



CITY OF HOUSTON

INVITATION TO BID

Issued: **March 14, 2014**

Bid Opening:

Sealed bids, in duplicate, will be received by the City Secretary of the City of Houston, in the City Hall Annex, Public Level, 900 Bagby, Houston, Texas 77002 until **10:30 A.M. Thursday, April 17, 2014**, and all bids will be opened and publicly read in the City Council Chamber, City Hall Annex, Public Level, 900 Bagby at 11:00 A.M. on that date for the purchase of:

FURNISH AND INSTALL A VARIABLE FREQUENCY DRIVE AND ASSOCIATED EQUIPMENT FOR THE PUBLIC WORKS AND ENGINEERING DEPARTMENT

Bid No. S19-C24912

NIGP Codes: 285-64

Buyer:

Questions regarding this solicitation should be addressed to Roy Korthals, Procurement Specialist, at **832-393-8734** or e-mail to **roy.korthals@houstontx.gov**.

Electronic Bidding:

In order to submit a bid for the items associated with this procurement, you must fill in the pricing information on the "PLACE BID" page.

Prebid Conference:

A Pre-Bid Conference will be held for all Prospective Bidders in the Strategic Purchasing Division, Concourse Level (Basement), Conference Room #2, City Hall, 901 Bagby, at **10:00 a.m. on Wednesday, April 2, 2014. The site visits will be scheduled at the pre-bid conference.**

All Prospective Bidders are urged to be present. It is the bidder's responsibility to ensure that they have secured and thoroughly reviewed all aspects of the solicitation documents prior to the Pre-Bid Conference. Any revisions to be incorporated into this solicitation document arising from discussions before, during and subsequent to the Pre-Bid Conference will be confirmed in writing by Letter(s) of Clarification prior to the bid due date. Verbal responses will not otherwise alter the specifications, terms and conditions as stated herein.

Bidding forms, specifications, and all necessary information should be downloaded from the Internet at www.houstontx.gov/purchasing/index.html. By registering and downloading this solicitation document, all updates to this solicitation document will be automatically forwarded via e-mail to any registered bidders. This information may also be obtained from the Supplier Assistance Desk, Strategic Purchasing Division, 901 Bagby, Concourse Level, Houston, Texas 77002.

The place of the bid opening may be transferred in accordance with Paragraph (b), (5) of Section 15-3 of The Code of Ordinances, Houston, Texas. The bid-opening meeting may be rescheduled in accordance with Paragraph (b), (6) of said Section 15-3.

The City reserves the right to reject any or all bids, or to accept any bid or combination of bids deemed advantageous to it.

City employees are prohibited from bidding on this solicitation in accordance with the Code of Ordinances Section 15-1.

***CONTENTS:**

- A. OFFER
- B. SCOPE OF WORK/SPECIFICATIONS
- C. GENERAL, SUPPLEMENTARY CONDITIONS AND BOND FORMS

*NOTE 1: Actual page numbers for each section may change when the solicitation document is downloaded from the Internet or because of letters of clarification. Therefore, bidders must read the solicitation document in its entirety and comply with all the requirements set forth therein.

*NOTE 2: **To be considered for award please submit the electronic bid form and the forms listed in section A, including the signature page, which must be signed by a company official authorized to bind the company and a 10% Bid Bond.**

SECTION A



**FORMAL ONE-TIME BID
FURNISH AND INSTALL A VARIABLE FREQUENCY DRIVE
FOR THE PUBLIC WORKS AND ENGINEERING DEPARTMENT
Bid No. S19-C24912
NIGP Codes: 285-64**

To The Honorable Mayor
and City Council Members
of the City of Houston, Texas (the "City"):

The undersigned hereby offers to provide services necessary to **Furnish and Install a Variable Frequency Drive at the 69th Street, Waste Water Treatment Plant, located at 2525 S/Sgt. Macario Garcia Drive, for the Public Works and Engineering Department.** F.O.B. destination point Houston, Texas, in accordance with the City's Specifications and General Terms & Conditions and/or samples/drawings provided herein. When issued by the City of Houston, Letters of Clarification shall automatically become part of this bid document and shall supersede any previous specifications or provisions in conflict with Letters of Clarification. It is the responsibility of the bidder to ensure that it has obtained all such letters. By submitting a bid on this project, bidder shall be deemed to have received all Letters of Clarification and to have incorporated them into the bid.

The City may accept this bid offer by issuance of a Notice of Award Letter and/or a Purchase Order at any time on or before the 120th day following the day this Official Bid Form is opened by the City. This offer shall be irrevocable for 120 days after bid opening or for 90 days after City Council awards the bid, whichever comes last, but this period may be extended by written agreement of the parties.

The City reserves the right to INCREASE quantities during the twelve-month period following the issuance of the first purchase order subject to agreement in writing by the Prime Contractor/Supplier to honor the same bid price.

The City reserves the option, after bids are opened, to adjust the quantities listed on the electronic bid form upward or downward, subject to the availability of funds, and/or make award (s) on a line item basis.

SECTION A

Documents/forms must be downloaded from the City's Website
<http://www.houstontx.gov/purchasing/index.html>

Additional Required Forms to be Included with this bid:

In addition to the electronic Bid Form and the Official Signature Page, the Forms listed in Table 1 **must be completed and submitted to the Office of the City Secretary on or before the date and time the bid is due:**

Table 1
Affidavit of Ownership
Fair Campaign Ordinance
Statement of Residence
Conflict of Interest Questionnaire
Contractor References
10% Bid Bond

Table 2 lists other documents and forms that should be viewed/downloaded from the City's website, but are not required to be submitted with the bid. The City will request these forms, as applicable, to be completed and submitted to the City by the recommended/successful bidder:

Table 2
Formal Instructions for Bid Terms
Drug Forms
Insurance Certificates Over \$50,000.00 / Insurance Endorsements
Performance, Maintenance and Statutory Payment Bonds
2014 Building Construction Wage Decision

Note:

1. Questions concerning the Bid should be submitted in writing to: City of Houston, Strategic Purchasing Division, 901 Bagby, Room B411, Houston, TX 77002, Attn: Roy Korthals or via fax: 832-393-8758 or via email (preferred method) to roy.korthals@houstontx.gov no later than **4:00 PM, Monday, April 7, 2014.**

CITY BUILDING CODES:

All work performed or equipment installed shall be in strict accordance with the City of Houston Building Codes. The Contractor will immediately correct any deficiencies discovered during work or after completion. Failure to correct deficiencies will result in the City having corrections made at the Contractor's expense.

BID BOND:

The bidder shall be required to provide and submit with its bid a Bid Bond in the amount of 10% of the total amount. The Bid Bond shall be in the same form as that distributed by the City, and attached hereto, all duly executed by this Bidder (as "Principal") and by a corporate surety company licensed to do business in the State of Texas, and if the amount of the bond is greater than \$100,000.00 the surety must hold a certificate of authority from the United States Secretary of the Treasury, or a Cashier's or a Certified check in a like amount. Company or personal checks are not acceptable.

PERFORMANCE BOND and PAYMENT BOND:

The successful Contractor(s) shall be required to provide a Performance and Payment Bond in the total amount (100%) of the Contract, if the award is in excess of \$25,000.00.

The Performance and/or Payment Bond shall be in the same form as that distributed by the City, and attached hereto, all duly executed by this bidder (as "Principal") and by an incorporated surety company licensed to do business in the State of Texas. If the amount of the bond is greater than \$100,000.00 the surety must hold a certificate of authority from the United States Secretary of the Treasury.

The Contractor(s) shall be required to provide a Performance and/or Payment Bond as outlined above, which will be delivered to the City Purchasing Agent of the City, on or before the tenth (10th) day following the day the bidder receives notice from the City.

MAINTENANCE BOND:

The Contractor shall furnish a maintenance bond in the total (100%) bid amount in the form required by the City (samples attached). One bond, also referred to as the One Year Maintenance Bond, will be conditioned upon Contractor's repair, replacement or restoration of any work or any portion of the work which is found to be defective or fails in any way to comply strictly with this contract or the plans and specifications for such work within a period of one (1) year from the date of acceptance of such work by the City Council or after the date that the "CO", or its designee in writing, determines, in a written notice to the Contractor, to be the date upon which the project is both substantially complete and available for the full and beneficial occupancy or use of the City.

QUALITY AND WORKMANSHIP:

The bidder must be able to demonstrate upon request that it has performed satisfactorily, services similar to the services specified herein. The bidder will provide records of warranty and repair services performed for others upon request. The City of Houston shall be the sole judge whether the services performed are similar to the scope of services specified herein.

SITE INSPECTION:

The City of Houston reserves the right to inspect the bidder's current place of business to evaluate equipment condition and capabilities, staff experience, training and capabilities, and storage capabilities as they relate to the performance of this contract.

PROTEST:

A protest shall comply with and be resolved, according to the City of Houston Procurement Manual http://purchasing.houstontx.gov/docs/Procurement_Manual.pdf and rules adopted thereunder. Protests shall be submitted in writing and filed with both, the City Attorney and the Solicitation contact person. A pre-award protest of the ITB shall be received five (5) days prior to the solicitation due date

and a post-award protest shall be filed within five (5) days after City Council approval of the contract award.

A protest shall include the following:

- The name, address, e-mail, and telephone number of the protester;
- The signature of the protester or its representative who has the delegated authority to legally bind its company;
- Identification of the ITB description and the ITB or contract number;
- A detailed written statement of the legal and factual grounds of the protest, including copies of relevant documents, etc.; and
- The desired form of relief or outcome, which the protester is seeking

INTERLOCAL AGREEMENTS:

Under the same terms and conditions hereunder, the Contract may be expanded to other government entities through inter-local agreements between the City of Houston and the respective government entity that encompass all or part of the products/services provided under this contract. Separate contracts will be drawn to reflect the needs of each participating entity.

NO CONTACT PERIOD

Neither bidder(s) nor any person acting on bidder(s)'s behalf shall attempt to influence the outcome of the award by the offer, presentation or promise of gratuities, favors, or anything of value to any appointed or elected official or employee of the City of Houston, their families or staff members. All inquiries regarding the solicitation are to be directed to the designated City Representative identified on the first page of the solicitation. Upon issuance of the solicitation through the pre-award phase and up to the date the City Secretary publicly posts notice of any City Council agenda containing the applicable award, aside from bidder's formal response to the solicitation, through the pre-award phase, written requests for clarification during the period officially designated for such purpose by the City Representative, neither bidder(s) nor persons acting on their behalf shall communicate with any appointed or elected official or employee of the City of Houston, their families or staff through written or oral means in an attempt to persuade or influence the outcome of the award or to obtain or deliver information intended to or which could reasonably result in an advantage to any bidder. However, nothing in this paragraph shall prevent a bidder from making public statements to the City Council convened for a regularly scheduled session after the official selection has been made and placed on the City Council agenda for action, *or to a City Council committee convened to discuss a recommendation regarding the solicitation.*

HIRE HOUSTON FIRST:

Designation as a City Business or Local Business

To be designated as a City or Local Business for the purposes of the Hire Houston First Program, as set out in Article XI of Chapter 15 of the Houston City Code, a bidder or proposer must submit the **Hire Houston First Application and Affidavit ("HHF Affidavit")** to the Director of the Mayor's Office of Business Opportunities and receive notice that the submission has been approved prior to award of a contract. Bidders are encouraged to secure a designation prior to submission of a bid or proposal if at all possible.

Download the HHF Affidavit from the Office of Business Opportunities Webpage at the City of Houston e-Government Website at the following location:

Award of Procurement of \$100,000 or More for Purchase of Non-Professional Services , Including Construction Services:

THE CITY WILL AWARD THIS PROCUREMENT TO A "CITY BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES ("THE CODE")

- IF THE BID OF THE LOCAL BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

Award of Procurement under \$100,000 Purchase of Non-Professional Services Including Construction Services:

THE CITY WILL AWARD THIS PROCUREMENT TO A "LOCAL BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES

- IF THE BID OF THE CITY BUSINESS IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

Award of Procurement that may be More or Less than \$100,000 for Purchase of Non-Professional Services, Including Construction Services:

THE CITY WILL AWARD THIS PROCUREMENT TO A "LOCAL BUSINESS," AS THAT TERM IS DEFINED IN SECTION 15-176 OF THE CITY OF HOUSTON CODE OF ORDINANCES ("THE CODE")

- IF THE BID OF THE LOCAL BUSINESS IS LESS THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 5% OF THE LOWEST BID RECEIVED, OR
- IF THE BID OF THE LOCAL BUSINESS IS MORE THAN \$100,000 AND IS THE LOWEST RESPONSIBLE BID OR IS WITHIN 3% OF THE LOWEST BID RECEIVED, AND
- UNLESS THE USER DEPARTMENT DETERMINES THAT SUCH AN AWARD WOULD UNDULY INTERFERE WITH CONTRACT NEEDS, AS PROVIDED IN SECTION 15-181 OF THE CODE.

IF THERE IS NO BID OF A LOCAL BUSINESS THAT MEETS THESE CRITERIA, THE CITY WILL AWARD THE PROCUREMENT TO THE LOWEST RESPONSIBLE BIDDER

CONTRACTOR'S QUESTIONNAIRE:

In order to receive bid award consideration, the bidder must be able to demonstrate that they are currently providing or have had at least one contract to ***remove, furnish and install a variable frequency drive*** that is similar in size and scope to this contract. **Bidder must have references documenting that it has removed, furnished and installed variable frequency drives.** The reference(s) should be included in the space provided below. Please attach another piece of paper if necessary. If references are not included with the bid, the bidder shall be required to provide such references to the City of Houston within five working days from receipt of a written request from the City of Houston to do so. **Bidder's capability and experience shall be a factor in determining the Contractor's responsibility.** *The bidder shall be required to provide records of warranty and repair services performed for others upon request. The City of Houston shall be the sole judge whether the services performed are similar to the scope of services specified herein.*

1. Business Name: _____

Business Address: _____

City, State, Zip: _____

Name of Owner/Contact Person: _____

Phone: _____ Fax: _____ Email: _____

No. of Years providing Service to this business: _____

2. Business Name: _____

Business Address: _____

City, State, Zip: _____

Name of Owner/Contact Person: _____

Phone: _____ Fax: _____ Email: _____

No. of Years providing Service to this business: _____

3. Business Name: _____

Business Address: _____

City, State, Zip: _____

Name of Owner/Contact Person: _____

Phone: _____ Fax: _____ Email: _____

No. of Years providing Service to this business: _____

4. Business Name: _____

Business Address: _____

City, State, Zip: _____

Name of Owner/Contact Person: _____

Phone: _____ Fax: _____ Email: _____

No. of Years providing Service to this business: _____

SECTION B
SCOPE OF WORK

1.0 SCOPE OF WORK SUMMARY

1.1 The Contractor shall be required to furnish all labor, materials, equipment, supervision, transportation and ancillary items necessary to remove and properly dispose of the existing variable frequency drive at the 69th Street Wastewater Treatment Plant (69th WWTP) Pump Station #11. The Contractor shall also be required to furnish and install one new 150 HP, 460V/60HZ variable frequency drive and associated equipment at the aforementioned location in strict accordance with the specifications/scope of work herein.

2.0 Performance Time

2.1 The Contractor shall have **70 calendar days** to order all supplies/equipment and complete all the work associated with and required by the contract/purchase order after receipt of the written Notice to Proceed from the City.

3.0 Warranty

3.1 Warranty shall be 24 months from the date of certified start-up, not to exceed 30 months from the date of shipment. The warranty shall include all parts, labor, travel time, and expenses.

4.0 SPECIFIED EQUIPMENT OR EQUIVALENT:

4.1 Wherever in the specifications any materials or processes are indicated or specified by patent of proprietary name and/or by name of manufacturer, such specifications shall be deemed to be used for the purpose of facilitating descriptions of the performance, materials and/or processes desired and shall be deemed to be followed by the words, "or equivalent", if not so stated in the specifications herein.

4.2 The burden of proof shall rest with the bidder, in the course of a technical evaluation, to prove that the proposed item(s) are equivalent to the performance, materials, processes, or articles specified. DETERMINATION AS TO WHETHER THE ITEM (S) BID IS (ARE) EQUIVALENT TO THOSE SPECIFIED SHALL REST SOLELY WITH THE CITY PURCHASING AGENT AND THE RECEIVING DEPARTMENT.

5.0 BRAND NAME OR TRADE NAME:

5.1 Any manufacturer's names, trade names, brand names, or catalog numbers used in the specifications are for the purpose of describing and establishing the general quality level, design and performance desired. Such references are not intended to limit or restrict bidding by other Contractors/Suppliers, but are intended to approximate the quality design or performance that is desired. Any bid that proposes like quality, design or performance, will be considered. Equivalent products will be considered, provided a complete description and product literature is provided. Unless a specific exception is made, the assumption will be that the item bid is exactly as specified on the Invitation to Bid.

PART ONE – GENERAL

1.0 GENERAL

- 1.1 The specifications herein state the minimum requirements of the City of Houston. All bids must be regular in every respect. Unauthorized conditions, limitations, or provisions shall be cause for rejection. The City may consider as “irregular” or “non-responsive”, any bid not prepared and submitted in accordance with the bid documents and specification, or any bid lacking sufficient technical literature to enable the City of Houston to make a reasonable determination of compliance to the specification. It shall be the bidder’s responsibility to carefully examine each item of the specification, failure to offer a completed bid or failure to respond to each section of the technical specification (exception yes or no) will cause the proposal to be rejected without review as “non-responsive”. All variances, exceptions, and/or deviations shall be fully described in the appropriate section; deceit in responding to the specification will be cause for rejection.
- 1.2 **EQUIVALENT PRODUCT:** Bids will be accepted for consideration on any make and model that is a city approved direct replacement as interpreted by the City of Houston. A blanket statement that equipment proposed will meet all requirements will not be sufficient to establish equivalence, but will require replay an explanation at each deviation or substitution.
- 1.3 **INTERPRETATIONS:** In order to be fair to all bidders, no oral interpretations will be given to any bidder as to the meaning of the specifications documents or any part thereof. Every request for each a consideration shall be made in writing to the City of Houston. Based upon such inquiry, the City of Houston may choose to issue an Addendum in accordance with Local Public Contract Laws.
- 1.4 **GENERAL SPECIFICATIONS:** The unit described shall be new and unused. Unit shall be of the latest design and in current production completely serviced, ready for work and shall include standard and optional equipment as specified herein. The adjustable frequency motor drive (VFD) shall consist of a pulse width modulated (PWM) inverter for use on a standard induction motor. All bidders must have demonstrated the unit they are bidding prior to the bid date.
- 1.5 Bidders must have a fully stocked parts and service facility within 50 miles of the City of Houston. The City of Houston shall have the right to inspect the office and shall be the sold judge of its adequacy to fulfill this requirement.
- 1.6 Bidders, on request of the City of Houston, must be prepared to review their specifications with the City of Houston and must, if requested. These services, if needed are considered as part of the bidder’s proposal and will be provided without cost or obligation to the City of Houston.

2.0 QUALITY ASSURANCE

- 2.1 Institute of Electrical and Electronic Engineers (IEEE). Standard 519-1992, IEEE Guide for Harmonic Content and Control.
- 2.2 Drive manufacturing facility shall be ISO 9001 and ISO 14001 certified.
- 2.3 Underwriters Laboratories. UL 508.
- 2.4 National Electrical Manufacturer's Association (NEMA). ISC 6, Enclosures for Industrial Controls and Systems.
- 2.5 IEC 801-2, 801-4, 255.4.
- 2.6 NFPA 70, National Electrical Code.
- 2.7 Testing. All printed circuit boards shall be completely tested and burned –in before being assembled into the completed VFD. The VFD shall then be subjected to a preliminary functional test, minimum 8-hour burn-in, and computerized final test. The burn-in shall be at full current or cycled load.
- 2.8 Failure Analysis. VFD manufacturer shall have available and analysis laboratory to evaluate the failure of any component.
- 2.9 Qualifications. VFDs shall be UL Listed.

3.0 SUBMITTALS

- 3.1 Certificate of Unit Responsibility, attesting that the VFD manufacturer has accepted unit responsibility for the proper functioning of each VFD in conjunction with its respective motor and pump. No other submittal will be received until the certificate has been received and found to be in conformance with this requirement.
- 3.2 Outline dimensions.
- 3.3 Weight.
- 3.4 Typical efficiency vs. speed graph for variable torque load.
- 3.5 Compliance to IEEE 519 – Harmonic analysis for particular jobsite including total voltage harmonic distortion and total current distortion.
- 3.6 The VFD manufacturer shall provide calculations specific to this installation, showing total harmonic voltage distortion is less than 5%. Input 3% line reactors shall be sized and provided if necessary to ensure compliance with IEEE standard 519-1992, Guide for Harmonic Control and Reactive Compensation for Static Power Converters. The acceptance of this calculation must be completed prior to VFD installation.
- 3.7 Prior to installation, the VFD manufacturer shall provide the estimated total harmonic distortion (THD) caused by the VFD's. The results shall be based on a computer aided circuit simulation of the total actual system, with information obtained from the power provided and the user.

- 3.8 The VFD shall operate at fundamental power factor 1.0 on the supply side under all motor load conditions. The input current to the VFD shall have a total harmonic content less than 5% of full rated capability at the input terminals of the VFD on power system sized according to IEEE 519-1992 at line voltage unbalance up to 3% and under all motor load conditions. Plus, all harmonic management devices must be internal to the VFD enclosure and supplied as a complete solution.
- 3.9 The VFD's shall be an Insulated Gate Bipolar Transistor type technology (IGBT) AC to AC controller and all harmonic management devices must be internal to the drive enclosure and supplied as a complete solution.
- 3.10 Complete electrical power and control diagrams showing the control, and protection system, illustrating the protection, control, trip and alarm functions at the different locations, reference signals and commands, and the auxiliary supplies (i.e. air, electrical auxiliary supplies, etc.). Wiring diagrams shall be fully explicit 3-line diagrams showing all power and control point-to-point connections.
- 3.11 The drive shall be rated to operate in ambient temperatures of 0 degrees to 40 degrees Celsius.

4.0 ACCEPTABLE MANUFACTURER

- 4.1 ABB ACS 800 series Ultra Low Harmonic (ULH) drive which is to match to existing two drives
- 4.2 The VFD manufacturer shall:
 - 4.2.1 Have an existing sales representative for Wastewater Plant applications, with expertise in wastewater plant systems and controls.
 - 4.2.2 Have an independent service organization.
 - 4.2.3 Provide the drive and all necessary controls, as herein specified. Manufacturer shall have been engaged in the production of this type of equipment for a minimum of 10 years.
 - 4.2.4 Design the VFD specifically for variable torque applications.
 - 4.2.5 The VFD shall be solid state AC to AC inverter controlled device utilizing the latest isolated gate bipolar transistor (IGBT) technology.
 - 4.2.6 An Ultra Low Harmonic Adjustable Speed AC Drive (ASD) that is designed to comply with standard IEEE 519-1992 when installed into system that already is in compliance with the standard.

5.0 VARIABLE FREQUENCY DRIVE

- 5.1 The variable frequency drives (VFD's) shall be solid state, with a Pulse Width Modulated (PWM) output waveform. The drive efficiency shall be 97% or better at full speed and full load. Fundamental power factor shall be 95% at all speeds and loads.
- 5.2 All VFD's shall meet the following specifications:
 - 5.2.1 Input: 460 VAC +/-10%, 3 phase, 60 Hz.
 - 5.2.2 The ASD shall be solid state AC to AC inverter controlled device utilizing the latest isolated gate bipolar transistor (IGBT) technology.
 - 5.2.3 Output: 3 phase, 0 to 120 Hz. Operation above 60 Hz. shall require programming changes to prevent inadvertent high-speed operation.
 - 5.2.4 Environmental operating conditions: 0 to 40 °C @ 3 kHz. Switching frequency, 0 To 3300 feet above sea level, less than 95% humidity, non-condensing.
 - 5.2.5 The VFD shall operate at fundamental power factor 1.0 on the supply side under all motor load conditions. The input current to the VFD shall have a total harmonic content less than 5% of full rated capability at the input terminals of the VFD on power system sized according to IEEE 519-1992 at line voltage unbalance up to 3% and under all motor load conditions. Plus, All harmonic management devices must be internal to the VFD enclosure and supplied as a complete solution.
 - 5.2.6 The input power factor shall be programmable from 0.8 lagging to 0.8 leading, allowing the VFD to be used as a compensating device for installations that are excessively inductive or excessively capacitive in reactive power. The reactive power required by other loads connected to the same distribution system may be compensated for by the providing that VFD has sufficient capacity for reactive and active loads.
 - 5.2.7 The VFD's Frame Size shall be – R7i and shall fit into existing space adjacent to the two existing drives
 - 5.2.8 Enclosure shall be a NEMA 1 filtered – IP42 wall mount with bottom entry and exit.
- 5.3 All VFD's shall have the following standard features:
 - 5.3.1 All VFD's shall have the same customer interface, including digital display, keypad and customer connections; regardless of horsepower rating. The keypad is to be used for local control, for stepping through the display and menus.

- 5.3.2 The VFD's shall give the user the option to either display a fault or run at a programmable preset speed.
- 5.3.3 The VFD's shall utilize a plain English digital (code numbers and letters are not acceptable). The digital display shall be a 40-character (2 line x 20 characters/line) LCD display. The LCD shall be backlit to provide to provide easy viewing in any light condition. The contact should be adjustable to optimize viewing at any angle. All set-up parameters, indications, faults, warnings and other information must be displayed in word to allow the user to understand what is being displayed without the use of a manual or cross-reference table.
- 5.3.4 The VFD's shall have the ability to automatically restart after an over current, over voltage, under voltage, or loss of input signal protective trip. The number of restart attempts shall be a minimum of four, adjustable by the operator.
- 5.3.5 The VFD's shall have the ability to automatically restart after an overcurrent, overvoltage, or decelerate to set point without safety tripping or component damage (flying start).
- 5.3.6 The VFD's shall be equipped with an automatic extended power loss ride-through circuit, which will utilize the inertia of the load to keep the drive powered. Minimum power loss ride-through shall be one-cycle, based on full load and no inertia. Removing power from the motor is not an acceptable method of increasing power loss ride-through.
- 5.3.7 The customer terminal strip shall be isolated from the line and ground.
- 5.3.8 Rewired 3-position hand-off-auto switch and speed potentiometer. When in "hand ", the VFD will be started, and the speed will be controlled from the speed potentiometer. When in "Auto ", the VFD will start via an external contact closure, and it's speed will be controlled via an external speed reference.
- 5.3.9 The drive shall employ three current limit circuit to prove trip free operation:
- 5.3.9.1 The slow current regulation limits circuit shall be adjustable to 115% (minimum) of the VFD's variable torque current rating. This adjustment shall be made via the keypad, and shall be displayed in actual amps, and not as percent of full load.
 - 5.3.9.2 The Current Switch-off limit shall be fixed at 180% (minimum, instantaneous) of the VFD's variable torque current rating.

- 5.3.10 The overload rating of the drive shall be 110% of its variable torque current rating for 1 minute.
 - 5.3.11 The VFD shall have input circuit breaker motor circuit protector standard in the drive enclosure, 60,000 amps interrupting capacity. Circuit breaker shall be pad lockable in the "Off "position.
 - 5.3.12 The VFD shall have an optional DC link reactor to reduce the harmonics to the power line and to increase the fundamental power factor.
 - 5.3.13 The VFD shall be optimized for a 3 kHz carrier frequency to reduce motor noise and provide high system efficiency. The carrier frequency shall be adjustable by the start-up engineer.
 - 5.3.14 The VFD shall have a manual speed potentiometer in addition to using the keypad as a means of controlling speed manually.
 - 5.3.15 The VFD shall not contribute any short-circuit current to an upstream short-circuit fault.
 - 5.3.16 The VFD shall be provided with an integrally-mounted Siemens S7-315-DP programmable logic controller with expansion modules as required to facilitate the remote monitoring and control of the VFD system through the existing and proposed PLC-based control system.
 - 5.3.17 The VFD shall be high-efficiency (≥ 0.95), high power factors (≥ 0.95), low – harmonic type, see Item 1.04, A.5.
 - 5.3.18 The VFD shall not interfere with power factor correction capacitors on the switchgear bus. If there is potential conflict, the VFD manufacturer shall be responsible for de-tuning of any affected capacitor per specification section 16412.
 - 5.3.19 The VFD must be able to operate with ambient, no internal dedicated cooling to chill ambient air will be permitted
- 5.4 All VFD's shall have the following adjustments:
- 5.4.1 Interposing power blocks ahead of the main circuit breaker input terminals to facilitate connection of the power feeders sized as shown on the drawings.
 - 5.4.2 Three (3) programmable critical frequency lockout ranges to prevent the VFD from continuously operating at an unstable speed.
 - 5.4.3 PI set point controller shall be standard in the drive, allowing a pressure or flow signal to be connected to the VFD, using the microprocessor in the

VFD for the closed loop control; thus eliminating the need for external controllers.

- 5.4.4 Adjustable within the range of 0-20mA and 0-10 Volts. Additionally, the reference must be able to be scaled so that maximum reference can represent a frequency less than 60 Hz, without lowering the drive maximum frequency below 60 Hz.
 - 5.4.5 Six (6) programmable digital inputs for maximum flexibility in interfacing with external devices.
 - 5.4.6 One analog output proportional to frequency.
 - 5.4.7 Outputs must be true form C type contacts; open collector outputs are not acceptable.
 - 5.4.8 Seven (7) programmable present speeds.
 - 5.4.9 Two independently adjustable acceleration and deceleration and deceleration ramps. These ramp times shall be adjustable from 0.3 to 1200 seconds.
 - 5.4.10 The VFD shall ramp or coast to a stop, as selected by the user.
- 5.5 The following operating information display shall be standard on the VFD digital display. The display shall be in complete English words (alpha-numeric codes are not acceptable):
- 5.5.1 Output frequency
 - 5.5.2 Motor speed (RPM, % or Engineering units)
 - 5.5.3 Output current
 - 5.5.4 Output voltage
 - 5.5.5 Heatsink over-temperature
 - 5.5.6 Analog input values
 - 5.5.7 Keypad reference values
 - 5.5.8 Elapsed time meter
 - 5.5.9 KWH meter
- 5.6 The VFD shall have the following protection circuits. In the case of a protective trip, the drive shall stop, and announce the fault condition in complete words (alphanumeric codes are not acceptable).
- 5.6.1 Overcurrent trip.
 - 5.6.2 Overvoltage trip.
 - 5.6.3 Undervoltage trip.
 - 5.6.4 Over-temperature.
 - 5.6.5 Ground fault either running or at start.

- 5.6.6 Adaptable Electronic Motor Overload (I 2t). The Electronic Motor Overload protection shall protect the motor based on speed, load curve, and external fan parameter. Circuits which are not speed dependant are unacceptable. The electronic motor overload protection shall be UL Listed for this function.
- 5.7 Speed command Input shall be via:
 - 5.7.1 Keypad.
 - 5.7.2 Two Analog inputs, each capable of accepting a 0-20mA, 0-10V, 2-10V signal. Input shall be isolated from ground. The analog input should be able to be inverted, so that minimum reference corresponds to maximum speed, and maximum reference corresponds to minimum speed. The minimum and maximum values (gain and offset) shall be adjustable within the range of 0-20 mA and 0-10 Volts.
- 5.8 Serial communications:
 - 5.8.1 The VFD shall have RS-232 and RS-485 ports as standard.
 - 5.8.2 The VFD shall be able to communicate with programmable logic controllers (PLC's), distributed control systems (DCS), and direct controls (DDC).
 - 5.8.3 Serial communication capabilities shall include, but not be limited to, run-stop control, speed set adjustment, proportional/integral PI controller adjustments, current limits, and accel/decel time adjustments. The drive shall have the capability of allowing the DDC to monitor feedback such as output speed/frequency, current (in amps), power (in kwh), relay outputs, and diagnostic fault information.
 - 5.8.4 The VFD shall provide communication [PROFIBUS or ETHERNET] protocol, either built-in or on an integrated communication boards.
- 5.9 Accessories to be furnished and mounted by the drive manufacturer.
 - 5.9.1 Customer Interlock Terminal Strip-Provide a separate terminal strip for connection of freeze, fire, smoke contacts, and external start command. All external interlocks and start/stop contacts shall remain fully functional whether the drive is in hand or auto.
 - 5.9.2 All wires to be individually numbered at both ends for ease of troubleshooting.
 - 5.9.3 Door interlocked disconnect switch which will disconnect all input power from the drive and all input power from the drive and all internally mounted options. The disconnect handle shall be through- the- door type, and be pad lockable in the "Off" position.
 - 5.9.4 The VFD shall have a manual speed potentiometer in addition to using the keypad as a means of controlling speed manually.

6.0 INSTALLATION & DELIVERY

- 6.1 Contractor shall be responsible for obtaining all required City and State permits for installation and all permit costs shall be include in the bid price.
- 6.2 Contractor shall be responsible for purchase and installation of the drive and all associated conduit and wiring necessary for a complete operating drive system controlling the pump motor speed.
- 6.3 Power and control wiring shall be completed by the Contractor. The Contractor shall complete all wiring in accordance with the recommendations of the VFD manufacturer as outlined in the installation manual. Note: at a minimum this will include; two analog I/O for speed and feedback control, three digital inputs for run, local/remote, and inverter failure indication, and one digital output for start/stop control.
- 6.4 The VFD's shall be installed on the ground level control room in pump station #11 at the 69th street WWTP, the location within in the room is to be adjacent to the two existing drives in the space provided.
- 6.5 At a minimum the electrical system shall be constructed in accordance with American National Standards Institute/National Fire Protection Association (ANSI/NFPA) and the National Electrical Code (NEC) and the City of Houston Building Code. Note: all foreign manufactured equipment must meet U.S. codes and standards.
- 6.6 Programming of the PLC integral with the VFD, and reprogramming of the plant PLC, shall be coordinated with the City of Houston
- 6.7 Equipment and materials shall be of the latest proven design and no obsolete components or components to be phased out of production will be permitted.
- 6.8 Contractor shall furnish all equipment, materials, tools, and labor for assembly and installation. The materials and equipment shall include all contactors, wiring, conduit, junction boxes, etc. to deliver a complete working system.
- 6.9 All wires are to be clearly identified via heat shrink labels and all contactors shall be labeled with etched metal or plastic tags. The tags are to be attached via screws, rivets, or an optional preapproved means.
- 6.10 Contractor shall review installation and provide any necessary ventilation so as to insure that all equipment to be installed on this project can be maintained within it's design operating temperature range.
- 6.11 The motor/control panel shall be equipped with an HOA switch to permit local control of the pump motors.
- 6.12 The installation will include wiring for I/O to the PLC for; analog speed control and speed feedback plus discrete signals run command, running feedback, and run fault feedback. The control wiring shall be 18 gauge or better single pair shield wire Belden Cable, or better with written approval.
- 6.13 All conduit shall be Plastabond® plastic covered rigid conduit unless a request for alternate is otherwise granted and must be done by written approval.

- 6.14 Enclosure to be NEMA one rated wall/panel mounted type cabinet with panel mounted interface such that the VFD/motors can be locally controlled and ramped up and down in a manual mode by the plant operator.
- 6.15 Contractor will coordinate with operations to maintain at least one pump and motor in operation during demolition and installation to facilitate station operations.
- 6.16 Enclosure to be NEMA one rated cabinet mounted with panel mounted interface such that the VFD/motor can be locally controlled and ramped up and down in a manual mode by the plant operator.
- 6.17 Entire assembled unit shall be delivered at COH's 69th Street Wastewater Treatment Plant, 2525 S/SGT Macario Garcia, Houston, TX 77020, with sufficient capabilities of delivery vehicle to suitably off-load the assembled unit.
- 6.18 The Contractor shall remove and dispose of the following equipment and related materials; one damaged VFD and related cabinets from PS #11. The work shall include any necessary disconnections of electrical systems in walls, floor, and ceilings for scheduled removal.
- 6.19 The Contractor shall remove abandoned wiring to source of supply.
- 6.20 The Contractor shall remove exposed abandoned conduits and cut conduits flush with walls and floors and patch surfaces for all abandoned equipment.
- 6.21 The Contractor shall provide and install blank covers for any abandoned outlets which are not removed.
- 6.22 The Contractor shall maintain open access to existing installations as pumps are to remain in active status.
- 6.23 The Contractor shall repair and finish any incidental damage created during demolition work and installation as part of bid price.
- 6.24 The assembled unit shall be packaged to prevent any damage to the unit during travel and off-loading.
- 6.25 The delivery company must coordinate with the appropriate City of Houston Staff to ensure the unit is off loaded safely in the appropriate place and manner desired by the City of Houston.
- 6.26 Final Delivery details should also be coordinated with Mr. Theo Glanton (Phone # 832-395-5456).

7.0 START-UP

- 7.1 Certified factory start-up shall be provided for the drive by a factory authorized service center.
- 7.2 Certified start-up form shall be filled out for the drive with one copy provided to the owner, and one copy maintained on file with the manufacturer.

END OF SECTION

SECTION C

ENGINEERING WAGE SCALE

A PDF version of the Construction Building Wage Scale can be viewed on the following web link

<https://purchasing.houstontx.gov/buyer/BidDocumentManager.aspx?id=C24912>

GENERAL CONDITIONS

A PDF version of the General Conditions can be viewed on the following web link:

<https://purchasing.houstontx.gov/buyer/BidDocumentManager.aspx?id=C24912>

Document 00800

SUPPLEMENTARY CONDITIONS

The following Paragraphs amend and supplement the 2013 edition of General Conditions. Unaltered portions of General Conditions remain in effect.

ARTICLE 3 - THE CONTRACTOR

3.5 *LABOR: Insert the following Paragraph 3.5.3.1.1.*

3.5.3.1.1 Contractor shall make good faith efforts to comply with the City ordinances regarding Minority and Women Business Enterprises (MWBE) and Persons with Disabilities Business Enterprises (PDDBE) participation goals which are as follows:

- .1 the MWBE goal is 0 percent, and
- .2 the PDDBE goal is 0 percent.

3.28 **CONTRACTOR DEBT**

3.28.1 **IF CONTRACTOR, AT ANY TIME DURING THE TERM OF THIS AGREEMENT, INCURS A DEBT, AS THE WORD IS DEFINED IN SECTION 15-122 OF THE HOUSTON CITY CODE OF ORDINANCES, IT SHALL IMMEDIATELY NOTIFY CITY CONTROLLER IN WRITING. IF CITY CONTROLLER BECOMES AWARE THAT CONTRACTOR HAS INCURRED A DEBT, IT SHALL IMMEDIATELY NOTIFY CONTRACTOR IN WRITING. IF CONTRACTOR DOES NOT PAY THE DEBT WITHIN 30 DAYS OF EITHER SUCH NOTIFICATION, CITY CONTROLLER MAY DEDUCT FUNDS IN AN AMOUNT EQUAL TO THE DEBT FROM ANY PAYMENTS OWED TO CONTRACTOR UNDER THIS AGREEMENT, AND CONTRACTOR WAIVES ANY RECOURSE THEREFORE.**

ARTICLE 8 - TIME

8.1 *PROGRESS AND COMPLETION: Delete Paragraph 8.1.6. and replace with the following 8.1.6.*

8.1.6.1 Contractor shall credit the City by Change Order for inspection services for overtime work or work performed on Sundays or Legal Holidays. The amount Contractor credits the City will be **\$50.00 per hour** per inspector for inspection services.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.1 *UNIT PRICE WORK: Delete Section 9.1 in its entirety and insert the following Section 9.1.*

9.1 References to Unit Prices in individual Specification sections are not applicable to the Contract. Include payment for portions of the Work required by these sections in the Stipulated Price for the Contract.

9.12 LIQUIDATED DAMAGES: Insert the following Paragraph 9.12.1.1.

9.12.1.1 *The amount of liquidated damages provided in General Conditions Paragraph 9.12.1 payable by Contractor or Surety for each and every day of delay beyond Contract Time, are \$800.00 per day.*

ARTICLE 11 - INSURANCE AND BONDS

11.2 *INSURANCE TO BE PROVIDED BY CONTRACTOR: Delete Paragraph 11.2.8. and replace with the following 11.2.8.*

11.2.1.4 Contractor shall provide Owners and Contractor's Protective Liability Insurance only if the contractor's bid price is equal to or greater than \$100,000.00.

Contractor Automobile Liability Insurance: \$1,000,000.00.

11.2.8 *Endorsement of Primary Insurance: Each policy except Workers' Compensation Insurance must contain an endorsement that the policy is primary insurance to any other insurance available to additional insured with respect to claims arising under the Contract.*

CITY OF HOUSTON -- BIDDER'S BOND

(Must be in an amount at least 10% of the bid. If the bid is upon alternates this bond must be for

at least 10% of the highest amount for which the bidder offers to do any or all the work bid upon.)

THE STATE OF TEXAS

§
§

KNOW ALL MEN BY

THESE PRESENTS:

COUNTY OF HARRIS

§

THAT WE, _____ as principal and the other subscriber hereto as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston, a municipal corporation in the sum of \$ _____ Dollars (\$ _____).

The condition of this obligation is that: ---

WHEREAS, the said principal is submitting to the City of Houston its or its bid for the doing for the City of Houston of certain work and construction of which the following is a brief description, to-wit: ---

Bid No. S19-C24912

Furnish and Install a Variable Frequency Drive

in accordance with the plans and specifications for such work upon which such bid is made, to which plans and specifications reference is made for a more full description of the work and construction referred to.

NOW, THEREFORE, if the said bidder is awarded the contract for such work, the said bidder will, within the time provided in the specifications, enter into a contract with the City therefore upon the form and to the purpose and intent provided in the specifications, will furnish insurance as required in the specifications and will furnish a good and sufficient construction surety bond executed by said bidder and one corporate surety organized under the laws of the State of Texas or authorized to do business in the State of Texas and having a fully paid up capital stock of not less than \$100,000.00 and duly licensed and qualified by the Board of Insurance Commissioners of the State of Texas, which bond shall be for an amount equal to 100 percent of the contract price and shall be conditioned in accordance with the requirements stated in the specifications upon which such bid is being submitted.

In the event said bidder is unable or fails to execute said contract for the work proposed to be done, is unable or fails to furnish insurance as specified or is unable or fails to furnish said construction bond in the amount and condition as aforesaid, the undersigned principal and surety shall be liable to said City of Houston for the full amount of this obligation which is here and now agreed upon and admitted as the amount of the damages which will be suffered by the City of Houston on account of the failure of such bidder to so comply with the terms of this bid.

Executed this _____ day of _____, A.D. 2013.

PRINCIPAL

By _____

By _____

Surety

ONE-YEAR MAINTENANCE BOND

THAT WE, _____, as Principal,

hereinafter called Contractor, and the other subscriber hereto, _____,
as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of
Houston, a municipal corporation, in the sum of \$_____, for the payment of
which sum well and truly to be made to the City of Houston and its successors, the said
Contractor and Surety do bind themselves, their heirs, executors, administrators, successors,
jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing
with the City of Houston for _____

_____,
all of such work to be done as set out in full in said Contract documents therein referred to
and adopted by the City Council, all of which are made a part of this instrument as fully and
completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall comply with the provisions of
Paragraph 11.5.1 of the General Conditions, and correct work not in accordance with the
Contract documents discovered within the established one-year period, then this obligation
shall become null and void, and shall be of no further force and effect; otherwise, the same is
to remain in full force and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed
delivered when actually received or, if earlier, on the third day following deposit in a United
States Postal Service post office or receptacle, with proper postage affixed (certified mail,
return receipt requested), addressed to the respective other party at the address prescribed
in the Contract documents, or at such other address as the receiving party may hereafter
prescribe by written notice to the sending party.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this
instrument on the respective dates written below their signatures and have attached current
Power of Attorney.

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:

Full Name of Surety

(SEAL)

Address of Surety for Notice

Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

Legal Assistant

Date

PERFORMANCE BOND

THAT WE, _____, as Principal, (the "Contractor"), and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston (the "City"), a municipal corporation, in the penal sum of \$_____ for the payment of which sum, well and truly to be made to the City, its successors and assigns, Contractor and Surety do bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing with the City for _____, all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall faithfully and strictly perform the Contract in all its terms, provisions, and stipulations in accordance with its true meaning and effect, and in accordance with the Contract documents referred to therein and shall comply strictly with each and every provision of the Contract and with this Bond, then this obligation shall become null and void and shall have no further force and effect; otherwise the same is to remain in full force and effect. Should the Contractor fail to faithfully and strictly perform the Contract in all its terms, including but not limited to the indemnifications thereunder, the Surety shall be liable for all damages, losses, expenses and liabilities that the City may suffer in consequence thereof, as more fully set forth herein.

It is further understood and agreed that the Surety does hereby relieve the City or its representatives from the exercise of any diligence whatever in securing compliance on the part of the Contractor with the terms of the Contract, and the Surety agrees that it shall be bound to take notice of and shall be held to have knowledge of all acts or omissions of the Contractor in all matters pertaining to the Contract. The Surety understands and agrees that the provision in the Contract that the City will retain certain amounts due the Contractor until the expiration of 30 days from the acceptance of the Work is intended for the City's benefit, and the City will have the right to pay or withhold such retained amounts or any other amount owing under the Contract without changing or affecting the liability of the Surety hereon in any degree.

It is further expressly agreed by Surety that the City or its representatives are at liberty at any time, without notice to the Surety, to make any change in the Contract documents and in the Work to be done hereunder, as provided in the Contract, and in the terms and conditions thereof, or to make any change in, addition to, or deduction from the Work to be done hereunder; and that such changes, if made, shall not in any way vitiate the obligation in this Bond and undertaking or release the Surety there from.

It is further expressly agreed and understood that the Contractor and Surety will fully indemnify and save harmless the City from any liability, loss, cost, expense, or damage arising out of Contractor's performance of the Contract.

If the City gives Surety notice of Contractor's default, Surety shall, within 45 days, take one of the following actions:

1. Arrange for Contractor, with consent of the City, to perform and complete the Contract; or
2. Take over and assume completion of the Contract itself, through its agents or through independent contractors, and become entitled to the payment of the balance of the Contract Price.

If the Surety fails to take either of the actions set out above, it shall be deemed to have waived its right to perform and complete the Contract and receive payment of the balance of the Contract Price and the City shall be entitled to enforce any remedies available at law, including but not limited to completing the Contract itself and recovering any cost in excess of the Original Contract Price from the Surety.

This Bond and all obligations created hereunder shall be performable in Harris County, Texas. This Bond is given in compliance with the provisions of Chapter 2253, Texas Government Code, as amended, which is incorporated herein by this reference.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

EXECUTED in multiple originals this _____ day of _____, 20_____.

ATTEST/SEAL: (if a corporation)

WITNESS: (if not corporation)

(Name of Principal)

(Address of Principal)

By: _____

Name:

Title:

Date:

By: _____

Name:

Title:

Date:

ATTEST/SEAL

SURETY WITNESS:

(Name of Surety)

(Address of Surety)

By: _____

Name:

Title:

Date:

By: _____

Name:

Title:

Date:

REVIEWED:

This Bond has been reviewed as to form by the undersigned Paralegal and has been found to meet established Legal Department criteria.

Date

Paralegal

STATUTORY PAYMENT BOND

THAT WE, _____, as Principal, hereinafter called Contractor and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound unto the City of Houston, a municipal corporation, in the sum of \$_____ for the payment of which sum, well and truly to be made to the City of Houston, and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a contract in writing with the City of Houston for _____, all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein;

NOW, THEREFORE, if the said Contractor shall pay all claimants supplying labor and materials to him or a Subcontractor in the prosecution of the Work provided for in the Contract, then, this obligation shall be void; otherwise the same is to remain in full force and effect;

PROVIDED HOWEVER, that this Bond is executed pursuant to the provisions of Chapter 2253, Texas Government Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said Article to the same extent as if it were copied at length herein.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:
(SEAL)

Full Name of Surety

Address of Surety for Notice

Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

Legal Assistant

Date