ADDENDUM NO. 1

TO: ALL PLANHOLDERS

DATE: March 10, 2020

RE: South Conway Lift Station Sanitary Sewer & Waterline Improvements
RFB # 20-179-03-12

BID OPENING: Thursday, March 12, 2020 at 2:00 pm at City Manager's Office at Mission City Hall, 1201 E. 8th St. Mission, Texas 78572

Gentlemen:

You are hereby notified of the following changes to the plans, proposal, and/or specifications for the above-mentioned project.

PLANS:

1. Sheet C6 has been revised to show the correct size of casing.
2. Sheet C10 has been revised to reflect proper fitting sizes.
3. Sheet C16 has been revised reflecting 3 submersible pumps.

SPECIFICATIONS:

1. 16010 - Electrical Specifications have been added with this addendum.

GENERAL:

The estimated value on this project is $2 million.

CLARIFICATION:

1. Section 15061 – Manholes shall have factory installed fiberglass bottoms, inverts and PVC stubouts.

PROPOSAL:

1. A revised proposal has been included with this addendum adding a deductive alternate for Waterline Improvements, Item #10.

2. Dewatering has been added to the Miscellaneous Improvements. Special attention needs to be taken by Contractors to review the geo-technical report for dewatering.

Please acknowledge the receipt of this addendum in the place shown below and return with your REVISED PROPOSAL.

Thank you,

MELDEN AND HUNT, INC.

Mario A. Reyna, P.E.
Project Engineer

_____ _____

Contractor's Signature Date

SECTION 16010

ELECTRICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 THE REQUIREMENT

A. The CONTRACTOR shall provide electrical work, complete and operable, in accordance with Contract Documents. The CONTRACTOR is to coordinate this section of work with the work indicated in other sections of these specifications.

B. All work that may be called for in the specifications but not shown on the Drawings; or, all work that may be shown on the drawings but not called for in the specifications, shall be performed by the Contractor as if described in both. Should work be required which is not set forth in either document, but which work is nevertheless required for fulfilling of the intent thereof; then, the contractor shall perform all work as fully as if it were specifically set forth in the current documents. Typical incidentals are terminal lugs not furnished with vendor supplied equipment, compression connectors for cables, splices, junction and terminal boxes, and control wiring required by vendor furnished equipment to connect with other equipment indicated in the Contract Documents.

C. It is the CONTRACTOR'S responsibility to coordinate the pump system requirements. The CONTRACTOR shall verify the pump motors' protection requirements with the pump manufacturer and supplier. This information shall be given to the pump control panel manufacturer to provide the required interface circuitry. The pump motor protective systems include the use of special function modules, these shall be provided to the control panel manufacture to mount, wire and test within the control panel. It will also be the CONTRACTOR'S responsibility to furnish and install the required external conduit and wires required as part of this project for the required Submersible Pump Motor Protection System without additional cost to the owner.

1.2 PUBLIC UTILITIES REQUIREMENTS

A. The CONTRACTOR shall contact the serving utility and verify compliance with requirements before construction. The CONTRACTOR shall coordinate schedules and payments for work by all utilities.

B. The Contractor is responsible for bringing electrical service to the City of Mission WA 15-South Conway Lift Station if it is not available.

C. The Contractor shall verify and provide all service conduits {primary and secondary} fittings, grounding devices, meter can, and all service wires not provided by the serving utility.

D. The CONTRACTOR shall verify with the utility the exact location of each Service point and type of service 240 or 480 Volt 3 Phase and pay all charges levied by the serving utilities without additional cost to the owner.

E. The Contractor is responsible for coordinating the pump panel and motor requirements with the proposed type of service 240 or 480 Volt 3 Phase.

F. The Contractor shall pay and is responsible for bringing Telephone service to the City of Mission WA 15-South Conway Lift Station for the telephone Autodialer.

1.3 PERMITS AND INSPECTIONS

A. Permits shall be obtained, and inspection fees shall be paid by the CONTRACTOR.

B. The CONTRACTOR shall pay all connection and turn-on service charges required by the serving utility company.

1.4 CONTRACTOR SUBMITTALS

A. The CONTRACTOR shall submit for review 6-sets of submittals showing dimensions, detailed drawings, catalog cuts, general descriptive information, catalog numbers and manufacturer's name on all equipment and material to be used on this project. Approval of submittal shall not relive the CONTRACTOR of his responsibility to comply with the plans and specifications. All risks of error and omission are assumed by the CONTRACTOR and the ENGINEER will have no responsibility thereof.

B. The CONTRACTOR upon completion shall supply 6 sets of a comprehensive 8-1/2 x 11-inch bound instruction installation operations maintenance manual that includes as built wiring diagrams, layout diagrams, and outline dimensions. This manual must be 3-hole punched for insertion in a shop manual supplied by the installing contractor.

PART 2 – PRODUCTS

2.1 GENERAL

A. All equipment and materials shall conform to the requirements of the Contract Documents. They shall be new, free from defects, and they shall conform to the following standards where these organizations have set standards.

1. Underwriters Laboratories, Inc. (UL)
2. National Electrical Manufactures Association. (NEMA)
3. American National Standards Association. (ANSI)
4. Insulated Cable Engineers Association. (ICEA)

B. Similar items in the work shall be products of the same manufacturer.

C. All equipment and materials shall be of heavy-duty, oil-tight industrial grade Standard construction.

D. Equipment that is designed to IEC-ratings or with dual IEC/ NEMA ratings will not be acceptable and will not be approved.

E. Where a NEMA enclosure type is indicated the CONTRACTOR shall utilize that type of enclosure, despite the fact that certain modifications such as cutouts for control devices may negate the NEMA rating.

2.2 RACEWAYS CONDUIT SUPPORTING DEVICES FITTINGS

A. PVC Conduit: Below grade conduit shall be Rigid Non-Metallic Schedule 40 PVC, sunlight resistant 90 degrees Celsius. Shall be as manufactured in accordance with NEMA TC-2 and UL-651 Standard for Rigid Non-metallic conduit standards and shall be Carlon, Condux, Can-Tex or equal.

B. Rigid Aluminum Conduit: Above grade exposed conduit shall be Rigid schedule 40 aluminum and shall be manufactured in accordance with NEC Article 346 and UL-6 standard for conduits and shall be Wheatland Tube Co. or equal.

C. PVC Coated Rigid Conduit; Below-grade to above-grade upturns, transitions from PVC non-metallic to Rigid Aluminum conduit shall be made with PVC coated hot dipped rigid steel conduit A PVC coating shall be bonded to the exterior and interior surface of the conduit Exterior PVC coating thickness shall not be less than 40 mils. Interior PVC coating thickness shall not be less than 2 mils. Shall be as manufactured in accordance with UL-6 and ANSI C80.1 and shall be Robroy, Octal-Blue, Perma-Cote or equal.

D. Liquidtight Flexible Conduit; shall be constructed of a flexible galvanized metal Core with a sunlight resistant thermoplastic outer jacket and shall be manufactured in accordance with UL-360 and shall be Anaconda-Sealtite, Liquatite, Electriflex or equal.

E. Slotted Channel Framing and Supporting Devices; shall be as manufactured in accordance with ASTM A-240 Type-304 grade stainless steel; Strut shall be 1-5/8" wide x 3-1/4" deep [double opening type] and shall be Unistrut, B-Line, or equal Clamp nuts for use with slotted channels shall be 304 STAINLESS

STEEL. Conduit straps for use with slotted channels shall be stainless steel hardware. Mounting hardware, nuts, bolts, lock washers, and washers, shall be grade 304 STAINLESS STEEL. Mounting rack shall be constructed of two-inch (2") minimum, 304 STAINLESS STEEL tube 11 gauge or three-inch (3") STAINLESS STEEL pipe may be used as an alternate to tubing.

Close the exposed pipe end with proper size PVC plug cap. Where contact with dissimilar metals may cause galvanic corrosion, suitable non-metallic insulators shall be used to prevent corrosion. Anchors when required for attaching panel's to wall's, floor's, shall be stainless steel expansion anchors, RAWL-BOLT, RAWL-STUD, or LOK-BOLT or equal.

F. Myers Hub: Shall be 316 STAINLESS STEEL shall have Viton-O-Ring STAINLESS STEEL Ground-Nut and shall be as manufactured in accordance with UL, NEMA-4X and shall be Crouse-Hinds or equal.

G. Seal-Off, Splice Box; Conduit seals shall be used to prevent the atmosphere of the wet well from gaining access to the panel. Conduit seals shall be located below the panel. Vertical seal off's shall be installed on all conduits entering the panel and shall be aluminum and shall be sealed off with Manufactures Approved Sealing Compound. Connections to motor leads will be made outside the wet well. A NEMA 4X Stainless Steel Junction Box located below the conduit seals shall be used as a splice box and all conduits shall be sealed with "ductseal putty" Direct motor leads and float leads when used will not enter pump panel. The specified wire and cable in the next section will be used from the splice box to the panel. Splice Box shall be NEMA 4X Stainless Steel UL-Listed. Seal-Off shall be Crouse-Hinds, Appleton or equal.

2.3 WIRE AND CABLE

A. All conductors shall be soft-drawn stranded annealed copper per ASTM B-3 or ASTM B-8 and UL-44 and UL-854. THHN/THWN shall not be used. Insulation for all 480-volt conductors shall be cross-linked polyethylene [XLP] Type RHH, RHW, USE Rated 600V. Insulation for all 120/240 volt conductors shall be cross-linked polyethylene [XLP] Type XHHW-2 Rated 600V and shall be Houston Wire Cable, American Insulated Wire, Rome Cable, Southwire or equal.

2.4 PUMP CONTROL PANEL

A. The pump control panel shall be supplied by the Pump Supplier. The manufacturer shall furnish a letter with the submittals verifying the local representative and who shall be responsible for the administration of the warranty and the name, address and telephone number of the service representative for the PUMPS AND CONTROL PANEL. The panel shall be fabricated in accordance to UL 698A and 913 standards-Enclosed Industrial

Control Panel with Intrinsically Safe Circuit Extensions" listing and following-up service and by a current UL 698A and 913 Listed Industrial control panel manufacturer. The control panel shall bear the Underwriter's Laboratories serialized label for "Enclosed Industrial Control Panel with Intrinsically Safe Circuit Extensions". While the use of U.L. listed components is encouraged, their use alone will not be considered an acceptable or satisfactory alternate to the "Enclosed Industrial Control Panel with Intrinsically Safe Circuit Extensions" serialized label specified above. The panel manufacturer shall supply documentation with submittals to the owner proving they are a U.L. recognized manufacturing facility for the type of equipment required. Only the labeled products of U.L.698A and 913 with Intrinsically Safe Circuit Extensions" recognized panel manufacturer shall be considered acceptable for use on this project.

B. The panel manufacturer shall show its UL follow-up service procedure file number on submittals. An adhesive Mylar copy of the schematic drawings and terminal diagram must be permanently affixed on the inside of the exterior door. Also an equipment data tag shall be permanently affixed on the inside of the exterior door with the station designation, power source, pump horsepower, and pump motor full load amps. In addition to the requirements of UL also include an engraved legend plate with the name, address and telephone number of the service representative for the pumps and control panel.

C. All devices within the panel shall be UL Listed and NEMA Rated. IEC ratings or devices with dual IEC/NEMA ratings will not be acceptable as part of any equipment package.

D. The pump control panel shall be fully tested by the factory prior to shipment. It shall include testing of both power and control devices as well as all control functions. A final inspection shall be performed prior to shipment and a copy of this form shall be provided.

E. The enclosure for the panel shall be a UL Listed NEMA 4X stainless steel enclosure properly sized to contain all the required components. Corrosion inhibitor pads shall be provided and shall be as manufactured by Hoffman Engineering Co; 3M or equal. The enclosure shall be constructed of 14 GA stainless steel body and door(s) with continuous stainless-steel piano hinge. A dripshield shall be welded on the top of the enclosure. Padlocking Hasp & staple, print pocket shall be included on the enclosure door front. With quick release latches and Heat Barriers. Welded on mounting feet shall be provided on the back of the panel, and the mounting feet shall be oversized to readily accommodate mounting the panel on 1-5/8-inch strut. Oil-resistant door gasketing shall be provided around all 4 sides of the panel.

F. A painted white enamel steel mounting panel shall be provided for mounting of components. Voltage identification labels and comprehensive warning labels shall be provided.

G. Provision for inner swing panel "dead front" feature shall be provided using a full sized hinged inner door to mount all operator devices. Material shall be 0.125-inch aluminum with turned down flanges on all 4 sides for added rigidity. The inner door and components shall have a "dead back" feature in order to avoid accidental shock hazard. The inner door shall be large enough to fill the entire opening of the enclosure. Screws used to secure the inner swing door mounting hardware to the enclosure shall be stainless steel UL and NEMA Type 4X rated/listed.

H. All control wiring shall be a minimum of 16 AWG, MTW and shall be color-coded in accordance with all applicable codes. Spiral wrap, tie wrap, fasteners and wire duct shall be provided for safety and aesthetics. All components mounted on the door shall be wired with insulated connectors where finger-proof terminals are not provided to prevent accidental shock hazards. Self-adhesive Brady BMX-C+System vinyl cloth printed adhesive wire markers shall be supplied at both ends of every wire.

I. The panel manufacturer shall have a minimum of 5 years experience manufacturing systems specifically for wastewater applications.

2.5 TRIPLEX PUMP CONTROLLER

A. The City of Mission WA 15-South Conway Lift Station shall be provided with eight direct-acting-float switches and an electronic pump controller. The system shall be as follows the direct-acting-float switches shall be watertight, encapsulated mercury switch type, encased in a corrosion-chemical-resistant polypropylene casing shall be numbered 16-2, rated for 13 amps, and shall be type SJTO. To ensure optimum longevity, contacts shall be rated for 20 amps at 115 VAC. The switch/cable assembly is permanently assembled; the connections are potted to give dependable service even if the cable jacket is damaged. The cable shall be long enough to reach the bottom of the wet well from the splice box. The switch shall be weighted with enamel coated cast iron weight to permit the float to pivot for proper operation. All installation hardware shall be 316 stainless steel. The float switch elevations shall be adjustable over the entire wet well depth. Floats shall be suspended on its own cable, which upper end shall be secured as shown on the drawings.

B. THE PUMP STATION shall be provided with the following direct-acting-float switches.

1. FS-1 LOW LEVEL ALARM LOCKOUT
2. FS-2 LOW LEVEL ALARM LOCKOUT RESET

3. FS-3 PUMPS OFF
4. FS-4 LEAD PUMP ON
5. FS-5 LAG PUMP ON
6. FS-6 2nd LAG PUMP ON
7. FS-7 HIGH LEVEL ALARM RESET
8. FS-8 HIGH LEVEL ALARM

C. The City of Mission WA 15-South Conway Lift Station Alternating Controller shall be a fully integrated assembly. That is, the furnishing of similar functions using multiple set-point modules, a custom-configured programmable logic controller (PLC) or external extensive relay/timer/alternator logic to accomplish control sequences, etc, is specifically precluded and will not be approved. The electronic pump controller shall be mounted in the starter pump panel enclosure and shall be visible from the front of the swing-out panel, with the enclosure door opened. The controller shall accept the floats as indicated. The electronic controller shall provide a minimum of three pump control outputs, built in alternation, alternator override switch allowing placement of pumps in either fixed manual sequence (1-2-3) or (2-3-1) (3-1-2) or automatic alternation lead, lag, 2nd lag no end user programming required. Power to the unit shall be 120 Volts AC input power transient protection. Interposing relays shall be provided for each control output, to provide signal isolation.

MANUFACTURERS:

1. Macromatic ARP Series Alternating Relays.
2. Diversified Electronics ARM Series.
3. Eaton D85 Series Alternating Relays.
4. Or prior approved equal.

D. Provide an Intrinsically Safety Barrier per NEC and ANSI/ISA. This Barrier shall be interfaced with the direct-acting-float switches and the controller shall be able to accept up to 8 inputs shall have LED indication for each of the eight level switch inputs located in hazardous area to provide indication of each input actuation, LED to indicate power on, shall be UL-listed. Rated Class 1, Division 1 or 2, Groups A, B, C and D, and Class 11, Division 1 or 2, Groups E, F, and G. Hazardous locations which include a (Wastewater Wet-Well)

2.7 CONTROL DEVICES

A. Selector Switches: HAND, OFF, AUTO selector switches shall be heavy-duty, oil-tight, and shall have the number of positions and fingersafe contact blocks as required. The contacts shall be 600V 10 Amp and shall be manufactured in accordance with UL, NEMA-4, and NEMA-A600. They shall be Square D Class 9001-Type K, General Electric CR104P or equal.

B. Indicating Lights: Indicating lights shall be full-voltage, push-to-test type and shall be heavy-duty, oil-tight, as specified above for selector switches. Each shall be nickel-plated with a screwed-on lens approximately one-inch in diameter. Color shall be RED = ON, GREEN = OFF, AMBER = SEAL–FAILURE when required. The indicating lights shall be manufactured in accordance with UL, NEMA-4, and NEMA-A600. The lights shall be Square D Class 9001-Type K, General Electric CR104P or equal.

C. Elapsed Time Meters: Elapsed time meter (ETM) shall be non-reset type; shall register hours and tenths of an hour; shall have flush panel-mount case not less than 3 inches; shall be suitable for 120 volts, 60-Hz, ac; and shall be Grasslin Deluxe-FWZ 72B or equal.

D. Terminal Blocks: Terminal blocks for control wiring shall be molded type with barriers, rated not less than 600 volts. The terminal blocks shall have white or other light-colored marking strips, The strip is fastened by screw to the molded sections at each block and the strip is to be used for circuit designation and/or wire number imprinted. The blocks shall be Square D Class 9080 Type-K, General Electric- CR151A or equal.

E. Control-Relays: Magnetic relays shall be machine-tool-type with 115-volt 60-hertz ac coils replaceable convertible contacts. The relays shall be field convertible with 600-volt 10-ampere rating contacts. The relays shall be manufactured in accordance with NEMA-A600 and they shall be Square D Class 8501 TYPE-X, General Electric CR120B or equal.

F. Motor Starters: The motor starters shall be full voltage non-reversing type consisting of one contactor and one overload relay assembled together. The starters shall be sized/rated in accordance with NEMA sizes and horsepower ratings. No starter shall be listed as ½ size. Overload protection shall be provided by a solid-state electronic overload relay that shall provide a user selectable settings of Class 10, 20 and 30. The starter shall have a visible trip indicator, be ambient insensitive, provide built in thermal memory to prevent hot motor restarts, be capable of monitoring for motor single phasing with adjustable current unbalance of 20 to 50 percent, and incorporate a signal to an external device when tripped. The starter shall have a reset mechanism that resets on the upstroke only. There shall be provided 1 Normally Closed plus 1 Normally Open isolated contact for spares. Starters shall be Square D Class 8536 Type-S, General Electric 300 Line-CR306 or equal.

G. Molded Case Motor Circuit Protection: MCP shall be sized to provide adequate short circuit interrupting capacity Square D Class -Mag-Gard, General Electric MagBreak Type-TEC or equal.

H. Safety Switches: Furnish and install safety switches as shown on the drawings. The safety switches shall be manufactured in accordance with UL 98 and NEMA

4X. The safety switches shall be stainless steel, heavy-duty 600 volt non-fusible with ground lug, and shall be Square D Class-3110, General Electric or equal.

Double Throw Safety Switches: Furnish and install manual transfer double throw safety switches as shown on the drawings with TERMINAL BOX RECEPT shall be NEMA 4X stainless steel, 600 volt non-fusible with ground lug, and shall be Square D Class 3140, or equal.

I. Heavy Duty Strobe Light and Horn Siren: Furnish and install an exterior weatherproof strobe alarm light 36" above the pump control panel. The strobe shall be immune to shock and vibration and have no moving parts. The strobe light lenses shall be shatter-resistant polycarbonate and shall be red in color. The strobe light shall be Edwards 93 Series AdaptaBeacon or equal. Furnish and install an exterior weatherproof Grille Type alarm horn on the outside of the pump control panel. The horn shall be a low-current, high-decibel, vibrating horn. The horn shall have an adjustable output: 78 to 103 dB and shall be housed in a NEMA 4X enclosure. The horn shall be UL listed and shall be Edwards 876 Series AdaptaHorn or equal.

J. Dialer: An automatic phone dialer shall be provided and placed inside the pump control panel. Exterior mounting a 14GA. NEMA 4X-STAINLESS STEEL box with Heat Barriers will be considered as an alternative. The dialer shall be capable of dialing a minimum of 16 phone numbers, each up to 32 digits in length. The unit shall have minimum 12-hour battery backup and if the control power fails, high or low level occur the dialer shall internally generate and automatically annunciate a power/failure or failure alarm. The unit shall be capable of being configured locally or remotely from a standard touch-tone phone. "A REGULAR PHONE LINE SHALL BE PROVIDED AND PAID FOR BY THE CONTRACTOR". Connection to the telephone is through an industry standard 4-pin modular jack (RJ-11). The telephone dialer shall be programmed to annunciate the lift station identification and the following.

Alarm conditions.

1. WETWELL HIGH WATER LEVEL
2. PUMP-1-FAILURE
3. PUMP-2-FAILURE
4. PUMP-3-FAILURE
5. POWER-FAILURE
6. WETWELL LOW WATER LEVEL

MANUFACTURERS:

1. Sensaphone Express II
2. RACO Verbatim
3. Or prior approved equal

K. Transformer Control/Power: Each starter section shall have its own control/power transformer. It shall have a 240 or 460-volt 60 Hz primary and step-down of 120-volt 60 Hz grounded secondary. The control/power transformer shall be equipped with two factory installed primary fuse's and one secondary fuse and blocks. There shall be fingersafe, integrally molded barriers between terminals and transformer. The transformers shall be manufactured in accordance with UL and NEMA and shall be Square D Class 9070-Type TF or equal.

Control transformer shall be sized to accommodate all the control devices including but not limited to those indicated below for each pump section.

1. H-O-A selector switch and control
2. Pump Run Push-To-Test pilot light
3. Pump Off Push-To-Test pilot light
4. Pump O/L Fail Push-To-Test pilot light
5. Elapsed Time Meter

The power transformer shall be a high efficiency type class transformer sized to provide power to all 120-volt circuit's including but not limited to those listed below.

1. Triplex Pump Controller
2. Area Light
3. Convenient duplex receptacle
4. Telephone Dialer
5. Panel Light
6. Panel Strip Space Heater
7. Odor Control duplex receptacle
8. Odor Control duplex receptacle
9. Motor Space Heater as called for on the drawings

The Contractor is reminded that he must include a dedicated circuit breaker properly sized for all the 120-volt circuit's including those listed above.

L. Surge Suppressors and Surge Arresters: Provide hard-wired surge arrester to be connected to the load side of the main disconnect. The surge arrester shall be manufactured of high temperature thermoplastic and shall be suitable for use in indoor and outdoor applications. The arresters shall be suitable for use in Category B and C locations and shall be manufactured in accordance with UL. Surge suppressors and surge arresters shall be Square D Class 6676-Type SDSA or equal.

M. Phase Monitor Relays: Provide phase failure relays for the protection of motors. The phase monitor relays shall detect incoming phase abnormalities such as

phase loss, phase unbalance, phase reversal, and undervoltage on a 240 or 480 Volt 3 Phase 60 Hz system. The relays shall be manufactured in accordance with UL and shall be Square D Class 8430-Type MPS-V24 or equal.

N. Time Delay Relays: Time delay relay's as shown shall be on delay with calibrated time range dial's, adjustable as shown on the drawings. Timing shall be from .01 seconds to 10 min. The relays shall have 10 Amp contact rating, transient protected, and horsepower rated. The relays shall be manufactured in accordance with UL and shall be Square D Class 9050-Type JCK or equal.

O. Identification Labels: Furnish and install 1/2" high nameplates fabricated from white-letter, black-face MICARTA LAMICOID, engraving stock. The labels shall be attached securely with self-tapping stainless-steel screws use two per each nameplate. Engraved characters shall be block style with no characters smaller than 1/4" high. Nameplates shall be provided for each switch, indicator light, gauge, etc. In addition to the above, mount on the exterior panel door with stainless steel screws a nameplate identifying control panel, owner, and station no. Engraved characters on this nameplate shall be block style with no characters smaller than 1/2" high.

Buried conduit marking tape for marking path of buried conduits shall be a four (4") inch nominal width strip of polyethylene with highly visible, repetitive marking "BURIED CONDUIT", or similar language, along its length.

PART 3 – EXECUTION

3.01 RACEWAYS

A. Install the conduit system to provide the facility with the utmost degree of reliability and maintenance free operation. The conduit system shall have the appearance of having been installed by competent workmen. Kinked conduit, conduit inadequately supported or carelessly installed, do not give such reliability and maintenance free operation and will not be accepted.

B. Raceways shall be installed for all wiring runs except as otherwise indicated.

C. Conduit sizes, where not indicated, shall be N.E.C. code-sized to accommodate the number and diameter of wires to be pulled into the conduit. Unless otherwise indicated, 3/4" trade-size shall be minimum size conduit.

D. Unless otherwise indicated, conduit runs installed below-grade in earth shall be PVC. Use manufacturer's approved cement for joining couplings and adapters. Runs shall be installed so that tops of conduits are at least thirty-six (36") inches below finished grade. Support runs on plastic spacers and backfill to three (3") inches above topmost conduits with washed sand. Wash down all sand backfill with water so as to completely fill interstices and to compact sand. Complete

backfill to finished grade with selected soil that is free from clods, debris, rocks and the like. Pneumatically tamp backfill in six (6") inches to eight (8") inches below finished grade, install continuous run of "BURIED CABLE" marking taped.

E. Rigid metallic conduit runs shall have their couplings and connections made with screwed fittings and shall be made up wrench tight. Check all threaded conduit joints prior to wire pull.

F. All conduit runs shall be watertight over their lengths of run except where drain fittings are indicated. In which cases, install specified breather-drain fittings.

G. Empty conduits shall have pull-tape installed. Identify each terminus as to location of other end. Use blank plastic waterproof write-on label and write information on each label with waterproof ink. Cap exposed ends of empty conduit with plastic caps.

H. Conduit runs into boxes, cabinets, and enclosures shall be set in a neat manner. Vertical runs shall be set plumb. Conduits set cocked or out of plumb will not be acceptable.

I. Conduit entrances into equipment shall be carefully planned. Cutting away of enclosure structure, torching out sill or braces, and removal of enclosure structural members, will not be acceptable.

J. Use approved hole cutting tools for entrances into sheet metal enclosure. Use of cutting torch or incorrect tools will not be acceptable. Holes shall be cleanly cut and they shall be free from burrs, fagged edges, and torn metal.

K. All raceways shall be swabbed clean after installation. There shall be no debris left inside. All interior surfaces shall be smooth and free from burrs and defects that would injure wire insulation. All conduits shall be sealed after cable installation with electrical insulation putty.

3.02 RACEWAY SUPPORT

A. Below-grade conduits shall be supported with plastic saddles.

3.03 WIRING

A. Taps, splices, and connection in #8 AWG and larger wires shall be made with copper alloy bolted pressure connectors. Each such connector shall be insulated by means of applying insulation putty over sharp edges so as to present a smooth bonding surface. Next, apply at least four (4) layers, half-lapped each layer of EPR tape. Then, make final wrapping of at least three (3) layers, half-lapped each layer of electrical tape.

B. Control wiring connections to stud type and screw type terminals shall be made with ring-tongue type crimp connectors. Label each terminal jacket with wire marking label at each connection.

C. Each wire connection shall be made up tightly so that resistance of connection is as low as equivalent length of associated conductor resistance.

D. Phase label black pigmented power wires with color banding tape. Color of tape applies shall be that specified below.

CONDUCTOR	120/240V SYSTEMS	480V SYSTEMS
Phase A	Black	Purple
Phase B	Red	Brown
Phase C	Blue	Yellow
Neutral	White	Gray
Equipment Ground	Green	Green

E. Numbered labels shall be installed to identify circuit numbers from panel boards. Install labels on each wire in each panelboard, junction, and pullbox, and device connection.

F. All wiring shall be installed in raceways unless otherwise noted; however, no wire shall be drawn into a conduit until all work of a nature which may cause injury is completed. Do not exceed wire and cable manufacturer's recommended pulling tensions. A cable pulling compound shall be used as a lubricant and its composition shall not affect the conductor or its insulation.

3.04 GROUNDING

A. Each item of equipment shall be adequately and thoroughly grounded. Comply with Article 250 of N.E.C., except where higher standards of grounding have been specified.

B. Equipment grounding conductors (EGC) shall be installed where indicated. These wires shall be green colored in sizes #6 AWG and smaller and green banded in larger sizes.

C. EGC runs into equipment and shall be grounded to equipment bus where available, or to equipment ground lugs.

D. Where grounding type bushings are installed, bond EGC thereto and furthermore ground each bushing lug to equipment ground bus or ground lug, or ground rod.

E. In each motor terminal box, install equipment ground lug and connect EGC thereto.

F. In each floodlight pole, install ground connector to pole and bond to conduit bushing and to EGC in branch circuit.

3.05 SERVICES OF MANUFACTURER

A. The Contractor shall provide the services of an authorized factory-trained manufacturer's representative to adjust all Level Controls, Circuit Breakers, Starters, Overloads, Switches, etc. and access doors, operating handles for mechanical and/or electrical operation. The manufacturer's representative shall inspect the installed motors, starters panels etc. for anchoring, alignment, grounding and physical damage. The manufacturer's representative shall start-up the electrical and control system in the presence of the Engineer. Contractor shall submit the manufacturer's factory representative's certified report of satisfactory installation and startup to the Engineer.

B. Contractor shall megger each motor winding before energizing and start-up if insulation resistance is found to be low notify supplier for instructions. Contractor shall megger all cables to infinity using 600-volt megger. Installed cables with an unacceptable reading shall be replaced retested at no cost to owner. The Contractor shall record all voltages, full load amps for each motor supplied. All field testing shall be done in the presence of the Engineer, and the Engineer shall be provided a copy of all data recorded as part of this testing.

C. The Contractor shall provide the services of a factory-trained manufacturer's Representative to provide systems training for operations staff. The instruction time shall be 8 Hours in addition to the start-up time. The instructions shall include information on proper operations, maintenance, troubleshooting, warranty issues, and start-up. The Contractor shall submit the manufacturer's factory representative's certified report of satisfactory instruction, training and a signed copy of operations staff present to the Engineer.

END OF SECTION

REVISED
BID FOR UNIT PRICE CONTRACT

Place: Mission, Texas
Date: March 12, 2020

Proposal of _____ (hereinafter called "Bidder) * a corporation,

organized and existing under the laws of the State of _____, * a partnership, or an

individual doing business as _____.

To the **City of Mission** (hereinafter called "Owner")

Gentlemen:

The Bidder, in compliance with your invitation for bids RFB #20-179-03-12 for the construction of South Conway Lift Station, Sanitary Sewer & Water Line Improvements between US 83 and Military Rd, City of Mission, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials, and supplies, and to construct the project in accordance with the contract documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in written " Notice to Proceed" of the Owner and to fully complete the project within 300 calendar days thereafter as stipulated in the specifications. Bidder further agrees to pay as liquidated damages, the sum of $250.00 for each consecutive calendar day thereafter as hereinafter provided in Paragraph 41 of the General Conditions.

Bidder acknowledges receipt of the following addendum:

_____

_____

*Insert corporation, partnership or individual as applicable.

ENGINEER'S ESTIMATE OF QUANTITIES – APPROXIMATE ONLY

No.	Item	Quantity	Unit	Unit Price	Total Price
WATER IMPROVEMENTS:					
1.	12" PVC C900 DR18	10,133	LF	_____	_____
2.	12" Gate valve w/box	11	EA	_____	_____
3.	2" Flush valve w/threaded cap	1	EA	_____	_____
4.	12"x12"x8" Tapping tee & 8" valve	1	EA	_____	_____
5.	12" 90 degree elbow	2	EA	_____	_____
6.	12" 45 degree elbow	14	EA	_____	_____
7.	12" Bend	3	EA	_____	_____
8.	Valve markers	12	EA	_____	_____
9.	Air release valves	4	EA	_____	_____
10.	*Fire hydrant w/valve	25	EA	_____	_____
11.	20" Steel casing	50	LF	_____	_____

Total Water Improvements: **$**_____
***Actual location of fire hydrants to be determined during the construction phase.**

SANITARY SEWER IMPROVEMENTS:					
1.	15" PVC SDR26 (22'-24' cut)	4,999	LF	_____	_____
2.	15" PVC SDR26 (20'-22' cut)	1,912	LF	_____	_____
3.	Manhole (22'-24' cut)	19	EA	_____	_____
4.	Manhole (20'-22' cut)	5	EA	_____	_____

5. Single sanitary sewer service	20	EA	_____	_____
6. Trench excavation protection	6,911	LF	_____	_____
7. Bore 26" steel casing (22' depth)	226	LF	_____	_____

Total Sanitary Sewer Improvements **$**_____

SANITARY SEWER LIFT STATION & FORCE MAIN IMPROVEMENTS:

1. Lift station complete structure & site improvements	Lump Sum		_____	_____
2. 8" PVC SDR26 (0'-6' cut)	2,376	LF	_____	_____
3. Trench excavation protection	2,360	LF	_____	_____
4. 2" Air release valve	4	EA	_____	_____
5. 8" 45 degree elbow	18	EA	_____	_____
6. Bore 16" steel casing (15' depth)	50	LF	_____	_____
7. Bore 16" casing SDR26 (6' depth)	425	LF	_____	_____
8. Pavement repair 8' wide strip & Curb & gutter	425	LF	_____	_____

Total Sanitary Sewer Lift Station & Force Main Improvements: **$**_____

MISCELLANEOUS IMPROVEMENTS:

1. Demolition & disposal of brush, citrus trees, Buildings & irrigation structures	Lump Sum		_____	_____
2. **Dewatering	Lump Sum		_____	_____
3. Betterment Fund	Lump Sum		$50,000.00	$50,000.00

Total Miscellaneous Improvements: $_____

****Dewatering—Contractor to pay special attention to the geo technical report on dewatering.**

Total Improvements: $_____

_____

(Total in Words)

DEDUCTIVE ALTERNATE:

1. *Fire hydrant w/valve 25 EA _____ _____

Total Deductive Alternate: $_____

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 calendar days after the scheduled closing time for receiving bids.

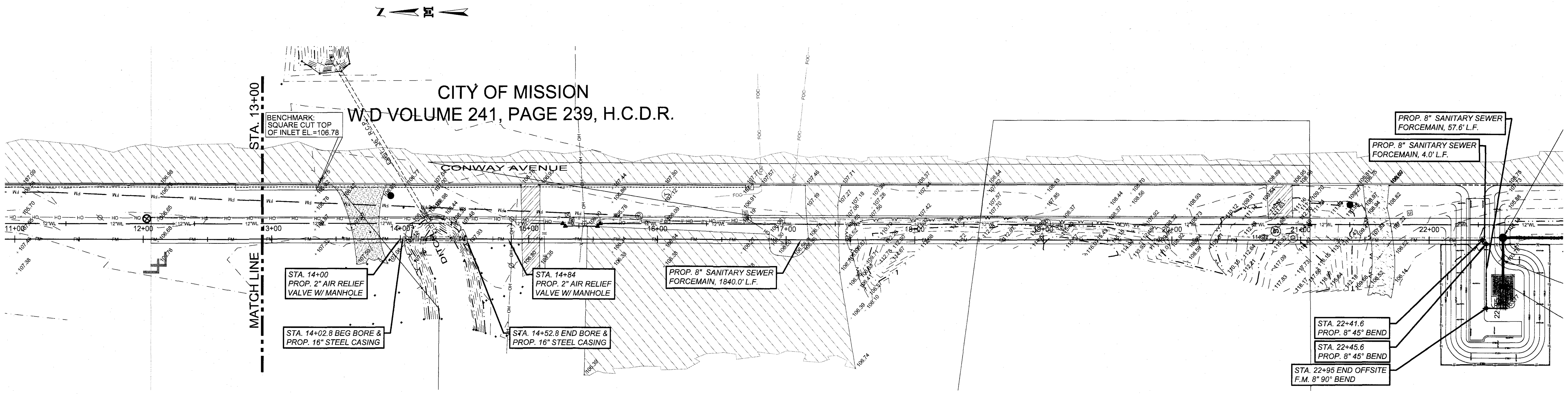
Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within 10 days and deliver a Surety Bond or Bonds as required by Paragraph 46 of the General Conditions. The Bid security attached in the sum _____ is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner cause thereby.

Respectfully submitted:

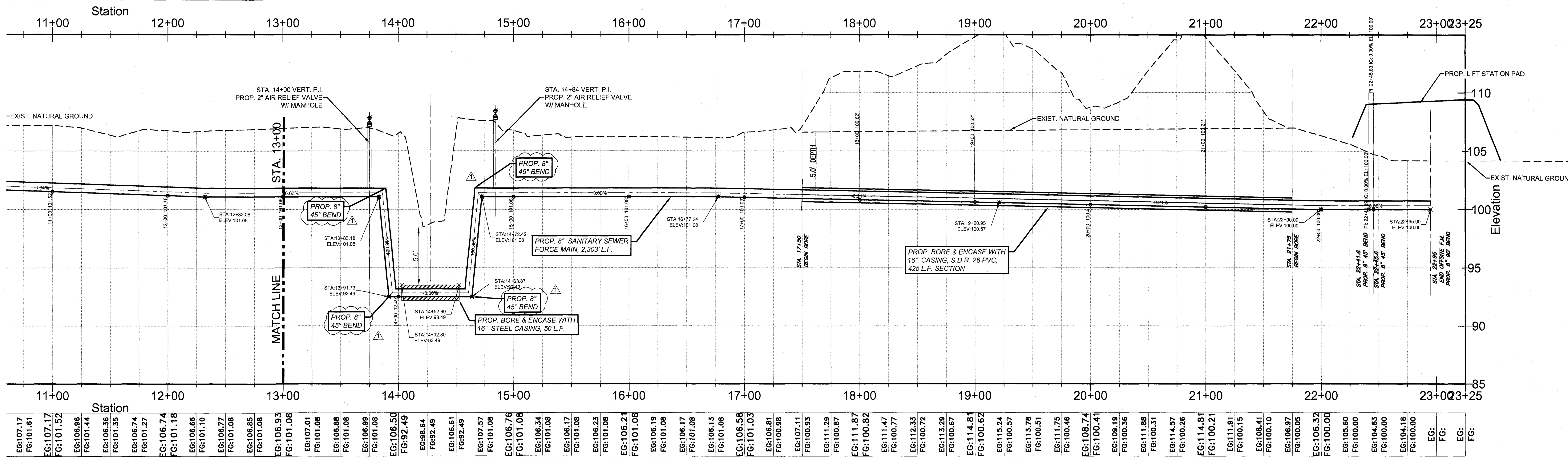
By: _____

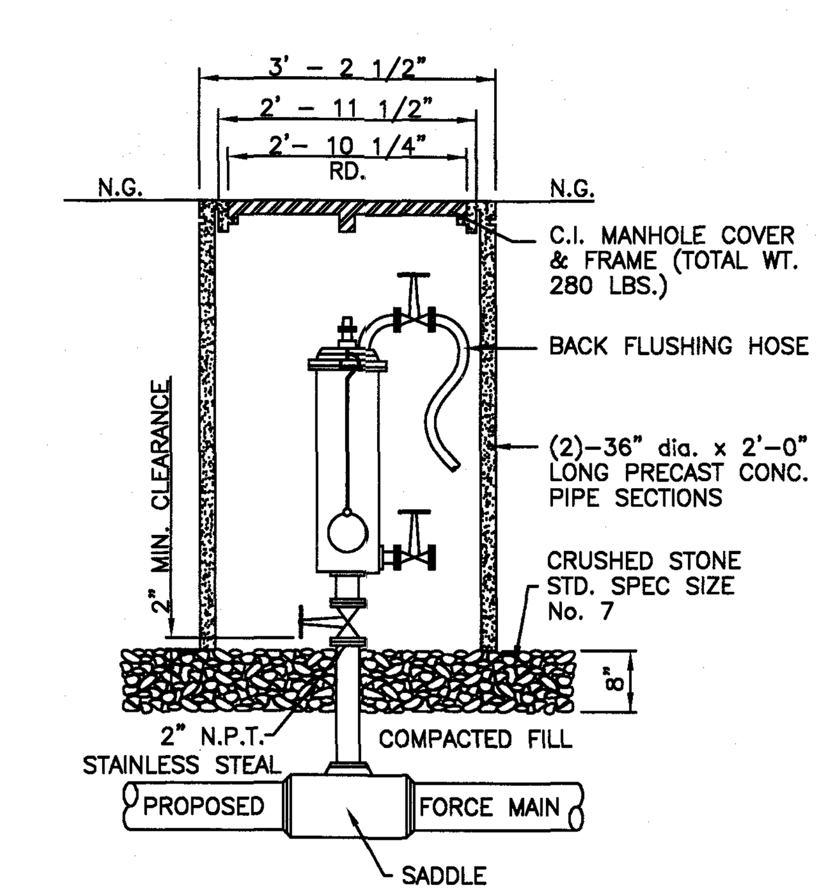
(SEAL-if bid us by a corporation)

_____
(Business Address & Zip Code)



PROPOSED 8" FORCE MAIN PROFILE





TYPICAL PIT INSTALLATION DETAIL
FOR SEWAGE AIR RELIEF VALVE

N.T.S.

JOB No. 19086.00

REVISION	DATE	BY
1. REVISED NOTE SIZE TO 8" BEND	3-10-2020	R.D.J.

MELDEN & HUNT INC.
CONSULTANTS • ENGINEERS • SURVEYORS
115 W. McINTYRE - EDINBURG, TX 78541
PH: (956) 381-0981 - FAX: (956) 381-1839
ESTABLISHED 1947 - www.meldenandhunt.com
TBPLS No. 10096900

ENG. TECH: R. DE JESUS
PROJECT ENG: MARIO A. REYNA
T-BOOK: , PG.
1. RELEASE DATE: 01/21/2020
2. RELEASE DATE: 02/19/2020
3. RELEASE DATE: 3/10/20
SCALE: H: 1" = 50' V: 1" = 5'

MELDEN & HUNT, INC.
TEXAS REGISTRATION F-1435
STATE OF TEXAS
MARIO A. REYNA
117368
LICENSED PROFESSIONAL ENGINEER
THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MARIO A. REYNA, P.E. 117368
3-1-20
ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE LAW

CITY OF MISSION
WA 15- SOUTH CONWAY
LIFT STATION
HIDALGO COUNTY TEXAS

PROP. 8" FORCE MAIN PLAN & PROFILE STA. 13+00 TO STA. 22+95

File Name: FM P&P

SHEET C10 OF 17

JOB No.
19086.00

REVISION	DATE	BY
REVISED CASING SIZE TO 20"x7/16"	3-10-2020	R.D.J.

MELDEN & HUNT INC.
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PH: 956-381-0981 • FAX: 956-381-1839
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MELDEN & HUNT, INC
TEXAS REGISTRATION F-1435
STATE OF TEXAS
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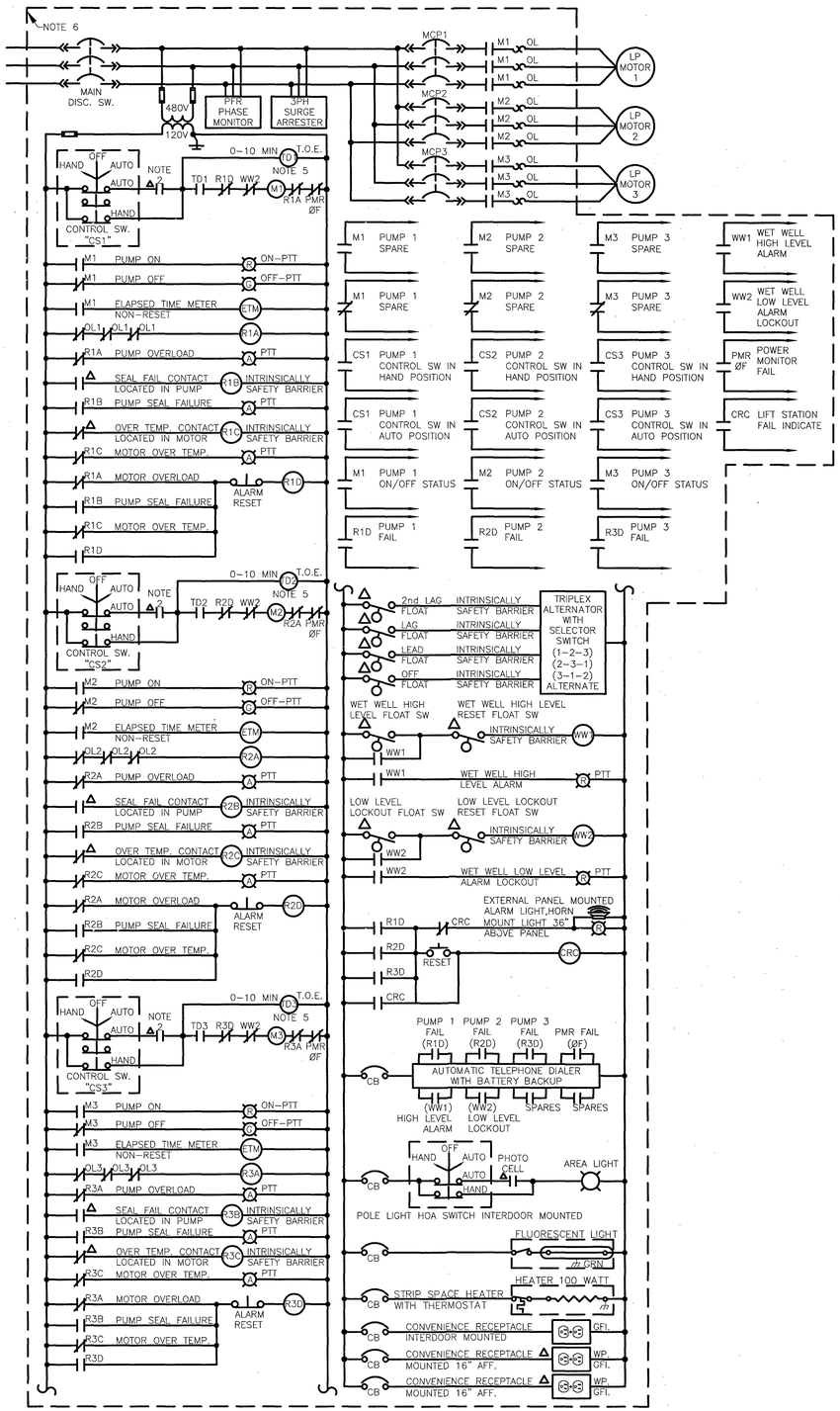
CITY OF MISSION
WA 15- SOUTH CONWAY
LIFT STATION
HIDALGO COUNTY TEXAS

PROP. 15" SANITARY SEWER PLAN
STA. 0+00 TO STA. 29+00

File Name: PROFILE

SHEET C6 OF 17

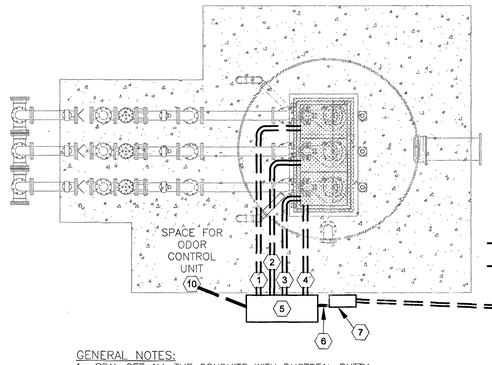
Y:\Municipal\Mission,City of\Sewer\Lift Stations\19086 - Conway Lift Station\Autocad files\9-SITE PLAN.dwg, SAN c6-7-8 profile, 3/10/2020 9:00:01 AM,



△ – DENOTES ITEM REMOTE FROM MOTOR CONTROLLER

NOTES:
1. STARTER'S ARE FULL VOLTAGE NON-REVERSING TYPE
2. AUTO START/STOP CONTACT FROM TRIPLEX (ALT) PUMP LEVEL CONTROLLER
3. ALL FLOAT CONTROLS, OVER/TEMP AND SEAL FAIL TO BE INTRINSICALLY SAFE
4. CONTRACTOR TO INSTALL ALL DEVICES REQ'D BY THE PUMP MANUFACTURER ECT. STATOR THERMAL SWITCHES IN SERIES TO MONITOR THE TEMPERATURE OF WINDINGS WHEN OPENED SHALL STOP THE MOTOR AND ACTIVATE AN ALARM. THE FLOAT LEAKAGE SENSOR (FLS) AND MINI CAS (CONTROL AND STATUS) MONITORING UNIT.
5. STAGGER TIME DELAY SETTING SUCH THAT ONLY ONE LIFT STATION PUMP WILL BE IN START SEQUENCE AT ONE TIME.
6. LIFT PUMP CONTROL PANEL NEMA 4X STAINLESS STEEL ENCL. DEAD FRONT PAD LOCKING HANDLES W/SUN SHIELDS, W/QUICK RELEASE LATCHES INNER DOOR AND BACK PANEL HEAT BARRIERS AND HEATER OVERSIZED FOR COOLING OF FULL VOLTAGE NON-REVERSING STARTERS FURNISHED BY EQUIPMENT VENDOR CONTRACTOR TO VERIFY WITH EQUIPMENT VENDOR ALL REQUIRED EQUIPMENT, LOCATIONS AND FURNISH ALL WIRING REQUIREMENTS.

LIFT STATION CONTROL PANEL



CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS OF ALL CONDUIT AND CABLE RUNS WITH THESE DRAWINGS, SPECIFICATIONS AND ALL OTHER ELECTRICAL DRAWINGS, AS WELL AS PANEL SCHEDULES, VENDOR DRAWINGS AND INSTRUCTIONS WITH ALL EQUIPMENT VENDORS/MANUFACTURERS, AND FURNISH AND INSTALL ALL REQUIRED WIRING ITEMS, ETCETERA FOR A COMPLETE OPERATING SYSTEM. NOT ALL CABLES AND CONDUITS MAY BE SHOWN. COORDINATE LOCATION OF EQUIPMENT WITH OWNER, ALL VENDORS MANUFACTURERS, ALL TRADES AND ALL OTHER ELECTRICAL DRAWINGS.

CONDUIT RUN UNDERGROUND OR CONCEALED IN WALLS OR SLAB

CONDUIT RUN EXPOSED

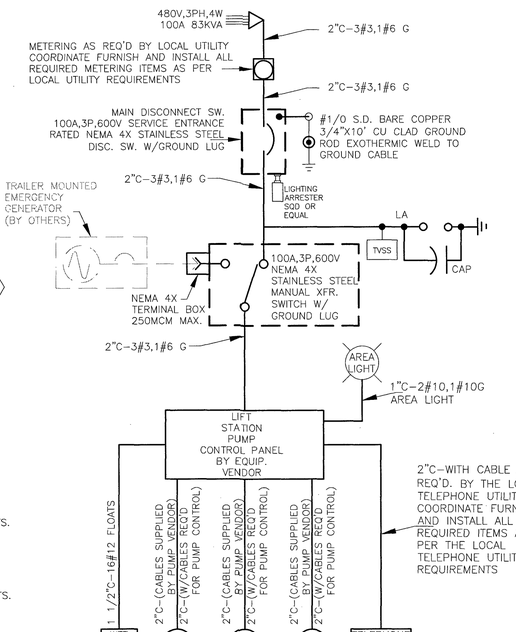
GENERAL NOTES:
1. SEAL OFF ALL THE CONDUITS WITH DUCTSEAL PUTTY
2. CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS OF ALL CONDUIT AND CABLE RUNS WITH THIS DRAWINGS AND ALL OTHER ELECTRICAL DRAWINGS, PANEL SCHEDULES AND VENDOR DRAWINGS AND INSTRUCTIONS WITH ALL EQUIPMENT VENDORS/MANUFACTURERS AND FURNISH AND INSTALL ALL REQUIRED ITEMS FOR A COMPLETE OPERATING SYSTEM. NOT ALL CABLES AND CONDUITS MAY BE SHOWN. COORDINATE LOCATION OF EQUIPMENT WITH OWNER ALL VENDORS/MANUFACTURERS AND ALL TRADES.

KEYED NOTES:

1. 2"C–LIFT PUMP 1 SIZE CONDUIT AS REQ'D (CABLES SUPPLIED BY PUMP VENDOR) SEE GENERAL NOTE 1.
   2"C–LIFT PUMP 1 SIZE CONDUIT AS REQ'D (W/CABLES REQ'D FOR PUMP CONTROL) SEE GENERAL NOTE 1.
2. 2"C–LIFT PUMP 2 SIZE CONDUIT AS REQ'D (CABLES SUPPLIED BY PUMP VENDOR) SEE GENERAL NOTE 1.
   2"C–LIFT PUMP 2 SIZE CONDUIT AS REQ'D (W/CABLES REQ'D FOR PUMP CONTROL) SEE GENERAL NOTE 1.
3. 2"C–LIFT PUMP 3 SIZE CONDUIT AS REQ'D (CABLES SUPPLIED BY PUMP VENDOR) SEE GENERAL NOTE 1.
   2"C–LIFT PUMP 3 SIZE CONDUIT AS REQ'D (W/CABLES REQ'D FOR PUMP CONTROL) SEE GENERAL NOTE 1.
4. 1 1/2"C–16#12 (FLOAT SWITCHES TO PUMP CONTROL PANEL) SEE GENERAL NOTE 1,2 USE STAINLESS STEEL FLOAT SWITCH MOUNTING BRACKET.
5. LIFT PUMP CONTROL PANEL NEMA 4X STAINLESS STEEL ENCL. DEAD FRONT PAD LOCKING HANDLES W/SUN SHIELDS, W/QUICK RELEASE LATCHES INNER DOOR AND BACK PANEL HEAT BARRIERS AND HEATER OVERSIZED FOR COOLING OF FULL VOLTAGE NON–REVERSING STARTERS FURNISHED BY EQUIPMENT VENDOR CONTRACTOR TO VERIFY WITH EQUIPMENT VENDOR ALL REQUIRED EQUIPMENT, LOCATIONS AND FURNISH ALL WIRING REQUIREMENTS.
6. 2"C–3#3,1#6 G (FROM MANUAL TRANSFER SWITCH TO LIFT STATION PUMP CONTROL PANEL)
7. MANUAL TRANSFER SWITCH 100A 600V NEMA 4X STAINLESS STEEL ENCL. WITH GROUND LUG.
8. 2"C–3#3,1#6 G (FROM MANUAL TRANSFER SWITCH TO MAIN DISCONNECT SW. AT SERVICE POLE)
9. APPROXIMATE LOCATION OF THE (PROPOSED LIFT STATION ELECTRICAL SERVICE POLE) COORDINATE EXACT LOCATION WITH LOCAL UTILITY REQUIREMENTS.
10. 1"C–2#10,1#10 G (FROM PUMP CONTROL PANEL TO ODOR CONTROL WP/GFI DUPLEX OUTLET) SEE GENERAL NOTE 1,2 MOUNT 16" AFF.
    1"C–2#10,1#10 G (FROM PUMP CONTROL PANEL TO ODOR CONTROL WP/GFI DUPLEX OUTLET) SEE GENERAL NOTE 1,2 MOUNT 16" AFF.

PROPOSED ELECTRICAL SITE PLAN

SCALE: 1/4" = 1'–0"



PROPOSED ONE LINE DIAGRAM

SCALE: NTS

INSTALL UNDER THIS CONTRACT

	TB-1	
(CS1) LIFT PUMP NO.1 CONTROL SW IN HAND	1	
(CS1) LIFT PUMP NO.1 CONTROL SW IN AUTO	2	
(M1) LIFT PUMP NO.1 ON/OFF STATUS	3	
(R1D) LIFT PUMP NO.1 MOTOR FAIL	4	
(CS2) LIFT PUMP NO.2 CONTROL SW IN HAND	5	
(CS2) LIFT PUMP NO.2 CONTROL SW IN AUTO	6	
(M2) LIFT PUMP NO.2 ON/OFF STATUS	7	
(R2D) LIFT PUMP NO.2 MOTOR FAIL	8	
(CS3) LIFT PUMP NO.3 CONTROL SW IN HAND	9	
(CS3) LIFT PUMP NO.3 CONTROL SW IN AUTO	10	
(M3) LIFT PUMP NO.3 ON/OFF STATUS	11	
(R3D) LIFT PUMP NO.3 MOTOR FAIL	12	
(WW1) WET WELL HIGH LEVEL ALARM	13	
(WW2) WET WELL LOW LEVEL ALARM LOCKOUT	14	
(PMR) ØF POWER FAIL	15	
(CRC) LIFT STATION FAIL ALARM	16	
SPARE	17	
SPARE	18	
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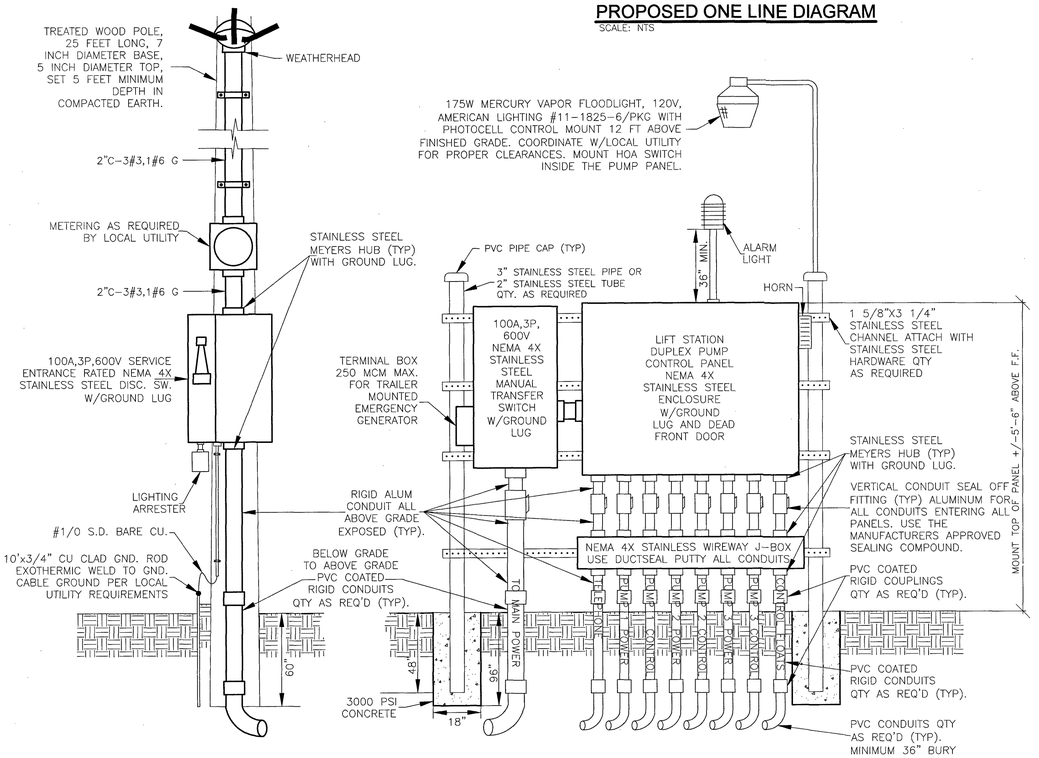
TYPICAL – "FUTURE RTU SCADA" (REMOTE STATUS MONITORING) CONNECTIONS BY OTHERS

"TB-1" CONNECTIONS

ADJUST ALL FLOAT SETTINGS ACCORDING TO ACTUAL FIELD CONDITIONS COORDINATE THE MINIMUM PUMP SUBMERGENCE REQUIREMENTS WITH THE PUMP EQUIPMENT SUPPLIER

FS–8 HIGH ALARM TO CONTROLS.....EL.85.00
FS–7 HIGH ALARM RESET TO CONTROLS.....EL.84.00
FS–6 2nd LAG PUMP NO.3 ON TO (ALT).....EL.83.00
FS–5 LAG PUMP NO.2 ON TO (ALT).....EL.82.00
FS–4 LEAD PUMP NO1 ON TO (ALT).....EL.81.00
FS–3 PUMP OFF TO (ALT).....EL.80.00
FS–2 LOW LEVEL LOCKOUT RESET TO CONTROLS.....EL.77.70
FS–1 LOW LEVEL LOCKOUT TO CONTROLS.....EL.77.20

PUMP CONTROL FLOAT ELEVATIONS



PROPOSED SERVICE POLE, SWITCH RACK DETAIL

SCALE: NTS

JOB No. 19086.00

REVISION	DATE	BY

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ENG. TECH: L.M.
PROJECT ENG: MARIO A.REYNA
T-BOOK: PG.
1. RELEASE DATE: 01/21/2020
2. RELEASE DATE: 02/19/2020
3. RELEASE DATE:
SCALE: AS SHOWN

MELDEN & HUNT, INC.
TEXAS REGISTRATION F-1435

STATE OF TEXAS
MARIO A. REYNA
117368
LICENSED PROFESSIONAL ENGINEER

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CITY OF MISSION
WA 15- SOUTH CONWAY LIFT STATION
HIDALGO COUNTY TEXAS

ELECTRICAL SITE PLAN, CONTROL PANEL SCHEMATIC, SWITCH RACK DETAIL, ONE LINE DIAGRAM,

E1 OF 1

File Name: ELECTRICAL PLAN

SHEET C16 OF 17