

REQUEST FOR PROPOSALS



**UNDERGROUND STORAGE TANK REMOVALS AND
INSTALLATION OF ABOVEGROUND STORAGE TANKS
AT VARIOUS CITY-OWNED FACILITIES
FORT WORTH, TEXAS**

PROJECT #: ENV 18-02 – CIP PST UPGRADE

Due: March 29, 2018

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1.0 REQUEST FOR PROPOSALS

Chapter 252, Texas Local Government Code, “Purchasing and Contracting Authority of Municipalities” does not apply to this request for proposals for the underground storage tank removal activities associated with replacement project located at several locations within Fort Worth, Texas. The contract resulting from this process is “a procurement necessary to preserve or protect the public health or safety of the municipality’s residents” as provided for in Section 252.022 of the Texas Local Government Code. This request for proposal follows a procedure established by the City, however, because this request is exempt from Chapter 252 of the Texas Local Government Code, the City reserves the right to negotiate a contract after receiving all proposals. The City reserves the right to waive any and all irregularities and to award a contract in the best interest of the city.

1.1 PROJECT DESCRIPTION

Proposals are being accepted by the City of Fort Worth for the provision of furnishing of all labor, materials, and equipment necessary for the removal and transportation, to a proper waste disposal facility of six (6) underground storage tanks (USTs) with associated underground piping, and the installation of three (3) new, Convault® aboveground storage tanks (AST) with associated piping and applicable fuel management system located at the following sites:

Fire Station (FS) No.	Number of USTs	Address	Convault
FS 24	2	3101 Forest Avenue, Fort Worth, Texas 76112	1 – 1,000 gallon (g)
FS 32	2	10201 White Settlement Road, Fort Worth, Texas 76108	1 – 1,000 g
FS 33	2	14650 Statler Drive, Fort Worth, Texas 76155	1 – 1,000 g

Additionally, existing Convault® ASTs will be relocated to new locations from several existing locations according to the following table:

Present Location of AST	Future Location of AST	Size/Type of AST	Weight (Empty) Approx.
301 E. Felix Street	FS 30, 4416 Southwest Blvd.	500 g	~ 12,000 pounds (#)
2500 Brennan Avenue	FS 10, 3209 Hemphill Street	500 g	~ 12,000 #
2500 Brennan Avenue	FS 17, 5151 Hemphill Street	2,000 g	~ 30,000 #
2500 Brennan Avenue	*2500 Brennan Avenue	*250 g/250 g	~ 12,000 #

**this Convault split 250/250 will only require only upgrading equipment on AST and connecting to power and communication sources. AST is already set-up on existing concrete pad.*

All work performed under the contract shall be in strict adherence to all applicable Federal, State and local rules and regulations.

Each provider including subcontractors shall NOT be listed on the Excluded Parties List System (www.epls.gov). Before proceeding on each portion of the project the provider including subcontractors will have to certify they are NOT on the EPLS.

Description of Work Activity
Removal and disposal of two (2), 1,000-gallon USTs – FS 33
Removal and disposal of two (2), 550-gallon USTs – FS 32
Removal and disposal of two (2), 1,000-gallon USTs – FS 24
Excavation of tankholds (3)
Overexcavation of potential contamination located in tankholds
Transportation and disposal of contaminated soils from tankholds
Backfill, Compaction, Density Testing at six (6) locations
Install one, new, 1,000-gallon, Convault AST
Install one, new, 1,000-gallon, Convault AST
Install one, new, 1,000-gallon, Convault AST
Install six (6) Concrete Foundations for ASTs
Install 6" Protective Bollards for six (6) ASTs
Install seven (7) New Bennett Dispensers
Install seven (7) OPW Fuel Vending Systems
Install seven (7) OPW Automatic Tank Gauging Systems
Install Applicable Signage for seven (7) ASTs
Relocate, upgrade, and install one, City-owned, 500-gallon Convault – FS 30
Upgrade one, existing, City-owned, 250/250-gallon Convault - Brennan
Relocate, upgrade, and install one, City-owned, 2,000-gallon Convault – FS 17
Relocate, upgrade, and install one, City-owned, 500-gallon Convault – FS 10
Upgrade AST equipment and piping as required on four (4) City-owned ASTs

1.1.1 Scope of Work

The installation of three (3), new, double-wall UL-142 and UL-2085 listed 1,000 gallon Convault® ASTs and connection to the existing OPW tank gauging system with components including but not limited to signage, bollard protection, dispensing, point of sale, fuel inventory, fuel monitoring, electrical, and communication systems. The project also includes removal of six (6), 550 - 1,000-gallon USTs including associated underground piping, fill ports, and ancillary equipment. In addition, four (4) City-owned ASTs will be repurposed from existing locations and set up operationally at other existing City-owned sites. This will entail decommissioning and disconnecting associated fueling accessories located on individual ASTs, loading, transporting, unloading, establishing adequate foundations for installation of AST, installation of upgraded fueling accessories, installation of bollard protection, installation of fuel management system components, and ensuring sites are fully operational upon completion of each individual project location.

The Contractor will be required to deliver turnkey fueling facilities in full operational accordance with project specifications and all applicable industry standards and international, federal, state, city and county laws, rules, ordinances, and regulations. The existing dispensers are to remain the property of the City of Fort Worth.

The Contractor will be required to verify all regulatory requirements and industry standards. Particular attention should be given to compliance with TCEQ requirements and related guidance set forth in 30 TAC §334.

The Contractor will be responsible for determining and verifying the applicability of governing requirements. All work shall be performed as described in project drawings and specifications (this and all sections).

Contractor will work closely with the Owner to sequence construction/installation and demolition/removal activities to assure zero interruption and unreasonable inconvenience to Facility operations.

The City will perform the following tasks under this contract:

- Provide site contact information;
- Provide site access;
- Provide third-party environmental consultation, including construction oversight, sample collection, and close-out reports; and
- Provide analytical laboratory analysis.

1.2 GENERAL REQUIREMENTS

Proposals will be received at the **Purchasing Office**, City of Fort Worth, 200 Texas Street, Fort Worth, 76102, until **1:30 p.m., Thursday, March 29, 2018** and will be opened and publicly read aloud approximately thirty minutes later in the Council Chambers.

The project name is **“ENV 18 – 02 CIP PST UPGRADE”**.

After evaluating the Proposals submitted, the City will select the Offeror that provides the Best Value to the City and enter into negotiations with that Offeror. The City may discuss with the selected Offeror options for a scope or time modification and any price change associated with such modification.

1.2.1 Pre-Proposal Meeting

A Pre-Proposal Conference will be held from **10 a.m. to 12:00 p.m., Thursday, March 8, 2018 in the conference room on the 7th floor at 908 Monroe Street, Fort Worth, Texas.** Attendance at the pre-proposal conference is not mandatory but is recommended.

The offers will be valid for **ninety (90) calendar days.**

The Proposal Documents submitted in accordance with this Request for Competitive Sealed Proposal shall remain valid for ninety (90) days after the due date.

All Providers must comply with:

- Chapter 17, "Human Relations," Article III, "Discrimination," Division 3, "Employment Practices," of the Code of the City of Fort Worth, prohibiting discrimination in employment practices.
- Fort Worth ordinance 20020, Business Diversity Enterprises.

Offerors must submit a bid bond with their proposal. Offeror(s) to whom an award of contract(s) is made will be required to provide Payment and Performance Bonds, as required, and provide proof of Contractors General Liability and Statutory Workers Compensation Coverage.

Proposal documents, addenda, and specifications may be obtained from the City of Fort Worth Web site at <http://www.fortworthgov.org/purchasing/> in portable document format (PDF), or may be viewed at the Environmental Management Division office at 908 Monroe Street, 7th Floor, Fort Worth, Texas 76102, during normal business hours. Contact the Project Manager, Roger Grantham, at 817-392-8592 or email Roger.Grantham@fortworthtexas.gov for assistance.

1.3 INTERPRETATION OF RFP DOCUMENTS

All requests for an interpretation of the Request for Proposal must be made in writing and submitted to the Environmental Management Division, regular mail or email, at any time up to seven (7) calendar days prior to the deadline date for submitting Proposal Packages. The person submitting the request will be responsible for its prompt delivery. No oral requests for interpretation will be answered.

The City will issue any interpretation of the Proposal Documents as a formal addendum. The City will attempt to email a copy of each addendum to each person receiving a Proposal Package, when those persons have identified themselves to the City. The City will also post addenda on the web site. The City will not be responsible for any other explanations or interpretations. It is the Provider's obligation to determine if addenda have been issued prior to the deadline for submitting the Proposal Package.

1.4 CONFLICTS

Should there be conflicts between the Proposal documents and the final executed contract document; the final contract shall take precedence. Questions regarding this Request for Proposal should be directed in writing immediately to:

Roger Grantham, Environmental Program Supervisor
Environmental Quality Division
City of Fort Worth
200 Texas Street, Fort Worth, TX, 76102-6311
Phone 817-392-8592
roger.grantham@fortworthtexas.gov

1.5 HOW TO SUBMIT A PROPOSAL PACKAGE

Each Provider must submit **one (1) electronic copy of the entire Proposal package on a “flash or thumb” drive** to the City. No hardcopies will be accepted.

All items to complete the submittal must be included within the Proposal Package or the entire Proposal Package may be considered non-responsive and rejected. In case of ambiguity or lack of clarity, the City reserves the right to adopt the construction most advantageous to the City or to reject the Proposal Package.

Proposal Packages (electronic thumb-drive only) must be submitted in a sealed envelope, addressed to the City of Fort Worth Purchasing Division, 200 Texas Street, Fort Worth, Texas 76102. The Proposal Packages must be received by the Purchasing Division no later than 1:30 p.m. on Thursday, March 29, 2018.

The project number must be clearly marked on the envelope and the statement **“PROPOSAL DOCUMENTS ENCLOSED, DELIVER TO PURCHASING DIVISION ONLY BEFORE 1:30 p.m. on Thursday, March 29, 2018”** placed in the lower left-hand corner of the envelope in which the documents are delivered. If the documents are placed in an envelope that is contained inside another envelope, the statement shall be placed on the outermost envelope.

Any Proposal Documents not properly marked or not received in the proper place by the proper time **will be considered non-responsive.**

NO FAXED or EMAILED PROPOSALS WILL BE ACCEPTED

1.6 OPENING OF PROPOSAL

The firm name for each proposal submitted will be read aloud at read aloud at 2:00 p.m. on **Thursday, March 29, 2018**, in the Fort Worth City Council Chambers. The Proposal Packages shall be handled so as to avoid the disclosure of the remainder of their contents to competing offerors and so as to keep such contents secret during negotiations. All Proposal Packages will be open for public inspection after the contract is awarded.

However, information in the Proposal Packages subject to the trade secrets exception of the Public Information Act under §552.110 of the Texas Government Code or the confidential information exception under §552.101 of the Texas Government Code will not be open to public inspection. It is the responsibility of the Provider to clearly mark as such any information they deem trade secret or confidential.

1.7 PROPOSAL EVALUATION CRITERIA

The City will select the most highly qualified Provider responding to the request, based upon demonstrated competence and the Proposal. The Proposal will be evaluated by qualitative measures and will be weighted as follows:

In determining the **Best Value Offeror**, the City will consider:

1. Proposed Price (35%)

The lowest priced responsive will receive 35 points for this rating criteria. Higher priced proposals will receive proportionally lower scores. When compared to the lowest price, the higher priced proposal will have its score reduced by one percent (1%) for every percent it is higher than the lowest price. The score will be rounded to the nearest whole number.

2. Proposed Project Schedule (10%)

For this project, the selected contractor will coordinate and work with the City Staff during the construction period.

3. Reputation/Experience (35%)

Reputation and experience of the Offeror (25%) as demonstrated by listing past and current projects including references with names and current telephone numbers; and, list of subcontractors (10%) including subcontractor qualifications.

The City may conduct such investigations as deemed necessary to assist in the evaluation of any Proposal and to establish the responsibility, Proposal, and financial ability of the Provider, subcontractors, and other persons who are proposed to work on the project.

4. Minority/Women Business Enterprise (20%)

MBE and WBE proposers, in accordance and consistent with the City's Business Diversity Enterprise (BDE) Ordinance, will receive Evaluation Preference Points to reflect the City's strong and serious consideration to use MBEs and WBEs as primes.

1.8 NEGOTIATION OF THE CONTRACT

After selecting the most highly qualified Provider, the City will then attempt to negotiate with the Provider a contract. If a satisfactory contract cannot be negotiated with the most highly qualified Provider, the City shall formally end negotiations with the Provider, select the next most highly qualified Provider, and attempt to negotiate a contract with that Provider. This process shall continue until a contract is entered into, or until the City rejects all submittals and issues a new Request for Proposal based on a new scope of work. The fees under the contract must be consistent with industry standard and may not exceed any maximum provided by law.

During negotiations, the Provider will also respond to the City's Business Diversity Enterprise (BDE) Utilization Requirements as set forth in Section 2.3 of this Request for Proposals. The City will negotiate with the successful Provider any final changes to the contract and any exceptions identified in the Proposal Documents. The City is not obligated to accept any exceptions made by Provider. After the negotiations, the City will prepare and issue the contract documents with the notice of award to the successful Provider.

1.9 AWARD OF THE CONTRACT

The City will send a notice of award letter to the successful Provider with three (3) sets of contract documents. The successful Provider must execute the contract in each set and return all three sets to the City. Upon receipt of the three sets, the City will execute each set and issue one set to the Provider with a letter entitled notice to proceed. This letter authorizes work to begin and invoices to be paid.

1.10 RESERVATIONS

The City reserves the right to reject any or all Proposal Packages and waive any or all formalities.

1.11 SECURITY

Upon acceptance of this Proposal by the City Council, the bidder is bound to execute a contract and, if the contract amount exceeds \$50,000.00, furnish acceptable Performance and/or Payment Bonds approved by the City of Fort Worth for performing and completing the Work within the time stated and for the following sum, to wit: Before beginning the work, the Contractor shall be required to execute to the City of Fort Worth, a payment bond if the contract is in excess of \$25,000, and a performance bond if the contract is in excess of \$100,000. The payment bond is solely for the protection and use of payment bond beneficiaries who have a direct contractual relationship with the Contractor or subcontractor to supply labor or material; and in 100% the amount of the Contract. The performance bond is solely for the protection of the City of Fort Worth; in 100% the amount of the Contract; and conditioned on the faithful performance by Contractor of the work in accordance with the plans, specifications, and contract documents. Contractor must provide the payment and performance bonds,

in the amounts and on the conditions required, within 14 calendar days after Notice of Award.

1.12 VENDOR COMPLIANCE TO STATE LAW

The 1985 Session of the Texas Legislature passed House Bill 620 relative to the award of contracts to non-resident bidders. This law provides that, in order to be awarded a contract as low bidder, non-resident bidders (out of state contractors whose corporate offices or principal place of business are outside of the State or Texas) bid projects for construction, improvements, supplies or services in Texas at an amount lower than the lowest Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a non-resident bidder in order to obtain a comparable contract in the State in which the non-resident’s principal place of business is located. The appropriate blanks in Section A must be filled out by all out-of-state or non-resident bidders in order for your bid to meet specifications. The failure of out-of-state or non-resident contractors to do so will automatically disqualify that bidder. Resident bidders must check the box in Section B.

A. Non-Resident vendors in _____ (give State), our principal place of business, are required to be _____ percent lower than resident bidders by State law. A copy of the Statute is attached.

Non-resident vendors in _____ (give State), our principle place of business, are not required to underbid resident bidders.

B. Our principle place of business or corporate office(s) is in the State of Texas.

Bidder:

Company Name

By: (Please Print)

Signature

Title (Please Print)

1.13 CONTRACTOR'S RESPONSIBILITIES

Contractor is responsible for becoming familiar with the character, quality, quantity of work to be performed, materials and equipment required.

Contractor shall procure all permits and licenses, pay all charges, costs, and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, unless otherwise specified in this Invitation to Bid.

All costs associated with preparing a bid in response to the solicitation shall be borne by the bidder.

The undersigned acknowledges the requirements of this section, and intends to comply with same in the execution of this project.

PROVIDER:

_____	BY: _____
Company Name	(print or type name of signatory)
_____	_____
Address	(Signature)
_____	_____
City, State, Zip	Title (print or type)

MINORITY BUSINESS ENTERPRISE (MBE): **(For bids in excess of \$50,000)**

I am aware that I must submit information concerning the MBE participation within **TWO BUSINESS DAYS** of submittal of this Proposal in order to be considered RESPONSIVE.

PROVIDER:

_____	BY: _____
Company Name	(print or type name of signatory)
_____	_____
Address	(Signature)
_____	_____
City, State, Zip	Title (print or type)

2.0 PROPOSAL DOCUMENTS

2.1 PROPOSAL DOCUMENT CHECKLIST

All Proposal Documents, including this Checklist, must be completed in full and submitted in a sealed envelope, in the requested order, or the Proposal Package may be considered as a non-responsive submittal.

<u>Proposal Documents</u>	<u>Initial if Included</u>
1. PROPOSAL DOCUMENT CHECK LIST	_____
2. ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA	_____
3. MINORITY BUSINESS ENTERPRISES (MBE)	_____
4. PROPOSAL SUMMARY	_____
5. PROPOSAL OF PROVIDER	_____
6. LIST OF SUBCONTRACTORS	_____
7. INSURANCE CERTIFICATES	_____
8. LICENSES & CERTIFICATES	_____
9. LEGAL & COMPLIANCE HISTORY	_____
10. PERFORMANCE AND PAYMENT BONDS	_____
11. BID SECURITY	_____
12. PREVAILING WAGE RATE	_____
13. COMPLIANCE & WORKERS COMPENSATION	_____

I understand that failure to submit all of these items may cause my submittal to be considered non-responsive.

Name _____

Title _____

Company _____

2.2 ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA

Check if applicable _____

The undersigned acknowledges the receipt of the following addendum (a) to the Request for Proposal, and has attached all addenda following this page. (Add lines if necessary).

__ Addendum Number 1	_____
	(Date received)
__ Addendum Number 2	_____
	(Date received)
__ Addendum Number 3	_____
	(Date received)
__ Addendum Number 4	_____
	(Date received)

Check if applicable _____

The undersigned acknowledges the receipt of no addenda to the Request for Proposal.

PROVIDER:

_____ Company Name	BY: _____ (print or type name of signatory)
_____ Address	_____ (Signature)
_____ City, State, Zip	_____ Title (print or type)

2.3 MINORITY BUSINESS ENTERPRISE (MBE) (BEST VALUE PROPOSAL)

In accordance with the City's Business Diversity Enterprise Ordinance No. 20020-12-2011 (as amended), the City has goals for the participation of minority business enterprise in City contracts. A copy of the Ordinance can be obtained from the Office of the City Secretary. The Bidder shall submit the MBE Utilization Form, Subcontractor/Supplier Utilization Form, Prime Contractor Waiver Form and/or Good Faith Effort Form with documentation and/or Joint Venture Form as appropriate. The Forms including documentation must be received by the City no later than 2:00 p.m. CST, on the second business days after the bid opening date. The Bidder shall obtain a receipt from the City as evidence the documentation was received. Failure to comply shall render the bid as non-responsive.

The **Minority Business Enterprise (MBE)** diversity goal is **10%**.

It is important to note that only MBE subcontractors and suppliers that perform a commercially useful function may count towards the MBE diverse goal. If the Proposer is certified as a DBE, MBE, SBE or WBE firm, it is not permissible to count itself or its subsidiary-owned companies towards the established goal; the goal represents subcontracting opportunities.

Bidders **must** obtain MBE listings from the City of Fort Worth's M/WBE Office at 817-212-2674 or email mwbeoffice@fortworthtexas.gov. This will ensure that Bidders are acknowledging MBE firms currently certified by the North Central Texas Regional Certification Agency (NCTRCA) or other certifying agencies that the City may deem appropriate and accepted by the City of Fort Worth at the time bids are submitted, in order for the participation to be counted towards the established diverse goal. The firms must be located in the City's six (6) county geographic marketplace that includes the counties of: Tarrant, Dallas, Denton, Johnson, Parker, and Wise. Also note if a firm is DBE certified that reflects minority ownership and meets the criteria's stated, it may count towards the goal.

If an Offeror (regardless of certification status or if a non-D/M/W/MBE), however, forms a joint venture with one or more MBEs, the MBE joint venture percentage participation will be counted towards the established goal. The appropriate City of Fort Worth Joint Venture form must be submitted for review and approval in order for it to be counted. The City of Fort Worth strongly encourages joint ventures.

If Offeror failed to meet the stated MBE goal, in part or in whole, then a detailed explanation must be submitted to explain the Good and Honest Efforts that firm made to secure MBE participation.

Failure to submit the MBE participation information or the detailed explanation of the bidder's Good and Honest Efforts to meet or exceed the stated MBE goal, may render that bid non-responsive.

The undersigned acknowledges the City's MBE requirements as stated above, and if selected as the most highly qualified provider, will comply with the requirement to submit a utilization plan during contract negotiations.

PROVIDER:

Company Name

BY: _____
(print or type name of signatory)

Address

(Signature)

City, State, Zip

Title (print or type)

Remainder of page intentionally left blank

2.4 PROPOSAL SUMMARY

TO THE CITY OF FORT WORTH:

The undersigned hereby proposes to furnish the equipment, labor, materials, superintendence, and any other items or services necessary to perform the required UST removal and AST construction-related services as instructed by the City. The Scope of Services is outlined on the following pages of the Proposal Documents.

TASK 1 - Various Sites - UST Removal and AST Construction Related Activities

Fire Station No.	Number of USTs	Address	Convault
Fire Station 24	2	3101 Forest Avenue, Fort Worth, Texas 76112	1 – 1,000 gallon
Fire Station 32	2	10201 White Settlement Road, Fort Worth, Texas 76108	1 – 1,000 gallon
Fire Station 33	2	14650 Statler Drive, Fort Worth, Texas 76155	1 – 1,000 gallon

The proposed response action for the three (3) sites includes the decommissioning of six (6), approximately, 550-1,000-gallon underground storage tanks (USTs).

The major work will consist of the (approximate) following:

- Removal and disposal of two (2) USTs, one, gasoline, 550-gallon and one, diesel, 550-gallon UST from Fire Station 32.
- Removal and disposal of four (2) USTs, two, gasoline, 1,000-gallon and two, diesel, 1,000-gallon UST from Fire Station 24 and Fire Station 33.
- Installation of three (3) – 1,000 gallon, Convault, above-ground storage tanks at three Fire Stations (24,32,and 33);
- Installation of new fuel dispenser, Bennett, Model: 3112 SNS-5 Electronic Suction Pump Units (heavy-duty series) must be utilized; dual hose, one product
- Install three (3) OPW Fuel Vending System (K800 Hybrid w/FSC 300);
- Connection to the existing fuel monitoring system (OPW Integra 100/500) at each Fire Station location.
- New concrete foundation, new piping, bollards, one (1) new fuel dispensers, fuel control system, and associated electrical and instrumentation improvements, with flood light near the AST location for the three (3) Fire Stations (24, 32, and 33).
- Connection to the existing fuel monitoring system (OPW Integra 100/500) at each Fire Station location.

In addition to the decommissioning of the existing USTs, clean select- fill materials will be required to fill the former tankhold. Compaction of select-fill materials will be required to occur in 8" lifts with density testing being required for each lift. Density testing requirements should meet or exceed +/- 95% before the next lift is initiated. Refer to section 3.4 for additional information.

The scope of work anticipated for the UST removal includes the following:

- Saw cutting and breaking the concrete cover over the UST, if applicable;
- Excavation of remaining tank backfill material to expose the tanks for removal;
- Removal of all associated product and vent line piping, where applicable;
- Evacuation and removal of any residual product remaining in the tanks;
- Cleaning the interior of the tanks and purging the tanks of all explosive vapors using forced air or other suitable means;
- Stockpile excavated soils for analytical testing*;
- Fill material removed from the tank pit will be placed on-site on polyethylene sheeting and covered to prevent stormwater runoff while awaiting characterization and authorization to return to the excavation;
- Once stockpile analytical results are received, assumes excavated soil material is "non-impacted," sufficient clean select fill material to make up the volume of the removed UST will be moved to another location at the facility. Clean fill placed back in the excavation and compacted to grade in 8-inch lifts. Compaction testing and verification will be performed with a density of +/- 95%.
- Necessary City of Fort Worth permits and TCEQ notifications of petroleum storage tank construction activities.

TASK 2 - Various Sites - AST Relocation and Reinstallation Activities

Additionally, existing Convault[®] ASTs will be relocated to new locations from several existing locations according to the following table:

Present Location of AST	Future Location of AST	Size/Type of AST	Weight (Empty) Approx.
301 E. Felix Street	FS 30, 4416 Southwest Blvd.	500 g	~ 12,000 #
2500 Brennan Avenue	FS 10, 3209 Hemphill Street	500 g	~ 12,000 #
2500 Brennan Avenue	FS 17, 5151 Hemphill Street	2,000 g	~ 30,000 #
2500 Brennan Avenue	*2500 Brennan Avenue	*250 g/250 g	~ 12,000 #

The proposed response action for the four (4) sites includes the decommissioning and disconnection (if needed) of the existing four (4) City-owned ASTs. Each AST will be repurposed from existing locations and set up operationally at other existing City-owned sites.

This will entail decommissioning and disconnecting associated fueling accessories located on individual ASTs, loading, transporting, unloading, establishing adequate foundations for installation of AST, installation of upgraded fueling accessories, installation of bollard protection, installation of fuel management system components, and ensuring sites are fully operational upon completion of each individual project location.

The major work will consist of the (approximate) following:

- Loading of one 500-gallon AST located at 2500 Brennan Avenue and transporting to 4416 Southwest Blvd. At this location, the following work activities are required:
 - Installation of concrete foundation;
 - Installation of protective bollards;
 - Installation of new fuel dispenser;
 - Install one (1) OPW Fuel Vending System (K800 Hybrid w/FSC 300);
 - Connection to existing OPW Integra 500/100 w/ new probe;
 - Installation of associated electrical, communication, and instrumentation improvements; and
 - Installation of energy-efficient LED motion-sensor floodlight sufficient to illuminate area.

- Loading of one 500-gallon AST located at 2500 Brennan Avenue and transporting to 3209 Hemphill Street. At this location, the following work activities are required:
 - Installation of concrete foundation;
 - Installation of protective bollards;
 - Installation of new fuel dispenser;
 - Install one (1) OPW Fuel Vending System (K800 Hybrid w/FSC 300);
 - Connection to existing OPW Integra 500/100 w/ new probe;
 - Installation of associated electrical, communication, and instrumentation improvements; and
 - Installation of energy-efficient LED motion-sensor floodlight sufficient to illuminate area.

- Loading of one 2,000-gallon AST located at 2500 Brennan Avenue and transporting to 5151 Hemphill Street. At this location, the following work activities are required:
 - Installation of concrete foundation;
 - Installation of protective bollards;
 - Installation of new fuel dispenser, Bennett, Model: 3112 SNS-5 Electronic Suction Pump Units (heavy-duty series) must be utilized; dual hose, one product
 - Install one (1) OPW Fuel Vending System (K800 Hybrid w/FSC 300);
 - Install one (1) new OPW Integra 500
 - Installation of associated electrical, communication, and instrumentation improvements; and
 - Installation of energy-efficient LED motion-sensor floodlight sufficient to illuminate area.

- Operational activation of one 500-gallon AST (Split 250g/250g) located at 2500 Brennan Avenue. At this location, the following work activities are required:
 - Install one (1) OPW Fuel Vending System (K800 Hybrid w/FSC 300);
 - Installation of one (1) - Bennett, Model: 3722 SNR-11, 12, or 13 Electronic Suction Pump Unit (heavy-duty series) must be utilized, dual side-mount hose, dual product.
 - Install one (1) new OPW Integra 500 w/ dual probes
 - Installation of associated electrical, communication, and instrumentation improvements; and
 - Installation of energy-efficient LED motion-sensor floodlight sufficient to illuminate area.

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**COST ESTIMATE
UNDERGROUND STORAGE TANK REMOVAL**

#	UNDERGROUND STORAGE TANK ITEM		COST
1.	Removal and disposal of two (2) USTs, one, gasoline, 550-gallon and one, diesel, 550-gallon UST from Fire Station 32		\$
2.	Removal and disposal of four (2) USTs, two, gasoline, 1,000-gallon and two, diesel, 1,000-gallon UST from Fire Station 24 and Fire Station 33		\$
3.	Transportation and Disposal of Contaminated Soils from each Tankhold (assume 40 cubic yards total)		\$
4.	Clean Select Fill for Placement into Tankholds (assume 40 CY /site) with Compaction Testing to +/- 95%		\$
5.	Evacuating, Pumping, and Disposal of Waste Contents from each UST (assume 300 gallons total)		\$
6.	Removal of Vent Lines and Underground Piping associated with each UST		\$
		TOTAL COST	\$

#	ABOVEGROUND STORAGE TANK ITEM	COST
1.	<p>Loading of one 500-gallon AST located at 2500 Brennan Avenue and transporting to 4416 Southwest Blvd. At this location, the following work activities are required:</p> <ul style="list-style-type: none"> ○ Installation of concrete foundation; ○ Installation of protective bollards; ○ Installation of new fuel dispenser, Bennett, Model: 3112 SNS-5 Electronic Suction Pump Units (heavy-duty series) must be utilized; dual hose, one product ○ Install one (1) OPW Fuel Vending System (K800 Hybrid w/FSC 300); ○ Connection to existing OPW Integra 500/100 w/ new probe; ○ Installation of associated electrical, communication, and instrumentation improvements; ○ Installation of energy-efficient LED motion-sensor floodlight sufficient to illuminate area; 	\$
2.	<p>Loading of one 500-gallon AST located at 2500 Brennan Avenue and transporting to 3209 Hemphill Street. At this location, the following work activities are required:</p> <ul style="list-style-type: none"> ○ Installation of concrete foundation; ○ Installation of protective bollards; ○ Installation of new fuel dispenser, Bennett, Model: 3112 SNS-5 Electronic Suction Pump Units (heavy-duty series) must be utilized; dual hose, one product ○ Install one (1) OPW Fuel Vending System (K800 Hybrid w/FSC 300); ○ Connection to existing OPW Integra 500/100 w/ new probe; ○ Installation of associated electrical, communication, and instrumentation improvements; ○ Installation of energy-efficient LED motion-sensor floodlight sufficient to illuminate area; 	\$
3.	<p>Loading of one 2,000-gallon AST located at 2500 Brennan Avenue and transporting to 5151 Hemphill Street. At this location, the following work activities are required:</p> <ul style="list-style-type: none"> ○ Installation of concrete foundation; ○ Installation of protective bollards; ○ Installation of new fuel dispenser, Bennett, Model: 3112 SNS-5 Electronic Suction Pump Units (heavy-duty series) must be utilized; dual hose, one product ○ Install one (1) OPW Fuel Vending System (K800 Hybrid w/FSC 300); ○ Install one (1) new Integra 500 w/probe ○ Installation of associated electrical, communication, and instrumentation improvements; ○ Installation of energy-efficient LED motion-sensor floodlight sufficient to illuminate area; 	\$
4.	<p>Operational activation of one 500-gallon AST (Split 250g/250g) located at 2500 Brennan Avenue. At this location, the following work activities are required:</p> <ul style="list-style-type: none"> ○ Install one (1) OPW Fuel Vending System (K800 Hybrid w/FSC 300); ○ Installation of one (1) - Bennett, Model: 3722 SNR-11, 12, or 13 Electronic Suction Pump Unit (heavy-duty series) must be utilized, dual side-mount hose, dual product. ○ Install one (1) new Integra 500 w/ dual probes ○ Installation of associated electrical, communication, and instrumentation improvements; ○ Installation of energy-efficient LED motion-sensor floodlight sufficient to illuminate area; 	\$
TOTAL COST		\$

All Proposal Documents have been submitted in one sealed package.

_____ Addenda to the Request for Proposal have been received as acknowledged in Section 2.2.

This Proposal Summary and the accompanying Proposal Documents are intended to be complete and will remain valid for ninety (90) days from the date of submittal.

PROVIDER:

(Company Name)

(Address)

(City, State, Zip)

Phone)

BY: _____
(print or type name of signatory)

(Signature)

Title (print or type)

(Email)

2.5 PROPOSAL OF THE PROVIDER

Provider shall provide its company name, address, telephone number(s), and email addresses for the local office as well as the headquarters.

Provider shall include a copy of its current Statement of Qualifications (**20-page maximum, 11 pt. type minimum**). If subcontractors are to be utilized, each subcontractor must be discussed within the statement of Proposal. Within the statement of Proposal the Provider should:

- Document Provider's experience (including references for petroleum storage tank services as discussed in the Scope of Services. This section should discuss past and current relevant jobs with special focus on LOCAL AREA work.
- Submit an organization chart depicting contact arrangement from the City to the Provider and from the Provider's representative to other areas within the Provider. Identify key persons by name and title and describe the primary work assigned. This chart must include the individual(s) assigned to ensure the BDE plan is followed.
- Submit a brief résumé (one page maximum, 11 pt. type minimum) for the overall key personnel assigned to this project (Project Manager, Project Site Supervisors, etc.) that will PERFORM WORK under this contract. These resumes do not count as part of the overall 20-page limit for the statement of Proposal.

The contractor is required to fill out and notarize the Certificate of Interested Parties Form 1295 and the form must be submitted to the Project Manager before the contract will be presented to the City Council. The form can be obtained at <https://www.ethics.state.tx.us/tec/1295-Info.htm>.

2.5.1 TCEQ Notification and Project Coordination

Contractor will be responsible for coordinating with the Environmental Management Division the start date of UST removal activities to allow for notification to the Texas Commission on Environmental Quality (TCEQ).

2.6 LIST OF SUBCONTRACTORS

Providers shall complete the following information and submit it with the Proposal Documents to permit the City of Fort Worth to more fully evaluate the submittal's quality prior to awarding the contract.

Subcontractor's Name	Subcontractor's Address	Subcontractor's Telephone No.	Subcontractor's Email	Proposed Tasks on the Project

IF NECESSARY, PROVIDE MORE SHEETS TO DESCRIBE ADDITIONAL SUBCONTRACTORS.

2.7 INSURANCE

FOR PURPOSES OF THIS REQUEST FOR PROPOSAL, PLEASE ATTACH A COPY OF YOUR CURRENT INSURANCE CERTIFICATE(S) FOLLOWING THIS SECTION AND INCLUDED WITHIN THE PROPOSAL PACKAGE.

The successful Provider will be required by the contract to have insurance coverage as detailed below. Prior to commencing work, the Provider shall deliver to Fort Worth certificates documenting this coverage. The City may elect to have the Provider submit its entire policy for inspection.

Insurance coverage and limits:

Provider shall provide to the City certificate(s) of insurance documenting policies of the following coverage at minimum limits that are to be in effect prior to commencement of work on the contract:

1. **Commercial General Liability**
 - **\$1,000,000 each occurrence**
 - **\$2,000,000 aggregate**

2. **Automobile Liability**
 - **\$1,000,000 each accident, or**
 - **\$250,000 property damage / \$500,000 bodily injury per person per accident**

A commercial business auto policy shall provide coverage on "any auto," defined as autos owned, hired and non-owned during the course of this project.

3. **Worker's Compensation**
 - **Coverage A: statutory limits**
 - **Coverage B: \$100,000 each accident**
\$500,000 disease - policy limit
\$100,000 disease - each employee
Waiver of Subrogation required.

4. **Professional Liability**
 - **NOT APPLICABLE FOR THIS PROJECT**

Professional Liability Insurance shall be written on a project specific basis. The retroactive date shall be coincident with or prior to the date of this contract and the certificate of insurance shall state that the coverage is claims-made and the retroactive date. The insurance coverage shall be maintained for the duration of this contract and for five (5) years following completion of the contract (Tail Coverage). An annual certificate of insurance shall be submitted to the City for each year following completion of this contract.

5. **Environmental Impairment Liability and/or Pollution Liability**
 - **\$4,000,000 per occurrence.**

EIL coverage(s) must be included in policies listed in items 1 and 4 above; or, such insurance shall be provided under a separate policy or policies. Liability for damage occurring while loading, unloading and transporting materials collected under the contract project shall be

included under the Automobile Liability insurance or other policy(s).

Certificates of insurance evidencing that the Provider has obtained all required insurance shall be delivered to the City prior to Provider proceeding with the contract.

1. Applicable policies shall be endorsed to name the City an Additional Insured thereon, as its interests may appear. The term City shall include its employees, officers, officials, agents, and volunteers as respects the contracted services.
2. Certificate(s) of insurance shall document that insurance coverage specified according to items in section 2.7 above are provided under applicable policies documented thereon.
3. Any failure on part of the City to request required insurance documentation shall not constitute a waiver of the insurance requirements.
4. A minimum of thirty (30) days' notice of cancellation or material change in coverage shall be provided to the City. A ten (10) days' notice shall be acceptable in the event of non-payment of premium. Such terms shall be endorsed onto Provider's insurance policies. Notice shall be sent to Roger Grantham, City of Fort Worth – Environmental Management Division, 200 Texas Street, Fort Worth, Texas 76102.
5. Insurers for all policies must be authorized to do business in the State of Texas or be otherwise approved by the City; and, such insurers shall be acceptable to the City in terms of their financial strength and solvency.
6. Deductible limits, or self-insured retentions, affecting insurance required herein shall be acceptable to the City in its sole discretion; and, in lieu of traditional insurance, any alternative coverage maintained through insurance pools or risk retention groups must be also approved. Dedicated financial resources or letters of credit may also be acceptable to the City.
7. **Applicable policies shall each be endorsed with a waiver of subrogation in favor of the City as respects the contract.**
8. The City shall be entitled, upon its request and without incurring expense, to review the Provider's insurance policies including endorsements thereto and, at the City's discretion, the Provider may be required to provide proof of insurance premium payments.
9. The Commercial General Liability insurance policy shall have no exclusions by endorsements unless the City approves such exclusions.
10. The City shall not be responsible for the direct payment of any insurance premiums required by the contract. It is understood that insurance cost is an allowable component of Provider's overhead.
11. All insurance required in section 2.7 above, except for the Professional Liability insurance policy, shall be written on an occurrence basis in order to be approved by the City.

12. Subcontractors to the Provider shall be required by the Provider to maintain the same or reasonably equivalent insurance coverage as required for the Provider. When subcontractors maintain insurance coverage, Provider shall provide City with documentation thereof on a certificate of insurance. Notwithstanding anything to the contrary contained herein, in the event a subcontractor's insurance coverage is canceled or terminated, such cancellation or termination shall not constitute a breach by Provider of the contract.

2.8 PROVIDER'S LICENSES & CERTIFICATES

Provider shall procure all permits and licenses, pay all charges, costs, and fees, and give all notices necessary and incident to the due and lawful prosecution of the work.

Provider should provide a copy of the appropriate certifications, registrations, and licenses and related certificates (including Subcontractors) with their submittal including but not limited to:

- TCEQ Licensed Corrective Action Specialist;
- TCEQ Licensed UST Contractor; and
- TCEQ Licensed UST Supervisor (A/B).

Provider shall provide necessary company licenses and certifications required to complete the project:

- Current **Texas Sales/Use Tax Certificate**;
- Current Texas Secretary of State Business/Company Registration exhibiting Officers of Business/Company; and
- Current **Certificate of Good Standing** (Texas Secretary of States' office).

**ATTACH COPIES OF CURRENT APPLICABLE LICENSES AND CERTIFICATES
FOLLOWING THIS PAGE AND INCLUDED WITHIN THE PROPOSAL PACKAGE**

2.9 STAFF AND PROJECT REFERENCES

Provider shall complete a **staff matrix** including the following information detailing the provider's key personnel, their qualifications, and years of experience for staff that will be providing services associated with this Solicitation.

Provider shall provide at least **four (4) project references** similar in scope and size to that of this Solicitation. Each project reference shall include the following information:

- Company's Name
- Name and Title of Contact/Project
- Email, Phone, and Address of Contact
- Contract/Project Value
- Brief Description of Service Provided

2.10 PROJECT SCHEDULE AND PAYMENTS

Provider shall submit the following items included in this bid submittal, in the same order as listed, following this page, included within the response.

Project Schedule: Contractors shall provide a project schedule that includes all major tasks pursuant to the Scope of Work and Specifications. The project schedule shall show all tasks in the left most columns and their duration shall be plotted horizontally versus time. A time scale shall be selected so that the complete duration of the project can be shown on paper with a maximum dimension of 11" high by 17" wide. The project schedule must be submitted with the bid. During the term of the contract the Contractor shall submit monthly project schedules showing planned work and actual work accomplished.

Schedule of Values: Progress Payments will only be made after completion of those tasks and/or subtasks identified on the Project Schedule and Schedule of Payments. Progress Payments will be made during the project no more frequently than once per month. A payment schedule must be submitted with the Bid showing the name of each task and/or subtask, the name of the deliverable document for each task and/or subtask, total task and/or subtask cost, planned payment dates for each task and/or subtask, and the amount that would be remaining in the contract account. Upon receipt of final project completion documentation, final project payments will be approved. Final payments will not be approved until project completion documentation has been submitted to and approved by the City of Fort Worth.

Communications: Provide an organization chart that details the communication channels between the Contractor and City of Fort Worth personnel for this contract.

2.11 PROVIDER'S LEGAL AND COMPLIANCE HISTORY

Provider's legal and compliance history is a critical component of this Request for Proposal. Read this section with care and respond accordingly. Failure of the Provider to provide all the information requested and to certify the report, will result in the Provider's submittal being declared non-responsive.

Provider shall attach a written report of legal action brought against Provider, Provider's officers, Provider's employees, AND Provider's proposed subcontractors relating to the protection of the environment. The terms "legal action" and "relating to the protection of the environment" are defined below.

The report shall include all legal action brought within **five (5) years of the closing date of this Request for Proposal**. The report shall detail the substance, status, and outcome of such legal action. This includes without limitation the names of the agency and/or persons bringing the action, all relevant dates, and all fines, judgments, and/or settlements. Include the following information for each case at a minimum:

- Style of Case (X vs. Y)
- Cause Number
- Court
- Date of Disposition
- Settlement Information (as appropriate)
- Names / Addresses of all parties named
- Counsel List and phone numbers
- Judgment and Order of Judgment

“LEGAL ACTION” means: ANY enforcement action by the United States Environmental Protection Agency, the Occupational Safety and Health Administration, any other federal agency, the Texas Commission on Environmental Quality (including its predecessor agency the Texas Natural Resource Conservation Commission), the Texas Department of State Health Services (including its predecessor agency the Texas Department of Health), and any other state agency, commission or department, whether in Texas or elsewhere, when such enforcement action is a result of violations, real or alleged, of any laws, licenses, permits, judicial orders, or administrative orders, relating to the protection of the environment. In this context, enforcement action shall include without limitation, written warnings, notices of violation, consent orders or agreements, compliance orders, administrative hearings, civil litigation, and criminal prosecution. Legal action also means any civil litigation brought by any person relating to the protection of the environment.

“RELATING TO THE PROTECTION OF THE ENVIRONMENT” means: requirements pertaining to the manufacture, processing, distribution, use, handling, storage, transportation, reporting, records keeping, permitting, licensing, treatment, disposal, emission, discharge, spill, release, or threatened release of hazardous materials, hazardous substances, hazardous wastes, toxic substances, petroleum, industrial waste, solid waste, pollutants or contaminants into or onto the air, surface water, drinking water, groundwater, stormwater, publicly owned treatment works, and/or land.

THE REPORT SHALL BE SIGNED AND CERTIFIED by an authorized representative of the Provider, using the form on the following page. The top portion of the form is to be completed if a report of legal action is attached. The bottom portion of the form is to be completed if Provider has no legal action to report. **Make certain that the appropriate portion of the form is filled out and signed.**

AN AUTHORIZED REPRESENTATIVE OF THE PROVIDER shall mean:

- (1) if the Provider is a corporation: the president, secretary, or treasurer, or a vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation;
- (2) if the Provider is a partnership, a general partner; and
- (3) if the Provider is a sole proprietorship, the sole proprietor.

**INCLUDE A COPY OF THE REPORT OF LEGAL ACTION FOLLOWING THE CERTIFICATION PAGE
AND INCLUDED WITHIN THE PROPOSAL PACKAGE**

Certification of Provider's Legal and Compliance History

Complete ONE of the Following Certifications:

Certification of Legal Action Report

I certify under penalty of law that the attached Legal Action Report detailing Provider's, Provider's officers, Provider's employees, and Provider's proposed subcontractors legal and compliance history relating to the protection of the environment was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PROVIDER:

Company Name

BY: _____
(print or type name of signatory)

(signature)

Title (print or type)

Date

Certification of NO Legal Action

I certify under penalty of law that the legal and compliance history of Provider, Provider's officers, Provider's employees, and Provider's proposed subcontractors was researched under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I hereby certify that no legal action relating to the protection of the environment was brought against Provider, Provider's officers, Provider's employees, or Provider's proposed subcontractors within the preceding five years. To the best of my knowledge and belief, this statement is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PROVIDER:

Company Name

BY: _____
(print or type name of signatory)

(signature)

Title (print or type)

Date

2.12 PERFORMANCE AND PAYMENT BONDS

For projects in excess of \$50,000, the successful bidder entering into a contract for the work will be required to give the City surety in a sum equal to the amount of the contract awarded. The form of the bond shall be as herein provided and the surety shall be acceptable to the City. All bonds furnished hereunder shall meet the requirements of Texas Government Code Section 2253, as amended.

In order for a surety to be acceptable to the City, the surety must (1) hold a certificate of authority from the United States Secretary of the Treasury to qualify as a surety on obligations permitted or required under federal law; or (2) have obtained reinsurance for any liability in excess of \$100,000 from a reinsurer that is authorized and admitted as a reinsurer in the State of Texas and is the holder of a certificate of authority from the United States Secretary of the Treasury to qualify as a surety on obligations permitted or required under federal law. Satisfactory proof of any such reinsurance shall be provided to the City upon request. The City, in its sole discretion, will determine the adequacy of the proof required herein.

No sureties will be accepted by the City that are at the time in default or delinquent on any bonds or which are interested in any litigation against the City. Should any surety on the contract be determined unsatisfactory at any time by the City, notice will be given to the contractor to that effect and the contractor shall immediately provide a new surety satisfactory to the City.

If the total contract price is \$50,000 or less, payment to the contractor shall be made in one lump sum. Payment shall not be made for a period of 45 calendar days from the date the work has been completed and accepted by the City.

If the contract is in excess of \$50,000, a Payment Bond shall be executed, in the amount of the contract, solely for the protection of all claimants supplying labor and materials in the prosecution of the work.

If the contract amount is in excess of \$100,000, a Performance Bond shall also be provided, in the amount of the contract, conditioned on the faithful performance of the work in accordance with the plans, specification, and contract documents. Said bond shall be solely for the protection of the City of Fort Worth.

2.13 BID SECURITY

Cashier's check or an acceptable bidder's bond payable to the City of Fort Worth, in an amount of five (5) per cent of the bid submitted. The Bid Security must accompany the bid and is subject to forfeit in the event the successful bidder fails to execute the contract documents within ten (10) days after the contract has been awarded. The Bid Security shall be included in the envelope containing the bid proposal. Failure to submit the Bid Security will result in the proposal not being considered for this project. Bidder's bond will be returned if the City fails to award the contract within 90 calendar days of receipt of bids, unless the Bidder agrees to an extension. The surety must be licensed to do business in the State of Texas.

PLEASE ATTACH BID SECURITY (CASHIER'S CHECK OR BID BOND) FOLLOWING THIS PAGE AND BOUND WITHIN THE PROPOSAL PACKAGE

2.14 PREVAILING WAGE RATE

A Contractor selected for this project will be required to comply with TEXAS GOVERNMENT CODE, Chapter 2258, with respect to payment of Prevailing Wage Rates for public works contracts. The current wage scale for members of the Building and Construction trade may be found at:

<http://www.texoassociation.org/Chapter/wagerates.asp>.

A worker employed on a public work by or on behalf of the City of Fort Worth shall be paid not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the work is performed; and not less than the general prevailing rate of per diem wages for legal holiday and overtime work. A worker is employed on a public work if the worker is employed by a contractor or subcontractor in the execution of a contract for the public work with the City of Fort Worth.

The contractor who is awarded a public work contract, or a subcontractor of the contractor, shall pay not less than the prevailing wage rates to a worker employed by it in the execution of the contract. A contractor or subcontractor who violates this requirement shall pay to the City of Fort Worth, \$60 for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the contract.

This requirement does not prohibit the contractor or subcontractor from paying an employee an amount greater than the prevailing wage rate.

The undersigned acknowledges the requirements of Chapter 2258 of the Texas Government Code, and intends to comply with same in the execution of this project.

CONTRACTOR:

Company Name

Address

City, State, Zip

BY: _____
(print or type name of signatory)

(Signature)

Title (print or type)

2.15 WORKER'S COMPENSATION COMPLIANCE

CONTRACTOR COMPLIANCE WITH WORKER'S COMPENSATION LAW

Pursuant to Texas Labor Code Section 406.096(a), as amended, Contractor certifies that it provides worker's compensation insurance coverage for all of its employees employed on City Project, designated

"ENV 18-02 – CIP PST UPGRADE"

Contractor further certifies that, pursuant to Texas Labor Code, Section 406.096(b), as amended, it will provide to City its subcontractor's certificates of compliance with worker's compensation coverage.

CONTRACTOR:

_____ By: _____
Company
(Please Print)

_____ Signature: _____
Address

_____ Title: _____
City/State/Zip
(Please Print)

THE STATE OF TEXAS §
 § KNOW ALL BY THESE PRESENT:
COUNTY OF TARRANT §

BEFORE ME, the undersigned authority, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same as the act and deed of _____ for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this ____ day of _____, 2018

Notary Public in and for the State of Texas

3.0 UST REMOVAL SPECIFICATIONS

3.1 UNDERGROUND STORAGE TANK REMOVAL

The six (6), 550-1,000-gallon/each underground storage tanks (USTs) which currently serve the facilities shall be removed/demolished along with all associated pumps, pipes, fill ports, and ancillary equipment. The existing dispensers are to remain the property of the City of Fort Worth. All work shall be performed as described in project drawings and specifications (this and all sections included as a part of this document).

Contractor shall work closely with the Owner to sequence construction/installation and demolition/removal activities to assure minimal interruption and unreasonable inconvenience to facilities' operations.

The Contractor is responsible for the removal and safe disposal of four (4) 1,000 gallon USTs and two (2) 550-gallon USTs, and associated underground piping and fill ports.

Contractor must be a TCEQ-registered UST contractor to remove underground storage tanks (USTs). A **Registered UST contractor** is a company that has registered with the TCEQ to perform the installation, repair, modification, maintenance, and removal of UST systems. Contractor must employ supervisors and personnel with training, licensing, and understanding of Title 30 TAC §334 referring to State of Texas rules and for petroleum storage tank (PST) systems.

Contractor must be experienced in all relevant technical standards and guidance applicable for work on regulated petroleum storage tanks. The work shall be performed under the supervision of an individual holding a current TCEQ-issued on-site supervisor license.

Existing USTs and all associated pumps, piping, and ancillary equipment in association with the USTs shall be removed.

UST system demolition phase (system removal): Removal and safe disposal of four (4) 1,000 gallon USTs and two (2) 550-gallon USTs, and associated underground piping and fill ports.

Underground and above ground utilities shall be located and verified by Contractor prior to any digging, surface material removal or excavation. It is the responsibility of the Contractor to protect all utilities.

Approximately 80+/- linear feet of underground pipe is to be removed. Concrete pavement that is removed in association with the pipe removal is to be replaced to City of Fort Worth standard specifications. Contractor will assist the TCEQ-Licensed Corrective Action Project Manager (CAPM) with the collection of soil samples in the tankhold area as well beneath the underground piping runs and each dispenser.

Contractor shall assist the Owner' Representative or trained personnel in the collection of soil samples as directed in the field and take direction from the Owner' Representative or trained personnel concerning management of excavated soil.

Contractor shall assist the Owner' Representative or trained personnel in collection of soil samples within the exposed pipe trenches, within the tankhold, and beneath the dispensers. After sampling, as directed by Owner' Representative or trained personnel, Contractor shall backfill pipe chase trenches to sub-pavement grade, and pave to match surrounding pavement.

Any damage to the storm sewers, facility piping, electrical, or other utilities or structures during demolition procedures is to be repaired or replaced at Contractor expense. No change order will be approved for any damage Contractor may cause to storm sewer or other existing utilities. The tankhold is to be back filled to the specifications found in Section 3.4

All replaced concrete shall be replaced with similar concrete paving and graded to match surrounding drainage. Comparable curbing and pavement, if necessary for removal, may also require replacement with surfaces equivalent to existing cover.

Contractor shall confirm measurement and quantities of cut and replacement concrete by reviewing plans, documents and by measurements if necessary during the mandatory pre-bid meeting.

As with any UST removal, contaminated soil or groundwater may be encountered that exceeds a TCEQ PST Action Level. Excavated tankhold fill material must be temporarily stockpiled on an impermeable polyethylene plastic surface; at least 10 ml thick, within a temporary containment in a location approved by the Owner's consultant and will be replaced with clean fill (See Section 3.4). The samples of the excavated material will be taken and analyzed for disposal characterization purposes. Upon review of laboratory analysis, the soil will be profiled and disposed of off-site, if required, or staged at a site located within the Village Creek Water Reclamation Facility complex. At the direction of the Owner, the excavated soil may be re-used at the site;

After the USTs are removed, new select fill shall be placed into the excavation to bring the tankhold level up to a sufficient grade and compaction to support the new paving and stable landscape grass cover.

Contractor should plan to leave the tankhold pit open for up to seven (7) calendar days, after confirmation samples are taken, awaiting a decision by the Owner' Representative for Contractor to remobilize and resume backfilling with clean fill. Contractor shall install orange safety fencing to secure the tankhold while awaiting instructions to continue backfilling.

Contractor shall pump or remove remaining diesel fuel/gasoline from existing tanks prior to beginning demolition.

Prior to removal and with on-site Fire Marshal permission (green tag), Contractor shall empty tank contents, triple rinse each UST and transport the rinseate for disposal. The fee for the vacuum truck and disposal shall be included in the base fee proposed by Contractor.

All liquids and residues removed from each tank shall be handled in accordance with appropriate federal, state and local regulations. Contractor shall supply, to the Owner's consultant, written certification in the form of manifests or other documentation by the Contractor, shipper, and receiver that all liquids and residues, contaminated backfill or other soil, tanks, and other materials were removed, shipped and disposed of in accordance with all applicable permits, safety rules, and regulations.

Pavement demolition may be required for the UST piping to be removed. The removed concrete will be transported off-site for disposal/recycling. Cost for demolition waste disposal/recycling shall be included in the Contractor's fee. Contractor shall include within its base fee and scope the proper removal, temporary storage, transportation and disposal of up to 100 cubic yards of excavated fill material should the Owner' Representative determine that the material is not fit for placing back into the tank pit.

Contractor shall be responsible for replacing the void of any such disposed fill material with an equivalent amount of approved backfill.

The emptied and rinsed USTs shall be tested by the Contractor with an MSA explosimeter, or equivalent, to monitor potentially explosive conditions during the removal of each tank. Once this instrument indicates that the atmosphere in every tank is non-explosive, the USTs shall be removed, labeled and transported off-site within 24 hours of removal. All tanks shall be appropriately vented, loaded and labeled for transportation and disposal purposes. A certificate of destruction for each tank will be provided with the final report.

The entire fuel system will not be removed. Consult the included construction and demolition plans for guidance on remaining equipment. Any monitoring equipment buried with the USTs shall also be removed.

Contractor shall be responsible for having all proper licenses/certifications to perform UST removal work. Contractor shall communicate and coordinate with Owner' Representative and/or Owner to obtain all applicable local, state, and federal permits and notifications including making all notifications and payment for such permits. Certain notifications and communication may be performed by the Owner' Representative. Contractor is required to work closely with Owner' Representative to determine appropriate notification and filing responsibilities, and confirm that all such notifications and filings are done in full compliance with all applicable rules, regulations, industry standards, and authoritative published guidelines. Contractor shall:

- a. Retain copies of regulatory notifications, permits, and licenses and observe and comply with all regulations and conditions of the permit or license, including additional insurance requirements.
- b. Obtain and pay for all other necessary permits including any and all necessary highway, street and road permits for transporting pipe, heavy supplies, wastes, and equipment necessary for construction of the Project.
- c. Obtaining and paying for other permits necessary to conduct any part of the Work.
- d. Arrange for inspections and certifications by agencies having jurisdiction over the work including local TCEQ and City Fire Marshal's office.
- e. Make arrangements with private utility companies and pay fees associated with obtaining services, or inspection fees.
- f. If necessary, Contractor shall make arrangements with private utility companies and pay for fees associated with obtaining services, or for inspection fees.

Contractor shall notify the Owner' Representative if site conditions vary substantially from specified drawings.

Contractor shall supply the Facility personnel and Owner' Representative with timely detailed work schedules and provides weekly progress reports.

The Contractor shall timely provide copies of all submittals and documents submitted to local and state regulatory permitting authorities as well as the Project Manager, Roger Grantham, to review prior to order and installation of any equipment or parts for this project. The Contractor shall provide detailed traffic control plan for the work area, if applicable.

Contractor shall conform to standard stormwater pollution control best management practices.

Existing structures, including nearby buildings, canopies, and walls, shall be protected by Contractor. Contractor shall repair any damage to structures to equivalent or improved status over pre-existing conditions.

3.2 CONCRETE STANDARDS

Work Includes: Design, fabrication, erection and stripping of formwork for cast-in-place concrete including shoring, reshoring, prefabricated forms and accessories.

- Erection shall include installation in formwork of items furnished by other trades.
- Furnish all labor and materials required to fabricate, deliver, and install reinforcement and embedded metal assemblies for cast-in-place concrete, including steel bars, welded steel wire fabric, ties, supports, and sleeves.
- Furnish all labor and materials required to perform the following:
 - a. Cast-in-place concrete
 - b. Concrete mix designs
 - c. Grouting

Concrete Pads – (Refer to the project drawings)

- 11.0.0' x 5'8" x 8.0"; light broom finish;
 - Steel Reinforcement - #4 @ 9.0 O.C.; (See Project Notes)

Compressive Strength - Not less than 5,000 psi at 28 days when tested according to ASTM C109

1. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
2. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Project Manager, Roger Grantham.
3. Do not exceed the maximum specified water/cement ratio for the mix.
4. Deposit concrete continuously in one (1) layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints in accordance with the City of Fort Worth requirements.

5. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures, 15 feet maximum and in a manner to avoid inclined construction joints.
6. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
7. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least six (6) inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
8. Do not permit concrete to drop freely any distance greater than 10 feet for concrete containing a high range water reducing admixture (superplasticizer) or 5 feet for other concrete. Provide chute or tremie to place concrete where longer drops are necessary. Do not place concrete into excavations with standing water. If place of deposit cannot be pumped dry, pour concrete through a tremie with its outlet near the bottom of the place of deposit.
9. Discard pump priming grout and do not use in the structure.

Steel Reinforcement – Concrete Slab

- Reinforcing Bars-ASTM A615, Grade 60, #4 @ 9" O.C. located 2" clear of top surface and also 3" clear of bottom surfaces

Bar Supports

- a. Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire reinforcement in place.
- b. Manufacture bar supports from steel wire, plastic or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
 2. For slabs-on-grade, provide sand plates, horizontal runners or precast concrete blocks on bottom where base material will not support chair legs or where vapor barrier has been specified.

Aggregate - well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.

Pipe Bollards

- 6" diameter standard pipe bollards are to be used;
- Length of bollard – 54"
- Bollard height above finished foundation elevation – 2 - 11"
- Concrete-filled with 1" rounded cap above bollard
- Bollard depth in concrete – 19"
- Bollards will be welded on each side of pipe to #5 rebar x 10" (4 per bollard)
- Spacing of bollards:
 - Corners – 1.0' from end of slab (relative to x and y axis)
 - In-line – 4.0' centers

- Painting – bollards will be painted safety yellow
- Reflective tape will be placed around each bollard, 5” below top of bollard crown

3.3 BACKFILL AND COMPACTION STANDARDS

The imported fill material to consist of clay soil with plasticity index less than 30.

The clay fill material should be free of any vegetation, roots, debris, rock fragments, or other objectionable material.

The clay fill material should be compacted at a minimum of 94 percent of ASTM 1 D 698 maximum dry density and within 1 to 5 percent above the optimum moisture content. The clay fill should be placed in 8 inch loose lifts. Any clay material below 10 feet should be placed at a minimum of 98 percent of ASTM D 698 maximum dry density within optimum to 4 percent above the optimum moisture content.

The top 2 feet should be a select fill material, sandy clay (CL) or clayey sand (SC) with a liquid limit of less than 35 and a plasticity index between 7 and 15. A minimum of 30 percent of the soil should pass the No. 200 sieve.

The material should be spread in loose horizontal lifts, less than 9 inches thick, and be uniformly compacted to a minimum of 95 percent of ASTM D 698 maximum dry density between minus one (-1) and plus three (+3) percentage points of its optimum moisture content. The select fill placement should begin immediately after the clay fill has been placed. A settlement of about 1 inch and 1.5 inches is calculated for fill material to depths of 12 and 15 feet, respectively.

Each lift should be tested to confirm it has the specified moisture and compaction. One in-place moisture/density test should be performed for every 5,000 square feet per lift of compacted area. For smaller areas, a minimum of one test should be provided for every lift. Subsequent lifts should not be placed until the exposed lift has the specified moisture and density. Lifts failing to meet the moisture and density requirements should be reworked to meet the required specifications.

The specified moisture content must be maintained until compaction of the overlying lift, or construction of the overlying structure. Failure to maintain the moisture content could result in excessive soil movement, and can also have a detrimental effect on overlying plastic concrete. The contractor must provide some means of controlling the moisture content (such as water hoses, water trucks, etc.). Maintaining subgrade moisture is always critical, but will require the greatest effort during warm, windy and/or sunny conditions. Density and moisture testing is recommended to provide an indication that adequate earthwork is being provided. However, the quality of the fill is the sole responsibility of the contractor. Satisfactory verification testing is not a guarantee of the quality of the contractor's earthwork operations.

Considerations should be given to placing the new fill after benching the slope of the excavation. The bench heights should not be less than 2 feet. Excavations should be configured to create a safe working condition. As required by Texas State law, the excavation design and maintenance is the sole responsibility of the Contractor. Attention is drawn to OSHA Standards 29 CFR - 1926 Subpart P for guidance in the design of such systems.

Shallow foundation placed on the prepared fill material may be designed for a maximum allowable bearing pressure of 2,000 psf. A potential vertical movement on the order of 1 inch is calculated placed on 2 feet of select fill underlain by properly compacted clay fill to depths up to 12 feet.

3.4 ABOVEGROUND FUEL STORAGE TANK (AST) AND ANCILLARY EQUIPMENT STANDARDS

FUEL DISPENSING EQUIPMENT

I. GENERAL

- A. Provide three (3) UL142 and UL-2085 listed double wall steel (“E-” series) 1,000 gallon Convault® above ground storage tank, which carries listing and label under U.L. Standard 2085, INSULATED Secondary Containment Aboveground Tank for Flammable and Combustible Liquids, Protected Type with Vehicle Impact and Projectile Resistance.
- B. The Tank System will provide Emergency Venting for Secondary Containment by Form-of-Construction. Unit must comply with all provisions of U.F.C. 79-7, Appendix A-II-F. The Tank System and its enclosure shall be a completed unit at the factory (shop fabricated). The Tank System shall be approved for Phase I and Phase II Vapor Recovery by the California Air Resources Board for gasoline and methanol. For Drawings or more information Contact: Old Castle Precast at: www.convault.com – or – 888-965-3227, John Haggstrom.

II. SUBMITTALS

- A. Submit for approval shop drawings, product data, and test reports.
- B. Submit manufacturer's data of specifications indicating all options and accessories.
- C. Submit operations and maintenance manuals.

III. QUALITY ASSURANCE

- A. The Insulated Secondary Containment Aboveground Storage Tank Systems for Flammable and Combustible Liquids, Protected Type: Vehicle Impact Protected, and Projectile Resistant shall be tested to and listed for the following:
 - 1. UL - 142, aboveground steel tanks for flammable and combustible liquids.
 - 2. UL - 2085, two-hour furnace fire test and two hour simulated pool fire test for insulated and protected tank.
 - 3. UL - 2085 and UFC Test Standard (Article 79-7 or APPENDIX #A-II-F-I) for both Vehicle Impact Protection and Projectile Resistance; 2) NFPA 30 and 30A; 3) IFC Chapter 22; and 4) IFC Chapter 34.
 - 4. UL - 2085, Protected aboveground tanks for flammable and combustible liquids.

5. UL-2085, Non-Metallic Secondary Containment protected tanks for flammable and combustible liquids with secondary containment Emergency Venting by "Form of Construction."
6. CAN/ULC (ORD - 142.18) Standard for shop fabricated steel aboveground horizontal tanks for flammable and combustible liquids.
7. CAN/ULC - (ORD - C 142.16) Standard for protected aboveground tank assemblies for flammable and combustible liquids. CAN/ULC - (ORD - C 142.5) Standard for concrete encased aboveground tank assemblies for flammable and combustible liquids.
8. CAN/ULC - (ORD - C 142.16) the furnace burn requirements for two-hour fire rating.
9. CAN/ULC - (ORD - C 142.25) the open (pool) fire testing for two-hour flammable liquid fire test.
10. CAN/ULC – (ORD – 142.23) Standard for aboveground tanks for used oil.
11. The requirement for uniform fire code for two-hour (firewall) test.
12. The tank system shall be tested, certified and approved by the California Air Resources Board (CARB) for Vapor Recovery by the State of California Air Resource Board (CARB) under Executive Order VR-302-B Standing Loss Control Recovery System for New Installations of Aboveground Storage Tanks effective 11/30/09.
13. The primary steel tank shall be rectangular or cylindrical in shape and have continuous welds on all exterior seams, manufactured in accordance with UL listing requirements and UL Standard 142.
14. The primary steel tank shall be pressure tested at 5 psig for 24 hours.
15. The primary steel tanks shall have "emergency vent" system as per NFPA 30 Code requirements.
16. The protected and insulated AST systems shall have a thru-tank leak detector tube to allow for physical checkup and monitoring capability between the primary and the secondary containment.
17. The primary steel tank shall be pressurized at 5 psig during concrete encasement.
18. The outer surface of the primary steel tank shall be covered by a minimum of 1/4" Thick (6.4 mm) Styrofoam insulation panels or equally acceptable thermal insulation.
19. The secondary containment shall consist of a 30 Mil thick (0.76 mm) High-Density Polyethylene membrane enclosing the steel tank and insulation material.
20. The primary steel tank and the secondary containment shall be encased in six inches of monolithic reinforced concrete, with minimum design strength of 4,000 and 5,000 psi at 28 days depending on the tank size. The concrete design shall include the following for long-term durability: air entrainment, water reducing admixture, and steel reinforcement. Concrete

encasements with seams will not be approved.

21. The protected and insulated AST systems shall be of concrete exterior and a continuous and visually verifiable monolithic (seamless) pour on top, bottom, ends, and sides and contain no cold joints or heat sinks (heat transfer points). The AST must be shop fabricated and tested in accordance with the UL listings. Designs that use two layers of steel with insulation material between them will not be approved.

22. No steel or insulating material shall come in contact with the concrete or other corrosive material.

23. All openings shall be from the top only.

24. All exposed metal must be powder coated to inhibit corrosion.

25. The protected and insulated AST systems shall include a minimum 5-15 gallon powder coated UL listed spill containment, and shall include normally closed valve to release spilled product into the primary steel tank. Spill containment which route the spilled product into interstitial area will not be approved.

26. The protected and insulated AST systems shall have a coated concrete exterior to resist weather and reflect sunlight. Models with steel exteriors will not be approved.

27. The protected and insulated AST systems shall have a warranty of 30 years.

28. The protected and insulated AST systems design shall have been in use for a minimum of thirteen (13) years. The manufacturer must stipulate no AST containment system failure in 24,000 units produced.

29. The protected and insulated AST systems shall have two (2) lugs for connecting grounding conductors for lightening protection in accordance with NFPA 780.

IV. PRODUCTS & MATERIALS

- A. Aboveground Storage Tank (AST): as manufactured by Old Castle Precast, (ConVault) or equal as approved by Owner, shall be three (3) 1,000 gallon Convault® (30 year warranty) with internal overfill containment and diesel package.

1. Primary Tank: The primary tank shall be rectangular in shape, constructed with a minimum of 10-gauge thick carbon steel, listed per U.L. Standard 142, and meet the requirements of N.F.P.A. 30. Welds shall be continuous on all sides, conforming with the American Welding Society Standard for continuous weld. The tank system shall be warranted by the manufacturer against defects in material or workmanship for 30 years following the delivery of the tank. Warranties that limit such coverage for shorter periods will not be permitted. See warranty documents.

2. Concrete Encasement: The concrete encasement shall be 6" thick with minimum design strength of 4000 psi. Concrete enclosure shall encase and protect both the primary steel tank and the secondary containment. The concrete design shall include the following for long-term

durability: less than 3% air entrainment, water-reducing admixture, and steel reinforcing bars. Concrete encasement shall be monolithic (without seams) and placement methods shall ensure the absence of voids on all sides and beneath the steel tank. An exterior steel jacket covering the concrete vault will NOT be permitted. The primary steel tank shall be pre-stressed at the factory by pressurizing to 5 psi during concrete encasement for a minimum of 24 hours to allow for expansion and contraction. Vault enclosure shall have concrete support legs of unitized monolithic construction raising the concrete enclosure a minimum of 3" above the ground to meet visual inspection requirements. A mid-level seam or other cold joint construction that could compromise the liquid tightness (secondary containment) or fire protection capability of the vault is not permitted.

3. Fire Resistance: The Tank System shall be designed and tested to provide 2-hour fire protection for the primary tank as per U.L. 2085 2-hour furnace fire test and 2 hour simulated pool fire test. No steel members shall penetrate the walls or floor of the concrete encasement to assure isolation from pool fire heat.

4. Bullet Resistance: The primary tank must withstand the U.L./U.L.C. test for ballistics: impact of 5 bullets, (150 grain, M2 balls of ammunition) fired at a muzzle velocity of 2700 feet/second from 100 yards; the primary tank is then pressure tested at 5 psi air pressure to check for leakage. Vehicle Impact Resistance: Unit must withstand U.L./U.L.C. test for impact resistance: unit must be subjected.

5. Impact Resistance: Unit must withstand U.L./U.L.C. test for impact resistance: unit must be subjected to the impact of an 11,800 pound mass moving at a velocity of 14.7 feet/second; following the impact, the primary tank is then pressure tested to check for leakage.

6. Thermal and Corrosion Protection: The Tank System construction shall include thermal insulation equivalent to .25 inches of polystyrene to protect against temperature extremes, and to protect against corrosion by isolating the steel tank from the concrete or other corrosive material. All steel exterior to the concrete encasement shall be antioxidant powder coated to inhibit corrosion and meet A.S.T.M. B117.

7. Secondary Containment with Leak Monitoring: Unit construction must provide Emergency Venting for Secondary Containment by Form-of-Construction according to U.L. Standard 2085 which meets testing criteria. The Tank System shall include an impervious barrier of 30-mil high-density polyethylene to contain leaks from the primary tank.

8. Spill/Overfill Containment: The Tank System shall include a U.L. listed 7-gallon spill/overfill container manufactured as an integral part of the primary tank, surrounding the fill pipe, and protected by the 2-hour fire rating of the enclosure. The spill/overfill container shall include a stick port and normally closed valve to release spilled product into the main tank. Exterior steel shall be antioxidant powder coated to inhibit rust.

9. Overfill Protection: Overfill protection shall be provided by one or more of the following methods: a) direct reading level gauge (OPW 200PG) visible from fill pipe access; b) valve rated for pressurized delivery located within fill pipe to close automatically at 95% full level; c) audible/visual high level alarm.

10. Exterior Finish: The tank system shall be: " STO" FINISH (Sahara Sand) (Tan) utilizing two (2) coats 'StoSilco" coating.

11. Signage: Tanks shall be marked on all sides as per state and local codes. Signs will be recessed in concrete exterior to insure against damage during off-loading, refilling or general functions.

12. Venting: Tank system shall include a 2" atmospheric vent and emergency venting in accordance with N.F.P.A. 30 or 30A.

13. Anti-Spill Valves: Where product piping extends below the top of the tank, the piping shall include a shutoff valve and normally closed safety valve. The safety valve shall be an approved anti-siphon valve or electric solenoid valve.

B. Diesel Dispensing Units (2)

1. Six (6) - Bennett, Model: 3712SNS-5 Electronic Suction Pump Units (heavy-duty series) and one (1) Bennett, Model: 3722 SNR 11, 12, or 13 must be utilized. If any brand other than Bennett is selected then the pump/dispenser shall be equivalent to the Bennett 3000 Series or exceed. In summary, all pumps/dispensers shall be commercial fleet heavy-duty series at a minimum. Provide single-hose, single-product, diesel dispenser with 22gpm (maximum) suction pump. Additionally, provide the following:

(a) Electronic display of gallons dispensed

(b) Internal filters with replaceable cartridges

(c)deleted.....

(d) Nozzles with automatic shutoff (e) Delivery hose: UL listed 20 feet x 1-inch hose.

(e) Hose-end swivels

(f) Hose breakaway valves and connecting hoses

(g) Hose retrievers

(h) All necessary items for fuel management system interface

2. The dispenser and its components shall be Underwriters Laboratories listed for the purpose intended and shall comply with the requirements of NFPA 30A (4-2.5, 4-2.7), UFC (5201 & 5202) and BOCA (F-3201.1 and 3207).

3. Unless the suction pump is located directly in a tank opening, provide a listed, vacuum-actuated shut off valve with a shear section. The valve shall be installed in strict accordance with the manufacturer's instructions.

(a) The valve shall be installed directly under dispenser with the shear section at the same level as the top of the island in which the suction pump is located in accordance with NFPA 30A (2-4.6.5), UFC (5202.5.3.2), BOCA (F-3205.9).

(b) Provide an electrically operated pressure-regulating valve at the tank supply outlet, which will operate simultaneously with the suction pump motor. The valve should not require backpressure to operate.

(c) Provide the necessary mounting parts and piping in accordance with NFPA 30A (2-4.6.6), UFC (5201 and 5202).

(d) Dispenser shall be either drop mounted or full size suction pump register to provide easy access by an average person. If a full size suction pump dispense unit is provided it shall be mounted on a concrete slab located within proper distance from the building and tank with bollards in accordance with NFPA 30A or any other code/regulation governing the installation.

C. Emergency Shut-off Switches (7)

1. Provide electrical disconnection of all conductors to the pump in accordance with NFPA Codes 30, 30A, and 70.

2. Locate the emergency shut-off in an accessible area, at least 20 feet but not more than 100 feet from the dispenser. Confirm the final location with the City of Fort Worth prior to installation.

3. Provide a palm type switch button that will shut off electrical power to the pump.

4. The emergency shut-off shall be clearly identified with signage.

5. Emergency shut-off shall have a manual reset.

D. Tank Monitoring Equipment and Fuel Management System

1. Provide seven (7) OPW = "SiteSentinel® Integra 500™" electronic tank gauging and monitoring system for each location with at least the following features:

- a. Tank probe(s) for liquid level sensing
- b. Control console with display and printer
- c. Means of water detection
- d. Internal communications capabilities via Network connection
- e. Tank liquid level and water measurement (provide instantaneous tank content readings for both diesel and water).
- f. Interstitial space monitoring designed for use on the ConVault.

The OPW "SiteSentinel® Integra 500™" with Reconciliation Tank Monitoring System capabilities in conjunction with excising City of Fort Worth OPW Phoenix Software. System must utilize OPW pulsers for uniformity and warranty issues. External Alarm with Lights, Buzzer and Silence Switch, Outdoor Rated with all applicable Surge Suppression/Fuse Port Protectors and, 10 Base-

T Network Interface Adapter and iSite Printer.

The monitoring system shall be installed with a network interface capability and (shall be able to communicate via network lines (not normal landlines through a modem). The system shall be capable of providing instantaneous tank contents readings for both diesel and water and/or alternative fuel. The system shall be equipped with an interstitial monitor designed for use on the ConVault tank. Startup and training shall be provided by a Certified OPW technician. Contact Mr. Randy Rendon – City of Fort Worth at 817-392-5112 for further information if necessary.

2. Provide seven (7) OPW = “K-800 HYBRID-H-FIT-2 PROX-KEY TECHNOLOGY SYSTEM” Electronic FUEL MANAGEMENT CONTROL SYSTEM WITH F.S.C.-3000 SITE CONTROLER and ELECTRNIC DATA STORAGE DEVICE for each location with at least the following features:

The OPW K-800-HYBRID-FIT-2 PROX-KEY TECHNOLOGY SYSTEM, Electronic Fuel Management Control System with external F.S.C.-3000 SITE CONTROLLER containing card memory level 4 (16,000 to 64,000), depending on configuration options and transaction memory level 4 (2,000) transactions to support up to 60,000 plus card records. Electronic Data Storage Device with all applicable Surge Suppression/Fuse Port Protectors and to include; 10 Base-T Network Interface Adapter and Cable, City of Fort Worth modified Phoenix software and ability to integrate with SiteSentinel® Integra 500™ with Reconciliation Fuel Tank Monitoring System through Network Interface.

The Fuel Management control system shall also be installed with a network interface capability and shall be able to communicate via network lines (not normal landlines through a modem). The system shall be capable of providing instantaneous tank monitoring and dispensed transactions for both diesel, unleaded and/or alternate fuels.

The system shall be equipped with the ability to populate HOST Server/Computer with fuel tank and dispensed transaction. Startup and training shall be provided by a Certified OPW technician. Contact Mr. Randy Rendon – City of Fort Worth at 817 / 392-5112 for further information if necessary. It is the responsibility of the General Contractor to make sure that all equipment quoted under this proposal match and/or exceed equipment already installed at other new CFW Fire Stations. If the General Contractor fails to match and/or exceed equipment already installed at other CFW Fire Station, he/she will be required to make the necessary corrections at his/her own expense.

The General Contractor should contact the City of Fort Worth or the local OPW Product Specialist if any questions or clarification of the proposal are needed for an accurate quote.

During the installation of the electrical conduit to the tank system an additional empty conduit shall be installed and capped at each end.

E. Bollards

- 6” diameter standard pipe bollards are to be used;
- Length of bollard – 65”
- Bollard height above finished foundation elevation – 2 - 11”
- Concrete-filled with 1” rounded cap above bollard
- Bollard depth in concrete – 30”

- Bollards will be welded on each side of pipe to #5 rebar x 10" (4 per bollard)
- Spacing of bollards:
 - Corners – 1.0' from end of slab (relative to x and y axis)
- Painting – bollards will be painted safety yellow;
- Reflective tape will be placed around each bollard approximately 5" below bollard crown;
- Bollards will be placed around all four sides of the AST.

Each tank shall be equipped with at least the minimum number of bollards required under the Uniform Fire Code.

GENERAL

Manufacturer will have a minimum of 5 years' experience in producing specified tank for commercial use and document at least 10 installations in satisfactory operation.

INSTALLATION

A. The tank system including accessories shall be installed in strict accordance with the manufacturer's recommendations and applicable fire and environmental codes. All state and local permits shall be obtained by contractor prior to installation.

B. Tanks shall be installed on a reinforced concrete base slab designed to support the fully loaded tank. Protective bollards shall be installed where required by state and local codes.

C. Tanks shall be marked on all sides with warning signs: "FLAMMABLE" or "COMBUSTIBLE", "NO SMOKING", product identification placards, and other signs as required by applicable codes.

D. Electrical work shall be in accordance with applicable codes and shall be rated for hazardous area as required. Electric feed for dispensing pumps, fuel management and monitoring system shall include an emergency shutoff switch located per code requirements, lighting arrestor tying into main electrical panel feeding fuel electronics. Single Panel: Delta Lighting Arrestor, (Part #LA302R) and 3-Phase Panel: Delta Lighting Arrestor (Part #LA603). Tanks shall be electrically grounded in accordance with N.F.P.A.78.

E. Any proposed equal alternatives to this specification must be submitted for review and approval prior to bid opening. All expenses incurred for such review to be paid for by bidder.

F. Tank Registration 1. The City of Fort Worth will register each tank and serial number with Steel Tank Institute in accordance with instructions provided by the manufacturer with the tank. Contractor is NOT authorized to sign any paper documentation on behalf of the City of Fort Worth.

G. Test for proper operation. Clean and protect work from damage. Tank shall be furnished complete with dispensing equipment, appropriate safety accessories, and product identification signs. It is intended that the successful bidder shall furnish a complete system to the City of Fort Worth. Awarded Contractor will provide a prepared concrete foundation, and be responsible for the installation of the electrical connection to the dispensers. Detailed specifications are available from Randy Rendon. Phone 817-392-5112. Other Requirements by Certified Lightning Protection Installer.

H. Lightning Protection for Fuel Station Contractor may sub-contract a Certified Lightning Protection Company to provide detailed specifications for installation of a class one lightning protection system utilizing the National Fire Protection Association's Standard Lighting Protection Systems - 2014 Edition (NFPA 780) and Lightning Protection Systems, UL96A of Underwriters Laboratories Inc., for materials, installation and installer certification requirements.

Applicable Piping and Associated Equipment Requirements

Use new Painted Black Steel Pipe. All piping must conform to PEI/RP200 Recommended Practices for Installation of Above Ground Storage Systems for Motor Vehicle Fueling specifications and 2012 International Fire Code Specifications. Inspect all piping prior to installation to detect damage caused by shipping and handling. Keep pipe fittings interiors and threads free from dirt, corrosion, moisture, and debris. Do not use low melting point materials, such as fiber glass, brass or aluminum for piping. Do not use galvanized steel.

- All piping MUST be securely fastened so that the piping is not moveable by hand. Firmly support piping using fire resistant hangers, supports and brackets. Piping shall NOT be installed in contact with the ground or concrete pavement.
- Install piping to facilitate testing, resist corrosion, and prevent damage.
- Sleeve piping at any point where it passes through a structure.
- Paint or coat steel piping.
- Securely fasten all piping. Piping should be ridged and not easily movable by hand.

Check Valves: See PEI/RP200 Recommended Practices for Installation of Above Ground Storage Systems for Motor Vehicle Fueling and 2012 International Fire Code for instructions on the installation of the check valves. Install the check valve as close as it is practical to the pump unit. Install all valves per manufacturer specifications.

Solenoid or Anti-Siphon Valve: See PEI/RP200 Recommended Practices for Installation of Above Ground Storage Systems for Motor Vehicle Fueling and 2012 International Fire Code for instructions on the installation of the solenoid or anti-siphon valves. Install all valves per manufacturer specifications.

Ball Valves: Ball Valves may be installed in place of the block valves as specified in PEI/RP200 Recommended Practices for Installation of Above Ground Storage Systems for Motor Vehicle Fueling. Install all valves per manufacturer specifications.

½ inch Morrison Thermal Expansion relief valve: Use Morrison Model 076S Expansion Relief Valve (or equivalent). See PEI/RP200 Recommended Practices for Installation of Above Ground Storage Systems for Motor Vehicle Fueling and 2012 International Fire Code for instructions and manufacturer specifications on the installation of the check valves.

Pump: Install 1/3 HP Fixed Speed Submersible Turbine Pumps onto each 3000 gallon tank.

- Approved pump: Franklin Fueling Systems 1/3 HP Fixed Speed Submersible Pump (or equivalent)

Tank filling: Install Morrison 515 Series AST Dual connection Remote Spill container on pedestal mount. Clearly label connections "GASOLINE" and "DIESEL". Provide easily accessible Stage I Vapor recovery connection for Gasoline tank.

Overfill protection: An overfill protection valve and float will be installed 1 in accordance with PEI/RP200 Recommended Practices for Installation of Above Ground Storage Systems for Motor Vehicle Fueling and 2012 International Fire Code for instructions and manufacturer specifications.

Venting: Normal vents and emergency vents are to be installed in accordance with PEI/RP200 Recommended Practices for Installation of Above Ground Storage Systems or Motor Vehicle Fueling and 2012 International Fire Code for instructions and manufacturer specifications.

Clock Gauge: Model 918 Clock Gauge Series will be installed in a location that is easily accessible to Facility employees by the Contractor in accordance with PEI/RP200 Recommended Practices for Installation of Above Ground Storage Systems for Motor Vehicle Fueling and 2012 International Fire Code for instructions and manufacturer specifications.

3.5 ELECTRICAL – GENERAL PROVISIONS

The General Conditions and any Supplementary or Special Conditions or Provisions which are part of the Contract Documents are part of this Division to the same extent as if written herein in full, and the Contractor shall observe all the requirements thereof insofar as they are applicable to his work.

SCOPE

A. The Contractor shall furnish all skilled mechanics, craftsmen, labor, supervision, equipment, materials, tools, costs and services necessary to completely install all electrical work called for on the drawings and/or specified herein.

B. It is the intent and meaning of the Contract Documents that the Contractor shall provide an electrical installation that is complete with all items and appurtenances necessary, reasonably incidental, or customarily included, even though each and every item is not specifically called out or shown.

SUBMITTALS

A. In accordance with the General Conditions, and before starting installation, the Contractor shall submit to the Project Manager for approval, lists of materials, fixtures, and equipment to be incorporated in the work. If departures from the contract drawings are deemed necessary by the Contractor, details of such departures, including changes in related portions of the project and the

reasons therefor, shall be submitted with the drawings. Where such departures require piping or equipment to be supported otherwise than shown, the details submitted shall include loadings and types and kinds of frames, brackets, stanchions, or other supports necessary. Approved departures shall be made at no additional cost to the Owner. The lists of materials and equipment shall be supported by sufficient descriptive material, such as catalogs, cuts, diagrams, and other data published by the manufacturer, as well as evidence of compliance with safety and performance standards, to demonstrate conformance to the Specification requirements; catalog numbers alone shall not be acceptable. The data shall include the name and address of the nearest service and maintenance organization that regularly stocks repair parts.

B. Submittals shall include the following:

1. Conduit and Fittings
2. Devices and Plates
3. Switchgear
4. Wire and Cable

RECORD DRAWINGS

A. Upon completion of the work, the Contractor shall deliver to the Project Manager one set of drawings neatly and clearly marked in red to show variations between the construction actually provided and that indicated or specified in the Contract Documents.

CODES AND STANDARDS

A. Materials and workmanship shall comply with the Contract Documents and applicable codes and standards. In case of any difference between applicable codes and standards and the Contract Documents, the Contractor shall promptly notify the Project Manager in writing of such difference. Should the Contractor perform any work that does not comply with the requirements of applicable codes and standards, he shall bear all costs arising in correcting such deficiencies. Applicable codes and standards shall include all ordinances, utility company regulations, and applicable requirements of nationally accepted codes and standards.

B. Except as modified by this Specification, conform to the applicable provisions and recommendations of the latest editions of the following standards:

1. American National Standards Institute (ANSI)
2. American Society for Testing and Materials (ASTM)
3. Americans with Disabilities Act (ADA)
4. Institute of Electrical and Electronic Engineers (IEEE)
5. International Building Code (IBC)
6. International Energy Conservation Code (IECC)
7. International Fire Code (IFC)
8. National Electrical Code (NEC), latest edition or as dictated by local authorities.
9. National Electrical Manufacturers' Association (NEMA)
10. National Fire Protection Agency (NFPA)
11. Underwriters' Laboratories (UL)

COORDINATION OF WORK

- A. The Contractor shall compare the Electrical Drawings and Specifications with the drawings and specifications for other trades and report any discrepancies between them to the Project Manager and obtain from him written instructions for changes necessary in the electrical work. The electrical work shall be installed in cooperation with other trades installing interrelated work. Before installation, the Contractor shall make proper provision to avoid interferences. Changes required in the work of the Contractor caused by his neglect to do so shall be made by him at his own expense.
- B. The Electrical Contractor shall coordinate with the Mechanical Contractor to determine the actual electrical characteristics of equipment supplied and provide the required connections.

VERIFICATION OF DIMENSIONS

- A. The Contractor shall visit the premises to thoroughly familiarize himself with all details of the work and working conditions and verify all dimensions in the field, and shall advise the Project Manager of any discrepancy before performing any work. The Contractor shall be specifically responsible for the coordination and proper relation of his work to the building structure and to the work of all trades.

INTERFERENCES

- A. Locations of conduit, equipment, fixtures, etc., shall be adjusted to accommodate the work to interferences anticipated or encountered. The Contractor shall determine the exact route and location of each conduit prior to installation.
- B. Offsets and changes in direction in conduit shall be made as required to maintain proper head room and not interfere with pitch of sloping lines, whether or not indicated on the Drawings.

PRODUCT DELIVERY, STORAGE AND HANDLING

- A. The Contractor shall follow the manufacturers' directions completely in the delivery, storage and handling of equipment and materials.
- B. Equipment and materials shall be tightly covered and protected against dirt, water, chemical or mechanical injury and theft. At the completion of the work, fixtures, equipment and materials shall be cleaned and polished thoroughly and shall be in a condition satisfactory to the Project Manager.

EQUIPMENT AND MATERIALS

- A. All equipment and materials shall be new, unless specifically noted otherwise, and shall bear the manufacturer's name, trademark and ASME, UL and/or other labels in every case where a standard has been established for the particular item. Equipment shall be the latest approved design of the standard product of a manufacturer regularly engaged in the production of the required type of equipment, and shall be supported by a service organization that is, in the opinion of the Project Manager, reasonably convenient to the site.
- B. The Contractor shall insure that items furnished fit the space available with adequate room for

proper operation and maintenance. He shall make field measurements to ascertain space requirements, including those for connections, and shall furnish and install such sizes and shapes of equipment that, in the final installation, will suit the true intent and meaning of the drawings and Specifications.

EQUIPMENT ACCESSORIES

A. The Contractor shall furnish and install all equipment accessories, connections and incidental items necessary to complete the work, ready for use, occupancy and operation by the Owner.

B. When the Project Manager has reviewed equipment submittals and has given instructions to proceed with the installation of items of equipment that require arrangements or connections different from those shown on the drawings, it shall be the responsibility of the Contractor to install the equipment to operate properly and in accord with the intent of the drawings and Specifications, and he shall provide any additional motors, controllers, fittings and other equipment and materials that may be required. The Contractor shall be responsible for the proper location of roughing in and connections by other trades. All changes shall be made at no increase in the Contract amount or additional costs to other trades.

C. The Contractor shall support work and equipment plumb, rigid and true to line. The Contractor shall study the General, Structural, Mechanical and Electrical Drawings, shop drawings, and catalog data to determine how equipment, fixtures, conduit, etc., are to be installed, and shall provide foundations, bolts, inserts, stands, hangers, brackets, and accessories for proper support whether or not shown on the drawings.

NAMEPLATES AND EQUIPMENT IDENTIFICATION

A. Nameplates: Each major item of equipment shall have the manufacturer's name, address, serial and model number on a plate securely attached to the item.

B. Equipment Identification: Unless otherwise specified, all items of equipment, except those in finished areas such as fixtures, etc., shall be identified as to number, name, function, capacity and other pertinent data with securely attached laminated plastic name tags of an appropriate size with white letters and black background. Generally, the number and name shall be at least one-fourth inch (1/4") high and other data at least one-eighth inch (1/8") high. Identification tags on items in finished areas, such as special switches, etc., shall be securely attached on or in the immediate vicinity of the item. The Contractor shall submit for approval, a schedule of name tags detailing all appropriate data. Nameplates shall be included for switchboards, switchboard feeders, distribution panels, fused switches in fused distribution panels, panelboards, disconnect switches and transformers.

ELECTRICAL REQUIREMENTS

A. Electrical Wiring:

1. Electrical wiring for mechanical equipment is separated into two main wiring divisions: "Power Wiring" and "Control Wiring."

2. Power wiring shall be the energy source and includes circuit protective devices, motor starters or controllers, conduit, wiring and safety disconnects beginning at the Power Supply and terminating at the motor or terminals on equipment.

3. Control wiring is comprised of conduit and wiring not included in "Power Wiring" including automatic temperature control wiring, interlock wiring, pilot light and signal wiring, etc., that is not included as a part of pre-wired equipment but necessary for the proper operation or safety of the equipment.

4. Unless otherwise noted, "Power Wiring" shall be done by the Electrical Contractor in accordance with the Electrical portions of the Specifications and under the supervision of the equipment supplier, and "Control Wiring" shall be done by the Contractor furnishing the equipment in compliance with the electrical section of these Specifications.

WORKMANSHIP

All work shall be performed by workmen skilled in the trade required for the work. All materials and equipment shall be installed in accordance with the approved recommendations of the manufacturer and the best practices of the trade and in conformance with the Contract Documents. The Contractor shall promptly notify the Project Manager in writing of any conflict between any requirements of the Contract Documents and the manufacturer's directions and shall obtain written instructions from the Project Manager before proceeding with the work. Should the Contractor perform any work that does not comply with the manufacturer's directions or such written instructions from the Project Manager, he shall bear all costs arising in correcting deficiencies.

UTILITIES, REGULATIONS, METERS

A. Locations and elevations of utilities have been obtained from utility maps or other sources and are offered as a general guide only, without guarantee as to accuracy. The Contractor shall verify the location and elevation of utilities and their relation to the work before entering into a Contract.

B. The Contractor shall arrange with authorities and utility companies for temporary and permanent service connections, verify locations, arrange for and pay all charges, including arrangements for cutting and patching pavements, sidewalks, etc., and provide all support requirements.

BRANCH CIRCUITS

No branch circuit shall be installed with wire smaller than No. 12 copper.

GROUNDING

All conduit work and other electrical equipment wired for and connected by the Electrical Contractor, shall be effectively and permanently grounded in strict accordance with the National Electrical Code, Article 250.

PAINTING

Unless otherwise specified, job finish painting shall be performed by the General Contractor.

Electrical equipment shall have a baked enamel finish. The Electrical Contractor shall restore damaged painted surfaces of electrical equipment to their original condition.

EQUIPMENT START-UP AND TESTING

The Contractor shall instruct the Owner's operating personnel during start-up and separate operating tests of each major item of equipment. During the operating tests, the Contractor shall prove the operation of each item of equipment to the satisfaction of the Project Manager.

CATALOG DATA FOR OWNER

The Contractor shall provide in loose-leaf binders a compilation of catalog data of each manufactured item of equipment used in the electrical work and shall present this compilation to the Project Manager for transmittal to the Owner before final payment is made. Descriptive data and printed installation, operating and maintenance instructions for each item of equipment shall be included. A complete double index shall be provided as follows:

1. Listing the products alphabetically by name.
2. Listing the names of manufacturers whose products have been incorporated in the work alphabetically together with their addresses and the names and addresses of the local sales representatives.

WARRANTIES

In addition to factory warranties on the individual items of equipment, the Contractor shall warrant equipment and work performed under this Contract to be free from defects in materials and workmanship for a period of twelve (12) months from the date of final acceptance by the Owner.

The Contractor shall furnish all equipment, materials, labor, supervision and services necessary for or incidental to the installation of all necessary materials as shown or indicated on the drawings and/or as specified herein.

1. Institute of Electrical and Electronic Engineers (IEEE)
2. National Electrical Code (NEC)
3. National Electrical Manufacturer's Association (NEMA)
4. Underwriters' Laboratories (UL)

PRODUCTS - WIRE AND CABLE

- A. Install Code Type THWN or THHN copper for panel, motor and equipment feeders.
- B. Install Code Type THWN or THHN copper for branch circuits.
- C. Install Code Type SF-1 fixture wire for internal wiring of fixtures which are not prewired or fixtures being rewired.

- D. Install Code Type THHN copper for fixture through-wiring, or within the ballast compartment.
- E. All wire and cable shall be color coded in accordance with the following":
Use colored tape on Number Six or larger conductors. 120/208 Volt System Phase A - Black
Phase B - Red Phase C - Blue Neutral - White Ground – Green
- F. All conductors shall be copper. Branch circuit wiring shall be labeled at each end and at junction boxes with Brady B-500 numbers corresponding to the circuit number.
- H. All control wiring shall be run in conduit, #14 AWG copper minimum.
- I. Type AMC@ cable shall not be permitted.
- J. Maximum 6-foot flex connection to light fixtures.
- K. Minimum conductor size for power and light circuits shall be #12 AWG copper. Use #10 AWG minimum for home runs over 100 feet.

PRODUCTS - WIRE AND CABLE CONNECTIONS

- A. Connections for branch circuits shall be made with wire joints. Use one piece nylon self-insulated Buchanan B-cap connectors, Thomas & Betts "Piggy" wire joints.
- B. Connections for feeders at distribution panels and switchboards shall be bolted compression type connectors to suit the condition. Smooth the joint with insulating compound and insulate with two layers or one-fourth lapped plastic tape.

EXECUTION - INSTALLATION

All wire and cable shall be installed per the National Electrical Code.

CONDUIT, TUBING AND FLEXIBLE CONDUIT

The Contractor shall furnish all equipment, materials, labor, supervision and services necessary for or incidental to the installation of all necessary conduit, raceway, outlet boxes, pull and junction boxes as shown or indicated on the drawings and/or as specified herein.

- A. Hot dipped galvanized rigid steel conduit and intermediate metallic conduit shall be National Electric, Allied or Pittsburgh Standard.
- B. Electric metallic tubing shall be National Electric, Allied or Pittsburgh Standard.
- C. Flexible metallic conduit for use in connection of all motors and moving electrical equipment and for use in wet, oily, dusty or corrosive locations shall be Anaconda "Sealtite" type UA, Pittsburgh "Robroy" Flex, or Flexi-Guard Type UAG.
- D. Other flexible conduit shall be National Electric "Flexsteel," Allied or Pittsburgh Standard.

JUNCTION AND PULL BOXES

Where shown or required, junction or pull boxes shall be provided to facilitate pulling, splicing, taping or nesting of conductors. Such boxes shall be of adequate size to suit the purpose constructed in accordance with the National Electrical Code, and securely fastened to the building structure independent of the conduit. Boxes shall be accessible. Boxes for exterior or underground use shall be cast and shall be watertight. Junction boxes shall be labeled with the circuit number or system function.

OUTLET BOXES

A. Outlet boxes shall be zinc-coated or cadmium-plated sheet steel suitable for the conditions of each outlet. Boxes located in the concrete, damp places, or exposed to the weather shall be cast metal with threaded hubs. Each box shall have sufficient volume to accommodate the number of conductors entering the box in accordance with the requirements of the National Electrical Code. Boxes shall be not less than one and one-half inches (1-1/2") deep unless shallower boxes are required by the structural conditions and are especially approved by the Project Manager. Ceiling outlet boxes shall be not less than four-inch (4") octagonal except that smaller boxes may be used where required by the particular fixture to be installed.

B. Switch and receptacle boxes shall be approximately four inches by four inches (4" X 4"). Boxes installed in concealed locations shall be set flush with the finish surfaces and shall be provided with the proper type of extension rings or plaster covers where required.

C. Switch and receptacle boxes shall be one, two, three, etc. gangs as required. Sectional switch boxes shall not be used.

CONDUIT INSTALLATION

A. Extend conduits from the service entrance to the panels, and thence to the branch circuits as shown on the plans. Bond circuits throughout to form a continuous circuit.

B. Install exposed conduits vertically or horizontally and parallel to structural lines.

C. Make field bends and offsets uniform and symmetrical without flattening. All field bends shall be code radius.

D. Use factory elbows where possible.

E. All underground conduit shall be watertight.

F. Cut conduits with a conduit cutter; remove burrs and sharp edges.

G. Do not use running threads.

H. In damp locations, install conduits, fittings and cast boxes in such a manner as to prevent moisture from entering the conduit system.

I. Cap or plug conduit ends during construction.

- J. Clean conduits after installation with a mandrel and wire brush prior to pulling conductors.
- K. Leave 200-pound test nylon pull wire in empty conduits.
- L. Provide plastic insulating bushing on all conduits and in all tubing connections.
- M. Use compression type steel EMT connectors and couplings. No set-screw type fittings shall be allowed.
- N. Install galvanized rigid steel conduit where exposed to the weather and where buried conduits rise above grade or slab.
- O. Install galvanized rigid steel conduit of intermediate metallic conduit where located in the crawl space.
- P. Install EMT for circuits not specified to be in rigid conduit.
- Q. Buried conduits shall be Schedule 40 PVC with a separate grounding conductor.
- R. Install neoprene covered flexible conduit for the final eighteen inches (18") of connections to all motors and moving electrical equipment.
- S. Provide two locknuts where two-inch (2") or larger conduits join switchboards, panelboards, or equipment.
- T. Install liquid-tight connectors for all neoprene covered flexible conduits.
- U. All wiring in panels and junction boxes shall be neatly tied with nylon cable ties.
- V. Junction boxes shall be marked with circuit numbers visible from below.
- W. Minimum conduit size shall be 1".

CIRCUIT BREAKERS

- A. Molded case circuit breakers shall have over-center, trip-free, toggle-type operating mechanisms with quick-make, quick-break action and positive handle indication. Two and three-pole breakers shall be common trip. Each circuit breaker shall have a permanent trip unit containing individual thermal and magnetic trip elements in each pole. The circuit breaker shall be constructed to accommodate the supply connections at either end. Circuit breaker operating handles shall assume a center position when tripped. All breakers shall be calibrated for operation in an ambient temperature of 40 degrees C.
- B. Circuit breakers shall be suitable for mounting and operating in any position. Circuit breakers mounted in panelboards and switchboards shall be bolt-on type.

C. The circuit breaker contacts shall be of the high pressure butt-type and shall be made of silver-alloy material. Arc chutes shall be provided to confine, cool and quench the arc drawn at interruption.

D. Circuit breakers mounted in individual enclosures shall have easily accessible pressure terminals to accept conductor sizes commensurate with the breaker ampere ratings.

E. The interrupting rating of the circuit breaker shall be at least equal to the available short-circuit current at the line terminals of the breaker.

F. Circuit breakers shall be Square D, or approved equal.

NON-FUSED DISCONNECT SWITCHES

A. Shall be two or three pole as required with rating as indicated on the drawings.

B. Shall meet or exceed NEMA KSI-1969 for Type GD (General Duty) or type HD (Heavy Duty) switches.

C. Shall be Square D, or approved equal.

FUSED DISCONNECT SWITCHES

A. Shall be two or three pole as required with ratings indicated on the drawings.

B. Shall be or exceed NEMA KSI-1969 for Type HD (heavy duty).

C. Shall be Square D, or approved equal.

FUSES

A. All fuses shall be UL listed Class RK-1 or Class L. All fuse contact surfaces shall be electroplated.

B. All fuses shall be of the same manufacturer.

C. Circuits 601 to 6000 amperes shall be protected by current limiting UL Class L fuses. Fuses shall employ "O" rings as positive seals between the end bells and the glass melamine fuse barrel. The terminals shall be peened. Fuses shall be time-delay and must hold 500 percent of rated current for a minimum of four seconds, clear 20 times rated current in .01 second or less and shall be listed by Underwriters' Laboratories, Inc., with an interrupting rating of 200,000 amperes r.m.s. symmetrical. Fuses shall be Bussman "Low-Peak" or approved equal.

D. Circuits 0 to 600 amperes shall be protected by "Low Peak" current limiting UL Class RK-1 time-delay fuses. All dual-element fuses shall have separate overload and short-circuit elements. Fuse shall incorporate a spring-activated thermal overload element having a 284 degree F melting point alloy and shall be independent of the short-circuit cleaning chamber. The fuse must hold 500 percent of rated current for a minimum of 10 seconds and be listed by Underwriters' Laboratories, Inc., with a SWITCHGEAR 3 of 4 interrupting rating of 200,000 amperes r.m.s. symmetrical. Fuses

shall be Bussman "Low-Peak" or approved equal.

E. Upon turning the building over to the Owner, the Electrical Contractor shall provide 10 percent of installed fuses, or a minimum of three fuses of each rating, as spares placed in a spare fuse cabinet on the wall of the mechanical equipment room.

PANELBOARDS

A. Panelboards shall be equipped with thermal-magnetic molded case circuit breakers with frame and trip ratings as shown on the schedule.

B. Bus bar connections to the branch circuit breakers shall be the "distributed phase" or "phase sequence" type. Three-phase, four-wire bussing shall be such that any three adjacent single-pole breakers are individually connected to each of the three different phases in such a manner that two- or three-pole breakers can be installed at any location. All current-carrying parts of the bus assembly shall be plated. Main ratings shall be as shown in the panelboard schedule or on the plans.

C. Terminals for feeder conductors to the panelboard mains and neutral shall be UL listed as suitable for the type of conductor specified. Terminals for branch circuit wiring, both breaker and neutral, shall be UL listed as suitable for the type of conductor specified.

D. Panelboard circuit numbering shall be such that starting at the top, odd numbers shall be used in sequence down the left-hand side and even numbers shall be used in sequence down the right-hand side.

E. The panelboard bus assembly shall be enclosed in a steel cabinet. The size of the wiring gutters and gauge of steel shall be in accordance with NEMA Standards Publication No. PBI-1977 and UL Standard No. 67 for panelboards. The box shall be fabricated from galvanized steel or equivalent rust-resistant steel.

F. Fronts shall include doors and shall have flush, stainless steel, cylinder tumbler-type locks with catches and spring-loaded door pulls. The flush lock shall not protrude beyond the front of the door. All panelboard locks shall be keyed alike. Fronts shall have adjustable indicating trim clamps which shall be completely concealed when the doors are closed. Doors shall be mounted by completely concealed steel hinges. Fronts shall not be removable with door in the locked position. A circuit directory frame and card with a clear plastic covering shall be provided on the inside of the door. The directory card shall provide a space at least one-fourth inch high by three inches long (1/4" X 3") or equivalent for each circuit. The directory shall be typed to identify the load fed by each circuit. Fronts shall be of code gauge steel.

G. Each panelboard, as a complete unit, shall have a short circuit rating equal to or greater than the integrated equipment rating shown on the panelboard schedule or on the plans. Panelboards shall be marked with their maximum short-circuit current rating at the supply voltage and shall be UL listed.

H. Provide panelboards with main and neutral buses type minimum 98 percent conductivity rectangular copper bars provided with bolted type lugs as necessary.

- I. Busses shall be drilled to fit the connectors; the connectors shall be interchangeable.
- J. Provide buses, connectors and terminals silver plated to a minimum thickness of 0.005 inch. The plating shall conform to the requirements of FS QQ-S-365B.
- K. All terminal lugs shall be prevented from turning per NEMA Standard PBI-1971 and shall be suitable for the conductor material and size.
- L. Panelboards shall not exceed 78 inches in height or 20 inches in width. Fire Station #42 SWITCHGEAR – 26 2400 City of Fort Worth RPGA Design Group, Inc. 4 of 4
- M. Cabinet fronts, trims and surface-mounted boxes shall be finished in ANSI No. 61 or No. 49, gray enamel over a rust-inhibitive primer. Cabinets shall be surface or flush mounting as indicated on the drawings.
- N. Shall be Square D, or approved equal.