



**REVIEW BY FORT BEND COUNTY
COMMISSIONERS COURT**

**Fort Bend County
Engineering Department**
301 Jackson Suite 401
Richmond, Texas 77469
281.633.7500
Permits@fortbendcountytx.gov

Right of Way Permit

Commercial Driveway Permit

Permit No: 2018-22583

Applicant: Long & Son, Inc

Job Location Site: 4740 1/2 Harvest Corner Drive, Richmond, TX 77406

Bond No. **Date of Bond:** 7/27/2018 **Amount:** \$5,000.00

The above applicant came to make use of certain Fort Bend County property subject to, "The Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Chapter 181, Vernon's Texas Statutes and Codes Annotated.

Notes:

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
 - a. 48 hours in advance of construction start up, and
 - b. When construction is completed and ready for final inspection, submit notification to Permit Administrator thru MyGovernmentOnline.org portal.
3. This permit expires one (1) year from date of permit if construction has not commenced.

On this 28th day of August, 2018, Upon Motion of Commissioner _____, seconded by Commissioner _____, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

Signature

Presented to Commissioners Court and approved.

By: 
County Engineer

Date Recorded _____ Comm. Court No. _____

By: N/A
Drainage District Engineer/Manager

Clerk of Commissioners Court

By: _____
Deputy



**PERMIT APPLICATION REVIEW FORM FOR
CABLE, CONDUIT, AND POLE LINE ACTIVITY
IN FORT BEND COUNTY**

**Fort Bend County
Engineering Department**
301 Jackson Suite 401
Richmond, Texas 77469
281.633.7500
Permits@fortbendcountytx.gov

- Right of Way Permit
 Commercial Driveway Permit

Permit No: 2018-22583

The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

(1) COMPLETE APPLICATION FORM:

- a. Name of road, street, and/or drainage ditch affected.
 b. Vicinity map showing course of directions
 c. Plans and specifications

(2) BOND:

- County Attorney, approval when applicable.
- Perpetual bond currently posted. Bond No: _____ Amount: _____
- Performance bond submitted. Bond No: [REDACTED] Amount: \$5,000.00
- Cashier's Check Check No: _____ Amount: _____

(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):

Drainage District Approval

Date

We have reviewed this project and agree it meets minimum requirements.



Permit Administrator

8/17/2018

Date

PERFORMANCE BOND COVERING ALL CABLE, CONDUIT AND/OR POLE LINE
ACTIVITY IN, UNDER, ACROSS OR ALONG FORT BEND COUNTY ROAD,
COMMERCIAL DRIVEWAY AND MEDIAN OPENINGS OR MODIFICATIONS
(AUTHORIZED)

BOND NO [REDACTED]

THE STATE OF TEXAS §

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND §

THAT WE, Long & Son, Inc. whose (address, phone) is 13014 Queensbury, Houston, Texas 77079, 713-461-7032, hereinafter called the Principal, and Hartford Casualty Insurance Company, a Corporation existing under and by virtue of the laws of the state of Indiana and authorized to do an indemnifying business in the state of Texas, and whose principal office is located at (name/address/phone) 3000 Internet Blvd., Suite 600, Frisco, Texas 75034, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought whining said state is Michael Heidrick and whose address is 3000 Internet Blvd. Suite 600, Frisco, Texas 75034, hereinafter called the Surety, and held and firmly bound unto , Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, in the full sum of Five Thousand and No/100 Dollars (\$ 5,000.00) current, lawful money of the United States of America, to be paid to said Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, to which payment well and truly to be made and done, we, the undersigned, bind ourselves and each of us, our heirs, executors, administrators, successors, assigns, and legal representatives, jointly and severally, by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT, WHEREAS, the above bounden principal contemplates laying, constructing, maintaining and/or repairing one or more cables, conduits, and/or pole lines in, under, across and/or along roads, streets and highways, commercial driveway and median openings or modifications in the County of Fort Bend, and the State of Texas, under the jurisdiction of the Commissioners' Court of Fort Bend County, Texas, pursuant to the Commissioners' Court order adopted on the 1st day of December, A.D. 1980, recorded in Volume 13, of the Commissioners' Court Minutes of Fort Bend County, Texas, regulating same, which Commissioners' Court order is hereby referred to and made a part hereof for all purposes as though fully set out herein;

AND WHEREAS, the principal desires to provide Fort Bend County with a performance bond covering all such cable, conduit and/or pole line activity, commercial driveway and median openings or modifications;

NOW, THEREFORE, if the above bounden principal shall faithfully perform all its cable, conduit and/or pole line activity (including, but not limited to the laying, construction, maintenance and/or repair of cables, conduits and/or pole lines) in, under, across and/or along roads, streets and highways, commercial driveway and median openings or modifications in the County of Fort Bend and State of Texas, under the jurisdiction of the Commissioners Court of Fort Bend County, Texas, pursuant to and in accordance with minimum requirements and conditions of the above mentioned Commissioners' Court order set forth and specified to be by said principal done and performed, at the time and in the manner therein specified, and shall pay over and make good and reimburse Fort Bend County, all loss and damages which Fort Bend County may sustain by reason of any failure or default on the part of said principal, then this obligation shall be null and void, otherwise to remain in full force and effect.

This bond is payable at the County Courthouse in the County of Fort Bend and State of Texas.

It is understood that at any time Fort Bend County deems itself insecure under this bond, it may require further and/or additional bonds of the principal.

EXECUTED this 27th day of July, 2018.

Long & Son, Inc.
PRINCIPAL

BY

Hartford Casualty Insurance Company
SURETY

BY Gloria Villa, Attorney-in-Fact

POWER OF ATTORNEY

Direct Inquiries/Claims to:
THE HARTFORD
 BOND, T-12
 One Hartford Plaza
 Hartford, Connecticut 06155
 Bond.Claims@thehartford.com
 call: 888-266-3488 or fax: 860-757-5835

KNOW ALL PERSONS BY THESE PRESENTS THAT:

Agency Name: MARSH & MCLENNAN AGENCY LLC
 Agency Code: 46-505987

- Hartford Fire Insurance Company, a corporation duly organized under the laws of the State of Connecticut
- Hartford Casualty Insurance Company, a corporation duly organized under the laws of the State of Indiana
- Hartford Accident and Indemnity Company, a corporation duly organized under the laws of the State of Connecticut
- Hartford Underwriters Insurance Company, a corporation duly organized under the laws of the State of Connecticut
- Twin City Fire Insurance Company, a corporation duly organized under the laws of the State of Indiana
- Hartford Insurance Company of Illinois, a corporation duly organized under the laws of the State of Illinois
- Hartford Insurance Company of the Midwest, a corporation duly organized under the laws of the State of Indiana
- Hartford Insurance Company of the Southeast, a corporation duly organized under the laws of the State of Florida

having their home office in Hartford, Connecticut, (hereinafter collectively referred to as the "Companies") do hereby make, constitute and appoint, **up to the amount of Unlimited** :

Roxanne G. Brune, Sharen Groppe, Francine Hay, Beverly A. Ireland, Edward L. Moore, Kurt A. Risk, James W. Tomforde, Gloria Villa of Houston TX, C.W. Adams, Sharon Cavanaugh of HOUSTON, Texas

their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign its name as surety(ies) only as delineated above by , and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

In Witness Whereof, and as authorized by a Resolution of the Board of Directors of the Companies on May 6, 2015 the Companies have caused these presents to be signed by its Senior Vice President and its corporate seals to be hereto affixed, duly attested by its Assistant Secretary. Further, pursuant to Resolution of the Board of Directors of the Companies, the Companies hereby unambiguously affirm that they are and will be bound by any mechanically applied signatures applied to this Power of Attorney.



John Gray

John Gray, Assistant Secretary

M. Ross Fisher

M. Ross Fisher, Senior Vice President

STATE OF CONNECTICUT }
 COUNTY OF HARTFORD } ss. Hartford

On this 5th day of January, 2018, before me personally came M. Ross Fisher, to me known, who being by me duly sworn, did depose and say: that he resides in the County of Hartford, State of Connecticut; that he is the Senior Vice President of the Companies, the corporations described in and which executed the above instrument; that he knows the seals of the said corporations; that the seals affixed to the said instrument are such corporate seals; that they were so affixed by authority of the Boards of Directors of said corporations and that he signed his name thereto by like authority.



Kathleen T. Maynard

Kathleen T. Maynard
 Notary Public

My Commission Expires July 31, 2021

CERTIFICATE

I, the undersigned, Assistant Vice President of the Companies, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force effective as of July 27, 2018.
 Signed and sealed at the City of Hartford.



Kevin Heckman

Kevin Heckman, Assistant Vice President

IMPORTANT NOTICE

To obtain information or make a complaint:
You may contact your Agent.

You may call The Hartford's Consumer Affairs toll-free telephone number for information or to make a complaint at:
1-800-451-6944

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights, or complaints at:
1-800-252-3439

You may write the Texas Department of Insurance:
P.O. Box 149104
Austin, TX 78714-9104
Fax: (512) 490-1007
Web: www.tdi.texas.gov
E-mail: ConsumerProtection@tdi.texas.gov

PREMIUM OR CLAIM DISPUTES:

Should you have a dispute concerning your premium or about a claim, you should contact the (agent) (company) (agent or the company) first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

ATTACH THIS NOTICE TO YOUR POLICY:

This notice is for information only and does not become a part or condition of the attached document.

IMPORTANT NOTICE

To obtain information or make a complaint:

You may contact your agent.

You may call Hartford Insurance Group at the toll free telephone number for information or to make a complaint at:

1-800-392-7805

You may also write to The Hartford:

**The Hartford
Hartford Financial Products
2 Park Avenue, 5th Floor
New York, New York 10016
1-212-277-0400**

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights or complaints at:

1-800-252-3439

You may write the Texas Department of Insurance

P.O. Box 149104
Austin, TX 78714-9104
Fax Number (512) 490-1007
Web: <http://www.tdi.state.tx.us>
E-mail: ConsumerProtection@tdi.state.tx.us

PREMIUM OR CLAIMS DISPUTES: Should you have a dispute concerning your premium or about a claim you should contact the agent first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

ATTACH THIS NOTICE TO YOUR POLICY: This notice is for your information only and does not become a part or condition of the attached document.

AVISO IMPORTANTE

Para obtener informacion o para someter una queja.

Puede comunicarse con su agente.

Usted puede llamar al numero de telefono gratis de The Hartford Insurance Group para informacion o para someter una queja al

1-800-392-7805

Usted tambien puede escribir a The Hartford.

**The Hartford
Hartford Financial Products
2 Park Avenue, 5th Floor
New York, New York 10016
1-212-277-0400**

Puede comunicarse con el Departamento de Seguros de Texas para obtener informacion acerca de compañías, coberturas, derechos o quejas al:

1-800-252-3439

Puede escribir al Departamento de Seguros de Texas

P.O. Box 149104
Austin, TX 78714-9104
Fax Number (512) 490-1007
Web: <http://www.tdi.state.tx.us>
E-mail: ConsumerProtection@tdi.state.tx.us

DISPUTAS SOBRE PRIMAS O RECLAMOS: Si tiene una disputa concerniente a su prima o a un reclamo, debe comunicarse con su agente primero. Si no se resuelve la disputa, puede entonces comunicarse con el departamento (TDI).

UNA ESTE AVISO A SU POLIZA: Este aviso es solo para proposito de informacion y no se convierte en parte o condicion del documento adjunto.

CONSTRUCTION OF HARVEST GREEN WATER PLANT No. 1 FOR FORT BEND COUNTY MUNICIPAL UTILITY DISTRICT No. 134E FORT BEND COUNTY, TEXAS

ETJ DETENTION PLANS INFORMATION:

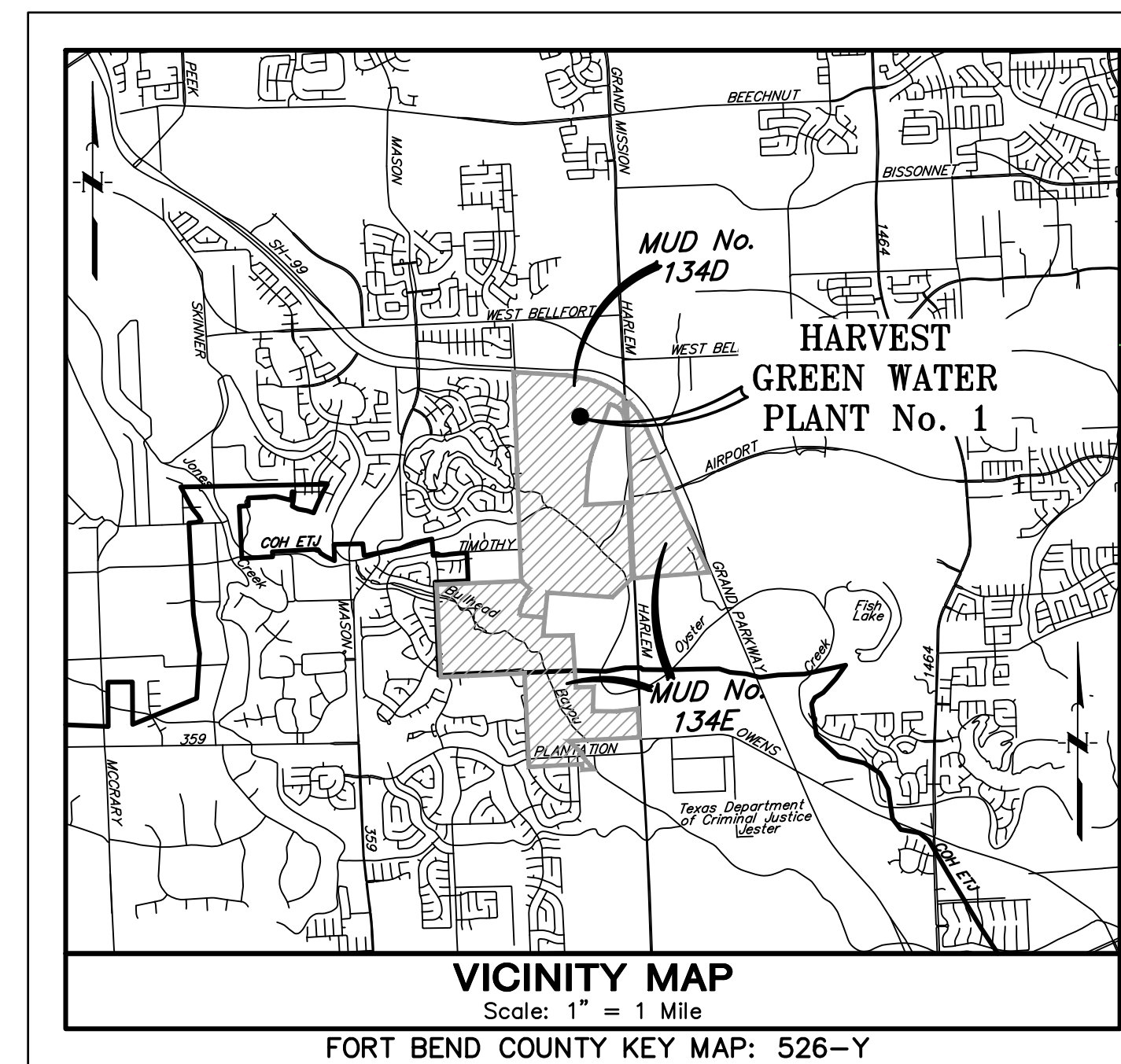
- Storm Water Detention Plans
Is provided in Harvest Green - Phase II Detention
Engineering Firm Jones|Carter
Date signed and approved by Feb 10, 2016 (Fort Bend County Drainage District) and Feb 4, 2016 (City of Houston)
- Storm Water Drainage Design Report:
Report Title Drainage & Detention Analysis for 658.8 Acre Harvest Green Development on Oyster Creek
Date Jan 16, 2016 Engineering Firm Jones|Carter
Date of Acknowledgment by Dec 15, 2015 (Fort Bend County Drainage District)

Harvest Green Water Plant No. 1:
Flood Insurance Rate Map
Panel 140 of 575
Map No. 48157C0140L
Base Flood Elev = 83.00'

I, TOBY W. MCQUEARY, a Professional Engineer licensed in the State of Texas do hereby certify that this project is entirely located outside the area with 100-year flood frequency.

ONE-CALL NOTIFICATION SYSTEM
CALL BEFORE YOU DIG!!!
713-223-4567 (In Houston)
(New Statewide Number Outside Houston
1-800-545-6005)

NOTE:
This facility is to serve no more than 2,500 ESFC's.



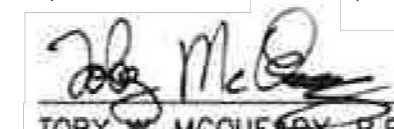
Contractor shall notify the City of Houston, Houston Public Works, Office of the City Engineer, 48 hours before starting work on this project.
Telephone No. (832-394-9098)

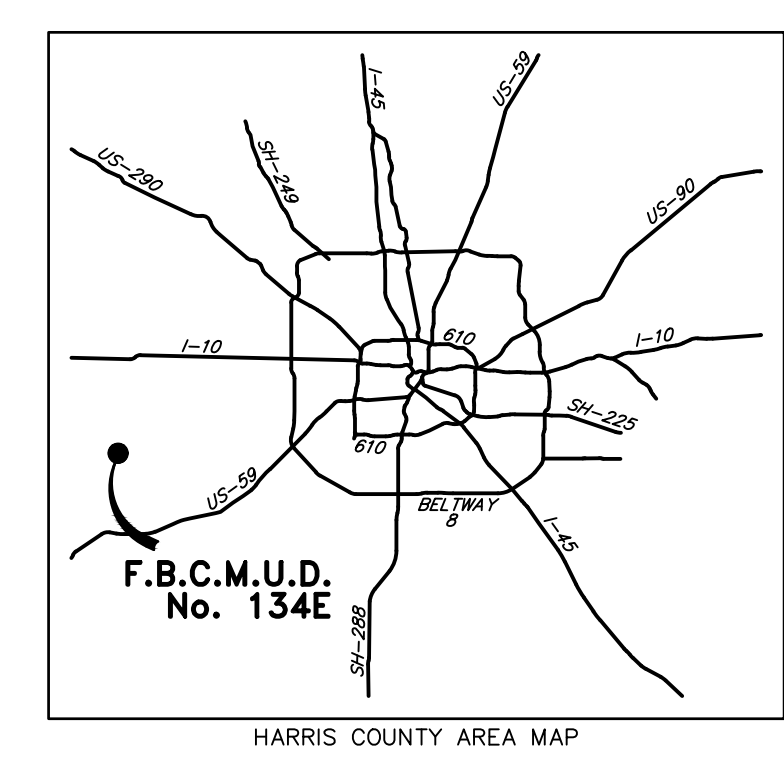
APRIL 2018
JC JOB No. 13889-0002-00



NOTES:
These plans were prepared to meet or exceed the specifications and requirements of the City of Houston, Texas and Fort Bend County, Texas as currently amended, whichever is more stringent.
Approval by Fort Bend County will be deemed void if construction has not begun within one year of approval date.
Construction shall not begin before the plat of this section is filed in the Fort Bend County Map Records.
Construction will be monitored by a registered professional engineer of JONES AND CARTER, INC.
Contractor shall notify the Fort Bend County Engineering Department at least 48 hours prior to commencement at construction@fortbendcountytexas.gov



I, TOBY W. MCQUEARY, a Professional Engineer licensed in the State of Texas do hereby certify that these plans were prepared under my supervision to meet or exceed the specifications and requirements of Fort Bend County, Texas.

 4-12-2018
 TOBY W. MCQUEARY, P.E. Date



FORT BEND COUNTY ENGINEER

ENGINEER: Richard W. Stangle, PE, PTOE
FOR RICHARD W. STOLLEIS, P.E.
DATE: 5/21/18
THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN ONE (1) YEAR FROM DATE OF APPROVAL.
APPROVED: Maxine
DEVELOPMENT COORDINATOR
DATE: 5/21/18

 TOBY W. MCQUEARY LICENSED PROFESSIONAL ENGINEER 4-12-2018	
SURVEYED BY: _____ FB NO.: _____ NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER: <u>4/21/18</u> WASTEWATER: <u>4/21/18</u> STORM: <u>4/21/18</u> STREET & BRIDGE: _____	TRAFFIC & TRANSPORTATION STORM WATER QUALITY FACILITIES 04/21/18
CITY ENGINEER: _____ DIRECTOR OF PUBLIC WORKS AND ENGINEERING: _____ SHEET No: G1 1 OF 47	FOR CITY OF HOUSTON USE ONLY  60306 CITY OF HOUSTON, TEXAS

ILMS No. 18022931
C.O.H. LOG No. 18-0447

FORT BEND COUNTY M.U.D. No. 134E - HARVEST GREEN WATER PLANT No. 1
JONES | CARTER
BELLAIRE, TEXAS

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APPROVED: Mandy
F.B.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	TWN

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1

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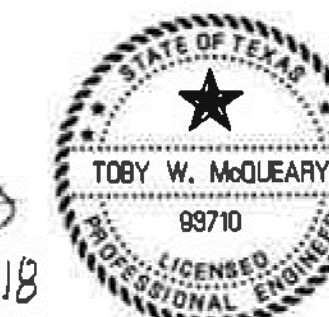
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER <u>05/21/18</u>	TRAFFIC & TRANSPORTATION
WASTEWATER <u>05/21/18</u>	STORM WATER QUALITY
STORM <u>05/21/18</u>	FACILITIES <u>04/18</u>
STREET & BRIDGE	

FILE NO: _____	FOR CITY OF HOUSTON USE ONLY
JOB NO: 13889-0002-00	CITY DWG NO.
DATE: April 2018	
DGN. BY: MRKILLARY	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
G2	
SHEET No. 2 OF 47	

Toby W. McLeary
4-12-2018



GENERAL CONSTRUCTION NOTES

- Prior to bidding this project, the Contractor shall inspect the work site to field verify that the above and below ground conditions of the site are acceptable for construction. Contractor shall refer to the General Conditions for requirements on handling concerns.
- The Contractor shall be fully responsible for protecting, maintaining, and restoring all existing public or private utilities, including but not limited to paving, waterlines, wastewater collection systems, storm sewer systems and traffic/street signs, or any off-site areas, affected by this construction project. All damaged facilities shall be repaired or restored to existing or better condition, unless otherwise noted, at no additional cost to the Public or the District (Owner).
- Hand dig as required around existing utilities. The Contractor shall be fully responsible for any and all damage to existing electrical, control and utility lines during construction. The current Owner of any existing utilities disturbed during construction of this project shall be notified immediately of any damages and lines shall be repaired in a timely manner to avoid any lengthy disruption of service. Repairs shall be made at no cost to the Public or the Owner.
- The approximate location of existing utilities are given for reference only. Before commencing the work on this contract, the Contractor shall verify by field investigation the actual locations of all utility facilities within and adjacent to the limits of the work that may be affected by the work. Conflicts which result due to negligence by the Contractor to locate, horizontally and vertically, existing utilities which are shown on the construction drawings, or which the Contractor has been given notice or has knowledge, shall be the sole responsibility of the Contractor. The cost of remedial work, removal of portions of the work or extensive design changes occasioned by the failure of the Contractor to verify the location of existing utilities as described above shall be borne by the Contractor.
- Contractor is to contact Texas 811 (DIG TESS Co.) at 811, 713-223-4567 or at 1-(800) 344-8377 for location of existing facilities that may not be shown on the plans at least 24 hours prior to commencement of any construction activities.
- Contractor shall obtain all applicable City, County, State, and Federal permits. Contractor shall provide copies of all obtained permits to the Construction Office of Jones|Carter.
- Contractor shall provide sheeting, shoring, bracing, and trench safety systems necessary to protect workmen, utilities, and/or structures during all phases of construction as may be required by O.S.H.A. Regulations and Federal, State, and local laws, codes, and ordinances.
- When trench condition warrants the use of dewatering systems, their use shall be requested by the Contractor and approved by the Engineer prior to installation.
- This project is located within the City of Houston ETJ and Fort Bend County, Texas.
- Contractor shall keep existing streets and roads open to all traffic and cleaned daily of material deposited by construction vehicles. Material that is hazardous to traffic shall be removed immediately. Any temporary facilities needed to maintain roadway accessibility during construction operations shall be incidental to the contract.
- During construction, the Contractor shall maintain adequate drainage and safe access to adjacent properties at all times, regardless of the weather conditions, at no additional cost to the Owner, whether by grading or pumping. Do not obstruct roadways, drainageways, sidewalks or passageways adjacent to the construction area.
- Maintain twelve (12) inch minimum out-to-out clearance between all waterlines, storm sewers, culverts, and private utility lines, other than sanitary sewers, unless otherwise noted.
- Adequate drainage shall be maintained at all times during construction and any drainage ditch or structure disturbed during construction shall be restored to the satisfaction of the Owning Authority. All construction storm runoff shall comply with the latest applicable rules and regulations of Fort Bend County, Texas; the Fort Bend County Drainage District; and the "STORM WATER POLLUTION PREVENTION PLAN (SWP3)" section of the Contract Specifications; all in compliance with the "NATIONAL POLLUTANTS DISCHARGE ELIMINATION SYSTEM" (NPDES) requirements.
- The Contractor shall perform work in a manner to limit noise from construction to acceptable levels for properties adjacent to construction area.
- The Contractor shall be responsible for safeguarding and protecting all material and equipment stored on the job site. The Contractor shall be responsible for the storage of materials in a safe and workmanlike manner to prevent injuries, during and after working hours, until project acceptance.
- The Contractor shall only clear and grub areas within the project construction area of the water plant site boundary lines as required to construct the proposed plant facilities, unless directed otherwise by the Owner or Engineer. Unless otherwise specified, all cleared and grubbed material becomes the property of the Contractor to be removed from the plant site or disposed of in a manner not to damage the Owner. Burning or burying of cleared and grubbed materials on the Owner's property is not permitted.
- The Contractor is responsible for providing "red line" record drawings and "Operation & Maintenance" (O&M) manuals at the completion of this project, as per the Contract Specifications, prior to final payment.
- Contractor to contact Mr. Albert M. Lazcano, PE with Jones|Carter at (713) 777-5337 at least 48 hours prior to mobilization.

GRADING NOTES:

- After completion of fill area preparation, fill shall be placed in maximum loose lifts of eight inches (8") or less and compacted to a minimum density of 95% of optimum density in accordance with ASTM D-698 at ±2% optimum moisture content.
- Should soft unstable areas appear in the site during the course of site grading, the Contractor shall remove unstable material as directed by the Engineer. The Contractor shall replace this with a suitable material compacted as required above. (No separate pay)
- Final payment shall be contingent on the Engineer's verification that site grading is in accordance with the plan and that soil compaction tests were performed as required.
- Final grade all areas of the site after completion of all other construction activities. Grade all areas of the site smooth to drain. Thoroughly clean site to remove all construction debris such as concrete, rubble, rebar, etc.

WATER PLANT CONSTRUCTION NOTES

- Project staking and establishment of control points will be provided by the Client or their representative. The Contractor will be responsible for coordinating this work with the Field Project Representative (FPR).
- All internal plant piping shall be ductile iron pipe (DIP), welded steel pipe (WSP), or C-900 polyvinyl chloride pipe (PVC) rated for an internal working pressure of 150 psi. Pipe used with flanged connections shall be thickness Class 53 (minimum). Pipe used with mechanical joint connections shall be thickness Class 52 (minimum). All piping shall be supplied and installed in accordance with the latest revision of AWWA C151 and C600. Waterline fittings shall be cast or ductile iron unless otherwise noted.
- Flanged connections and/or mechanical joint connections shall be rated for an internal working pressure of 150 psi. All flanges shall be supplied and installed in accordance with the latest revision of AWWA C115.
- All aboveground ductile iron pipe (DIP) connections shall be flanged. The first underground DIP connection shall be flanged. All other underground DIP connections shall be restrained mechanical joints unless otherwise noted.
- All underground flanges shall have stainless steel bolts and nuts.
- All internal water plant valves shall open counterclockwise. All water valves shall be supplied and installed in accordance with the latest revisions of AWWA C509 and C504. All external water plant valves shall open clockwise.
- All aboveground valves 12-inch (12") and smaller shall be flanged outside screw and yoke (OS&Y) gate valves with resilient seats, gasketed, and handwheel operators. All aboveground valves larger than 12-inch (12") shall be gasketed, flanged water butterfly valves. All aboveground butterfly valves shall have a post indicator and handwheel.
- All underground valves 12-inch (12") and smaller shall be mechanical joint, non-rising stem (NRS) gate valves with resilient seats, gasketed, and 2-inch (2") square operating nuts, except where flanged ends are called out on the plans.
- All buried valves are to be equipped with valve boxes adjusted to their final elevation after finished grading is complete.
- Six-inch (6") to 12-inch (12") water lines shall have a minimum cover of four feet (4').
- The interior and exterior of ductile iron pipe shall be coated as specified in Sections 15600 and 09920 of the Contract Specifications. The exterior of underground welded steel pipe shall be coated with a cold applied tape in accordance with AWWA C209 and as specified in Section 15600.
- All pressure/altitude gauges shall be 4-inch (4") face diameter, liquid filled, stainless steel case with 1/2-inch (1/2") bottom connection and 1/2-inch (1/2") stainless steel shut-off ball valve.
- Concrete thrust blocks shall be provided at all underground tees, bends, laterals, and plugs except for locations where restrained mechanical joints are used. They shall be constructed in accordance with the details in the Contract Construction Drawings and Specifications to prevent pipe movement.
- Provide isolation joints between all proposed sidewalks, slabs, structures, and pavement. Also provide isolation joints where pipes penetrate slabs or pavement unless otherwise noted on the drawings. Isolation joints shall be constructed as shown in the Contract Construction Drawings unless directed otherwise by the Engineer.
- Provide protective coatings for all the proposed water plant facilities in accordance with Sections 09920 and 15600 of the Contract Specifications. See Section 09920 for a list of specific items included in this construction project. Provide other protective coatings, such as hot-dipped galvanizing, as indicated in the Contract Construction Drawings and Specifications. Touch up areas damaged during construction as specified.
- All newly installed pipes, coatings, and related products shall conform to American National Standards Institute/National Sanitation Foundation International (ANSI/NSF) standards and must be certified by an organization accredited by ANSI. All these materials must be NSF Standard 60 and 61 certified.
- All waste materials shall be removed from the site and properly disposed of by the Contractor. Excess soil material shall be removed from the site and properly disposed of unless otherwise directed.
- Hydro-mulch seed all disturbed areas on, or adjacent to, the water plant site in accordance with Section 02801 of the Contract Specifications.
- Reinforcing welded wire fabric will be provided in sheets. Rolled welded wire fabric is not allowed.
- Waterlines shall be constructed so that all crosses, tees, and valves are not located under pavement or future facilities unless directed otherwise by the Engineer.
- All existing and proposed plant piping, conduit, or duct bank crossings shall be constructed with a minimum of 12-inches (12") clearance between outside surfaces of the said crossing utilities unless directed otherwise by the Engineer.
- Waterlines shall be bank sand bedded and backfilled in accordance with the details included in the Contract Construction Drawings and Specifications.
- Isolation kits are required between all dissimilar metals.
- All plant piping under or within one foot (1') of future, proposed or existing pavement shall be backfilled with 1-1/2 sack/CY cement-sand to a point immediately below the subgrade. Backfill remaining depth with suitable material in 8-inch (8") lifts compacted to 95% standard proctor density per AASHTO test Method T-99. Moisture content shall be as specified. (No Separate Pay)
- Contractor shall drill holes through building walls for proposed piping or electrical conduit a minimum of 1/2" larger in diameter than the pipe or conduit diameter being installed. All wall penetrations shall be sealed with approved non-shrink grout per the Contract Specifications.
- Grade surrounding areas to drain away from proposed slabs.
- All proposed underground plant piping shall be pressure tested in accordance with Section 15600 of the Contract Specifications. Contractor shall provide all temporary bulkheads, valves, caps or plugs, etc. at no additional cost. Contractor shall provide a certified copy of the test reports.
- Contractor must submit for approval any changes to proposed underground duct bank routing.

EROSION AND SEDIMENTATION CONTROL NOTES

- Prior to start of construction, Contractor shall install erosion and sedimentation controls at locations shown on the site layout sheets.
- Contractor shall inspect all erosion and sedimentation control systems specified herein, at a minimum of once a week.
- Contractor shall maintain, repair and/or replace damaged erosion and sedimentation control system throughout the duration of the contract (No separate pay).
- Contractor shall provide protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials.
- Contractor shall locate fuel/material storage areas away from storm water conveyance systems. Contractor shall use silt fencing, hay bales, or berms around fuel storage areas (No separate pay).
- Contractor shall advise Owner immediately, verbally, and in writing, of any fuel or toxic material spills onto the project/construction area and the action taken to remedy the problem.
- Contractor is responsible for disposing of his fuels, materials, and contaminated excavations in a legally approved manner (No separate pay).
- Contractor is responsible for complying with all applicable environmental laws.
- Contractor is responsible for providing adequately maintained sanitary facilities.
- At completion of the contract, the Owner and/or Owner's representative with the Contractor shall examine erosion and sedimentation control system before relieving Contractor of his maintenance responsibilities.
- Contractor shall be responsible for street cleaning, on a daily basis, of all mud and dirt deposited on the existing pavement due to his construction activity.

FORT BEND COUNTY GENERAL NOTES:

- Fort Bend County must be invited to the Pre-Construction Meeting.
- Contractor shall notify Fort Bend County Engineering Department 48 hours prior to commencing construction and a 48 hour notice to any construction activity within the limits of the paving at Construction@fortbendcountytx.gov.
- Contractor is responsible for obtaining all permits required from Fort Bend County prior to commencing construction of any improvements within County road right of ways.
- All paving improvements shall be constructed in accordance with Fort Bend County "Rules, Regulations and Requirements" relating to the Approval and Acceptance of Improvements in Subdivisions as currently amended.
- All road widths, curb radii and curb alignment shown indicated back of curb.
- A continuous longitudinal reinforcing bar shall be used in the curbs.
- All concrete pavement shall be 5 1/2 sack cement with a minimum compressive strength of 3500 psi at 28 days. Transverse expansion joints shall be installed at each curb return and at a maximum spacing of 60 feet.
- All weather access to all existing streets and driveways shall be maintained at all times.
- 4"x12" reinforced concrete curb shall be placed in front of single family lots only. All other areas shall be 6" reinforced concrete curb.
- At all intersection locations, Type 7 ramps shall be placed in accordance with TxDOT Ped-12a standard detail sheet. A.D.A. - Handicap ramps shall be installed with street paving at all intersections and comply with current A.D.A. regulations.
- Curb headers are required at curb connections to Handicap Ramps, with no construction joint within 5' of ramps.
- All intersections utilizing Traffic Control measures shall have A.D.A wheel chair ramps installed.
- Guidelines are set forth in the "Texas Manual on Uniform Traffic Control Devices", as currently amended, shall be observed. The Contractor shall be responsible for providing adequate flagmen, signing, striping and warning devices, etc., during construction - both day and night.
- All R1-1 stop signs shall be 30"x30" with diamond grade sheeting per Texas manual on uniform traffic control devices.
- Street name signage shall be on 9" high sign flat blade w/reflective green background. Street names shall be upper and lower case lettering with uppercase letters of 6" minimum and lowercase letters of 4.5" minimum. The letters shall be reflective white. Street name signs shall be mounted on stop sign posts, with diamond grade sheeting.
- A Blue Double Reflectorized button shall be placed at all Fire Hydrant locations. The Button shall be placed 12 inches off of the centerline of the street on the same side as the hydrant.

NOTE: Fort Bend County notes supersede any conflicting notes.

Inspection. The Project and all parts thereof shall be subject to inspection from time to time by inspectors designated by Fort Bend County. No such inspections shall relieve the Contractor of any of its obligations hereunder. Neither failure to inspect nor failure to discover or reject any of the work as not in accordance with the drawings and specifications, requirements and specifications of Fort Bend County or any provision of this Project shall be construed to imply an acceptance of such work or to relieve the Contractor of any of its obligations hereunder.

STANDARD CITY OF HOUSTON CONSTRUCTION NOTES:

- Wastewater collection systems, water, paving, traffic signals, drainage systems and all groundwater plant facilities shall be constructed in accordance with the most current editions of the following City of Houston documents. These documents are "STANDARD CONSTRUCTION SPECIFICATIONS" (most recent issue July 2016) and "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING" (most recent issue November 2005) with all subsequent amendments added thereto unless otherwise noted and approved on these plans. The design must agree with the minimum standards established in the "INFRASTRUCTURE DESIGN MANUAL" (most recent issue July 2015). Note that plan signatures and letters of capacity availability for storm, wastewater and water expire after one (1) year and the latest editions of design rules, specifications, standard details and manuals shall govern as of the dates for resigning. It is the responsibility of the Contractor to verify that he/she has the most recent editions as of the date of construction. These documents may be obtained from the City of Houston Department of Public Works, 611 Walker, Houston, Texas.
- Groundwater plants have been designed in accordance with the City of Houston, Department of Public Works and Engineering's "GROUNDWATER PLANT DESIGN GUIDELINES" manual dated January 2011. The standards required in the "GROUNDWATER PLANT DESIGN GUIDELINES" manual shall supercede those of the "INFRASTRUCTURE DESIGN MANUAL" when in conflict.
- The Contractor shall be fully responsible for any and all damage to existing public or private utility lines, including but not limited to paving, water lines, wastewater collection systems, storm sewers and traffic signals during construction. All damages shall be repaired in accordance with the most current editions of the City of Houston standard construction specifications, design details and design manuals. Repairs shall be made at no cost to the City of Houston, the Public or the Owner.
- The Contractor shall notify City of Houston Department of Public Works and Engineering by both phone and registered letter 48 hours prior to construction at 832-394-9098.

CAUTION: UNDERGROUND GAS FACILITIES

Locations of CenterPoint Energy main lines (to include CenterPoint Energy, Intrastate Pipeline, LLC, where applicable) are shown in an approximate location only. Service lines are usually not shown. Our signature on these plans only indicates that our facilities are shown in approximate location. It does not imply that a conflict analysis has been made. The contractor shall contact the Utility Coordinating Committee at 1-800-545-6005 or 811 a minimum of 48 hours prior to construction to have main and service lines field located.

- When CenterPoint Energy pipe line markings are not visible, call (713) 945-8036 or (713) 945-8037 (7:00 a.m. to 4:30 p.m.) for status of line location request before excavation begins.
- When excavating within eighteen inches (18") of the indicated location of CenterPoint Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
- When CenterPoint Energy facilities are exposed, sufficient support must be provided to the facilities to prevent excessive stress on the piping.
- For emergencies regarding gas lines call (713) 659-3552 or (713) 207-4200.

The contractor is fully responsible for any damages caused by his failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL LINES

Overhead lines may exist on the property. The location of overhead lines has not been shown on these drawings as the lines are clearly visible, but you should locate them prior to beginning any construction. Texas law, Section 752, Health & Safety Code forbids activities that occur in close proximity to high voltage lines, specifically:

- Any activity where person or things may come within six (6) feet of live overhead high voltage lines; and
- Operating a crane, derrick, power shovel, drilling rig, pile driver, hoisting equipment, or similar apparatus within 10 feet of live overhead high voltage lines.

Parties responsible for the work, including contractors, are legally responsible for the safety of construction workers under this law. This law carries both criminal and civil liability. To arrange for lines to be turned off or removed call (713) 207-2222.

ACTIVITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

No approval to use, cross or occupy CenterPoint Energy fee or easement property is given. If you need to use CenterPoint property, please contact our Surveying & Right of Way Division at (713) 207-6348 or (713) 207-5769.

APPROVED: *[Signature]*
 PUBLIC DEVELOPMENT COORDINATOR
 DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	TJW
Δ	05/20/18	ISSUED FOR CONSTRUCTION	TJW
		REVISIONS	APP.

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



HARVEST GREEN
 WATER PLANT No. 1
GENERAL CONSTRUCTION NOTES

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
MAINTENANCE	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: JOB NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG. NO.
DATE: April 2018 DGN. BY: MRKILLARY DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
G3 SHEET No. 3 OF 47	

[Handwritten Signature]
 4-12-2018

EQUIPMENT ABBREVIATIONS:

AIRC	AIR COMPRESSOR
ASV	AUTOMATIC SWITCHOVER VALVE
AT	AERATION TOWER
CAF	COALESCING AIR FILTER
CC	CALIBRATION COLUMN
CFP	CENTRIFUGAL PUMP
CLR	CHLORINATOR
DP	DIAPHRAGM PUMP
DWT	DOUBLE WALL STORAGE TANK
EFAN	EXHAUST FAN
EST	ELEVATED STORAGE TANK
EWS	EMERGENCY EYEWASH & SHOWER
FLT	FLOATS
GEN	GENERATOR
GLS	GAS LEAK SENSOR
GST	GROUND STORAGE TANK
HEP	HORIZONTAL END-SUCTION PUMP
HPT	HYDROPNEUMATIC TANK
HST	HOIST
INJ	INJECTOR
IQ	INJECTOR QUILL
JIB	JIBB CRANE
LC	LOAD CELL
LCP	LOCAL CONTROL PANEL
LVR	LOUVER
MR	MONORAIL
MXR	MIXER
PD	PULSATION DAMPENNER
PSP	PERISTALTIC PUMP
RTM	ROTAMETER
RTV	ROTAMETER WITH INTEGRAL MANUAL VALVE
SCHP	SPLIT-CASE HORIZONTAL PUMP
SFAN	SUPPLY FAN
SHTR	SPACE HEATER
SM	SUBMERSIBLE MIXER
SNP	SOLENOID PUMP
STMX	STATIC MIXER
SWT	SINGLE WALL STORAGE TANK
TB	TRAVELING BRIDGE
TLY	TROLLEY
VLF	VACUUM LIQUID FEEDER
VLP	VERTICAL LINESHAFT PUMP
VLT	VERTICAL TURBINE PUMP
VR	VACUUM REGULATOR
WCH	WINCH

FLUID ABBREVIATIONS:

AIR	AIR
CI	CORROSION INHIBITOR
CLG	CHLORINE GAS
CLS	CHLORINE SOLUTION
DR	DRAIN LINE
FA	FOUL AIR
FRA	FRESH AIR
HFS	HYDROFLUOROSILICIC ACID
LAS	LIQUID AMMONIUM SULFATE
OF	OVERFLOW
PPH	POLYPHOSPHATE
PW	POTABLE WATER
RAW	RAW WATER
SH	SODIUM HYPOCHLORITE (BLEACH)
STM	STORM SEWER

GENERAL ABBREVIATIONS:

AC	ACRES
CL	CENTERLINE
CFM	CUBIC FEET PER MINUTE
EL	ELEVATION
FF	FINISHED FLOOR
FM	FORCE MAIN
FPS	FEET PER SECOND
FT	FEET
GAL	GALLONS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HOA	HAND OFF AUTO
HP	HORSE POWER
HR	HOUR
LF	LINEAR FEET
mA	MILLIAMPERE
MH	MANHOLE
OFB	OVERFLOW BAFFLE
PP	POWER POLE
ROW	RIGHT-OF-WAY
SMC	SAMPLE COCK
SAN	SANITARY SEWER
SCH	SCHEDULE
SF	SQUARE FEET
TDH	TOTAL DYNAMIC HEAD
TOB	TOP OF BANK
TOC	TOP OF CONCRETE
TOE	TOE OF SLOPE
TOS	TOP OF SLAB
TOW	TOP OF WALL
TPD	TELEPHONE PEDESTAL
TSP	TELEPHONE SERVICE POLE
TSS	TOTAL SUSPENDED SOLIDS
UFB	UNDERFLOW BAFFLE
UGE	UNDERGROUND ELECTRIC
V	VOLTS
VOL	VOLUME
WM	WATER METER

GATES, VALVES & FITTINGS ABBREVIATIONS:

3WV	THREE WAY VALVE
ARV	AIR RELEASE VALVE
AVV	AIR & VACUUM VALVE
BCV	BALL CHECK VALVE
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BPV	BACKPRESSURE VALVE
BS	BASKET STRAINER
BV	BALL VALVE
CCV	CUSHION CHECK VALVE
DAE	DOUBLE ARCH EXPANSION JOINT
DBP	DOUBLE DISC BACKFLOW PREVENTER
DCV	DOUBLE DISC CHECK VALVE
DDC	DOUBLE DETECTOR CHECK
DGV	DEGASSING VALVE
DJ	DISMANTLING JOINT
DV	DIAPHRAGM VALVE
EC	EXPANSION COUPLING
FAC	FLANGED ADAPTER COUPLING
FPV	FLAP VALVE
FTV	FOOT VALVE
GLB	GLOBE VALVE
GV	GATE VALVE
HB	HOSE BIBB
KGV	KNIFE GATE VALVE
MC	MECHANICAL COUPLING
MQC	MALE CAM & GROOVE QUICK COUPLING
NRS	NON-RISING STEM
NV	NEEDLE VALVE
OSY	OUTSIDE STEM & YOKE
PG	PULL GATE
PNV	PINCH VALVE
PR	PRESSURE REDUCING VALVE
PRV	PRESSURE RELIEF VALVE
PSV	PRESSURE SUSTAINING VALVE
PV	PLUG VALVE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
SC	SAMPLE COCK
SCK	SILENT CHECK VALVE
SCV	SWING CHECK VALVE
SLC	SLEEVE COUPLING
SV	SOLENOID VALVE
TBA	TUBING ADAPTER UNION
UN	UNION
VB	VACUUM BREAKER
WYS	WYE STRAINER

MATERIAL ABBREVIATIONS:

CFRP	CENTRIFUGALLY CAST FIBER REINFORCED PIPE
CMP	CORRUGATED METAL PIPE
DI	DUCTILE IRON
FRP	FIBERGLASS REINFORCED PLASTIC
GS	GALVANIZED STEEL
HDG	HOT DIP GALVANIZED
HDPE	HIGH-DENSITY POLYETHYLENE
PE	POLYETHYLENE
PVC	POLYVINYL CHLORIDE
RC	REINFORCED CONCRETE
SS	STAINLESS STEEL
ST	STEEL
WS	WELDED STEEL

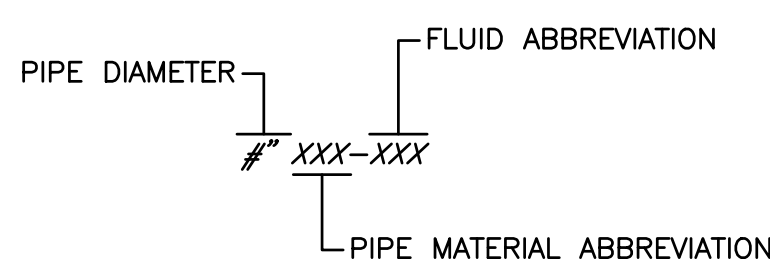
INSTRUMENTATION ABBREVIATIONS:

A/H	AUTO/HAND
DC	FULL VOLTAGE DISCONNECT
DOP	DOPPLER FLOW METER
ES	EMERGENCY STOP
H/O/A	HAND/OFF/AUTO
H/O/R	HAND/OFF/REMOTE
L/A	LOCAL/AUTO
L/C	LOCAL/COMPUTER
L/O/C	LOCAL/OFF/COMPUTER
L/O/R	LOCAL/OFF/REMOTE
L/R	LOCAL/REMOTE
LS	LOCK STOP
LSR	LASER LEVEL TRANSDUCER
MAG	ELECTROMAGNETIC FLOWMETER
N/B	NORMAL/BYPASS
O/O	ON/OFF
O/C	OPEN/CLOSE
O/C/LOS	OPEN/CLOSE/LOCK-OUT-STOP
O/C/S	OPEN/CLOSE/STOP
O/C/S/C	OPEN/CLOSE/STOP/COMPUTER
O/H/C	OPEN/HOLD/CLOSE
O/O/A	ON/OFF/AUTO
O/O/C	ON/OFF/COMPUTER
PRP	PROPELLER OR TURBINE FLOWMETER
RAD	RADAR LEVEL TRANSDUCER
R/S/L	RAISE/STOP/LOWER
S/S	STOP/START
SUB	SUBMERSIBLE LEVEL TRANSDUCER
TRM	THERMAL MASS FLOWMETER
TRT	TRANSIT TIME FLOWMETER
ULT	ULTRASONIC LEVEL TRANSDUCER

ANALYZER ABBREVIATIONS:

AM	AMMONIA
FC	FREE CHLORINE
MONO	MONOCHLORAMINE
PH	POTENTIAL OF HYDROGEN
TC	TOTAL CHLORINE
TEMP	TEMPERATURE

PIPING LABELS:



DEVICE IDENTIFICATION LEGEND

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

GENERAL INSTRUMENT & FUNCTION SYMBOLS

PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR

AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR

FIELD MOUNTED

DISCRETE INSTRUMENTS:

SHARED DISPLAY, SHARED CONTROL OR COMPUTER FUNCTION:

PROGRAMMABLE LOGIC CONTROL:

PANEL LIGHT INDICATION:

INTERLOCK LOGIC:

INSTRUMENT NAMING EXAMPLE:

INSTRUMENTS SHARING COMMON HOUSING:

DEVICE TYPE (SEE DEVICE IDENTIFICATION LEGEND)

UNIQUE NUMBER: XXXXX

AREA NUMBER

TRAIN NUMBER

DEVICE NUMBER

LIGHT: A=AMBER, G=GREEN, R=RED, W=WHITE, Y=YELLOW

** MAY BE DEPICTED BY USING THE SAME SYMBOL BUT WITH DASHED HORIZONTAL BARS, I.E.

APPROVED: *Marcos*
 (E.I.C. DEVELOPMENT COORDINATOR)

DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	TWM
		REVISIONS	APP.

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



HARVEST GREEN
 WATER PLANT No. 1

GENERAL ABBREVIATIONS SHEET

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER: *[Signature]*
 WASTEWATER: *[Signature]*
 STORM: *[Signature]*
 TRAFFIC & TRANSPORTATION: *[Signature]*
 STORM WATER QUALITY: *[Signature]*
 FACILITIES: *[Signature]*

FOR CITY OF HOUSTON USE ONLY
 CITY DWG NO.

FILE NO:	JOB NO: 13889-0002-00
DATE: April 2018	DGN. BY: KADOMINGUEZ
DWG. BY: JASTRUHAR	SCALE: NO SCALE
SHEET No. 4 OF 47	G4

For Electrical & Process Work Only:

[Signature]
 4-17-18

[Signature]
 4-12-2018

[Signature]
 4-17-18

Professional Engineer Seals for Brian S. Chung (108528) and Toby W. McQuary (93710).

MISCELLANEOUS SYMBOLS

	TYPICAL NORMALLY CLOSED VALVE		DRAIN LINE		EXHAUST FAN		INJECTOR
	BALL VALVE		DRAIN INLET (SCREENED)		LOUVER		INJECTOR QUILL
	BUTTERFLY VALVE		DRAIN INLET (OPEN)		GENERAL FAN		ROTAMETER
	SILENT CHECK VALVE		VENT		GENERAL CRANE		ROTAMETER WITH INTEGRAL MANUAL VALVE
	SWING CHECK VALVE		TUBING ADAPTER		WINCH		PULSATION DAMPENERS
	BALL CHECK VALVE		BLIND FLANGE		TRAVELING BRIDGE CRANE		CHEMICAL DOSAGE CONTROLLER (SEE FLUID ABBREVIATIONS)
	DIAPHRAGM VALVE		UNION		TROLLEY		COALESCING AIR FILTER
	GATE VALVE		SLEEVE COUPLING		HOIST		
	DOUBLE DISC CHECK VALVE		FLANGED ADAPTER COUPLING		MANHOLE		
	GLOBE VALVE		DISMANTLING JOINT		GENERAL BLOWER		
	PINCH VALVE		DOUBLE ARCH EXPANSION JOINT		GENERAL PUMP		
	NEEDLE VALVE		MALE CAM & GROOVE QUICK COUPLING		AIR COMPRESSOR		
	THREE-WAY VALVE		DIAPHRAGM SEAL		MIXER		
	FLAP VALVE		INLINE ANNULAR DIAPHRAGM		STATIC MIXER		
	AIR & VACUUM VALVE		SAMPLE COCK		SINGLE WALL STORAGE TANK		
	AIR RELEASE VALVE		HOSE BIBB		DOUBLE WALL STORAGE TANK		
	DEGASSING VALVE		VACUUM BREAKER		STORAGE CONTAINER		
	SOLENOID VALVE		WYE STRAINER		AERATION TOWER		
	PRESSURE RELIEF VALVE		CORPORATION STOP				
	PRESSURE REDUCING VALVE		GENERAL BACKFLOW PREVENTER				
	PRESSURE SUSTAINING VALVE		BASKET STRAINER				
	BACKPRESSURE VALVE		EMERGENCY EYE WASH & SHOWER				
	AUTOMATIC SWITCHOVER VALVE		MIXER				
	VACUUM REGULATOR		HEAT TRACING				
			CALIBRATION TUBE/COLUMN				
			GAS INDUCTION PUMP				

ELECTRICAL/INSTRUMENTATION SYMBOLS

	120 VAC ELECTRICAL SUPPLY
	LEVEL TRANSDUCER (SEE INSTRUMENTATION ABBREVIATIONS FOR TYPE)
	FLOAT WITH PVC COATED WEIGHT
	FLOW METER (SEE INSTRUMENTATION ABBREVIATIONS FOR TYPE)
	ONLINE ANALYZER (SEE ANALYZER ABBREVIATIONS FOR TYPE)
	PROBE ANALYZER (SEE ANALYZER ABBREVIATIONS FOR TYPE)
	LOAD CELL/SCALE
	SPACE HEATER
	MOTOR
	VARIABLE SPEED MOTOR
	MOTOR WITH LOCAL LOCKOUT (SEE INSTRUMENTATION ABBREVIATIONS FOR TYPE)
	ELECTRICAL SIGNAL
	DATA COMMUNICATION
	HEAT TRACING
	ANALOG INPUT
	ANALOG OUTPUT
	DISCRETE INPUT
	DISCRETE OUTPUT

GENERAL LEGEND

FUTURE	EXISTING	PROPOSED	
			PROPERTY LINE
			EASEMENT LINE
			BUILDING LINE
			OVERHEAD POWER LINE
			GAS LINE
			TYP PIPE FITTING (VERTICAL)
			TYP PIPE FITTING (HORIZ)
			TYPICAL PIPE VALVE
			CONCRETE PIPE SUPPORT
			MANHOLE
			UNDERGROUND PLANT PIPING
			ABOVEGROUND PLANT PIPING
			EDGE OF EXISTING FLOODPLAIN
			EDGE OF BUFFERZONE
			EDGE OF PAVEMENT
			TOP OF BANK
			TOE OF SLOPE
			DRAINAGE SWALE
			CHAIN LINK FENCE
			WOODEN FENCE
			BARBED WIRE FENCE
			BRICK FENCE
			NATURAL GROUND CONTOUR
			CONCRETE PAVEMENT
			CRUSHED CONCRETE PAVEMENT
			ASPHALT PAVEMENT
			GRADE ELEVATION
			SLOPE TO DRAIN
			SAW-CUT CONTROL JOINT
			EXPANSION JOINT
			ISOLATION JOINT
			KEYED CONSTRUCTION JOINT
			SOIL BORING (SEE GEOTECHNICAL REPORT)
			EXISTING ITEM TO BE DEMOLISHED
			EXISTING ITEM TO BE ABANDONED

APPROVED: F.B.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	REVISIONS	TWM	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION		TWM	

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS

JC JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337

HARVEST GREEN
WATER PLANT No. 1
GENERAL SYMBOLS SHEET

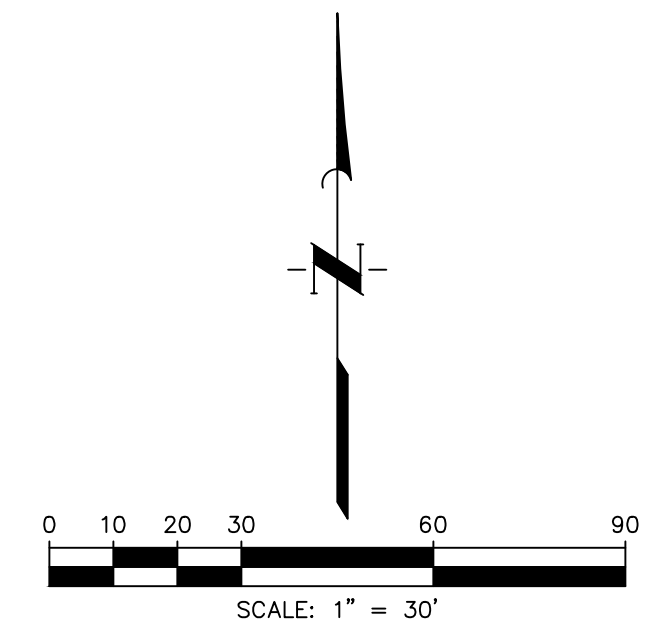
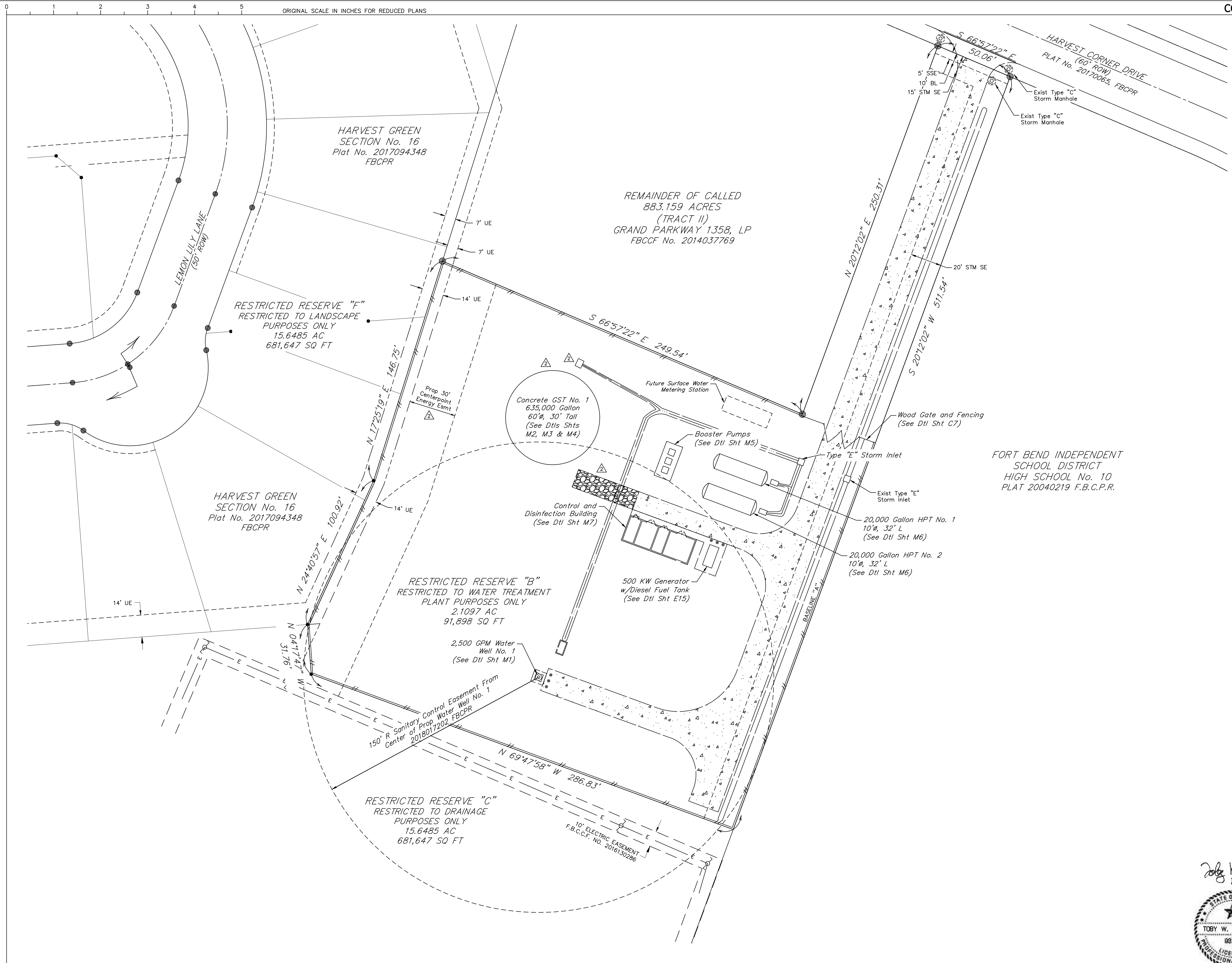
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES
STREET	

FILE NO:	FOR CITY OF HOUSTON USE ONLY
JOB NO: 13889-0002-00	CITY DWG NO.
DATE: April 2018	
DGN. BY: KADOMINGUEZ	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
G5	
SHEET No. 5 OF 47	

For Electrical & Process Work Only.



APPROVED: *[Signature]*
 F.B.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
Δ	05/31/18	REVISED PER GST RELOCATION	TWM
Δ	05/30/18	ISSUED FOR CONSTRUCTION	TWM

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



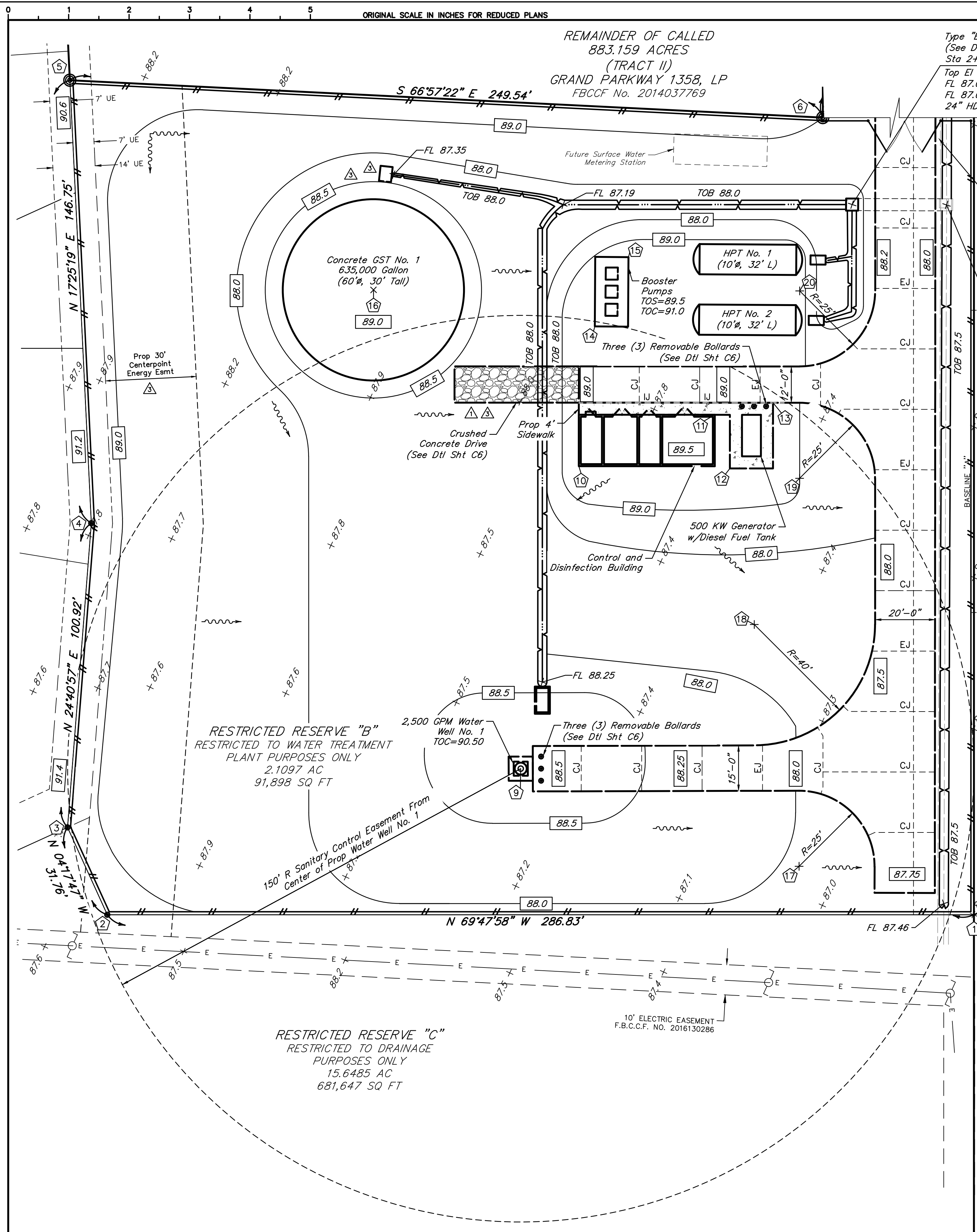
HARVEST GREEN
 WATER PLANT No. 1

OVERALL SITE LAYOUT

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
 AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

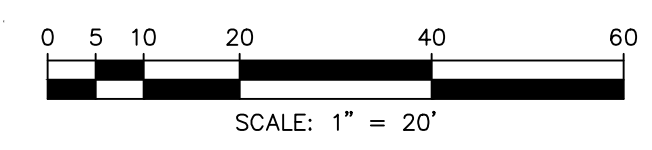
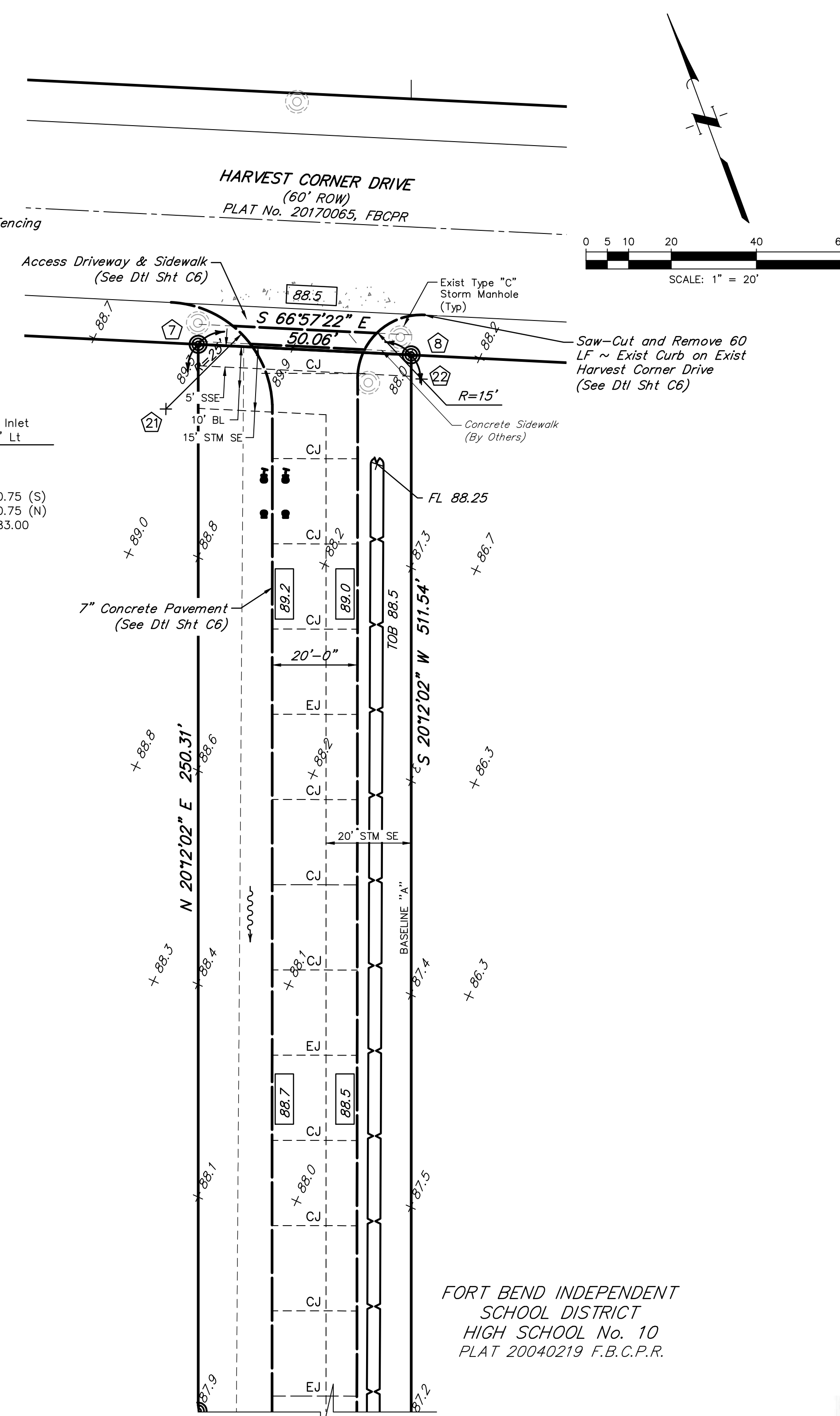
FILE NO: JOB NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018	
DGN. BY: MRKILLARY	
DWG. BY: JASTRUHAR	
SCALE: 1"=30'	
C2 SHEET No. 7 OF 47	



Type "E" Manhole
(See Detail Sht C7)
Sta 2+35, 40.3' Lt
Top EI 88.00
FL 87.00 (W)
FL 87.00 (S)
24" HDPE FL 83.00

Wood Gate and Fencing
(See Dtl Sht C7)

Exist Type "E" Inlet
Sta 2+35, 9.0' Lt
Rim EI 87.82
FL 87.00 (N)
FL 87.00 (S)
48" RCP FL 80.75 (S)
48" RCP FL 80.75 (N)
24" HDPE FL 83.00



- CJ --- SAW-CUT CONTROL JOINT
- EJ --- EXPANSION JOINT
- IJ --- ISOLATION JOINT

**PROPERTY BOUNDARIES
STATION/OFFSETS:**

NUMBER	STATION (FT)	OFFSET (FT)
1	0+00.00	0.19' Lt
2	0+00.00	286.83' Lt
3	0+28.91	300.00' Lt
4	1+29.51	292.11' Lt
5	2+76.09	299.23' Lt
6	2+63.17	50.00' Lt
7	5+14.02	50.04' Lt
8	5+11.54	0.06' Lt

**PAVING/GRADING
STATION/OFFSETS:**

NUMBER	STATION (FT)	OFFSET (FT)
9	0+48.31	150.00' Lt
10	1+48.42	130.77' Lt
11	1+65.41	85.80' Lt
12	1+47.66	80.78' Lt
13	1+69.40	66.52' Lt
14	1+94.65	125.49' Lt
15	2+17.57	114.34' Lt
16	2+06.72	198.75' Lt
17	0+16.02	57.88' Lt
18	0+96.03	72.72' Lt
19	1+44.40	57.70' Lt
20	2+06.40	57.68' Lt
21	4+98.88	57.57' Lt
22	5+05.91	2.44' Rt

APPROVED: *[Signature]*
P.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/31/18	REVISED PER GST RELOCATION	TJW
2	06/30/18	ISSUED FOR CONSTRUCTION	TJW
3	04/20/18	REVISIONS PER ADDENDUM No. 2	TJW

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1

PAVING & GRADING

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
SEWER/WASTEWATER	STORM WATER QUALITY
STORM	UTILITIES
STREET & BRIDGE	

FILE NO: 13889-0002-00
JOB NO: 13889-0002-00

DATE: April 2018
DGN. BY: MRKILLARY
DWG. BY: JASTRUHAR

SCALE: 1"=20'
SHEET No. 8 OF 47

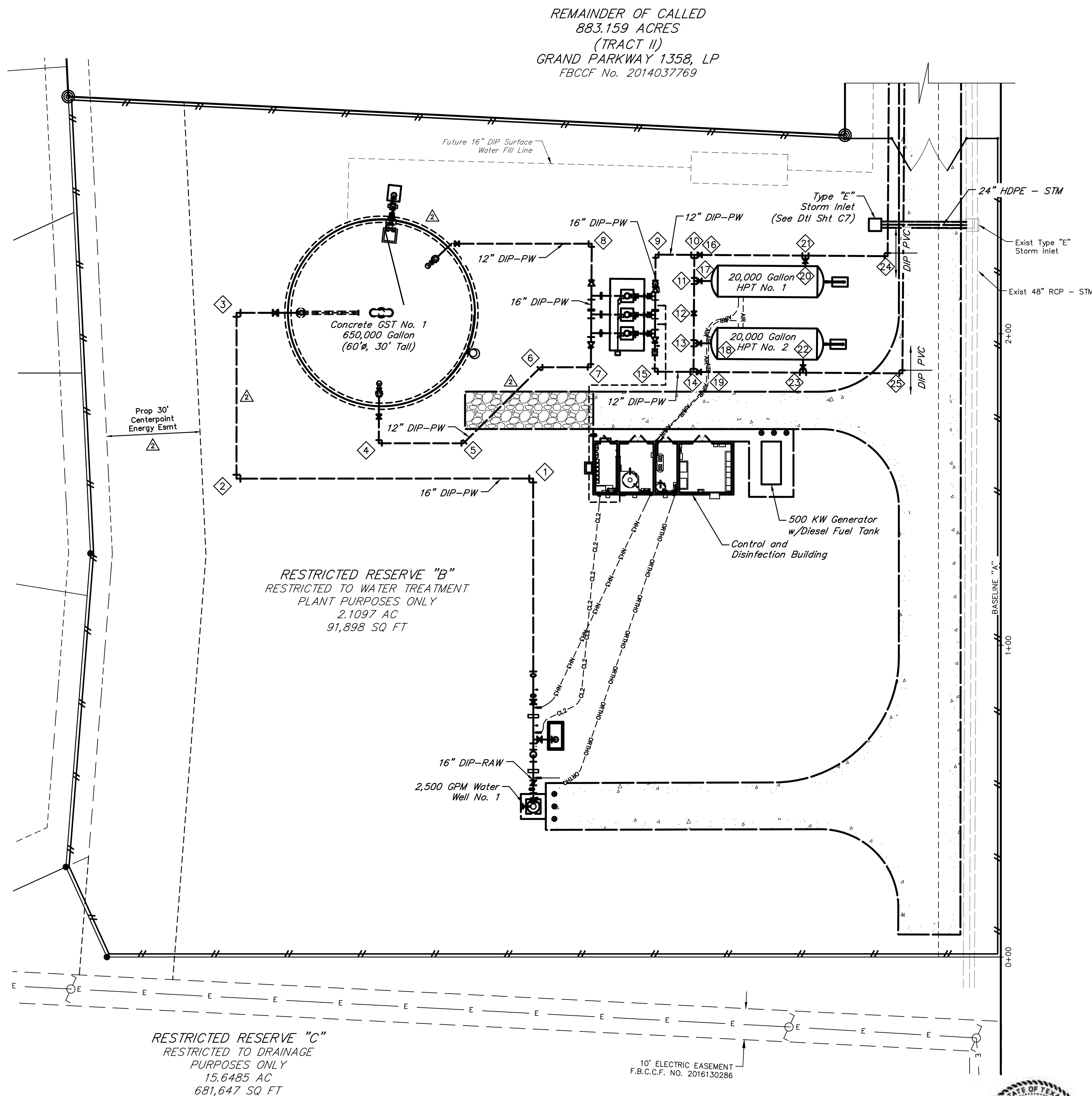
C3
FOR CITY OF HOUSTON USE ONLY
CITY DWG. NO. 60306



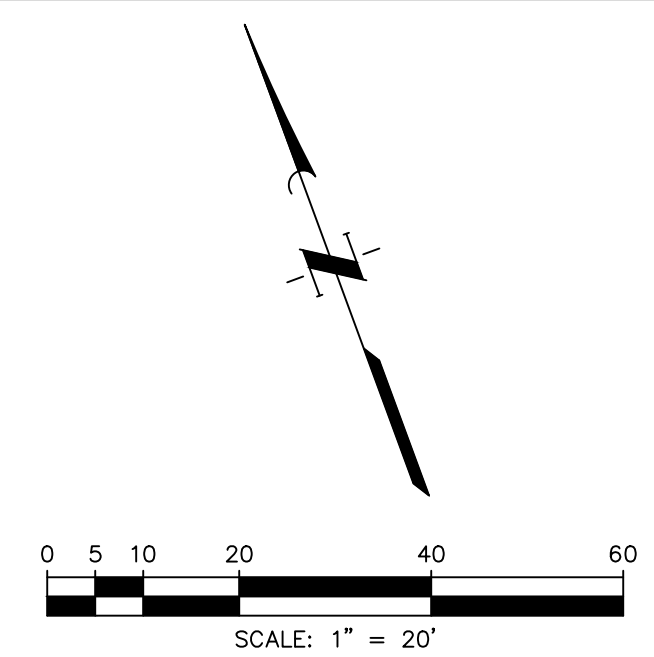
[Signature]
4-12-2018

PLANT PIPING TABLE

No.	DESCRIPTION
1	16"x90" Bend, MJ w/ Restraints
2	16"x90" Bend, MJ w/ Restraints
3	16"x90" Bend, MJ w/ Restraints
4	12"x90" Bend, MJ w/ Restraints
5	12"x45" Bend, MJ w/ Restraints
6	12"x45" Bend, MJ w/ Restraints
7	12"x90" Bend, MJ w/ Restraints
8	12"x90" Bend, MJ w/ Restraints
9	12"x90" Bend, MJ w/ Restraints
10	12"x12" Tee, MJ w/ Restraints
11	12"x12" Tee, MJ w/ Restraints
12	12" Gate Valve, MJ w/ Valve Box (GTV-04-002)
13	12"x12" Tee, MJ w/ Restraints
14	12"x12" Tee, MJ w/ Restraints
15	12"x90" Bend, MJ w/ Restraints
16	12" Gate Valve, MJ w/ Valve Box (GTV-04-001)
17	12" Gate Valve, MJ w/ Valve Box (GTV-04-101)
18	12" Gate Valve, MJ w/ Valve Box (GTV-04-201)
19	12" Gate Valve, MJ w/ Valve Box (GTV-04-003)
20	12" Gate Valve, MJ w/ Valve Box (GTV-04-102)
21	12"x12" Tee, MJ w/ Restraints
22	12" Gate Valve, MJ w/ Valve Box (GTV-04-202)
23	12"x12" Tee, MJ w/ Restraints
24	12"x90" Bend, MJ w/ Restraints
25	12"x90" Bend, MJ w/ Restraints



REMAINDER OF CALLED
883.159 ACRES
(TRACT II)
GRAND PARKWAY 1358, LP
FBCCF No. 2014037769



PIPING NOTES:

- All pipe to be ductile iron pipe (DIP) unless otherwise noted.
- All chemical injection lines and taps shall be constructed as per the referenced detail drawings unless approved otherwise by the Engineer prior to making any changes.
- Small diameter piping is shown schematically. Contractor shall field route piping, providing offsets, fittings, etc. as required. Support piping with stainless steel struts and hardware in building except for the chlorine room. FRP pipe supports shall be used in the chlorine room with stainless steel hardware.
- All buried PVC shall have marker tape.

APPROVED: *[Signature]*
C.E.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/21/18	REVISED PER GST RELOCATION	TWM
2	05/20/18	ISSUED FOR CONSTRUCTION	TWM

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1

ENLARGED PIPING PLAN
SHEET 1 OF 2

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

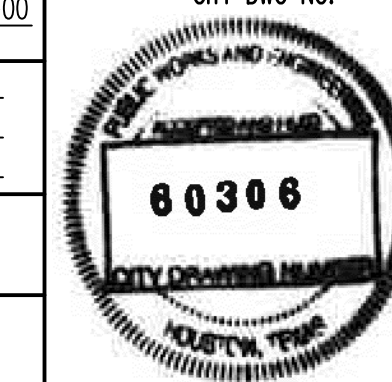
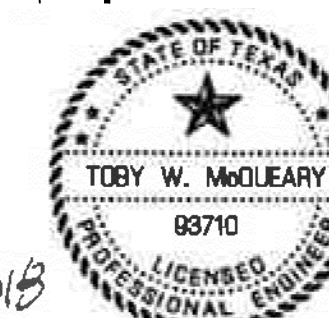
WATER	8/8/2018	TRAFFIC & TRANSPORTATION
WASTEWATER	4/12/18	STORM WATER QUALITY
STORM		FACILITIES
SHEET & PRICE		

FILE NO:
JOB NO: 13889-0002-00

DATE: April 2018
DGN. BY: MRKILLARY
DWG. BY: JASTRUHAR

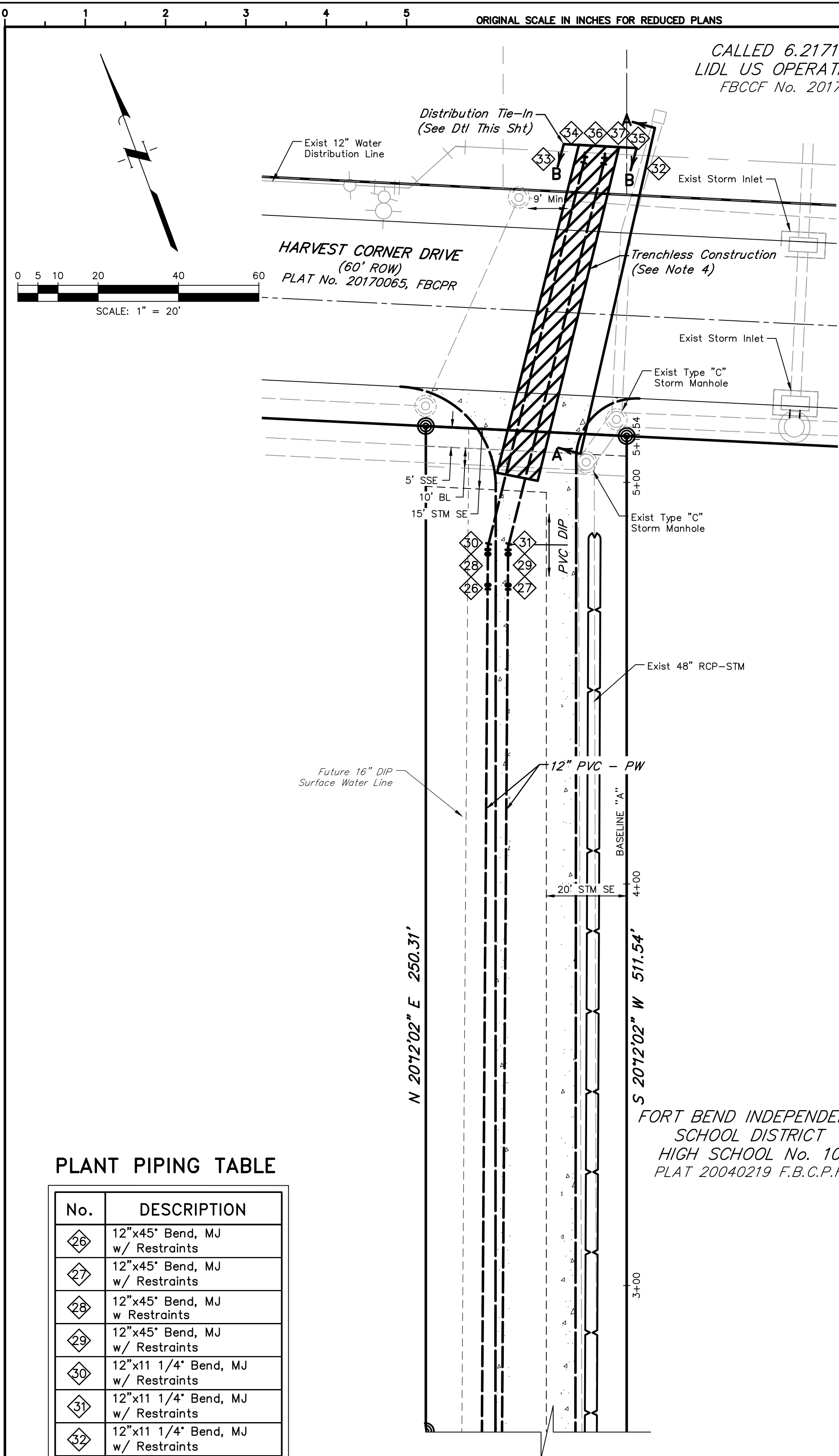
SCALE: 1"=20'

C4
SHEET No. 9 OF 47

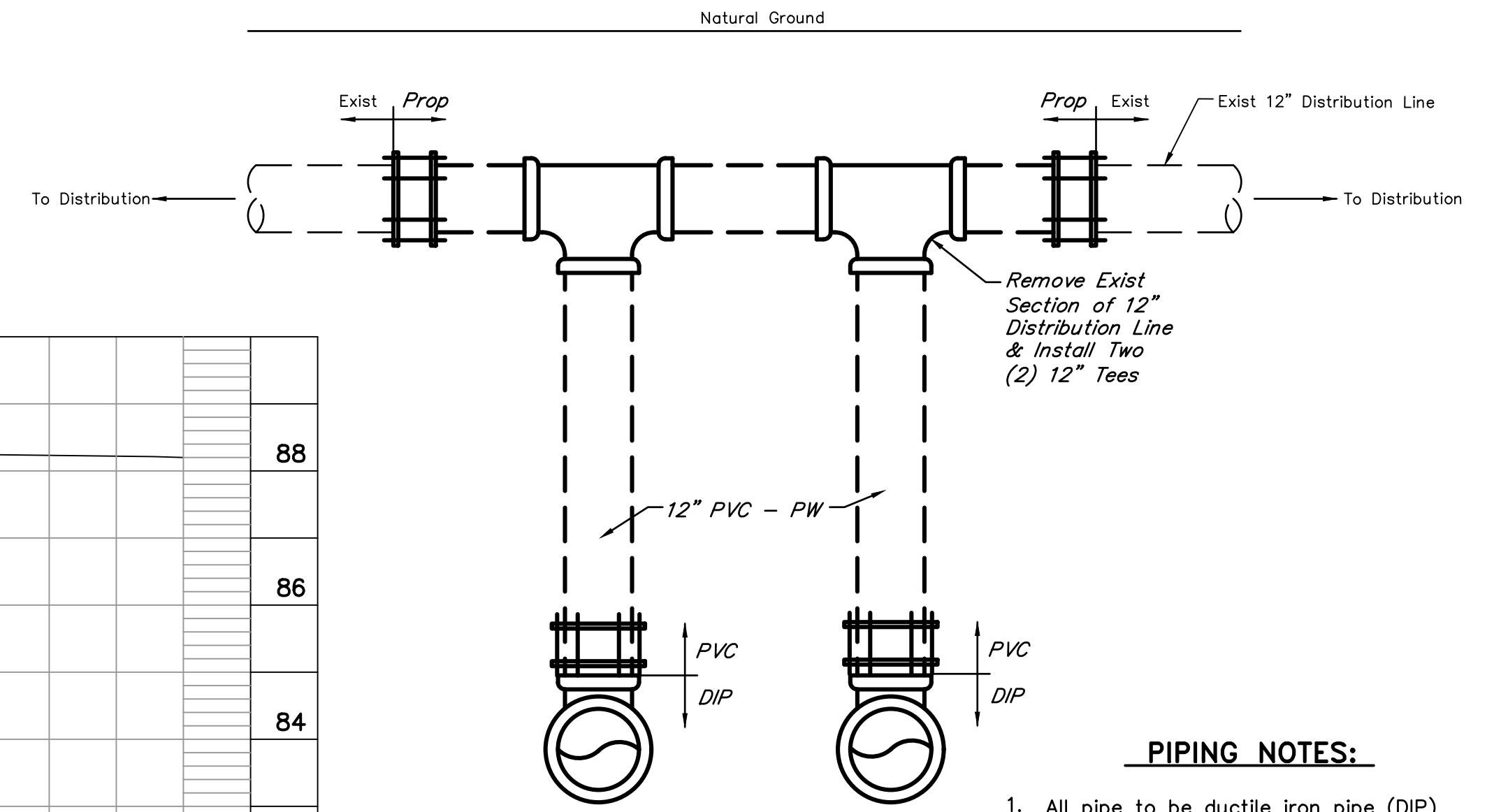
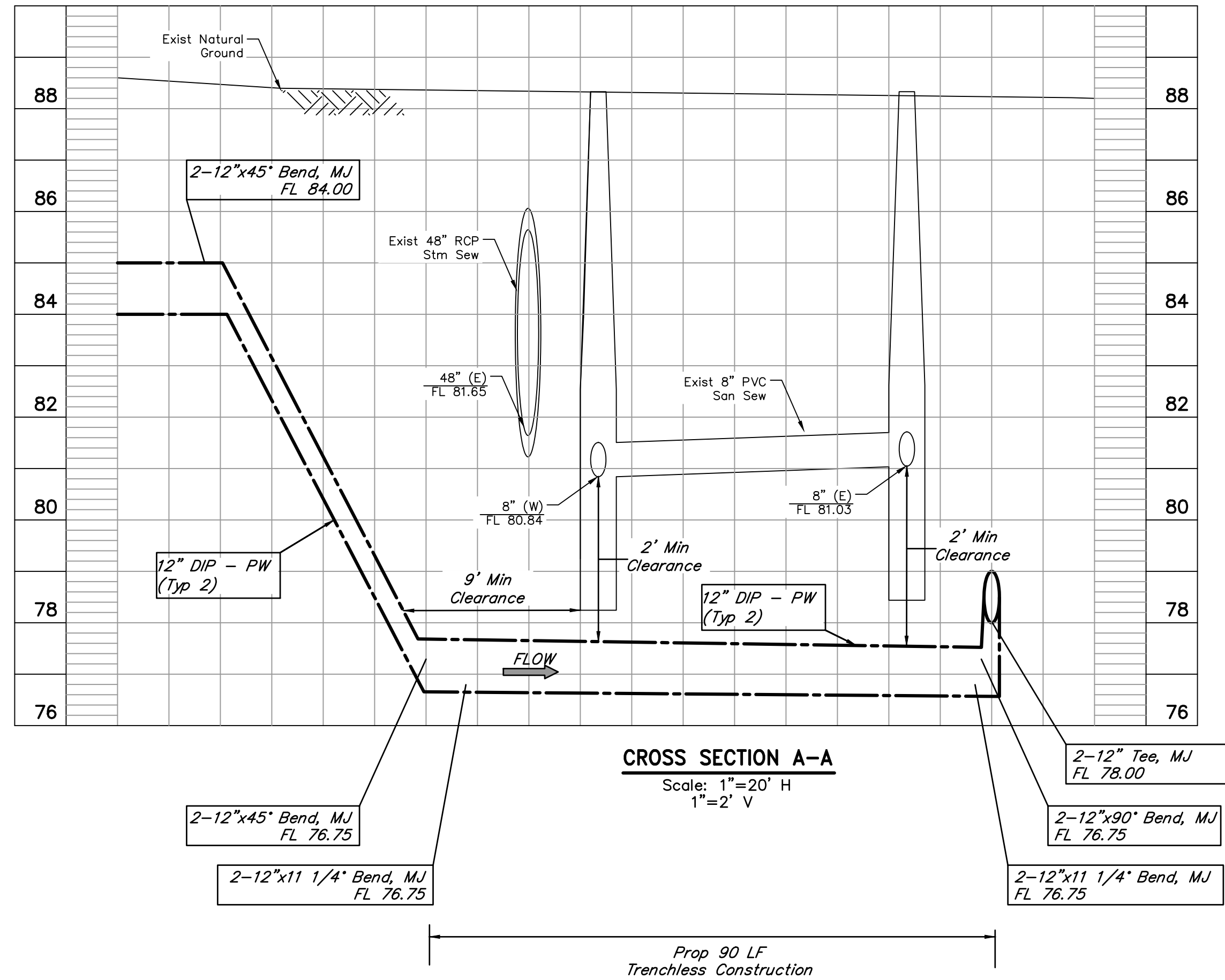


ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CALLED 6.2171 ACRES
LIDL US OPERATIONS, LLC
FBCCF No. 2017069660



HARVEST CORNER DRIVE



PIPING NOTES:

- All pipe to be ductile iron pipe (DIP) unless otherwise noted.
- Waterline pipe located beneath sewer pipe must be ductile iron pipe (DIP), pressure tested and leak tested according to AWWA C600 standards with a minimum pressure rating of 150 psi.
- Waterline pipe must be located a minimum horizontal distance of nine (9) feet from sanitary manholes and maintain a minimum vertical clearance of two (2) feet from sanitary pipe.
- All buried PVC pipe shall have marker tape.
- Waterline pipe shall be centered so that joints are not directly below crossing utility lines

APPROVED: *[Signature]*
E.G. DEVELOPMENT COORDINATOR

DATE: 5/21/18

PLANT PIPING TABLE

No.	DESCRIPTION
26	12"x45" Bend, MJ w/ Restraints
27	12"x45" Bend, MJ w/ Restraints
28	12"x45" Bend, MJ w Restraints
29	12"x45" Bend, MJ w/ Restraints
30	12"x11 1/4" Bend, MJ w/ Restraints
31	12"x11 1/4" Bend, MJ w/ Restraints
32	12"x11 1/4" Bend, MJ w/ Restraints
33	12"x11 1/4" Bend, MJ w/ Restraints
34	12"x90" Bend, MJ w/ Restraints
35	12"x90" Bend, MJ w/ Restraints
36	12"x12" Tee, MJ w/ Restraints
37	12"x12" Tee, MJ w/ Restraints

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	TWM
2	04/20/18	REVISIONS PER ADDENDUM No. 2	TWM

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
ENLARGED PIPING PLAN
SHEET 2 OF 2

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

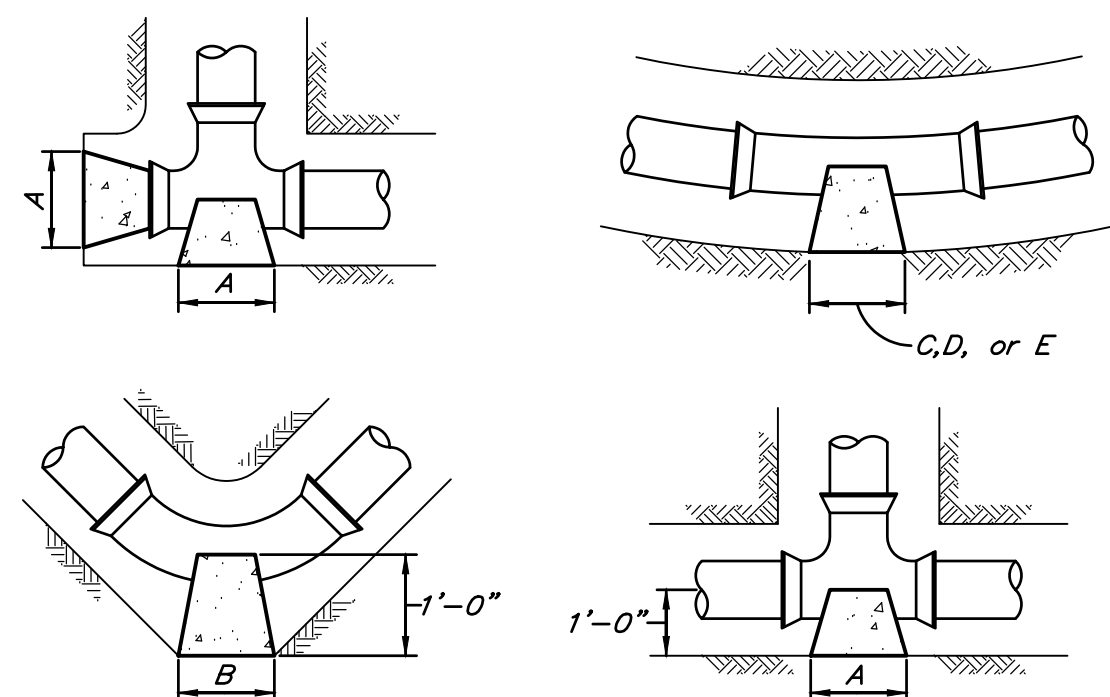
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO:	FOR CITY OF HOUSTON USE ONLY
JOB NO: 13889-0002-00	CITY DWG NO.
DATE: April 2018	
DCN. BY: MRKILLARY	
DWG. BY: JASTRUHAR	
SCALE: 1"=20'	
C5	
SHEET No. 10 OF 47	



[Signature]
4-12-2018



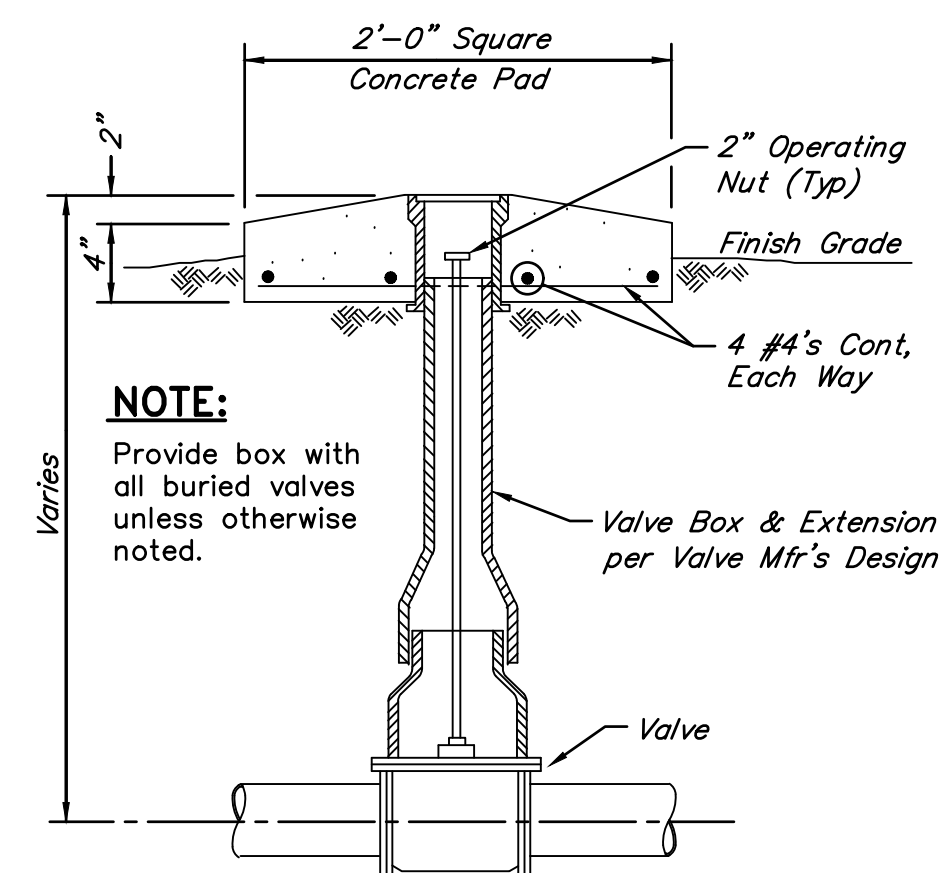
PIPE SIZE	"A" Plugs & Tees	"B" 90° Bend	"C" 45° Bend	"D" 22° 30' Bend	"E" 11° 15' Bend
4"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
6"	1'-0"	1'-6"	1'-2"	1'-2"	1'-2"
8"	1'-3"	1'-9"	1'-6"	1'-6"	1'-3"
12"	2'-8"	3'-0"	2'-3"	2'-3"	2'-3"
16"	3'-6"	4'-3"	3'-0"	2'-6"	2'-6"

NOTES:

- Heights of all blocks shall be equal to "A","B","C","D" or "E" dimension called for.
- All concrete to be poured against firm, undisturbed soil.

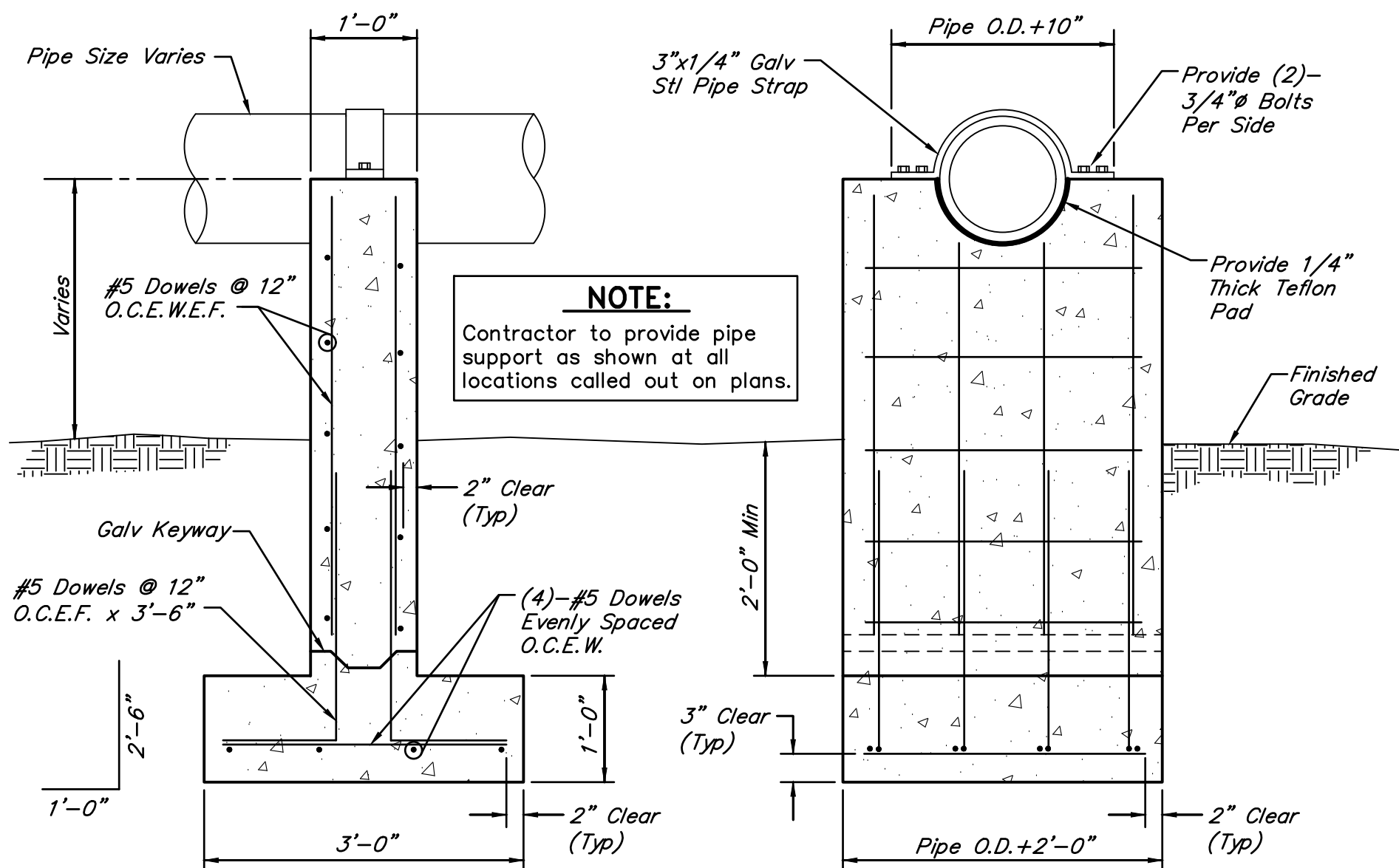
MODIFIED COH F7: THRUST BLOCK DETAILS

NOT TO SCALE



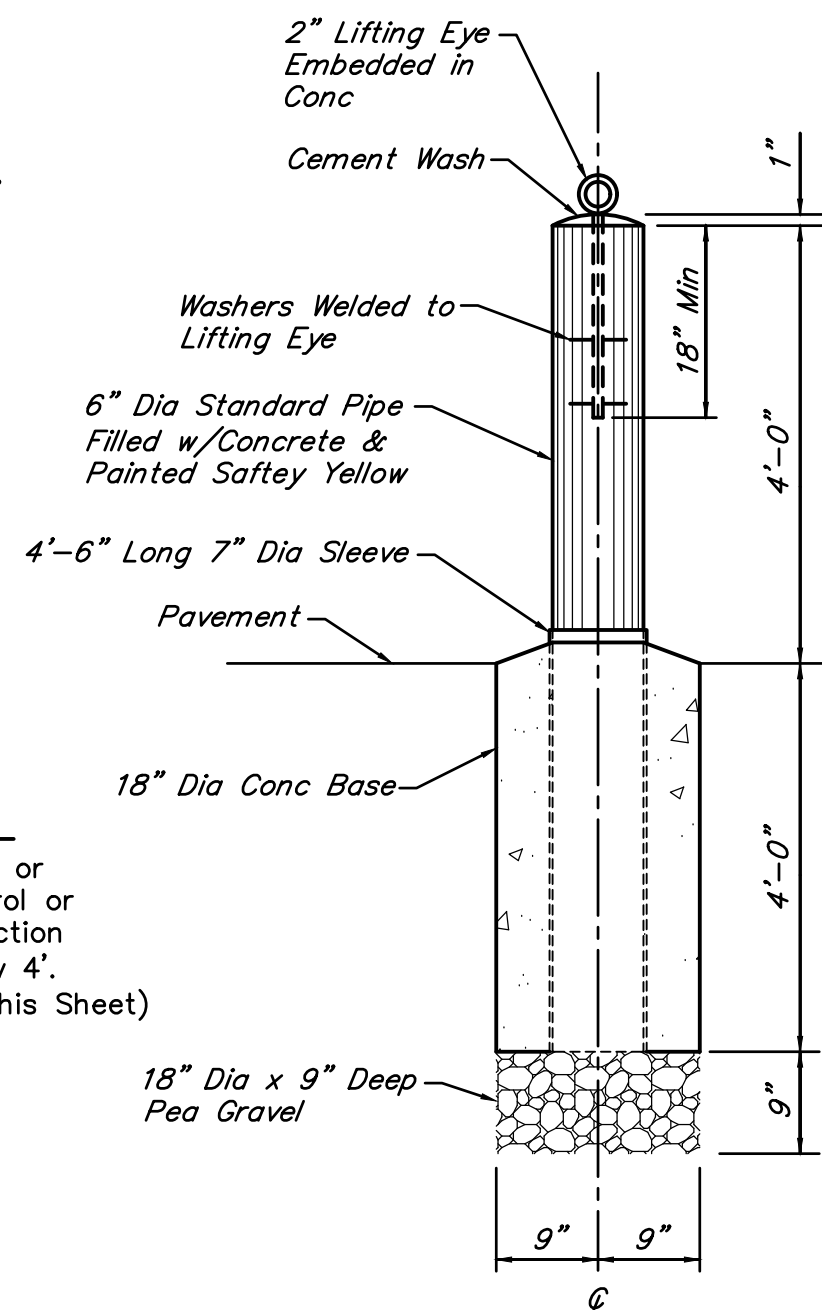
TYPICAL VALVE WITH BOX DETAIL

NOT TO SCALE



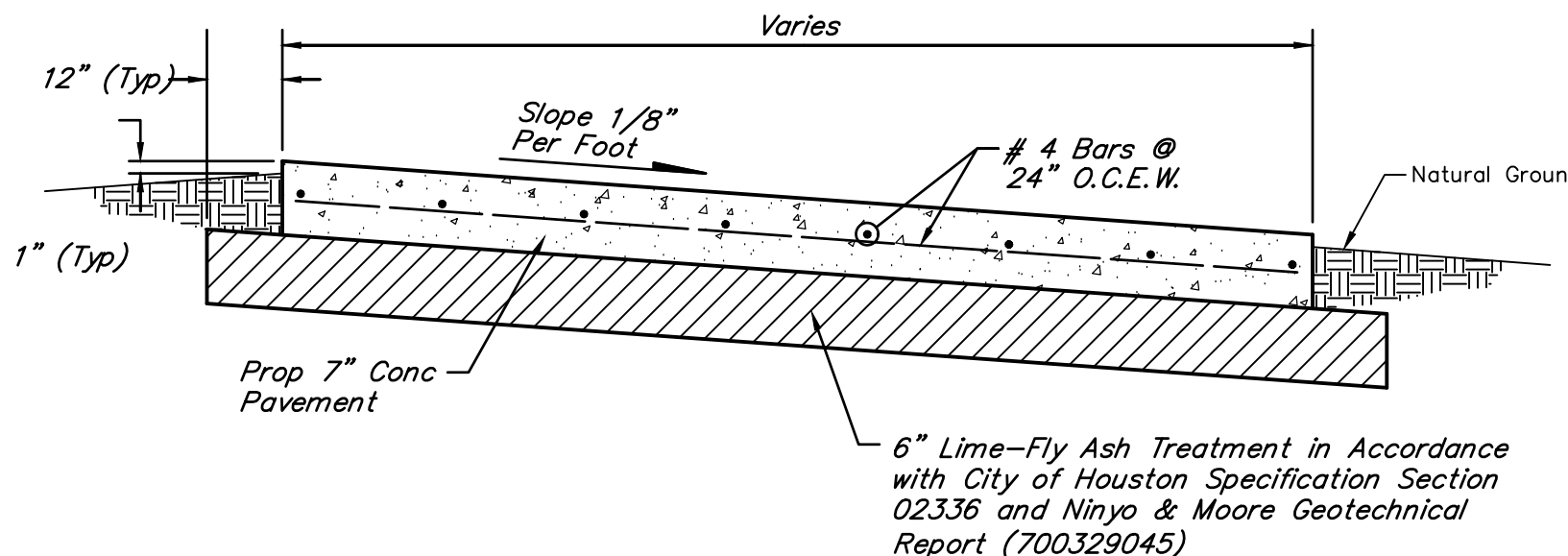
CONCRETE PIPE SUPPORT DETAIL

NOT TO SCALE



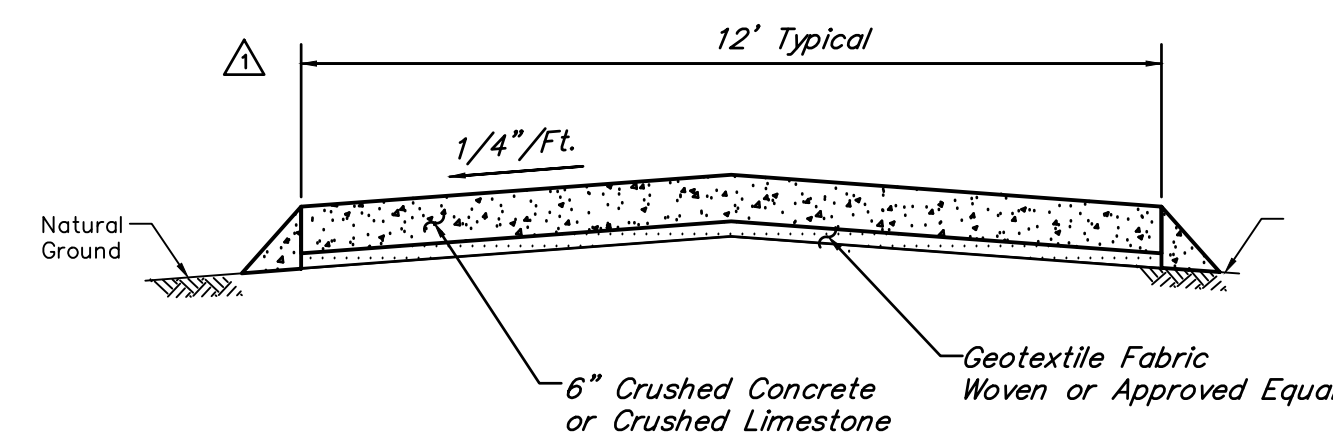
REMOVABLE BOLLARD DETAIL

NOT TO SCALE



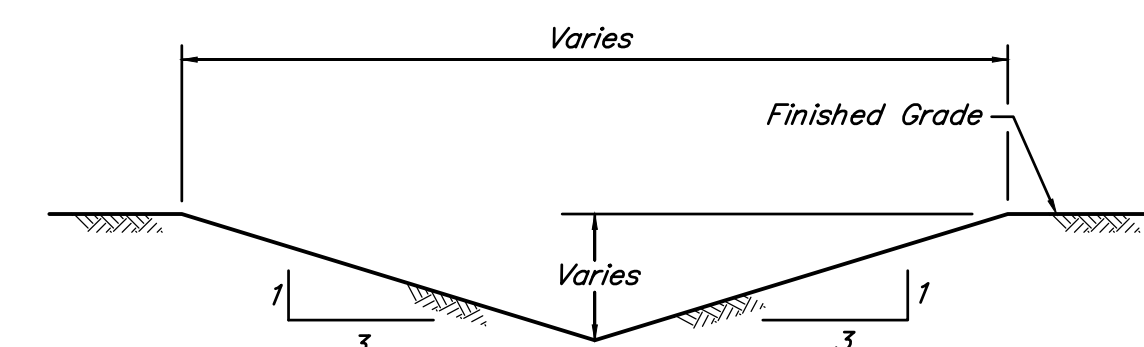
STANDARD CONCRETE DRIVEWAY DETAIL

NOT TO SCALE



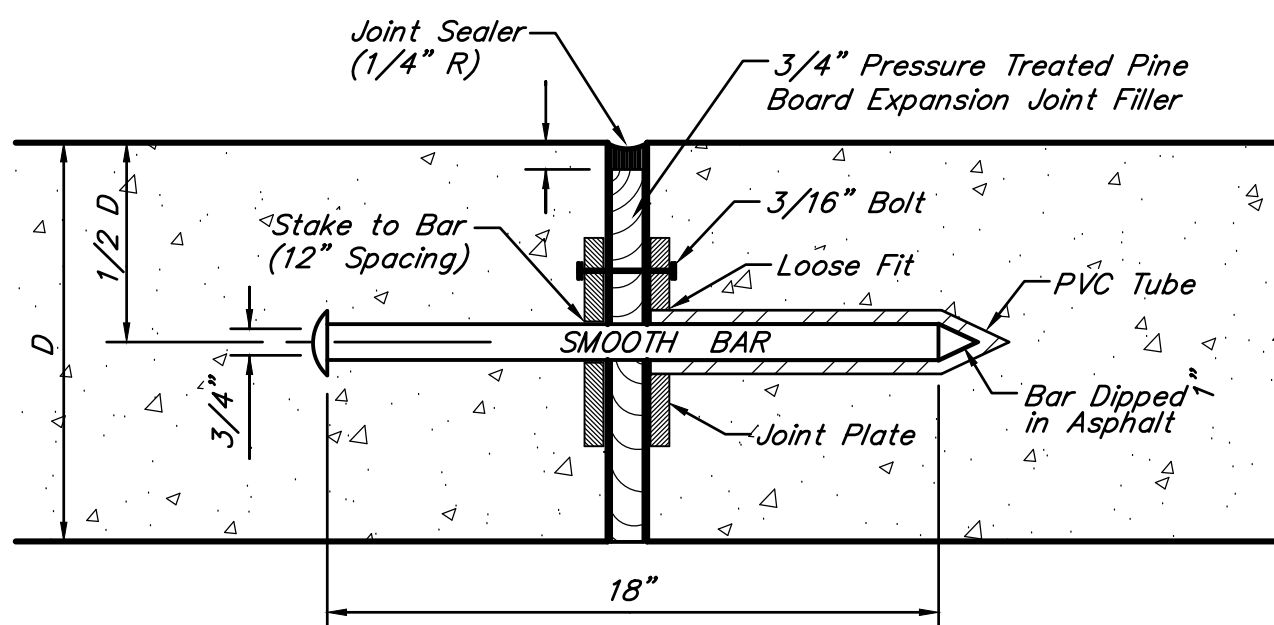
CRUSHED CONCRETE ROAD SECTION

NOT TO SCALE



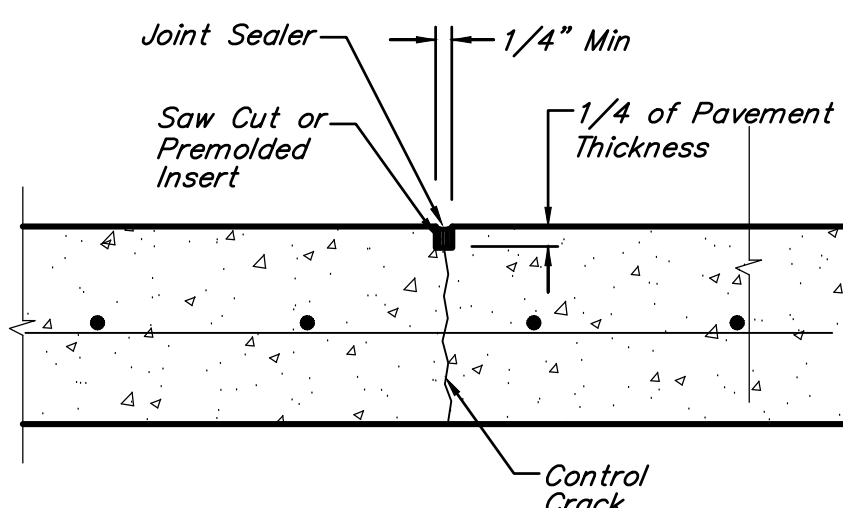
TYPICAL SWALE DETAIL

NOT TO SCALE



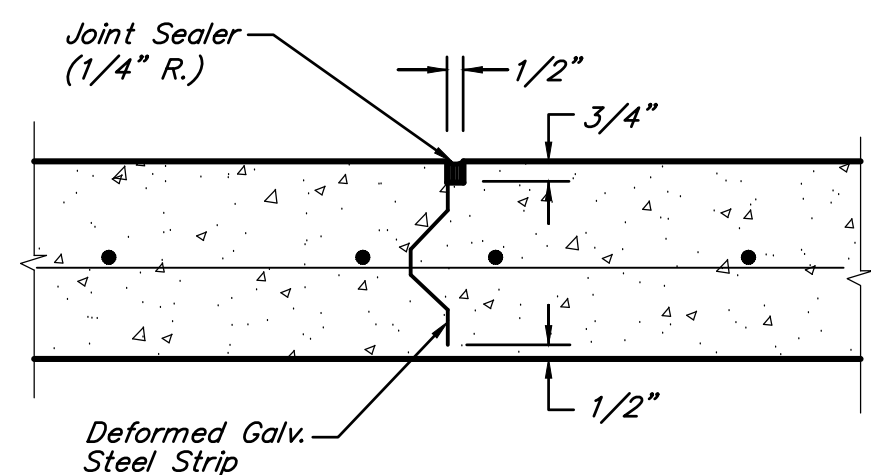
PAVEMENT EXPANSION JOINT

NOT TO SCALE



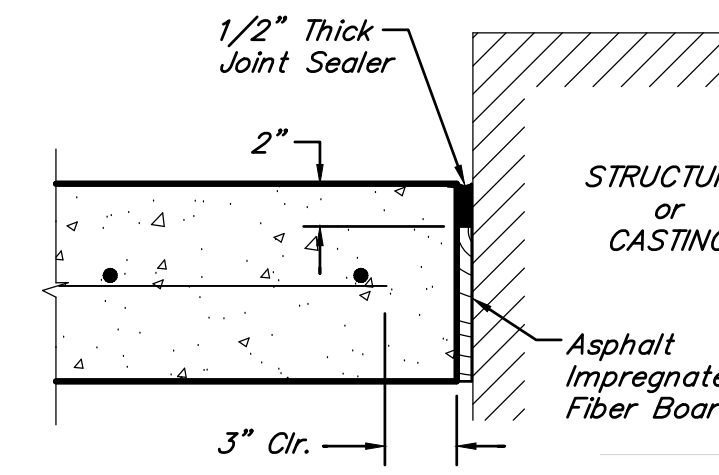
CONTROL JOINT (CJ)

NOT TO SCALE



PAVEMENT CONSTRUCTION JOINT

NOT TO SCALE



ISOLATION JOINT (IJ)

NOT TO SCALE

WHEN A COMMERCIAL SIDEWALK, DRIVEWAY, CURB OR GUTTER IS CONSTRUCTED, RECONSTRUCTED, REPAIRED OR REGRADED ON COUNTY RIGHT-OF-WAY. FOR USE WITH CONCRETE OR ASPHALT CURB TYPE STREETS, USE SECTIONS APPLICABLE.

A. USE FOR ALL PROPOSED EXISTING CURB REMOVAL FOR DRIVEWAYS (PLAN VIEW NOT TO SCALE)

B. USE FOR ALL PROPOSED DRIVES ON CURBED TYPE STREETS

GENERAL NOTES:

- COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO R.O.W. LINE. COMPACT TOP 4% OF SUBGRADE TO PROPOSED DRIVEWAY. THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
- PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE REINFORCING BARS (ASTM A615, GRADE 60, UNLESS NOTED) SPACED AT 20" O.C., EACH WAY, WITH 12" MINIMUM LAP FROM PROPOSED SAW CUT TO R.O.W. LINE.
- PROPOSED DRIVEWAY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT IS 5 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE, CLASS "A" STRUCTURAL REFER TO SPECIFICATION 02311.7" THICK, FROM PROPOSED SAW CUT TO R.O.W. LINE.
- PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT IS 5 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE, CLASS "A" STRUCTURAL REFER TO SPECIFICATION 02311.7" THICK.

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS COMMERCIAL AREA

DRAWN BY: L. BRDECKA
DATE DRAWN: 2-1-94

REVISOR: R. GOMEZ
DATE REVISED: 11-1-05

APPROVED BY: L. HOOD
DATE: 2-1-94

DRAWING NO. FBC-025A

FORT BEND COUNTY ENGINEERING DEPARTMENT

APPROVED: *[Signature]*
F.B.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	REVISIONS	TWTH	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION		TWTH	
2	04/20/18	REVISIONS PER ADDENDUM No. 2		TWTH	

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS

JC JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337

HARVEST GREEN
WATER PLANT No. 1
CIVIL DETAILS
SHEET 1 OF 2

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER: *[Signature]*
STORMWATER: *[Signature]*
STORM: *[Signature]*
STREET & BRIDGE: *[Signature]*

TRAFFIC & TRANSPORTATION
STORM WATER QUALITY
FACILITIES

FILE NO: 13889-0002-00
JOB NO: 13889-0002-00
DATE: April 2018
DCN. BY: MRKILLARY
DWG. BY: JASTRUHAR

FOR CITY OF HOUSTON USE ONLY
CITY DWG. NO.

SCALE: NO SCALE

SHEET No. 11 OF 47

C6

60306

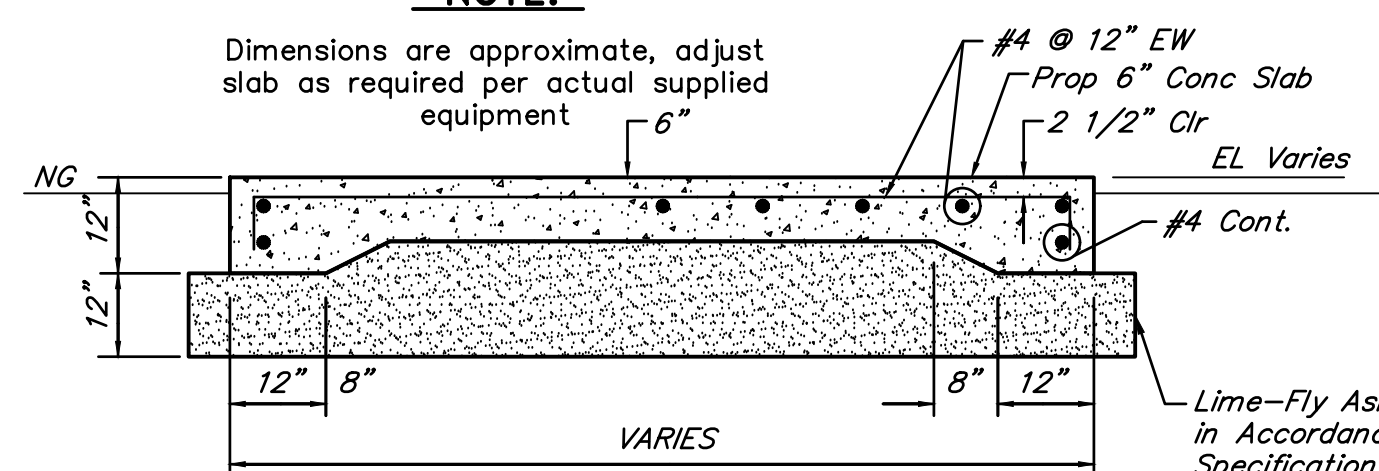
STATE OF TEXAS
TOBY W. MCQUEARY
88710
LICENSED PROFESSIONAL ENGINEER

4-12-2018



NOTE:

Dimensions are approximate, adjust slab as required per actual supplied equipment

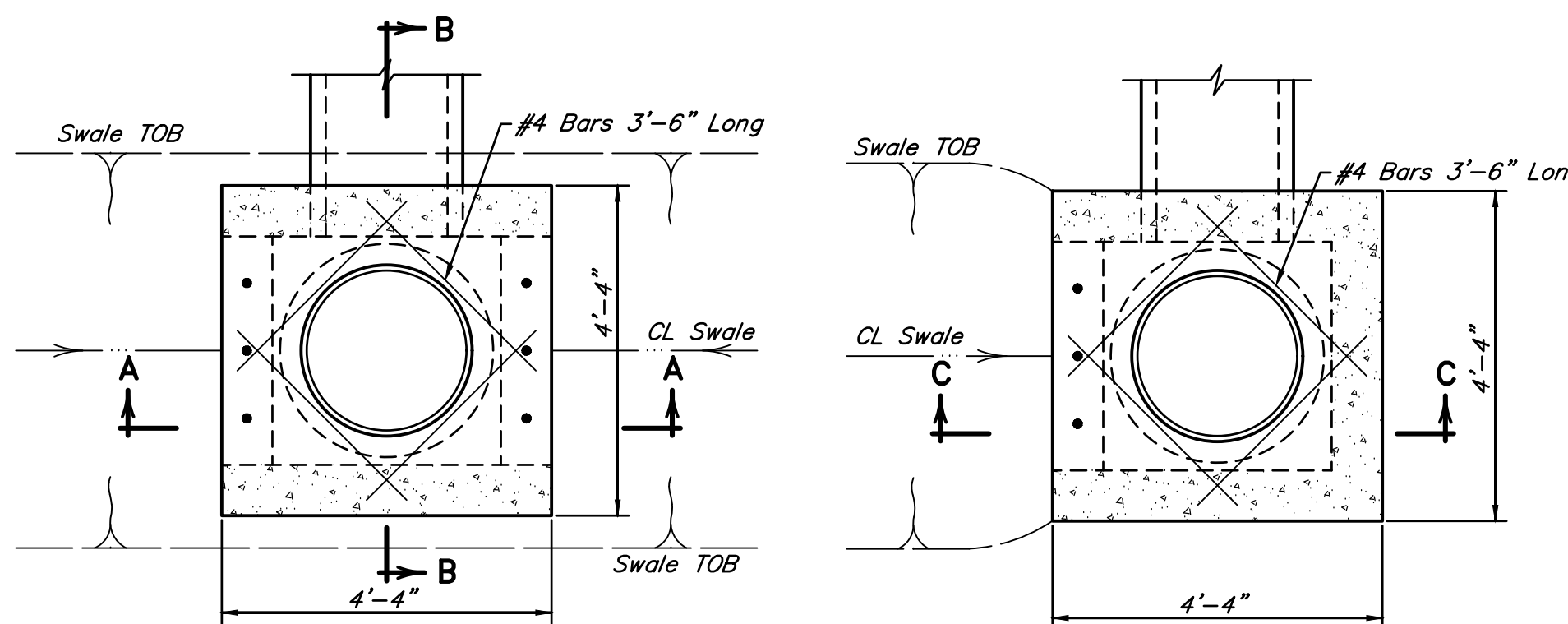


Lime-Fly Ash Treatment in Accordance with City of Houston Specification Section 02.336 and Ninyo & Moore Geotechnical Report (700329045)

WP EQUIPMENT SLAB DETAIL

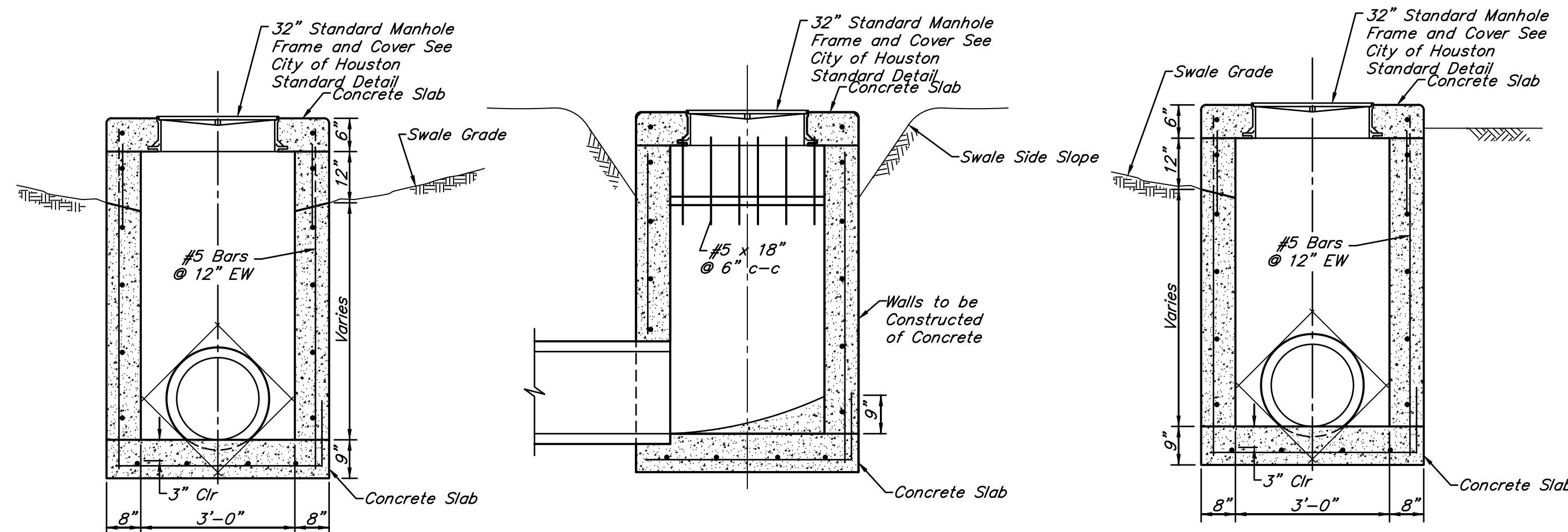
NOT TO SCALE

SLAB	DIMENSIONS
PRESSURE ENCLOSURE	3'-0" x 2'-0"



PLAN VIEW
2 Opening

PLAN VIEW
1 Opening



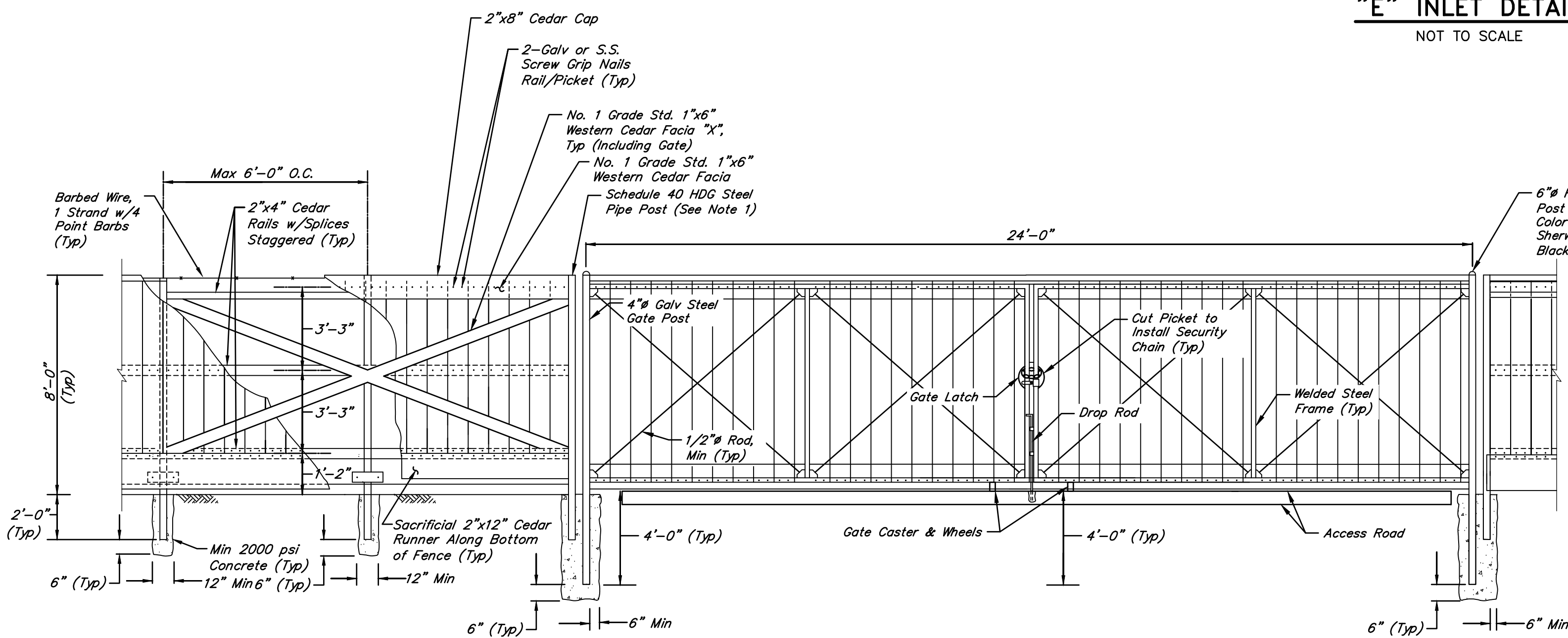
SECTION "A-A"

SECTION "B-B"

SECTION "C-C"

"E" INLET DETAIL

NOT TO SCALE



WOOD FENCE & SWING GATE DETAIL

NOT TO SCALE

FENCE & GATES NOTES:

- All metal fence posts and gate posts along Harvest Corner Drive to be schedule 40 hot dipped galvanized steel pipe (Powder coat color shall be Sherwin-William color Black Bean- SW 6006). Intermediate posts shall be 2 1/2" in diameter. Corner posts shall be 3" diameter. Walking gate posts shall be 4" in diameter. Entrance gate posts shall be 6" in diameter.
- Hardware used to attach fence pickets to gate shall be galvanized steel.
- 1 Strand of Barbed wire with 4 point bars to be located inside and parallel to the top of the fence.

APPROVED: *[Signature]*
E.G.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	TWM

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
CIVIL DETAILS
SHEET 2 OF 2

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

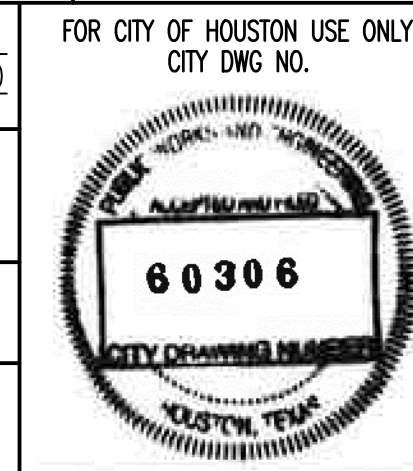
WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: 13889-0002-00

DATE: April 2018
DGN. BY: MRKILLARY
DWG. BY: JASTRUHAR

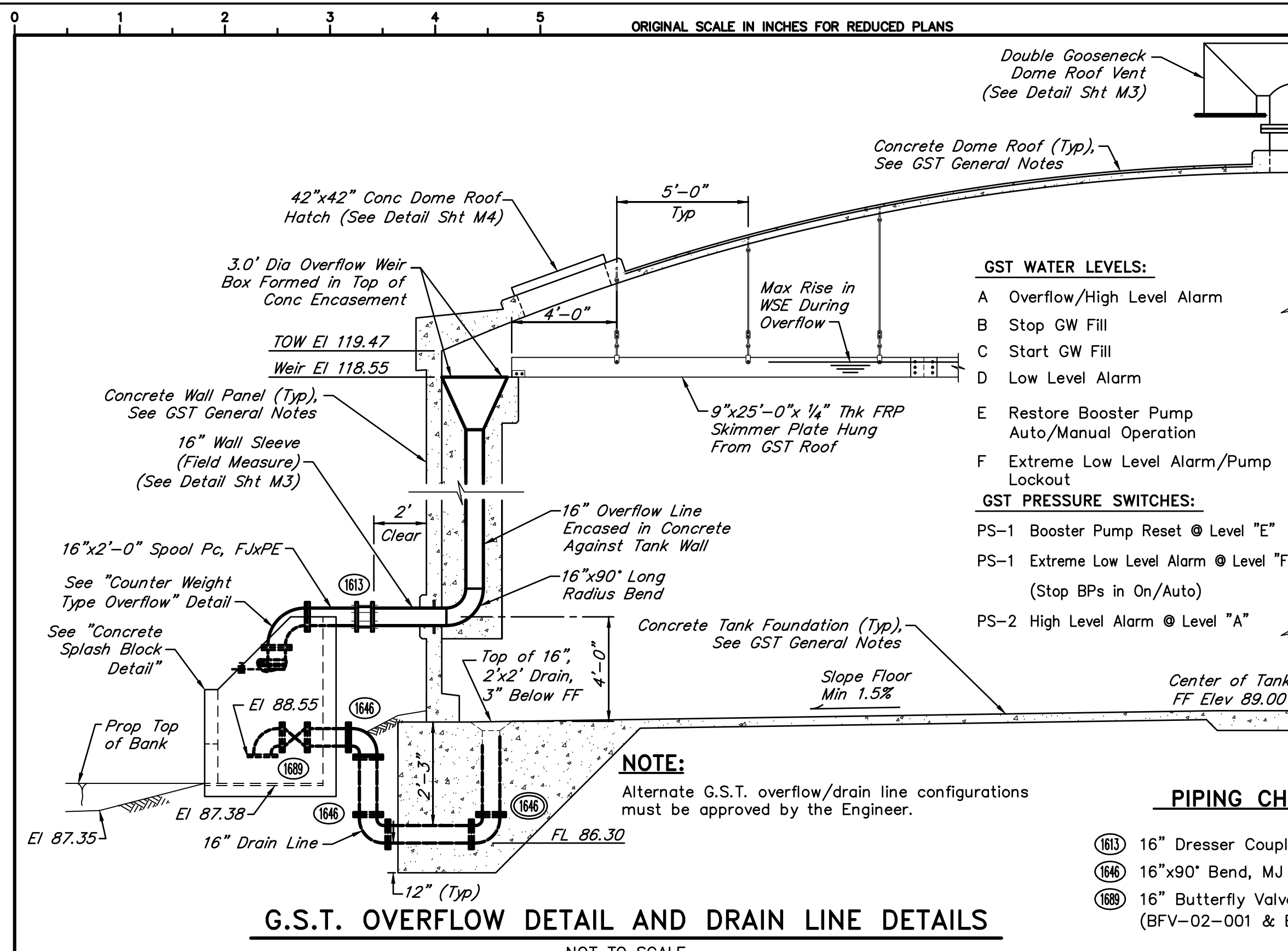
SCALE: NO SCALE

C7
SHEET No. 12 OF 47

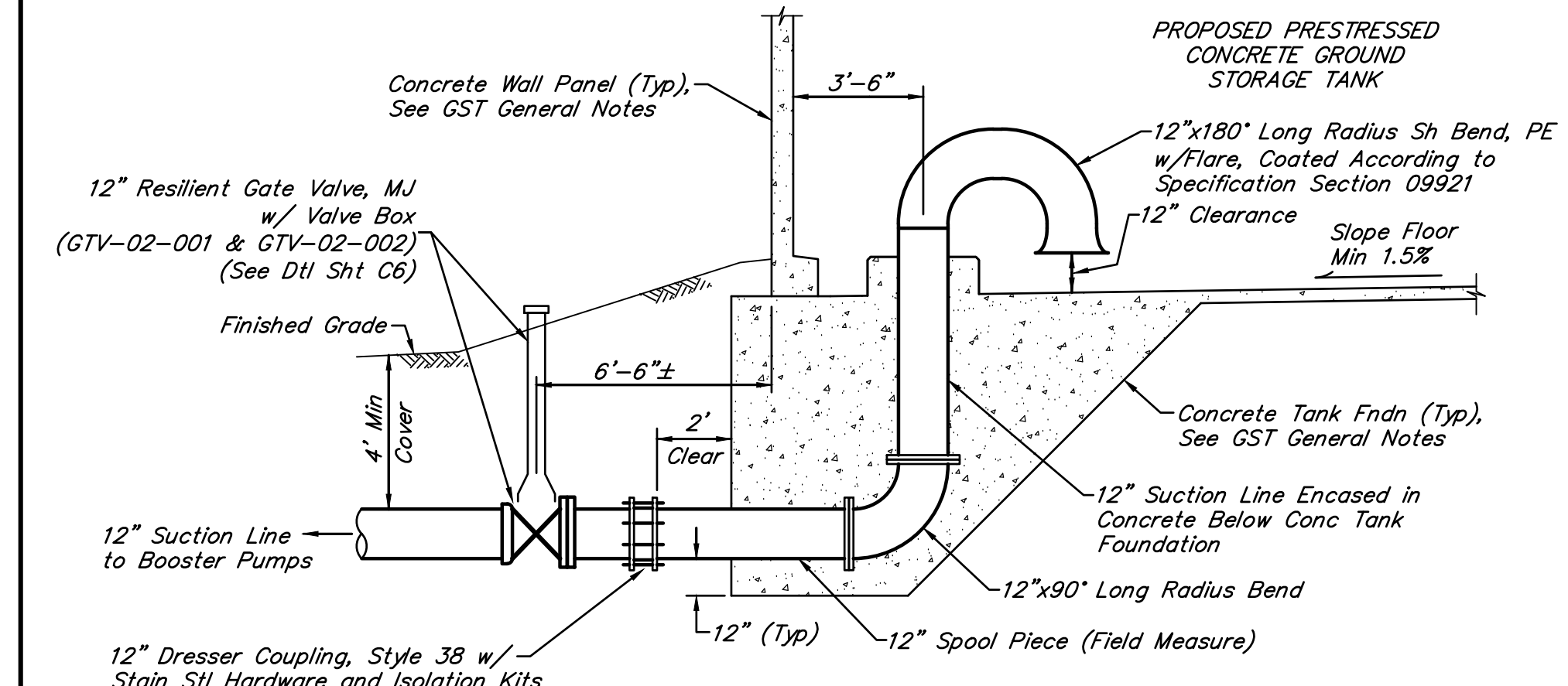


[Signature]
4-12-2018

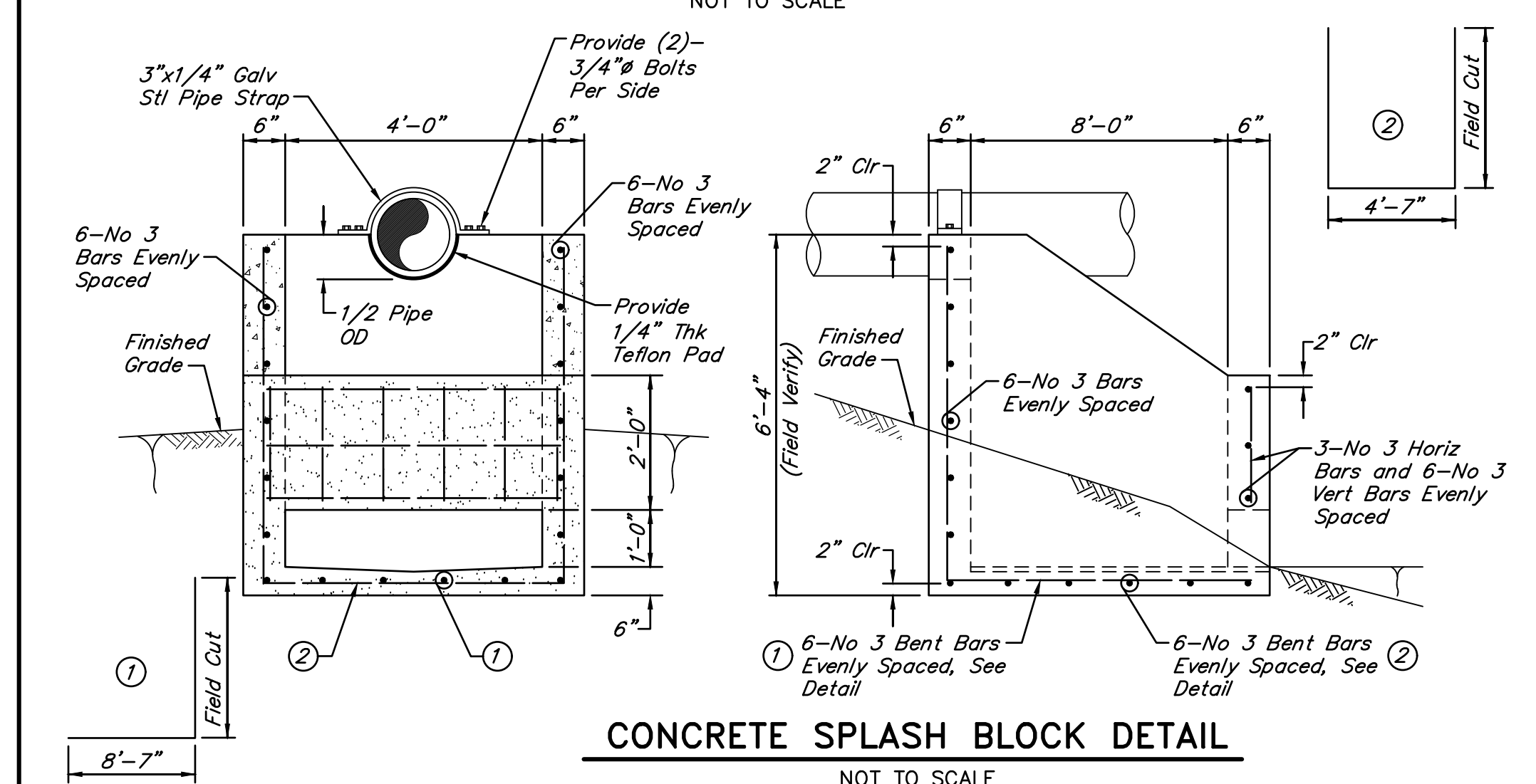




G.S.T. OVERFLOW DETAIL AND DRAIN LINE DETAILS
NOT TO SCALE



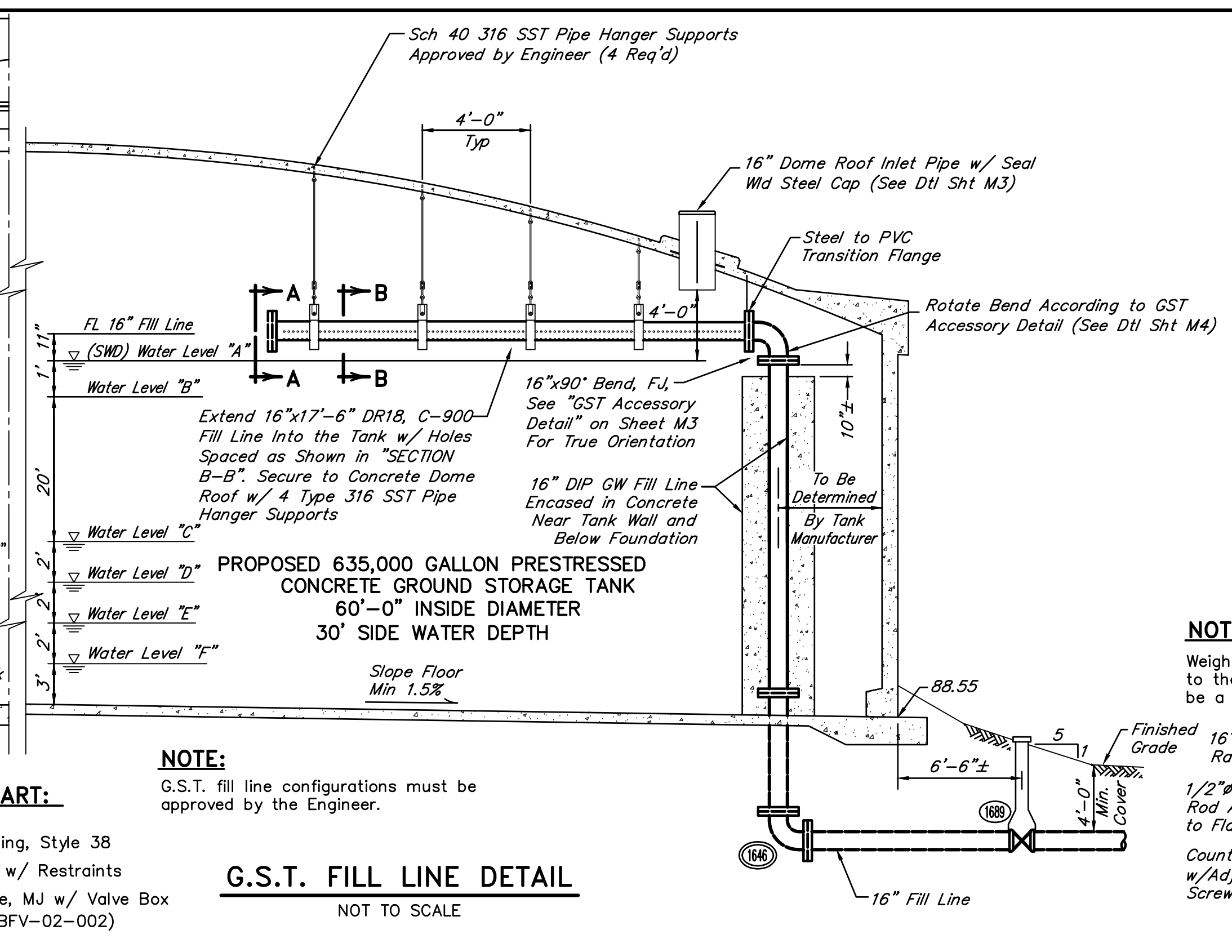
G.S.T. SUCTION/INTERCONNECT LINE DETAIL
NOT TO SCALE



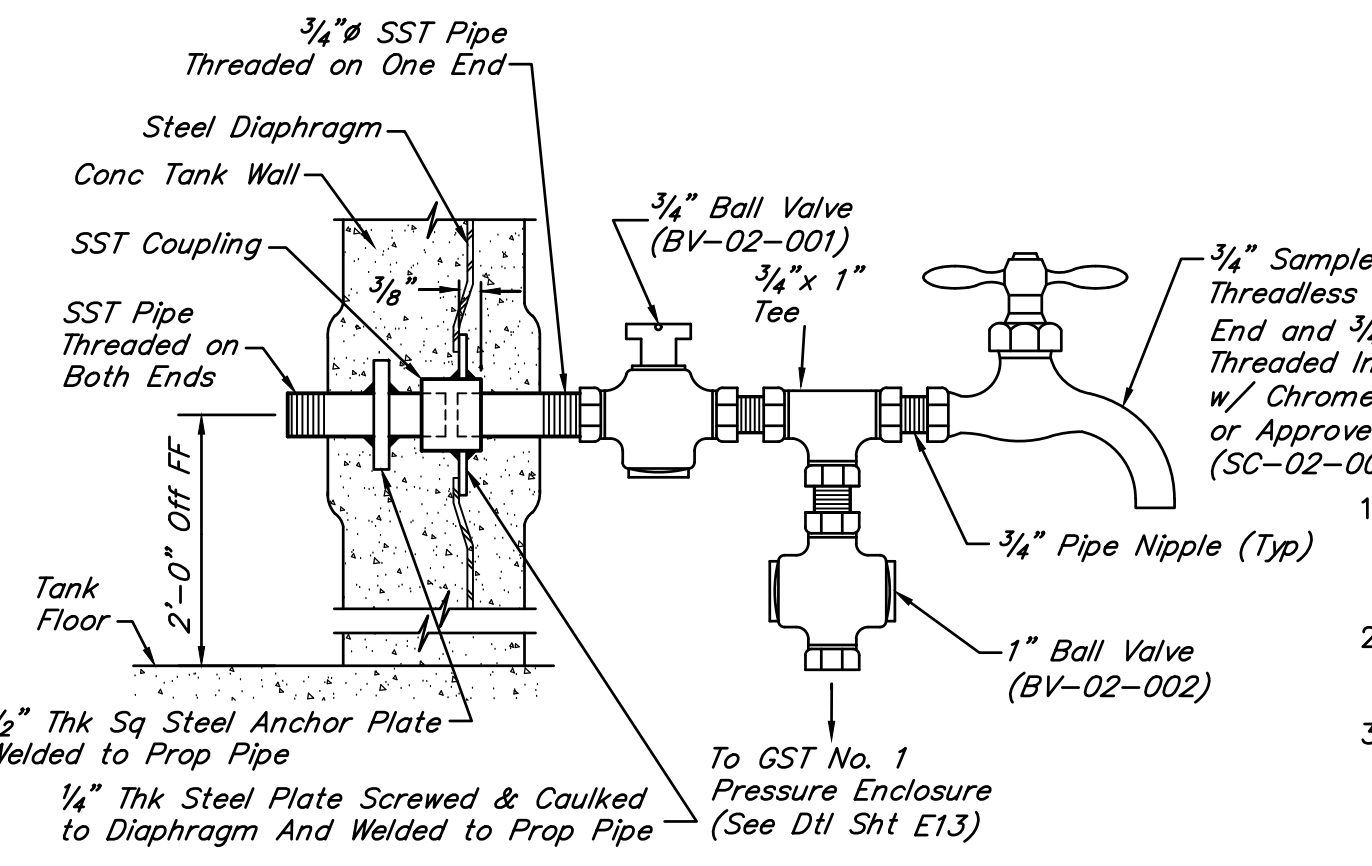
CONCRETE SPLASH BLOCK DETAIL
NOT TO SCALE

- GST WATER LEVELS:**
- A Overflow/High Level Alarm
 - B Stop GW Fill
 - C Start GW Fill
 - D Low Level Alarm
 - E Restore Booster Pump Auto/Manual Operation
 - F Extreme Low Level Alarm/Pump Lockout
- GST PRESSURE SWITCHES:**
- PS-1 Booster Pump Reset @ Level "E"
 - PS-1 Extreme Low Level Alarm @ Level "F"
 - (Stop BPs in On/Auto)
 - PS-2 High Level Alarm @ Level "A"

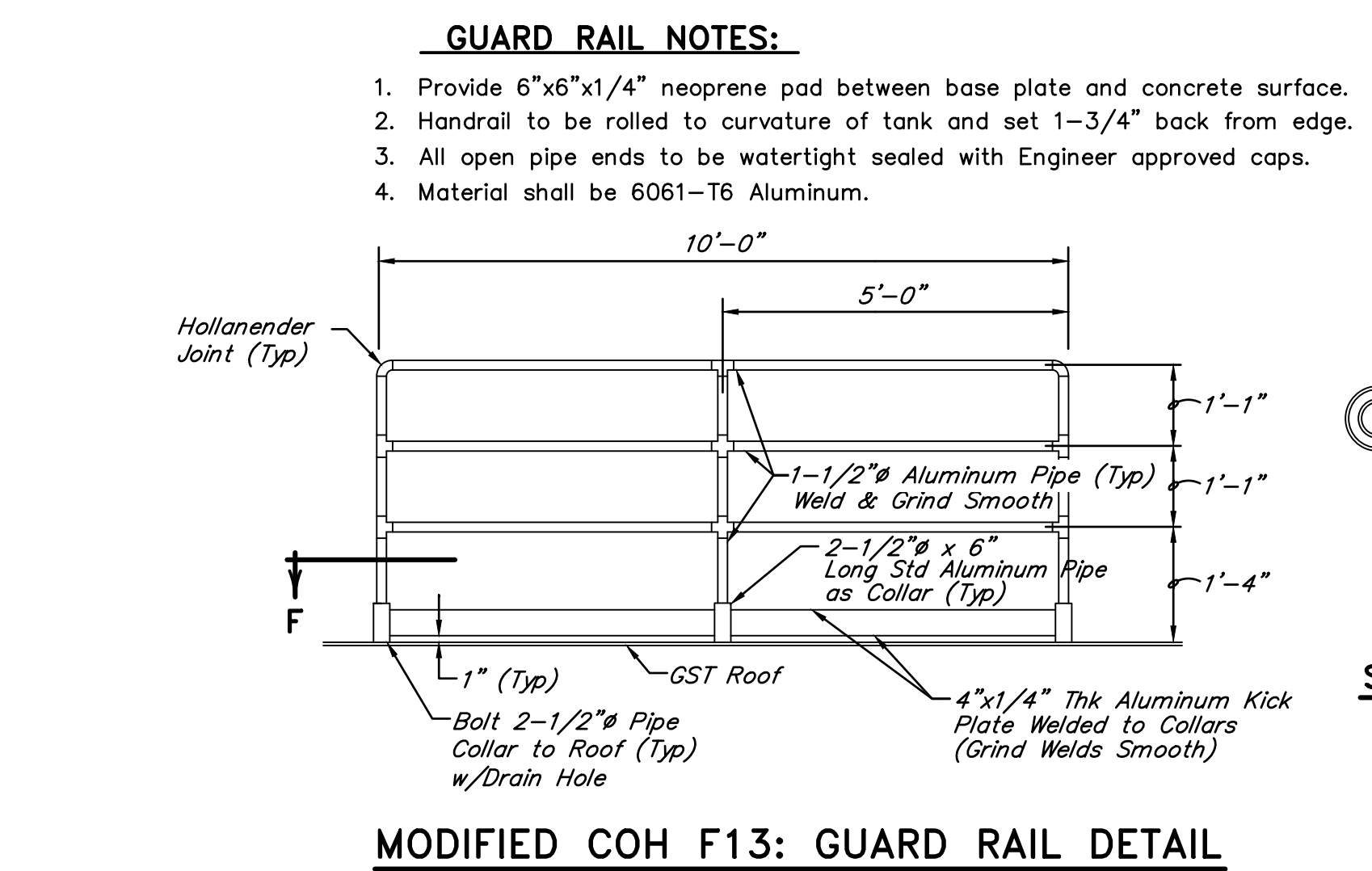
- PIPING CHART:**
- 1613 16" Dresser Coupling, Style 38
 - 1616 16"x90" Bend, MJ w/ Restraints
 - 1608 16" Butterfly Valve, MJ w/ Valve Box (BFV-02-001 & BFV-02-002)



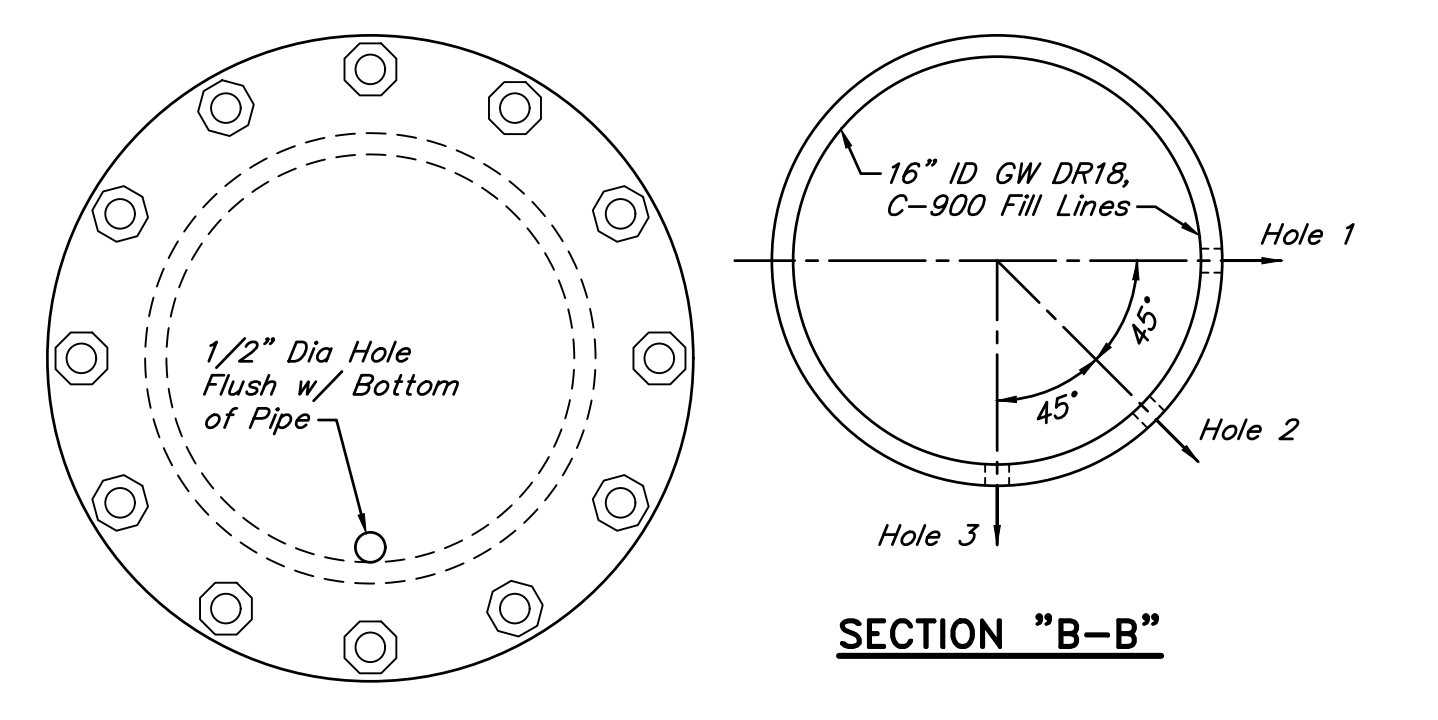
G.S.T. FILL LINE DETAIL
NOT TO SCALE



MODIFIED COH F3: SAMPLE TAP DETAIL
NOT TO SCALE

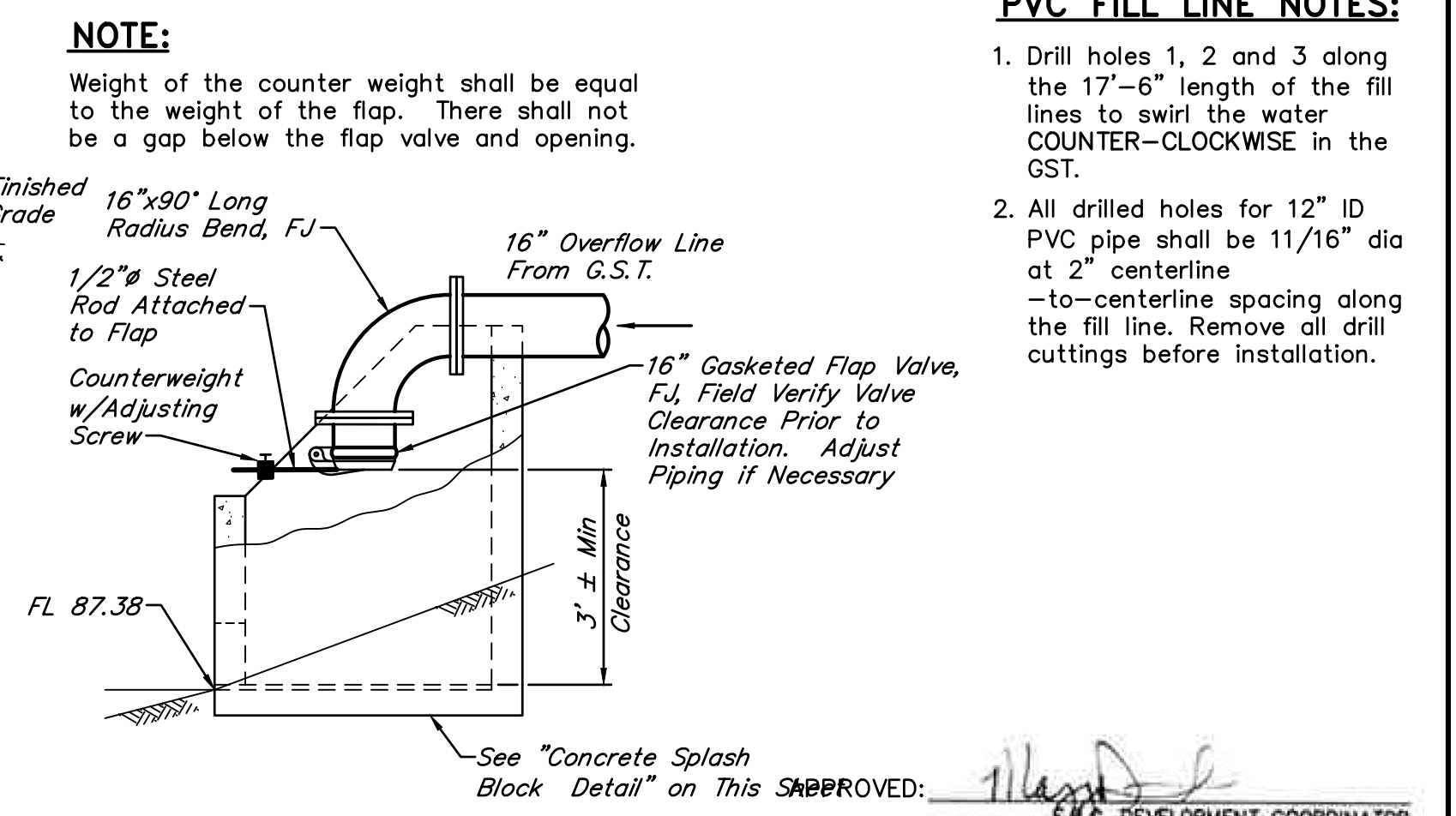


MODIFIED COH F13: GUARD RAIL DETAIL
NOT TO SCALE



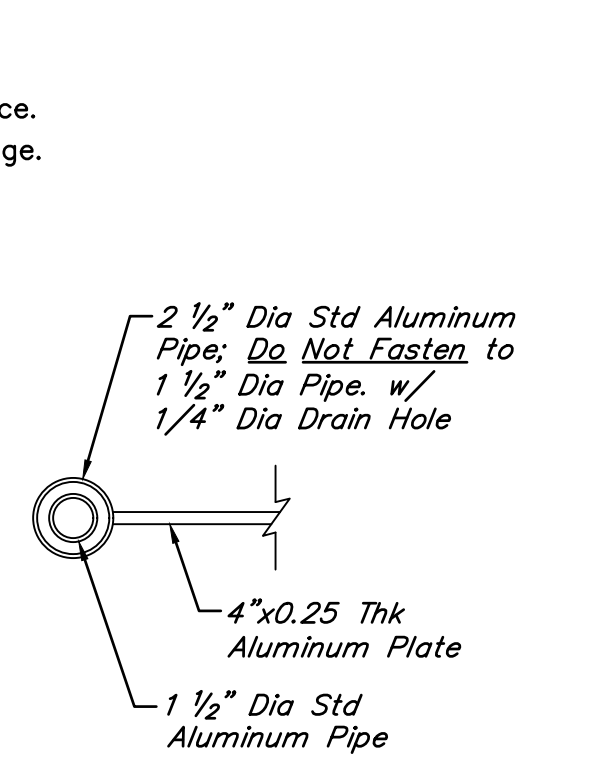
SECTION "A-A"
SECTION "B-B"

GST GW FILL LINE SECTIONS
NOT TO SCALE



COUNTER WEIGHT TYPE OVERFLOW
NOT TO SCALE

- NOTES:**
1. All pipe and fittings shall be 304 stainless steel. Anchor plates shall be steel ASTM A36.
 2. Insulate entire assembly for freeze protection.
 3. This is only a typical detail. See GST Accessory Detail on this sheet for true location & orientation.



SECTION "F-F"

APPROVED: *[Signature]*
C.E. DEVELOPMENT COORDINATOR
DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	TJW

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
GROUND STORAGE TANK
DETAILS
SHEET 1 OF 3

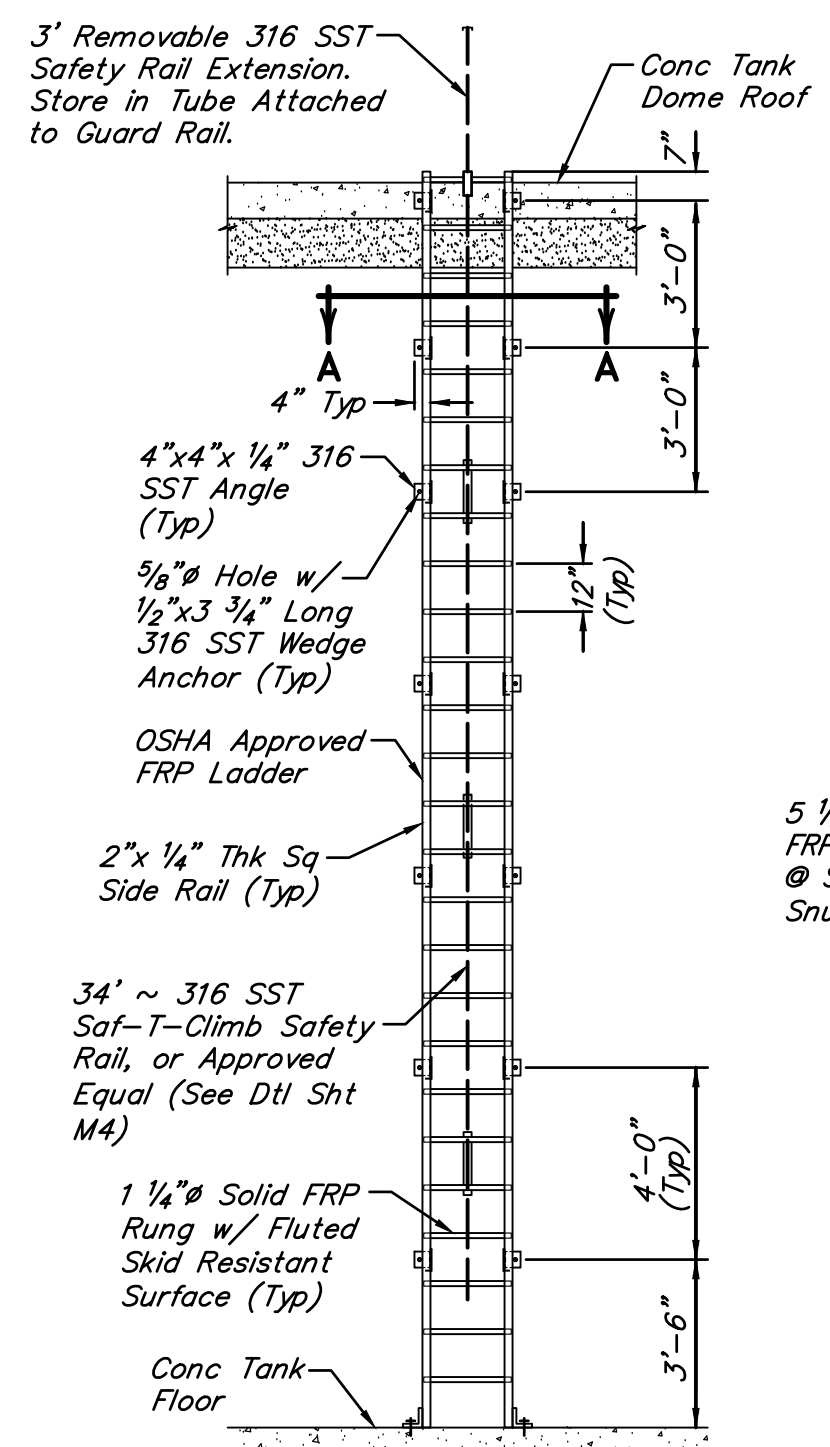
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER	TRAFFIC & TRANSPORTATION
STORM WATER	STORM WATER QUALITY
STREETS	INDUSTRIAL

FILE NO: JOB No: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018	
DGN. BY: MRKILLARY	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	SHEET No. 15 OF 47

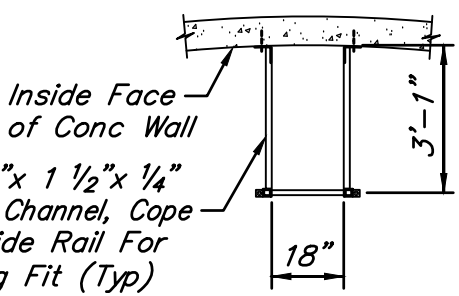
GST GENERAL NOTES:

- Concrete for tank wall panels, dome roof, and riser pipe encasements shall test 4,000 psi minimum at 28 days. Concrete for tank floor, foundation and floor pipe encasements shall test 3,500 psi minimum at 28 days. Other non-structural tank concrete shall test 3,000 psi minimum at 28 days.
- All concrete reinforcing bars shall conform to ASTM A615 grade 60, except no. 3 bars may conform to grade 40.
- Detailing and fabrication of concrete reinforcement and accessories shall be in accordance with ACI-315 latest edition.
- Lap all continuous reinforcing bars 36 diameters at splices, corners and tees, unless noted otherwise.
- Where called, use welded wire sheets. Welded wire rolls are not acceptable.
- The use of heat to facilitate the bending of reinforcing bars will not be permitted.
- All structural steel details and connections shall conform to the latest A.I.S.C. Standards.
- All structural steel rolled shapes, steel plates and bars shall conform to ASTM A36 latest edition.
- All steel members and connections exposed to earth or weather shall be hot-dipped galvanized.
- No engineering drawing may be reproduced for use as shop drawings.
- Provide wall panel or dome roof reinforcing as per tank manufacturer's recommendations for all inlets, outlets, manways, roof vents, cleanouts and ladders.
- Pipe penetrations through walls shall have the centerline location determined as recommended by the tank manufacturer and confirmed by the Engineer.
- All shop welded steel GST interior piping and components shall be coated after fabrication is completed.
- GST piping and accessories are shown in profile views for detail purposes only. See the "ENLARGED PIPING PLAN" on Sheet C4 and the "GST No. 1 ACCESSORY DETAIL - PLAN VIEW" on Sheet M4 for location and true orientation of piping and accessories.



LADDER NOTES:

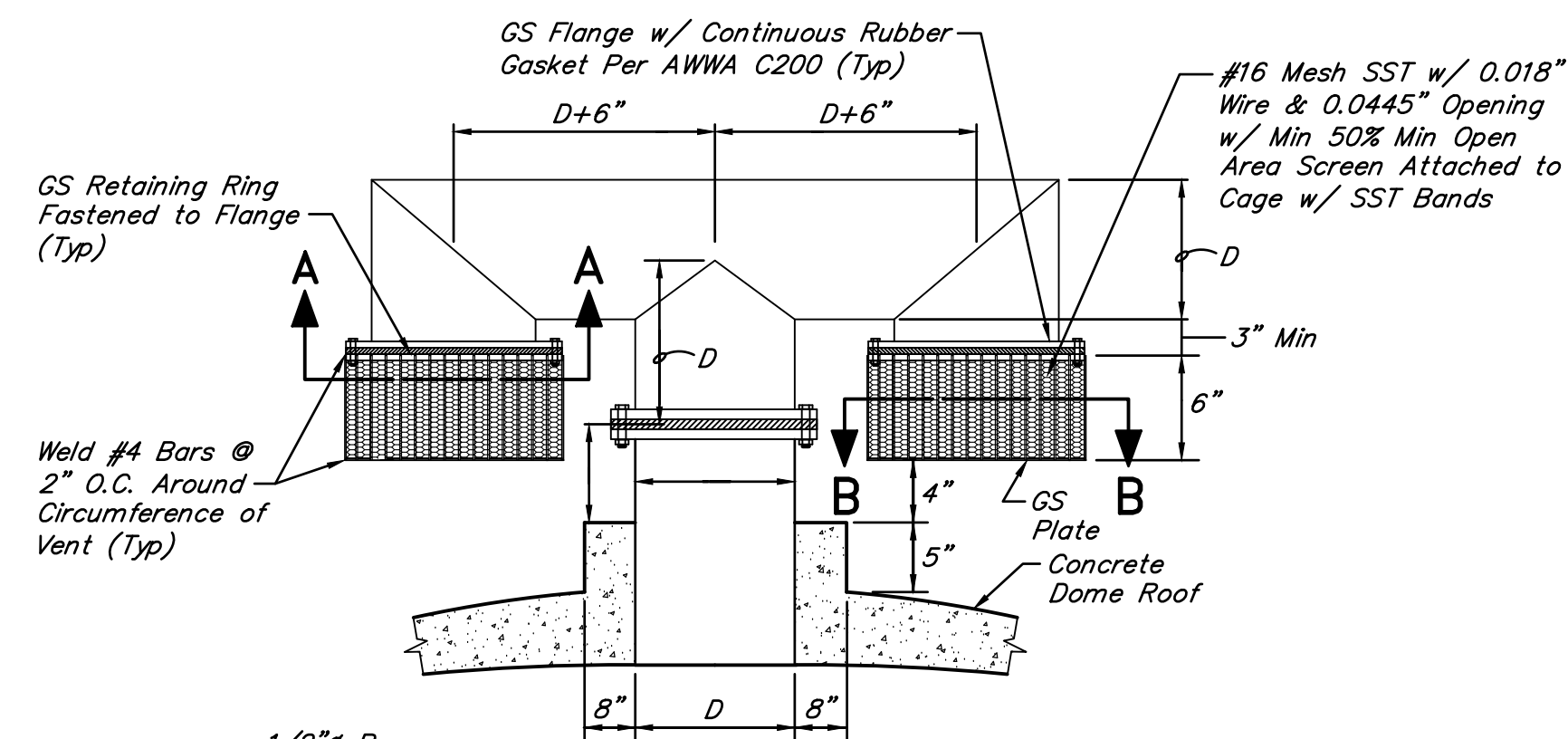
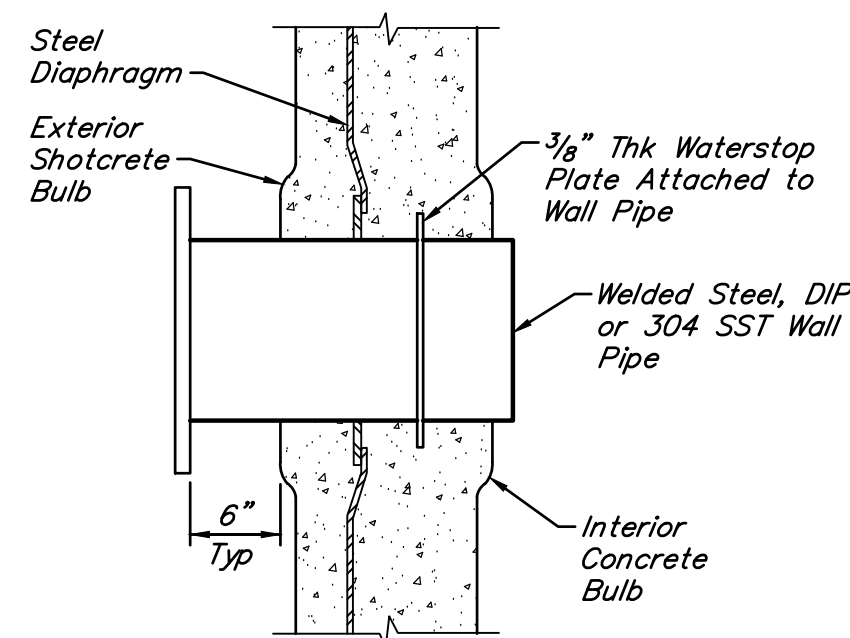
- Ladders and components shall be FRP.
- Ladders shall be fastened to tank using 316 SST wedge anchors.
- OSHA approved 316 SST fall protection device to be installed.
- All FRP surfaces shall be isolated from concrete surfaces using PVC shims.



SECTION "A-A"

TYPICAL WALL PANEL PIPE PENETRATION DETAIL

NOT TO SCALE



SECTION "A-A"

SECTION "B-B"

ROOF VENT NOTES:

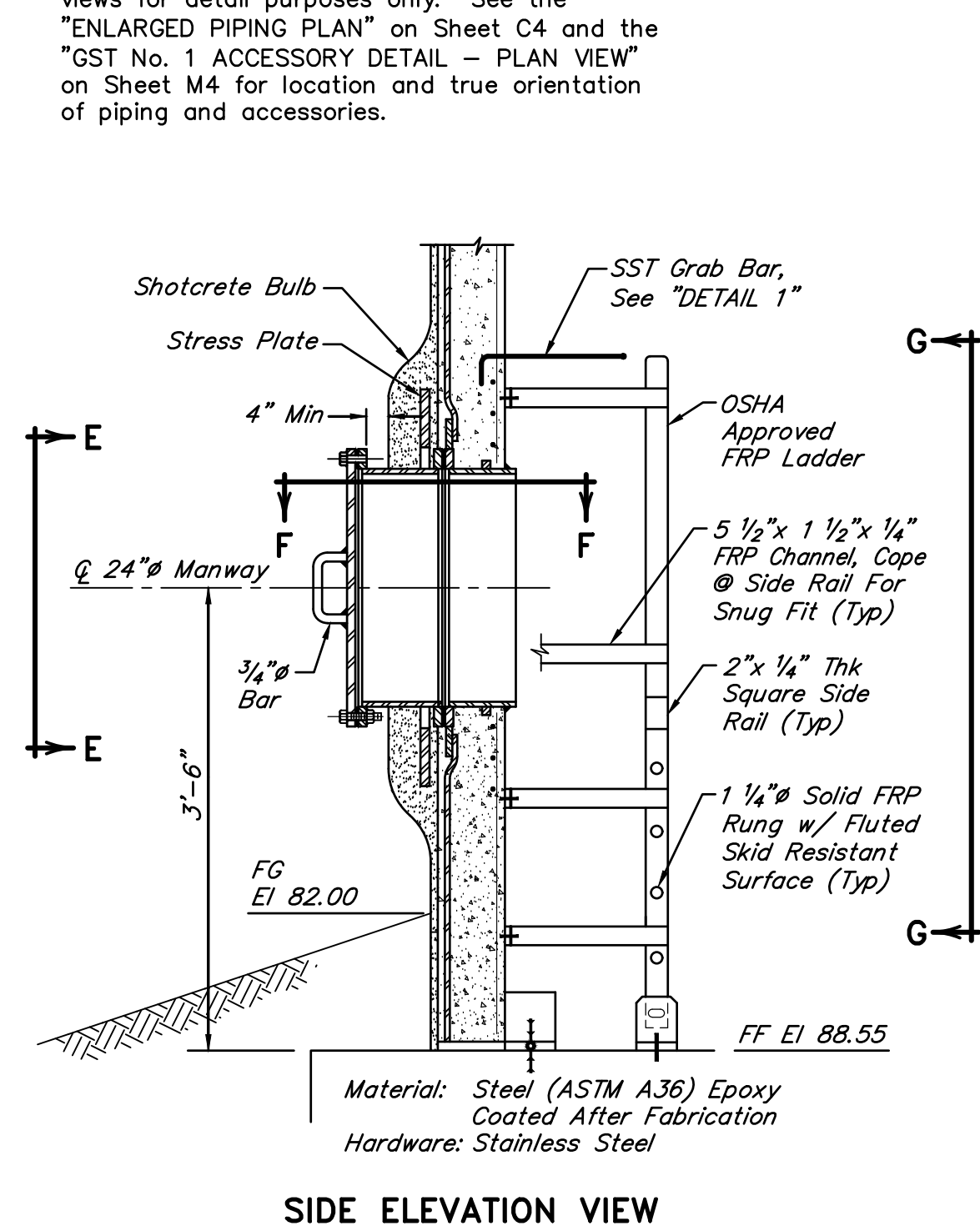
- Vent to be fabricated from thin wall Schedule 10 steel pipe and hot dipped galvanized or aluminum.
- Isolation kit required between all dissimilar metals.
- "D" is the pipe diameter equal to 24 inches (24").
- Roof vent should be set off center in between roof rafters.
- All aluminum in contact with concrete shall receive a coat of bitumastic or be isolated by a neoprene gasket.

MODIFIED COH F8: ROOF VENT DETAIL

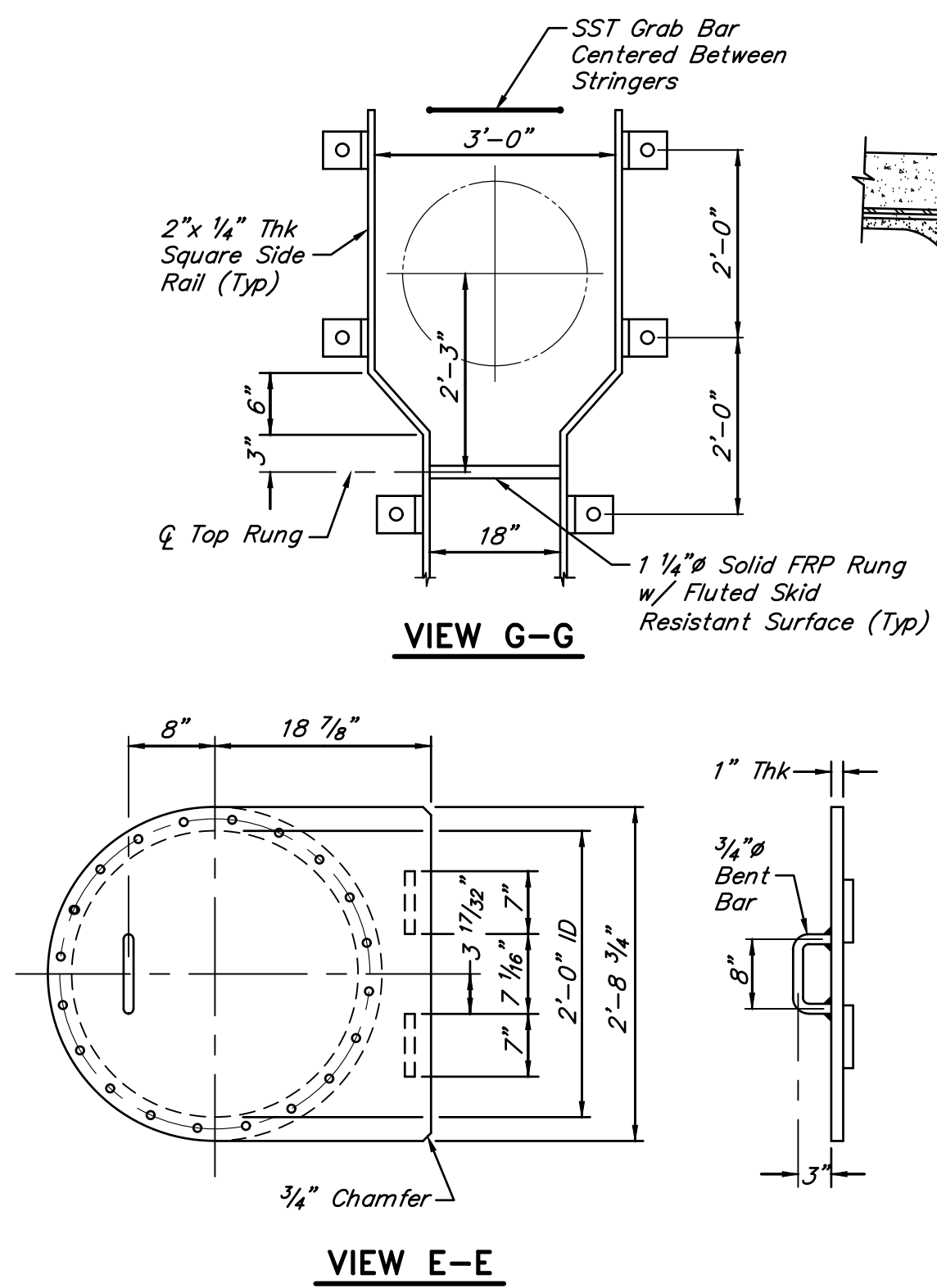
NOT TO SCALE

MODIFIED COH F12: INTERIOR LADDER DETAIL

NOT TO SCALE



SIDE ELEVATION VIEW



VIEW E-E

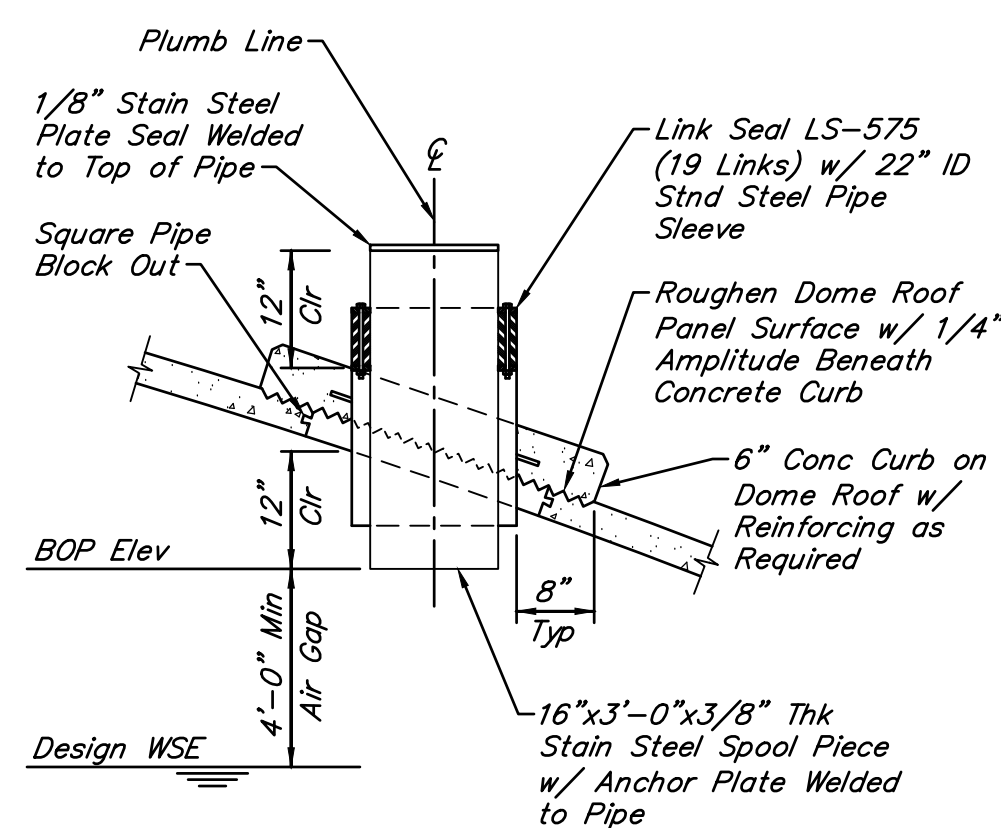
VIEW F-F

PLAN VIEW

PROFILE

DETAIL 1

NOT TO SCALE



16" DOME ROOF INLET PIPE (FUTURE SURFACE WATER FILL LINE)

NOT TO SCALE

24" DIAMETER SHELL MANWAY DETAILS

NOT TO SCALE

APPROVED: *[Signature]*
C.O. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	TJW
1	05/20/18	ISSUED FOR CONSTRUCTION	TJW
		REVISIONS	APP.

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS

JC JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337

HARVEST GREEN
WATER PLANT No. 1
GROUND STORAGE TANK DETAILS
SHEET 2 OF 3

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DESIGNED BY: <i>[Signature]</i>	TRAFFIC & TRANSPORTATION
CHECKED BY: <i>[Signature]</i>	STORM WATER QUALITY
DATE: 4/12/18	FACILITIES: <i>[Signature]</i>
STREET & BRIDGE	

FILE NO:	FOR CITY OF HOUSTON USE ONLY
JOB NO: 13889-0002-00	CITY DWG NO.
DATE: April 2018	
DCN. BY: MRKILLARY	
DWG. BY: JASTRIUHAR	
SCALE: NO SCALE	
M3	
SHEET No. 16 OF 47	

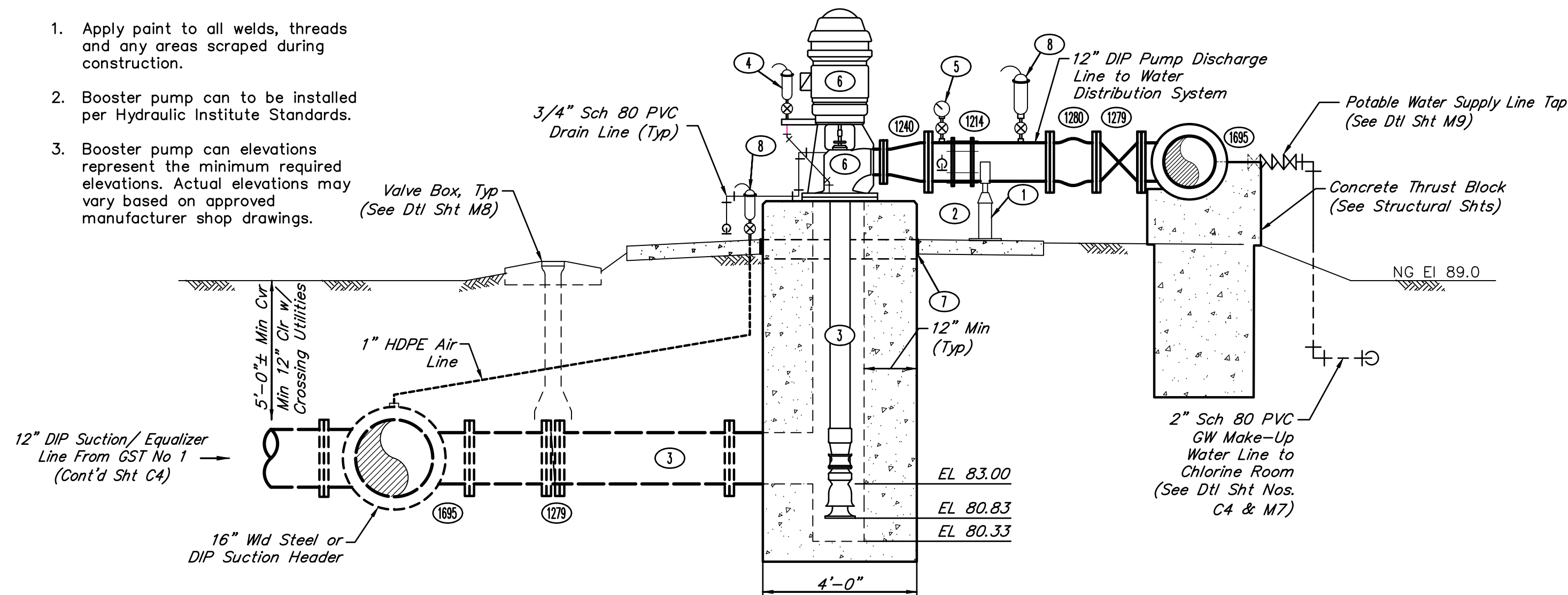
[Signature]
4-12-2018

STATE OF TEXAS
TOBY W. MCKEARY
63710
LICENSED PROFESSIONAL ENGINEER

60306
CITY OF HOUSTON

NOTES:

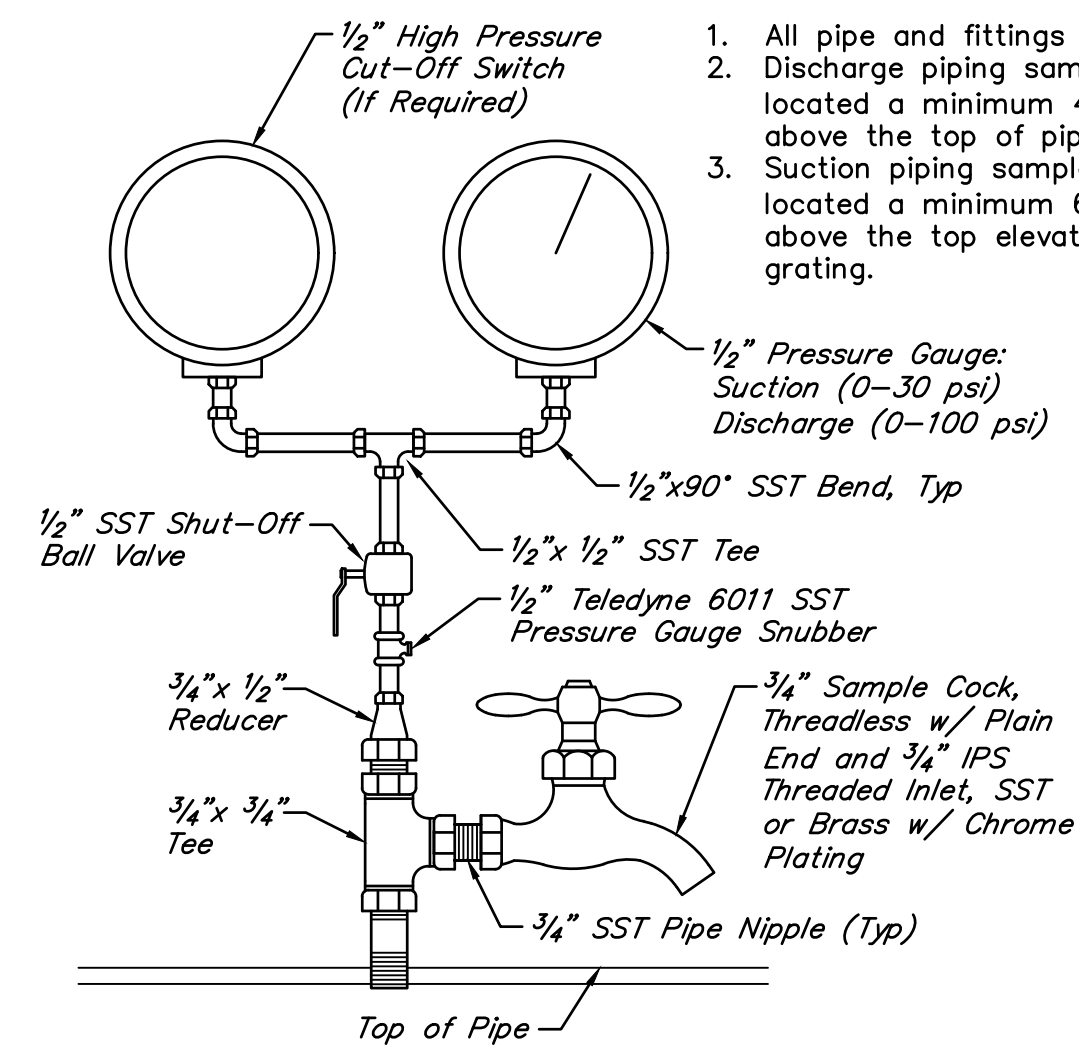
- Apply point to all welds, threads and any areas scraped during construction.
- Booster pump can be installed per Hydraulic Institute Standards.
- Booster pump can elevations represent the minimum required elevations. Actual elevations may vary based on approved manufacturer shop drawings.



BOOSTER PUMP PIPING DETAILS (TYP) – PROFILE VIEW
SCALE: 3/8"=1'-0"

PRESSURE GAUGE NOTES:

- All pipe and fittings shall be 304 SST.
- Discharge piping sample cocks shall be located a minimum 4-inches (4") above the top of piping.
- Suction piping sample cocks shall be located a minimum 6-inches (6") above the top elevation of stepover grating.



PRESSURE GAUGE AND SAMPLE TAP ASSEMBLY DETAIL
NOT TO SCALE

PIPING CHART:

- (124) 12" Flanged Coupling Adapter
- (1240) 12"x8" Concentric Reducer, FJ
- (1246) 12"x90° Bend, FJ
- (1279) 12" NRS Gate Valve, FJ (GTV-03-001 to GTV-03-302)
- (1280) 12" Silent Globe Check Valve, FJ (SCK-03-101 to SCK-03-301)
- (1614) 16" Flexible Coupling, MJ
- (1640) 16"x12" Concentric Reducer, FJ
- (1695) 16"x12" Tee, FJ
- (1699) 16" Butterfly Valve, FJ (BFV-03-001 to BFV-03-002)

PIPING NOTES:

- All pipe to be ductile iron pipe (DIP) unless otherwise noted.
- ⊙ Denotes the use of a restrained, push-on connection.

APPROVED: *[Signature]*
S.E.C. DEVELOPMENT COORDINATOR

DATE: 5/2/18

NO.	DATE	REVISIONS	APP.
Δ	05/30/18	ISSUED FOR CONSTRUCTION	TJW
Δ	04/20/18	REVISIONS PER ADDENDUM No. 2	TJW
Δ	04/13/18	REVISIONS PER ADDENDUM No. 1	TJW

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
BOOSTER PUMP PIPING & DETAILS

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	DATE: 04/24/18	WATER & TRANSPORTATION
WATER	DATE: 04/13/18	STORM WATER QUALITY
STORM	DATE: 04/13/18	FACILITIES
STREET & BRIDGE		

FILE NO: 13889-0002-00
JOB NO: 13889-0002-00

DATE: April 2018
DGN. BY: MRKILLARY
DWG. BY: JASTRUHAR

SCALE: NO SCALE

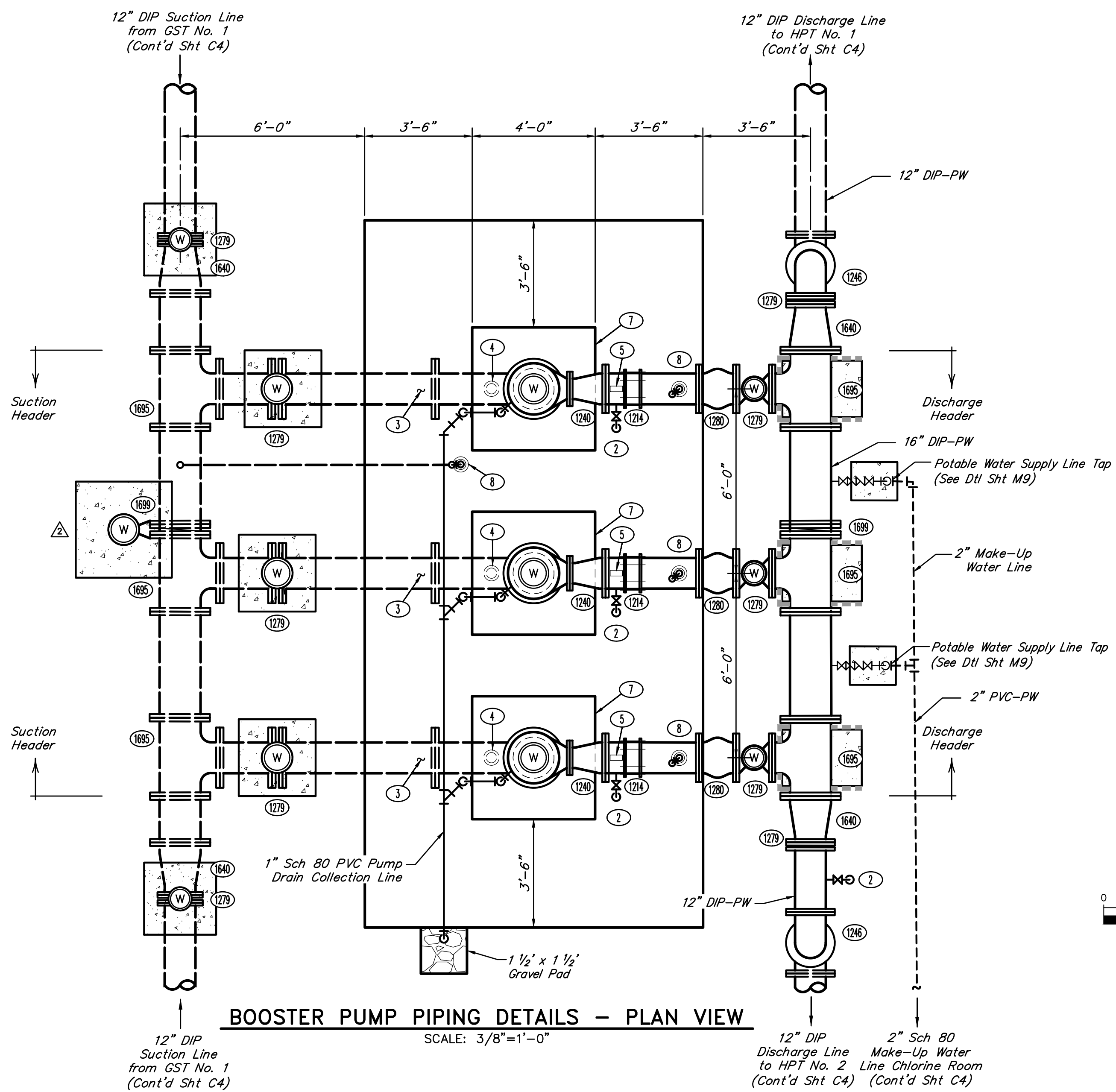
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SHEET No. 18 OF 47



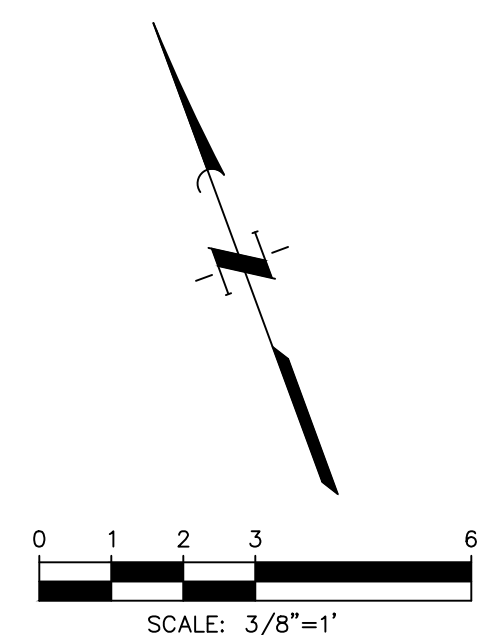
[Signature]
4-12-2018

BOOSTER PUMP ACCESSORY CHART:

- 4" Adjustable Steel Pipe Support (See Detail Sheet M8)
- 3/4" Sample Cock Assembly (SC-03-101 to SC-03-301) (See Detail Sheet M8)
- 16" Booster Pump Can w/ 12" Wd Steel Inlet, F.J. Can and Inlet Pipe Shall Be One-Piece Construction and Hot-Dip Galvanized After Fabrication.
- 1/2" Air Release Valve, APCO Model No. 50, w/ 3/32" Orifice, No. 16 Mesh, 316 Stain Steel Screen on Discharge and Shut-Off Ball Valve. Attach to Discharge Head. (ARV-03-101 to ARV-03-301 & BV-03-102 to BV-03-302)
- Pressure Gauge (0-100 psi) w/ Shut-Off Ball Valve and high Pressure Cut off Switch (PI 03101 to PI 03301)
- 1,000-GPM Vertical Turbine Booster Pump w/ 60-HP Motor (BP-03-101 to BP-03-301)
- Isolation Joint (See Detail Sheet C8)
- 1" Air Release Valve, APCO Model No. 50 w/ 3/32" Orifice, No. 16 Mesh, 316 Stain Steel Screen on Discharge and Shut-Off Ball Valve. (ARV-03-001, ARV-03-102 to ARV-03-302 & BV-03-001, BV-03-104 to BV-03-304)

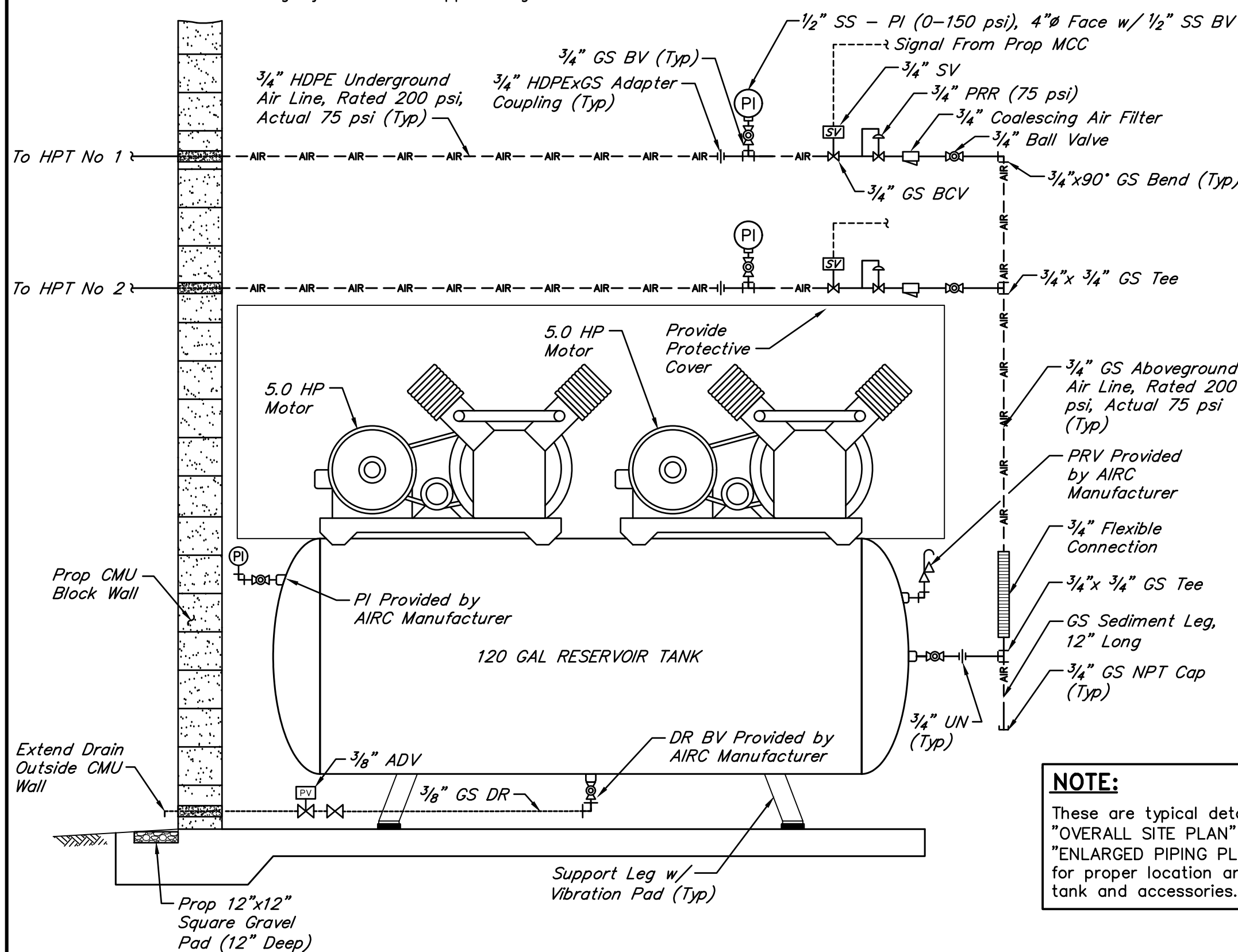


BOOSTER PUMP PIPING DETAILS – PLAN VIEW
SCALE: 3/8"=1'-0"



NOTES:

- 1. All piping penetrations through the control building walls shall be tightly sealed with approved grout.



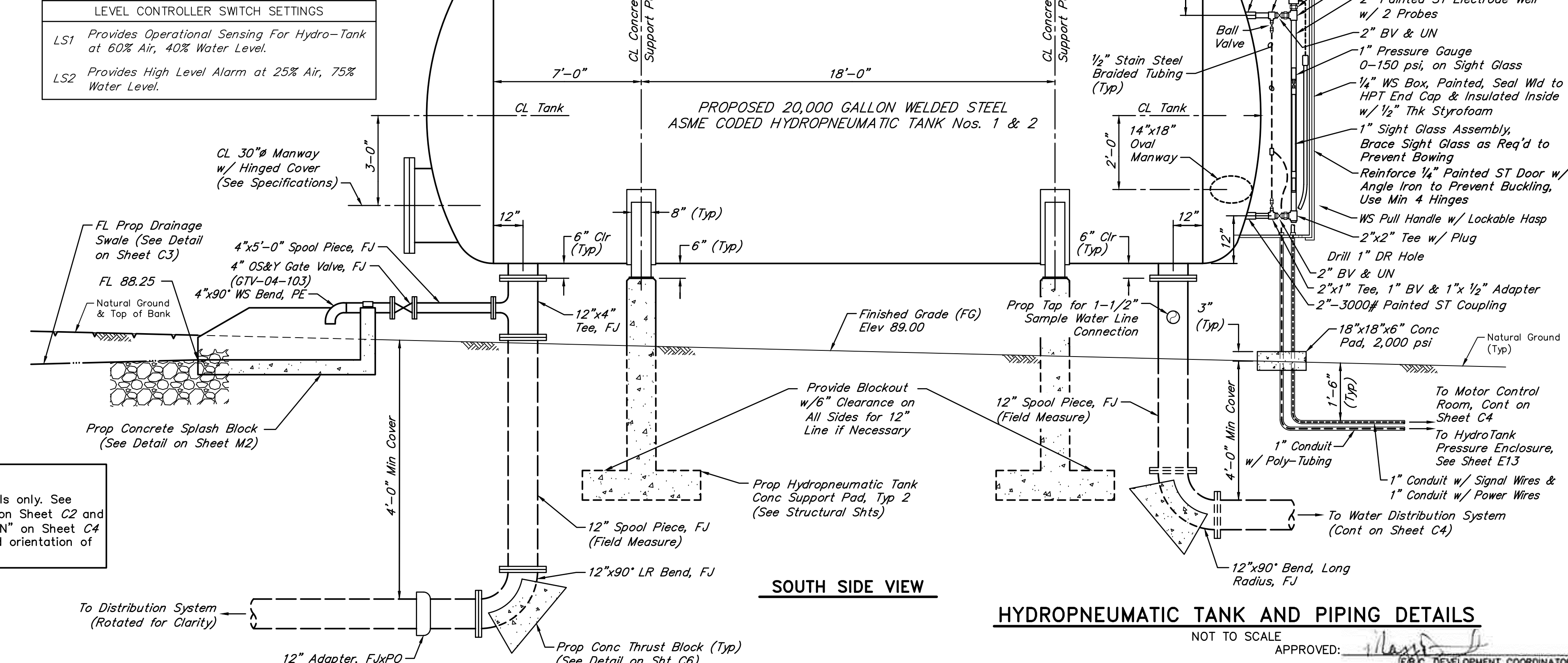
HORIZONTAL DUPLEX AIR COMPRESSOR DETAIL

NOT TO SCALE

HYDROPNEUMATIC TANK PRESSURE	PIT SETTINGS	
	On/Open (psi)	Off/Closed (psi)
Start and Stop Lead Booster Pump	60	65
Start and Stop 1st Lag Booster Pump	55	60
Start and Stop 2nd Lag Booster Pump	50	55
Open and Close Air Compressor Purge Valve	50	70
Spare Well Globe Valve		

LEVEL CONTROLLER SWITCH SETTINGS	
LS1	Provides Operational Sensing For Hydro-Tank at 60% Air, 40% Water Level.
LS2	Provides High Level Alarm at 25% Air, 75% Water Level.

NOTE:
These are typical details only. See "OVERALL SITE PLAN" on Sheet C2 and "ENLARGED PIPING PLAN" on Sheet C4 for proper location and orientation of tank and accessories.

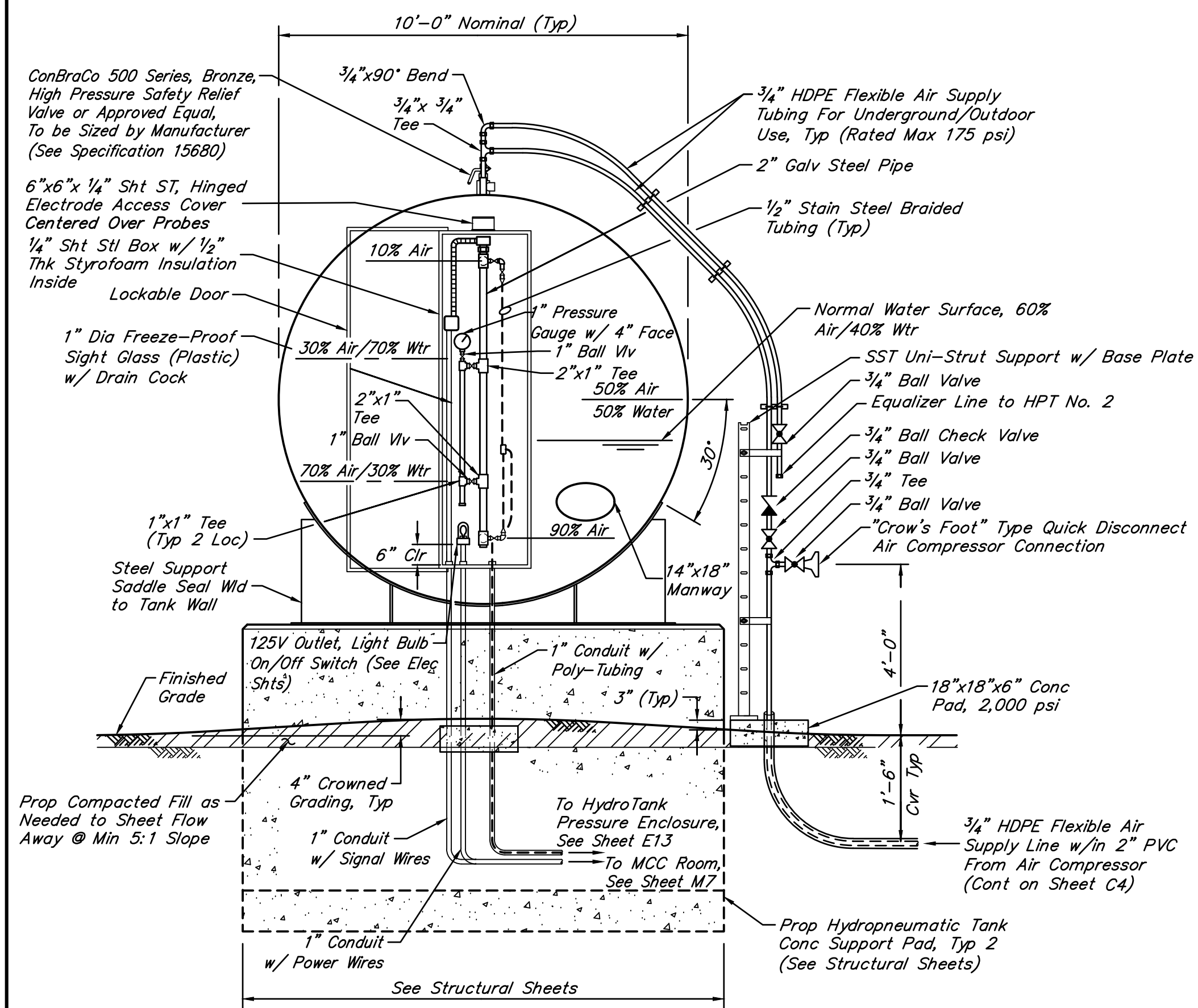


SOUTH SIDE VIEW

HYDROPNEUMATIC TANK AND PIPING DETAILS

NOT TO SCALE

APPROVED: *[Signature]*
E&C DEVELOPMENT COORDINATOR



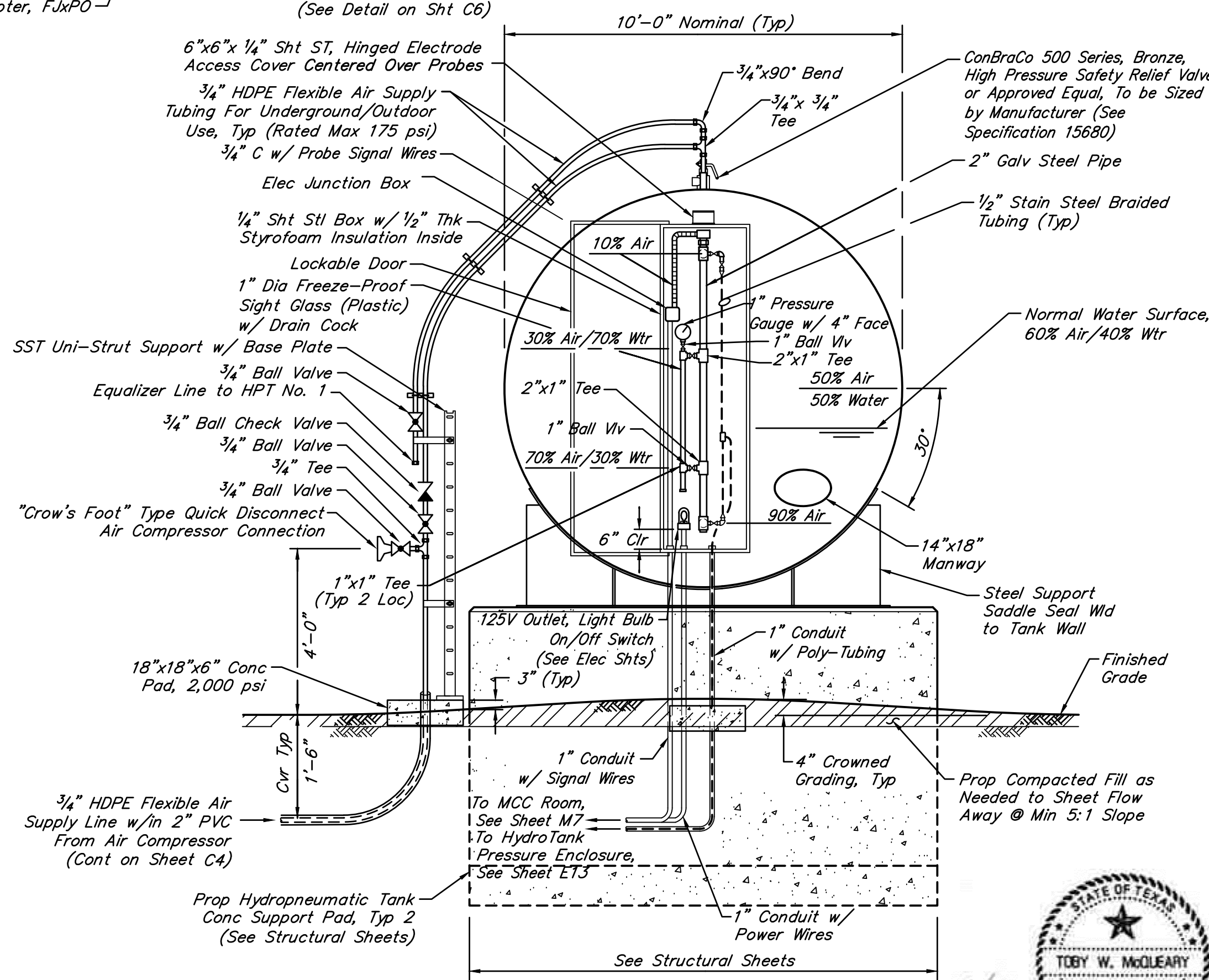
HPT No. 1 END VIEW

TANK CONSTRUCTION NOTES:

1. The ASME stamped hydropneumatic tank shall conform to the latest edition of Section VIII, Division 1, American Society of Mechanical Engineers Boiler and Pressure Vessel Code.
2. See Contract Specification Section 09920 for protective coating procedures.
3. All fasteners shall be stainless steel per ASTM F593/594-304, ASTM A325 or Equal (Galvanized).
4. Latch on hydropneumatic tank door must be within five feet (5') of finished grade.
5. Hydropneumatic tank door must open easily without binding.
6. The system must be able to operate on both proposed and tanks together using an equalizer line or on either tank independently using manual cut-offs. Therefore, separate air lines and sensing lines are required for each tank.

TANK STRUCTURAL NOTES:

1. All concrete shall test 4000 PSI at 28 days.
2. Detailing and fabrication of concrete reinforcement and accessories shall be in accordance with ACI-315 latest edition.
3. All structural steel details and connections shall conform to the standard of the A.I.S.C.
4. All steel members and connections exposed to earth or weather shall be hot-dipped galvanized.
5. Field paint all welds on galvanized steel with "Galweld" or approved equal.
6. No Engineering drawings may be reproduced for use as shop drawings.
7. See Structural Sheets for concrete supports.



HPT No. 2 END VIEW

DATE: 5/21/18

NO.	DATE	REVISIONS	TWN	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION		

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
HYDROPNEUMATIC TANK & DETAILS

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

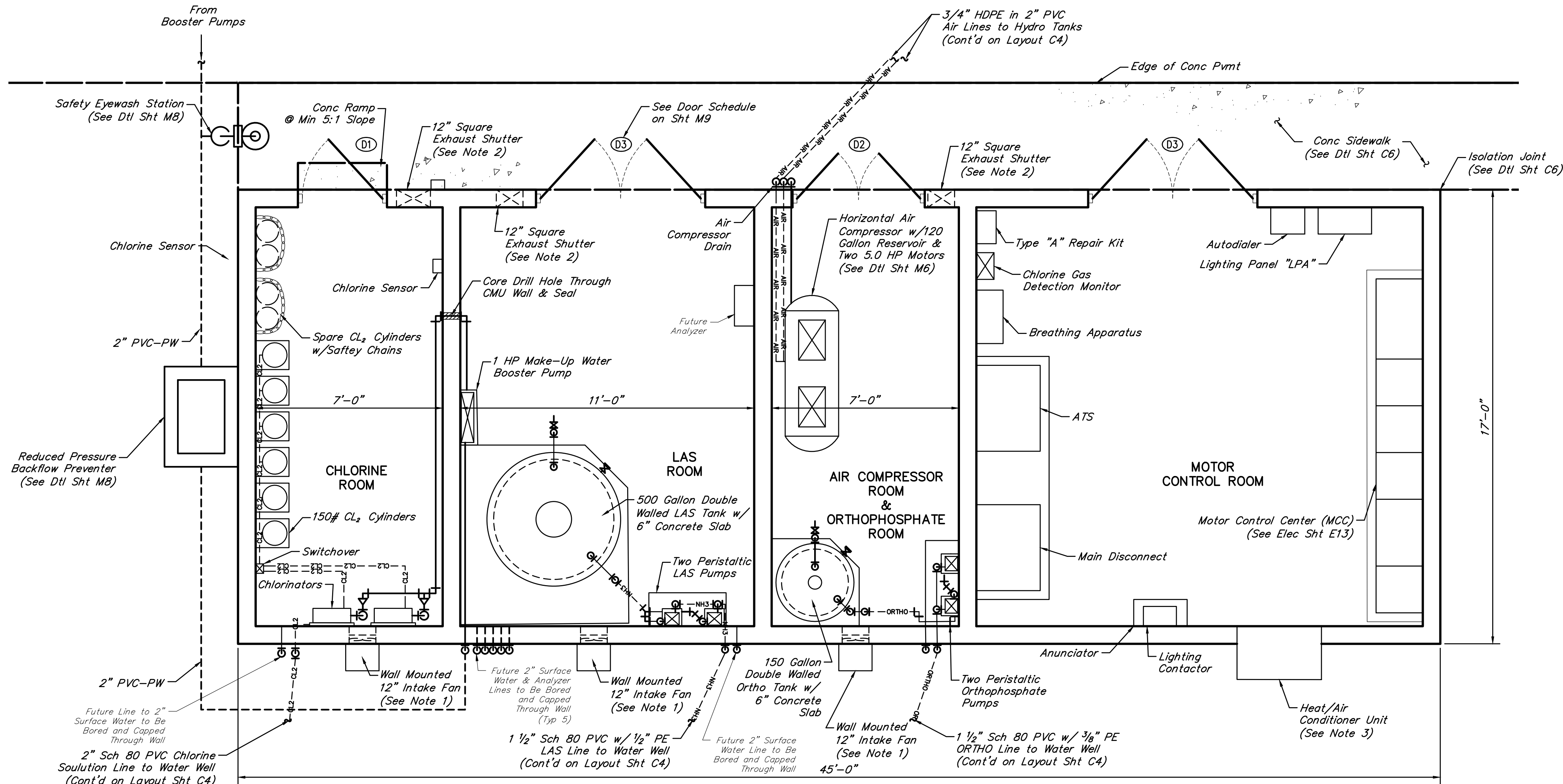
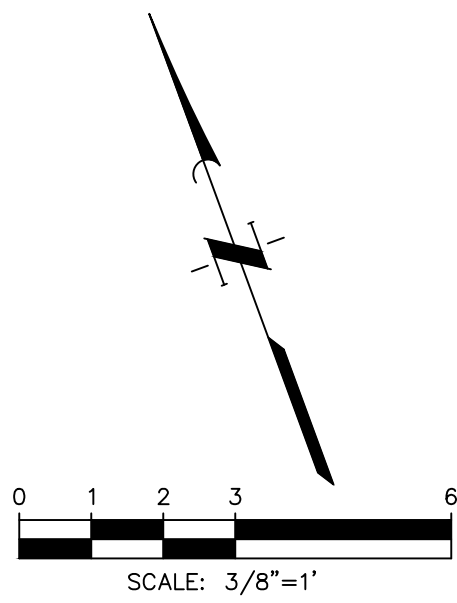
WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES

FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.

FILE NO:	FOR CITY OF HOUSTON USE ONLY
JOB NO: 13889-0002-00	CITY DWG NO.
DATE: April 2018	
DGN. BY: MRKILLARY	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
M6	
SHEET No. 19 OF 47	



ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



CONTROL BUILDING EQUIPMENT NOTES:

- Provide and install three (3) wall-mounted, automatic shutter mounted fiberglass air intake fan with fiberglass reinforced polypropylene propellers, capable of delivering a minimum 900 CFM free air flow at 1/4-inch (0.25") static pressure (SP), and rated at no more than one twentieth horsepower (1/20 HP) in the chlorine storage room. Contractor shall furnish an OSHA wire mesh safety guard and a corrosion and UV resistant weatherproof fan shroud with removable framed fiberglass (FRP) insect screen for wall fan. The fan motor shall be a single speed, totally enclosed, sleeve or ball bearing 115-volt, 60-hertz type or approved substitute. Locate and mount fan as shown in details on Sheet M8 and as specified in the contract specifications.
- Provide and install three (3) 12-inch (12") square, wall-mounted, gravity operated fiberglass air exhaust shutters. Shutter shall be capable of providing a minimum 900 CFM free air flow at 0.25" SP. Contractor shall furnish a removable framed fiberglass (FRP) insect screen over wall opening for each shutter. Locate and mount shutter as shown in details on Sheet M8 and as specified in the contract specifications.
- Provide and install one (1) through the wall exterior mounted electric heat air conditioner, Bard Model No W12AAA05 or approved equal, capable of a minimum 11,500 btu heater output and 11,000 btu air conditioner output. Mount the unit in the control room using a through wall sleeve, with top of unit approx. six-foot (6') above the finished floor.
- Install a windsock on the control building visible from all directions and according to the contract specifications.
- All building wall penetrations shall be tightly sealed with an approved grout.

PIPING NOTES:

- All piping penetrations through the control building walls shall be tightly sealed with approved grout.
- Piping schematically shown. Locate along wall w/ FRP supports and 316 SST hardware. Contractor to provide piping supports and wall mounts inside building.
- Contractor shall construct all poly tube solution lines encased in SCH 80 PVC electrical conduit and use only long sweep elbows to allow tubing to be easily repaired and/or replaced in the future.

APPROVED: *[Signature]*
F.E.D. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	TJW

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



**HARVEST GREEN
WATER PLANT No. 1
CONTROL BUILDING
& ACCESSORIES
DETAILS**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

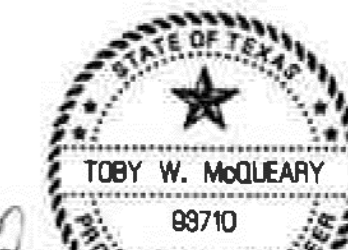


WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
SEWER	INDUSTRIAL
STREET & BRIDGE	UTILITIES

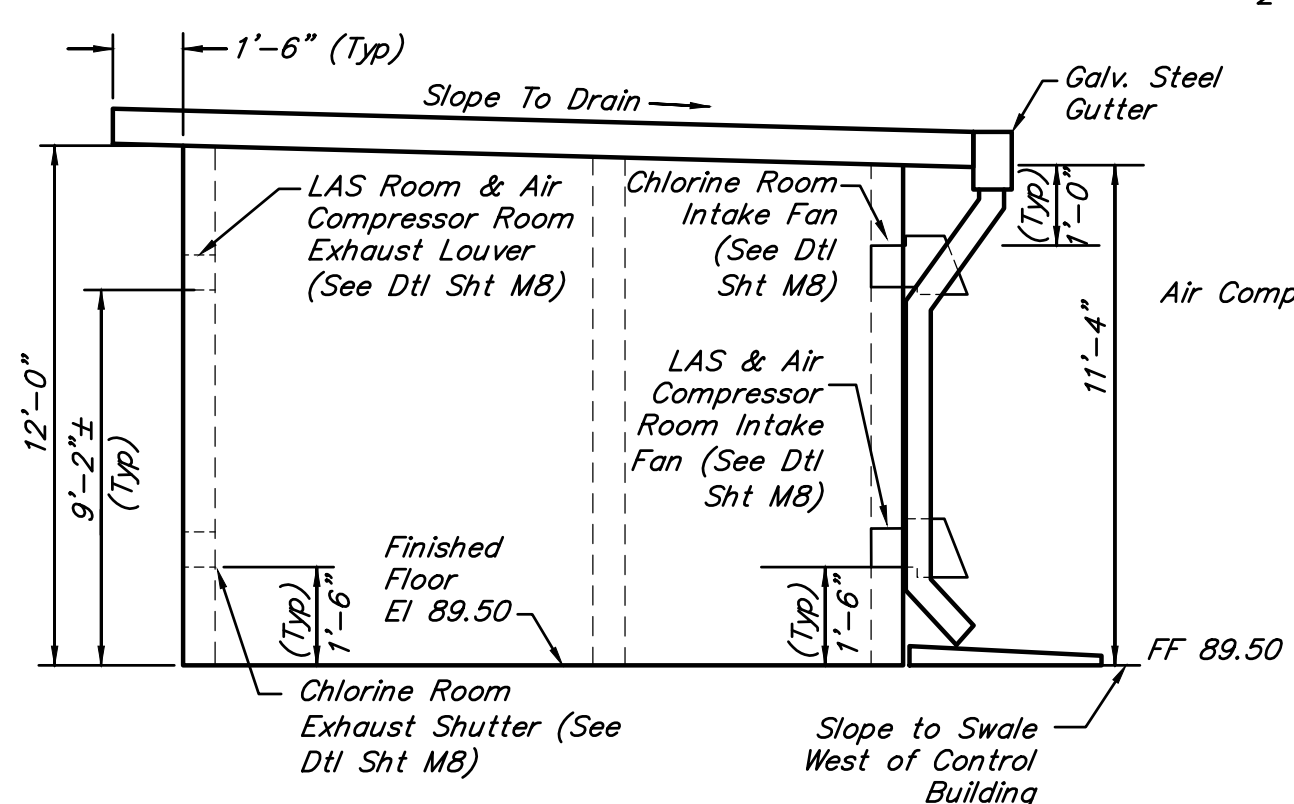
FILE NO: 13889-0002-00
JOB NO: 13889-0002-00

DATE: April 2018
DGN. BY: MRKILLARY
DWG. BY: JASTRUHAR
SCALE: NO SCALE

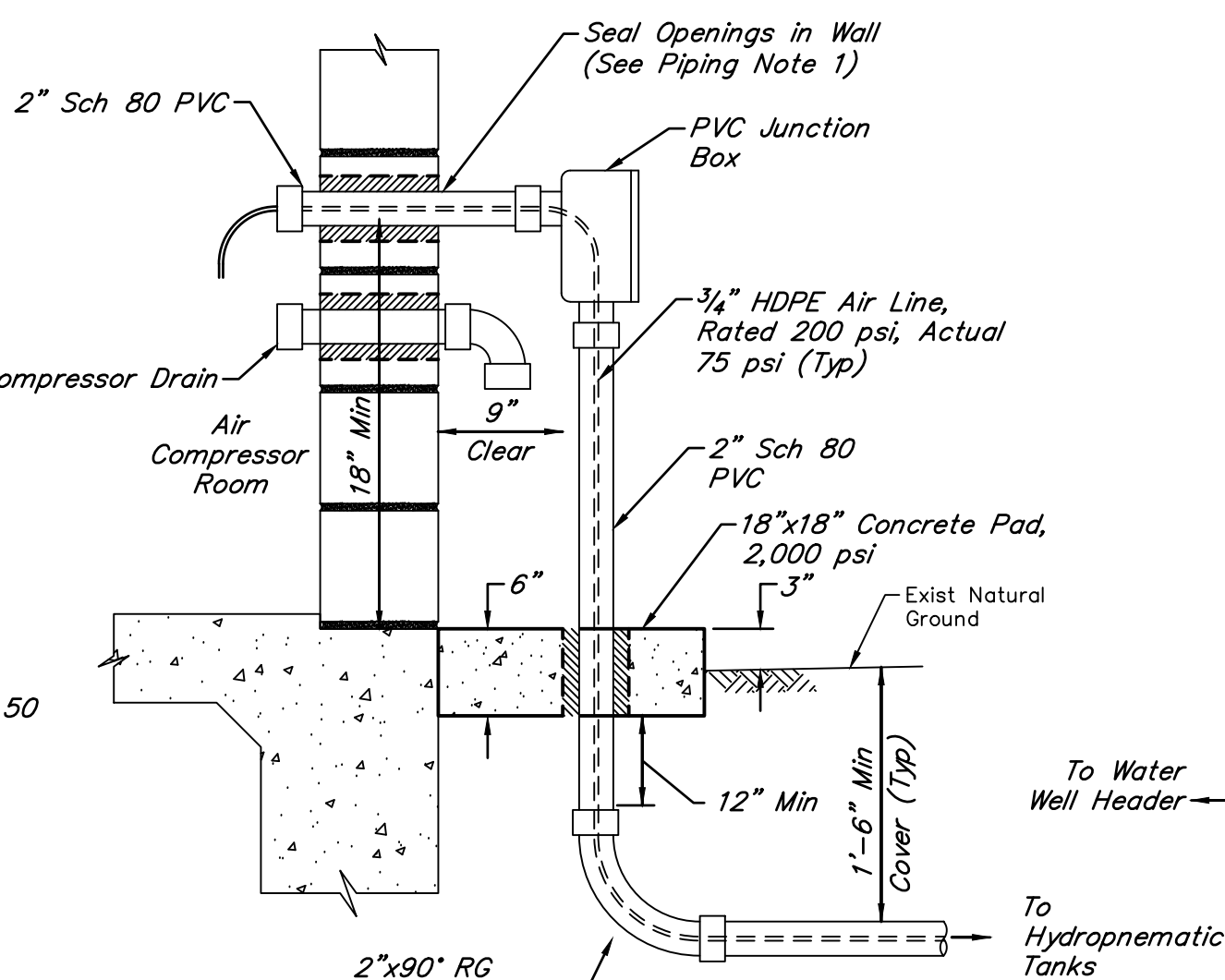
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SHEET No. 20 OF 47



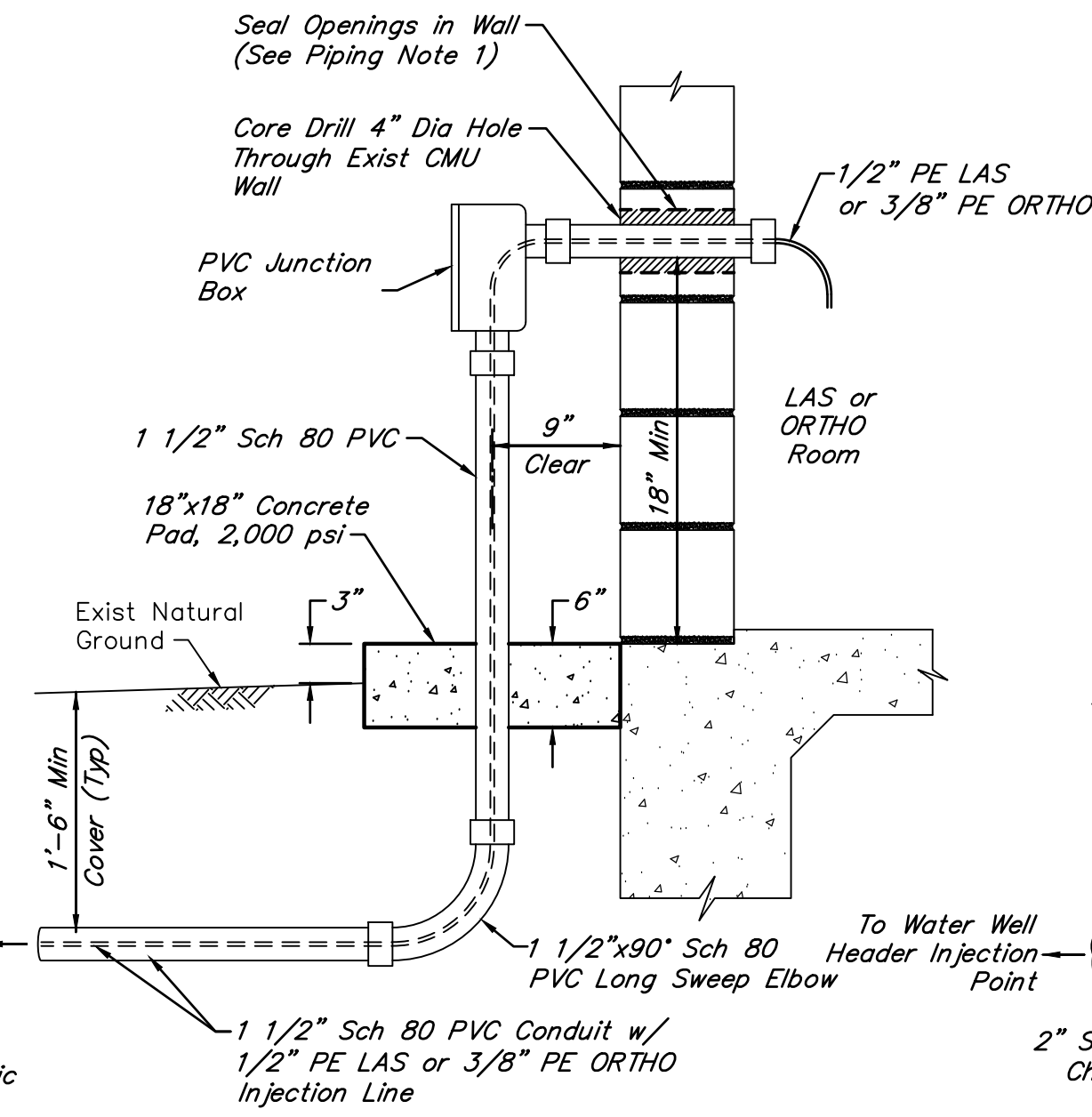
**BUILDING ELEVATION - WEST SIDE
(LOOKING EAST)**
NOT TO SCALE



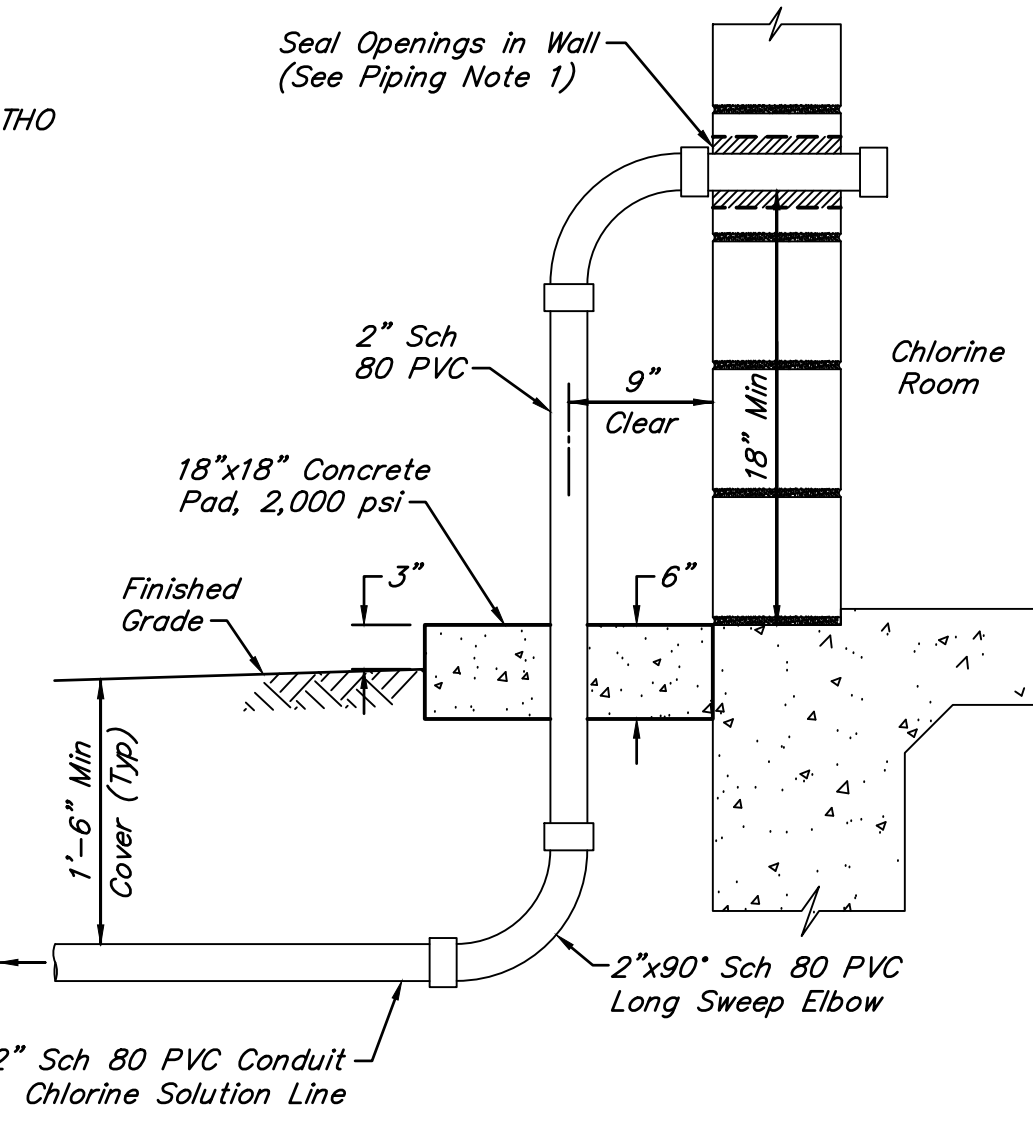
AIR LINE WALL PENETRATION DETAIL
NOT TO SCALE

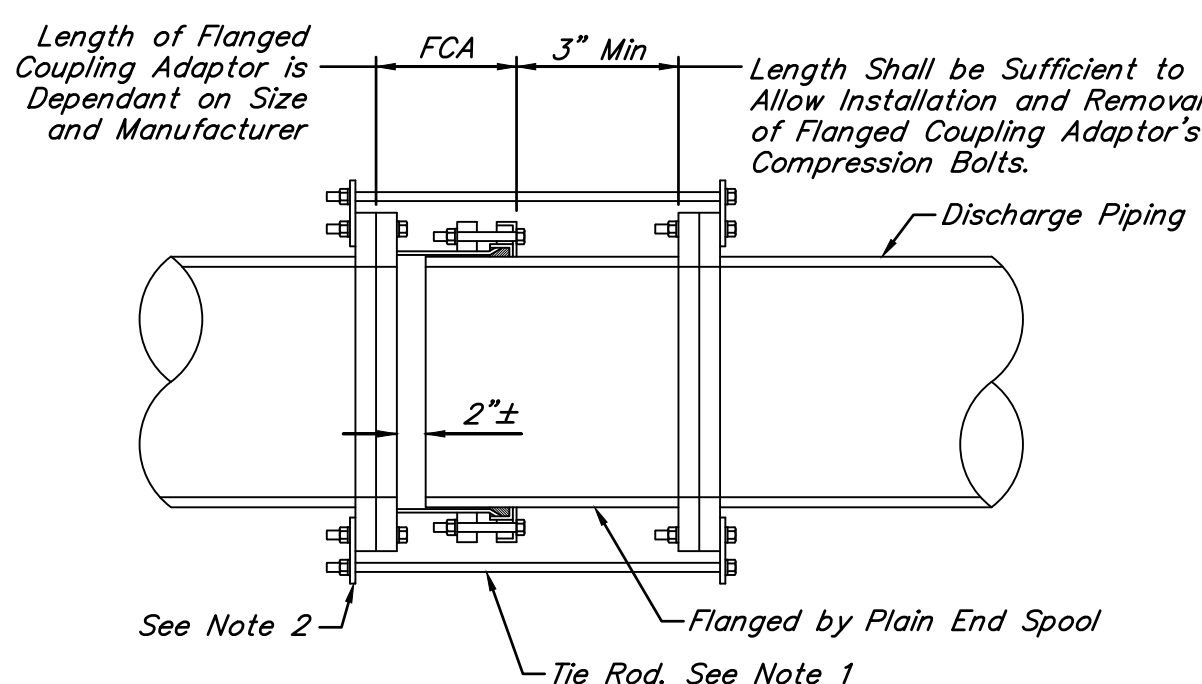


LAS/ORTHO WALL PENETRATION DETAIL
NOT TO SCALE



**CHLORINE SOLUTION LINE
WALL PENETRATION DETAIL**
NOT TO SCALE





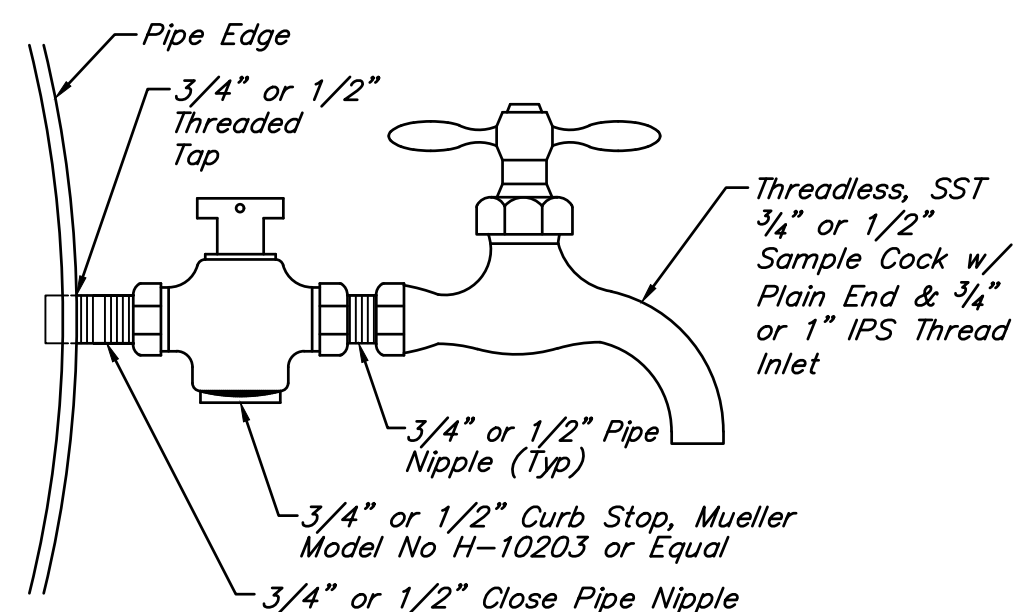
TYPICAL FLANGED COUPLING ADAPTOR RESTRAINT DETAIL

NOT TO SCALE

NOTES:

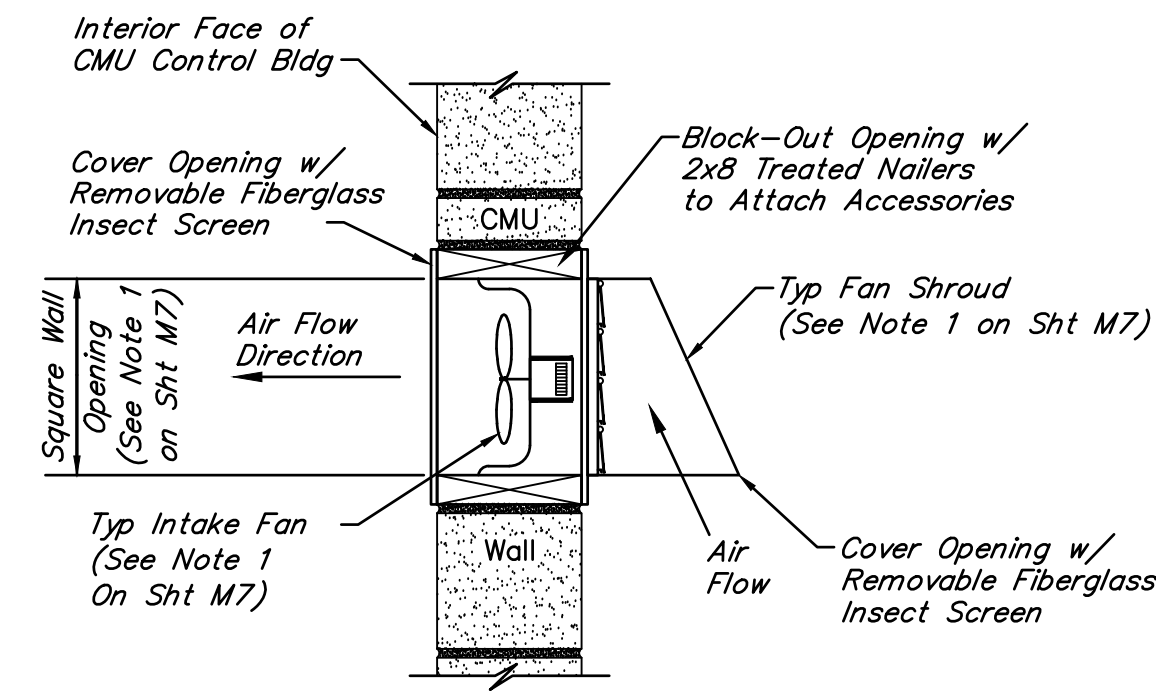
1. Provide a number of tie rods equal to 1/2 the number of flange bolts. Evenly space installation of tie rods. Diameter of tie rods to be equal to the diameter of flange bolts. Length of tie rods to be determined by contractor based on size and manufacturer of flanged coupling adaptor and final length of spool piece.
2. Provide 316 S.S. tab for attachment of tie rods. Size to be determined by contractor.
3. Contractor to submit details during shop drawing submission.
4. All hardware shall be 316 stainless steel. Tie rods should be threaded.
5. This restraint does not replace thrust blocks to be provided at other locations.

NOTE:
Insulate assembly for freeze protection.



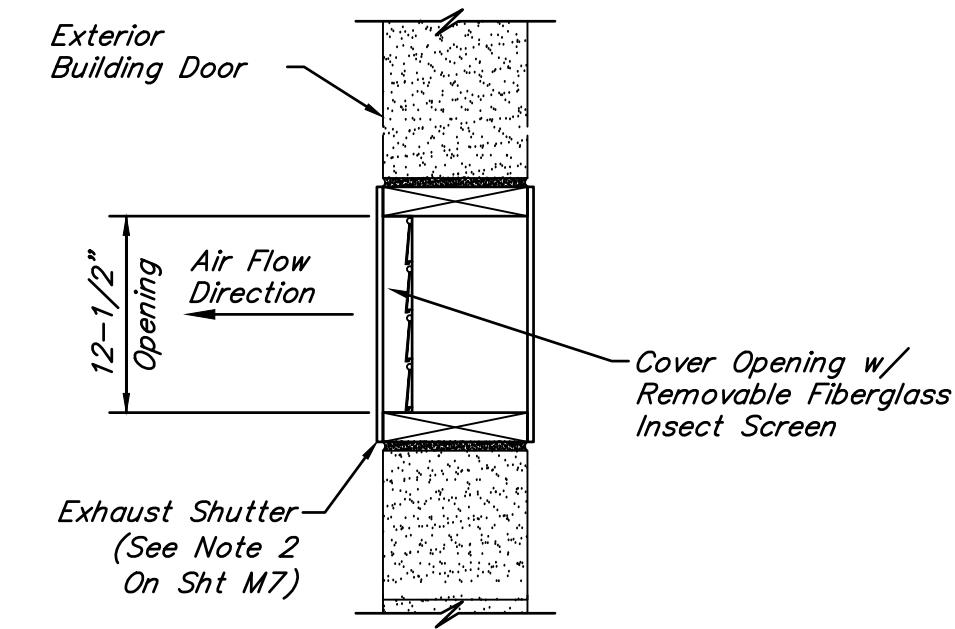
TYPICAL WATER SAMPLE COCK DETAIL

NOT TO SCALE



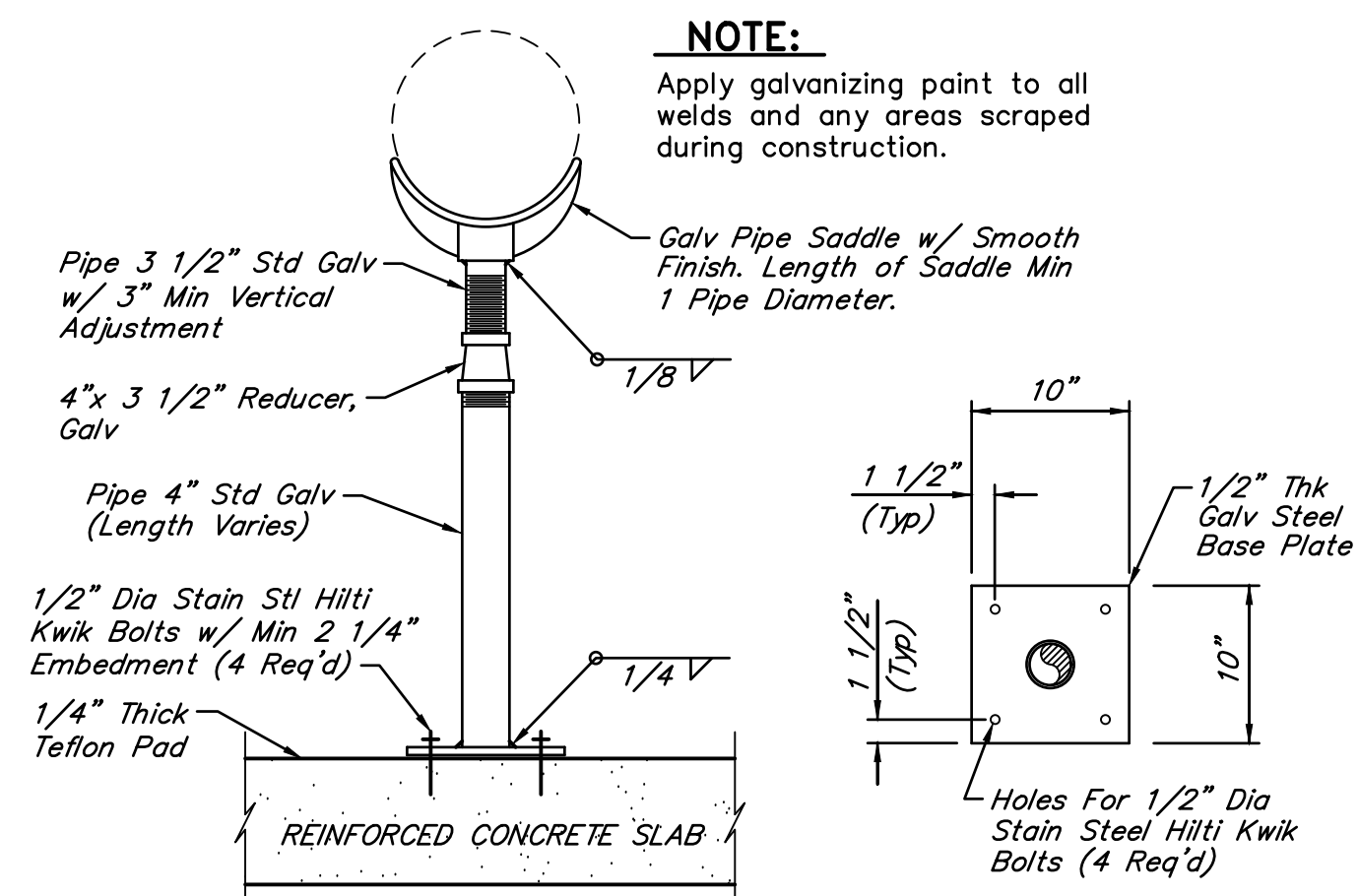
CHLORINE ROOM INTAKE FAN SCHEMATIC

NOT TO SCALE



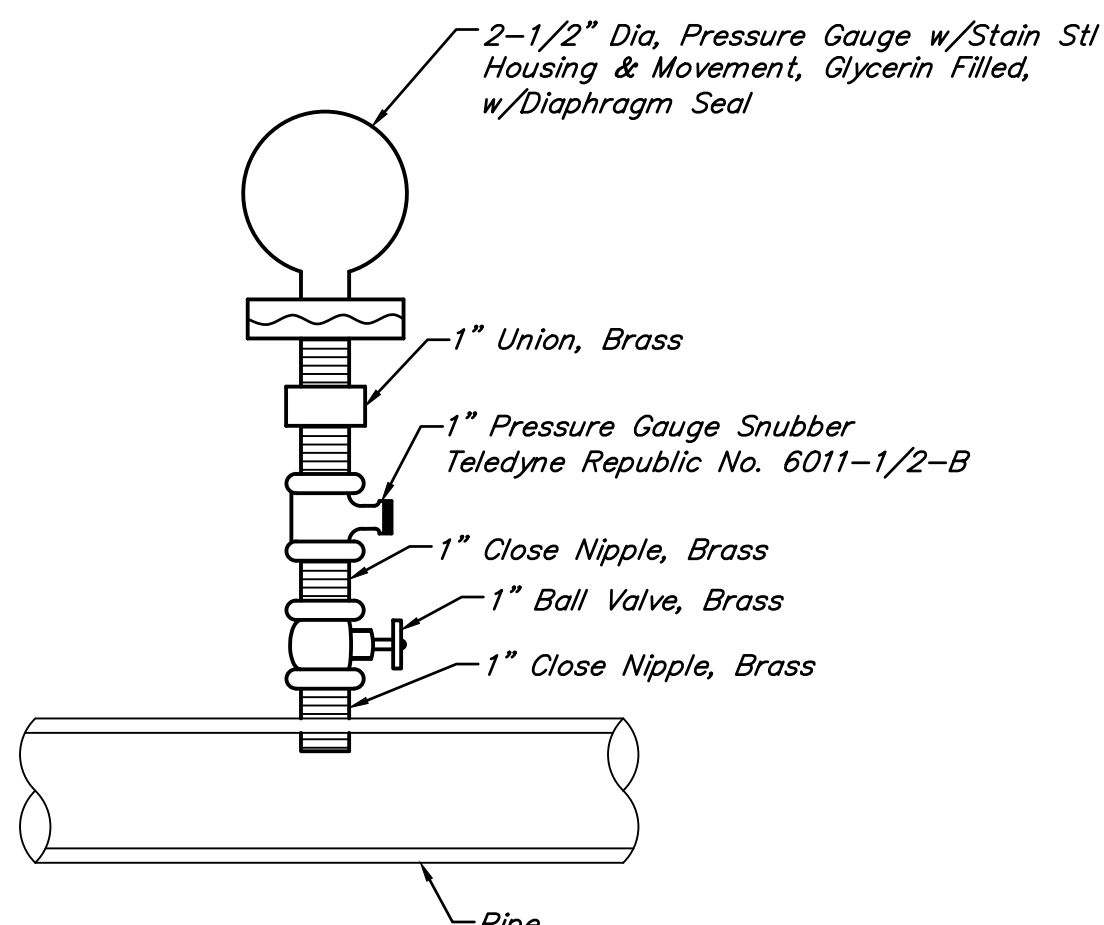
CHLORINE ROOM EXHAUST SHUTTER SCHEMATIC

NOT TO SCALE



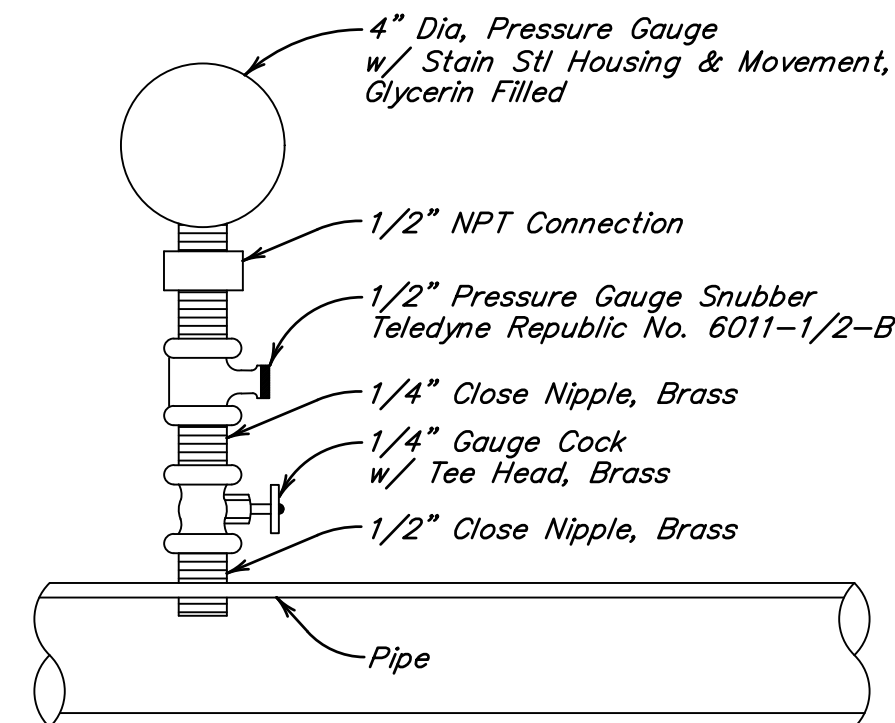
ADJUSTABLE STEEL PIPE SUPPORT

NOT TO SCALE



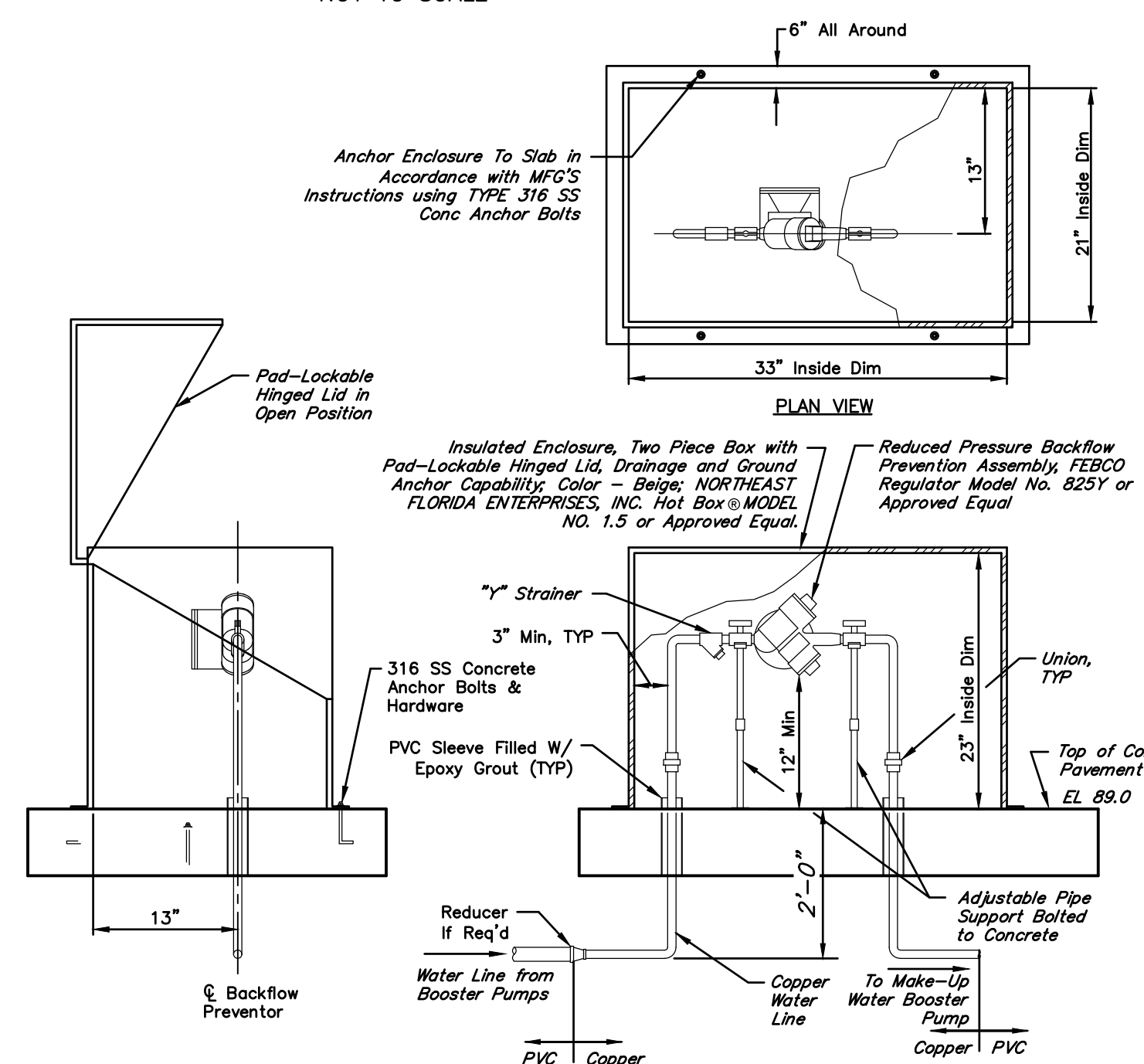
PRESSURE GAUGE W/DIAPHRAGM SEAL DETAIL

NOT TO SCALE



PRESSURE GAUGE DETAIL

NOT TO SCALE



REDUCED PRESSURE BACKFLOW PREVENTER INSTALLATION

NOT TO SCALE

SIDE VIEW

FRONT VIEW

APPROVED: *[Signature]*
E.P.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	TJW
		REVISIONS	APP.

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
MISCELLANEOUS
MECHANICAL DETAILS
SHEET 1 OF 2

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

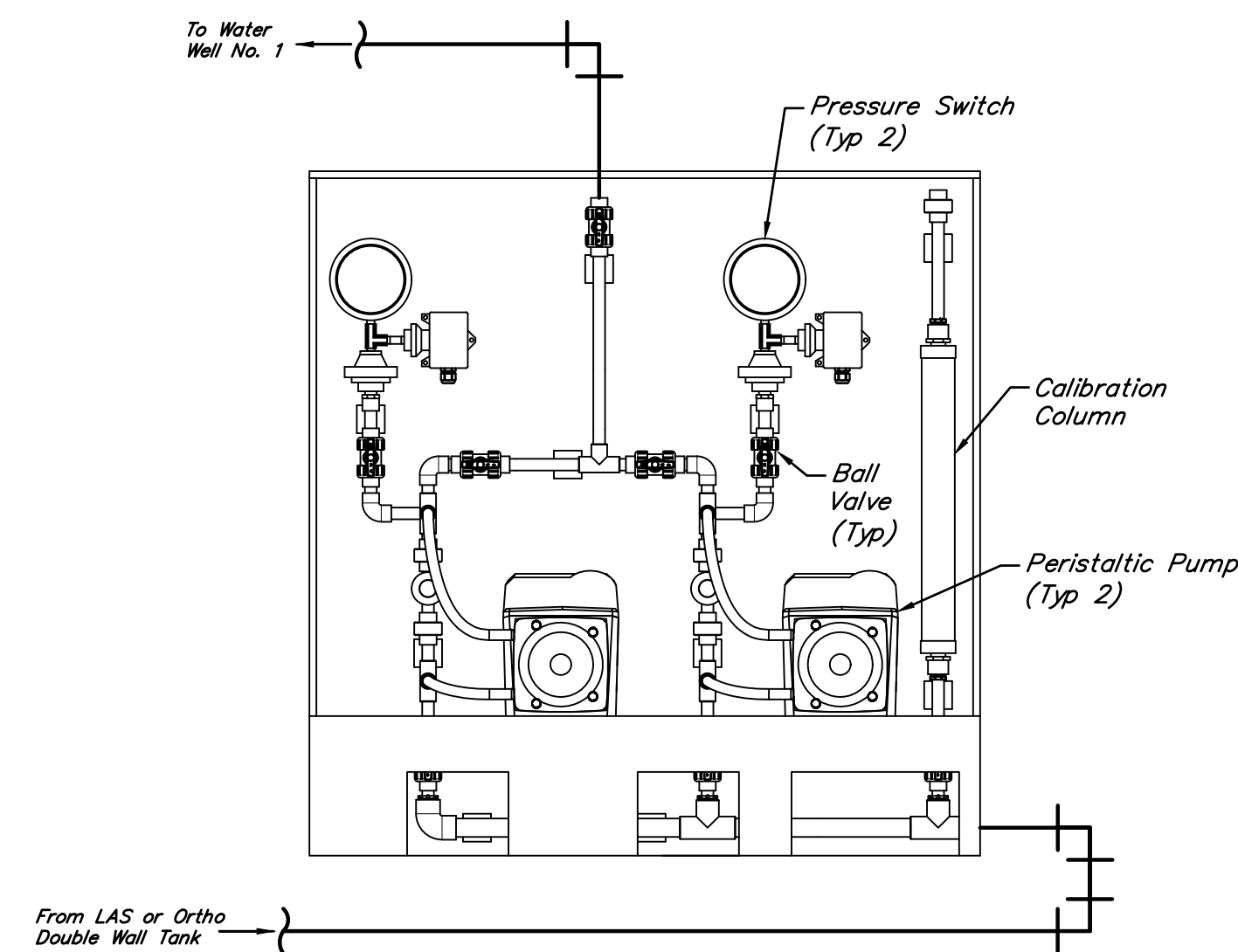
WATER	TRAFFIC & TRANSPORTATION
SEWER/WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
SHEET: BRIDGE	

FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.

FILE NO:	FOR CITY OF HOUSTON USE ONLY
JOB NO: 13889-0002-00	CITY DWG NO.
DATE: April 2018	
DCN. BY: MRKILLARY	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
M8	
SHEET No. 21 OF 47	

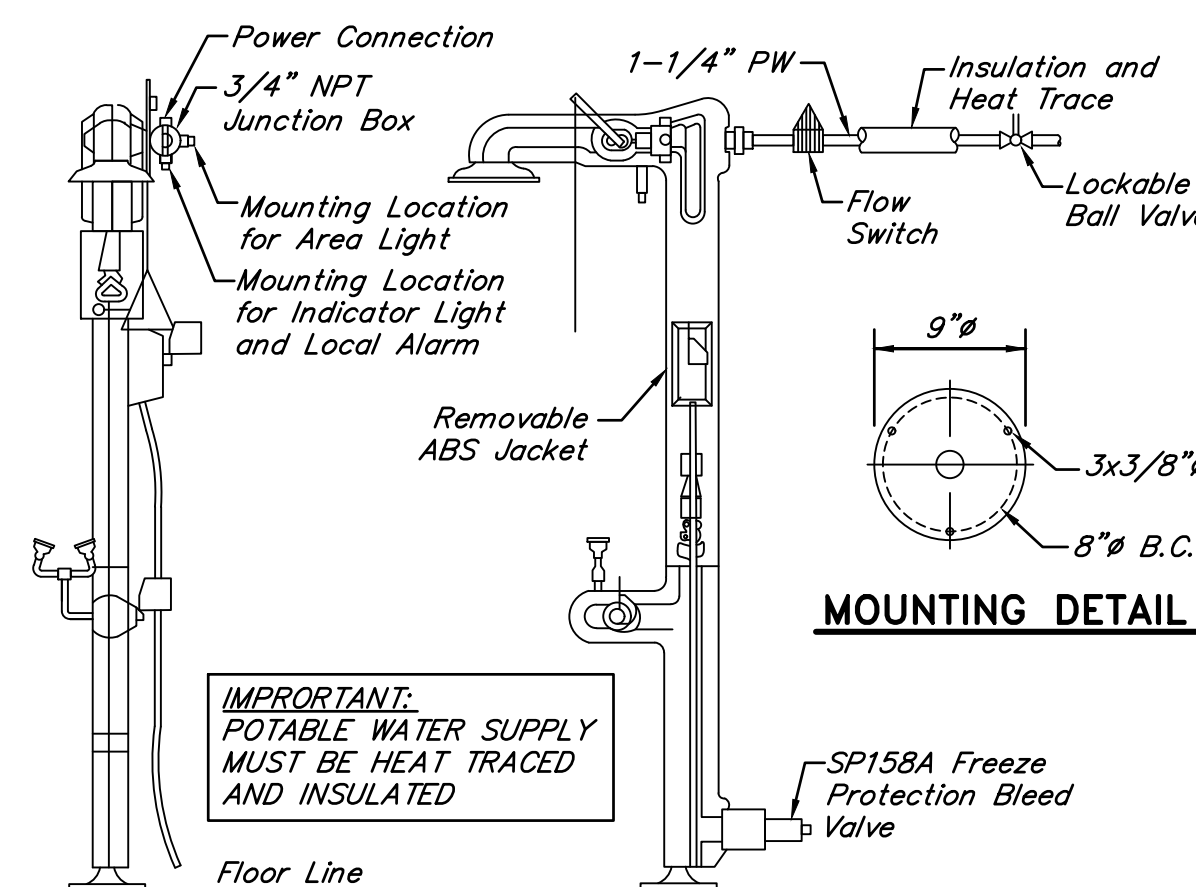


[Signature]
4-12-2018



PERISTALTIC PUMP SKID DETAIL

NOT TO SCALE



EMERGENCY SHOWER/EYEWASH DETAIL

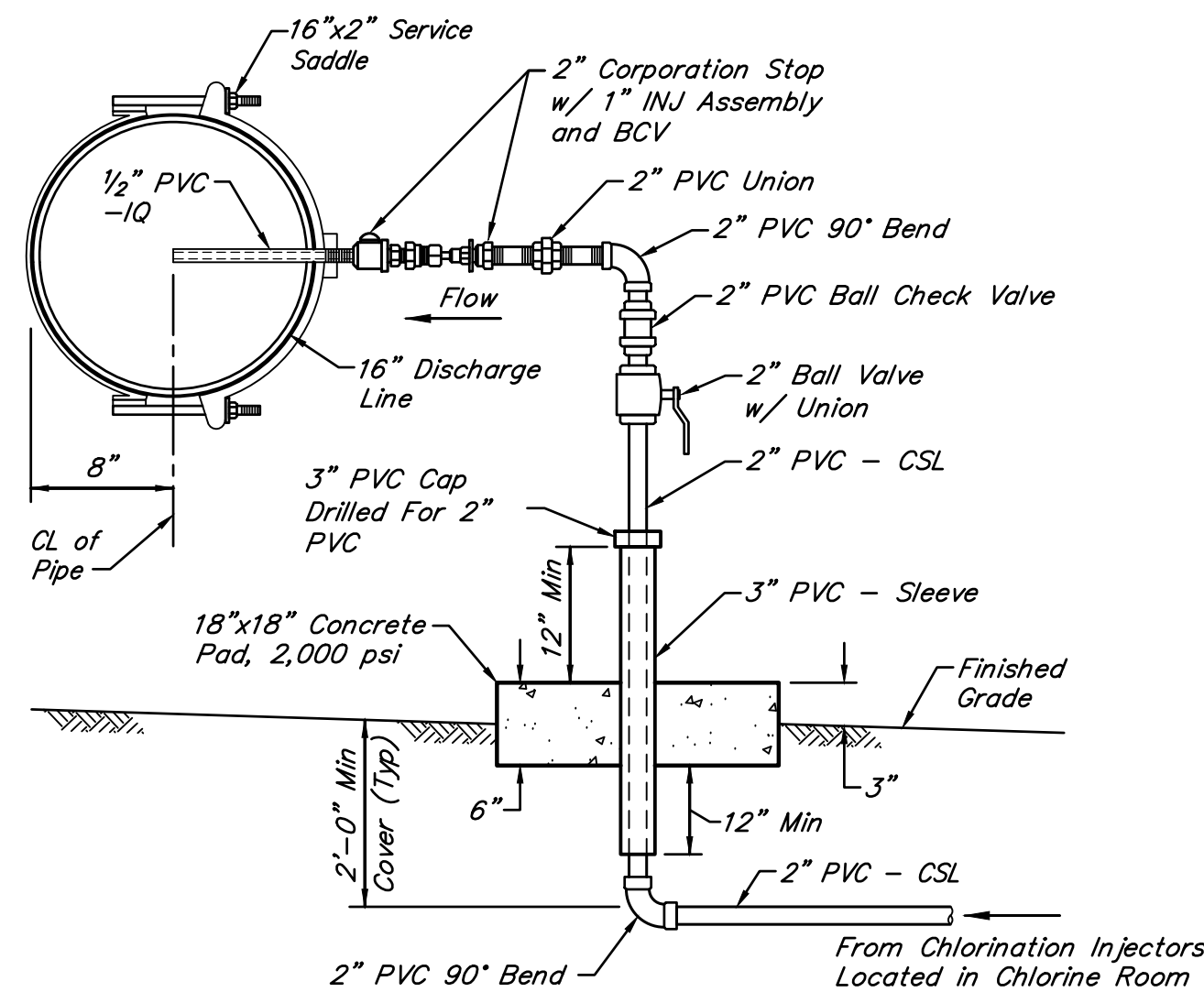
NOT TO SCALE

NOTES:

1. At the Contractor's option and depending on location of water supply location, the water supply can be connected at either manufacturer provided supply connection, top or bottom.
2. Interior shower same, except without removable abs jacket and insulation w/ heat trace.
3. Provide Bradley Corporation model S19-300B, Speakman model DE-7000 or approved equal.
4. Eyewash station shall be mounted to concrete pad with stainless steel bolts.

NOTE:

All proposed aboveground chemical solution injection lines exposed to weather are to be insulated.

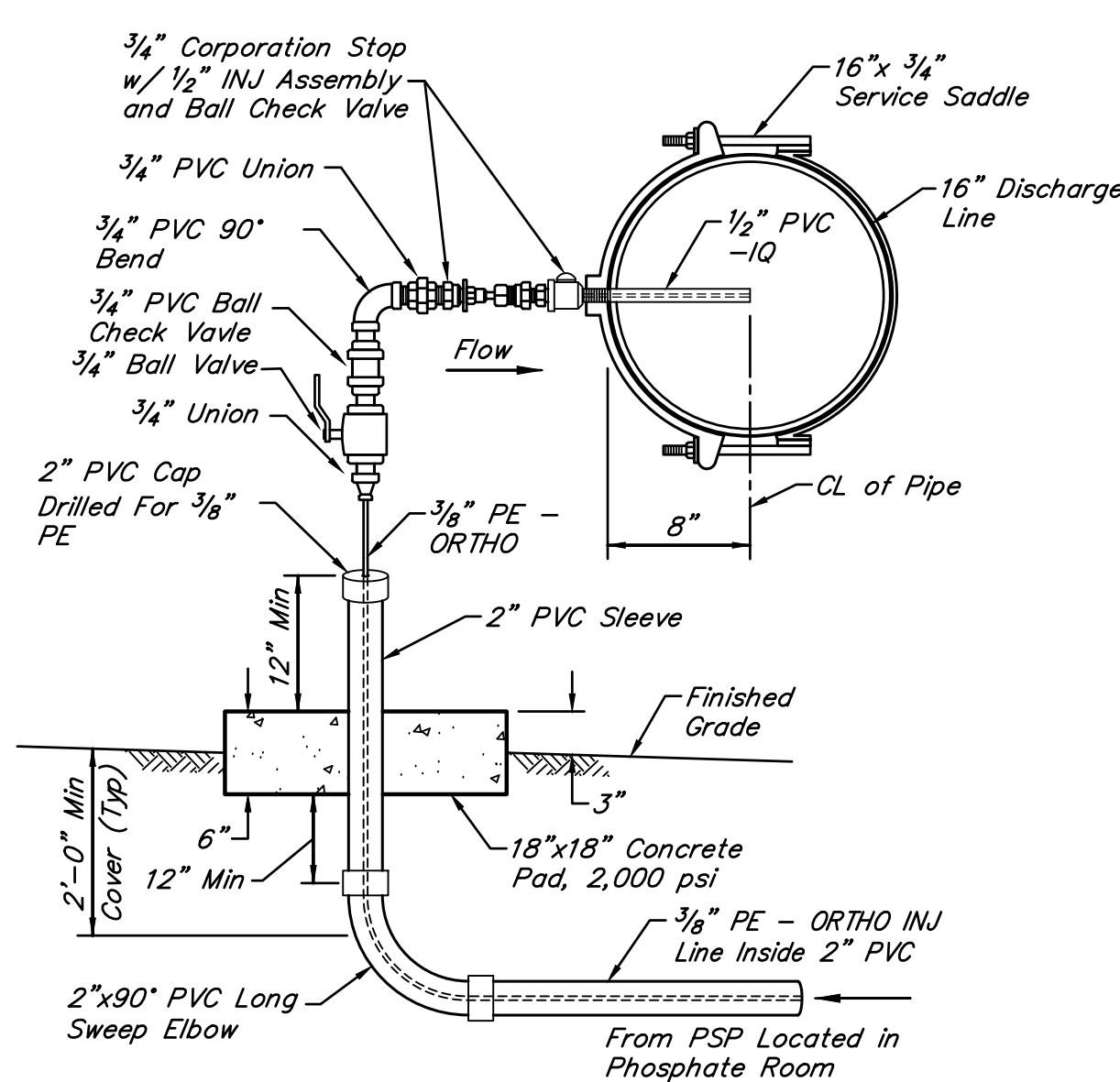


**CHLORINE SOLUTION (CSL)
INJECTION TAP DETAIL**

NOT TO SCALE

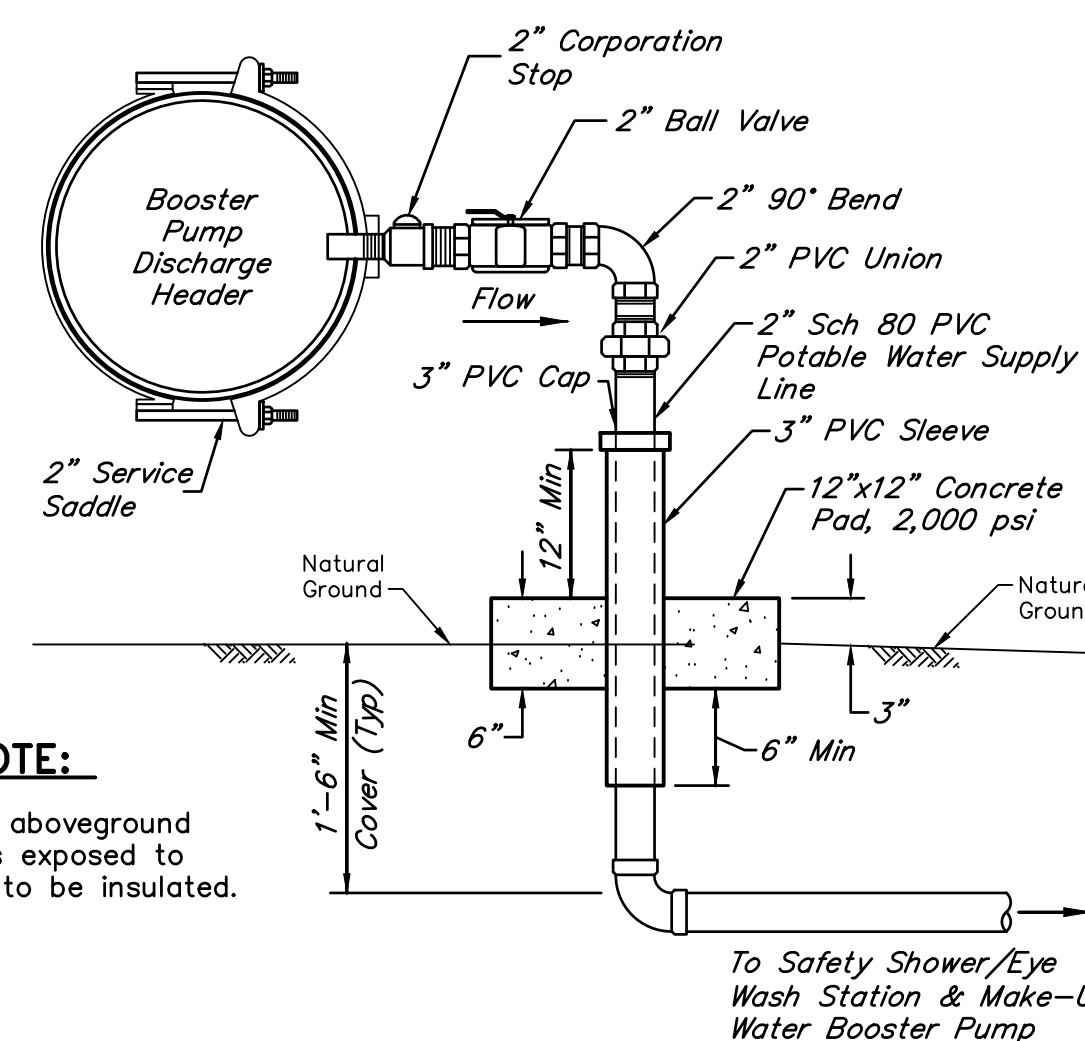
NOTE:

All proposed aboveground chemical solution injection lines exposed to weather are to be insulated.



ORTHO INJECTION TAP DETAIL

NOT TO SCALE

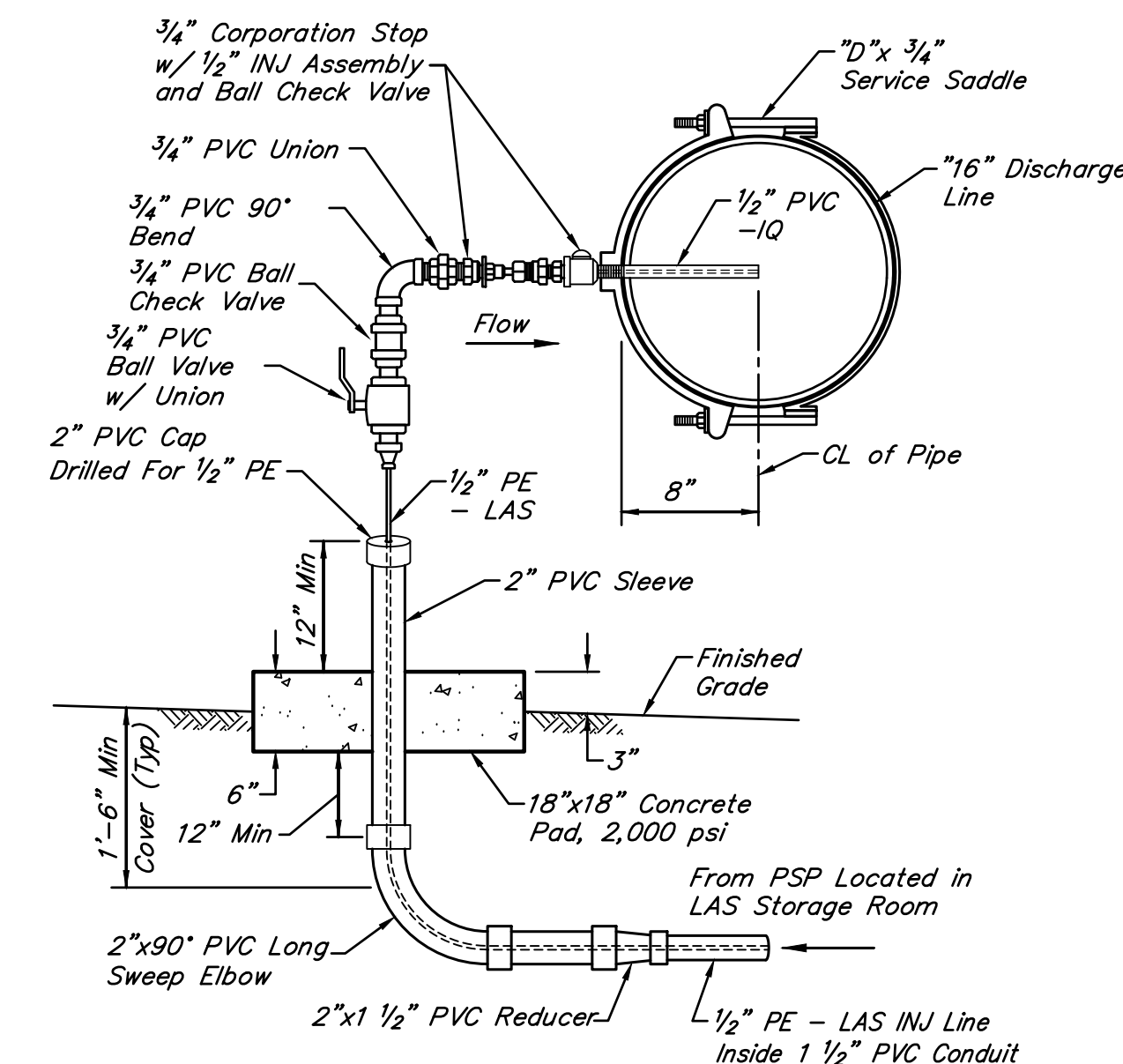


**POTABLE WATER (PW)
SUPPLY LINE TAP DETAIL**

NOT TO SCALE

NOTE:

All proposed aboveground solution lines exposed to weather are to be insulated.



CONTRACTOR NOTES:

- All proposed aboveground chemical injection lines exposed to weather are to be insulated.
- "D" is equal to the pipe diameter.

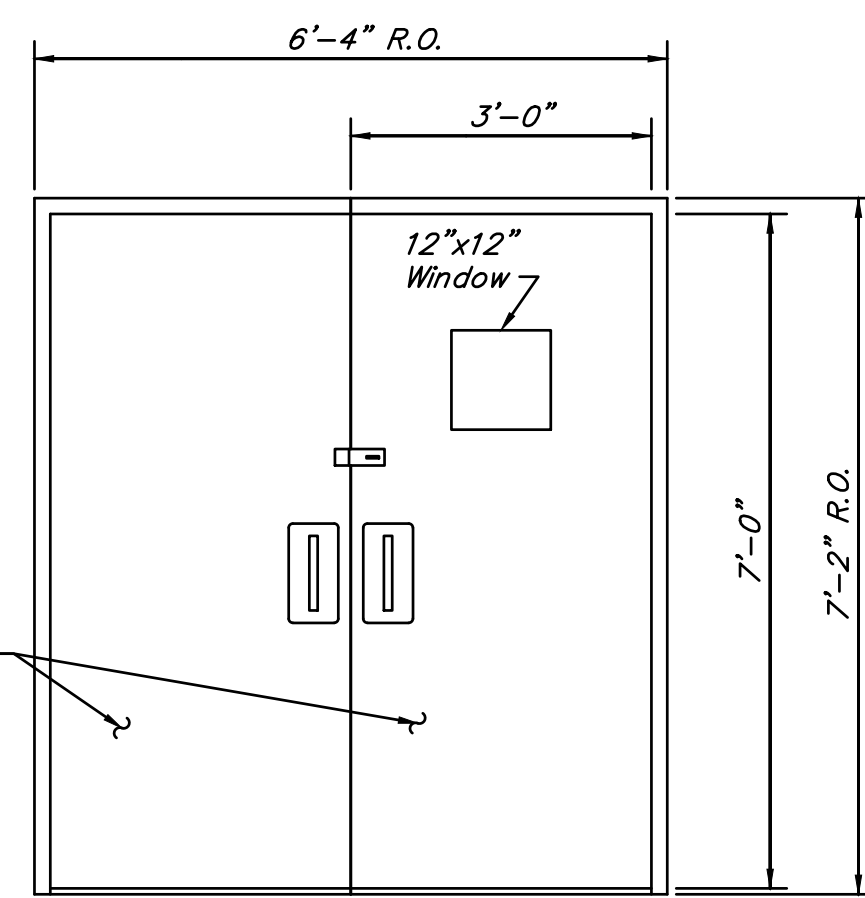
LAS INJECTION TAP DETAIL

NOT TO SCALE

PIPING NOTES:

- Contractor shall construct ALL POLY-TUBE solution lines encased in Schedule 80 PVC electrical conduit and use only long sweep elbows to allow tubing to be easily repaired and/or replaced in the future.
- All chemical injection lines and taps shall be constructed as per the referenced detail drawings unless approved otherwise by the Engineer prior to making any changes.
- All underground PVC piping and electrical conduit shall be laid free of stress with the longest available commercial standard lengths of pipe to minimize the number of joints. Whenever possible, the piping shall be bent in the trench using large radius curves to minimize the number of fittings used and reduce head loss in the pipe. The minimum bending radius of each type of PVC pipe shall not be smaller than the radius recommended by the pipe manufacturer.

DOOR SCHEDULE	
NO.	DESCRIPTION
01	36" WIDE x 84" WALK IN FRP CHEMICAL RESISTANT DOOR w/ EXHAUST LOUVER
02	60" WIDE x 84" DUAL WALK IN FRP CHEMICAL RESISTANT DOOR
03	76" WIDE x 84" DUAL WALK IN FRP CHEMICAL RESISTANT DOORS

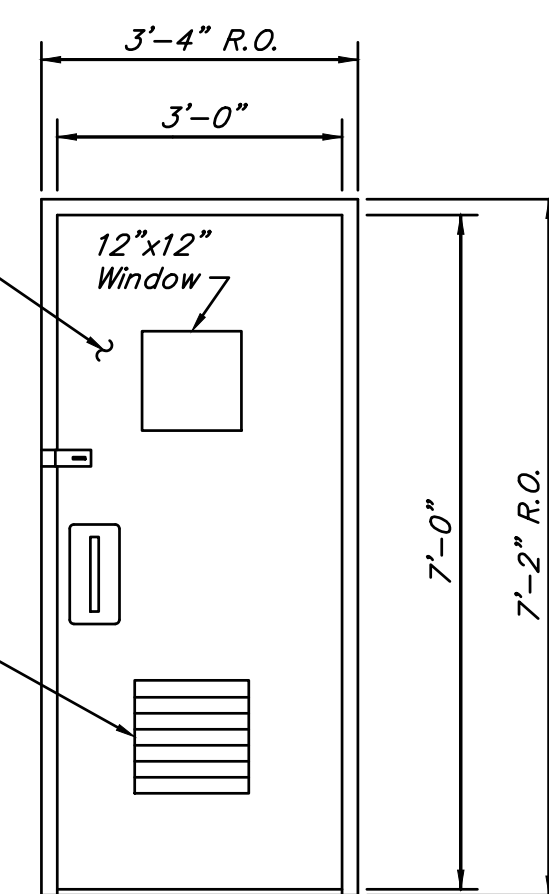


TYPICAL DUAL DOOR DETAIL

NOT TO SCALE

(5) 3'-0" x 7'-0" Insulated Flush Solid All FRP Chemical Resistant Door and Frame System w/ Lock Hasp, SS Hardware and Color to Match Building Exterior; Color to be Selected by the District

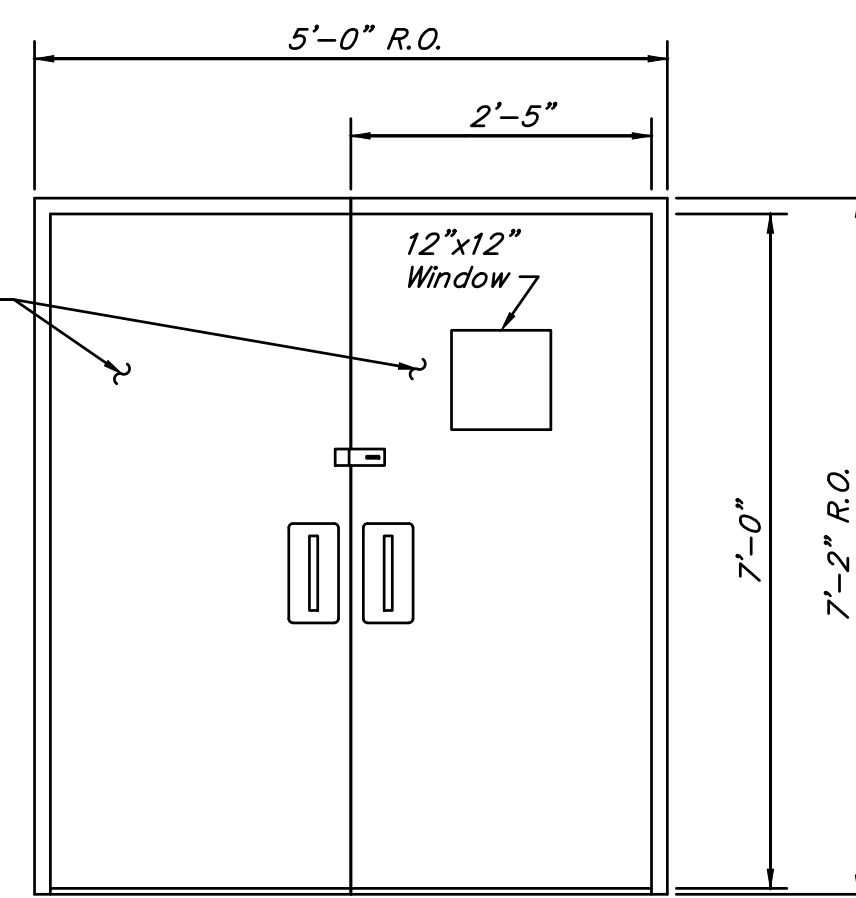
Min 1 1/2" Sq FRP Air Exhaust Louver for Chlorine Room, Typ (See Shts M7 & M8)



TYPICAL SINGLE DOOR DETAIL

NOT TO SCALE

(1) 2'-5" x 6'-0" Insulated Flush Solid All FRP Chemical Resistant Door and Frame System w/ Lock Hasp, SS Hardware and Color to Match Building Exterior; Color to be Selected by the District



ORTHO DUAL DOOR DETAIL

NOT TO SCALE

APPROVED: *[Signature]*
E&A DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	TJW
1	05/30/18	ISSUED FOR CONSTRUCTION	TJW

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
MISCELLANEOUS
MECHANICAL DETAILS
SHEET 2 OF 2

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

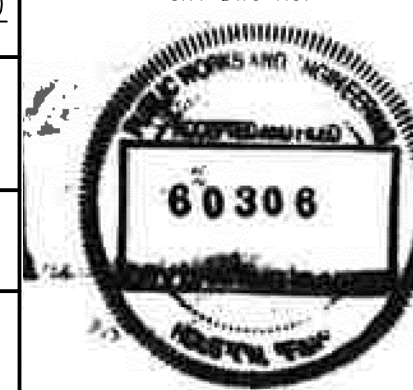
WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES

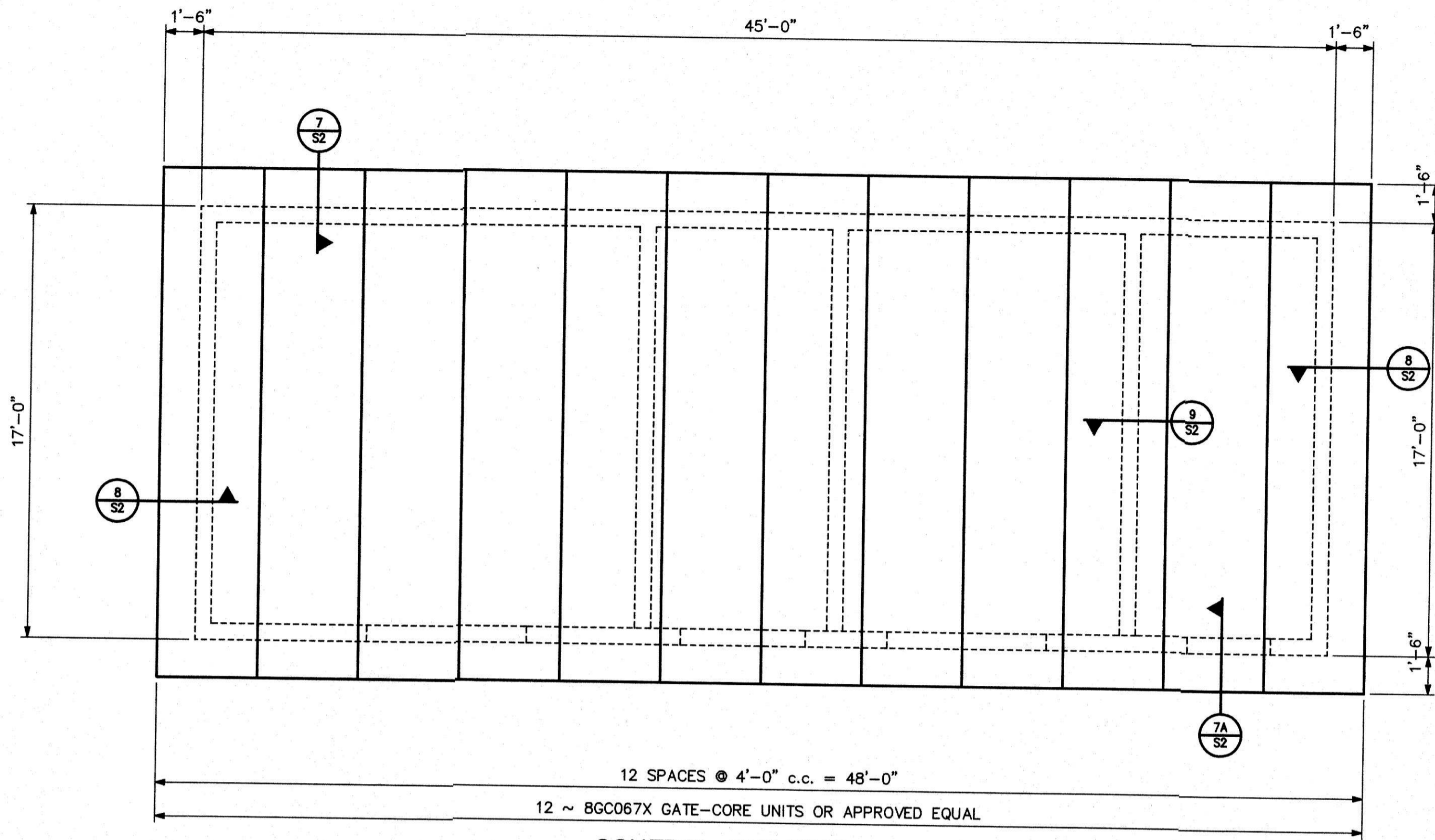
FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.

FILE NO:	13889-0002-00
DATE:	April 2018
DGN. BY:	MRKILLARY
DWG. BY:	JASTRUHAR
SCALE:	NO SCALE
M9	SHEET No. 22 OF 47

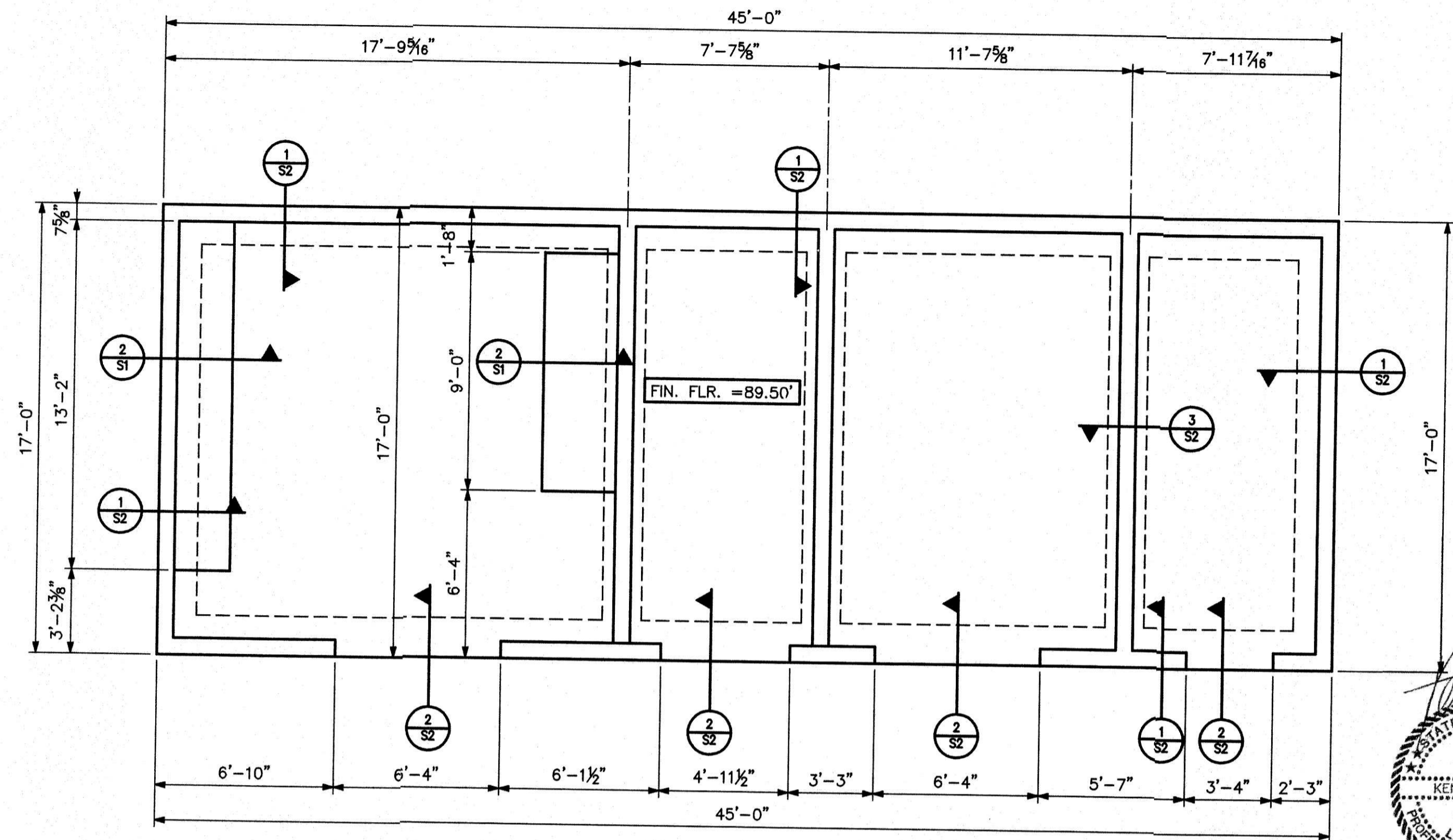


[Signature]
4-10-2018

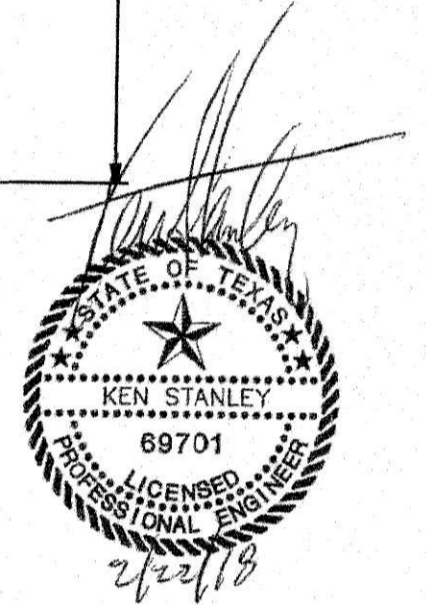




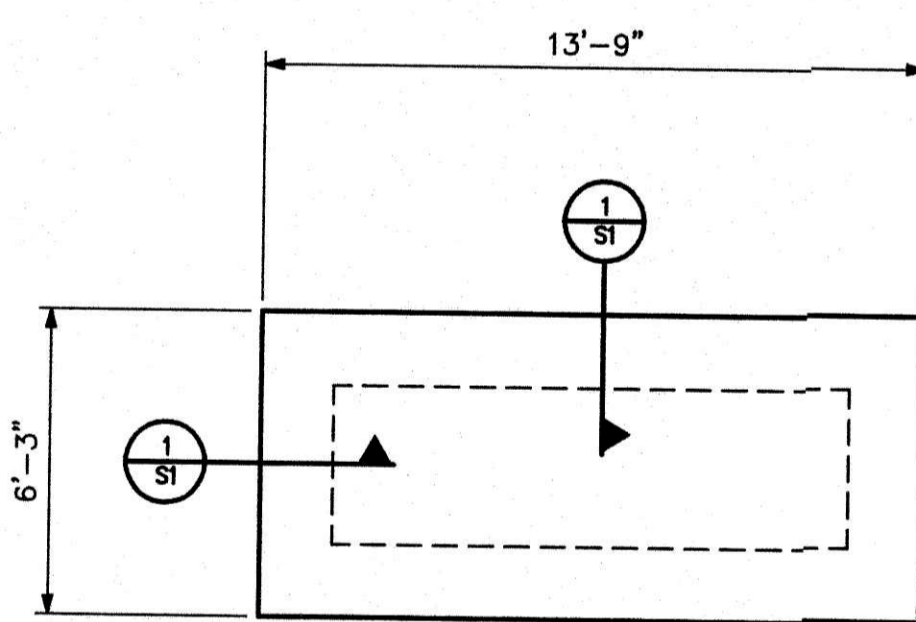
CONTROL BUILDING ROOF PLAN



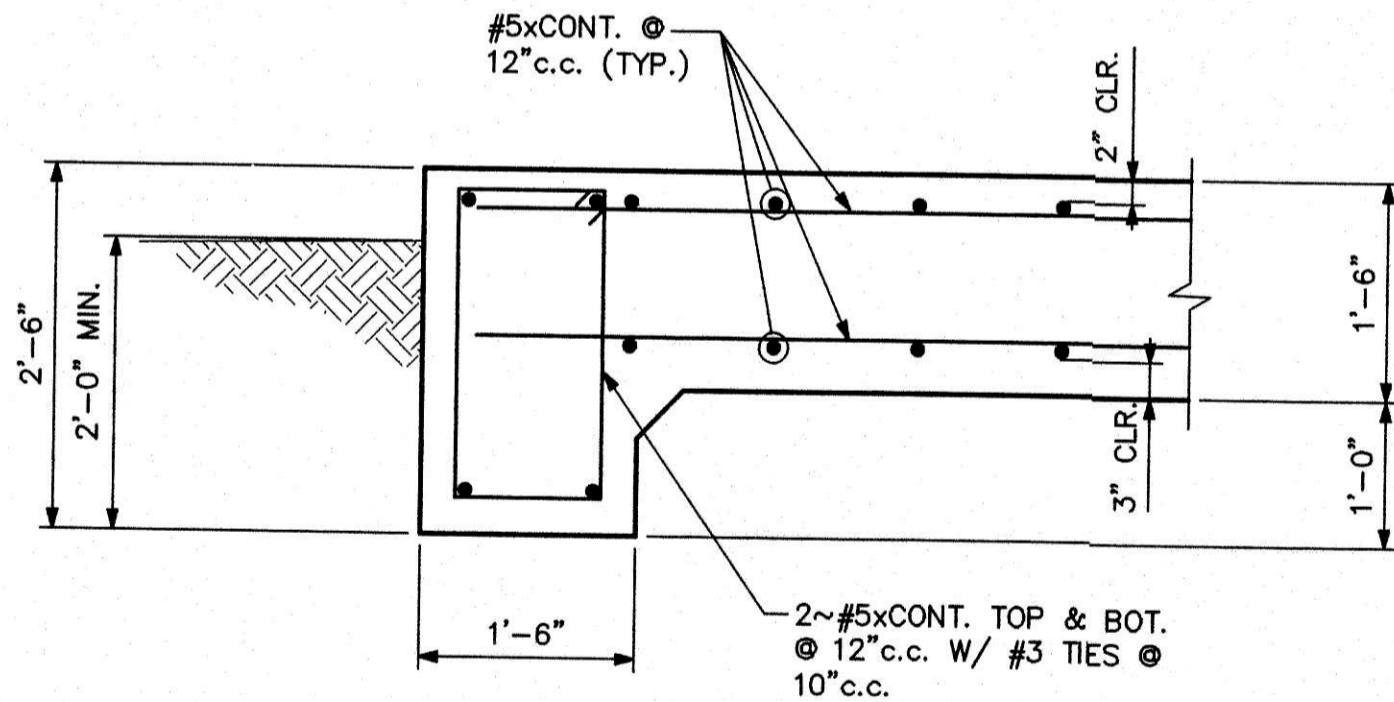
CONTROL BUILDING FOUNDATION PLAN



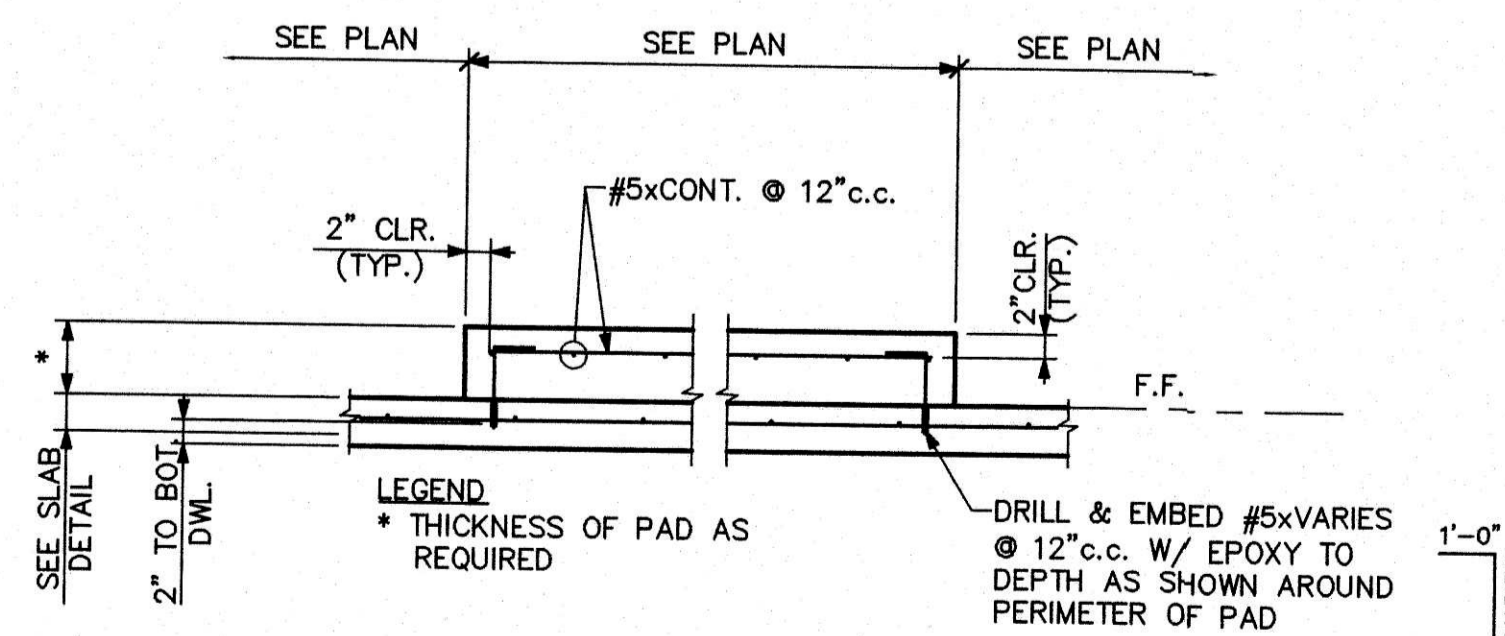
SLAB NOTE
 6" CONC. SLAB ON 10 MIL POLY FILM ON 2" MAX. SAND FILL. REINFORCE WITH #4 @ 18" c.c. IN CENTER OF SLAB. REMOVE TOP 2 FEET OF GRADE AND REPLACE WITH SELECT FILL. FOR SUBGRADE PREPARATION REFER TO GEOTECHNICAL INVESTIGATION BY NINYO & MOORE, REPORT NO. 700329045 DATED DECEMBER 2017.



GENERATOR PAD



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



2 Section
 SCALE: 3/4"=1'-0"

- GENERAL NOTES**
1. ALL CONCRETE SHALL TEST 4000 PSI AT 28 DAYS.
 2. ALL CONCRETE REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60. DETAILING AND FABRICATION OF CONCRETE REINFORCEMENT AND ACCESSORIES SHALL BE IN ACCORDANCE WITH ACI-315 LATEST EDITION.
 3. LAP ALL CONTINUOUS REINFORCING BARS 50 DIAMETERS AT SPLICES, TEES, AND CORNERS.
 4. THE USE OF HEAT TO FACILITATE THE BENDING OF REINFORCING BARS WILL NOT BE PERMITTED.
 5. NO ENGINEERING DRAWING MAY BE REPRODUCED FOR USE AS SHOP DRAWINGS.
 6. FOR SUBGRADE AND FOUNDATION PREPARATION, REMOVE 2 FEET OF EXISTING SOIL AND REPLACE WITH SELECT FILL COMPACTED TO 95% STANDARD PROCTOR. REFER TO GEOTECHNICAL INVESTIGATION BY NINYO & MOORE, REPORT NO. 700329045 DATED DECEMBER 2017.

STANLEY SPURLING & HAMILTON, INC.
 Consulting Engineering Services
 T.B.P.E. REGISTRATION #F-000175
 3301 Edloe Street, Suite 200 Houston, Texas 77027
 Phone 713-776-9433 Fax 713-776-2439
 E-MAIL: INFO@SSHINC.NET 0010-1219

NO. DATE APP.

FORT BEND COUNTY M.U.D. NO. 134E
 FORT BEND COUNTY, TEXAS

JC JONES CARTER
 Texas Board of Professional Engineers Registration No. F-439
 6330 West Loop South, Suite 150 • Belaire, TX 77401 • 713.777.5337

HARVEST GREEN WATER PLANT NO.1 CONTROL BUILDING & GENERATOR PLANS AND SECTIONS

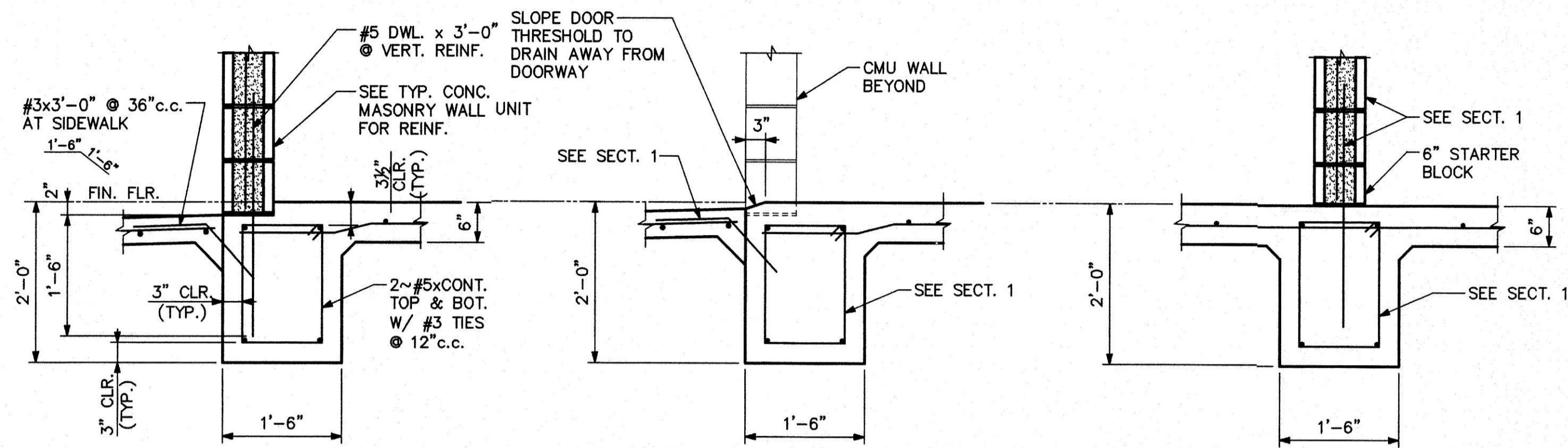
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: 0010-1219 S1.DWG
 JOB NO: 13889-0002-00
 DATE: FEBRUARY 2018
 DGN. BY: RP
 DWG. BY: SS
 SCALE: AS NOTED

SHEET NO. 23 OF 47



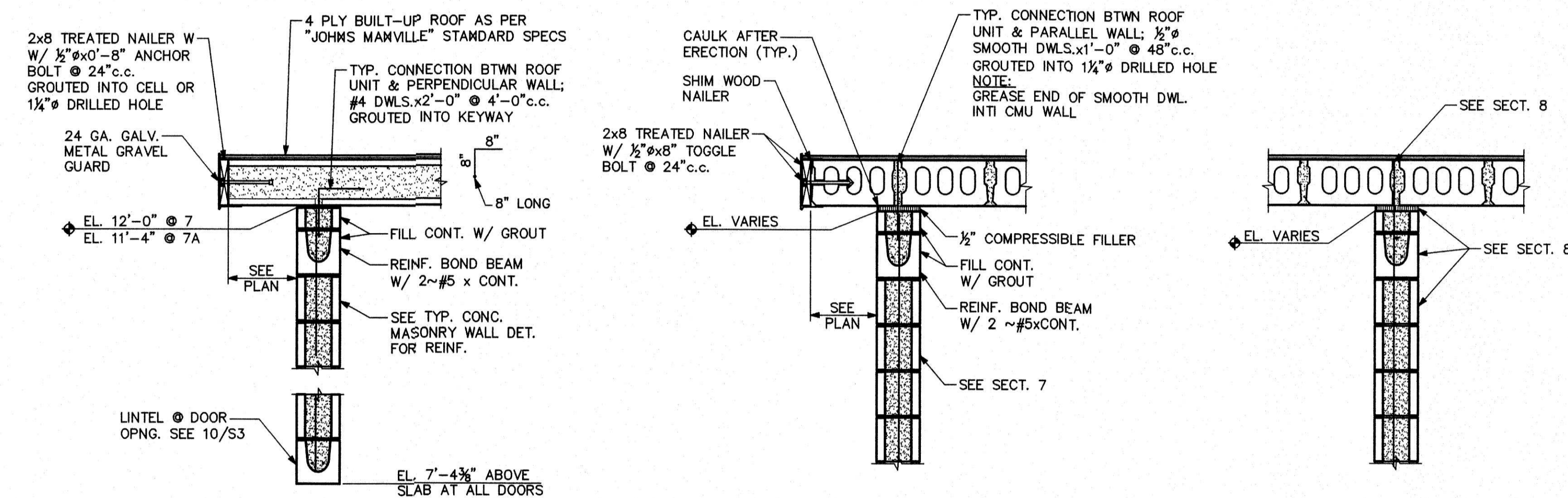
1 Section
S1 SCALE: 3/4"=1'-0"

2 Section
S1 SCALE: 3/4"=1'-0"

3 Section
S1 SCALE: 3/4"=1'-0"

4 Section
S2 SCALE: 3/4"=1'-0"

6 Typical Rebar Cap Detail
S2 SCALE: 3/4"=1'-0"

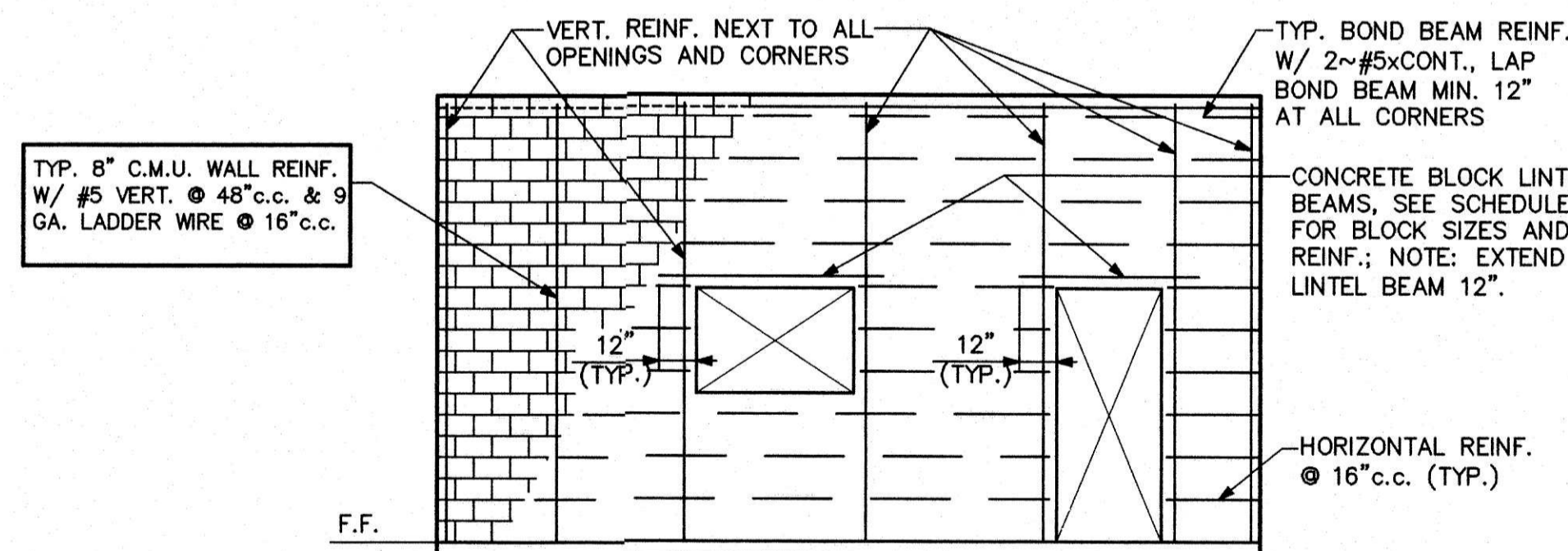


7 Section
S1 SCALE: 3/4"=1'-0"

7A Section
S1 SCALE: 3/4"=1'-0"

8 Section
S1 SCALE: 3/4"=1'-0"

9 Section
S1 SCALE: 3/4"=1'-0"



MIN. REBAR LAP SCHEDULE FOR f'm = 1,500 psi

BAR SIZE	16" CMU	8" CMU	10" CMU	12" CMU
#3	12"	12"	12"	12"
#4	20"	15"	12"	12"
#5	32"	23"	18"	15"
#6	54"	43"	34"	28"
#7	NA	60"	46"	38"
#8	NA	72"	71"	57"
#9	NA	NA	82"	74"

CONCRETE MASONRY NOTES

- CONCRETE MASONRY UNITS AND CONSTRUCTION TO BE PER "NATIONAL CONCRETE MASONRY ASSOCIATION" RECOMMENDATIONS (WHERE NOT COVERED BY THE LOCAL BUILDING CODE).
- ALL MASONRY GROUT TO BE PER TABLE 1 (THIS SHEET); ALL MORTAR PER TABLE 2 (THIS SHEET).
- FILL CELLS WITH GROUT AT VERTICAL REINFORCEMENT.
- CAST-IN-ANCHORS EMBEDDED IN CONCRETE MASONRY SHALL EXTEND BEYOND REINFORCING 1" MIN.
- COMPRESSIVE STRENGTH OF MASONRY SHALL BE 1500 PSI AT 28 DAYS.
- CMU SHALL BE PLACED IN A RUNNING BOND PATTERN UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS.

CONCRETE BLOCK LINTEL SCHEDULE

WALL THICKNESS	4'-6"	9'-0"
4"	GROUT 1 COURSE 1~#4 CONT.	#3 STIRRUPS @ 16" c.c. GROUT 2 COURSES 1~#4 CONT.
6" 8" 12"	GROUT 1 COURSE 1~#5 CONT.	#3 STIRRUPS @ 16" c.c. GROUT 2 COURSES 2~#5 CONT. TOP & BOT.

TABLE 1. GROUT PROPORTIONS BY VOLUME

TYPE	PARTS BY VOLUME OF PORTLAND CEMENT OR PORTLAND BLAST-FURNACE SLAG CEMENT		PARTS BY VOLUME OF HYDRATED LIME OR LIME PUTTY		AGGREGATE MEASURED IN DAMP, LOOSE CONDITION	
	FINE GROUT (<4" WIDE CAVITY)	COARSE GROUT (>4" WIDE CAVITY)	FINE	COARSE	FINE	COARSE
	1	1	0 TO 1/10	0 TO 1/10	2 1/2 TO 3 TIMES THE SUM OF THE VOLUMES OF THE CEMENTITIOUS MATERIAL	1 TO 2 TIMES THE SUM OF THE VOLUMES OF THE CEMENTITIOUS MATERIAL

TABLE 2. MORTAR PROPORTIONS BY VOLUME

MATERIAL	TYPE	PORTLAND CEMENT OR BLENDED CEMENT		HYDRATED LIME OR LIME PUTTY	AGGREGATE RATIO (MEASURE IN DAMP, LOOSE CONDITION)
		CEMENT LIME	MASONRY CEMENT		
CEMENT LIME	S	1	...	OVER 1/4 TO 1/2	NOT LESS THAN 2 1/2 & NOT MORE THAN 3 TIMES THE SUM OF THE SEPARATE VOLUMES OF CEMENTITIOUS MATERIALS
MASONRY/CEMENT	S	1/2	1

NOTE: CONTROL JOINTS SHALL BE LOCATED AT THE FOLLOWING

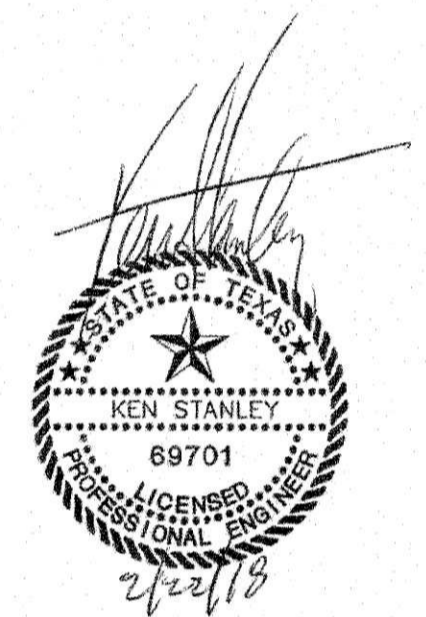
- AT ALL CHANGES IN WALL HEIGHT.
- AT ALL CHANGES IN WALL THICKNESS SUCH AS CHASES, COLUMNS OR PILASTERS.
- AT (ABOVE) MOVEMENT JOINTS IN FOUNDATIONS AND FLOORS.
- AT (BELOW) MOVEMENT JOINTS IN ROOFS AND FLOORS THAT BEAR ON A WALL.
- ADJACENT TO CORNERS OF WALLS OR INTERSECTIONS WITHIN A DISTANCE OF ONE-HALF THE NORMAL CONTROL JOINT SPACING.
- CONTROL JOINTS SHALL BE SPACED NO MORE THAN 25'-0" APART.

LOOSE LINTEL SCHEDULE

SPAN	LINTEL	SPAN	LINTEL
0' TO 6'	L3 1/2 x 3 1/2 x 1/4	8' TO 9'	L5 x 3 1/2 x 3/8
6' TO 7'	L4 x 3 1/2 x 1/4	9' TO 10'	L6 x 3 1/2 x 3/8
7' TO 8'	L4 x 3 1/2 x 3/8	10' TO 12'	L7 x 4 x 3/8

LOOSE LINTEL MIN. BEARING OF 8".

10 Section
S2 T.N.S.



SH STANLEY SPURLING & HAMILTON, INC.
Consulting Engineering Services
T.B.P.E. REGISTRATION # F-000175

3301 Edloe Street, Suite 200 Houston, Texas 77027
Phone 713-776-9433 Fax 713-776-2439

E-MAIL: INFO@SSHINC.NET 0010-1219

NO.	DATE	APP.

FORT BEND COUNTY M.U.D. NO. 134E
FORT BEND COUNTY, TEXAS

J/C JONES CARTER
Texas Board of Professional Engineers Registration No. F-439
6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337

HARVEST GREEN
WATER PLANT NO.1
CONTROL BUILDING
STRUCTURAL SECTIONS

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: 0010-1219 S2.DWG FOR CITY OF HOUSTON USE ONLY
JOB NO: 13889-0002-00 CITY DWG NO.

DATE: FEBRUARY 2018
DGN. BY: RP
DWG. BY: SS

SCALE: AS NOTED

ELECTRICAL PLAN SHEET SYMBOLS

CONTROL DIAGRAM SYMBOL LEGEND

ONE-LINE DIAGRAM LEGEND

Table with 4 columns: SYMBOL, DESCRIPTION, SYMBOL, DESCRIPTION. Lists various electrical symbols like light fixtures, switches, conduits, and their descriptions.

Table with 4 columns: SYMBOL, DESCRIPTION, SYMBOL, DESCRIPTION. Lists control diagram symbols like control relays, time delay relays, and switches.

Table with 4 columns: SYMBOL, DESCRIPTION, SYMBOL, DESCRIPTION. Lists one-line diagram symbols like circuit breakers, motor starters, and transformers.

ABBREVIATIONS

Table listing various abbreviations and their meanings, such as AMP, CONDUIT, MILLISECOND, and MOTOR TEMPERATURE SWITCH.

NOTES:

- 1. All construction shall comply with local and national codes and requirements.
2. Conduits shall not be routed across walkways, paths of access, travel, or egress.
3. Field verify exact location of all underground pipes, conduits, and structures before digging.

APPROVED: [Signature] F.E.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

Table with 3 columns: NO., DATE, REVISIONS. Includes a row for 'ISSUED FOR CONSTRUCTION'.

FORT BEND COUNTY M.U.D. No. 134E FORT BEND COUNTY, TEXAS

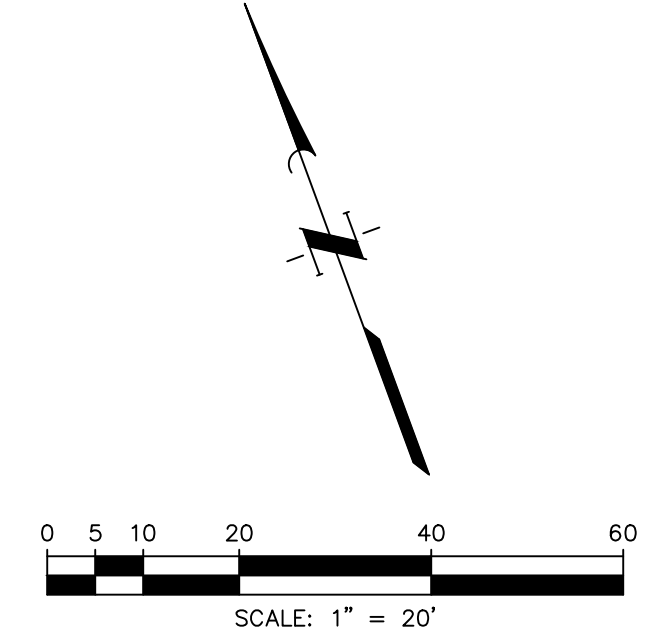
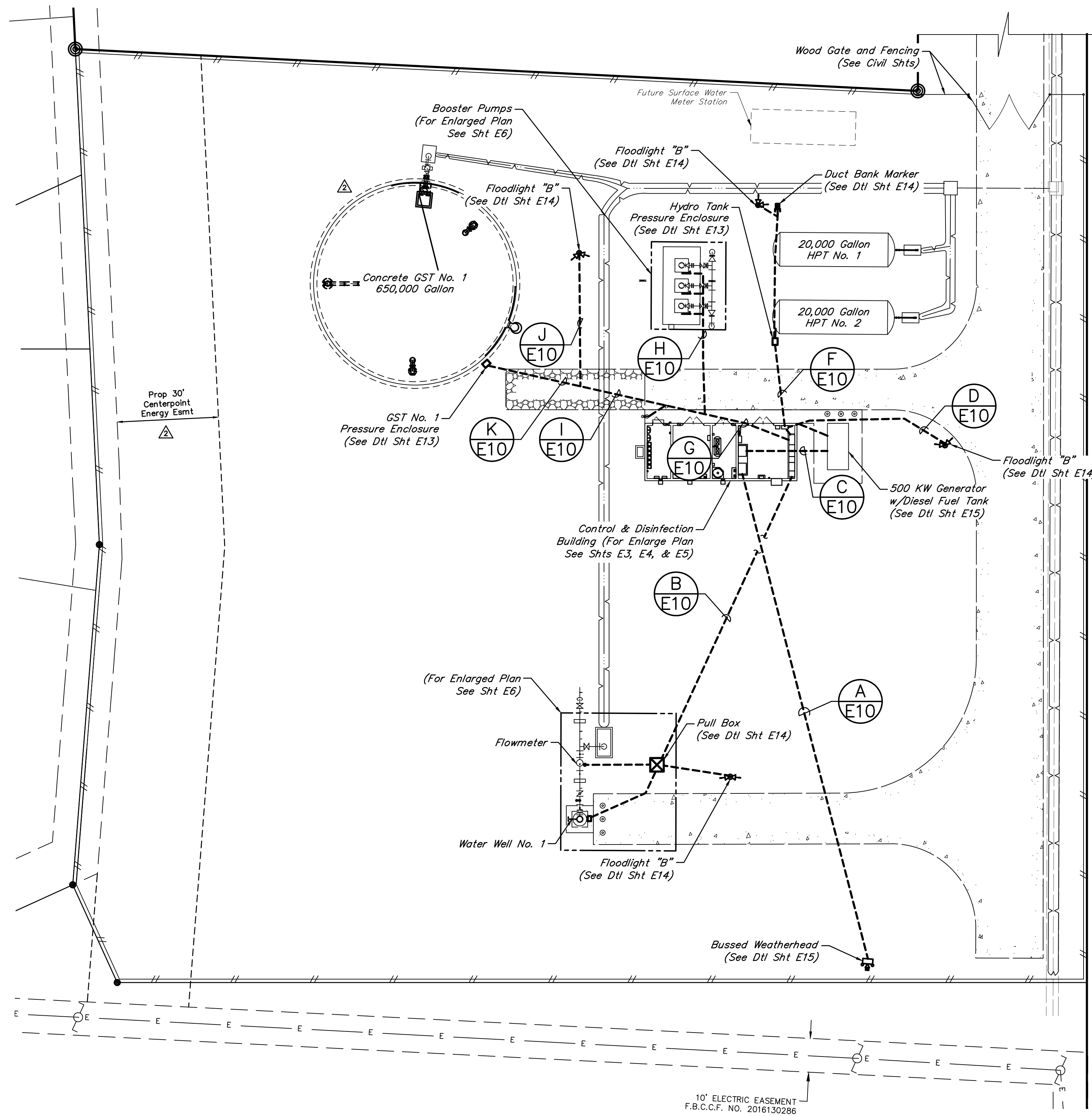
JONES CARTER logo and project information: HARVEST GREEN WATER PLANT No. 1 ELECTRICAL LEGENDS & SCHEDULES

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON logo and various departmental signatures for Traffic & Transportation, Storm Water Quality, and Facilities.

Professional Engineer seal for Brian S. Dong, License No. 108528, and project file information.

Handwritten signature and date: 4-12-18



APPROVED: *[Signature]*
 E.I.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
△	05/21/18	REVISED PER GST RELOCATION	BSC
△	05/20/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



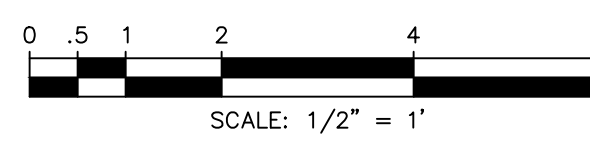
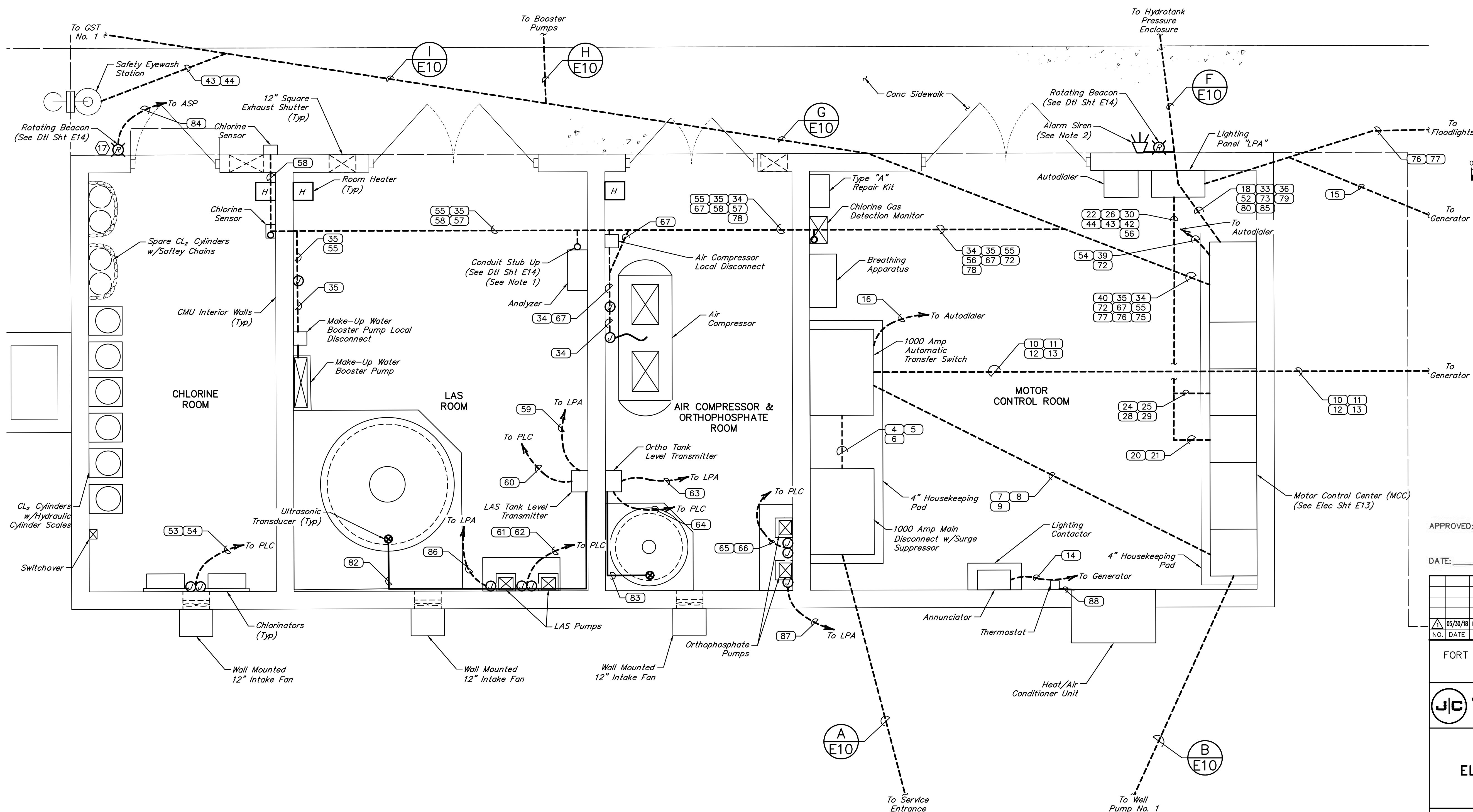
HARVEST GREEN WATER PLANT No. 1

ELECTRICAL SITE LAYOUT

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER <i>[Signature]</i>	TRAFFIC & TRANSPORTATION
SEWER <i>[Signature]</i>	STORM WATER QUALITY
STORM <i>[Signature]</i>	FACILITIES <i>[Signature]</i>
STREET & BRIDGE	

FILE NO: JOB NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018 DGN. BY: KADOMINGUEZ DWG. BY: JASTRUHAR	
SCALE: 1:20	
E2 SHEET No. 27 OF 47	



NOTES:

1. Conduit stub ups shall be capped and sealed.
2. Alarm siren shall be mounted to the edge of the roof using stainless steel hardware and straps.

APPROVED: *[Signature]*
REG DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



**HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL BUILDING
POWER LAYOUT**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

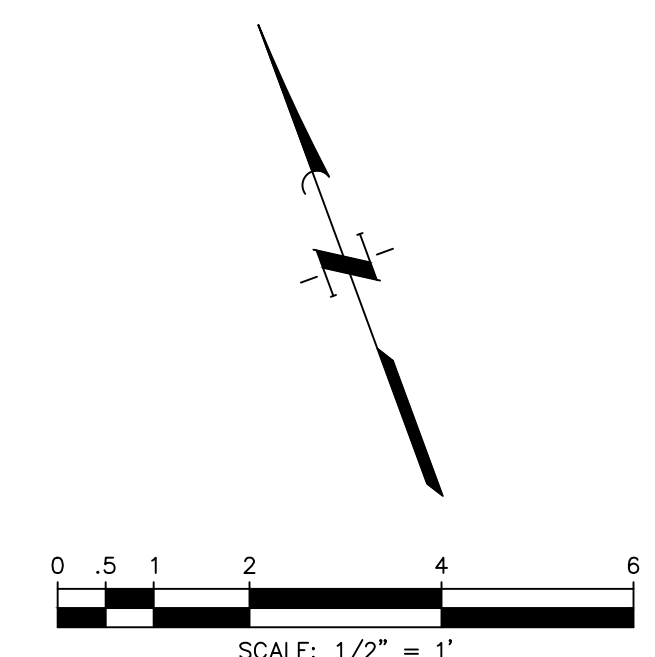
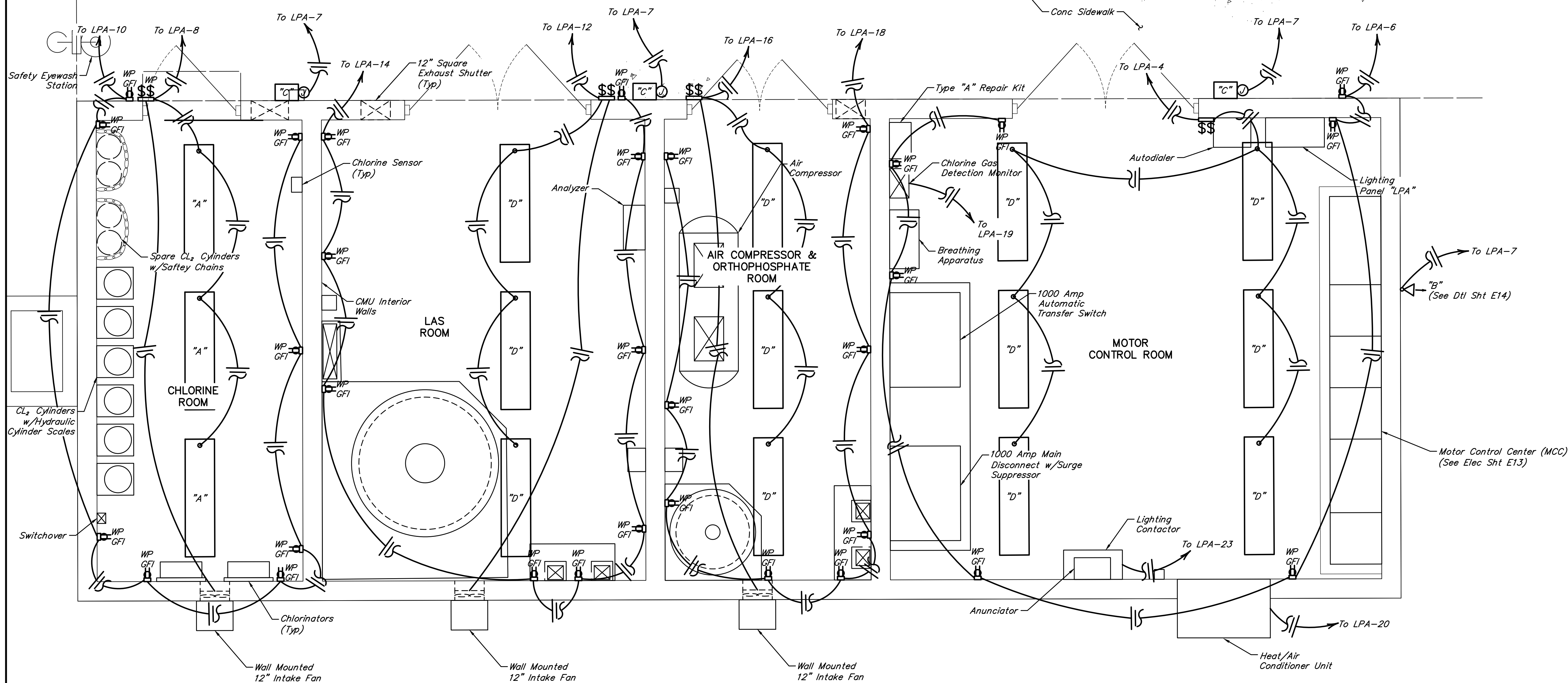
FILE NO: 13889-0002-00
JOB NO: 13889-0002-00

DATE: April 2018
 DGN. BY: KADOMINGUEZ
 DWG. BY: JASTRUJAR
 SCALE: AS SHOWN
 SHEET No. 28 OF 47



CONTROL BUILDING POWER LAYOUT

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



NOTES:

- 1. Routing is diagrammatic only, contractor shall route conduit best way minimizing bends.

APPROVED: *[Signature]*
 DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BS C

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



**HARVEST GREEN
 WATER PLANT No. 1
 ELECTRICAL BUILDING
 LIGHTING LAYOUT**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: 13889-0002-00
 JOB NO: 13889-0002-00

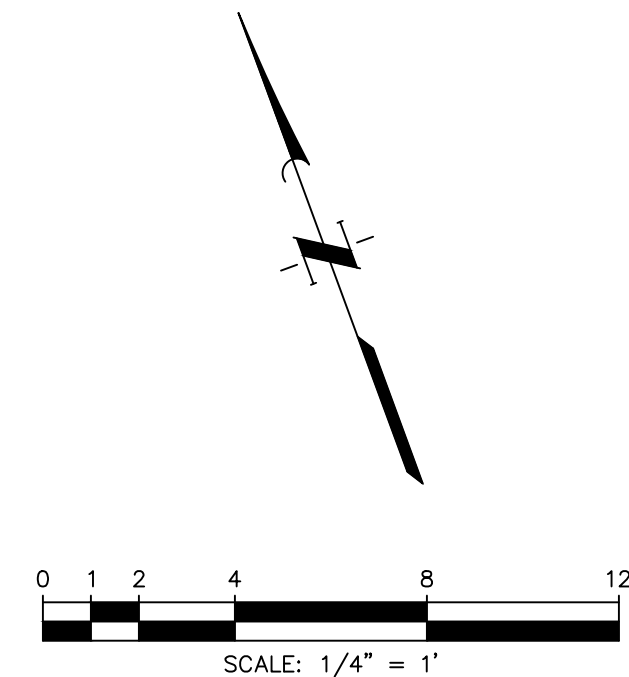
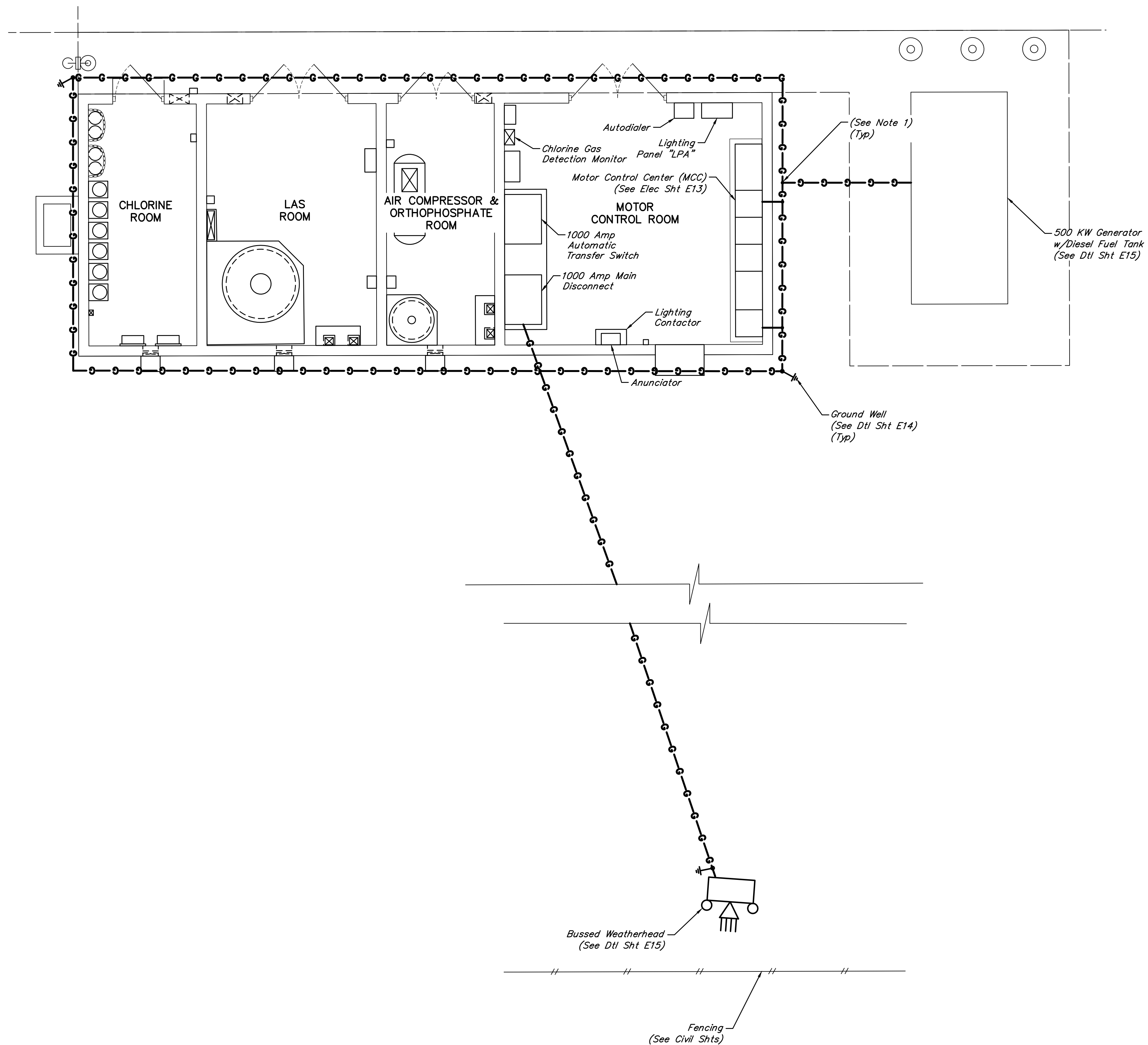
DATE: April 2018
 DGN. BY: KADOMINGUEZ
 DWG. BY: JASTRUHAR
 SCALE: 1/2"=1"

E4
 SHEET No. 29 OF 47



CONTROL BUILDING LIGHTING LAYOUT

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



NOTES:

1. Exothermic welding for ground loop shall be used.

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
Δ 05/30/18		ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



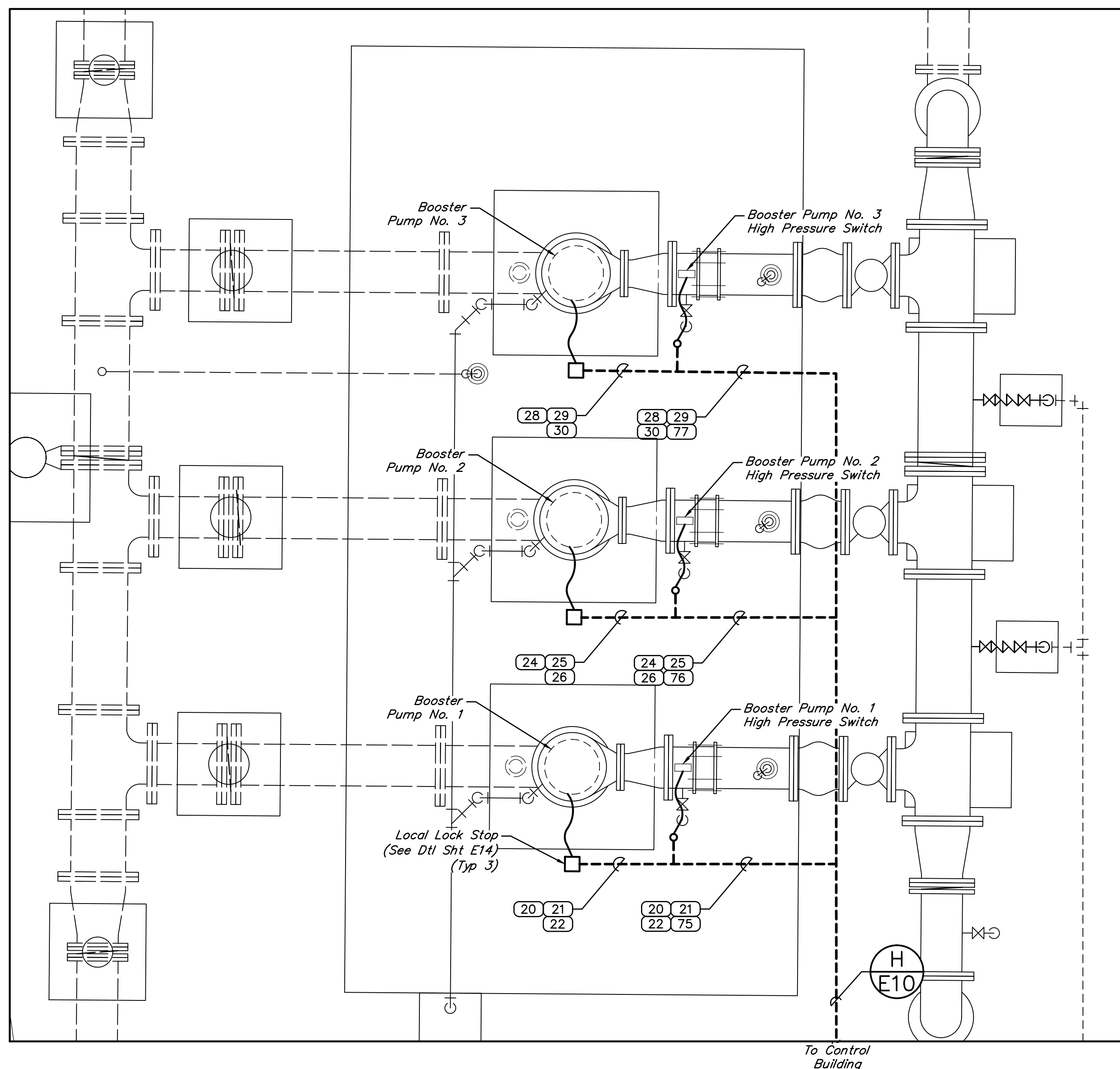
HARVEST GREEN
 WATER PLANT No. 1
**ELECTRICAL BUILDING
 GROUNDING LAYOUT**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
 AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	UTILITIES
STREET & BRIDGE	

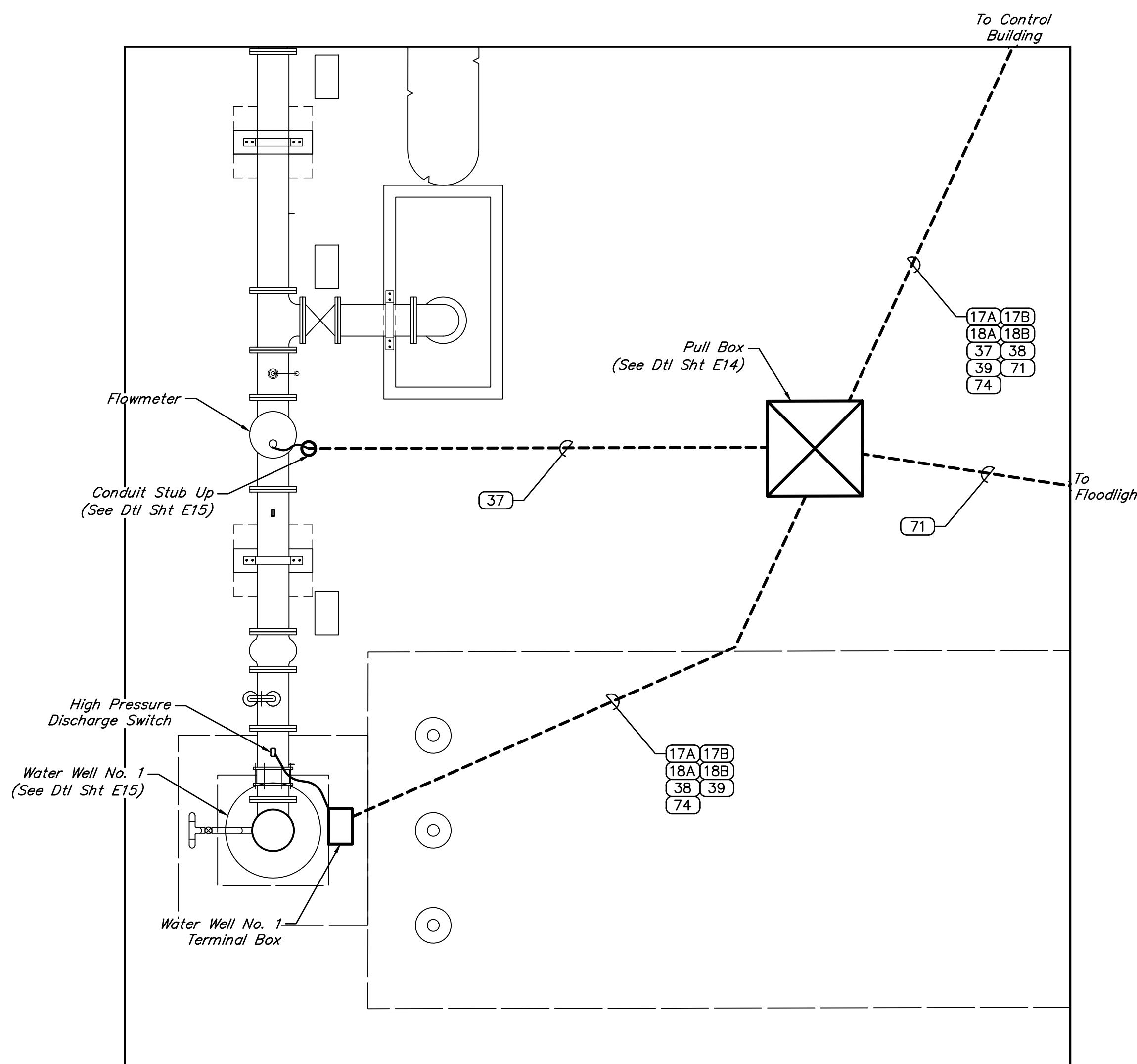
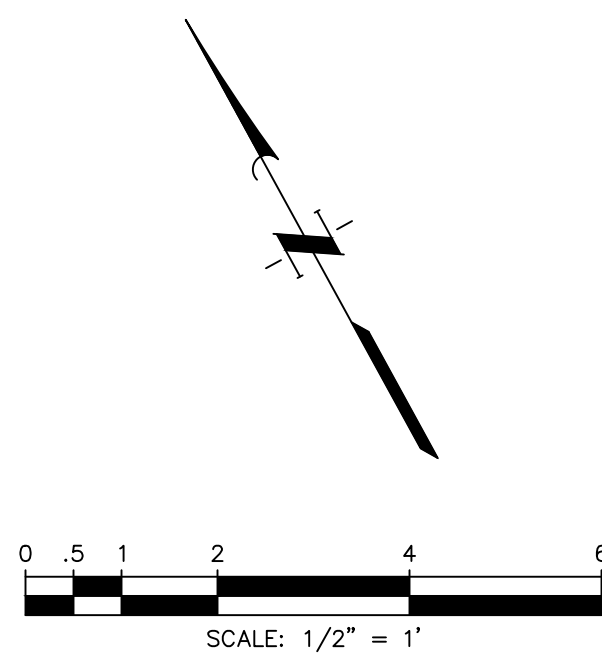
FILE NO: JOB NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018	
DGN. BY: KADOMINGUEZ	
DWG. BY: JASTRUHAR	
SCALE: AS SHOWN	

CONTROL BUILDING GROUNDING LAYOUT
 SCALE: 1/4" = 1'-0"



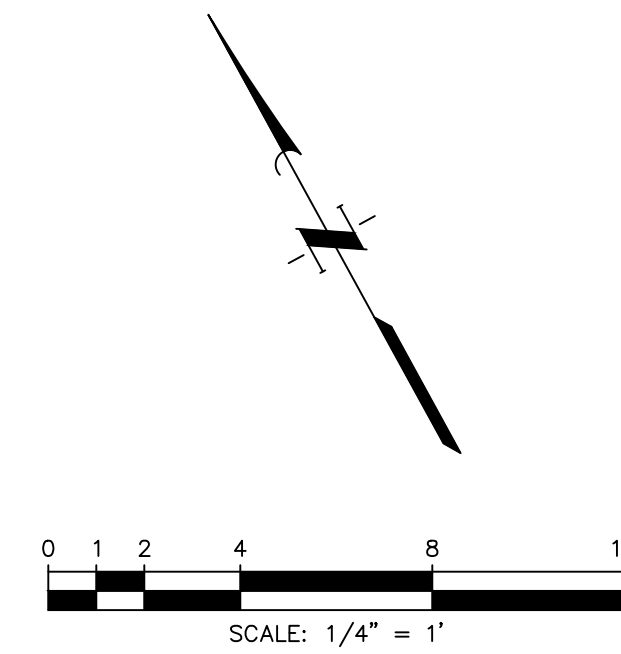
BOOSTER PUMPS ELECTRICAL LAYOUT

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



WATER WELL NO. 1 ELECTRICAL LAYOUT

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



APPROVED: *[Signature]*
CITY DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
Δ 05/30/18		ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



**HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL BOOSTER PUMPS
& WATER WELL NO. 1
LAYOUTS**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: 13889-0002-00

JOB NO: 13889-0002-00

DATE: April 2018

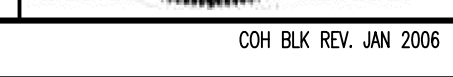
DCN. BY: KADOMINGUEZ

DWG. BY: JASTRUHAR

SCALE: NO SCALE

E6
SHEET No. 31 OF 47

FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.



CONDUIT		WIRES				CONDUIT SCHEDULE				
NO.	SIZE	POWER	GROUND	CONTROL	INSTRUMENTS	DESCRIPTION	FROM	TO	DUCT BANK	
1	4"	3-400MCM + #3/0 NEU				INCOMING POWER	UTILITY COMPANY	MAIN DISCONNECT	A	
2	4"	3-400MCM + #3/0 NEU				INCOMING POWER	UTILITY COMPANY	MAIN DISCONNECT	A	
3	4"	3-400MCM + #3/0 NEU				INCOMING POWER	UTILITY COMPANY	MAIN DISCONNECT	A	
4	3"	3-400MCM + #3/0 NEU	#3/0			AUTOMATIC TRANSFER SWITCH FEED	MAIN DISCONNECT	AUTOMATIC TRANSFER SWITCH	-	
5	3"	3-400MCM + #3/0 NEU	#3/0			AUTOMATIC TRANSFER SWITCH FEED	MAIN DISCONNECT	AUTOMATIC TRANSFER SWITCH	-	
6	3"	3-400MCM + #3/0 NEU	#3/0			AUTOMATIC TRANSFER SWITCH FEED	MAIN DISCONNECT	AUTOMATIC TRANSFER SWITCH	-	
7	3"	3-400MCM + #3/0 NEU	#3/0			MOTOR CONTROL CENTER FEED	AUTOMATIC TRANSFER SWITCH	MOTOR CONTROL CENTER	-	
8	3"	3-400MCM + #3/0 NEU	#3/0			MOTOR CONTROL CENTER FEED	AUTOMATIC TRANSFER SWITCH	MOTOR CONTROL CENTER	-	
9	3"	3-400MCM + #3/0 NEU	#3/0			MOTOR CONTROL CENTER FEED	AUTOMATIC TRANSFER SWITCH	MOTOR CONTROL CENTER	-	
10	3"	3-400MCM + #3/0 NEU	#3/0			PLANT EMERGENCY POWER	GENERATOR	AUTOMATIC TRANSFER SWITCH	C	
11	3"	3-400MCM + #3/0 NEU	#3/0			PLANT EMERGENCY POWER	GENERATOR	AUTOMATIC TRANSFER SWITCH	C	
12	3"	3-400MCM + #3/0 NEU	#3/0			PLANT EMERGENCY POWER	GENERATOR	AUTOMATIC TRANSFER SWITCH	C	
13	1"				GENERATOR MISC. CONTROLS	GENERATOR MISC. CONTROLS	GENERATOR	AUTOMATIC TRANSFER SWITCH	C	
14	1"				ANNUNCIATOR	ANNUNCIATOR	GENERATOR	AUTOMATIC TRANSFER SWITCH	-	
15	1"	3-#6	#6			GENERATOR LIGHTING PANEL POWER	GENERATOR	LIGHTING PANEL "A"	D	
16	1"		#12	8-#14		GENERATOR & AUTOMATIC TRANSFER SWITCH ALARMS	AUTOMATIC TRANSFER SWITCH	AUTODIALER	-	
17A	3"	3-300MCM	#1/0			WELL PUMP No. 1 POWER	MOTOR CONTROL CENTER	WELL PUMP No. 1	B	
17B	3"	3-300MCM	#1/0			WELL PUMP No. 1 POWER	MOTOR CONTROL CENTER	WELL PUMP No. 1	B	
18A	1"	4-#10	#12			WELL PUMP NO. 1 SPACE HEATER & RECEPTACLES	LIGHTING PANEL "A"	WELL PUMP No. 1	B	
18B	2"				9-RTD CABLE	WELL PUMP NO. 1 RTD SIGNALS	MULTILIN	WELL PUMP NO. 1	B	
19	2"	3-#1	#6			WELL PUMP No. 1 CAPACITOR FEED	MOTOR CONTROL CENTER	WELL PUMP No. 1 CAPACITOR	-	
20	2"	3-#1	#6			BOOSTER PUMP No. 1 POWER	MOTOR CONTROL CENTER	BOOSTER PUMP No. 1	G,H	
21	1"		#12	6-#14		BOOSTER PUMP No. 1 CONTROLS	MOTOR CONTROL CENTER	BOOSTER PUMP No. 1	G,H	
22	1"	3-#10	#12			BOOSTER PUMP No. 1 SPACE HEATER	LIGHTING PANEL "A"	BOOSTER PUMP No. 1	G,H	
23	1"	3-#8	#10			BOOSTER PUMP No. 1 CAPACITOR FEED	MOTOR CONTROL CENTER	BOOSTER PUMP No. 1 CAPACITOR	-	
24	2"	3-#1	#6			BOOSTER PUMP No. 2 POWER	MOTOR CONTROL CENTER	BOOSTER PUMP No. 2	G,H	
25	1"		#12	6-#14		BOOSTER PUMP No. 2 CONTROLS	MOTOR CONTROL CENTER	BOOSTER PUMP No. 2	G,H	
26	1"	3-#10	#12			BOOSTER PUMP No. 2 SPACE HEATER	LIGHTING PANEL "A"	BOOSTER PUMP No. 2	G,H	
27	1"	3-#8	#10			BOOSTER PUMP No. 2 CAPACITOR FEED	MOTOR CONTROL CENTER	BOOSTER PUMP No. 2 CAPACITOR	-	
28	2"	3-#1	#6			BOOSTER PUMP No. 3 POWER	MOTOR CONTROL CENTER	BOOSTER PUMP No. 3	G,H	
29	1"		#12	6-#14		BOOSTER PUMP No. 3 CONTROLS	MOTOR CONTROL CENTER	BOOSTER PUMP No. 3	G,H	
30	1"	3-#10	#12			BOOSTER PUMP No. 3 SPACE HEATER	LIGHTING PANEL "A"	BOOSTER PUMP No. 3	G,H	
31	1"	3-#8	#10			BOOSTER PUMP No. 3 CAPACITOR FEED	MOTOR CONTROL CENTER	BOOSTER PUMP No. 3 CAPACITOR	-	
32	-	-				NOT USED			-	
33	2.5"	3-#3/0	#1/0			LIGHTING PANEL "A" POWER	LIGHTING PANEL "A"	37.5KVA TRANSFORMER	-	
34	1"	3-#10	#12			AIR COMPRESSOR POWER	MOTOR CONTROL CENTER	AIR COMPRESSOR	-	
35	1"	3-#12	#12			MAKE UP WATER BOOSTER PUMP POWER	MOTOR CONTROL CENTER	MAKE UP WATER BOOSTER PUMP	-	
36	1"		#12	8-#12		HYDROTANK NO. 1 & 2 LEVEL PROBES	HYDROTANK PRESSURE ENCLOSURE	PLC	F	
37	1"				1-#16 SHIELDED TWISTED PAIR	WELL PUMP NO. 1 FLOW	PLC	WELL PUMP NO. 1	B	
38	1"		#12	2-#12		WELL PUMP NO. 1 HIGH DISCHARGE PRESSURE ALARM	MOTOR CONTROL CENTER	WELL PUMP NO. 1 HIGH PRESSURE SWITCH	B	
39	1"		#12	4-#14		WELL PUMP NO. 1 ALARMS	MOTOR CONTROL CENTER	AUTODIALER	-	
40	1"		#12	6-#14	2-#18 SHIELDED TWISTED PAIR	GST NO. 1 PRESSURE ENCLOSURE ANALOG & DISCRETE SIGNALS	AUTOSENSORY PANEL & PLC	GST NO. 1 PRESSURE ENCLOSURE	G,I,K	
41	1"				1/4" POLYTUBE	GST NO. 1 PRESSURE SENSING LINE	GST NO. 1	GST NO. 1 PRESSURE ENCLOSURE	-	
42	1"	2-#12	#12			GST NO. 1 PRESSURE ENCLOSURE EQUIPMENT POWER	LIGHTING PANEL "A"	GST NO. 1 PRESSURE ENCLOSURE	G,I,K	
43	1"	2-#10	#12			EYEWASH STATION HEAT TRACE	LIGHTING PANEL "A"	EYEWASH STATION	G	
44	1"	4-#12	#12			EYEWASH STATION AREA LIGHTING & RECEPTACLE	LIGHTING PANEL "A"	EYEWASH STATION	G	
45	1"	4-#12	#12			HYDROTANK NO.1 RECEPTACLE & LIGHT	LIGHTING PANEL "A"	HYDROTANK NO. 1	F	
46	1"	4-#12	#12			HYDROTANK NO.2 RECEPTACLE & LIGHT	LIGHTING PANEL "A"	HYDROTANK NO. 2	F	
47	1"		#12	4-#12		HYDROTANK NO. 1 LEVEL PROBES	HYDROTANK PRESSURE ENCLOSURE	HYDROTANK NO. 1	F	
48	1"		#12	4-#12		HYDROTANK NO. 2 LEVEL PROBES	HYDROTANK PRESSURE ENCLOSURE	HYDROTANK NO. 2	F	
49	1"				1/4" POLYTUBE	HYDROTANK NO. 1 PRESSURE SENSING LINE	HYDROTANK PRESSURE ENCLOSURE	HYDROTANK NO. 1	F	
50	1"				1/4" POLYTUBE	HYDROTANK NO. 2 PRESSURE SENSING LINE	HYDROTANK PRESSURE ENCLOSURE	HYDROTANK NO. 2	F	
51	1"	8-#12	#12			HYDROTANK PRESSURE ENCLOSURE EQUIPMENT POWER	HYDROTANK PRESSURE ENCLOSURE	LIGHTING PANEL "A"	F	
52	2"		#12	6-#12	1-#16 SHIELDED TWISTED PAIR	HYDROTANK PRESSURE ENCLOSURE ANALOG & DISCRETE SIGNALS	HYDROTANK PRESSURE ENCLOSURE	AUTOSENSORY PANEL & PLC	F	
53	1"				2-#18 SHIELDED TWISTED PAIR	CHLORINATOR NO. 1 & 2 FLOW CONTROL SIGNAL	CHLORINATOR NO. 1 & 2	PLC	-	
54	1"		#12	4-#12		CHLORINATOR NO. 1 & 2 FAIL ALARM	CHLORINATOR NO. 1 & 2	AUTODIALER VIA AUTOSENSORY PANEL	-	
55	1"		#12	2-#14		MAKE UP WATER LINE SOLENOID VALVE	AUTOSENSORY PANEL	MAKE UP WATER LINE SOLENOID VALVE	-	
56	1"	2-#12	#12			CHLORINE DETECTOR POWER	LIGHTING PANEL "A"	CHLORINE DETECTOR	-	
57	1"				1-#18 SHIELDED TWISTED PAIR	INDOOR CHLORINE SENSOR	INDOOR CHLORINE SENSOR	CHLORINE DETECTOR	-	
58	1"				1-#18 SHIELDED TWISTED PAIR	OUTDOOR CHLORINE SENSOR	OUTDOOR CHLORINE SENSOR	CHLORINE DETECTOR	-	
59	1"	2-#12	#12			LAS TANK LEVEL TRANSMITTER POWER	LIGHTING PANEL "A"	LAS LEVEL TRANSMITTER	-	
60	1"				1-#18 SHIELDED TWISTED PAIR	LAS TANK LEVEL	PLC	LAS LEVEL TRANSMITTER	-	
61	1"		#12	4-#12		LAS PUMP NO. 1 & 2 HIGH PRESSURE SWITCH	PLC	LAS PUMP NO. 1 & 2 HIGH PRESSURE SWITCH	-	
62	2"		#12	12-#12	2-#18 SHIELDED TWISTED PAIR	LAS PUMP NO. 1 & 2 ANALOG & DISCRETE SIGNALS	PLC	LAS PUMP NO. 1 & 2	-	
63	1"	2-#12	#12			ORTHO TANK LEVEL TRANSMITTER POWER	LIGHTING PANEL "A"	ORTHO LEVEL TRANSMITTER	-	
64	1"				1-#18 SHIELDED TWISTED PAIR	ORTHO TANK LEVEL	PLC	ORTHO LEVEL TRANSMITTER	-	
65	1"		#12	4-#12		ORTHO PUMP NO. 1 & 2 HIGH PRESSURE SWITCH	PLC	ORTHO PUMP NO. 1 & 2 HIGH PRESSURE SWITCH	-	
66	2"		#12	12-#12	2-#18 SHIELDED TWISTED PAIR	ORTHO PUMP NO. 1 & 2 ANALOG & DISCRETE SIGNALS	PLC	ORTHO PUMP NO. 1 & 2	-	
67	1"		#12	4-#12		HYDROTANK NO. 1 & 2 AIR FEED SOLENOID VALVE	HYDROTANK NO. 1 & 2 SOLENOID VALVE	AUTOSENSORY PANEL	-	
68	1"	2-#12	#12			FLOODLIGHT NO. 1 POWER	LIGHTING PANEL "A"	FLOODLIGHT NO. 1	G,I,J	
69	1"	2-#12	#12			FLOODLIGHT NO. 2 POWER	LIGHTING PANEL "A"	FLOODLIGHT NO. 2	F	
70	1"	2-#12	#12			FLOODLIGHT NO. 3 POWER	LIGHTING PANEL "A"	FLOODLIGHT NO. 3	D	
71	1"	2-#12	#12			FLOODLIGHT NO. 4 POWER	LIGHTING PANEL "A"	FLOODLIGHT NO. 4	B	
72	1"		#12	2-#12		CHLORINE LEAK ALARM	CHLORINE DETECTOR	AUTODIALER VIA AUTOSENSORY PANEL	-	
73	1"		#12	2-#14		CHLORINE LEAK ALARM BEACON	ALARM BEACON	AUTOSENSORY PANEL	-	
74	1"		#12	8-#14		WELL PUMP NO. 1 CONTROLS	WELL PUMP NO. 1	AUTOSENSORY PANEL	B	

APPROVED:  J.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

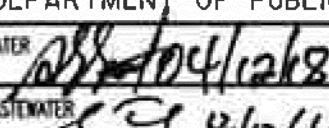

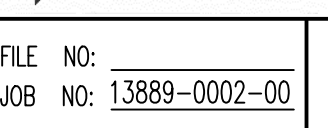
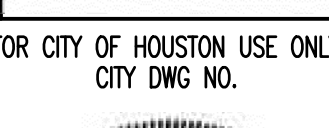
NO.	DATE	ISSUED FOR CONSTRUCTION	BS C
		REVISIONS	APP.

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS





HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL CONDUIT
SCHEDULE
SHEET 1 OF 2

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER 	TRAFFIC & TRANSPORTATION
WASTEWATER 	STORM WATER QUALITY
STORM 	FACILITIES 
STREET & BRIDGE	

FILE NO: 13889-0002-00
JOB NO: 13889-0002-00
DATE: April 2018
DGN. BY: KADOMINGUEZ
DWG. BY: JASTRUHAR
SCALE: NO SCALE
SHEET No. 32 OF 47

FOR CITY OF HOUSTON USE ONLY
CITY DWG. NO.

CONDUIT		WIRES				CONDUIT SCHEDULE			
NO.	SIZE	POWER	GROUND	CONTROL	INSTRUMENTS	DESCRIPTION	FROM	TO	DUCT BANK
75	1"		2-#14	#12		BOOSTER PUMP NO. 1 HIGH PRESSURE DISCHARGE	BOOSTER PUMP NO. 1 HIGH PRESSURE SWITCH	MCC	G,H
76	1"		2-#14	#12		BOOSTER PUMP NO. 2 HIGH PRESSURE DISCHARGE	BOOSTER PUMP NO. 2 HIGH PRESSURE SWITCH	MCC	G,H
77	1"		2-#14	#12		BOOSTER PUMP NO. 3 HIGH PRESSURE DISCHARGE	BOOSTER PUMP NO. 3 HIGH PRESSURE SWITCH	MCC	G,H
78	2"	PULL STRING				FUTURE ANALYZER ALARMS	LAS ROOM	AUTOSENSORY PANEL	-
79	2"	PULL STRING				FUTURE METER STATION SPARE	FIELD DUCT BANK MARKER	AUTOSENSORY PANEL	F
80	2"	PULL STRING				FUTURE METER STATION SPARE	FIELD DUCT BANK MARKER	AUTOSENSORY PANEL	F
81	2"	PULL STRING				FUTURE METER STATION SPARE	FIELD DUCT BANK MARKER	LIGHTING PANEL "A"	F
82	1"				1-#18 SHIELDED TWISTED PAIR	LAS TANK ULTRASONIC TRANSDUCER SIGNAL	LAS TANK ULTRASONIC TRANSDUCER	LAS TANK LEVEL TRANSMITTER	-
83	1"				1-#18 SHIELDED TWISTED PAIR	ORTHO TANK ULTRASONIC TRANSDUCER SIGNAL	ORTHO TANK ULTRASONIC TRANSDUCER	ORTHO TANK LEVEL TRANSMITTER	-
84	1"		2-#12	#12		CHLORINE LEAK ALARM BEACON NO. 2	ALARM BEACON NO. 2	AUTOSENSORY PANEL	-
85	1"		2-#12	#12		CHLORINE LEAK ALARM SIREN	ALARM SIREN	AUTOSENSORY PANEL	-
86	1"	4-#12	2-#12			LAS PUMP NO. 1 & 2 POWER	LAS PUMP NO. 1 & 2	LIGHTING PANEL "A"	-
87	1"	4-#12	2-#12			ORTHO PUMP NO. 1 & 2 POWER	ORTHO PUMP NO. 1 & 2	LIGHTING PANEL "A"	-
88	1"				CAT 5 CABLE	THERMOSTAT CONTROLS	THERMOSTAT	A/C UNIT	-

SPECIAL DEVICE SCHEDULE			
ITEM	DESCRIPTION	ITEM	DESCRIPTION
①	24 VDC POWER SUPPLY - PHOENIX CONTACT QUINT SERIES - SIZE 50% GREATER THAN LOAD	⑩	POWER SYSTEM MONITOR - SQUARE D CLASS 3020, TYPE CM-2350 w/WAVE FORM CAPTURE OR APPROVED EQUAL
②	15" TFT LCD MONITOR - SEE SPECIFICATION 16606	⑪	FLASHING BEACON - 65FPM, 120 VOLT, RED, ACRYLIC DOME LENS, EDWARDS #105XBRMR120A
③	PHASE FAILURE RELAY - DIVERSIFIED ELECTRONICS #SLD-440-ALE, 480 VOLT, 3 PHASE	⑫	FLOW METER - 4-20mA & PULSED OUTPUT, SPARLING INSTRUMENTS FT193 FLOW TRANSMITTER OR APPROVED EQUAL
④	CONTROL RELAY - WITH 4 S.P.D.T. SWITCHES RATED 10 AMPS AT 120 VOLT, 120 VOLT COIL, PLUG IN BASE AND SOCKET	⑬	LIGHTING CONTACTOR - 120V RATED COIL WITH 20A RATED CONTACTS, 4 POLE MINIMUM
⑤	INDICATING LIGHT - 30MM, PUSH TO TEST, LED, ALLEN BRADLEY 800T TYPE, GLASS LENS, 120 VOLT, 60 Hz. - COLOR AS INDICATED	⑭	TIME DELAY RELAY - WITH 2 S.P.D.T. SWITCHES RATED 7 AMPS AT 120 VOLT, CONTACTS AND COIL, PLUG IN BASE AND SOCKET, 3 RANGES, 0.1 TO 100 SEC, ATC, MODEL No. 319D-134
⑥	TIME CLOCK - INTERMATIC SERIES V45000CR WITH ASTRONOMIC DIAL, & SPRING WOUND CARRY-OVER MECHANISM, 120-VOLT, 60HZ, 3PST SWITCH RATED AT 40A, MODEL No. V45471CR30	⑮	NETWORK SWITCH - NETGEAR DS106
⑦	ELAPSED TIME METER - CRAMER #635S, 120 VOLT	⑯	PRESSURE SWITCH - MERCROID SERIES DA, MODEL No. DAW-33-153-7, 5-150 PSI RANGE, NEMA 4 WEATHER-PROOF ENCLOSURE, MANUAL RESET, SPDT MERCURY SWITCH RATED 4 AMPS AT 120 VOLTS
⑧	SURGE PROTECTION DEVICE - SEE SPECIFICATION 16606	⑰	PRESSURE SWITCH - MERCROID SERIES EDA, MODEL No. EDA-N1-E1-04T0, 0-100 PSI RANGE, AUTOMATIC RESET, TWO (2) SPDT SWITCHES RATED 5 AMPS AT 120 VOLTS
⑨	4-20MA SPD-PHOENIX CONTACT UBK 2-PE-24-HB SURGETRAB	⑱	QUADROPLEXOR - DIVERSIFIED ELECTRONICS ARM-120-AJE
⑩	SQUARE D MODICON M340 PLC - SEE SPECIFICATION 16491	⑲	INDUCTION RELAY - WARRICK SEIRES I, 120 VOLT, 60 HZ
⑪	PHOTOELECTRIC SWITCH - INTERMATIC SERIES K1100, 120 VOLT - MODEL #K1121	⑳	LIGHTING CONTACTOR - 120V RATED COIL WITH ELECTRICALLY HELD 30A RATED CONTACTS, 4 POLE MINIMUM
⑫	LIMIT ALARM - ACROMAG FLAT PACK SERIES MODEL 461A; LOOP-POWERED LIMIT ALARM WITH ADJUSTABLE DEAD BAND	㉑	CELLULAR AUTODIALER - SEE SPECIFICATION
⑬	PRESSURE TRANSMITTER - ROSEMONT MODEL #3051TG2A2BAHR5M4 0-150 PSI MAX WITH INTERNAL LCD OUTPUT OR APPROVED FOXBORO OR ENDRESS-HAUSER EQUAL	㉒	GE MULTILIN 469 MOTOR PROTECTION RELAY
⑭	LEVEL TRANSMITTER - FOXBORO IGP10, RANGED 0 - 34.5 FEET, WITH 3/8" STAINLESS STEEL CONNECTING TUBING		
⑮	CURRENT SENSING RELAY - CR MAGNETICS SERIES CR 4395-ELR; RANGE 60mA TO 60A; 20A@ 120 VAC S.P.D.T. OUTPUT RELAY		

APPROVED: *[Signature]*
P.E. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	BS C
		REVISIONS	APP.

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL CONDUIT
SCHEDULE
SHEET 2 OF 2

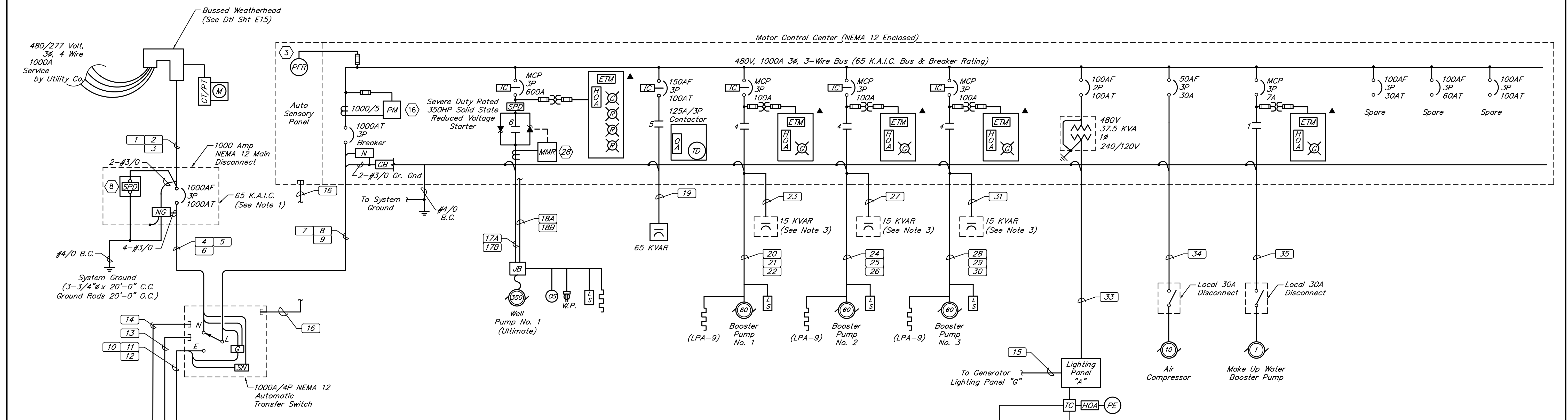
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	<i>[Signature]</i> 4/12/18	TRAFFIC & TRANSPORTATION
WASTEWATER	<i>[Signature]</i> 4/12/18	STORM WATER QUALITY
STORM	<i>[Signature]</i> 4/12/18	FACTORIES
STREET & BRIDGE	<i>[Signature]</i> 4/12/18	

FILE NO: 13889-0002-00
JOB NO: 13889-0002-00
FOR CITY OF HOUSTON USE ONLY CITY DWG NO.

DATE: April 2018	
DGN. BY: KADOMINGUEZ	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
E8 SHEET No. 33 OF 47	



ONE-LINE DIAGRAM
NOT TO SCALE

BUS AMPS 225A		MLO		PANEL LPA		NOTES:			
MAIN BRKR. AMPS 200		WIRE SIZE #4/0				1. Breakers 1P/20A unless marked otherwise.			
VOLTS 240/120		A/C				2. Adj. ckts. to bal. pnl.			
PHASE 1		WIRE 3		SN		3. Surface mount, NEMA 1			
CKT. DESCRIPTION	WIRE	LOAD	BKR.	A	B	BKR.	LOAD	WIRE	CKT. DESCRIPTION
CONTROL POWER	12	500	15	1	2	15	500	12	PLC POWER
SITE FLOOD LIGHTS	12	1250	20	3	4	20	1100	12	CONTROL ROOM LIGHTS
AUTODIALER	12	100	20	5	6	20	1050	12	CONTROL ROOM RECEPTACLES
EXTERIOR BUILDING LIGHTING	12	1200	20	7	8	20	1500	12	CHLORINE ROOM LIGHTS AND FAN
BOOSTER PUMP SPACE HEATERS	10	600	20	9	10	20	2200	12	CHLORINE ROOM RECEPTACLES
GENERATOR LIGHTING PANEL "G"	6	6200	2P	11	12	20	1500	12	LAS ROOM LIGHTS AND FAN
GENERATOR LIGHTING PANEL "G"	6	6200	2P	13	14	20	2200	12	LAS ROOM RECEPTACLES
GST NO. 1 HEAT TRACE RECEPTACLE	10	500	20	15	16	20	1500	12	AIR COMP. & ORTHO ROOM LIGHTS & FAN
HPT NO. 1 & NO. 2 RECEPTACLES & LIGHTS	12	600	20	17	18	20	2200	12	AIR COMP. & ORTHO ROOM RECEPTACLES
CHLORINE GAS DETECTOR UNIT	12	500	20	19	20	40	3500	10	HEAT/AIR CONDITIONER UNIT
EYEWASH STATION HEAT TRACE	12	200	20	21	22	40	3500	10	HEAT/AIR CONDITIONER UNIT
LIGHTING CONTROLS	12	500	20	23	24	20	500	12	GST NO. 1 PRESSURE ENCLOSURE EQUIPMENT
EYEWASH STATION RECEPTACLE & LIGHT	12	300	20	25	26	20	500	12	HYDROTANK PRESSURE ENCLOSURE EQUIPMENT
LAS TANK LEVEL TRANSMITTER	12	300	20	27	28	20	1000	12	LAS PUMP NO. 1
ORTHOTANK LEVEL TRANSMITTER	12	300	20	29	30	20	1000	12	LAS PUMP NO. 2
SITE FLOODLIGHTS	12	1250	20	31	32	20	1000	12	ORTHOTANK PUMP NO. 1
WELL PUMP NO. 1 SPACE HEATERS	10	300	20	33	34	20	1000	12	ORTHOTANK PUMP NO. 2
SPARE	-	-	20	35	36	20	-	-	SPARE
SPARE	-	-	20	37	38	20	-	-	SPARE
SPARE	-	-	20	39	40	40	-	-	SPARE
SPARE	-	-	20	41	42	2P	-	-	SPARE

ELECTRICAL LOAD ANALYSIS				
LOAD	AMPS			
	ØA	ØB	ØC	SBKW
WELL PUMP No. 1 ULTIMATE 350 HP	414	414	414	282
BOOSTER PUMP No. 1 60 HP	77	77	77	50
BOOSTER PUMP No. 2 60 HP	77	77	77	50
BOOSTER PUMP No. 3 60 HP	77	77	77	50
MAKE UP WATER BOOSTER PUMP 1 HP	2.1	2.1	2.1	1
AIR COMPRESSOR 10 HP	14	14	14	9
TRANSFORMER 37.5 KVA	78	-	78	37.5
25% OF LARGEST MOTOR	103.5	103.5	103.5	
TOTAL LOAD	842.6	764.6	842.6	429.5
SERVICE AMPACITY @ 480 VOLT	1000	1000	1000	
SPARE AMPACITY	157.4	235.4	157.4	
FAULT CURRENT	< 65KAIC			

NOTES:

- Provide Switchboard Style 1000A breaker with L.S.I.G. solid state trip. 65 K.A.I.C. 100% rated, suitable as service disconnect.
- Provide all conduit entering MCC & other enclosure from bottom with grounding bushing & bond wire per N.E.C. Do not double lug.
- Mount capacitors on top of the motor control center. Support with P1000 unistrut as required. Capacitor size shown is typical. Provide maximum capacitor size not to exceed motor nameplate max KVAR.
- Provide traditional "NEMA" devices as defined in NEMA Standards Publication No. ICS 2.4-2003. IEC Components are not allowed.

APPROVED: *[Signature]*
ELECTRICAL DEVELOPMENT COORDINATOR

DATE: 5/2/18

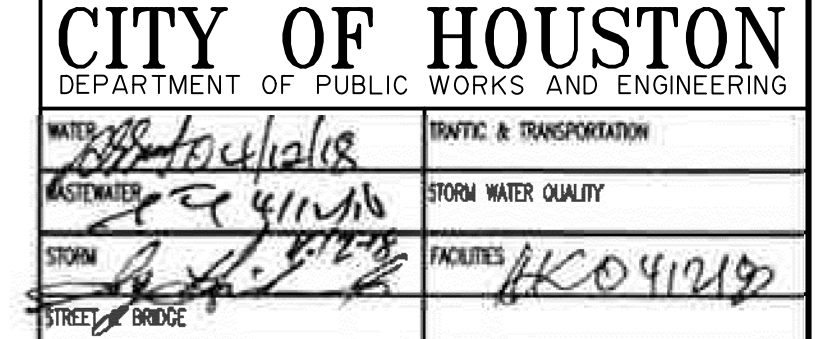
NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



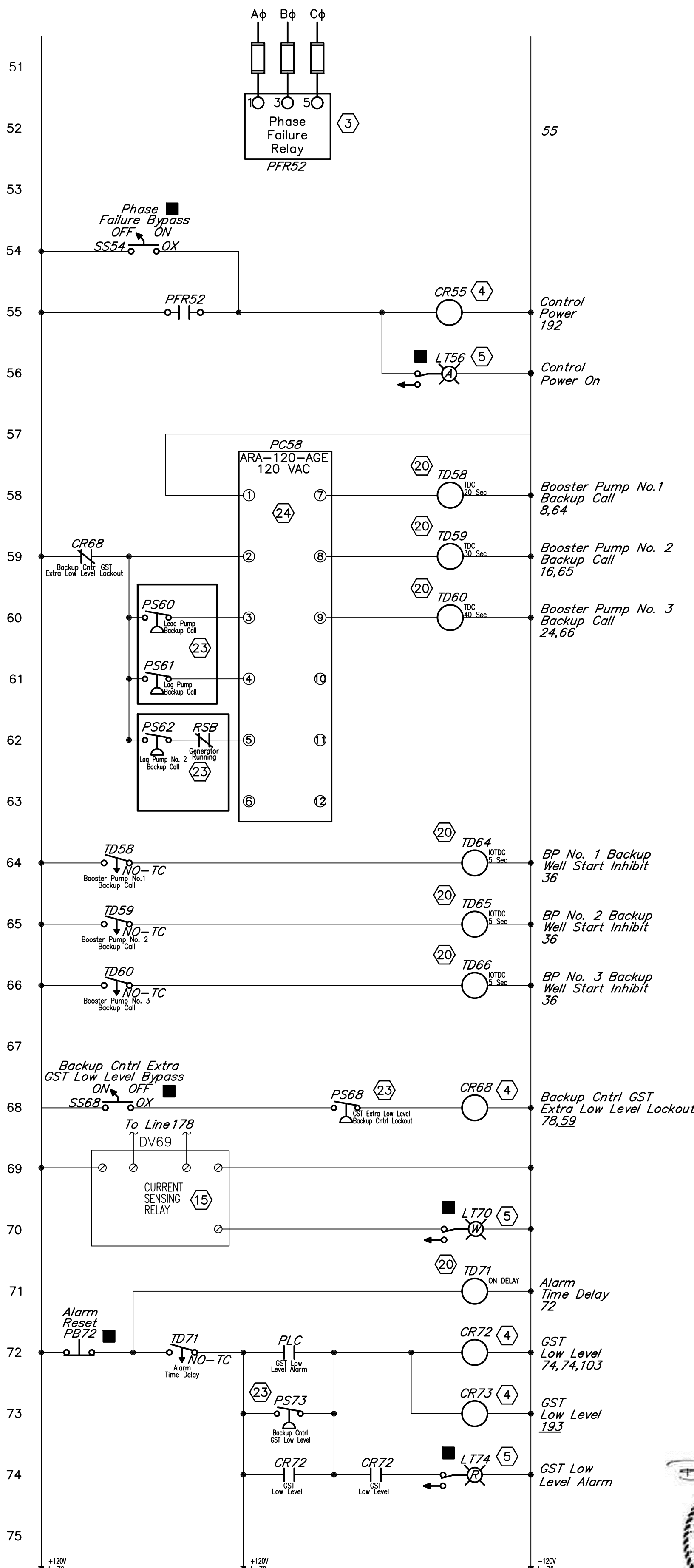
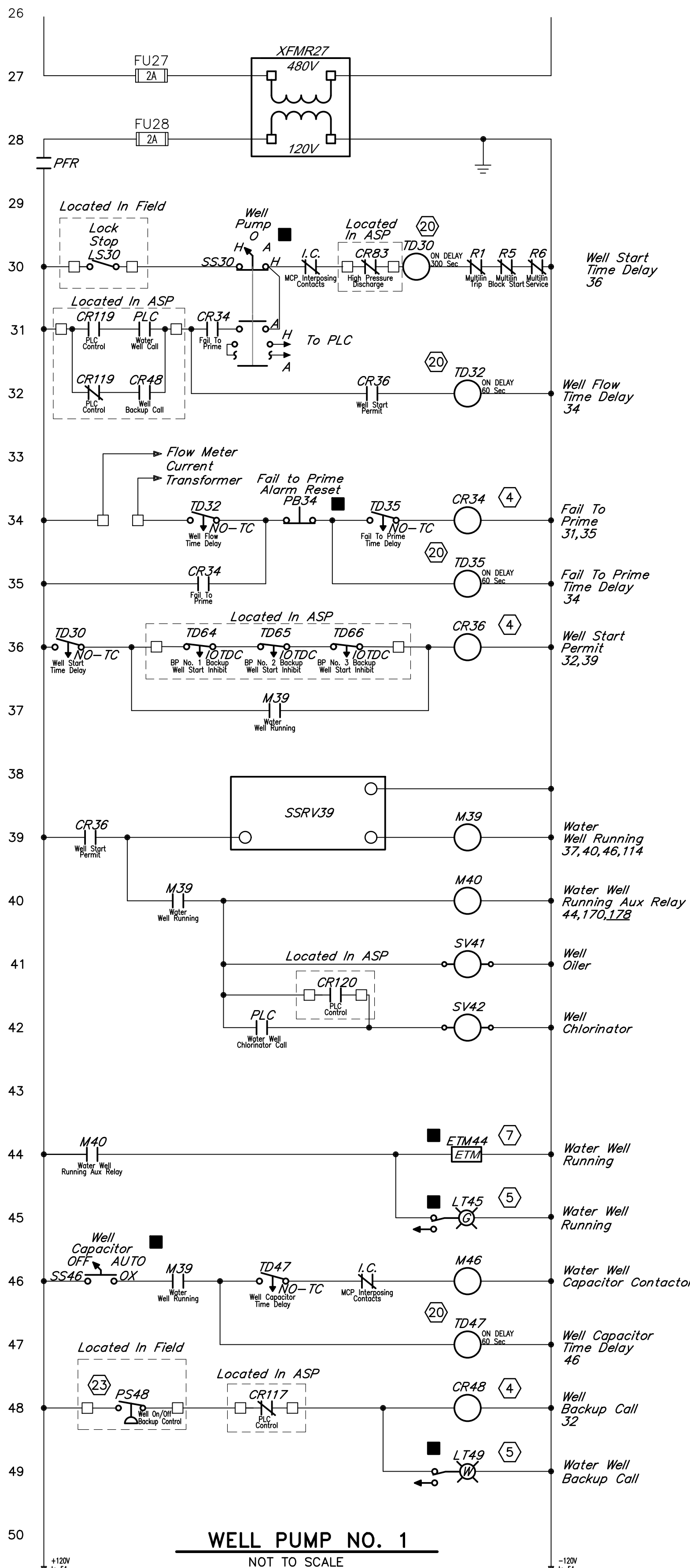
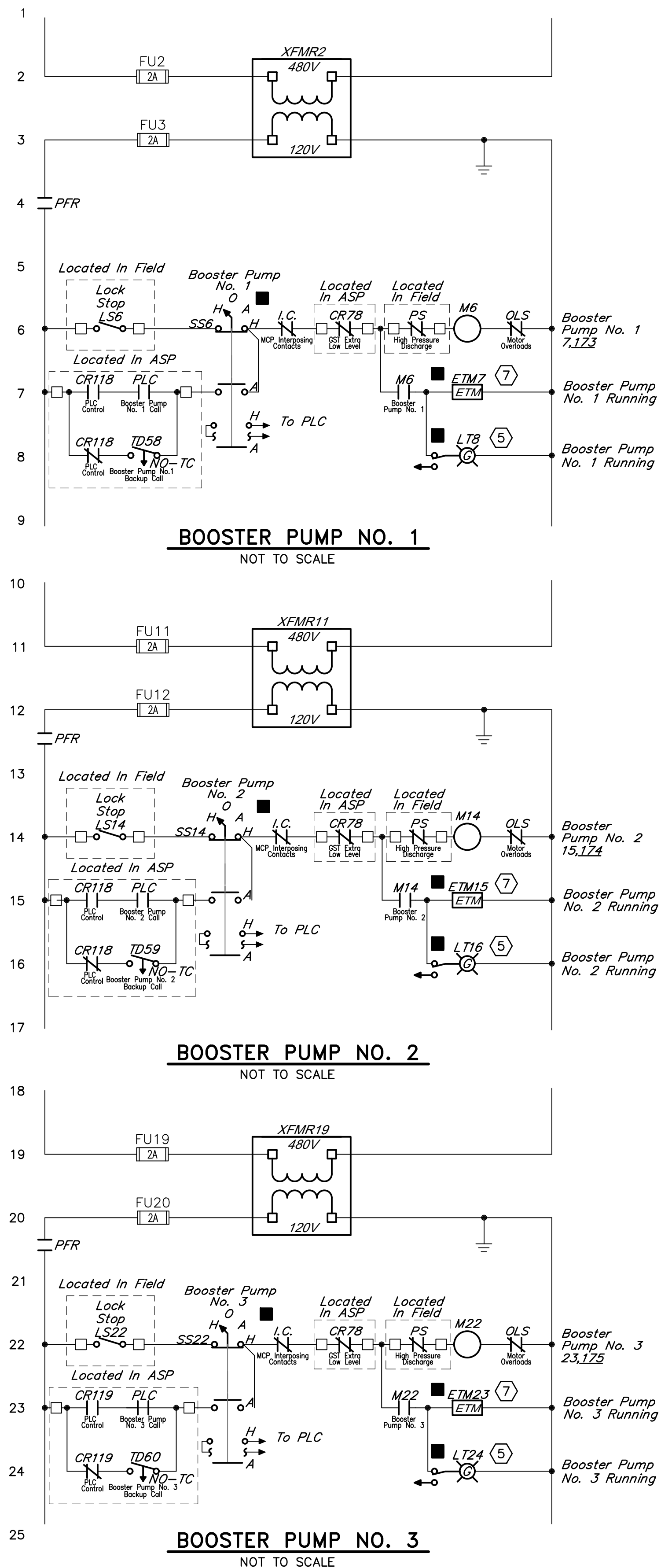
HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL ONE LINE
DIAGRAM

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES



FILE NO: 13889-0002-00
JOB NO: 13889-0002-00
DATE: April 2018
DGN. BY: KADOMINGUEZ
DWG. BY: JASTRUHAR
SCALE: NO SCALE
E9
SHEET NO. 34 OF 47

FOR CITY OF HOUSTON USE ONLY
CITY DWG. NO.
60306
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING



APPROVED: *[Signature]*
E.E. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



**HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL CONTROL
DIAGRAM
SHEET 1 OF 3**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER: *[Signature]* TRAFFIC & TRANSPORTATION
 WASTEWATER: *[Signature]* STORM WATER QUALITY
 STORM: *[Signature]* FACILITIES
 STREET BRIDGE: *[Signature]*

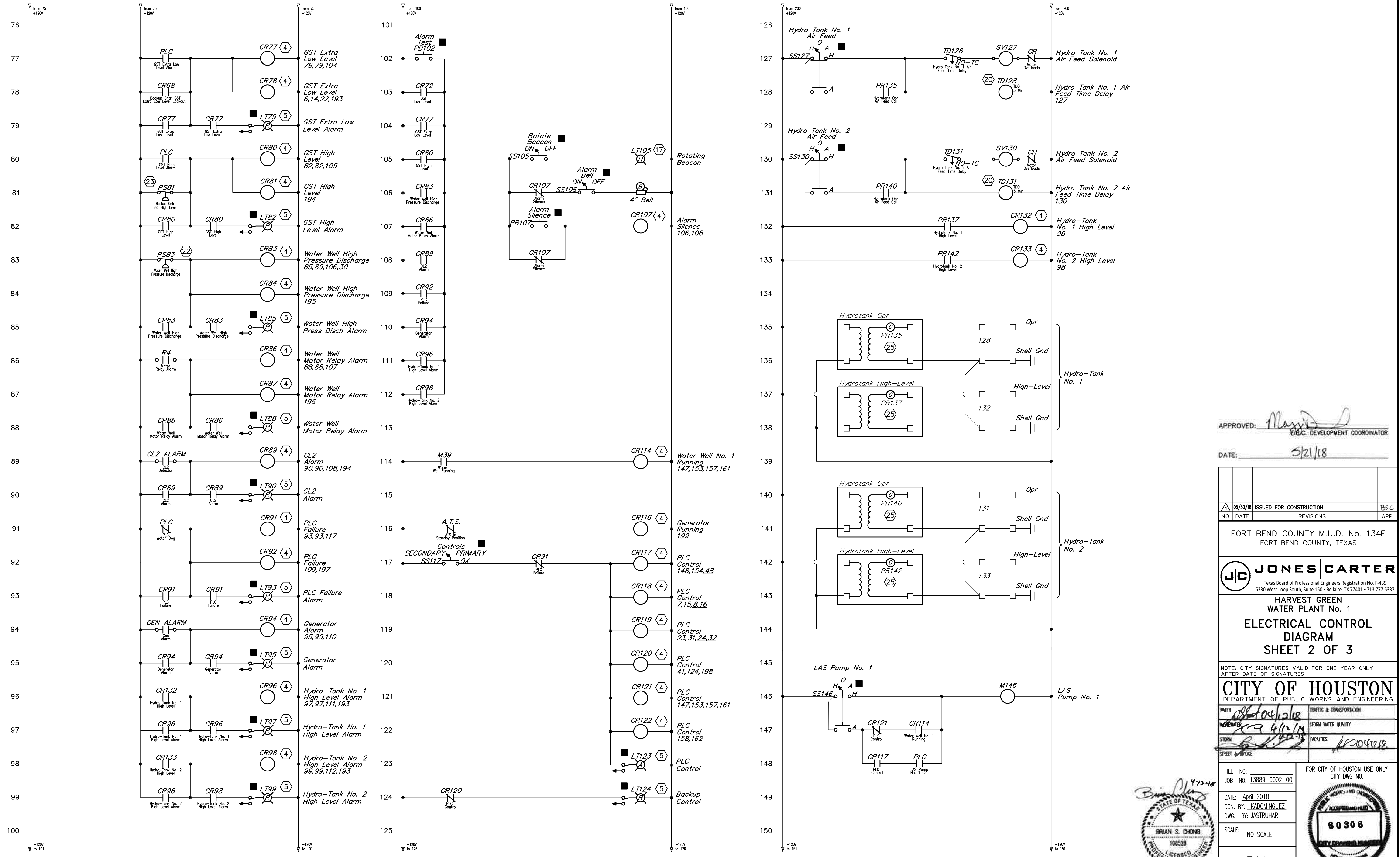
FILE NO: 13889-0002-00
 JOB NO: 13889-0002-00
 DATE: April 2018
 DGN. BY: KADOMINGUEZ
 DWG. BY: JASTRUHAR

FOR CITY OF HOUSTON USE ONLY
 CITY DWG. NO.
60306

SCALE: NO SCALE

E10
SHEET NO. 35 OF 47





APPROVED: *[Signature]*
 G&C DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



**HARVEST GREEN
 WATER PLANT No. 1
 ELECTRICAL CONTROL
 DIAGRAM
 SHEET 2 OF 3**

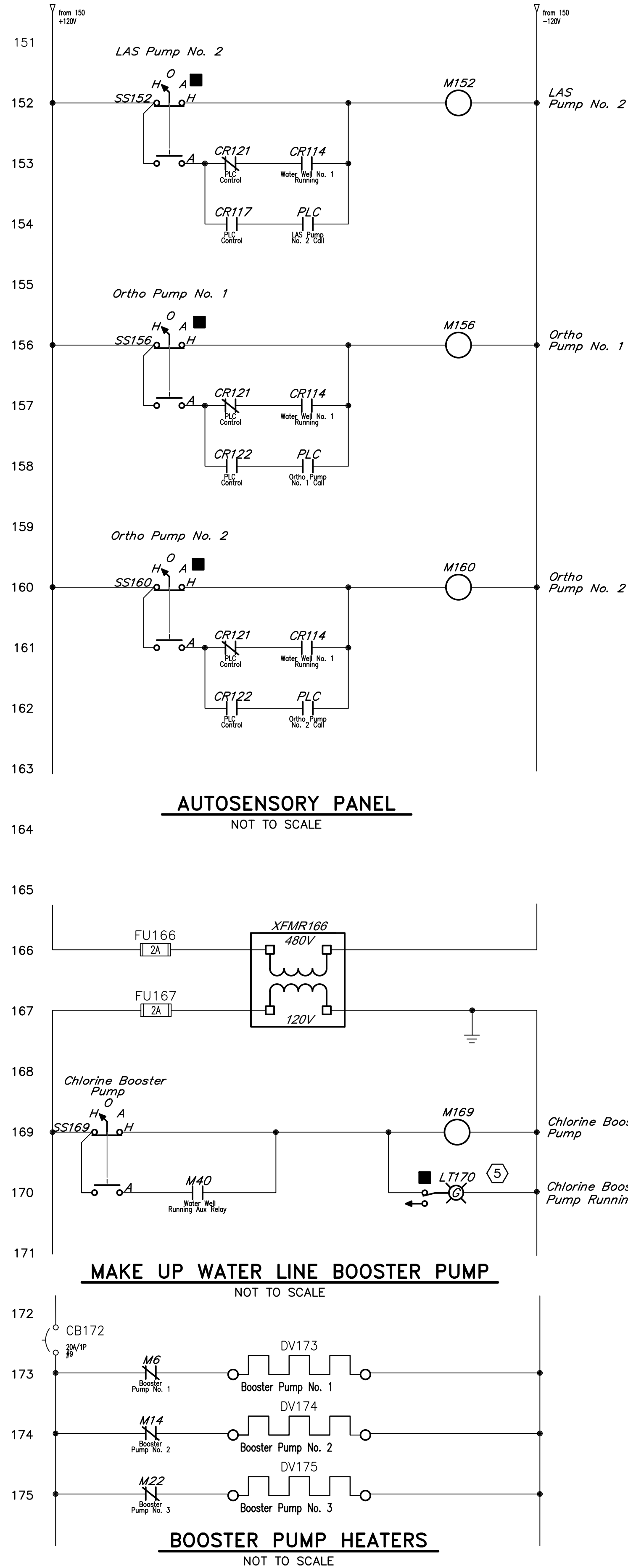
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

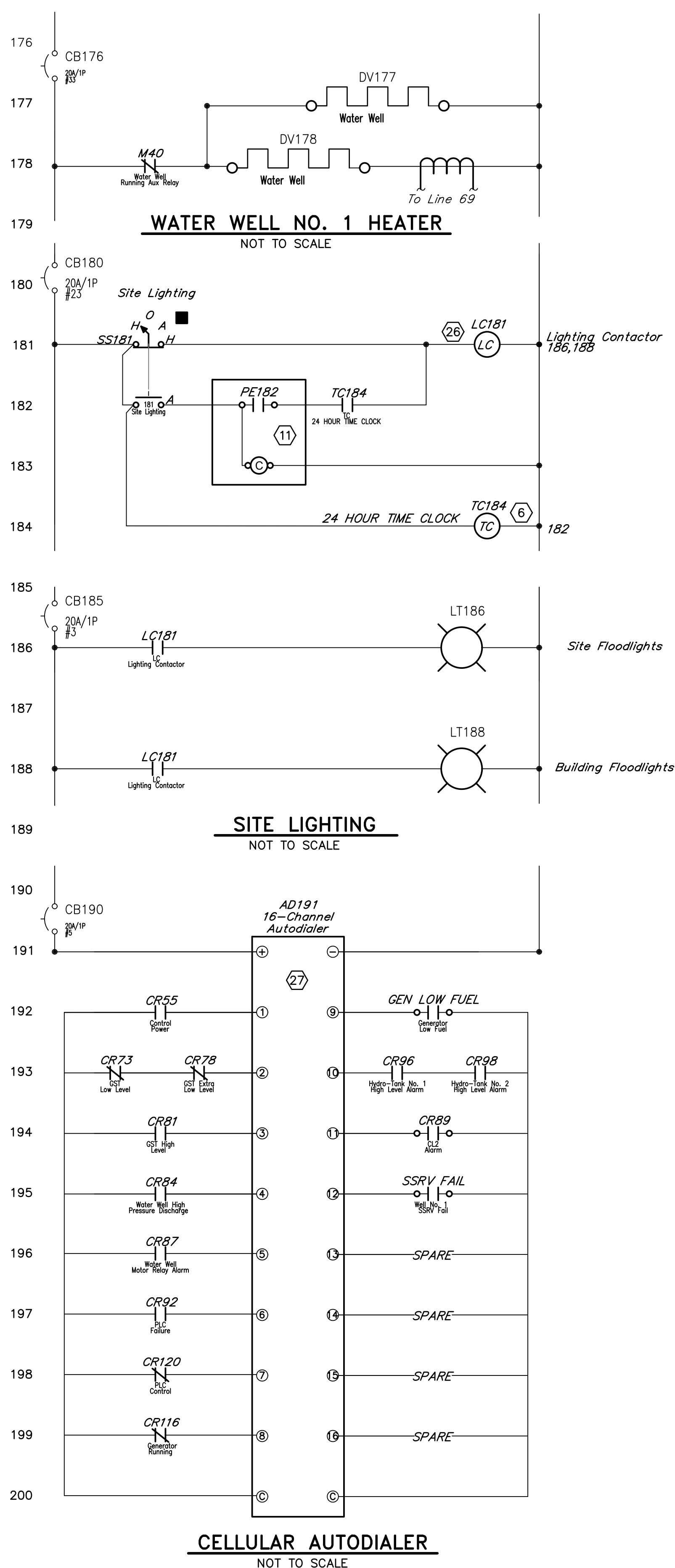
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SEWER: <i>[Signature]</i>	STORM WATER QUALITY: <i>[Signature]</i>
STORM: <i>[Signature]</i>	FACILITIES: <i>[Signature]</i>

FILE NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018	
DGN. BY: KADOMINGUEZ	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
E11 SHEET No. 36 OF 47	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



AUTOSENSORY PANEL
NOT TO SCALE



DIGITAL INPUT COMBINATION MODULE SCHEDULE

NO.	DESCRIPTION
1	CONTROL POWER
2	BOOSTER PUMP NO. 1 HAND
3	BOOSTER PUMP NO. 1 AUTO
4	BOOSTER PUMP NO. 1 RUN
5	BOOSTER PUMP NO. 2 HAND
6	BOOSTER PUMP NO. 2 AUTO
7	BOOSTER PUMP NO. 2 RUN
8	BOOSTER PUMP NO. 3 HAND
9	BOOSTER PUMP NO. 3 AUTO
10	BOOSTER PUMP NO. 3 RUN
11	BOOSTER PUMP NO. 1 HIGH PRESSURE ALARM
12	BOOSTER PUMP NO. 2 HIGH PRESSURE ALARM
13	BOOSTER PUMP NO. 3 HIGH PRESSURE ALARM
14	WELL PUMP HAND
15	WELL PUMP AUTO
16	WELL PUMP RUN
17	WELL MULTILIN TRIP
18	WELL MULTILIN BLOCK START
19	WELL MULTILIN SERVICE
20	WELL PUMP MOTOR RELAY ALARM
21	WELL PUMP HIGH PRESSURE DISCHARGE
22	WELL CAPACITOR HAND
23	WELL CAPACITOR AUTO
24	GENERATOR RUNNING
25	GENERATOR FAIL
26	GENERATOR LOW FUEL ALARM
27	ALARM RESET
28	LAS METERING PUMP NO. 1 RUN
29	LAS METERING PUMP NO. 1 FAIL
30	LAS METERING PUMP NO. 1 FLOW FAIL
31	LAS METERING PUMP NO. 2 RUN
32	LAS METERING PUMP NO. 2 FAIL
33	LAS METERING PUMP NO. 2 FLOW FAIL
34	ORTHO METERING PUMP NO. 1 RUN
35	ORTHO METERING PUMP NO. 1 FAIL
36	ORTHO METERING PUMP NO. 1 FLOW FAIL
37	ORTHO METERING PUMP NO. 2 RUN
38	ORTHO METERING PUMP NO. 2 FAIL
39	ORTHO METERING PUMP NO. 2 FLOW FAIL
40	CHLORINATOR NO. 1 FAIL
41	CHLORINATOR NO. 2 FAIL
42	HYDROTANK HIGH LEVEL
43	GST EXTRA LOW LEVEL
44	GST LOW LEVEL
45	GST HIGH LEVEL
46	PRIMARY/SECONDARY CONTROL MODE

DIGITAL OUTPUT COMBINATION MODULE SCHEDULE

NO.	DESCRIPTION
1	BOOSTER PUMP NO. 1 CALL
2	BOOSTER PUMP NO. 2 CALL
3	BOOSTER PUMP NO. 3 CALL
4	FUTURE WELL PUMP CALL
5	GST EXTRA LOW LEVEL ALARM
6	GST LOW LEVEL ALARM
7	GST HIGH LEVEL ALARM
8	PLC WATCH DOG
9	LAS PUMP NO. 1 CALL
10	LAS PUMP NO. 2 CALL
11	ORTHO PUMP NO. 1 CALL
12	ORTHO PUMP NO. 2 CALL

ANALOG INPUT COMBINATION MODULE SCHEDULE

NO.	DESCRIPTION
1	GST NO. 1 LEVEL TRANSMITTER
2	LAS TANK NO. 1 LEVEL TRANSMITTER
3	ORTHO TANK NO. 1 LEVEL TRANSMITTER
4	WELL FLOW INPUT

ANALOG OUTPUT COMBINATION MODULE SCHEDULE

NO.	DESCRIPTION
1	GST LEVEL
2	CHLORINATOR NO. 1 FEED RATE
3	CHLORINATOR NO. 2 FEED RATE
4	LAS PUMP NO. 1 FEED RATE
5	LAS PUMP NO. 2 FEED RATE
6	ORTHO PUMP NO. 1 FEED RATE
7	ORTHO PUMP NO. 2 FEED RATE

APPROVED: *[Signature]*
 DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	BS C
		REVISIONS	APP.

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



HARVEST GREEN WATER PLANT No. 1
ELECTRICAL CONTROL DIAGRAM
SHEET 3 OF 3

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: 13889-0002-00
 JOB NO: 13889-0002-00
 DATE: April 2018
 DGN. BY: KADOMINGUEZ
 DWG. BY: JASTRUHAR

FOR CITY OF HOUSTON USE ONLY
 CITY DWG. NO.

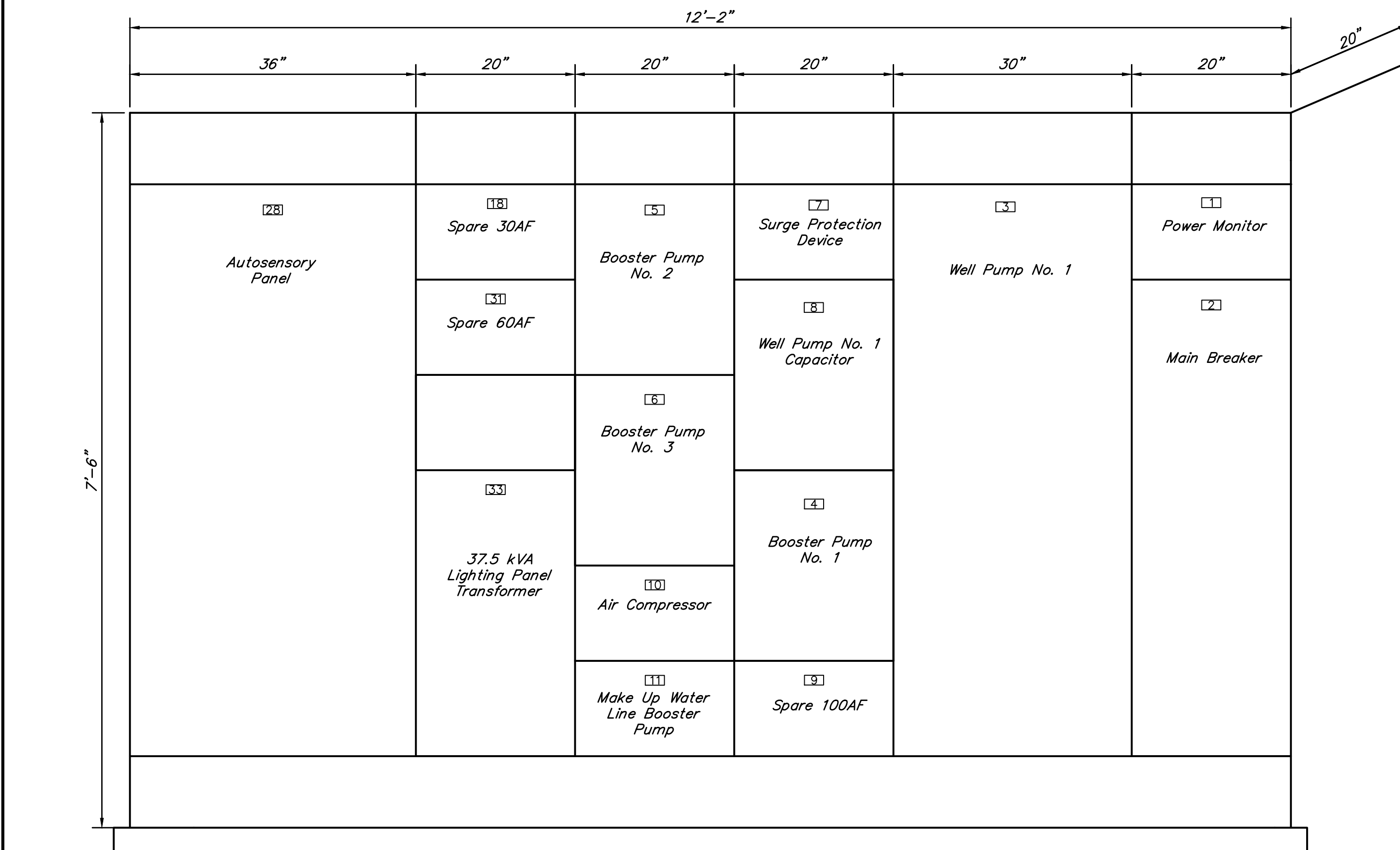
SCALE: NO SCALE

E12
 SHEET No. 37 OF 47

[Signature]
 BRIAN S. CHONG
 106528
 LICENSED PROFESSIONAL ENGINEER
 STATE OF TEXAS

60306
 CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

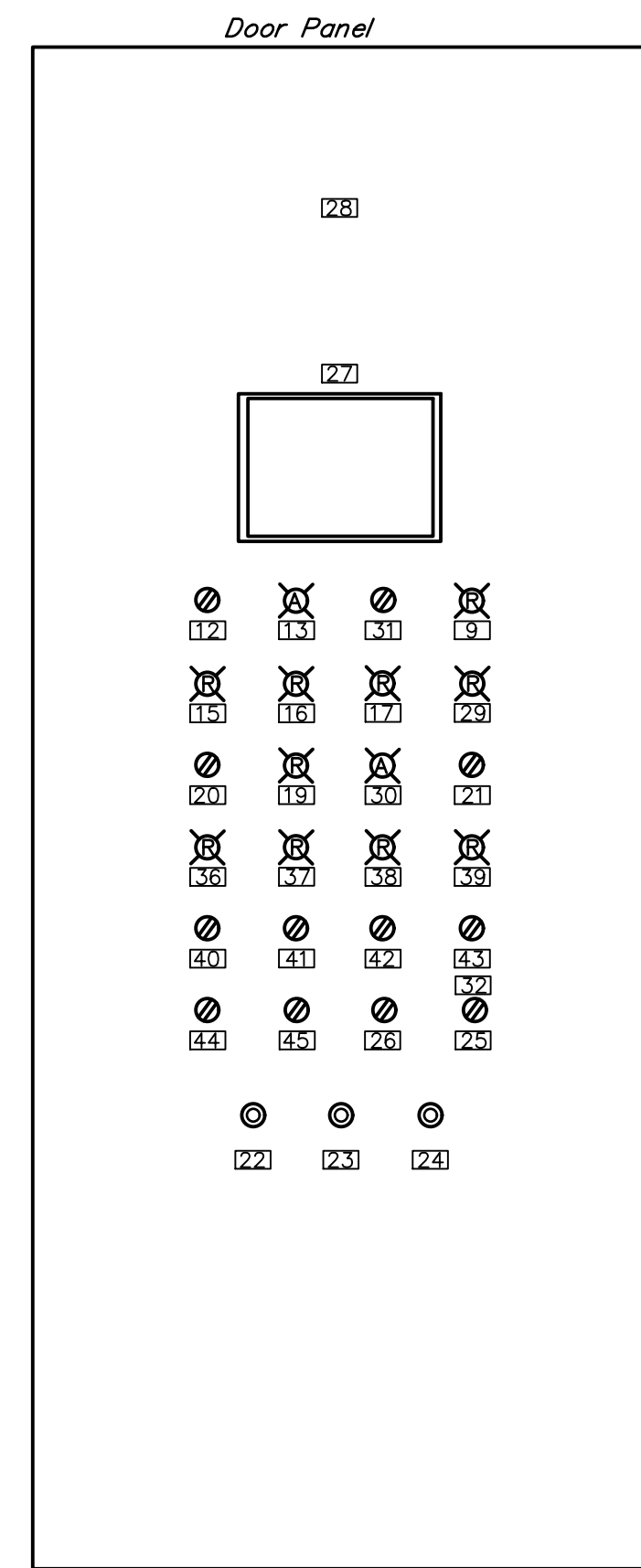


MOTOR CONTROL CENTER ELEVATION
SCALE: 1" = 1'-0"

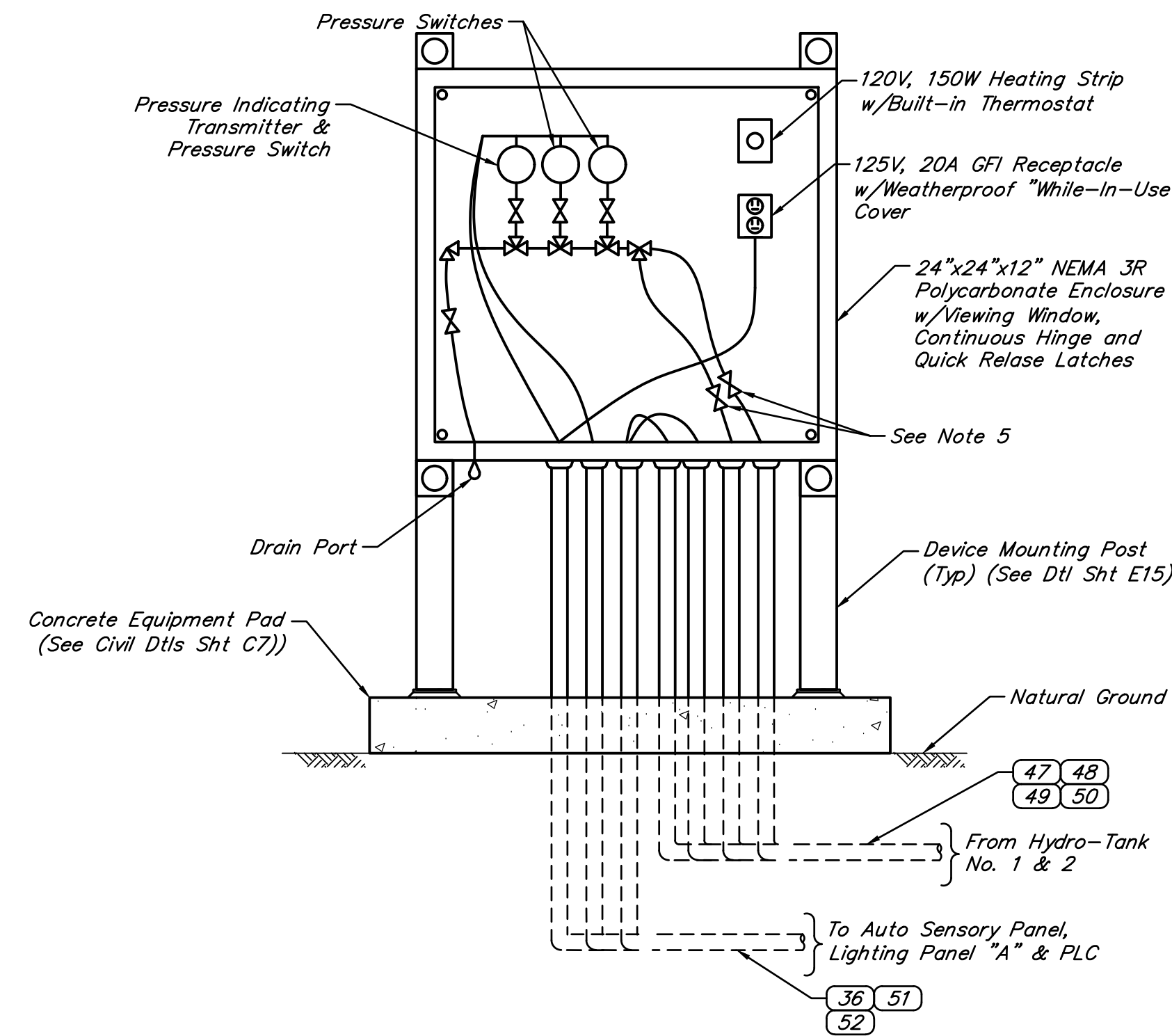
Prop 3" Housekeeping Pad

NAMEPLATE SCHEDULE			
NO.	DESCRIPTION	NO.	DESCRIPTION
1	POWER MONITOR	24	ALARM RESET
2	MAIN DISCONNECT BREAKER	25	CONTROL MODE SELECTOR
3	WELL PUMP NO. 1	26	FLOODLIGHTS H-O-A
4	BOOSTER PUMP NO. 1	27	HMI
5	BOOSTER PUMP NO. 2	28	AUTOSENSORY PANEL
6	BOOSTER PUMP NO. 3	29	GENERATOR ALARM
7	SURGE PROTECTION	30	PLC CONTROL
8	WELL PUMP NO. 1 CAPACITOR	31	SPARE
9	CL2 ALARM	32	PRIMARY/BACKUP
10	AIR COMPRESSOR	33	37.5 KVA LIGHTING PANEL TRANSFORMER
11	MAKE UP WATERLINE BOOSTER PUMP	34	SERVICE ENTRANCE MAIN DISCONNECT
12	PHASE FAILURE RELAY BYPASS	35	AUTOMATIC TRANSFER SWITCH
13	CONTROL POWER	36	WELL PUMP NO. 1 HIGH PRESSURE ALARM
14	SPARE	37	WELL PUMP NO. 1 MOTOR RELAY ALARM
15	GST EXTRA LOW LEVEL ALARM	38	HYDROTANK NO. 1 HIGH LEVEL ALARM
16	GST LOW LEVEL ALARM	39	HYDROTANK NO. 2 HIGH LEVEL ALARM
17	GST HIGH LEVEL ALARM	40	HYDROTANK NO. 1 H-O-A SWITCH
18	SPARE	41	HYDROTANK NO. 2 H-O-A SWITCH
19	PLC FAIL	42	LAS PUMP NO. 1 H-O-A
20	ROTATING BEACON ON-OFF	43	LAS PUMP NO. 2 H-O-A
21	ALARM BELL ON-OFF	44	ORTHO PUMP NO. 1 H-O-A
22	ALARM SILENCE	45	ORTHO PUMP NO. 2 H-O-A
23	ALARM TEST		

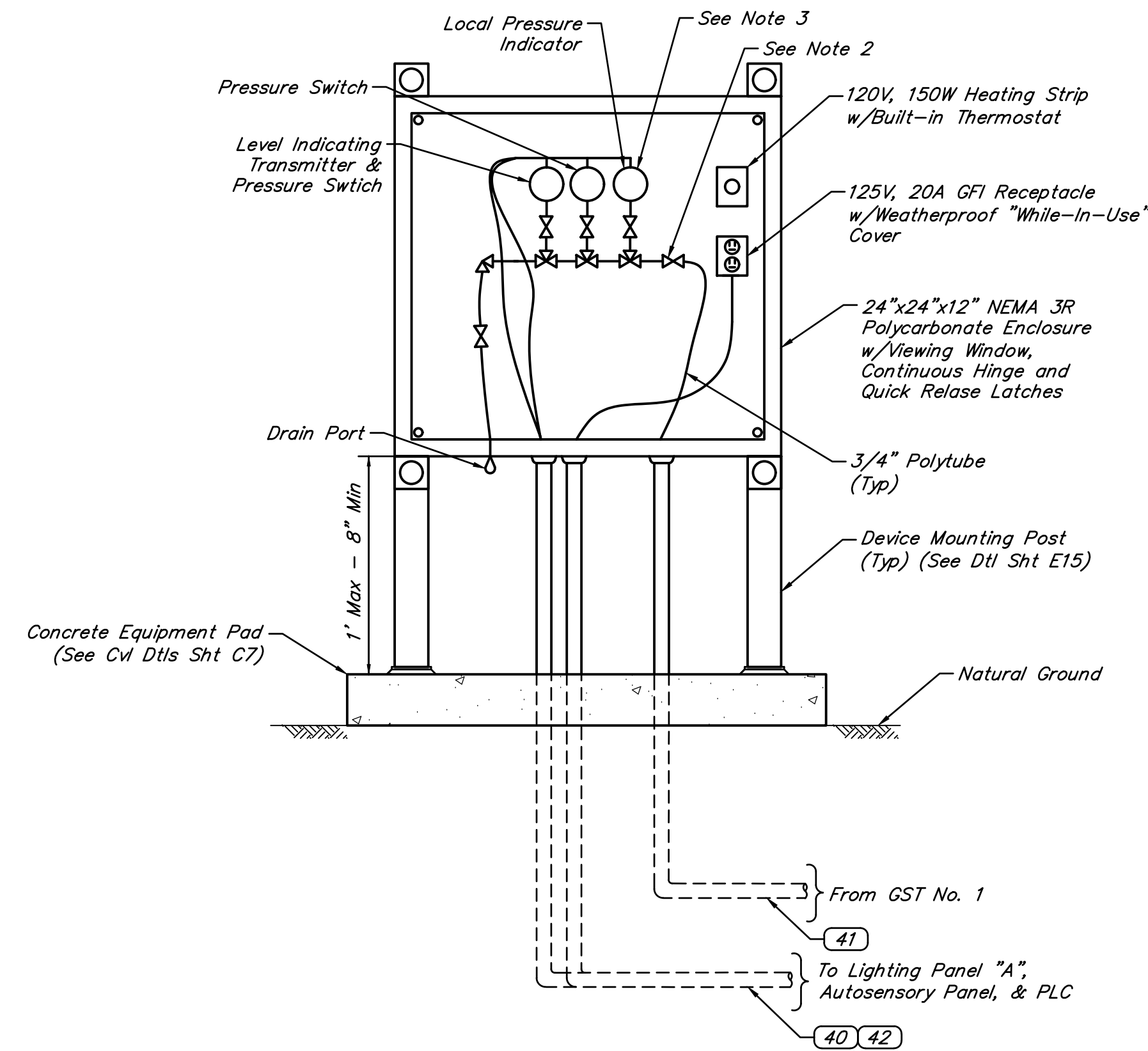
NOTE:
Nameplates shall be constructed from laminated plastic material a minimum of 1/16" thick. Letters shall be gothic 3/16" high minimum, use two lines if description will cause length to exceed 2 1/2". Alarm nameplates shall be white letters on red background; others shall be black letters on white background. Affix nameplates to panel using self-tapping stainless steel screws. Submit details of Autosensory Panel including, but not limited to, dimensional drawings, nameplate schedule, swing out panel layout, back panel layout and wiring and control schematics. These shall be included as part of Specification No. 01300.



AUTOSENSORY PANEL
NOT TO SCALE



HYDRO-TANK PRESSURE ENCLOSURE DETAIL
NOT TO SCALE



GST NO. 1 PRESSURE ENCLOSURE DETAIL
NOT TO SCALE

- NOTES:**
1. Provide traditional NEMA devices as defined in NEMA Standards Publication No. ICS 2.4.2003. IEC components are not allowed.
 2. Contractor shall install 304 stainless steel tubing with stainless steel swagelok fittings and ball valves (typical).
 3. Provide manufacturers panel mount support for mounting to interior back panel of enclosure.
 4. Booster pump and water well capacitors shall be mounted on top of the MCC enclosure.
 5. Contractor shall label each ball valve according to their corresponding hydrotank.

APPROVED: *[Signature]*
E.E.C. DEVELOPMENT COORDINATOR

DATE: 02/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL DETAILS
SHEET 1 OF 3

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	INDUSTRIAL
SHEET & BRIDGE	INDUSTRIAL

FILE NO: 13889-0002-00
FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.

DATE: April 2018
DGN. BY: KADOMINGUEZ
DWG. BY: JASTRUHAR

SCALE: NO SCALE

E13
SHEET No. 38 OF 47

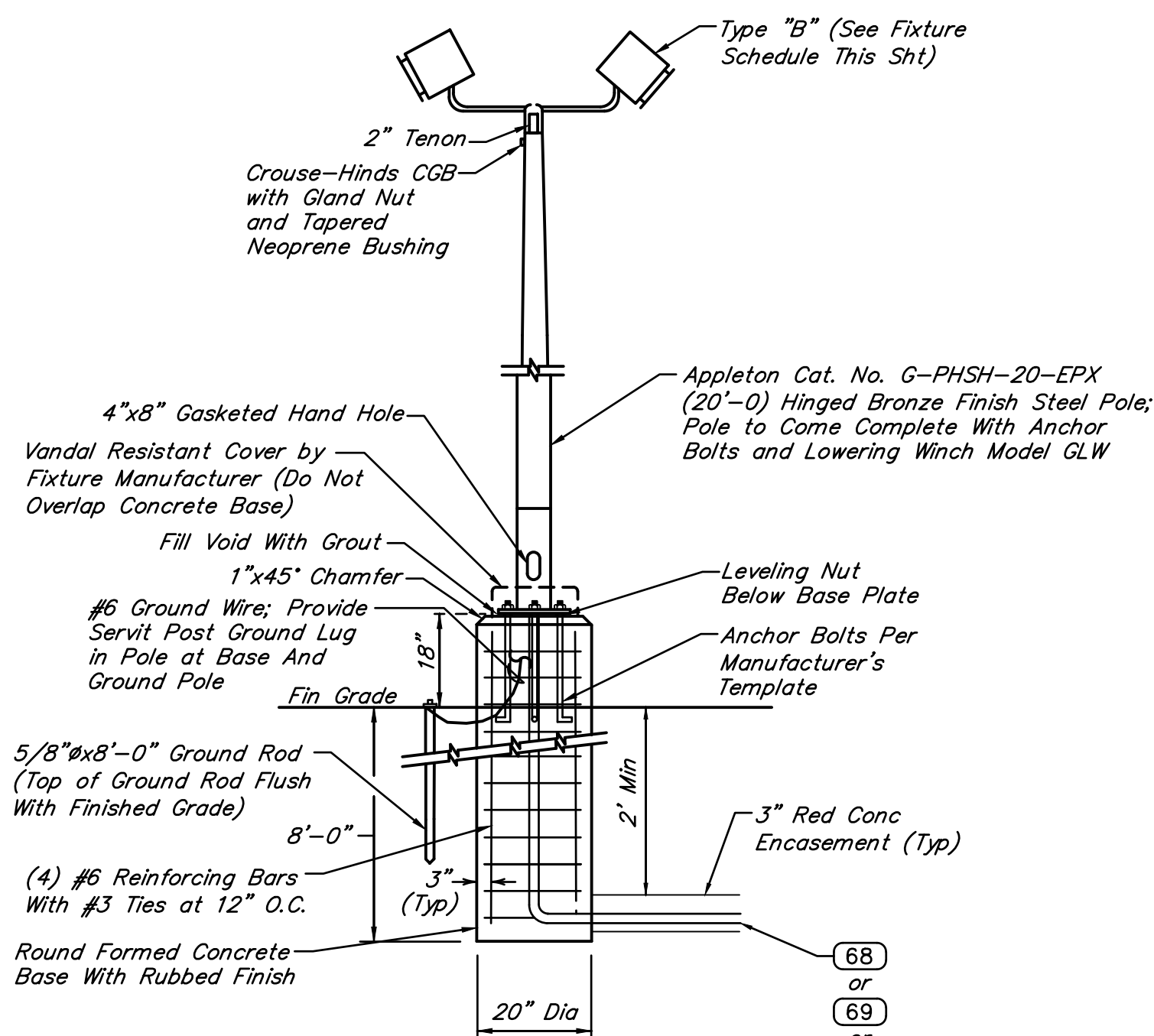
NOTE:

- Light fixture to be oriented no more than 20° upward from straight down per Fort Bend County lighting regulations.
- Contractor shall submit lighting pole layout with height and location of mounting bracket.

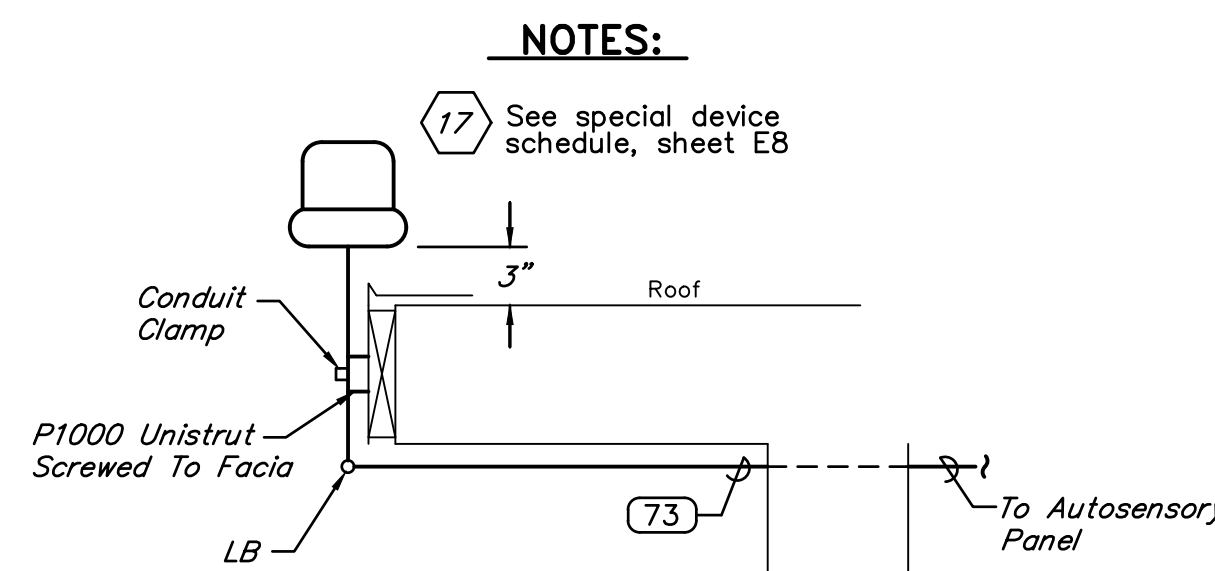
LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	VOLTAGE	MOUNTING	LAMPS		REMARKS
				NO.	TYPE	
A	ECO LIGHTING SOLUTIONS ECOVP2LED1840	120	CEILING	2	LED	VAPOR TIGHT LINEAR LED LIGHT FIXTURE W/FIBERGLASS HOUSING
B	APPLETON AMLED77-BUI1-D W/POLE TOP SLIPFITTER AND VANDAL SHIELD (G-AM-6-VS)	120	SLIP-FITTER	2	LED 13,500 LUMENS	AREAMASTER W/VANDAL SHIELD, SEE DETAIL THIS SHT.
C	LITHONIA OLW-23	120	WALL	1	LED 2720 LUMENS	2 LAMP ENCLOSED
D	LITHONIA STL4 48L EZ1 LP850	120	CEILING	2	LED	2 LAMP ENCLOSED

FLOODLIGHT NOTES:

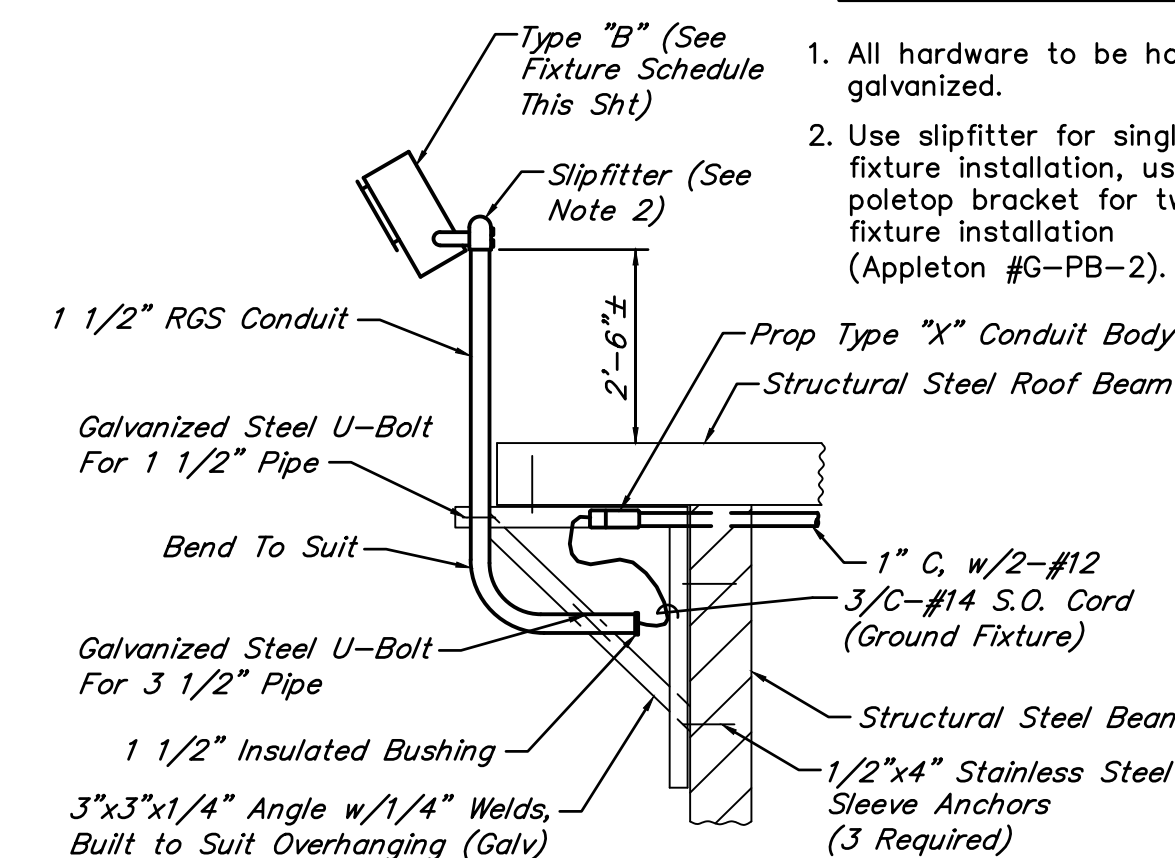
- All hardware to be hot dip galvanized.
- Use slipfitter for single fixture installation, use poletop bracket for two fixture installation (Appleton #G-PB-2).



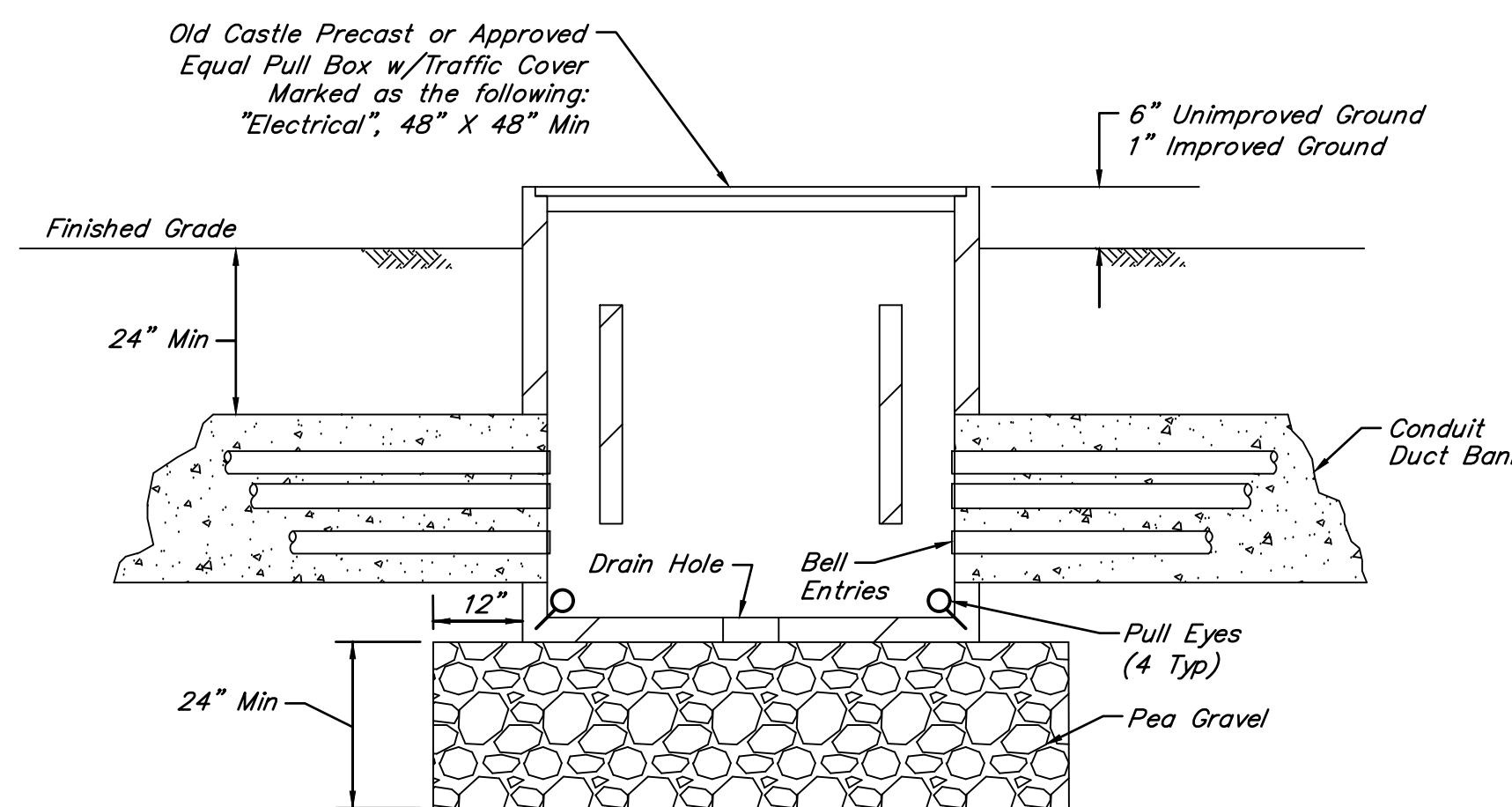
FLOODLIGHT POLE DETAIL
NOT TO SCALE



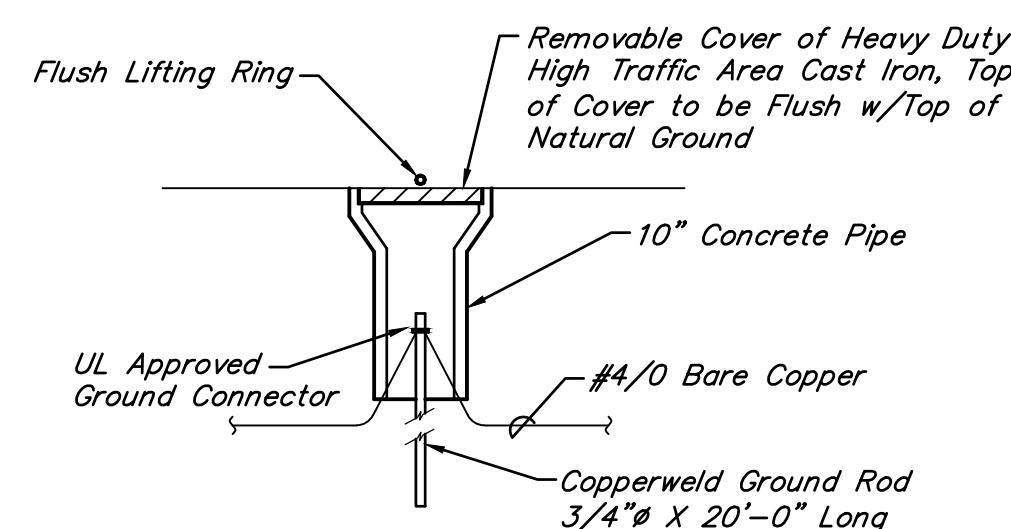
BEACON LIGHT INSTALLATION
NOT TO SCALE



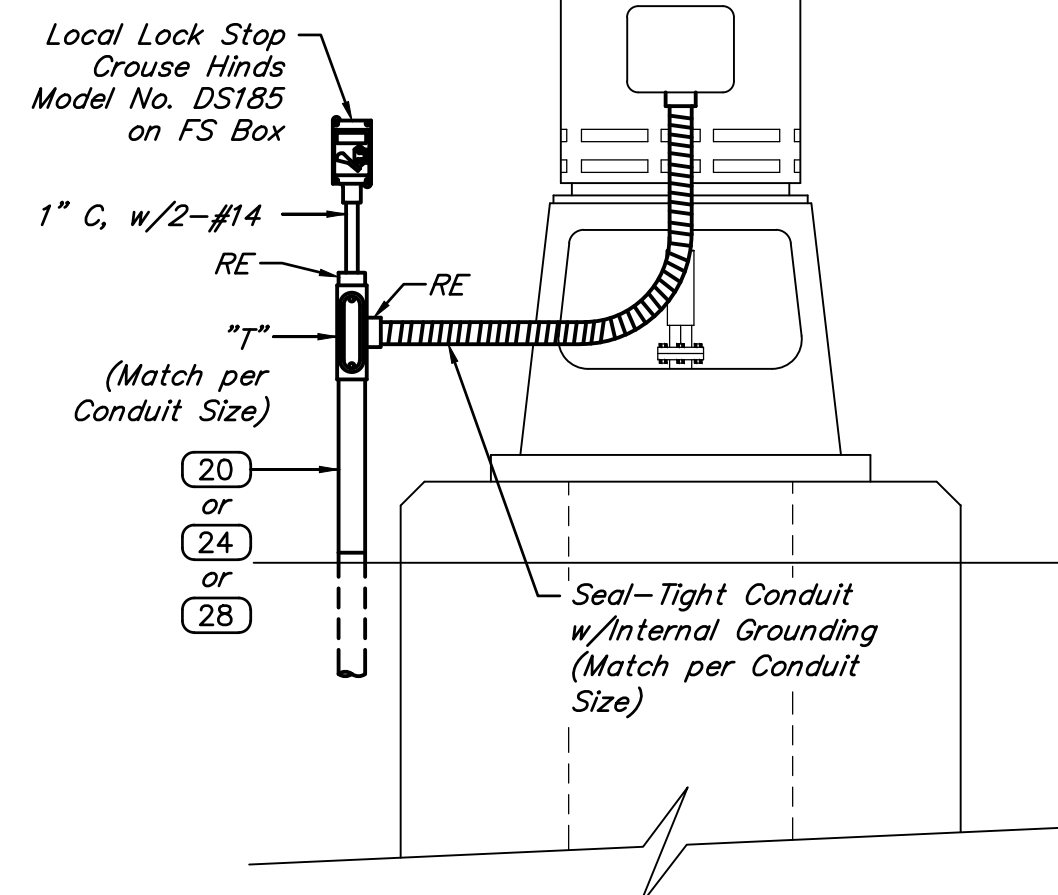
BUILDING FLOODLIGHT INSTALLATION
NOT TO SCALE



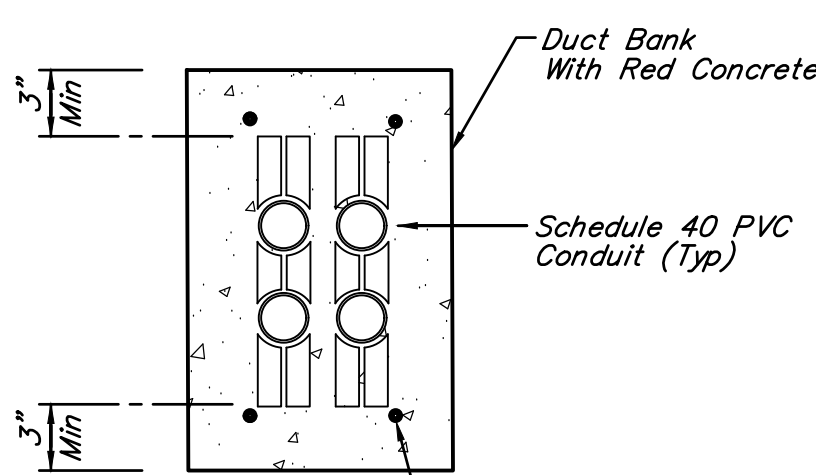
ELECTRICAL PULL BOX INSTALLATION
NOT TO SCALE



GROUND WELL DETAIL
NOT TO SCALE



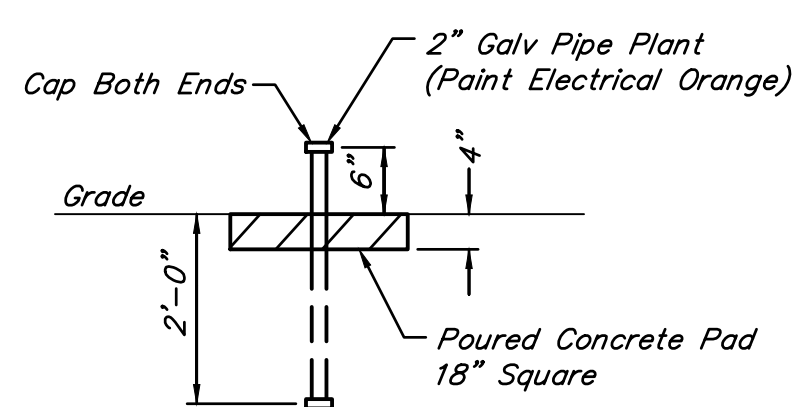
BOOSTER PUMP ELECTRICAL DETAIL
NOT TO SCALE



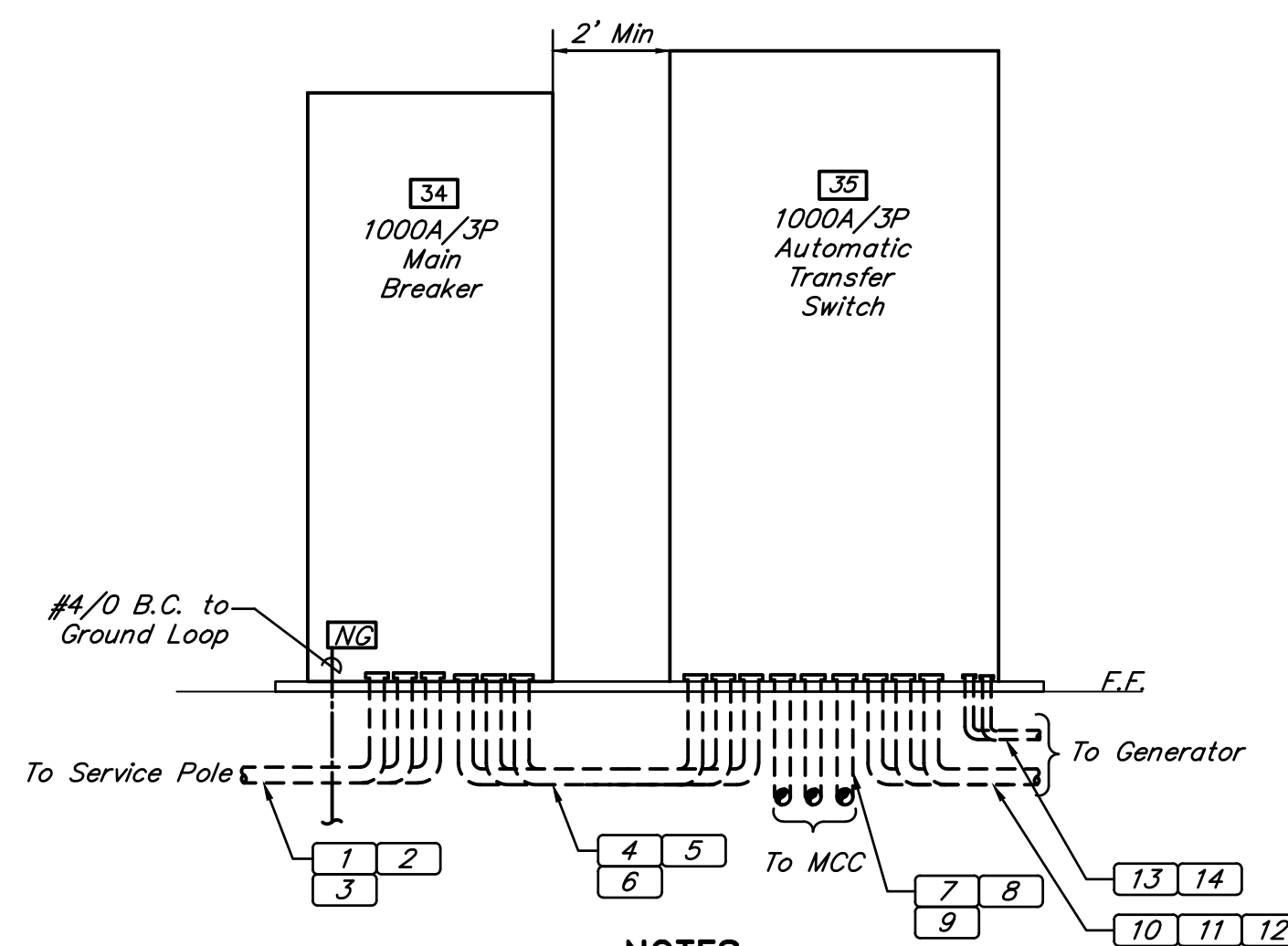
TYPICAL DUCT BANK
NOT TO SCALE

DUCTBANK NOTES:

- All power and instrumentation conductors shall be installed in separate conduits. Instrumentation & power conduits must have a minimum of 12" of spacing. Route power and instrumentation conductors in separate pull boxes.
- If conduits inside duct bank does not match a typical detail shown, use next largest duct bank and remove conduits from top row as necessary.



DUCT BANK MARKER DETAIL
NOT TO SCALE



SERVICE ENTRANCE LAYOUT
NOT TO SCALE

- NOTES:**
- See nameplate schedule on Sheet E13.

APPROVED: *[Signature]*
E.B.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL DETAILS
SHEET 2 OF 3

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

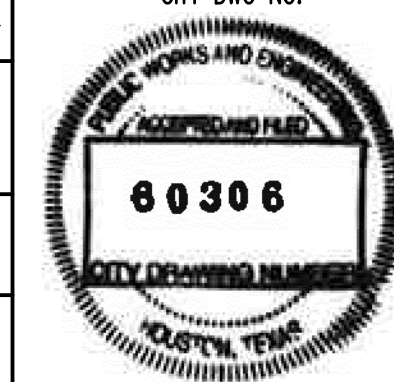
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

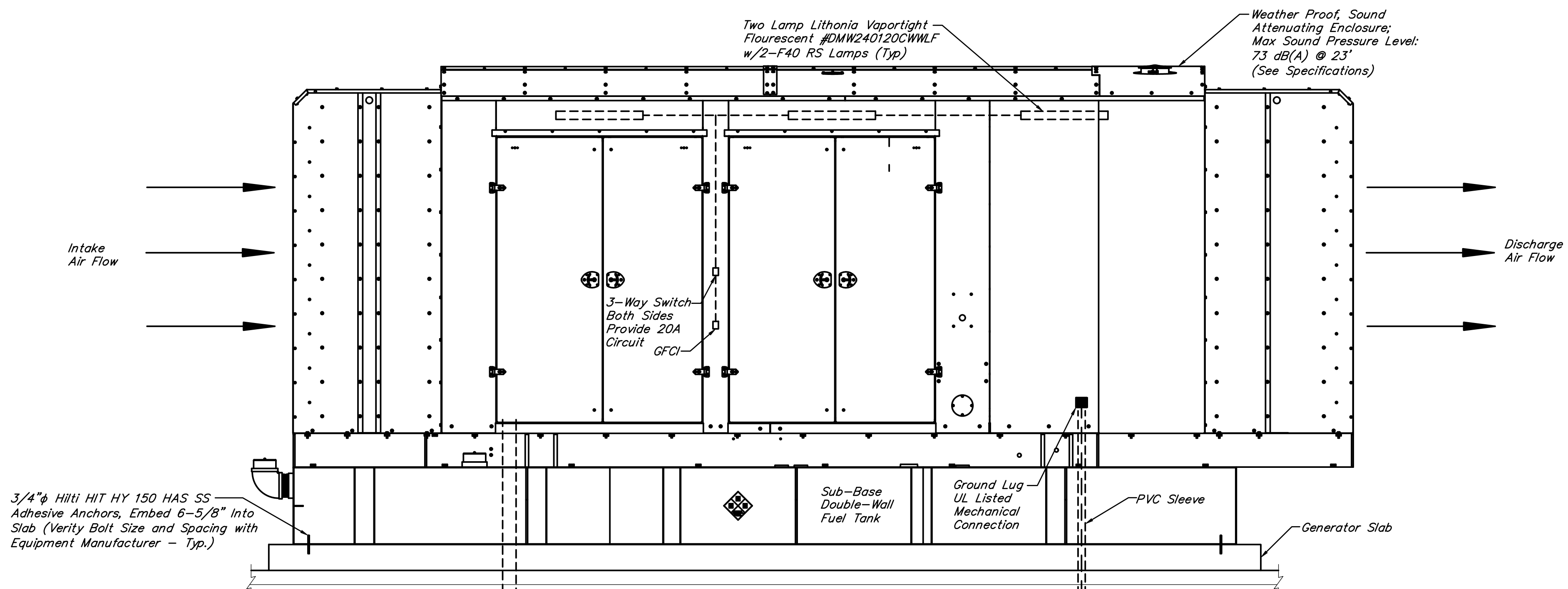
WATER	TRAFFIC & TRANSPORTATION
SEWER/WASTE	STORM WATER QUALITY
STORM	FACILITIES
STREET	STREET

FILE NO: 13889-0002-00
JOB NO: 13889-0002-00

DATE: April 2018
DGN. BY: KADOMINGUEZ
DWG. BY: JASTRUHAR
SCALE: NO SCALE

E14
SHEET No. 39 OF 47



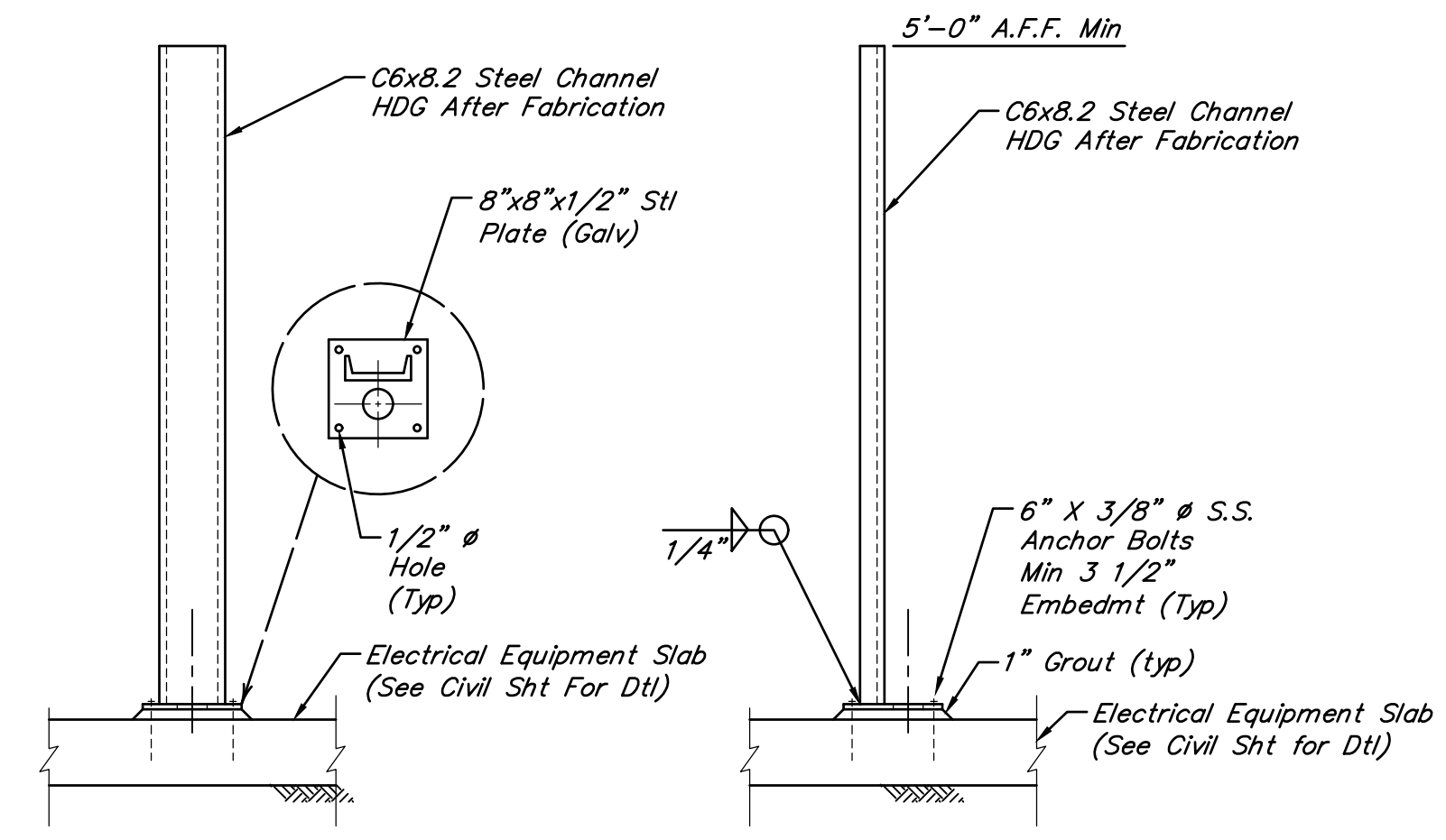


NOTE:

1. Installation shown is typical. Conduit stub-up location, panel access, orientation, fuel line entrance, and controls may vary according to generator manufacturer. Modify installation accordingly.

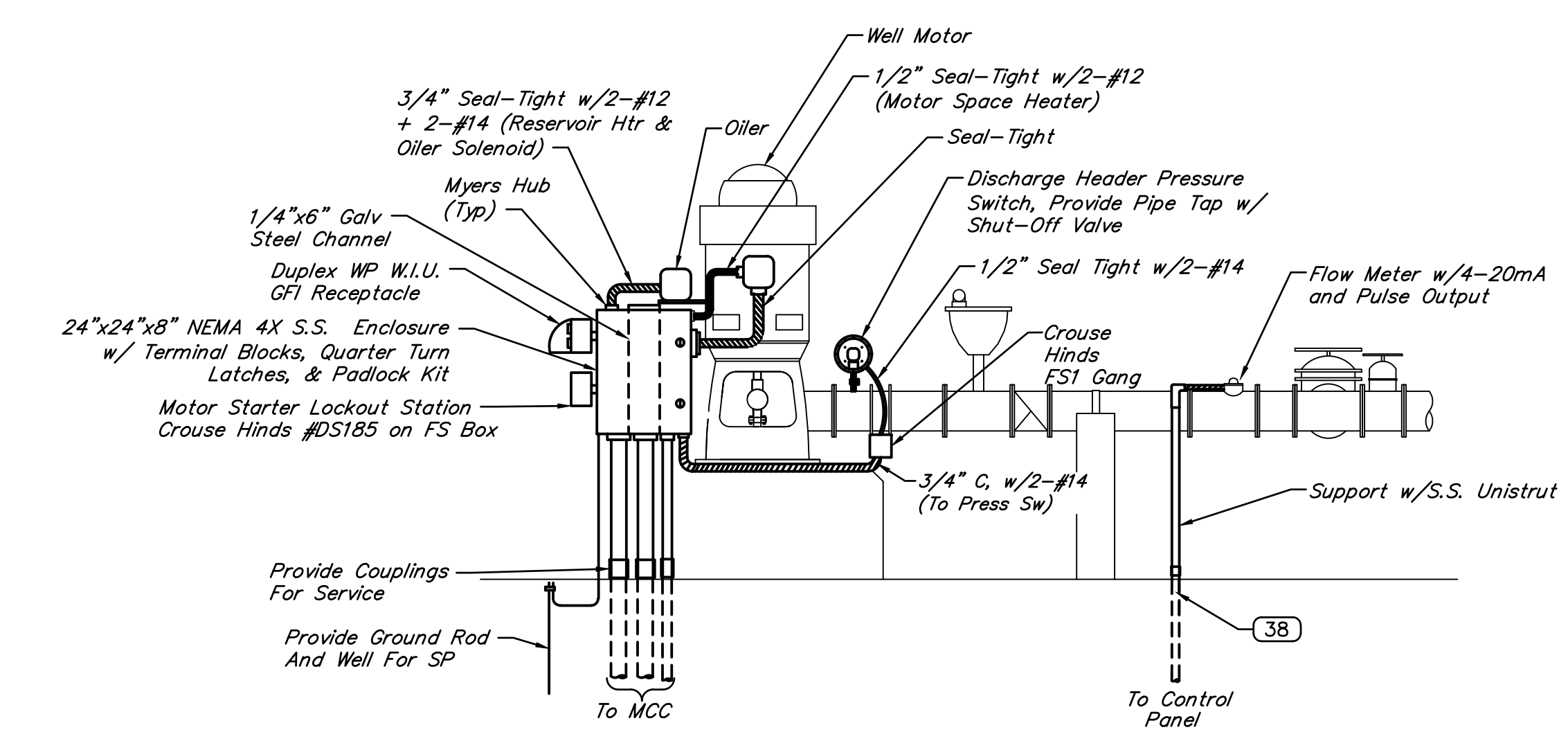
GENERATOR INSTALLATION DETAIL

NOT TO SCALE



DEVICE MOUNTING POST DETAIL

NOT TO SCALE



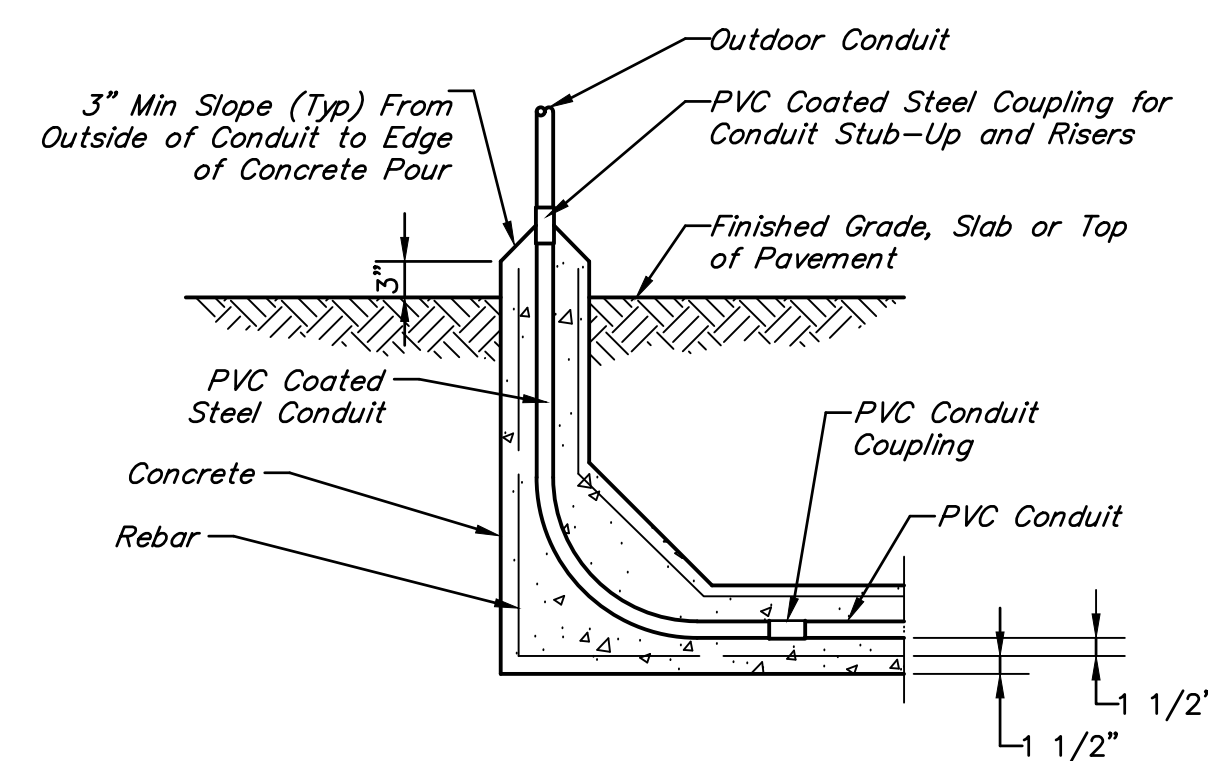
NOTES:

1. Install surge protector on back side of junction box, front access with indicating light kit installed on outer frame door.

2. Support terminal boxes with stainless steel unistrut.

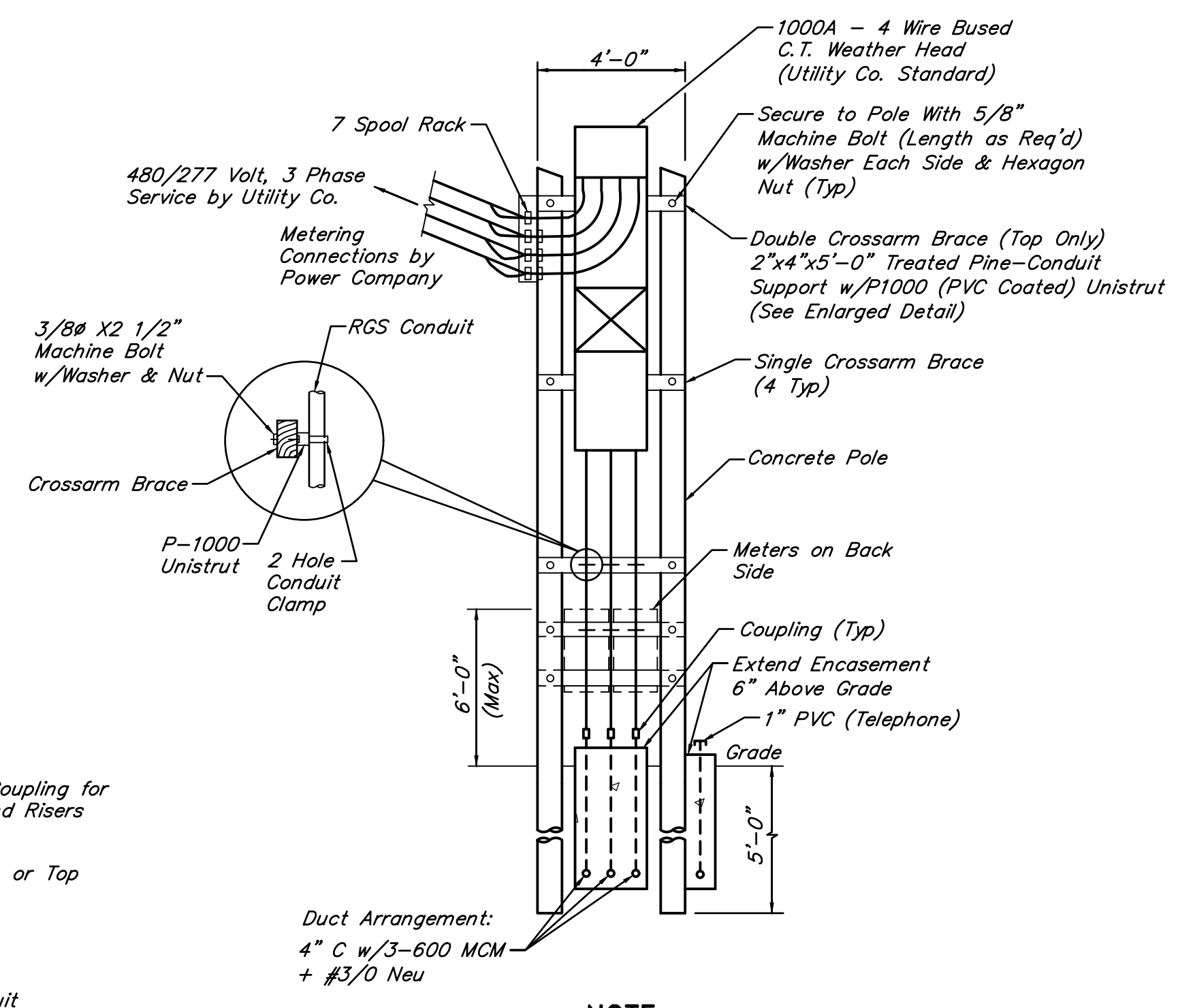
WELL PUMP No. 1 ELECTRICAL DETAIL

NOT TO SCALE



CONDUIT STUB-UP

NOT TO SCALE



NOTE:

All hardware to be hot dip galvanized.

BUSSED WEATHERHEAD DETAIL

NOT TO SCALE

Service structure must meet Utility Co. service standards.

APPROVED: *[Signature]*
P.E.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
ELECTRICAL DETAILS
SHEET 3 OF 3

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
WATERWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET / BRIDGE	

FILE NO: 13889-0002-00
JOB NO: 13889-0002-00

DATE: April 2018
DGN. BY: KADOMINGUEZ

DWG. BY: JASTRUHAR

SCALE: NO SCALE

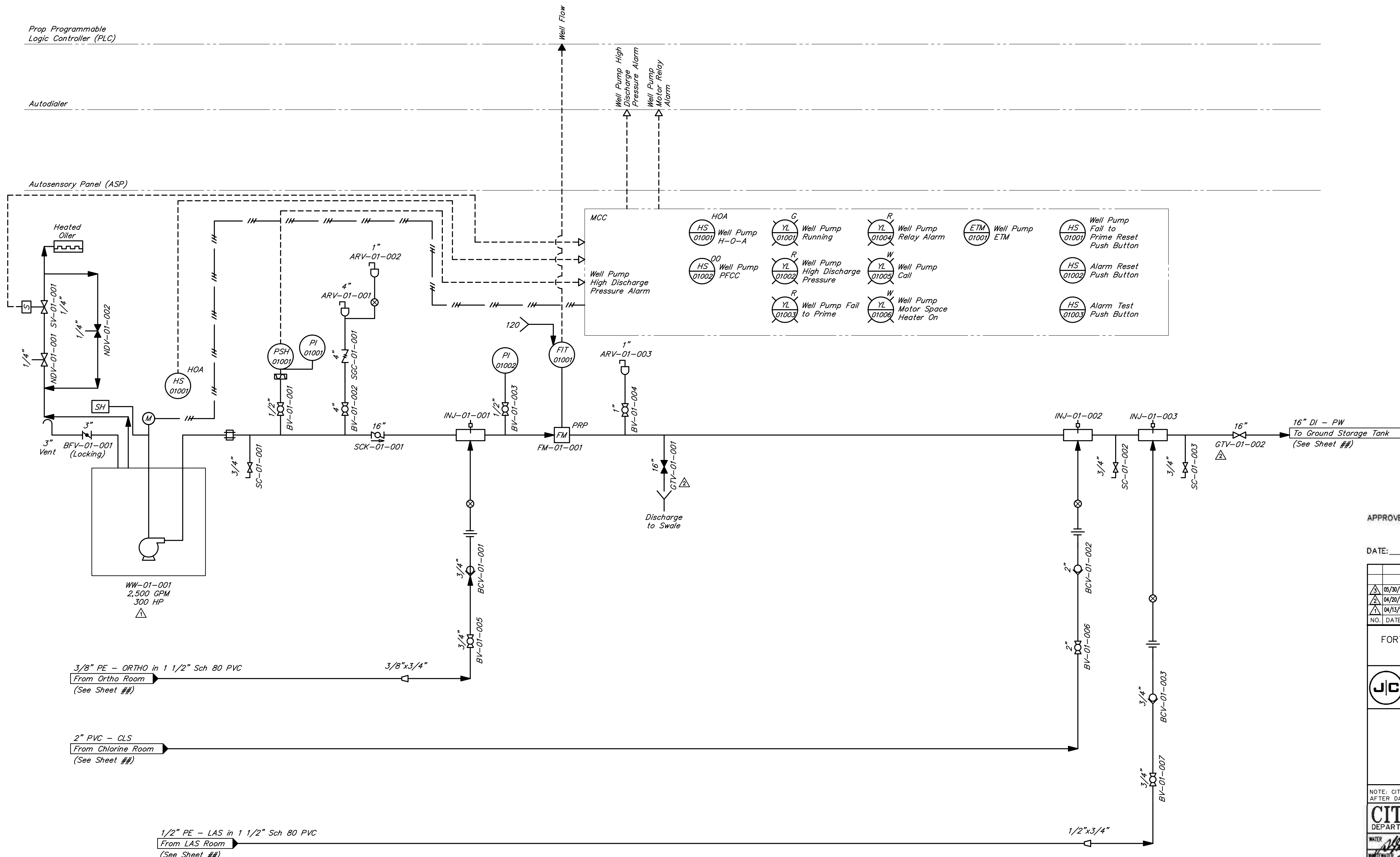
E15
SHEET No. 40 OF 47



Prop Programmable Logic Controller (PLC)

Autodialer

Autosensory Panel (ASP)



APPROVED: *[Signature]*
 DATE: 02/18

NO.	DATE	REVISIONS	APP.
△	05/30/18	ISSUED FOR CONSTRUCTION	BS C
△	04/20/18	REVISIONS PER ADDENDUM No. 2	BS C
△	04/13/18	REVISIONS PER ADDENDUM No. 1	BS C

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



HARVEST GREEN
WATER PLANT No. 1
WATER WELL No. 1
P&ID

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER: <i>[Signature]</i> 4/12/18	TRAFFIC & TRANSPORTATION
WATER QUALITY: <i>[Signature]</i> 4/11/18	STORM WATER QUALITY
STORM: <i>[Signature]</i> 4/12/18	FACILITIES: <i>[Signature]</i> 4/12/18
STREET & BRIDGE	

FILE NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018	
DGN. BY: KADOMINGUEZ	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
SHEET No. 41 OF 47	

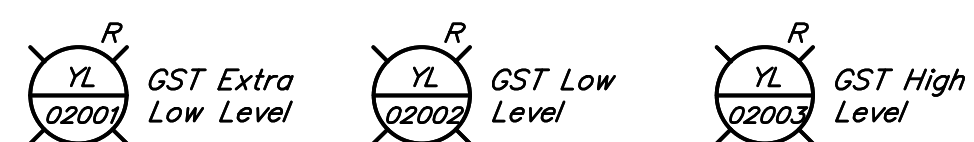
For Electrical & Process Work Only:



Prop Programmable Logic Controller (PLC)

Autodialer

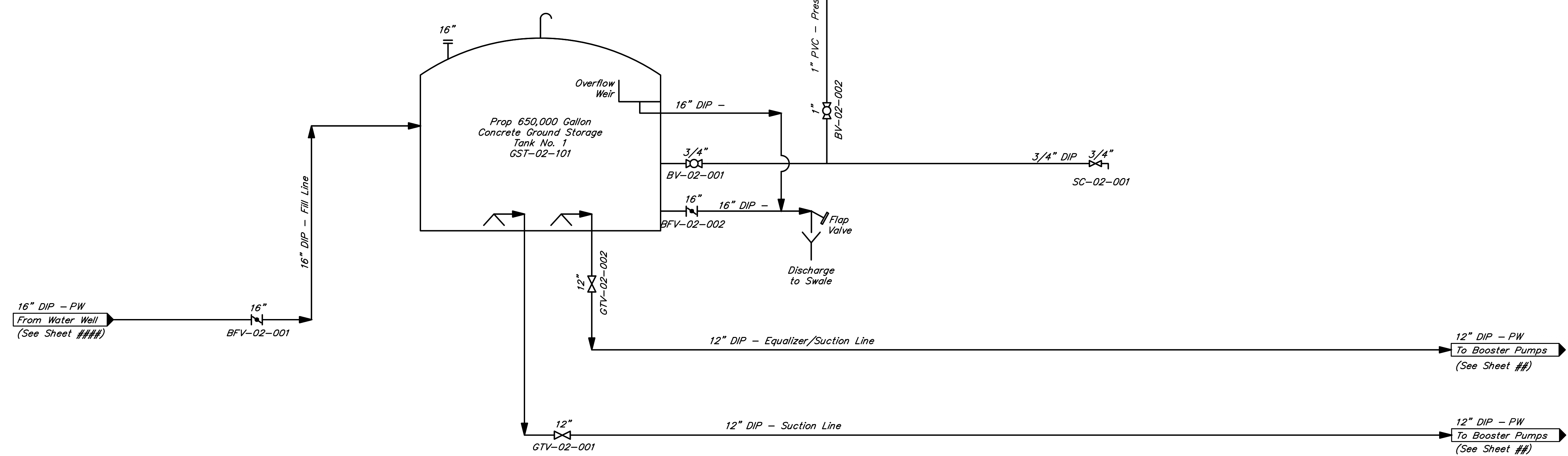
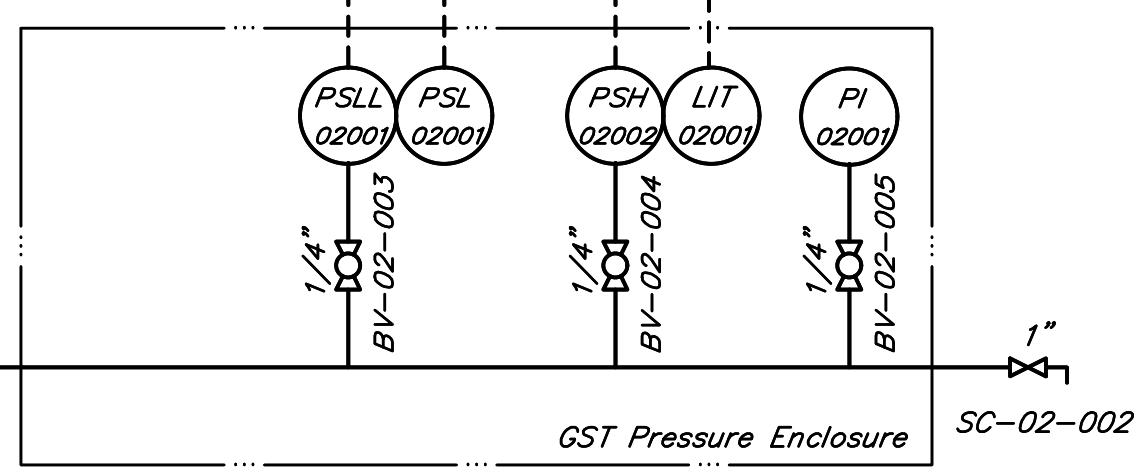
Autosensory Panel (ASP)



GST Extra Low Level Alarm
 GST Low Level Alarm
 GST High Level Alarm

GST No. 1 Extra Low Level Lock-Out Level
 GST No. 1 Low Level
 GST High Level

GST No. 1 Level



APPROVED: *[Signature]*
 P.E.C. DEVELOPMENT COORDINATOR
 DATE: 5/21/18

NO.	DATE	ISSUED FOR CONSTRUCTION	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION		BSC

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



HARVEST GREEN
 WATER PLANT No. 1
**GROUND STORAGE TANK
 P&ID**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER <i>[Signature]</i>	TRAFFIC & TRANSPORTATION
SEWER/WASTEWATER <i>[Signature]</i>	STORM WATER QUALITY
STORM <i>[Signature]</i>	FACILITIES <i>[Signature]</i>
SHEET & SUBJOB	

FILE NO: JOB NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018 DGN. BY: KADOMINGUEZ DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
12 SHEET No. 42 OF 47	

For Electrical & Process Work Only:



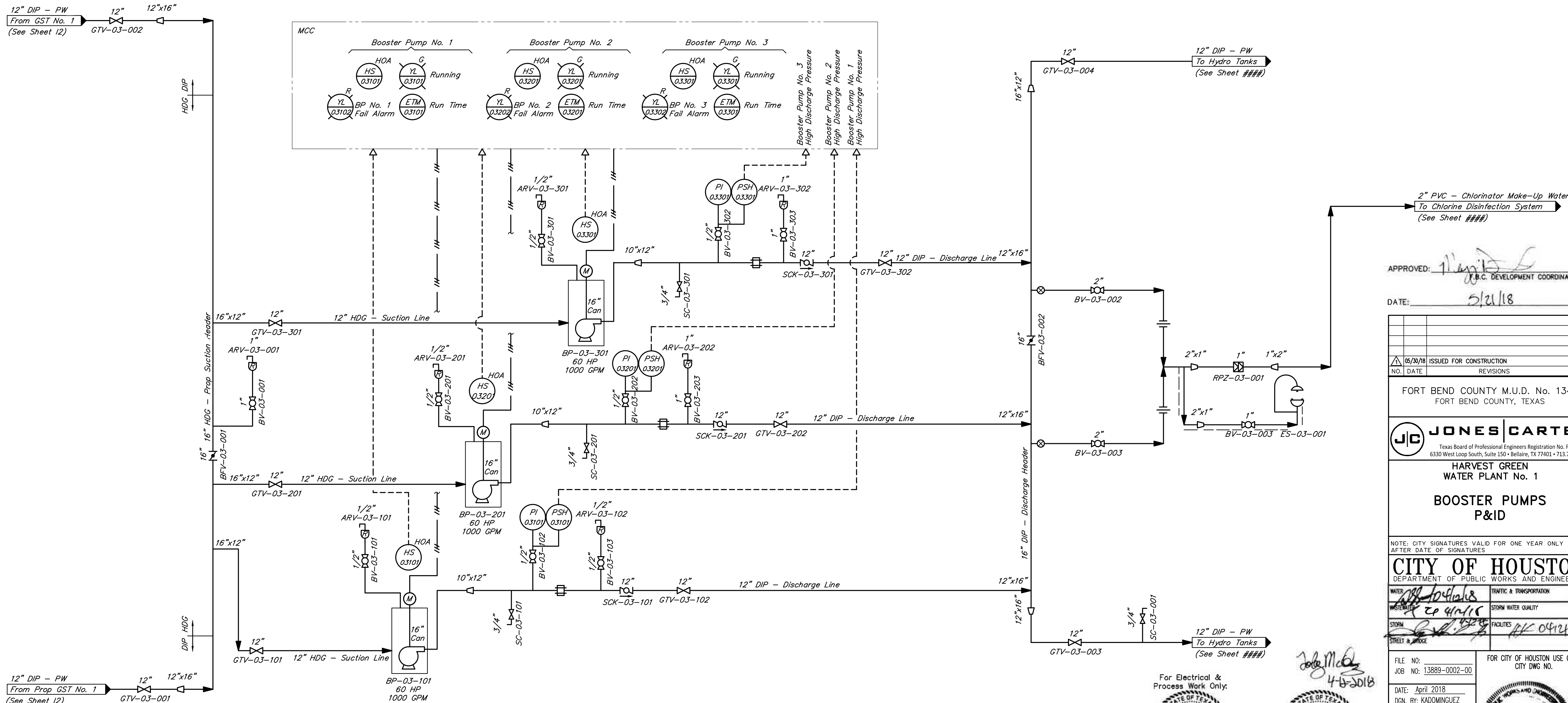
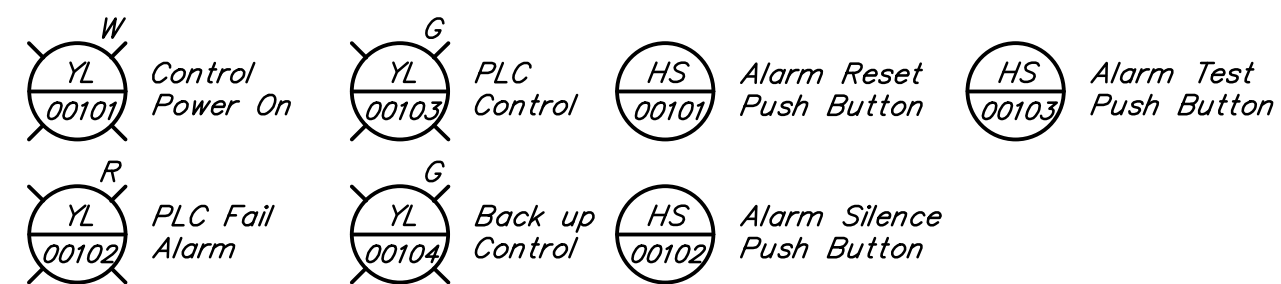
4-12-18
[Signature]

[Signature]
 4-12-2018

Prop Programmable Logic Controller (PLC)

Autodialer

Autosensory Panel (ASP)



APPROVED: *[Signature]*
 DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/20/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



**HARVEST GREEN
 WATER PLANT No. 1
 BOOSTER PUMPS
 P&ID**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

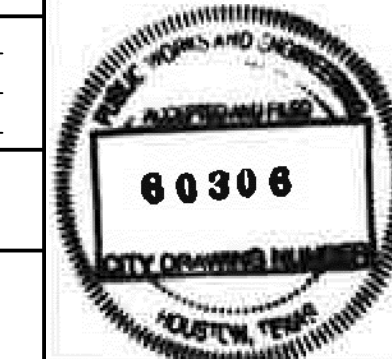
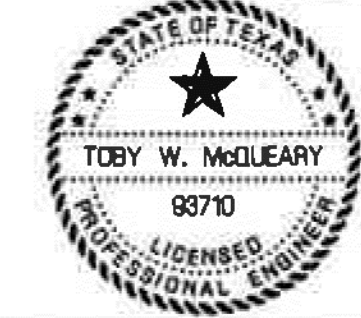
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

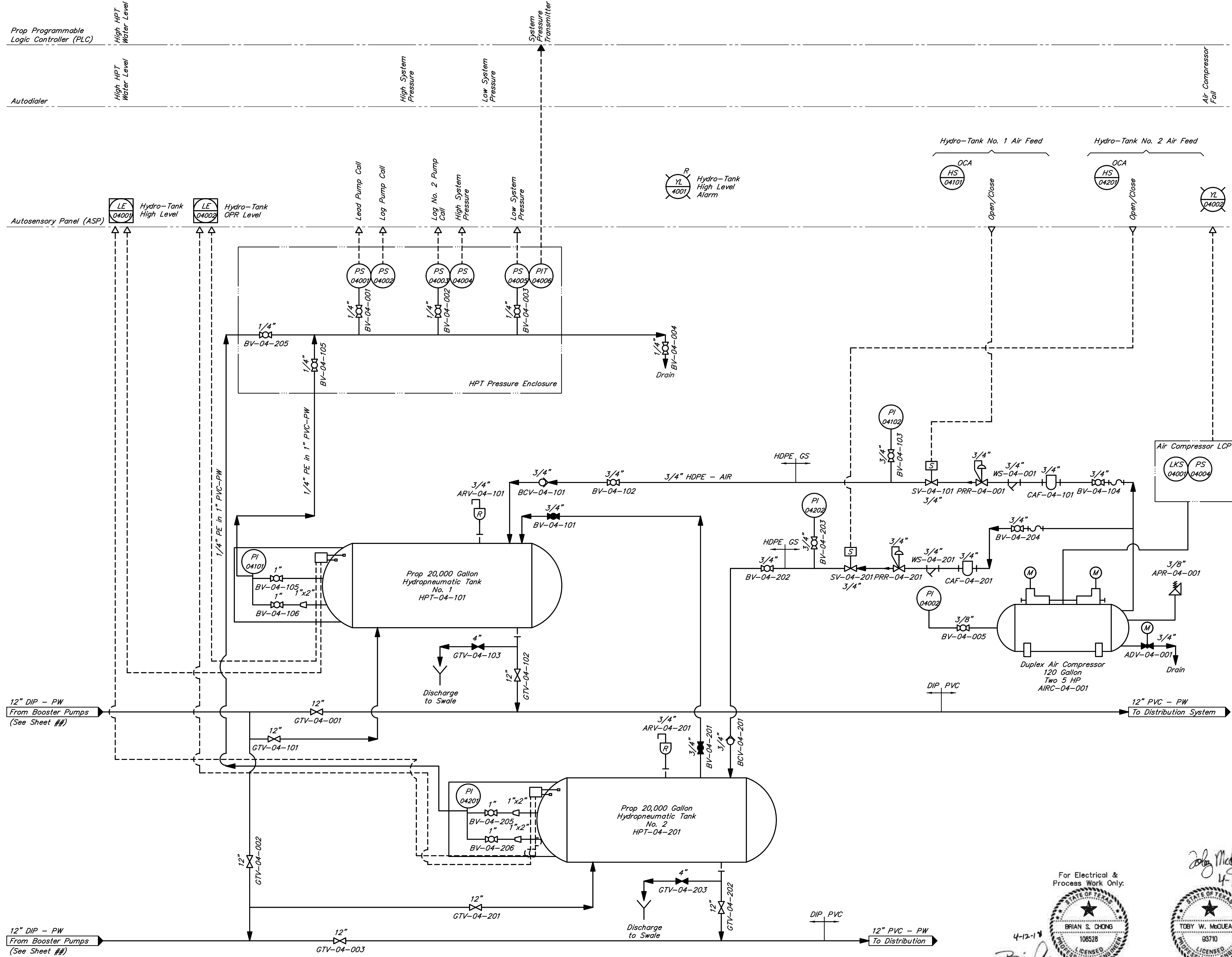
WATER	TRAFFIC & TRANSPORTATION
SEWER	STORM WATER QUALITY
STORM	FACILITIES

FOR CITY OF HOUSTON USE ONLY
 CITY DWG NO.

FILE NO:	JOB NO: 13889-0002-00
DATE: April 2018	DGN. BY: KADOMINGUEZ
DWG. BY: JASTRUHAR	SCALE: NO SCALE
SHEET No. 43 OF 47	13

For Electrical & Process Work Only:





APPROVED: *[Signature]*
 S.B.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



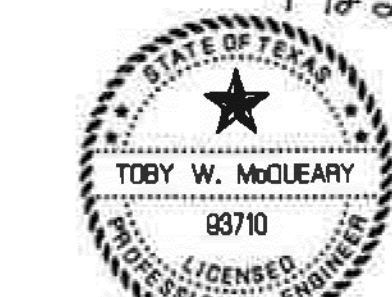
**HARVEST GREEN
 WATER PLANT No. 1
 HYDROPNEUMATIC
 TANKS P&ID**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
 AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER <i>[Signature]</i>	TRAFFIC & TRANSPORTATION
WATERMAKERS <i>[Signature]</i>	STORM WATER QUALITY
STORM <i>[Signature]</i>	FACILITIES <i>[Signature]</i>
SHEET NO. 14	

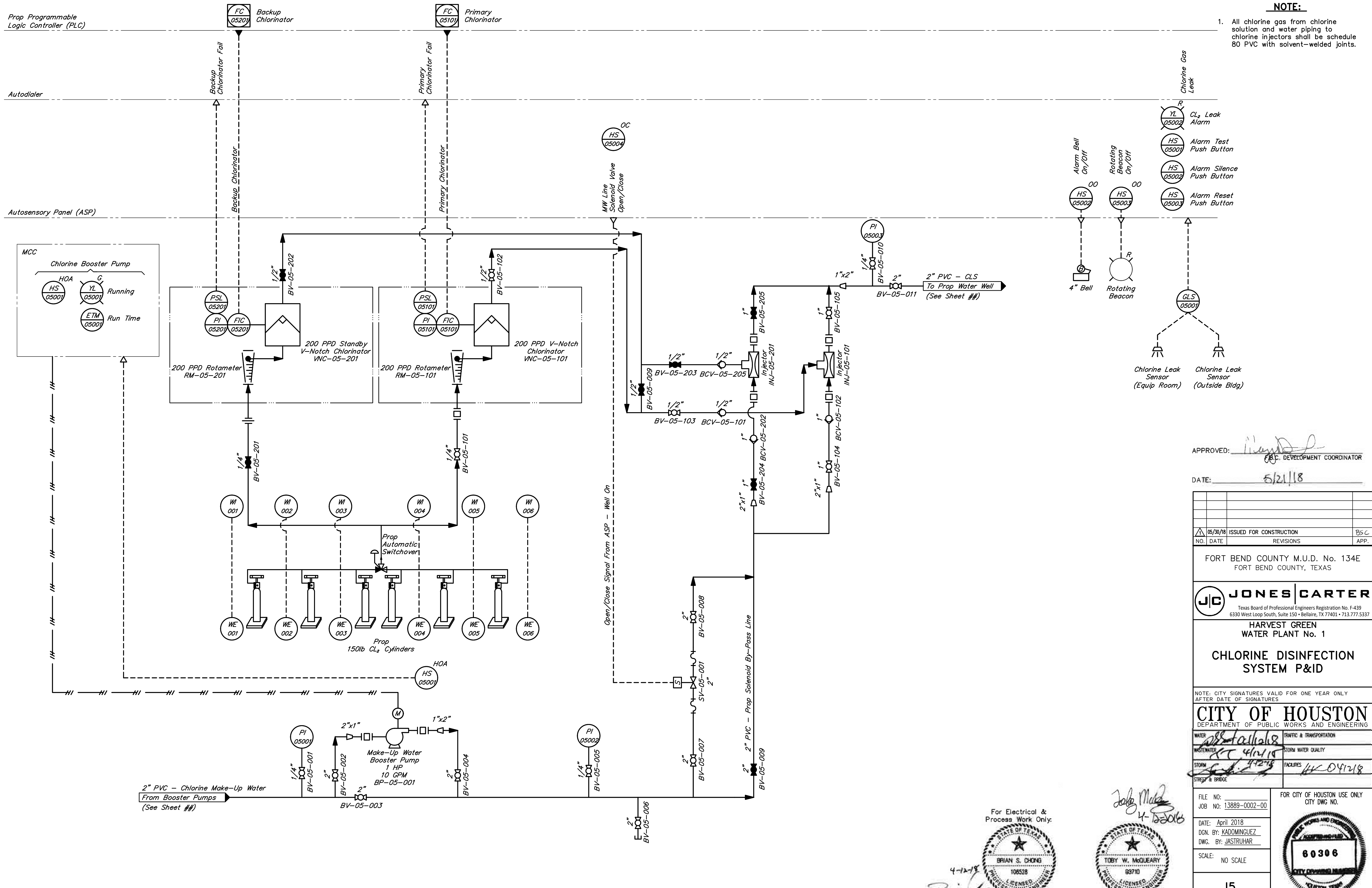
FILE NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018	
DGN. BY: KADOMINGUEZ	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
SHEET No. 44 OF 47	

For Electrical & Process Work Only:



NOTE:

- All chlorine gas from chlorine solution and water piping to chlorine injectors shall be schedule 80 PVC with solvent-welded joints.



APPROVED: *[Signature]*
 DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BSC

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



**HARVEST GREEN
 WATER PLANT No. 1
 CHLORINE DISINFECTION
 SYSTEM P&ID**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

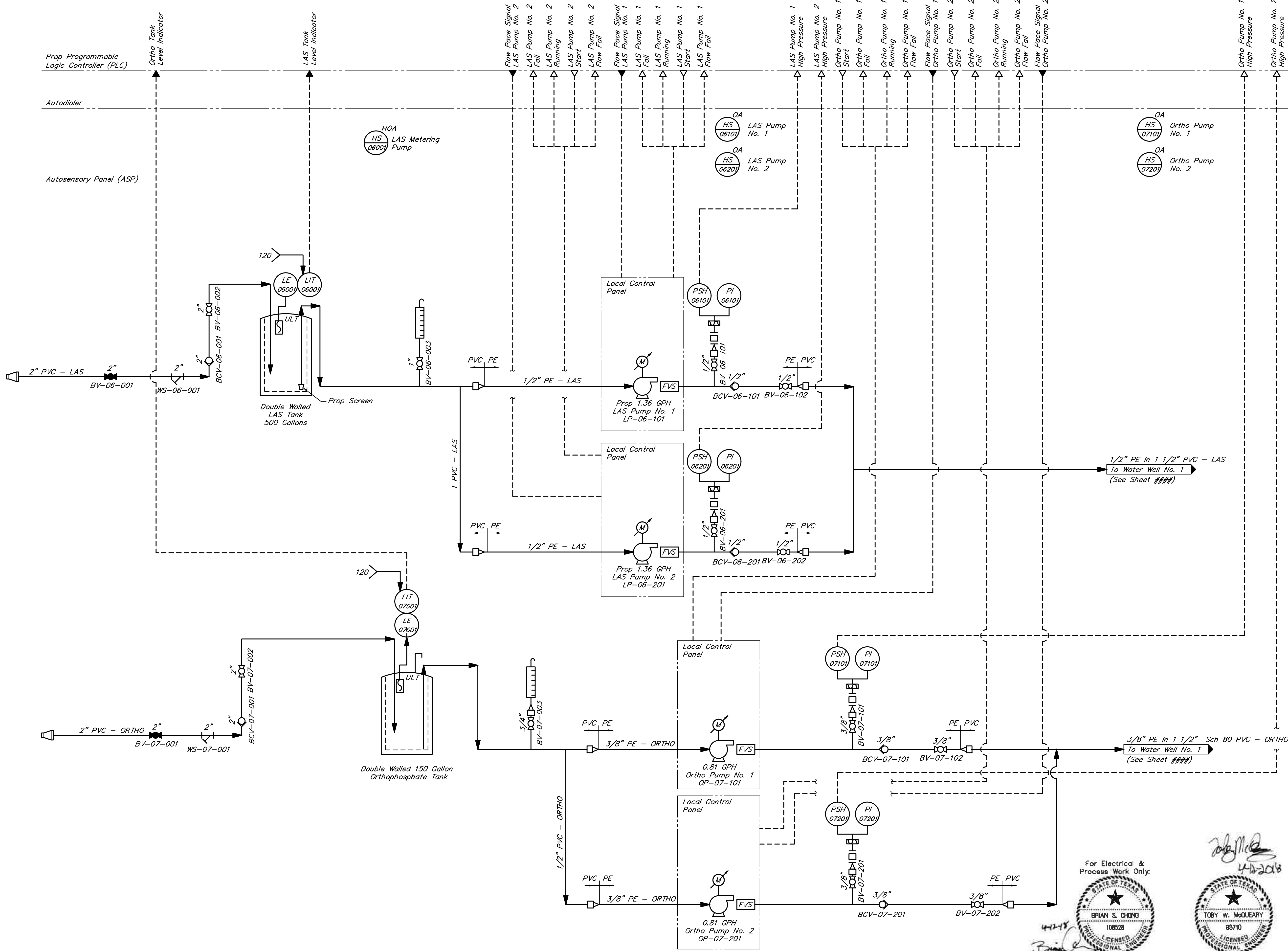
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
SEWER/WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: JOB NO: 13889-0002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018 DGN. BY: KADOMINGUEZ DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
SHEET NO. 45 OF 47	

[Signature]
 4-15-2018

For Electrical & Process Work Only:
[Signature]



APPROVED: *[Signature]*
 F.B.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
1	05/30/18	ISSUED FOR CONSTRUCTION	BS-C

FORT BEND COUNTY M.U.D. No. 134E
 FORT BEND COUNTY, TEXAS



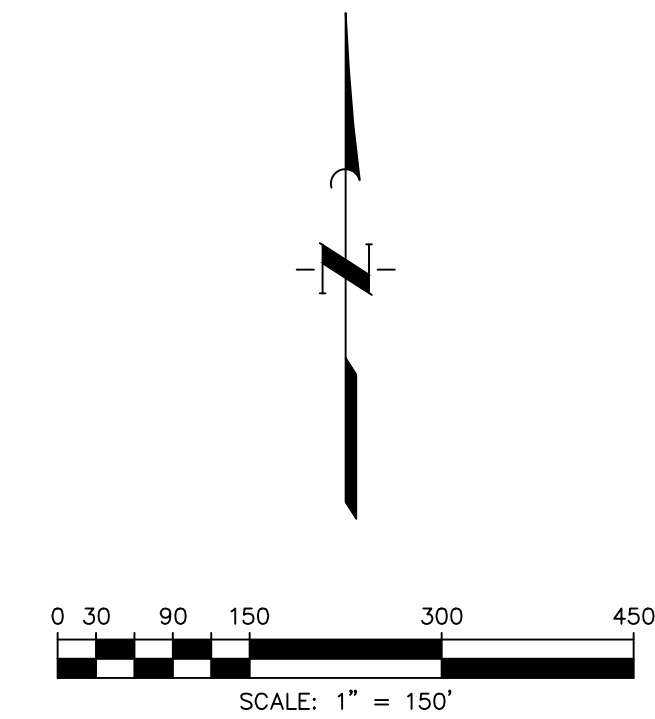
HARVEST GREEN
 WATER PLANT No. 1
 CHEMICAL FEED
 SYSTEMS P&ID

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
 AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & BRIDGE	

FILE NO: 13889-002-00	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.
DATE: April 2018	
DGN. BY: KADOMINGUEZ	
DWG. BY: JASTRUHAR	
SCALE: NO SCALE	
SHEET No. 16 OF 47	



APPROVED: Mandy
C.B.C. DEVELOPMENT COORDINATOR

DATE: 5/21/18

NO.	DATE	REVISIONS	APP.
Δ	05/30/18	ISSUED FOR CONSTRUCTION	TWN

FORT BEND COUNTY M.U.D. No. 134E
FORT BEND COUNTY, TEXAS



**HARVEST GREEN
WATER PLANT No. 1
ONE-QUARTER MILE RADIUS
WATER WELL LOCATION MAP**

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

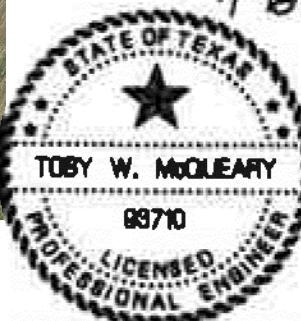
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: <u>5/21/18</u>	TWFFC & TRANSPORTATION
BY: <u>[Signature]</u>	STORM WATER QUALITY
DATE: <u>4/11/18</u>	STREET
BY: <u>[Signature]</u>	FACILITIES
DATE: <u>4/11/18</u>	STREET
BY: <u>[Signature]</u>	FACILITIES

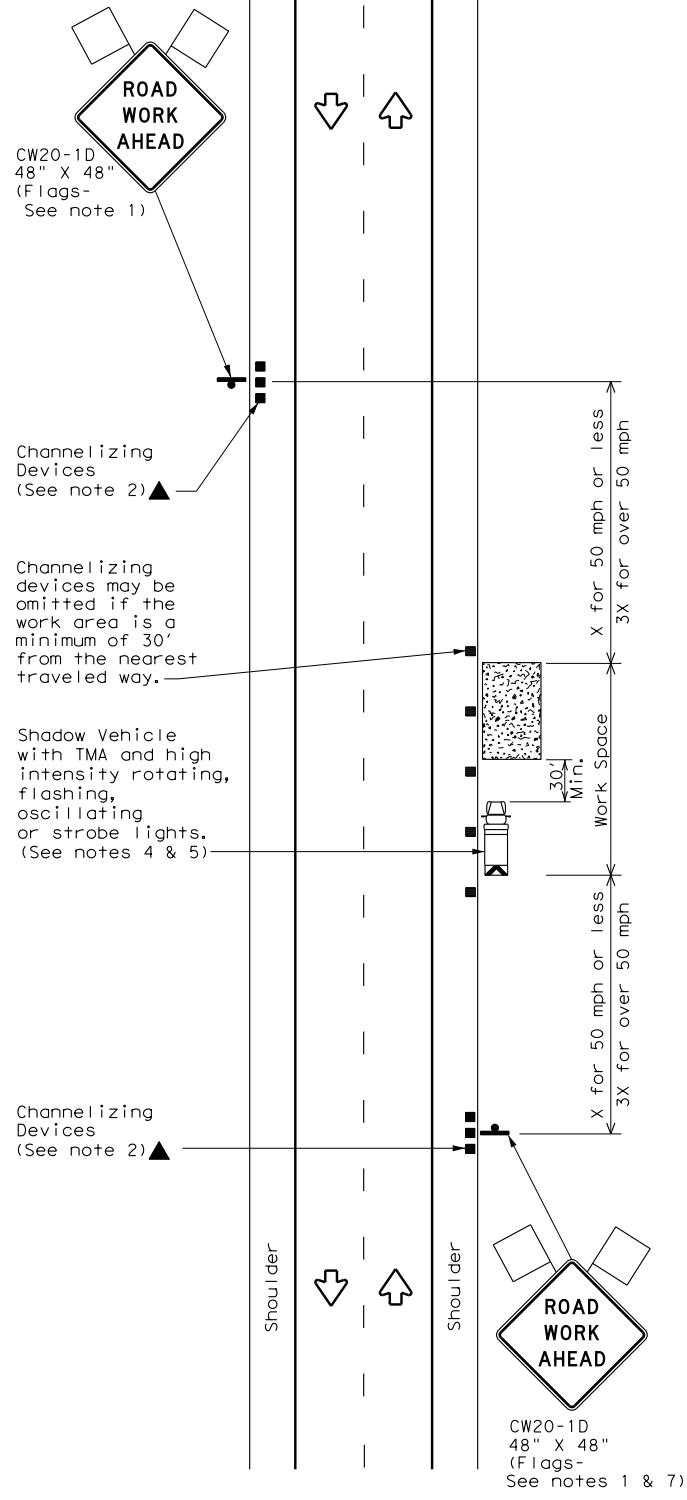
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JOB NO: 13889-0002-00
DATE: April 2018
DGN. BY: MRKILLARY
DWG. BY: JASTRUHAR
SCALE: 1" = 150'
01
SHEET No. 47 OF 47



[Signature]
4-18-2018

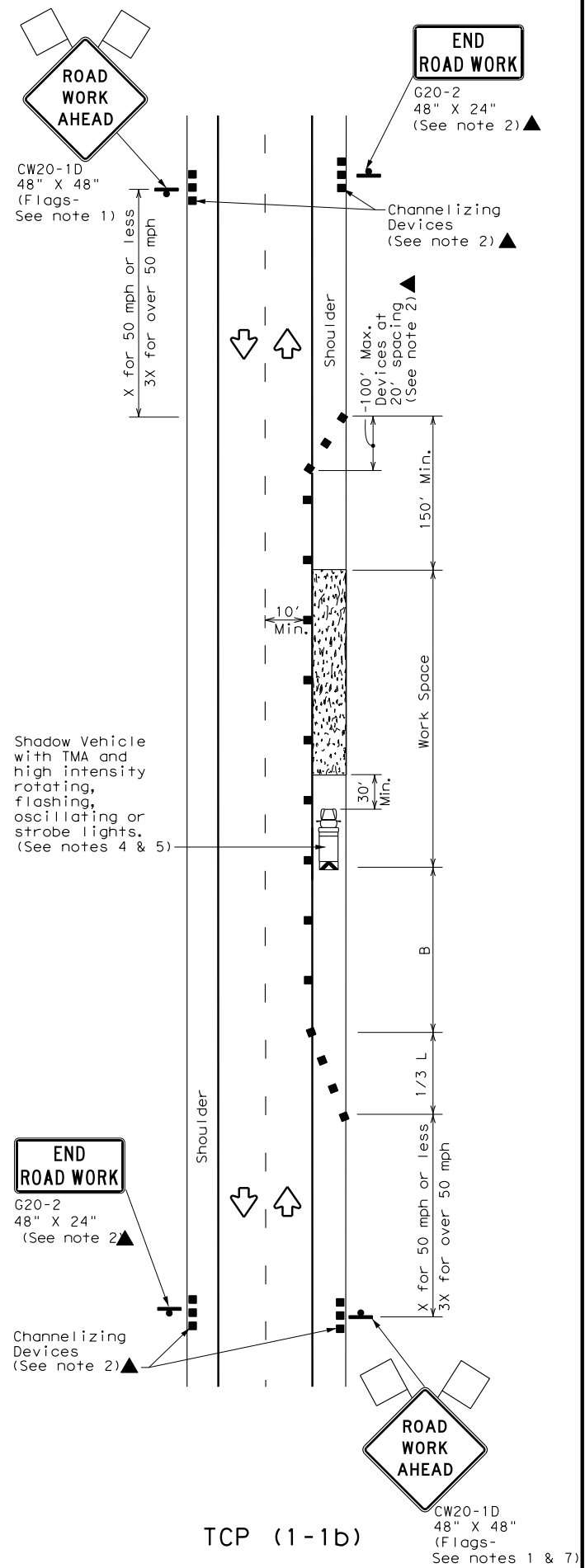


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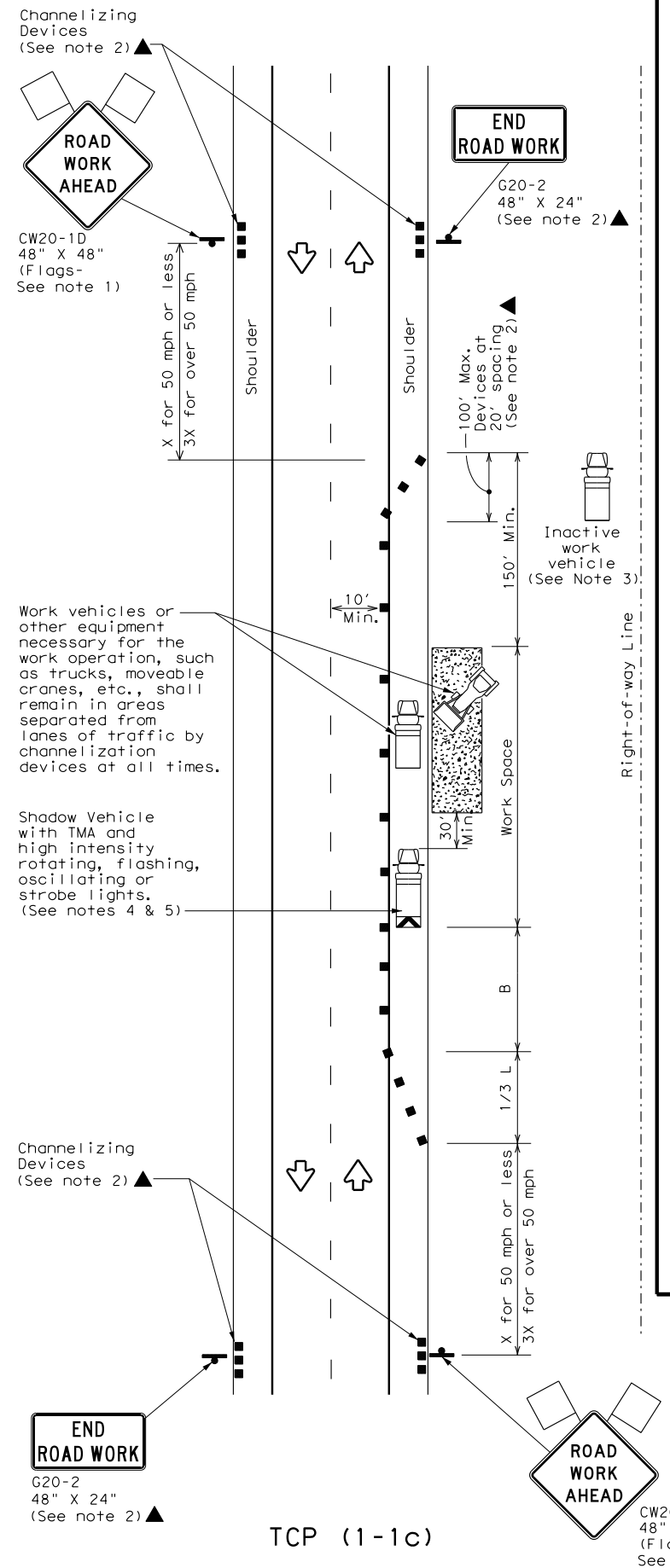
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.



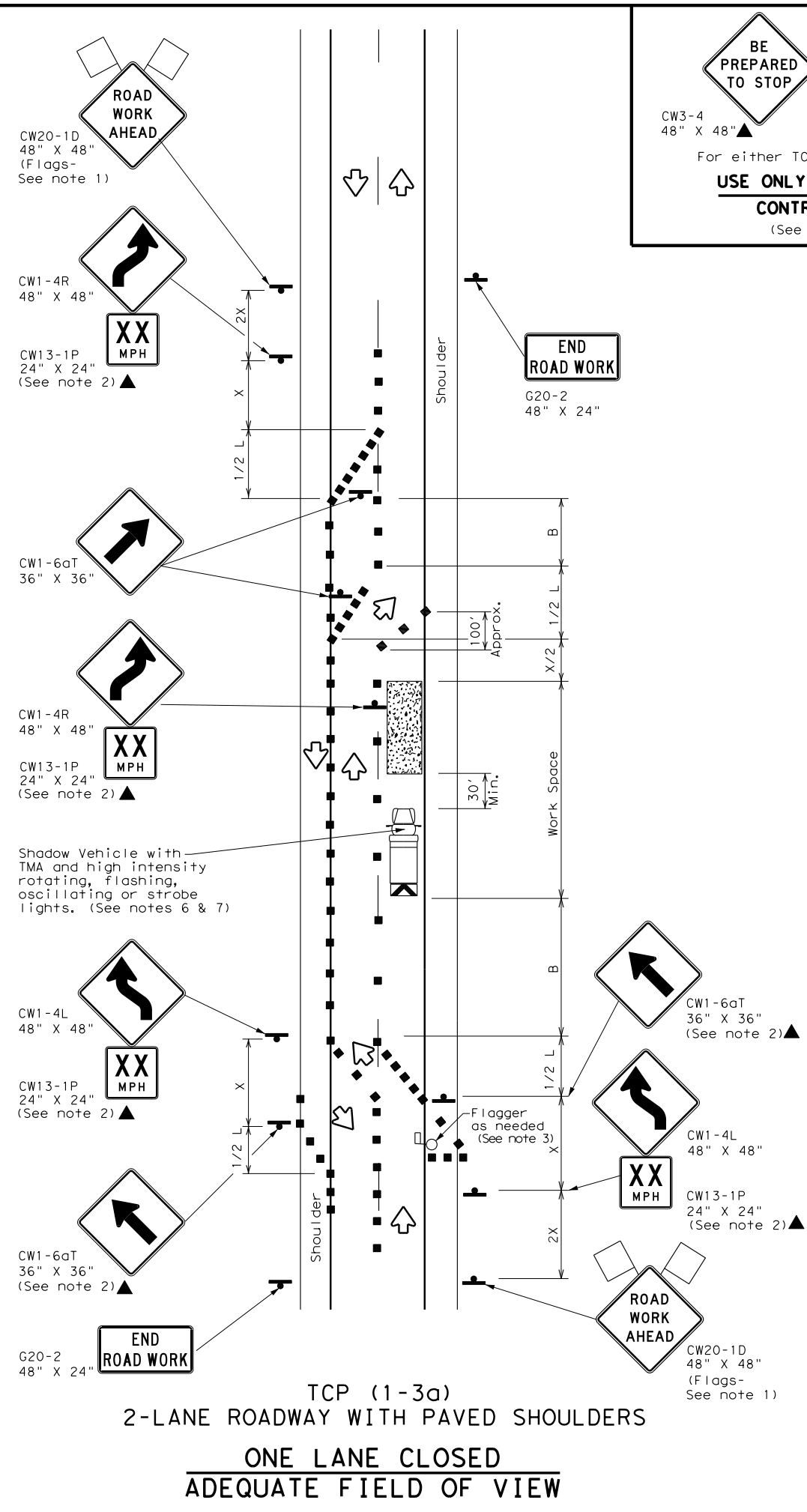
TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (1-1) - 18

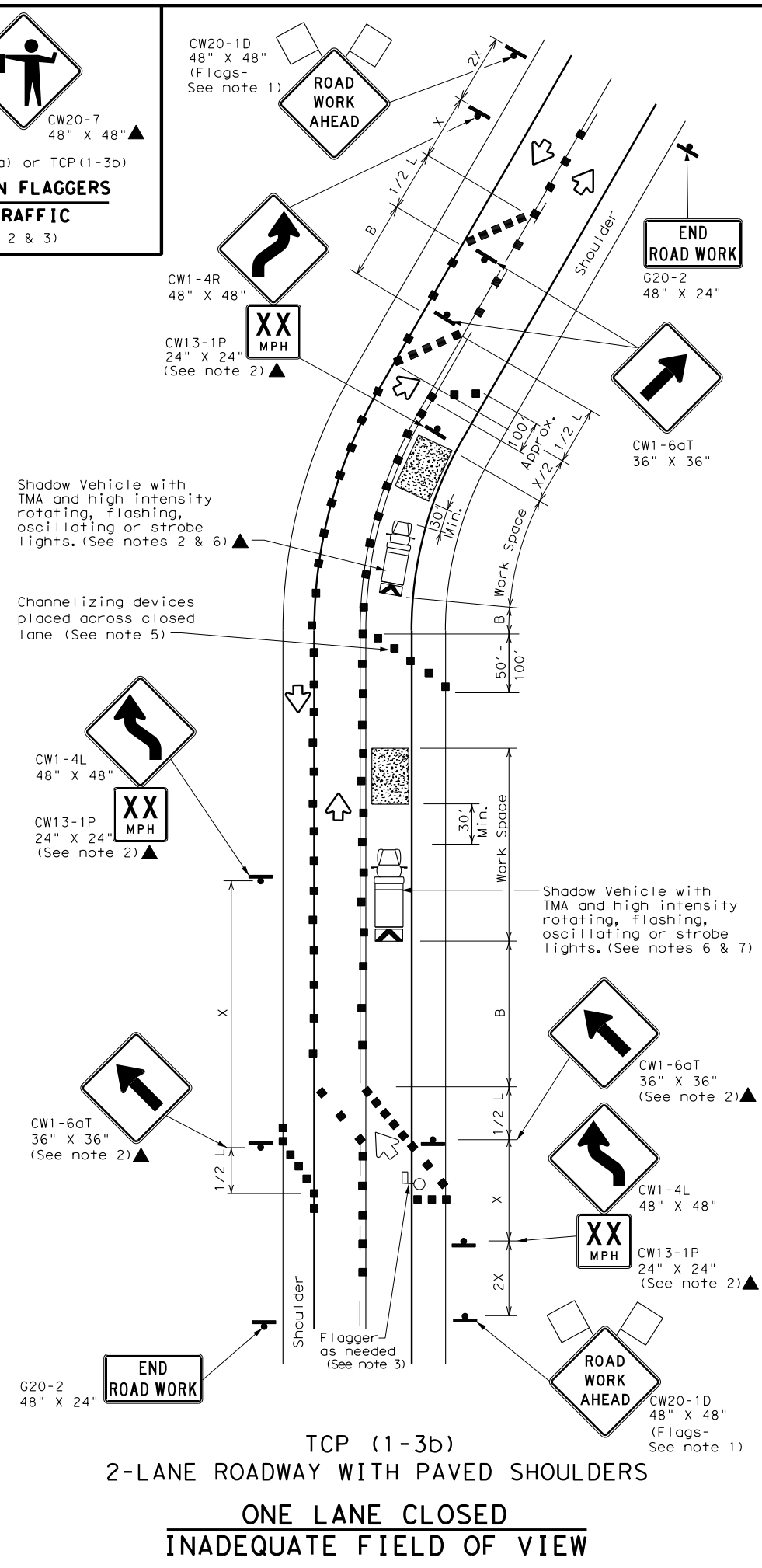
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
2-94 4-98				
8-95 2-12				
1-97 2-18				
DIST	COUNTY	SHEET NO.		

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DATE: FILE:



BE PREPARED TO STOP (CW3-4, 48" X 48")
WORKER AHEAD (CW20-7, 48" X 48")
 For either TCP(1-3a) or TCP(1-3b)
USE ONLY WHEN FLAGGERS CONTROL TRAFFIC
 (See Notes 2 & 3)



LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Additional flaggers may be positioned in advance of traffic queues to alert traffic to reduce speed.
 - DO NOT PASS, PASS WITH CARE and construction regulatory speed zone signs may be installed downstream of the ROAD WORK AHEAD signs.
 - When the work zone is made up of several work spaces, channelizing devices should be placed laterally across the closed lane to re-emphasize closure. Laterally placed channelizing devices should be repeated every 500 to 1000 feet in urban areas and every 1/4 to 1/2 mile in rural areas.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
 - Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20', or 15' if posted speed are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the area of conflicting markings not the entire work zone.

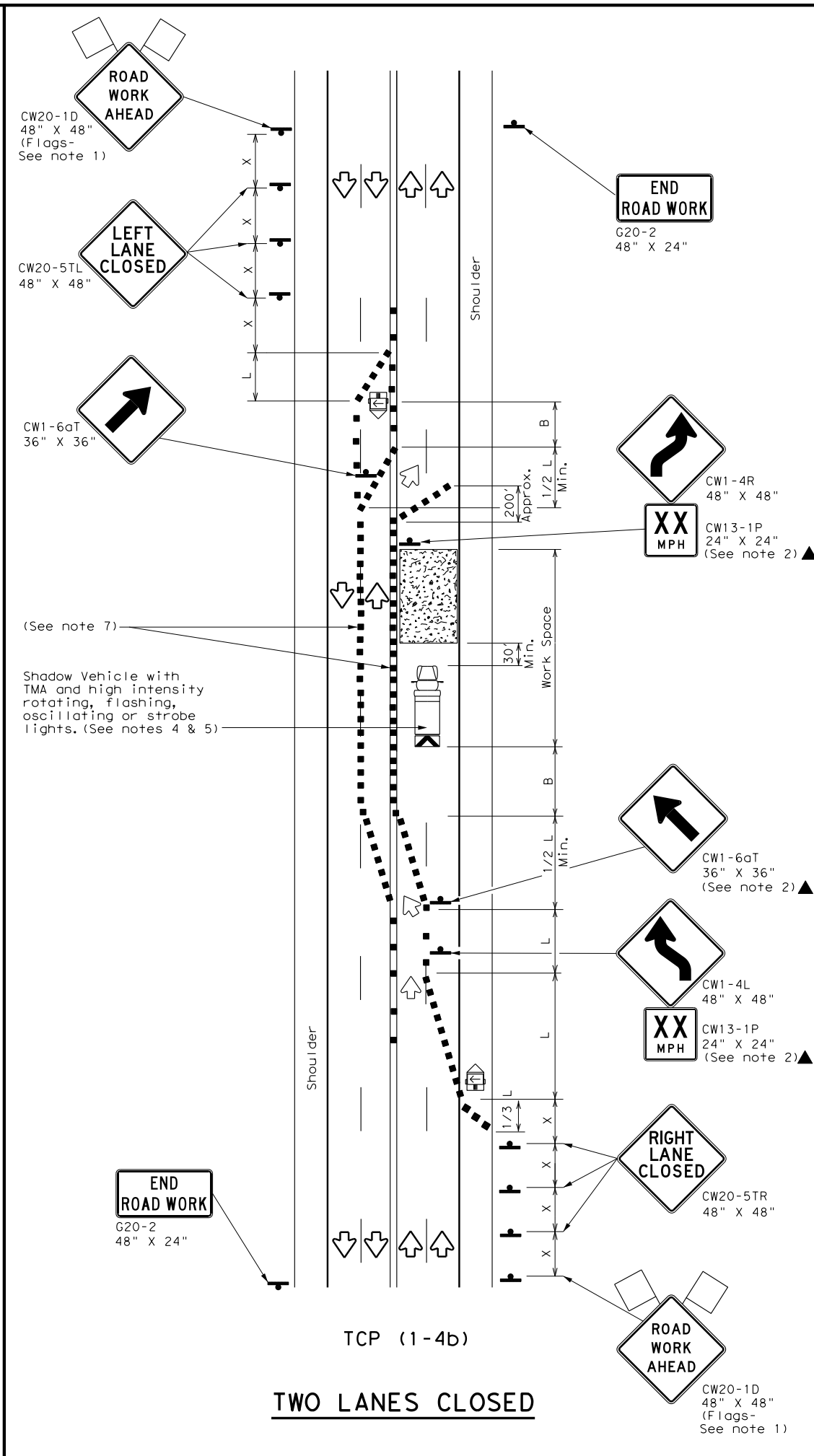
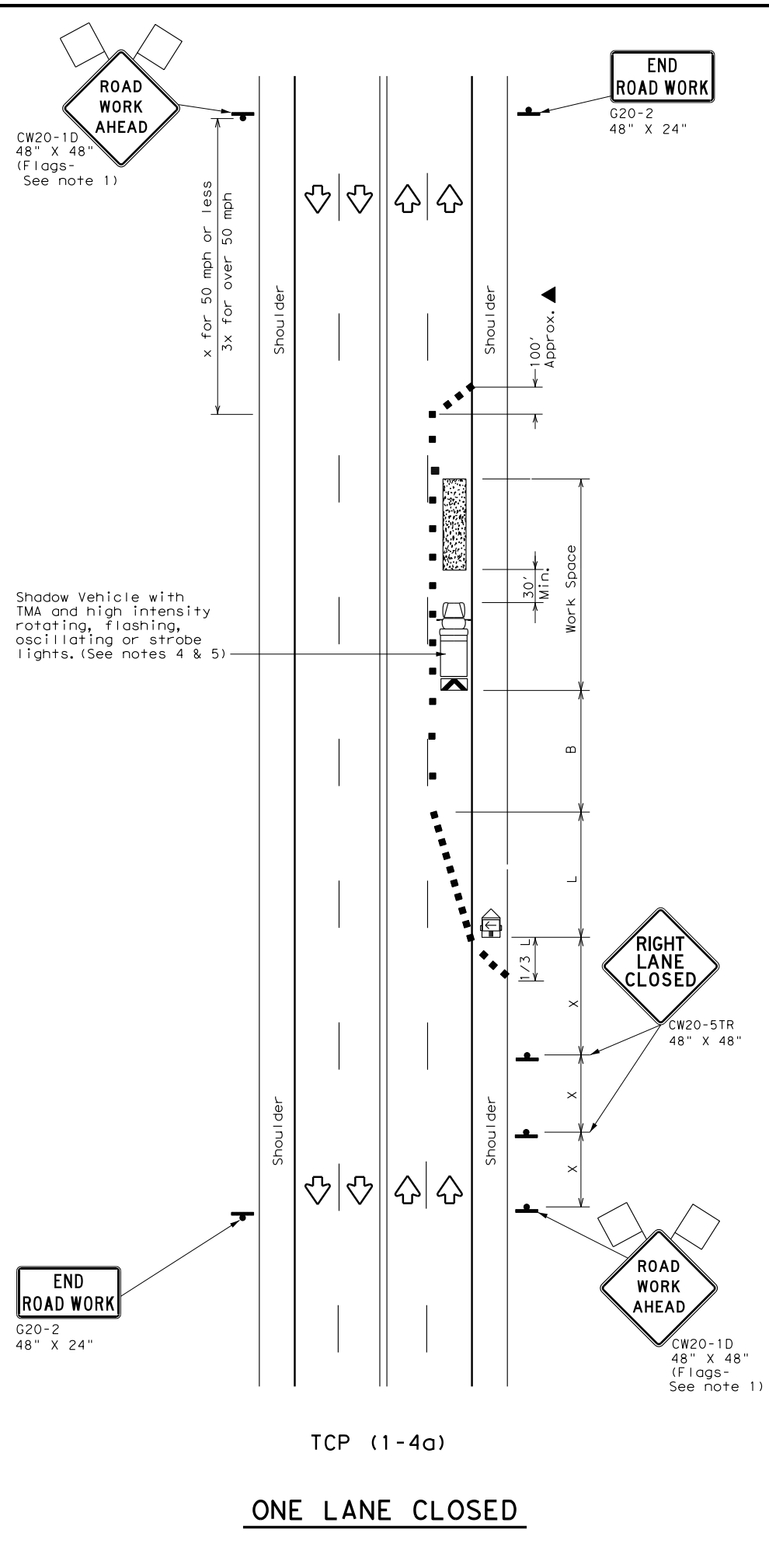
Texas Department of Transportation Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON
TWO LANE ROADS
TCP (1-3) - 18

FILE: tcp1-3-18.dgn ON: CK: DW: CK:
 © TxDOT December 1985 CONT SECT JOB HIGHWAY
 REVISIONS
 2-94 4-98
 8-95 2-12
 1-97 2-18
 DIST COUNTY SHEET NO.

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DATE: FILE:



LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	$L = WS$	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline where needed to protect the work space from opposing traffic with the arrow panel placed in the closed lane near the end of the merging taper.

TCP (1-4b)

- Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

Texas Department of Transportation *Traffic Operations Division Standard*

TRAFFIC CONTROL PLAN
LANE CLOSURES ON MULTILANE
CONVENTIONAL ROADS

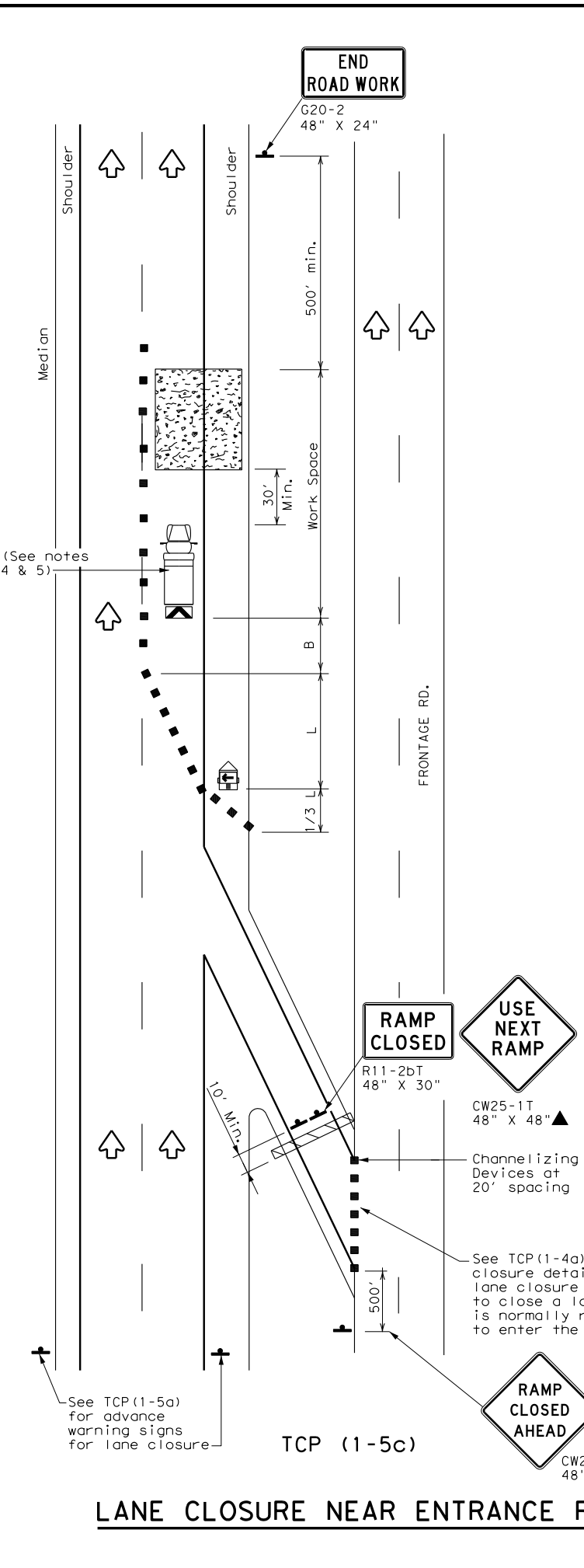
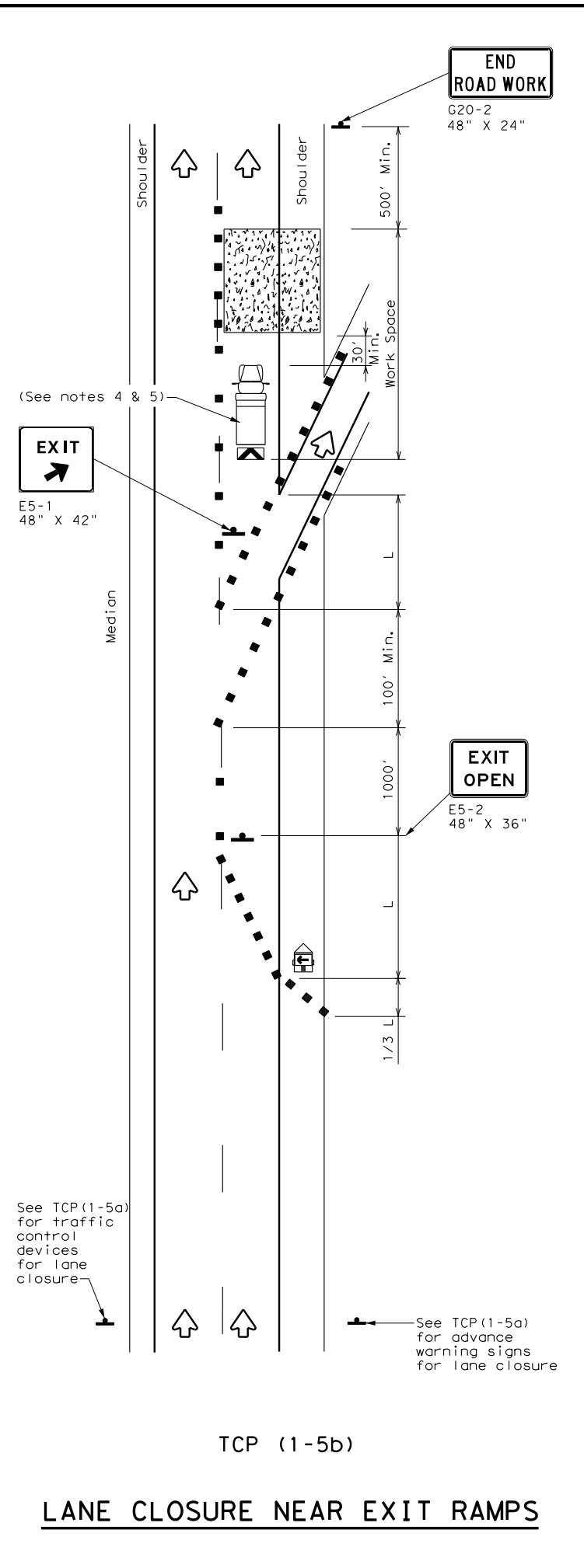
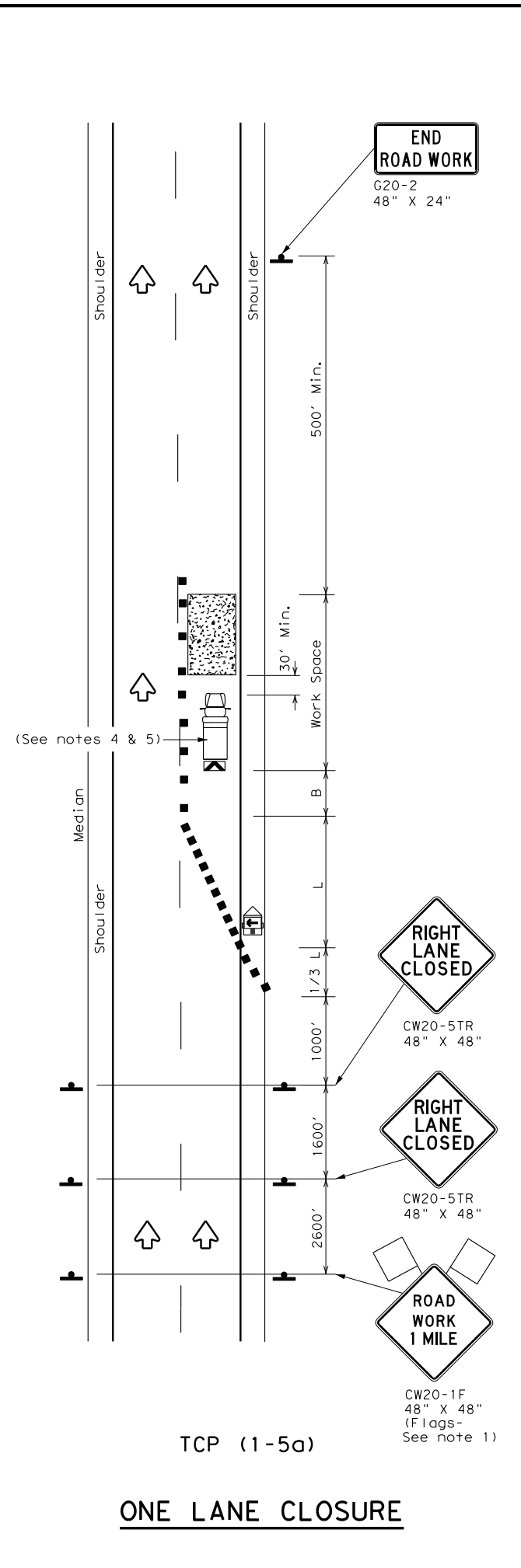
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓		

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
 - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.



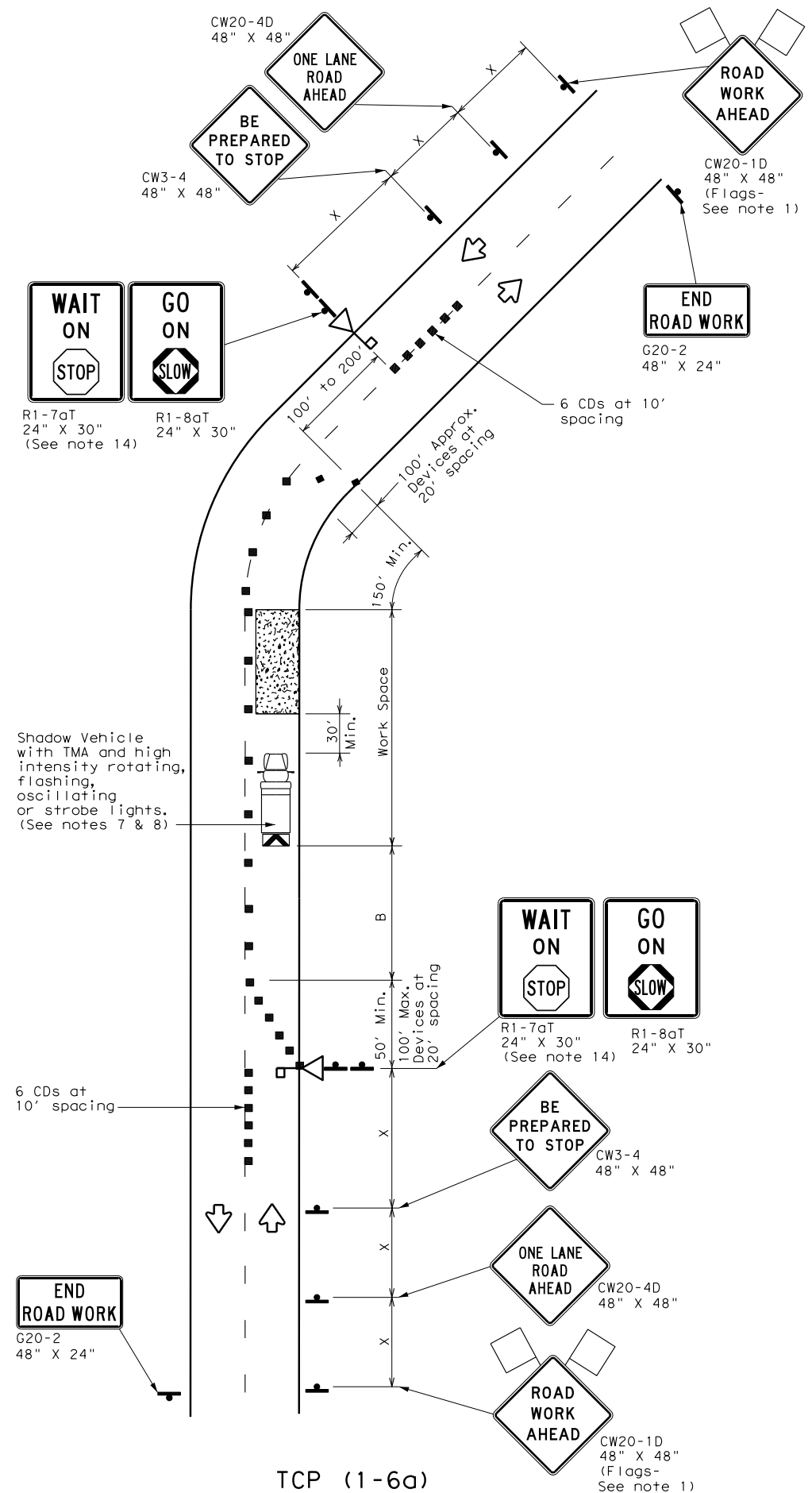
**TRAFFIC CONTROL PLAN
LANE CLOSURES FOR
DIVIDED HIGHWAYS**

TCP (1-5) - 18

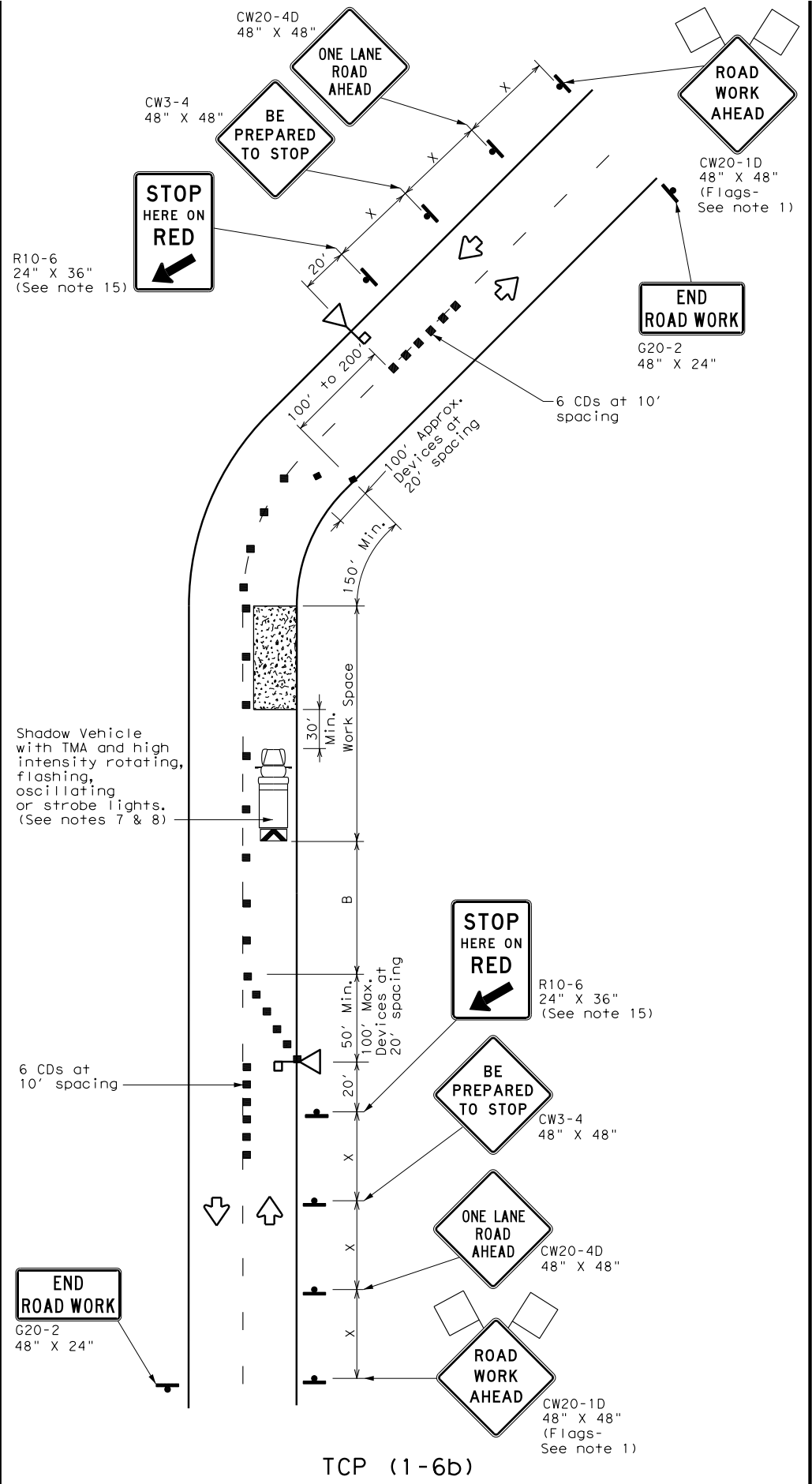
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TCP (1-6a)
ONE LANE TWO-WAY
CONTROL WITH STOP/SLOW AFADs



TCP (1-6b)
ONE LANE TWO-WAY CONTROL
WITH RED/YELLOW LENS AFADs

LEGEND			
	Type 3 Barricade		Channelizing Devices (CDs)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Automated Flagger Assistance Device (AFAD)		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
- AFADs shall only be used in situations where there is one lane of approaching traffic in the direction to be controlled.
- Adequate stopping sight distance must be provided to each AFAD location for approaching traffic. (See table above).
- Each AFAD shall be operated by a qualified/certified flagger. Flaggers operating AFADs shall not leave them unattended while they are in use.
- One flagger may operate two AFADs only when the flagger has an unobstructed view of both AFADs and of the approaching traffic in both directions.
- When pilot cars are used, a flagger controlling traffic shall be located on each approach. AFADs shall not be operated by the pilot car operator.
- All AFADs shall be equipped with gate arms with an orange or fluorescent red-orange flag attached to the end of the gate arm. The flag shall be a minimum of 16" square.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- Flaggers should use two-way radios or other methods of communication to control traffic.
- Length of work space should be based on the ability of flaggers to communicate.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the AFAD.
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
- The R1-7aT "WAIT ON STOP" sign and the R1-8aT "GO ON SLOW" sign shall be installed at the AFAD location on separate supports or they may be fabricated as one 48" x 30" sign. They shall not obscure the face of the STOP/SLOW AFAD.
- The R10-6 "STOP HERE ON RED" arrow sign shall be offset so as not to obscure the lenses of the AFAD.

Texas Department of Transportation
 Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN
 AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs)**

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