CT Consultants
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To: All Plan Holders of Record

From: CT Consultants, Inc.

Re: ***Addendum No. 3***
City of Canton Water Reclamation Facility
Phosphorus/Total Nitrogen Project Contract No. 26

Date: December 19, 2013

This Addendum forms a part of the contract documents and modifies the original bidding documents dated November 2013. Acknowledge receipt of this addendum in the space provided on the "bid form." Failure to do so may subject the bidder to disqualification.

VOLUME 1

Table of Contents

- Page v, Volume 2 Division 7 - **ADD** Specification 07412AIA – INSULATED METAL WALL PANELS

Instruction to Bidders

- Page ITB-10, Item I 6. k. **ADD** after the last sentence "The ordinance does not specify a specific percentage."

VOLUME 2

Specification 01010CT – SUMMARY OF WORK

- Page 5, 1.5C 23. **ADD** "Contractor shall recoat any existing painted piping or structures that are damaged during the construction process. Existing coatings shall be roughened and then coated per Specification 09801. Surface Preparation does not need to include SSPC-SP6 Commercial Blast."
- Page 7, 1.5 C 25 **ADD** after the last paragraph "h. Include all wiring shown in base bid. Upon award of Contract, Contractor shall submit an RFI on how to proceed with Construction."
- Page 15, MBR Crane System Paragraph 1 **ADD** the following sentence after the last sentence: "The rail system and structural support beams shall be installed in stages to allow use while installing the equipment in the MBR basins."
- Page 30, 1.9C. Sludge Load Out Facility Bullet Point 2, **ADD** after the word facility "and related equipment systems."

Specification 02060CT – BUILDING DEMOLTION

- Page 7, Section 3.9 A. 2, **DELETE** "with the exception of the mudwell."
- Page 7, Section 3.9 A. 3, **REPLACE** "City" with "Contractor."

Specification 02618CT – DUCTILE IRON PIPE

- Page 2, 2.3 A., **ADD** "All joints shall be restrained."

Specification 07412AIA – INSULATED METAL WALL PANELS

- **ADD** Specification in its entirety. (Attached)

Specification 09801CT – SPECIAL COATINGS

- Page 1, 1.2 C. Extent of Work: **ADD** "4. All existing and new structures that are coated or as indicated on the plans or as scheduled. "

VOLUME 3

Specification 11361CT – DESIGN, CONSTUCTION AND OPERATIONAL CONDITIONS FOR THE MBR ACTIVATED SLUDGE TREATMENT PROCESS SYSTEM

- Page 18, 2.9 B **ADD** after Owner in the first sentence, "per the warranty agreement in MBR Procurement Agreement Section 1.5 Additional Terms (5 Year Membrane Performance Warranty), the Rapid Recovery Unit (RRU) will be provided by OVIVO."

Specification 11377CT – POSITIVE DISPLACEMENT BLOWERS AND ACCESSORIES

- Page 3, 2.1 **ADD** the following after H:
  I. Blower Electrical Drive Package:
    1. VFD driven blowers shall be furnished with drive systems that will comply with the control requirements outlined in the Specification Section 13500 and as shown on the Instrumentation Drawings.

Specification 13500CT – PROCESS INSTRUMENTATION AND CONTROL SYSTEMS

- Page 44, Section 1.17, under Alum System Control, **DELETE** points for Alum tanks #1 and #2 leak alarms.
- Page 61, Section 2.13, Digital Paperless Recording Station, **DELETE** entire section.

Specification 16050CT – BASIC MATERIALS AND METHODS

- Page 19, Section 3.7 V. – **INSERT** Attachment A at end of specification. Attached is a cut sheet for the Raychem Rayflate duct sealing system to clarify what is required or approved equal.

Specification 16420CT – MEDIUM VOLTAGE LOAD INTERRUPTER GEAR

- Page 3, Section 2.2 D. 5 **DELETE** "switch."
  5) Each ~~switch~~ section shall have a front steel door with safety protected observation windows that shall allow sufficient viewing of the breaker contact position. All steel doors shall have concealed hinges and bolting hardware secure the door in the closed position. A mechanical switch and door interlock shall be provided to prevent opening the door when the breaker is in the "on" position.

APPENDIX

The following shall serve as additional clarifications to the noted sections in the Appendix:

1. Section 6 - REPORT OF GEOTECHNICAL SUBSURFACE EXPLORATION FROM PROFESSIONAL SERVICES INDUSTRIES, INC.
   Referencing Sheet 105 5D-01, where radius wall and the end wall are to be removed at the west side of the tanks, Cores C-3 and C-4 were taken through the 6" slab. Metal decking was encountered at the bottom of the slabs. Therefore, there is probably is no fill material within the void between the radius walls and end walls.

PLANS

The following plan sheets are REVISED per the notes below:

Sheet 20	1C-06	**ADD** Note to Sheet: "All existing and planned catch basins inverts and rim elevations shall be field verified; See Sheet 1C-16 for details."
Sheet 21	1C-07	**ADD** Note to Sheet: "All existing and planned catch basins inverts and rim elevations shall be field verified; See Sheet 1C-16 for details."
Sheet 22	1C-08	**ADD** Note to Sheet: "All existing and planned catch basins inverts and rim elevations shall be field verified; See Sheet 1C-16 for details."
Sheet 23	1C-09	**ADD** Note to Sheet: "All existing and planned catch basins inverts and rim elevations shall be field verified; See Sheet 1C-16 for details."
Sheet 58	3S-04	**ADD** Notes to Sheet: "All openings shall be filled with grating and modified to fit around equipment and gates. If Alternate A-1 is selected, Contractor shall provide grating necessary to fill voids left by non-installation of 6 mm screens."
Sheet 61	3S-07	**REPLACE** Section B_{3S-01}-B_{3S-7} "Slab Pour #2" with "Slab Pour #1" and "Slab Pour #4" with "Slab Pour #2."
Sheet 78	3P-12	**DELETE** 6" tee for 6" Plant Effluent and **INSTALL** 6" 90 degree bend.
Sheet 80	3P-14	**DELETE** 6" tee for 6" Plant Effluent, **INSTALL** 6" 90 degree bend, and **DELETE** core drilling of structure wall for 6" Plant Effluent Piping.
Sheet 85	3A-01	**REPLACE** Sheet Reference for Concrete Beam Above with "3S-12, Concrete Beam I" and for Concrete Column with "3S-05."
Sheet 87	3A-03	**REPLACE** Sheet Reference for Concrete Beam I with "3S-12."
Sheet 106	5D-02	**REVISE** note to read "Existing 10" Gate Valve to REMAIN, Typ. Of 6 Basins and 90 degree bend to be removed."

Sheet 121 5S-01 **ADD** Note to Sheet: "The existing slab slopes as shown on 5S-05. There is a H.P. at the base of each existing wall."

Sheet 135 5P-01 **ADD** leader to 10" Sanitary drain that reads "10" Sanitary drain from Sanitary MH shown on Sheet 1C-09."

Sheet 241 12P-10 **ADD** the following notes:

"1. All PVC C900 and PVC C905 shall be DR 25.
2. Contractor shall providing piping supports for PVC C900 and PVC C905 that are no greater than 50% of the maximum recommended in Uni Bell Handbook of PVC Pipe Table 8.6 Support Spacing for Suspended Horizontal PVC Pipe Filled with Water.
3. No solvent welding is allowed for PVC C900 or C905 piping. PVC C900 and C905 can be flanged or fused. Flanges must be installed in the factory before being shipped to site. Flanged PVC pipe must comply with ASTM D1785-12 and fittings must comply with ASTM F439. Push on joints are also acceptable for PVC C900 and C905 with appropriate joint restraint system by EBAA Iron's Mega Lug, Ford, or approved equal."

ADD the following Piping to the Pipe Material Schedule:

BNR/MBR Activated Sludge	MBR Drain	Ductile CL 52	10"	FLG	X	X		11831	

Sheet 257 5I-05 **DELETE** the moisture sensing switches denoted MS/508A-1 and 2 from the Alum tanks. Tanks are not dual wall. Also **DELETE** SCADA alarms MAI/508A-1 and 2.

Sheet 259 6I-01 **DELETE** all secondary settling tank effluent valves.

Sheet 260 6I-02 **DELETE** all instruments and SCADA functions that are shown as part of loop 313, Stage 2 Equalization Effluent Valves.

Sheet 219 10P-01 **ADD** to Note 1 the following: "Clean Ex. 6" Grease Pipe Interior and Exterior. Existing coating shall be roughened and then coated per Specification 09801. Surface Preparation does not need to include SSPC-SP6 Commercial Blast."

Sheet 270 12I-02 **REVISE** the schedule to indicate that level indicating transmitters LIT/205A, LIT/205B, LIT/206A and LIT/206B are to be as specified in section 11325CT.

Sheet 271 12I-03 **REVISE** the schedule to indicate that flow indicating transmitter FIT/211A is to be as specified in section 02701CT.

Sheet 284	12I-16	**DELETE** the moisture sensing switches denoted MS/508A-1 and 2 from the Alum tanks. Tanks are not dual wall. Also, **DELETE** SCADA alarms MAI/508A-1 and 2.
Sheet 303	0E-07	**ADD** to General Notes: "C. The Contractor shall apply waterproofing as indicated in manufacturers installation documents. Submit a detail for approval by Engineer prior to proceeding with work. "
Sheet 304	0E-08	**ADD** to 'MCC-MA' in the maintenance building the following note: "Inspect, Test and Refurbish the existing low voltage motor control center. Part of reconditioning the gear is painting. Verify color with plant." **ADD** to Outdoor RAS Switchboard at RAS building the following note: "Provide all bus modifications, grounding modifications, enclosure modifications, mounting hardware and nametags as needed for a complete installation. Inspect, Test and Refurbish the existing low voltage switchgear. Part of reconditioning the gear is painting. Verify color with plant." **ADD** to Outdoor Switchboard at the Aeration building the following note: "Inspect, Test and Refurbish the existing low voltage switchgear. Part of reconditioning the gear is painting. Verify color with plant." **ADD** to Outdoor Switchboard at the Aeration building the following note: "The conductors from this switchgear enter the building in an overhead cable tray and birds enter the building through the opening. The electrical contractor shall fabricate a removable plate that limits access to birds and bugs through that opening."
Sheet 306	0E-10	**REVISE** motor control schedule 'MCC-P1' Bucket ID's "3A, 3B, and 3C" to "3AL, 3AR, and 3BL." **REVISE** motor control schedule 'MCC-P2' Bucket ID's "1A, 1B, 1C, 1D, 1E, 4D, and 4E" to "1AL, 1AR, 1BL, 1BR, 1C, 4DL, and 4DR."
Sheet 307	0E-11	**REVISE** coded note 3 to read as follows: "The existing valves are remaining in their current location and new operators are being installed. Controls to the valves will now come from the MBR control panel Disconnect and reconnect power to the new motor operator. Remove existing control wiring and provide new wiring shown."
Sheet 311	0E-15	**MODIFY** the one-line diagram as follows: disconnect and remove all wiring from buckets 2C, 4C, 4D, 4E, 4F, 4G, 4H, 4I and 4J and label the starters as 'spares'.
Sheet 312	0E-16	**MODIFY** the one-line diagram as follows: Outdoor 'Grit and Grease' control panels should be labeled as "NEMA 8."

Sheet 312	0E-16	**MODIFY** the one-line diagram as follows: Grit and Grease Removal System power wiring to "30-#10 and #12 GND-2"C."
Sheet 316	0E-20	**MODIFY** the one-line diagram for 'MCC-SH1' as follows: disconnect and remove all wiring from buckets 7BL, 7BR, 8E AND 8F and label the starters as 'spares'. **MODIFY** the one-line diagram for 'MCC-SH2' as follows: disconnect and remove all wiring from bucket 3A and label the starter as 'spare'.
Sheet 322	0E-26	**MODIFY** coded note 5 on SECTION C to "XR."
Sheet 323	0E-27	**DELETE** new cable tray and coded notes 11 and 12 on SECTION G.
Sheet 328	3E-02	**ADD** coded note 23: "23. Contractor shall include a 277V, 30 Amp, GFCI protected circuit from panel 'F1' to heat trace system for the rails in the Grit and Grease System in bids."

The following plan sheets have been REVISED per the referenced attached Sketches:

Sheet 23	1C-09	Sketch C-1	**ADD** Enlarged Area Detail
Sheet 36	1C-21	Sketch C-2	**REVISE** Profile for 72" Pipe
Sheet 101	4P-04	Sketch P-4	**ADD** Section Cut and **MOVE** Section Cut
Sheet 109	5D-05	Sketch D-1	**ADD** and **REVISE** Miscellaneous Notes
Sheet 114	5D-10	Sketch D-2	**REVISE** Slab Replacement Detail
Sheet 128	5S-08	Sketch S-4	**ADD** Support Wall Below Slab
Sheet 128	5S-08	Sketch S-5	**ADD** Section 3-3
Sheet 139	5P-05	Sketch P-5	**ADD** Alum Diffuser Blow-Off Assembly Detail
Sheet 186	8D-06	Sketch D-3	**ADD** Bulkheads

REMOVE the following plan sheets and replace with the attached:

Sheet 245	1I-02	**REVISE** plan to indicate that Ethernet connections are to be dedicated homeruns rather than daisy chained at multiple locations on the SCADA network.

AGW/saa

Enclosures

SECTION 07412AIA - INSULATED METAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Foamed-insulation-core metal wall panels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10).

C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each product, tests performed by a qualified testing agency.

C. Field quality-control reports.

D. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

1.8 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.9 COORDINATION

A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Two-years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20-years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 72:

1. Wind Loads: As indicated on Drawings.
2. Deflection Limits: For wind loads, no greater than [1/180] [1/240] <Insert deflection> of the span.

B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E 283 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).

C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

E. Fire-Test-Response Characteristics: Provide metal wall panels and system components with the following fire-test-response characteristics, as determined by testing identical panels and system components per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

1. Fire-Resistance Characteristics: Provide materials and construction tested for fire resistance per ASTM E 119.

2. Intermediate-Scale Multistory Fire Test: Tested mockup, representative of completed multistory wall assembly of which wall panel is a part, complies with NFPA 285 for test method and required fire-test-response characteristics of exterior non-load-bearing wall panel assemblies.
3. Radiant Heat Exposure: No ignition when tested according to NFPA 268.
4. Potential Heat: Acceptable level when tested according to NFPA 259.
5. Surface-Burning Characteristics: Provide wall panels with a flame-spread index of 25 or less and a smoke-developed index of 450 or less, per ASTM E 84.

2.2 FOAMED-INSULATION-CORE METAL WALL PANELS

A. General: Provide factory-formed and -assembled metal wall panels fabricated from two metal facing sheets and insulation core foamed in place during fabrication, and with joints between panels designed to form weathertight seals. Include accessories required for weathertight installation.

1. Insulation Core: Modified isocyanurate or polyurethane foam using a non-CFC blowing agent, with maximum flame-spread and smoke-developed indexes of 25 and 450, respectively.

   a. Closed-Cell Content: 90 percent when tested according to ASTM D 6226.
   b. Density: 2.0 to 2.6 lb/cu. ft. (32 to 42 kg/cu. m) when tested according to ASTM D 1622.
   c. Compressive Strength: Minimum 20 psi (140 kPa) when tested according to ASTM D 1621.
   d. Shear Strength: 26 psi (179 kPa) when tested according to ASTM C 273/C 273M.

B. Exposed-Fastener, Foamed-Insulation-Core Metal Wall Panels: Formed with a raised, trapezoidal major rib at panel edge and two intermediate stiffening ribs symmetrically spaced between major rib and panel edge; designed for lapping side edges of adjacent panels and mechanically attaching to supports using exposed fasteners in side laps.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. METL-Span, insulated wall panel; LS-36
   b. IPS - Insulated Panel Systems, an NCI Company; RWP Wall Panel.
   c. Approved Equal.

2. Metallic-Coated Steel Sheet: Facings of zinc-coated (galvanized) steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

   a. Nominal Thickness: 0.022 inch (0.56 mm).
   b. Exterior Finish: Two-coat fluoropolymer.

      1) Color: As selected by Architect from manufacturer's full range.

c. Interior Finish: Siliconized polyester.

Color: As selected by Architect from manufacturer's full range.

3. Panel Coverage: 36-inches (914 mm) nominal.
4. Panel Thickness: 1-1/2-inch (38mm).
5. Thermal-Resistance Value (R-Value): according to ASTM C 1363.

2.3 MISCELLANEOUS MATERIALS

A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

C. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

D. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are non-staining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, non-staining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weather-tight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.4 FABRICATION

A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weather-tight seal and prevent metal-to-metal contact, and that minimize noise from movements.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

    a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.5 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

D. Aluminum Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.

a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSULATED METAL WALL PANEL INSTALLATION

A. General: Apply continuous ribbon of sealant to panel joint on concealed side of insulated metal wall panels as vapor seal; apply sealant to panel joint on exposed side of panels for weather seal.

1. Fasten foamed-insulation-core metal wall panels to supports with fasteners at each lapped joint at location and spacing and with fasteners recommended by manufacturer.
2. Apply panels and associated items true to line for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
3. Provide metal-backed washers under heads of exposed fasteners on weather side of insulated metal wall panels.
4. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
5. Provide sealant tape at lapped joints of insulated metal wall panels and between panels and protruding equipment, vents, and accessories.

6. Apply a continuous ribbon of sealant tape to panel side laps and elsewhere as needed to make panels weathertight.
7. Apply snap-on battens to exposed-fastener, insulated-core metal wall panel seams to conceal fasteners.

B. Foamed-Insulation-Core Metal Wall Panels: Fasten metal wall panels to supports with concealed clips at each joint at location and spacing and with fasteners recommended by manufacturer. Fully engage tongue and groove of adjacent panels.

1. Install clips to supports with self-tapping fasteners.

C. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.

D. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that are permanently watertight.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to achieve waterproof performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

3.3 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074213AIA 08/12

ATTACHMENT A

Energy Division

RDSS Raychem Rayflate Duct Sealing System for power cables

Tyco Electronics

Our commitment. Your advantage.

RDSS Raychem

Rayflate Duct Sealing System for power cables

Unsealed cable pipes and ducts need not to cause dampness and flooding in substation basements, cable vaults and access manholes.
In these environments rust, corrosion and a humid environment inevitably result in damage to support structures, metal work and electrical equipment.
The most common route for water to enter into such installations can be blocked simply and effectively by a field proven technique developed by Raychem.
The Rayflate Duct Sealing System (RDSS) has been designed for use on power cables to provide a watertight seal when used with plastic, concrete or steel ducting systems.
Once installed the Rayflate duct seals can provide operators with immediate access in clean and dry conditions, eliminating the routine of pumping manholes dry before work can begin.

Eliminates the need to pump manholes dry, avoids ingress of mud into ducts, and withstands severely polluted environments.

Clean, fast, easy sealing method
The Rayflate seal consist of an inflatable bladder of flexible metallic laminate, coated on both sides with a sealant strip. With the sealant strips lubricated, the product is simply wrapped around the cable and easily slides into the duct. The bladder is then inflated with a gas pressure tool which presses the sealant coating against the duct wall and the cable. Upon removal of the filling tube, an automatic gel valve system reliably retains the gas pressure in the Rayflate duct seal.
The entire installation is performed within a few minutes – even in congested enclosures – without any messy or installer-sensitive mixing and filling.

Seals vacant and multiple cable ducts
Depending on the duct diameter, most Rayflate bags seal vacant ducts and ducts which contain up to two cables. Sealing of three or more cables can be easily achieved by merely inserting a mastic sealant-clip between the cables. The RDSS-Clip is made from a high-temperature mastic mounted on an installation stick.

Versatility
As the Rayflate system adapts itself to most configurations, the system is independent of duct ovality. Each Rayflate seal covers a large range of cable and duct diameters.

Ideal for both new and existing cable installations
The versatility of the wraparound concept enables use not only for new cable installations, but also for existing applications. Unlike other methods that require dry ducts, the Rayflate seals can be installed when water is still flowing out of the duct – thus saving valuable installation time.

Removable
Rayflate seals are easier to be removed from a duct or a pipe than other systems. This allows cables to be replaced in an upgrade or repair. Since ducts are not damaged by the Rayflate system, they can easily be sealed again.

Environmentally friendly
Rayflate seals do not require any mixing of liquids, thus eliminating typical hazards involved in preparation of 2-component resin systems, and the need for costly disposal of harmful residues or messy containers.

Empty gas cylinders or the lubricant bottles will be recycled when disposed in metal scrap or PE/PP collection containers, respectively. Residuals of the lubricant are treated as normal waste water.

Performance Tested
Rayflate duct seals are a result of our long involvement in sealing and corrosion protection technologies.

Extensive testing at room temperature has shown water and air tightness at static pressures of more than 0.3 bar, even in conjunction with cable bending, vibration, torsion and axial pull. Resistance to common chemicals has been proven by immersion tests.

RDSS Raychem

Rayflate Duct Sealing System for power cables

As the Rayflate system is specially designed for power cables, it was tested with cables load-cycled at conductor temperatures of 90°C, similar to specifications required for cable accessories. The sealing tests showed water and air tightness with internal duct pressures of 0.3 bar with single and multi-cable configurations. A detailed test report is available.

Lifetime calculations indicate that a typical Rayflate duct seal will withstand a 3 m waterhead for 30 years after installation. These results are based on typical utility cable loads at average ambient temperatures of 25°C and diffusion rate measurements at elevated temperatures and after ageing by load-cycling. The sealing performance was confirmed by sealing tests with reduced internal bladder pressures.

Tools for easy and quick inflation
Rayflate duct seals can be installed using a wide variety of inflation tools, which have the capability to inflate the bag to 3.0 ± 0.2 bar pressure.

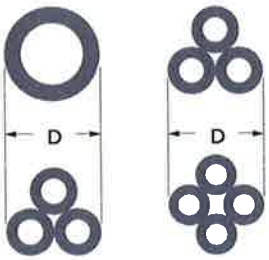
We offer two inflation tools, using either a CO_2 cartridge or the customers' own source of compressed air. Both tools feature an easy-to-read gauge and a release valve to ensure proper inflation pressure:

RDSS-IT-16:
Inflation tool complete with an ON/OFF switch and an automatic pressure monitoring system.
The required CO_2 gas cylinders (E7512-0160) must be ordered separately. The standard package includes 1 tool per box plus operating manual and a 3-year warranty.

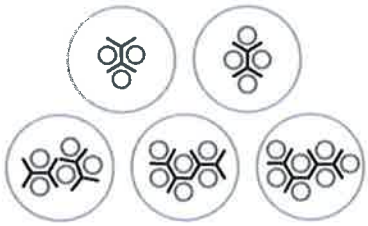
E7512-0160:
16 gr. CO_2 gas cylinders for RDSS-IT-16 tool. Each gas cylinder inflates approx. 5 pcs of RDSS-100 duct seals. Each box contains 10 gas cylinders.

RDSS-IG-SR-AS:
Inflation tool using a pressure bottle, an air-compressor or a main air pressure line with pressure input between 4 bar and 10 bar. Features automatic shutoff, a VG8 valve connection and two alternative connections for plastic or rubber hoses.
The standard package includes 1 tool per box plus operating manual.

RDSS



Cable or cable bundle diameters:



For each clip used, subtract 5 mm from the maximum cable diameter shown in the table to determine the maximum cable bundle diameter.

When three or more cables have to be sealed, an RDSS sealing clip is used in combination with the RDSS inflatable duct seal.
One RDSS-Clip seals up to 4 cables. If more cables are to be sealed, use one extra clip per three additional cables as shown in the following examples for different multi-cable configurations:

Ordering Information and Selection Table

	Product description					
Duct inside dia.	**RDSS-45 cable dia.**	**RDSS-60 cable dia.**	**RDSS-75 cable dia.**	**RDSS-100 cable dia.**	**RDSS-125 cable dia.**	**RDSS-150 cable dia.**
32.5	0 - 14					
35	0 - 18					
40	0 - 27					
45	0 - 32	0 - 18				
50		0 - 30				
55		0 - 38	0 - 28			
60		0 - 45	0 - 30			
65			0 - 40			
70			0 - 46			
75			0 - 56	0 - 45		
80				0 - 52		
85				0 - 60		
90				0 - 66		
95				0 - 74		
100				0 - 80	0 - 65	
105				0 - 85	0 - 75	
110				0 - 90	0 - 83	
115				55 - 95*	0 - 91	
120				60 - 100*	0 - 95	
125					0 - 103	60 - 100
130					70 - 110*	60 - 107
135					75 - 115*	60 - 112
140					80 - 120*	60 - 118
145					85 - 125*	60 - 123
150					90 - 130*	60 - 129
155						60 - 134*
160						60 - 139*
165						105 - 145*
170						110 - 150*
175						115 - 155*
180						120 - 160*
>180**						
Clip Selection	**RDSS-Clip-45**	**RDSS-Clip-75**	**RDSS-Clip-75**	**RDSS-Clip-100**	**RDSS-Clip-125**	**RDSS-Clip-150**

Suitable also for empty ducts
Only with cables
*RDSS-Clips must also be used for 2-cable configurations

Each RDSS seals empty ducts (except for size 150) and ducts containing up to 2 cables. The table above shows the minimum and maximum diameter of the cable or of the sum of 2 cables depending on the duct size. Dimensions in mm.

All RDSS sizes are packed in boxes of 10 pieces with 1 lubricant dispenser and an installation instruction.
RDSS-Clips are packed in boxes of 5 pieces. RDSS-Clips must be ordered as a separate item.
** For more specific information on cable diameter ranges and for duct sizes > 180 mm contact your local sales representative.

Energy Division – innovative and economical solutions for the electrical power industry: cable accessories, connectors & fittings, insulators & insulation, surge arresters, switching equipment, lighting controls, Power Measurement and Control.

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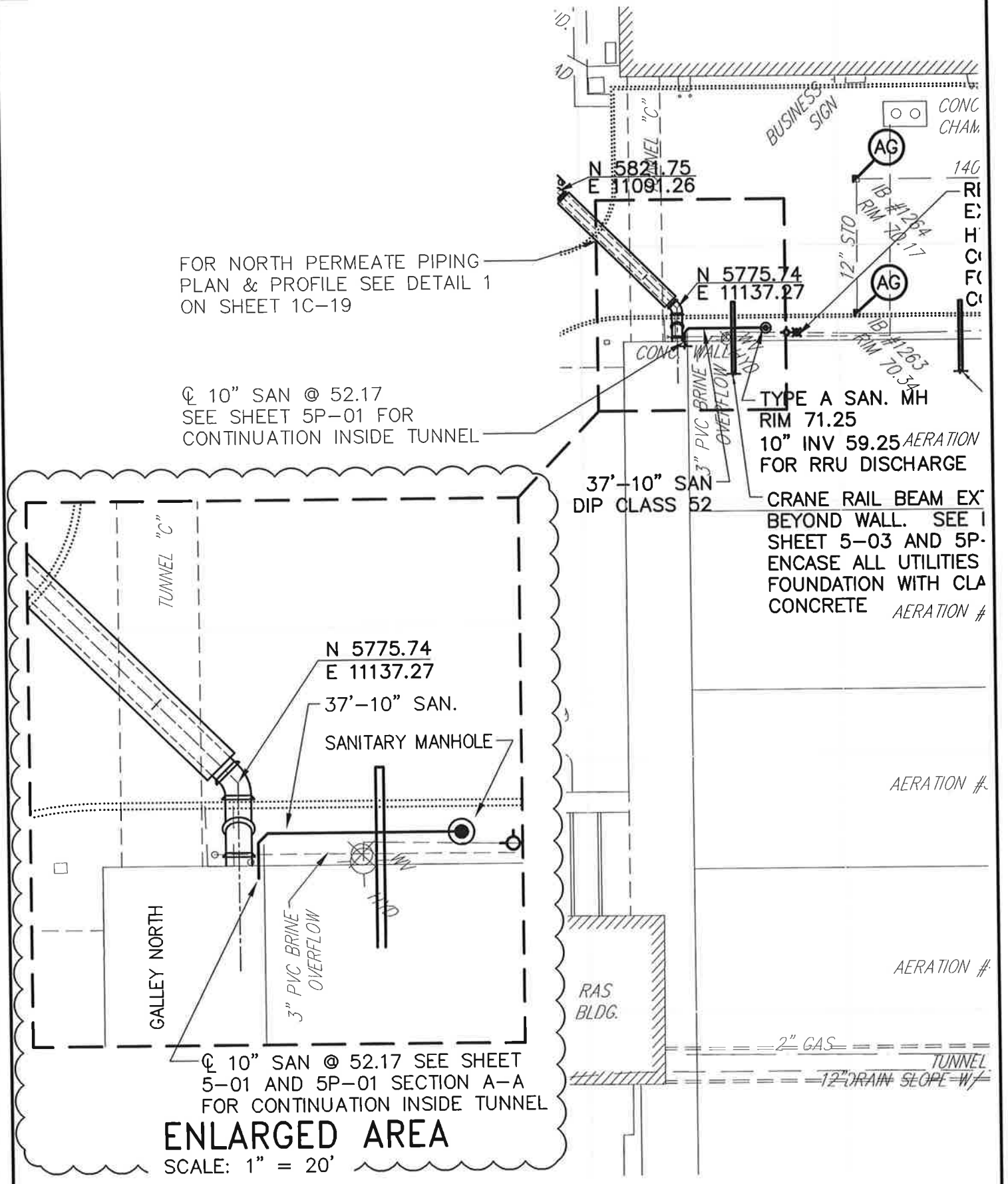
Tyco Electronics
Our commitment. Your advantage.



ENLARGED AREA

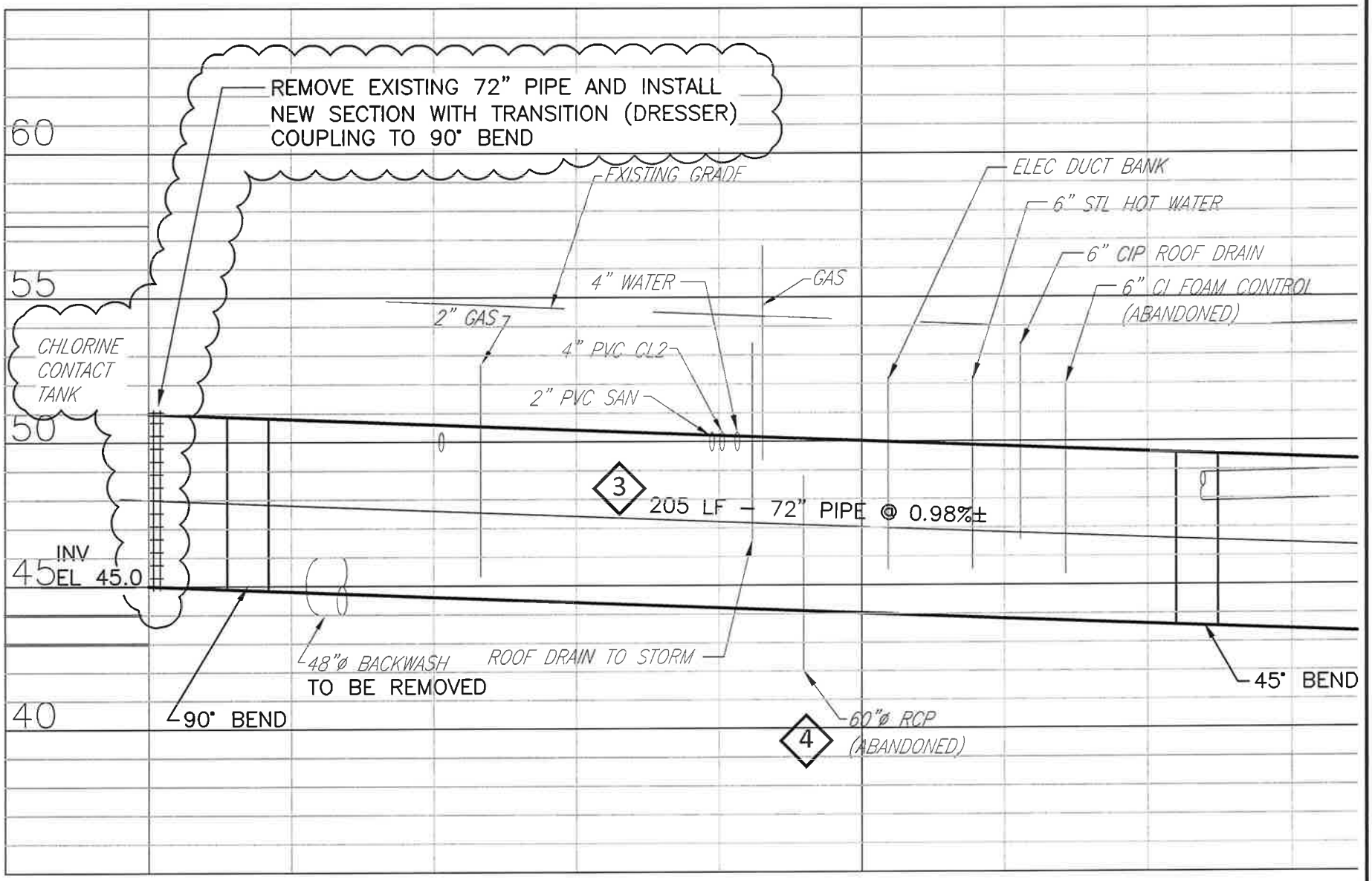
SCALE: 1" = 20'

ADD "ENLARGED AREA" TO SHEET 23

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 23 OF 375 - 1C-09.

CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	SKETCH
CT Consultants engineers | architects | planners		12/19/13	1"=20'	# 3	C-1

Drawing name: H:\2010\10182\DWG\C - UNDERGROUND PIPING PLAN.dwg Layout: ADD 3 1C-09 C1 by: morano



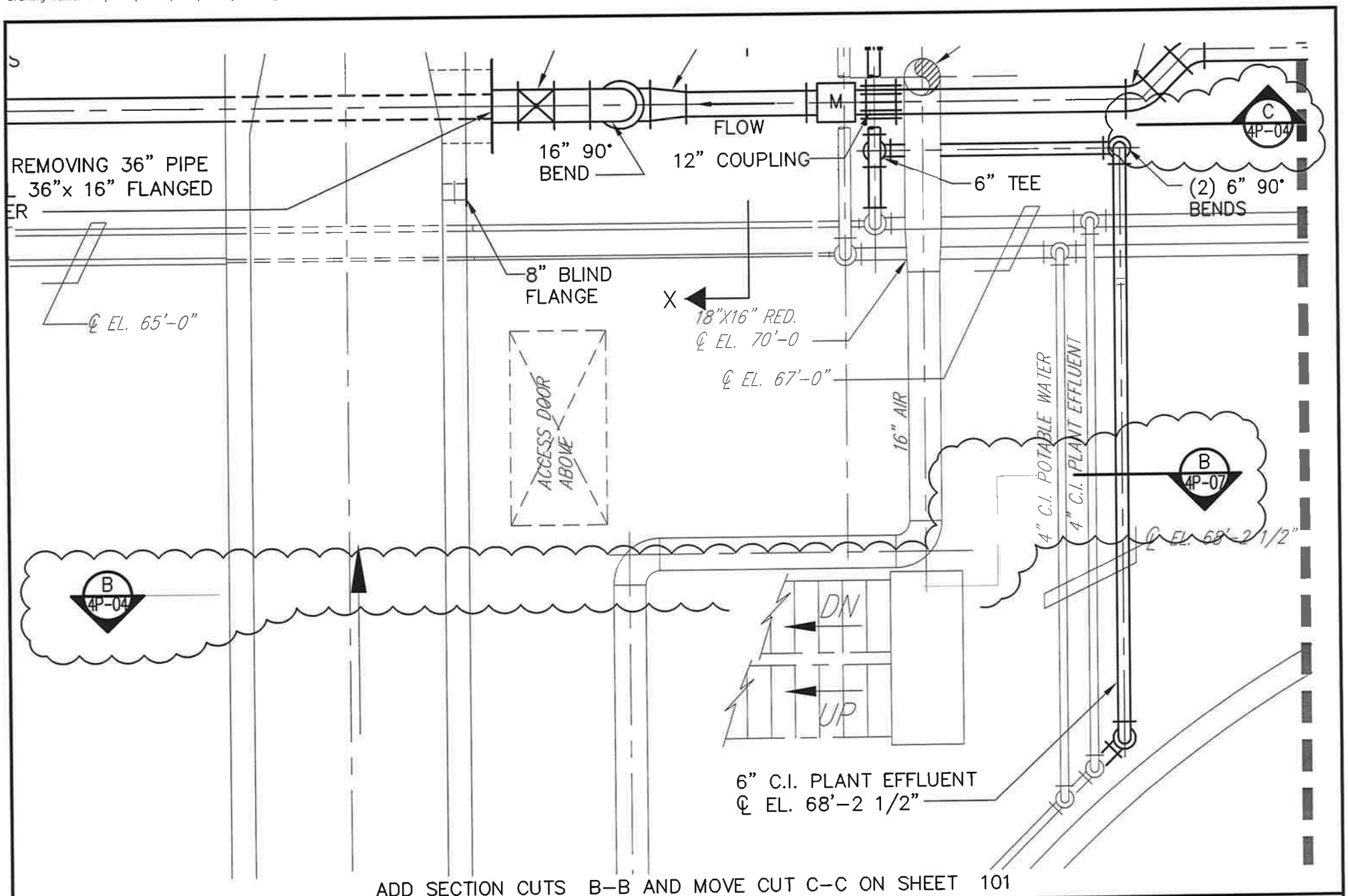
ADD NOTE TO PROFILE ON SHEET 36

PROFILE

SCALE: 1" = 20' HORIZ
1" = 5' VERT

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 36 OF 375 - 1C-21.

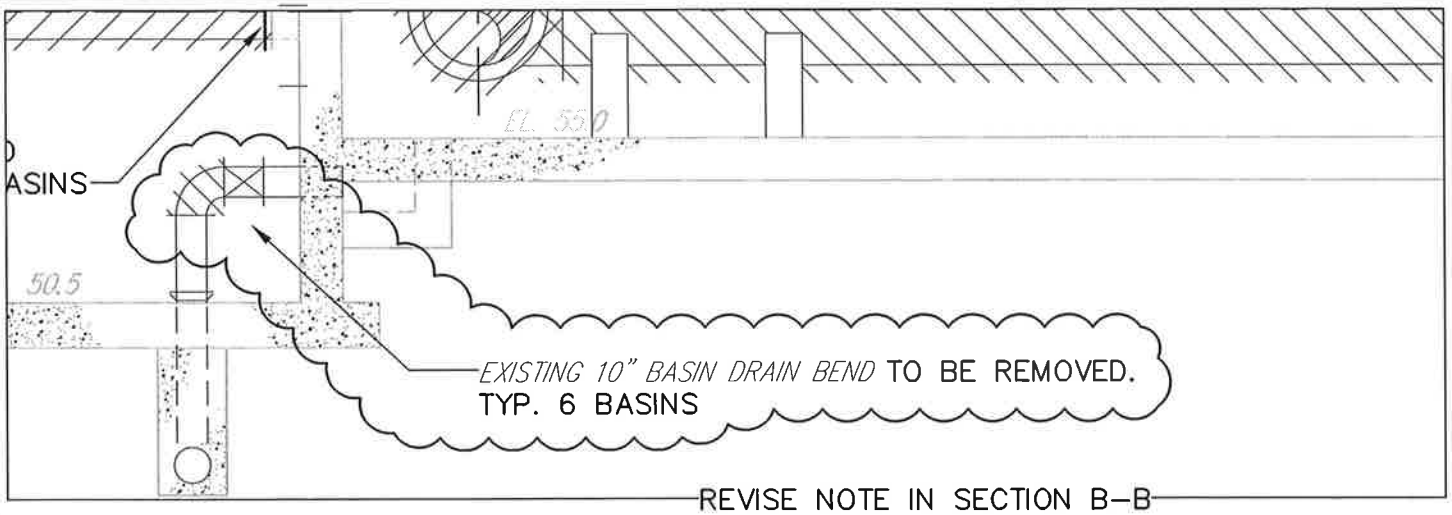
CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	SKETCH
CT Consultants engineers | architects | planners		12/19/13	1" = 20'	# 3	C-2



ADD SECTION CUTS B–B AND MOVE CUT C–C ON SHEET 101

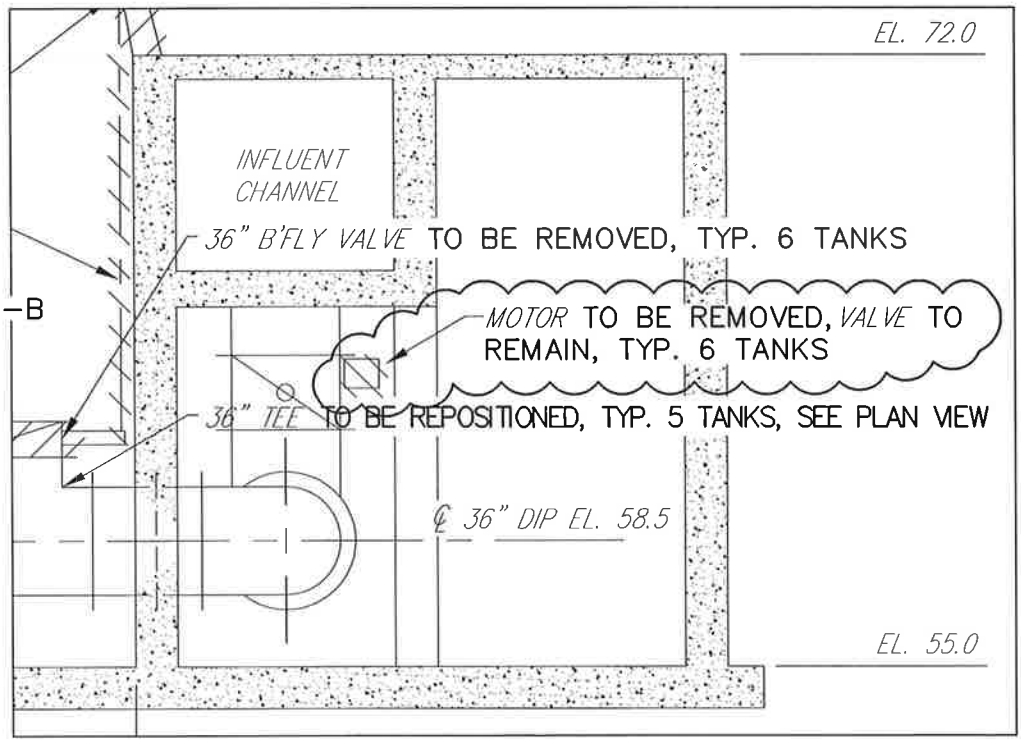
NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 101 OF 375 - 4P-04.

CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	SKETCH
CT Consultants engineers | architects | planners		12/19/13	1/4" - 1'-0"	# 3	P-4

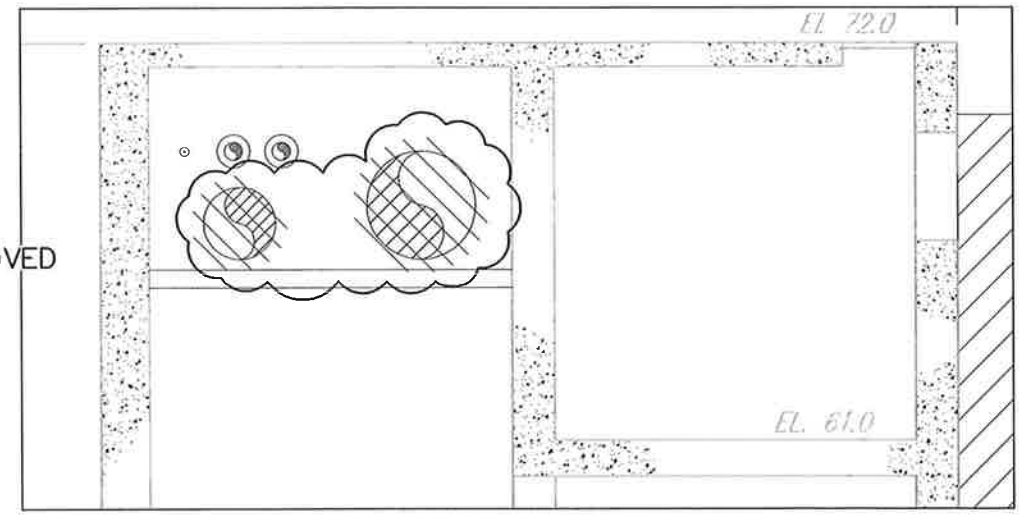


REVISE NOTE IN SECTION B–B

ADD NOTE IN SECTION B–B



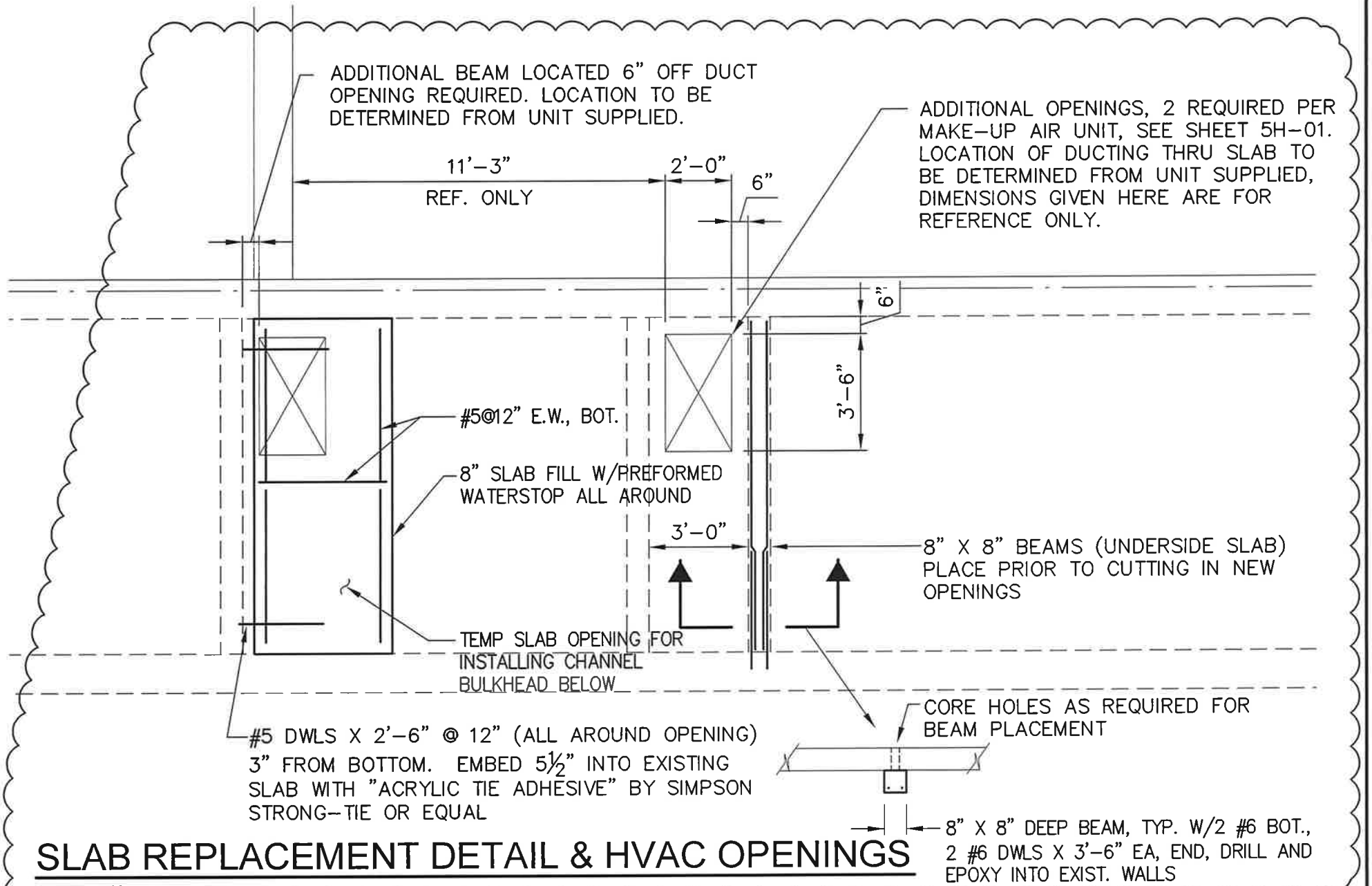
SHOW PIPES TO BE REMOVED



NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 109 OF 375 - 5D-05.

CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	DRAWING
CT Consultants engineers | architects | planners		12/19/13	3/16" - 1'-0"	# 3	D-1

Drawing name: H:\2010\10182\DWG\Aeration-MBR Sections.dwg Layout: ADD 3 5D-05 D-1 by: marano



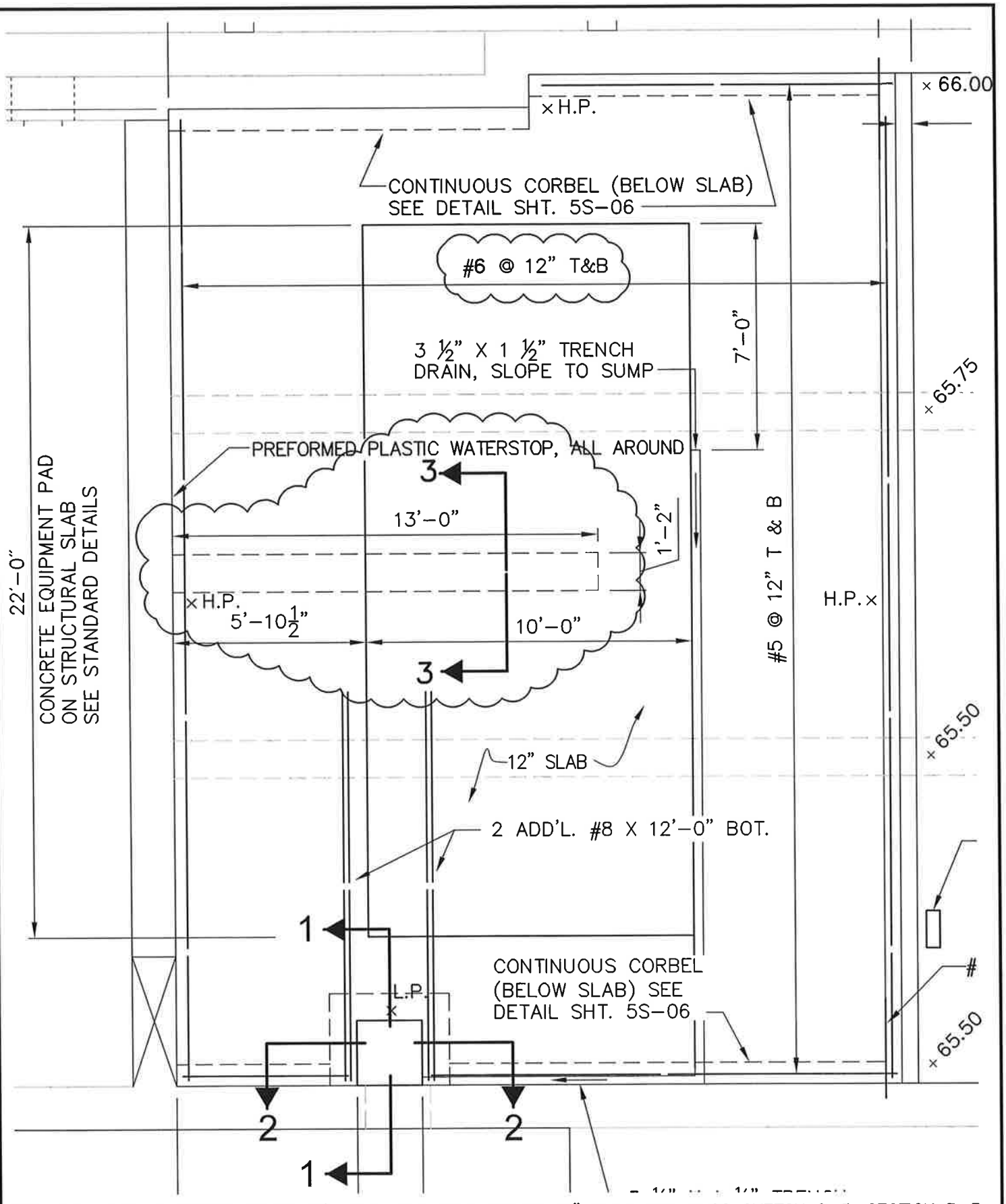
SLAB REPLACEMENT DETAIL & HVAC OPENINGS

SCALE: ¼" = 1'-0"

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 114 OF 375 - 5D-10

REPLACE "SLAB REPLACEMENT DETAIL"

CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	SKETCH
CT Consultants engineers | architects | planners		12/19/13	1/4" - 1'-0"	# 3	D-2

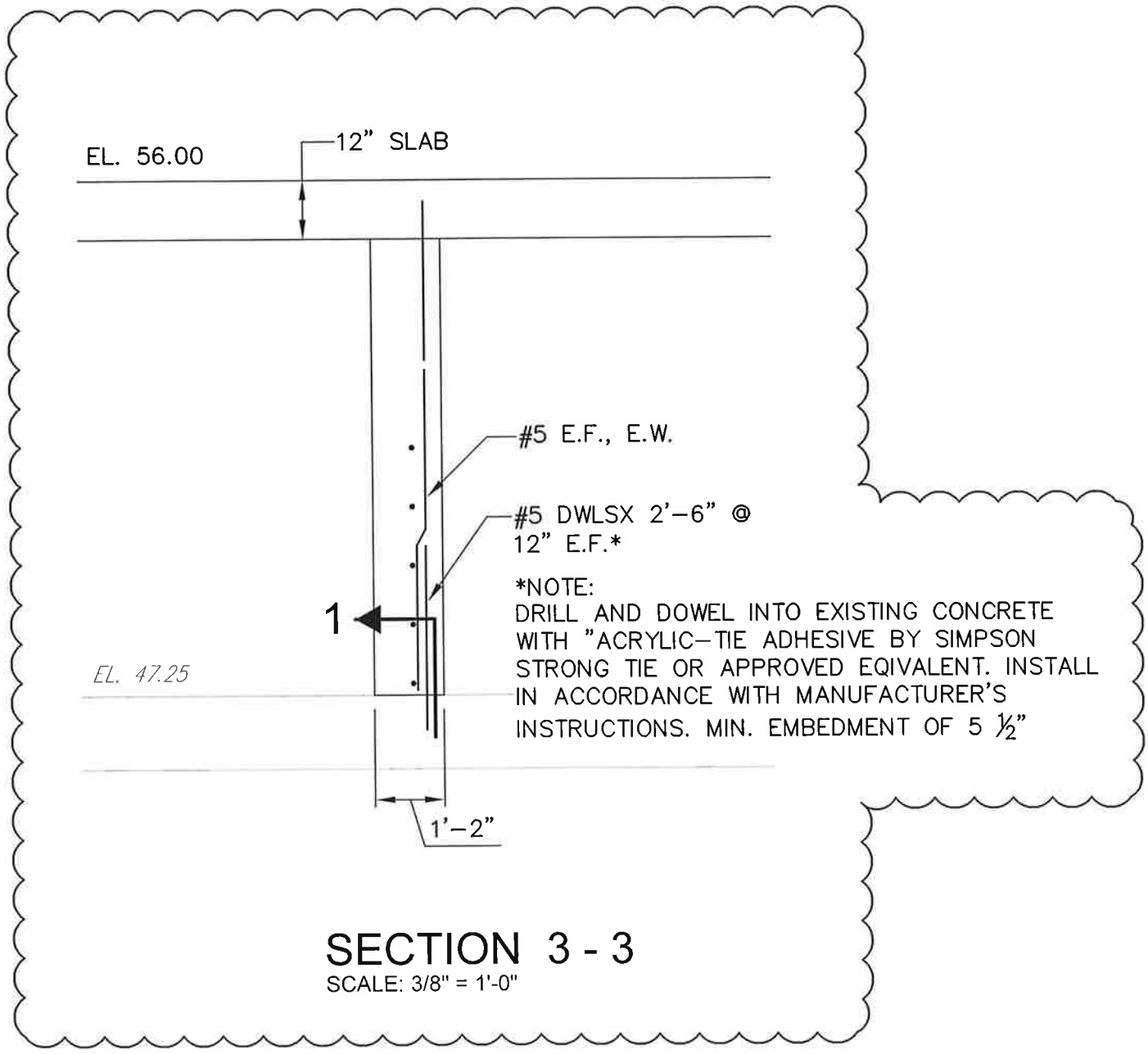


INCREASE SLAB REINFORCING TO #6's AND ADD WALL BELOW 12" SLAB, SEE ALSO SKETCH S–5, SECTION 3–3

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 128 OF 375 - 5S-08.

CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	DRAWING
CT Consultants engineers | architects | planners		12/19/13	1/4" - 1'-0"	# 3	S-4

Drawing name: H:\2010\10182\DWG\Aeration-MBR MIDDLE .dwg Layout: ADD 3 5S-08 S-4 by: marano



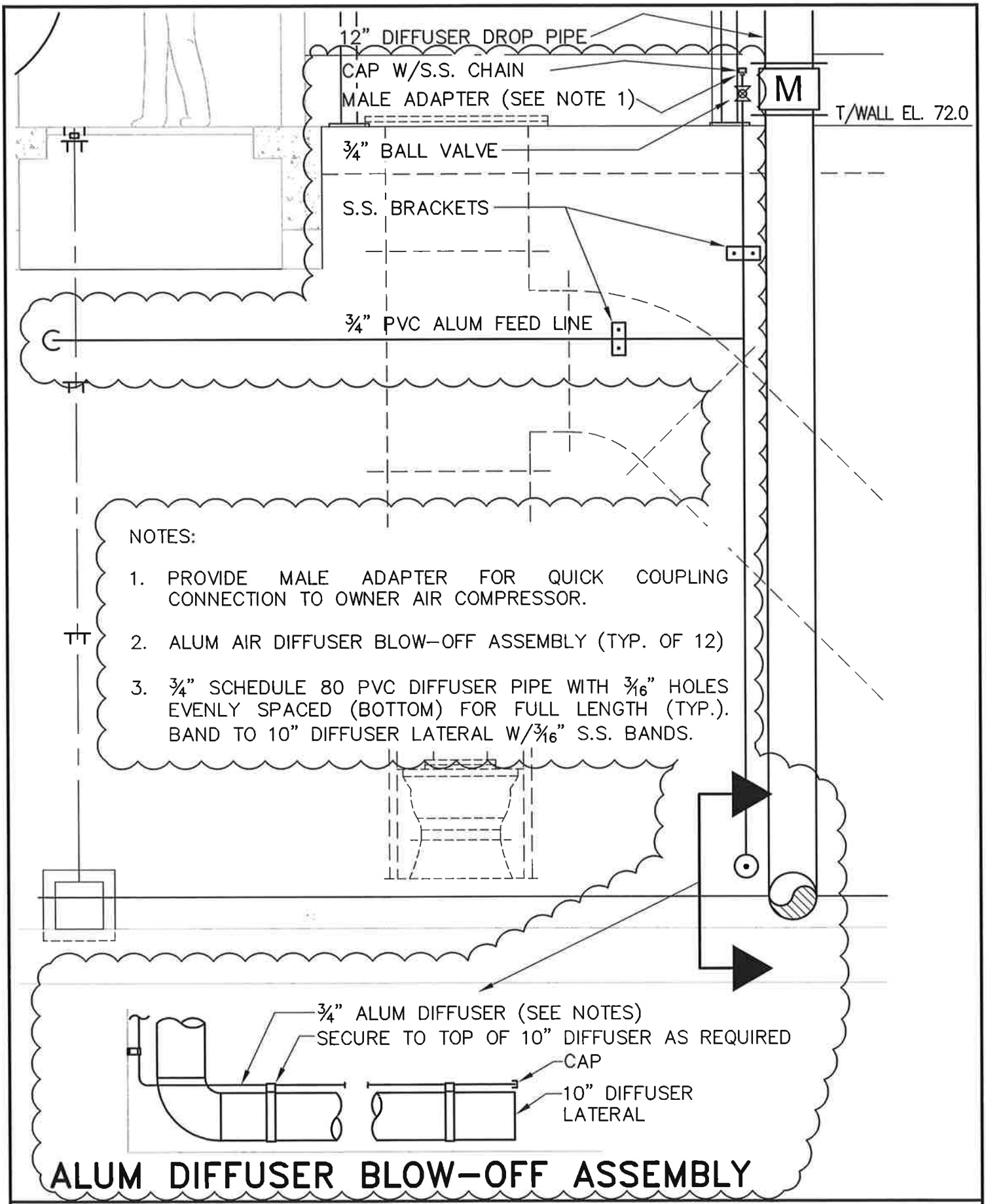
SECTION 3 - 3

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

ADD SECTION 3-3 TO SHEET 128

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 128 OF 375 - 5S-08.

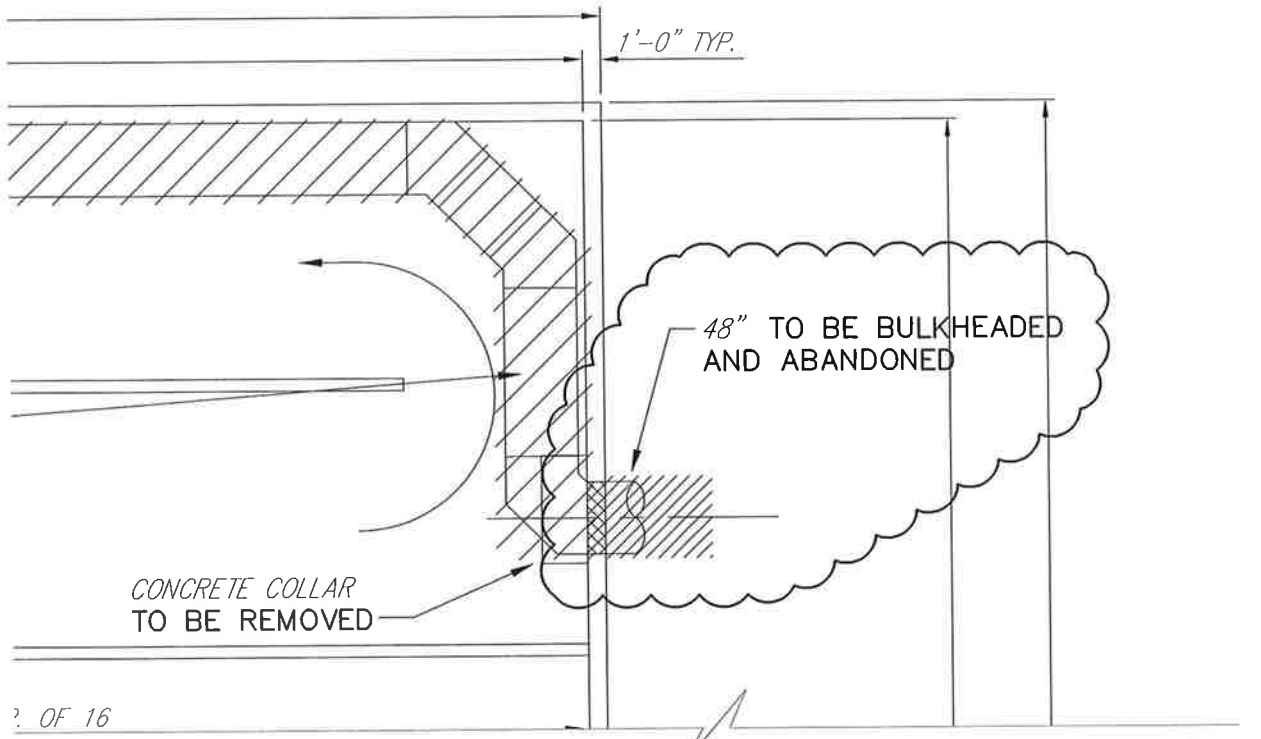
CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	DRAWING
CT Consultants engineers | architects | planners		12/19/13	1/4" - 1'-0"	# 3	S-5



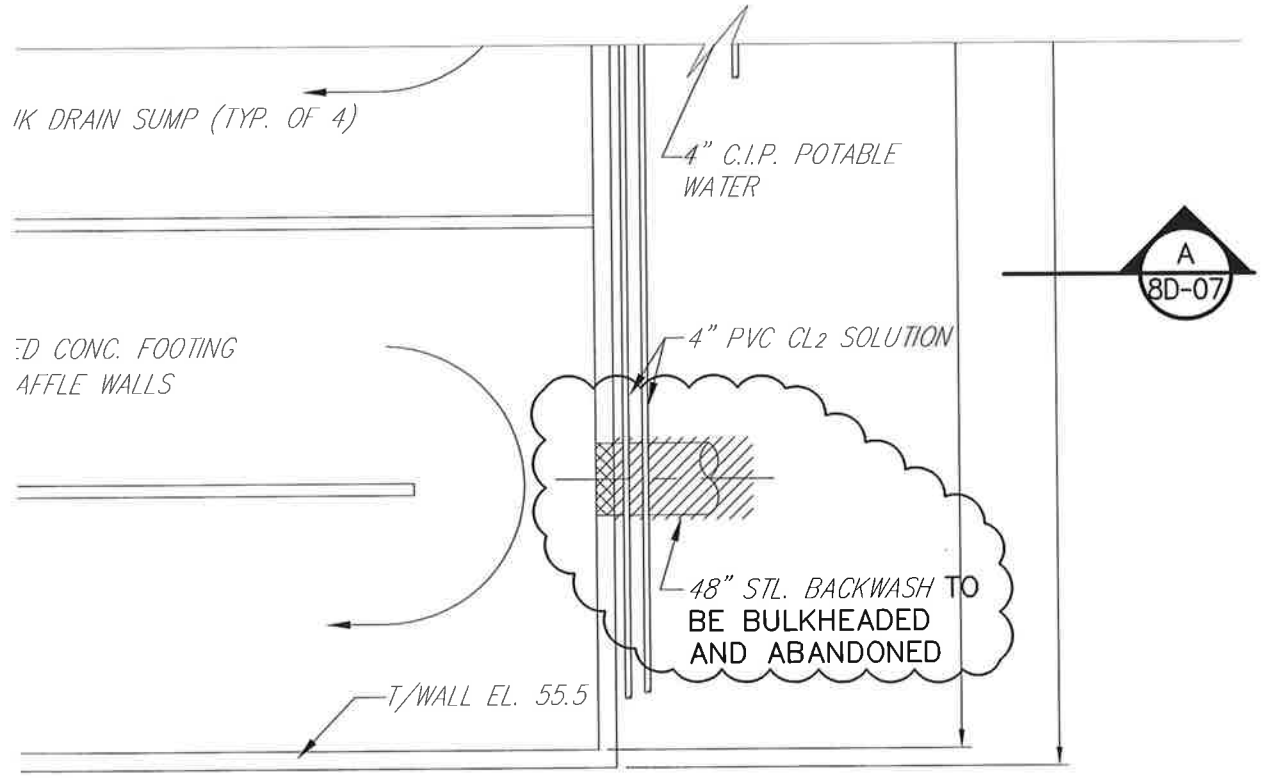
ALUM DIFFUSER BLOW-OFF ASSEMBLY

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 139 OF 375 - 5P-05.

CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	SKETCH
CT Consultants engineers | architects | planners		12/19/13	1/4" - 1'-0"	# 3	P-5



ADD BULKHEAD AND ABANDON NOTE IN NORTH-EAST CORNER OF CHLORINE CONTACT TANK PLAN

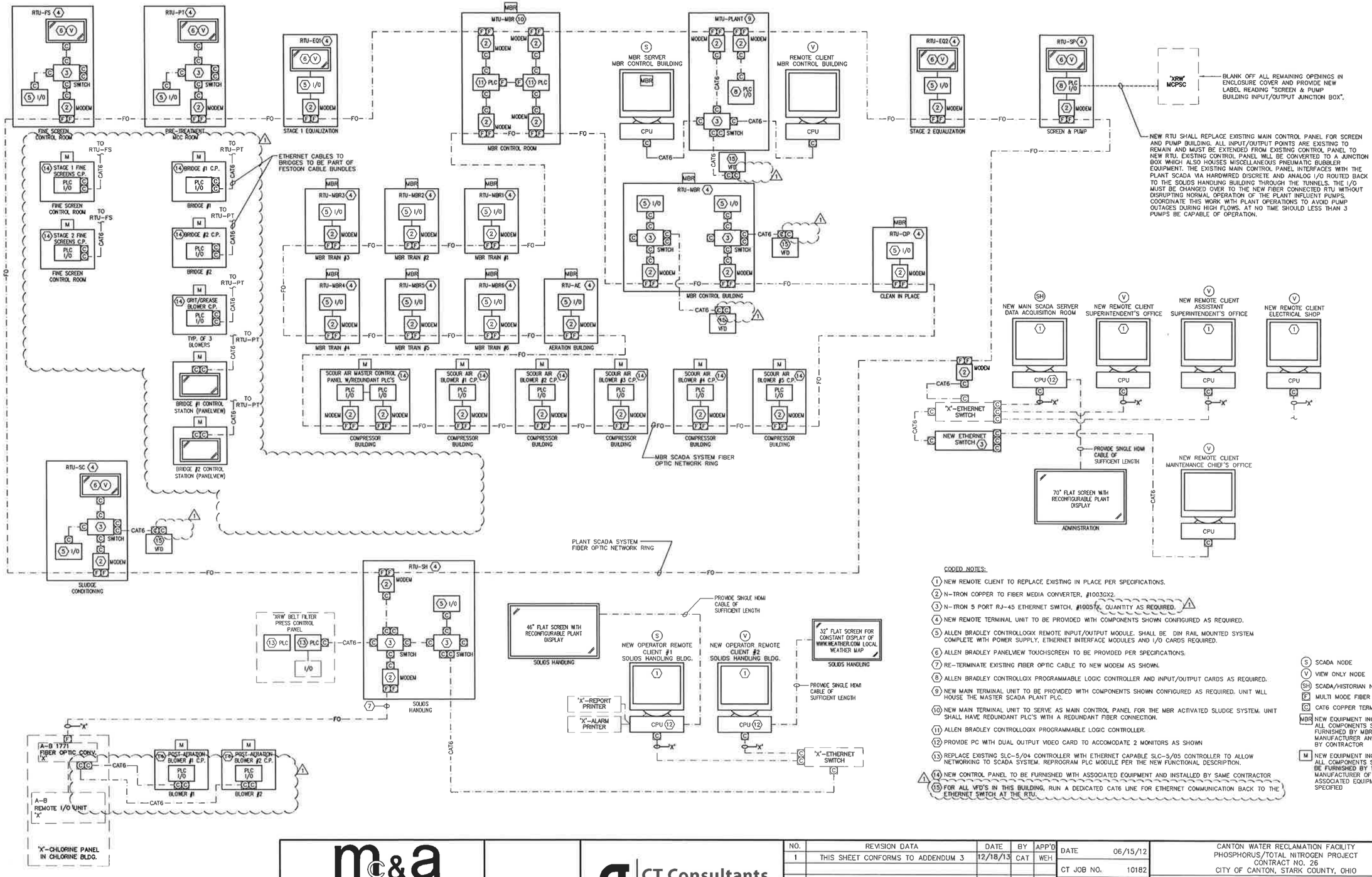


ADD BULKHEAD AND ABANDON NOTE IN SOUTH-EAST CORNER OF CHLORINE CONTACT TANK PLAN

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 186 OF 375 -8D-06 .

CT JOB NO. 10182	CANTON WATER RECLAMATION FACILITY PHOSPHORUS/TOTAL NITROGEN PROJECT CONTRACT NO. 26 CITY OF CANTON, STARK COUNTY, OHIO	DATE	SCALE	ADDENDUM	SKETCH
CT Consultants engineers | architects | planners		12/19/13	3/32" - 1'-0"	# 3	D-3

Drawing name: H:\2010\10182\DWG\Chlorine Contact Tanks.dwg Layout: ADD 3 8D-06 D-3 by: marano



CODED NOTES:

1. NEW REMOTE CLIENT TO REPLACE EXISTING IN PLACE PER SPECIFICATIONS.
2. N-TRON COPPER TO FIBER MEDIA CONVERTER, #1003GX2.
3. N-TRON 5 PORT RJ-45 ETHERNET SWITCH, #1005TX, QUANTITY AS REQUIRED.
4. NEW REMOTE TERMINAL UNIT TO BE PROVIDED WITH COMPONENTS SHOWN CONFIGURED AS REQUIRED.
5. ALLEN BRADLEY CONTROLLOGIX REMOTE INPUT/OUTPUT MODULE. SHALL BE DIN RAIL MOUNTED SYSTEM COMPLETE WITH POWER SUPPLY, ETHERNET INTERFACE MODULES AND I/O CARDS REQUIRED.
6. ALLEN BRADLEY PANELVIEW TOUCHSCREEN TO BE PROVIDED PER SPECIFICATIONS.
7. RE-TERMINATE EXISTING FIBER OPTIC CABLE TO NEW MODEM AS SHOWN.
8. ALLEN BRADLEY CONTROLLGIX PROGRAMMABLE LOGIC CONTROLLER AND INPUT/OUTPUT CARDS AS REQUIRED.
9. NEW MAIN TERMINAL UNIT TO BE PROVIDED WITH COMPONENTS SHOWN CONFIGURED AS REQUIRED. UNIT WILL HOUSE THE MASTER SCADA PLANT PLC.
10. NEW MAIN TERMINAL UNIT TO SERVE AS MAIN CONTROL PANEL FOR THE MBR ACTIVATED SLUDGE SYSTEM. UNIT SHALL HAVE REDUNDANT PLC'S WITH A REDUNDANT FIBER CONNECTION.
11. ALLEN BRADLEY CONTROLLOGIX PROGRAMMABLE LOGIC CONTROLLER.
12. PROVIDE PC WITH DUAL OUTPUT VIDEO CARD TO ACCOMODATE 2 MONITORS AS SHOWN
13. REPLACE EXISTING SLC-5/04 CONTROLLER WITH ETHERNET CAPABLE SLC-5/05 CONTROLLER TO ALLOW NETWORKING TO SCADA SYSTEM. REPROGRAM PLC MODULE PER THE NEW FUNCTIONAL DESCRIPTION.
14. NEW CONTROL PANEL TO BE FURNISHED WITH ASSOCIATED EQUIPMENT AND INSTALLED BY SAME CONTRACTOR
15. FOR ALL VFD'S IN THIS BUILDING, RUN A DEDICATED CAT6 LINE FOR ETHERNET COMMUNICATION BACK TO THE ETHERNET SWITCH AT THE RTU.

(S) SCADA NODE
(V) VIEW ONLY NODE
(SH) SCADA/HISTORIAN NODE
(F) MULTI MODE FIBER TERMINATION
(C) CAT6 COPPER TERMINATION
MBR NEW EQUIPMENT INCLUSIVE OF ALL COMPONENTS SHOWN TO BE FURNISHED BY MBR SYSTEM MANUFACTURER AND INSTALLED BY CONTRACTOR
M NEW EQUIPMENT INCLUSIVE OF ALL COMPONENTS SHOWN TO BE FURNISHED BY THE MANUFACTURER OF THE ASSOCIATED EQUIPMENT AS SPECIFIED

11-02
245 OF 375

M&A
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NO.	REVISION DATA	DATE	BY	APP'D
1	THIS SHEET CONFORMS TO ADDENDUM 3	12/18/13	CAT	WEH

DATE	06/15/12
CT JOB NO.	10182
DRAWN BY:	CAT
CHECKED BY:	CAT
APPROVED BY:	WEH

CANTON WATER RECLAMATION FACILITY
PHOSPHORUS/TOTAL NITROGEN PROJECT
CONTRACT NO. 26
CITY OF CANTON, STARK COUNTY, OHIO

INSTRUMENTATION
SCADA ONE LINE DIAGRAM - NEW WORK

INSTRUMENTATION & CONTROLS

Dec 12, 2013 - 10:30:42 DWG Name: C:\Jobs\2011\CT Consultants\Canton WWTP\Drawings\Addendum 3\6593A-I_01I-02.dwg Updated By: cladd