 707) 1 HR RATED SMOKE BARRIER (PER IBC 709)

1 HR RATED FIRE BARRIER (PER IBC 707) SMOKE PARTITION (PER IBC 710) NON-RATED ACOUSTICAL PARTITION NON-RATED PARTITION

1. SCHEDULE CONSTRUCTION OF PARTITIONS IN ORDER TO MAINTAIN CONTINUITY OF RATING PRIORITY

PRIORITY WALLS 1 1/2" = 1'-0"



NON-FULL HGT PTNS A005 1 1/2" = 1'-0"

1. PROVIDE BACKING/BLOCKING IN GYB PARTITIONS FOR ALL WALL-HUNG ITEMS. 2. THESE ANCHORING DETAILS ARE SHOWN AS TYPICAL AND ARE NOT INTENDED TO BE ALL INCLUSIVE. PROVIDE WOOD OR STEEL BACKING IN PARTITIONS FOR WALL HUNG ITEMS, SUCH AS WALL CABINETS, BLDG ACCESS, BATHROOM ACCESS, SHELVING, DOOR HOLD-OPENS, & STOPS, ETC, INCLUDING NIC, BO, BOF, & RE ITEMS.

3. USE THE FOLLOWING ASSUMED LOADS TO DETERMINE BLKG & FASTENER REQUIREMENTS UNLESS GREATER LOADS ARE KNOWN.

a. S DISP, PTC, TPH, MIRRORS, COAT HOOKS, BPG, TOWEL BAR & RING, MOP HOLDER, ASH URN, ETC-USE 100lbs MOP HOLDER, ASH URN ETC - USE 100 LB. b. HANDRAIL, BUMPER RAILS - USE 200 LB CONCENTRATED LOAD. c. GRAB BARS - USE 250 LB CONCENTRATED LOAD.

d. WALL CABINETS - USE WEIGHT OF CABINET PLUS 100LB PER FOOT OF SHELF. e. COUNTERTOPS- USE WEIGHT OF COUNTER TOP PLUS 55 LB PER FOOT OF COUNTER

f. 12" ADJ SHELVES - USE 40 LB PER BRKT g. 18" ADJ SHELVES - USE 55 LB PER BRKT h. 24" ADJ SHELVES - USE 83 LB PER BRKT

LOADING TABLE NOTES: I. SEE TABLE 1 BELOW FOR SIZE OF WOOD BLKG, QUANTITY AND SIZE OF SCREWS FOR CONNECTION

TO EACH STUD. 2. SEE TABLE 2 OR 3 BELOW FOR QUANTITY AND SIZE OF SCREWS FOR CONNECTION OF WALL HUNG ITEMS,

TABLE 1 MAXIMUM ALLOWABLE LOAD-IN POUNDS WOOD SCREW | LENGTH OF WALL HUNG ITEM QUAN. | SIZE | 1'-4" OR LESS2'-8" OR LESS2'-9" OR MORE 2x4 WOOD BLOCKING #6 320 480 160 700 #8 240 480 #10 320 640 700 2x6 WOOD BLOCKING 700 #6 480 700 #8 360 700 700 700 #10 480 LOADS BASED ON GROUP II WOOD SPECIES & SCREWS EMBEDED IN WOOD A MIN OF 7 TIMES THE

SCREW DIA WITH SCREWS INSERTED IN SIDE GRAIN

GRAIN.

ON ONE SIDE & SIDE GRAIN ON OPPOSITE END.

IF NOT ALREADY PROVIDED BY MFR OF WALL HUNG ITEM.

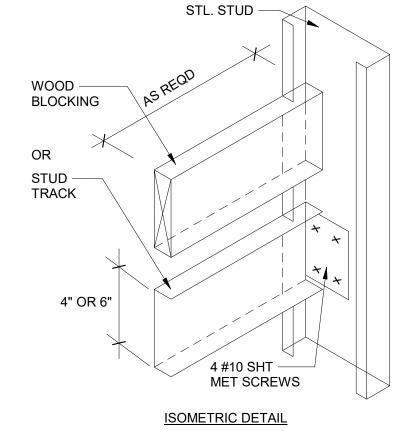


TABLE 2					T	ABLE 3			
MAXIMUM ALLOWABLE LOAD-IN POUNDS			MAXIMUM ALLOWABLE LOAD-IN POUNDS						
SCREW	QUANTITY OF SCREWS			SCREW	QUANTITY OF SCREWS				
SIZE	2	3	4	5	SIZE	2	3	4	5
#6	150	225	300	375	#6-S12	224	336	448	560
#8	212	318	424	530	#8-18	236	354	472	590
#10	286	429	572	700	#10-16	272	438	584	700
#12	370	555	700	700	#12-14	288	438	576	700
LOADS BASED ON GROUP II WOOD				LOADS B					

FOR MILCOR THELOCK SCREWS WIT 20 GA GALV STEEL BACKING AND WOOD A MIN OF 7 TIMES THE SCREW DIA WITH SCREWS INSERTED IN SIDE LIMITING CRITERIA BEING PULLOUT STRENGTH

GENERAL NOTES

- 1. REFER TO PARTITION TYPE TAG ON FLOOR PLANS AND LIFE SAFETY/CODE COMPLIANCE PLANS FOR LOCATIONS OF FIRE RATINGS.
- 2. FOR ALL PARTITION TYPES, STC-RATING NOTED APPLIES.
- 3. GYPSUM BOARD IS 5/8" TYPE 'X' UNLESS OTHERWISE NOTED.
- 4. WHERE TILE FINISHES ARE INDICATED, PROVIDE CEMENTITIOUS TILE BACKER BOARD IN LIEU OF GYPSUM BOARD AT ALL VERTICAL SURFACES.
- 5. ALL CMU PARTITION TYPES SHALL COMPLY WITH PARTITION TYPE GENERAL NOTES AND "CMU LINTEL SCHEDULE" FOR MIN CMU REINFORCING AND LIMITED LINTEL SPANS.
- 6. GAUGES OF STUDS TO BE 20 GAUGE UNLESS OTHERWISE NOTED OR SUPPORTING WALL CABINETS. SPACING OF STUDS SHALL BE 16" ON CENTER UNLESS OTHERWISE NOTED. CONTRACTOR SHALL PROVIDE HEAVIER GAUGES AND/OR CLOSER SPACING AS REQUIRED TO MEET MANUFACTURER
- RECOMMENDATIONS FOR CONDITIONS INVOLVED. 7. SEAL ALL OPENINGS, GAPS, PENETRATIONS, AND JOINTS IN PARTITION TYPES AS FOLLOWS
- A. FIRE RATED PARTITIONS AND SMOKE PARTITIONS SEAL IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE DIVISION 7 SPECIFICATION SECTIONS FOR PENETRATION FIRESTOP SYSTEMS AND FIRE RESISTIVE JOINT SYSTEMS. REFER TO CODE COMPLIANCE DRAWINGS FOR LOCATIONS OF SMOKE PARTITIONS.
- 8. PROVIDE LEVEL 5 FINISH ON GYPSUM BOARD WALLS AND CEILINGS IN ALL AREAS IN THE ADMIN AREA. PROVIDE LEVEL 4 FINISH ON GYPSUM BOARD WALLS AND CEILINGS IN ALL OTHER LOCATIONS.

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

GYPSUM BOARD PARTITION CONTROL JOINT NOTES:

1. PROVIDE CONTROL JOINTS WHERE SHOWN ON PLANS

2. PROVIDE CONTROL JOINTS IN UNINTERRUPTED LONG EXPANSES OF GYPSUM BOARD AT 30'-0" OC MAX WITH EACH SIDE OF PARTITION CONSIDERED SEPERATELY

3. WHERE GYPSUM BOARD ON BOTH SIDES EXCEEDS 30'-0". THE GYPSUM BOARD CONTROL JOINTS SHALL BE ALIGNED AS DETAILED BELOW LOCATE GYPSUM BOARD CONTROL JOINTS AT A DOOR OR BORROWED LIGHT JAMB WHEREVER POSSIBLE, OTHERWISE CONSULT ARCHITECT FOR LOCATION OF GYPSUM - GYB CONTROL JOINT (09 2100) 5/8" GAP

METAL STUD FRAMING 1/2" MAX **ACOUSTICAL** REFER TO PLANS SEALANT (09 2100) / FOR PARTITION TYPE NON-RATED PARTITION

- GYB CONTROL JOINT (09 2100) TWO LAYERS 5/8" TYPE X GYB SCREWED TO STUD (09 2100) 5/8" GAP - METAL STUD FRAMING

1/2" MAX GAP

REFER TO PLANS FOR PARTITION TYPE **1 HR RATED PARTITION** UL DESIGN R4024 GYB CONTROL JOINT (09 2100) TWO LAYERS 5/8" TYPE X GYB SCREWED TO STUD (09 2100) 5/8" GAP

1/2" MAX

GAP

METAL STUD

- REFER TO PLANS

FOR PARTITION TYPE

FRAMING

GYPSUM BOARD CONTROL DESIGN R4024

SEE TYPICAL DEFLECTION PROVIDE CRIPPLE STUD AT CONNECTION CONTROL JOINT, DO NOT ANCHOR TO JAMB STUDS - TYP BOTH SIDES - BOTTOM OF STRUCTURE "1'-4" ||EQ || EQ || EQ || 1'-4" **BROKEN LINE** INDICATES PARTITION EXTENDING TO STRUCTURE ABOVE LINE OF CEILING BROKEN LINE INDICATES METAL FRAME SINGLE HDS STUD EACH SIDE RUNNER TRACK FLOOR LINE

DOOR OPENING TYP FRAMING **ELEVATION** (A004) 1 1/2" = 1'-0" SEE TYPICAL STUD CONNECTION PENETRATIONS SIMILAR TO WDW/BLT OPENING **BOTTOM OF STRUCTURE** PROVIDE CRIPPLE STUD AT CONTROL JOINT, DO NOT ANCHOR TO JAMB STUDS - TYP BOTH SIDES **BROKEN LINE** INDICATES PARTITION EXTENDING TO STRUCTURE ABOVE LINE OF CEILING BROKEN LINE INDICATES BORROWED LITE FRAME SINGLE HDS STUD EACH SIDE **RUNNER TRACK**

VERIFY B.LT. SIZE WDW/BLT OPENING TYP^{MAX} FRAMING ELEVATION

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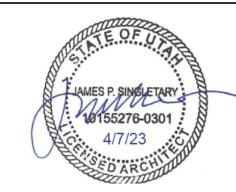
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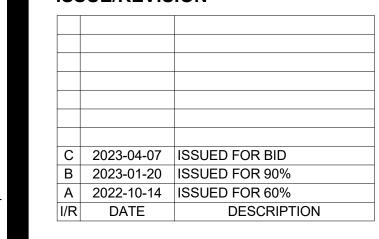
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PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

ARCHITECTURAL TYPICAL DETAILS SHEET 1

DRAWING NUMBER

99-A701

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- FLOOR LINE

PTN BLKG/BACKING

2' - 6" MIN

(A) FORWARD

WATER CLOSET SIDE WALL

FIG. 609.3

SPACING OF GRAB BARS



(A) CIRCULAR

_15" MIN 5" MAX∖ (B)

FIG. 404.2.5 TWO DOORS IN A SERIES

1' - 0" MIN 3' - 0" MIN 1' - 0" MIN

(B) T-SHAPED

CLEAR FLOOR SPACE

FIG. 304.3

SIZE OF WHEELCHAIR TURNING SPACE

GENERAL NOTES

1. ACCESS TO THE PROJECT SITE AND BUILDING SHALL BE IN COMPLIANCE WITH UBC CHAPTER 11 INCLUDING BUT NOT LIMITED TO, ACCESSIBLE PARKING, PRIMARY BUILDING ENTRANCE AT ADMIN, PRIMARY CORRIDORS AND DOORS USED BY EMPLOYEES, COMMON USE AREAS INCLUDING TOILETS, BREAKROOMS, AND DRINKING FOUNTAINS.

2. PER UBC PARAGRAPH 1103.2.9, EQUIPMENT SPACES SUCH AS PROCESS EQUIPMENT ROOMS ARE NOT

REQUIRED TO COMPLY WITH CHAPTER 11.

ADA ACCESSIBLE MANEUVERING CLEARANCES 1/4" = 1'-0"

4' - 0" MIN

(B) PARALLEL

FIG. 305.5

POSITION OF CLEAR FLOOR OR GROUND SPACE

FIG. 308.2.1 UNOBSTRUCTED FORWARD REACH

(A) FRONT APPROACH, PULL

(B) FRONT APPROACH,

PUSH SIDE

3' - 0" MIN 5' - 0" MIN

FIG. 305.7 MANEUVERING CLEARANCE IN AN ALCOVE

(A) FORWARD

ÁPPROACH

WATER CLOSET BACK WALL

(B) PARALLEL

`ÁPPROACH

20" - 25" MAX

(C) HINGE APPROACH.

PULL SIDE

FIG. 308.2.2

OBSTRUCTED HIGH FORWARD REACH

(D) HINGE APPROACH,

PULL SIDE

REACH RANGES

FIG. 308.3.1

UNOBSTRUCTED SIDE REACH

FIG. 604.2/604.3.1

WATER CLOSET LOCATION/SIZE CLEARANCE

60" MIN

DOORS AND DOORWAYS

(E) HINGE APPROACH,

PUSH SIDE

10" MAX

FIG. 308.3.2

OBSTRUCTED HIGH SIDE REACH

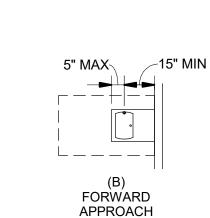
24" MIN

(F) LATCH APPROACH,

PULL SIDE

24" MAX

1 1/2" (A) PARALLEL ÀPPROACH



(G) LATCH APPROACH,

PUSH SIDE

FIG. 602.5 DRINKING FOUNTAIN SPOUT LOCATION

56" MIN @ WALL HUNG TOILET VERTICAL 1 1/2" DIA GRAB BAR WITH 1 42" 5' - 0" MIN 1/2" GAP FROM WALL WA-03 1 1/2" DIA GRAB BAR WITH 1 1/2" 36" GAP FROM WALL WA-02 1 1/2" DIA GRAB BAR WITH 1 1/2" GAP FROM WALL WA-01 TOE SPACE TOILET PAPER MOUNTING AREA

COUNTER **ACCESSIBLE** SINK BOWL 6 1/2" DEEP OFFSET WASTE

LAVATORY OR VANITY SINK

TOILET TISSUE DISPENSER WA-04

GLASS SOAP MIRROR DISPENSER

WA-06

WA-05

PAPER TOWEL DISPENSER

WA-08

HAND

SANITIZER

WA-09

TOILET SEAT FIRE **EXTINGUISHER** COVER BROOM HOLDER CABINET DISPENSER

WA-12

WA-11

PROJECT NUMBER

SHEET TITLE

ARCHITECTURAL TYPICAL DETAILS SHEET 2

99-A702



FEC

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

ENGINEERS

PROJECT

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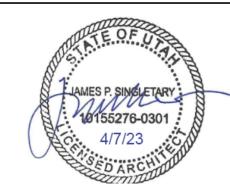
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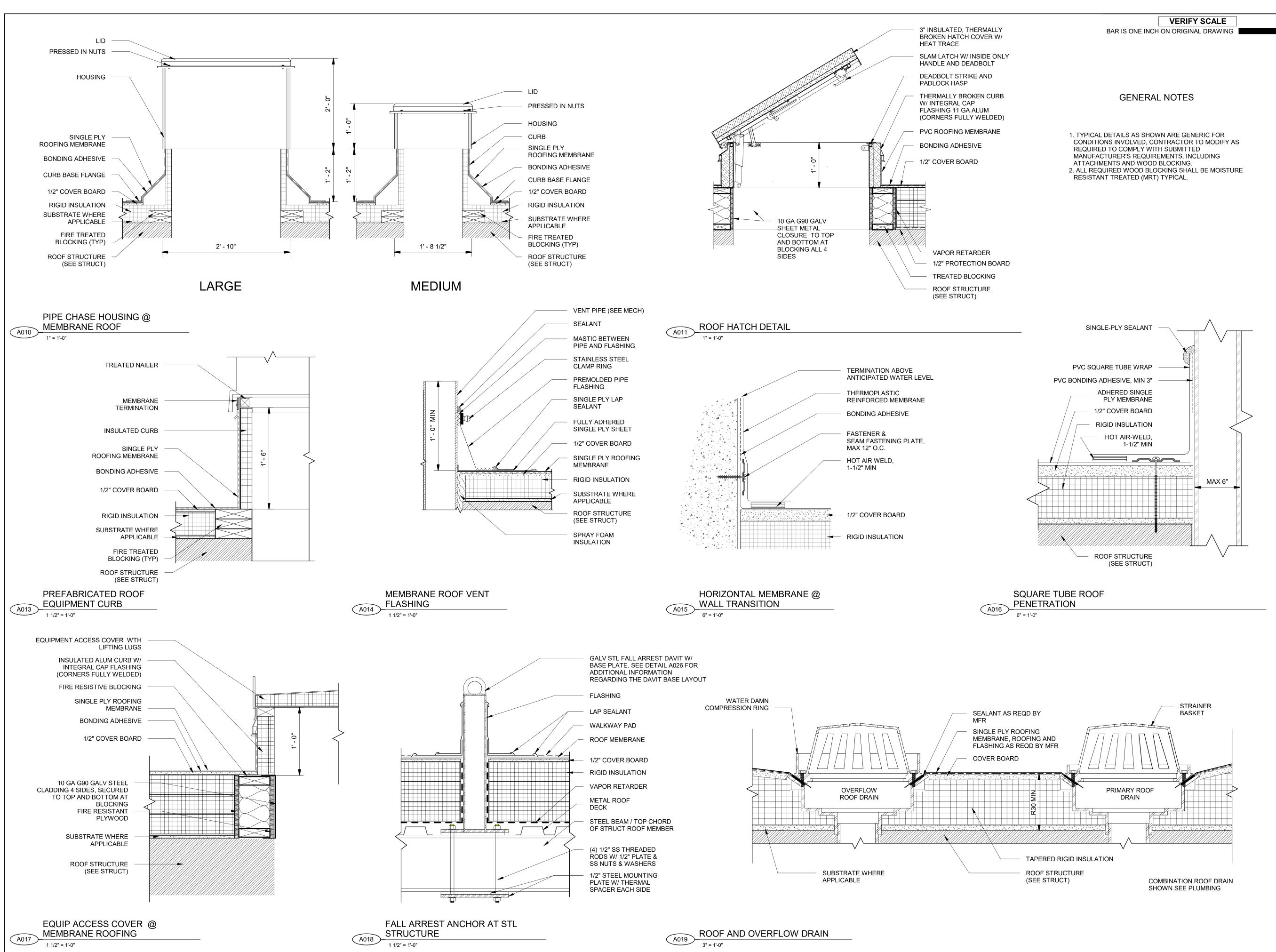
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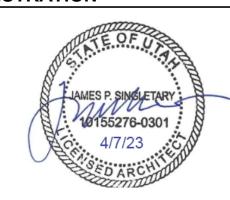
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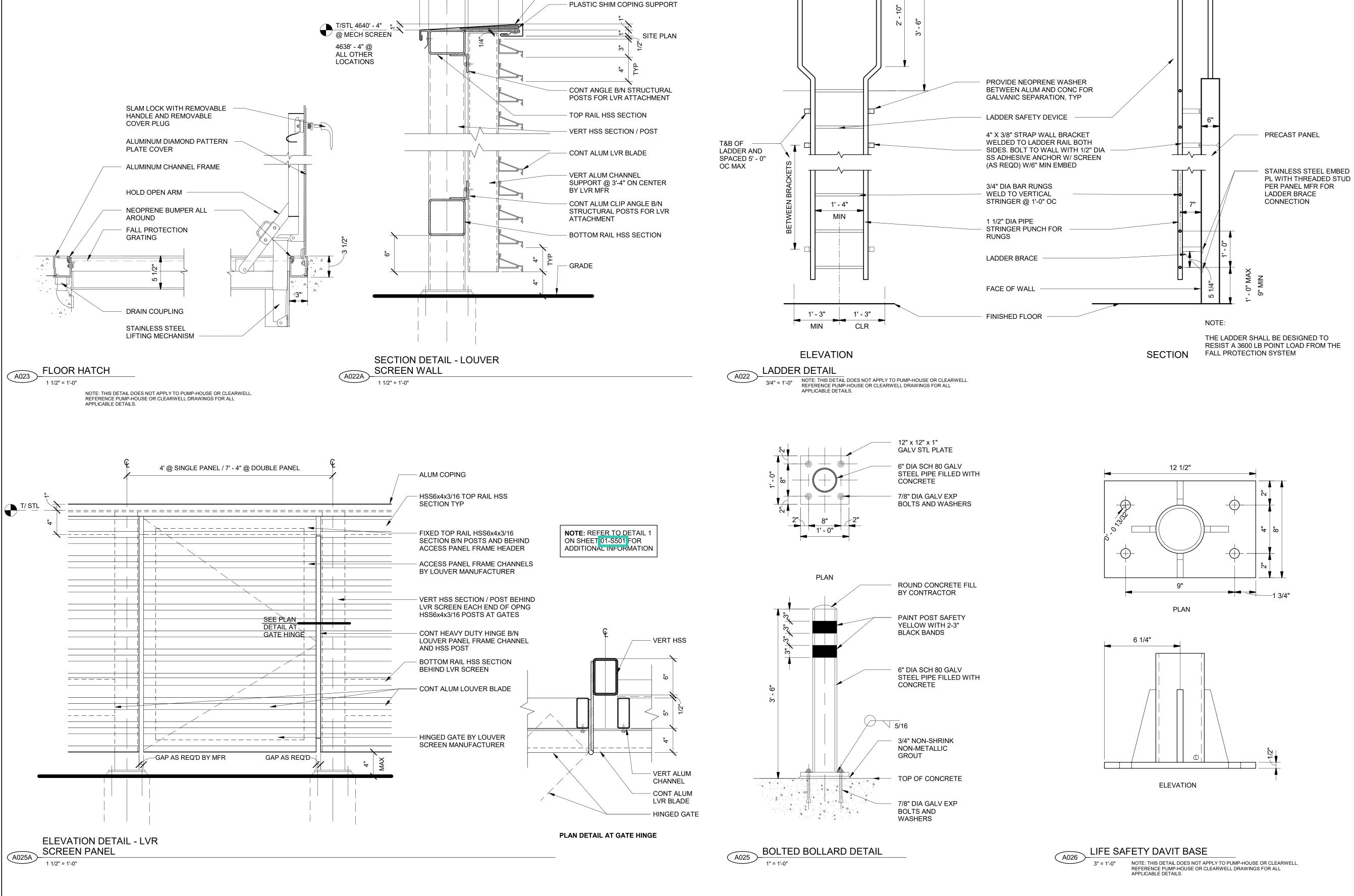
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ARCHITECTURAL TYPICAL DETAILS SHEET 3

DRAWING NUMBER



NOTE: ALL EXPOSED STRUCT STL AT LOUVER SCREENS SHALL BE PAINTED DARK GREY COLOR TBD BY ARCH

ALUM COPING W/ ATTACHMENT CLEATS BY LOUVER MFR

ENGINEERS

PROJECT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

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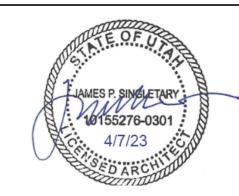
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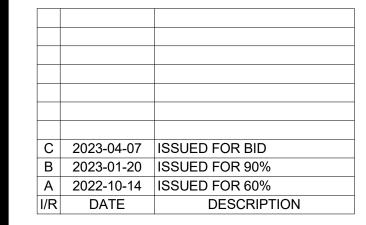
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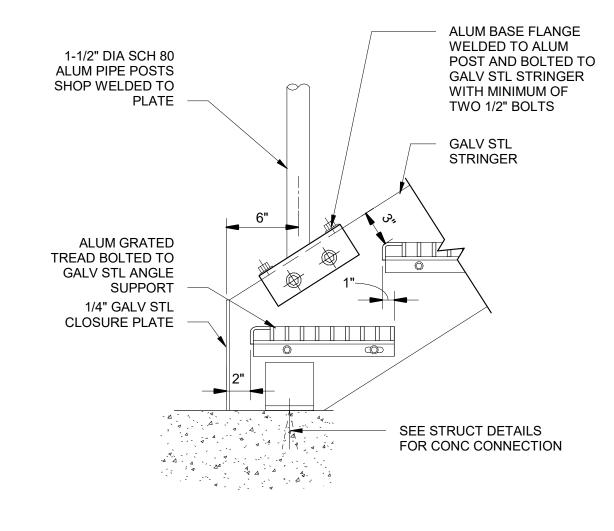
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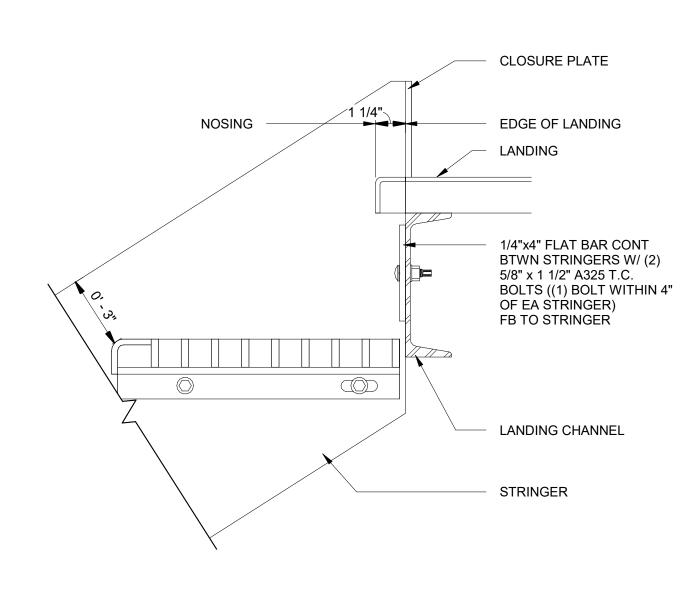
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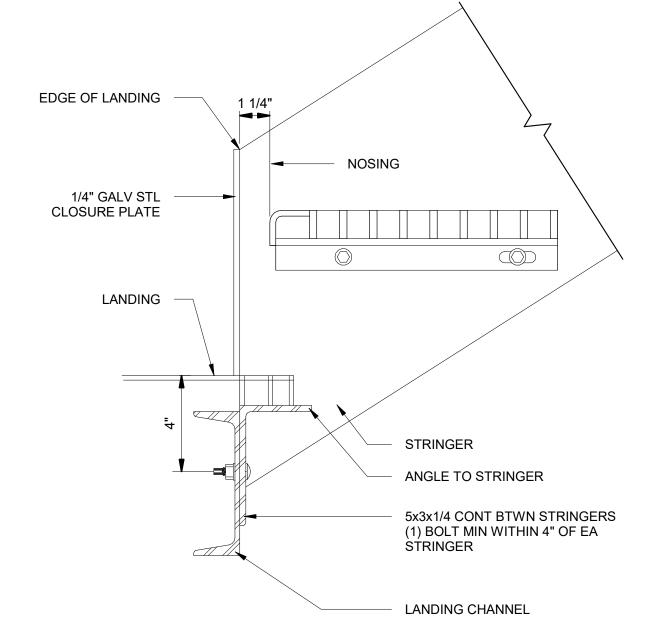
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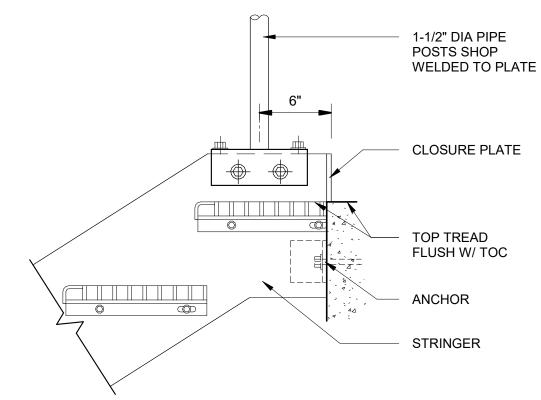
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VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING









STAIR TREAD @ CONC LANDING A027 1 1/2" = 1'-0"

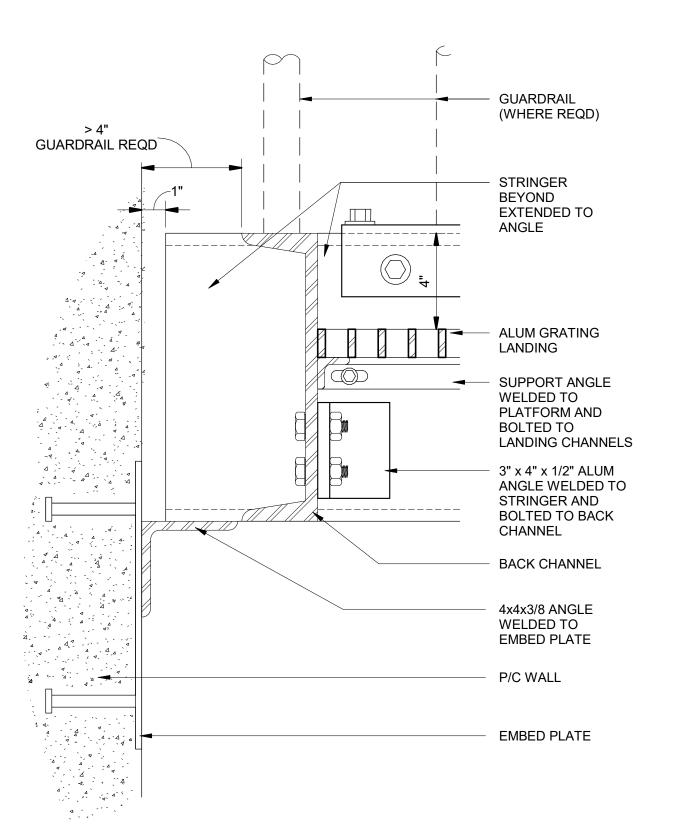


STAIR LANDING CONNECTION

TO CMU



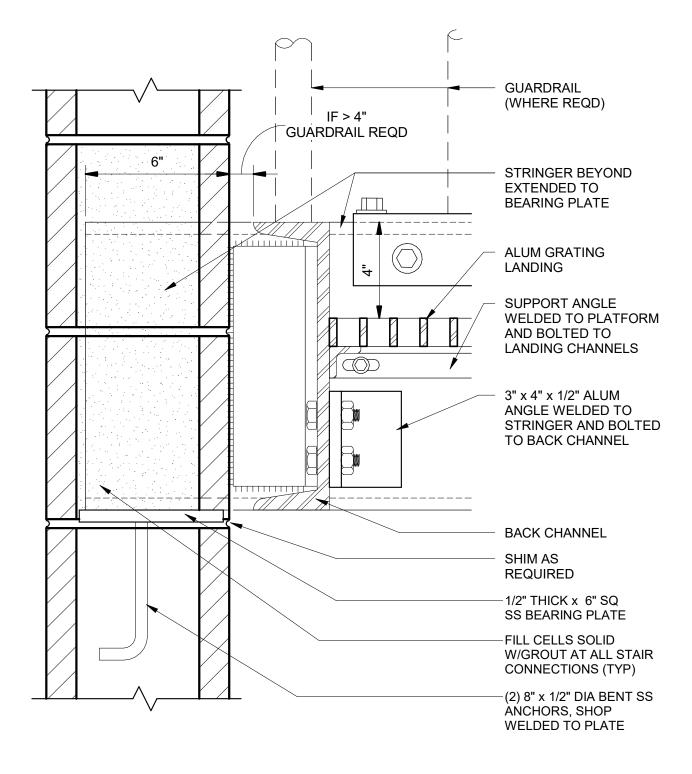


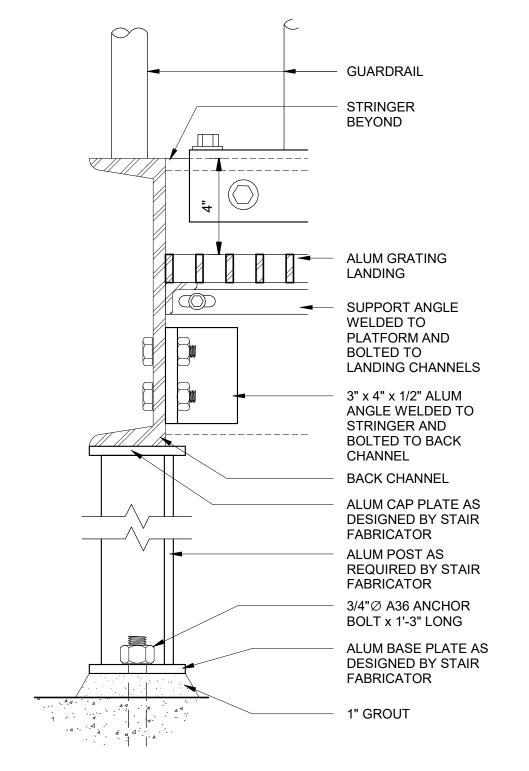


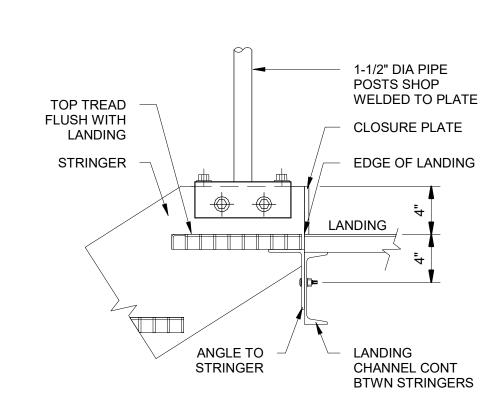
STAIR LANDING CONNECTION

TO CONCRETE

(A031)

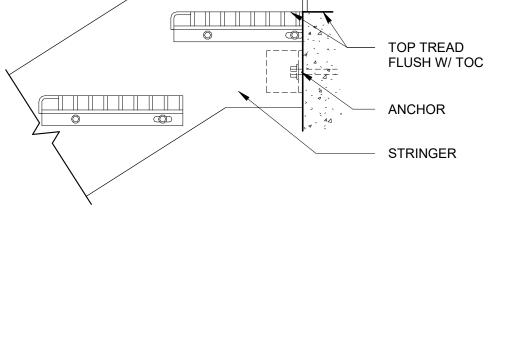




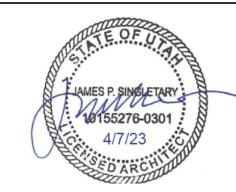


STAIR LANDING CONNECTION TO COLUMN

TOP TREAD CONNECTION TO ALUM LANDING 1 1/2" = 1'-0"







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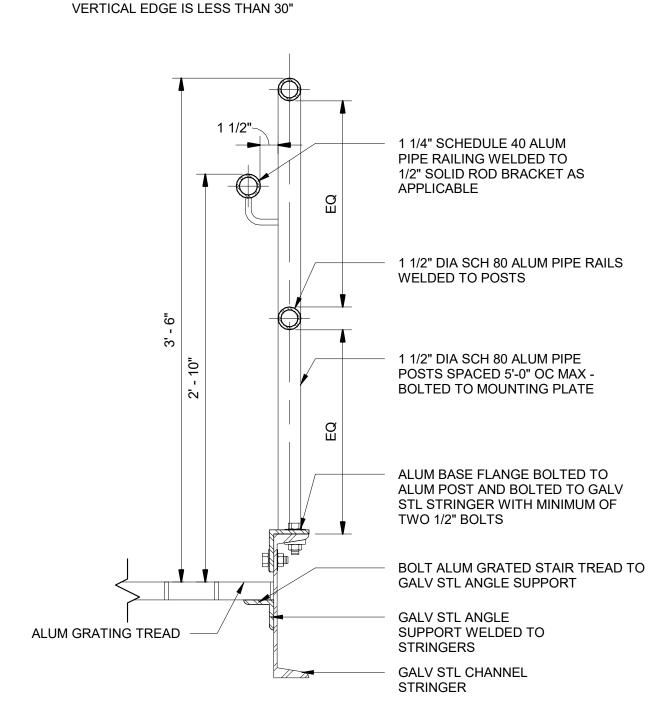
ARCHITECTURAL TYPICAL DETAILS SHEET 5

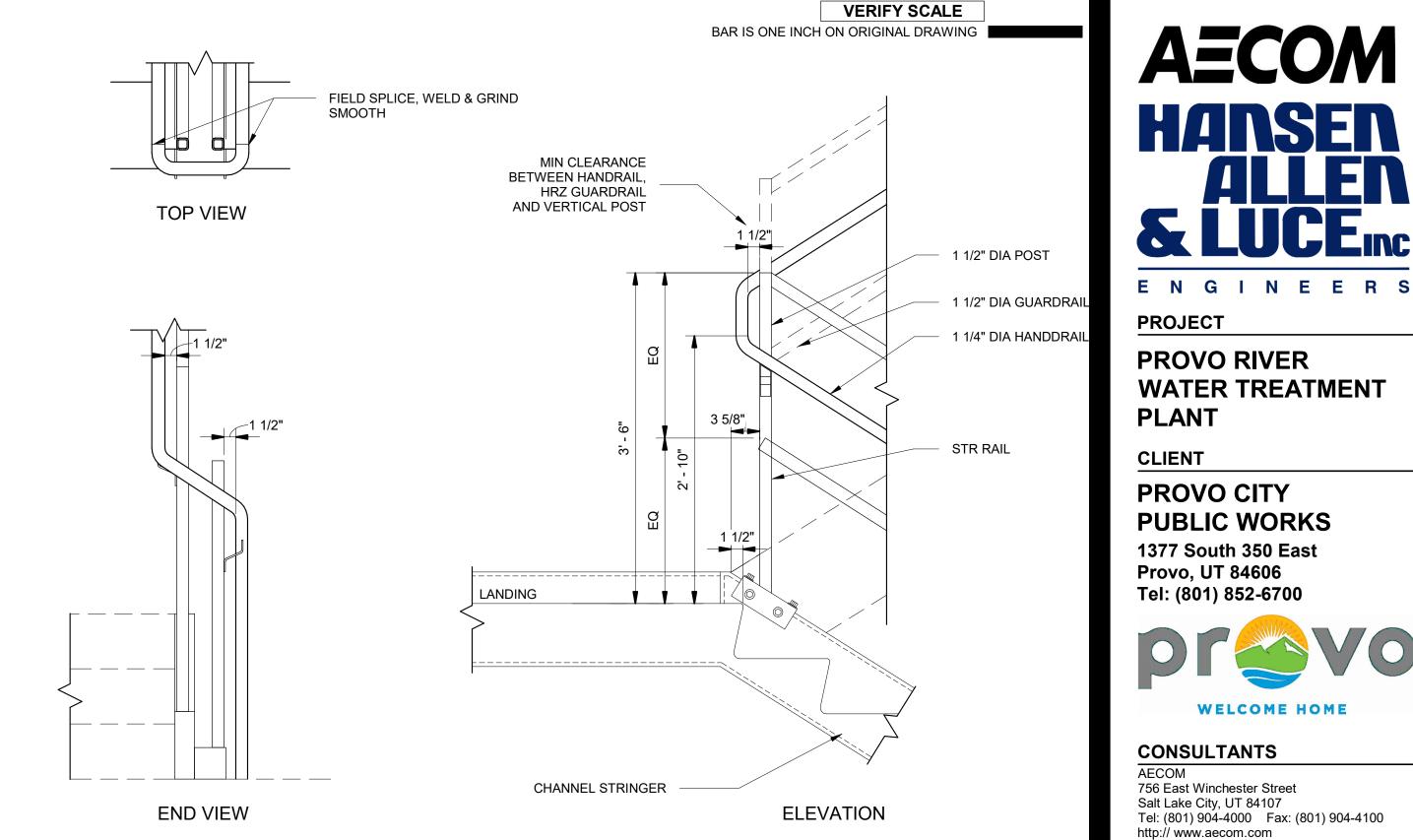
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1 1/2" DIA GUARDRAIL FIELD SPLICE, WELD & GRIND SMOOTH (FIELD TRIMMING MAY BE REQD) **TOP VIEW** HANDRAIL BRACKET EA POST 1 TREAD 1 1/4" DIA HANDRAIL -**RETURN TO** GUARDRAIL AT END A027 CONC FLOOR/LANDING METAL FLOOR/LANDING **END VIEW ELEVATION**

NOTE:

1. GUARDRAIL NOT REQUIRED WHERE EXPOSURE AT



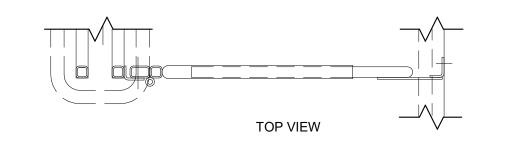


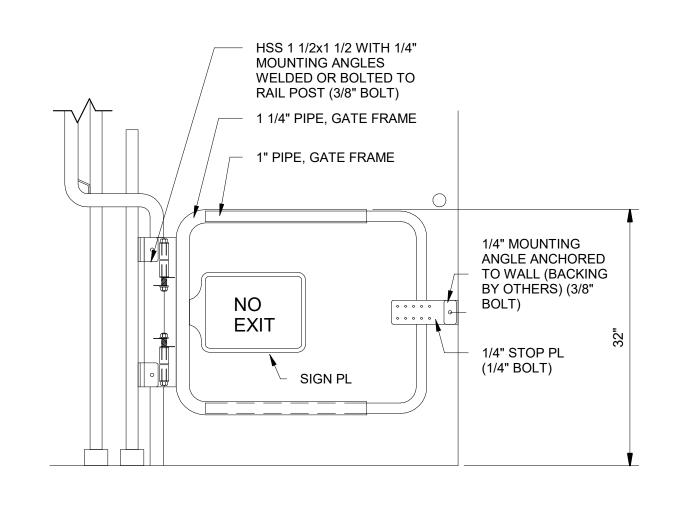
HANDRAIL @ BOTTOM OF STAIRS

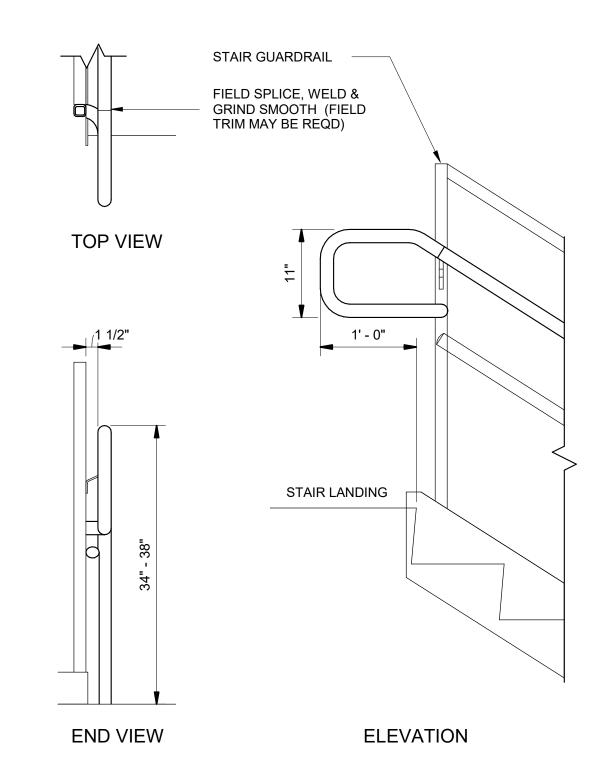
POST MOUNT SWING GATE



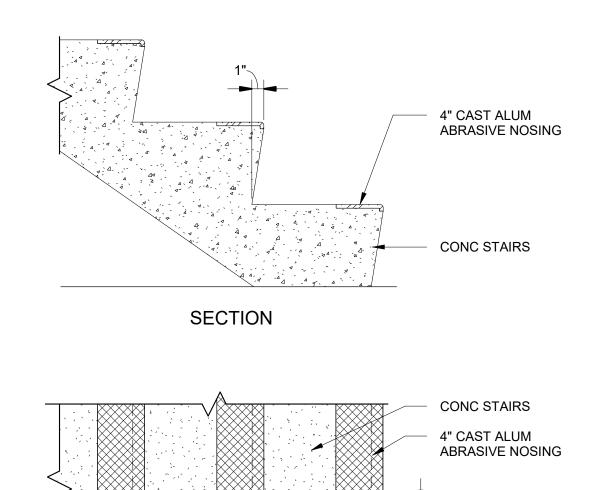














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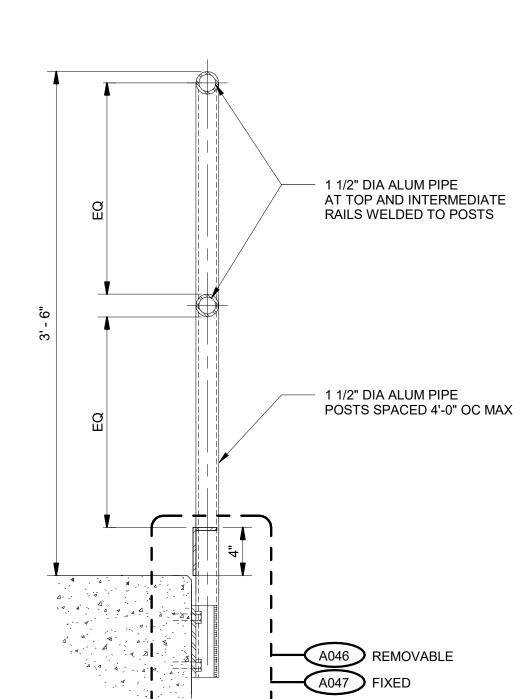
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ARCHITECTURAL TYPICAL DETAILS SHEET 6

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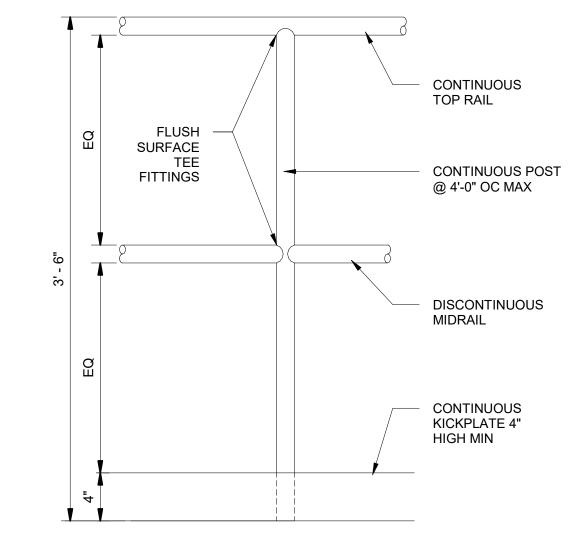
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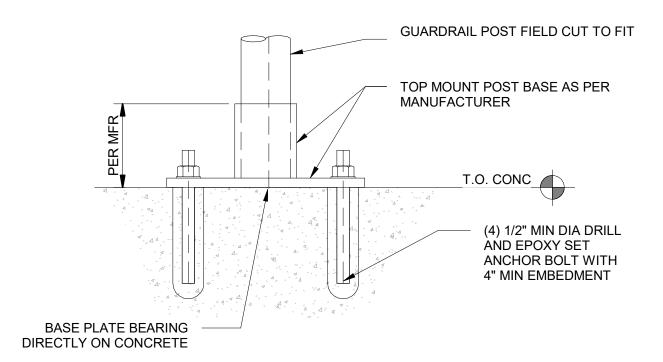
1. GUARDRAIL NOT REQUIRED WHERE EXPOSURE AT VERTICAL EDGE IS LESS THAN 30"

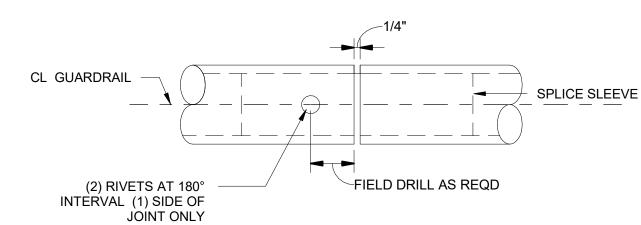


NOTE:

1. GUARDRAIL NOT REQUIRED WHERE EXPOSURE AT VERTICAL EDGE IS LESS THAN 30"







VERIFY SCALE

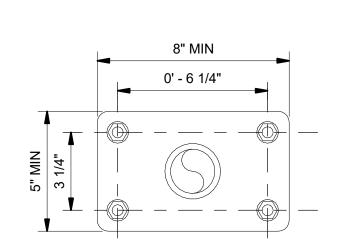
BAR IS ONE INCH ON ORIGINAL DRAWING

SIDE MOUNTED GUARDRAIL







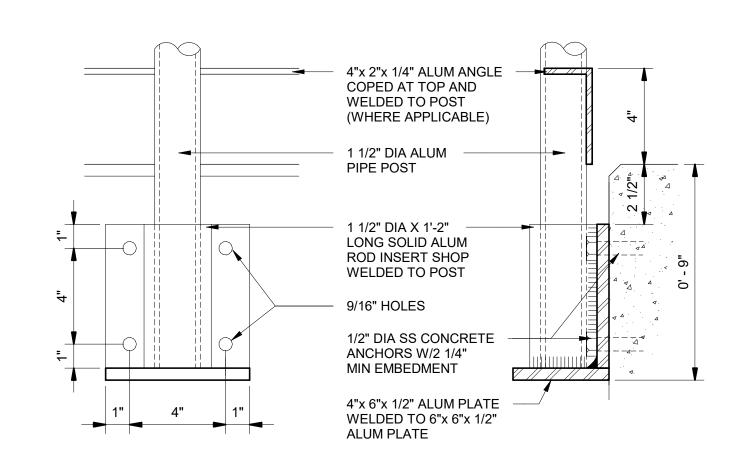


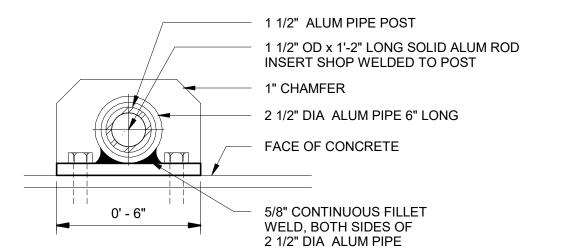
NOTES:

A045

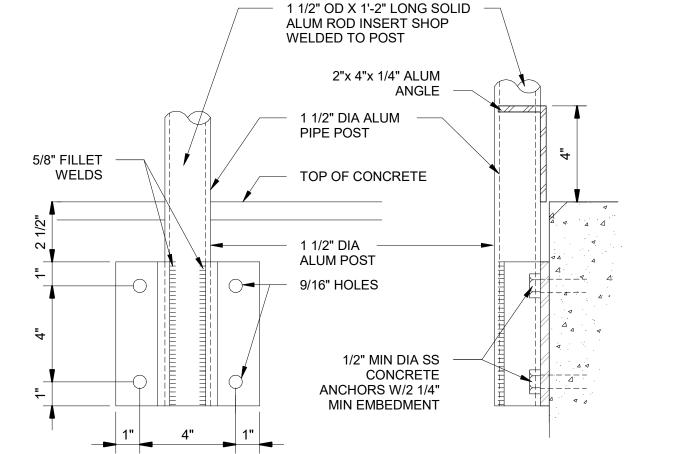
- 1. ALL GUARDRAIL, KICKPLATES, AND ACCESSORIES SHALL BE ALUM, PER SPECIFICATIONS
- 2. ALL RAILS AND POSTS MUST BE SIZED AND SPACED TO SATISFY ALL APPLICABLE CODES AND STANDARDS
- 3. COAT ALL SURFACES OF ALUM THAT CONTACT STEEL AND CONCRETE WITH GALVANIC SEPARATION PER SPECS

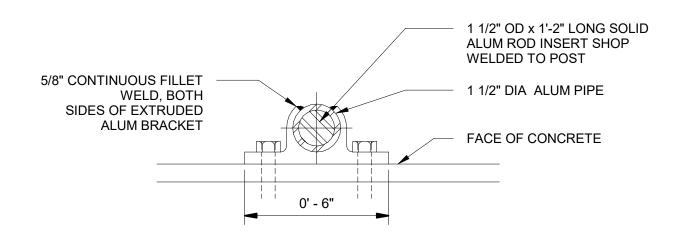
GUARDRAIL MOUNTING PLATE



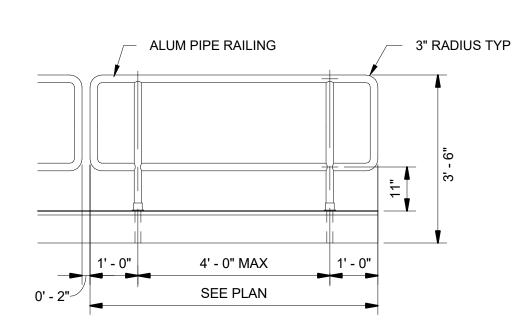












NOTE:

1. GUARDRAIL NOT REQUIRED WHERE EXPOSURE AT VERTICAL EDGE IS LESS THAN 30"

AL GUARDRAIL REMOVABLE -

ELEVATION @ CURB



PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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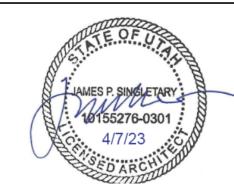
1377 South 350 East **Provo, UT 84606** Tel: (801) 852-6700



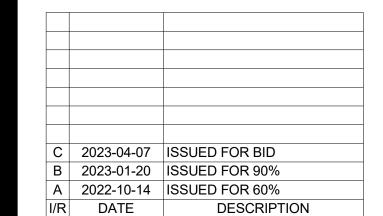
CONSULTANTS

756 East Winchester Street Salt Lake City, UT 84107 Tel: (801) 904-4000 Fax: (801) 904-4100 http:// www.aecom.com Hansen, Allen & Luce, Inc. 859 West South Jordan Pkwy, Ste 200 South Jordan, UT 84095 Tel: (801) 566-5599 http:// www.hansenallenluce.com

REGISTRATION



ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

ARCHITECTURAL TYPICAL DETAILS SHEET 7

DRAWING NUMBER

FRP PIPE RAILING

4' - 0" MAX

SEE PLAN

1. GUARDRAIL NOT REQUIRED WHERE EXPOSURE AT

FRP GUARDRAIL REMOVABLE -

VERTICAL EDGE IS LESS THAN 30"

EL @ HATCH CURB

1/2" = 1'-0"

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

ENGINEERS

PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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PROVO CITY **PUBLIC WORKS**

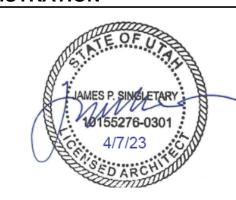
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I/R	DATE	DESCRIPTION

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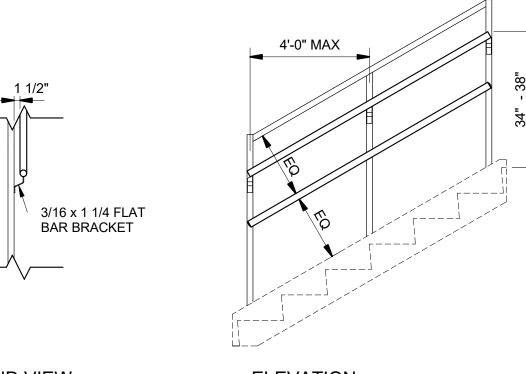
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

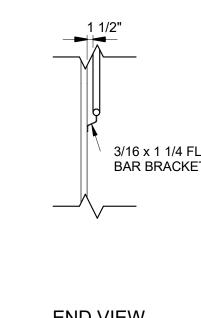
SHEET TITLE

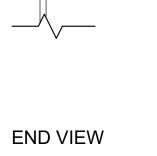
ARCHITECTURAL TYPICAL DETAILS SHEET 8

DRAWING NUMBER

99-A708











GRATING

STL BEAM OR CHANNEL

1 1/2" DIA ———— ALUM PIPE RAILS WELDED TO POSTS

5/8" GALV STEEL MACHINE BOLTS

BRACKET W/ SET

ALUM MOUNTING BRACKET W/ SET

SCREWS BOLTED TO CHANNEL

GALV STL PLATE WELDED TO

NOTE: GUARDRAIL NOT REQUIRED WHERE EXPOSURE AT VERTICAL EDGE IS LESS THAN 30"

STRUCTURAL MEMBER

TO PLATE

SCREWS BOLTED

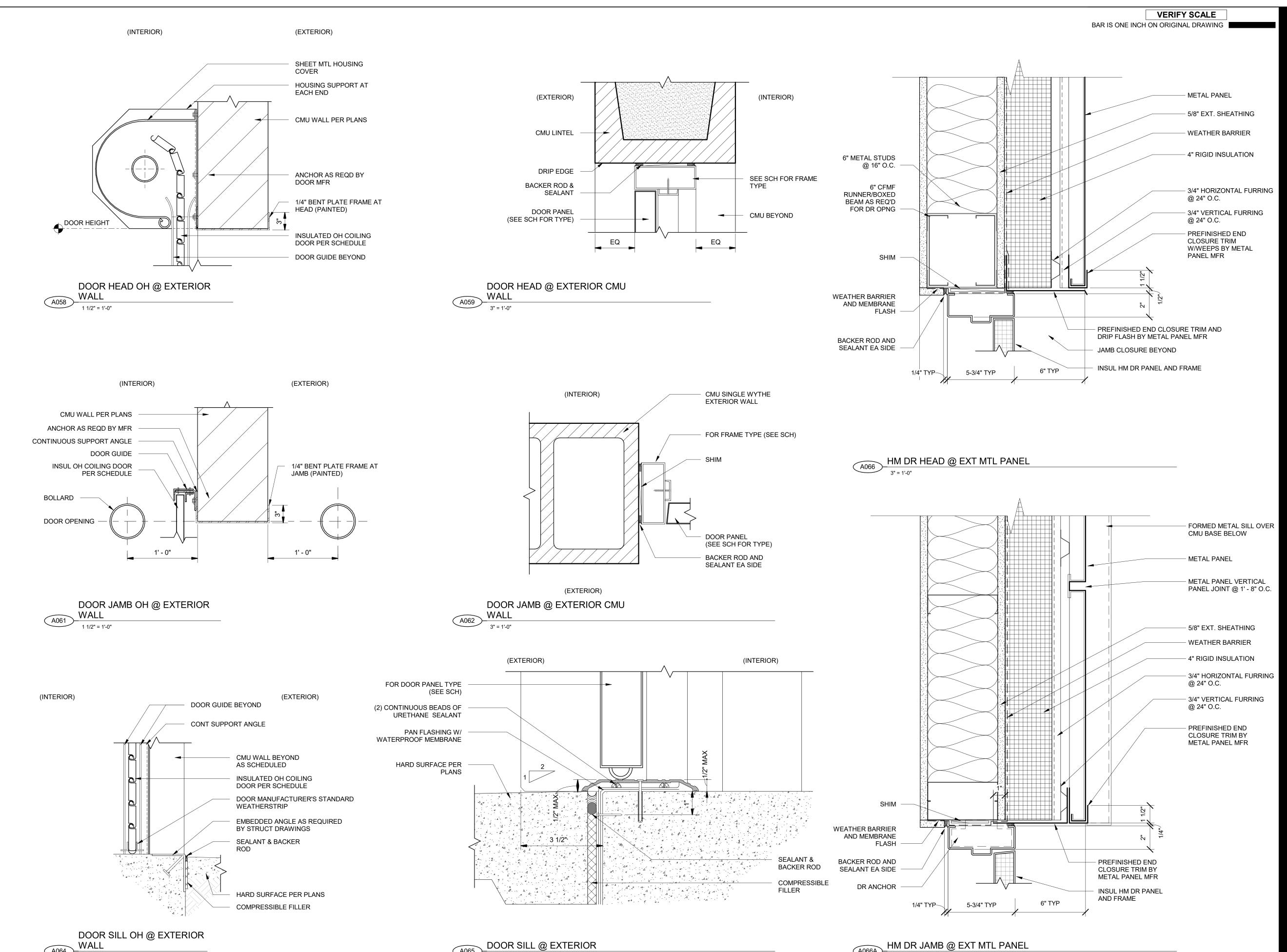
4"x 2"x 1/4" ALUM

ANGLE COPED AT TOP

AND WELDED TO POST

GRATING

CHANNEL



ENGINEERS

PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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PROVO CITY PUBLIC WORKS

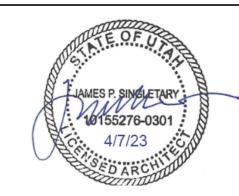
1377 South 350 East Provo, UT 84606 Tel: (801) 852-6700



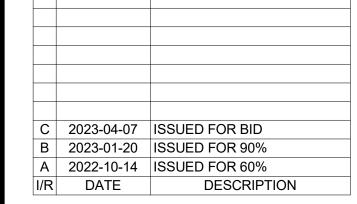
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PROJECT NUMBER

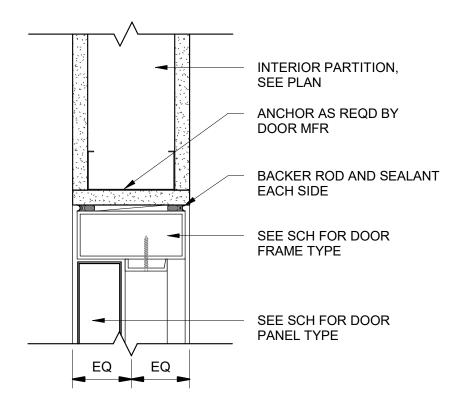
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

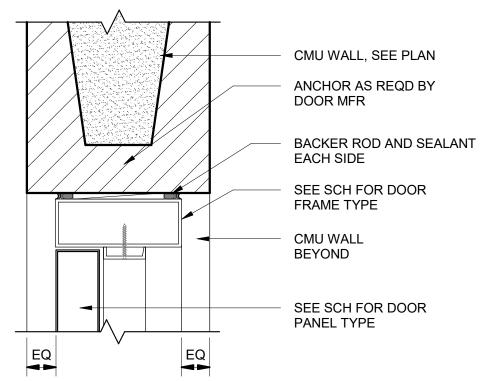
SHEET TITLE

ARCHITECTURAL TYPICAL DETAILS SHEET 9

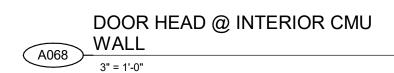
DRAWING NUMBER

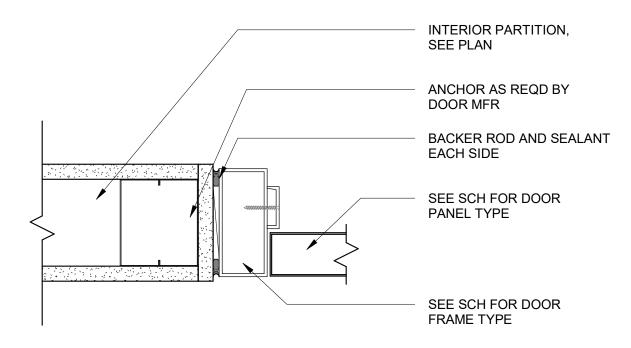
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

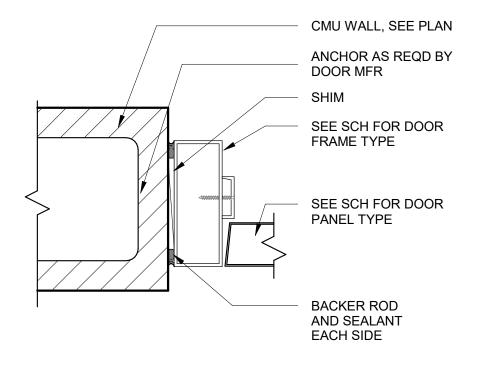




DOOR HEAD @ INTERIOR PARTITION PARTITION

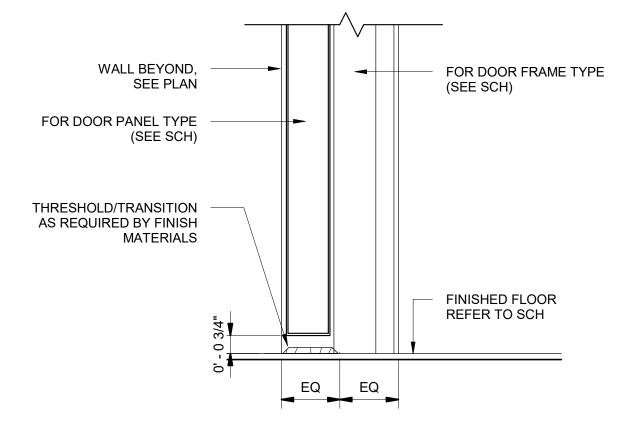


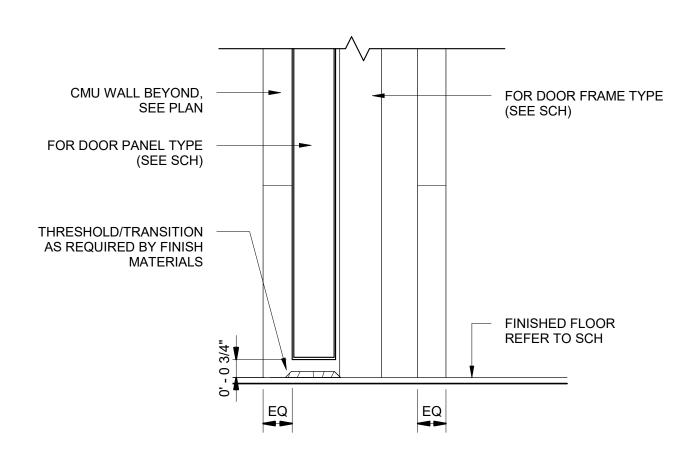




DOOR JAMB @ INTERIOR PARTITION 3" = 1'-0"













PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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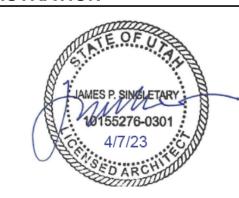
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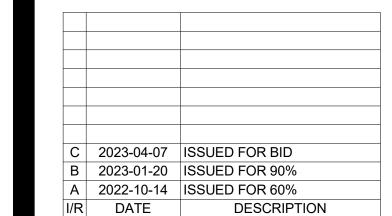
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PROJECT NUMBER

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SHEET TITLE

ARCHITECTURAL TYPICAL DETAILS SHEET 10

DRAWING NUMBER

RED: FIRE HAZARD **BLACK BORDERS** AND LINES

HOLE (TYP)

YELLOW:

SPECIFIC HAZARD

REACTIVITY

NOTES: 1. DIAMOND HAZARD MATERIALS SIGN SHALL CORRECTLY IDENTIFY THE HAZARDOUS MATERIALS CONTAINED WITHIN THE CHEMICAL STORAGE ROOMS IN ACCORDANCE WITH

ALK ALKALI: CORROSIVE: OX OXIDIZER: RADIOACTIVE:

SPECIFIC HAZARD:

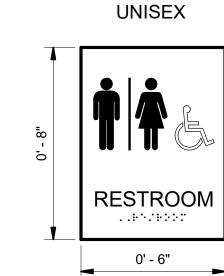
USE NO WATER:

ACID:

2.	DIAMOND SIGN SHALL BE SURFACE MOUNTED ADJACENT TO
	OR ON ALL CHEMICAL ROOM ENTRY DOORS

HAZARD TYPES AND LEVELS:

NO.	BLUE: HEALTH HAZARD	RED: FIRE HAZARD	YELLOW: REACTIVITY
0	NORMAL MATERIAL	WILL NOT BURN	STABLE
1	SLIGHTLY HAZARDOUS	ABOVE 200° F	UNSTABLE IF HEATED
2	HAZARDOUS	ABOVE 100° F NOT EXCEEDING 200° F	VIOLENT CHEMICAL CHANGE
3	EXTREME DANGER	BELOW 100° F	SHOCK AND HEAT MAY DETONATE
4	DEADLY	BELOW 73°F	MAY DETONATE



MOUNTED ON DOOR

RESTROOM SIGNAGE (S2)

NFPA MATERIAL HAZARD IDENTIFICATION SIGN (S1)

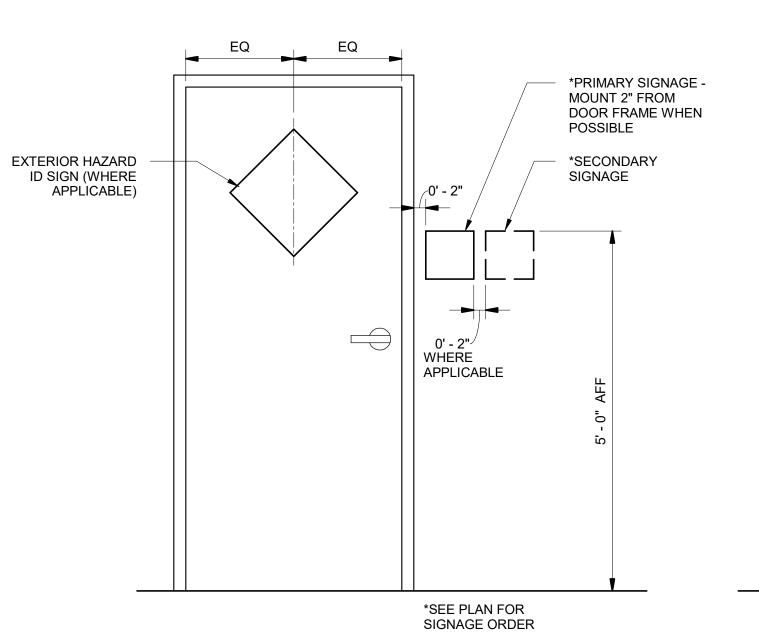
BLUE:

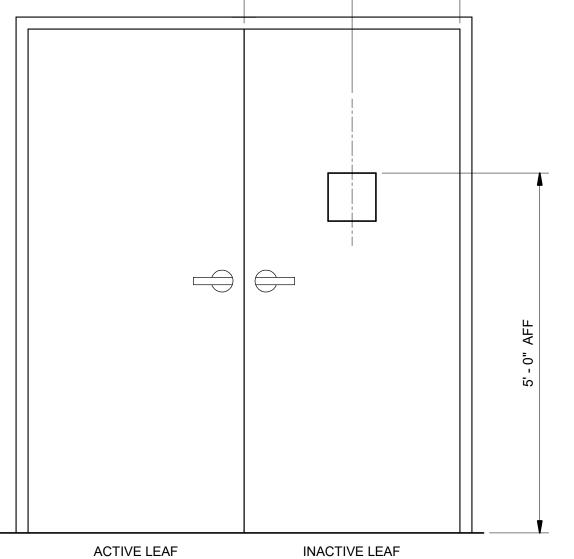
HEALTH HAZARD

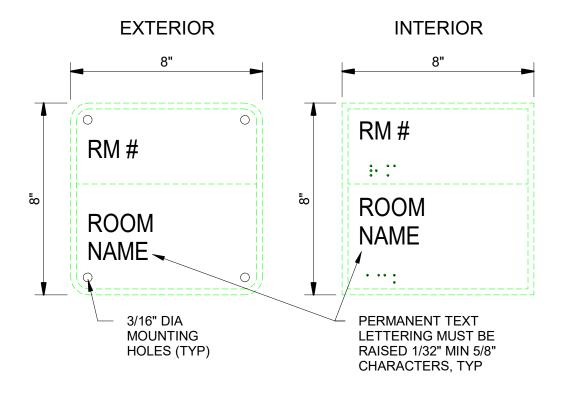
6" HIGH BLACK

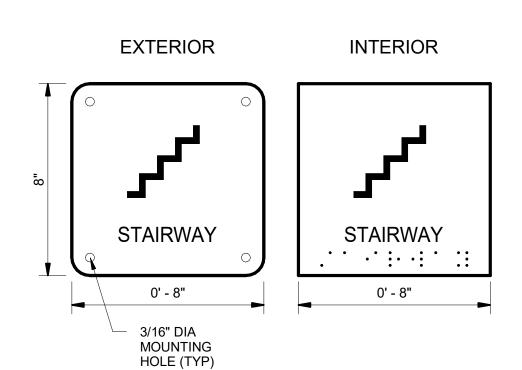
NUMBERS (TYP)

BLACK LETTERS









SIGNAGE MOUNTING DIAGRAM 3/4" = 1'-0"





ENGINEERS

PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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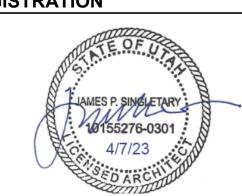
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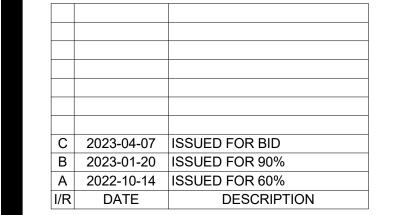
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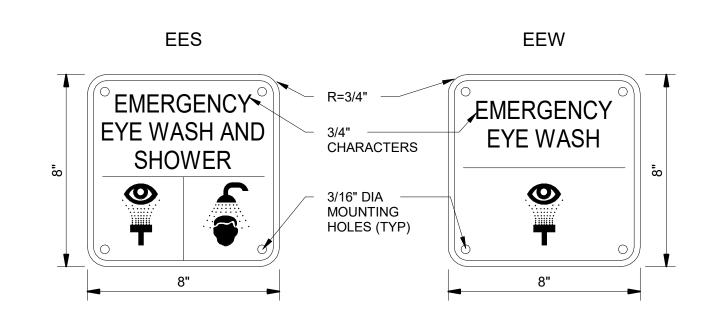
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

ARCHITECTURAL TYPICAL DETAILS SHEET 11

DRAWING NUMBER

99-A711



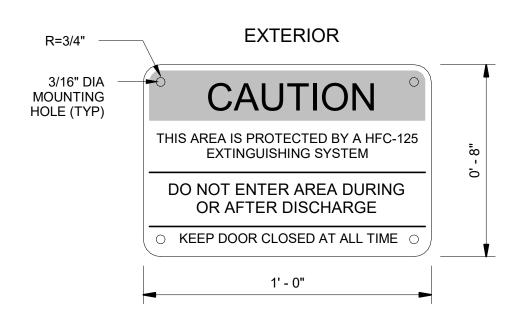
1. FASTEN SIGN ADJACENT TO EMERGENCY SHOWER AND

R=3/4" 3/16" DIA MOUNTING HOLE (TYP) 6" CHARACTERS 1' - 6"

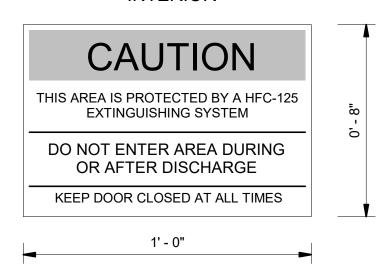
EYE WASH STATIONS AT 5'-0" AFF

EMERGENCY EYE WASH & SHOWER SIGNS (S5)

EXTERIOR - FIRE DEPARTMENT CONNECTION (S6)

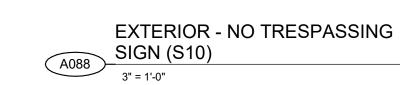


INTERIOR

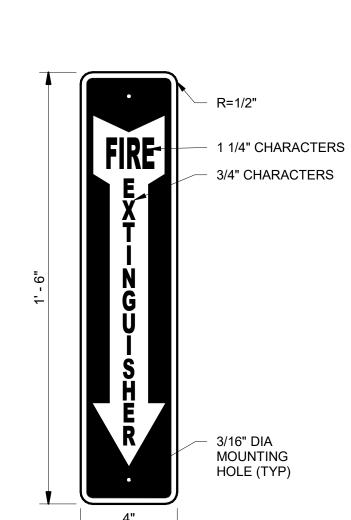


HATCH TO REMAIN CLOSED (S8)

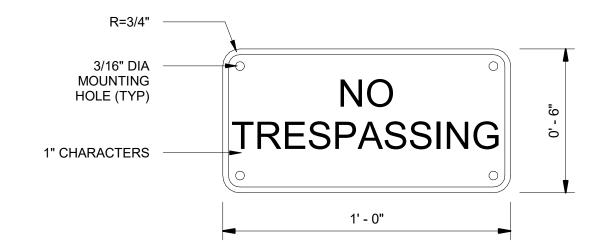




EXTERIOR - NON POTABLE (S9)



FIRE EXTINGUISHER SIGN (S7)



ENGINEERS **PROJECT**

PROVO RIVER WATER TREATMENT

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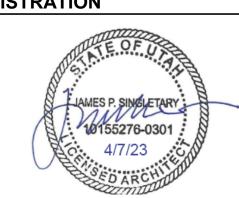
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AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

ARCHITECTURAL TYPICAL DETAILS SHEET 12

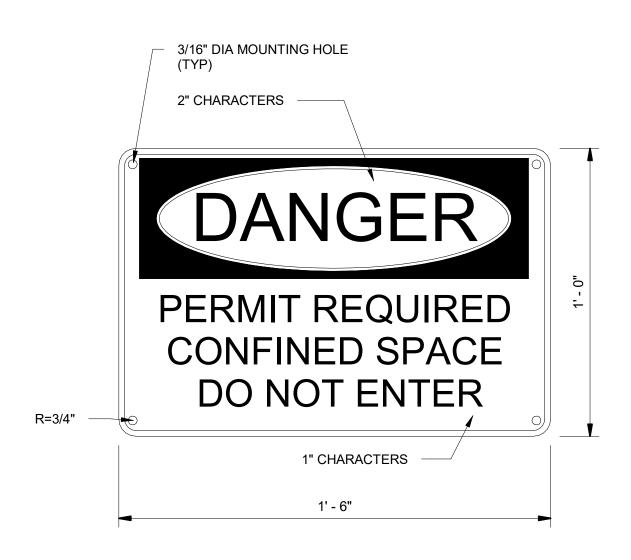
DRAWING NUMBER

99-A712

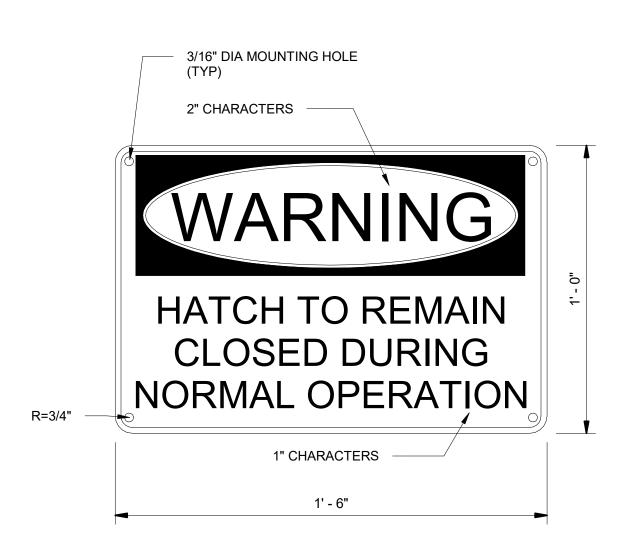


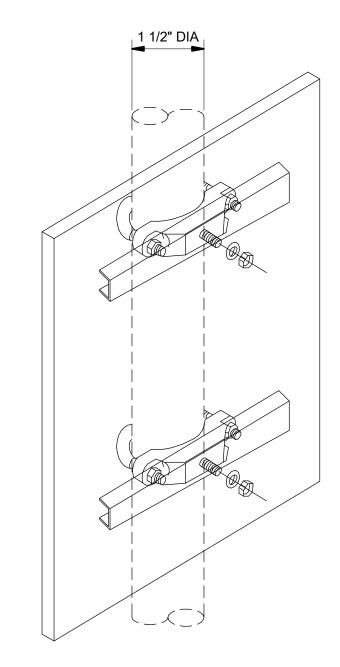
EXTERIOR - NO SMOKING OR

VAPING SIGN (S11)



CONFINED SPACE SIGN (S12)

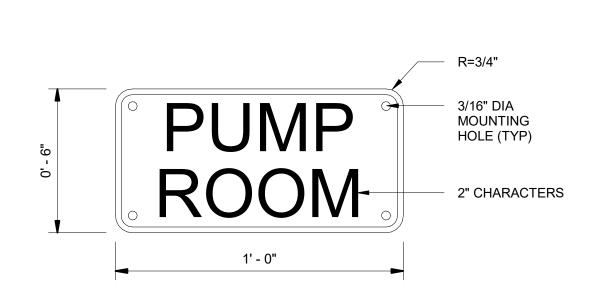


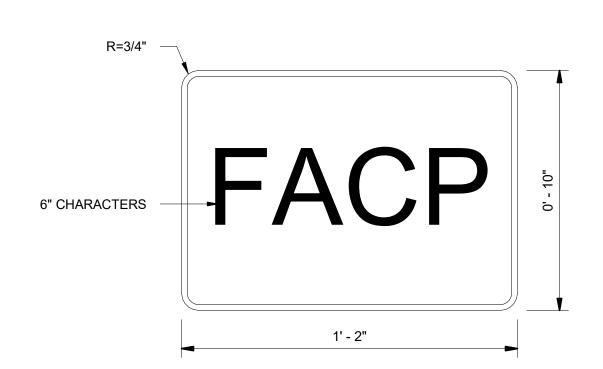


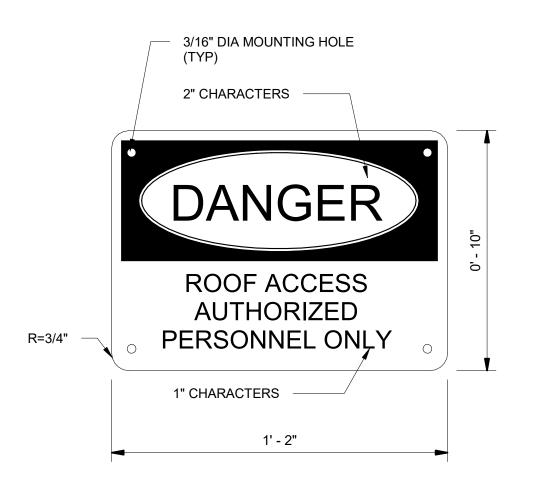


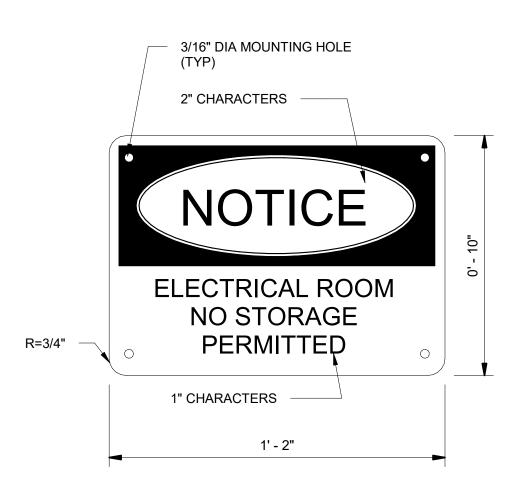






















PROJECT

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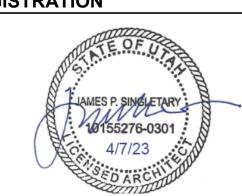
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SHEET TITLE

ARCHITECTURAL TYPICAL DETAILS SHEET 13

DRAWING NUMBER

99-A713

PROCESS TYPICAL DETAIL INDEX

99-D701

D001 CLEVIS HANGER - PH-01

D002 TRAPEZE HANGER - PH-02

D003 PIPE BAND HANGER - PH-03

D004 RISER CLAMP - PH-04

D005 WALL BRACKET HANGER - PH-05

D006 U-BOLT PIPE HANGER - PH-06

D007 PIPE HANGER FOR INDIVIDUAL PIPES - PH-07

D008 BEAM HANGER CLAMP STYLES

99-D702

D009 WALL PIPE SUPPORT BRACKET - PS-01
D010 ADJUSTABLE STANCHION SUPPORT - PS-02
D011 ADJUSTABLE STANCHION SUPPORT WITH SADDLE - PS-03

D012 CONCRETE PIPE SUPPORT PS-04
D013 CONCRETE PIPE SUPPORT PS-05

D014 PIPE CLAMP - PS-06
 D015 ADJUSTABLE BRIDGE SUPPORT - PS-07
 D016 FLUSH MOUNTED PIPE SUPPORT - PS-08

99-D703

D017 MECHANICAL SEAL PENETRATION - WP-01
D018 MJ x MJ PENETRATION - WP-02
D019 FL/MJ/PE WALL PIPE - WP-03
D020 FLOOR SLEEVE PENETRATION - WP-04

D021 EXPOSED PIPE PENETRATION - WP-05
D022 ELASTOMER BOOT PENETRATION - WP-06
D023 PE x FL FLOOR PENETRATION - WP-07

D024 INSTRUMENT TAPS ON DUCTILE IRON PIPE
D025 INSTRUMENT TAPS ON STAINLESS STEEL
D026 INSTRUMENT TAPS ON PVC AND CPVC

D026 INSTRUMENT TAPS ON PVC AND CPVC
D027 TYPICAL VENT
D028 COMPRESSED AIR COUPLER

D029 SAMPLE TAP D030 AIR RELEASE VALVE

99-D70

D031 CHEMICAL DANGER SIGNS
D032 CHEMICAL FILL SIGNS

D033 PORTABLE CHEMICAL PUMP
D034 CHEMICAL FILL PIPE
D035 CHEMICAL VENT
D036 INTERIOR WALL CHEMICAL PIPE PENETRATION

D037 CHEMICAL INJECTION QUILL

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING



DDO IECT

PROJECT

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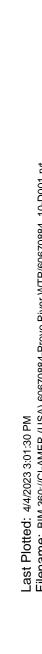
PROJECT NUMBER

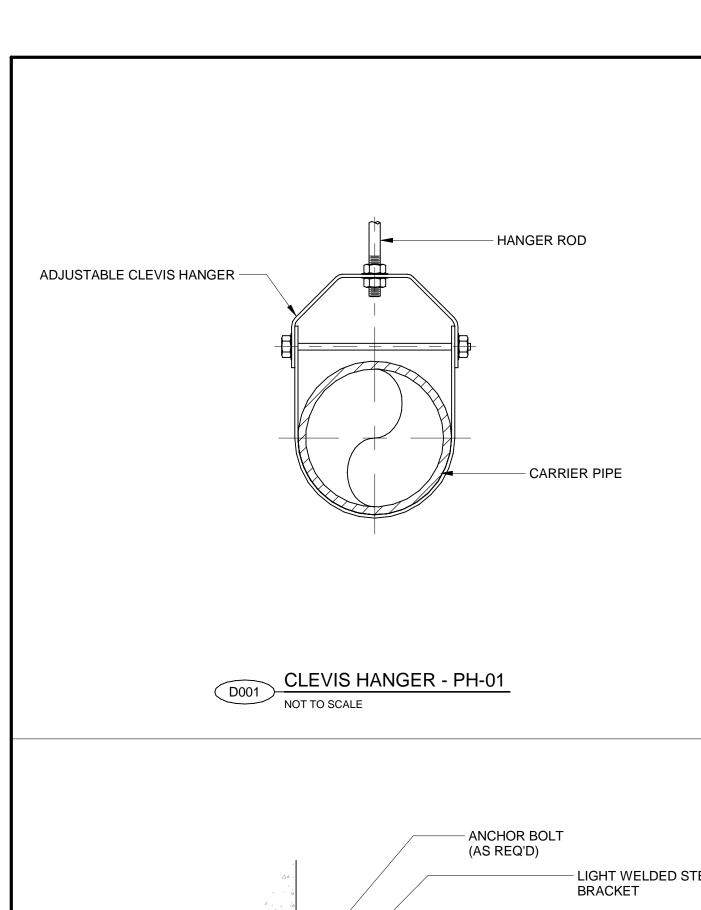
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

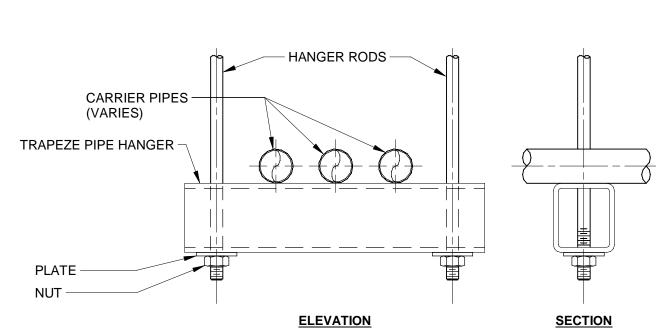
SHEET TITLE

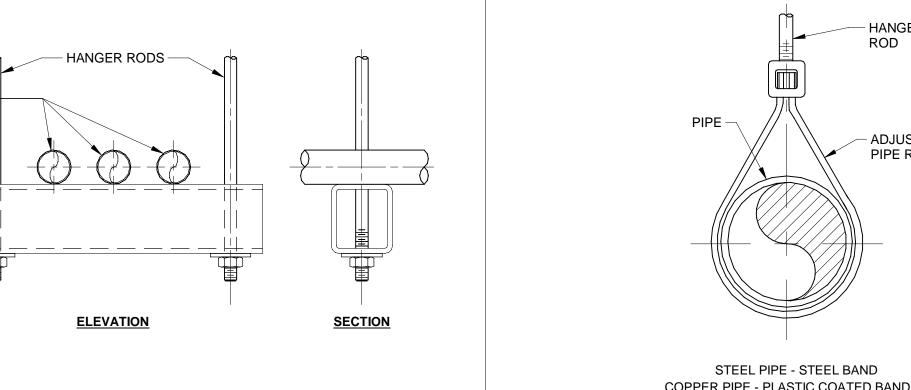
PROCESS MECHANICAL TYPICAL DETAILS INDEX

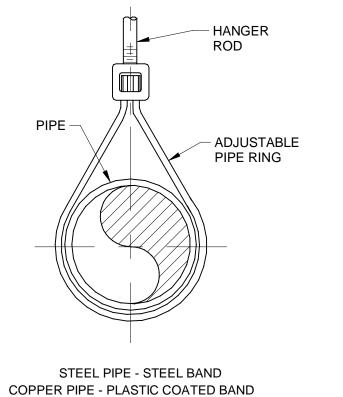
DRAWING NUMBER

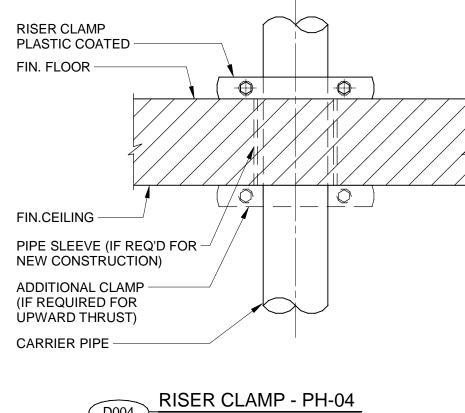












FLOOR OPENING FOR

BOLT W/WASHER AND

CARRIER PIPE

CLAMP -

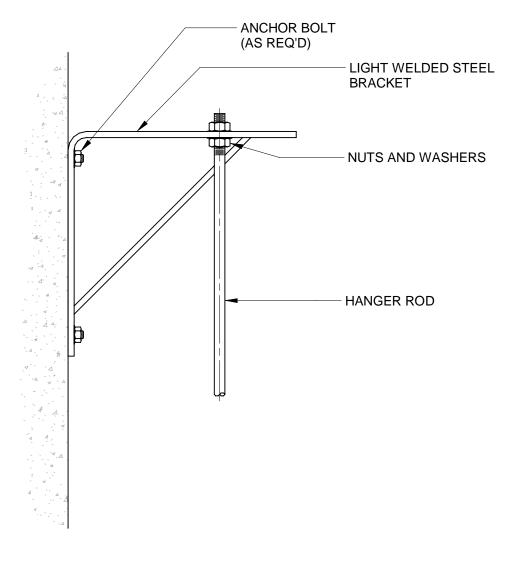
NUT (TYP)

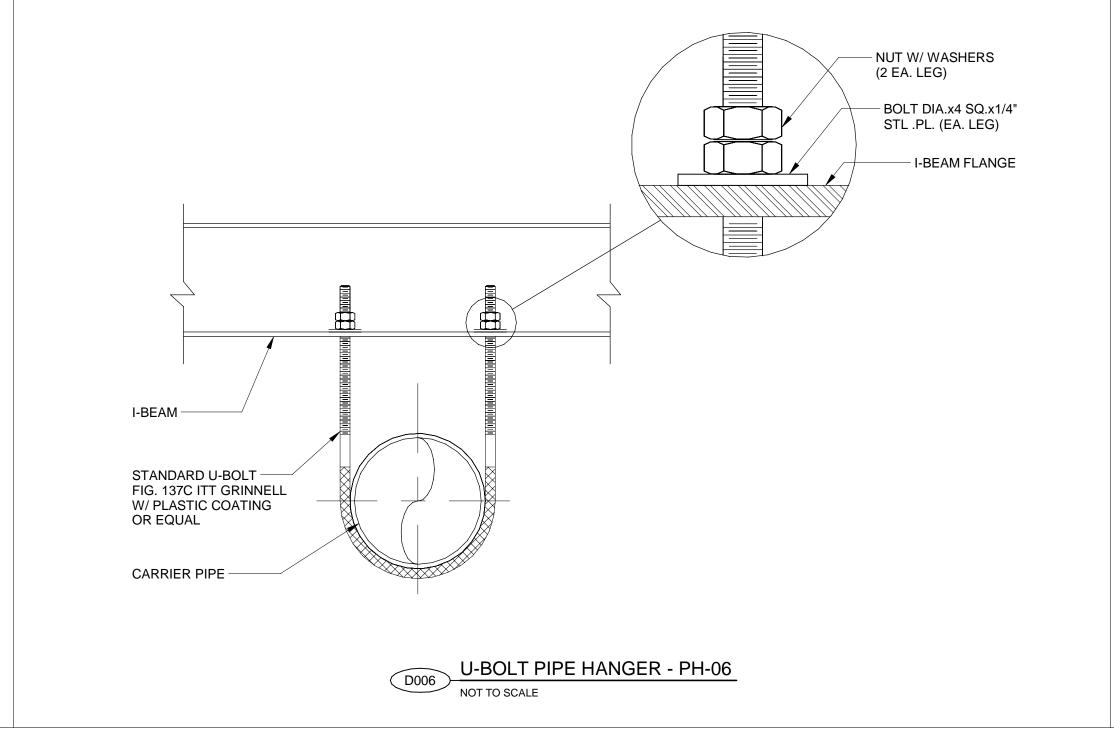
VERIFY SCALE

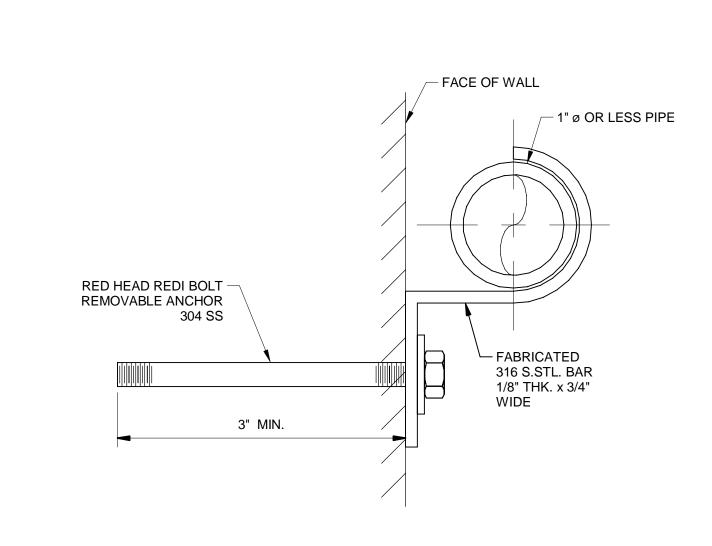
BAR IS ONE INCH ON ORIGINAL DRAWING

TRAPEZE HANGER - PH-02

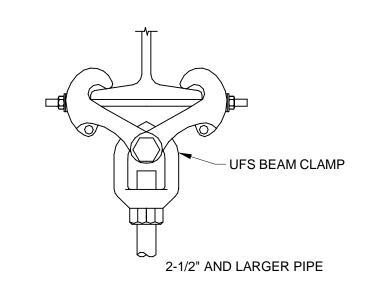
PIPE BAND HANGER - PH-03



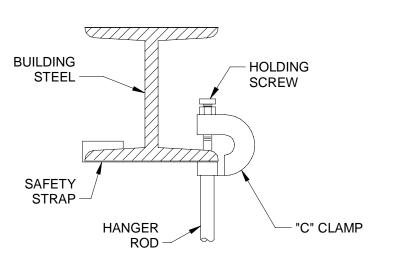


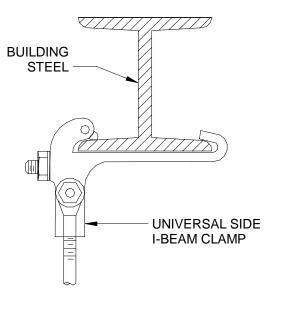


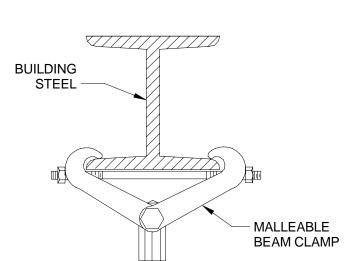
PIPE HANGER FOR INDIVIDUAL PIPES - PH-07



WALL BRACKET HANGER - PH-05







UFS BEAM CLAMP FOR PIPES 4" AND SMALLER FOR PIPE DIAMETERS 2" AND SMALLER

FOR PIPE DIAMETERS 2-1/2" AND LARGER





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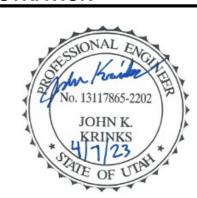
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CONSULTANTS

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	Α	2022-10-24	ISSUED FOR 60%
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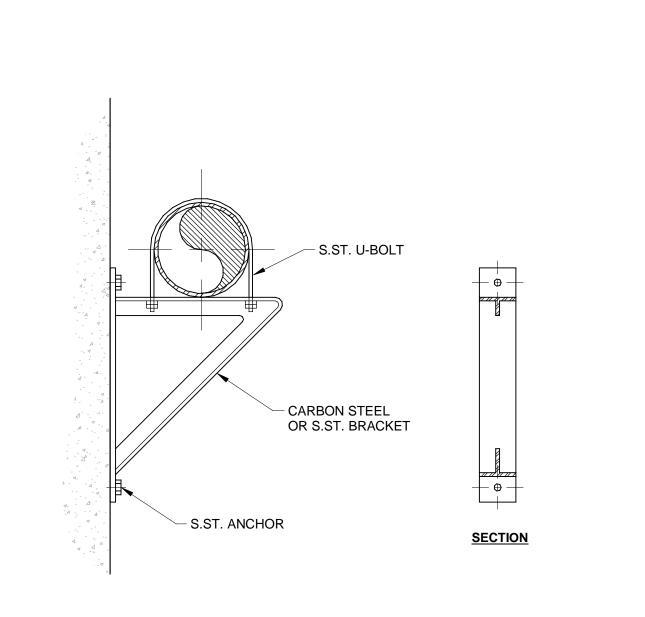
PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

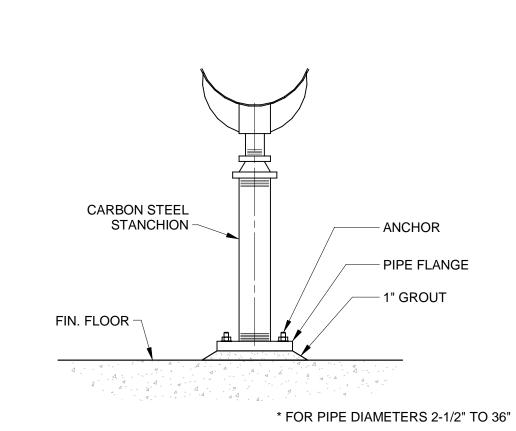
SHEET TITLE

PROCESS MECHANICAL TYPICAL DETAILS SHEET 1

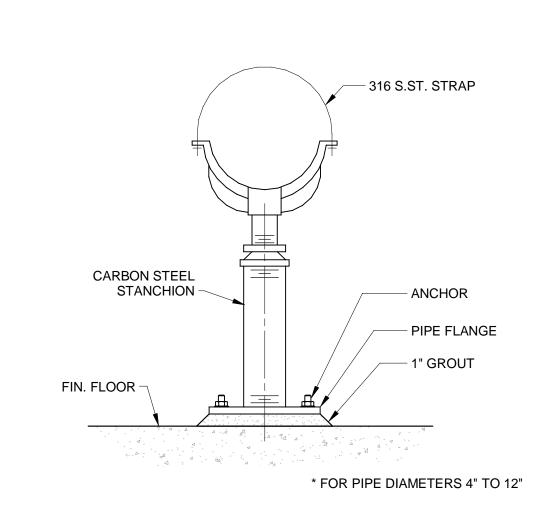
DRAWING NUMBER



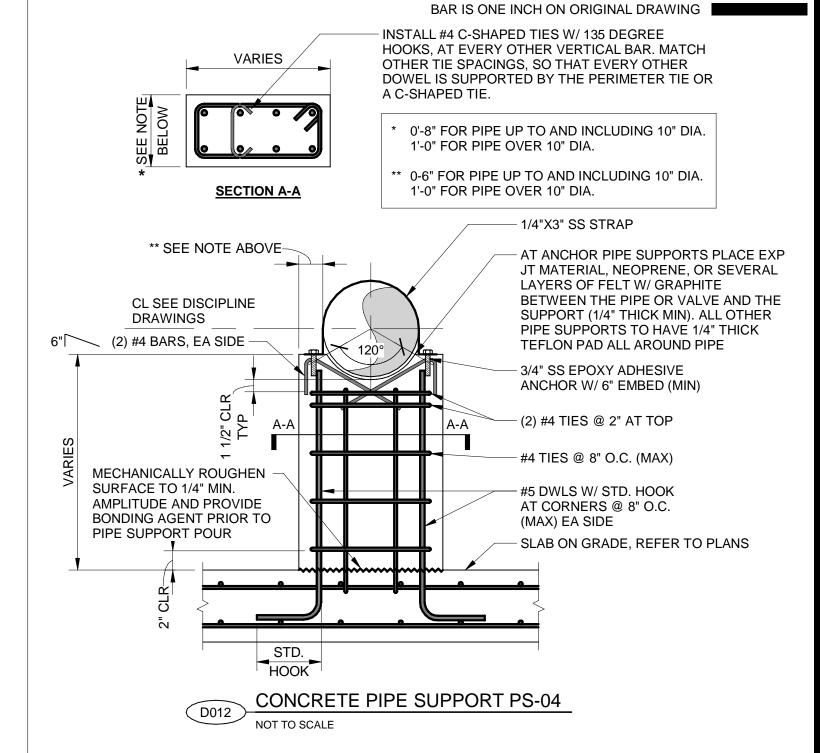
WALL PIPE SUPPORT BRACKET -PS-01 (D009) NOT TO SCALE



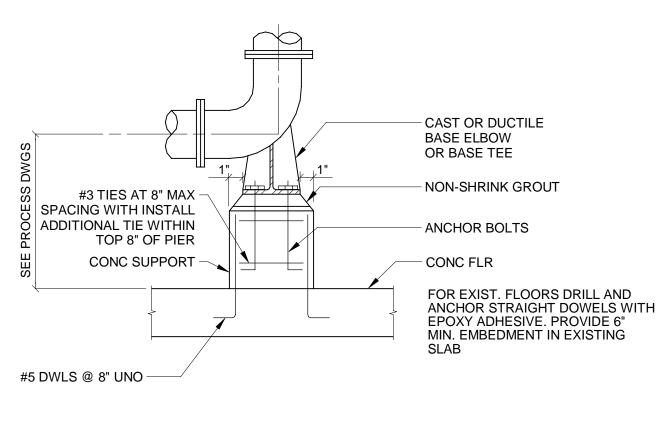
ADJUSTABLE STANCHION SUPPORT - PS-02 NOT TO SCALE

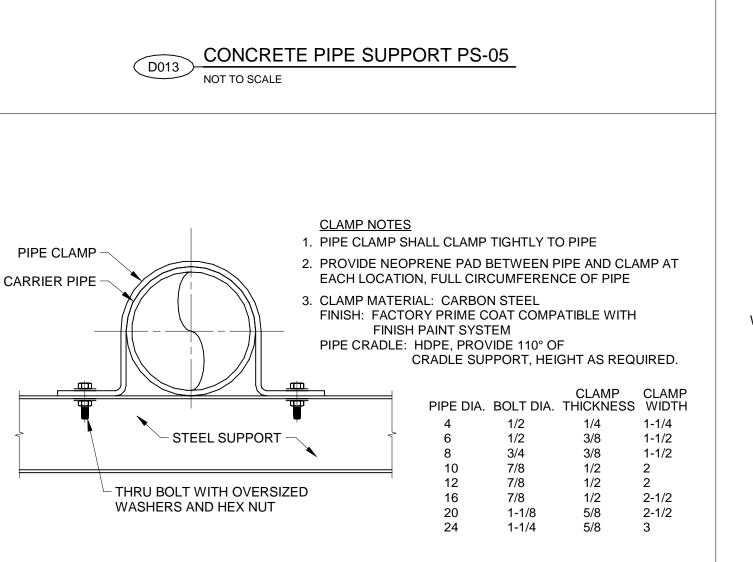


ADJUSTABLE STANCHION **SUPPORT WITH SADDLE - PS-03**



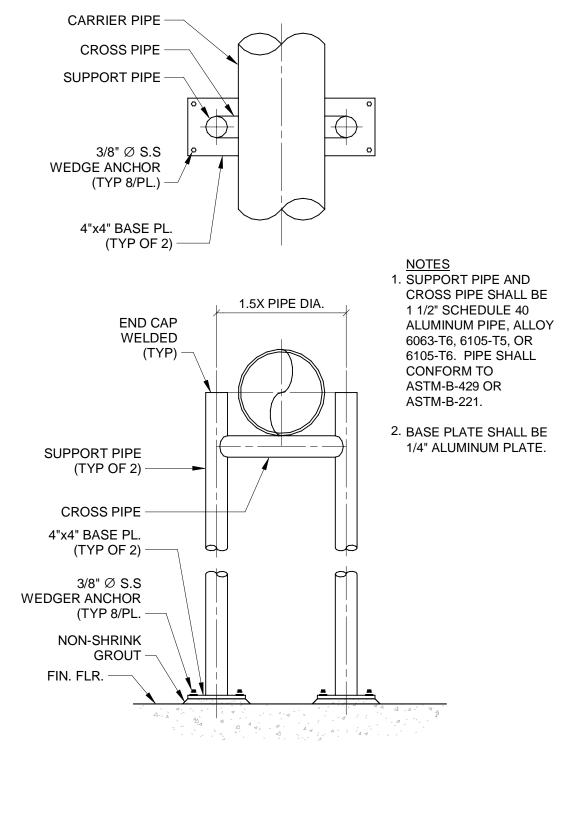
VERIFY SCALE





PIPE CLAMP - PS-06

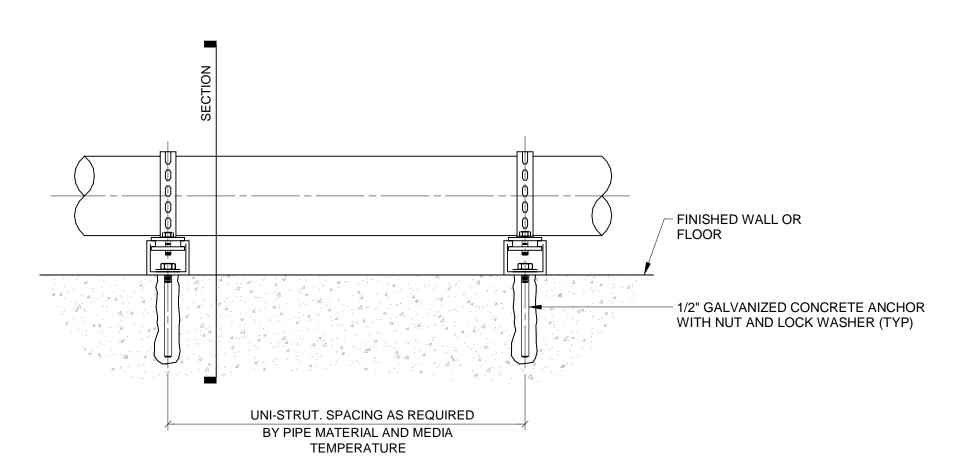
NOT TO SCALE



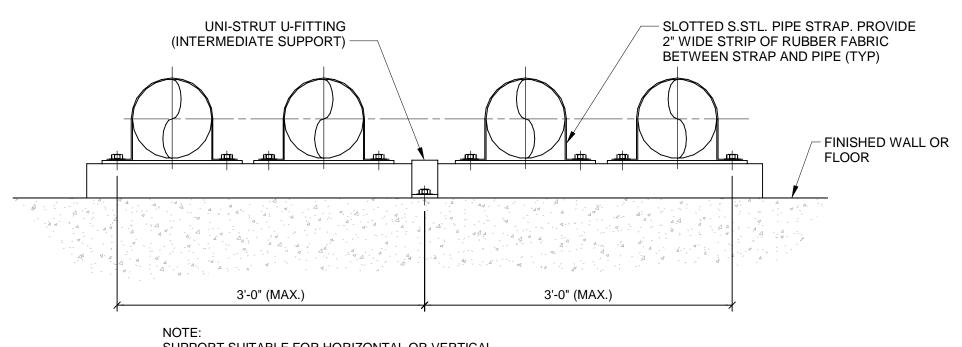
ADJUSTABLE BRIDGE SUPPORT -

PS-07

NOT TO SCALE



SIDE VIEW



SUPPORT SUITABLE FOR HORIZONTAL OR VERTICAL INSTALLATIONS.

SECTIONAL VIEW

FLUSH MOUNTED PIPE SUPPORT -NOT TO SCALE





PROJECT

PROVO RIVER WATER TREATMENT PLANT

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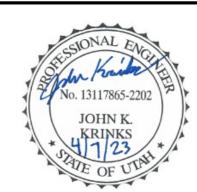


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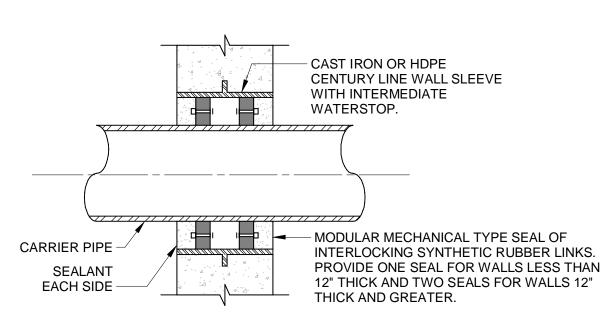
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SHEET TITLE

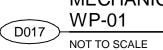
PROCESS MECHANICAL TYPICAL DETAILS SHEET 2

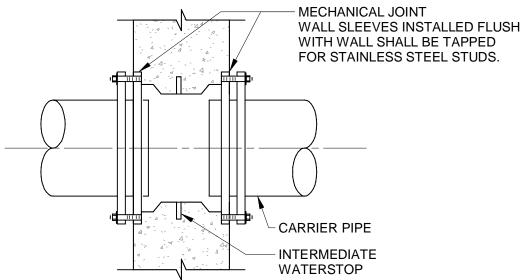
DRAWING NUMBER



- 1. CORE DRILL OPENING PER SEAL MANUFACTURER REQUIREMENTS FOR EXISTING WALLS.
- 2. INSIDE DIAMETER OF SLEEVE ACCORDING TO SEAL MANUFACTURER REQUIREMENTS. DEPENDING UPON CARRIER PIPE OUTSIDE DIAMETER.
- 3. INTERMEDIATE WATERSTOP TO BE CENTERED WITHIN WALL UNLESS NOTED OTHERWISE.

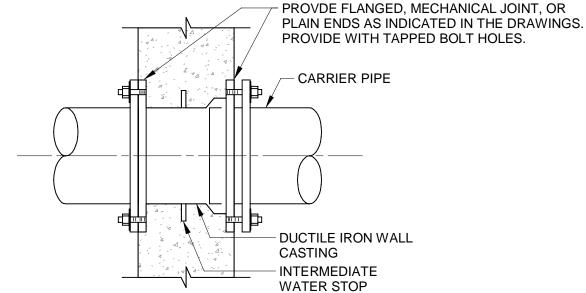
MECHANICAL SEAL PENETRATION -





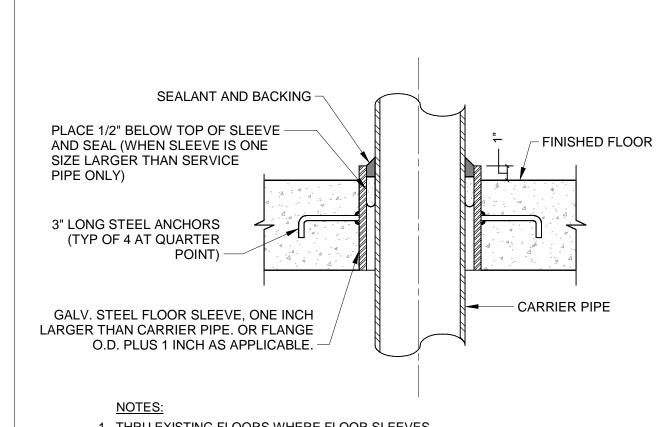
- 1. PROVIDE TEMPORARY PLUGS FOR TAPPED BOLT HOLES TO PREVENT CONCRETE FILLING IN FLUSH CONSTRUCTION.
- 2. INTERMEDIATE WATERSTOP TO BE CENTERED WITHIN WALL UNLESS NOTED OTHERWISE.
- 3. CAST IRON OR DUCTILE IRON WALL PIPES SHALL BE USED FOR 4 INCH DIAMETER AND LARGER PIPING.
 UNLESS NOTED OTHERWISE.





- 1. PROVIDE TEMPORARY PLUGS FOR TAPPED BOLT HOLES
- TO PREVENT CONCRETE FILLING IN FLUSH CONSTRUCTION. 2. INTERMEDIATE WATERSTOP TO BE CENTERED WITHIN WALL
- UNLESS NOTED OTHERWISE.
- 3. CAST IRON OR DUCTILE IRON WALL PIPES SHALL BE USED FOR 4 INCH DIAMETER AND LARGER PIPING. UNLESS NOTED OTHERWISE.





VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

1. THRU EXISTING FLOORS WHERE FLOOR SLEEVES ARE CALLED OUT. THE CONTRACTOR SHALL CORE FLOOR AND SEAL AS SHOWN. ELIMINATING

FLOOR SLEEVE PENETRATION -





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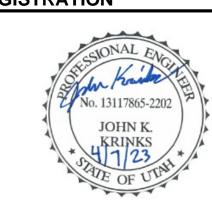
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WATER TREATMENT

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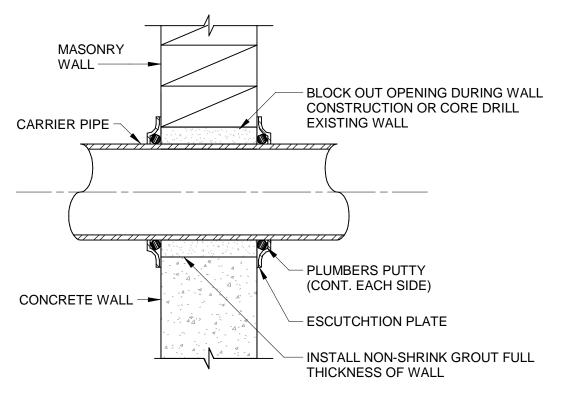
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

PROCESS MECHANICAL TYPICAL DETAILS SHEET 3

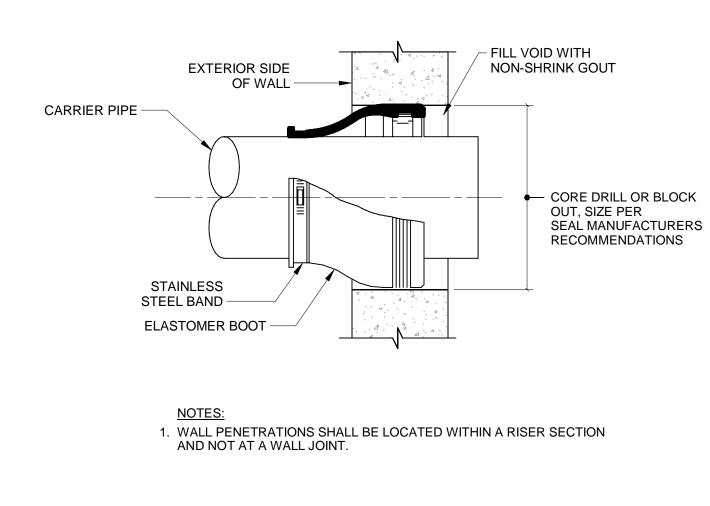
DRAWING NUMBER

99-D703

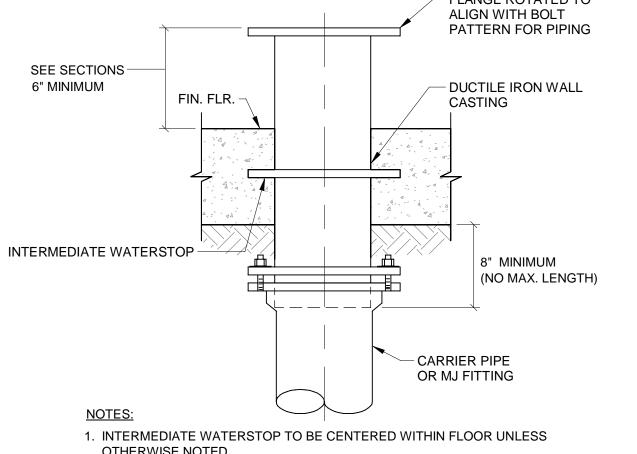


NOTES: 1. ESCUTCHTION PLATE REQUIRED ON PIPING EXPOSED ON THE FINISHED WORK EACH SIDE.

WP-05



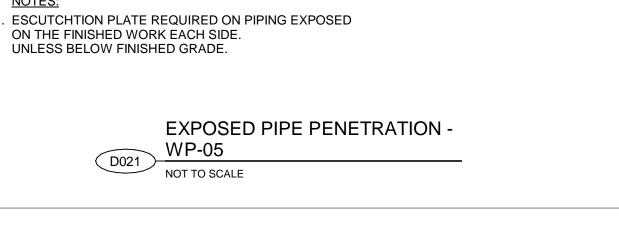
ELASTOMER BOOT PENETRATION -WP-06 NOT TO SCALE



OTHERWISE NOTED.

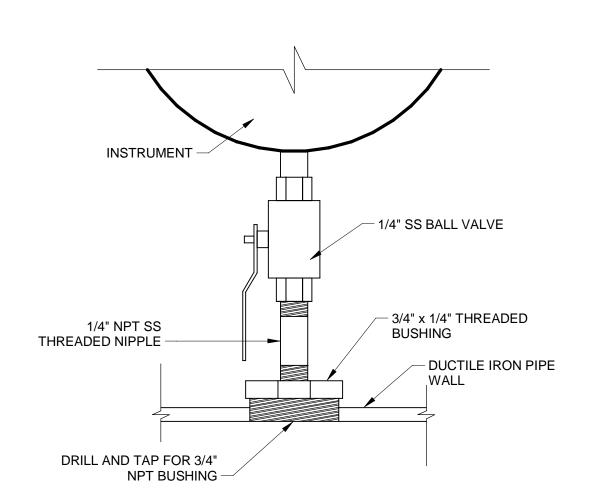
2. CAST IRON OR DUCTILE IRON WALL PIPES SHALL BE USED FOR 4 INCH DIAMETER AND LARGER PIPING, UNLESS OTHERWISE NOTED.

PE x FL FLOOR PENETRATION -



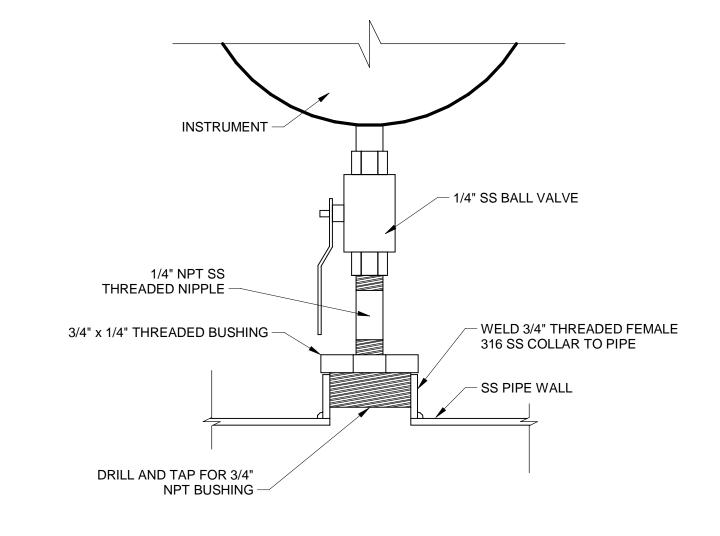






- 1. BALL VALVE ASSOCIATED WITH GAUGE INSTALLATION NOT LISTED IN VALVE SCHEDULE.
- 2. PROVIDE A DIAPHRAGM BETWEEN VALVE AND INSTRUMENT IF INDICATED IN THE SCHEDULE

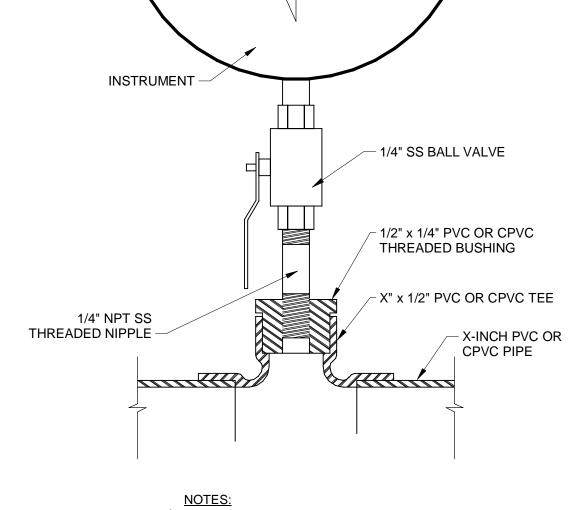
INSTRUMENT TAPS ON DUCTILE IRON PIPE



- 1. BALL VALVE ASSOCIATED WITH GAUGE INSTALLATION NOT LISTED IN VALVE SCHEDULE.
- 2. PROVIDE A DIAPHRAGM BETWEEN VALVE AND INSTRUMENT IF INDICATED IN THE SCHEDULE

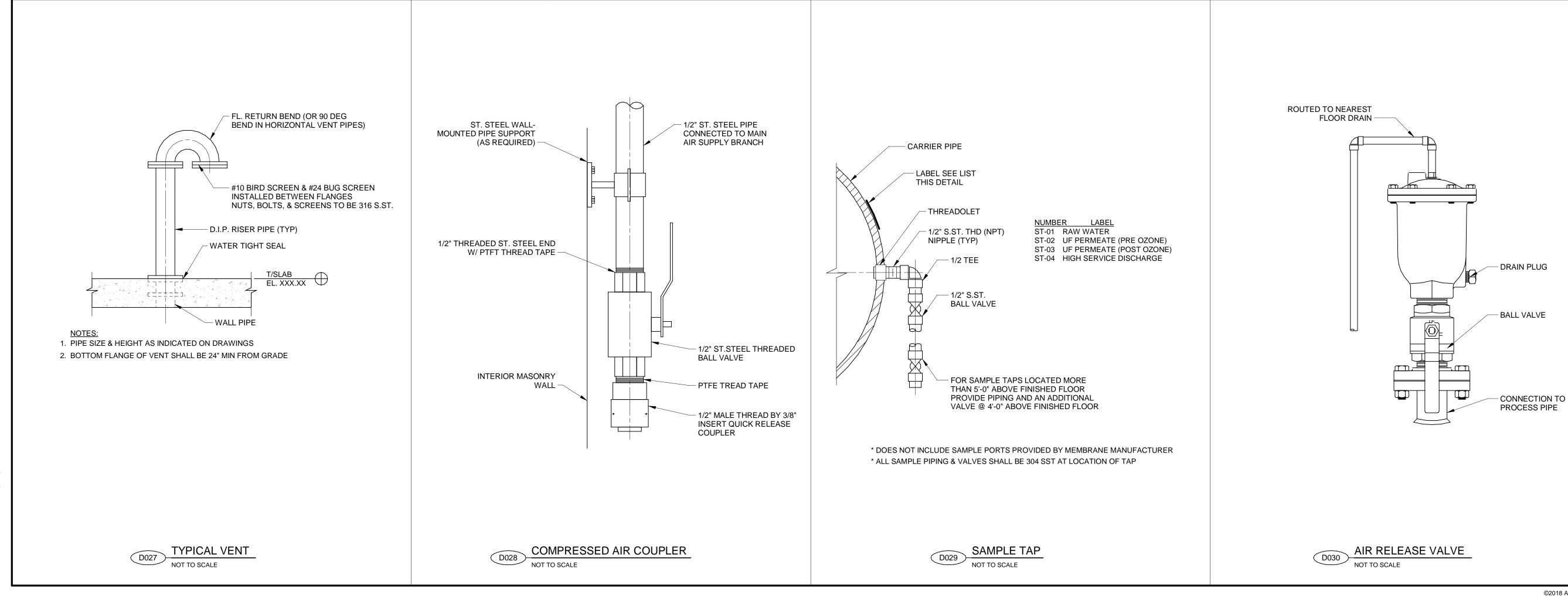
INSTRUMENT TAPS ON STAINLESS





- 1. BALL VALVE ASSOCIATED WITH GAUGE INSTALLATION NOT LISTED IN VALVE SCHEDULE.
- 2. PROVIDE A DIAPHRAGM BETWEEN VALVE AND INSTRUMENT IF INDICATED IN THE SCHEDULE

INSTRUMENT TAPS ON PVC AND





ENGINEERS

PROJECT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

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SHEET TITLE

PROCESS MECHANICAL TYPICAL DETAILS SHEET 4

DRAWING NUMBER

S. ST.

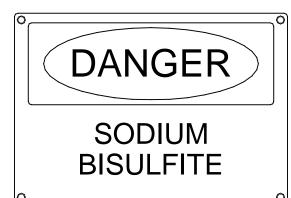
D021

INTERIOR

BRACKETS -

ALUMINUM CHLOROHYDRATE

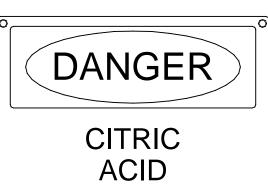
LOCATION: ALUMINUM CHLOROHYDRATE CHEMICAL ROOM ENTRY DOORS (2)



LOCATION: SODIUM BISULFITE CHEMICAL ROOM ENTRY DOORS (2)



LOCATION: EXTERIOR WALL NEAR LIQUID OXYGEN TANK



ACID

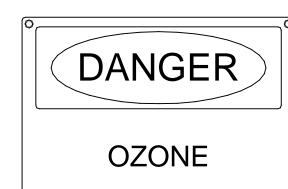
LOCATION: CITRIC ACID ROOM

1) WALL AND 2) ENTRY DOOR

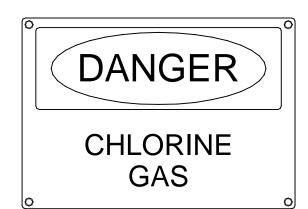
DANGER

SODIUM
HYPOCHLORITE

LOCATION: SODIUM HYPOCHLORITE ROOM 1) WALL AND 2) ENTRY DOOR



LOCATION: OZONE GENERATOR ROOM ENTRY DOORS (2)



LOCATION: CHLORINE GAS ROOM ROOM ENTRY DOOR

SIGN NOTES:

- 1. TYPE: OSHA "DANGER" SIGN
- 2. SIZE: 10"Wx7"H
- 3. MATERIAL: 60 mil PRESS-POLISHED VINYL PLASTIC
- 4. ROUNDED CORNERS WITH MOUNTING HOLES
- 5. SETON IDENTIFICATION PRODUCTS OR EQUAL6. INSTALL IN LOCATIONS APPROVED BY THE OWNER

AND 2) ENTRY DOOR

CHEMICAL DANGER SIGNS

ALUMINUM CHLOROHYDRATE

> BULK TANK FILL

SODIUM BISULFITE

BULK TANK FILL

LIQUID OXYGEN

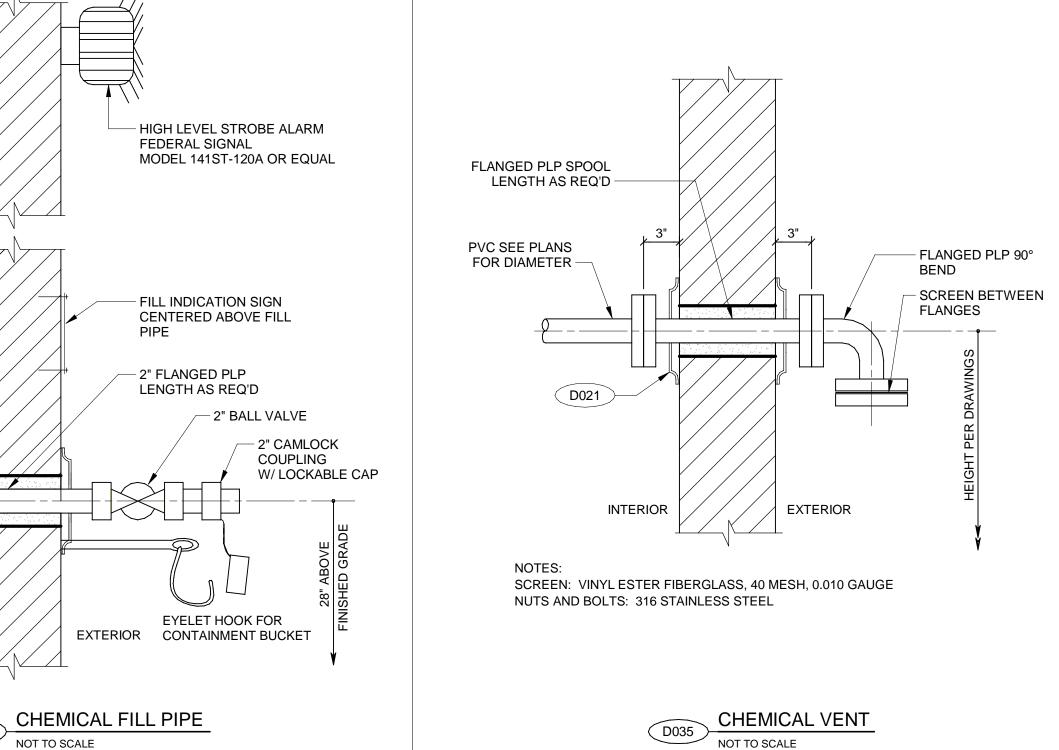
TANK FILL

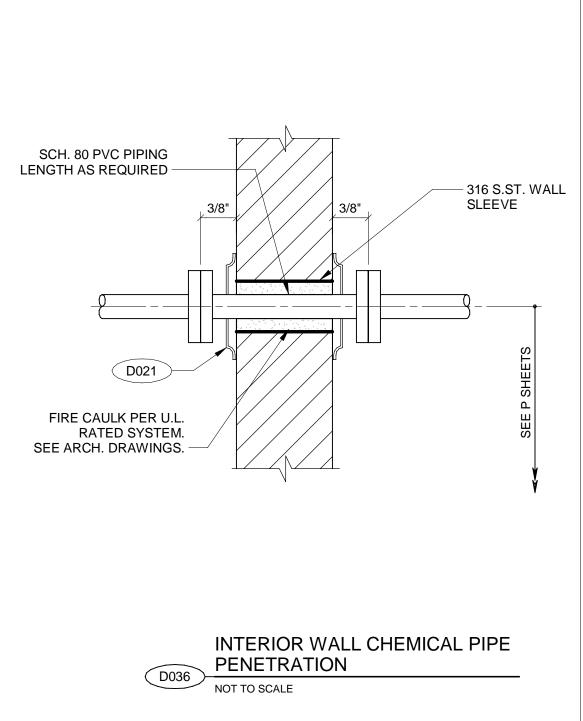
CHEMICAL **↓** S.ST. CLAMPS -- WALL MOUNTED SIGN 6' OF 3/4" Ø LABELED BY CHEMICAL: TRANSLUCENT -SODIUM HYPOCHLORITE TUBING --CITRIC ACID (2) 12"x12" STAINLESS STEEL L-BRACKETS PUMP MOUNTING BRACKET FIXED TO WALL 3/4" BARB W/ BALL VALVE -3/4" FEMALE CAMLOCK CONNECTION ON VALVE END -ELECTRIC TRANSFER PUMP PROVIDE ONE PUMP FOR TOTE TRANSFER. MANUFACTURER SHALL BE FTI, MODEL EFP-48 OR EQUAL CHEM ROOM FLOOR

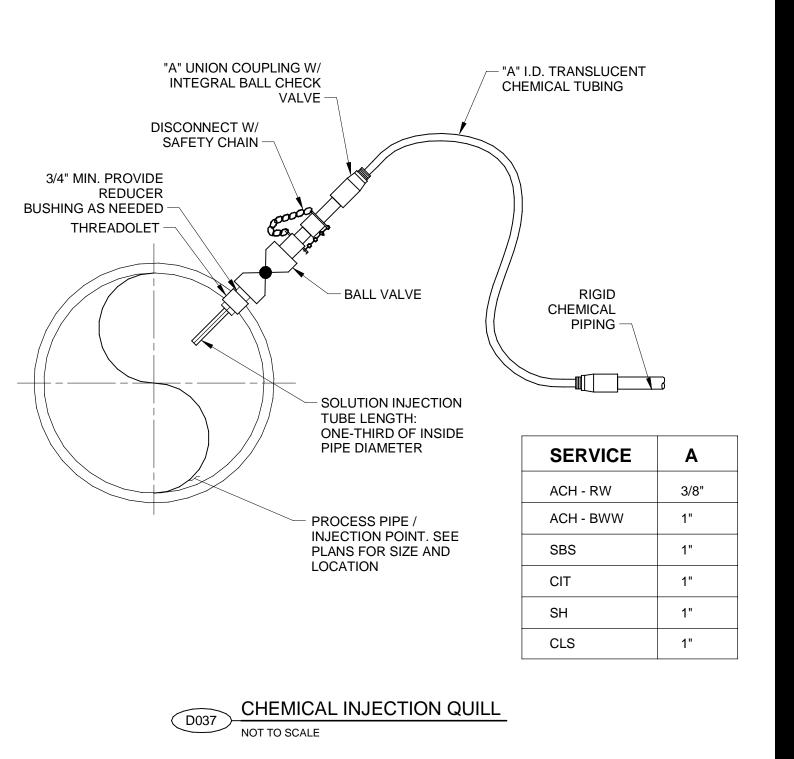
PORTABLE CHEMICAL PUMP

D032 CHEMICAL FILL SIGNS

NOT TO SCALE









PROJECT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

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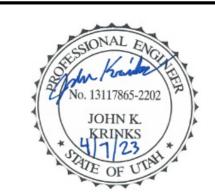
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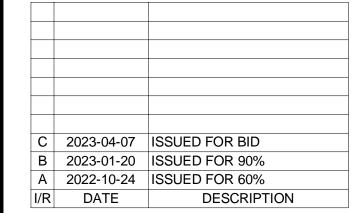
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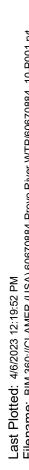
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SHEET TITLE

PROCESS MECHANICAL TYPICAL DETAILS SHEET 5

DRAWING NUMBER



MAIN LEVEL 4" FIRE MAIN TO CHEMICAL STORAGE ROOM SPRINKLERS AT MAIN LEVEL **EXTERIOR** FIRE WATER SERVICE ENTRY. APPROX. 3,100 SF TOTAL COVERAGE AREA — 6" HORIZONTAL DOUBLE CHECK BACKFLOW PREVENTER ASSEMBLY (WITH OS&Y SHUTOFFS AND TAMPER SWITCHES). RE: DETAIL F005 6" FDC-1 RE: DETAIL F003 -CHEMICAL STORAGE ROOMS GRADE 6" FIRE WATER UNDERGROUND PIPE SLEEVE THROUGH ADD FLOOR PENETRATION AND ∠ 4" FIRE MAIN TO LOWER LEVEL WALL. RE: DETAIL F004 SPRINKLERS APPROX. 9,800 SF ROUTE DRAIN DOWN TO LOWEL TOTAL COVERAGE AREA LEVEL FS-1 LOWER LEVEL

FIRE PROTECTION SYSTEM SCHEMATIC

. 4"x 4"x 1/4" STEEL ANCHOR PLATE

FIRE SERVICE SLEEVE DETAIL

ANCHOR ROD. 1/2" UP TO 3" PIPE, 5/8" FOR 4" & 5" AND 3/4" FOR 6" PIPE

– STANDARD WEIGHT STEEL PIPE 2" 0.D. LARGER THAN WATER SERVICE

PIPE WITH WELDED STEEL ANCHOR

AND WATER STOP PLATE SET IN

FOUNDATION WALL

- CLEVIS HANGER

REQUIRED

OUTSIDE BUILDING

--- MINIMUM 5'-0" COVER

PROVIDE WITH STAINLESS

WATER SERVICE PIPE

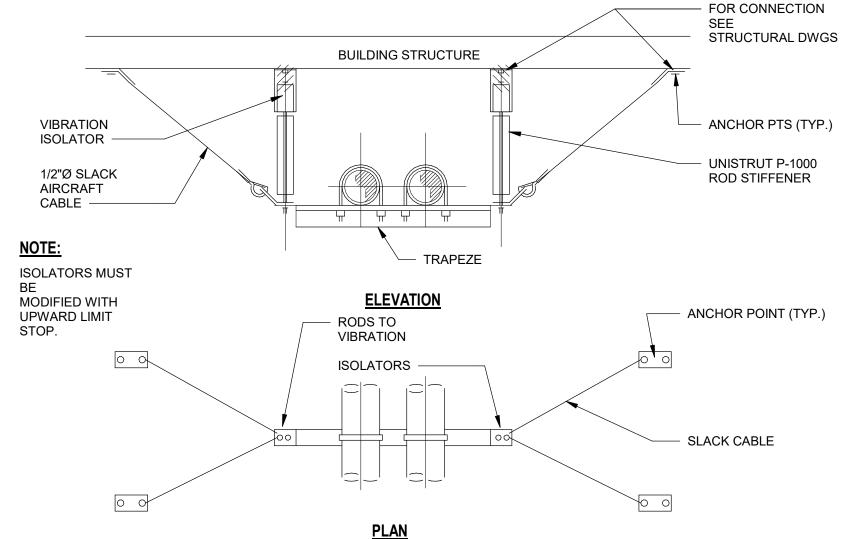
STEEL_

BOLTS

"LINK SEAL" REFER TO SPEC.-

FINISHED GRADE —

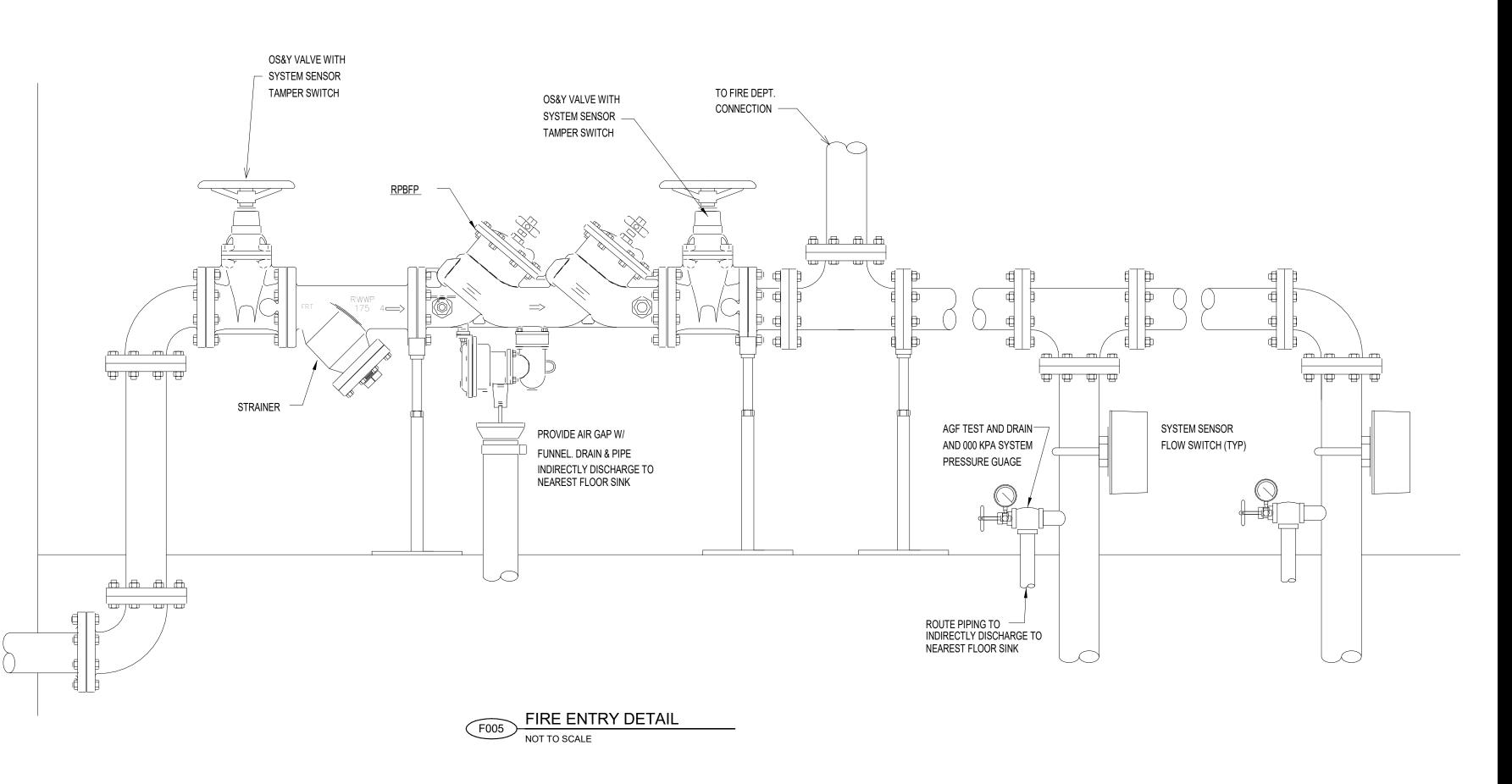
FOUNDATION WALL —



- 1. MAXIMUM SPACING INTERVAL TO BE 20' O.C.
- 2. LOCATE VIBRATION ISOLATION HANGER DIRECTLY ABOVE SEISMIC RESTRAINT AS INDICATED
- 3. ISOLATORS MUST BE MODIFIED WITH UPPER TRAVEL LIMIT STOP. SEE DETAIL 7, THIS SHEET.

		SCHEDULE F	OR BRACIN	G PIPES ON TRAPEZE (1,2)			
MAX. DEAD LOAD ON TRAPEZE LBS.	BOLTS TO ANGLE DIA.	VERTICAL DIAGONAL & LONGITUDINAL ANGLES	MAX. TRAPEZE SPAN	TRAPEZE SIZE	TOP CONN. OF DIAG. & LONGITUDINAL ANGLE	ROD SIZE DIA.	MAX. LENGTH FOR RODS
320	3/8"	2"X2"X16 GA.	3'-4"	1 5/8 "X3 1/4 "X121 GA.	TYPE - 3	1/2"	25
440	3/8"	2"X2"X16 GA.	3'-4"	1 5/8 "X3 1/4 "X121 GA.	TYPE - 4	1/2"	25
540	3/8"	2"X2"X16 GA.	3'-4"	1 5/8 "X3 1/4 "X121 GA.	TYPE - 4	5/8"	31
660	3/8"	2"X2"X16 GA.	4'-0"	1 5/8 "X3 1/4 "X121 GA.	TYPE - 5	5/8"	31
940	3/8"	2"X2"X16 GA.	4'-0"	1 5/8 "X3 1/4 "X121 GA.	TYPE - 6	3/4"	37
945	3/8"	2"X2"X16 GA.	3'-10"	1 5/8 "X3 1/4 "X121 GA.	TYPE - 6	3/4"	37







ENGINEERS

PROJECT

VERIFY SCALE

— SLEEVE THRU WALL

— VALVE CONTROL

BAR IS ONE INCH ON ORIGINAL DRAWING

6" SUPPLY, SEE

CONTIN. -

N.R.S. GATE VALVE

3/4" BALL DRIP,

EXTERIOR WALL -

PIPE THRU WALL—

FIRE DEPARTMENT CONNECTION DETAIL

FLOOR PLAN FOR

PROVO RIVER WATER TREATMENT **PLANT**

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SHEET TITLE

FIRE PROTECTION **TYPICAL DETAILS** SHEET 1

DRAWING NUMBER

99-F701

	DRAWING INDEX
	HVAC TYPICAL DETAILS INDEX
99-P701	
P001	ROOF DRAIN
P002	GAS FIRED HIGH EFFICIENCY WATER HEATER
P003	CLEANOUT
P004	HOSE BIB
P005	WATER SERVICE SLEEVE
P006	SURFACE CLEANOUT (SCO)
99-P702	
P007	GAS ENTRY
P008	EMERGENCY SHOWER
P009	TEMPERATURE MIXING VALVE (TMV)
P010	TWO WAY CLEAN OUT
P011	FLOOR DRAIN FLASHING
P012	BUILDING WATER SERVICE PIPING
99-P703	
P013	COLLECTION SUMP
P014	VENT THROUGH ROOF FLASHING
P015	DOMESTIC HOT WATER CIRC. IN-LINE PUMP PIPING
P016	FLUSH MOUNTED WALL HYDRANT
P017	MOP SINK
P018	FLOOR SINK



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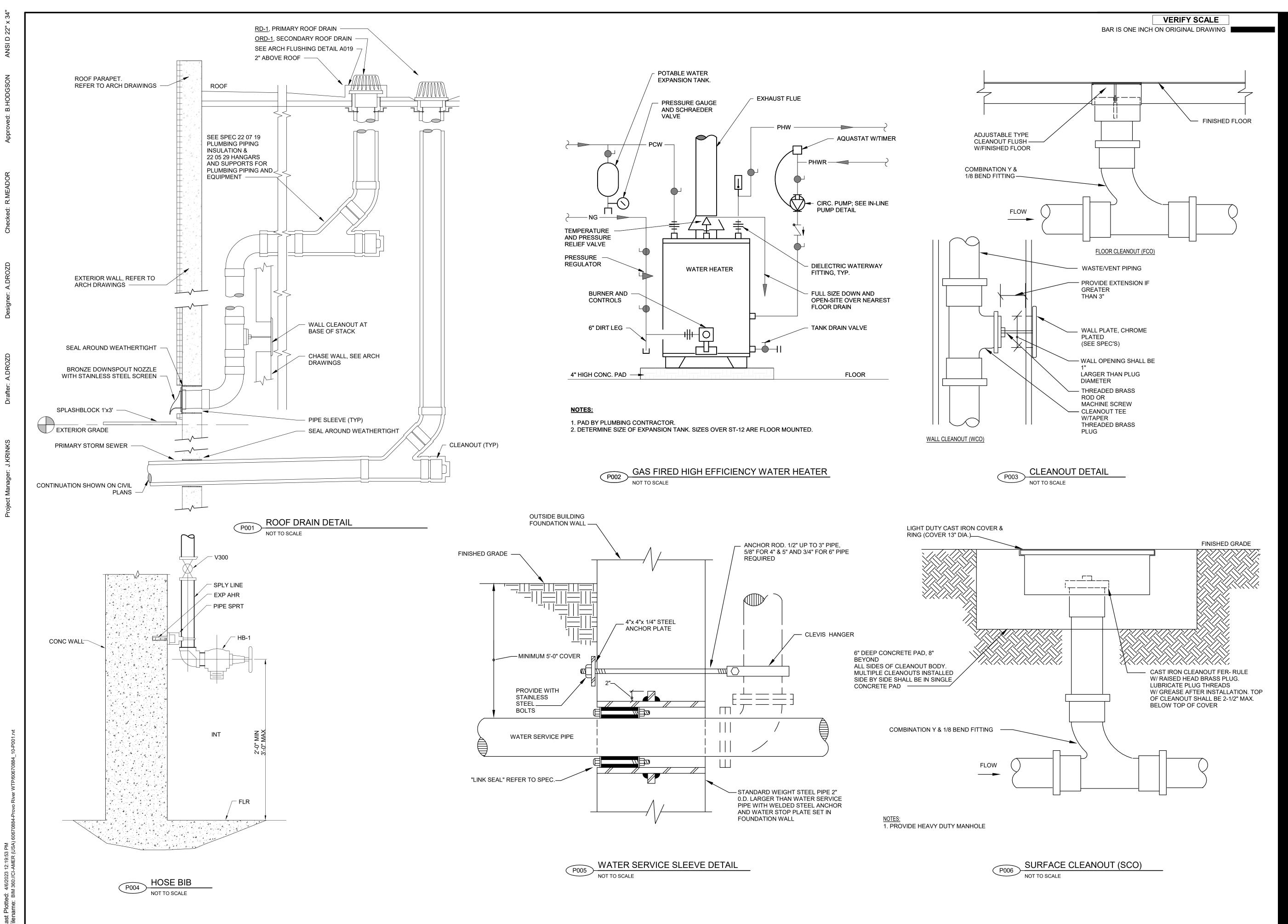
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SHEET TITLE

PLUMBING TYPICAL DETAILS INDEX

DRAWING NUMBER





PROJECT

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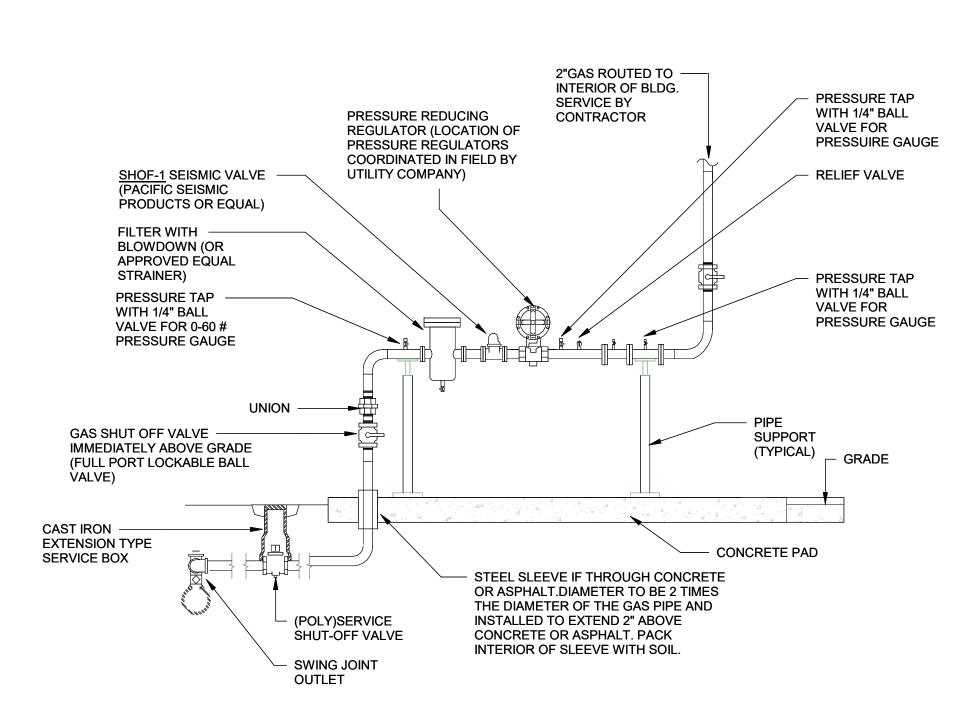
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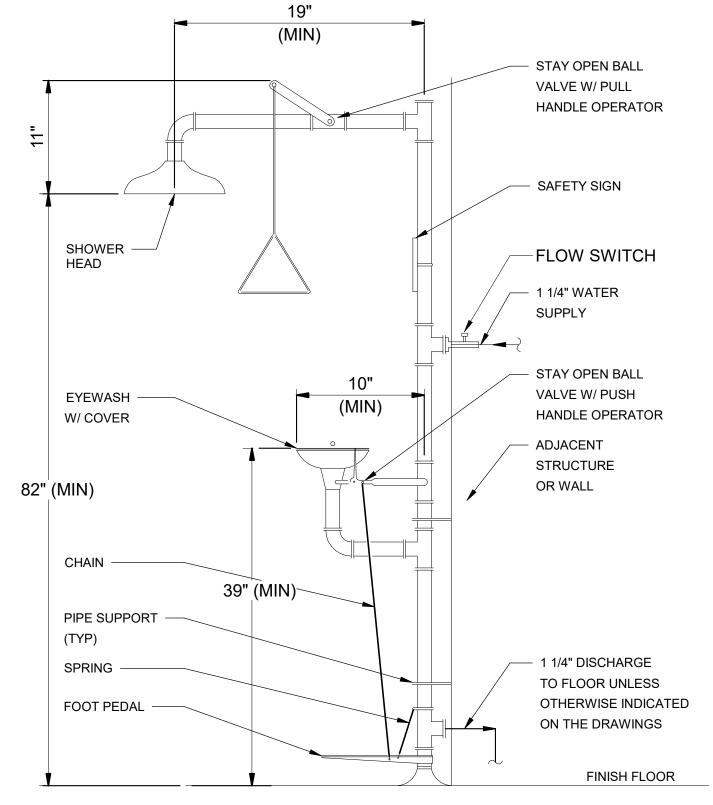
SHEET TITLE

PLUMBING TYPICAL DETAILS SHEET 1

DRAWING NUMBER



GAS ENTRY



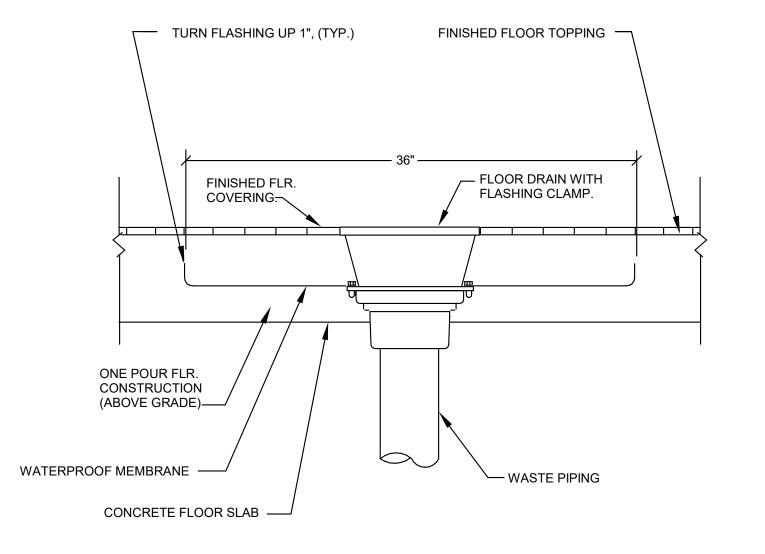
THERMOSTATIC MIXING VALVE. SEE SPECS. UNION (TYP) - ISOLATION VALVE (TYP) PHW —

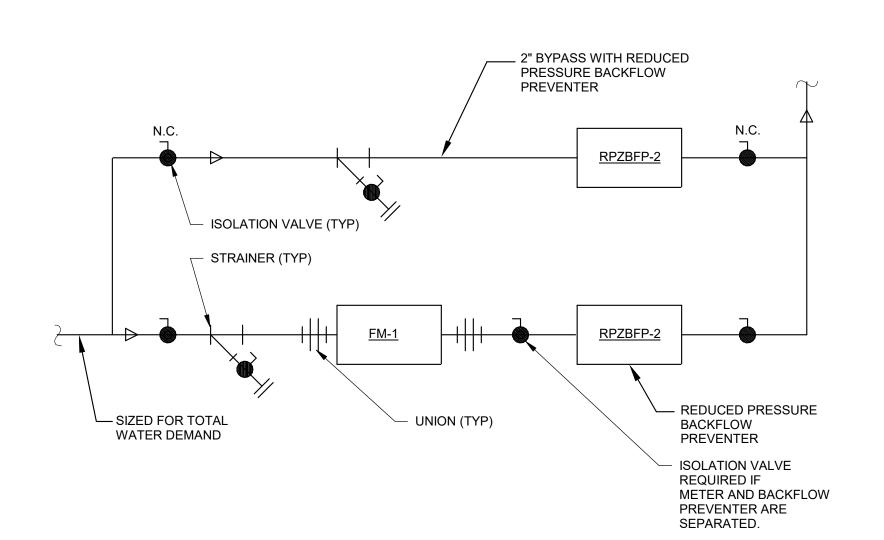
TEMPERATURE MIXING VALVE (TMV)

NOTES:

- 1. SEE SPECIFICATION SECTION 22 45 00 FOR APPROVED MANUFACTURERS / MODEL NO'S.
- 2. DETAIL PROVIDES GENERAL ARRANGEMENT OF EMERGENCY SHOWER AND EYEWASH SYSTEM ONLY. PROVIDE ADDITONAL FEATURES AND APPURTENANCES AS INDICATED IN SPECIFICATION 22 45 00.
- 3. PROVIDE 1 1/4" BALL VALVE FOR SHOWER ISOLATION AT 1 1/4" WATER SUPPLY CONNECTION.



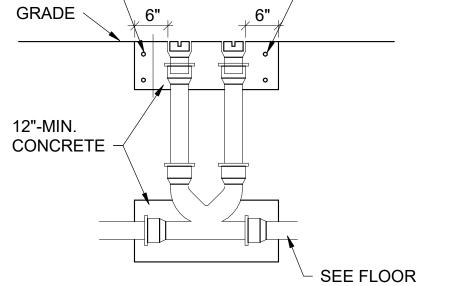






BUILDING WATER SERVICE PIPING DETAIL





PLAN FOR SIZE

2-# 3 BARS,

CONTINUOUS -

TWO WAY CLEAN OUT NOT TO SCALE

FLOOR DRAIN FLASHING DETAIL



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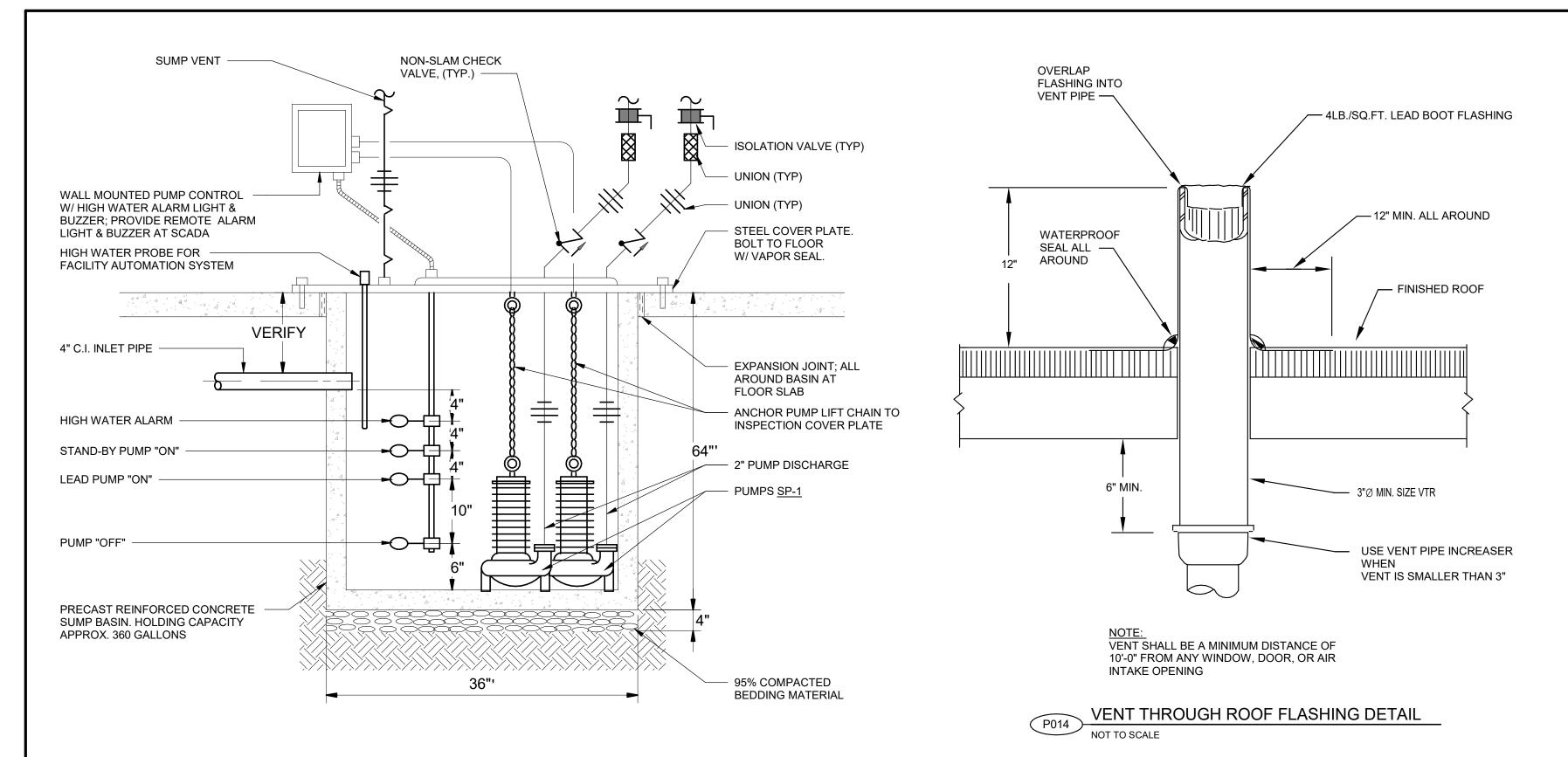
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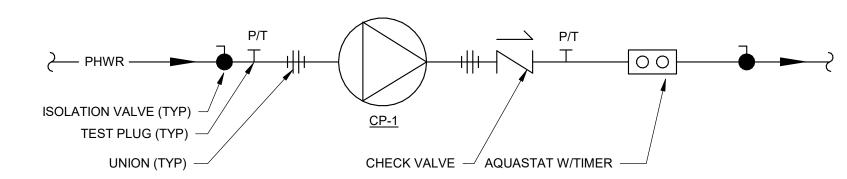
SHEET TITLE

PLUMBING TYPICAL DETAILS SHEET 2

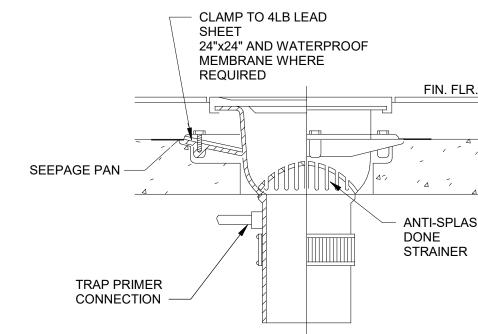
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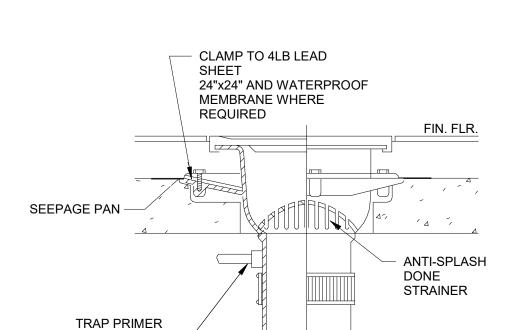




DOMESTIC HOT WATER CIRC. IN-LINE PUMP PIPING DETAIL



FLOOR SINK NOT TO SCALE



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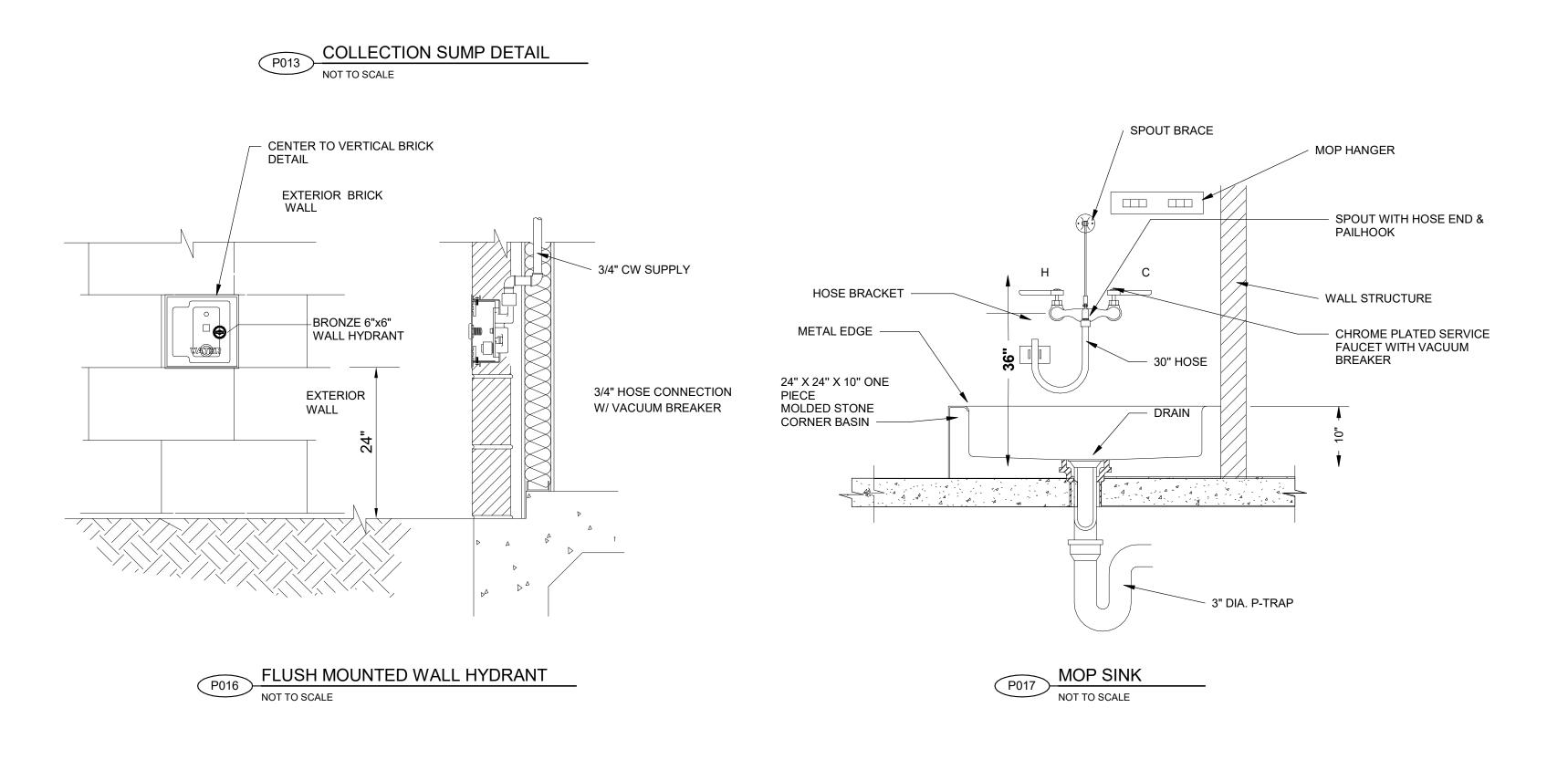
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SHEET TITLE

PLUMBING TYPICAL DETAILS SHEET 3

DRAWING NUMBER



BAR IS ONE INCH ON ORIGINAL DRAWING

DRAWING INDEX HVAC TYPICAL DETAILS INDEX 99-M701 M001 IDENTIFICATION TAG DETAIL M002 REFIGERANT SUPPORT DETAIL M003 UNIT HEATER MOUNTING DETAIL M004 SUSPENDED REFRIGERANT PIPE SUPPORT DETAIL M005 REFRIGERANT PIPE PENETRATION AT WALL M006 INLET LOUVER WITH DAMPER AND FILTER DETAIL M007 EXHAUST FAN DETAIL M008 REFIGERANT PIPE VERTICAL SUPPORT DETAIL M009 | SPLIT SYSTEM HEAT PUMP UNIT DETAIL 99-M702 M010 REFRIGERANT PIPING SCHEMATIC M011 GRAVITY RELIEF HOOD DETAIL M012 SHEET METAL DUCT CONSTRUCTION DETAIL M013 CHEMICAL FEEDER DETAIL M014 CHILLED WATER COIL PIPING DETAIL M015 FIRE DAMPER DETAIL M016 HORIZONTAL HOT WATER UNIT HEATER DETAIL M017 EXPANSION TANK DETAIL 99-M703 M018 HOT WATER REHEAT COIL PIPING DETAIL M019 LOUVER HOUSING DETAIL M020 COILING COIL TRAP DETAIL M021 FIRE DAMPER AT FLOOR DETAIL M022 | CHILLED WATER COIL PIPING DETAIL (3-WAY) M023 DUPLEX BASE MOUNTED PUMP DETAIL M024 DRIP PAN ELBOW DETAIL M025 | HEAT TRACE VALVE WRAP 99-M704 M026 BOILER FLUE DETAIL M027 NO-LOSS STACK DETAIL M028 DUCT THRU ROOF PENETRATION DETAIL



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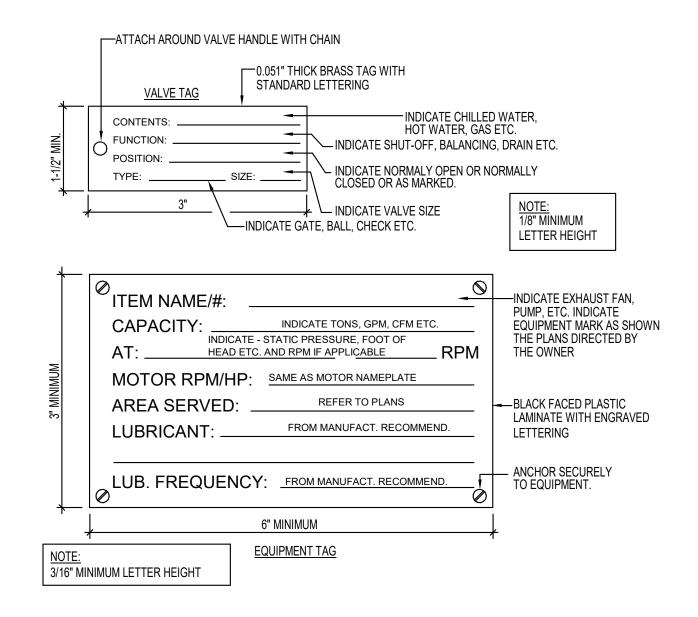
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SHEET TITLE

HVAC TYPICAL DETAIL INDEX

DRAWING NUMBER



IDENTIFICATION TAG DETAIL

ANCHOR CHANNEL TO BEAM WITH UNISTRUT P-3785 BEAM CLAMP

SUSPENDED REFRIGERANT PIPE SUPPORT DETAIL

EXHAUST FAN DETAIL

NOT TO SCALE

TYPICAL OF 8

__ 5/8" UNISTRUT P-1000

SECURE PIPING TO SUPPORTS

INSULATION ON SUCTION LINE

-FLEX CONNECTION

-MANUFACTURE PROVIDED ANGLE

BRACKETS USED TO MOUNT FAN.

- MOUNT FAN TO FAN STAND

USING MANUFACTURE

-GALVANIZED ANGLE IRON

ACCOMMODATE FAN. -ANCHOR TO STRUCTURE

WITH STAINLESS STEEL

EPOXY ANCHORS,

- EXHAUST DUCTWORK

SUPPORT BRACKET. SIZE TO

PROVIDED SPRING

-FLEX CONNECTION

-EXHAUST FAN

TYPICAL OF 8.

ISOLATORS.

WITH CHANNEL CLAMPS

WITH 20 GA GALVANIZED

EXTEND FOR ADDITIONAL HANGER SPACE

SLEEVE x 6" LONG

NOT TO SCALE

HANGER ROD

ISOLATE PIPING FROM HANGER AND CLAMP WITH THERMOPLASTIC

(1) STEEL SPRING VIBRATION ISOLATOR

3 NEOPRENE WAFFLE MOUNT (TWO 1/4" THICK PADS WITH 1/16" STEEL SHIM

6 CAP SCREW SECURES BRACKET TO ISOLATOR ADJUSTING BOLT

(2) HEIGHT SAVING BRACKET

KEYED NOTES:

BETWEEN)

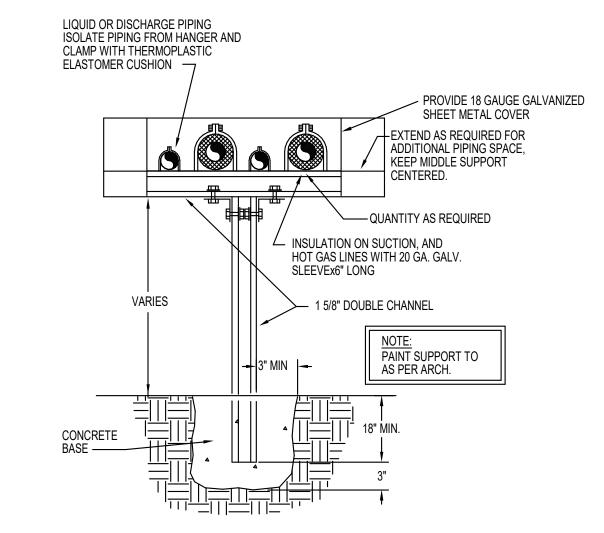
(4) 16"x 16"x 3/8" PLATE

(5) 1" OPERATING HEIGHT

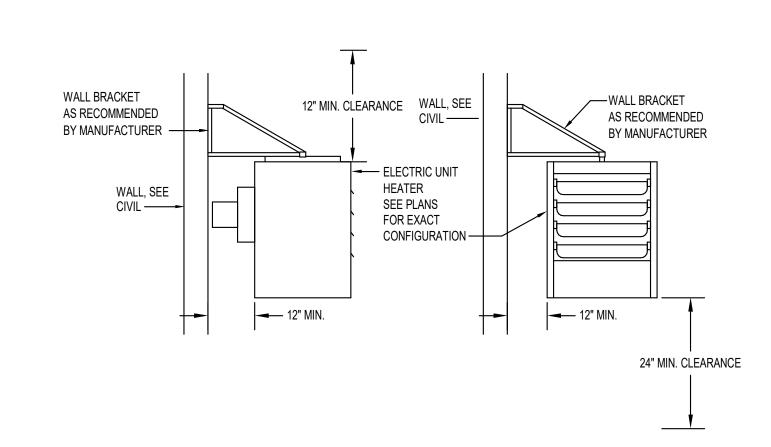
(7) ADJUSTMENT BOLT

LIQUID OR DISCHARGE PIPING.

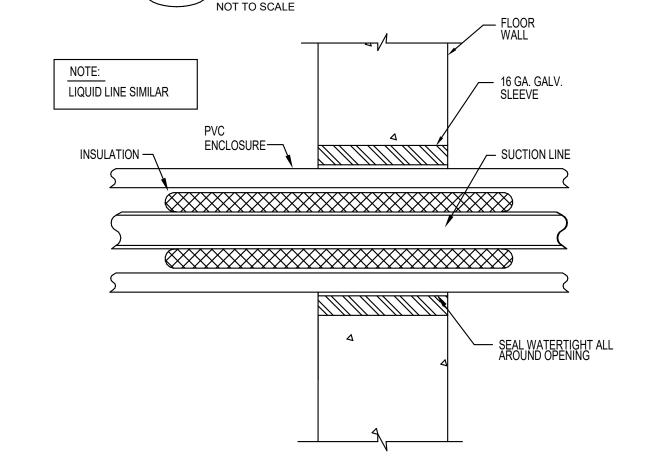
ELASTOMER CUSHION

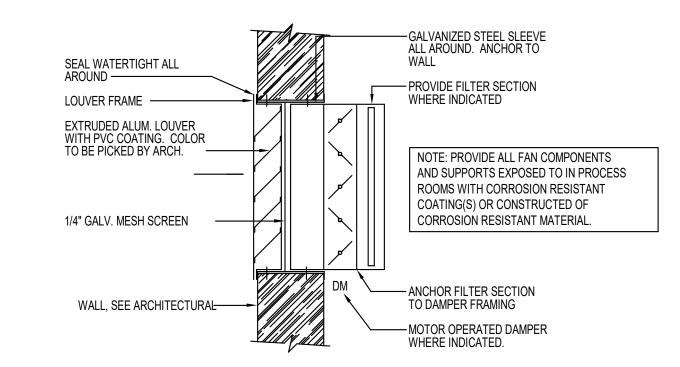


REFRIGERANT SUPPPORT DETAIL

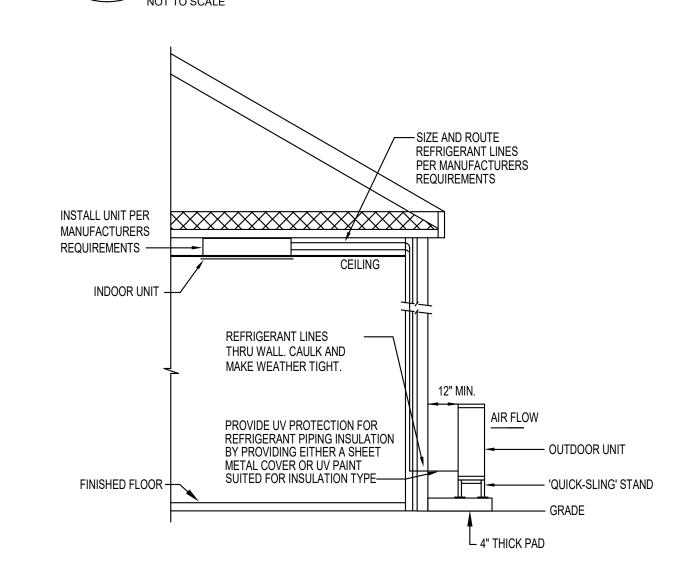




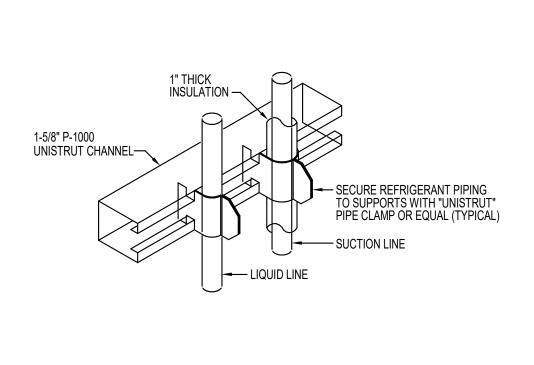


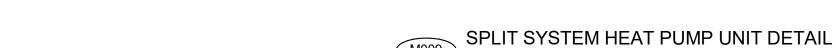






INLET LOUVER WITH DAMPER AND FILTER DETAIL











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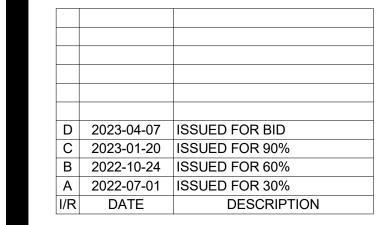
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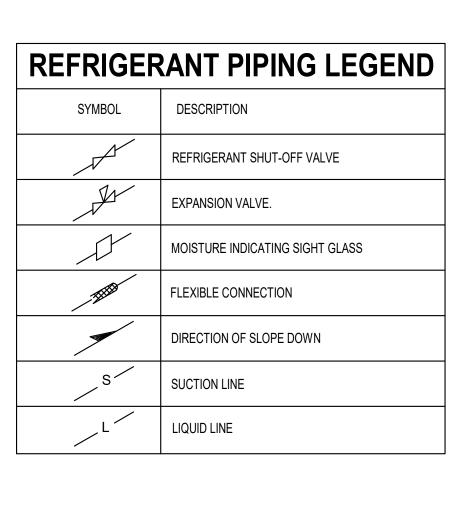
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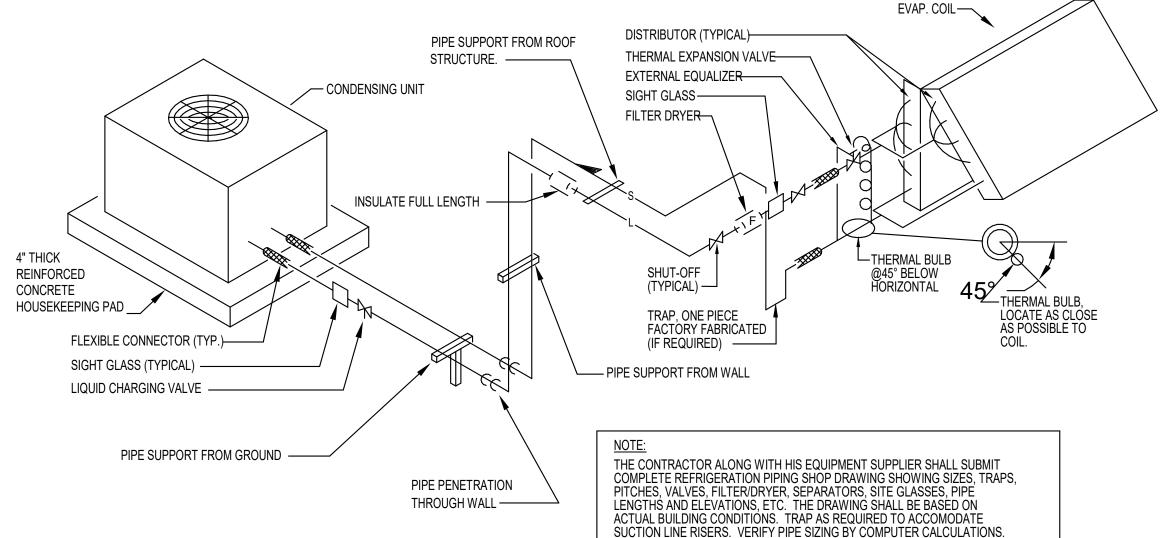
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SHEET TITLE

HVAC TYPICAL DETAILS SHEET 1

DRAWING NUMBER





REFRIGERANT PIPING SCHEMATIC

							TRANSVERS	SE REINFORCI	NG *			
							A	T JOINTS				
DIMENSION OF LONGEST SIDE, (INCHES)	SHEET METAL GAGE (ALL FOUR SIDES)	MINIMUM REINFORCING ANGLE SIZE & MAXIMUM LONGITUDINAL SPACING BETWEEN TRANSVERSE JOINTS &/OR INTERMEDIATE REINFORCING	MIN H, IN.	DRIVE SLIP PLAIN S SLIP	HEMMED S SLIP	ALT. BAR SLIP	REIN- FORCED BAR SLIP		BAR SLIP H NGLE SLIP REINFORCED	STD. SEAM ANGLE REINFORCED STD. SEAM REINFORCED	- ANGLI	DCKET LOCK H E REINFORCED CKET LOCK REINFORCED
				MENDED GAGE	MENDED GAGE	MENDED GAGE	MENDED GAGE	MENDED GAGE	ANGLE SIZE	ANGLE SIZE	MENDED GAGE	ANGLE SIZE
UP THRU 12	24	NONE REQ.	1	26	26	24	24	24	NOT REQ.	NOT REQ.	24	NOT REQ.
13-18	24	NONE REQ.	1	24	24	24	24	24	NOT REQ.	NOT REQ.	24	NOT REQ.
19-30	24	1x1x1/8" @60in.	1	-	24	24	24	24	NOT REQ.	NOT REQ.	24	NOT REQ.
31-42	22	1x1x1/8" @60in.	1	-	-	22	22	22	NOT REQ.	NOT REQ.	22	NOT REQ.
43-54	22	1-1/2"x1-1/2"x1/8" @60in.	1-1/2	-	-	22	22	22	1-1/2"x1-1/2"x1/8"	NOT REQ.	22	NOT REQ.
55-60	20	1-1/2"x1-1/2"x1/8" @60in.	1-1/2	-	-	-	22	22	1-1/2"x1-1/2"x1/8"	NOT REQ.	22	NOT REQ.
61-84	20	1-1/2"x1-1/2"x1/8" @60in.	1-1/2	-	-	-	22	22	1-1/2"x1-1/2"x1/8"	1-1/2"x1-1/2"x1/8"	22	1-1/2"x1-1/2"x1/8"

SHEETMETAL DUCT CONSTRUCTION DETAIL

PUMP DISCHARGE -PUMP SUCTION -REMOVEABLE COVER -- BALL VALVE - UNION (TYP.) PRESSURE RATED POT FEEDER 5 GAL. CAPACITY — DRAIN VALVE W/HOSE BIBB -

CHEMICAL FEEDER DETAIL

1/4"-1/2" CLEARANCE - 1 1/2"X 1 1/2" 1" MIN.OVERLAP ALL 14 GA. OR HEAVIER FOUR SIDES OF DAMPER ANGLES. SNUG TO WALL AND SLEEVE ALL AROUND BREAKAWAY CONNECTION (RIGID CONN. FOR HEAVY GAUGE STEEL BLADES W/ HIGH PRESSURE DUCTWORK) INTERLOCKING JOINTS 12" MAX. FUSIBLE LINK 165°F BOLT, SCREW, RIVET OR TACK WELD DAMPER TO SLEEVE 12" MAX.CC SLEEVE OF SAME GAUGE OR HEAVIER AS THE DUCT TO WHICH IT IS CONNECTED PER U.L. 555 A.D. DUCT ACCESS

* TRANSVERSE REINFORCING SIZE IS DETERMINED BY DIMENSION OF SIDE TO WHICH ANGLE IS APPLIED.

DETAIL APPLICABLE WHERE SYMBOLIZED AS ON DRAWINGS (VERTICAL) AS SHOWN DETAIL APPLICABLE WHERE SYMBOLIZED AS ON DRAWINGS (HORIZONTAL) AS SHOWN F1 = 1-1/2 HOUR, F3 = 3 HOUR

COMBINATION SMOKE AND FIRE DAMPER DETAIL

FIRE RATED WALL

ISOLATION VALVE -HWR TWO WAY TEMPERATURE CONTROL VALVE -UNION (TYP.)-HANGER RODS (TYP.)-DEFLECTING VANES -- CALIBRATED BALANCE VALVE - 1/2" DRAIN VALVE WITH 3/4" HOSE CONNECTION AND PRESSURE RATED CAP. **AIRFLOW** - HORIZONTAL HOT WATER UNIT HEATER

HORIZONTAL HOT WATER UNIT HEATER DETAIL

- AIR VENT, 1/4" BALL VALVE. INSTALL IN HIGH POINT OF **ROUTE TO** HEADER OR RETURN PIPE TO NEAREST ALLOW COMPLETE VENTING OF SUPPLY DUCT -AIR FROM COIL 2" LOCKABLE ISOLATION VALVE -- MANUAL AIR VENT FLOW MEASURING DEVICE -AIRFLOW - CHILLED WATER COIL ISOLATION VALVE (TYP.) 2" COIL AIR DRY PIPE. USE CHILLED WATER PIPING PER 23 21 13. -P/T TEST PLUG (TYP.) -- 3/4" DRAIN VLAVE WITH 3/4" HOSE CONNECTION AND PRESSURE RATED THERMOMETER (TYP.) -CAP. INSTALL IN LOW POINT OF HEADER OR SUPPLY PIPE TO ALLOW COMPLETE UNION IN OFFSET FOR DRAIN DOWN OF COIL COIL REMOVAL (TYP.) -2" DRAIN VALVE WITH

BIRDSCREEN AT

SECURE HOOD TO

SCREWS 12" O.C.

CONTROL DAMPER -

HOOD OUTLET-

CURB W/ S.M —

NOTES:

1. L = LONGEST THROAT DIMENSION.

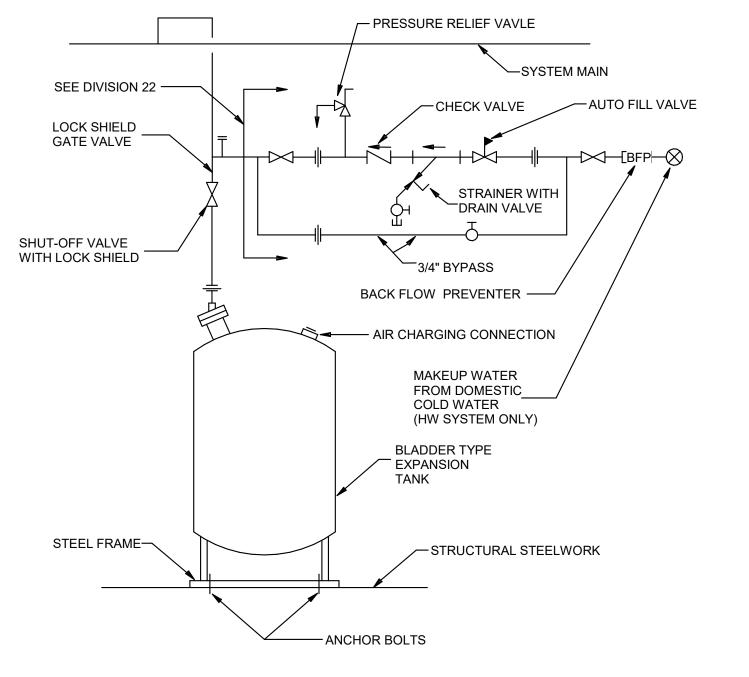
2. FOR CURB INSTALLATION AND FLASHING

INSTRUCTIONS REFER TO ARCHITECTURAL DETAILS.

GRAVITY RELIEF HOOD DETAIL

CHILLED WATER COIL PIPING DETAIL

PRESSURE REATED CAP -



EXPANSION TANK DETAIL

ENGINEERS

PROJECT

VERIFY SCALE

- GRAVITY RELIEF

- PREFABRICATED

_2" DEEP CONDENSATE DRIP PAN.SOLDER WATER TIGHT & COAT

W/ASPHALT

— ROOF

BAR IS ONE INCH ON ORIGINAL DRAWING

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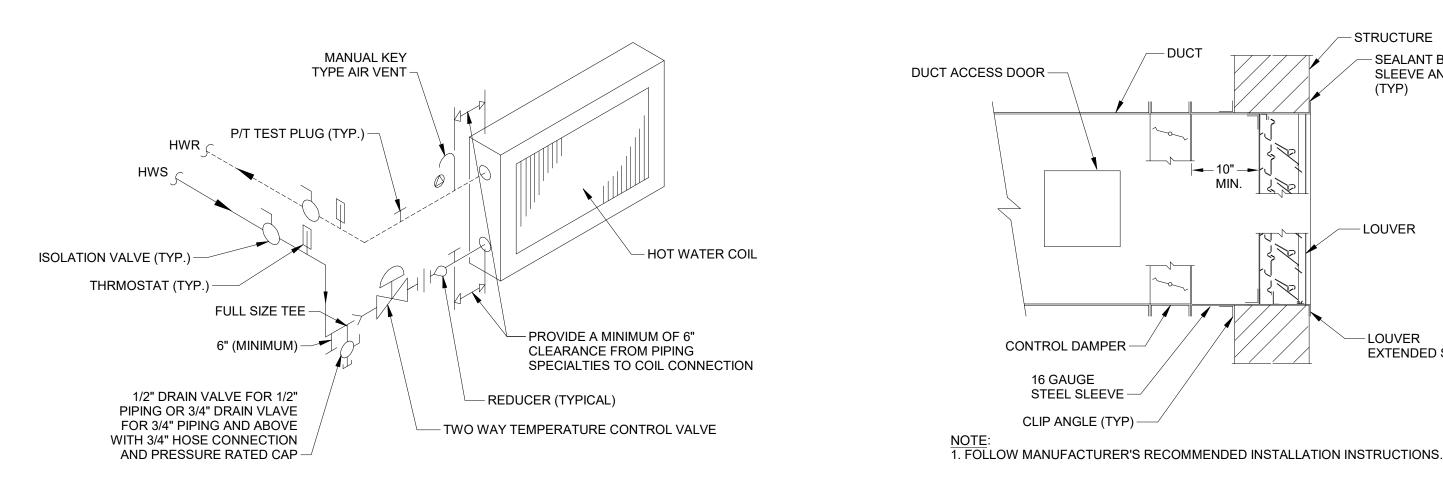
PROJECT NUMBER

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SHEET TITLE

HVAC TYPICAL DETAILS SHEET 2

DRAWING NUMBER



1 1/2" CD -AIR HANDLER SEE PLANS FOR BASE FRAME CONTINUATION -- HOUSE KEEPING PAD TRAP -- PIPE LEG STNAD (AHU-2 ONLY)

NOTES:
1. ROUTE COIL CONDENSATE DRAIN PIPING TIGHT TO

AIR HANDLER. 2. PROVIDE TRAP CLEANING PROVISIONS.

3. AHU-1 TRAP LOCATED IN CEILING SPACE BELOW. 4. DIMENSION TRAPS TO MANUFACTURER'S

GUIDELINES INCLUDED IN AHU SUBMITTALS.

COILING COIL TRAP DETAIL

NOT TO SCALE

HOT WATER COIL PIPING DETAIL

— DUCT

M024 DRIP PAN ELBOW DETAIL

NOT TO SCALE

LOUVER HOUSING DETAIL

-STRUCTURE

(TYP)

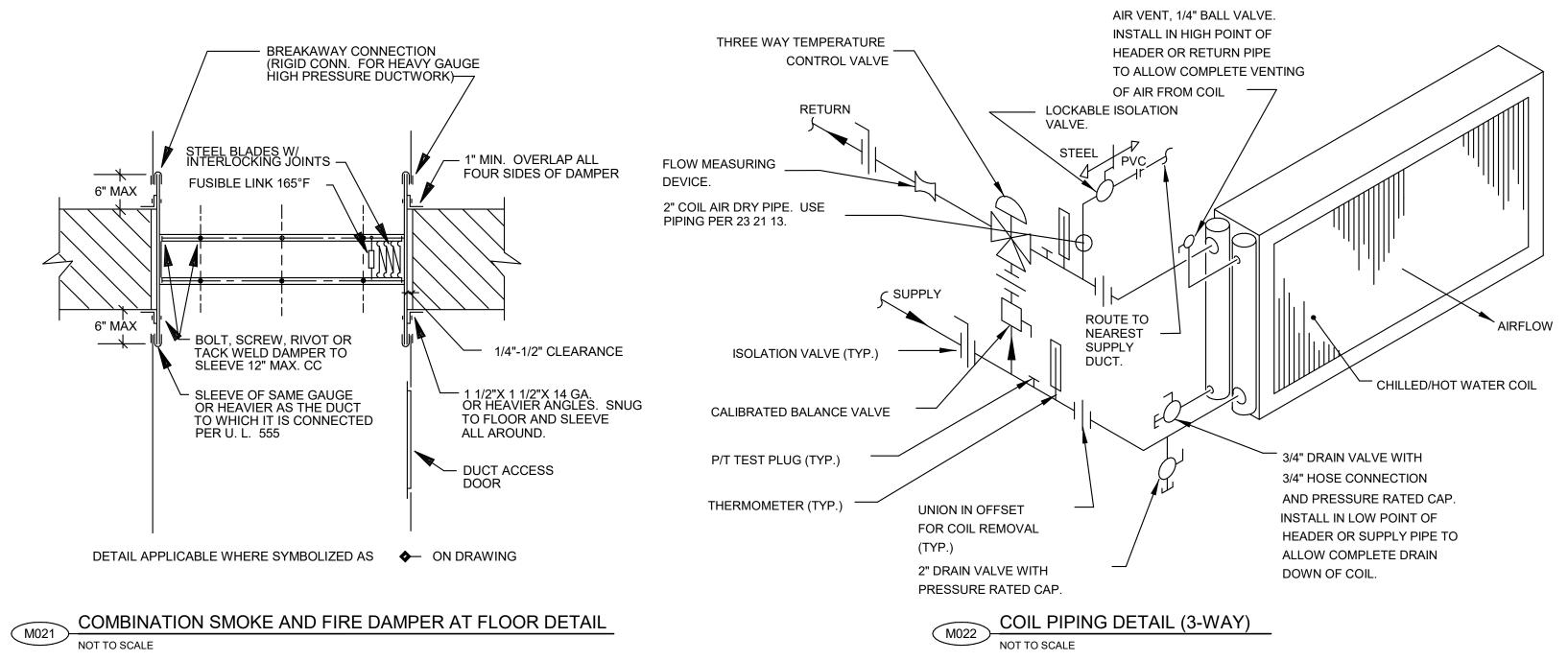
— LOUVER

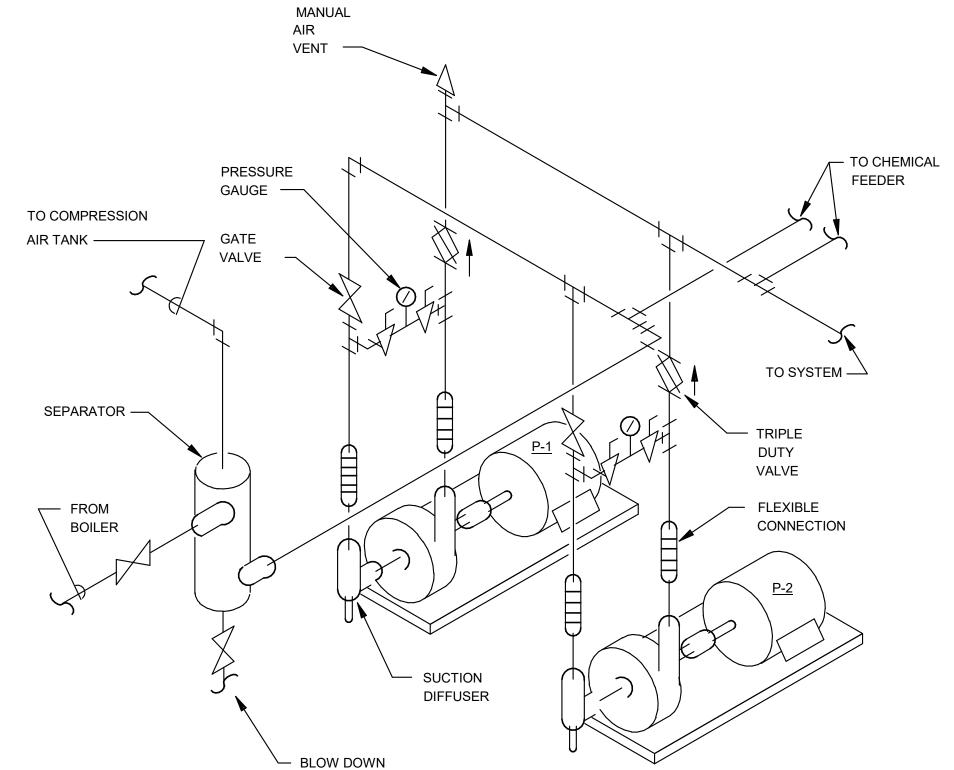
-LOUVER

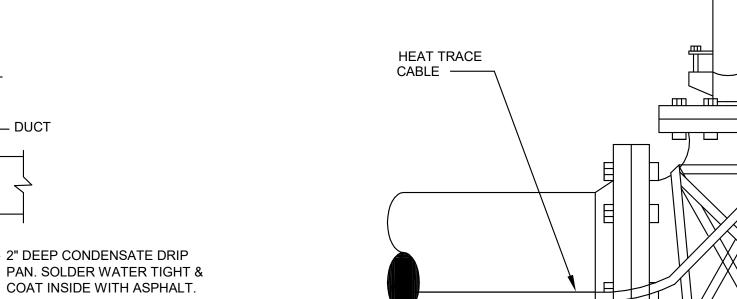
EXTENDED SILL

- SEALANT BETWEEN

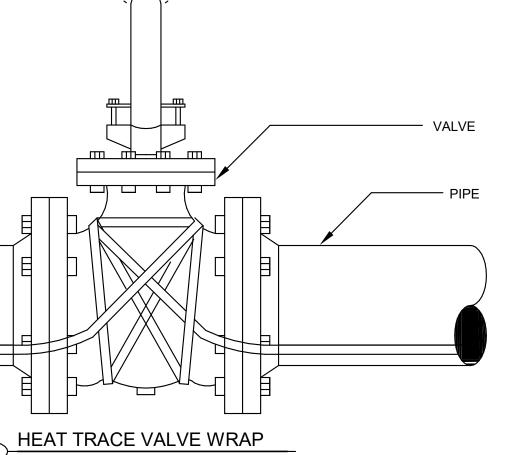
SLEEVE AND WALL







DUPLEX BASE MOUNTED PUMP DETAIL



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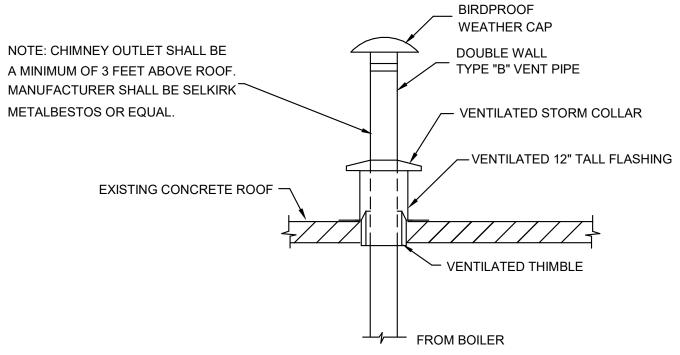
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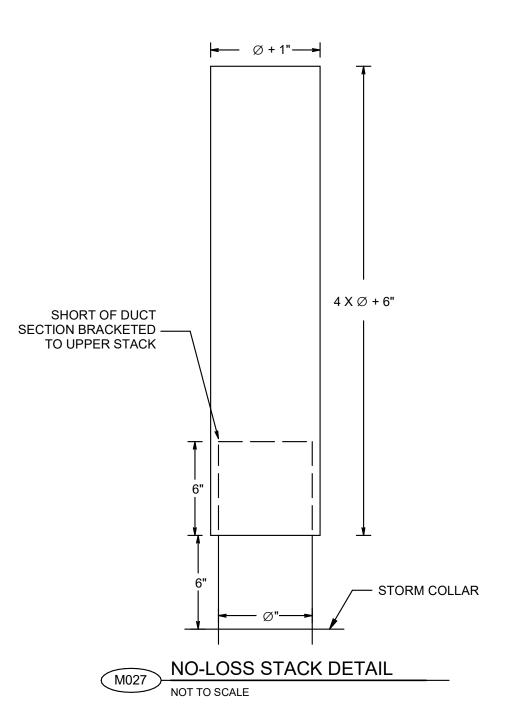
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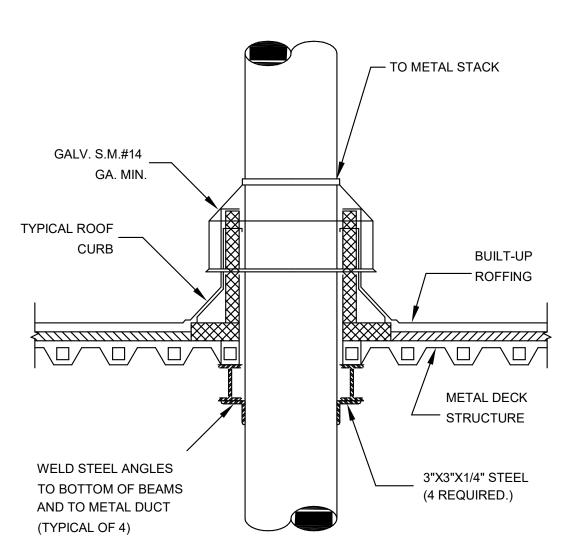
HVAC TYPICAL DETAILS SHEET 3

DRAWING NUMBER









M028 DUCT THROUGH ROOF PENETRATION DETAIL

NOT TO SCALE



LNGINL

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SHEET TITLE

HVAC TYPICAL DETAILS SHEET 4

DRAWING NUMBER

DRAWING INDEX

TYPICAL DETAILS INDEX

HIGH SERVICE PUMP STATION - PRESSURE TRANSMITTER

HIGH SERVICE PUMP STATION - LOW PRESSURE SWITCH

UF STRAINER DIFFERENTIAL PRESSURE SWITCH

99-1701	
1001	CONCRETE VESSEL - RADAR LEVEL TRANSMITTER
1002	CONCRETE VESSEL - LEVEL SWITCH
1003	ELECTROMAGNETIC FLOW METER
1004	PRESSURE SWITCH OR GAUGE, PIPE MOUNTED
1005	MOUNTING - INSTRUMENT/EQUIPMENT, PEDESTAL
99-1702	
1006	CHEMICAL STORAGE VESSEL - RADAR LEVEL TRANSMITTER
1007	CHEMICAL STORAGE VESSEL - LEVEL SWITCH

99-1703

1010

IO11 GAS DETECTION SENSOR AND ANALYZERIO12 CLEARWELL DRAIN VAULT - PRESSURE MONITORING



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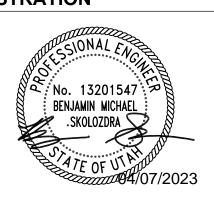
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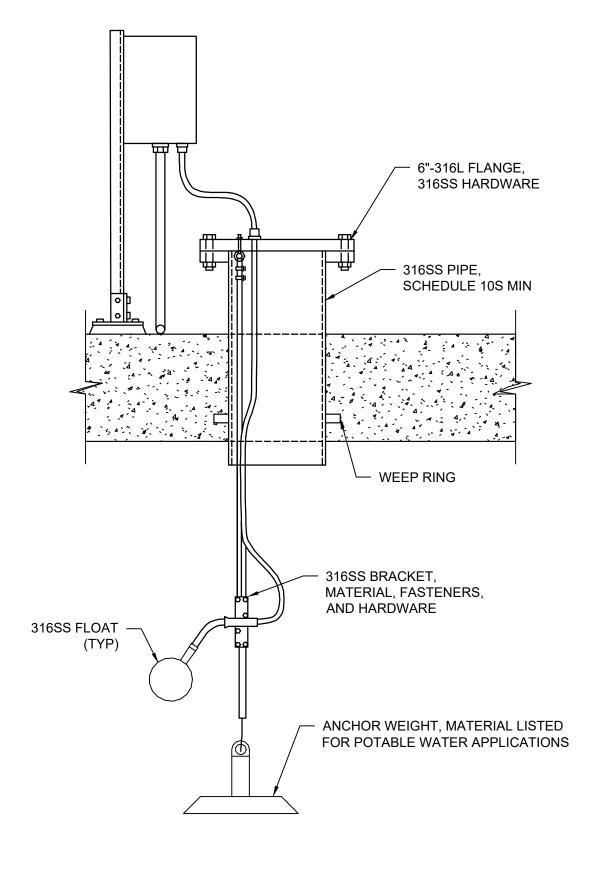
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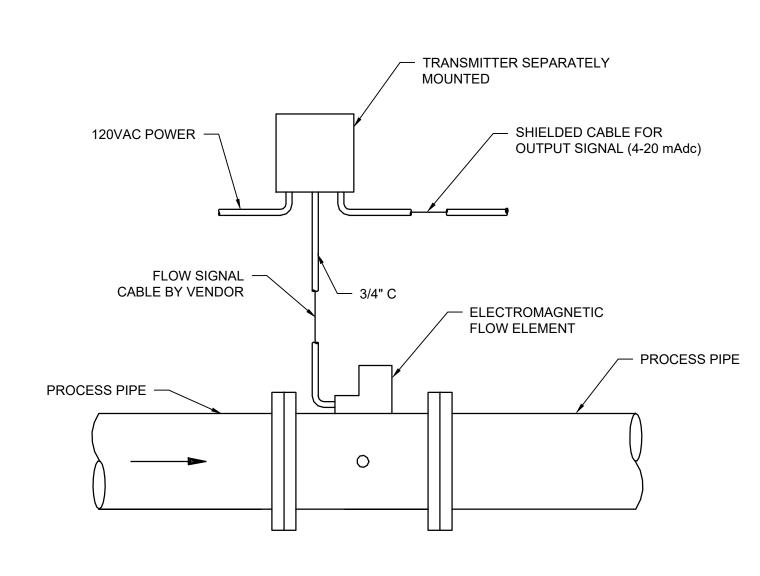
I&C INSTRUMENTATION TYPICAL DETAILS INDEX

DRAWING NUMBER

99-170

- LEVEL TRANSMITTER 6", RF, #150, — 316L FLANGE, 316SS HARDWARE - TO PLC **ENCLOSURE** 316SS PIPE, SCHEDULE 10S MIN 3'-0" (A) D LEVEL SENSOR



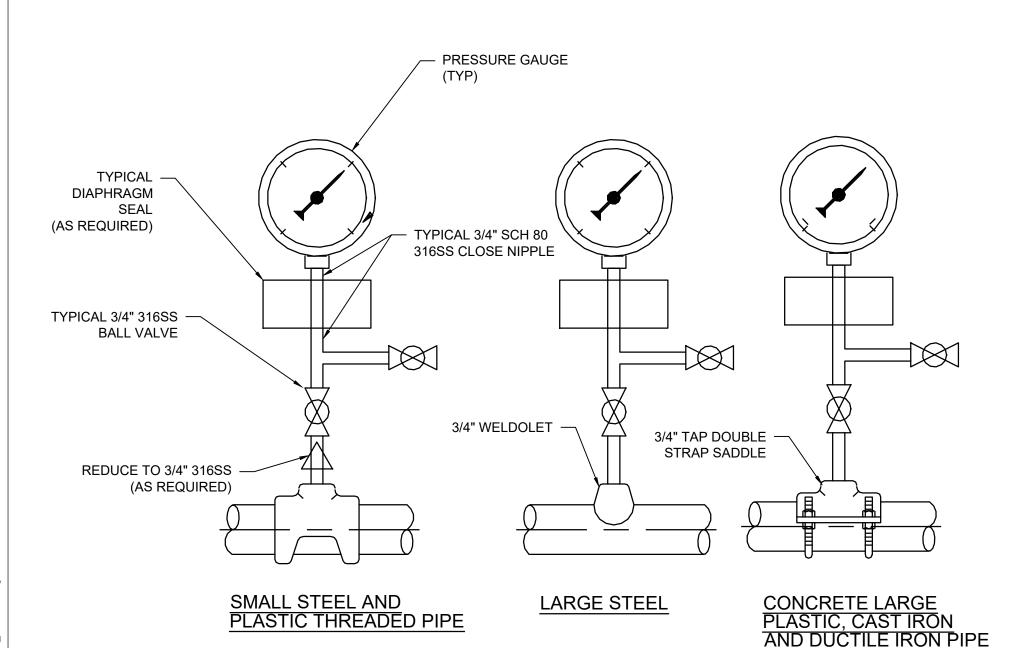


REFER TO ELECTRICAL DETAILS FOR FLOW METER GROUNDING REQUIREMENTS

CONCRETE VESSEL - RADAR LEVEL TRANSMITTER (1001)NOT TO SCALE

CONCRETE VESSEL - LEVEL SWITCH NOT TO SCALE

ELECTROMAGNETIC FLOW METER NOT TO SCALE



1/4" STAINLESS STEEL PLATE WITH 5/16" U-BOLTS INSTRUMENT/ · 2" STAINLESS STEEL PIPE, SCHEDULE 10S **EQUIPMENT** MINIMUM, AND FLOOR FLANGE. COAT PIPE THREADS IN ACCORDANCE WITH SPECIFICATIONS MOUNT AT — 4'-0" ± - ELECTRICAL CONDUIT(S) STAINLESS STEEL FLOOR FLANGE AND STAINLESS STEEL CONCRETE ANCHORS CONCRETE FLOOR OR — PLATFORM NON-SHRINK GROUT

UNLESS OTHERWISE NOTED, ALL MOUNTING HARDWARE TO BE STAINLESS STEEL. USE WASHERS AND SPLIT LOCK-WASHERS UNDER ALL NUTS.

PRESSURE SWITCH OR GAUGE, PIPE MOUNTED

NOTES: 1. FITTING MATERIAL SHALL BE COMPATIBLE WITH MAIN

PROCESS PIPE MATERIAL. GAUGE LOCATION ON PRESSURE CONNECTIONS HIGH OFF FLOOR OR IN TRENCHES SHALL BE MOUNTED AT A HEIGHT OF APPROXIMATELY 4-1/2 FEET ABOVE FLOOR MOUNTED ON A STAND ADJACENT TO THE PUMP. BOTH SUCTION AND DISCHARGE GAUGES LOCATED AT SAME ELEVATION.

MOUNTING - INSTRUMENT/EQUIPMENT, PEDESTAL

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

KEYNOTES

- MAINTAIN 3' CLEARANCE FROM WALLS AND OTHER VESSEL APPURTENANCES.
- B FURNISH SUFFICIENT LENGTH OF LIQUID TIGHT CONDUIT AND CABLE TO REMOVE THE INSTRUMENT FOR MAINTENANCE AND PROVIDE CONDUIT SEALS AS REQUIRED BY AREA CLASSIFICATION.
- C REFER TO STRUCTURAL AND PROCESS MECHANICAL DRAWINGS FOR CONCRETE OPENING LOCATIONS AND ADDITIONAL SIZING DETAILS.
- D CENTER LEVEL SENSOR IN PIPE AND FLANGE.



PROJECT

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D	2023-04-07	ISSUED FOR BID
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I/R	DATE	DESCRIPTION

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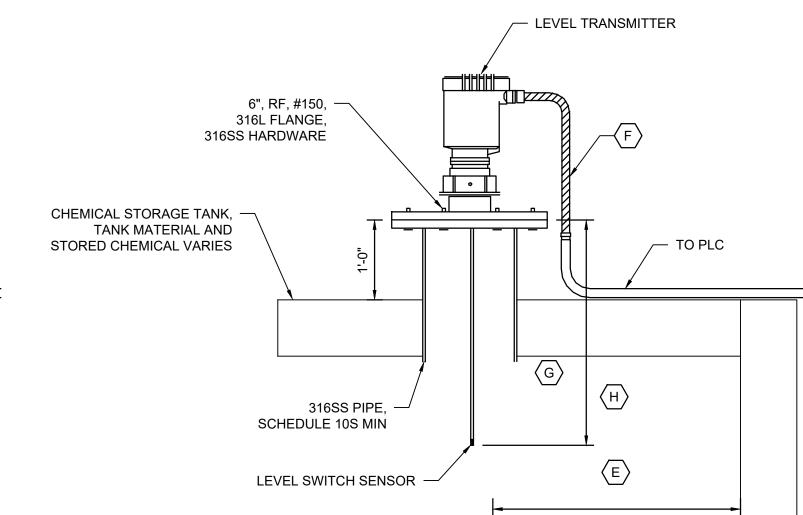
AECOM Project No. - 60670884 HAL Project No. - 035.15.420 SHEET TITLE

I&C INSTRUMENTATION TYPICAL DETAILS SHEET 1

DRAWING NUMBER

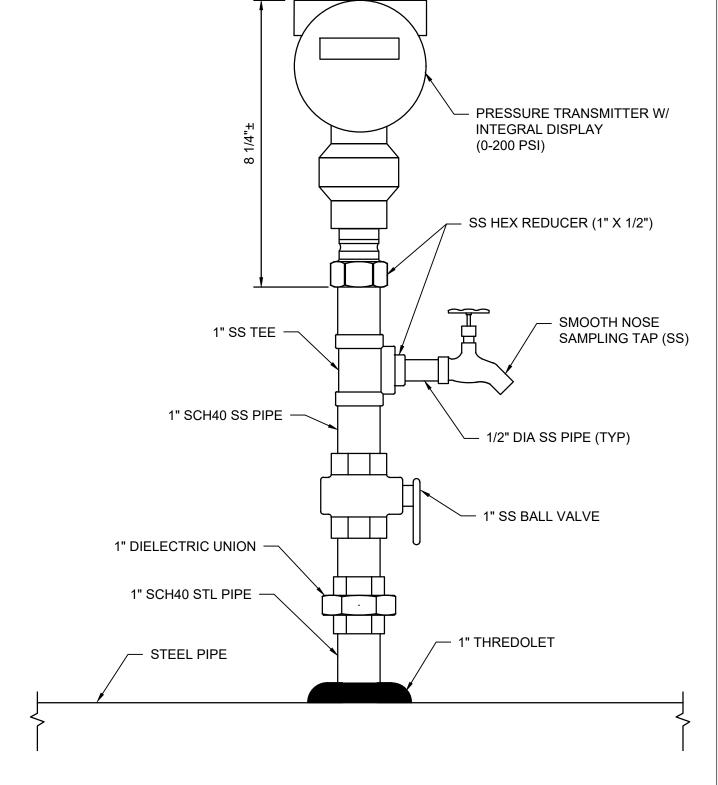
99-1701

 LEVEL TRANSMITTER 6", RF, #150, 316L FLANGE, 316SS HARDWARE CHEMICAL STORAGE TANK, -TANK MATERIAL AND TO PLC STORED CHEMICAL VARIES 316SS PIPE, SCHEDULE 10S MIN D LEVEL SENSOR -

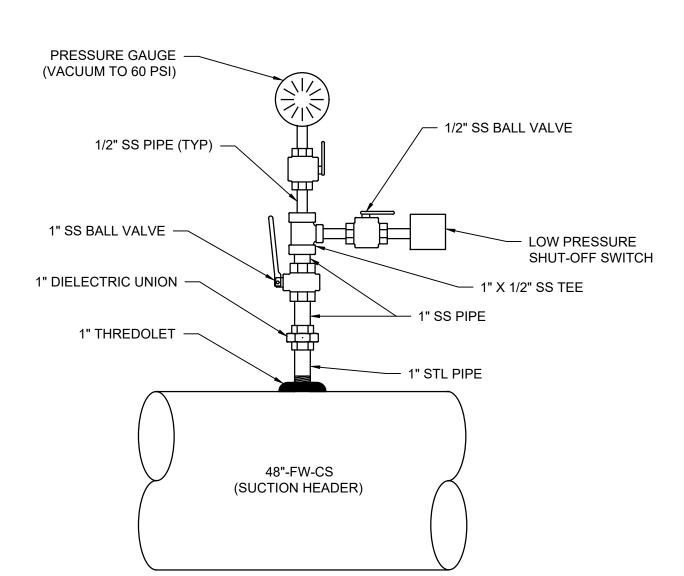


CHEMICAL STORAGE VESSEL - RADAR LEVEL TRANSMITTER

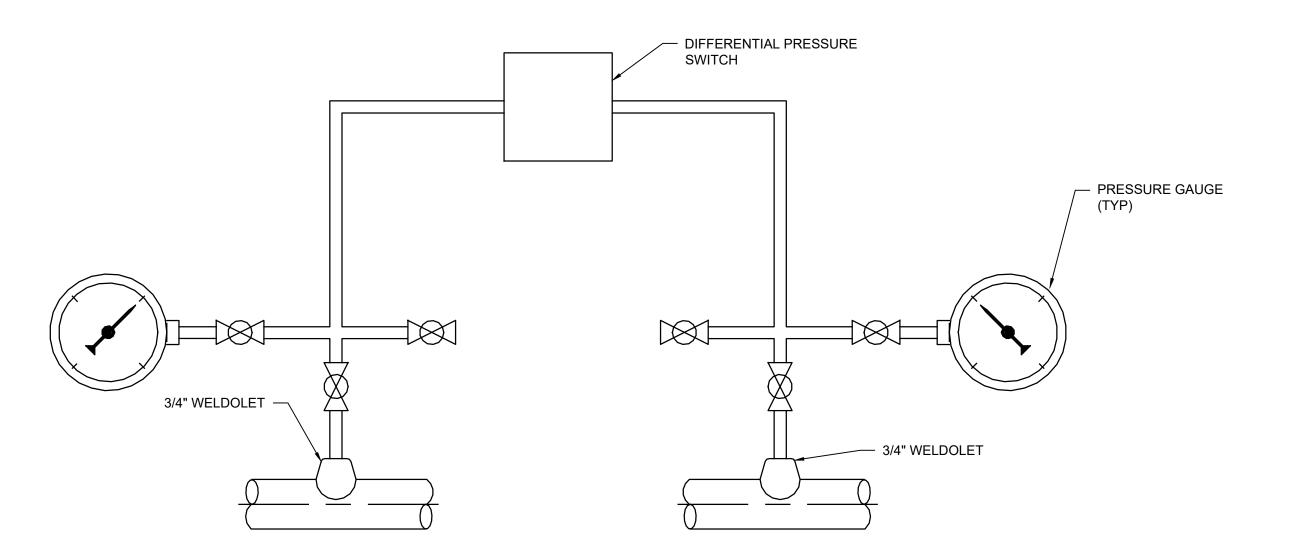
CHEMICAL STORAGE VESSEL - LEVEL SWITCH NOT TO SCALE



HIGH SERVICE PUMP STATION - PRESSURE TRANSMITTER NOT TO SCALE



HIGH SERVICE PUMP STATION - LOW PRESSURE SWITCH



UF STRAINER DIFFERENTIAL PRESSURE SWITCH

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

KEYNOTES

- A MAINTAIN MANUFACTURER'S REQUIRED MINIMUM CLEARANCE FROM WALLS AND OTHER VESSEL APPURTENANCES.
- B FURNISH SUFFICIENT LENGTH OF LIQUID TIGHT CONDUIT AND CABLE TO REMOVE THE INSTRUMENT FOR MAINTENANCE AND PROVIDE CONDUIT SEALS AS REQUIRED BY AREA CLASSIFICATION.
- C REFER TO PROCESS MECHANICAL DRAWINGS FOR VESSEL OPENING LOCATIONS AND ADDITIONAL SIZING DETAILS.
- D CENTER LEVEL SENSOR IN PIPE AND FLANGE.
- MAINTAIN MANUFACTURER'S REQUIRED MINIMUM CLEARANCE FROM WALLS AND OTHER VESSEL APPURTENANCES.
- FURNISH SUFFICIENT LENGTH OF LIQUID TIGHT CONDUIT AND CABLE TO REMOVE THE INSTRUMENT FOR MAINTENANCE AND PROVIDE CONDUIT SEALS AS REQUIRED BY AREA CLASSIFICATION.
- G REFER TO PROCESS MECHANICAL DRAWINGS FOR VESSEL OPENING LOCATIONS AND ADDITIONAL SIZING DETAILS.
- H LENGTH OF SENSOR TO BE DETERMINED BY VENDOR IN CONJUNCTION WITH VESSEL SIZE AND CHEMICAL BEING STORED.



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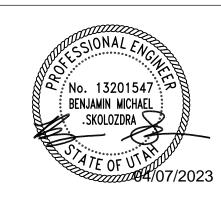
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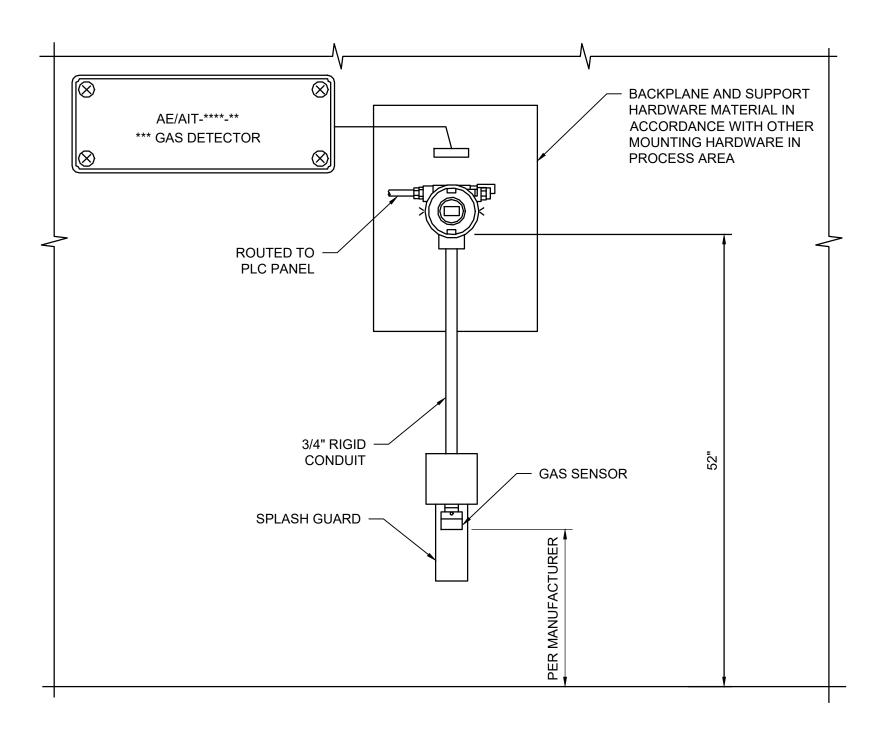
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

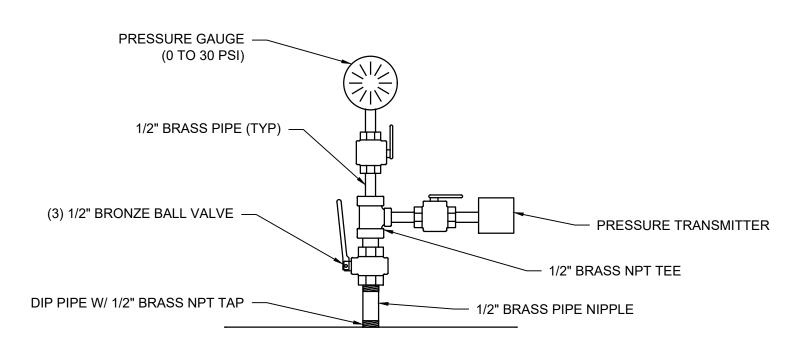
I&C INSTRUMENTATION TYPICAL DETAILS SHEET 2

DRAWING NUMBER

99-I702







CLEARWELL DRAIN VAULT - PRESSURE MONITORING

NOT TO SCALE



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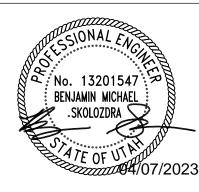
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I&C INSTRUMENTATION TYPICAL DETAILS SHEET 3

DRAWING NUMBER

BAR IS ONE INCH ON ORIGINAL DRAWING

ELECTRICAL TYPICAL DETAIL INDEX				
Detail Number	View Name			
99-E701				
E001	AIR TERMINAL 1			
E002	AIR TERMINAL 2			
E003	AIR TERMINAL 3			
E004	THRU-ROOF CONNECTION 1			
E005	THRU-ROOF CONNECTION 2			
E006	VFCWELD EXOTHERMIC WELD MOLD - GT			
E007	HANDRAIL BONDING DETAIL 1			
E008	HANDRAIL BONDING DETAIL 2			
E009	XB36FTTW TESTWELL DETAIL			
E010	K2L-10CS2IU-24 XIT GROUND ROD			
E011	MISCELLANEOUS			
E012	TYPICAL DOWNLEAD DETAIL			
E013	COMMON BONDING GROUND BUS			
99-E702				
E014	WALL HUNG FIXTURE MOUNTING DETAIL			
E015	CONDUIT RISER DETAIL			
E016	CONDUIT HORIZONTAL SUPPORT DETAIL			
E017	CONTROL PANEL LAYOUT DETAIL			
E018	DIN RAIL MOUNTING DETAIL			
E019	ELECTRICAL DEVICES MOUNTING HEIGHT DETAIL			
E020	CONDUIT VERTICAL SUPPORT DETAIL			
E021	EQUIPMENT GROUNDING CONNECTION DETAIL			
E022	ABOVE GROUND CONDUIT PENETRATIONS FOR NEW WALLS/FLOORS DETAIL			
E023	ELECTRICAL UNIT HEATER CONTROL DIAGRAM			
E024	EXISTING WALL/DRY FLOOR PENETRATIONS DETAIL			
99-E703				
E025	TYPICAL CONDUIT SEAL DAMMING AND POURING DETAIL			
E026	TYPICAL MOTOR LEAD TERMINATION DETAIL			
E027	SUSPENDED CONDUIT SUPPORT DETAIL			
E028	CONCRETE HOUSEKEEPING CURB DETAIL			
E029	CONDUIT MARKING SYSTEM DETAIL			
E030	VFD GROUNDING DETAIL			
E031	BONDING LUG DETAIL			
E032	JUNCTION BOX MOUNTING DETAIL			
E033	FLOW METER GROUND RING CONNECTION DETAIL			
E034	EQUIPMENT NAMEPLATE DETAIL			
99-E704	TRENCH RETAIL COR RECTORATION			
E035	TRENCH DETAIL - SOD RESTORATION			
E036	TRENCH DETAIL - NATURAL RESTORATION			
E037	TRENCH DETAIL - ROADWAY			
E038	TERMINAL BLOCK CLEARANCE DETAIL			
E039 E040	GROUND INSERT DETAIL			
E040 E041	FLOOD FLOAT SWITCH INSTALLATION DETAIL GROUNDING TEST WELL DETAIL			
E042	AREA LIGHTING/SECURITY POLE BASE DETAIL			
E042 E043	CONDUIT STUB-UP DETAIL			
E044	EQUIPMENT PEDESTAL MOUNTING DETAIL			
99-E705	LQUIFWENT FEDESTAL WOUNTING DETAIL			
E045	TRANSFORMER MOUNTING DETAIL			
LUTU	TIVATOL OTTWICK WOOM TING DETAIL			

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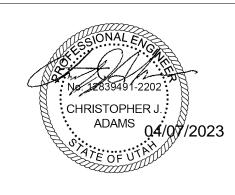
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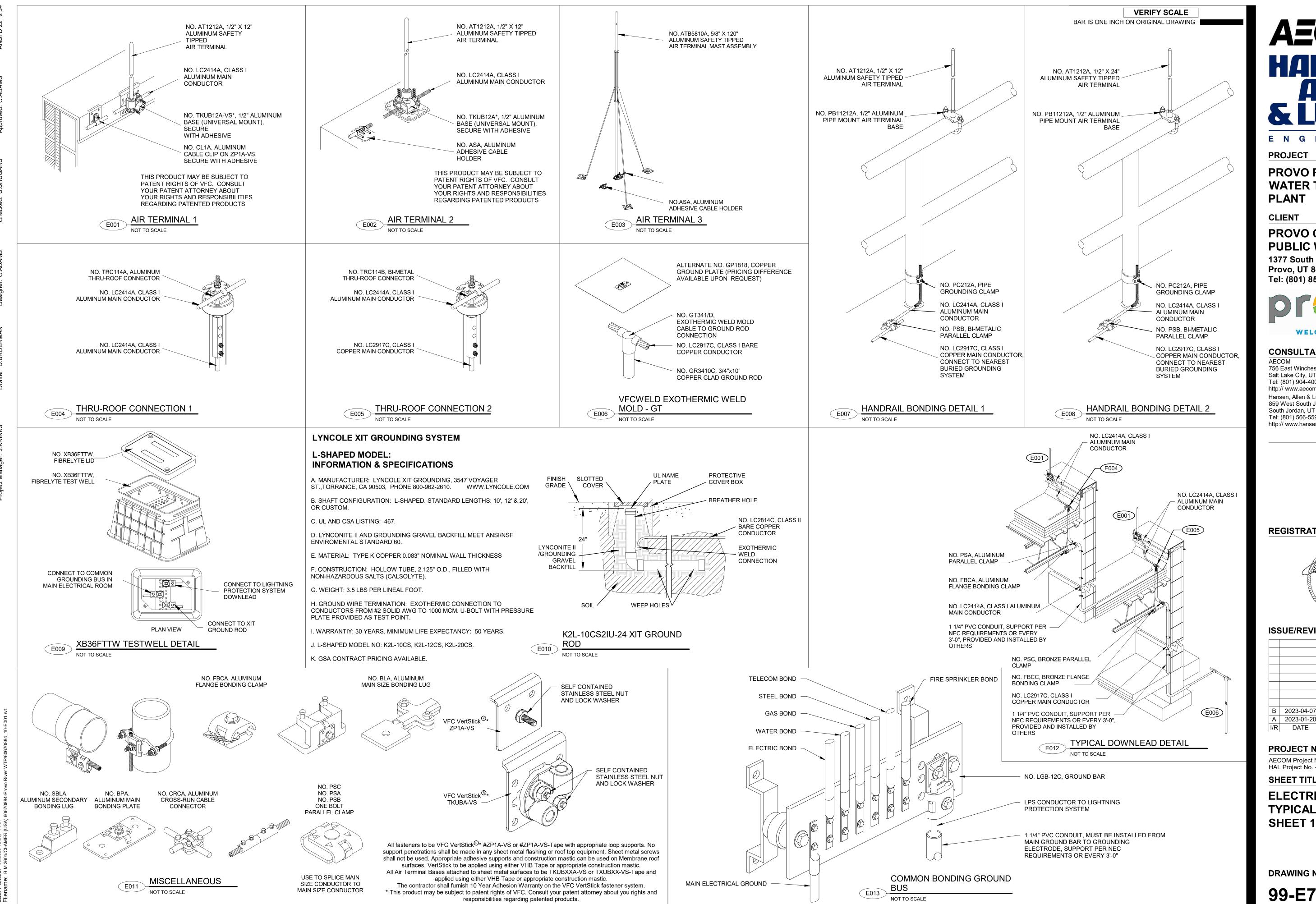
PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

ELECTRICAL
TYPICAL DETAILS
INDEX

DRAWING NUMBER



PROJECT

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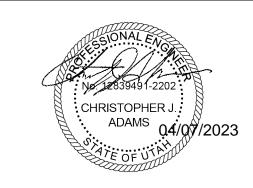


WELCOME HOME

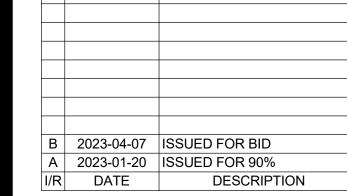
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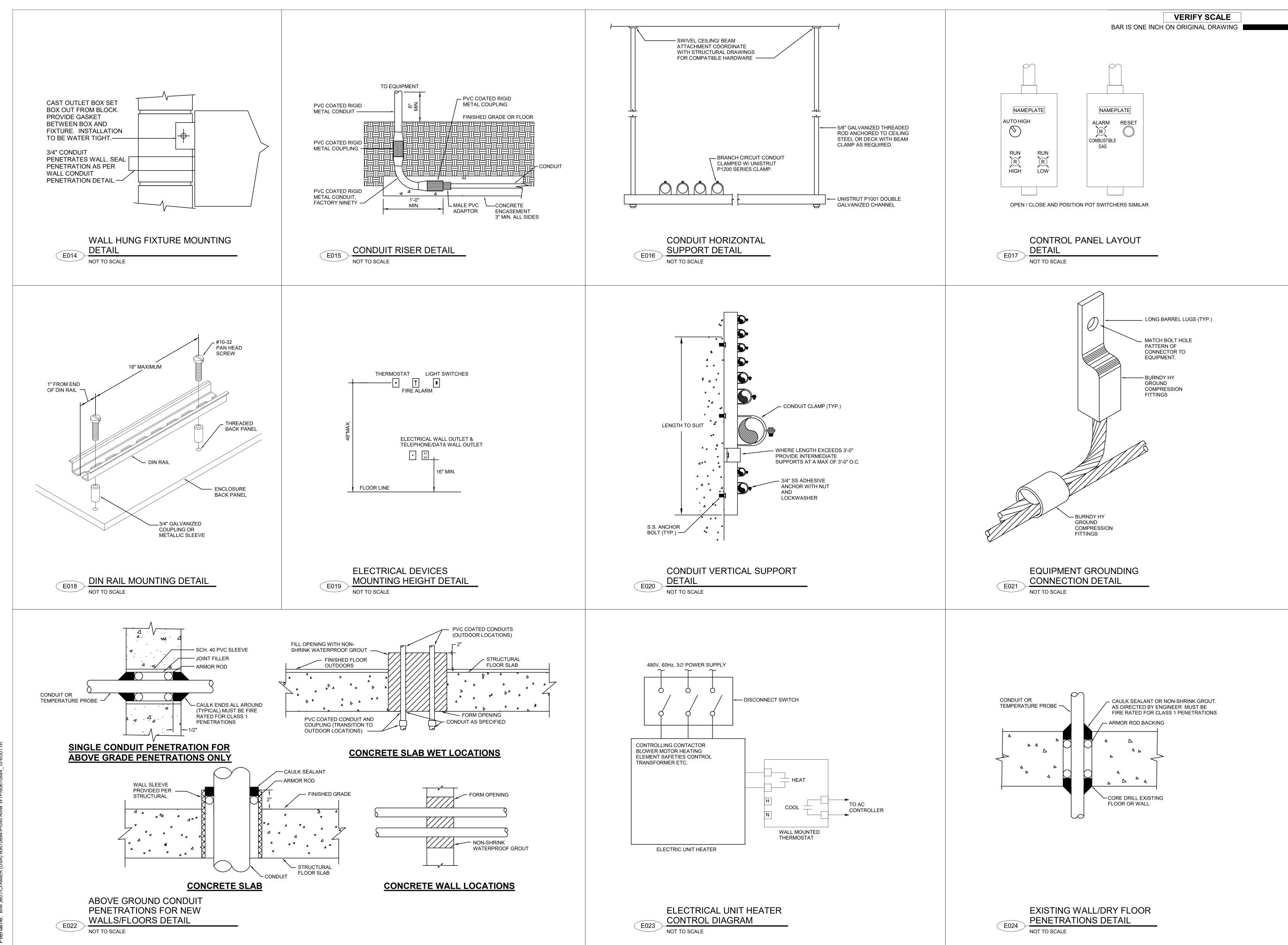
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& LUCEIRE

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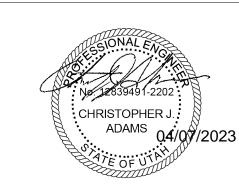
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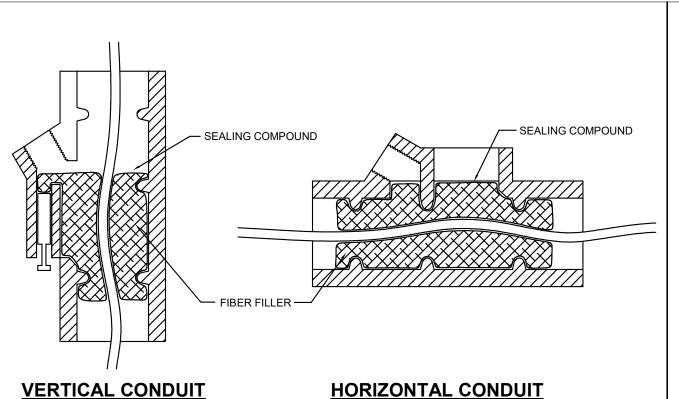
PROJECT NUMBER

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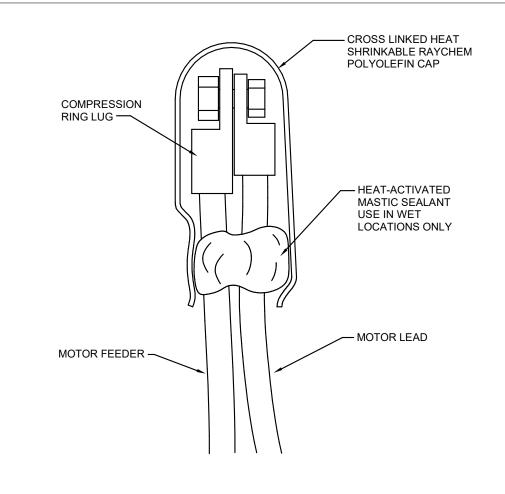
SHEET TITLE

ELECTRICAL
TYPICAL DETAILS
SHEET 2

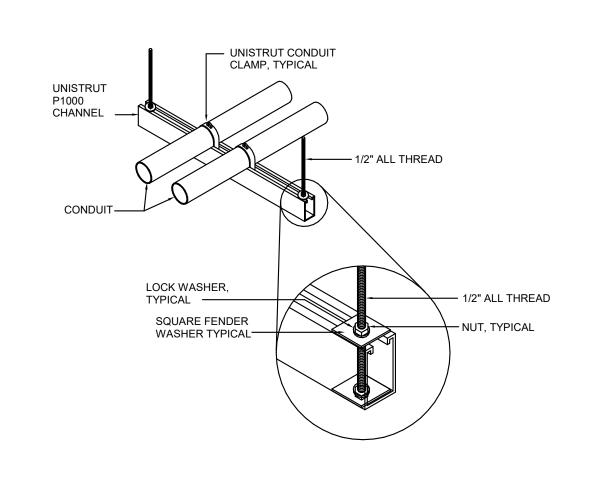
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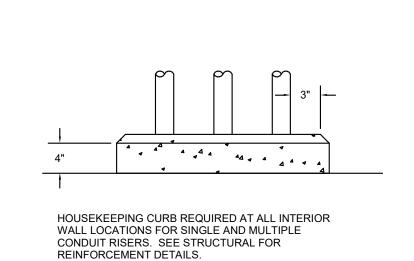
TYPICAL CONDUIT SEAL DAMMING AND POURING DETAIL



TYPICAL MOTOR LEAD TERMINATION DETAIL



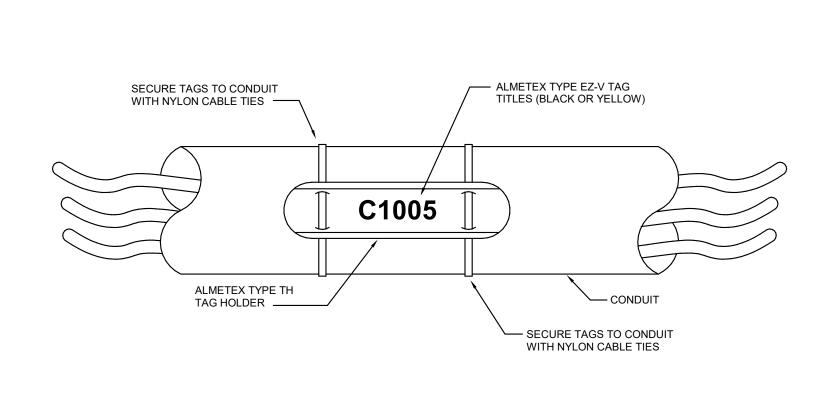
SUSPENDED CONDUIT SUPPORT NOT TO SCALE



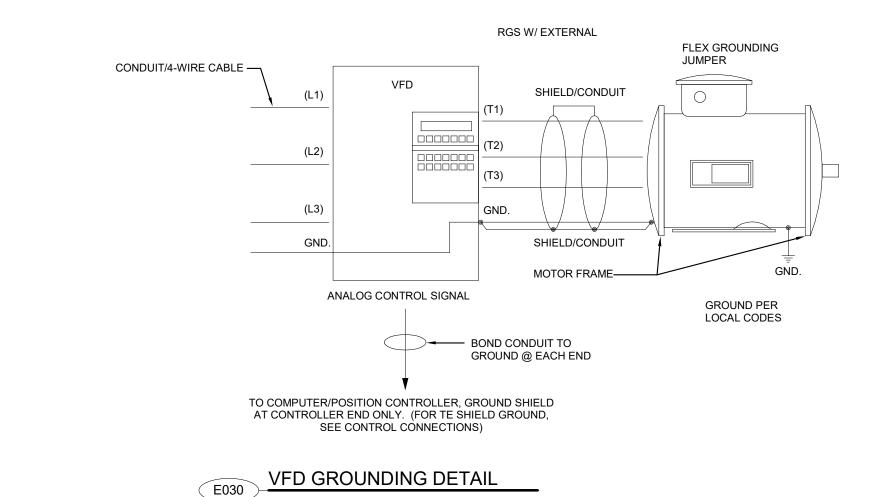
VERIFY SCALE

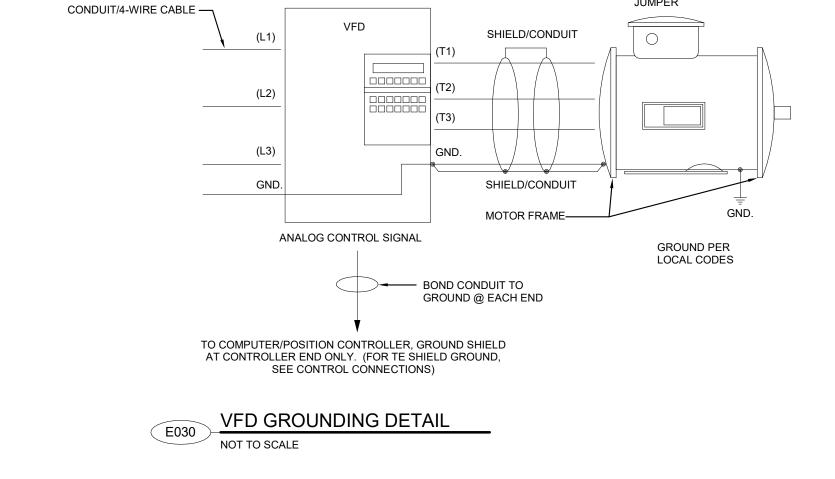
BAR IS ONE INCH ON ORIGINAL DRAWING

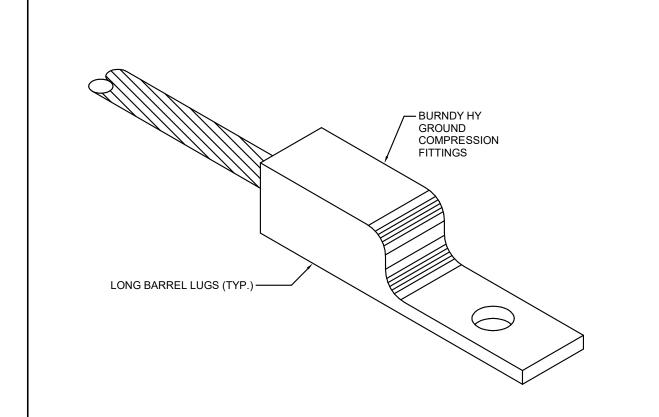
CONCRETE HOUSEKEEPING **CURB DETAIL**



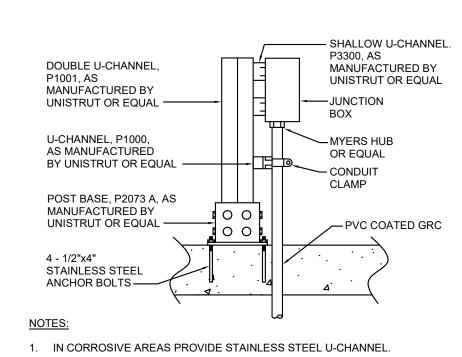
CONDUIT MARKING SYSTEM







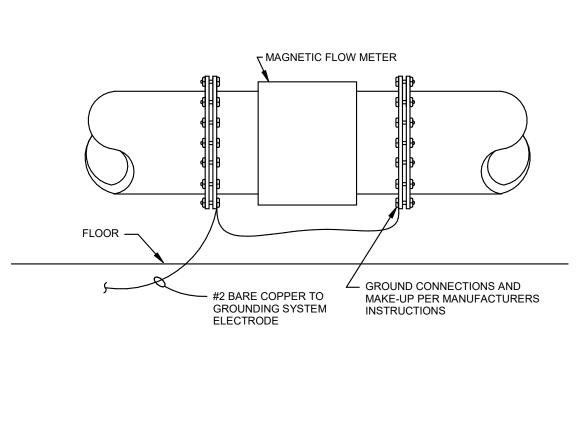
BONDING LUG DETAIL



2. OMIT POST BASE WHEN MOUNTING TO SIDE OF ABOVE GRADE STRUCTURE.

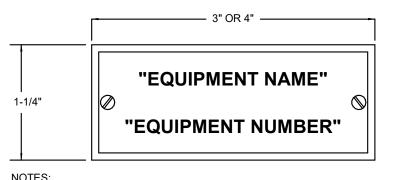
3. PROVIDE HARDWARE OF SAME MATERIAL AS U-CHANNEL.

JUNCTION BOX MOUNTING



FLOW METER GROUND RING CONNECTION DETAIL

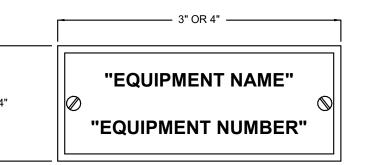
NOT TO SCALE



NOTES:

1. 1ALL LETTERS TO BE 1/4" UNLESS NOTED OTHERWISE.

3. ATTACH ALL NAMEPLATES WITH STAINLESS STEEL SCREWS.



2. ALL NAMEPLATES TO BE MOUNTED ON THE VERTICAL CENTERLINE OF THE CUBICAL OR DEVICE.

4. PROVIDE BLANK NAMEPLATES FOR ALL SPARE AND FUTURE



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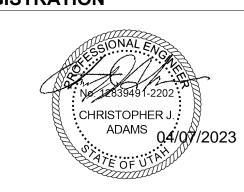
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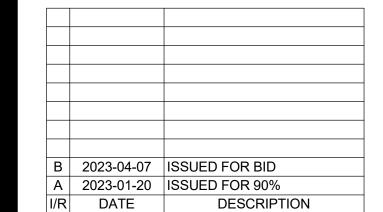
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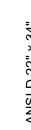
PROJECT NUMBER

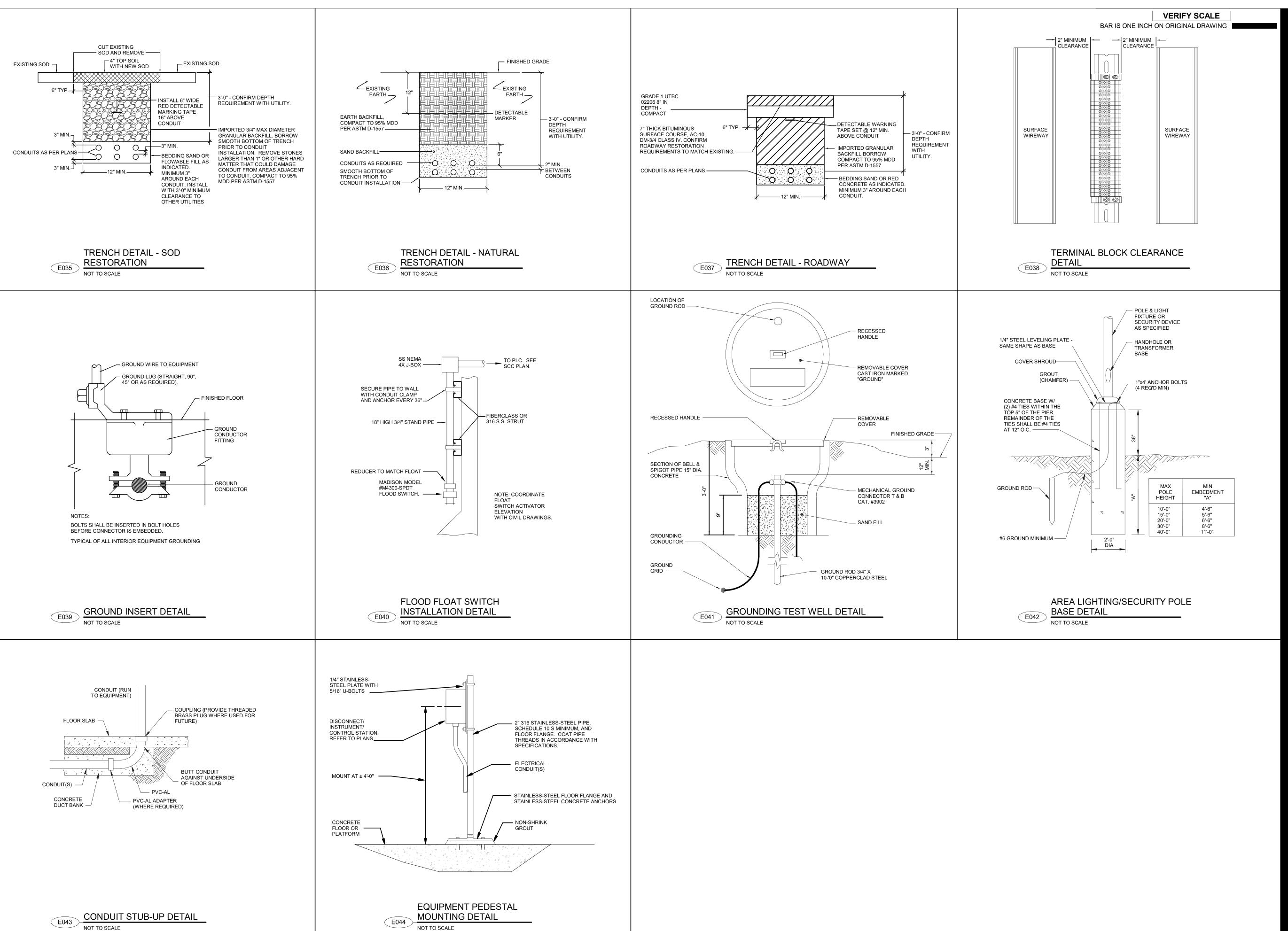
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

ELECTRICAL TYPICAL DETAILS SHEET 3

DRAWING NUMBER







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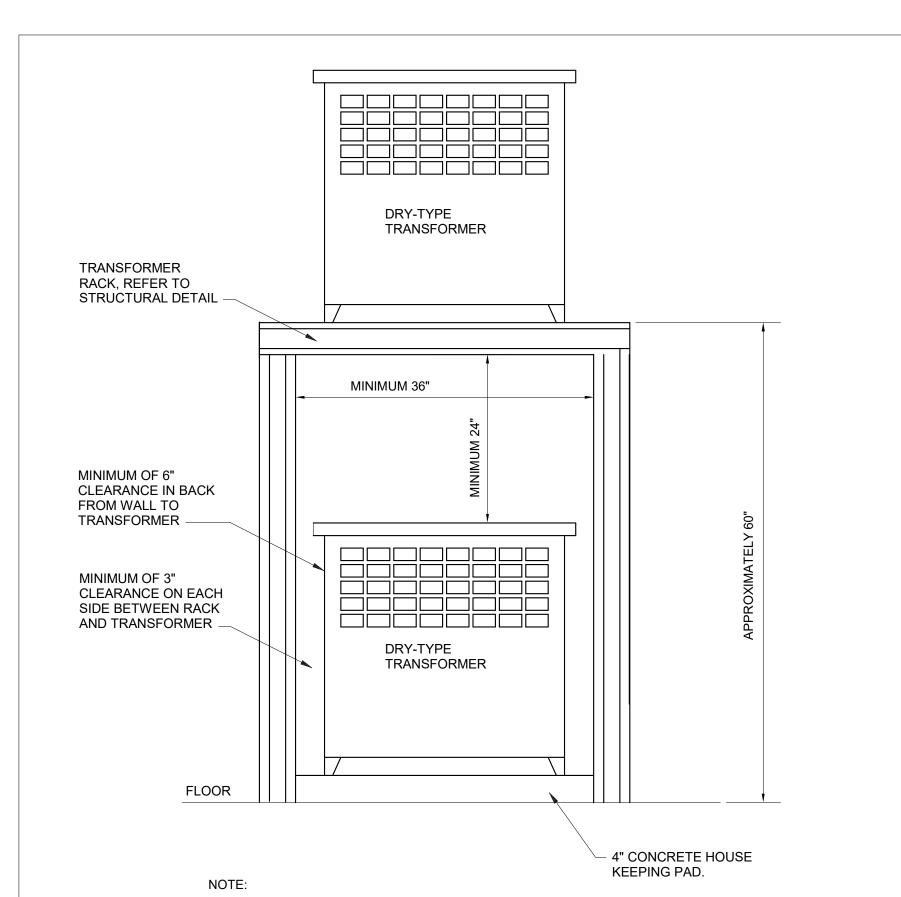
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

ELECTRICAL TYPICAL DETAILS SHEET 4

DRAWING NUMBER

BAR IS ONE INCH ON ORIGINAL DRAWING



REFER TO APPROVED SHOP DRAWINGS FOR EXACT TRANSFORMER SIZE AND DIMENSIONS. ADJUST RACK SIZE ACCORDINGLY.

TRANSFORMER MOUNTING

NOT TO SCALE

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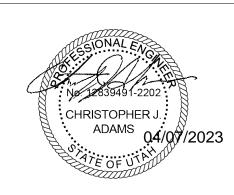


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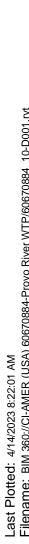
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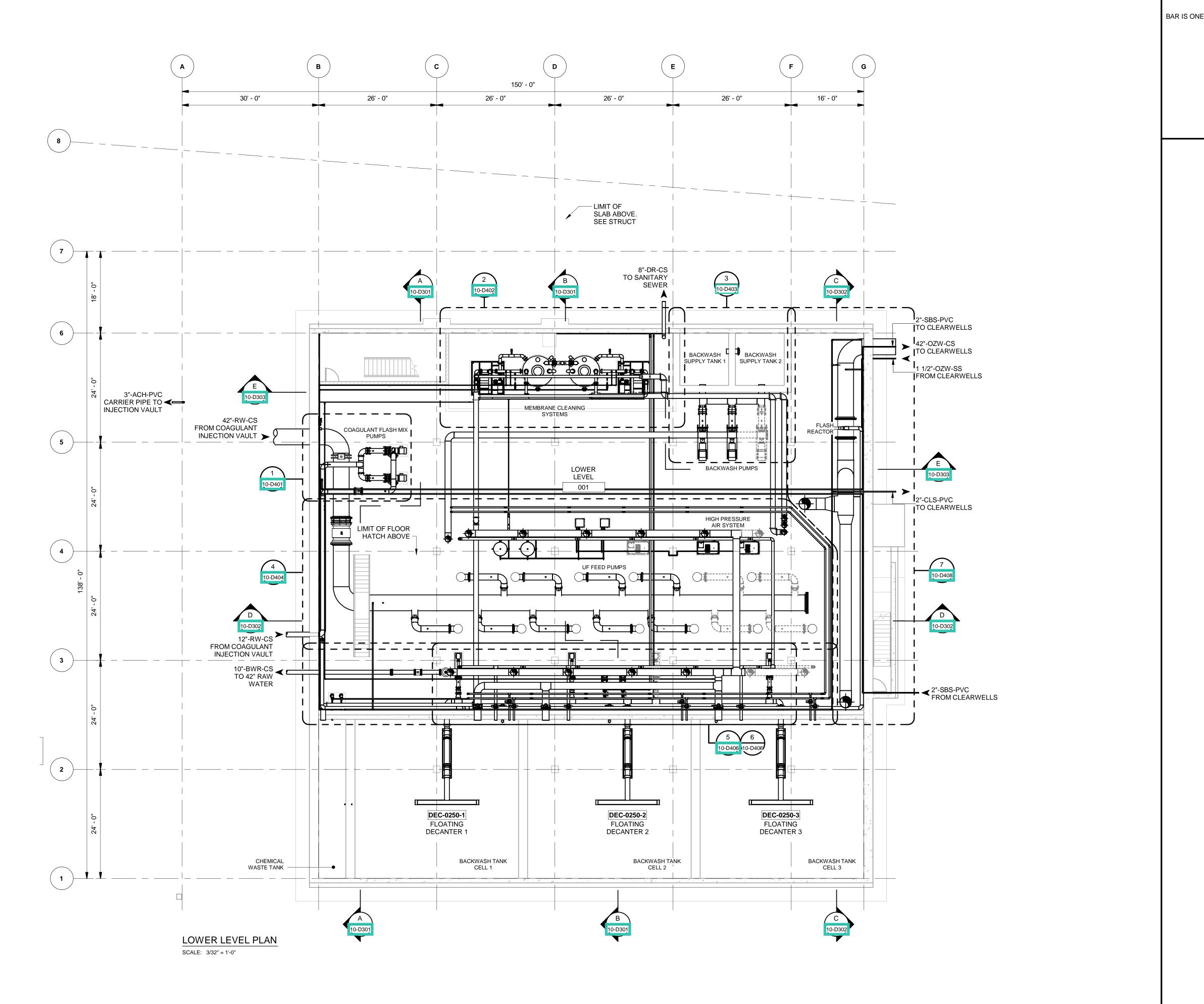
SHEET TITLE

ELECTRICAL
TYPICAL DETAILS
SHEET 5

DRAWING NUMBER

99-F70





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TEMO D

ITEMS DASHED INDICATE EQUIPMENT TO BE DEDUCTED FOR 20MGD BID ALTERNATIVE. SEE 00 43 00 BID SCHEDULE FOR DESCRIPTION OF WORK TO BE EXCLUDED.

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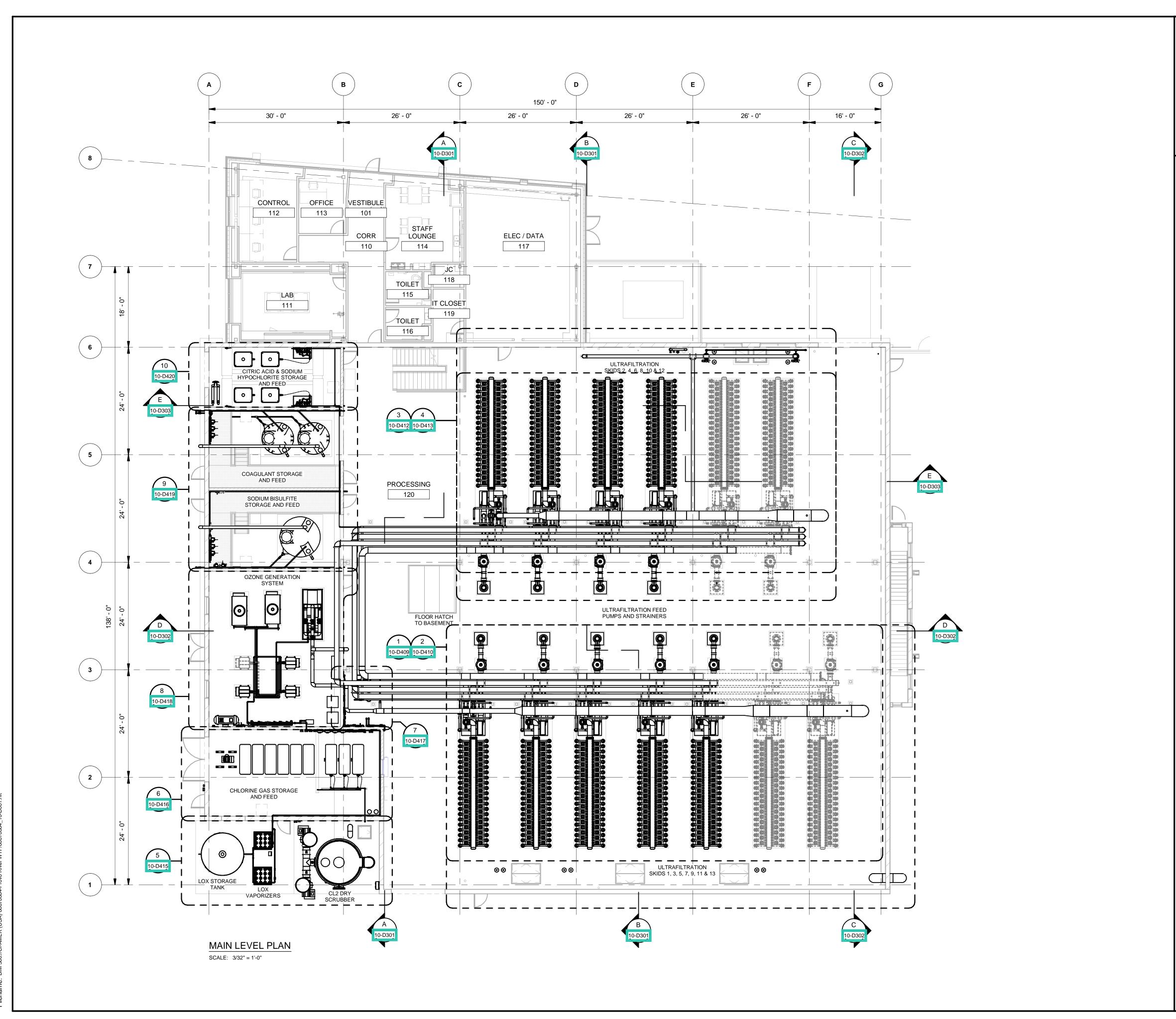
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SHEET TITLE

WATER TREATMENT
PROCESS MECHANICAL
LOWER LEVEL
PROCESS PIPING PLAN

DRAWING NUMBER

10-D101 - D1



BAR IS ONE INCH ON ORIGINAL DRAWING

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756 East Winchester Street Salt Lake City, UT 84107 Tel: (801) 904-4000 Fax: (801) 904-4100 http:// www.aecom.com Hansen, Allen & Luce, Inc.

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ITEMS DASHED INDICATE EQUIPMENT TO BE **DEDUCTED FOR 20MGD BID ALTERNATIVE.** SEE 00 43 00 BID SCHEDULE FOR DESCRIPTION OF WORK TO BE EXCLUDED.

REGISTRATION

ISSUE/REVISION

D	2023-04-07	ISSUED FOR BID
С	2023-01-20	ISSUED FOR 90%
В	2022-10-24	ISSUED FOR 60%
Α	2022-07-01	ISSUED FOR 30%
I/R	DATE	DESCRIPTION

PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

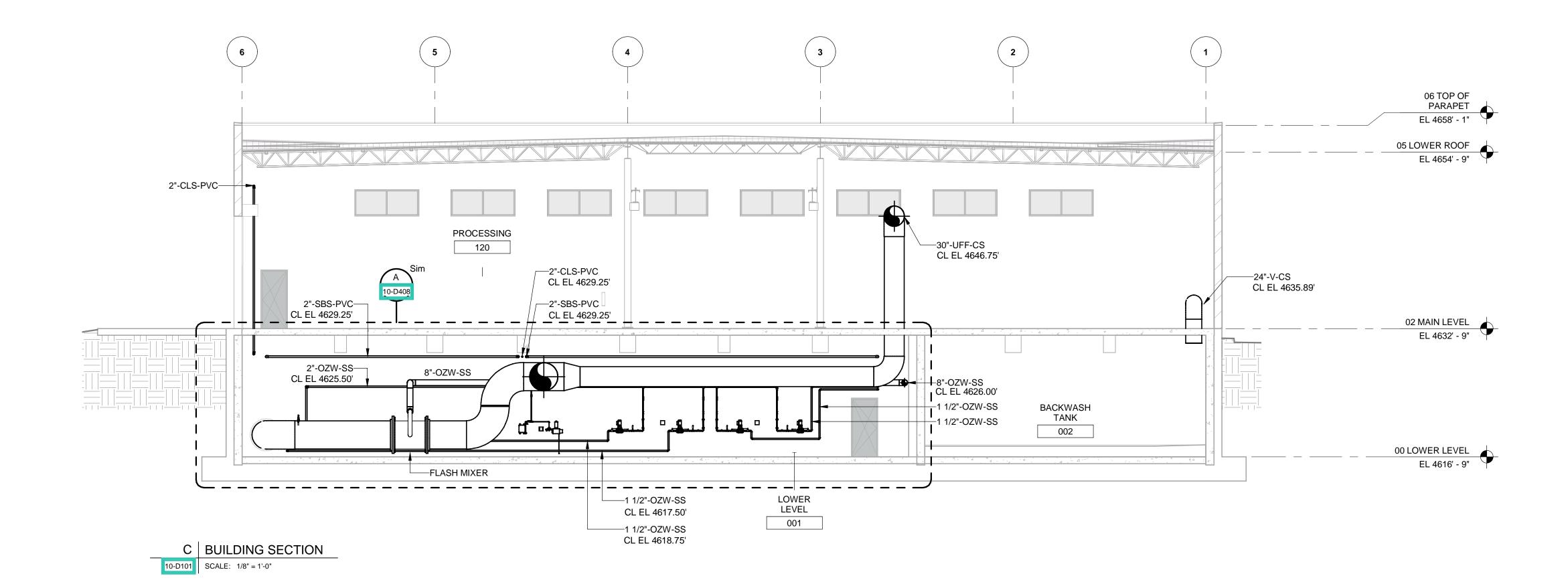
SHEET TITLE

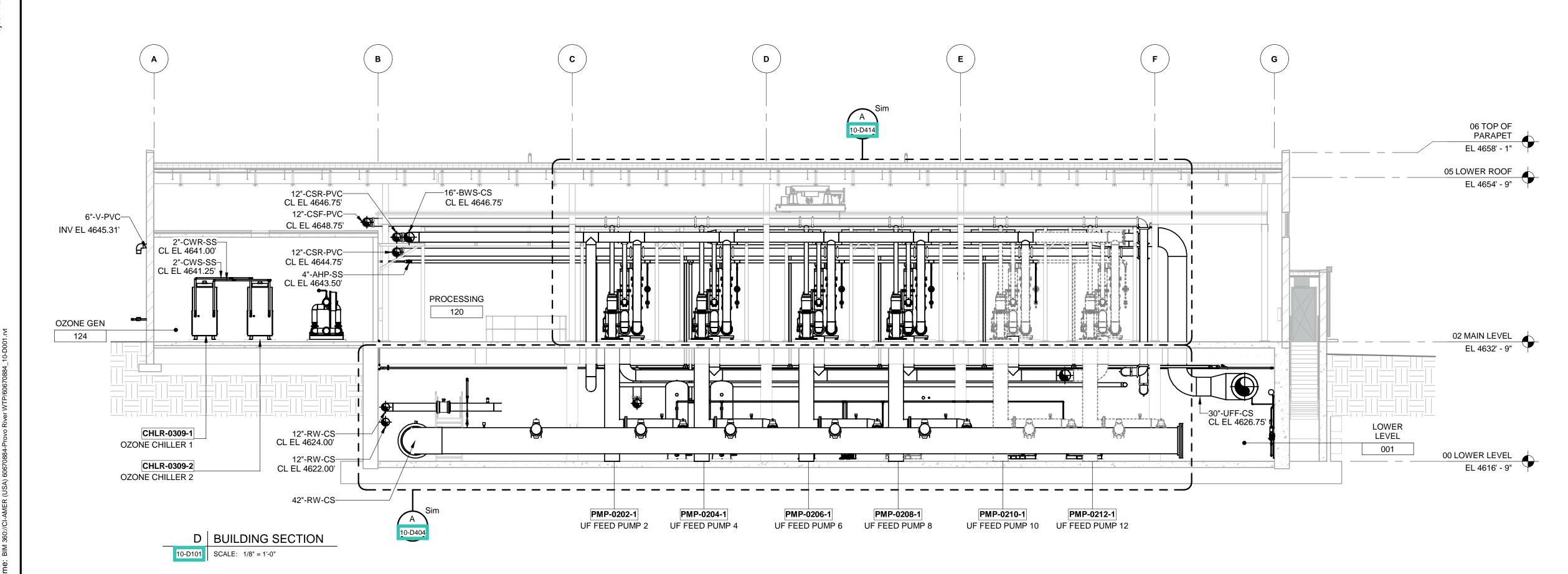
WATER TREATMENT PROCESS MECHANICAL **MAIN LEVEL** PROCESS PIPING PLAN

DRAWING NUMBER

10-D102 - D1









ENGINEERS

PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

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NOTIC

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

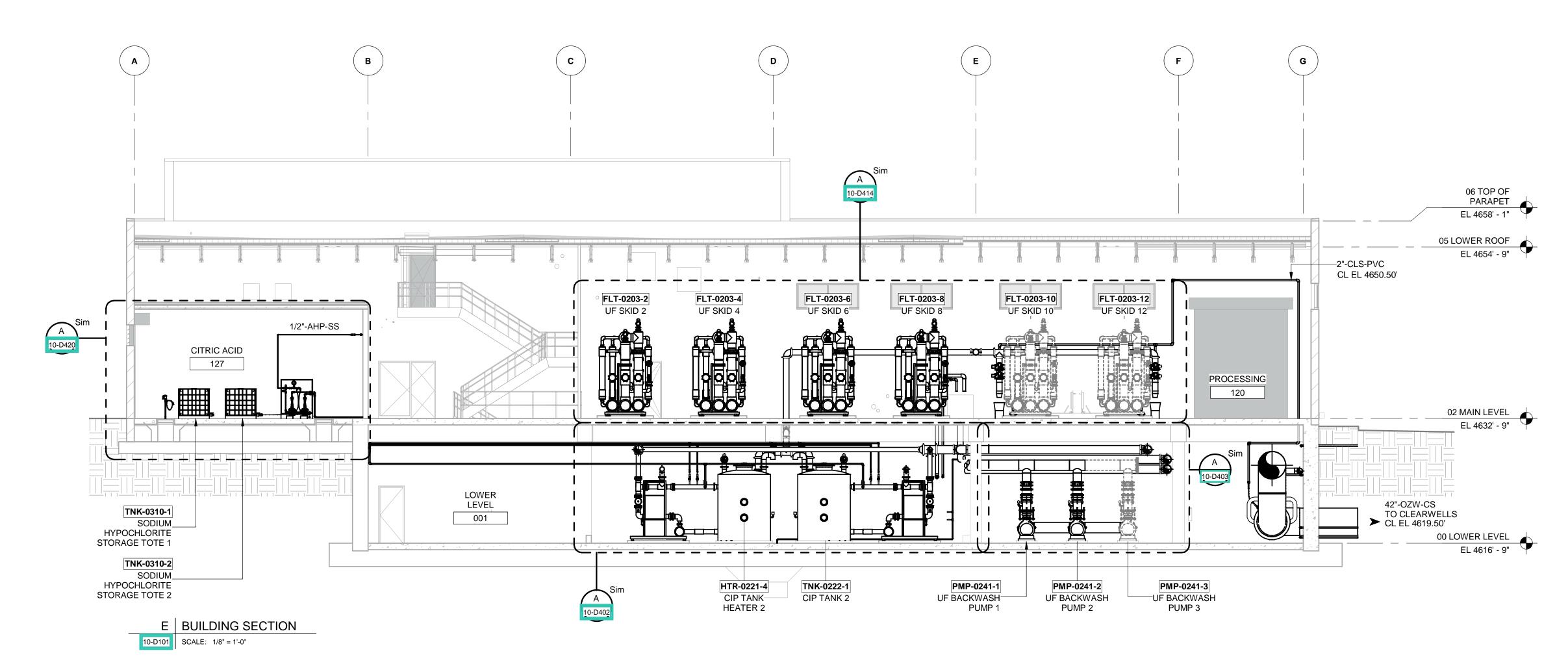
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT PROCESS MECHANICAL BUILDING SECTIONS

DRAWING NUMBER

10-D302 - D1





ENGINEERS

PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

CLIENT

PROVO CITY **PUBLIC WORKS**

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Salt Lake City, UT 84107
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I/R	DATE	DESCRIPTION
	Α	A 2023-01-20

PROJECT NUMBER

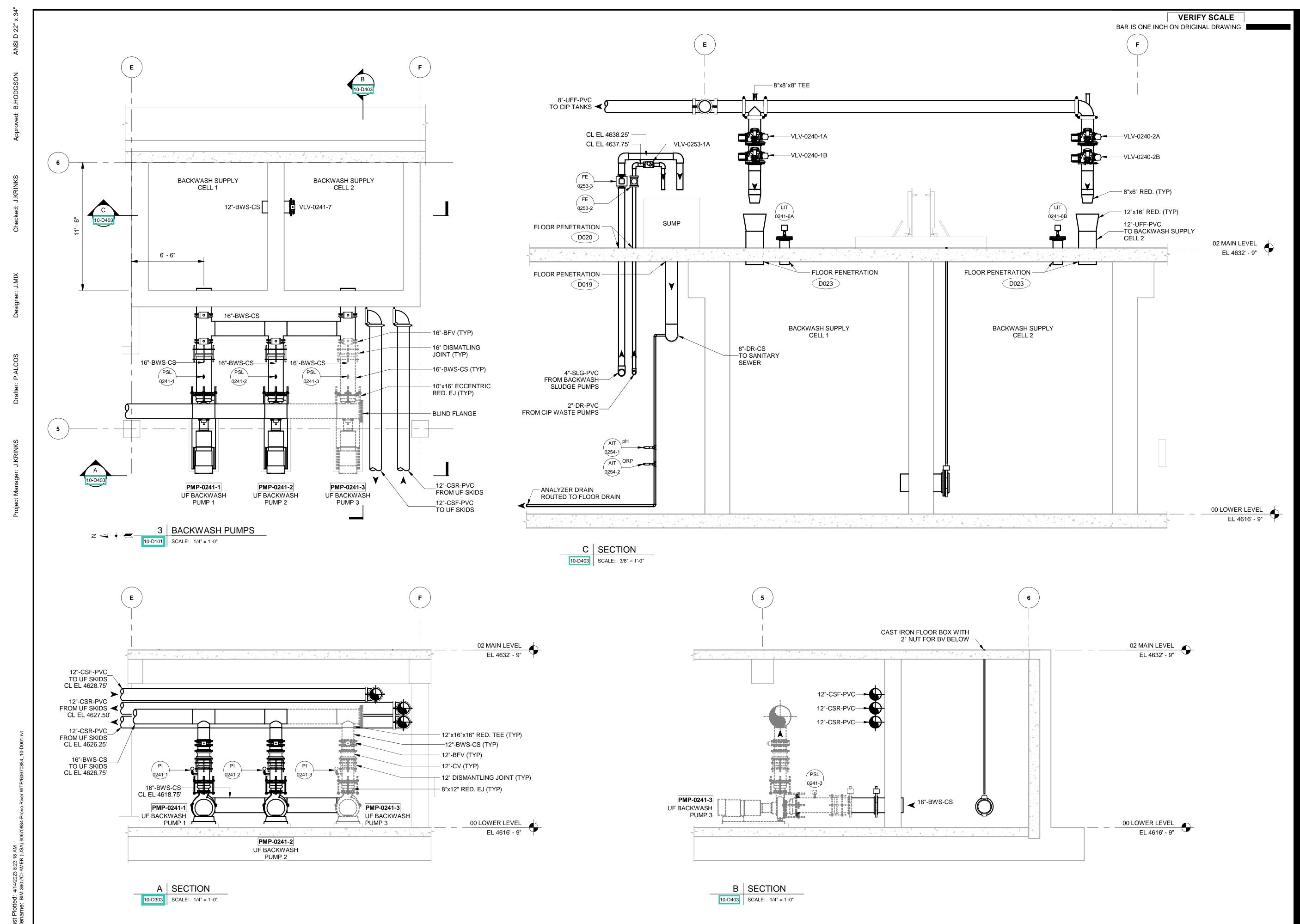
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT PROCESS MECHANICAL **BUILDING SECTION**

DRAWING NUMBER

10-D303 - D1





PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

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NOTICE

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PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT
PROCESS MECHANICAL
BACKWASH PUMPS
ENLARGED PLAN &
SECTIONS

DRAWING NUMBER

10-D403 - D1

4 UF FEED PUMPS

10-D101 | SCALE: 3/16" = 1'-0"

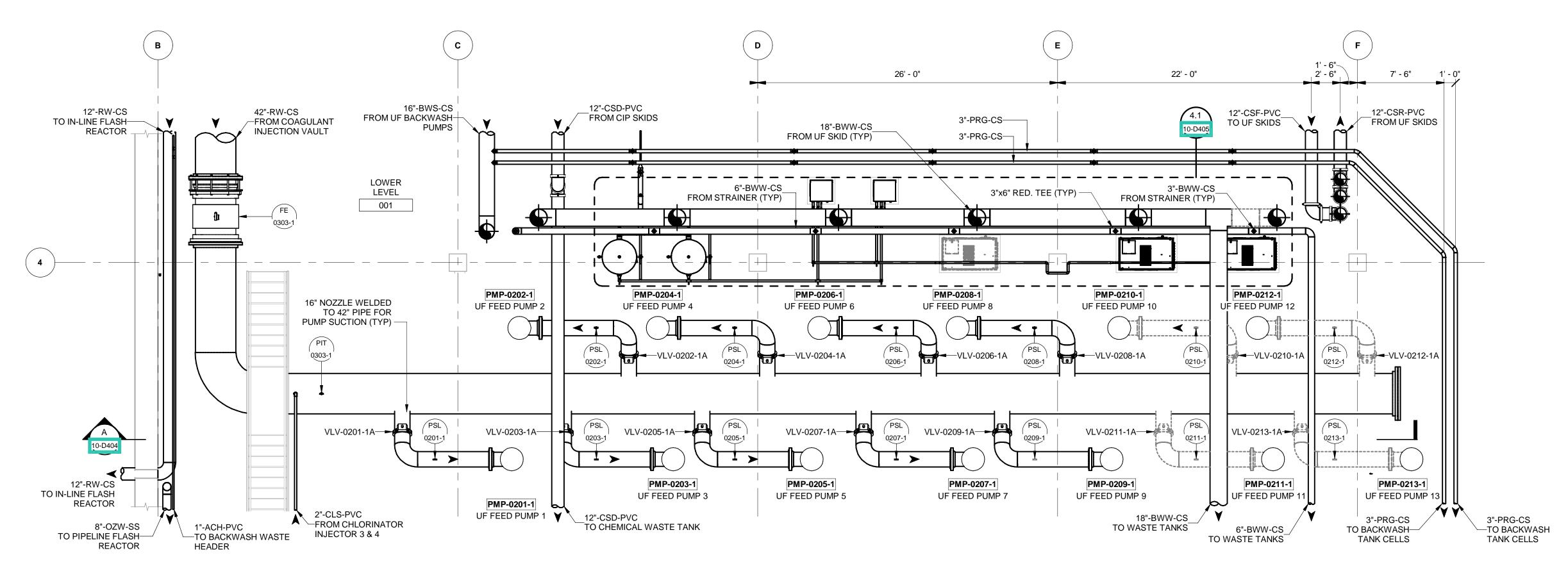
A SECTION

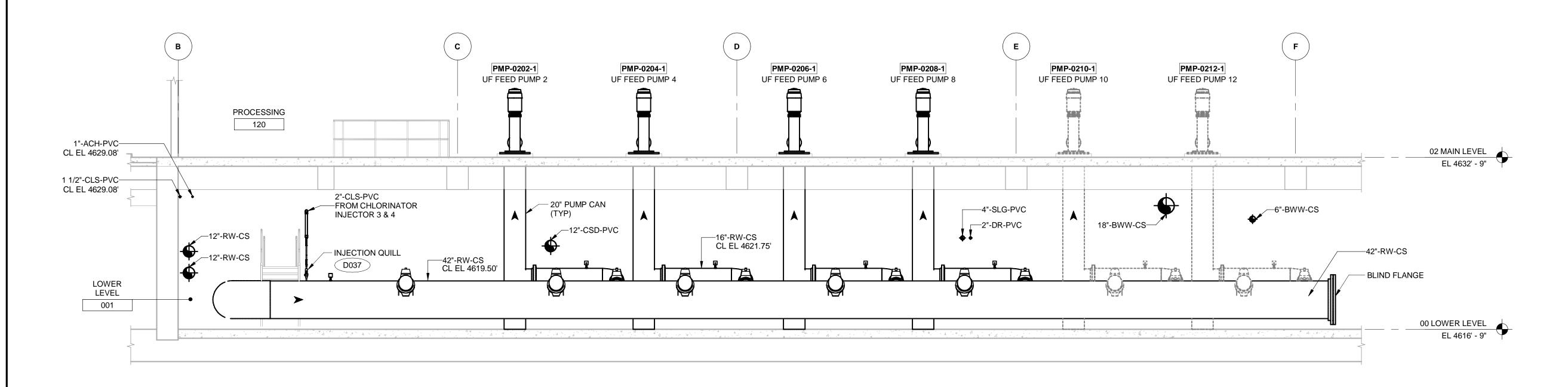
10-D302 SCALE: 3/16" = 1'-0"



VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING





AECON HANSEN ALLEI & LUCE

E N G I N E E R S

PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

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NOTIC

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

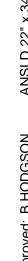
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

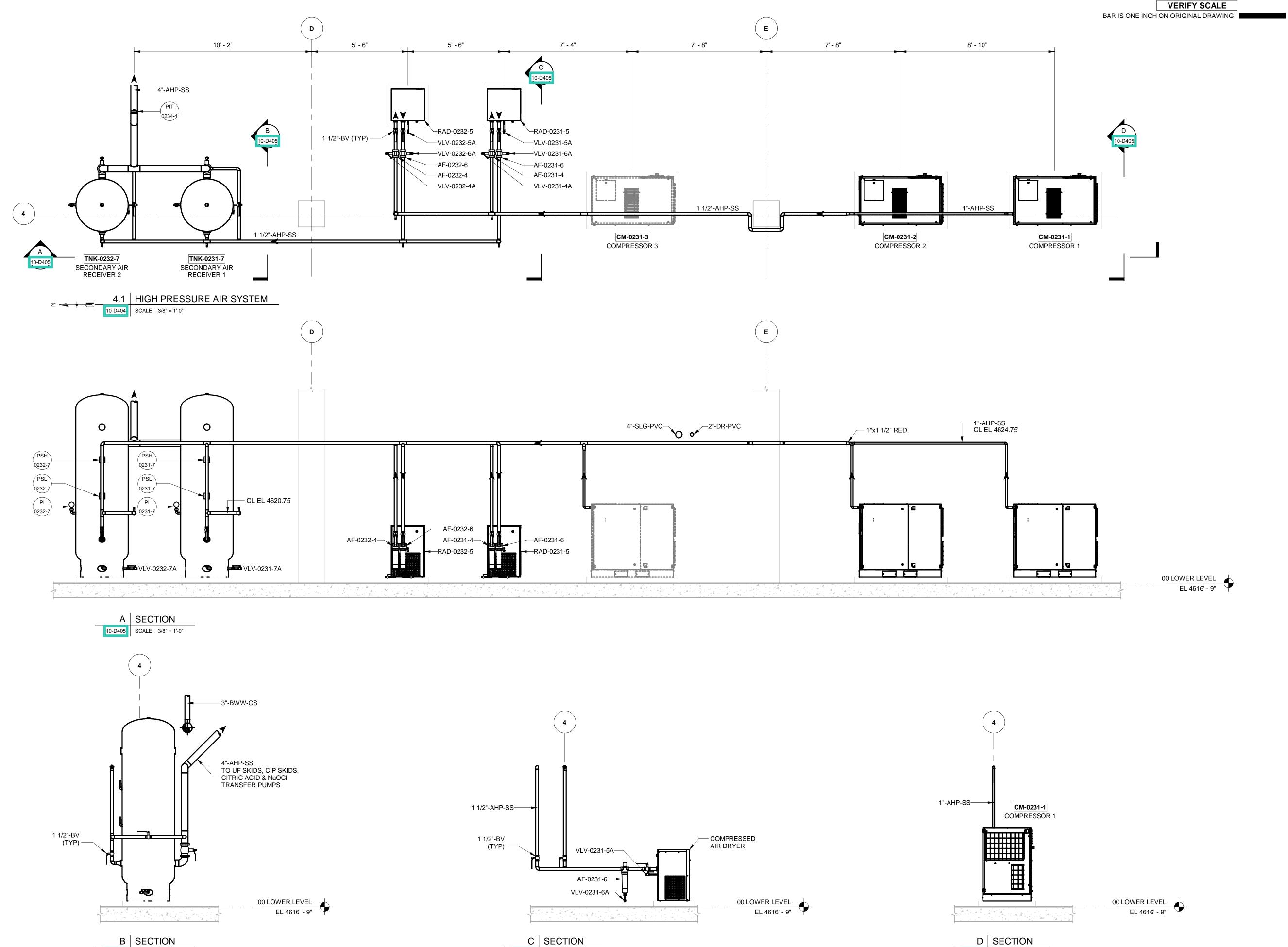
WATER TREATMENT
PROCESS MECHANICAL
UF FEED PUMPS
ENLARGED PLAN &
SECTION

DRAWING NUMBER

10-D404 - D1



10-D405 SCALE: 3/8" = 1'-0"



10-D405 SCALE: 3/8" = 1'-0"



PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

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Α	2022-07-01	ISSUED FOR 30%
I/R	DATE	DESCRIPTION
1/13	DAIL	DESCRIPTION

PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

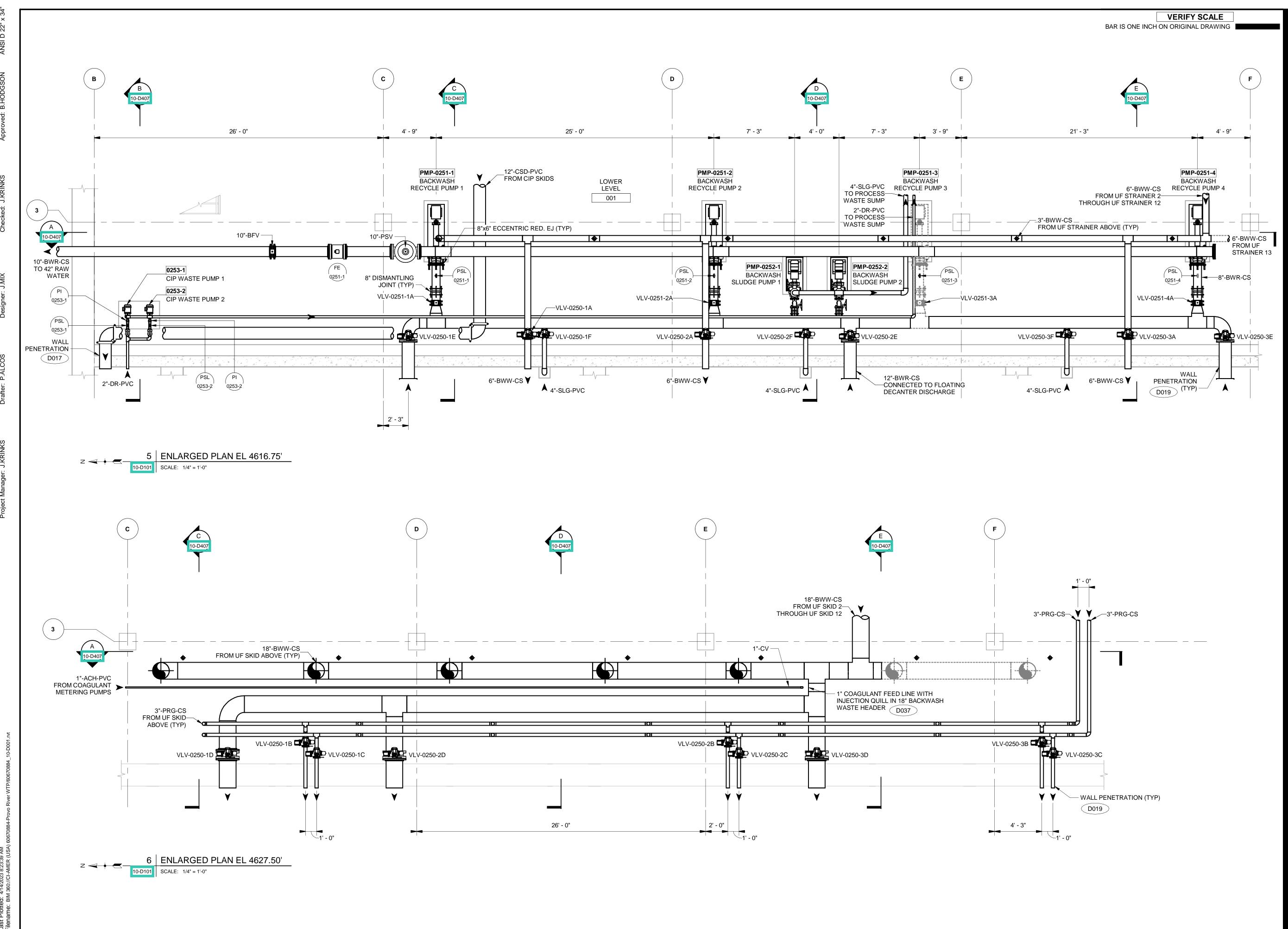
SHEET TITLE

WATER TREATMENT PROCESS MECHANICAL **HIGH PRESSURE AIR** SYSTEM ENLARGED PLAN & SECTIONS

DRAWING NUMBER

10-D405 - D1

10-D405 SCALE: 3/8" = 1'-0"





PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

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South Jordan, UT 84095 Tel: (801) 566-5599 http:// www.hansenallenluce.com

NOTIC

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PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

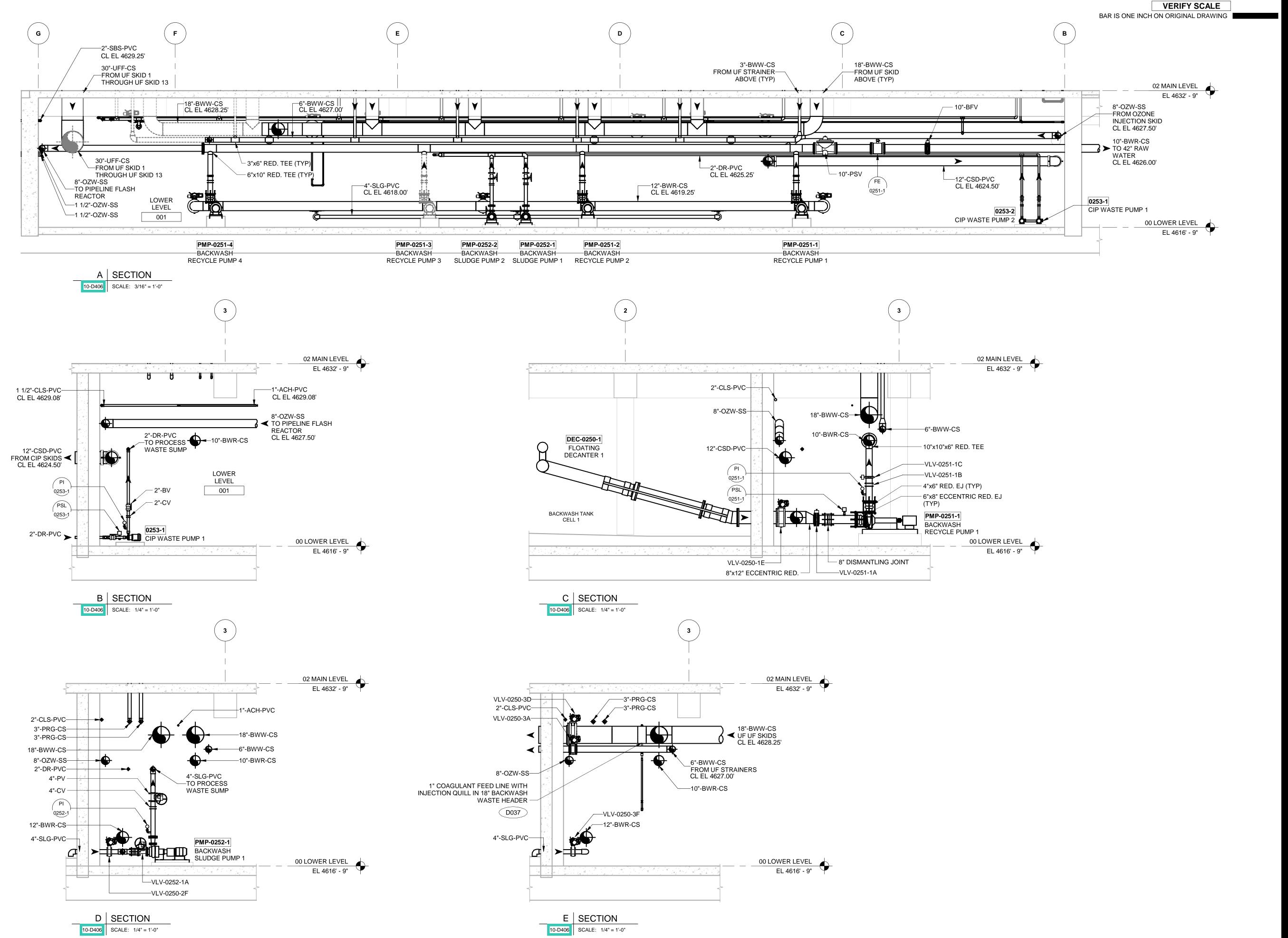
SHEET TITLE

WATER TREATMENT
PROCESS MECHANICAL
PROCESS PIPING
ENLARGED PLANS

DRAWING NUMBER

10-D406 - D1







PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

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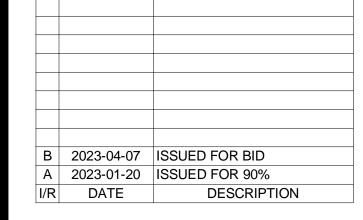
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NOTICE

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SEE 00 43 00 BID SCHEDULE FOR DESCRIPTION OF WORK TO BE EXCLUDED.

REGISTRATION

ISSUE/REVISION



PROJECT NUMBER

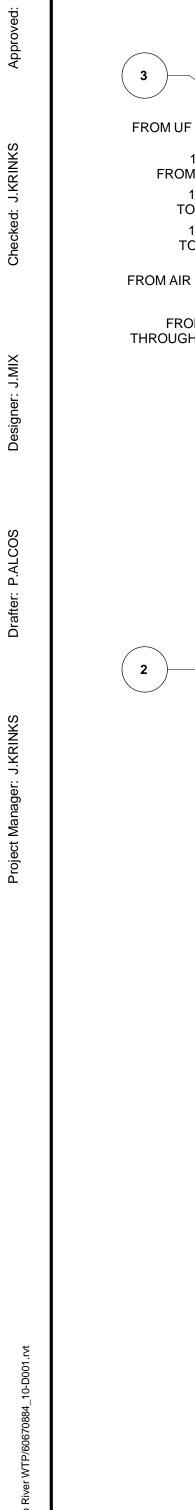
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT
PROCESS MECHANICAL
PROCESS PIPING
ENLARGED SECTIONS

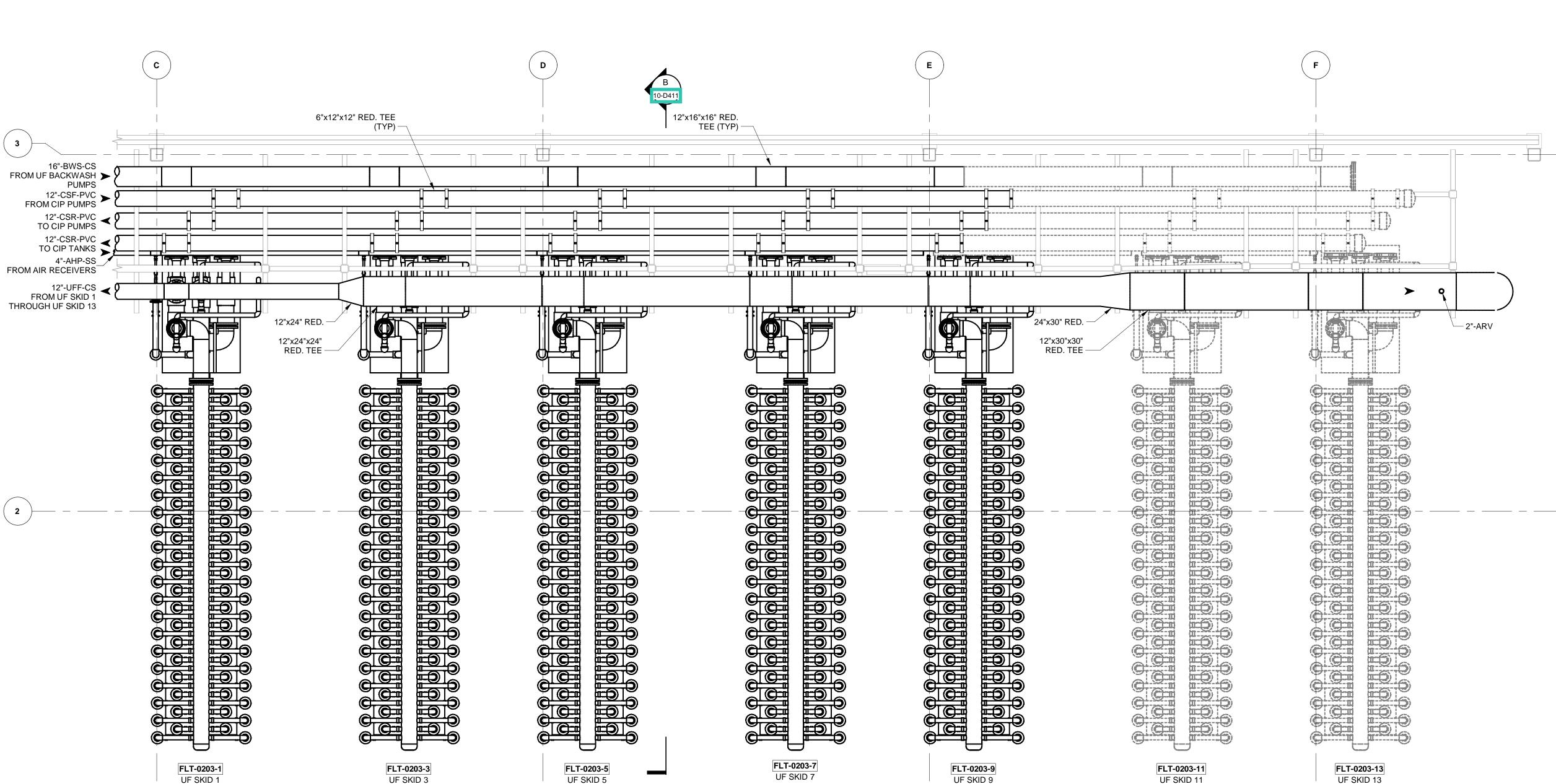
DRAWING NUMBER

10-D407 - D1



1 ENLARGED PLAN EL 4643.25'

10-D102 SCALE: 1/4" = 1'-0"



AECOM ENGINEERS

PROJECT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

PROVO RIVER WATER TREATMENT PLANT

CLIENT

PROVO CITY PUBLIC WORKS

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CONSULTANTS

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TEMS DASHED INDICATE EQUIPMENT TO BI DEDUCTED FOR 20MGD BID ALTERNATIVE. SEE 00 43 00 BID SCHEDULE FOR DESCRIPTION OF WORK TO BE EXCLUDED.

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PROJECT NUMBER

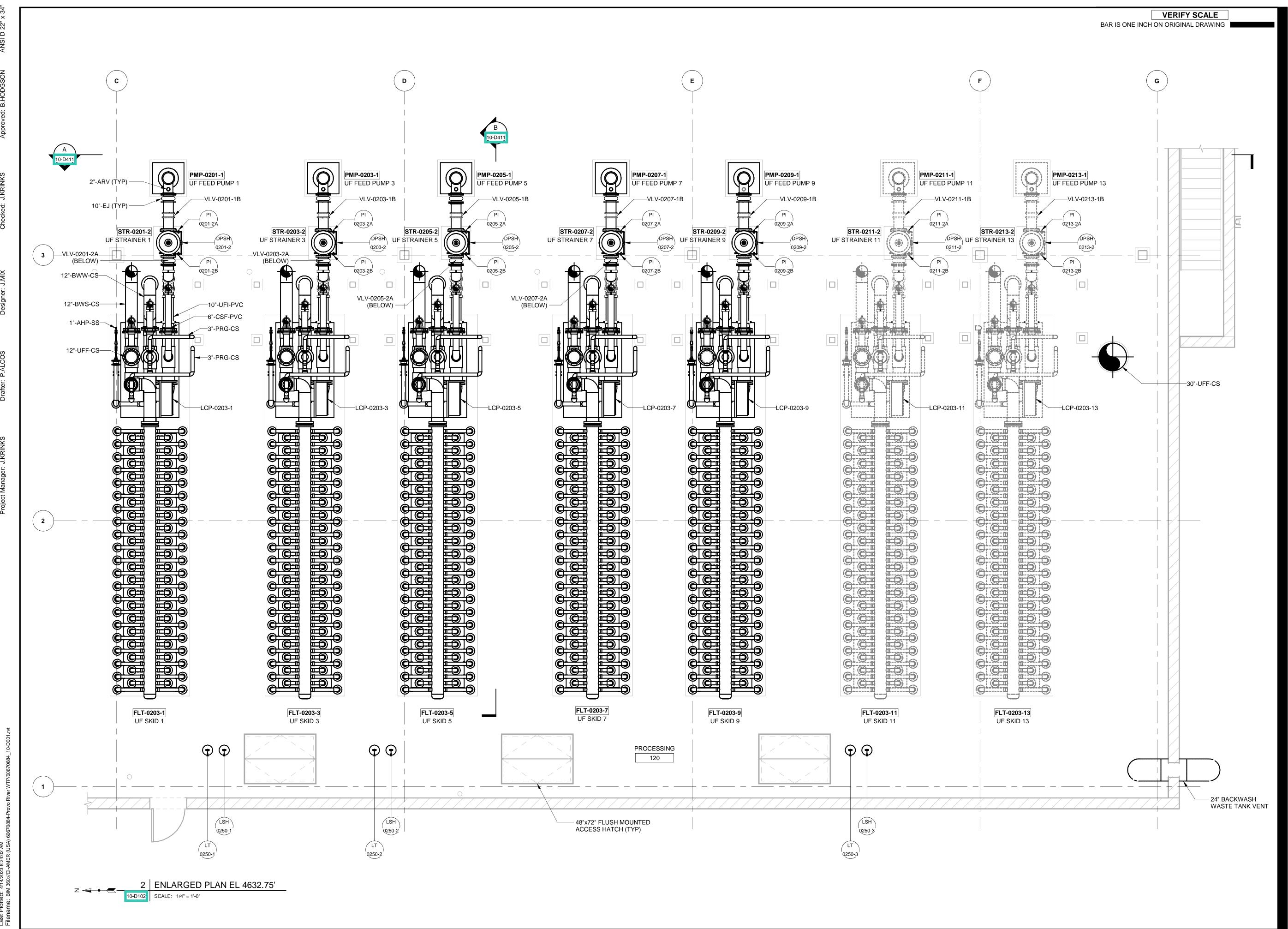
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT PROCESS MECHANICAL **UF SKIDS 1-13 ENLARGED PLAN**

DRAWING NUMBER

10-D409 - D1





PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

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CONSULTANTS

AECOM 756 East Winchester Street Salt Lake City, UT 84107 Tel: (801) 904-4000 Fax: (801) 904-4100

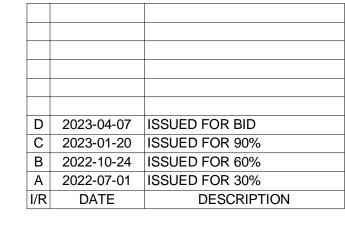
http:// www.aecom.com
Hansen, Allen & Luce, Inc.
859 West South Jordan Pkwy, Ste 200
South Jordan, UT 84095
Tel: (801) 566-5599
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NOTIC

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SEE 00 43 00 BID SCHEDULE FOR DESCRIPTION OF WORK TO BE EXCLUDED.

REGISTRATION

ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

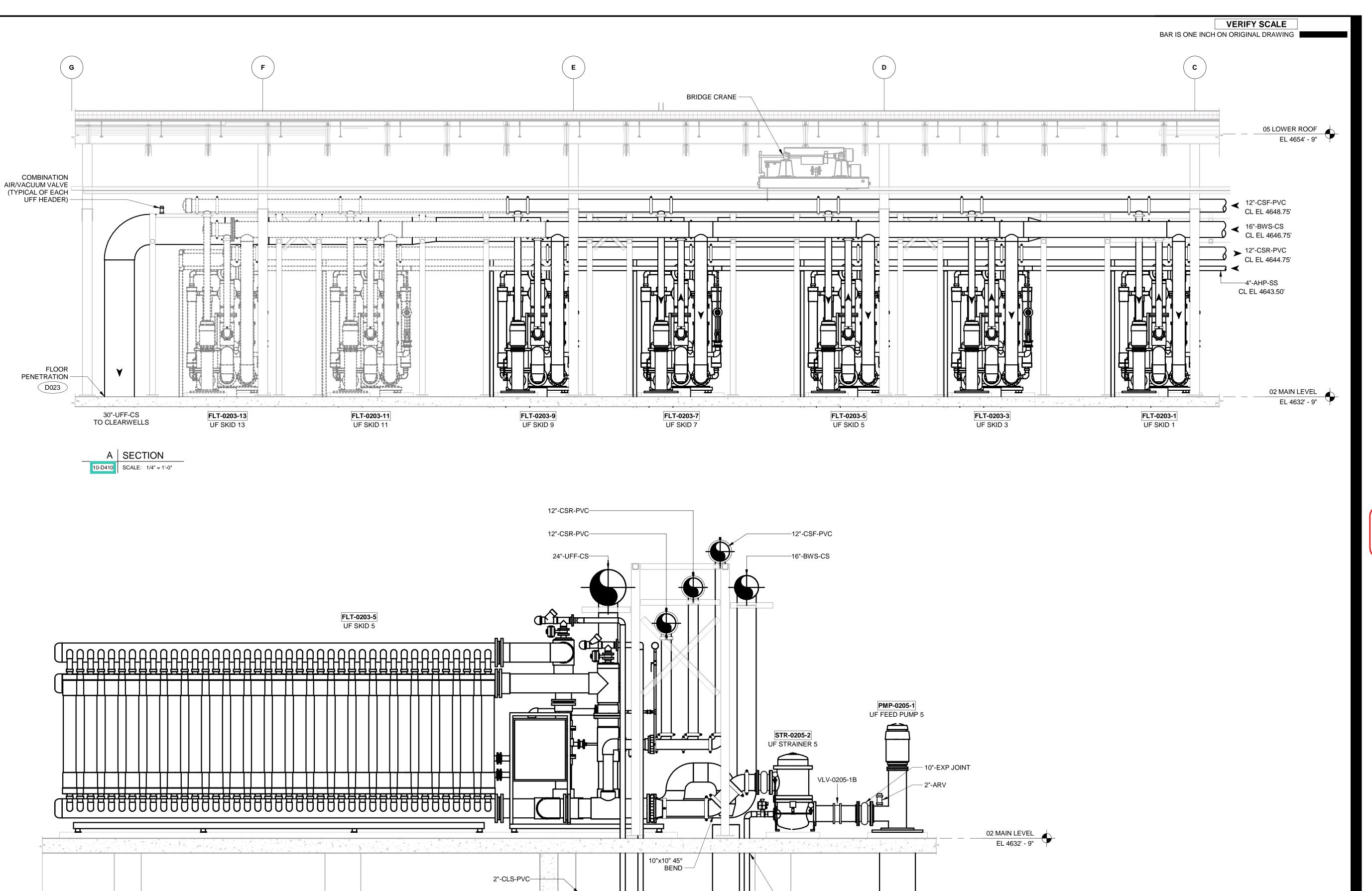
WATER TREATMENT
PROCESS MECHANICAL
UF SKIDS 1-13
ENLARGED PLAN

DRAWING NUMBER

10-D410 - D1

B | SECTION

10-D301 SCALE: 3/8" = 1'-0"



BACKWASH TANK CELL 2

6"-BWW-CS

└─VLV-0250-2A

18"-BWW-CS-

- FLOOR PENETRATION D023

ENGINEERS

PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

CLIENT

PROVO CITY PUBLIC WORKS

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PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT PROCESS MECHANICAL **UF SKIDS 1-13 ENLARGED SECTIONS**

DRAWING NUMBER

10-D411 - D1





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PLANT

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PROJECT NUMBER

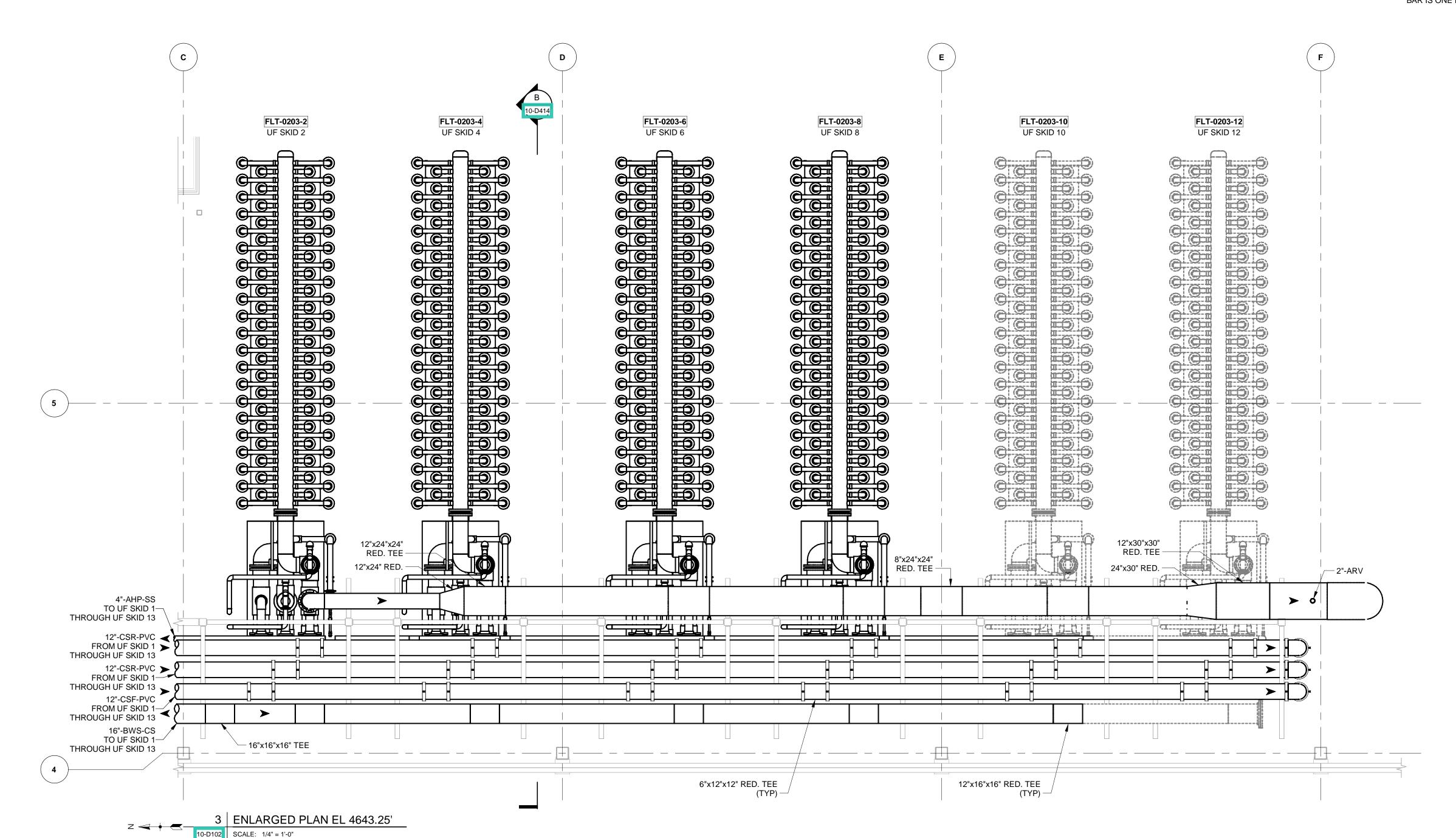
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

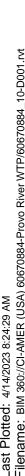
WATER TREATMENT
PROCESS MECHANICAL
UF SKIDS 2-12
ENLARGED PLAN

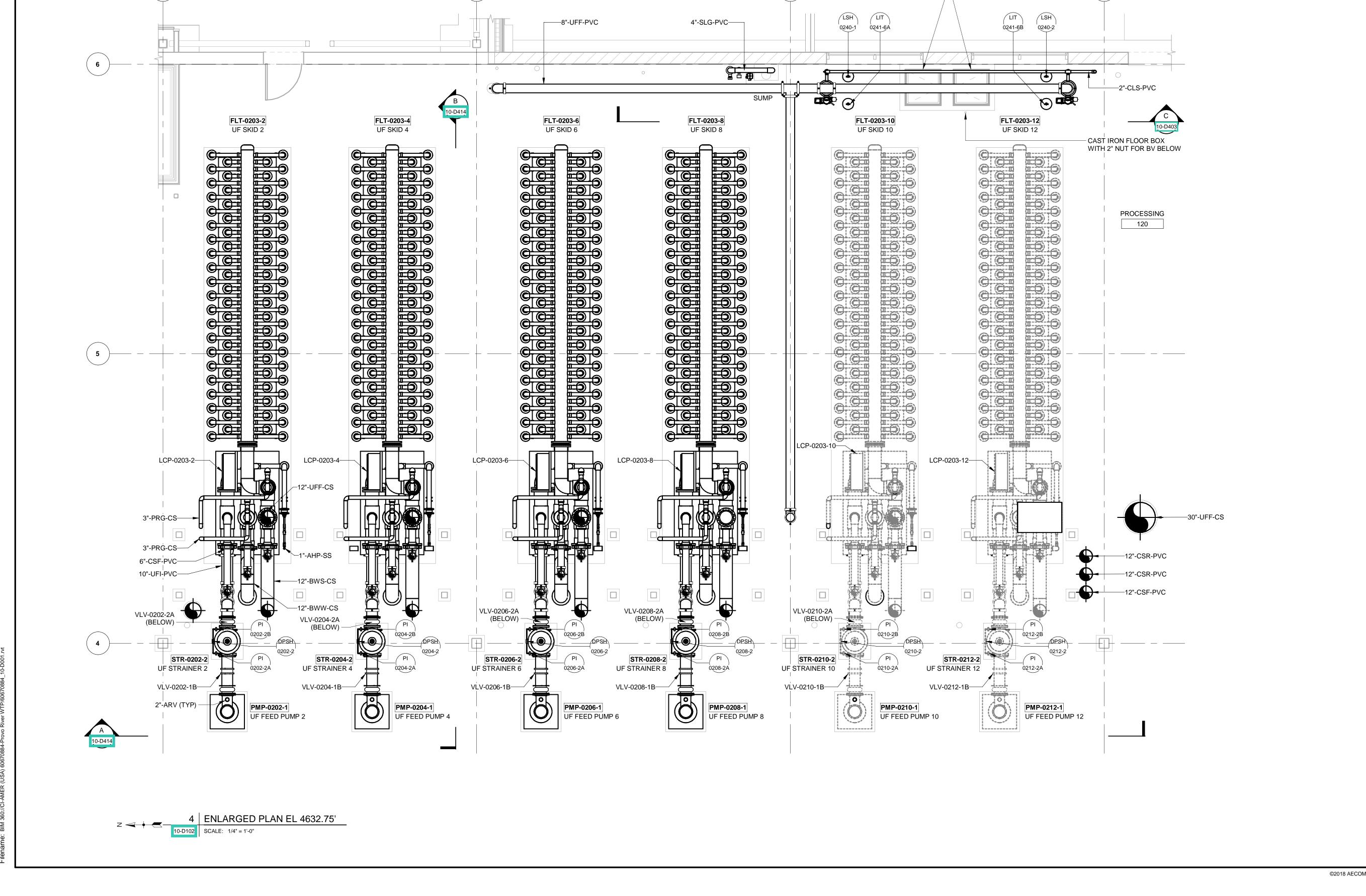
DRAWING NUMBER

10-D412 - D1



С





D



PROJECT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

- 30"x30" CURB MOUNTED ACCESS HATCH

PROVO RIVER WATER TREATMENT PLANT

CLIENT

PROVO CITY PUBLIC WORKS

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

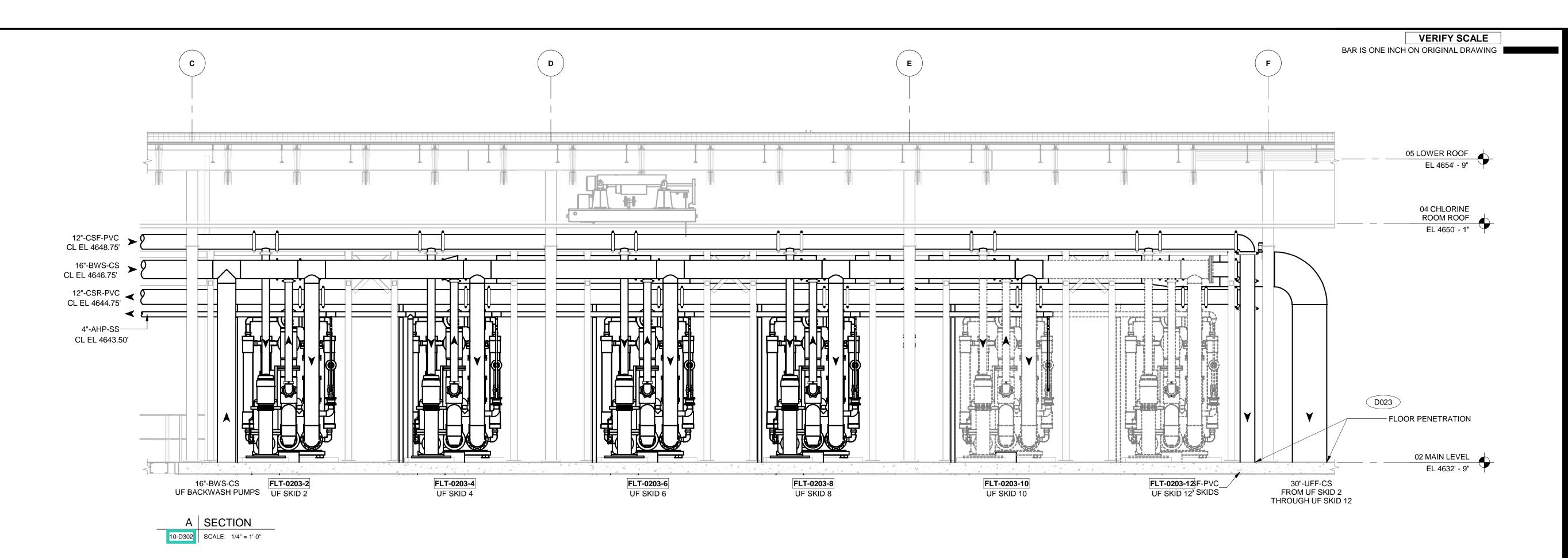
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

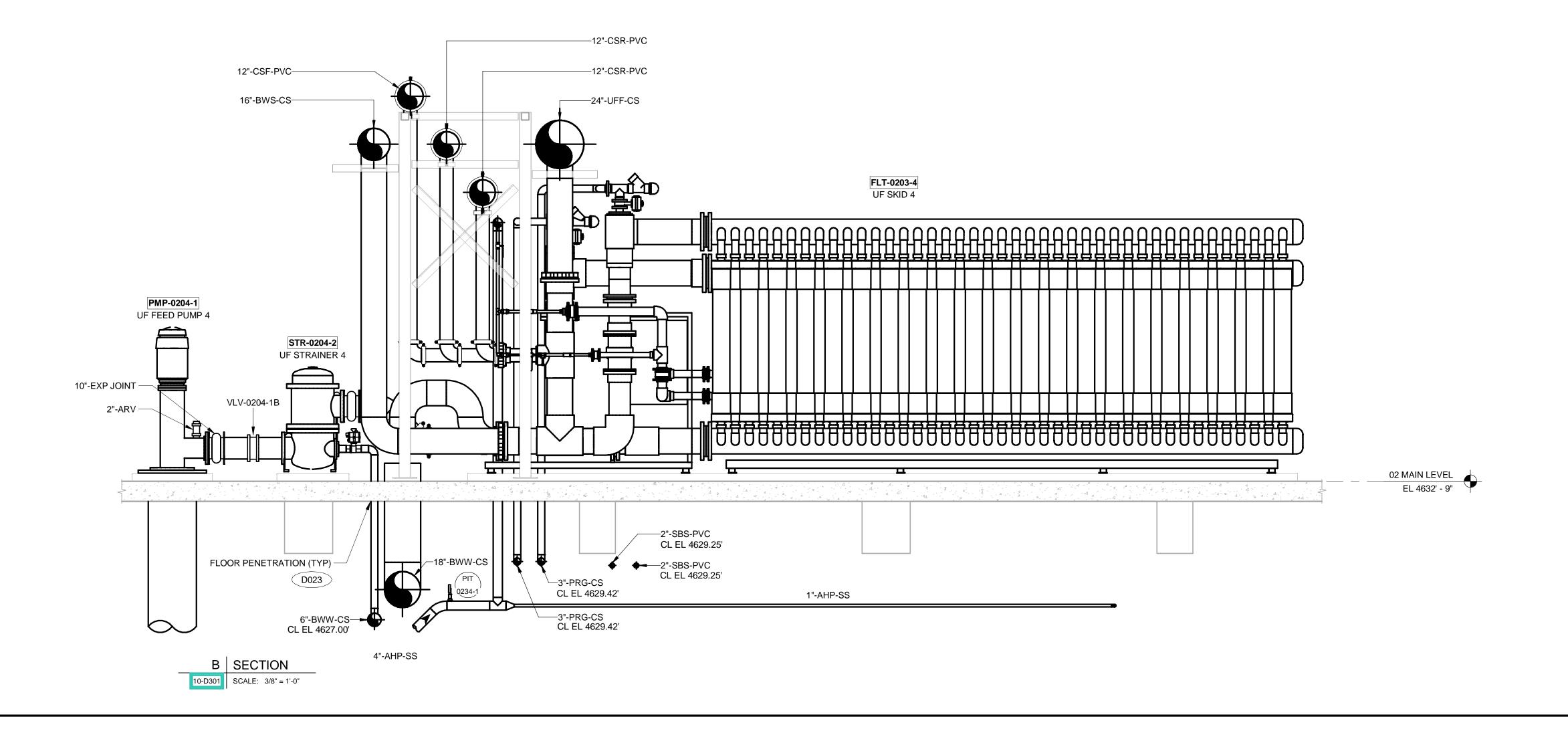
SHEET TITLE

WATER TREATMENT PROCESS MECHANICAL **UF SKIDS 2-12 ENLARGED PLAN**

DRAWING NUMBER

10-D413 - D1







ENGINEERS

PROJECT

PROVO RIVER WATER TREATMENT **PLANT**

CLIENT

PROVO CITY **PUBLIC WORKS**

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

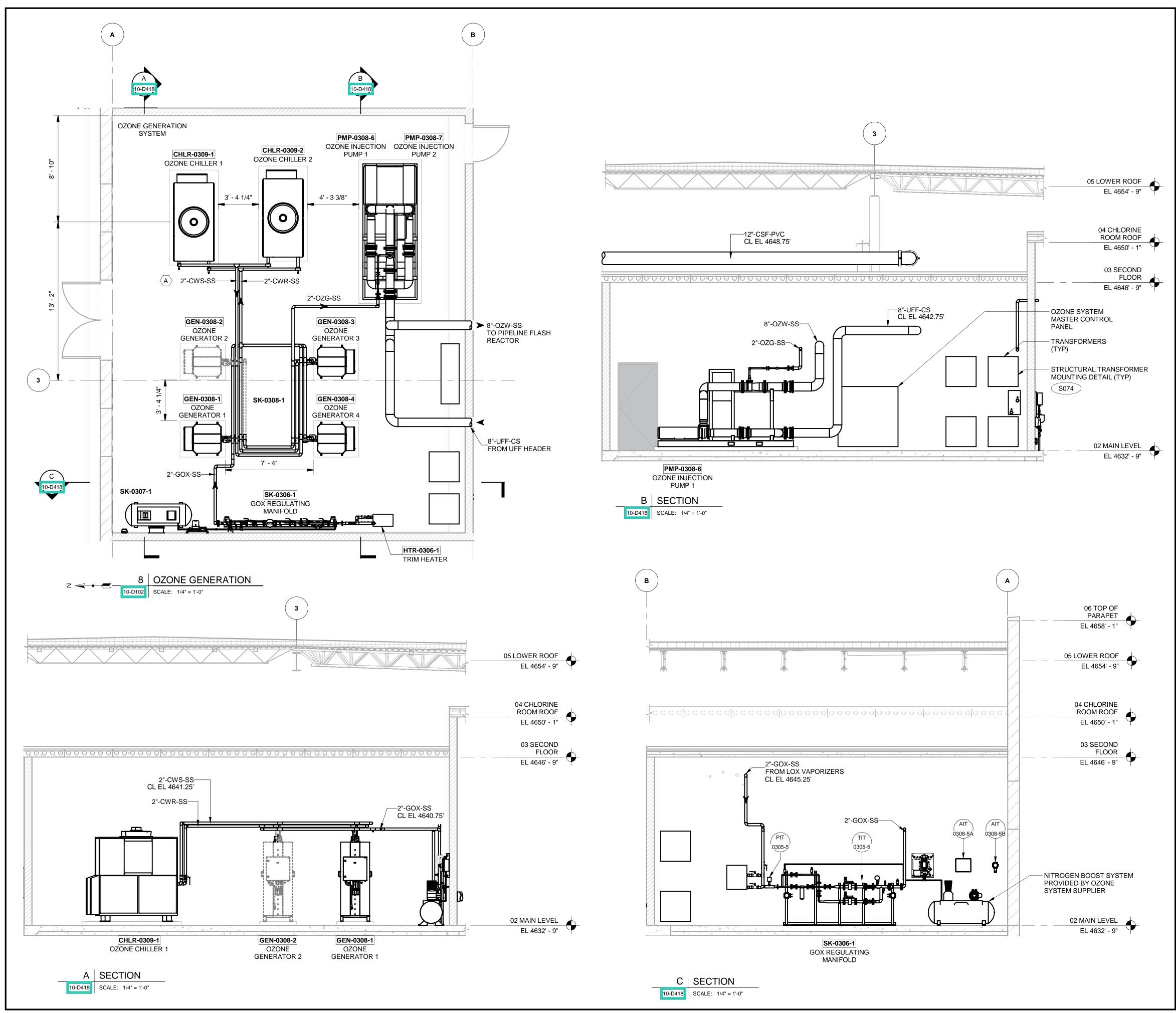
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT PROCESS MECHANICAL **UF SKID 2-12 ENLARGED SECTIONS**

DRAWING NUMBER

10-D414 - D1



VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING

KEYNOTES

A. ALL COOLING WATER PIPING TO BE INSULATED. INSULATION THICKNESS SHALL BE AS RECOMMENDED BY CHILLER MANUFACTURER.

ENGINEERS

PROJECT

PROVO RIVER WATER TREATMENT PLANT

CLIENT

PROVO CITY PUBLIC WORKS

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PROJECT NUMBER

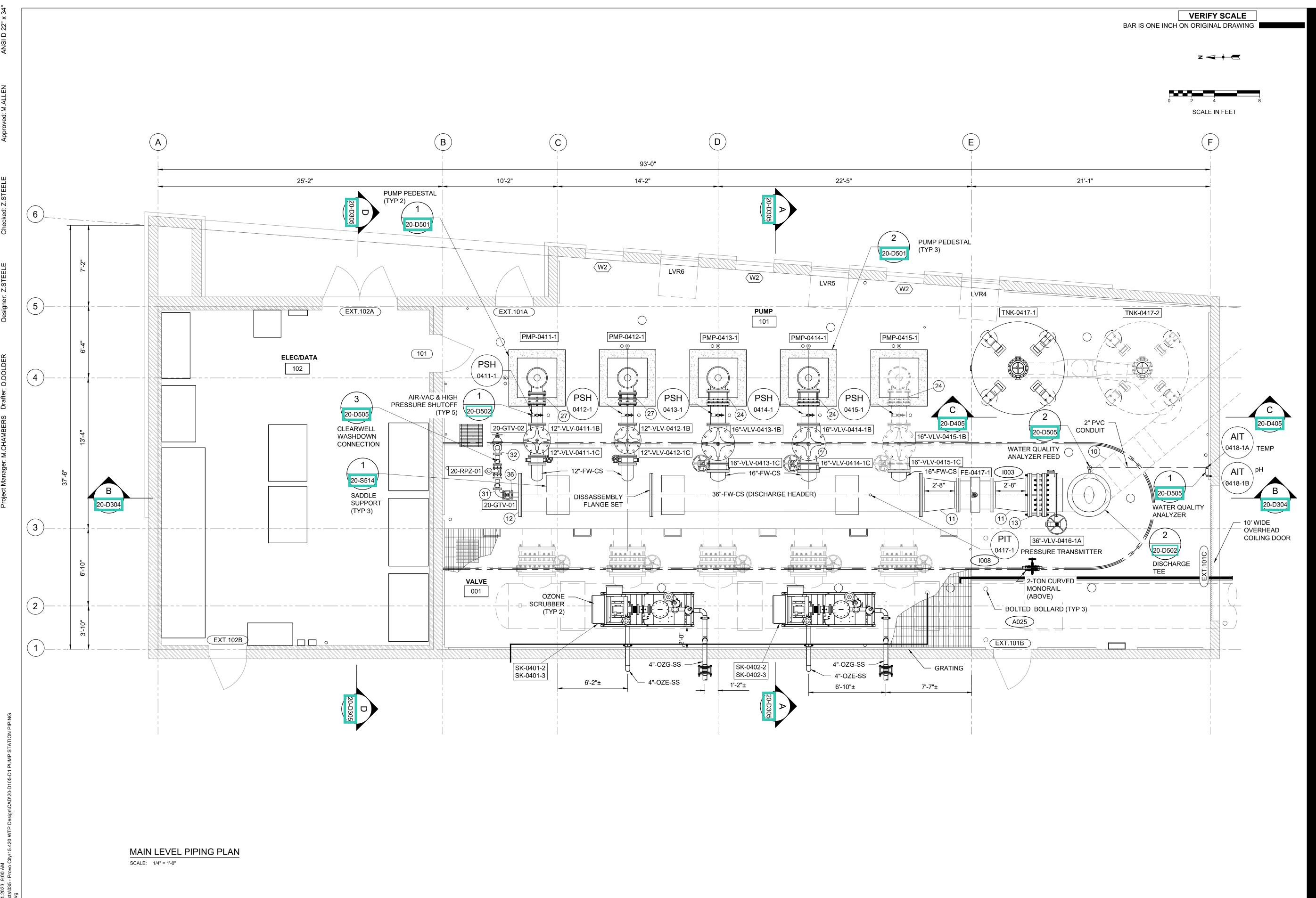
AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

WATER TREATMENT PROCESS MECHANICAL **OZONE GENERATION** SYSTEM ENLARGED PLAN & SECTIONS

DRAWING NUMBER

10-D418 - D1



AECOM
HARSER
ALLER
SLUCEIRC
E N G I N E E R S

PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

1377 South 350 East Provo, UT 84606 Tel: (801) 852-6700



CONSULTANTS

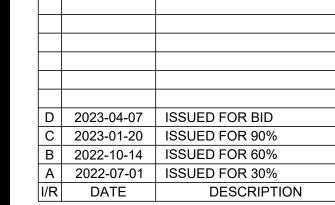
AECOM
756 East Winchester Street
Salt Lake City, UT 84107
Tel: (801) 904-4000 Fax: (801) 904-4100
http:// www.aecom.com
Hansen, Allen & Luce, Inc.
859 West South Jordan Pkwy, Ste 200
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http:// www.hansenallenluce.com

NOTICE:

ITEMS DASHED INDICATE EQUIPMENT TO BE DEDUCTED FROM 20MGD BID ALTERNATIVE. SEE 00 BID SCHEDULE FOR DESCRIPTION OF WORK TO BE EXCLUDED.

REGISTRATION

ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

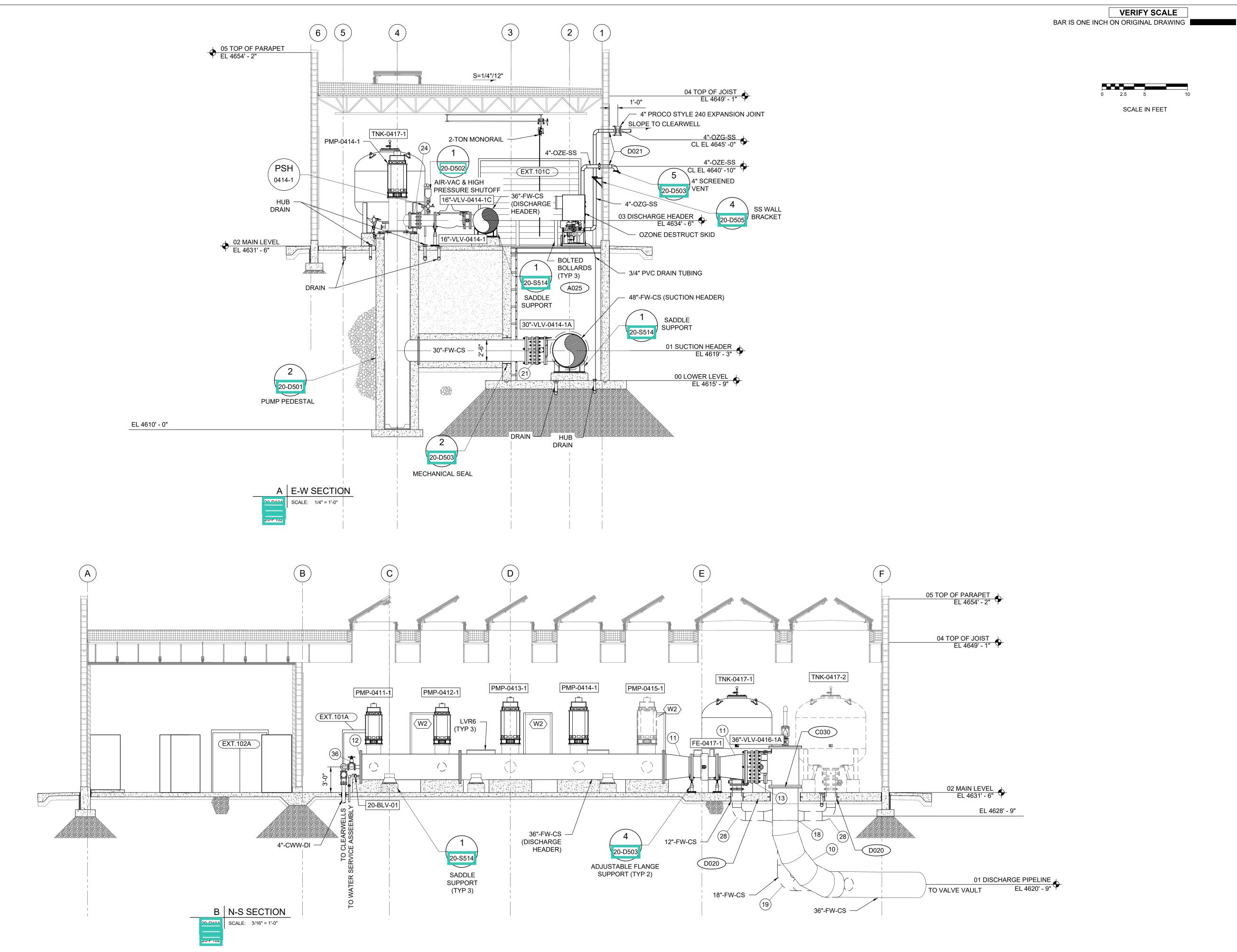
CLEARWELL &
PUMP STATION
PROCESS MECHANICAL
MAIN LEVEL PIPING
PLAN

DRAWING NUMBER

20-D105-D1









E N G I N E E R S

PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

1377 South 350 East Provo, UT 84606 Tel: (801) 852-6700



CONSULTANTS

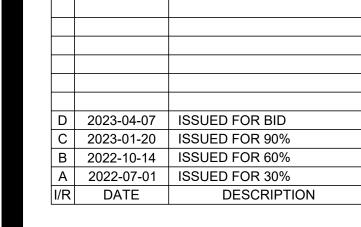
AECOM
756 East Winchester Street
Salt Lake City, UT 84107
Tel: (801) 904-4000 Fax: (801) 904-4100
http:// www.aecom.com
Hansen, Allen & Luce, Inc.
859 West South Jordan Pkwy, Ste 200
South Jordan, UT 84095
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http:// www.hansenallenluce.com

NOTICE:

ITEMS DASHED INDICATE EQUIPMENT TO BE DEDUCTED FROM 20MGD BID ALTERNATIVE. SEE 00 BID SCHEDULE FOR DESCRIPTION OF WORK TO BE EXCLUDED.

REGISTRATION

ISSUE/REVISION



PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

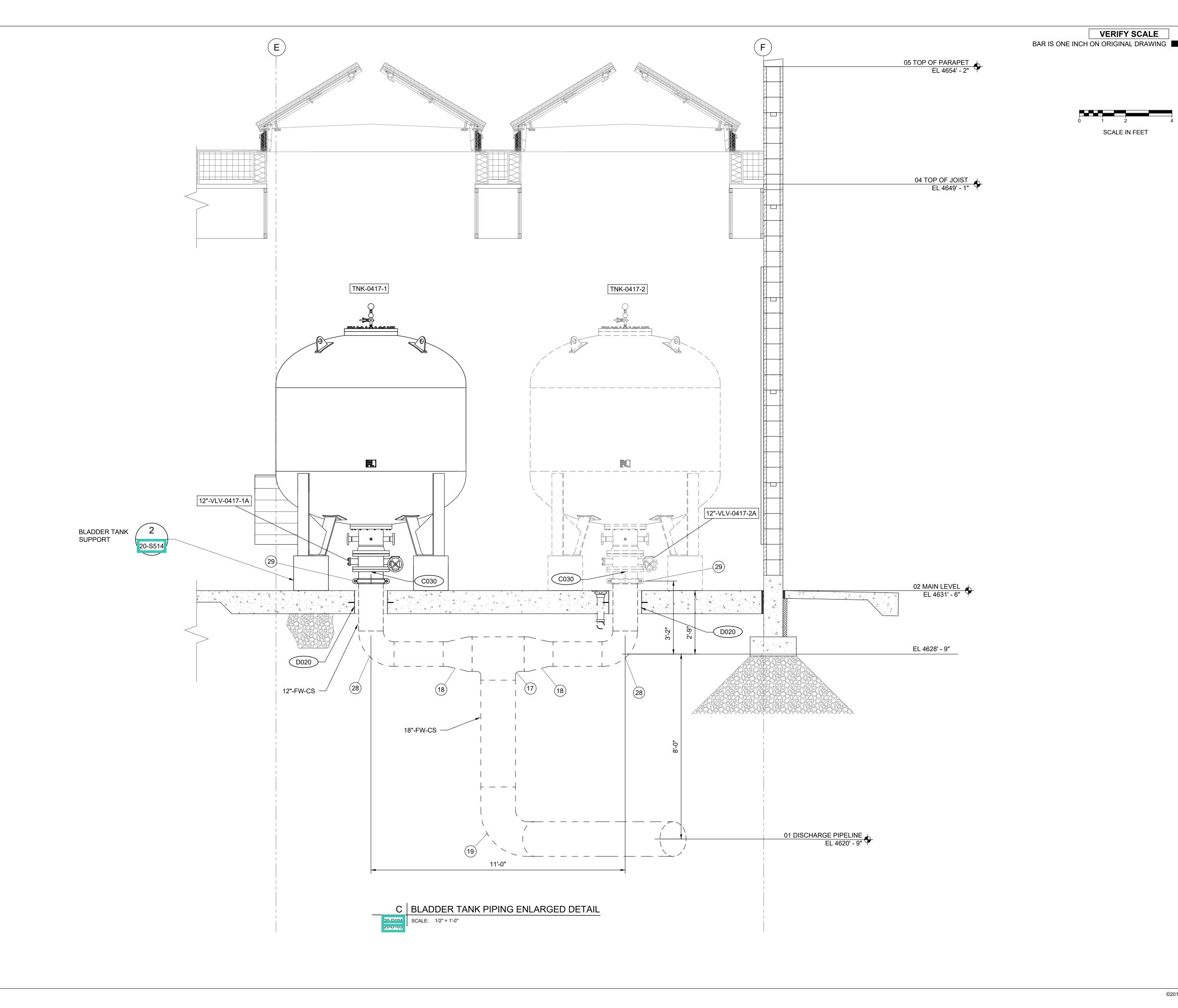
SHEET TITLE

CLEARWELL &
PUMP STATION
PROCESS MECHANICAL
PUMP STATION
SECTIONS

DRAWING NUMBER

20-D304-D1







E N G I N E E R S

PROJECT

PROVO RIVER
WATER TREATMENT
PLANT

CLIENT

PROVO CITY
PUBLIC WORKS

1377 South 350 East Provo, UT 84606 Tel: (801) 852-6700



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NOTICE:

ITEMS DASHED INDICATE EQUIPMENT TO BE DEDUCTED FROM 20MGD BID ALTERNATIVE. SEE 00 BID SCHEDULE FOR DESCRIPTION OF WORK TO BE EXCLUDED.

REGISTRATION

ISSUE/REVISION

D	2023-04-07	ISSUED FOR BID
C	2023-01-20	ISSUED FOR 90%
В	2022-10-14	ISSUED FOR 60%
Α	2022-07-01	ISSUED FOR 30%
I/R	DATE	DESCRIPTION

PROJECT NUMBER

AECOM Project No. - 60670884 HAL Project No. - 035.15.420

SHEET TITLE

CLEARWELL &
PUMP STATION
PROCESS MECHANICAL
BLADDER TANK PIPING
ENLARGED DETAIL

DRAWING NUMBER

20-D405-D1