

APPENDIX A – TECHNICAL SPECIFICATIONS

MAIN STREET FORCE MAIN – HORIZONTAL DIRECTIONAL DRILL (HDD)

901 SCOPE OF WORK

The scope of work specified herein includes the installation of approximately 80 LF of 16- inch Restrained Joint PVC wastewater force main and 364 LF of 18-inch HDPE wastewater force main (via horizontal directional drill) along with associated fittings and appurtenances, along Main Street under the CSX railroad to connect the new 16” force main sections.

All Work shall be done in accordance with the January 2018 Edition of JEA Water and Wastewater Standards Manual. The following is a link to the JEA Water and Wastewater Standards Manual:

https://www.jea.com/Engineering_and_Construction/Water_and_Wastewater_Standards/

The following scope of work will be defined as the base bid for this contract and shall include, but is not limited to, the following:

- Installation of approximately 100 LF of 16-inch RJ PVC force main (via open cut) and 364 LF of 18-inch HDPE force main (via horizontal directional drill), within FDOT Right-of-Way (ROW) and CSX ROW (CSX).
- Mobilization/demobilization, general requirements, and insurance
- Installation of Maintenance of Traffic (MOT) plans, devices, and measures to construct the project
- Meet additional requirements as outlined in the CSX General Service Agreement, including Fractional Mitigation Plan, Bore Plan and Rail Road Inspection services. Note, allow for 30 days CSX approval and coordination for these items.
- Installation/maintenance of erosion & sediment control devices/measures (E&SC) & other aspects of the stormwater pollution prevention plan (SWPPP)
- Site work
- Clearing, grading, seeding, and sodding
- Restoration of FDOT Right-of-Way
- Installation of isolation valves and air/vacuum valves, and appurtenances as per the construction drawings
- Installation of connections to existing force mains
- Performance of all testing and swabbing required during construction
- Performance of all permits necessary to complete the work
- Performance of all site restoration to preconstruction (or better) condition

902 GENERAL CONDITIONS

The General Conditions Lump Sum price shown on the Bid Form shall be compensation to complete the Work as required in this contract (except for items listed separately on the bid

form), including but not limited to, Payment Bond, Performance Bond, Safety, Quality Control, Preparation of Daily Reports, Maintenance of Traffic, Attendance at Meetings, Scheduling, Testing (if not included elsewhere). Payment of the General Conditions Lump Sum Price shall be based upon the percentage of Work completed: however, if the Company executed bond(s) accompany the first pay request then the amount paid will be deducted from the associated subtotal. Also, the Company shall include the cost for performing survey of the existing roadway horizontal alignment (prior to initiating any construction or MOT) in their initial General Conditions payment. In the event that changes to the work are required that are covered under the Supplemental Work Authorization account, the General Conditions Lump Sum Price will not be increased unless the total value of the SWA exceeds the original SWA account provided in the original contract bid.

903 BID DRAWINGS

Titled “Construction Drawings for Main Street Force Main – Horizontal Directional Drill.” as prepared by Constantine Engineering Inc. are attached.

904 GEOTECHNICAL REPORT

Titled “Geotechnical Exploration and Evaluation Report; JEA Main Street from Sara Drive to Noah Road Force Main Replacement; Jacksonville, FL” prepared by CSI Geo, Inc., dated October 11, 2017 is attached. The Company should review the geotechnical boring logs completed for this project.

905 PIPE UNIT COST

Unit costs for pipes shall include all labor, equipment, materials, excavation, MOT, dewatering, and shoring as necessary to install, test and the complete restoration of the area upon completion. The price shall also include CSX rail elevation certification from a professional land surveyor. Elevation certification will be required before, during and after installation of the HDD.

906 NOISE

The Company shall comply with the City of Jacksonville (COJ) noise ordinance. The Company is responsible for any deviations from the noise ordinance that will require a noise variance. The Company is responsible for obtaining the noise variance and all applicable fees in the event that one is required.

907 TIE-IN CONNECTIONS SEQUENCING CONSTRAINTS

The following tie-in connections sequencing constraints are to emphasize critical tasks related to connections to existing systems for the work in this Contract. It is not a complete list of all work to be completed.

- All connections and ties to the existing system and transfer of services shall be performed by the Company under JEA’s direction. The Company shall not operate any valves in the existing system.
- Connection to the existing system may depend on the closure of certain valves. The existing valves may not be operable or may not seal properly. The Company shall coordinate with JEA in advance of the connections to determine the condition of existing valves.
- JEA reserves the right to postpone connections to existing utilities due to operational

and/or weather related concerns.

- Work shall proceed continuously to complete connections in the minimum time. Minimize shutdown times by thorough advanced planning. Have required equipment, materials, and labor on hand at time of shutdown.
- Interruption of service is not allowed during peak flow periods or holidays.
- Company shall anticipate performing the Work during daylight hours starting after 7:00 am and within an 8-hour maximum shutdown time.

908 COMPANY'S STAGING, STORAGE AND STOCKPILE AREA

No additional staging, storage, and stockpile will be made available by the JEA along the project site.. The location will be agreed to upon and discussed at the pre- construction meeting.

909 REMOVAL/ABANDONMENT OF FORCE MAINS

Company shall refer to the JEA General Conditions for the removal and abandonment of all force mains. Company shall take every precaution to avoid contamination of all water sources adjacent to the scope of this project. The Company shall exercise care to prevent spills onto the ground surface and shall immediately contain and clean up any spills at no extra cost to the Owner. The Company shall properly dispose of all waste and wastewater arising from grouting operations. Under no circumstance is grout to be discharged into water bodies.

910 PERMITS AND PLANS APPROVALS

JEA has applied for the following permits for the project:

- FDEP Permit to Construct a Domestic Wastewater Collection/Transmission System
- CSX Utility Railroad Crossing Permit
- FDOT Utility Crossing Permit

Prior to commencing Work the Company is responsible for obtaining the following permits, including but not limited to:

- CSX HDD Permit Forms
- FDEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities (CGP), DEP Form 62-621.300(4)(b) (if applicable)
- FDOT General Use Permit (for MOT signage utilizing FDOT right-of-way)
- SJRWMD Notice to District of Dewatering Activity – Form 40C-2-900-12 (if applicable)
- SJRWMD Individual Consumptive Use Permit if unable to qualify for general permit under Rule 40C-2.042(9)

All costs associated with obtaining such permits shall not be paid for separately but shall be included in the cost of the associated item of work. The Company shall comply with all conditions of permits issued for the Work, either directly or indirectly, issued by federal, state, or local governmental agencies, which are hereby incorporated as part of these Contract Documents.

911 DEWATERING

If the Company encounters groundwater, the Company shall be responsible for utilizing a dewatering system(s) to remove water from the excavations. Prior to beginning any dewatering activities, the Company shall comply with all requirements listed in Florida Department of Environmental Protection (FDEP) Dewatering Regulations.

Additionally, prior to any dewatering, the Company shall apply for a St. Johns River Water Management District (SJRWMD) Generic Permit for Short Term Dewatering, and comply with all SJRWMD requirements.

If the above requirements are not followed, the Company shall be held liable for any fines and/or violations incurred by JEA.

912 PERMIT COORDINATION MEETINGS

Company shall be responsible for being thoroughly familiar with all permit requirements prior to mobilizing and starting work associated with a particular permit. If a permit requires a notification or meeting with the issuing agency prior to starting work, Company shall be responsible for arranging said meeting and informing the JEA Representative. The following shall attend, but not limited to, the Company's Project Manager, Company's Site Superintendent, Permitting Agency Representative, JEA Project Manager and JEA Inspector.

913 CONNECTIONS TO EXISTING WATER AND SEWER UTILITIES

Company shall verify size and type of existing pipe at each connection prior to ordering materials for connections. All costs associated with connections to existing water and sewer utilities shall not be paid for separately but shall be included in the cost of the associated connection fitting, restraints and sleeves as shown in the plans or as approved by JEA.

914 GRASSING/SODDING

All disturbed areas shall be restored by resodding (if grass was established pre-construction) or seeding and mulching in accordance with Section 441 of the JEA Water and Wastewater Standards Manual, titled, Grassing.

915 LANDSCAPING

The Company shall be responsible for protection and preservation of all trees, palms, shrubs, irrigation systems, landscaping, signs, and etc. along the route of the proposed work including hand digging, removal and storage of such and subsequent replacement to the fullest extent possible of the pre-existing condition. No trees shall be removed in the FDOT Right-of-Way unless designated for relocation on the construction drawings. All costs associated with such

shall not be paid for separately but shall be included in the cost of the associated item of work shown on the Bid Form.

916 SWALE AND DITCH CONSTRUCTION / REGRADING

The Company shall re-grade all existing swales and ditches as necessary to restore the swales and ditches to their original (or better) condition. No separate payment shall be made for re-grading or construction of new drainage ditches as required for restoration, but shall be included in the cost of the associated item of work shown on the Bid Form.

917 DUST CONTROL

The Company shall utilize a water spray truck to mitigate dusty conditions when roadways are unpaved and construction areas have a lack of vegetative cover.

918 EARTHWORK

It shall be the sole responsibility of the Company to evaluate the geotechnical findings and recommendations along with the construction drawings to determine the quantity of soil to be managed or removed/disposed and replaced in order to meet the requirements of the Contract Documents. No separate payment shall be made for stockpiling, managing, mixing, and/or removal, disposal, importation and placement of A-3 sand required for backfill and/or over-excavation (bedding) material for the pipeline(s) and structures, but all costs shall be merged with the associated item of work shown in the Bid Form. Excess and/or unsuitable material shall become the property of the Company and shall be disposed of outside of the right-of-way.

919 UPDATED SURVEYING

In addition to the Surveying requirements set forth elsewhere in this solicitation, the Company shall be responsible for staking the project stationing and/or right-of-way boundaries. The survey datum used for this project is NAVD 1988. Staking shall be maintained throughout construction, including resurveying and restaking if the stakes are damaged or removed. All surveying shall be performed by a Professional Surveyor and Mapper (PSM) licensed in the State of Florida.

920 FORCE MAIN PROFILE ELEVATIONS

The force main profile shown on the contract drawings indicate the station and elevation for the air/vacuum valves (ARV). The ARV must be located at a high point. To ensure this requirement is met, the Company shall take station and elevation readings of top of force main pipe at 100 foot intervals, and shall include additional elevation readings as necessary to capture all high points should any occur between the stated interval. The data collected shall be taken during the progression of the pipeline installation. Once the stations and elevations are collected, submit to the JEA Representative prior to installing the ARV. The JEA Engineer will review the elevations to determine if the station (location) for the ARV needs to be adjusted from that shown on the force main (FM) profile. If the Company installs the pipeline such that additional high points are created on the pipeline profile beyond that shown on the contract drawings, the company shall be solely responsible for furnishing and installing additional ARV/manholes at each of these high points. Elevations should be referenced to the survey benchmark.

921 EXISTING UTILITIES

Known surface and subsurface utilities are shown or noted on the drawings as accurately available information will permit. The JEA does not guarantee the information shown or noted or that utilities other than those indicated (on the Drawings) do not exist. It is the responsibility of the Company to notify each of the utilities at least (15) fifteen working days prior to construction and request that the location of their respective utility or material be located and staked in the field. Should the company encounter unidentified utility, work in the immediate area shall promptly cease and the JEA representative shall be advised. The JEA shall investigate the condition and propose remedial action. The Company is reminded of the laws of Florida requiring notification of Gas Company, at least four (4) working days in advanced of any digging operation. The Company shall call the Sunshine State One Call of Florida (811) to request location of all facilities owned by utilities that participate in the locate program. Failure by the company to contact Sunshine One Call of Florida prior to digging shall obligate the company for damages to participating utility company and associated repair cost.

In order to reduce the disruption and cost of utility damages occurring in the FDOT and CSX ROW the Company shall prevent damages to existing utilities caused by its work through field verification of the location of existing utilities. In the case of open excavation, verification may be performed during the Company's work.

Company shall verify the location of existing utilities as needed to avoid contact. Existing utilities shall be exposed using detection equipment or other acceptable means. Such methods may include but shall not be limited to "soft dig" equipment and ground penetrating radar (GPR). The excavator shall be held liable for damages caused to the city's infrastructure and the existing facilities of other utility companies.

922 COORDINATION OF CONSTRUCTION WITH EXISTING UTILITIES

Company shall verify size and type of existing pipe at each connection prior to ordering materials for connections. All costs associated with connections to existing water and sewer utilities shall not be paid for separately, but shall be included in the cost of the associated line items shown on the Bid Form.

The Company shall establish liaison with and coordinate work with (including; but, not limited to) JEA, AT&T, TECO/Peoples Gas, and Comcast to prevent interference with overhead and buried electrical, telephone, and television cables. AT&T, TECO/Peoples Gas, Comcast and others will need time to relocate their facilities.

The Company shall at all times conduct his operation so as to interfere as little as possible with the existing utilities. The Company shall develop a program in cooperation with JEA and interested representatives of Utilities and City agencies, which shall provide for the construction of, and putting into service, the new work in the most orderly manner possible. This program shall be adhered to, except as deviations there from are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes and structures shall be planned so as not to interfere with the operation of the existing utility.

923 UTILITY POLE HOLDING / SUSPENDING

Holding or suspending of utility poles including power poles and telephone poles shall be performed as needed, and when trenching or excavating is within a horizontal distance from the pole that is less than the depth of the trenching or excavation. Work shall include, but not limited to, furnishing of all material, labor, supervision, tools, and equipment as required to hold/suspend utility poles. Company shall review the project and notify the JEA Project Manager of all anticipated holds/suspends within ten (10) days following the notice to proceed. JEA will be responsible for the coordination and provision of utility pole holds/suspends. Notice, giving the exact date and time, for each hold/suspend, shall be provided by the Company in writing to the JEA Project Manager at least two weeks in advance of each hold/suspend. No separate pay item will be made to the Company separately, but shall be included in the cost of the associated items in the Bid.

924 HORIZONTAL DIRECTION DRILLING SUPPLEMENT FOR JEA SECTION 755 OF THE JEA WATER AND WASTEWATER STANDARDS MANUAL, TITLED, HORIZONTAL DIRECTIONAL DRILLING (LARGE DIAMETER PIPE GREATER THAN 12 INCHES) AND SECTION 429 OF THE JEA WATER AND WASTEWATER STANDARDS MANUAL, TITLED, WASTEWATER FORCE MAINS

All pipe greater than 12-inch diameter installed by the Horizontal Directional Drilling method shall be in conformance to JEA Technical Specification Section 755 – Horizontal Directional Drilling and supplemental requirements below. In case of contradictory information, the supplemental requirements take precedence over Section 755 and Section 429. The Measurement and Payment for this item shall be in accordance with JEA's Water and Sewer Standard as specified in Section 801.XXIV.

- Materials: High Density Polyethylene (HDPE) pipe shall meet the requirements of Section 755 with the additional requirement that the material used to manufacture the pipe shall be PE4710 high density polyethylene meeting cell classification 345464C per ASTM D3350, and the HDPE pipe shall conform to AWWA C906, DR-11, Ductile Iron Pipe (DIP) size and NSF 61 Standard.
- Equipment: Pipe rollers are required for HDPE pipe support. Pipe shall not be dragged on the ground.
- Pilot Hole Elevation: The pilot hole tolerance is +/- 5 feet of the path shown on the Drawings.
- Pullback: Buoyancy control measures are required for pullback. HDPE pipe shall be welded/fused together in one length and pulled back without stopping work.
- HDPE Pipe Testing: Prior to pullback, the HDPE pipe shall be pressure tested in accordance with JEA Section 755. After pullback, the HDPE pipe shall be again pressure tested in accordance with JEA Section 755.
- HDD operations shall comply with the COJ Noise Ordinance.

925 VALVE AND LOCATE WIRE BOX IDENTIFICATION MARKERS

The Company shall furnish and install fiberglass identification markers at all gate valve and locate wire box locations as directed by the JEA Representative. All costs associated with this work shall be included in the associated line item in the Bid Document.

926 ROADWAY RESTORATION

Company shall perform survey of existing roadway horizontal alignment and vertical grade and of the existing structures and appurtenances for the Work area prior to initiating any construction. No separate payment shall be made, but all costs shall be included in the lump sum cost of the General Conditions line items. Intent is to restore existing roadway, structures and appurtenances to existing alignment, width, and grade to match existing elevations after construction is performed.

Damage to existing features, including but not limited to asphalt, sidewalks, curb and gutter, drives, fencing, signs, and lights, will be replaced at the Company's expense unless otherwise authorized by JEA.

Damage to existing granite curb will be replaced with the same type and material at the Company's expense.

927 TRAFFIC SIGNAGE

Costs incurred by the Company to provide new signage and pavement markers, or remove and replace existing signage as necessary to accomplish the work shall not be paid for separately but shall be merged with the cost of the associated item of work. Damaged signage shall be replaced with new signage. All signage and pavement markers shall be in accordance with the drawings and COJ and FDOT requirements.

928 UPDATED AS BUILTS

Upon submission of each payment application, Company shall furnish to the JEA Engineer a photocopy "redline" set of drawings identifying those field changes made to the Work to date, along with a photocopy set of the associated field notes. Revisions and recording of information on the photocopy set of drawings shall be done in scale in red ink clearly and accurately identifying those changes in the Work by a competent drafter. All "As-Built" information shall be recorded and kept current during the progress of the Work. The JEA Engineer may review and comment on the drawings which shall be incorporated into the next month's as-built submittal. Failure to incorporate changes the following month may result in denial of pay application request. These requirements only supplement the requirements of the General Conditions.

When the payment of application submitted includes associated items of final restoration for a project, or a portion of the project thereof, then the associated final as-builts shall be submitted as a "redline" marked photocopy set of drawings for that pay period. The JEA Engineer may review and comment on the drawings with the view toward final as-built submittal. The subsequent month submittal made with the payment application shall incorporate a photocopy set of CADD drawing final as-builts. The JEA Engineer shall review and comment on the photocopy set of CADD drawings which shall be incorporated into the final as-built submittal. These requirements only supplement the requirements of the General Conditions.

929 QUALITY CONTROL AND QUALITY ASSURANCE

The Company shall provide Quality Control to ensure the Work is performed in accordance with the Contract. Quality Control shall be appropriate for the nature of the Work, and shall be conducted in a manner consistent with sound quality management and industrial engineering principles. The Company shall have only personnel trained in Quality Control techniques and experienced with the nature of the Work perform the Quality Control function.

JEA may perform Quality Assurance activities. Such activities whether performed or not, do not in any way limit or reduce the Company's requirements. JEA may become aware of quality related problems during its performance of Quality Assurance, but has no obligation to notify the Company of its findings. The Company shall provide access to all areas of Work, including the Company's facilities, for JEA Quality Assurance personnel and JEA Representatives. JEA will conduct Quality Assurance activities so as not to excessively interfere with the Work, however, where JEA Quality Assurance personnel request specific actions of the Company, the Company shall comply with the request and agrees that such compliance is included as part of its Contract Price.

930 REPORTING

The Company shall provide daily reports and other reports as defined in the Contract Documents.

Where the reporting frequency is daily, reports shall be submitted by noon of the following workday. Where the reporting frequency is weekly, reports are due by Monday at noon, covering the prior workweek. Where Monday is a Holiday, the reports are due at noon on the next workday. Where reports are due monthly, reports are due by noon on the first business day of each month. Sample forms for reports may be included in the Contract Documents. Where they are included they are to be used. Where they are not included, the Company shall provide a sample of its proposed report format for each report to the Contract Administrator at least one-week prior to its initial due date. The JEA Engineer will review and either approve or reject use of the report. Where proposed report is rejected, Company shall resubmit revised report formats, until JEA Engineer approves format. Reporting cycle shall begin upon PO date, or, if used, date of Notice to Proceed.

931 JEA COMPANY / SUBCONTRACTOR SAFETY REQUIREMENTS

Company and Subcontractors must be prequalified under JEA's safety prequalification program. Bids from Companies not prequalified under the safety program will not be opened. Subcontractors do not need to be safety prequalified at time of bid opening, but must be prequalified before they step on the jobsite. To inquire as to status of safety prequalification, contact Jerry Fulop, JEA, 21 W. Church Street, Jacksonville, FL 32202, (904) 665-5810, e-mail: fuloje@jea.com

Company agrees to abide by all JEA's Safety Rules and Regulations in accordance with JEA Company Safety Requirement. In addition, ALL Company employees will be required to attend and successfully complete Company's orientation and supervisor's training at Company's expense prior to the start of any work activities. This is a condition of employment for Company and Subcontractors who perform work for JEA. There will be at least four (4) categories of training mandated. 1) Orientation, 2) Supervisor, 3) Competent Person, and 4) Certified Flagger.

ORIENTATION - Required one day training class for ALL personnel working at JEA's sites. Acceptable training will be EITHER attendance at an OSHA 10 hour class in the last two years (will require an OSHA issued card for proof) or attend the NCCER (National Center for Construction Education and Research) 8 hour Orientation. Company personnel utilizing the OSHA 10 Hour class must also attend the JEA 2-Hour Operation specific training. This training must be completed prior to starting work on a JEA job site.

SUPERVISOR - Orientation and the JEA Safety Leadership Development (SLD) Class. This requirement is for ALL employees paid as a foreman, general foreman, superintendent or any employee that will direct or may be expected to direct work.

CERTIFIED FLAGGER – All Company's performing any construction to or on City of Jacksonville, or State of Florida streets and highways shall provide certified flaggers to direct traffic in accordance with the approved MOT of the project.

NOTE: OSHA ten (10) hour classes are available from the following: Trained and Certified OSHA Instructors, Consultants, Safety Councils, etc. Other training mandated by JEA has been developed and approved by the NCCER. This training will be available from Certified Master Instructors, JEA, Northeast Florida Safety Council or other approved sources and will be tracked in the form of an individual transcript for each employee by NCCER.

Company may request exemption for specialty work based on task to be performed, hazard involved, and duration of work.