

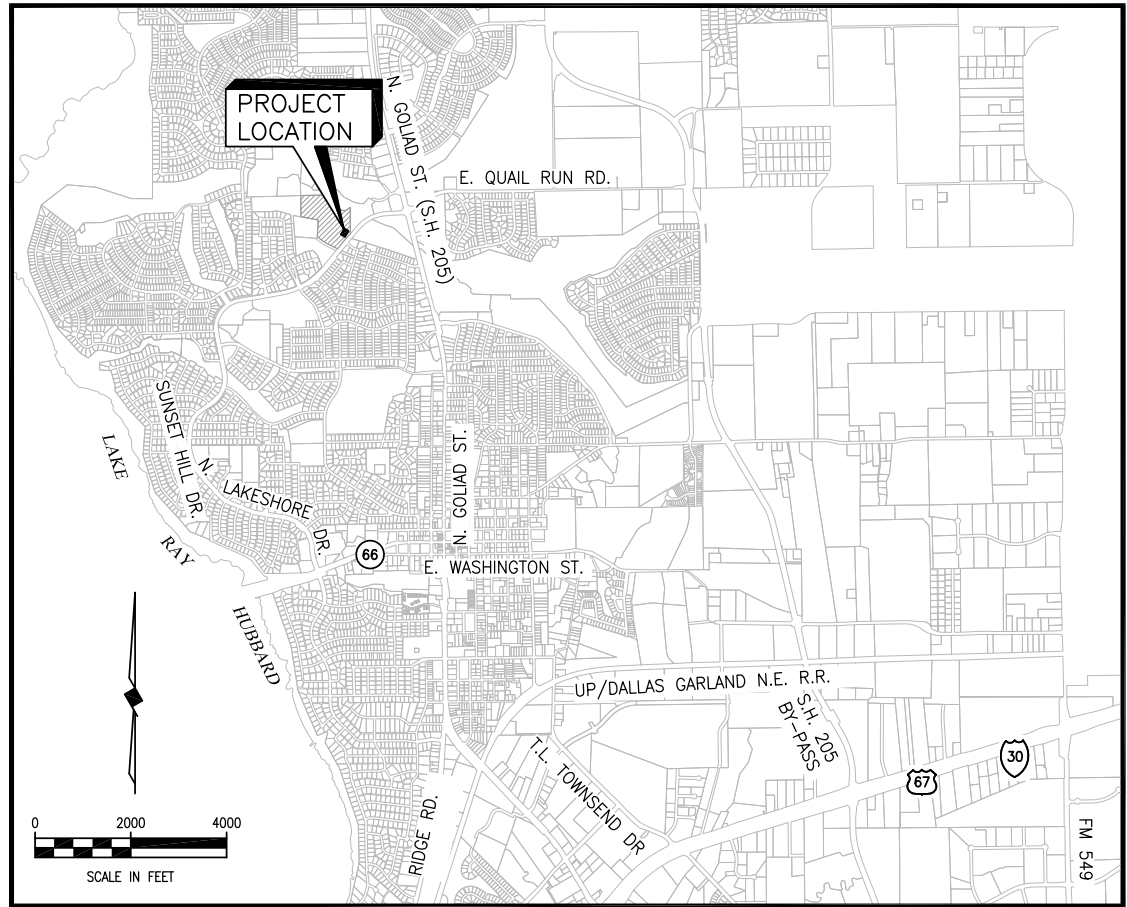
# CITY OF ROCKWALL, TEXAS

CONSTRUCTION PLANS FOR:

## SQUABBLE CREEK LIFT STATION IMPROVEMENTS

- ▲ ADDENDUM NO.1 10/02/17
- ▲ ADDENDUM NO.2 10/05/17
- ① FIELD CHANGE NO.1 11/13/17

CONFORMED  
FOR CONSTRUCTION



**LOCATION MAP**

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CONTRACTOR: RED RIVER CONSTRUCTION COMPANY  
 PHONE: 972-578-0127  
 CONTACT: DEAN PORTER  
 FINAL CONTRACT AMOUNT: \$2,235,359.23  
 FINAL COMPLETION DATE: DECEMBER, 2019

**COUNCIL MEMBERS**

- JIM PRUITT, MAYOR
- JOHN HOHENSHELT, MAYOR PRO-TEM
- MIKE TOWNSEND
- KEVIN FOWLER
- DENNIS LEWIS
- DANA MACALIK
- BENNIE DANIELS

**CITY MANAGER**

RICK CROWLEY

**ASSISTANT CITY MANAGER**

- MARY SMITH
- BRAD GRIGGS

*This record drawing is a compilation of the sealed engineering drawing for this project; modified by addenda, change orders and information furnished by the contractor. The information shown on the record drawings that was provided by the contractor or others not associated with the design engineer cannot be verified for accuracy or completeness. This original sealed drawings are on file at the offices of Birkhoff, Hendricks & Carter, L.L.P.*  
 BY M.H. DATE 01/06/20



**BIRKHOFF, HENDRICKS & CARTER, L.L.P.**  
 PROFESSIONAL ENGINEERS  
 Texas Firm 526  
 Dallas, Texas

January, 2020




*Matthew Hickey*  
 11/13/17

**GENERAL ITEMS**

- All construction shall conform to the requirements of the "Standard Specifications for Public Works Construction" by the North Texas Central Council of Governments, 4th edition amended by the City of Rockwall. The CONTRACTOR shall reference the latest City of Rockwall standard details provided in the Rockwall Public Works Department, Engineering Divisions "Standards of Design and Construction" manual for details not provided in these plans. The CONTRACTOR shall possess one set of the NCTCOG Standard Specifications and Details and the City of Rockwall's "Standards of Design and Construction" manual on the project site at all times.
- The CONTRACTOR shall protect existing property monumentation and primary control. Any such points which the CONTRACTOR believes will be destroyed shall have offset points established by the CONTRACTOR prior to construction. Any monumentation destroyed by the CONTRACTOR shall be re-established at CONTRACTOR's expense by a registered professional land surveyor.
- Any item called out for on the plans that does not have a specific bid item shall be subsidiary to the project and no separate pay shall be given.
- The CONTRACTOR is solely responsible for performing all construction layouts from the site layout control points, and from the dimensions and centerlines shown. The CONTRACTOR must notify the engineer of any discrepancies before proceeding with the work.
- CONTRACTOR shall take all available precautions to control dust. CONTRACTOR shall control dust by sprinkling water (no separate pay), or as approved by the City and engineer.
- CONTRACTOR shall video record and provide a copy to the construction inspector of the entire job site before construction starts. Video record of the site will be used to dispute discrepancies of any preexisting conditions of the project site before construction begins.
- It is the CONTRACTOR's responsibility to maintain a neat and accurate redline record of construction for the City's records. The CONTRACTOR shall provide the City full size reproducible markups that record all construction deviating from the plans. These redline construction plan records shall be submitted to the City at the end of the job and sign by the CONTRACTOR. These records must be received or the City will not release final retainage or acceptance on the job.

**EROSION CONTROL & VEGETATION**

- The CONTRACTOR or developer shall be responsible, as the entity exercising operational control, for all permitting as required by the Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ). This includes, but is not limited to, preparation of the Storm Water Pollution Prevention Plan (SWPPP), the Construction Site Notice (CSN), the Notice of Intent (NOI), the Notice of Termination (NOT) and any Notice of Change (NOC) and is required to pay all associated fees.
- Erosion control devices as shown on the erosion control plan for the project shall be installed prior to the start of land disturbing activities.
- All erosion control devices are to be installed in accordance with the approved plans, specifications and Storm Water Pollution Prevention Plan (SWPPP) for the project. Erosion control devices shall be placed and in working order prior to start of construction. Changes are to be reviewed by the design engineer and the City of Rockwall prior to implementation.
- If the Erosion Control Plans and Storm Water Pollution Prevention Plan (SWPPP) as approved cannot appropriately control erosion and off-site sedimentation from the project, the erosion control plan and/or the SWPPP is required to be revised and any changes reported to the Texas Commission on Environmental Quality (TCEQ), when applicable.
- All erosion control devices shall be inspected weekly by the CONTRACTOR and after all major rain events, or more frequently as dictated in the project Storm Water Pollution Prevention Plan (SWPPP). CONTRACTOR shall provide copies of inspection reports to the engineering inspection after each inspection.
- The CONTRACTOR shall not dispose of waste and any materials into streams, waterways or floodplains. The CONTRACTOR shall secure all excavation at the end of each day and dispose of all excess materials. Disposal site shall be documented and provided to the City.
- CONTRACTOR shall grade ground and ditches disturbed by construction to prevent ponding of storm water runoff. Grading shall be subsidiary to the appropriate bid item for unclassified street and unclassified channel excavation. Topsoil shall be stockpiled and replaced to a minimum depth of 6-inches and disc harrowed to a minimum depth of 4-inches (no pay item). CONTRACTOR shall replace grass areas disturbed by construction activities with solid sod. Sodded areas shall be watered and maintained until established.
- The CONTRACTOR shall provide 4 inches of top soil in all parkways that are to be sodded. Top soil shall be approved by the City in writing. Topsoil shall be subsidiary to placement of grass/sod.
- All areas outside pavement disturbed by construction activities shall have grass sod established immediately. Sod shall match existing yard type. Payment shall be made under the appropriate bid schedule item. Areas disturbed outside the R.O.W. or limits of construction shall have grass sod established immediately at the CONTRACTOR's expense.

<b>GENERAL CONSTRUCTION NOTES</b> May 1, 2017	
	
<b>CITY OF ROCKWALL</b> <b>PUBLIC WORKS DEPARTMENT</b> <b>ENGINEERING DIVISION</b>	
385 S. Goliad Rockwall, Texas 75087	P (972) 771-7746 F (972) 771-7748

**FRANCHISE UTILITY NOTES**

- Reasonable effort has been made to show the location of all known underground franchise utilities and service lines. However, the owner assumes no responsibility for failure to show any or all existing subsurface franchise utilities or utility line, or to show them in their exact location. The CONTRACTOR shall be responsible for the protection of all existing utilities, service lines or the like, which are exposed by the construction operation.
- Existing franchise utilities shown in these plans reflect approximate locations prior to relocations. Some relocations have occurred with utility pole, gas, phone and cable utilities. The CONTRACTOR shall contact Dig-Tess to locate existing and new utilities not shown in these plans.
- CONTRACTOR shall support utilities where crossing with proposed storm sewer, water lines and sanitary sewers. Method of support shall be provided to the owner 24 hours prior to crossing.
- The location off all Atmos gas lines, AT&T, Charter and TXU/Oncor electric underground phone lines in these plans are approximate. The CONTRACTOR shall contact Atmos, TXU/Oncor, AT&T and Charter to verify location and depth of all existing gas, electric and phone lines prior to construction.
- CONTRACTOR shall have and pay for TXU/Oncor, AT&T and/or Charter support and protect all power, guy wires or cable and/or light poles in the work area.
- Any damage incurred to existing franchise utilities, appurtenances, utility poles, light standards, etc. By construction related activities shall be the sole responsibility of the CONTRACTOR.

**TRAFFIC CONTROL**

- A suggested traffic control sequence plan is provided in the plan set. At a minimum the CONTRACTOR will be required to use the suggested sequence plan. If the CONTRACTOR chooses to change the traffic control sequencing, a traffic control sequencing plan and traffic control sheets of each phase will have to be provided for review and approval by the City. All shall be signed and sealed by a Registered Professional Engineer with the State of Texas.
- Pedestrian and vehicular traffic flow, safety and access shall be maintained during all phases of construction. Barricading and traffic control during construction shall be the responsibility of the CONTRACTOR and shall conform to the "Texas Manual on Uniform Traffic Control Devices", latest edition, Part IV in particular. Traffic flow and access shall be maintained during all phases of construction unless otherwise noted on the traffic control plan. The CONTRACTOR is responsible for providing traffic safety measures for work on the project. The CONTRACTOR shall assume full responsibility for public safety in the construction area during the duration of construction activities.
- The CONTRACTOR shall furnish, install, maintain and remove all necessary traffic control devices in conformance with the Texas Manual on Uniform Traffic Control Devices (Part 6). The CONTRACTOR shall provide access to properties at all times during each phase of construction to all local residents, businesses, mail service, trash pick-up and emergency services.
- No traffic signs shall be taken down without permission from the City. CONTRACTOR needing to move and replace traffic sign for construction purposes should be paid for under traffic control bid item.
- CONTRACTOR will furnish and install all signage in accordance with TMUTCD guidelines. Prior to installation of signage, CONTRACTOR shall stake locations and receive approval from City on locations. All signage that is removed by the CONTRACTOR shall be saved and delivered to municipal service center, streets division. All replaced signs shall be new. See City requirements for sign materials.

**MAILBOXES, MAIL SERVICE AND TRASH SERVICE NOTES**

- Existing mailboxes in conflict with construction shall be taken out of service, removed and replace to the same or better condition and placed in a location approved by the city/property owner. Photographs of the mailbox shall be taken with the address shown, shall be provided to the city prior to being removed.
- Temporary mailbox shall be provided and maintained throughout the project where existing mail boxes are being removed. Addresses shall be provided on all temporary mail boxes.
- Payment for removal and replacement of existing mailbox will be paid for under the appropriate bid item. Brick mailbox shall match existing brick.
- Trash service shall be maintained throughout the duration of construction.

**FENCES, TREES, LANDSCAPING, AND IRRIGATION NOTES**

- The removal, replacement or reconstruction of any fence for the convenience of construction shall be at the CONTRACTOR's expense (no separate pay). New materials shall match existing fences. All wood fences shall be replaced with new cedar with the post matching City requirements.
- Temporary fencing shall be required where there is evidence of livestock and where damaged or removed fences are not to be replaced by the end of the same work day.
- The removal and replacement of all shrubs, plants, trees, etc. For the convenience of construction shall be at the CONTRACTOR's expense (no separate pay). New shrubs, tree, etc. Shall be equal to or better than existing ones or meet
- All shrubs, plants, trees, etc. must be approved by the City before removal.
- The CONTRACTOR shall locate and record existing irrigation systems prior to construction. If irrigations systems are damaged during construction the CONTRACTOR shall repair to same or better condition. An irrigator licensed in the state of Texas shall repair all damaged caused by construction. CONTRACTOR shall coordinate any irrigation work with the City of Rockwall and property owner's representatives.
- CONTRACTOR shall replace any trees removed or destroyed that are not shown in these plans to be removed or shall pay fair market value to the owner as determined by the owner. (No Separate Pay).

**UTILITY NOTES**

- Reasonable effort has been made to show the location and type of all known City of Rockwall underground wet utilities and service lines. However, the City of Rockwall assumes no responsibility for failure to show any or all existing City of Rockwall underground wet utilities and service lines, or to show them in their exact location. The CONTRACTOR shall be responsible for the protection of all existing utilities, service lines or the like, which are exposed by the construction operation.
- Bidders shall make any investigation of existing subsurface conditions as deemed necessary at no expense to the City of Rockwall. Neither the City of Rockwall nor the engineer will be responsible in any way for additional compensation for excavation work performed under this contract due to the CONTRACTOR's assumptions.
- CONTRACTOR shall adjust all City of Rockwall utilities to the final grades.
- CONTRACTOR shall be responsible for the protection of all existing service lines crossed or exposed by construction operations. Where existing service lines are cut, broken or damaged, the CONTRACTOR shall immediately replace the service line with same type of original construction or better.
- The CONTRACTOR shall excavate and field locate the horizontal and vertical location of existing utility crossing locations utilizing provided project control. The CONTRACTOR shall immediately notify the engineer of any discrepancies identified between the CONTRACTOR'S field verified existing utility location and proposed location of utilities for the project.
- The CONTRACTOR shall abide by all applicable federal, state, and local laws governing excavation. The CONTRACTOR shall provide detailed plans and specifications for trench safety systems that comply with applicable laws governing excavation. These plans shall be sealed by an engineer experienced in the design of trench safety systems, registered in the state of Texas. The CONTRACTOR shall submit completed trench safety plan to the engineer and City prior to commencing work. The CONTRACTOR shall be solely responsible for all aspects of work related to excavation.

**WATER LINE NOTES**

- The CONTRACTOR shall maintain existing water service at all times during construction.
- Proposed water lines shall be AWWA C-900 PVC, DR 14 PC 305 (blue in color) unless otherwise shown on water plan and profiles sheets. Proposed water lines shall be constructed with minimum cover of 4 feet. Proposed water line embedment shall be NCTCOG Class 'B-3' as amended by the City of Rockwall's public works standards of design and construction manual.
- CONTRACTOR shall coordinate the shutting down of all water lines with the City of Rockwall, public works, water division. The City shall operate all water valves.
- CONTRACTOR shall furnish and install gasket on water lines between all dissimilar metals and at valves (both existing and proposed).
- All fire hydrants and valves removed and salvaged shall be returned to the City of Rockwall municipal service center.
- Blue EMS pads shall be installed at every change in direction, valve and service tap on the proposed water line and every 250'.
- CONTRACTOR to install new meter boxes and all fittings except for the meters per each service complete including connection to the main line.
- Existing meter and meter boxes, and valve stem and covers not specifically called to be relocated shall be adjusted to match final grades (no pay item). Any meter in pavement shall have a traffic rated lid.

**WASTEWATER LINE NOTES**

- The CONTRACTOR shall maintain existing wastewater service at all times during construction.
- Proposed wastewater line embedment shall be NCTCOG Class 'B-2' as amended by the City of Rockwall's public works standard design and construction manual.
- Green EMS pads shall be installed at every manhole, clean out and service lateral on proposed wastewater lines.
- All existing wastewater services shall be transferred from wastewater lines being abandoned to proposed wastewater lines. Transferring wastewater services shall include double clean outs at the property lines, caps, tees, wyes, plugs and connection. Payment for transferring wastewater services shall be paid per each, under the appropriate bid schedule item.
- CONTRACTOR shall CCTV all existing wastewater lines that are to be abandoned to ensure that all laterals are accounted for and transferred to proposed wastewater lines. (no separate pay)
- Existing manholes and cleanouts not specifically called to be relocated shall be adjusted to match final grades (no pay item).

**DEMOLITION, REMOVAL, DISPOSAL AND EXCAVATION NOTES**

- CONTRACTOR shall remove and properly dispose of all existing concrete and HMAC pavement outside of the City limits as required for construction of the project. All cost shall be included in the appropriate item in the bid schedule. Payments for removal and replacement of street, driveway and sidewalk pavement shall be based on plan quantity and no adjustments will be made unless approved in writing by the City engineer.
- All pavements to be removed and replaced shall be saw cut to full depth along neat lines shown in the plans. Proposed concrete pavement shall be constructed with longitudinal butt construction joints at all connections to existing concrete pavement.
- The CONTRACTOR shall remove from the project area all surplus material. This work shall be incidental and not a separate pay item. Surplus materials from excavation include dirt, trash, rock measuring greater than 6" in the largest dimension, etc. Shall be properly disposed of at a site acceptable to the City of Rockwall if within the City limits. No excess excavated material shall be deposited in low areas or along natural drainage ways without written permission from the affected property owner and the City of Rockwall. If the CONTRACTOR places excess materials in these areas without written permission, he will be responsible for all damages resulting from such fill and he shall remove the material at his own cost.
- All excavation on the project is unclassified. If soil borings were conducted they are provided in the bid/contract documents.

**PAVING**

- All paving roadway sections thickness, strength, reinforcement, joint type, joint spacing and subgrade treatment shall match the typical sections and details called out in the plans. If not called out on the plans all concrete paving shall conform to the minimum requirements of table 2.3 in the Standards of Design and Construction.
- Reinforcing steel shall be tied (100%). Reinforcing steel shall be set on plastic chairs. Bar laps shall be minimum 30 diameters. Sawn transverse dummy joints shall be spaced every 15 feet or 1.25 time longitudinal butt joint spacing whichever is less. Sawing shall occur within 5 to 12 hours after the pour, including sealing. Otherwise, the section shall be removed and longitudinal butt joint constructed.
- All proposed HMAC street pavement shall consist of 4 inches of Type B (Base) with 2 inches of Type D (Surface) on top of 6" flex base (if not specified in the plans)
- No sand shall be allowed under any paving.
- Concrete mix design shall be submitted to the City for review and approval prior to placement.
- Fly ash may be used in concrete pavement locations provided that the maximum cement reduction does not exceed 20% by weight per C.Y. of concrete. The fly ash replacement shall be 1.25 lbs per 1.0 lb cement reduction.
- All curb and gutter shall be integral (monolithic) with the pavement.
- All fill shall be compacted by sheep's foot roller to a minimum 95% standard proctor. Maximum loose lift for compaction shall be 8 inches. All lifts shall be tested for density by an independent laboratory approved by the City.
- All proposed sidewalks shall include barrier free ramps at intersecting streets, alleys, etc. Barrier free ramps shall meet current City and ADA requirements and be approved by the Texas Department of Licensing and Regulation (TDLR).
- Sidewalks shall be doweled into pavement where it abuts curbs and driveways. Expansion joint material shall be used at these locations (no pay item).
- All connection of proposed concrete pavement to existing concrete pavement shall include a longitudinal butt joint as the load transfer device. Concrete saw cuts for all driveways and sidewalks shall be subsidiary to the appropriate bid item for driveway and sidewalk replacement. All longitudinal butt joints shall be clean, straight and smooth (not jagged in appearance)
- There shall be no separate payment for subgrade preparation under driveway and sidewalk areas and all cost shall be included in the appropriate items of the bid schedule.
- Cracks formed in concrete pavement shall be repaired or removed by the CONTRACTOR at the City's discretion.

**DRAINAGE / STORM SEWER NOTES**

- The CONTRACTOR shall maintain drainage at all times during construction. Ponding of water in streets, drives, trenches, etc. will not be allowed. Existing drainage ways shall not be blocked or removed unless explicitly stated in the plans or written approval is given by the City.
- All structural concrete shall be Class "C" (4200 psi compressive strength at 28 days minimum 7.0 sack), air entrained, unless noted otherwise.
- Proposed storm sewer embedment shall be NCTCOG Class 'B' as amended by the City of Rockwall's Public Works, Engineering Division Standards of Design and Construction Manual.
- All storm pipe shall be reinforced concrete pipe (RCP), Class III, unless otherwise noted.

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 BY   M.H.   DATE   01/06/20  

**BIRKHOFF, HENDRICKS & CARTER, L.L.P.**  
 PROFESSIONAL ENGINEERS  
 TBPE Firm No. 526; TBPLS Firm No. 10031800  
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 Dallas, Texas 75243 (214) 361-7900

**CITY OF ROCKWALL, TEXAS**  
**SQUABBLE CREEK LIFT STATION IMPROVEMEMTS**  
 CITY OF ROCKWALL  
 GENERAL CONSTRUCTION NOTES

BHC  
 PROJECT NO.  
 2015-144  
 SHEET NO.  
 1  
 January, 2020

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**GENERAL PROJECT NOTES**

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE MEASURES FOR PREVENTING STORM WATER RUNOFF FROM ENTERING THE TRENCH DURING CONSTRUCTION.
2. CONTRACTOR SHALL SECURE EXCAVATION AT THE END OF EACH DAY. THE OWNER MAY REQUIRE THAT NO TRENCHES BE LEFT OPEN OVERNIGHT IN STREETS OR POPULATED AREAS.
3. TOPSOIL SHALL BE STOCKPILED AND REPLACED TO A MINIMUM DEPTH OF 6 INCHES AND DISC HARROWED TO A MINIMUM DEPTH OF 4 INCHES.
4. RESTORE GROUND TO ORIGINAL GRADE AND PREVENT PONDING OF STORM WATER RUNOFF ON ALL GROUND DISTURBED BY CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT OF ALL POWER AND TELEPHONE POLES AND GUY WIRES WITHIN 15 FEET OF PROPOSED IMPROVEMENTS AND SHALL REPAIR DAMAGED POLES AND GUY WIRES OR RELOCATE POLES AND GUY WIRES AS REQUIRED BY THE UTILITY OWNER AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR MUST CONTACT & COORDINATE ALL WORK AND FEES W/ UTILITY OWNER AT NO ADDITIONAL COST TO THE OWNER.
6. ANY FENCES DAMAGED OR REMOVED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED AT THE SAME LOCATION WITH A FENCE OF EQUAL OR SUPERIOR QUALITY. THE WASTEWATER TREATMENT PLANT FENCING SHALL REMAIN INTACT AND SECURE AT ALL TIMES.
- △ 7. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UNDERGROUND UTILITIES CROSSED OR EXPOSED BY CONSTRUCTION OPERATIONS. WHERE EXISTING UNDERGROUND UTILITIES ARE CUT, BROKEN OR DAMAGED THE CONTRACTOR SHALL IMMEDIATELY REPLACE THE SERVICE LINES IN KIND WITH LIKE OR BETTER MATERIALS AT NO COST TO THE OWNER.
8. CONTRACTOR SHALL PROVIDE A STORM WATER POLLUTION PREVENTION PLAN AND PROVIDE ALL APPURTENANCES TO COMPLY WITH THE LATEST TCEQ STORM WATER POLLUTION PREVENTION REGULATIONS. CONTRACTOR SHALL PROVIDE ADEQUATE MEASURES FOR DEWATERING AS NECESSARY. (NO PAY ITEM)
9. CONTRACTOR SHALL REMOVE FENCES AS REQUIRED FOR CONSTRUCTION. BARBED WIRE, WROUGHT IRON, CHAIN AND CHAIN LINK FENCES SHALL BE REPLACED OR RECONSTRUCTED. NEW MATERIALS SHALL MATCH EXISTING FENCES. ANY FENCING REMOVED SHALL BE REPLACED IN KIND WITH LIKE OR BETTER MATERIALS, AND BE PAINTED OR STAINED TO MATCH EXISTING FENCE.
10. CONTRACTOR SHALL SUBMIT A WRITTEN PLAN AND SCHEDULE 14 DAYS IN ADVANCE OF CONSTRUCTION ACTIVITIES REQUIRING REPLACEMENT OR SUPPORT OF EXISTING UTILITIES. THE PLAN SHALL DESCRIBE IN DETAIL THE METHOD FOR REPLACING OR SUPPORTING EXISTING UTILITIES AND ASSOCIATED SCHEDULE. (I.E. SHUTDOWN/TIE-IN)
- △ 11. WASTEWATER TREATMENT PLANT GATE SHALL BE KEPT CLOSED TO CONTROL ACCESS TO THE PROJECT SITE.
12. ANY EXISTING UTILITY DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED IMMEDIATELY WITH LIKE OR BETTER MATERIALS AT THE CONTRACTORS EXPENSE.
13. CONTRACTOR SHALL BE REQUIRED TO INSTALL TEMPORARY TEST PLUGS FOR HYDROSTATIC TESTING AS NECESSARY AT NO ADDITIONAL COST TO THE OWNER.
14. CONTRACTOR, AT HIS DISCRETION, MAY TUNNEL UNDER EXISTING UTILITIES OR ROADWAYS OTHER THAN THOSE CROSSINGS SPECIFICALLY SHOWN ON THE DRAWINGS, AT NO ADDITIONAL COST TO THE OWNER.
15. THE CONTRACTOR SHALL RESTORE AT HIS OWN EXPENSE, TEMPORARY ROADS AND CONSTRUCTION WORK AREAS.
16. IN ACCORDANCE WITH TEXAS STATE LAW, AT LEAST 2 DAYS PRIOR TO BEGINNING EXCAVATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING A TEXAS REGISTERED NOTIFICATION CENTER (I.E. TEXAS 811 ONE CALL), IN ORDER TO HAVE EXISTING UTILITIES LOCATED.
17. CONSTRUCTION SURVEYING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY ALL CONTROL MONUMENTATION PRIOR TO BEGINNING CONSTRUCTION.
18. THE CONTRACTOR SHALL PROVIDE A VIDEO TAPE TO THE OWNER DOCUMENTING THE CONDITION OF THE WASTEWATER TREATMENT PLANT AND LIFT STATION, PRIOR TO THE START OF ANY CONSTRUCTION. VIDEO TO BE PROVIDED PRIOR TO FIRST PAYMENT TO CONTRACTOR.
19. PROVIDE ACCESS TO N.T.M.W.D. AND CITY AT EXISTING ROADS AND DRIVES AT ALL TIMES.
- △ 20. ALL DUCTILE IRON PIPING SHALL BE ANSI/AWWA C115. ALL FITTINGS SHALL BE ANST/AWWA C110 DUCTILE IRON FULL BODY, FLANGED. JOINTS SHALL BE ANSI/AWWA C111, MECHANICAL JOINT. ALL BURIED DUCTILE IRON PIPE SHALL BE POLYETHYLENE ENCASED IN ACCORDANCE WITH AWWA C105
21. DUCTILE IRON FITTINGS AND PIPE SHALL BE CERAMIC EPOXY LINED WITH PROTECTO 401 OR APPROVED EQUAL (40 MILS NOMINAL)
22. ALL EXPOSED DUCTILE IRON PIPING AND FITTINGS WITHIN THE VALVE VAULT AND WET WELL SHALL BE COATED WITH TNEMEC SERIES 435 PERMA-GLAZE APPLIED AT 15-25 MILS DFT. PRIOR TO APPLICATION, ALL SURFACES SHALL BE CLEANED PER NAPF 500-03-01 SOLVENT CLEANING USING STIFF BRISTLE BRUSHES TO REMOVE ALL GREASE, OIL, FACTORY APPLIED BITUMASTIC COATING AND ANY OTHER CONTAMINANTS. IF SURFACE PROFILE IS EQUAL TO OR GREATER THAN 1.5 MILS, CLEAN PER NAPF 500-03-03 POWER TOOL CLEANING TAKING CARE NOT TO BURNISH THE METAL. IF SURFACE PROFILE IS LESS THAN 1.5 MILS, ABRASIVE BLAST PER NAPF 500-03-04 BRUSH-OFF BLAST CLEANING TO ACHIEVE REQUIRE PROFILE.

**PHASING NOTES**

1. MOBILIZE AND PERFORM NECESSARY CONTROL STAKING.
- △ 2. PREPARE AND SUBMIT SHOP DRAWINGS FOR REVIEW, ORDER PROPOSED PUMPS AND ELECTRICAL EQUIPMENT. SHOP DRAWINGS SHALL INCLUDE TRENCH SAFETY AND SHORING PLAN TO PROTECT EXISTING WET WELL DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS.
3. COORDINATE WITH ONCOR FOR REMOVAL AND REPLACEMENT OF EXISTING TRANSFORMER PER BID ALLOWANCE.
4. KEEP EXISTING LIFT STATION AND ELECTRICAL EQUIPMENT FULLY OPERATIONAL UNTIL ALL PROPOSED PUMP, PUMP ACCESSORIES, PROPOSED PIPING, VALVES AND ELECTRICAL EQUIPMENT HAVE BEEN DELIVERED TO THE SITE. CONTRACTOR SHALL SUBMIT A LIFT STATION SHUTDOWN PHASING PLAN AND SCHEDULE TO THE CITY FOR REVIEW AND APPROVAL 14-DAYS PRIOR TO DESIRED SHUT DOWN OF LIFT STATION AND COMMENCEMENT OF BYPASS PUMPING.
5. CONTRACTOR SHALL COMPLETE BYPASS PIPING (SHEETS 8 & 10) AND FORCE MAIN MODIFICATIONS (SHEET 10) FIRST SO THAT CONTINUOUS BYPASS PUMPING CAN OCCUR DURING CONSTRUCTION OF ELECTRICAL, WET WELL AND GRAVITY SEWER IMPROVEMENTS. CONTRACTOR SHALL HAVE ALL MATERIALS ON SITE AND READY FOR INSTALLATION PRIOR TO STARTING FORCE MAIN AND BYPASS PIPING MODIFICATIONS. CONTRACTOR SHALL BE PREPARED TO CONTINUOUSLY COMPLETE ALL FORCE MAIN AND BYPASS LINE MODIFICATIONS WITH ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT ON HAND. CONTRACTOR SHALL BE PREPARED TO MAKE THE FORCE MAIN AND BYPASS LINE MODIFICATIONS WITH CONTINUOUS CONSTRUCTION DAY AND NIGHT UNTIL THE FORCE MAIN AND BYPASS MODIFICATIONS ARE COMPLETED. CONTRACTOR SHALL SCHEDULE WORK WHEN WEATHER FORECASTS ARE FAVORABLE WITH NO RAIN. FORCE MAIN MODIFICATIONS SHALL BE PAID UNDER PAY ITEM 6 AND SHALL INCLUDE THE POSSIBILITY OF PUMPING AND HAULING SEWAGE FROM THE WET WELL IF WET WEATHER OCCURS DURING THE CONSTRUCTION OF THE MODIFICATIONS. BYPASS LINE MODIFICATIONS SHALL BE PAID UNDER PAY ITEM 5.
6. CONSTRUCT PROPOSED ELECTRICAL CONDUIT AS SHOWN ON THE ELECTRICAL SITE PLAN FROM THE PROPOSED TRANSFORMER TO THE ELECTRICAL BUILDING SHEET (14).
7. FLOW TO THE LIFT STATION IS CONTROLLED BY NORTH TEXAS MUNICIPAL WATER DISTRICT (NTMWD) FROM AN UPSTREAM SPLITTER BOX CONTROLLED BY MANUALLY OPERATED SLUICE GATES. THE CONTRACTOR SHALL COORDINATE WITH THE CITY OF ROCKWALL TO HAVE NTMWD OPERATE THE SPLITTER BOX VALVES TO ELIMINATE FLOW TO THE SQUABBLE CREEK LIFT STATION DURING DRY WEATHER FLOWS. DURING PEAK DAY AND WET WEATHER PEAK FLOWS, THE SLUICE GATES WILL BE OPENED BY NTMWD AND BYPASS PUMPING SHALL BE OPERATED BY THE CONTRACTOR.
8. INSTALL TEMPORARY 30-INCH PLUGS AT EXISTING MANHOLES 1 & 2 (SHEET 6). FURNISH, INSTALL, TEST AND MAINTAIN BYPASS PUMPING EQUIPMENT 3-DAYS PRIOR TO PROCEEDING WITH LIFT STATION SHUTDOWN, DEMOLITION AND REMOVAL PLANS. REFER TO TECHNICAL SPECIFICATIONS FOR BYPASS PUMPING REQUIREMENTS.
9. COORDINATE WITH PUMP AND ELECTRICAL EQUIPMENT VENDORS ON DELIVERY DATES TO ESTABLISH LIFT STATION SHUTDOWN DATE.
10. ONCE ALL PROPOSED EQUIPMENT, MATERIALS AND MANPOWER ARE AVAILABLE, ONSITE AND READY TO PERFORM THE WORK, EMPLOY BYPASS PUMPING AND BEGIN DEMOLITION PLAN.
11. REMOVE AND DISPOSE OR SALVAGE AND RETURN EXISTING WET WELL PIPING, FITTINGS AND PUMPS AS SHOWN ON SHEETS 4 AND 5; REMOVE AND DISPOSE OF EXISTING ELECTRICAL EQUIPMENT FROM ELECTRICAL BUILDING AS SHOWN ON SHEET (17).
12. CONSTRUCT ADDITIONAL ELECTRICAL BUILDING CONCRETE FLAT WORK AS SHOWN ON SHEET (18).
13. FURNISH AND INSTALL ALL ELECTRICAL EQUIPMENT, SCADA EQUIPMENT, WIRING AND CONNECTIONS AS SHOWN IN THE PLANS AND SPECIFICATIONS. INSTALL NEW TRANSFORMER WITH CONNECTIONS TO THE SQUABBLE CREEK LIFT STATION AND THE LAKEVIEW SUMMIT PHASE 4 LIFT STATION.
14. COORDINATE WITH CITY TO PUMP DOWN WET WELL. PRESSURE WASH, PUMP AND HAUL REMAINING WASTEWATER TO THE WASTEWATER TREATMENT PLANT HEADWORKS IN THE PRESENCE OF THE CITY OR NTMWD PERSONNEL.
15. CONSTRUCT PUMP 1 WET WELL AND VALVE VAULT PIPING AS SHOWN ON SHEETS 6 AND SECTION A-A ON SHEET 7.

16. CONSTRUCT PUMPS 1, 2 & 3 WET WELL BOTTOM GROUT AND PUMP ELBOWS PER PUMP MANUFACTURER RECOMMENDATIONS.
17. COMPLETE ALL PATCHES AND EPOXY LINER REPAIRS TO THE WET WELL.
18. INSTALL PUMPS 1, 2 AND 3 AND ACCESSORIES. SET PUMP ON/OFF SETTINGS AS SHOWN ON SHEET 8, SECTION D-D.
19. INSTALL SHORING TO PROTECT EXISTING PRE-CAST WET WELL. EXCAVATION FOR PROPOSED 30-INCH SANITARY SEWER. FURNISH AND INSTALL TRENCH/ GROUNDWATER PUMPS FOR REMOVAL OF GROUNDWATER FROM EXCAVATION AREA (NO SEPARATE PAY ITEM).
20. AS SHOWN ON SHEETS 6 AND 9, CONSTRUCT 30-INCH GRAVITY SEWER LINE A STATION 0+02.42 TO STATION 0+70.00, INTERNAL DROP MANHOLES AT STATIONS 0+12.67 AND 0+55.15; CONSTRUCT FUTURE WET WELL 30-INCH STUB-OUT SOUTHWEST OF STATION 0+55.15 INCLUDING 30-INCH GATE VALVE AND 30-INCH PLUG; CONSTRUCT QUAIL RUN BYPASS STUB-OUT EAST OF STATION 0+55.15 AND 30-INCH PLUG; CONSTRUCT EQUALIZATION PIPE EXTENSION AND VALVE (CONSTRUCT FUTURE BY-PASS PUMP SUCTION LINE (SHEET 10).
21. PROVIDE SANITARY SEWER AND MANHOLE TESTING RESULTS TO CITY. ONCE PASSED, CONNECT TO EXISTING WET WELL INLET PIPE. MAINTAIN BYPASS PUMPING.
22. FILL THE WET WELL WITH WATER FROM WATER TRUCK OR OTHER SOURCE. THE CONTRACTOR SHALL INCLUDE IN THE BID ALL COSTS FOR SUPPLYING WATER FOR PUMP TESTING.
23. CONCURRENTLY TEST EACH NEW PUMP OPERATING AND VARIABLE FREQUENCY PUMP BY IT SELF AND THEN IN COMBINATIONS WITH TWO PUMPS RUNNING IN THE PRESENCE OF THE CITY, ELECTRICIAN AND PUMP MANUFACTURER.
24. TEST SCADA CONTROLS IN THE PRESENCE OF THE CITY, ELECTRICIAN AND SCADA PROGRAMMER.
25. ONCE ALL TESTING IS COMPLETED AND ACCEPTED BY THE CITY, REMOVE TEMPORARY PLUG FROM EXISTING MANHOLES 1 & 2, RETURN FLOW TO WET WELL AND SHUTDOWN BYPASS PUMPING. TEMPORARY BYPASS PUMPING SHALL REMAIN ON SITE FOR TWO WEEKS FOLLOWING PUMP START UPS TO ENSURE PUMPS ARE OPERATING PROPERLY.
26. CONSTRUCT MISCELLANEOUS SITE REINFORCED CONCRETE PAVEMENT.
27. REPAIR ALL FLEXIBLE BASE DRIVEWAYS DISTURBED BY CONSTRUCTION.
28. IF APPROVED, CONSTRUCT ADDITIVE ALTERNATE LIFT STATION ABANDONMENTS AND TRUNK SEWER TIE-INS.
29. COMPLETE FINAL WALK THROUGH AND PUNCH LIST.

**EXISTING UTILITY OWNERS**

NORTH TEXAS MUNICIPAL WATER DISTRICT	BOB QUINN	bquinn@ntmwd.com
CITY OF ROCKWALL - ENGINEERING	-	972-771-7746
CITY OF ROCKWALL - WATER & WASTEWATER	-	972-771-7730
ONCOR	JASON ESCAMILLA	469-964-2818
AT&T	JAMES BLAZIER	903-457-2301
ATMOS	JOHN SPRINGFIELD	972-485-6228
CHARTER	PAUL LINTER	817-298-3624

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 BY  M.H.  DATE  01/06/20

△ ADDENDUM NO.1

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 PROFESSIONAL ENGINEERS  
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 11910 Greenville Ave., Suite 600  
 Dallas, Texas 75243 (214) 361-7900



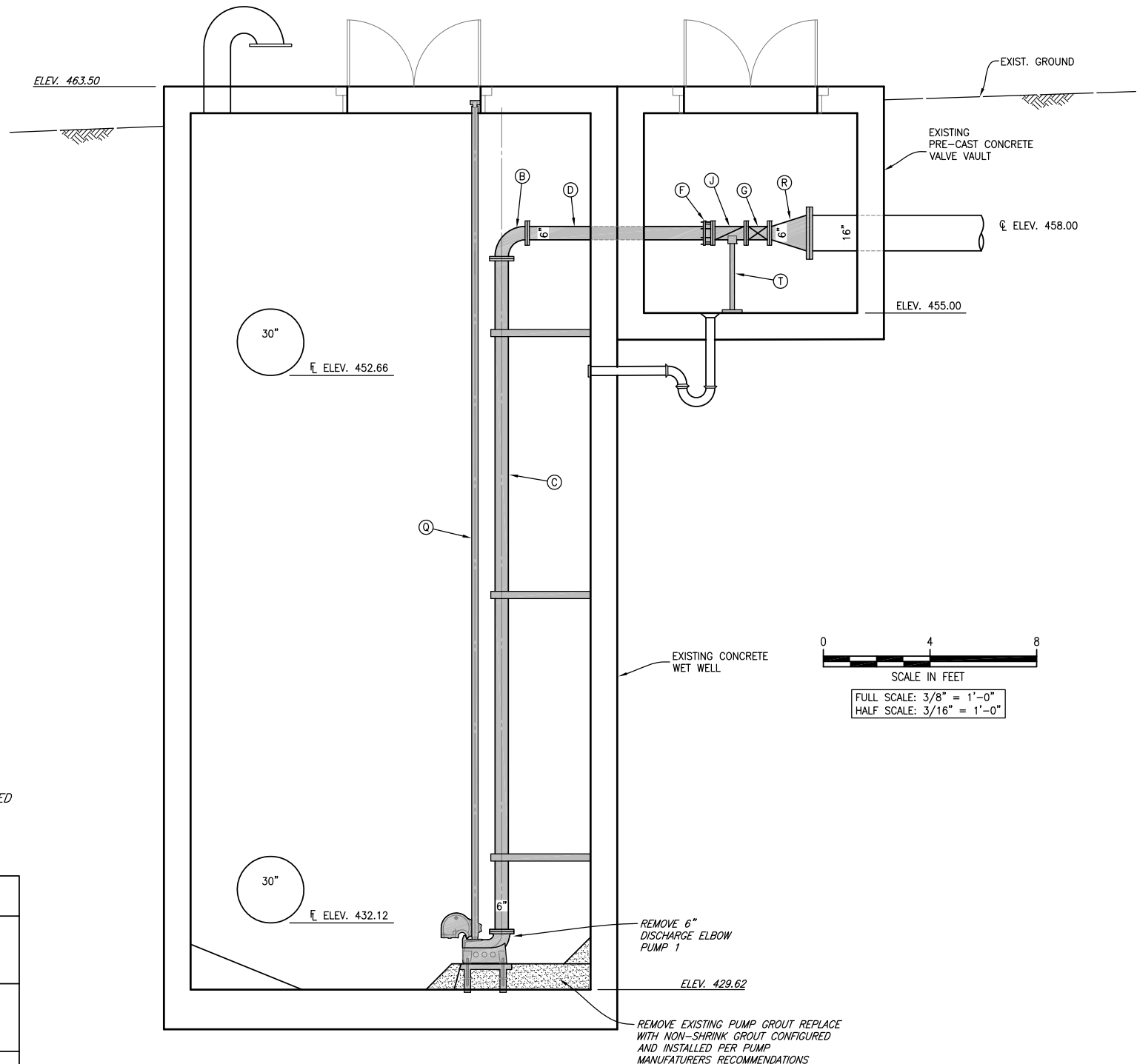
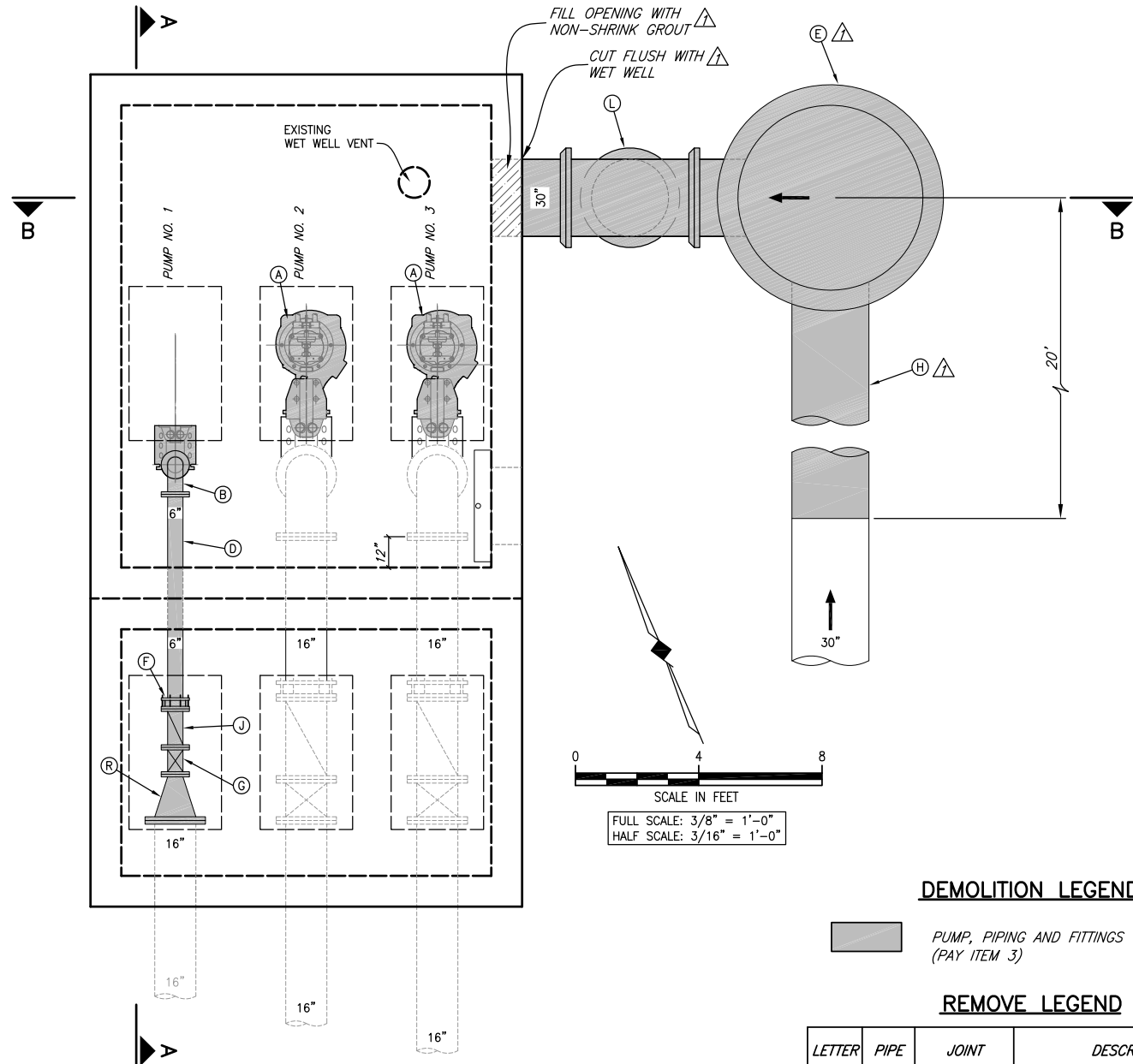
*Matthew Hickey*  
 10/2/17

**CITY OF ROCKWALL, TEXAS**  
 SQUABBLE CREEK LIFT STATION IMPROVEMENTS  
 PROJECT GENERAL NOTES / PHASING NOTES

BHC  
 PROJECT NO.  
 2015-144  
 January, 2020

SHEET NO.  
**2**





**DEMOLITION LEGEND**

█ PUMP, PIPING AND FITTINGS TO BE REMOVED (PAY ITEM 3)

**REMOVE LEGEND**

LETTER	PIPE	JOINT	DESCRIPTION
A	-	-	160 HP PUMP W/ MOTOR
B	D.I.P.	FLG.	6" LONG RADIUS 90° BEND
C	D.I.P.	FLG.-FLG.	6" PIPE SPOOL
D	D.I.P.	FLG.-P.E.	6" PIPE SPOOL
E	-	-	5' DIA. MANHOLE
F	-	-	THRUST HARNESS ASSEMBLY
G	-	FLG.	6" GATE VALVE
H	-	-	30" PVC GRAVITY SEWER
J	-	FLG.	6" CHECK VALVE
L	D.I.P.	FLG.-FLG.	30"x30" TEE
-	-	-	-
-	-	-	-
Q	-	-	REMOVE EXISTING GUIDE BARS AND REPLACE WITH 2-3" GUIDE BARS
R	D.I.P.	FLG.	6"x16" CONCENTRIC REDUCER
T	-	-	STRUT-TYPE PIPE SUPPORT

**EXISTING LIFT STATION PLAN (DEMOLITION)**

SCALE: 3/8" = 1'-0"  
(PUMP 1, 2 & 3)

**NOTES:**

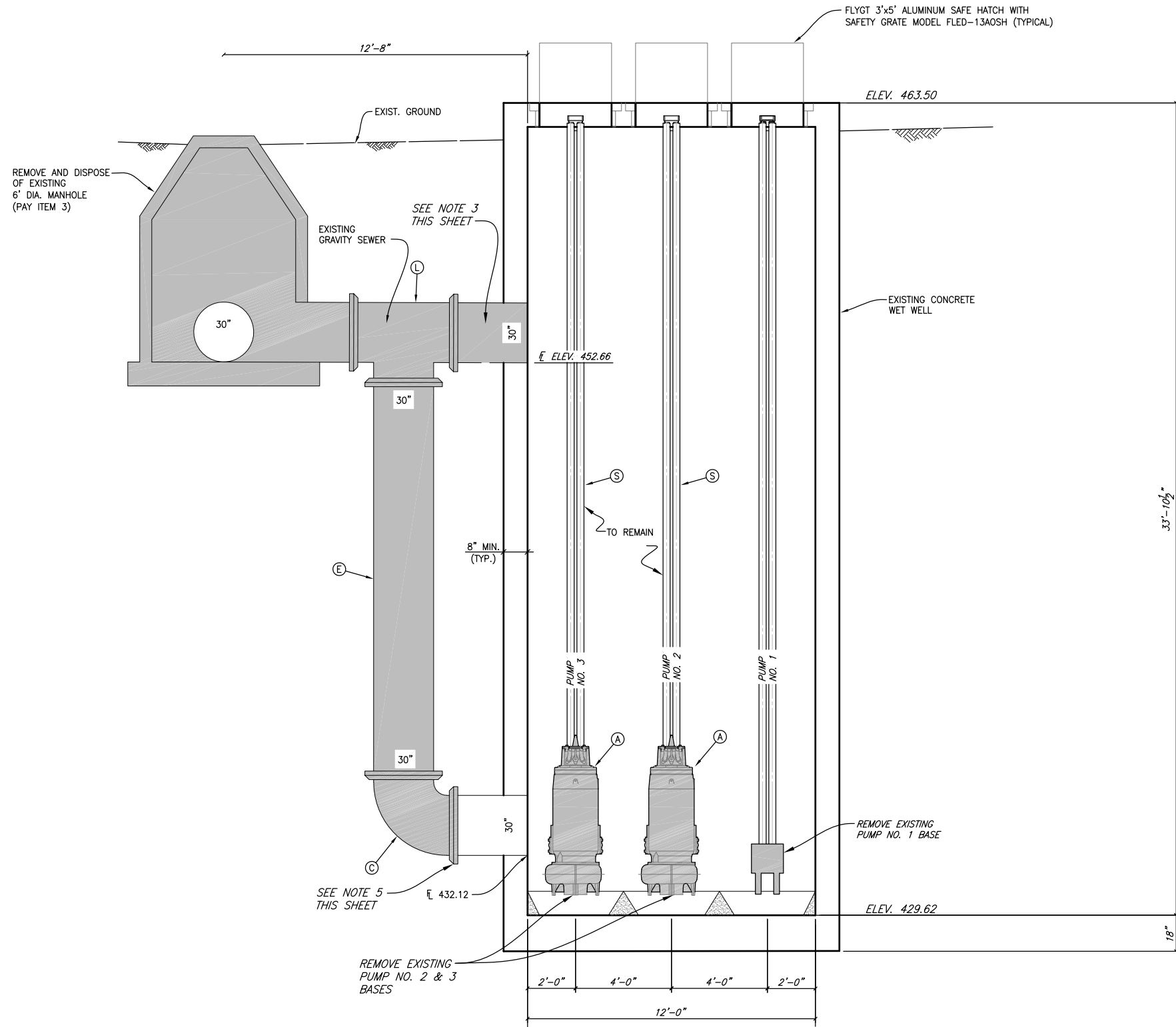
- ITEMS A, G AND J SHALL BE REMOVED AND SALVAGED BY THE CONTRACTOR TO THE CITY OF ROCKWALL. CONTRACTOR SHALL DELIVER AND UNLOAD THESE ITEMS AT THE CITY OF ROCKWALL SERVICE CENTER AT 1600 AIRPORT ROAD, ROCKWALL, TEXAS (PAY ITEM 3).
- PRIOR TO WORKING IN THE EXISTING WET WELL, THE CONTRACTOR SHALL DRAIN AND POWER WASH EXISTING WET WELL. WASTEWATER GENERATED FROM THE CLEANING PROCESS SHALL BE PUMPED AND HAULED ONSITE TO THE WASTEWATER TREATMENT PLANT HEADWORKS BY THE CONTRACTOR FOR DISPOSAL (PAY ITEM 3).

**EXISTING SECTION A-A (DEMOLITION)**

SCALE: 3/8" = 1'-0"  
(PUMP 1)

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BY M.H. DATE 01/06/20

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				January, 2020		



**EXISTING SECTION B-B (DEMOLITION)**  
SCALE: 3/8" = 1'-0"

**DEMOLITION LEGEND**

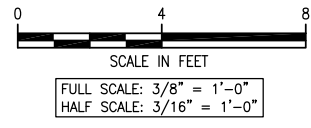
LETTER	PIPE	JOINT	DESCRIPTION
A	-	-	160HP PUMP W/ MOTOR & BASE
B	-	-	30" 90° BEND
C	D.I.P.	FLG.	30" 90° BEND
D	-	-	30" PIPE
E	D.I.P.	P.E.	30" PIPE
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
L	D.I.P.	FLG.-FLG.	30"x30" TEE
-	-	-	-
-	-	-	-
-	-	-	-
S	-	-	2-3" GUIDE BARS TO REMAIN
-	-	-	-

**DEMOLITION LEGEND**

PUMP, PIPING AND FITTINGS TO BE REMOVED (PAY ITEM 3)

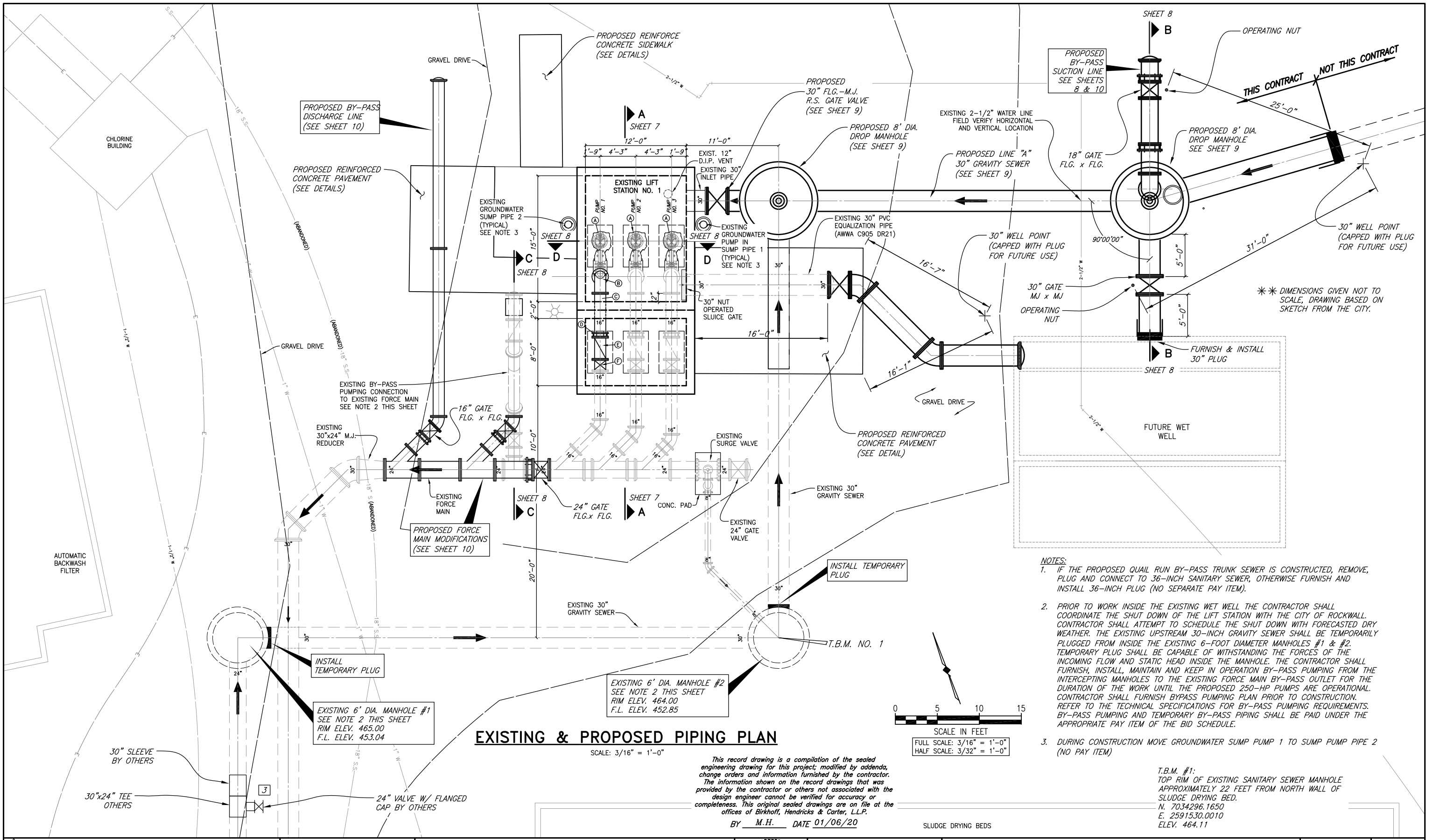
**NOTES:**

- EXISTING PUMPS 2 AND 3, PUMP 1 6" GATE VALVE AND PUMP 1 6" CHECK VALVE SHALL BE REMOVED AND SALVAGED TO THE CITY. COSTS SHALL INCLUDE DELIVERY AND UNLOADING OF SALVAGED EQUIPMENT TO 1600 AIRPORT ROAD IN THE CITY OF ROCKWALL.
- REFER TO PHASING NOTES FOR REMOVAL OF EXISTING MANHOLE AND DROP CONNECTION.
- CUT 30-INCH PIPE FLUSH WITH EXTERIOR WALL. FILL OPENING WITH NON-SHRINK GROUT. PATCH INSIDE WALL WITH RAVEN LINER. PAYMENT SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM FOR DEMOLITION.
- WHEN EXCAVATION NEAR EXISTING PRECAST WET WELL THE CONTRACTOR SHALL PROVIDE SHORING TO STABILIZE EXISTING PRECAST WET WELL. CONTRACTOR SHALL ANTICIPATE GROUNDWATER IN THE VICINITY AND SHALL PROVIDE ALL PUMPS AND EQUIPMENT TO KEEP EXCAVATION DRY. (NO PAY ITEM)
- PRIOR TO ORDERING PROPOSED 30" GATE VALVE, CONTRACTOR SHALL VERIFY IF EXISTING WET WELL INLET LINE IS FLANGED OR MECHANICAL JOINT.



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BY M.H. DATE 01/06/20

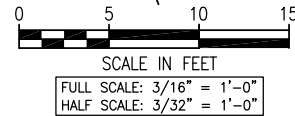
<p> ADDENDUM NO. 1</p>	<p>These plans and related specifications were prepared for construction of this specific project only. Reuse of these documents is not permitted without written authorization of Birkhoff, Hendricks &amp; Carter, L.L.P. If this drawing is converted to an electronic file, if any discrepancy occurs between the electronic file and the Birkhoff, Hendricks &amp; Carter, L.L.P. original document, the original document will govern in all cases.</p>	<p><b>BIRKHOFF, HENDRICKS &amp; CARTER, L.L.P.</b> PROFESSIONAL ENGINEERS Texas Firm F526 11910 Greenville Ave., Suite 600 Dallas, Texas 75243 (214) 361-7900</p>		<p><i>Matthew Hickey</i> 10/2/17</p>	<p><b>CITY OF ROCKWALL, TEXAS</b> SQUABBLE CREEK LIFT STATION IMPROVEMENTS EXISTING LIFT STATION PUMP AND PIPING REMOVAL SECTION</p>	<p>BHC PROJECT NO. 2015-144  January, 2020</p>	<p>SHEET NO.  <b>5</b></p>
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**EXISTING & PROPOSED PIPING PLAN**

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

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 BY M.H. DATE 01/06/20



- NOTES:**
- IF THE PROPOSED QUAIL RUN BY-PASS TRUNK SEWER IS CONSTRUCTED, REMOVE, PLUG AND CONNECT TO 36-INCH SANITARY SEWER, OTHERWISE FURNISH AND INSTALL 36-INCH PLUG (NO SEPARATE PAY ITEM).
  - PRIOR TO WORK INSIDE THE EXISTING WET WELL THE CONTRACTOR SHALL COORDINATE THE SHUT DOWN OF THE LIFT STATION WITH THE CITY OF ROCKWALL. CONTRACTOR SHALL ATTEMPT TO SCHEDULE THE SHUT DOWN WITH FORECASTED DRY WEATHER. THE EXISTING UPSTREAM 30-INCH GRAVITY SEWER SHALL BE TEMPORARILY PLUGGED FROM INSIDE THE EXISTING 6-FOOT DIAMETER MANHOLES #1 & #2. TEMPORARY PLUG SHALL BE CAPABLE OF WITHSTANDING THE FORCES OF THE INCOMING FLOW AND STATIC HEAD INSIDE THE MANHOLE. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND KEEP IN OPERATION BY-PASS PUMPING FROM THE INTERCEPTING MANHOLES TO THE EXISTING FORCE MAIN BY-PASS OUTLET FOR THE DURATION OF THE WORK UNTIL THE PROPOSED 250-HP PUMPS ARE OPERATIONAL. CONTRACTOR SHALL FURNISH BYPASS PUMPING PLAN PRIOR TO CONSTRUCTION. REFER TO THE TECHNICAL SPECIFICATIONS FOR BY-PASS PUMPING REQUIREMENTS. BY-PASS PUMPING AND TEMPORARY BY-PASS PIPING SHALL BE PAID UNDER THE APPROPRIATE PAY ITEM OF THE BID SCHEDULE.
  - DURING CONSTRUCTION MOVE GROUNDWATER SUMP PUMP 1 TO SUMP PUMP PIPE 2 (NO PAY ITEM)

T.B.M. #1:  
 TOP RIM OF EXISTING SANITARY SEWER MANHOLE  
 APPROXIMATELY 22 FEET FROM NORTH WALL OF  
 SLUDGE DRYING BED.  
 N. 7034296.1650  
 E. 2591530.0010  
 ELEV. 464.11

ADDENDUM NO. 1
CHANGE ORDER NO. 3 "BY OTHERS". ADDED CUT IN 30" x 24" TEE & 24" GATE VALVE

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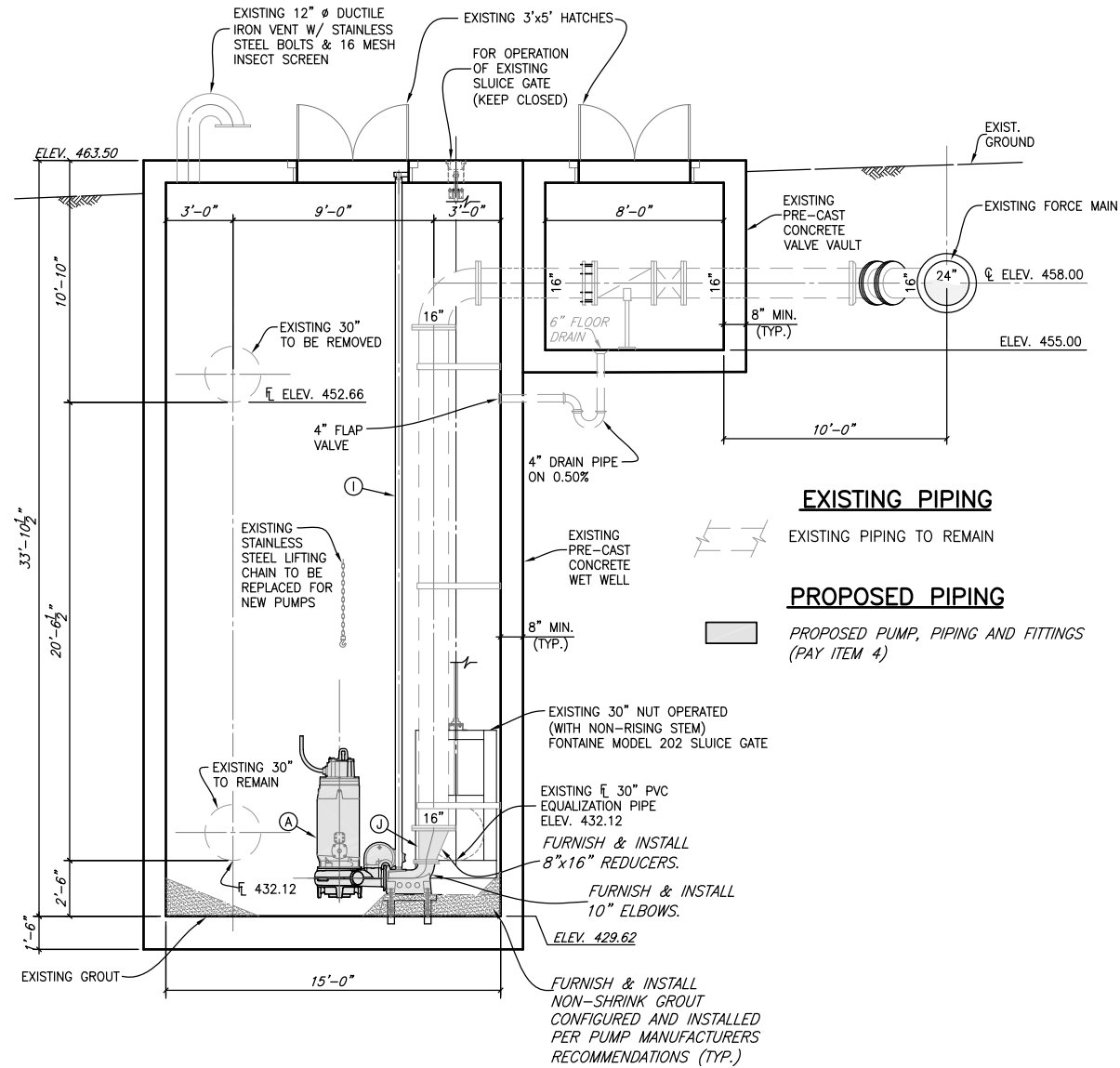
*Matthew Hickey*  
 10/2/17

**CITY OF ROCKWALL, TEXAS**  
 SQUABLE CREEK LIFT STATION IMPROVEMENTS  
 LIFT STATION WET WELL & VALVE VAULT MODIFICATION PLAN

BHC PROJECT NO. 2015-144	SHEET NO. 6
January, 2020	

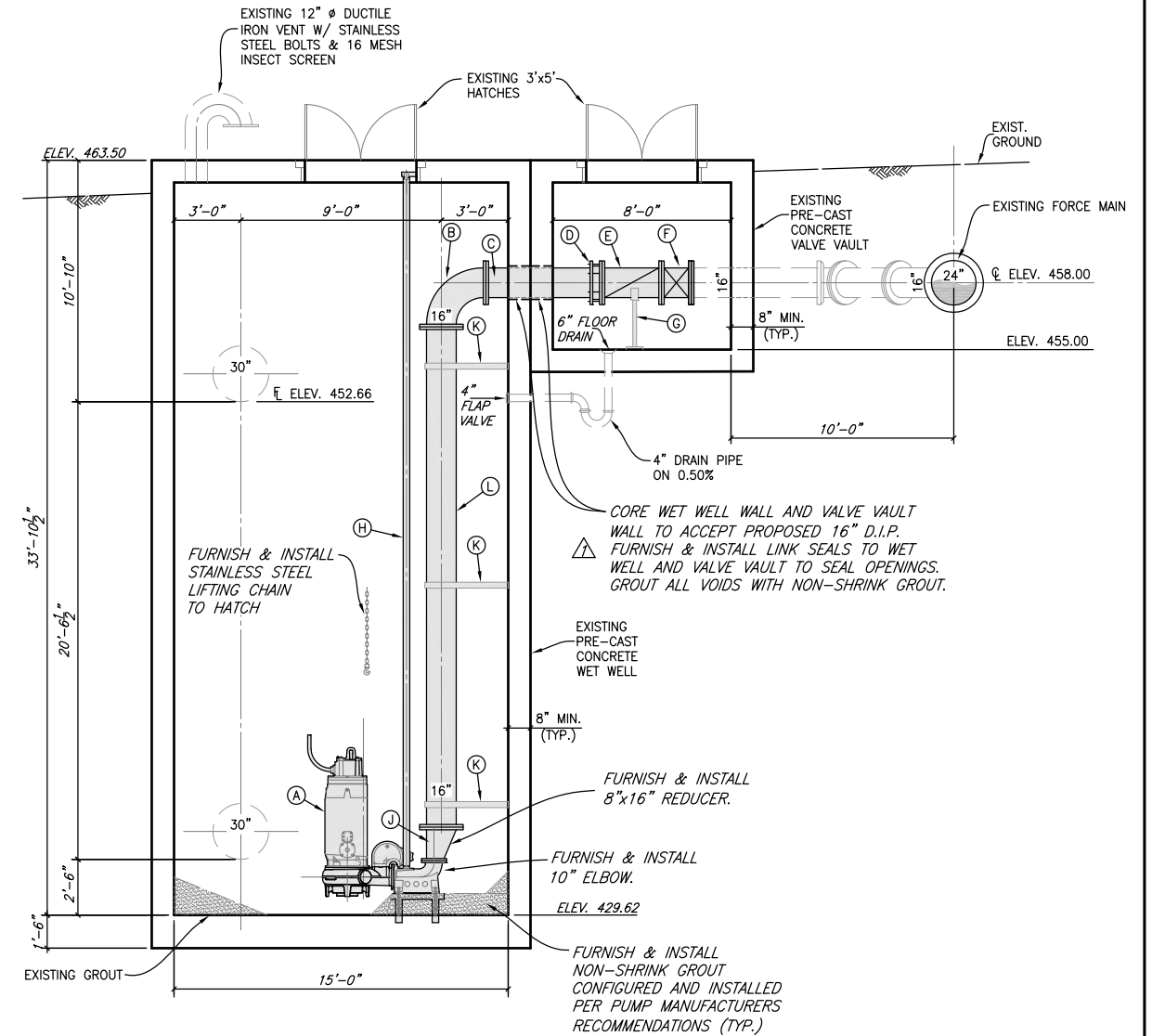
**LIFT STATION NOTES**

- IN ORDER TO PREVENT SHEARING WITHIN THE BACKFILL AREAS, THE DISCHARGE PIPING SHALL BE DUCTILE IRON FROM THE LIFT STATION, THROUGH THE VALVE VAULT.
- REFER TO PROJECT GENERAL NOTES, SHEET 2 FOR D.I.P. LINING AND COATING REQUIREMENTS.
- WHERE PIPES OR CONDUIT PASS THROUGH THE WALL OF THE WET WELL, THE SPACE BETWEEN THE WET WELL AND THE PIPE SHALL BE SEALED WITH LINK SEALS AND GROUTED FLUSH WITH NON-SHRINK GROUT.
- CONTRACTOR SHALL GROUT OPENINGS FOR WET WELL BOTTOM. ALL GROUT SHALL BE NON-SHRINK AND BE COMPATIBLE WITH SPECIFIED COATINGS. CONFIGURE GROUT IN WET WELL BOTTOM PER THE PUMP MANUFACTURERS RECOMMENDATION.
- COMPLETELY RESTRAIN ALL JOINTS FOR PIPE, BENDS, TEES AND FITTINGS ON THE FORCE MAIN PIPING WITHIN THE LIFT STATION SITE.
- LUMP SUM BID ITEM FOR LIFT STATION SHALL INCLUDE ALL LIFT STATION EQUIPMENT, MATERIALS, LABOR, ELECTRICAL WORK, ETC. FOR A COMPLETE OPERATIONAL LIFT STATION AS SPECIFIED IN THESE PLANS AND SPECIFICATIONS.
- CONTRACTOR SHALL COORDINATE LOCATION OF PUMPS, AND APPURTENANCES WITH THE PUMP MANUFACTURER. BASE ELBOW ANCHOR BOLT TYPE, LOCATION AND ORIENTATION SHALL BE COORDINATED BY THE CONTRACTOR THROUGH THE PUMP MANUFACTURERS ANCHORS FOR PUMP NO. 1, 2 & 3. BASE ELBOWS SHALL BE INSTALLED BY CONTRACTOR & INSTALLED PER PUMP MANUFACTURERS RECOMMENDATIONS.



**SECTION A-A - PROPOSED**

SCALE: 1/4" = 1'-0"  
TYPICAL OF PUMPS 2 & 3

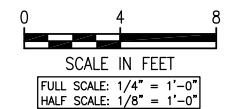


**SECTION A-A - PROPOSED**

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

**PROPOSED LEGEND**

LETTER	PIPE	JOINT	DESCRIPTION
A	-	-	PROPOSED 250 HP PUMP W/ MOTOR
B	D.I.P.	FLG.	16" LONG RADIUS 90° BEND
C	D.I.P.	FLG.-P.E.	16" PIPE SPOOL
D	-	-	16" THRUST HARNESS ASSEMBLY
E	D.I.P.	FLG.	16" CHECK VALVE
F	D.I.P.	FLG.	16" GATE VALVE
G	-	-	STRUT-TYPE PIPE SUPPORT
H	-	-	INSTALL 2-3" GUIDE BAR
I	-	-	EXISTING GUIDE BARS TO REMAIN
J	D.I.P.	FLG.	8"x16" ECCENTRIC REDUCER
K	-	-	REPLACE PUMP PIPE BRACKETS
L	D.I.P.	FLG.-FLG.	16" PIPE SPOOL
-	-	-	-
-	-	-	-



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BY M.H. DATE 01/06/20

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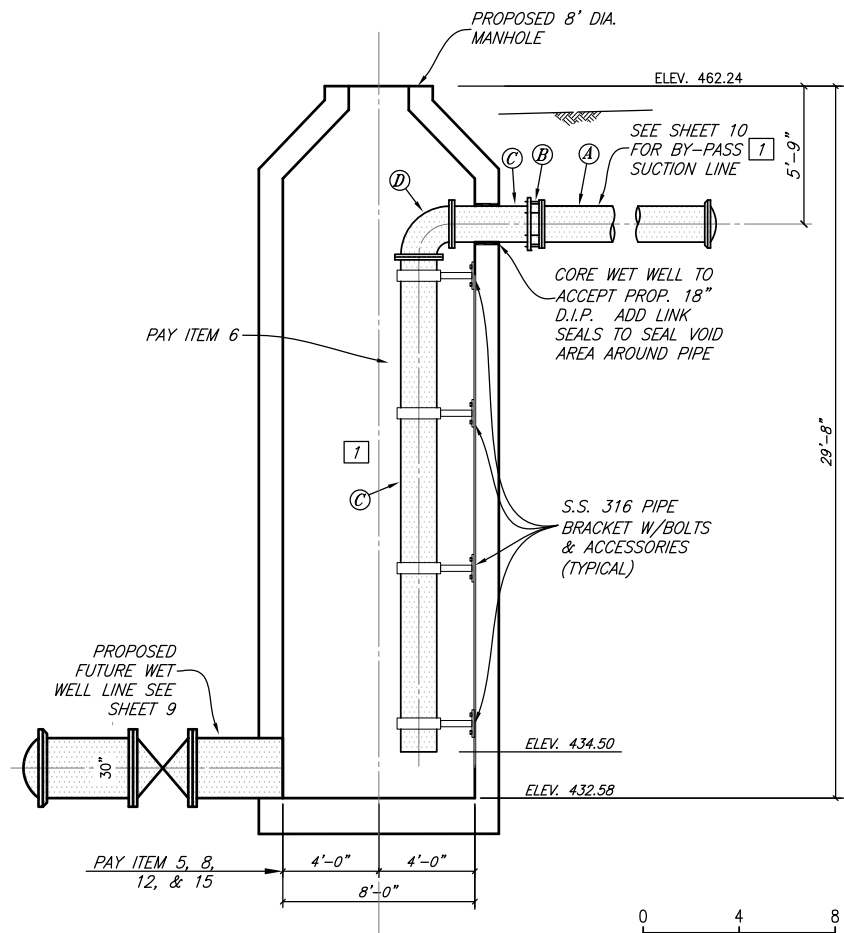
**CITY OF ROCKWALL, TEXAS**  
SQUABLE CREEK LIFT STATION IMPROVEMENTS  
LIFT STATION PIPING SECTIONS A

Matthew Hickey  
10/2/17

BHC PROJECT NO. 2015-144  
January, 2020

SHEET NO. **7**





**SECTION B-B - PROPOSED**

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

**PROPOSED SUCTION PIPING**

PROPOSED SUCTION PIPING AND FITTINGS (PAY ITEM 6)

**PROPOSED SECTION B-B LEGEND**

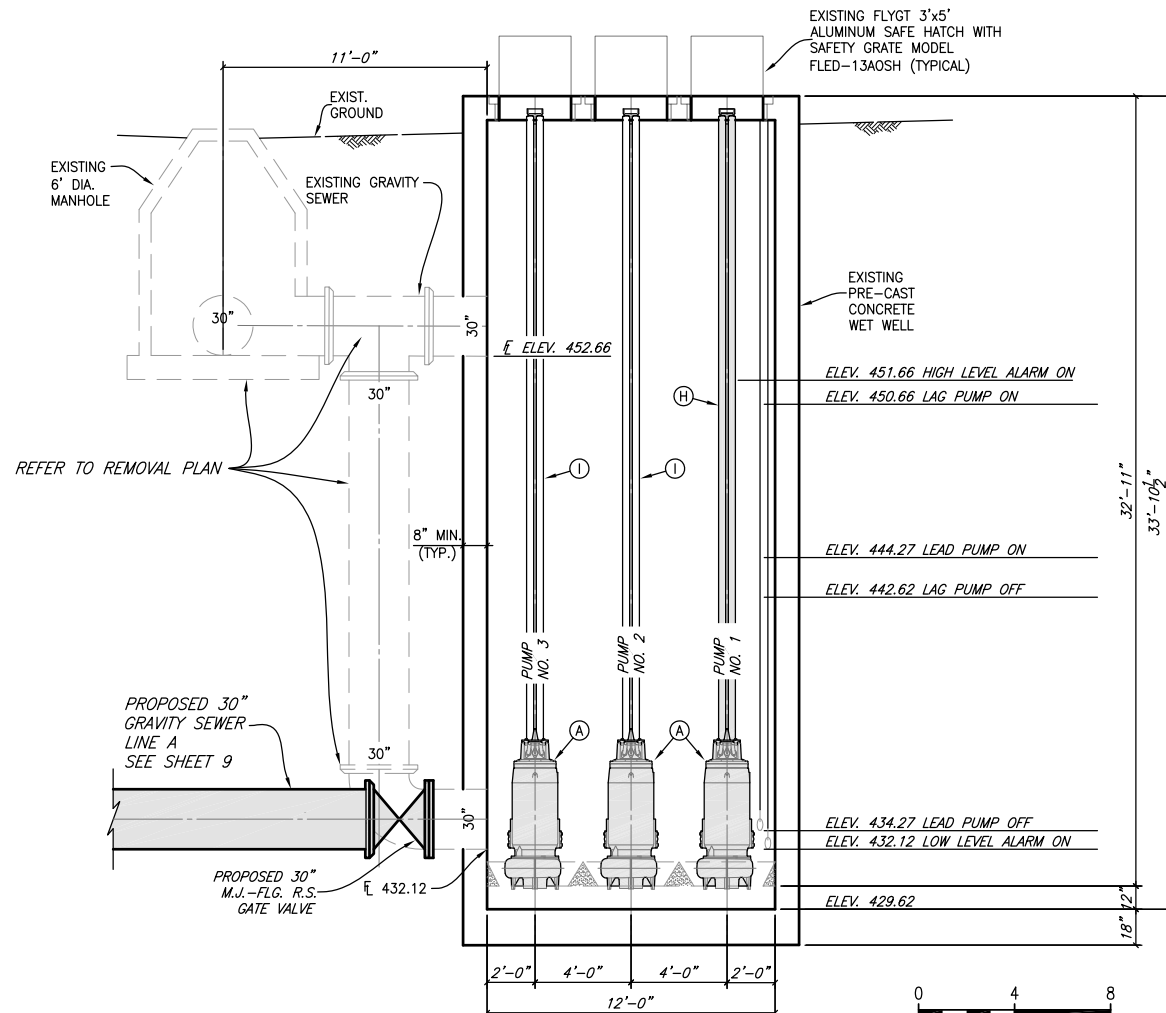
LETTER	PIPE	JOINT	DESCRIPTION
A	D.I.P.	FLG.	18" SPOOL
B	-	-	18" THRUST HARNESS ASSEMBLY
C	D.I.P.	FLG.-P.E.	18" SPOOL
D	D.I.P.	FLG.	18" 90° BEND

**PROPOSED PUMPS & PIPING**

PROPOSED PUMP, PIPING AND FITTINGS (PAY ITEM 4)

**PROPOSED SECTION D-D LEGEND**

LETTER	PIPE	JOINT	DESCRIPTION
A	-	-	PROPOSED 250 HP PUMP W/ MOTOR
B	-	-	-
C	-	-	-
D	-	-	-
E	-	-	-
F	-	-	REMOVE EXISTING PUMP 1 GUIDE BARS AND REPLACE WITH 2-3" GUIDE BARS
G	-	-	-
H	-	-	-
I	-	-	EXISTING PUMPS 2 AND 3 GUIDE BARS TO REMAIN

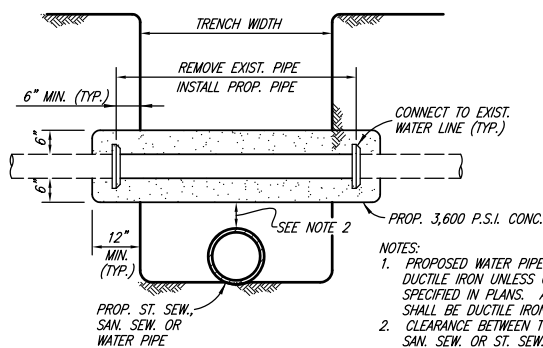


**SECTION D-D - PROPOSED**

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

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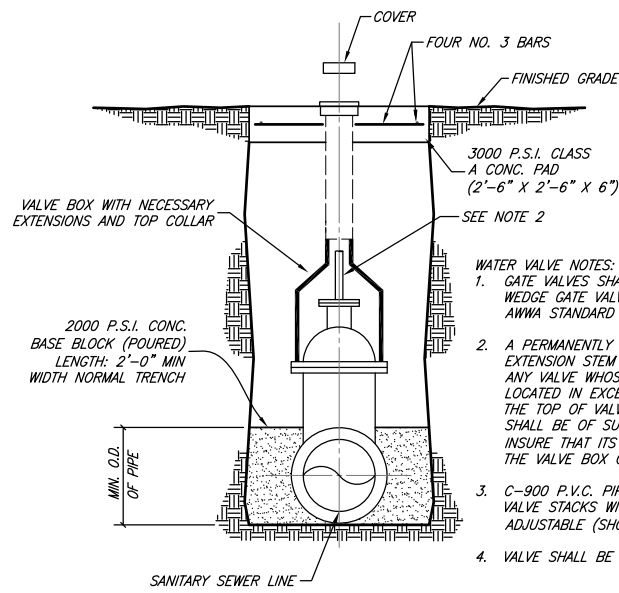
BY M.H. DATE 01/06/20



**UTILITY SUPPORT**

NO SCALE

- NOTES:
- PROPOSED WATER PIPE SHALL BE DUCTILE IRON UNLESS OTHERWISE SPECIFIED IN PLANS. ALL FITTINGS SHALL BE DUCTILE IRON (M.J.-P.E.).
  - CLEARANCE BETWEEN TOP OF PROP. SAN. SEW. OR ST. SEW. PIPE AND BOTTOM OF PROP. 3,600 P.S.I. CONC. SHALL BE 24" (MIN.). IF LESS, THEN PROP. SEWER PIPE SHALL BE CONC. ENGAGED, ALSO.

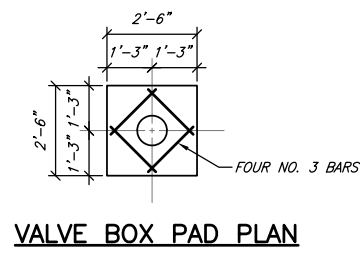


**VALVE SETTING & BOX**

NO SCALE

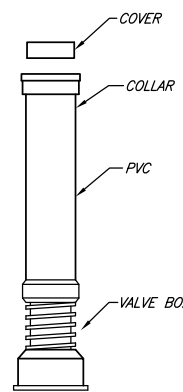
- WATER VALVE NOTES:
- GATE VALVES SHALL BE RESILIENT SEATED WEDGE GATE VALVES ACCORDANCE WITH AWWA STANDARD C-509.
  - A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE WHOSE OPERATING NUT IS LOCATED IN EXCESS OF 4 FEET BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 4" OF THE VALVE BOX COVER.
  - C-900 P.V.C. PIPE SHALL BE USED FOR VALVE STACKS WITH TWO-PIECE ADJUSTABLE (SHORTLY) VALVE BOXES.
  - VALVE SHALL BE WRAPPED IN POLY WRAP.

**GATE VALVE INSTALLATION**



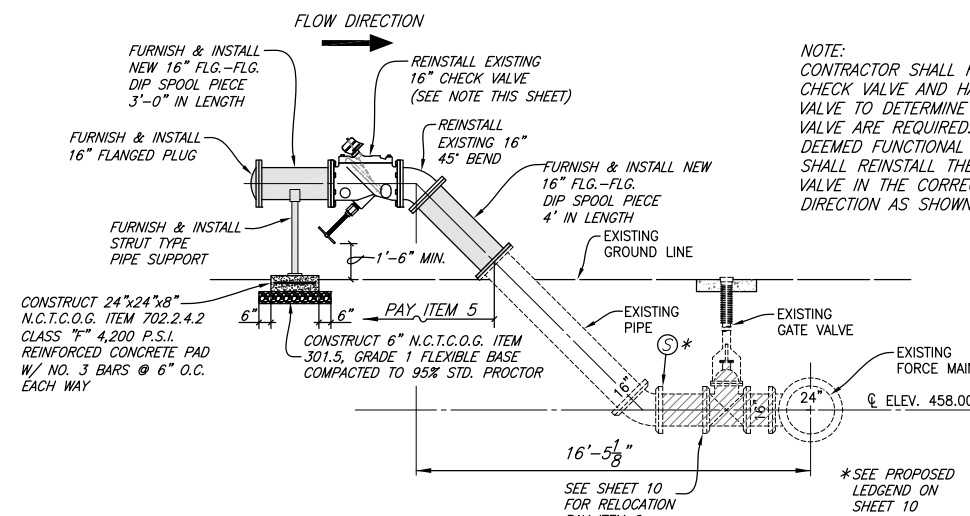
**VALVE BOX PAD PLAN**

NO SCALE



**VALVE BOX WITH EXTENSION**

NO SCALE

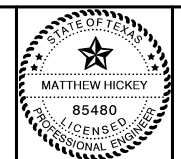


**SECTION C-C**

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

NOTE: CONTRACTOR SHALL REMOVE EXISTING CHECK VALVE AND HAVE CITY INSPECT VALVE TO DETERMINE IF REPAIRS TO THE VALVE ARE REQUIRED. ONCE VALVE IS DEEMED FUNCTIONAL BY CITY, CONTRACTOR SHALL REINSTALL THE EXISTING CHECK VALVE IN THE CORRECT ORIENTATION AND DIRECTION AS SHOWN ON SECTION C-C

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*Matthew Hickey*  
 4/17/18

**CITY OF ROCKWALL, TEXAS**  
**SQUABLE CREEK LIFT STATION IMPROVEMENTS**  
 LIFT STATION PIPING SECTIONS B,C & D AND DETAILS

BHC PROJECT NO. 2015-144  
 January, 2020  
 SHEET NO. **8**

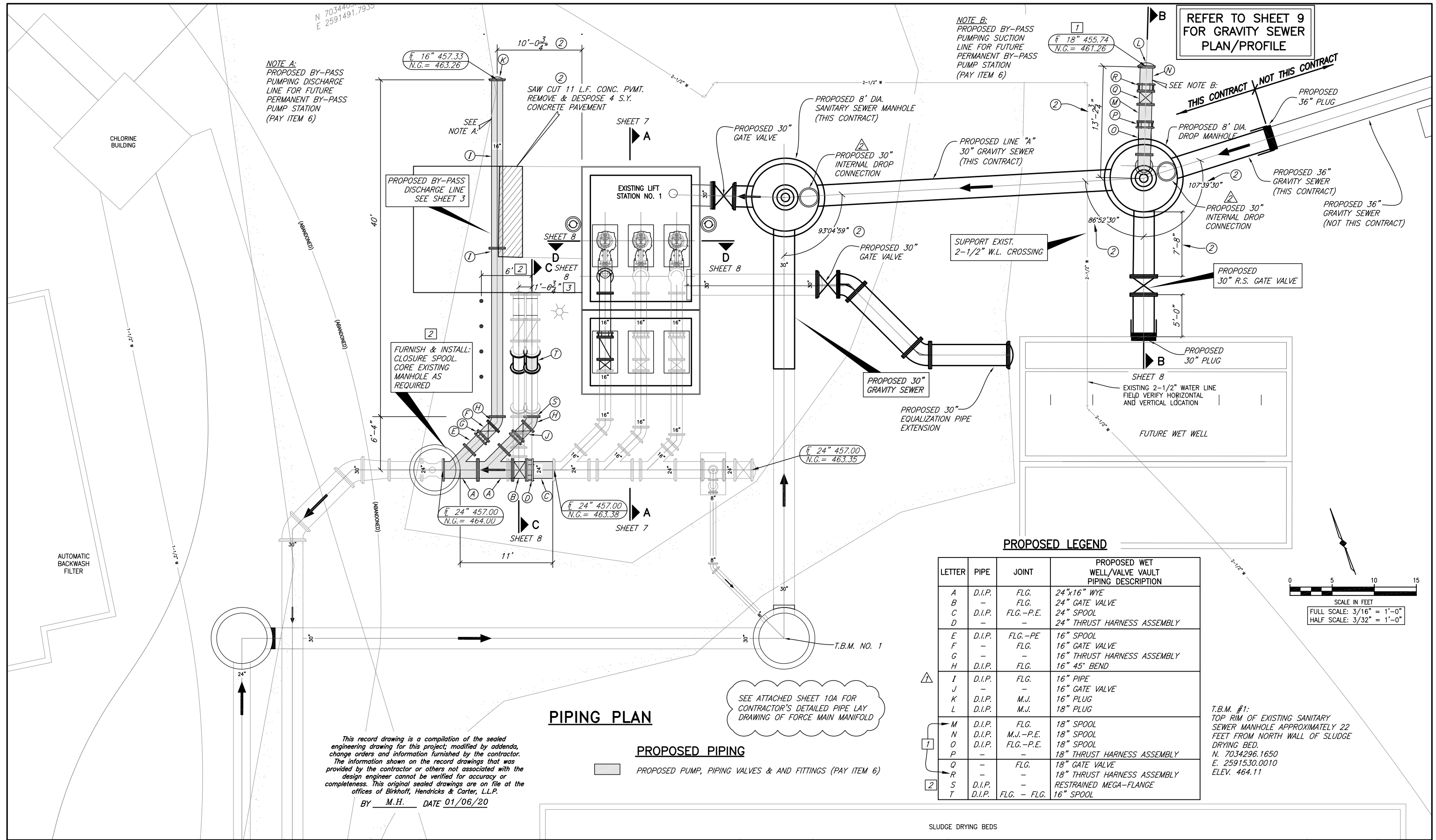


N 7034400  
E 2591491.7935

NOTE A:  
PROPOSED BY-PASS  
PUMPING DISCHARGE  
LINE FOR FUTURE  
PERMANENT BY-PASS  
PUMP STATION  
(PAY ITEM 6)

NOTE B:  
PROPOSED BY-PASS  
PUMPING SUCTION  
LINE FOR FUTURE  
PERMANENT BY-PASS  
PUMP STATION  
(PAY ITEM 6)

REFER TO SHEET 9  
FOR GRAVITY SEWER  
PLAN/PROFILE



FURNISH & INSTALL:  
CLOSURE SPOOL.  
CORE EXISTING  
MANHOLE AS  
REQUIRED

SUPPORT EXIST.  
2-1/2" W.L. CROSSING

SHEET 8  
EXISTING 2-1/2" WATER LINE  
FIELD VERIFY HORIZONTAL  
AND VERTICAL LOCATION  
FUTURE WET WELL

**PIPING PLAN**

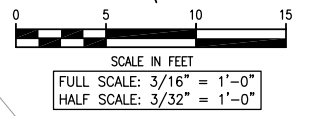
**PROPOSED PIPING**

PROPOSED PUMP, PIPING VALVES & AND FITTINGS (PAY ITEM 6)

**PROPOSED LEGEND**

LETTER	PIPE	JOINT	PROPOSED WET WELL/VALVE VAULT PIPING DESCRIPTION
A	D.I.P.	FLG.	24"x16" WYE
B	-	FLG.	24" GATE VALVE
C	D.I.P.	FLG.-P.E.	24" SPOOL
D	-	-	24" THRUST HARNESS ASSEMBLY
E	D.I.P.	FLG.-PE	16" SPOOL
F	-	FLG.	16" GATE VALVE
G	-	-	16" THRUST HARNESS ASSEMBLY
H	D.I.P.	FLG.	16" 45° BEND
I	D.I.P.	FLG.	16" PIPE
J	-	-	16" GATE VALVE
K	D.I.P.	M.J.	16" PLUG
L	D.I.P.	M.J.	18" PLUG
M	D.I.P.	FLG.	18" SPOOL
N	D.I.P.	M.J.-P.E.	18" SPOOL
O	D.I.P.	FLG.-P.E.	18" SPOOL
P	-	-	18" THRUST HARNESS ASSEMBLY
Q	-	FLG.	18" GATE VALVE
R	-	-	18" THRUST HARNESS ASSEMBLY
S	D.I.P.	-	RESTRAINED MEGA-FLANGE
T	D.I.P.	FLG. - FLG.	16" SPOOL

T.B.M. #1:  
TOP RIM OF EXISTING SANITARY  
SEWER MANHOLE APPROXIMATELY 22  
FEET FROM NORTH WALL OF SLUDGE  
DRYING BED.  
N. 7034296.1650  
E. 2591530.0010  
ELEV. 464.11



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BY M.H. DATE 01/06/20

1	ADDENDUM NO.1
2	ADDENDUM NO.2
7	CHANGE ORDER NO.1: REVISED BYPASS SUCTION LINE DIAMETER
2	FIELD CHANGE NO.2: FIELD CHANGE-MANHOLE @ STA. 0+58.27 MOVED DUE TO BORE ON QUAIL RUN
2	CHANGE ORDER NO.2: MODIFIED F.M. MANIFOLD PIPING

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*Matthew Hickey*  
4/17/18

**CITY OF ROCKWALL, TEXAS**  
SQUALBLE CREEK LIFT STATION IMPROVEMENTS  
**FORCE MAIN & BY-PASS PIPING MODIFICATION PLAN**

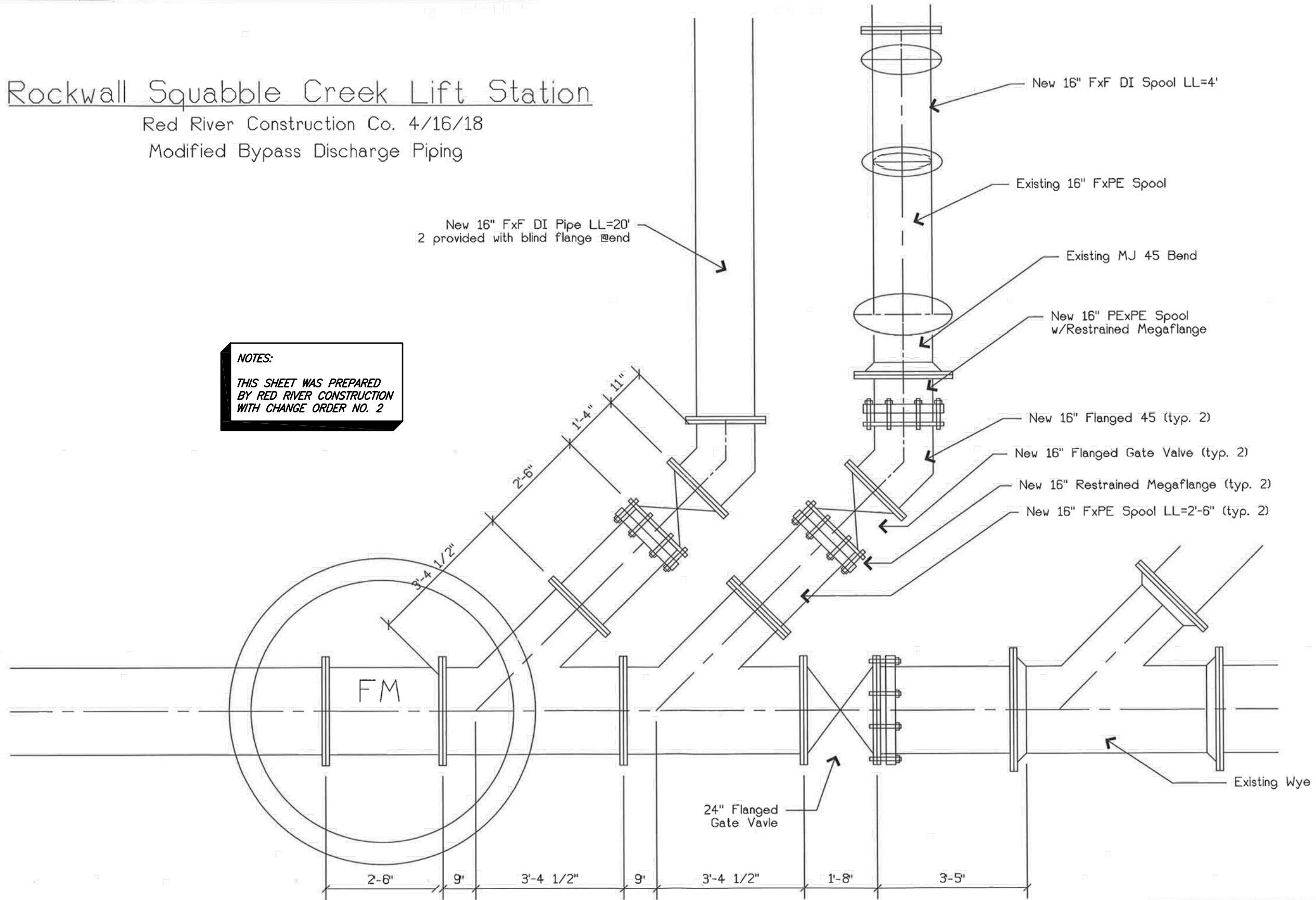
BHC PROJECT NO. 2015-144  
January, 2020  
SHEET NO. **10**

# Rockwall Squabble Creek Lift Station

Red River Construction Co. 4/16/18

Modified Bypass Discharge Piping

**NOTES:**  
 THIS SHEET WAS PREPARED  
 BY RED RIVER CONSTRUCTION  
 WITH CHANGE ORDER NO. 2



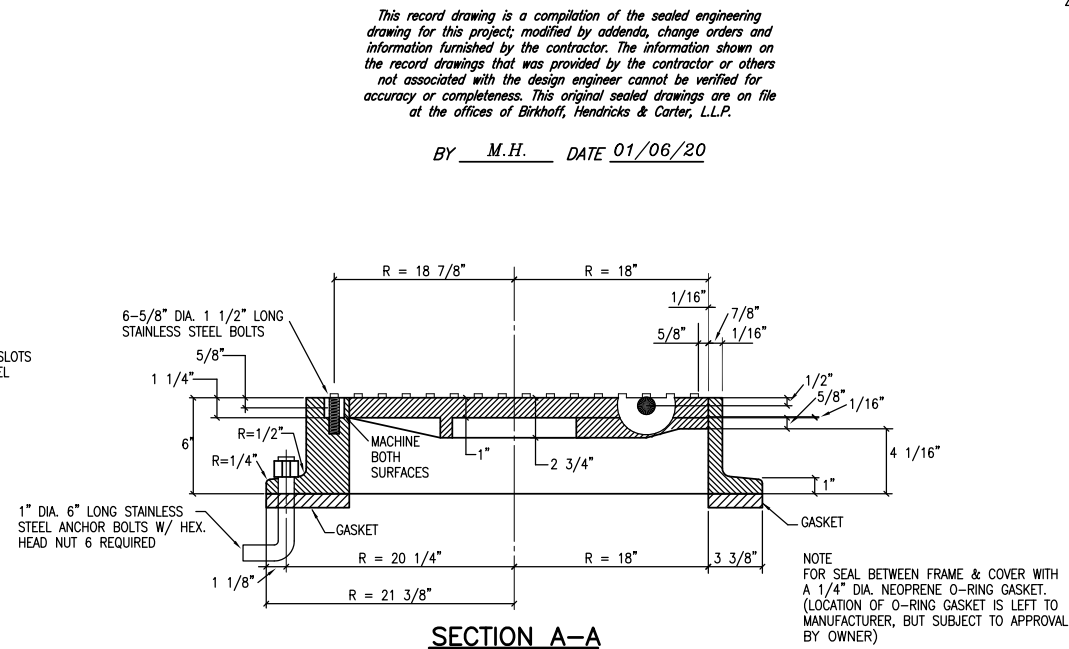
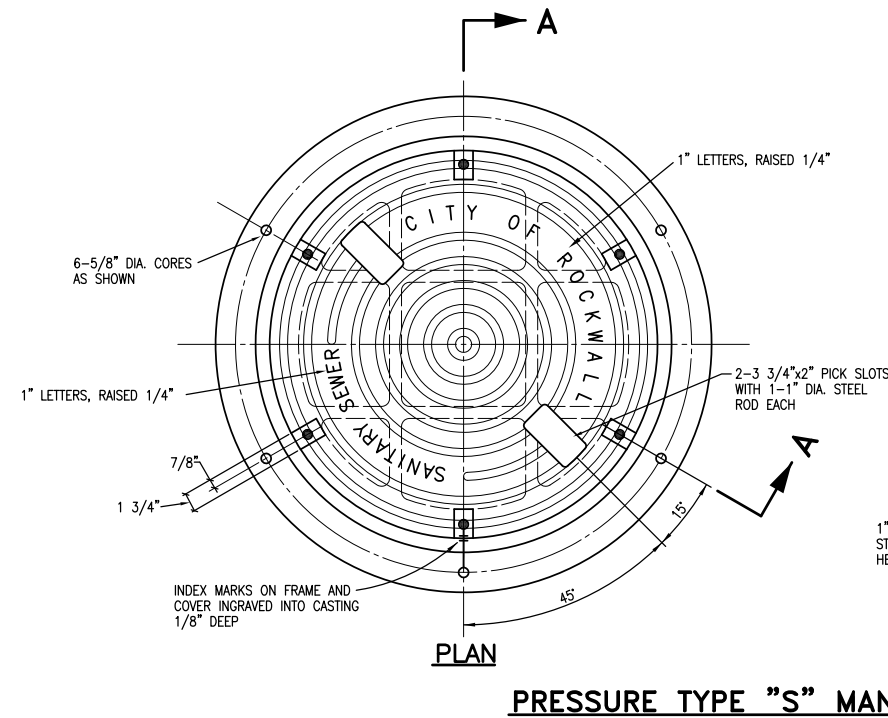
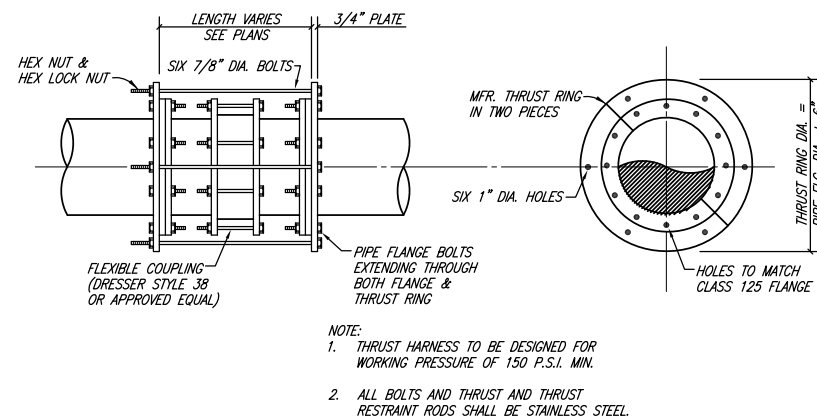
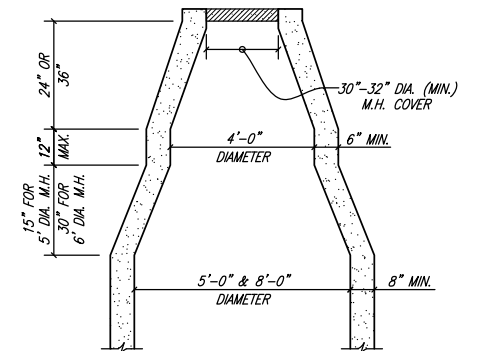
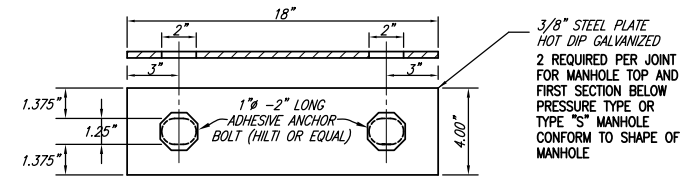
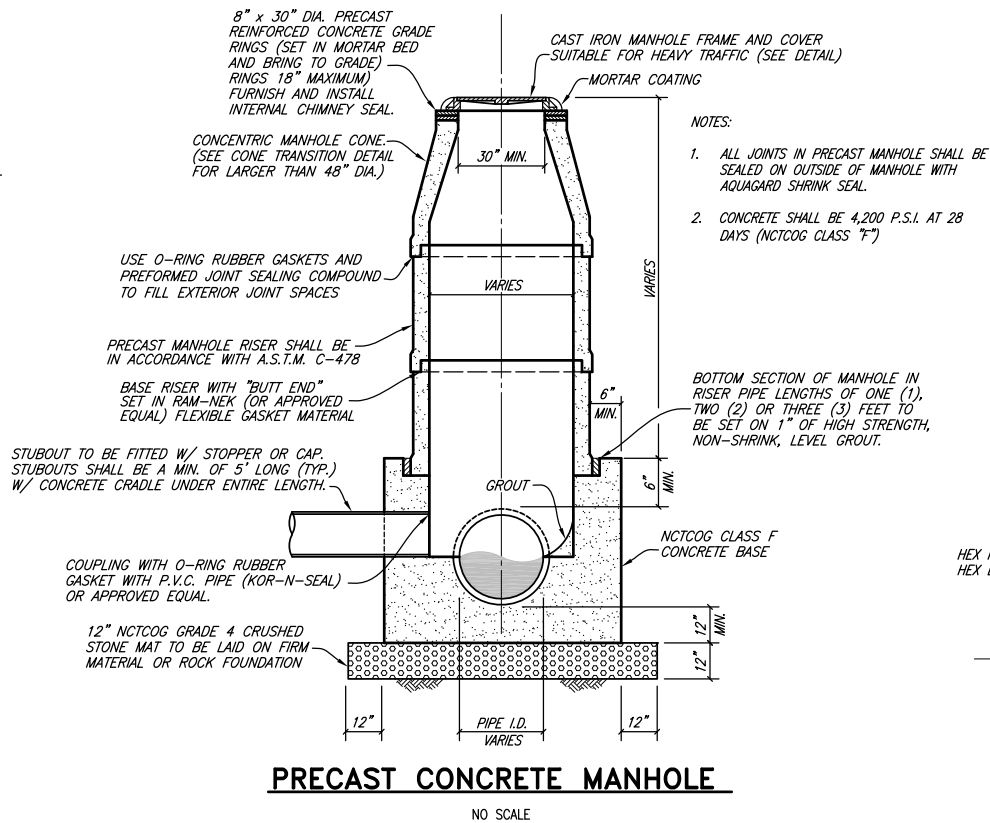
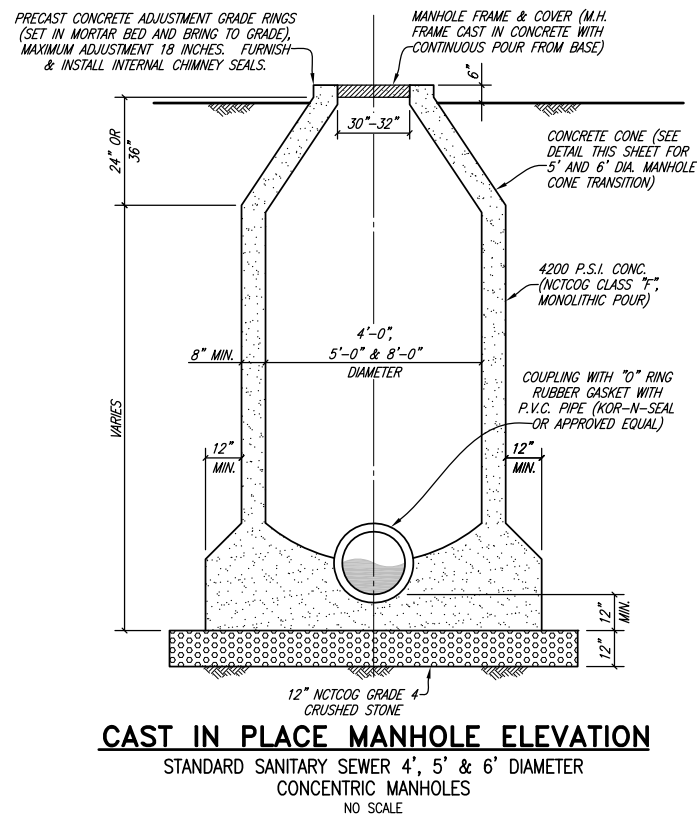

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 TBPE Firm No. 526; TBPLS Firm No. 10031800  
 11910 Greenville Ave., Suite 600  
 Dallas, Texas 75243 (214) 361-7900

**CITY OF ROCKWALL, TEXAS**  
 SQUABBLE CREEK LIFT STATION IMPROVEMENTS  
 RED RIVER CONSTRUCTION CO.  
 MODIFIED BYPASS DISCHARGE PIPING DETAIL

BHC  
 PROJECT NO.  
 2015-144  
 January, 2020

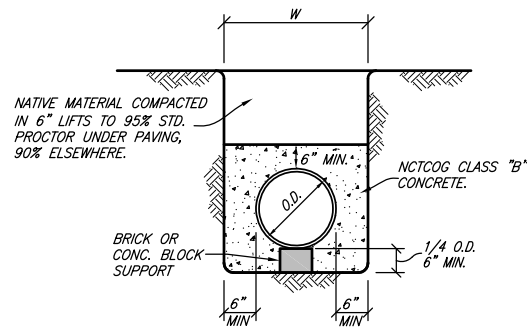
SHEET NO.  
**10A**



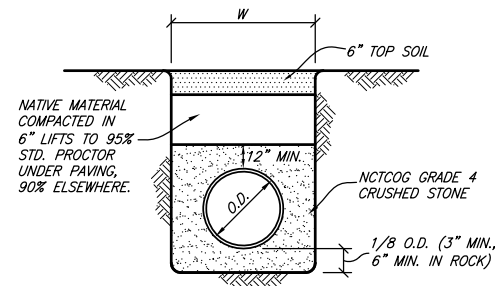
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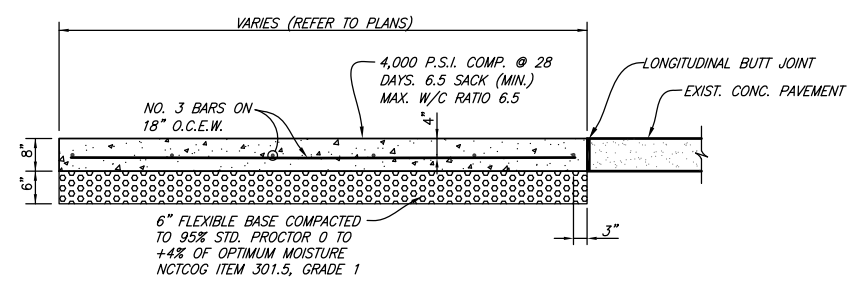
- MANHOLE NOTES**
- NOTES FOR ALL MANHOLES:
- CONCRETE SHALL BE 4,200 P.S.I. AT 28 DAYS (NCTCOG CLASS "F")
  - MANHOLE SHALL BE PLUMB TO WITHIN 1" FOR EVERY 5 FT. OF VERTICAL DEPTH, PRECAST OR CAST IN PLACE.
  - MANHOLES OVER 12 FT. DEEP SHALL HAVE NO. 4 BARS @ 18" O.C.E.W. AND IF NOT POURED MONOLITHIC COLD JOINTS SHALL HAVE A FORMED GROOVE OR REINFORCING DOWELS FOR SHEAR PROTECTION; CONSTRUCTION JOINTS SHALL HAVE HEAVY DUTY P.V.C. WATERSTOP 9-INCHES IN THE DIRECTION PERPENDICULAR TO THE JOINT AS MANUFACTURED BY B.F. GOODRICH OR APPROVED EQUAL.
  - USE PRESSURE TYPE MANHOLE FRAME & COVER, WHERE NOTED.
  - ALL MANHOLES SHALL BE LINED WITH RAVEN LINING SYSTEM, CONSHIELD OR APPROVED EQUAL.
- NOTES FOR PRECAST MANHOLES:
- PRECAST MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-47B.
  - FOR MANHOLES 20 FT. DEEP OR MORE USE CLASS V REINF. CONC. PIPE FOR BOTTOM 8 FT. & CLASS III R.C.P. ABOVE.
  - FURNISH & INSTALL TWO JOINT RESTRAINER STRAPS FOR EACH OF THE TOP 2 JOINTS.
  - EACH JOINT SHALL BE PROVIDED WITH AN O-RING DESIGN AND THE EXTERIOR OF EACH JOINT SHALL BE SEALED USING A PRE FORMED JOINT SEALING COMPOUND.
  - ALL WALL PENETRATIONS SHALL BE MADE UTILIZING KOR-N-SEAL RUBBER CONNECTORS, BANDS AND CLAMPS WITH HIGH STRENGTH NON SHRINK GROUT.
  - ALL JOINTS IN PRECAST MANHOLES SHALL BE SEALED ON THE OUTSIDE OF THE MANHOLE WITH AQUAGUARD SHRINK SEAL.



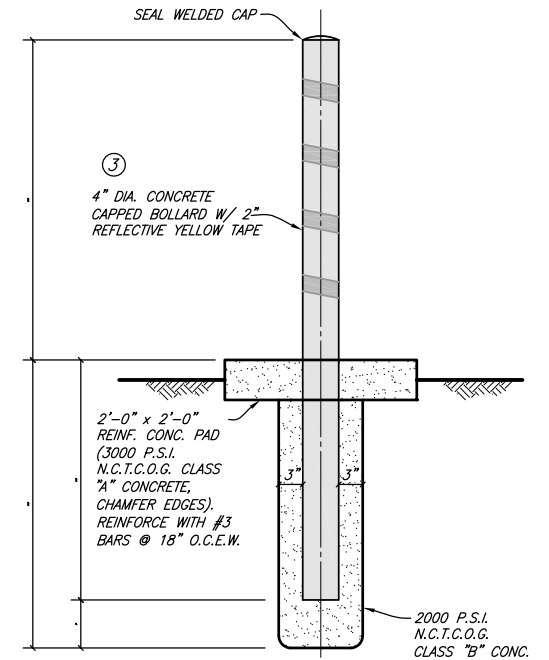
**CLASS G EMBEDMENT**  
CONCRETE ENCASMENT



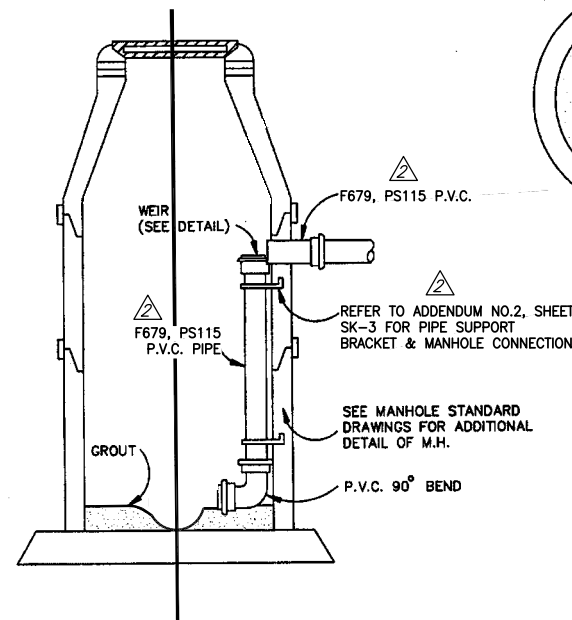
**CLASS B-2 EMBEDMENT**  
STD. P.V.C. SANITARY SEWER



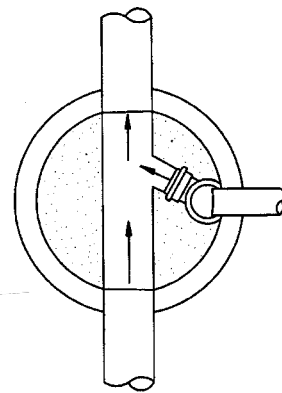
**REINFORCED CONCRETE PAVEMENT**  
NOT TO SCALE



**STATIONARY PIPE BOLLARD**  
NO SCALE

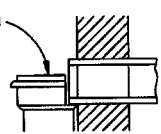


**ELEVATION**  
N.T.S.



**PLAN**  
N.T.S.

REMOVE PORTION OF DROP PIPE TO CONNECT AS SHOWN

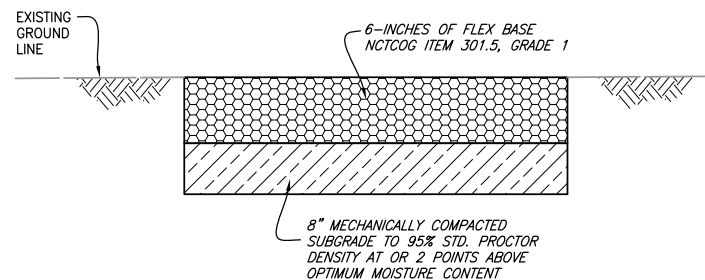


**WEIR DETAIL**  
N.T.S.

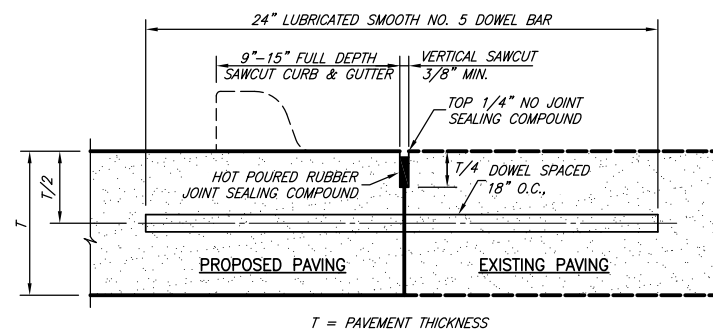
**NOTE:**  
FLOW LINE OF SURCHARGE LINE NORMALLY PLACED AT TOP OF EXISTING WASTEWATER LINE UNLESS NOTED OTHERWISE ON PLANS.

**TYPICAL INTERNAL DROP MANHOLE**  
NO SCALE

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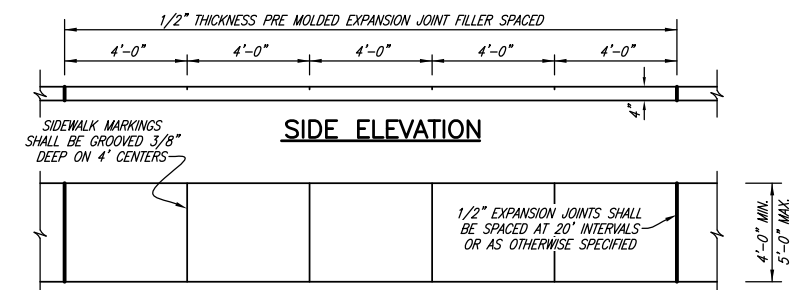


**LIFT STATION DRIVEWAY FLEXIBLE BASE DETAIL**  
NO SCALE



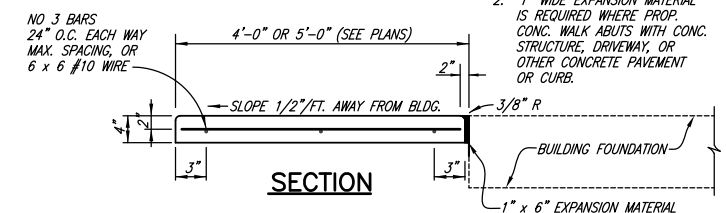
- NOTES:**
- NO. 5 SMOOTH DOWEL BAR MAY BE USED IN 6" PAVEMENT.
  - LONGITUDINAL BUTT CONSTRUCTION MAY BE USED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT THE CONTRACTOR'S OPTION.
  - DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL RIG.
  - DRILLING BY HAND IS NOT ACCEPTABLE. PUSHING DOWEL BARS INTO GREEN CONCRETE IS NOT ACCEPTABLE.

**LONGITUDINAL BUTT JOINT**  
FOR 5" TO 6" PAVEMENT THICKNESS - NOT TO SCALE



**PLAN**

- EXPANSION JOINT NOTES:**
- EXPANSION JOINTS SHALL BE REFLEX EXPANSION JOINTS BY J.D. RUSSELL CO. OR EQUAL.
  - 1" WIDE EXPANSION MATERIAL IS REQUIRED WHERE PROP. CONC. WALK ABUTS WITH CONC. STRUCTURE, DRIVEWAY, OR OTHER CONCRETE PAVEMENT OR CURB.



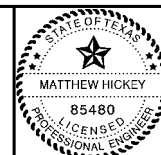
**SECTION**

**CONCRETE SIDEWALK AT STRUCTURE**  
NO SCALE

ADDENDUM NO.1
ADDENDUM NO.2
FIELD CHANGED 3: REVISED BOLLARDS FROM GALVANIZED STEEL TO CONCRETE CAPPED BOLLARD

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*Matthew Hickey*  
10/2/20

**CITY OF ROCKWALL, TEXAS**  
SQUABLE CREEK LIFT STATION IMPROVEMENTS  
MISCELLANEOUS DETAILS

BHC  
PROJECT NO.  
2015-144  
January, 2020

SHEET NO.  
**12**

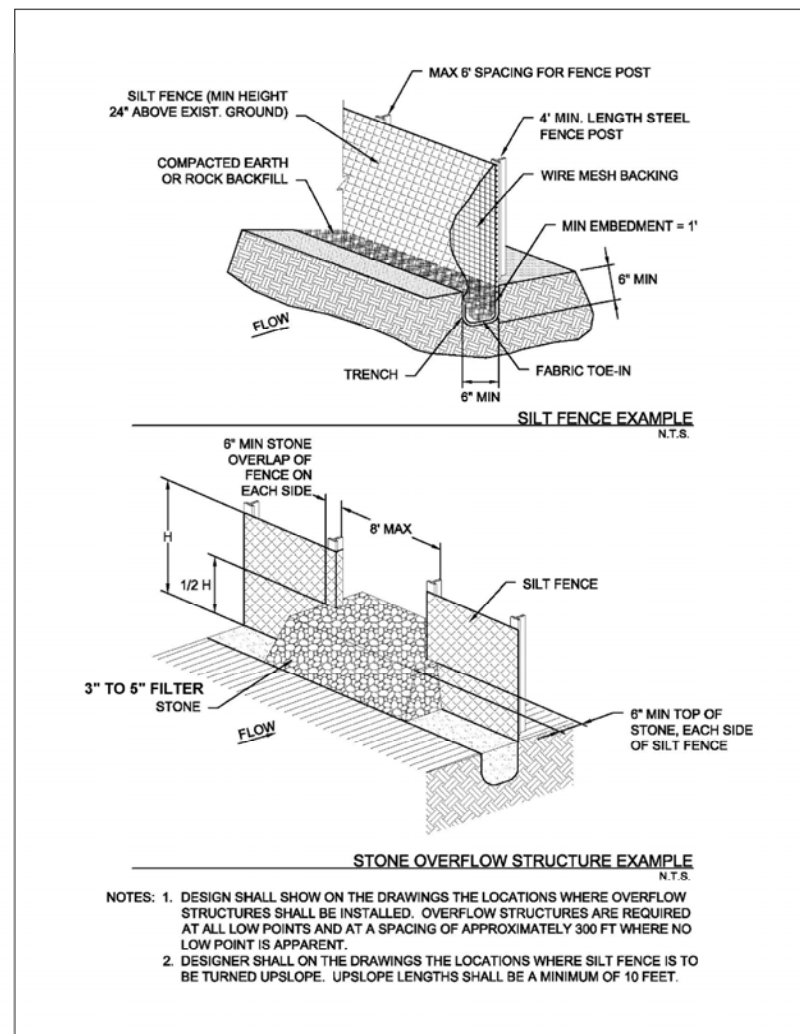


Figure 3.28 Schematics of Silt Fence

Silt Fence  
Revised 04/10

CC-147

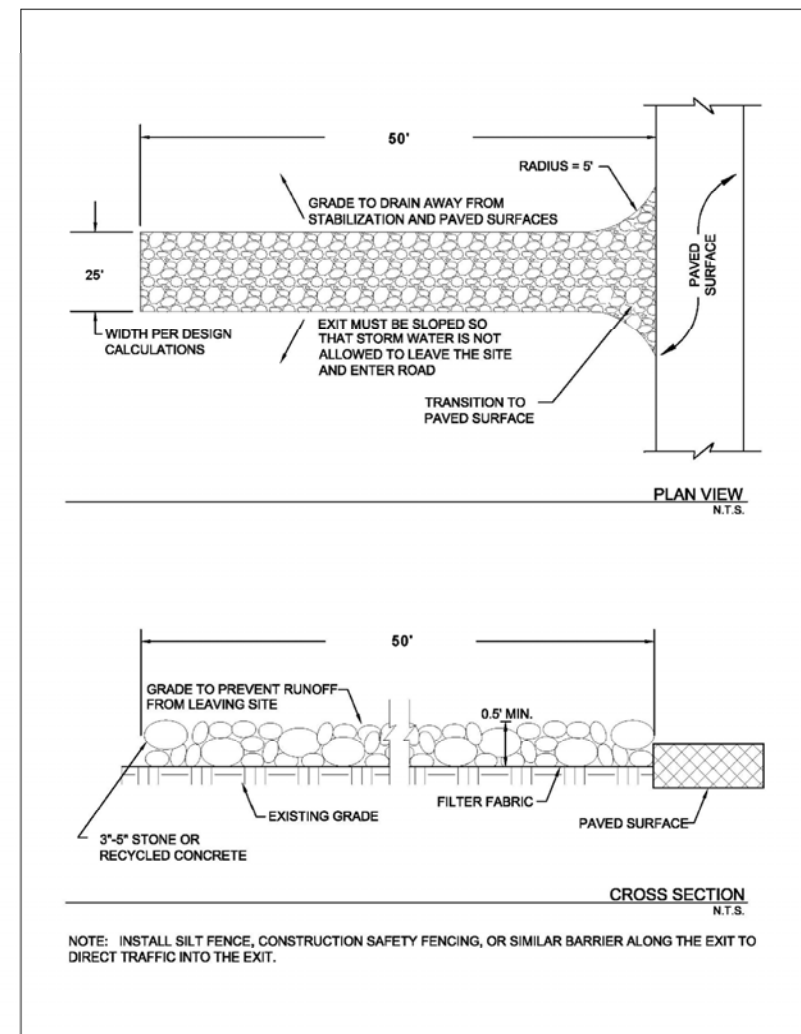


Figure 3.29 Schematics of Stabilized Construction Exit

Stabilized Construction Exit  
Revised 04/10

CC-151

**STORM WATER POLLUTION PREVENTION NOTES**

1. CONTRACTOR SHALL PROVIDE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED BY A REGISTERED PROFESSIONAL ENGINEER, TO THE CITY PRIOR TO CONSTRUCTION.
2. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO IMPLEMENT THE SWPPP AND TO MAINTAIN THE SILT FENCE THROUGHOUT THE PERIOD OF CONSTRUCTION. UNTIL NATIVE VEGETATION IS RE-ESTABLISHED.

**CONSTRUCTION ENTRANCE NOTES:**

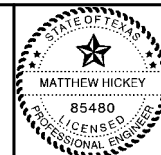
1. REMOVE "OR RECYCLE CONCRETE"
2. REVISE 0.5'MIN TO 12"MIN
3. REVISE 3"-5" STONE TO 4"-6"

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BY M.H. DATE 01/06/20

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Texas Firm F526  
11910 Greenville Ave., Suite 600  
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*Matthew Hickey*  
10/2/17

**CITY OF ROCKWALL, TEXAS**  
SQUABBLE CREEK LIFT STATION IMPROVEMENTS  
EROSION CONTROL DETAILS

BHC  
PROJECT NO.  
2015-144  
January, 2020

SHEET NO.  
**13**

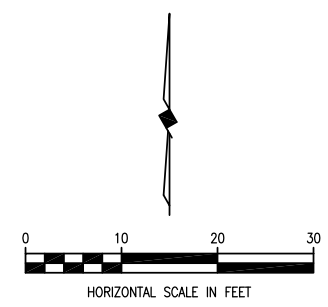
ELECTRICAL SITE & PLAN SYMBOL LEGEND	
SYMBOL	DESCRIPTION
---	EXPOSED CONDUIT RUN
----	CONCEALED OR UNDERGROUND CONDUIT RUN
----	EXISTING UNDERGROUND CONDUIT
→	CIRCUIT HOME RUN TO PANELBOARD
XXXX	CONDUIT AND CABLE TAG NUMBER. REF ONLINE DIAGRAM/CONDUIT SCHEDULE
XX EX	EXAMPLE: XX = DETAIL NO. DETAIL REFERENCE EX = ELECTRICAL SHEET
△	EXISTING ANTENNA

NOTES:

- EXISTING ONCOR 300KVA TRANSFORMER TO BE REMOVED AND REPLACED WITH A 750KVA TRANSFORMER. EXISTING 300KVA TRANSFORMER TO BE RETURNED TO ONCOR.
- EXISTING UNDERGROUND UTILITY SERVICE CABLE SHALL BE PULLED AND DISPOSED OF BY CONTRACTOR. EXISTING CONDUIT TO BE PLUGGED AND ABANDONED IN PLACE. EXISTING CONCRETE PAD SHALL BE CORED FOR THE NEW UTILITY SERVICE CABLE.
- CONTRACTOR SHALL CONNECT TO THE EXISTING 4-INCH CONDUIT TO AVOID GOING UNDER EXISTING 500KW GENERATOR PAD. EXISTING CABLE SHALL BE PULLED THROUGH EXISTING CONDUIT. NEW CABLE SHALL BE PULLED THROUGH EXISTING AND NEW CONDUIT. EXISTING CONDUIT INSIDE GENERATOR AND INSIDE PUMP STATION IS NOT SHOWN IN THE SITE PLAN.
- EXISTING BURIED CABLE/CONDUIT THAT IS EXPOSED DURING CONSTRUCTION SHALL BE PROTECTED AND SUPPORTED BY THE CONTRACTOR DURING EXCAVATION AND CONSTRUCTION, OR SHALL BE REPLACED WITH NEW CONDUIT AND NEW CABLE TERMINATION.



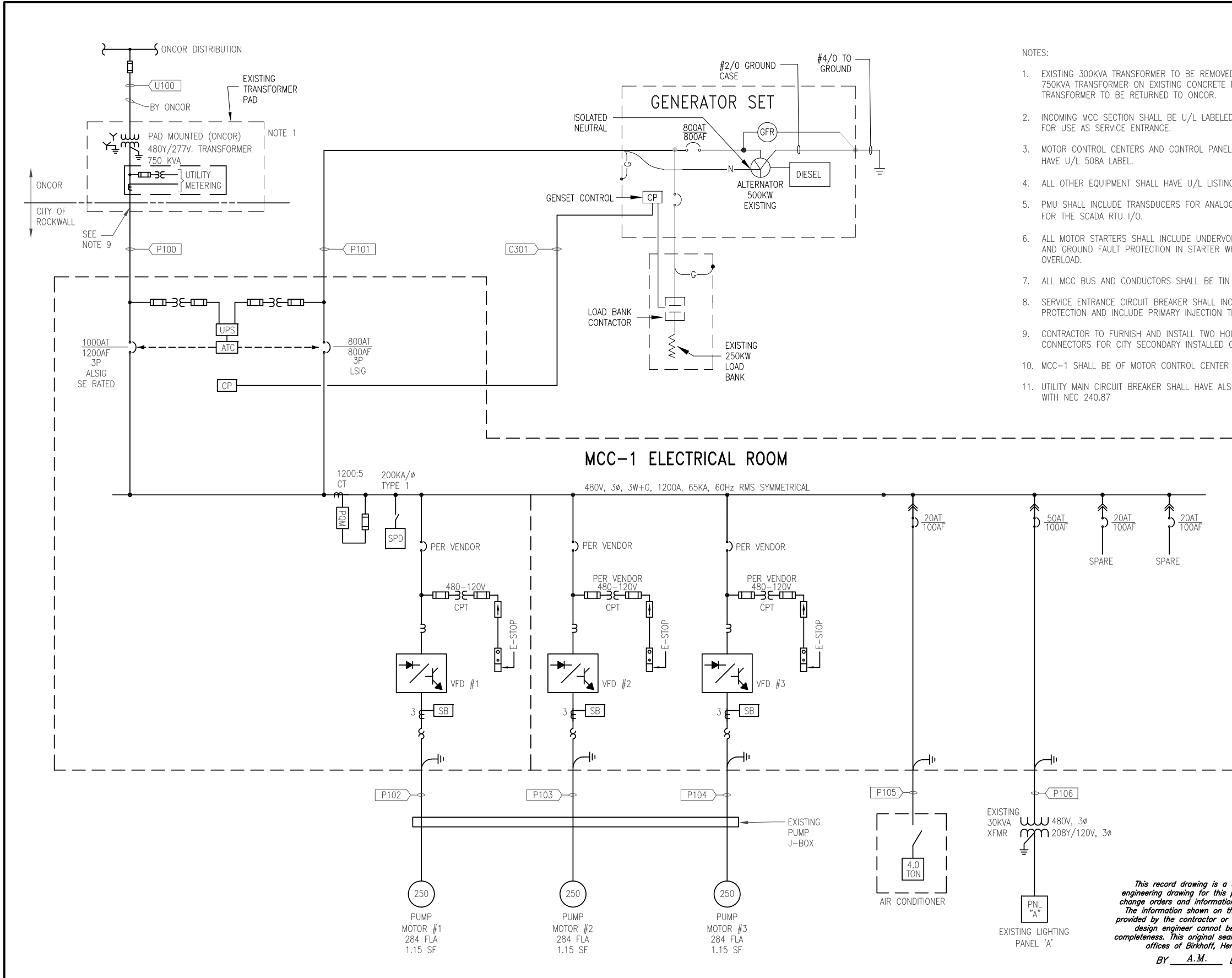
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 BY A.M. DATE 01/06/20



(E1)

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				<b>OVERALL ELECTRICAL SITE PLAN</b>	January, 2020	





- NOTES:
- EXISTING 300KVA TRANSFORMER TO BE REMOVED AND REPLACED WITH 750KVA TRANSFORMER ON EXISTING CONCRETE PAD. EXISTING 300KVA TRANSFORMER TO BE RETURNED TO ONCOR.
  - INCOMING MCC SECTION SHALL BE U/L LABELED AND RATED AS SUITABLE FOR USE AS SERVICE ENTRANCE.
  - MOTOR CONTROL CENTERS AND CONTROL PANELS SHALL HAVE U/L 508A LABEL.
  - ALL OTHER EQUIPMENT SHALL HAVE U/L LISTING LABEL.
  - PMU SHALL INCLUDE TRANSDUCERS FOR ANALOG SIGNALS AS REQUIRED FOR THE SCADA RTU I/O.
  - ALL MOTOR STARTERS SHALL INCLUDE UNDERVOLTAGE/PHASE SEQUENCE AND GROUND FAULT PROTECTION IN STARTER WHICH MAY BE PART OF OVERLOAD.
  - ALL MCC BUS AND CONDUCTORS SHALL BE TIN PLATED COPPER.
  - SERVICE ENTRANCE CIRCUIT BREAKER SHALL INCLUDE GROUND FAULT PROTECTION AND INCLUDE PRIMARY INJECTION TESTING.
  - CONTRACTOR TO FURNISH AND INSTALL TWO HOLE COMPRESSION CONNECTORS FOR CITY SECONDARY INSTALLED CONDUCTORS.
  - MCC-1 SHALL BE OF MOTOR CONTROL CENTER CONSTRUCTION.
  - UTILITY MAIN CIRCUIT BREAKER SHALL HAVE ALSIG TRIP UNIT TO COMPLY WITH NEC 240.87

**ONE LINE DIAGRAM LEGEND**

SYMBOL	DESCRIPTION
	POWER TRANSFORMER
	CURRENT TRANSFORMER, NUMBER INDICATES QUANTITY
	CONTROL POWER (CPT) OR POTENTIAL (PT) TRANSFORMER
	THERMAL MAGNETIC CIRCUIT BREAKER; AF=FRAME SIZE, AT=AMP TRIP
	MAGNETIC ONLY CIRCUIT BREAKER; NUMBER INDICATES CONTINUOUS CURRENT RATING
	STAB-IN CONNECTION, NUMBER INDICATES MCC UNIT DESIGNATION
	30R FUSE SIZE WHERE SHOWN NUMBER INDICATES QUANTITY
	FUSED SWITCH
	30 AMP, 3 POLE NON-FUSED SWITCH
	FULL VOLTAGE, NON-REVERSING STARTER, WITH OVERLOAD RELAY, NUMBER (SZ3) INDICATES NEMA SIZE, NUMBER (CL-20) INDICATES OL CLASS
	CONNECTION TO GROUND MAT
	SOLID NEUTRAL
	DELTA CONNECTED TRANSFORMER WINDINGS
	WYE CONNECTED TRANSFORMER WINDINGS
	MAGNETIC ONLY CIRCUIT BREAKER; NUMBER INDICATES CONTINUOUS CURRENT RATING
	GROUND FAULT RELAY
	CONDUIT & CABLE TAG NUMBER, REF SCHEDULE
	SURGE PROTECTION DEVICE CONTACTS AND COUNTER
	POWER QUALITY METER - EATON IQ260
	AUTOMATIC TRANSFER SWITCH CONTROLLER EATON ATC900 OPEN TRANSITION: N - E CLOSED TRANSITION: E - N
	FUSE
	VARIABLE FREQUENCY DRIVE
	MOTOR, NUMBER INDICATES HORSEPOWER

**ABBREVIATIONS**

S/N	SOLID NEUTRAL CONNECTION
G	GROUND CONNECTION
XFMR	TRANSFORMER
CP	CONTROL POWER
SB	SHORTING BAR
I/O	INPUT / OUTPUT

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*Andrew Mata, Jr.*  
 01/21/2017

**CITY OF ROCKWALL, TEXAS**  
 SQUABBLE CREEK LIFT STATION  
 MOTOR CONTROL CENTER - ONE LINE DIAGRAM

BHC PROJECT NO. 2015-144  
 January, 2020  
 SHEET NO. **15**

### 480 VOLT CONDUIT & CABLE SCHEDULE

TAG	WIRING	CONDUIT	SOURCE	DESTINATION	COMMENT
P100	4 SETS, 3EA-#350, #2/O N	3"C.	ONCOR TRANSFORMER	MCC UTILITY MAIN	
P101	3 SETS, 3EA-#350, #2/O N, #2/O G	3"C.	EXISTING 500KW GENERATOR	MCC GENERATOR MAIN	
P102	3 SETS, 3EA-#500, #1/O G	3"C.	VFD #1	PUMP J-BOX/PUMP 1	NOTE 1/2
P103	3 SETS, 3EA-#500, #1/O G	3"C.	VFD #2	PUMP J-BOX/PUMP 2	NOTE 1/2
P104	3 SETS, 3EA-#500, #1/O G	3"C.	VFD #3	PUMP J-BOX/PUMP 3	NOTE 1/2
P105	3 SETS, 3EA-#8, #8G	1"C.	MCC	A/C UNIT	
P106	3 SETS, 3EA-#8, #8G	1"C.	MCC	EXISTING 30KVA TRANSFORMER	

NOTE:

- EXISTING WET WELL PENETRATIONS AND EXISTING CONDUIT FROM THE WET WELL TO THE EXISTING PUMP J-BOX SHALL BE REUSED. NEW CONDUIT SHALL BE INSTALLED FROM THE NEW PUMP J-BOX TO THE ELECTRICAL ROOM. SEE DETAIL 2, SHEET 23.
- SUBMERSIBLE CABLE FROM PUMP MOTOR TO EXISTING PUMP J-BOX SHALL BE PROVIDED BY PUMP VENDOR.

### 208Y/120V VOLT CONDUIT & CABLE SCHEDULE

TAG	WIRING	CONDUIT	SOURCE	DESTINATION	COMMENT
P201	3#12, #12G.	3/4"C.	EXISTING PANEL 'A'	SCADA/RTU PANEL	NOTE 2

NOTES:

- EXISTING CONDUIT AND WIRING FOR LIGHTING, RECEPTACLES, AND SWITCHES NOT SHOWN. SEE LIGHTING AND RECEPTACLE.
- NEW CONDUIT AND CABLE FROM THE EXISTING LIGHTING PANEL SHALL BE INSTALLED TO THE NEW SCADA/RTU PANEL.

### CONTROL CONDUIT & CABLE SCHEDULE

TAG	WIRING	CONDUIT	SOURCE	DESTINATION	COMMENT
C300	4#14, #14G	3/4"C	SCADA/RTU	MAIN SPD	
C301	4-2/C SH#16, #14G	1"C	SCADA/RTU	PQM	
C302	14#14, #14G	1-1/4"	EXISTING GENERATOR CONTROL PANEL	SCADA/RTU PANEL	
C303	10#14, #14G	1"	ATC CONTROLLER	EXIST. GENERATOR CONTROL PANEL	
C304	RS485 CABLE	1"C	SCADA/RTU PANEL	ATC CONTROLLER	
C305	14#14, #14G	1"C	SCADA/RTU PANEL	ATC CONTROLLER	
C306	12#14, #14G	1"C	EXIST GENERATOR LOAD BANK CONTROLS	ATC CONTROLLER	EXERCISING MODE
C307	6#14, #14G	3/4"C	SCADA/RTU PANEL	ELECTRICAL ROOM INTRUSION	EXISTING DOORS
C308	2-2/ SH#16, #14G	INSIDE PANEL	SCADA/RTU PANEL	ISOLATOR CONVERTER	
C309	2-2/C SH#16, #14G	INSIDE PANEL	SCADA/RTU PANEL	FLOAT RELAYS	
C310	2-2/C SH#16, 20#14,#14G	2-1/2"C	SCADA/RTU PANEL	PUMP #1 VFD CONTROLS	
C311	2-2/C SH#16, 20#14,#14G	2-1/2"C	SCADA/RTU PANEL	PUMP #2 VFD CONTROLS	
C312	2-2/C SH#16, 20#14,#14G	2-1/2"C	SCADA/RTU PANEL	PUMP #3 VFD CONTROLS	
C313	2-2/C SH#16, #14G	1"C	SCADA/RTU INTRINSICALLY SAFE BARRIER	EXISTING PUMP J-BOX	
C313A	SUBMERSIBLE LEVEL TRANSDUCER	1"C	EXISTING PUMP J-BOX	SUBMERSIBLE LEVEL TRANSDUCER	
C314	20#14, #14G	1"C	SCADA/RTU FLOAT RELAYS (ISB)	EXISTING PUMP J-BOX	
C315	SUBMERSIBLE LEVEL CABLES	2"C	EXISTING PUMP J-BOX	WET WELL LEVEL FLOATS	
C316	4#14, #14G	1"C	PUMP #1 VFD CONTROLS	EXISTING PUMP J-BOX/PUMP 1	
C317	4#14, #14G	1"C	PUMP #2 VFD CONTROLS	EXISTING PUMP J-BOX/PUMP 2	
C318	4#14, #14G	1"C	PUMP #3 VFD CONTROLS	EXISTING PUMP J-BOX/PUMP 3	
C319	2-2/C SH#16, #14G	1"C	SCADA/RTU PANEL	EXISTING FLOW METER TRANSMITTER	
C320	PER VENDOR	1"C	EXISTING FLOW METER TRANSMITTER	EXISTING FLOW METER SENSOR	
C321	ANTENNA CABLE	2"C	SCADA/RTU PANEL	EXISTING ANTENNA	

### EXISTING PANEL SCHEDULE

CIRCUIT DESCRIPTION	LOAD KVA	CKT BKR	CKT #	CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
GENERATOR PANEL		20	1	2	20		EMERGENCY LIGHTS
GENERATOR PANEL		20	3	4	20		OUTSIDE LIGHTS ABOVE DOORS
RTU PANEL		20	5	6	20		RECEPTACLE INSIDE (NORTH WALL)
FLOWMETER		20	7	8	20		OUTSIDE WALL PACK
FLUORESCENT LIGHTS		20	9	10	20		MCC HEATERS
RECEPTACLE AT WET WELL		20	11	12	20		POLE LIGHT
SPARE		20	13	14	20		BIO OXIDE SYSTEM
SPARE		20	15	16	20		SPARE
SPARE		20	17	18	20		SPARE
SPARE		20	19	20	20		SPARE
SPARE		20	21	22	20		SPARE
SPARE		20	23	24	20		SPARE
SPARE		20	25	26	20		SPARE
SPARE		20	27	28	20		SPARE

SPD: 120 KA/PHASE  
TINNED COPPER BUS

NEUTRAL                      GROUND

NOTES:

- CONTRACTOR TO VERIFY CIRCUIT AND NUMBERS AND PROVIDE AS BUILT OF PANEL SCHEDULE.
- EXISTING EQUIPMENT CIRCUITS ARE TAKEN FROM CIRCUITS SHOWN ON EXISTING PANEL IN EXISTING ELECTRICAL ROOM.

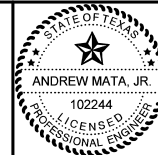
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*Andrew Mata, Jr.*  
01/21/2017

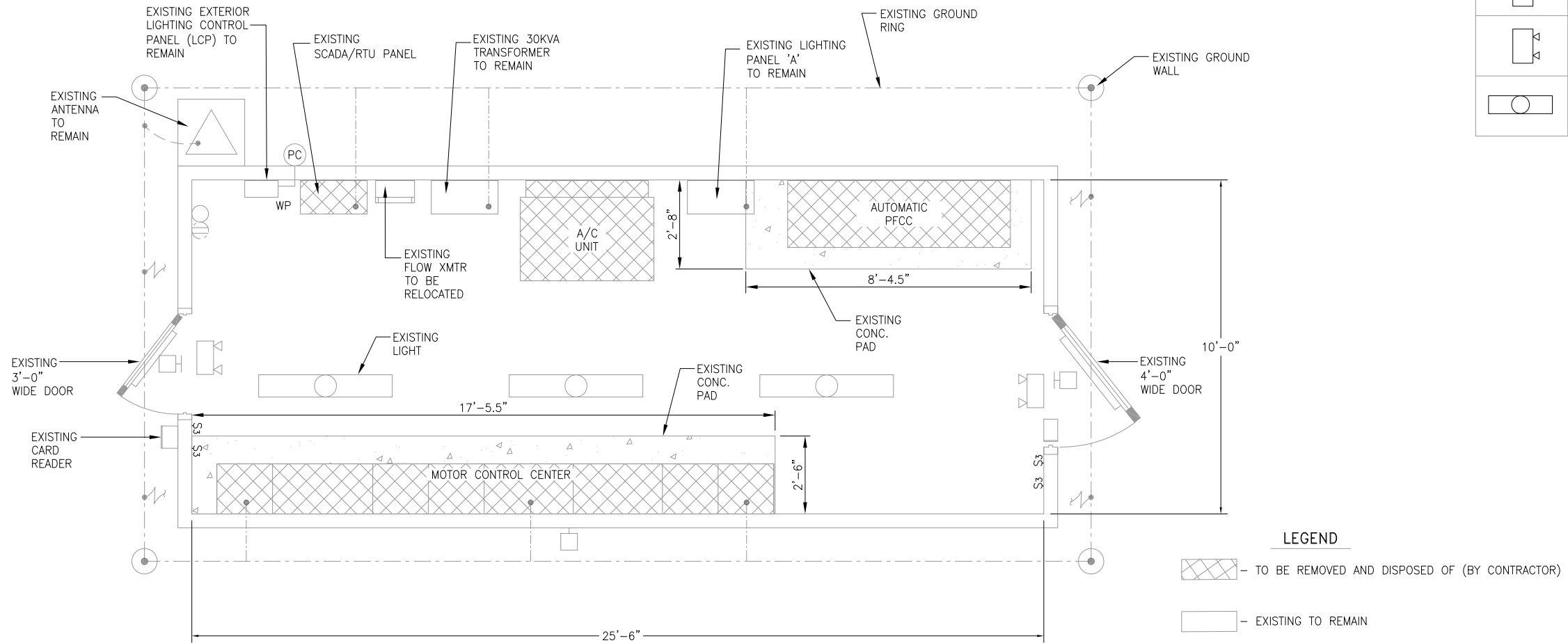
**CITY OF ROCKWALL, TEXAS**  
SQUABBLE CREEK LIFT STATION  
ELECTRICAL SCHEDULES

BHC  
PROJECT NO.  
2015-144  
January, 2020

SHEET NO.  
**16**

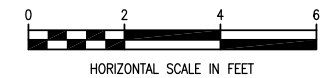
△ PROVIDE NEW 6-INCH CMU INFILL AT EXISTING A/C OPENING. PROVIDE #4 VERTICAL AND HORIZONTAL REINFORCING STEEL SPACED AND 16 INCHES O.C. (MAX.). THE REBAR SHALL BE DRILLED AND EPOXIED 4 INCHES INTO THE 4 EDGES OF THE EXISTING PRECAST CONCRETE WALL PANEL. USE KNOCK-OUT BLOCKS AS REQUIRED TO INSTALL THE CMU WITH THE REBAR. ONCE ALL IN PLACE, USE A 2,500 PSI PEA GRAVEL FLOWABLE CONCRETE GROUT TO FILL ALL THE CMU VOIDS. PROVIDE PAINT OR FINISH ON THE EXTERIOR OF THE WALL AS REQUESTED BY OWNER TO MATCH EXISTING CONCRETE WALLS. PATCH AND REPAIR INTERIOR WALL FINISHES AS REQUIRED TO MATCH EXISTING. ALL WORK FOR PATCHING AND PAINTING THE WALL PATCH SHALL BE UNDER PAY ITEM 4.

ELECTRICAL SITE & PLAN	
SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	EXPOSED CONDUIT RUN
	CONCEALED OR UNDERGROUND CONDUIT RUN
	CONDUIT TERMINALS
	EXISTING PERIMETER LIGHTING
	EXISTING EMERGENCY LIGHTING
	EXISTING INTERIOR LIGHTING



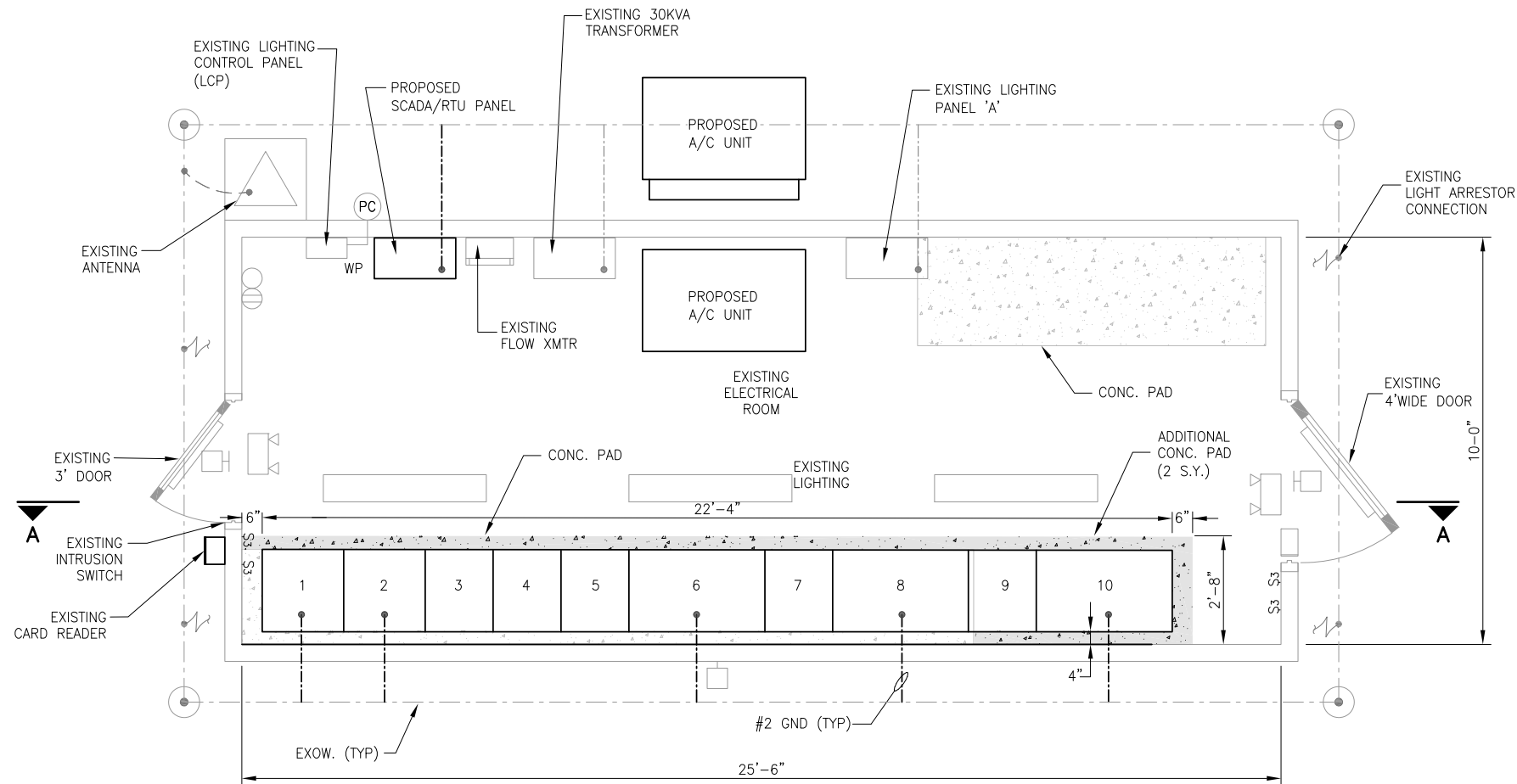
**EXISTING ELECTRICAL BUILDING DEMOLITION PLAN**  
SCALE: 1" = 2'-0"

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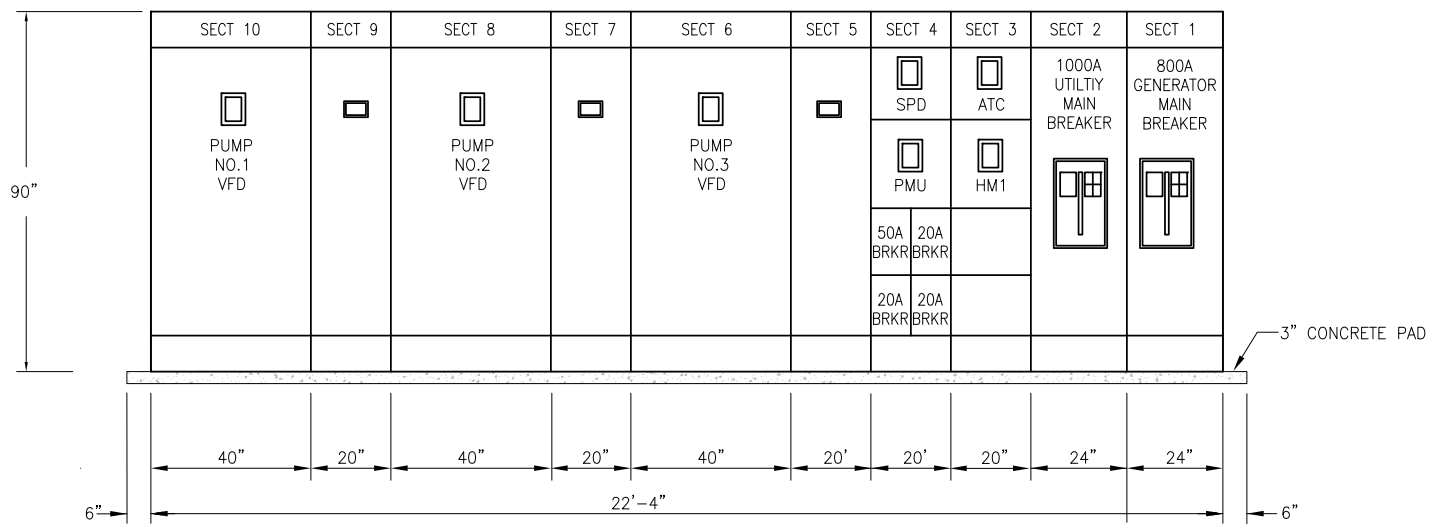


(E4)

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				<b>EXISTING ELECTRICAL BUILDING DEMOLITION SITE PLAN</b>	January, 2020	



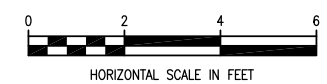
**PROPOSED ELECTRICAL PLAN**  
SCALE: 1" = 2'-0"



**PROPOSED ELECTRICAL MCC SECTION A-A**  
SCALE: 1" = 2'-0"

ELECTRICAL SITE & PLAN SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	EXPOSED CONDUIT RUN
	CONCEALED OR UNDERGROUND CONDUIT RUN
	CONDUIT TERMINALS
	CONDUIT AND CABLE TAG NUMBER. REF ONE-LINE DIAGRAM
	DETAIL REFERENCE EXAMPLE: XX= DETAIL NO. EX= ELECTRICAL SHEET
	GROUNDING CONNECTOR #2 WIRE
	PROPOSED CONCRETE PAD 3,000 PSI @ 28 DAY COMP. STRENGTH
	EXISTING PERIMETER LIGHTING
	EXISTING EMERGENCY LIGHTING
	EXISTING INTERIOR LIGHTING

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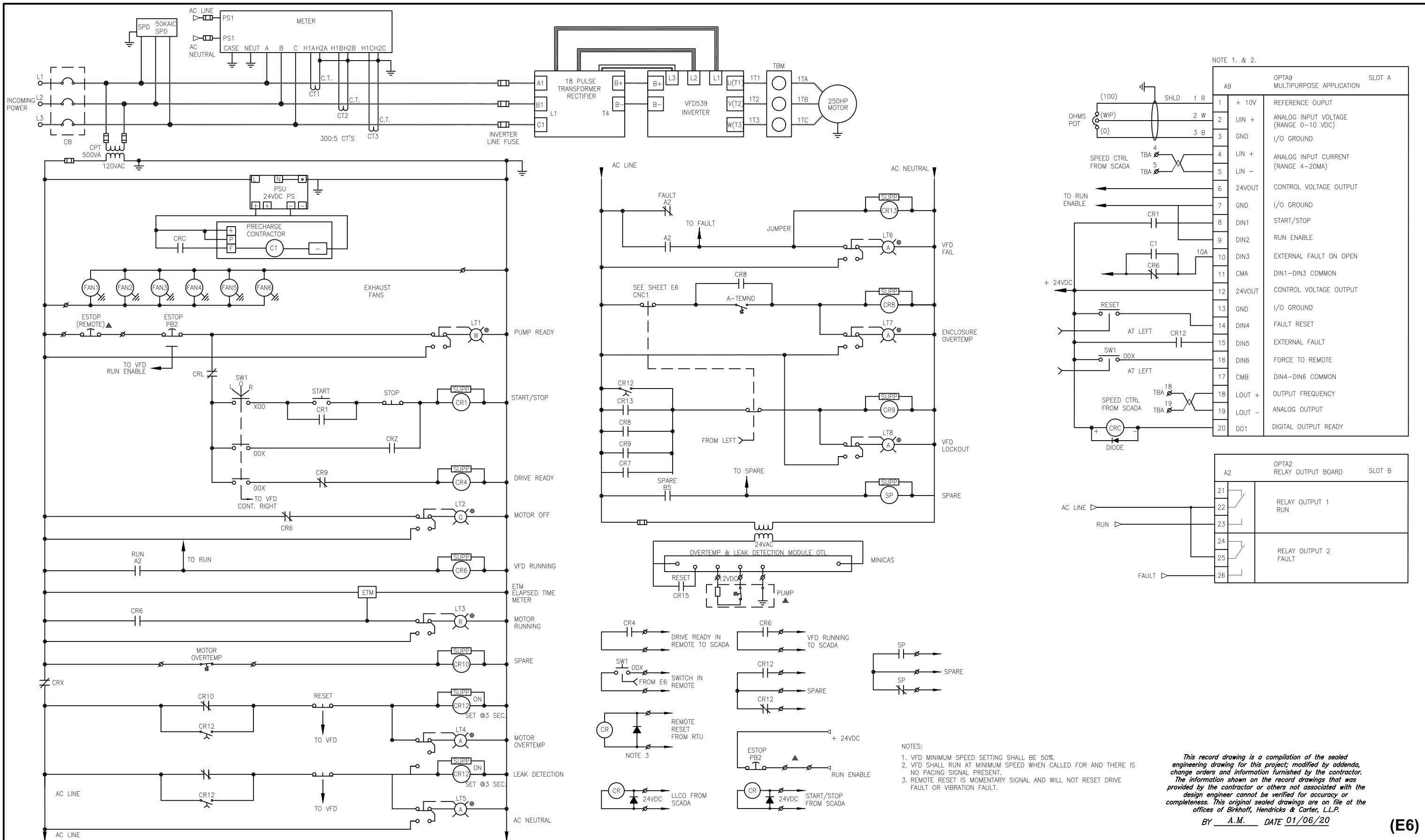


*Andrew Mata, Jr.*  
01/21/2017

**CITY OF ROCKWALL, TEXAS**  
SQUABBLE CREEK LIFT STATION  
**PROPOSED ELECTRICAL PLAN & MOTOR CONTROL CENTER ELEVATION**

BHC PROJECT NO. 2015-144  
January, 2020

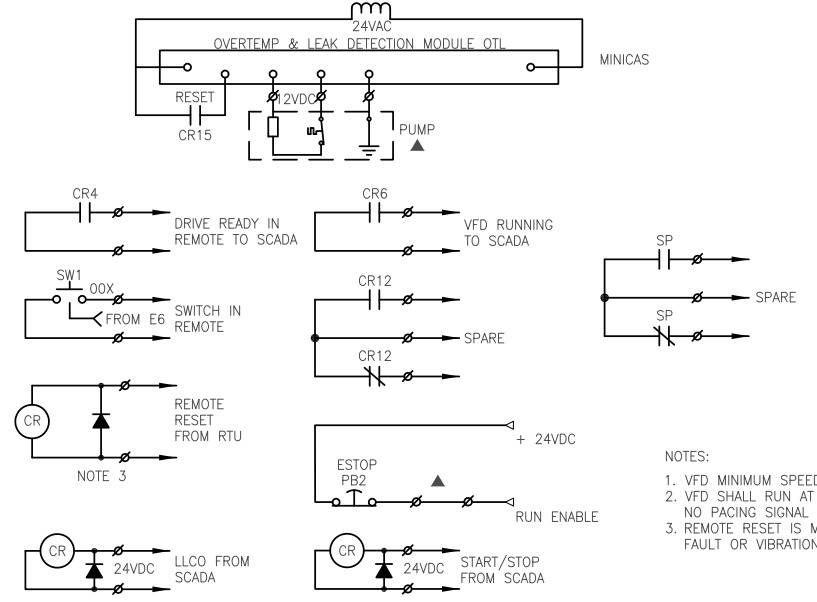
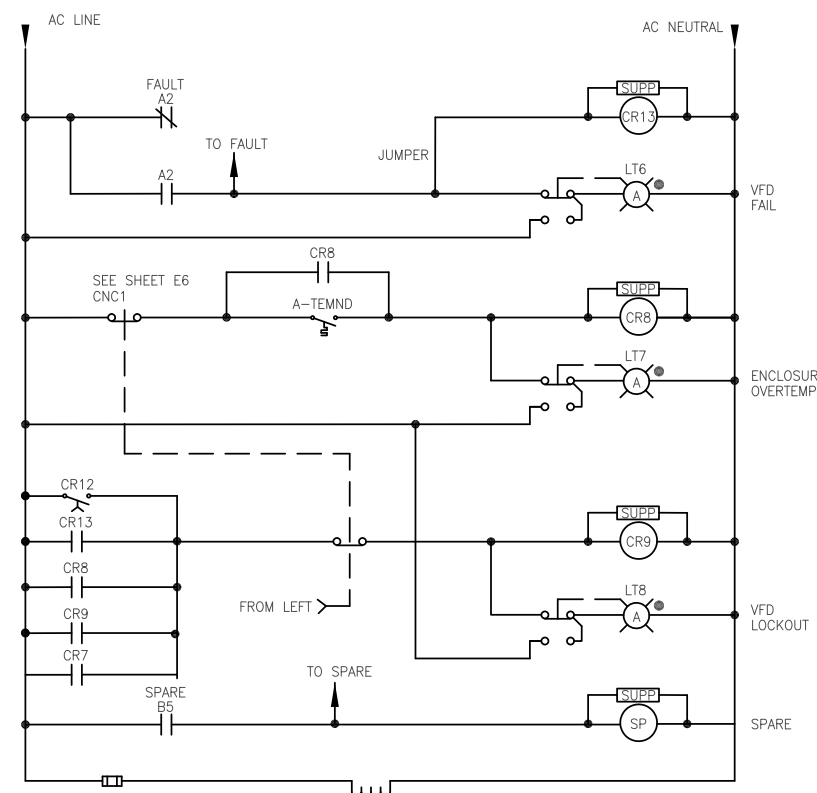
SHEET NO. **18**



NOTE 1. & 2.

A9		OPTA9 MULTIPURPOSE APPLICATION	SLOT A
1	+ 10V	REFERENCE OUTPUT	
2	UIN +	ANALOG INPUT VOLTAGE (RANGE 0-10 VDC)	
3	GND	I/O GROUND	
4	LIN +	ANALOG INPUT CURRENT (RANGE 4-20MA)	
5	LIN -		
6	24VOUT	CONTROL VOLTAGE OUTPUT	
7	GND	I/O GROUND	
8	DIN1	START/STOP	
9	DIN2	RUN ENABLE	
10	DIN3	EXTERNAL FAULT ON OPEN	
11	CMA	DIN1-DIN3 COMMON	
12	24VOUT	CONTROL VOLTAGE OUTPUT	
13	GND	I/O GROUND	
14	DIN4	FAULT RESET	
15	DIN5	EXTERNAL FAULT	
16	DIN6	FORCE TO REMOTE	
17	CMB	DIN4-DIN6 COMMON	
18	LOUT +	OUTPUT FREQUENCY	
19	LOUT -	ANALOG OUTPUT	
20	DO1	DIGITAL OUTPUT READY	

A2		OPTA2 RELAY OUTPUT BOARD	SLOT B
21		RELAY OUTPUT 1	
22		RELAY OUTPUT 2	
23		RELAY OUTPUT 1	
24		RELAY OUTPUT 2	
25		RELAY OUTPUT 1	
26		RELAY OUTPUT 2	



- NOTES:
- VFD MINIMUM SPEED SETTING SHALL BE 50%.
  - VFD SHALL RUN AT MINIMUM SPEED WHEN CALLED FOR AND THERE IS NO PACING SIGNAL PRESENT.
  - REMOTE RESET IS MOMENTARY SIGNAL AND WILL NOT RESET DRIVE FAULT OR VIBRATION FAULT.

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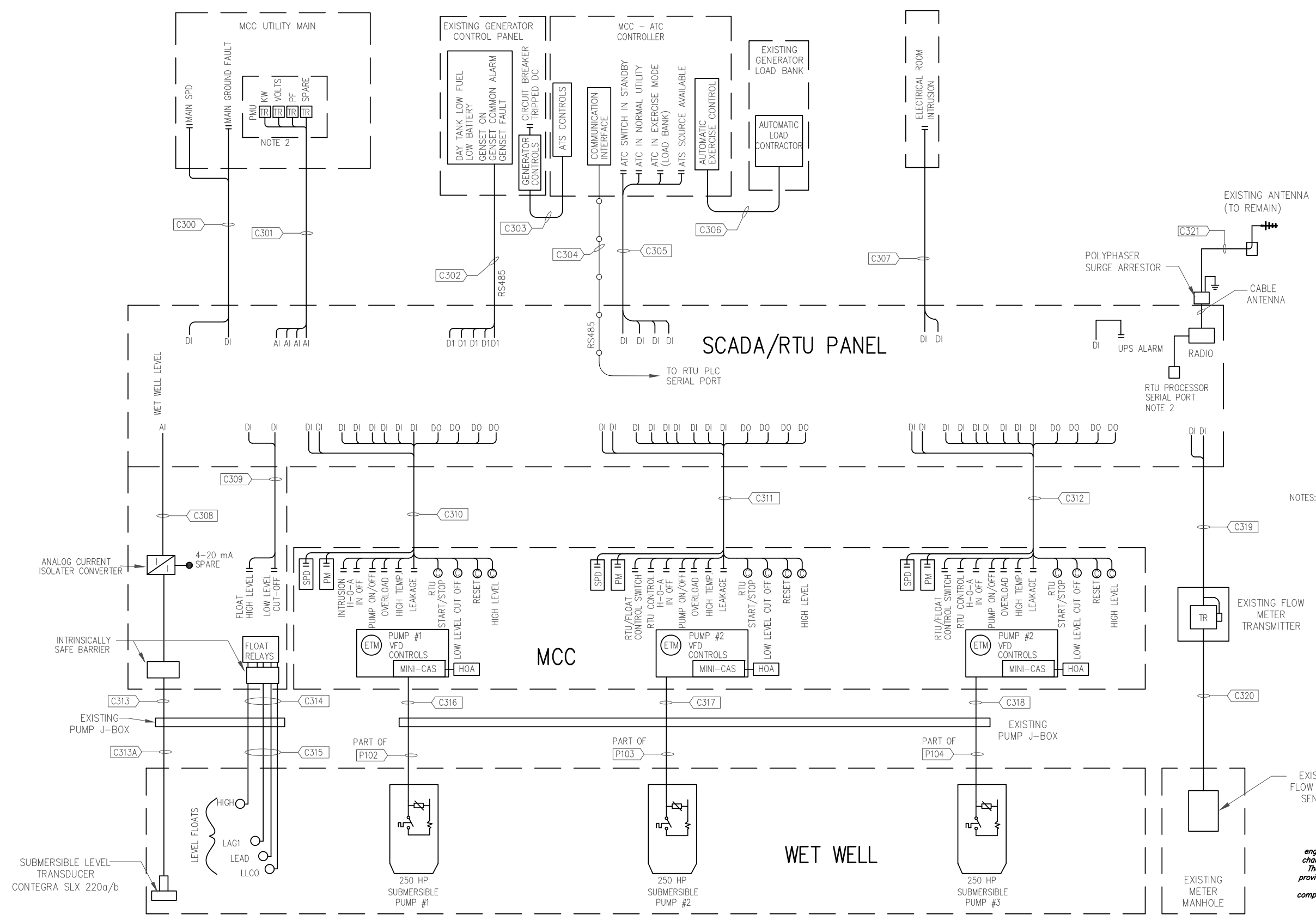
(E6)

REVISIONS: 1. 1/7/20 - TVASQUEZ H:\Projects\Rockwall\2015144 Squalle Ck-Quail Run By Pass\Sheets\Electrical\2015144 Control Schematics.dwg	These plans and related specifications were prepared for construction of this specific project only. Reuse of these documents is not permitted without written authorization of Birkhoff, Hendricks & Carter, L.L.P. If this drawing is converted to an electronic file, any discrepancy occurs between the electronic file and the Birkhoff, Hendricks & Carter, L.L.P. original document, the original document will govern in all cases.	<b>BIRKHOFF, HENDRICKS &amp; CARTER, L.L.P.</b> PROFESSIONAL ENGINEERS TBPE Firm No. 526; TBPLS Firm No. 10031800 11910 Greenville Ave., Suite 600 Dallas, Texas 75243 (214) 361-7900			<b>CITY OF ROCKWALL, TEXAS</b> SQUALLE CREEK LIFT STATION CONTROL SCHEMATICS	BHC PROJECT NO. 2015-144 January, 2020	SHEET NO. <b>19</b>

SYMBOL LEGEND	
	TRANSMITTER
	RELAY/CONTROL COIL
	RELAY CONTACTS
	SPACE HEATER
	CONDUIT/TAG SEE SHT. E18.
	AI ANALOG INPUT AO ANALOG OUTPUT DI DIGITAL INPUT DO DIGITAL OUTPUT
	THERMAL SWITCH LEAK DETECTION PART OF MOTOR
	ELAPSED TIME METER
	MOTOR THERMAL AND LEAK DETECTOR
	SURGE PROTECTIVE DEVICE (UL TYPE 2)
	PHASE MONITOR SEQUENCE/UV/BALANCE
	SUBMERSIBLE LEVEL TRANSDUCER

- NOTES:
- CONFIRM WITH PMU MONITOR OPTIONAL TRANSDUCERS ARE PROVIDED FOR 4-20ma SIGNALS TO RTU.
  - SEE RTU I/O SCHEDULE FOR RS232 SIGNALS.
  - VENDOR GENSET CONTROL WIRING TO BE ROUTED THROUGH AUTOMATIC TRANSFER SWITCH.

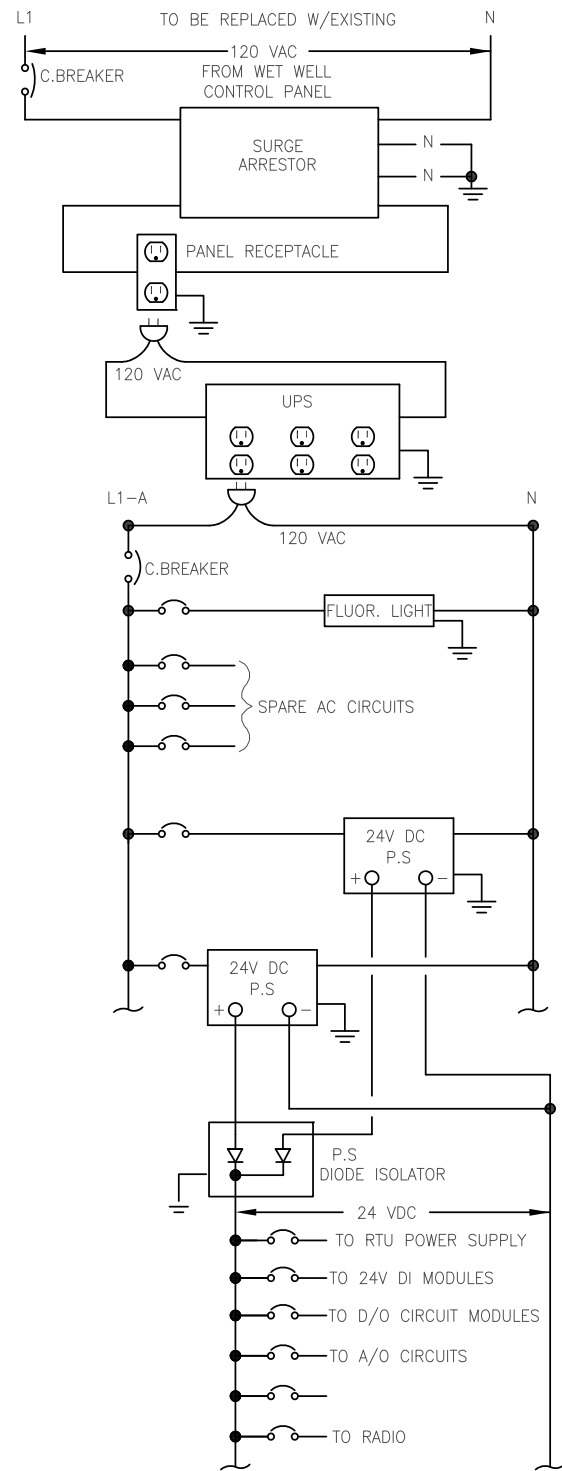
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RTU BLOCK DIAGRAM

(E7)

REVISED: 1/7/20 - TVASQUEZ H:\Projects\Rockwall\2015144 Squabble Ck-Quail Run By Pass\Sheets\Electrical\2015144-ELECTRICAL CONTROL BLOCK DIAGRAM.dwg PLOT SCALE: 1:2 PLOT STYLE: 11x17.ctb PLOTTED BY: TROY VASQUEZ ON 1/8/2020	These plans and related specifications were prepared for construction of this specific project only. Reuse of these documents is not permitted without written authorization of Birkhoff, Hendricks & Carter, L.L.P. If this drawing is converted to an electronic file, if any discrepancy occurs between the electronic file and the Birkhoff, Hendricks & Carter, L.L.P. original document, the original document will govern in all cases.	<b>BIRKHOFF, HENDRICKS &amp; CARTER, L.L.P.</b> PROFESSIONAL ENGINEERS Texas Firm F526 11910 Greenville Ave., Suite 600 Dallas, Texas 75243 (214) 361-7900			<b>CITY OF ROCKWALL, TEXAS</b> <b>SQUABBLE CREEK LIFT STATION</b> <b>ELECTRICAL CONTROL BLOCK DIAGRAM</b>	BHC PROJECT NO. 2015-144 January, 2020	SHEET NO. <b>20</b>
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**RTU SCADA PANEL POWER  
SIMPLIFIED SCHEMATIC**

- GENERAL NOTES:
1. ANALOG OUTPUT FROM PUMP CONTROLLER (MPE SC2000).
  2. WET WELL CONTROL PANEL AND SCADA-RTU SHALL BE IN SAME PANEL.
  3. RTU SHALL BE PROVIDED BY CITY SYSTEM INTEGRATOR.

**SQUABBLE CREEK LIFT STATION SCADA/RTU INPUT/OUTPUT TABLE**

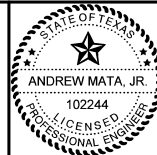
TAG DESCRIPTION	I/O TYPE	FUNCTION	FIELD DEVICE	COMMENTS
PUMP NO. 1	D/I	STATUS	STARTER RELAY	PUMPS RUNNING/OFF-VFD CONTROLS
PUMP NO. 1 H-O-A IN OFF	D/I	ALARM	H-O-A SWITCH	VFD CONTROLS
PUMP NO. 1 FAILURE	D/I	ALARM	PUMP MOTOR	PUMP FAILURE-VFD CONTROLS
PUMP NO. 1 HIGH TEMP SHUTDOWN	D/I	ALARM	MOTOR OVERLOAD OR THERMAL MINI-CAS	
PUMP NO. 1 LEAKAGE ALARM	D/I	ALARM	PUMP MOTOR MOISTURE RELAY	MINI-CAS II OR EQUAL
PUMP NO. 2	D/I	STATUS	STARTER RELAY	PUMPS RUNNING/OFF-VFD CONTROLS
PUMP NO. 2 H-O-A IN OFF	D/I	ALARM	H-O-A SWITCH	VFD CONTROLS
PUMP NO. 2 FAILURE	D/I	ALARM	PUMP MOTOR	PUMP FAILURE-VDF CONTROLS
PUMP NO. 2 HIGH TEMP SHUTDOWN	D/I	ALARM	MOTOR OVERLOAD OR THERMAL MINI-CAS	
PUMP NO. 2 LEAKAGE ALARM	D/I	ALARM	PUMP MOTOR MOISTURE RELAY	MINI-CAS II OR EQUAL
PUMP NO. 3	D/I	STATUS	STARTER RELAY	PUMPS RUNNING/OFF-VFD CONTROLS
PUMP NO. 3 H-O-A IN OFF	D/I	ALARM	H-O-A SWITCH	VFD CONTROLS
PUMP NO. 3 FAILURE	D/I	ALARM	PUMP MOTOR	PUMP FAILURE-VFD CONTROLS
PUMP NO. 3 HIGH TEMP SHUTDOWN	D/I	ALARM	MOTOR OVERLOAD OR THERMAL MINI-CAS	
PUMP NO. 3 LEAKAGE ALARM	D/I	ALARM	PUMP MOTOR MOISTURE RELAY	MINI-CAS II OR EQUAL
PHASE BALANCE/VOLTAGE	D/I	CONTROL/ALARM	PHASE BALANCE/VOLTAGE RELAY	
POWER FAILURE	D/I	ALARM	RTU	PART OF SCADA
SPD	D/I	ALARM	SPD ALARM CONTACT	
POWER MONITORING UNIT	A/I	MONITOR	POWER MONITOR OPTION CARD	KW
POWER MONITORING UNIT	A/I	MONITOR	POWER MONITOR OPTION CARD	VOLTS
POWER MONITORING UNIT	A/I	MONITOR	POWER MONITOR OPTION CARD	POWER FACTOR
POWER MONITORING UNIT	A/I	SPARE	POWER MONITOR OPTION CARD	SPARE
ATS NORMAL UTILITY	D/I	SPARE	POWER MONITOR OPTION CARD	
ATS STANDBY GENERATOR	D/I	SPARE	POWER MONITOR OPTION CARD	SPARE
STANDBY GENERATOR RUNNING	D/I	SPARE	POWER MONITOR OPTION CARD	SPARE
STANDBY GENERATOR FUEL LEVEL	D/I	SPARE	POWER MONITOR OPTION CARD	SPARE
GENERATOR ALARM	D/I	SPARE	POWER MONITOR OPTION CARD	SPARE
FLOW METER (RATE)	A/I	MONITOR	FLOW METER TRANSMITTER	4-20ma
FLOW METER (TOTAL)	D/I	MONITOR	FLOW METER TRANSMITTER	PULSE (DIGITAL)
WET WELL LEVEL	A/I	MONITOR	SUBMERSIBLE TRANSMITTER	
WET WELL HIGH LEVEL	A/I	ALARM	SUBMERSIBLE TRANSMITTER	
WET WELL LOW LEVEL	A/I	ALARM	SUBMERSIBLE TRANSMITTER	
FLOAT SWITCH ON FLOATS POSITION	D/I	ALARM	RELAY MONITORING SWITCH	
WET WELL HIGH HIGH LEVEL	D/I	CONTROL	FLOAT SWITCH	TURN PUMPS ON
WET WELL LOW LEVEL CUTOFF	D/I	CONTROL	FLOAT SWITCH	TURN PUMPS OFF

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 BY A.M. DATE 01/06/20

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 PROFESSIONAL ENGINEERS  
 Texas Firm F526  
 11910 Greenville Ave., Suite 600  
 Dallas, Texas 75243 (214) 361-7900



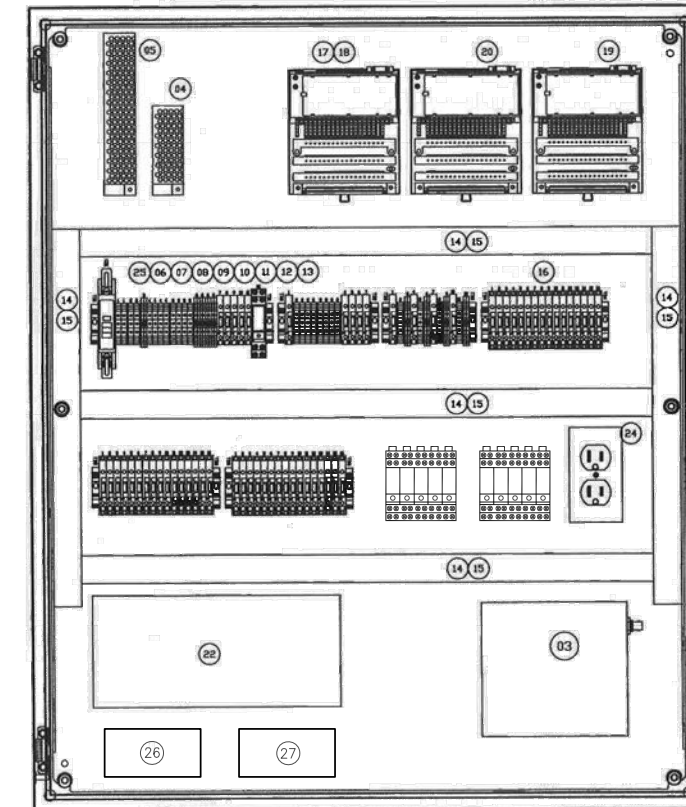
*Andrew Mata, Jr.*  
 02/21/2017

**CITY OF ROCKWALL, TEXAS**  
 SQUABBLE CREEK LIFT STATION  
 ELECTRICAL SCADA RTU I/O TABLE

BHC  
 PROJECT NO.  
 2015-144  
 January, 2020

SHEET NO.  
**21**

ITEM	QTY	DESCRIPTION	PART_NO.	MANUFACTURER
01	1	ENCLOSURE, CONCEPT 42x36x12, NEMA 4X, STAINLESS STEEL	CSD42360012SS6	HOFFMAN
02	1	ENCLOSURE BACKPLATE	CP4236	HOFFMAN
03	1	DATA RADIO	TN10105	TAIT
04	1	POWER SUPPLY, 120 VAC-24VDC, 2.5 AMP	S-60-24	MEANWELL
05	1	POWER SUPPLY, 120 VAC-12VDC, 2 AMP	S-25-12	MEANWELL
06	6	RELAY MINIATURE PCB DPDT 8A, 24 VDC	40.52.024	FINDER
07	6	RELAY SOCKET, 95 SERIES	95.05.3XSA	FINDER
08	6	RELAY SOCKET LED, 24 VDC	99.80.002459	FINDER
09	AR	FUSED TERMINAL, 5X20MH, 6.3A	2190.2	CONTA-CLIP
10	AR	TERMINAL, 2-CONDUCTOR, #22-#10	10012	CONTA-CLIP
11	AR	GROUND TERMINAL, 2-CONDUCTOR, #22-#10	10012	CONTA-CLIP
12	AR	FUSE, 250V, 5MM X 20MM	-	BUSSMAN
13	AR	CARRIER RAIL 35 X 7.5MM	210-112	WAGO
14	AR	WIRE DUCT, 2X3 LT GRAY	G1X2LG6	PANDUIT
15	AR	WIRE DUCT COVER, 1 IM, LT GRAY	CILG6	PANDUIT
16	AR	TERMINAL, 2-TIER	1206.2	CONTA-CLIP
17	1	MOMENTUM PLC	17ICCC78018	MODICON
18	1	MOMENTUM I/O BASE 8 AI, 2 AG ( 4-20mA), 4 DI 2 DC (24VDC)	17DAA1030	MODICON
19	1	MOMENTUM I/O BASE 24VDC 16 DI & DC	17OADM35100	MODICON
20	1	MOMENTUM I/O BASE 24VDC 32 DI	17DADM35000	MODICON
-	-	-	-	-
22	1	UPS, 950 VA	SDU 950	SOLA
23	-	-	-	-
24	1	RECEPTACLE, DUPLEX, 120 VAC	-	-
25	1	CIRCUIT BREAKER, 10 AMP, SINGLE POLE	QOU110	SQUARE-D
26	1	SURGE SUPPRESSOR	-	-
27	1	ISOLATOR	-	-



**NEW TYPICAL RTU AND FEP IN INSTRUMENT/SCADA PANEL**

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 BY A.M. DATE 01/06/20

CAUTION: FOREIGN VOLTAGES IN PANEL

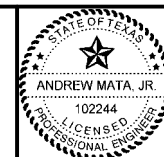
**CAUTION PLATE**

NOTE:  
CAUTION PLAT SHALL BE MOUNTED ON EXTERIOR ENCLOSURE DOOR

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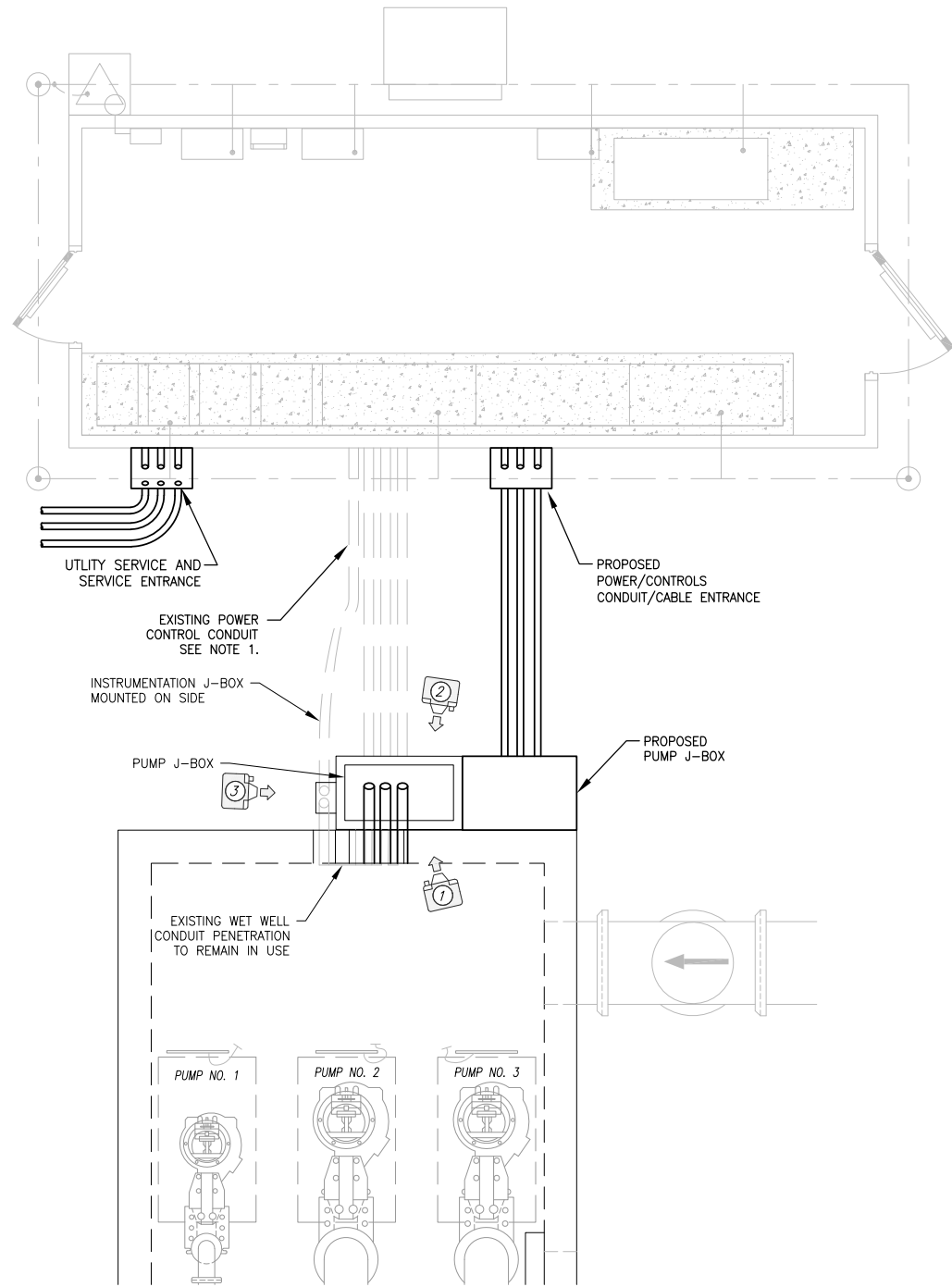
*Andrew Mata, Jr.*  
08/21/2017

**CITY OF ROCKWALL, TEXAS**  
 SQUABBLE CREEK LIFT STATION  
 ELECTRICAL SCADA/RTU PANEL

BHC  
PROJECT NO.  
2015-144  
  
January, 2020

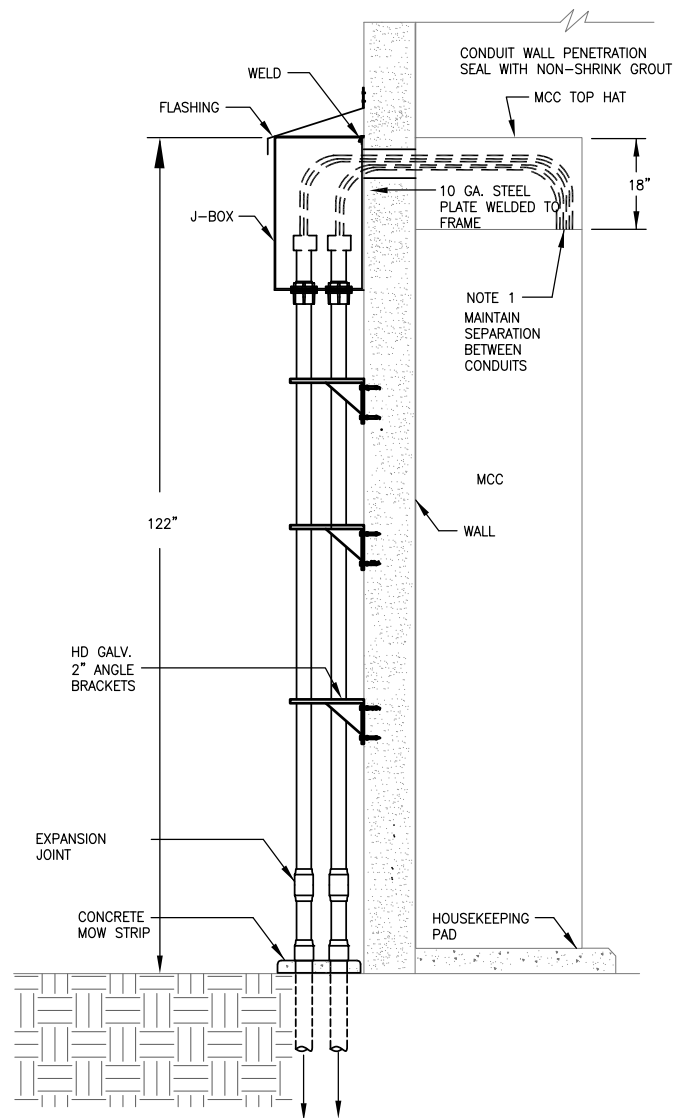
SHEET NO.  
**22**





NOTES:  
 1. EXISTING UNDERGROUND CONDUIT TO BE ABANDONED IN PLACE.  
 EXISTING ABOVE GROUND CONDUIT TO BE REMOVED AND DISPOSED OF.  
 EXPOSED CONDUIT THAT CAN NOT BE REMOVED SHALL BE PLUGGED

**01 CONDUIT/CABLE ENTRANCE PLAN**  
 NOT TO SCALE

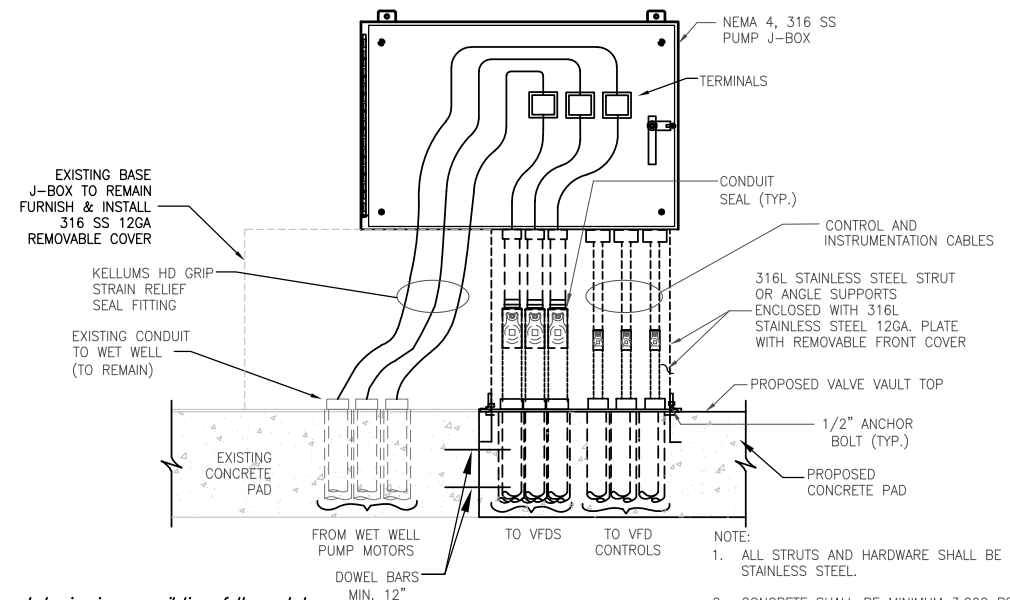


NOTES:  
 1. PROVIDE OPENING IN TOP OF MCC THAT INCLUDES SURFACE WITHOUT SHARP EDGES.

**02 CONDUIT/CABLE ENTRANCE SECTION**  
 NOT TO SCALE



PHOTO NO. 1 PHOTO NO. 2 PHOTO NO. 3



NOTE:  
 2. CONCRETE SHALL BE MINIMUM 3,000 PSI, CONCRETE STRENGTH AFTER 28 DAY STRENGTH WITH # 3 BARS ON 12-INCH CENTERS EACH WAY.

**03 PUMP J-BOX**  
 NOT TO SCALE

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 BY A.M. DATE 01/06/20

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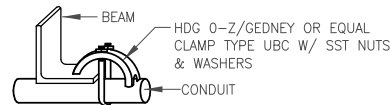
*Andrew Mata, Jr.*  
 01/21/2017

**CITY OF ROCKWALL, TEXAS**  
**SQUABLE CREEK LIFT STATION**  
**ELECTRICAL DETAILS I**

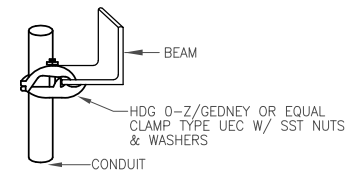
BHC  
 PROJECT NO.  
 2015-144

January, 2020

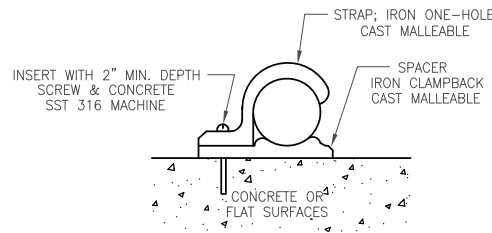
SHEET NO.  
**23**



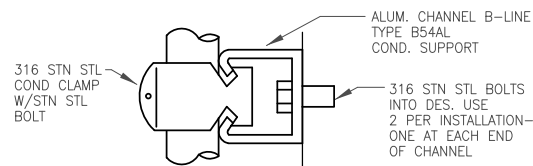
**01 TYPICAL RIGHT ANGLE CONDUIT SUPPORT**  
NOT TO SCALE



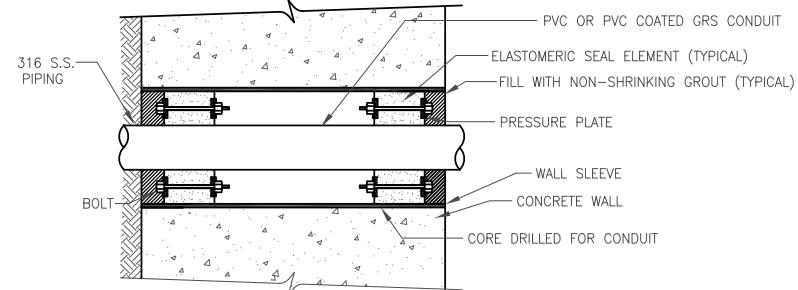
**02 TYPICAL EDGE TYPE CONDUIT SUPPORT**  
NOT TO SCALE



**03 TYPICAL CONDUIT SUPPORT SINGLE CONDUIT**  
NOT TO SCALE

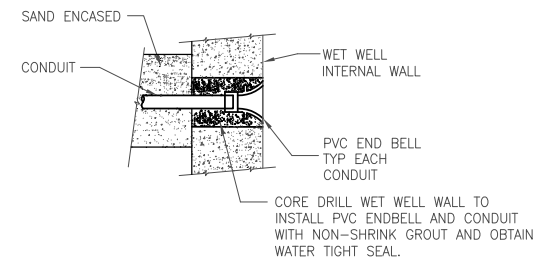


**04 TYPICAL CONDUIT SUPPORT ON CONCRETE STRUCTURES FOR MULTIPLE CONDUIT RUNS**  
NOT TO SCALE

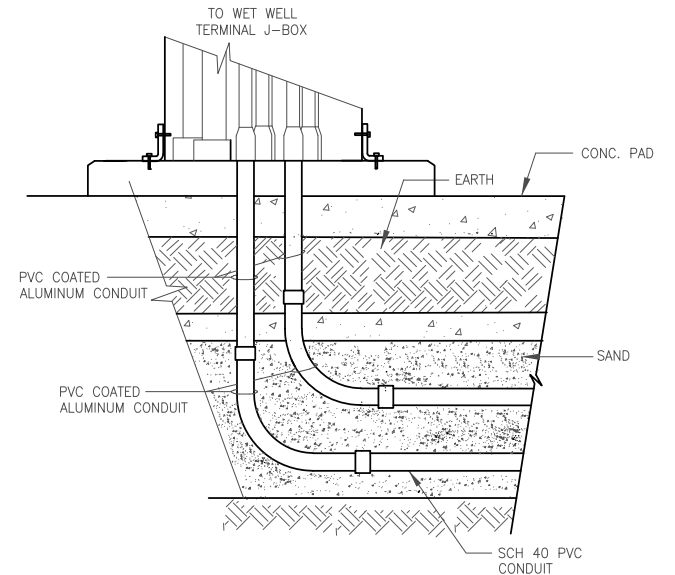


- NOTES:
1. WALL SLEEVE SHALL BE SELECTED FOR WATER VAPOR CONTAINMENT.
  2. LINK SEAL SHALL BE 316 S.S. (S-316) FOR CONDUIT.

**05 LINK-SEAL FOR UNDERGROUND VAULT ENTRANCE**  
NOT TO SCALE

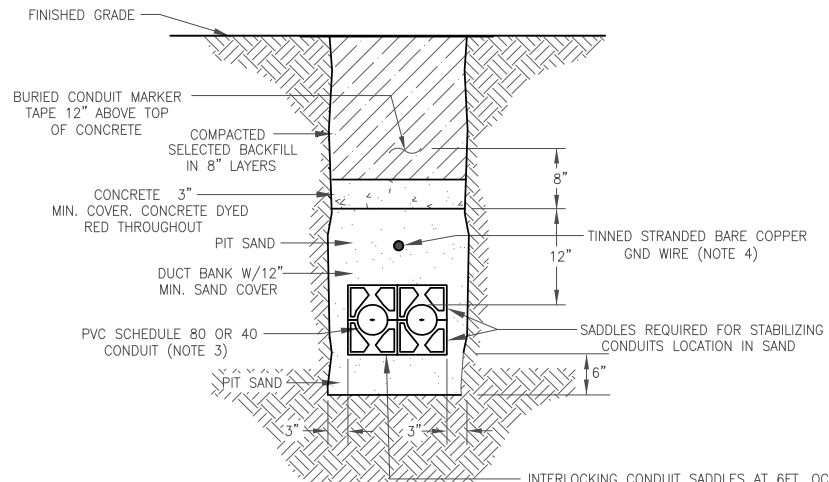


**07 END BELL IN LIFT STATION WET WELL**  
NOT TO SCALE



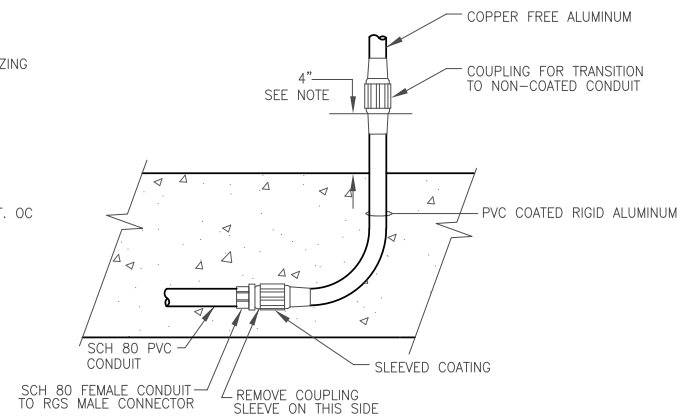
**09 JUNCTION TERMINAL BOX CONDUIT RUNS TO WET WELL EQUIPMENT**  
NOT TO SCALE

- NOTE:
1. ALL STRUCTURAL AND HARDWARE SHALL BE 316 STAINLESS STEEL.



- NOTES:
1. ALL INSTALLATION OF UNDERGROUND DUCT BANK SHALL MEET THE SITE PREP., EXCAVATION, BACKFILL, AND CONCRETE REQUIREMENTS OF THE SPECIFICATIONS.
  2. DUCT BANK SPACERS, RACEWAY IDENTIFIERS AND MARKERS SHALL BE PER SPECIFICATION. PVC COATED CONDUIT SHALL BE USED FOR TRANSITION FROM BELOW GRADE TO ABOVE GRADE TO MIN. 6" ABOVE GRADE.
  3. ALL CONDUITS TO BE USED FOR UTILITY SERVICE ENTRANCE SHALL BE SCHEDULE 80 PVC CONDUITS. INSTRUMENT CONDUITS SHALL BE PVC COATED GALVANIZED STEEL.
  4. GROUND WIRE SHALL BE SAME SIZE AS GROUND RING OR AS DESIGNATED.

**06 PIT SAND CONCRETE COVERED U/G CONDUIT DUCT BANK**  
NOT TO SCALE



- NOTE:
1. PVC COATED CONDUIT SHALL EXTEND TO A MINIMUM OF 4" ABOVE SLAB IF CONDUIT EXTENDS FURTHER TO EQUIPMENT.
  2. INSTRUMENTATION OF CONDUIT SHALL BE P.V.C. COATED H.D. GALVANIZED CONDUIT.

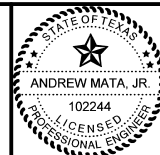
**08 IN-SLAB CONDUIT RUN**  
NOT TO SCALE

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BY A.M. DATE 01/06/20

(E11)

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*Andrew Mata, Jr.*  
01/21/2017

**CITY OF ROCKWALL, TEXAS**  
SQUABBLE CREEK LIFT STATION  
ELECTRICAL DETAILS II

BHC  
PROJECT NO.  
2015-144

January, 2020

SHEET NO.  
**23A**

# MECHANICAL SYMBOL LEGEND

GRAPHIC SYMBOLS	PIPE & FITTING SYMBOLS	VALVE SYMBOLS	DUCTWORK SYMBOLS	DUCTWORK SYMBOLS																																																																																																																																																																																			
<p style="text-align: center;">DRAWING TITLE</p> <p style="text-align: center;"><b>TOP TITLE</b></p> <p style="text-align: center;"><b>BOTTOM TITLE</b></p> <p style="text-align: center;">SCALE: 1/8" = 1'-0"</p> <p style="text-align: center;">SCALE OF FLOOR PLAN, SECTION OR DETAIL</p> <p style="text-align: center;">DETAIL NO. AND SHEET NO.</p> <p style="text-align: center;">AREA OF ENLARGED PLAN OR DETAIL</p> <p style="text-align: center;">DETAIL NUMBER</p> <p style="text-align: center;">SHEET NO. ON WHICH ENLARGED DETAIL IS DRAWN</p> <p style="text-align: center;">SECTION NO.</p> <p style="text-align: center;">DIRECTION OF CUTTING PLANE</p> <p style="text-align: center;">SHEET NO. ON WHICH THE SECTION IS DRAWN</p> <hr/> <p style="text-align: center;"><b>PIPING DESIGNATION</b></p> <p style="text-align: center;">2" CHWS</p> <p style="text-align: center;">- OR -</p> <p style="text-align: center;">2" CHWS</p> <p style="text-align: center;">SYSTEM SERVICE ABBREVIATION</p> <p style="text-align: center;">NOMINAL PIPE SIZE (IN INCHES)</p> <hr/> <p style="text-align: center;"><b>MISCELLANEOUS SYMBOLS</b></p> <p>XXX-1 EQUIPMENT DESIGNATION</p> <p>— SINGLE LINE PIPE/DUCTWORK BREAK</p> <p>— DOUBLE LINE PIPE/ROUND DUCTWORK BREAK</p> <p>— RECTANGULAR DUCT/STANDARD BREAK</p> <p>① KEYED NOTE</p> <p>Δ REVISION DELTA</p> <p>◆ POINT OF DISCONNECTION</p> <p>● POINT OF CONNECTION (NEW TO EXISTING)</p> <p>▭ NEW ITEMS (PIPING/DUCTWORK/EQUIPMENT)</p> <p>▭ EXISTING ITEMS TO REMAIN</p> <p>▭ EXISTING ITEMS TO BE DEMOLISHED</p> <p>— LIMIT OF EXISTING ITEMS TO BE REMOVED</p> <p>— NEW CONNECTION TO EXISTING ITEM</p> <p>(N) NEW ITEM (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>(E) EXISTING ITEM TO REMAIN (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>(F) FUTURE ITEM (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>(R) EXISTING ITEM TO BE RELOCATED (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p> <p>(D) EXISTING ITEM TO BE DEMOLISHED (NOTATION SHOWN AS NECESSARY FOR CLARIFICATION)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DOUBLE LINE</th> <th>SINGLE LINE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>PIPE</td></tr> <tr><td></td><td></td><td>DIRECTION OF FLOW / SLOPE</td></tr> <tr><td></td><td></td><td>UNION</td></tr> <tr><td></td><td></td><td>ELBOW, 45 DEGREE (LONG RADIUS UON)</td></tr> <tr><td></td><td></td><td>ELBOW, 90 DEGREE (LONG RADIUS UON)</td></tr> <tr><td></td><td></td><td>ELBOW, 90 DEGREE - CHANGE IN DIRECTION TOWARD VIEWER</td></tr> <tr><td></td><td></td><td>ELBOW, 90 DEGREE - CHANGE IN DIRECTION AWAY FROM VIEWER</td></tr> <tr><td></td><td></td><td>TEE FITTING</td></tr> <tr><td></td><td></td><td>TEE FITTING, BRANCH TOWARD VIEWER</td></tr> <tr><td></td><td></td><td>TEE FITTING, BRANCH AWAY FROM VIEWER</td></tr> <tr><td></td><td></td><td>LATERAL</td></tr> <tr><td></td><td></td><td>REDUCER - CONCENTRIC</td></tr> <tr><td></td><td></td><td>REDUCER - ECCENTRIC</td></tr> <tr><td></td><td></td><td>CAP</td></tr> <tr><td></td><td></td><td>CLEANOUT</td></tr> <tr><td></td><td></td><td>THERMOWELL WITH THERMOMETER</td></tr> <tr><td></td><td></td><td>PRESSURE GAUGE WITH GAUGE COCK</td></tr> <tr><td></td><td></td><td>STRAINER - "Y" TYPE WITH BLOW DOWN</td></tr> <tr><td></td><td></td><td>PUMP, ARROW INDICATES FLOW</td></tr> </tbody> </table> <p style="font-size: small;">NOTE: WELDED FITTINGS ARE SHOWN FOR DOUBLE LINE PIPING. FITTINGS WITH OTHER END CONDITIONS ARE SIMILAR.</p>	DOUBLE LINE	SINGLE LINE	DESCRIPTION			PIPE			DIRECTION OF FLOW / SLOPE			UNION			ELBOW, 45 DEGREE (LONG RADIUS UON)			ELBOW, 90 DEGREE (LONG RADIUS UON)			ELBOW, 90 DEGREE - CHANGE IN DIRECTION TOWARD VIEWER			ELBOW, 90 DEGREE - CHANGE IN DIRECTION AWAY FROM VIEWER			TEE FITTING			TEE FITTING, BRANCH TOWARD VIEWER			TEE FITTING, BRANCH AWAY FROM VIEWER			LATERAL			REDUCER - CONCENTRIC			REDUCER - ECCENTRIC			CAP			CLEANOUT			THERMOWELL WITH THERMOMETER			PRESSURE GAUGE WITH GAUGE COCK			STRAINER - "Y" TYPE WITH BLOW DOWN			PUMP, ARROW INDICATES FLOW	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DOUBLE LINE</th> <th>SINGLE LINE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>BALL VALVE</td></tr> <tr><td></td><td></td><td>GLOBE VALVE</td></tr> <tr><td></td><td></td><td>CHECK VALVE</td></tr> <tr><td></td><td></td><td>PRESSURE REDUCING VALVE</td></tr> <tr><td></td><td></td><td>BALANCING VALVE</td></tr> <tr><td></td><td></td><td>PRESSURE RELIEF VALVE</td></tr> <tr><td></td><td></td><td>AUTOMATIC AIR VENT</td></tr> <tr><td></td><td></td><td>MANUAL AIR VENT</td></tr> </tbody> </table> <hr/> <p style="text-align: center;"><b>CONTROL VALVES</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DOUBLE LINE</th> <th>SINGLE LINE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>TWO-WAY, MODULATING CONTROL VALVE</td></tr> <tr><td></td><td></td><td>THREE-WAY, MODULATING CONTROL VALVE</td></tr> </tbody> </table> <hr/> <p style="text-align: center;"><b>CONTROL SYMBOLS</b></p> <p style="text-align: center;"><u>WALL MOUNTED DEVICES</u></p> <p>⊕ TEMPERATURE SENSOR/THERMOSTAT</p> <p>⊕ HUMIDITY SENSOR/HUMIDISTAT</p> <p>⊕ VFD VARIABLE FREQUENCY DRIVE</p> <hr/> <p style="text-align: center;"><b>EQUIPMENT SYMBOLS</b></p> <p>⊕ ROOFTOP EXHAUST FAN (ROOF PLAN VIEW)</p> <p>⊕ ROOFTOP EXHAUST FAN (FLOOR PLAN VIEW)</p> <p>▭ INLINE EXHAUST FAN (EF), AIR HANDLING UNIT (AHU), CONDENSING UNIT (CU)</p> <p>⊕ WALL LOUVER WITH POSITIVE OR NEGATIVE AIRFLOW</p> <p>⊕ DOOR UNDERCUT (SPECIFY CFM IF REQUIRED)</p> <p>⊕ DOOR LOUVER (SPECIFY CFM IF REQUIRED)</p>	DOUBLE LINE	SINGLE LINE	DESCRIPTION			BALL VALVE			GLOBE VALVE			CHECK VALVE			PRESSURE REDUCING VALVE			BALANCING VALVE			PRESSURE RELIEF VALVE			AUTOMATIC AIR VENT			MANUAL AIR VENT	DOUBLE LINE	SINGLE LINE	DESCRIPTION			TWO-WAY, MODULATING CONTROL VALVE			THREE-WAY, MODULATING CONTROL VALVE	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DOUBLE LINE</th> <th>SINGLE LINE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>RECTANGULAR OR SQUARE DUCT, DIMENSIONS ARE IN INCHES, MIN. 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OF 2))</p> <hr/> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;"><b>RECORD DRAWINGS</b></p> <p style="font-size: x-small;">THESE DOCUMENTS INCORPORATE THE PROJECT ADDENDUMS AND INFORMATION PROVIDED BY THE CONTRACTOR AS OF JANUARY 7, 2020.</p> <p style="font-size: x-small;">THIS DOCUMENT IS FOR INFORMATION AND REFERENCE IN CONNECTION WITH THE OWNER'S USE AND OCCUPANCY OF THE PROJECT AND IS NOT INTENDED FOR BID, PERMIT, OR CONSTRUCTION.</p> <p style="font-size: x-small;">ENGINEER: CAMPOS ENGINEERING, INC. REGISTRATION #: F-001731 TELEPHONE #: 214-696-6291</p> </div> <p style="font-size: x-small;">THIS IS A STANDARD LEGEND SHEET. SOME INFORMATION ON THIS SHEET MAY NOT NECESSARILY APPLY TO THIS PROJECT.</p>	DOUBLE LINE	SINGLE LINE	DESCRIPTION			RECTANGULAR OR SQUARE DUCT, DIMENSIONS ARE IN INCHES, MIN. INSIDE CLEAR, A = WIDTH, B = HEIGHT			ROUND DUCT DIMENSIONS ARE IN INCHES, MIN. 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RECORD DRAWINGS  
**CITY OF ROCKWALL, TEXAS**  
**SQUABLE CREEK LIFT STATION**  
MECHANICAL SYMBOL LEGEND & GENERAL NOTES  
01/07/2020  
PLOTTED BY: ERIC SAVAGE ON ----

BHC PROJECT NO. 2015-144  
October, 2017  
SHEET NO. **M101**

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## MECHANICAL GENERAL NOTES

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| <ol style="list-style-type: none"> <li>1. ISOLATION VALVES SHALL BE PROVIDED IN ALL BRANCH PIPING AND AT EQUIPMENT CONNECTIONS.</li> <li>2. PIPING CONNECTIONS TO ALL EQUIPMENT SHALL BE FABRICATED WITH THE ISOLATION VALVES, FLANGES AND/OR UNIONS POSITIONED TO ALLOW REMOVAL AND SERVICE OF THE COMPONENT PARTS.</li> <li>3. INSTALL MANUAL AIR VENTS AT THE HIGH POINTS OF THE PIPING SYSTEMS.</li> <li>4. ROUTE PIPING IN AN ORDERLY MANNER AND MAINTAIN PROPER GRADES. INSTALL TO CONSERVE HEADROOM AND TO CREATE MINIMUM INTERFERENCE WITH USE OF SPACE. ROUTE ALL PIPING PARALLEL TO BUILDING LINES UON. GROUP PIPING AT COMMON BOP ELEVATIONS WHENEVER PRACTICAL. PIPES LOCATED IN CONCEALED SPACES SHALL BE ROUTED CLOSE TO BUILDING STRUCTURE UON.</li> <li>5. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE OR EQUIPMENT CONNECTED.</li> <li>6. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.</li> <li>7. INSTALL VALVES AND EQUIPMENT IN ACCESSIBLE LOCATIONS. INSTALL ACCESS DOORS IN PARTITIONS OR CEILINGS WHERE VALVES AND EQUIPMENT WOULD OTHERWISE BE INACCESSIBLE.</li> <li>8. WHEN SOCKET WELD OR SOLDER END VALVES ARE INSTALLED, SPECIAL CARE SHALL BE TAKEN TO AVOID OVERHEATING AND DAMAGING THE VALVE BODY, TRIM OR PACKING. DAMAGED VALVES SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.</li> <li>9. IDENTIFY EACH PIPE WITH LABELING AS REQUIRED BY SPECIFICATIONS.</li> <li>10. SLEEVE ALL PIPING THAT PENETRATES FIRE RATED WALLS, FLOORS AND PARTITIONS. PENETRATIONS SHALL BE SEALED WITH A U.L. LISTED ASSEMBLY TO PROVIDE A RATING EQUAL TO OR GREATER THAN THAT OF THE PENETRATED WALL, FLOOR OR PARTITION.</li> <li>11. SLEEVE ALL PIPING THAT PENETRATES EXTERIOR BUILDING WALLS AND GRADE BEAMS. SEAL PENETRATIONS WATERTIGHT.</li> <li>12. COORDINATE WITH OTHER TRADES BEFORE FABRICATION OR INSTALLATION OF ANY SYSTEMS.</li> <li>13. EXISTING DUCTWORK, PIPING AND EQUIPMENT SHOWN ON THESE DRAWINGS INDICATES THE GENERAL LOCATION AND ROUTING. THE ACTUAL LOCATION SHALL BE DETERMINED BY THE CONTRACTOR WHO SHALL COORDINATE ALL WORK WITH ALL TRADES NECESSARY TO INSTALL NEW DUCTWORK, PIPING OR EQUIPMENT AS SHOWN ON THE DRAWING.</li> <li>14. THESE DRAWINGS DO NOT NECESSARILY SHOW ALL OFFSETS OR ELEVATION DIFFERENCES WHICH MAY BE NECESSARY FOR THE COMPLETE INSTALLATION. THESE SHALL BE PROVIDED AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM AT NO ADDITIONAL COST TO THE CONTRACT.</li> <li>15. ALL NEW DUCTWORK SHALL BE EXTERNALLY INSULATED PER THE SPECIFICATIONS.</li> <li>16. ALL NEW HYDRONIC PIPING SHALL BE INSULATED PER THE SPECIFICATIONS.</li> <li>17. WHERE REMOVAL OF EXISTING DUCTWORK OR PORTIONS OF ANY AIR SYSTEM IS NECESSARY, THE DUCT SHALL BE PATCHED AND SEALED AIRTIGHT USING PATCH OF SAME MATERIAL AND EQUAL OR GREATER THICKNESS AS EXISTING. PATCHES SHALL BE ATTACHED WITH SHEET METAL SCREWS OR OTHER MEANS OF POSITIVE ATTACHMENT (WELDING, BONDING, ETC.) AS SPECIFIED FOR THE PARTICULAR DUCT SYSTEM. NEW INSULATION SHALL BE EQUAL TO OR BETTER THAN EXISTING AND SHALL BE PATCHED AND SEALED TO MATCH EXISTING INSULATION AND MAINTAIN VAPOR BARRIER.</li> <li>18. THE CONTRACTOR SHALL ADJUST AND BALANCE ALL MECHANICAL SYSTEMS TO DESIGN SETTINGS AS SHOWN AND SHALL REBALANCE TO RESTORE SETTINGS OF SYSTEMS</li> </ol> | <p>TEMPORARILY ALTERED FOR THE PURPOSES OF COMPLETING THE WORK OF THIS PROJECT.</p> <ol style="list-style-type: none"> <li>19. NOTIFY AND COORDINATE WITH THE OWNER AT LEAST SEVEN DAYS PRIOR TO SHUTDOWN OF ANY BUILDING SERVICES OR EQUIPMENT. SHUTDOWN TIME SHALL BE KEPT TO A MINIMUM.</li> <li>20. ANY ITEMS DAMAGED DURING DEMOLITION SHALL BE REPLACED WITH NEW MATERIALS TO MATCH EXISTING.</li> <li>21. CONTRACTOR SHALL PROVIDE TEMPORARY DUCTWORK, ELECTRICAL SERVICE, PIPING OR OTHER BUILDING SERVICES AS REQUIRED TO KEEP OTHER AREAS IN OPERATION DURING REMODELING. NOTIFY OWNER PRIOR TO SHUT-DOWN FOR ANY TEMPORARY SERVICE REQUIREMENTS. ALL TEMPORARY WORK SHALL BE COMPLETELY REMOVED ONLY AFTER NEW SERVICES ARE COMPLETELY INSTALLED AND FUNCTIONAL.</li> <li>22. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF CEILING-MOUNTED HVAC DEVICES AND EQUIPMENT.</li> <li>23. DUCT ROUTING CHANGES MADE BY THE CONTRACTOR FOR THE PURPOSE OF ACCOMMODATING FIELD CONDITIONS SHALL INCLUDE FIRE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS IN RATED PARTITIONS AS SHOWN IN ORIGINAL ROUTING ARRANGEMENTS.</li> <li>24. FURNISH AND INSTALL ACCESS DOORS (AD) IN THE DUCTWORK IMMEDIATELY ADJACENT TO EACH FIRE DAMPER AND EACH FIRE/SMOKE DAMPER. PARTITIONS SHALL BE PROVIDED WITH ACCESS DOORS TO PROVIDE SERVICE AND ACCESS TO DAMPER ACCESS DOORS.</li> <li>25. PROVIDE FIRE AND COMBINATION FIRE/SMOKE DAMPERS WHERE REQUIRED BY CODE. FIRE, SMOKE, AND COMBINATION FIRE/SMOKE DAMPERS SHALL BE UL LISTED, SHALL BEAR THE UL LABEL AND SHALL COMPLY WITH NFPA BULLETIN NO. 90A. FULLY-OPEN DAMPERS SHALL NOT HAVE ANY PROJECTIONS INTO THE AIRSTREAM.</li> <li>26. ABANDONED DUCT SHALL BE REMOVED WHERE INDICATED ON THE DRAWINGS. DUCT REMAINING IN PLACE SHALL BE CAPPED, SEALED AIR TIGHT AT POINT(S) OF DEMOLITION, AND INSULATED TO MATCH EXISTING.</li> <li>27. NEW HOLES THROUGH EXISTING FLOORS SHALL BE CORE DRILLED. ALL CORES SHALL BE X-RAYED PRIOR TO CORING.</li> <li>28. ALL DUCT SIZES SHOWN HEREIN REPRESENT INSIDE CLEAR DIMENSIONS. EXTERNAL SHEET METAL DIMENSIONS OF DUCTWORK THAT IS SPECIFIED TO BE INTERNALLY LINED SHALL BE ADJUSTED BY THE CONTRACTOR TO ALLOW FOR THICKNESS OF LINING.</li> <li>29. THE OWNER SHALL HAVE THE OPTION TO DESIGNATE ANY MATERIALS REMOVED OR DEMOLISHED DURING THIS WORK AS "RECYCLABLE" AND SHALL HAVE FINAL DISPOSITION OVER THE DISPOSAL OF THESE MATERIALS. ALL MATERIALS REMOVED/DEMOLISHED BY THE CONTRACTOR FOR THIS JOB AND NOT RETAINED BY THE OWNER FOR RECYCLING OR OTHER PURPOSES SHALL BE DISPOSED OFF-SITE BY THE CONTRACTOR.</li> <li>30. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL OF ANY EQUIPMENT DESIGNATED FOR REMOVAL. THE OWNER SHALL PROVIDE A LIST OF ITEMS THEY REQUIRE TO BE SALVAGED PRIOR TO THE START OF DEMOLITION. THE CONTRACTOR SHALL REMOVE THESE ITEMS USING REASONABLE CARE TO MINIMIZE DAMAGE.</li> <li>31. ANY AND ALL WATER CONNECTIONS MADE FOR THE PURPOSE OF CLEANING TOOLS OR THE WORK AREA OR FOR ANY OTHER CONSTRUCTION-RELATED PURPOSES SHALL BE MADE ONLY TO DOMESTIC WATER HOSE BIBBS OR TO CONTRACTOR-SUPPLIED WATER SOURCES. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE USED AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. CONNECTIONS SHALL NOT BE MADE TO FIRE WATER, CHILLED WATER, CONDENSER WATER, HEATING HOT WATER, DOMESTIC HOT WATER OR ANY OTHER TREATED WATER SOURCE UNLESS REQUIRED AS PART OF WORK ON THESE SYSTEMS.</li> </ol> | <ol style="list-style-type: none"> <li>32. EXCEPT WHERE REQUIRED AT EQUIPMENT NOZZLES, FLANGES SHALL BE RAISED FACE WELD-NECK.</li> <li>33. INSTALL DIELECTRIC FITTINGS AT ALL FERROUS PIPE CONNECTIONS TO NON-FERROUS METALLIC PIPE OR EQUIPMENT.</li> <li>34. BULLHEAD TEES SHALL NOT BE USED TO JOIN CONVERGING (RETURN) FLOWS, REGARDLESS OF ARRANGEMENT SHOWN ON PLANS.</li> <li>35. PROVIDE ESCUTCHEON PLATES WHERE PIPES EXPOSED TO VIEW PENETRATE FINISHED WALLS, FLOORS AND CEILINGS. SPLIT-RING ESCUTCHEON PLATES SHALL NOT BE USED UON.</li> <li>36. PROVIDE CAPPED DRAIN VALVES AT LOW POINTS OF PIPING SYSTEMS AND AT EQUIPMENT CONNECTIONS. PROVIDE HOSE BIBB CONNECTIONS WITH CAPS AT DRAIN VALVES WHICH DO NOT DISCHARGE DIRECTLY OVER OR ARE NOT PIPED DIRECTLY TO AN APPROPRIATE DRAIN.</li> <li>37. PIPING, DUCTWORK OR EQUIPMENT CONNECTIONS OPENED BY DEMOLITION OR RENOVATION SHALL BE TEMPORARILY SEALED TO KEEP OUT FOREIGN MATTER UNTIL SUCH TIME AS RECONNECTIONS ARE MADE.</li> <li>38. MECHANICAL WORK SHALL BE INCLUDED IN BASE BID ITEM NO.4. NO SEPARATE PAY ITEM FOR HVAC.</li> </ol> |
|---|--|---|

### RECORD DRAWINGS

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ENGINEER: CAMPOS ENGINEERING, INC.  
REGISTRATION #: F-001731  
TELEPHONE #: 214-696-6291

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RECORD DRAWINGS

01/07/2020

**CITY OF ROCKWALL, TEXAS**  
**SQUABBLE CREEK LIFT STATION**

MECHANICAL SYMBOL LEGEND & GENERAL NOTES

BHC  
PROJECT NO.  
2015-144

October, 2017

SHEET NO.

**M102**

**CEI** CAMPOS  
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CEI Project Number D17-1450.00

### SPLIT SYSTEM DX CONDENSING UNIT SCHEDULE

SYMBOL	SERVING	COOLING DATA				OUTDOOR FAN DATA				COMPRESSOR DATA				
		NOM. TONS	CAPACITY BTU/HR	COND. DEG. F	SEER @ ARI	NO.	H.P. (EA.)	VOLTAGE	PH.	NO.	RLA (EA.)	LRA (EA.)	VOLT.	PH.
CU-1	ELECTRICAL RM	4	45,000	105	16.0	1	1/4	480	3	1	6.41	41	480	3

SYMBOL	UNIT ELECTRICAL DATA				UNIT DIMENSIONS LxWxH (in.)	MAX. WEIGHT	MANUFACTURER	MODEL NUMBER	REMARKS
	#CONN	MCA	MOC	VOLTAGE					
CU-1	1	9.1	15	460	30.5x35x39	268	LENNOX	SSB048H4	ALL

- REMARKS:
1. PROVIDE SCROLL COMPRESSOR.
  2. PROVIDE 5 YEAR EXTENDED COMPRESSOR WARRANTY.
  3. PROVIDE CRANKCASE HEATER.
  4. PROVIDE 5 MINUTE COMPRESSOR TIME DELAY RELAY.
  5. PROVIDE REFRIGERANT SHUT-OFF TYPE SERVICE VALVES.
  6. PROVIDE SWEAT TYPE REFRIGERANT PIPING CONNECTIONS.
  7. PROVIDE COMPRESSOR CYLINDER UNLOADING.
  8. PROVIDE AUTOMATIC RESET LOW PRESSURE SWITCH.
  9. PROVIDE MANUAL RESET HIGH PRESSURE SWITCH.
  10. PROVIDE LIQUID LINE FILTER DRIER.
  11. PROVIDE LOW AMBIENT PRESSURE CONTROLS.
  12. PROVIDE HARD START ACCESSORY KIT.

### SPLIT SYSTEM DX AIR HANDLING UNIT SCHEDULE

SYMBOL	SERVING	SUPPLY CFM	O.A. CFM	E.S.P. (IN. W.G.)	COOLING DATA				HEATING DATA				INDOOR FAN DATA				
					TOTAL BTU/HR	SENSIBLE BTU/HR	ENT. AIR TEMP. DB	COND. WB	COND. DEG. F	KW	CAP. BTU/HR	STEPS/VOLT.	PH.	DRIVE	HP	VOLT.	PH.
FCU-1	ELEC. RM	1590	N/A	0.5	45,000	35,550	80.0	67.0	105	N/A	N/A	N/A	N/A	DIRECT	1.0	480	3

SYMBOL	UNIT ELECTRICAL DATA			PHYSICAL CHARACTERISTICS		MANUFACTURER	MODEL NUMBER	REMARKS	
	#CONN	VOLT.	PH.	CONF. DIMENSIONS LxWxH (in.)	WEIGHT (LBS.)				
FCU-1	1	480	3	HORIZ.	22x25x63	216	LENNOX	CBX27UH-060-G	ALL

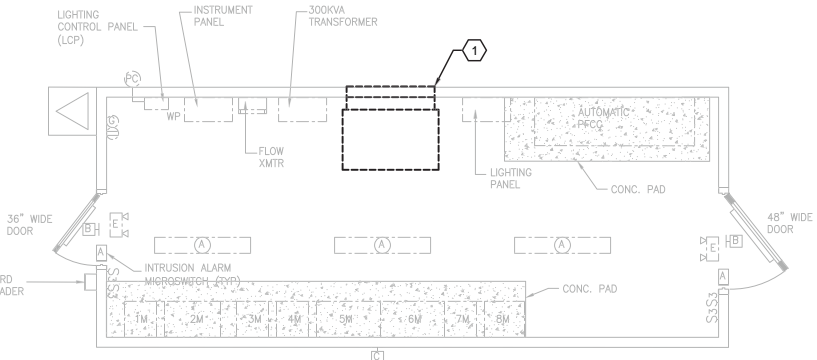
- REMARKS:
1. PROVIDE MOTOR STARTER.
  2. PROVIDE FILTER RACK WITH 2" THICK 30% EFFICIENT FILTER.
  3. PROVIDE THERMOSTAT WITH TWO STAGES OF COOLING.
  4. HANG UNIT FROM STRUCTURE WITH TRAPEZE SUPPORTS.

### RECORD DRAWINGS

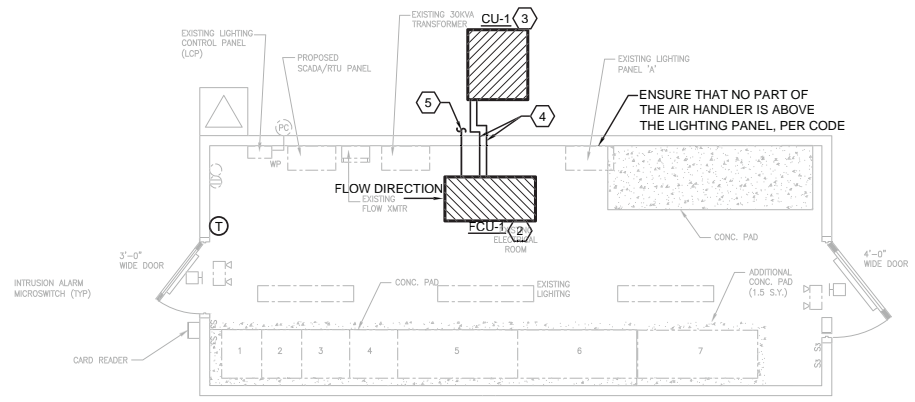
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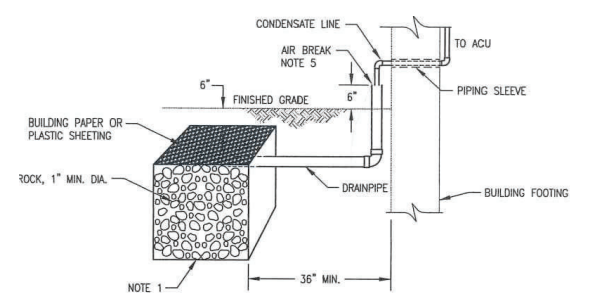
ENGINEER: CAMPOS ENGINEERING, INC.  
REGISTRATION #: F-001731  
TELEPHONE #: 214-696-6291



**1 MECHANICAL EXISTING FLOOR PLAN**  
M201 SCALE: 1/4" = 1'-0" 0 2' 4' 8'

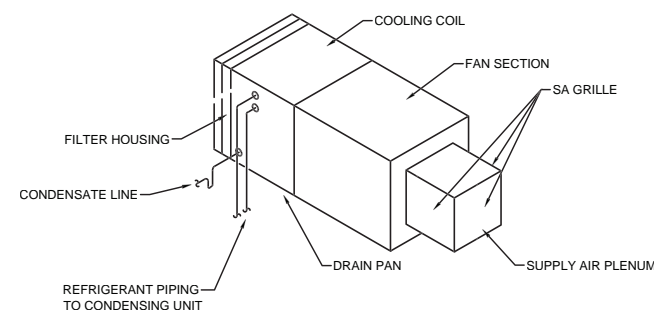


**2 MECHANICAL NEW FLOOR PLAN**  
M201 SCALE: 1/4" = 1'-0" 0 2' 4' 8'

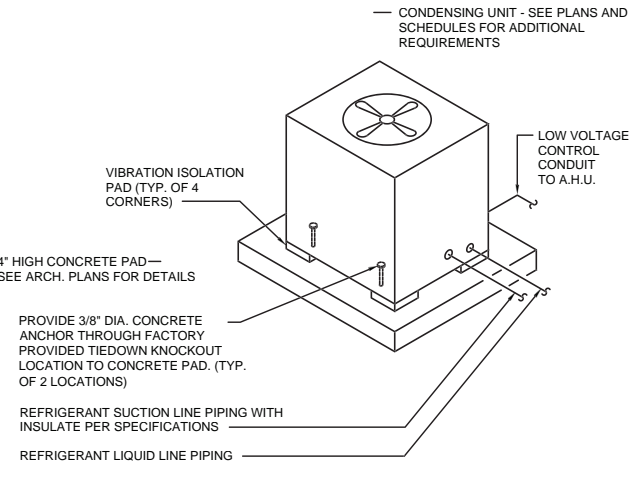


- NOTES:
1. MINIMUM 24"x24"x24" OR EQUAL, NOT LESS THAN 24".
  2. THE NEAREST EDGE OF THE DRYWELL SHALL BE AT LEAST 3 FEET FROM ANY STRUCTURE OR BUILDING FOUNDATION.
  3. THE DRYWELL SHALL BE FILLED WITH MIN. 1" ROCK.
  4. THE TOP OF THE DRYWELL SHALL BE COVERED WITH BUILDING PAPER OR PLASTIC SHEETING WITH 6" OF EARTH OR CONCRETE OVER THAT.
  5. THE CONDENSATE PIPE FROM THE COOLING COIL (MIN. 3/4") SHALL INDIRECTLY CONNECT TO A MINIMUM 1 1/2" DRAINPIPE. THE INDIRECT CONNECTION SHALL BE MADE BY AN AIR BREAK AT THE EDGE OF THE FOUNDATION.

**6 CONDENSATE DRYWELL DETAIL**  
SCALE: NONE

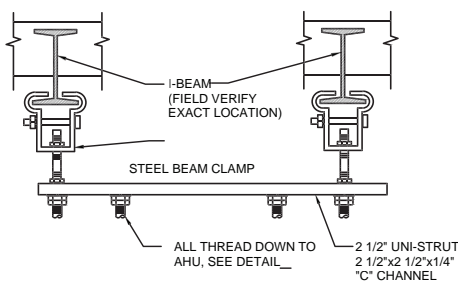


**3 HORIZONTAL AIR HANDLING UNIT DETAIL**  
SCALE: NONE



- NOTE:
1. PROVIDE CODE REQUIRED AND MFR'S RECOMMENDED CLEARANCE AROUND UNIT, FOR SERVICE AND PROPER OPERATION.

**4 CONDENSING UNIT SUPPORT DETAIL**  
SCALE: NONE



**5 SUSPENDED AIR HANDLING UNIT SUPPORT DETAIL**  
SCALE: NONE

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RECORD DRAWINGS

**CITY OF ROCKWALL, TEXAS**

SQUABLE CREEK LIFT STATION

MECHANICAL FLOOR PLANS

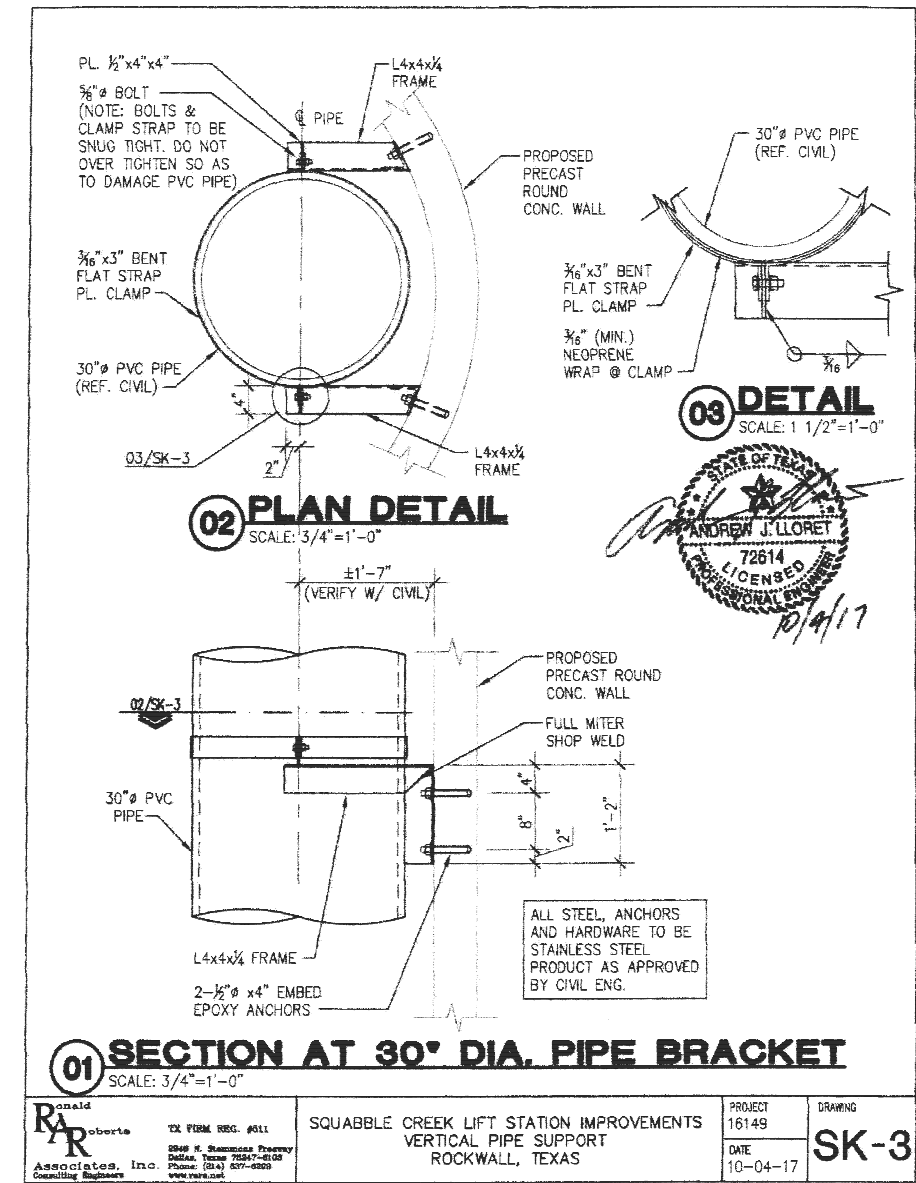
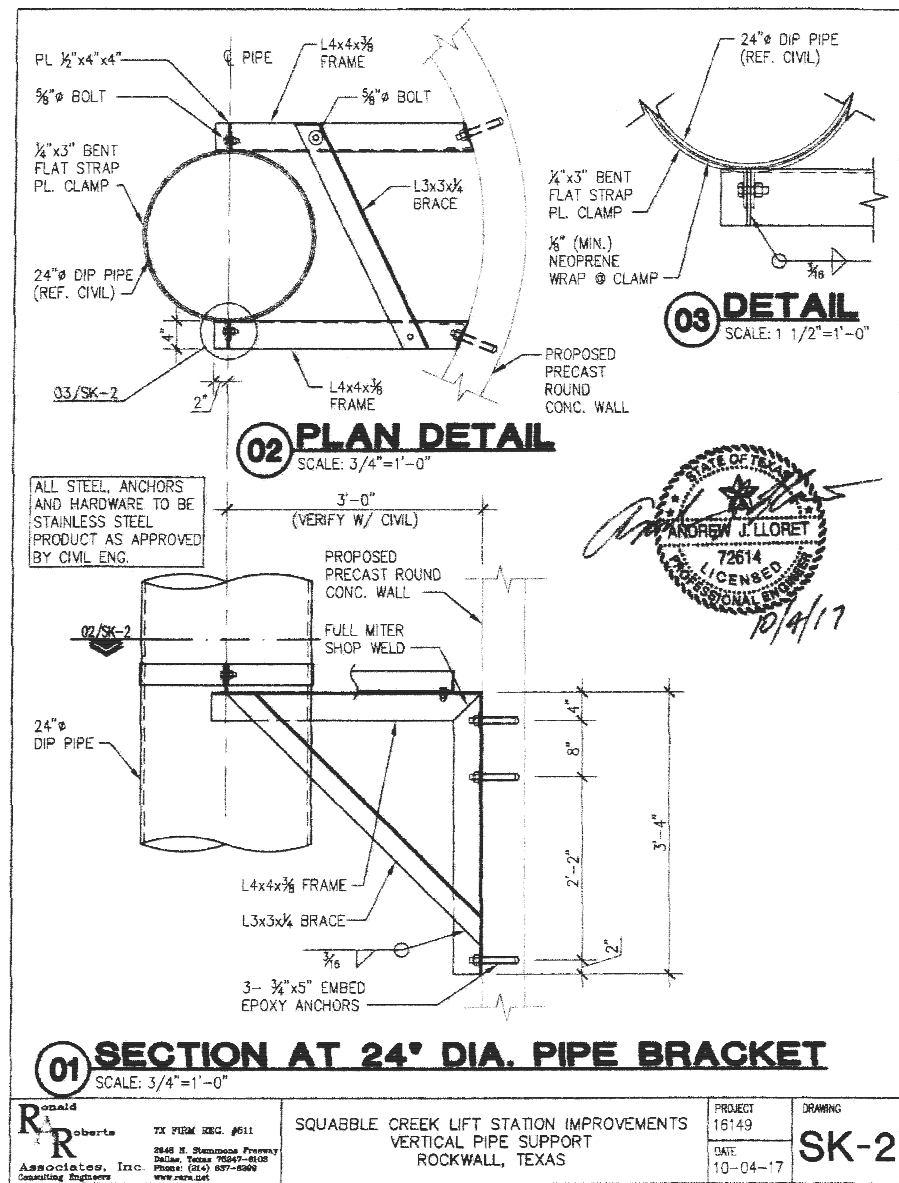
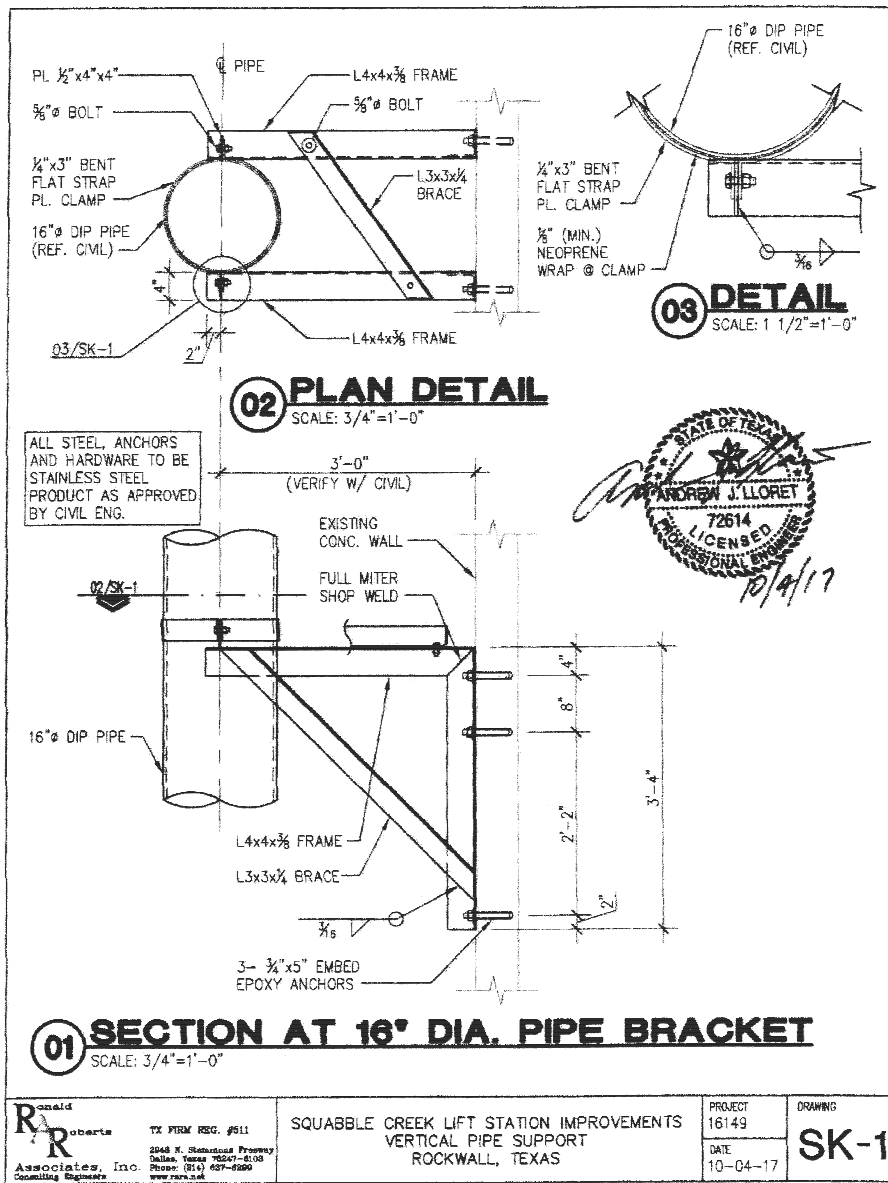
BHC PROJECT NO. 2015-144

October, 2017

SHEET NO.

**M201**

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CEI Project Number D17-1450.00



	TX FIRM REG. #611	PROJECT 16149	DRAWING SK-1
	SQUABBLE CREEK LIFT STATION IMPROVEMENTS VERTICAL PIPE SUPPORT ROCKWALL, TEXAS	DATE 10-04-17	

	TX FIRM REG. #611	PROJECT 16149	DRAWING SK-2
	SQUABBLE CREEK LIFT STATION IMPROVEMENTS VERTICAL PIPE SUPPORT ROCKWALL, TEXAS	DATE 10-04-17	

	TX FIRM REG. #611	PROJECT 16149	DRAWING SK-3
	SQUABBLE CREEK LIFT STATION IMPROVEMENTS VERTICAL PIPE SUPPORT ROCKWALL, TEXAS	DATE 10-04-17	

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