

**CONTRACT DOCUMENTS  
AND  
SPECIFICATIONS  
FOR  
PROJECT NO. TMUA-W 25-08  
YAHOLA TERMINAL STORAGE RESERVOIR  
IMPROVEMENTS**

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**ATTENDANCE AT PRE-BID CONFERENCE IS MANDATORY**

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PREPARED BY:  
Keithline Engineering Group, PLLC  
8556 E. 101<sup>st</sup> St, Suite C  
Tulsa, OK 74133  
918-369-7911  
Dan Keithline



**WATER AND SEWER**  
Engineering Design

ERIC LEE, DIRECTOR

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Account Numbers: 2631W0005.WaterSupp.Water.7400.74003300.541101

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Public Works Department  
175 East 2<sup>nd</sup> Street, Suite 261  
Tulsa, Oklahoma 74103  
(918) 596-9637

CONTRACT DOCUMENTS

TULSA METROPOLITAN UTILITY AUTHORITY  
PROJECT NO. TMUA-W 25-08 YAHOLA TERMINAL STORAGE RESERVOIR  
IMPROVEMENTS

WATER AND SEWER DEPARTMENT

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SPECIFICATIONS

CITY OF TULSA ENGINEERING SERVICES CONSTRUCTION  
SPECIFICATIONS – March 2022

Published in the Tulsa World:  
March 13, 17, 18, 19, 20, 2026

**NOTICE TO BIDDERS  
SEALED BIDS FOR  
TULSA METROPOLITAN UTILITY AUTHORITY  
PROJECT NO. TMUA-W 25-08**

Notice is hereby given that pursuant to an order by the Tulsa Metropolitan Utility Authority, a Public Trust, sealed bids will be received in Room 260 of the Office of the City Clerk, City of Tulsa, 175 E. 2<sup>nd</sup> Street, Tulsa, Oklahoma 74103 until **8:30 a.m., 17<sup>th</sup> day of April, 2026** for furnishing all tools, materials and labor and performing the work necessary to be done in the construction of the following:

**PROJECT NO. TMUA-W 25-08 YAHOLA TERMINAL  
STORAGE RESERVOIR IMPROVEMENTS**

The entire cost of the improvement shall be paid from Account No.

2631W00005.WaterSupp.Water.7400.74003300.541101

A **MANDATORY** Pre-Bid Conference is scheduled for **Tuesday, March 31<sup>st</sup>, 2026 at 9:30 a.m.** and will be held through video conferencing with Microsoft Teams, invitation presented on the City of Tulsa's website at this link:

<https://www.cityoftulsa.org/government/departments/engineering-services/construction-bids/>

**Attendance at the Pre-Bid Conference is MANDATORY. Bids will not be received from contractors who did not attend the Pre-Bid Conference.**

Bids will be accepted by the City Clerk from the holder of valid pre-qualification certificates from the City of Tulsa in one or more of the following classifications: **A, D or S.**

Drawings, specifications and contract documents for construction of said public improvements of the said project have been adopted by the Mayor of said City. Copies of same may be obtained at the Office of Contract Administration, 175 E. 2<sup>nd</sup> St., 13<sup>th</sup> Floor, Tulsa, OK 74103 for a non-refundable fee in the amount of **\$50.00** made payable to the Tulsa Metropolitan Utility Authority by check or money order.

Contract requirements shall include compliance as required by law pertaining to the practice of non-discrimination in employment.

Attention is called to Resolution No. 18145 of August 23,

1988, requiring bidders to commit to the goal of employing on the project at least fifty percent bona fide residents of the City of Tulsa and/or MSA in each employment classification.

Attention is called to Resolution 7404 of November 8, 2006, requiring bidders, their subcontractors and their lower-tier subcontractors to hire only citizens of the United States.

The Authority, acting on behalf of the City of Tulsa, is exempt from the payment of any sales or use taxes, and pursuant to Title 68 O.S. Section 1356(10), direct vendors to the Authority are also exempt from those taxes. A bidder may exclude from his bid appropriate sales taxes which he will not have to pay while acting for and on behalf of the Tulsa Metropolitan Utility Authority. See Contract Article IIB.

A Certified or Cashier's Check or Bidder's Surety Bond, in the sum of 5% of the amount of the bid will be required from each bidder to be retained as liquidated damages in the event the successful bidder fails, neglects or refuses to enter into said contract for the construction of said public improvements for said project and furnish the necessary bonds within thirty days from and after the date the award is made.

The bidder to whom a contract is awarded will be required to furnish public liability and workmen's compensation insurance; Performance, Statutory, and Maintenance bonds acceptable to the Authority, in conformity with the requirements of the proposed contract documents. The Performance, Statutory, and Maintenance bonds shall be for one hundred percent (100%) of the contract price.

The bidding for this project is subject to a local preference law as defined in Oklahoma Statutes, Title 61, Section 103. For purposes of Section 103 a "local bid" means a bid submitted by a business entity that is authorized to do business in the State of Oklahoma and maintains its primary office or principal place of business within the State of Oklahoma. If the conditions outlined in Title 61 are met, The City of Tulsa must select the second lowest bid if within 5% of the lowest bid and the second lowest bid is a local bid and the lowest bid is not a local bid (i.e. non-local/out of state). Accordingly, when the local bid is required to be selected under the State law, the local bidder must agree to do the work at the lowest bid price to be awarded the project.

All bids will be opened and considered by the Bid Committee of said City at a meeting of said Committee to be held in the City Council Room of City Hall, 175 E. 2<sup>nd</sup> Street, in said City at 9:00 a.m. on the 17th day of April 2026.

Dated at Tulsa, Oklahoma, this 13<sup>th</sup> day of March 2026.

(SEAL)

Richard Sevenoaks  
Tulsa Metropolitan Utility Authority

## **INSTRUCTIONS TO BIDDERS**

### **B-1. BIDS**

Each bid Proposal shall be completed, signed, and submitted. No alterations, additions, or erasures shall be made on the Proposal. Erroneous entries shall be lined out, initialed by the bidder, and the correct entry inserted. The unit price bid must cover all expense for furnishing the labor, materials, tools, equipment, and apparatus of every description to construct, erect, and furnish all work required by and in conformance with the Drawings and Specifications.

Each bid shall be enclosed in a sealed envelope addressed to the Tulsa Metropolitan Utility Authority, 175 E. 2<sup>nd</sup> Street, Room 260, City Hall, Tulsa, Oklahoma, identified on the outside with the words:

### **PROJECT NO. TMUA-W 25-08 YAHOLA TERMINAL STORAGE RESERVOIR IMPROVEMENTS**

Pre-qualification Certificate Number \_\_\_\_\_,

And shall be filed with the City Clerk in Room 260, City Hall.

All addenda to the contract documents should be denoted on the last page of the Proposal in the space provided.

### **B-2. BID SECURITY**

Each bid shall be accompanied by a cashier's check, a certified check, or bidder's bond, in the amount of five percent (5%) of the total amount bid.

The bid security shall be made payable, without condition, to the Tulsa Metropolitan Utility Authority, Oklahoma. The bid security may be retained by and shall be forfeited to the Authority as liquidated damages if the bid is accepted, a contract based thereon is awarded, and the bidder fails to enter into a contract in the form prescribed, with legally responsible sureties, within thirty (30) days after such award is made by the Authority.

### **B-3 RETURN OF BID SECURITY**

The bid security of each unsuccessful bidder will be returned when his bid is rejected. The bid security of the bidder to whom the contract is awarded will be returned when he executes a contract and files satisfactory bonds. The bid security of the second lowest responsible bidder may be retained for a period of time not to exceed sixty (60) days pending the execution of the contract and bonds by the successful bidder.

#### **B-4 WITHDRAWAL OF BIDS**

No bidder may withdraw his bid for sixty (60) days after the date and hour set for the opening. A bidder may withdraw his bid any time prior to expiration of the period during which bids may be submitted by making a written request signed in the same manner and by the same person who signed the Proposal.

#### **B-5 REJECTION OF BIDS**

Bids received more than ninety-six (96) hours before the time set for opening bids, excluding Saturdays, Sundays, and holidays, as well as bids received after the time set for opening bids, will not be considered and will be returned unopened.

The Tulsa Metropolitan Utility Authority reserves the right to reject any and all bids when such rejection is in the best interest of the Tulsa Metropolitan Utility Authority. All bids are received subject to this stipulation and the Authority reserves the right to decide which bidder shall be deemed lowest responsible bidder.

A violation of any of the following provisions by a bidder shall be sufficient reason for rejecting bidder's bid, or shall make any contract between the Tulsa Metropolitan Utility Authority and the Contractor that is based on bidder's bid, null and void: divulging the information in said bid before the bids have been opened; submission of a bid which is incomplete, unbalanced, obscure, incorrect, or which has conditional clauses, additions, or irregularities of any kind not in the original proposal form, or which is not in compliance with the Instruction to Bidders and published Notice to Bidders, or which is made in collusion with another bidder. The Authority shall have the right to waive any immaterial defects or irregularities in any bid received.

#### **B-6 DISQUALIFICATION OF BIDDERS**

No contract will be awarded to any person or persons, firm, partnership, company, or corporation which is in arrears to the Authority upon any debt of contract, or in default as surety or otherwise upon any obligation to the Authority.

#### **B-7 SIGNATURE OF BIDDERS**

Each bid shall be properly signed with the full name of the company or individual submitting the bid, the bidder's address, and the name and title of all persons signing printed below their signature lines. Bids by partnerships shall be signed with the partnership name followed by the signature and title of one of the partners. Bids by corporations shall be signed with the name of the corporation followed by the signature and title of the president, vice president, chairman, or vice chairman of the Board of Directors with attestation by the corporate secretary or assistant corporate secretary. Bids by joint ventures shall be signed by each participant in the joint venture. Bids by limited liability companies shall be signed with the name of the limited liability company followed by the signature

and title of the Manager or Managing Member. Bid by limited partnerships shall be signed with the name of the limited partnership followed by the signature of the general partner. Note: The signature requirements listed above are for Oklahoma entities; entities organized in other states must follow the law of the state in which they are organized.

A bid by a person who affixes to his signature the word "President", "Manager", "General Partner", "Agent", or other title, without disclosing the name of the company for which he is signing, may be held to be the bid of the individual signing.

## **B-8 INTERPRETATION OF CONTRACT DOCUMENTS**

If any bidder who contemplates submitting a bid is in doubt as to the true meaning of any part of the drawing, specifications, or other proposed contract documents, bidder may submit to Contract Administration and the Engineer a written request for interpretation thereof. The person submitting the request shall be responsible for its prompt delivery. Interpretation of the proposed contract documents will be made only by addendum. The addendum will be posted on the Tulsa Metropolitan Utility Authority website and emailed to all the pre-bid attendees. The Authority will not be responsible for any other explanations or interpretations of the proposed contract documents.

## **B-9 LOCAL CONDITIONS AFFECTING WORK**

Each bidder shall visit the site of the work and shall completely inform himself relative to construction hazards and procedure, labor, and all other conditions and factors, local and otherwise, which would affect prosecution and completion of the work and its cost. Such considerations shall include the arrangement and condition of existing structures and facilities, the procedure necessary for maintenance of uninterrupted operation of existing structures and facilities, the availability and cost for labor, and facilities for transportation, handling, and storage of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the bid. There will be no subsequent financial adjustment for lack of such prior information.

## **B-10 TIME OF COMPLETION**

The time of completion is an essential part of the contract and it will be necessary for each bidder to satisfy the Authority of his ability to complete the work within the allowable time set forth in the Bid Form. For all projects that will impact the public, a public meeting is required before any work is done. In this connection, attention is directed to the provisions of the General Conditions and Special Conditions relative to delays, extension of time, and liquidated damages.

## **B-11 QUALIFICATION OF BIDDERS**

No bid will be received and filed by the City Clerk of the Tulsa Metropolitan Utility Authority unless the person submitting the bid has been pre-qualified as provided

by ordinance, and is the holder of a current certificate of Pre-qualification in force and effect on the date such bid is to be submitted and filed.

## **B-12 TAXES AND PERMITS**

Attention is directed to the requirements of the General Conditions regarding payment of taxes and obtaining permits. Contractor shall comply with all zoning ordinances of the City, as provided in the Tulsa Zoning Code, Title 42 Tulsa Revised Ordinances and conform with all zoning requirements established by the Tulsa Metropolitan Area Planning Commission and the Board of Adjustment. Contractor can call the Indian Nations Council of Governments (INCOG) at (918) 584-7526, to determine if any zoning requirements must be met.

## **B-13 OKLAHOMA LEGAL REQUIREMENTS**

The Contractor must comply with the Oklahoma Scaffolding Law, 40 Oklahoma Statutes, Sections 174 - 177, which cover erection and use of scaffolds, hoists, cranes, stays, ladders, supports, or other mechanical contrivances.

In accordance with Oklahoma Statutes, Title 68, Section 1701-1707, before commencing any work pursuant to this contract, any nonresident contractor shall give written notice by certified mail, return receipt requested, to the Oklahoma Tax Commission, the Oklahoma Employment Security Commission, the Workers Compensation Court, and the county assessor of each county in which work will be performed. The notices shall comply with the requirements set forth in said statute.

## **B-14 BONDS**

The bidder to whom a contract is awarded will be required to furnish bonds as follows:

- a. Performance Bond – A Performance Bond to the Authority in an amount equal to one hundred percent (100%) of the Contract price.
- b. Statutory Bond – A Statutory Bond to the State of Oklahoma in an amount equal to one hundred percent (100%) of the contract price.
- c. Maintenance Bond – A Maintenance Bond to the Authority in an amount equal to one hundred percent (100%) of the contract price.

The bonds shall be executed on the forms included in the contract documents by a surety company authorized to do business in the State of Oklahoma and acceptable as Surety to the Tulsa Metropolitan Utility Authority.

Accompanying the bonds shall be a "Power-of-Authority" authorizing the attorney-in-fact to bind the Surety Company and certified to include the dates of the bonds.

**B-15 BOUND COPY OF CONTRACT DOCUMENTS**

Bound contract documents are no longer required.

**B-16 EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS**

Each bidder agrees to comply with the terms of Title 5, Chapter 1, Section 111, of the Tulsa Revised Ordinances relating to Non-Discrimination.

**B-17 BASIS FOR AWARD OF CONTRACT**

The basis for award of a contract shall be the total base bid submitted by the lowest responsible bidder unless otherwise directed in the form of proposal. The Tulsa Metropolitan Utility Authority reserves the right to withhold the awarding of a contract for a reasonable period of time from the date of opening of bids. The awarding of a contract upon a successful bid shall give the bidder no right or action or claim against the Tulsa Metropolitan Utility Authority upon such contract until the same shall have been reduced to writing and duly signed by the contracting parties. The award of a contract will not be completed until the contract is duly executed and the necessary bonds and insurance approved.

**B-18 TIME FOR AWARDING OF CONTRACT**

The awarding of a contract to the lowest responsible bidder will be made within thirty (30) days after the opening of bids unless the Tulsa Metropolitan Utility Authority by formal recorded action and for good cause shown, provides for a reasonable extension to that period, which extension period shall not in any event exceed fifteen (15) days where only state or local funds are involved, or not to exceed ninety (90) days on any award of contract for the construction of public improvements where funds are utilized which are furnished by an agency of the federal government.

**B-19 SAFETY AND HEALTH REGULATIONS**

Bidders should note that they are subject to "Safety and Health Regulations for Construction", Chapter XVII of Title 29, CFR, Part 1926 and that compliance, review and enforcement are the responsibility of the U.S. Department of Labor.

The Contractor is fully responsible for the safety of the work site and is expected to train their employees in all applicable safety issues. This should include but not be limited to: trench safety, confined space entry, head protection, etc. In accordance with construction contracts with the City, Authority, Board, or Commission, all applicable Labor and OSHA safety regulations must be followed.

Work sites must be monitored by the Contractor and safety provisions enforced. Contractors are asked to ensure that all employees are properly informed and trained in construction, work site safety.

**B-20 VENDORS AND SUBCONTRACTOR IDENTIFICATION**

Where Vendor and Subcontractor Identification Questionnaires are included in the bid documents, each bidder shall submit the Questionnaire directly to the Engineer no later than 5:00 p.m. on the first working day following the bid opening. Failure to submit the questionnaire may render the bid unresponsive and not eligible for award. The award of the Contract will be subject to the acceptability of the vendors and subcontractors listed. If an award is made, the vendors and subcontractors listed on the questionnaire shall be used on the project. No changes in the vendor and subcontractor list will be permitted unless prior consent is obtained from the Engineer.

**B-21 U.S. ENVIRONMENTAL PROTECTION AGENCY NPDES REQUIREMENTS FOR STORMWATER DISCHARGES**

The bidder's attention is directed to U.S. Environmental Protection Agency (EPA) NPDES requirements for stormwater discharges. The Contractor shall be responsible for filing a Notice of Intent and development and implementation of a Stormwater Pollution Prevention Plan (PPP).

**B-22 AMERICANS WITH DISABILITIES ACT**

The Contractor shall take the necessary actions to ensure its facilities are in compliance with the requirements of the Americans with Disabilities Act (ADA). It is understood that the program of the Contractor is not a program or activity of the Tulsa Metropolitan Utility Authority. The Contractor agrees that its program or activity will comply with the requirements of the ADA. Any costs of such compliance will be the responsibility of the Contractor. Under no circumstances will the Contractor conduct any activity, which it deems non-compliant with the ADA.

**RESOLUTION NO. 18145**

A RESOLUTION REQUIRING THE INCLUSION IN PLANS AND SPECIFICATIONS FOR PUBLIC IMPROVEMENT CONTRACTS OF PROVISIONS PROVIDING FOR THE EMPLOYMENT OF BONA FIDE RESIDENTS OF THE CITY OF TULSA; AND/OR THE MSA; ALSO PROVIDING THAT AT LEAST OF FIFTY PERCENT (50%) OF EACH CLASS OF EMPLOYEES USED ON A PROJECT BE BONA FIDE RESIDENTS OF THE CITY OF TULSA AND/OR THE MSA; THAT THE DIRECTOR OF THE DEPARTMENT OF HUMAN RIGHTS IS CHARGED WITH ENSURING THAT ALL BIDS FOR PUBLIC CONSTRUCTION CONTRACTS COMPLY WITH THIS RESOLUTION; AND DECLARING AN EMERGENCY.

WHEREAS, City of Tulsa, Oklahoma, desires to achieve a goal of full employment.

WHEREAS, it is necessary for the protection of the health, safety and welfare of all residents of the City of Tulsa, Oklahoma, to accomplish this goal.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE CITY OF TULSA, OKLAHOMA:

SECTION 1. The City of Tulsa is committed to the policy of achieving full employment of its citizens by encouraging the employment of bona fide Tulsa and MSA residents in public improvement contracts.

SECTION 2. Definitions. The definitions of certain terms used in this resolution are as follows:

a. "Bidding Documents" or "Bid" means the bid notice, plans and specifications, bidding form, bidding instructions, special provisions and all other written instruments prepared by or on behalf of an awarding public agency for use by prospective bidders on a public construction contract.

b. (i) "Bona Fide Residents" shall include only those persons who are either registered to vote in the City of Tulsa or who have resided within the city limits for at least six months, or who have purchased a permanent residence within the city limits or who have leased a residence for at least a six month term. Residency may be further determined by a valid Oklahoma driver's license, a current Oklahoma license tag, and a valid Oklahoma automobile inspection sticker. (ii) Bona fide residents of MSA shall include only those persons who are registered to vote in outlying MSA areas or who have resided within the outlying MSA area for at least six months, or who have purchased a permanent residence within the outlying MSA areas or who have leased a residence for at least a six month term. Residency may be further determined by a valid Oklahoma driver's license, a current Oklahoma license tag, and a valid Oklahoma automobile inspection sticker.

c. "Public Construction Contract" or "Contract" means any contract exceeding Seven Thousand Five Hundred Dollars (\$7,500.00) in amount, awarded by the City of Tulsa for the purpose of making any public improvements or constructing any public building or making repairs to the same.

d. "Public Improvement" means any beneficial or valuable change or addition, betterment, enhancement or amelioration of or upon any real property, or interest therein, belonging to the City of Tulsa, intended to enhance its value, beauty or utility or to adapt it to new or further purposes. The term does not include the direct purchase of materials, equipment or supplies by the City of Tulsa.

CITY OF TULSA  
FILED

AUG 23 1988

Office of City Auditor

e. "MSA". All of the land areas composed of Creek County, Osage County, Rogers County, Tulsa County and Wagoner County.

SECTION 3. Residency Requirements of Contractor's Employees. Every employee and/or agent of the City of Tulsa, Oklahoma, charged or involved with the preparation of plans and specifications for any public improvement funded in whole or in part with funds of the City of Tulsa, is hereby charged to include in said plans and specifications the following provisions which shall be binding upon the successful bidders:

- a. Each bid shall be accompanied by a sworn statement that the bidder is committed to the goal of employing at least 50% bona fide residents of the City of Tulsa and/or the MSA in each classification as determined by the Oklahoma Commissioner of Labor.
- b. The successful bidder will be responsible for having like requirements placed upon any subcontractor.
- c. The successful bidder will submit to the Director or his designated representative of the Department of Human Rights any compliance reports involving the bidder and its subcontractors required by Title 31, Chapter 1, Section 9, of the Tulsa Revised Ordinances. The reports shall include information about the residence of each employee in each laboring and trade class applicable to any City project.

SECTION 4. Unresponsive Bids. The failure to submit the documents required by Section 3 shall render a bid unresponsive. Said documents must be submitted prior to the opening of the bids. The Director of the Department of Human Rights Section of City Development is charged with ensuring that all bids comply with Section 3 prior to the bid opening date.

SECTION 5. Duty of Employees and/or Agents of the City of Tulsa. Any employee and/or agent of the City of Tulsa who fails to include the goals for residency requirements found in Section 3 in the plans and specifications for any public improvement may be subject to disciplinary action, including dismissal.

SECTION 6. Severability. The invalidity of any section, subsection, provision or clause or portion of this chapter, or the invalidity of the application thereof to any person or circumstance shall not affect the validity of the remainder of this chapter or the validity of its application to other persons or circumstances.

SECTION 7. Effect Date. This resolution shall take effect as of July 1, 1988.

SECTION 8. Emergency Clause. That an emergency exists for the preservation of the public peace, health and safety, by reason whereof this resolution shall take effect immediately upon its passage, approval and publication.

PASSED, with the emergency clause ruled upon separately and approved this 23<sup>rd</sup> day of August, 1988.

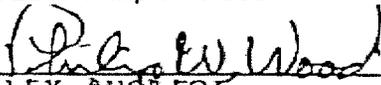
APPROVED, this 23<sup>rd</sup> day of August, 1988.

Rodger Randle



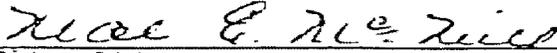
Mayor

ATTEST: Philip W. Wood



City Auditor

APPROVED: Neal E. McNeil



City Attorney

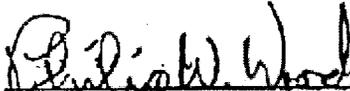
PASSED, with the emergency clause ruled upon separately and approved this 23 day of August, 1988.

- APPROVED, this 23 day of August, 1988.



Mayor

ATTEST:



City Auditor

APPROVED:



City Attorney

CITY OF TOLEDO  
FILED

AUG 23 1988

A.M. P.M.  
Office Of City Auditor 1

(Must be submitted at time of Bid)  
CITY OF TULSA  
RESOLUTION NO. 7404  
AFFIDAVIT OF COMPLIANCE

\_\_\_\_\_, of lawful age, being first duly sworn, states that s(he) is the authorized agent of the Company set forth below.

Affiant further states that the Company, in compliance with City of Tulsa Resolution No. 7404, shall not hire or knowingly allow any of its subcontractors or lower tier subcontractors to hire anyone who is not a United States citizen or legal immigrant or anyone who does not have legal status as a temporary worker to perform work on any project which is the subject of a contract between the Company and the City of Tulsa.

Affiant further states that the Company shall not fail to comply with and shall not knowingly allow any of its subcontractors or lower tier subcontractors to fail to comply with all applicable laws including, but not limited to, labor, employment and taxation laws, in the performance of any work on any project which is the subject of a contract between the Company and the City of Tulsa.

Affiant further states that the Company shall make available to the City of Tulsa, at the City's request, sufficient information and/or affirmations to allow the City to confirm Company's compliance with Resolution No. 7404 relating to the performance of any contract between the Company and the City of Tulsa.

Company: \_\_\_\_\_

Signed: \_\_\_\_\_

\_\_\_\_\_  
Title

SUBSCRIBED and SWORN to before me, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

MY COMMISSION EXPIRES:

\_\_\_\_\_

COMMISSION NO.:

\_\_\_\_\_

Resolution No. 7404  
RAC-1

(Must be submitted at time of Bid)  
CITY OF TULSA  
50% RESIDENT RESOLUTION  
AFFIDAVIT FOR BID

STATE OF \_\_\_\_\_ )  
 ) ss:  
COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_, of lawful age, being first duly sworn, states that s(he) is the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder, in compliance with City of Tulsa Resolution No. 18145, is committed to the goal of employing at least 50% bona fide residents of the City of Tulsa and/or the Metropolitan Statistical Area (composed of Creek, Okmulgee, Osage, Pawnee, Rogers, Tulsa, and Wagoner counties).

Affiant further states that bidder is responsible for having like requirements placed upon any of its subcontractors.

\_\_\_\_\_  
BIDDER (Company Name)

\_\_\_\_\_  
SIGNED

\_\_\_\_\_  
Title

SUBSCRIBED and SWORN to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

MY COMISSION EXPIRES:

\_\_\_\_\_  
COMMISSION NO.:



(Must be submitted at time of bid)  
**BUSINESS RELATIONSHIP AFFIDAVIT**

STATE OF )  
 ) ss:  
COUNTY OF )

\_\_\_\_\_, of lawful age, being first duly sworn, says that s(he) is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the bidding company and any officer or director of the architectural or engineering firm or other party to the project is as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(If none of the business relationships herein above mentioned exist, affiant should so state.)

Signed: \_\_\_\_\_

\_\_\_\_\_  
BIDDER (Company Name)

\_\_\_\_\_  
Title:

SUBSCRIBED and SWORN to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

MY COMMISSION EXPIRES:

\_\_\_\_\_, \_\_\_\_\_  
COMMISSION NO.:  
\_\_\_\_\_



**ELECTRONIC BID PROPOSAL INSTRUCTIONS - EXCEL SPREADSHEET  
YAHOLA TERMINAL STORAGE RESERVOIR IMPROVEMENTS  
TMUA-W 25-08**

**Please read the following instructions carefully.**

1. After opening this file re-save it as your company's name.
2. Open the BID FORM Sheet from the tabs below.
3. Input the unit price of the appropriate pay item in the Data Input cells.
4. Review all data input and check calculations to ensure accuracy of Bid.
5. Print 1hardcopy of the "PROPOSAL" tab, BID FORM and the "SIGNATURE PAGE" tab.
6. Complete and sign the "Signature Page" document.
7. Submit hardcopy and electronic disk with Contract Documents and Specifications for Bid opening date.

**LEGEND**

- \$ 1.00 Cells Requiring Data Input.
- \$ 1.00 Internal Data Transfer.
- \$ 2.00 Calculated Results.

**AGREEMENT FOR USING ELECTRONIC BID PROPOSAL**

By and Between: **Keithline Engineering Group, PLLC**, (ENGINEER) and RECIPIENT. The enclosed electronic media is provided pursuant to your request and is for your limited use in connection with your submittal of Bid Proposal for **Project No. TMUA-W 25-08**. In no event shall the information be used for any other purpose or be released to third parties without the written consent of the ENGINEER. In the event of a discrepancy between the hard copy and this electronic media at delivery or in the future, the hard copy shall govern. ENGINEER hereby disclaims any and all liability for the consequences from use of the electronic media and makes no warranty or guarantee of accuracy. RECIPIENT shall assume full responsibility for the uses and consequences of the electronic media. It is agreed that ENGINEER has and retains ownership of the electronic media. ENGINEER does not warrant or guarantee that the electronic data is compatible with RECIPIENT'S computer hardware or software, and ENGINEER'S responsibility for the electronic media is limited to replacement of defective media for a period of thirty (30) days after delivery to RECIPIENT. By opening and using this FILE, You AGREE to these TERMS AND CONDITIONS.

**PROPOSAL  
YAHOLA TERMINAL STORAGE RESERVOIR IMPROVEMENTS  
TMUA-W 25-08**

TO: TULSA METROPOLITAN UTILITY AUTHORITY  
CITY OF TULSA, OKLAHOMA

THE UNDERSIGNED BIDDER, having carefully examined the drawings, specifications, and other Contract Documents of the above project presently on file in the City Clerk, City of Tulsa Oklahoma:

CERTIFIES THAT he has inspected the site of the proposed work and has full knowledge of the extent and character of the work involved, construction difficulties that may be encountered, and materials necessary for construction, class and type of excavation, and all other factors affecting or which may be affected by the specified work; and

CERTIFIES THAT he has not entered into collusion with any other bidder or prospective bidder relative to the project and/or bid: and

HEREBY PROPOSES: to enter into a contract to provide all necessary labor, materials, equipment and tools to completely construct and finish all the work required by the Contract Documents hereto attached and other documents referred to therein: to complete said work within **285 calendar days** after the work order is issued; and to accept in full payment therefore the amount set forth below for all work actually performed as computed by the Engineer as set forth in the Contract.

**Basis of Award**

**THE BASIS OF AWARD IS BASE BID PLUS ADDITIVE ALTERNATE 1. THE ITEMS IN ADDITIVE ALTERNATE 1 MAY OR MAY NOT BE INCLUDED IN THE CONTRACT AWARD AT THE SOLE DISCRETION OF TMUA. ANY PROPOSAL SUBMITTED WITH ANY ADDITIVE ALTERNATES INCOMPLETE SHALL BE CONSIDERED NON-RESPONSIVE.**

**Note:** - Item numbers omitted are not a part of the Contract.

PROPOSAL  
YAHOLA TERMINAL STORAGE RESERVOIR IMPROVEMENTS  
TMUA-W 25-08

BID ITEM	COT SPEC. NO.	ODOT SPEC. NO.	TECHNICAL SPEC. NO.	DESCRIPTION	UNIT	QTY	DATA INPUT UNIT PRICE	TOTAL EACH ITEM
<b>BASE BID:</b>								
001	--	202(A)2200	--	UNCLASSIFIED EXCAVATION (ESTIMATED)	CY	3,434		\$ -
002	SPECIAL	220	--	SWPPP DOCUMENTATION AND MANAGEMENT	LS	1		\$ -
003	--	303(A)1200	--	AGGREGATE BASE TYPE A (BASE)	CY	213		\$ -
004	--	310(B)5300	--	SUBGRADE, METHOD B	SY	4,117		\$ -
005	--	326(A)1200	--	GEOTEXTILE REINFORCEMENT	SY	2,461		\$ -
006	--	326(B)1300	--	GEOGRID REINFORCEMENT	SY	380		\$ -
007	--	501(A)1200	--	STRUCTURAL EXCAVATION UNCLASSIFIED (ESTIMATED)	CY	2,116		\$ -
008	--	501(E)1600	31 23 00	SELECT BACKFILL (ESTIMATED)	CY	4,443		\$ -
009	--	501(G)1810	--	CONTROLLED LOW-STRENGTH MATERIAL (CLSM) BACKFILL	CY	78		\$ -
010	--	509(A)0200	--	CLASS AA CONCRETE	CY	563		\$ -
011	--	509(B)0300	--	CLASS A CONCRETE (SLOPE WALLS)	CY	131		\$ -
012	--	511(B)2300	--	EPOXY COATED REINFORCING STEEL	LB	121,127		\$ -
013	--	601(A)1100	--	TYPE I PLAIN RIPRAP	TON	378		\$ -
014	--	602(B)2300	35 31 19	ARTICULATING CONCRETE BLOCK SYSTEM, COMPLETE IN PLACE	SF	2,300		\$ -
015	--	619(B)6360	--	REMOVAL OF CONCRETE PAVEMENT	SY	73		\$ -
016	--	619(B)6408	--	REMOVAL OF CONCRETE SLOPE PROTECTION	SY	516		\$ -
017	--	640(A)1210	--	FIELD OFFICE	EA	1		\$ -
018	--	641	--	MOBILIZATION	EA	1		\$ -
019	304	642	--	CONSTRUCTION STAKING LEVEL II	EA	1		\$ -
020	--	--	--	TEMPORARY SITE ACCESS	EA	2		\$ -
021	--	--	--	2" TO 8" SHOT ROCK FOR SUBGRADE STABILIZATION	TON	129		\$ -
022	--	--	05 51 33	16" WIDE STEEL REINFORCED PLASTIC MANHOLE STEPS	EA	59		\$ -
023	--	--	05 53 00	TOWER SS304 GRATING W/ CAST-IN-PLACE SS304 FRAME, COMPLETE	EA	2		\$ -
024	--	--	05 53 00	CHANNEL SS304 GRATING W/ CAST-IN-PLACE SS304 FRAME, COMPLETE	EA	2		\$ -
025	--	--	31 23 19	DEWATERING, COMPLETE	CD	112		\$ -
026	--	--	41 22 13	DAVIT CRANE W/ BASE, OPERATING SYSTEM, COMPLETE IN PLACE	EA	2		\$ -
027	--	--	05 52 00	HANDRAILS, POSTS, WALL BRACKETS, AND CHAINS, COMPLETE SYSTEM IN PLACE	EA	2		\$ -
028	--	--	40 05 59 23	STAINLESS STEEL SLIDE GATES, COMPLETE OPERATION SYSTEM IN PLACE	EA	2		\$ -
029	102	--	--	PROJECT SIGN (CITY OF TULSA)	EA	1		\$ -
030	213	--	--	SIZE #1 CRUSHED STONE AGGREGATE (BERM CREST), COMPLETE IN PLACE	CY	103		\$ -
031	334	--	--	CONSTRUCTION AS-BUILT	EA	1		\$ -
032	335	--	--	CONTRACTOR QUALITY CONTROL	LSUM	1		\$ -
033	SPECIAL	--	--	CONSTRUCTION TRAFFIC CONTROL	CD	285		\$ -
034	SPECIAL	--	--	OWNER ALLOWANCE	ALLOW	100,000	\$1.00	\$ 100,000.00
<b>TOTAL BASE BID</b>								\$ 100,000.00

<b>ADDITIVE ALTERNATE #1 - SPLITTER BOX</b>								
035	--	326(A)1200	--	GEOTEXTILE REINFORCEMENT	SY	130		\$ -
036	--	509(A)0200	--	CLASS AA (SPLITTER BOX ROOF SLAB)	CY	2		\$ -
037	--	509(B)0300	--	CLASS A CONCRETE (SLOPE WALLS)	CY	21		\$ -
038	--	511(B)2300	--	EPOXY COATED REINFORCING STEEL	LB	1,598		\$ -
039	--	619(B)6392	--	REMOVAL OF EXISTING STRUCTURES	EA	1		\$ -
040	--	619(B)6408	--	REMOVAL OF CONCRETE SLOPE PROTECTION	SY	81		\$ -
041	--	619(B)6440	--	REMOVAL OF EXISTING PIPE	LF	26		\$ -
042	--	--	--	TEMPORARY SITE ACCESS	EA	1		\$ -
043	312	--	--	24 INCH X 16 INCH DUCTILE IRON REDUCER (RJ)	EA	2		\$ -
044	312	--	--	24 INCH DUCTILE IRON TO 24" CAST IRON PIPE ADAPTOR (RJ)	EA	1		\$ -
045	317	--	--	24 INCH DUCTILE IRON PIPE (RJ)	LF	15		\$ -
046	317	--	--	16" GATE VALVE (RJ) (RESILIENT WEDGE), COMPLETE IN PLACE	EA	1		\$ -
047	318	--	--	VALVE BOX	EA	1		\$ -
<b>TOTAL ADDITIVE ALTERNATE #1</b>								\$ -

<b>TOTAL BASE BID</b>		\$ 100,000.00
<b>TOTAL BID PLUS ADDITIVE ALTERNATE 1</b>		\$ 100,000.00

BASE BID (ITEMS 001 thru 034)  
TOTAL BID WITH ADDITIVE ALTERNATE 1 (ITEMS 001 thru 047)

\$ 100,000.00  
\$ 100,000.00

Enclosed is a ( ) Bidder's Surety Bond, ( ) Certified Check, ( ) Cashier's Check for

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_ )  
Words Figures

which the City of Tulsa may retain or recover as liquidated damages in the event that the undersigned fails to enter into contract for the work covered by this proposal, provided the Contract is awarded to the undersigned within thirty (30) days from the date fixed for opening of bids and the undersigned fails to execute said Contract and furnish the required bonds and other requirements as called for in these Contract Documents within thirty (30) days after award of Contract.

Dated at Tulsa, Oklahoma, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Respectfully submitted,

\_\_\_\_\_  
(Complete legal name of company)

\_\_\_\_\_  
(State of Organization)

By:

ATTEST:

\_\_\_\_\_  
Title:  
Printed Name:

\_\_\_\_\_  
Title: Corporate Secretary  
Printed Name: (SEAL)

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

By signing above the bidder acknowledges receipt of the following Addenda (give number and date of each):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

BASE BID \$ 100,000.00

TOTAL BID PLUS ADDITIVE ALTERNATE 1 \$ 100,000.00

This form is made available for example purposes only and is not intended to be legal advice nor intended to be relied upon in lieu of consultation with an attorney.

### Certificate of Secretary

The undersigned \_\_\_\_\_ (Assistant) Secretary of \_\_\_\_\_, a \_\_\_\_\_ corporation, (the "Corporation") hereby certifies that the following is a true and correct copy of a Resolution duly adopted by the Board of Directors of the Corporation on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

RESOLVED, that \_\_\_\_\_ is authorized to execute and enter into bids, contracts, bonds, affidavits and any ancillary documents, on behalf of the Corporation.

The undersigned further certifies that this Resolution is in full force and effect as of the date of this Certificate and has not been amended, modified, revoked or rescinded.

IN WITNESS WHEREOF, I have executed this Certificate this \_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
(Assistant) Secretary

This form is made available for example purposes only and is not intended to be legal advice nor intended to be relied upon in lieu of consultation with an attorney.

### Consent of Members

The undersigned, being all of the Members of [Name of Company], LLC, an Oklahoma Limited Liability Company, hereby authorize, consent to, approve and ratify the execution by \_\_\_\_\_ on behalf of [Name of Company], LLC of bid proposals, contracts, affidavits and related documents in connection with [Name of Project] of the City of Tulsa.

DATED, this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_

Name printed: \_\_\_\_\_

\_\_\_\_\_

Name Printed: \_\_\_\_\_

[ADD ADDITIONAL LINES FOR ADDITIONAL MEMBERS]



**TMUA: Tulsa Metropolitan  
Utility Authority**

---

(DATE)

(Company Name)

(Address)

(City, State, Zip Code)

**RE: Tulsa Metropolitan Utility Authority Project No.**

TO WHOM IT MAY CONCERN:

The vendor of materials and supplies under the above referenced contract is hereby authorized to invoice the Tulsa Metropolitan Utility Authority (TMUA), 175 E. 2<sup>nd</sup> Street, Suite 1300, Tulsa, Oklahoma 74107, for all materials and supplies purchased under the above contract, noting any contract discount and omitting all sales taxes. All invoices shall include the contract number and the name of the contractor ordering the materials or supplies.

Upon receipt the Tulsa Metropolitan Utility Authority will pay the invoice, in accordance with its terms and conditions, as money is due the Contractor per referenced contract.

This letter of authorization expires Date.

Sincerely,

Eric Lee,  
Director of Water and Sewer

MV:cc

**EXTENSION OF TIME REQUEST**  
(to be submitted with each partial payment application)

DATE: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CONTRACT NO.: \_\_\_\_\_

PROJECT NO.: \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_

ARE THERE ANY CHANGES TO YOUR SBE UTILIZATION?      \_\_\_\_\_ YES      \_\_\_\_\_ NO

IF YES, GIVE REASON AND ATTACH CHANGE REQUEST FORM (SBE-4): \_\_\_\_\_

EXTENSION OF CONTRACT TIME REQUIRED: \_\_\_\_\_ YES      \_\_\_\_\_ NO

TOTAL OF EXTENSION TIME REQUESTED: \_\_\_\_\_

IF YES GIVE REASON: \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE - CONTRACTOR

\_\_\_\_\_  
CONSULTING ENGINEER OR DEPARTMENT OF PUBLIC WORKS STAFF RECOMMENDATIONS

APPROVED: \_\_\_\_\_

REJECTED: \_\_\_\_\_

REASON: \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

ACTION WILL BE TAKEN WITHIN 30 DAYS FROM RECEIPT OF REQUEST

ETR-1

**CONTRACT FOR CONSTRUCTION OF PUBLIC IMPROVEMENTS**  
**TULSA, OKLAHOMA**

**THIS CONTRACT** made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2026, by and between \_\_, an (list state) \_\_\_\_\_ (Corporation or Limited Liability Company) of \_\_, Oklahoma hereinafter called the "CONTRACTOR", and the TULSA METROPOLITAN UTILITY AUTHORITY, Tulsa, Oklahoma, a Public Trust, herein called the "Authority".

**WITNESSETH:**

**WHEREAS**, the Authority has caused to be prepared the necessary Drawings, Specifications, and other Contract Documents for the public improvements herein described, and has invited bids for the construction thereof in accordance with the terms of the Contract, all of which is hereby designated as:

**PROJECT NO. TMUA-W 25-08 YAHOLA TERMINAL STORAGE RESERVOIR IMPROVEMENTS**

**WHEREAS**, the Contractor, in response to the Advertisement, has submitted to the Authority, in the manner and at the time specified, a sealed bid in accordance with the terms of this Contract; and,

**WHEREAS**, the Authority, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the above named Contractor to be the lowest responsible bidder for the work and has duly awarded to the said Contractor therefore, for the sum or sums named in the Contractor's bid, a copy of the Bid Form being attached to and made a part of this Contract;

**NOW, THEREFORE**, in consideration of the compensation to be paid to the Contractor and of the mutual agreements and covenants herein contained, the parties to this Contract have agreed and hereby agree, as follows:

**ARTICLE I.** That the contractor shall (a) furnish all tools, equipment, supplies, superintendence, transportation, and other construction accessories, services, and facilities; (b) furnish all materials, supplies, and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good, substantial, and workmanlike manner and in accordance with the requirements, stipulations, provisions and conditions of the Contract as defined in the attached General Conditions, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct, and complete all work included in and covered by the Authority's official award of this Contract to the said Contractor, such award being based on the acceptance by the Authority of the Contractor's bid, or part thereof, as follows:

**PROJECT NO. TMUA-W 25-08 YAHOLA TERMINAL STORAGE RESERVOIR IMPROVEMENTS**

**ARTICLE II.** That the Authority shall pay to the Contractor for performance of the work embraced in this Contract, and the Contractor will accept as full compensation therefor, the sum (subject to adjustment as provided by the Contract) of AND /100 Dollars (\$\_\_\_\_\_ ) for all work covered by and included in the Contract award and designated in the foregoing Article I; payments therefore to be made in cash or its equivalent, in the manner provided in the General Conditions.

**ARTICLE IIA.** All materials and supplies to be purchased under the terms of this contract shall be ordered by the Contractor from the vendor or supplier who shall be directed to invoice the Tulsa Metropolitan Utility Authority direct. The invoice shall reflect any contractor discount and no sales tax shall be added. The invoice will be paid direct by the Tulsa Metropolitan Utility Authority in accordance with the terms and conditions of the invoice (Oklahoma Tax Commission Rules Part 27 Trust Authority 710:65-13-140). The monies paid direct by Tulsa Metropolitan Utility Authority to the vendor or supplier shall be deducted from the total contract price. The Contractor shall accept delivery and be responsible for and shall warrant and hold the Authority harmless for the safety and security of all of the materials and supplies furnished for the project under this contract.

**ARTICLE III.** That the Contractor shall start work within ten (10) days following the date stipulated in a written order from the Authority to proceed with the work to be performed hereunder, and shall complete the work within the number of consecutive calendar days after the authorized starting date, as stipulated below:

All Work Completed: **285** calendar days

**ARTICLE IV.** The sworn, notarized statement below shall be signed and notarized before this Contract will become effective.

**ARTICLE V.** Prior to submitting a final payment request, the Contractor shall furnish a lien waiver certifying that all subcontractors and suppliers have been paid.

**ARTICLE VI.** If the Contractor has 10 or more full-time employees, and this contract exceeds \$100,000 in total value, Contractor acknowledges and agrees that, in accordance with and pursuant to 21 O.S. 1289.31, Contractor verifies to Authority that: (i) it does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association, and (ii) will not discriminate against a firearm entity or firearm trade association during the term of this Contract.

**IN WITNESS WHEREOF**, the Authority and the Contractor hereto have set their hands and seals, respectively, this \_\_\_\_\_ day of \_\_\_\_\_, 2026.

**APPROVED AS TO SUBSTANCE:**

\_\_\_\_\_ Date: \_\_\_\_\_  
Director

**TULSA METROPOLITAN UTILITY AUTHORITY, a Public Trust**

By:

\_\_\_\_\_ Date: \_\_\_\_\_  
Chairman

ATTEST:

\_\_\_\_\_ Date: \_\_\_\_\_  
Secretary

**APPROVED AS TO FORM:**

\_\_\_\_\_ Date: \_\_\_\_\_  
Attorney for the Trust

\_\_\_\_\_  
CONTRACTOR

By: \_\_\_\_\_

Print Name: \_\_\_\_\_

\_\_\_\_\_ Date: \_\_\_\_\_ Title \_\_\_\_\_ Date: \_\_\_\_\_  
Title Title

ATTEST:

\_\_\_\_\_  
Corporate Secretary

(SEAL)

AFFIDAVIT

STATE OF \_\_\_\_\_ )  
 )ss  
COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_, of lawful age, being first duly sworn, on oath that (s)he is the agent authorized by the Contractor to submit the above Contract to the Tulsa Metropolitan Utility Authority, Tulsa, Oklahoma.

\_\_\_\_\_  
Signature

SUBSCRIBED AND SWORN to before me this \_\_\_\_\_ day of \_\_\_\_\_ 2026.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires:  
\_\_\_\_\_, \_\_\_\_\_.

## City of Tulsa Construction Escalation Process

Step	Contractor Representative(s)	City of Tulsa Representative(s)	Process	Communication / Documentation	Resolution (**)	No Resolution	Typical Time Frame (***)
1.0	Superintendent	Construction Inspector	Field Meeting Request for Information (RFI) may apply	Phone, Text, Email, or RFI / Daily Report	Within Construction Documents	If not resolved within Construction Documents, escalate to 2.0	Same day to 3 days
2.0	Superintendent	Construction Inspector Manager / Construction Inspector	Field Meeting Request for Information (RFI) may apply	Phone, Text, Email, or RFI / Daily Report	Within Construction Documents	If not resolved within Construction Documents, escalate to 3.0	1 day to 3 days
3.0	Project Manager / Superintendent	Construction Manager / Construction Inspector Manager / Construction Inspector Lead Engineer / Project Manager Design Consultant	Contractor submit RFI	Phone, Email, RFI / Daily Report, RFI Log, Progress Mtg	Additional information provided. Potential Allowance Authorization, Extension of Quantities, Change Order, or Other	If not resolved by additional information and within terms of contract, escalate to 4.0	Within 10 calendar days (as ODOT 104.06.B)
4.0	Project Manager / Superintendent	Field Engineering Manager / Construction Manager Lead Engineer / Project Manager Design Consultant	Appeal Construction Manager's Decision	Email, RFI / Daily Report, RFI Log, Progress Mtg	Field Engineering Manager makes determination on appeal. Potential Allowance Authorization, Extension of Quantities, Change Order, or Other	If not resolved by additional information and within terms of contract, escalate to 5.0	Within 10 calendar days (as ODOT 104.06.B)
5.0	Owner / Project Manager / Superintendent	PW Deputy Director and/or other Dept Design Manager / Field Engineering Manager / Construction Manager Lead Engineer / Project Manager Design Consultant	Appeal Field Engineering Manager's Decision	Email, RFI / Daily Report, RFI Log, Progress Mtg	PW Deputy Director and/or other Dept. Design Manager makes determination on appeal. Potential Allowance Authorization, Extension of Quantities, Change Order, or Other	If appeal is not resolved, escalate to 6.0	Within 10 calendar days (as ODOT 104.06.B)
6.0	Owner / Project Manager / Superintendent	Director (*) / PW Deputy Director and/or other Dept Design Manager / Field Engineering Manager / Construction Manager Lead Engineer / Project Manager Design Consultant	Appeal PW Deputy Director's and/or other Dept. Design Manager's Decision	Email, RFI / Daily Report, RFI Log, Progress Mtg	Director makes determination on appeal. Potential Allowance Authorization, Extension of Quantities, Change Order, or Other		Within 10 calendar days (as ODOT 104.06.B)

(\*) Director of the Department under whose authority construction is managed by Public Works Field Engineering. Public Works Deputy Director will notify Director of Public Works.

(\*\*) Resolution - Complete information will assist in the most timely resolution. Each escalation step should address any information deficiencies and proposed resolutions, if any, that were unsatisfactory.

(\*\*\*) Time frames - It is understood that special issues will require a more rapid response and escalation.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, \_\_\_\_\_, (hereinafter called the "Contractor"), duly authorized by law to do business as a construction contractor in the State of Oklahoma, and \_\_\_\_\_ (hereinafter called the "Surety"), a corporation organized under the laws of the State of \_\_\_\_\_, and authorized to transact business in the State of Oklahoma, as Surety, are hereby held and firmly bound unto the Tulsa Metropolitan Utility Authority, Tulsa, Oklahoma (hereinafter called the "Authority"), in the penal sum of Dollars **(full amount of the Contract), (\$00)** lawful money of the United States, for the payment of which, well and truly to be made unto the said Authority, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents, as follows:

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT, WHEREAS, the Contractor has on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, entered into a written contract with the Tulsa Metropolitan Utility Authority, Tulsa, Oklahoma, for furnishing all materials, labor, tools, equipment, and transportation necessary for:

**PROJECT NO. TMUA-W 25-08 YAHOLA TERMINAL STORAGE RESERVOIR IMPROVEMENTS**

NOW, THEREFORE, if said Contractor shall well and truly perform and complete said project in accordance with said Contract, Advertisement for Bids, General Conditions, Instructions to Bidders, Bid Form, Plans and Specifications, and related documents, shall comply with all the requirements of the laws of the State of Oklahoma; shall pay as they become due all just claims for work or labor performed and materials furnished in connection with said contract, and shall defend, indemnify and save harmless said Authority against any and all liens, encumbrances, damages, claims, demands, expenses, costs and charges of every kind, including patent infringement claims except as otherwise provided in said specifications and other contract documents, arising out of or in relation to the performance of said work and the provisions of said Contract, then these presents shall be void; otherwise, they shall remain in full force and effect.

This obligation is made for the use of said Authority and also for the use and benefit of all persons who may perform work or labor, or furnish any material in the execution of said Contract, and may be sued on thereby in the name of the Authority.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder, or the specifications accompanying same, shall in any way affect its obligation on this bond; and it does hereby waive notice of any such change, extension of time, alteration or addition of the terms of the Contract, or to the work or to the specifications.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

\_\_\_\_\_  
CONTRACTOR (Principal)

BY:

ATTEST: ( S E A L )

\_\_\_\_\_  
Date: \_\_\_\_\_ Date: \_\_\_\_\_

Title:

Title:

\_\_\_\_\_  
Date: \_\_\_\_\_ Date: \_\_\_\_\_

Attorney-In-Fact

Surety ( S E A L )

\*\* This date shall match the date of the notarized certificate on the Power of Attorney

(Accompany this Bond with Power-Of-Attorney)

APPROVED AS TO FORM:

\_\_\_\_\_  
Date: \_\_\_\_\_  
Attorney for the Tulsa Metropolitan  
Utility Authority

APPROVED AS TO FORM:

\_\_\_\_\_  
Date: \_\_\_\_\_  
City Attorney

\_\_\_\_\_  
Date: \_\_\_\_\_  
City Clerk

STATUTORY BOND

WHEREAS, the undersigned \_\_\_\_\_  
has entered into a certain contract dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_,  
designated as **Project No. TMUA-W 25-08 Yahola Terminal Storage Reservoir  
Improvements**, for the construction of certain public improvements consisting of  
\_\_\_\_\_ to be situated and constructed on and  
through the property described in said Contract, including all of the work mentioned  
and described in said Contract, and to be performed by the undersigned strictly and  
punctually in accordance with the terms, conditions, drawings and specifications  
thereof, on file in the office of the Tulsa Metropolitan Utility Authority.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS: That  
\_\_\_\_\_, as Principal, and  
\_\_\_\_\_, a Corporation  
organized under the laws of the State of \_\_\_\_\_, and authorized to  
transact business in the State of Oklahoma, as Surety, are held and firmly bound  
unto the State of Oklahoma in the penal sum of  
\_\_\_\_\_

Dollars (Full Amount of Contract) (\$\_\_\_\_\_), lawful money of the United  
States, for the payment of which sum well and truly to be made, we bind ourselves,  
our successors, and assigns, jointly and severally firmly by these presents.

NOW, THEREFORE, if the said Principal shall fail or neglect to pay all indebtedness  
incurred by Principal or sub-contractors of said principal who perform work in the  
performance of such contract, for labor and materials and repairs to and parts for  
equipment used and consumed in the performance of said contract within thirty (30)  
days after the same becomes due and payable, the person, firm or corporation  
entitled thereto may sue and recover on this bond the amount so due and unpaid.

The Surety, for value received, hereby stipulates and agrees that no change,  
extension of time, alteration, or addition to the terms of the contract or to the work to  
be performed thereunder, or the specifications accompanying the same, shall in any  
way affect its obligation on this bond, and it does hereby waive notice of any such  
change, extension of time, alteration, or addition to the terms of the contract or to the  
specifications.

IN WITNESS WHEREOF, the said Principal has caused these presents to be  
executed in its name and its corporate seal to be hereunto affixed by its duly

5/30/06

authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

\_\_\_\_\_  
CONTRACTOR(Principal)

BY:

ATTEST: ( SEAL )

\_\_\_\_\_  
Date: \_\_\_\_\_  
Title:

\_\_\_\_\_  
Date: \_\_\_\_\_  
Title:

\_\_\_\_\_  
Date: \_\_\_\_\_  
Attorney-In-Fact

\_\_\_\_\_  
Date: \_\_\_\_\_  
Surety ( SEAL )

\*\* This date shall match the date of the notarized certificate on the Power of Attorney

(Accompany this Bond with Power-Of-Attorney)

APPROVED AS TO FORM:

\_\_\_\_\_  
Date: \_\_\_\_\_  
Attorney for the Tulsa Metropolitan  
Utility Authority

APPROVED AS TO FORM:

\_\_\_\_\_  
Date: \_\_\_\_\_  
City Attorney

\_\_\_\_\_  
Date: \_\_\_\_\_  
City Clerk

11/18/05

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_, as Principal,  
and \_\_\_\_\_, a corporation organized  
under the laws of the State of \_\_\_\_\_ and authorized to transact business in the  
State of Oklahoma, as Surety, are held and firmly bound unto the Tulsa Metropolitan Utility  
Authority in the Penal Sum of \_\_\_\_\_

\_\_\_\_\_ Dollars (full amount of Contract) ( \$ \_\_\_\_\_ ) in lawful money of the  
United States of America for the payment of which, well and truly to be made, we bind  
ourselves and each of us, our heirs executors, administrators, trustees, successors, and  
assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that:

WHEREAS, said Principal entered into a written contract with the Tulsa Metropolitan Utility  
Authority dated \_\_\_\_\_, 20\_\_\_\_, for

**PROJECT NO. TMUA-W 25-08 YAHOLA TERMINAL STORAGE RESERVOIR  
IMPROVEMENTS**

all in compliance with the drawings and specifications therefore, made a part of said  
Contract and on file in the office of the Authority, Tulsa, Oklahoma.

NOW, THEREFORE, if said Principal shall pay or cause to be paid to the Tulsa  
Metropolitan Utility Authority, all damage, loss, and expense which may result by reason of  
defective materials and/or workmanship in connection with said work, occurring within a  
period of one (1) year for all projects, from and after acceptance of said project by the Tulsa  
Metropolitan Utility Authority and if Principal shall pay or cause to be paid all labor and  
materials, including the prime contractor and all subcontractors; and if principal shall save  
and hold the Tulsa Metropolitan Utility Authority harmless from all damages, loss, and  
expense occasioned by or resulting from any failure whatsoever of said Principal, then this  
obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties hereto that no changes or  
alterations in said Contract and no deviations from the plan or mode of procedure herein  
fixed shall have the effect of releasing the sureties, or any of them, from the obligation of  
this Bond.

11/18/05

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

\_\_\_\_\_  
CONTRACTOR(Principal)

BY:		ATTEST: ( S E A L )	
_____	Date: _____	_____	Date: _____
Title:		Title:	
_____	Date: _____	_____	Date: _____
Attorney-In-Fact	**	Surety ( S E A L )	

\*\* This date shall match the date of the notarized certificate on the Power of Attorney  
(Accompany this Bond with Power-Of-Attorney)

APPROVED AS TO FORM:

\_\_\_\_\_  
Attorney for the Tulsa Metropolitan  
Utility Authority Date: \_\_\_\_\_

APPROVED AS TO FORM:

\_\_\_\_\_ Date: \_\_\_\_\_  
City Attorney

\_\_\_\_\_ Date: \_\_\_\_\_  
City Clerk

**AFFIDAVIT OF CLAIMANT**

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

The undersigned, of lawful age, being first duly sworn, on oath says that this contract is true and correct. Affiant further states that the work, services or materials will be completed or supplied in accordance with the contract, plans, specifications, orders or requests furnished the affiant. Affiant further states that (s)he has made no payment directly or indirectly of money or any other thing of value to any elected official, officer or employee of the City of Tulsa or any public trust of which the City is a beneficiary to obtain or procure the contract or purchase order.

By: \_\_\_\_\_

Signature

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Title: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

Notary Commission Number: \_\_\_\_\_

GENERAL  
CONDITIONS

## GENERAL CONDITIONS OF CONTRACT

### GC-1. SCOPE:

The Contract stipulations which follow are general in scope and may refer to conditions which will not be encountered in the performance of the work included in this Contract, and which are not applicable thereto. Any requirements, provisions, or other stipulations of these General Conditions which pertain to a nonexistent condition and are not applicable to the work to be performed hereunder, shall have no meaning in the Contract.

The specifications and drawings are intended to supplement, but not necessarily duplicate each other. Together they constitute one (1) complete set of specifications and drawings, so that any work exhibited in the one and not in the other shall be executed just as if it had been set forth in both, in order that the work shall be completed according to the complete design or designs as decided and determined by the Engineer.

Should anything be omitted from the specifications and drawings which is necessary to a clear understanding of the work, or should it appear various instructions are in conflict, then the Contractor shall request written clarification from the Engineer before proceeding with the construction affected by such omissions or discrepancies.

### GC-2. CONTRACT DOCUMENTS:

It is understood and agreed that the Notice to Bidders, Instructions to Bidders, Proposal, Contract, Statutory Bond, Performance Bond, Maintenance Bond, Power of Attorney, Certificates of Insurance, General Conditions, Specifications, Drawings, Addenda and duly authorized Change Orders, together with any and all supplementary drawings furnished by the Engineer as and when required to make clear and to define in greater detail the intent of the contract, drawings, and specifications, other drawings, specifications, and engineering data furnished by the Contractor (when accepted by the Engineer), and instructions furnished by manufacturers of equipment for the installation thereof, are each and all included in this Contract, and the work shall be done in full compliance and accord therewith.

### GC-3. DEFINITIONS:

Any word, phrase, or other expression defined in this paragraph and used in these Contract Documents shall have the meaning herein given:

1. "Contract" or "Contract Documents" shall include all of the documents and drawings mentioned in Paragraph GC-2.
2. "Authority" shall mean the Tulsa Metropolitan Utility Authority, Tulsa County, Oklahoma, a Public Trust.

3. "Contractor" shall mean the entity named and designated in the Contract who has entered into this Contract to perform the work covered thereby, and its, his, or their duly authorized agents and other legal representatives.

4. "Engineer" shall mean the Superintendent of Water Plant or Sewer Plant, or the Architect or Engineers who have been designated, appointed, or employed by the Authority and Superintendent of Water Plant or Sewer Plant for this project, or their duly authorized agents; such agents acting within the scope of the particular duties entrusted to them in each case.

5. "Inspector" shall mean the engineering or technical inspector or inspectors duly authorized by the Engineer, limited in each case to the particular duties entrusted to him or them.

6. "Surety" shall mean any entity that executes, as surety, the Contractor's performance bond, maintenance bond, and statutory bond securing the performance of this Contract.

7. "Drawings" shall mean and include all drawings prepared by the Authority as a basis for proposals; all drawings submitted by the successful bidder with his proposal and by the Contractor to the Authority, when and as accepted by the Engineer, and all drawings submitted by the Authority to the Contractor during the progress of the work as provided herein.

8. "Subcontractor" shall mean a person, firm or corporation to whom any portion of this work has been sublet by the Contractor.

9. "Work" shall mean the task to be performed, necessary for the fulfillment of this Contract.

10. "Unit Price" shall mean the cost per specified unit of measurement of work and/or material.

11. "Lump Sum" shall mean the price of an item of work including all things necessary to complete the item as shown on the drawings and specifications. Such an item is not measured in units but is defined by description.

#### GC-4. MODIFICATIONS AND ALTERATIONS:

In executing the Contract, the Contractor agrees that the Authority shall have the right to make such modifications, changes, and alterations as the Authority may see fit, in the extent or plan of the Work agreed to be done or any part thereof, or in the materials to be used therein, either before or after the beginning of construction thereof, without affecting the validity of the Contract or the liability of the Sureties upon the performance of this Contract or the Statutory Bond.

Where any modification, change, or alteration increases the quantity of Work to be performed and is within the scope of a fair interpretation thereof, such increase shall be paid for according to the quantity of work actually done, either at Unit Prices included in

the Contract, or in the absence of such unit, as extra Work. Modifications and alterations which reduce the quantity of Work to be done shall not constitute a claim for damages or for anticipated profits on Work involved in such reduction.

The Engineer shall determine, on an equitable basis, the amount of credit due the Authority for Work not performed as a result of modifications or alterations authorized hereunder; where the value of the omitted Work is not fixed by Unit Prices in the Contract; allowance to the Contractor for any actual loss incurred in connection with the purchase, delivery, and subsequent disposal of materials and equipment required for use on the Work as actually built; and any other adjustment of the Contract amount where the method to be used in making such adjustment is not clearly defined in the Contract Documents. In this respect, such determination shall be final and binding only when approved by the Superintendent of Water Plant or Sewer Plant.

**GC-5. CPM SCHEDULE AND DRAWINGS TO BE FURNISHED BY CONTRACTOR:**  
**The successful contractor shall furnish a CPM schedule per ODOT 108.03B.** If at any time, in the opinion of the Engineer, proper progress is not being maintained, such changes shall be made in the schedule of operations, which will satisfy the Engineer that the work will be completed within the period stated in the Proposal. Monthly progress meeting will be conducted to maintain coordination between all project entities.

The Contractor shall furnish all shop, fabrication, assembly, foundation, and other drawings required by the specifications; drawings of equipment and devices, offered by the Contractor for review by the Engineer shall be in sufficient detail to show adequately the construction and operation thereof; drawings of essential details of any change in design or construction proposed for consideration of the Engineer, by the Contractor in lieu of the design or arrangement required by the Contract or any item of extra work thereunder. The Contractor shall submit to the Engineer, the required number of each copy of such drawing for the Engineer's review. After review by the Engineer, all such drawings shall become a part of the Contract Documents and the work or equipment shown thereby shall be in conformity therewith unless otherwise required by the Authority.

The Engineer's check and acceptance of drawings submitted by the Contractor will be for, and will cover, only general conformity to the plans and specifications and will not constitute a blanket acceptance of all dimensions, quantities, and details of the material or equipment shown; nor shall such acceptance relieve the Contractor of his responsibility for errors contained in such drawings.

**GC-6. CONTRACTOR'S BUSINESS ADDRESS:**  
The business address of the Contractor given in the bid or proposal upon which this Contract is founded is hereby designated as the place to which all notices, letters, and other communications to the Contractor may be mailed or delivered. The delivery at the above named address or depositing in any mailbox regularly maintained by the Post Office, of any notice, letter, or other communication to the Contractor, shall be deemed sufficient service thereof upon the Contractor and the date of said service shall be the date of such delivery or mailing. Such address may be changed at any time by a written

instrument, executed by the Contractor and delivered to the Engineer. Nothing contained herein shall be deemed to preclude or render inoperative the service of any notice, letter, or communication upon the Contractor personally.

**GC-7. CONTRACTOR'S RISK AND RESPONSIBILITY:**

The performance of the Contract and the Work is at the risk of the Contractor until the final acceptance thereof and payment therefor. The Contractor shall take all responsibility of the Work, and shall bear all losses resulting because of the amount or character of the Work, or because the nature of the land in or on which the Work is done is different from what is assumed or expected, or on account of the weather, floods, fire, windstorm, or other actions of the elements, or any cause or causes, whatsoever, for which the Authority is not responsible. If the Work or any part or parts thereof is destroyed or damaged from any of the aforesaid causes, the Contractor, at his own cost or expense, shall restore the same or remedy the damage.

The Contractor shall, in a good and workmanlike manner, perform all Work and furnish all supplies and materials, machinery, equipment, facilities, and means, except as otherwise expressly specified, necessary or proper to perform and complete all Work required by the Contract within the time herein specified, in accordance with the provisions of these Contract Documents and Drawings of the Work covered by this Contract, and any and all supplemental Drawings. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of the Contract, and shall complete the entire Work to the satisfaction of the Engineer and of the Authority.

**GC-8. ASSIGNMENT AND SUBLETTING OF CONTRACT:**

The Contractor shall give his personal attention to the fulfillment of this Contract, and shall not let, assign or transfer it or his right, title, or interest in any part thereof, by attorney or otherwise, or sublet any part of the Work to any other person without the prior consent of the Authority in writing.

Should any Subcontractor fail to perform his Work in a satisfactory manner, his subcontract shall be immediately terminated by the Contractor upon notice from the Authority. The Contractor shall be fully responsible to the Authority for the acts and omissions of his Subcontractor and of persons either directly or indirectly employed by his Subcontractor. Nothing contained in these Contract Documents shall create any contractual relation between any Subcontractor and the Authority.

**GC-9. CONTRACTOR'S REPRESENTATIVES:**

The Contractor shall designate a person on the Work to represent him when absent from the Work site.

**GC-10. CONTRACTOR AND HIS EMPLOYEES:**

The Contractor shall employ competent foremen, experienced mechanics, and others skilled in the several parts of the Work in this Contract and shall promptly discharge any and all incompetent or otherwise unsatisfactory employees. Contractor's employees directly employed to perform the Work shall not be paid less than the prevailing

minimum wage scale.

Necessary sanitary conveniences for the use of employees on the job site, properly secluded from public observation, shall be provided and maintained by the Contractor. The construction and location of the facility and disposal of the contents shall comply with all laws of the City and State, relating to health and sanitation regulations.

**GC-11. CONTRACTOR'S RIGHT OF PROTEST:**

If the Contractor considers any work demanded of him to be outside the requirements of the Contract, or considers any record or ruling of the Engineers to be unfair, he shall, immediately upon such Work being demanded or such record or ruling being made, ask for written instructions or decisions, whereupon he shall proceed without delay to perform the Work or to conform to the record or ruling, and within ten (10) days after the date of receipt of written instructions or decision, he shall file a written protest with the Engineer, stating clearly and in detail the basis of his objections. Except for such protests and objections made of record in the manner herein specified and within the time stated, the records, rulings, or decisions of the Engineer shall be final and conclusive.

**GC-12. INSURANCE AND BONDS:**

The Contractor (and any subcontractors) shall carry and keep in force during this Contract, policies of insurance issued by an insurer authorized to transact business in Oklahoma in minimum amounts as set forth below or as required by the laws of the State of Oklahoma. The Contractor shall also furnish an Owner's Protective Policy in the same amounts naming the Tulsa Metropolitan Utility Authority as the assured, issued by the same insurance company as the Contractor's liability coverage and indemnifying the Authority against any and all actions, claims, judgments or demands arising from injuries of any kind and character sustained by any person or persons because of work performed by the Contractor.

General Liability Insurance with a bodily injury and property damage combined single limit of not less than \$1,000,000.00 for each occurrence.

Employer's Liability and Workmen's Compensation in the amounts as required by law.

The Contractor shall provide proof of such coverage:

- (a) By providing Certificate(s) of Insurance prior to the execution of this contract; and
- (b) By submitting updated Certificate(s) of Insurance with each and every subsequent request for payment. The Certificate(s) should show that the policies are current and should be dated within 30 days of the payment request.

The Contractor shall not cause any required insurance policy to be cancelled or permit it

to lapse. If the Contractor cancels, allows to lapse, fails to renew or in any way fails to keep any required insurance policy in effect, the Authority will suspend all progress and/or final payments for the project until the required insurance is obtained. Further, a Contractor who fails to keep required insurance policies in effect may be deemed by the Authority to be in breach of contract, ineligible to bid on future projects, and/or ineligible to engage in any new contracts.

The Contractor shall execute and furnish a Statutory Bond for the protection of laborers, mechanics, and material men in a sum equal to one hundred percent (100%) of the contract price.

The Contractor shall execute and furnish a Performance Bond in a sum equal to one hundred percent (100%) of the contract price.

The Contractor shall execute and furnish a Maintenance Bond in a sum equal to one hundred percent (100%) of the contract price.

Prior to doing blasting, the Contractor shall furnish a Certificate of Insurance, which shall certify that any damage caused by blasting is within the coverage of the Contractor's liability insurance to the full limits thereof.

All bonds and insurance must be executed by a company licensed to do business in the State of Oklahoma and must be acceptable to the Authority.

#### GC-13. TIME FOR COMPLETION:

For all projects that will impact the public, a public meeting is required before any work is started. The City of Tulsa requires a minimum of 25 days' notice to get the public meeting scheduled and invitations mailed out.

The Work shall commence within ten (10) days from and after the date of a written order from the Authority. The Contractor agrees that the Work shall be performed regularly, diligently, and uninterruptedly at a uniform rate of progress so as to insure completion within the number of days after the day on which the work order is issued. If the Contractor fails to complete all Work within the time specified, then the Contractor agrees to pay the Authority, not as a penalty, but as liquidated damages for such breach of contract, the sum of **Two Thousand Five Hundred Dollars (\$2,500.00)** for each and every calendar day beyond the date on which the work was to be completed. The said amount is fixed and agreed upon because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Authority would sustain in such event. It is expressly understood and agreed that the said time for the completion of the Work described herein is a reasonable time for the completion of the same.

The Contractor shall commence work within twenty-four (24) hours of traffic control devices being established at the project location. If the Contractor fails to commence work within twenty-four (24) hours of traffic control devices being established at the

project location, then the Contractor agrees to pay the Authority, not as a penalty, but as liquidated damages the sum of **One Thousand Dollars (\$1,000.00)** per lane for each day of failure to commence work after the specified time set forth. The amount is fixed and agreed upon because of the impracticability and extreme difficulty of fixing and ascertaining the actual damage the Authority would sustain in such event.

The Contractor will be required to provide a full-time, onsite English-speaking superintendent for this Work for direct contact with Authority and coordination of Subcontractors. A working foreman is not acceptable as a work superintendent. The superintendent shall be required to be present at the Work site whenever the Contractor or Subcontractors are performing Work. The superintendent shall be a representative of the Contractor with the authority to make decisions. If the Contractor fails to provide a non-working superintendent on a day when Work is being performed the Contractor agrees to pay the Authority, not as a penalty, but as liquidated damages for such breach of contract, the sum of **One Thousand Dollars (\$1,000.00)** for each and every calendar day it fails to provide a non-working superintendent at the Work site. This amount is fixed and agreed upon because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Authority would sustain in such event.

It is further agreed that time is of the essence as to each and every portion of this Contract and the specifications wherein a definite and certain time is fixed for the performance of any act whatsoever; and where under the Contract an allowance of additional time for completion of any Work is made, the new time fixed by such extension shall be of the essence of this Contract.

Failure to complete the Work within the specified time, as set forth in the Contract, may be grounds for disqualification for future consideration for contracts with the Authority.

Final acceptance of the Work is defined as the completion of the Work and the Contractor moving off the project site. No defined or additional Work is needed.

Contract Evaluation forms will be compiled by Authority staff upon completion of Work to provide a record of the Contractor's performance for use in subsequent projects.

**GC-14. EXTENSIONS OF TIME:**

Should the Contractor be delayed in the final completion of the Work by any act or neglect of the Authority or Engineer, or any employee of either, or strikes, injunctions, fire, or other causes outside of and beyond the control of the Contractor and which, in the opinion of the Engineer, could have been neither anticipated nor avoided, then an extension of time sufficient to compensate for the delay, as determined by the Engineer, shall be granted by the Authority, provided, however, that the Contractor shall give the Authority and the Engineer notice in writing of the cause of each delay on the "Extension of Time Request" form enclosed in these documents, and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the Work.

The Contractor shall submit the "Extension of Time Request" form with each partial

payment application. Failure to submit the Extension of Time Request with a partial payment application shall constitute a complete waiver of any claim for time extension for the period covered by the partial payment.

Extensions of time will not be granted for delays caused by unsuitable ground conditions, inadequate construction force, or the failure of the Contractor to place orders for equipment or materials a sufficient time in advance to ensure delivery when needed. Any extension of time granted by the Authority shall not release the Contractor and Surety herein from the payment of liquidated damages as provided in the General Conditions of this Contract, for a period of time not included in the original Contract or the time extension, as herein provided.

In no event shall the Authority be liable or responsible to the Contractor, Surety, or any person for or on account of any stoppage or delay of Work herein provided for by injunction or any other kind of legal, equitable proceedings, or from or by or on account of any delay from any other cause whatsoever.

**GC-15. ENGINEER'S POWERS AND DUTIES:**

The Engineer will provide general administration of the Contract, including performance of the functions hereinafter described.

The Engineer will be the Authority's representative during construction and until final payment. The Engineer will have authority to act on behalf of the Authority to the extent provided herein unless otherwise modified by written instrument, which will be shown to the Contractor. The Engineer will advise and consult with the Authority, and all of the Authority's instructions to the Contractor shall be issued through the Engineer. Nothing contained in the Contract documents shall create any contractual relationship between the Engineer and the Contractor.

The Engineer shall at all times have access to the Work as provided elsewhere herein. The Engineer will make periodic visits to the Work site to familiarize himself generally with the progress and quality of the Work and to determine in general whether the Work is proceeding in accordance with the Contract. On the basis of his on-site observations as Engineer, he will keep the Authority informed of the progress of the Work and will endeavor to guard the Authority against defects and deficiencies in the Work caused by the Contractor. The Engineer will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract. Based on such observations and the Contractor's applications for payment, the Engineer will determine the amounts owing to the Contractor and will issue certificates for payment in amounts as provided elsewhere herein.

The Engineer may provide one or more full-time project representatives to assist the Engineer in carrying out his responsibilities at the Work site. The duties, responsibilities and limitations of authority of the Engineer as the Authority's representative during construction as set forth herein will not be modified or extended without written consent

of the Authority, the Contractor and the Engineer.

The Engineer will not be responsible for the acts or omissions of the Contractor, any Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.

The Engineer shall decide the meaning and intent of any portion of the specifications, and of any plans or Drawings, where the same are found to be obscure or be in dispute; he shall have the right to correct any errors or omissions therein when such corrections are necessary to further the intent of said specifications, plans or Drawings; the action of such correction shall be effective from the date that the Engineer gives due notice thereof.

Any differences or conflicts which may arise between the Contractor and other contractors with the Authority in regard to their work shall be adjusted as determined by the Engineer.

Neither the Engineer's authority to act under this article or elsewhere in the Contract nor any decision made by the Engineer in good faith either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any manufacturer, fabricator, supplier or distributor, or any of their agents or employees or any other person performing any of the Work.

Whenever in the Contract the terms "as ordered", "as directed", "as required", "as allowed", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory" or adjectives of like effect or import are used, to describe requirements, direction, review or judgement of the Engineer as to the Work, it is intended that such requirement, direction, review, or judgement will be solely to evaluate the Work for compliance with the Contract (unless there is a specific statement indicating otherwise). The use of any such term or adjective never indicates that the Engineer shall have authority to supervise or direct performance of the Work or authority to undertake responsibility contrary to the provisions of this General Condition.

#### GC-16. AUTHORITY'S RIGHT OF INSPECTION:

The Authority shall appoint or employ such engineers or inspectors as the Authority may deem proper to inspect the materials furnished and the work performed, and to determine whether said materials are furnished and work is performed in accordance with the Drawings and specifications therefor. The Contractor shall furnish all reasonable aid and assistance required by the Engineer, or by the Inspectors, for the proper inspection and examination of the Work and all parts thereof, even to the extent of uncovering or taking out portions of finished Work. Should the Work thus exposed or examined prove satisfactory, the uncovering or removing and the replacing of the covering or the making good of the parts removed shall be paid for by the Authority; however, should the Work exposed or examined prove unsatisfactory, the uncovering, taking out, replacing, and making good shall be at the expense of the Contractor.

Such inspection shall not relieve the Contractor of any obligation to perform said Work

strictly in accordance with the Drawings and specifications or any modifications thereto as herein provided, and the Work not so constructed shall be removed and made good by the Contractor at his own expense, and free of all expense to the Authority, whenever so ordered by the Engineer, without reference to any previous oversight or error in inspection.

**GC-17. SUSPENSION OF WORK ON NOTICE:**

The Contractor shall delay or suspend the progress of the Work or any part thereof whenever he shall be so required by written order of the Authority or Engineer, and for such period of time as it or he shall require. Any such order of the Authority or Engineer shall not modify or invalidate in any way the provisions of this Contract.

**GC-18. QUALITY OF WORKMANSHIP:**

All workmanship shall be the best possible, both as to material and labor, that could be demanded by these Contract Documents, or if no specific description is given, it is understood that the best quality is required.

**GC-19. SATURDAY, SUNDAY, HOLIDAY, AND NIGHT WORK:**

No work shall be done between the hours of 7:00 p.m. and 7:00 a.m., nor on Saturday, Sunday, or legal holidays without the written approval or permission of the Engineer in each case, except such work as may be necessary for the proper care, maintenance, and protection of work already done, or of equipment, or in the case of an emergency. Allowable working times within secured facilities may be adjusted by Engineer as necessary to facilitate established operational shift schedules.

**GC-20. LAWS AND ORDINANCES:**

The Contractor shall keep himself fully informed of all existing and current regulations of the City, county, state and national laws which in any way limit or control the actions or operations of those engaged upon the Work, or affecting the materials supplied to or by them. The Contractor shall at all times observe and comply with all applicable ordinances, laws, and regulations, and shall protect and indemnify the Authority and the Authority's employee's officers and agents against any claims or liability arising from or based on any violations of the same.

The contractor certifies that it and all of its Subcontractors to be used in the performance of the Contract are in compliance with 25 O.S. Sec. 1313 and participate in the Status Verification System. The Status Verification System is defined in 25 O. S. Sec. 1312 and includes but is not limited to the free Employee Verification Program (E-Verify) available at [www.dhs.gov/E-Verify](http://www.dhs.gov/E-Verify).

The Contractor shall take the necessary actions to ensure its facilities are in compliance with the requirements of the Americans with Disabilities Act (ADA). It is understood that the program of the Contractor is not a program or activity of the City of Tulsa. The Contractor agrees that its program or activity will comply with the requirements of the ADA. Any costs of such compliance will be the responsibility of the Contractor. Under no circumstances will Contractor conduct any activity, which it deems to not be in compliance with the ADA.

**GC-21. TAXES AND PERMITS:**

Unless otherwise specified in these Contract Documents, the Contractor shall pay all sales, use, and other taxes that are lawfully assessed against the Authority or Contractor in connection with the Work included in this Contract and shall obtain all licenses, permits, and inspections required for the Work. Contractor shall comply with all zoning ordinances of the City, as provided in the Tulsa Zoning Code, Title 42 Tulsa Revised Ordinances and conform with all zoning requirements established by the Tulsa Metropolitan Area Planning Commission and the Board of Adjustment. Contractor can call the Indian Nations Council of Governments (INCOG) at (918) 584-7526, to determine if any zoning requirements must be met.

**GC-22. PROTECTION OF PROPERTY:**

The protection of City, state, and government monuments, street signs, and other City property is of prime importance, and if the same be damaged, destroyed, or removed, they shall be repaired, replaced, or paid for by the Contractor.

Work occurring within secured facilities will require the Contractor to obtain City of Tulsa issued ID badges for all employees and subcontractors requiring facility gate access. The Contractor will be responsible for all coordination with City Security as necessary to process background checks and issue badges. The City of Tulsa has the right to deny access to any individual based on evaluation of background check.

**GC-23. PATENT RIGHTS:**

All fees for any patented invention, article, or arrangement that is based upon, or in any manner connected with the construction, erection, or maintenance of the Work or any part thereof embraced in the Contract and these specifications, shall be included in the price stipulated in the Contract for said Work. The Contractor shall protect and hold harmless the Tulsa Metropolitan Utility Authority, against any and all demands of such fees or claims.

**GC-24. DEFENSE OF SUITS:**

In case any action at law or suit in equity is brought against the Authority or any employee, officer or agent thereof, for or on account of the failure, omission or neglect of the Contractor to do and perform any of the covenants, acts, matters, or things required by this Contract to be done or performed, or for injury or damage caused by negligence or willful act of the Contractor or his Subcontractors or his or their agents, or in connection with any claim or claims based on the lawful demands of Subcontractors, workmen, materialmen, or suppliers of machinery and parts thereof, equipment, power tools, and supplies incurred in the fulfillment of this Contract, the Contractor shall indemnify and save harmless the Authority and its employees, officers and agents, and the Engineer and any employees, officers and agents thereof, of and from all losses, damages, costs, expenses, judgements, or decrees whatsoever arising out of such action or suit that may be brought, without requiring said parties to give any notice thereof.

The Authority may suspend payments of any sum due or to become due for work done

on this Contract until such claims, suits, actions, or proceedings are final and liability has been determined. The amount of such damages or liability shall be deducted from sums due or to become due on this Contract. The sums mentioned above will be retained by the Authority until the Contractor furnishes evidence that satisfactory settlement has been made. Any action taken by the Authority shall not excuse the Contractor for failure to perform this Contract or bar the Authority from legal action to recover from the Contractor the amount of damages or liability suffered in excess of the amount retained.

The Contractor shall furnish the Authority with satisfactory evidence, upon demand, that all persons who have done work on the Contract or furnished materials for the Contract have been paid in full. If such evidence is not furnished, the amount necessary to pay the lawful claims may be retained until such evidence is furnished, or if such evidence is not furnished, the Authority may apply any sums retained to valid claims and charge the amounts disbursed, including the costs of any action that may be necessary to prove or disprove the claims against the Contractor.

**GC-25. REMOVAL OF CONDEMNED MATERIALS AND STRUCTURES:**

The Contractor shall remove from the site of the Work, without delay, all rejected and condemned materials or structures of any kind brought to or incorporated in the Work, and upon his failure to do so, or to make satisfactory progress in so doing, within forty-eight (48) hours after the service of a written notice from the Engineer ordering such removal, the condemned material or structures may be removed by the Authority and the cost of such removal be taken out of the money that may be due or may become due the Contractor by virtue of this Contract. No such rejected or condemned material shall again be offered for use by the Contractor under this or any other Contract under this project.

**GC-26. EXTRA WORK:**

If a modification increases the amount of the Work, and the added Work or any part thereof is of a type and character which can properly and fairly be classified under one or more Unit Price items of the Bid Form, then the added Work or part thereof shall be paid for according to the amount actually done and at the applicable Unit Price. Otherwise, such work shall be paid for as hereafter provided.

Claims for extra work will not be paid unless the Work covered by such claims was authorized in writing by the Authority. The Contractor shall not have the right to take action in court to recover for extra work unless the claim is based upon a written order from the Authority. Payments for extra Work will be based on agreed lump sums or on agreed Unit Prices whenever the Authority and the Contractor agree upon such prices before the extra Work is started.

For the purpose of determining whether proposed extra work will be authorized, or for determining the payment method for extra work, the Contractor shall submit to the Engineer, upon request, a detailed cost estimate for proposed extra work. The estimate shall show itemized quantities and charges for all elements of direct cost.

The cost shall include only those extra costs for labor and materials expended in direct performance of the extra work and may include:

- (a) **Labor.** For all labor and foremen in direct charge of the specific operations, the Contractor shall receive the rate of wage (or scale) agreed upon in writing before beginning work for each and every hour that said labor and foremen are actually engaged in such work. An amount equal to fifteen (15) percent of the sum of the above items will also be paid the Contractor.
- (b) **Bond, Insurance, and Tax.** For property damage, liability, and workmen's compensation insurance premiums, unemployment insurance contributions and social security taxes on the force account work, the Contractor shall receive the actual cost, to which cost no percentage will be added. The Contractor shall furnish satisfactory evidence of the rate or rates paid for such bond, insurance, and tax.
- (c) **Materials.** For materials accepted by the Engineer and used, the Contractor shall receive the actual cost of such materials delivered on the Work site, including transportation charges paid by him (exclusive of machinery rentals as hereinafter set forth), to which cost ten (10) percent will be added.
- (d) **Equipment.** For any machinery or special equipment (other than small tools) including fuel, lubricants and transportation costs, the use of which has been authorized by the Engineer, the Contractor shall receive the rental rates agreed upon in writing before such work is begun for the actual time that such equipment is in operations on the Work, as provided in Subsection 109.04(b3), to which rental sum no percentage will be added.
- (e) **Miscellaneous.** No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

The form on which field cost records are kept, the construction methods and the type and quantity of equipment used shall be submitted to the Engineer for approval.

Construction equipment which the Contractor has on the Work site and which is of a type and size suitable for use in performing the extra Work shall be used. The hourly rental charges for equipment, including all insurance, taxes, fuel, and operating costs, shall not exceed twelve (12) percent of the latest applicable Associated Equipment Distributors published monthly rental rates and shall apply to only the actual time the equipment is used in performing the extra Work.

When extra Work requires the use of equipment, which the Contractor does not have on the work site, the Contractor shall obtain the approval of the Engineer before renting or otherwise acquiring additional equipment. The rental charges for the additional equipment shall not exceed the latest applicable Associated Equipment Distributors published rental rates.

The Contractor shall file with the Engineer, certified lists in duplicate, of any equipment and the schedule of pay rates for common and semi-skilled labor and operators of various classes which are intended to be used in performing the Work covered by this Contract. These rates shall be subject to the review of the Engineer. This information will be used by the Engineer for computation of extra work as mentioned above, however, if the Contractor fails to file these lists with the Engineer prior to starting any Work covered by this Contract, then the Engineer's computation shall be based on average wages and rates paid on Authority work.

**GC-27. PAYMENT FOR CONTRACTOR'S PLANT AND MISCELLANEOUS TEMPORARY WORK:**

For providing plant, tools, and equipment, and for furnishing, erecting, maintaining, and removing scaffolding and construction plant, construction roads, camps, sanitary conveniences, temporary water supply, trestles, dewatering and other temporary works, the Contractor shall receive no direct payment, but compensation for them shall be considered as having been included in the prices stipulated for the appropriate items.

**GC-28. BASIS OF PAYMENT FOR ITEMS OF WORK:**

The Contractor shall be paid for all Work performed under the Contract based on the Engineer's computations of as-built quantities and the Contractor's Unit Price or Lump Sum bid per item. This payment shall be full compensation for furnishing all supplies, materials, tools, equipment, transportation, and labor required to do the Work; for all loss or damage, because of the nature of the work, the action of the elements or any unforeseen obstruction or difficulty which may be encountered in the performance of the Work, and for which payment is not specifically provided; for all expense incurred by or because of any suspension or discontinuance of all or any part of the Work; and for faithfully completing the Contract according to the Drawings and specifications and requirements of the Engineer.

**GC-29. PAYMENTS:**

(1) Partial: If the work is progressing in good and workmanlike manner and if the Contractor is faithfully carrying out the terms of this Contract, approximate estimates of the work done shall be made by the Engineers between the first and fifteenth of each calendar month, including labor actually performed and supplies or materials actually used or incorporated in the Work, and an allowance will be made for acceptable materials satisfactorily delivered, stored and secured on the site of the Work in such amount as can be incorporated in the Work within a reasonable time. The Authority shall have a lien as owner on any materials stored on the site of the Work.

Each partial estimate for payment shall contain or have attached an affidavit in the form found in this book of specifications, as required by law.

The Contractor shall submit with each partial pay estimate a complete list of vendors and suppliers with itemized purchases and invoices from each vendor. Each list shall contain the name of the Contractor or Subcontractor ordering the materials or supplies, and the specific use or placement of each of the materials purchased by the Tulsa

Metropolitan Utility Authority for this project in accordance with Article IIB of the Contract. At the direction of the Contractor, the Tulsa Metropolitan Utility Authority will withhold retainage in the amount of 5% on materials and supplies to be purchased under the terms of this Contract. If fuels are purchased, they shall be limited to dyed diesel fuel and/or kerosene for non-highway use. No unleaded gasoline will be permitted.

Each month that work is performed for which payment is due, the Contractor shall submit to the Engineer an application for such payment, provided said payment is not less than \$1,000.00, and, if required, receipts or other vouchers from Subcontractors showing his payments to them shall be submitted.

Each estimate shall be of the approximate value of all work performed and materials in place or delivered to the Work site, determined as aforesaid from the beginning of this contract to the date fixed for the current estimate, from which shall be deducted five percent (5%), or a lesser amount approved by the Authority, and, in addition thereto, all previous payments and all other sums withheld under the foregoing provisions of this Contract, the remainder to become due and payable; after the estimate has been reviewed and signed by the Engineer and the Authority, shall pay the estimate in the regular manner in the amount determined as due unless it shall be known by the Authority that there is good reason under the terms of this Contract for withholding same.

When the Contractor has completed Work constituting more than fifty percent (50%) of the total Contract amount, the retainage will continue at two and one-half percent (2.5%) for the balance of the remaining work; provided, however, that the City or its duly authorized representative has determined that satisfactory progress is being made and upon approval by the Surety.

The Contractor may withdraw any part or the whole of the amount which has been retained from partial payment to the Contractor pursuant to the terms of Contract, upon depositing with or delivery to the City:

- (1) United States Treasury Bonds, United States Treasury Notes, United States Treasury bills, or
- (2) General Obligation Bonds of the State of Oklahoma, or
- (3) Certificates of Deposit from a state or national bank having its principal office in the State of Oklahoma.

No retained amount shall be withdrawn which would represent an amount in excess of the market value of the securities at the time of deposit or of the par value of such securities, whichever is lower.

All partial estimates are subject to correction in the final estimate.

(2) Final Payment:

When this contract, in the opinion of the Engineer, shall be completely performed on the part of the Contractor, the Engineer shall proceed with all reasonable diligence to measure up the Work and shall make out the final estimate for the same, and shall, except for cause herein specified, give to the Contractor, within thirty (30) days after receiving said certificate, an order on the Authority for the balance found to be due, excepting therefrom such sum or sums as may be lawfully retained under any of the provisions of the Contract; PROVIDED, that nothing herein contained shall be construed to affect the rights of the Authority hereby reserved to reject the whole or any portion of the aforesaid Work should the said estimate and certificate be found or known to be inconsistent with the terms of this Contract or otherwise improperly given; PROVIDED, that if after the work hereunder has been accepted and final payment made, it shall be discovered that any part of the Contract has not been fully performed or has been done in an improper or faulty manner, the Contractor shall immediately remedy such defect, or, in case of neglect to do so within a reasonable time after notice thereof, shall be liable for and shall pay to the Authority the cost of remedying such defect or a sum equal to the damages sustained thereby, as the Authority shall elect and the acceptance of and final payment for the Work shall be no bar to suit on any bond against any principal or principals, or Surety or Sureties, or both, given for the due performance of the Contract, or for the recovery of such cost or the equivalent of such damage.

The Authority will pay to the Contractor interest at the rate of three-fourths percent (3/4%) per month on the final payment due the Contractor. For lump sum contracts, the interest shall commence thirty (30) days after the Work under the Contract has been completed and accepted and all required material certifications and other documentation required by the Contract have been furnished the Authority by the Contractor, and shall run until the date when the final payment or estimate is tendered to the Contractor. For contracts bid by Unit Prices, the interest will commence sixty (60) days after the above conditions are satisfied. When contract quantities or the final payment amount is in dispute, the interest-bearing period will be suspended until the conclusion and settlement of the dispute.

**GC-30. CONTRACTOR REIMBURSEMENT FOR SURETY BOND:**

For contracts of \$1,000,000.00 or more, the Contractor may receive reimbursement for the cost of the surety bonds after issuance of a work order. To receive reimbursement, the Contractor shall submit a standard partial payment form and affidavit, and a copy of the surety bond invoice. The final partial pay estimate will be reduced by the amount paid for surety bond reimbursement.

**GC-31. RELEASE OF LIABILITY AND ACCEPTANCE:**

The acceptance by the Contractor of the final payment shall operate as, and shall be a release to the Authority and every employee, officers and agents thereof, from all claims and liability to the Contractor for anything done or furnished for or relating to the Work, or for any act or neglect of the Authority or of any person relating to or affecting the Work, and, following such acceptance, no person, firm, or corporation other than the signer of this Contract as Contractor, will have any interest hereunder, and no claim shall be made or be valid, and neither the Authority nor any employees or agent thereof

shall be liable or be held to pay any money, except as herein provided.

It shall be the duty of the Engineer to determine when the Work is completed and the Contract fulfilled, and to recommend its acceptance by the Authority. The Work herein specified to be performed shall not be considered finally accepted until all the Work has been accepted by the Authority.

**GC-32. RIGHT OF AUTHORITY TO TERMINATE CONTRACT:**

If the Work to be done under this Contract shall be abandoned by the Contractor, or if this Contract shall be assigned by him otherwise than as herein provided, or if the Contractor should be adjudged bankrupt, or if a general assignment of his assets be made for the benefit of his creditors, or if a receiver should be appointed for the Contractor or any of his property; or if at any time the Engineer shall certify in writing to the Authority that the performance of the Work under this Contract is being unnecessarily delayed, or that the Contractor is executing the same in bad faith or otherwise not in accordance with the terms of the Contract; or if the work be not substantially completed within the time named for its completion, or within the time to which such completion date may be extended; then the Authority may serve written notice upon the Contractor and his Surety of Authority's intention to terminate this Contract, and unless, within five (5) days after service of such notice upon the Contractor, a satisfactory arrangement is made for the continuance of the Contract, this Contract shall cease and terminate. In the event of such termination, the Authority shall immediately serve notice upon the Surety and Contractor, and the Surety shall have the right to take over and complete the Work, provided, however, that if the Surety does not commence performance thereof within fifteen (15) days from the date of said notice of termination, the Authority may take over the Work and perform same to completion, by Contract or otherwise, for the account and at the expense of the Contractor, and the Contractor, and his Surety, shall be liable to the Authority for any and all excess cost sustained by the Authority by reason of such performance and completion. In such event the Authority may take possession of and utilize in completing the Work, all such materials, equipment, tools, and plant as may be on the site of the Work and necessary therefor. The Contractor shall not receive any other payment under the Contract until said Work is wholly finished, at which time, if the unpaid balance of the amount to be paid under the Contract shall exceed the expense incurred by the Authority in finishing the Work as aforesaid, the amount of the excess shall be paid to the Contractor, but if such expense shall exceed the unpaid balance, the Contractor shall pay the difference to the Authority.

**GC-33. ADMINISTRATIVE COSTS AND FEES:**

Cash Improvements - In the event the improvements are to be paid for in cash: the costs and fees for publication, engineering, filing, recording, abstracting, acquisition of easements, flushings, and pipe testing, shall be paid by the Authority unless otherwise provided for in these Contract Documents.

Assessment Improvements: In the event the improvements are to be paid for by the issuance of special assessment bonds, the costs and fees for publication, engineering, filing, recording, abstracting, acquisition of easements, flushing, pipe testing, and other

authorized costs shall be added to the contract price and paid for in the same manner as the other Work included in this Contract. The Contractor shall pay the Authority the amount of said charges before the execution and delivery of the special assessment bonds or other payments. If the Contractor fails, neglects, or refuses to pay said charges within thirty (30) days after the bonds are ready for delivery, he shall pay the Authority interest at the rate of seven percent (7%) per annum and shall be liable for same in a civil suit. The Contractor shall pay the pipe testing fees directly to the testing laboratory.

**GC-34. PAYMENT OR ACCEPTANCE NOT A WAIVER BY AUTHORITY:**

Neither acceptance by the Authority or the Engineer or any employee of either nor any order by Authority for the payment of money, or the payment thereof, nor any taking of possession by Authority, nor the granting of any extension of time, shall operate as a waiver of any rights or powers of the Authority hereunder, and in the event that after the Work hereunder has been accepted and final payment made, it should be discovered that any part of this Contract has not been fully performed, or has been done in a faulty or improper manner, the Contractor shall immediately remedy such defect, or in the event of neglect to do so within a reasonable time after notice thereof, shall be liable for and shall pay to Authority the cost of remedying such defect, or a sum equal to the damage caused thereby, as Authority may elect. The acceptance of the Work or final payment therefor shall be no bar to suit against the Contractor or Surety, or both.

**GC-35. CONTRACTOR'S OBLIGATION AFTER ACCEPTANCE:**

Contractor further agrees, without cost other than is specially provided for in this Contract, at any and all times during one (1) year next following the completion and final acceptance of the Work embraced in this Contract, without notice from Authority, to refill all trenches or ditches that may sink or settle; and to repair all breaks and failures that may occur in the construction work due to defective material or workmanship; and to indemnify, save harmless and defend the Authority from any and all suits and actions of every description brought against Authority for, or on account of injuries or damages alleged to have been received or sustained by any party or parties by reasons of, or arising out of the failure of Contractor to refill all trenches and ditches and to repair all breaks or failures of said construction work, which said injuries or damages are alleged to have been received or incurred within one (1) year from the final acceptance of the Work hereunder, and to pay any and all judgements that might be rendered against Authority in any suits and actions, together with such expenses or attorney's fees expended or incurred by Authority in the defense thereof, and Contractor hereby expressly waives any notice that might by law be required to be given to them by Authority of any defect, break, settling, or failure or of any other condition that might be the cause of injury or damage to any person on account of which a claim or suit might be made or filed against Authority, or a judgement taken for damages against Authority. It is expressly agreed that the acceptance of the Work by Authority shall constitute no bar against any person injured or damaged by the failure of the Contractor to perform all of his covenants and agreements hereunder from maintaining an action against the Contractor, or against Authority from enforcing its rights against the Contractor hereunder.

**GC-36. NOTICES:**

Any notices or other communications hereunder may be given to Contractor at the address listed in the Proposal, to the Surety at the office of the Attorney-in-Fact signing the bond or at Surety's home office address on file with the Insurance Commissioner of the State of Oklahoma, and to Authority in care of the City of Tulsa's Director of Public Works, or at such other place as may be designated in writing. The delivery at such address, or depositing in any mailbox regularly maintained by the Post Office, of any notice, letter, or other communication to the Contractor, shall be deemed sufficient service thereof, and the date of said service shall be the date of such delivery or mailing.

**GC-37. RELATION TO OTHER CONTRACTORS:**

Nothing herein contained and nothing marked upon the Drawings shall be interpreted as giving the Contractor exclusive occupancy of the territory or right-of-way provided. The Authority and its employees, officers, and agents for any just purpose, and other contractors of the Authority for any purpose required by their respective contracts, may enter upon or cross this territory or occupy portions of it or take materials therefrom as directed or permitted. When two or more contracts are being executed at one time on the same or adjacent land in such manner that the work on one contract may interfere with the work on another, the Engineers shall decide which contractor shall cease work and which shall continue, or whether the work on both contracts shall progress at the same time and in what manner. When the territory of one contract is the necessary or convenient means of access for the transportation or movement of men, machines, or appliances for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the Engineers to the contractor desiring it, to the extent, amount, in the manner and at the time permitted. Any decision regarding the method or time of conducting the work or the use of the territory shall not be made the basis of claims for delay or damage except as otherwise stipulated. The Contractor shall not cause any unnecessary hindrance or delay to any other contractors on the premises and shall bear all damages done to the work of such other contractors by him or by his employees.

**GC-38. PARTIAL OCCUPANCY AND USE:**

The Authority, upon advance written notification to the Contractor, shall have the right to occupy and use any completed or partially completed portions of the Work site when such occupancy and use are in the Authority's best interest, notwithstanding completion of the entire project.

Such partial occupancy and use shall be upon the following terms:

- a. The Engineer shall make an inspection of the portion or portions of the Work concerned, and report to the Authority his findings as to the acceptability and completeness of the Work. The Engineer's report shall include a list of items to be completed or corrected before final payment.
- b. The Authority, upon acceptance of the Engineer's report, shall give

written notice to the Contractor of the Authority's intention to occupy and use said portions of the Work site. The Authority's notice shall include a copy of the Engineer's report, shall clearly identify the portions of the Work site to be occupied and used, and shall establish the date of said occupancy and use.

- c. From the date thus established, the Authority shall assume all responsibilities for operation, maintenance, and the furnishing of water, gas, and electrical power for the portions of the Work site thus occupied and used. The Authority shall have the right to exclude the Contractor from those portions of the Work site but shall provide the Contractor reasonable access to complete or correct necessary items of Work.
- d. The one-year guarantee required by the General Conditions shall not begin until completion and final acceptance of the entire project. If, before final acceptance, the Contractor completes any mechanical or electrical equipment such as pumps, blowers, process equipment, instrumentation, controls, metering equipment, heating, and ventilation equipment and similar items having movable or operable components, the Contractor may then request partial acceptance of each completed equipment system. In response, the Engineer will perform a final inspection of each system and determine if all specifications are satisfied, including but not limited to start-up conditions, performance criteria, control systems, training, and final operation manuals (O & M's). Once found to be complete, ready for operation, and isolated from all remaining work, the Engineer will provide Contractor with written notice of partial acceptance and the start date for the one-year guarantee required by the General Conditions.
- e. Occupancy or use of any space in the Work site shall not constitute acceptance of Work not performed in accordance with the Contract, nor relieve the Contractor of liability to perform any Work required by the Contract but not completed at the time of said occupancy and use.
- f. The Contractor shall not be held responsible for normal wear and tear or damage resulting from said occupancy, except to the extent that such damage is covered by the one-year guarantee.
- g. The partial occupancy and use of any portions of the Work site by the Authority shall not constitute grounds for claims by the Contractor for release of any amounts retained from payments under the provisions of the Contract. The retained amounts will not be due until completion of the entire project for final acceptance and final payment, as set forth in the General Conditions.

SPECIAL  
PROVISIONS

SPECIAL PROVISION  
SUPPLEMENTAL CONTRACT REQUIREMENTS  
PROJECT NO. TMUA-W 25-08 YAHOLA TERMINAL STORAGE RESERVOIR  
IMPROVEMENTS

1. Apparent lowest, responsible bidder shall return their signed contract documents (including bonds and insurance) to the City of Tulsa, Contract Administration Section 175 E. 2<sup>nd</sup> Street, 13<sup>th</sup> Floor, OK 74103 within fifteen (15) days after notification by the City.
2. If the apparent lowest, responsible bidder provides their signed contract documents (including bonds and insurance) and the contract is executed by the City, the Pre-Construction Conference for this project will be held within sixty (60) days after bid opening.
3. The Notice to Proceed or written work order (NTP) will be issued in the normal time period (approximately within ten (10) days of the Pre-Construction Conference).

The City will grant up to **Zero (0) days** for a delayed (flexed) NTP after the Pre-Construction Conference. No delayed (flexed) NTP above this amount will be granted unless approved by the City Engineer or designee.

4. There will be no additional compensation due to the use of a delayed (flexed) NTP.
5. This Special Provision does not alter the Public Meeting requirements (and public notice) defined in the General Conditions.

SPECIAL PROVISIONS  
INSURANCE REQUIREMENTS

In reference to Ordinance No. 24616 Adoption of State Specification for Highway Construction, Section 107.12 shall be modified as follows:

The CONTRACTOR (and any subcontractors) shall carry and keep in force during this Contract, policies of insurance issued by an insurer authorized to transact business in Oklahoma in minimum amounts as set forth below or as required by the laws of the State of Oklahoma. The CONTRACTOR shall also furnish an Owner's Protective Policy in the same amounts naming the Tulsa Metropolitan Utility Authority as the assured, issued by the same insurance company as the CONTRACTOR'S liability coverage and indemnifying the Tulsa Metropolitan Utility Authority against any and all actions, claims, judgments or demands arising from injuries of any kind and character sustained by any person or persons because of work performed by the CONTRACTOR.

General Liability Insurance with a bodily injury and property damage combined single limit of not less than \$1,000,000.00 for each occurrence.

Employer's Liability and Workmen's Compensation in the amounts as required by law.

The CONTRACTOR shall provide proof of such coverage:

- (a) By providing Certificate(s) of Insurance prior to the execution of this contract; and
- (b) By submitting updated Certificate(s) of Insurance with each and every subsequent request for payment. The Certificate(s) should show that the policies are current and should be dated within 30 days of payment request.

The CONTRACTOR shall not cause any required insurance policy to be cancelled or permit it to lapse. If the CONTRACTOR cancels, allows to lapse, fails to renew or in any way fails to keep any required insurance policy in effect, the City will suspend all progress and/or final payments for the project until the required insurance is obtained. Further, a CONTRACTOR who fails to keep required insurance policies in effect may be deemed by the City to be in breach of contract, ineligible to bid on future projects, and/or ineligible to engage in any new contracts.

The Contractor shall execute and furnish a Statutory Bond for the protection of laborers, mechanics, and material men in a sum equal to one hundred percent (100%) of the contract price.

The Contractor shall execute and furnish a Performance Bond in a sum equal to one hundred percent (100%) of the contract price.

The Contractor shall execute and furnish a Maintenance Bond in a sum equal to one hundred percent (100%) of the contract price.

Prior to doing blasting, the Contractor shall furnish a Certificate of Insurance, which shall certify that any damage caused by blasting is within the coverage of the Contractor's liability insurance to the full limits thereof.

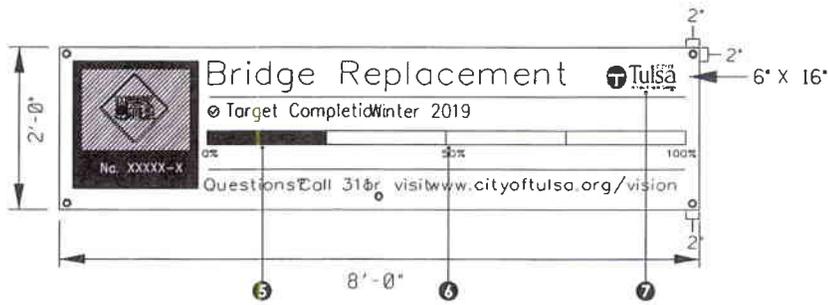
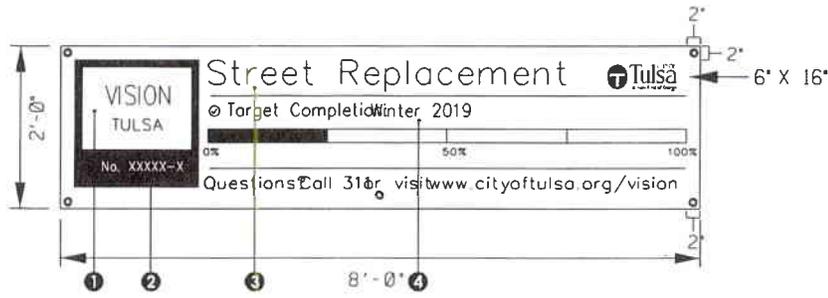
All bonds and insurance must be executed by a company licensed to do business in the State of Oklahoma and must be acceptable to the City.

**SPECIAL PROVISIONS**  
**OWNER ALLOWANCE**

The "Owner Allowance" may be used for various work and miscellaneous items not specifically identified in the Contract Documents with the following provisions:

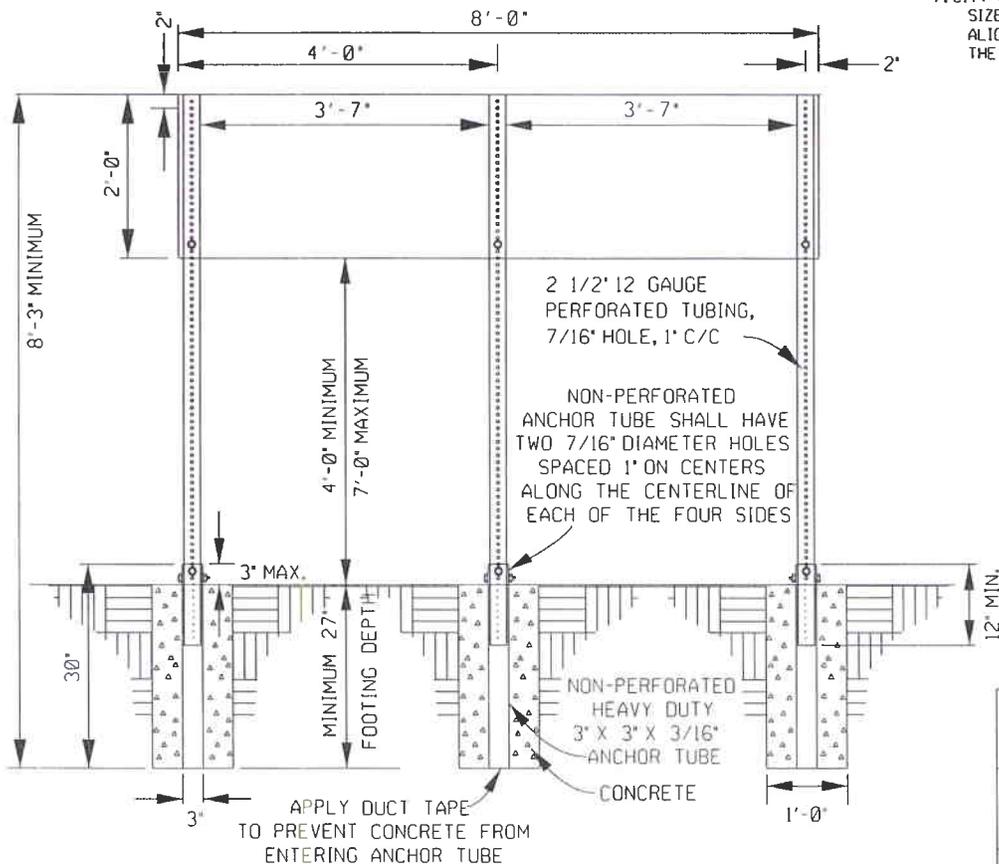
- A. The allowance shall be used for cost of design and construction, including all materials, labor, equipment, profit and overhead, of work items not specifically identified in the Construction Documents, or included in original pay items bid for the contract.
- B. The allowance shall be utilized only at the discretion of the City of Tulsa. Any balance remaining at the completion of the Project will be retained by the City of Tulsa.
- C. The Contractor shall provide, to the City of Tulsa, a written request for the use of any allowance, including a schedule of values and associated backup information, including validity of need, materials, labor, equipment, and time required to perform the associated work.

Contractor shall proceed with the allowance work only after receiving written permission from the City of Tulsa. Proceeding with associated allowance work without written permission from the City of Tulsa will be at the Contractor's sole expense.



**NOTE:**

1. CAPITAL PROGRAM LOGO
  - VISION TULSA
  - IMPROVE OUT TULSA
2. PROJECT NUMBER
  - FONT: HELVETICA BOLD
  - SIZE: 2.5 INCHES
  - ALIGNMENT: CENTER
  - COLOR: WHITE
3. GENERAL PROJECT TITLE
  - FONT: HELVETICA BOLD
  - SIZE: 4.72 INCHES
  - ALIGNMENT: LEFT
  - COLOR: CITY BLUE
  - GENERALIZED
    - STREET REPLACEMENT
    - STREET REHABILITATION
    - STREET WIDENING
    - STREET RESURFACING
    - BRIDGE REPLACEMENT
    - BRIDGE REHABILITATION
4. TARGET COMPLETION
  - FONT: HELVETICA REGULAR AND BOLD
  - SIZE: 2.5 INCHES
  - ALIGNMENT: LEFT
  - COLOR: CITY BLUE AND BLACK
5. PROJECT PROGRESS BAR
  - SIZE: 2" TALL X 66" WIDE
  - COLOR: GREEN
  - MATERIAL: 2" GREEN, INDUSTRIAL DUCT TAPE CUT AT 1/4 SEGMENTS SHOULD BE USED TO INDICATE PROJECT PROGRESS/ADVANCEMENTS IN THE PROGRESS BAR. PAINT SHOULD ONLY BE USED IN THE EVENT THAT TAPE IS NOT AVAILABLE OR UNABLE TO REMAIN AFFIXED OVER A LONGER CONSTRUCTION PERIOD.
6. CONTACT INFORMATION
  - OPTIONS: 311 AND CORRESPONDING URL
  - FONT: HELVETICA REGULAR AND BOLD
  - SIZE: 2.5 INCHES
  - ALIGNMENT: LEFT
  - COLOR: CITY BLUE AND BLACK
7. CITY OF TULSA LOGO
  - SIZE: 10" WIDE
  - ALIGNMENT: OUTER RIGHT MARGIN EDGE AND TO THE BASELINE OF THE GENERAL PROJECT TITLE.



ASSEMBLY OF PLYWOOD SIGN

PROJECT SIGN	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
DRAWN BY:	APPROVED
CHECKED BY: HAS	
DATE: MARCH 2022	
NOT TO SCALE	STANDARD NO. 102

**SPECIAL PROVISION**  
**FOR UTILITY RELOCATIONS**  
**AND DESIGN ISSUES**

It is the intent of this specification to provide no more than seventy-five **(75)** calendar days due to delays caused by required utility relocations and required design clarifications. Should the Contractor be delayed in the final completion of work by any utility relocation or design issue, additional days as determined by the Engineer shall be granted by the City. However, the Contractor shall give the Engineer notice in writing of the cause of the delay in each case on the Extension of Time Request Form enclosed in these documents, and agrees that any claim shall be fully compensated for by the provisions of this specification to complete performance of the work. An adjustment will not be made to the contract time bid for incentive purposes.

Any time granted for utility relocations or design issues up to **(75)** calendar days will be in addition to the number of days shown in the proposal for computation of disincentive and liquidated damages.

# **TECHNICAL SPECIFICATIONS**

## **DIVISION 5 - METALS**

SECTION 05 51 33 – MANHOLE STEPS FOR VERTICAL WALL  
SECTION 05 52 00 – METAL RAILINGS  
SECTION 05 53 00 – METAL GRATING

## **DIVISION 31 – EARTHWORKS**

SECTION 31 23 00 – SELECT BACKFILL  
SECTION 31 23 19 – DEWATERING

## **DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION**

SECTION 35 31 19 – ARTICULATING CONCRETE BLOCKS

## **DIVISION 40 – PROCESS INTERCONNECTIONS**

SECTION 40 05 59.23 – STAINLESS STEEL SLIDE GATES

## **DIVISION 41 – MATERIAL PROCESSING AND HANDLING EQUIPMENT**

SECTION 41 22 13 – PORTABLE DAVIT CRANE WITH GALVANIZED ANCHOR  
BASE

**SECTION 05 51 33**  
**MANHOLE STEPS FOR VERTICAL WALL**

**PART 1 GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Installation of wall-mounted manhole steps along the vertical surfaces of the interior and exterior concrete gate structure towers.
2. Accessories include corrosion protection and safety sleeves.

1.2 UNIT PRICE & MEASUREMENT

A. Contract Bid Item: 16" Wide Steel Reinforced Plastic Manhole Steps

1. Payment:

- a. Payment for this item will be made at the applicable contract price per EA. Payment will cover all costs of furnishing, handling, storing, installing including placing, driving, drilling holes and other materials to complete the assembly and work incidents thereto.

1.3 REFERENCES

- A. ASTM A36 - Carbon Structural Steel.
- B. OSHA 29 CFR 1910.27 – Fixed Ladders and Climbing Devices.
- C. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
- D. ASTM C-478 – Standard Specification for Precast Reinforced Concrete Manhole Sections  
Precast Reinforced Concrete Manhole Sections
- E. ASTM D-4101
- F. ASTM A-615
- G. AASHTO M-199

1.4 SUBMITTALS

- A. Product Data: Manufacturer's cut sheets, material specifications, installation requirements, & installation instructions.
- B. Shop Drawings: Indicate rung size, spacing, embedment depth, anchorage details, and wall compatibility.

- C. Certificates: Material mill certifications (steel).
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Deliver materials in protective packaging.
  - B. Store above grade, protected from corrosion and damage.
  - C. Handle to prevent bending or finish damage.
- 1.6 WARRANTY
- A. Provide 1-year warranty against defects in materials and workmanship.
  - B. Warranty shall include protection against corrosion failure when installed per manufacturer's instructions.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Basis of Design: PS-3-PFC by M.A. Industries or approved equal.

### **2.2 MATERIALS**

#### **A. Manhole Steps:**

1. Solid Bar: ASTM A36 steel, 5/8" diameter, grade 60 steel reinforcement.
2. Coating: Copolymer Polypropylene Plastic with traction tread
3. Spacing: 8" O.C. from top of structure, 12" O.C. between each manhole step.

#### **B. Anchorage:**

1. Per manufactures recommendations

### **2.3 PERFORMANCE REQUIREMENTS**

- A. Load Capacity: Each step shall support a minimum load of 300 lbs (136 kg) concentrated load without permanent deformation.
- B. Safety Factor: 4:1 minimum.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify wall substrate strength and alignment prior to installation.

- B. Confirm embedment or anchorage method is compatible with wall construction.

### 3.2 INSTALLATION

- A. Install manhole steps true, plumb, and aligned in vertical rows.
- B. For embedded rungs, place accurately before concrete or masonry work.
- C. For retrofit, drill wall to required depth and install rungs with manufacturer-approved chemical adhesive or expansion anchors.
- D. Maintain consistent rung spacing and projection from wall.
- E. Clean and repair finishes after installation.

### 3.3 FIELD QUALITY CONTROL

- A. Inspect installed steps for alignment, spacing, and anchorage tightness.
- B. Proof test selected steps to 200 lbs midspan load without permanent deformation.

### 3.4 CLEANING AND PROTECTION

- A. Clean surfaces of dirt, grease, and concrete splatter.
- B. Protect installed rungs until final acceptance.
- C. Replace damaged or corroded rungs prior to turnover.

END OF SECTION

**SECTION 05 52 00**  
**METAL RAILINGS**

**PART 1 GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Galvanized steel handrails, posts, fittings, side wall mounts, toe board
2. Stainless Steel Chain
3. Anchors and fasteners for complete system installation.

1.2 UNIT PRICE & MEASUREMENT

A. Contract Bid Item: Handrails, Posts, Wall Brackets, And Chains, Complete System In Place per all applicable codes.

1. Payment: Payment will cover all costs of furnishing, handling, storing, installing including placing, anchors, chains, wall brackets, fittings, railing, posts, chains, drilling holes and other materials to complete the assembly and work incidents thereto.

1.3 REFERENCES

- A. ASTM A36 – Carbon Structural Steel.
- B. ASTM A500 – Cold-Formed Welded and Seamless Carbon Steel Structural Tubing.
- C. ASTM A123 – Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- D. ASTM A153 – Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- E. ASTM F2329 – Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners.
- F. IBC – International Building Code requirements for handrails and guardrails.
- G. ADA Standards for Accessible Design – Handrail requirements.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's literature describing system components and finishes.
- B. Shop Drawings:
  1. Handrail system layouts, post spacing, dimensions, and connections.
  2. Anchorage details and interface with the concrete structure.

C. Certificates: Galvanizer's certification of compliance with ASTM A123.

D. Warranty: Manufacturer's standard warranty.

#### 1.5 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 3 years' experience installing steel handrail systems.

B. Welding: AWS certified welders.

C. Mock-Up: Provide one complete rail section (minimum 4 feet) for review of workmanship and finish.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver components in protective wrapping, labeled by section.

B. Store off ground, protected from standing water.

C. Handle to prevent abrasion of galvanized finish.

#### 1.7 WARRANTY

A. Provide manufacturer's standard 1-year warranty against defects in materials and fabrication.

B. Warranty will not cover corrosion resulting from field damage not properly repaired.

### **PART 2 PRODUCTS**

#### 2.1 MANUFACTURERS

A. Basis of Design: Kee Klamp Railing at Kee Safety or approved equal.

#### 2.2 MATERIALS

A. Railing, Posts, Fittings, Flanges, Toe Board:

1. Tubing: ASTM A500 Grade B or C.
2. Pipe: ASTM A53, Schedule 40, standard weight.
3. Hot-dip galvanized per ASTM F2329 S
4. Structural Shapes: ASTM A36.
5. Rail & Post Size: 1-1/2" (1.90" outside diameter)
6. Toe Board Size: 4"

B. Anchors:

1. Type: Stud Anchor
  2. Size: 1/2" x 8"
  3. Hot-dip galvanized per ASTM F2329.
- C. Anchor Epoxy: Injection adhesive shall be HIT RE 500, as furnished by Hilti, Sikadur Anchor-Fix 4 or approved equal.
- D. Chains:
1. Size: 1"
  2. Material: Stainless Steel 304
- E. Fabrication Tolerances:
1. Rail Alignment:  $\pm 1/8$  inch in 10 feet.
  2. Post Plumb:  $\pm 1/8$  inch in 36 inches.
  3. Handrail Height:  $\pm 1/8$  inch.
- F. Provide brackets, flanges, and fittings for complete installation.

## 2.3 FINISHES

- A. Galvanizing:
1. Hot-dip galvanized after fabrication in accordance with ASTM A123.
  2. Hardware: Hot-dip galvanized per ASTM A153.
  3. Minimum zinc coating thickness: 3.9 mils (610 g/m<sup>2</sup>).
- B. Touch-Up for Field Work:
1. Use zinc-rich paint conforming to ASTM A780 for repairs to cut edges, welds, and field modifications.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify conditions are acceptable to begin installation.
- B. Confirm substrates are level, plumb, and structurally sound.

### 3.2 INSTALLATION

- A. Install railing in accordance with approved shop drawings.

- B. Set posts plumb and securely anchor to substrate.
- C. Mid-rail shall be 21" O.C. to top of concrete structure.
- D. Top Rail shall be 42" O.C. to top of concrete structure.
- E. Touch up field welds and cuts with zinc-rich primer per ASTM A780.

### 3.3 FIELD QUALITY CONTROL

- A. Inspection: Confirm that installed handrails meet ADA and IBC requirements.
- B. Testing: Handrails shall resist 200 lbs. concentrated load applied in any direction at top rail without failure.
- C. Correct deficiencies promptly.

### 3.4 ADJUSTING AND CLEANING

- A. Touch up damaged galvanizing with zinc-rich paint.
- B. Remove splatter, weld residue, and debris.
- C. Protect adjacent materials from damage during cleaning.

### 3.5 PROTECTION

- A. Protect completed railings from damage until Substantial Completion.
- B. Replace or repair damaged components.

END OF SECTION

**SECTION 05 53 00**  
**METAL GRATING**

**PART 1 GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Stainless steel bar gratings for the concrete Tower Platform.
2. Stainless steel bar gratings for the concrete channel span.
3. Stainless Steel Frame and studs.
4. Stainless steel anchor and saddle clips.
5. Accessories required for complete installation.

1.2 UNIT PRICE & MEASUREMENT

A. Contract Bid Item: TOWER SS304 GRATING W/ CAST-IN-PLACE SS304 FRAME, COMPLETE

1. Payment for this item will be made at the applicable contract price per EA. Payment will cover all costs of fabricating, furnishing, handling, storing, installing the cast in place frame. Includes fabricating, furnishing, handling, storing, installing the grate. Includes furnishing and installing the anchors and saddle clip to secure the grate. Includes other materials to complete the assembly and work incidents thereto.

B. Contract Bid Item: CHANNEL SS304 GRATING W/ CAST-IN-PLACE SS304 FRAME, COMPLETE

1. Payment for this item will be made at the applicable contract price per EA. Payment will cover all costs of fabricating, furnishing, handling, storing, installing the cast in place frame. Includes fabricating, furnishing, handling, storing, installing the grate. Includes furnishing and installing the anchors and saddle clip to secure the grate. Includes other materials to complete the assembly and work incidents thereto.

1.3 REFERENCES

- A. ASTM A240 – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip.
- B. ASTM A276 – Standard Specification for Stainless Steel Bars and Shapes.
- C. ASTM A480 – General Requirements for Flat-Rolled Stainless Steel.
- D. AWS D1.6 – Structural Welding Code – Stainless Steel.

- E. ANSI/NAAMM MBG 531 – Metal Bar Grating Manual.
- F. NAAMM MBG 532 – Recommended Practice for Detailing Bar Grating.

#### 1.4 SUBMITTALS

- A. Product Data: Manufacturer’s literature including load tables, materials, finishes, and installation instructions.
- B. Shop Drawings:
  - 1. Layout drawing indicating dimensions, bar spacing, support locations, cutouts, and anchorage details.
  - 2. Indicate load ratings for pedestrian or vehicular loading.
- C. Certificates: Mill certificates verifying stainless steel composition and grade.
- D. Test Reports: Load test results
- E. Warranty: Submit manufacturer’s warranty.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 years’ documented experience producing stainless steel gratings.
- B. Welding: Certified in accordance with AWS D1.6.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products wrapped or crated to prevent bending, warping, or surface contamination.
- B. Store materials off ground, protected from standing water, moisture, and contaminants.
- C. Handle products with non-marking slings or padded equipment to prevent damage.

#### 1.7 WARRANTY

- A. Provide manufacturer’s written warranty covering stainless steel grating assemblies for a period of 5 years against defects in materials and fabrication.
- B. Warranty shall include correction of failures caused by defective materials, improper welding, or corrosion not attributed to improper maintenance.

## **PART 2 PRODUCTS**

### 2.1 MATERIALS

- A. Stainless Steel: ASTM A240 or ASTM A276.

1. Type 304 for marine or corrosive environments.
- B. Grating Bars:
1. Bearing Bars:
    - a. Channel Grate: Rectangular serrated, 4-1/2" depth, 1/4" thickness, 1-3/8" spacing
      - (1) Load Rating: 1 ton partially distributed, 6,136 lbs. Max. safe concentrated load for 8' span
    - b. Tower Grate: Rectangular serrated, 2-1/2" depth, 3/8" thickness, 1-3/8" spacing
      - (1) Load Rating 1 ton partially distributed, 5,682 lbs. Max. safe concentrated load for 4' span
  2. Cross Bars: Round or twisted, resistance-welded, 2" max. spacing
- C. Grating Panel Width:
1. Tower Grating Panel Width: 48" panel width or two(2) panels at 23-3/4" width each.
  2. Channel Grating Panel Width: 120" panel width or four (4) panels at 23-5/8" width each.
- D. Frames and Supports: Stainless steel, same grade as grating.
- E. Fasteners: Stainless steel saddle clips, bolts, or other manufacturer-recommended devices, Type 304.
- F. Anchors: stainless steel 304,
1. CHANNEL=3/8" x 8" long thread rod and nut,
  2. TOWER = 3/8" x 6-1/2" long thread rod and nut.
- G. Anchor Epoxy: Injection adhesive shall be HIT RE 500, as furnished by Hilti, Sikadur Anchor-Fix 4 or approved equal.

## 2.2 FABRICATION

- A. Fabricate gratings to required sizes and configurations, free from distortion or warping.
- B. Provide cutouts for piping, columns, or penetrations with smooth, reinforced edges.
- C. Banding Bars: Weld to open ends of bearing bars to prevent spreading.
- D. Welding: In accordance with AWS D1.6; grind exposed welds smooth.
- E. Tolerances:
  1. Out-of-Square: Not to exceed 1/16 inch per 12 inches.

2. Bearing Bar Depth:  $\pm 1/32$  inch.

3. Cross Bar Spacing:  $\pm 1/8$  inch.

### 2.3 FINISHES

A. Mill Finish (standard) unless otherwise noted.

## **PART 3 EXECUTION**

### 3.1 EXAMINATION

A. Verify substrate conditions are acceptable prior to installation.

B. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 INSTALLATION

A. Install gratings in accordance with approved shop drawings and manufacturer's instructions.

B. Set panels level, plumb, and aligned with consistent bearing on supports.

C. Secure gratings with stainless steel clips or welding where indicated.

D. Provide clearance for thermal expansion of stainless steel.

E. Ensure cutouts are neatly fitted around penetrations without excessive gaps.

### 3.3 FIELD QUALITY CONTROL

A. Testing: Load test installed gratings if requested by Architect/Engineer, in accordance with NAAMM requirements.

B. Inspection: Verify gratings are secure, free of vibration, and meet specified tolerances.

### 3.4 ADJUSTING AND CLEANING

A. Remove debris, oil, and welding residue from installed gratings.

B. Clean stainless steel surfaces with non-chloride stainless steel cleaner.

C. Restore finishes damaged during installation.

### 3.5 PROTECTION

A. Protect finished work from damage during remainder of construction.

B. Replace or repair damaged gratings prior to Substantial Completion.

END OF SECTION

**SECTION 31 23 00**  
**SELECT BACKFILL**

**PART 1 GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Section includes furnishing, placing, moisture conditioning, compacting, and testing, select backfill for Earthen Berm and select backfill adjacent to structures and appurtenant works.

1.2 REFERENCES

A. Comply with latest editions of:

1. ASTM D1557 – Modified Proctor Compaction
2. ASTM D1556 – Sand Cone Density
3. ASTM D6938 – Nuclear Density
4. ASTM D4318 – Atterberg Limits
5. ASTM D6913 – Particle Size Distribution

1.3 SUBMITTALS

A. Material Sources:

1. Borrow source locations, if required from site or supplier
2. Representative gradation and plasticity test results
3. Modified Proctor Density results

B. Compaction Equipment:

1. Type and operating weight

C. Quality Control:

1. Selecting Field Soils Samples
2. Perform Field density and moisture reports
3. Laboratory classification results

## 1.4 QUALITY ASSURANCE

- A. Testing Agency: Engage qualified geotechnical laboratory.
- B. Field Engineering retains authority to reject unsuitable material or workmanship.

## PART 2 PRODUCTS

### 2.1 MATERIALS

#### A. Suitable Select Backfill

- 1. Naturally occurring soil from approved on-site excavations or, if required, borrow sites.

#### B. Acceptable Materials:

- 1. Clay, silty clay, sandy clay, sand, gravel, or mixtures
- 2. Material capable of achieving specified compaction

#### C. Typical limits:

- 1. Fines (passing No. 200): 15–50 percent
- 2. Plasticity Index: maximum 25
- 3. Maximum particle size: 75 mm (3 in)

#### D. Prohibited Materials:

- 1. Organic soils, peat, topsoil, vegetation
- 2. Frozen material
- 3. Debris, waste, timber, metal, or asphalt
- 4. Highly expansive or dispersive soils unless approved
- 5. Particles exceeding 75 mm (3 in.)

#### E. Existing foundation soils and select backfill shall be classified and subject to geotechnical testing, analysis and Engineer approval for the following structural criteria with common approx. 1.5 safety factor for many stability checks:

- 1. Minimum bearing capacity of 2,000 PSF verified by geotechnical lab
- 2. Percent of settlement,
- 3. Global and local stability,
- 4. Submerged and ground water effect,

5. Liquefaction and cyclic softening (seismic or vibration),
6. Soil treatment,
7. Constructability with compaction means and method approval by engineer with options to extend existing pay items to adjust for exposed subgrade conditions.

### **PART 3 EXECUTION**

#### **3.1 PREPARATION**

- A. Contractor shall remove all silt and sediment from City property that is considered non-structural fill.
- B. Scarify existing subgrade surfaces prior to placement of reinforced gravel mat.
- C. Remove soft, pumping, or unsuitable material and replace with approved fill.

#### **3.2 PLACEMENT**

- A. Place approved backfill in horizontal lifts not exceeding 200 mm (8 in) loose thickness.
- B. Maintain symmetrical placement about berm centerline.
- C. Prevent segregation and formation of seepage paths.
- D. Do not permit construction traffic on uncompacted layers.

#### **3.3 MOISTURE CONDITIONING**

- A. Maintain moisture content between -1% and +2% of Optimal Moisture Content (OMC).
- B. Add water or aerate material as required.
- C. Suspend placement during unsuitable weather.

#### **3.4 COMPACTION**

- A. Compact each lift prior to placement of subsequent lift.
- B. Minimum Compaction:
  1. All backfill soil compaction: 95% Modified Proctor Density per ASTM D1557
  2. Foundation soil compaction: 95% Modified Proctor and material to support 2,000 PSF.
- C. Use rollers or mechanical equipment appropriate to material type.

#### **3.5 FIELD QUALITY CONTROL**

- A. Perform field density testing at minimum every 100 linear feet or every day's production.

- B. Conduct moisture content, gradation, and Atterberg Limits testing.
- C. Rework and retest areas not meeting requirements at Contractor expense.
- D. Requirements for foundation soils is listed in Part 2, paragraph E.

### 3.6 SEEPAGE AND STABILITY CONTROL

- A. Roughen lift surfaces prior to placing subsequent layers.
- B. Avoid continuous horizontal planes.
- C. Eliminate construction joints.

### 3.7 PROTECTION AND FINISHING

- A. Protect completed embankment from erosion, drying, and damage.
- B. Trim slopes to design grades.
- C. Repair cracks, rutting, or soft areas immediately.

### 3.8 FINAL GRADING

- A. Final Contours: Perform finish grading in accordance with the completed contour elevations and grades shown and blend into conformation with remaining natural ground surfaces.
- B. Leave all finished grading surfaces smooth and firm to drain.
- C. Bring finish grades to elevations within plus or minus 0.10 foot of elevations or contours shown.
- D. Surface Drainage: Perform grading outside of building or structure lines in a manner to prevent accumulation of water within the area. Where necessary or where shown, extend finish grading to ensure that water will be carried to drainage ditches, and the site area left smooth and free from depressions holding water.

### 3.9 INSPECTION AND TESTING OF BACKFILLING

- A. Sampling and Testing: Provide sampling, testing, and laboratory methods in accordance with the appropriate ASTM Standard Specification. Subject all backfill to these tests.
- B. Correction of Work: Correct any areas of unsatisfactory compaction by removal and replacement, or by scarifying, aerating or sprinkling as needed and re-compaction in place prior to placement of a new structural soil lift.

END OF SECTION

**SECTION 31 23 19**  
**DEWATERING**

**PART 1 GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes construction dewatering of stormwater and groundwater ponding on subgrade within excavation pits.

1.3 PRE INSTALLATION MEETINGS

- A. Discuss the following at the pre-work conference.
  - 1. Verify availability of Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 2. Review condition of site to be dewatered including coordination with temporary erosion-control measures and temporary controls and protections.
  - 3. Review of geotechnical report.
  - 4. Review proposed site clearing and excavations.
  - 5. Review existing utilities and subsurface conditions.
  - 6. Review observation and monitoring of dewatering system.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: Delegated design for dewatering system, prepared by or under the supervision of a qualified professional engineer signed and sealed plan.
  - 1. Include plans, elevations, sections, and details.
  - 2. Show arrangement, locations, and details of dewatering sump; locations of risers, headers, filters, pumps, power units, and discharge lines; and means of discharge, control of sediment, and disposal of water.
  - 3. Include written plan for dewatering operations including sequence of dewatering sump placement coordinated with excavation shoring and bracings and control procedures to be adopted if dewatering problems arise.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and professional engineer.
- B. Field quality-control reports.
- C. Existing Conditions: Using photographs or video recordings, show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by dewatering operations. Submit before Work begins.

## 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer that has specialized in design of dewatering systems and dewatering work.

## 1.7 FIELD CONDITIONS

- A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from this data.
  - 1. Make additional test borings and conduct other exploration operations necessary for dewatering according to the performance requirements.
  - 2. The geotechnical report is supplied independently bid documents.
- B. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

## PART 2 PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
  - 1. Design dewatering system to maintain construction excavate dry and not pool water.
  - 2. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, prevention of flooding in excavation, and prevention of damage to subgrades and permanent structures.
  - 3. Prevent surface water from entering excavations by grading, dikes, or other means.
  - 4. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.

5. Remove dewatering system when no longer required for construction.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with water- and debris-disposal regulations of authorities having jurisdiction.

### **PART 3 EXECUTION**

#### **3.1 PREPARATION**

- A. Protect structures, utilities, perimeter access, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site or surrounding area.
  2. Protect subgrades, foundation soils and gravel mats from softening and damage by rain or water accumulation. Flooded areas is not acceptable.
- B. Install dewatering system to ensure minimum interference with access roads, embankments, walks, and other adjacent occupied and used facilities.
1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- C. Provide temporary grading to facilitate dewatering and control of surface water.
- D. Protect and maintain temporary erosion and sedimentation controls.

#### **3.2 INSTALLATION**

- A. Install dewatering system utilizing sump points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, and surface- water controls.
1. Space sump points at practical intervals required to provide sufficient dewatering for excavation in project areas.
  2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.
- B. Place dewatering system into operation to lower water to specified levels before excavating below ground-water level.
- C. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.
- D. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails.

### 3.3 OPERATION

- A. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.
- B. Operate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.
  - 1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
  - 2. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
- C. Remove dewatering system from Project site on completion of dewatering. Plug or fill sump with native material.

### 3.4 FIELD QUALITY CONTROL

- A. Promptly notify Engineer if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.
- B. Provide continual observation to ensure that subsurface soils are not being removed by the dewatering operation.
- C. Prepare reports of observations.

### 3.5 PROTECTION

- A. Protect and maintain dewatering system during dewatering operations.
- B. Promptly repair damages to adjacent facilities caused by dewatering.

END OF SECTION

**SECTION 35 31 39**  
**ARTICULATING CONCRETE BLOCKS**

**PART 1 GENERAL**

**1.1 SCOPE OF WORK**

- A. The contractor shall furnish all labor, materials, equipment, and incidentals required for, and perform all operations in connection with, the installation of the ArmorFlex® Articulating Concrete Block (ACB) system in accordance with the lines, grades, design and dimensions shown on the Contract Drawings and as specified herein.

**1.2 SUBMITTAL**

- A. The Contractor shall submit to the Engineer of Record (EOR) evidence of full-scale hydraulic testing in accordance with ASTM D-7277, and if necessary, Factor of Safety (FoS) calculations in support of the proposed ACB system stamped and signed by a Professional Engineer licensed to practice in the state where the project is located. The Contractor shall also submit to the EOR an appropriate geotextile, selected for the site being protected on the basis of the gradation and permeability of the surface soils, which information shall have been provided by the EOR or the designated geotechnical engineer.
- B. The Contractor shall furnish manufacturer's certificates of compliance for the ACB, geotextile, and any other components that are required. The Contractor shall also furnish the manufacturer's specifications, literature, installation instructions, and any recommendations, if applicable, that are specifically related to the project. If a color has been specified for the block, the Contractor shall submit a color chart indicating the specified standard color.
- C. Alternative materials from qualified suppliers may be considered; to qualify, proposed alternative suppliers must own and operate their own manufacturing facility, and shall directly employ a minimum of five (5) registered Professional Engineers. Full documentation consistent with the foregoing must be submitted in writing to the EOR a minimum of twenty (20) business days prior to bid date, and must be pre-approved in writing as an addendum to the bid documents and drawings by the EOR at least ten (10) business days prior to bid date. Submittal packages must also include, as a minimum, the following:
1. Evidence of satisfactory full-scale laboratory testing in accordance with ASTM D 7277, Standard Test Method for Performance Testing of Articulating Concrete Block (ACB) Revetment Systems for Hydraulic Stability in Open Channel Flow, performed on behalf the submitting manufacturer on a qualifying test flume of sufficient length for the test flows to achieve normal depth in all cases, and associated engineered calculations quantifying the FoS of the proposed ACB system under the design conditions of the specific project, stamped and signed by a registered Professional Engineer residing in and licensed to practice in the state where the project is located;
  2. A list of 5 comparable projects, in terms of size and applications, in the United States, where the satisfactory performance of the specific alternate ACB system can be verified after a minimum of five (5) years of service life;

3. Information about, or certifications of, all materials associated with the ACB system as detailed above, including (but not limited to) geotextile and any other materials required for satisfactory installation in accordance with ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems;
4. The names and contact information (phone numbers and e-mail addresses, at a minimum) for the suppliers' representatives, for technical, production or logistics questions, at least one of whom must reside in the state where the project is located.

## **PART 2 PRODUCT**

### **2.1 GENERAL**

- A. All ACB's shall be provided on pallets or other suitable method for shipping to prevent damage to the individual blocks. The ACB system may be hand-placed individually, either with or without subsequent insertion of cables.
- B. Individual units in the system shall be staggered and interlocked for enhanced stability. The open cell units have two (2) vertical openings of rectangular cross section with sufficient wall thickness to resist cracking during shipping and installation. Optionally, parallel strands of cable may be inserted through two (2) cable ducts in each block allowing for longitudinal binding of the units within the system. Each row of units shall be laterally offset by one-half of a block width from the adjacent row. Each block shall incorporate interlocking surfaces that minimize lateral displacement of the blocks.
- C. The ACB's shall be placed on a filter fabric as specified herein. Under no circumstances shall the filter fabric be permanently affixed or otherwise adhered to the blocks; i.e., the filter fabric shall be independent of the block system.
- D. Certification (Open-Channel Flow): ACB's will only be accepted when accompanied by documented hydraulic performance characteristics that are derived from tests under controlled flow conditions. Testing shall conform to ASTM D 7277, Standard Test Method for Performance Testing of Articulating Concrete Block (ACB) Revetment Systems for Hydraulic Stability in Open Channel Flow, as amended and updated. Note that all hydraulic performance testing shall be performed in a 2H:1V flume, and that the tested length be long enough that the test flows achieve normal depth in all cases. Analysis and interpretation of the test data shall conform to the guidance contained in ASTM D 7276, Standard Guide for Analysis and Interpretation of Test Data for Articulating Concrete Block (ACB) Revetment Systems in Open Channel Flow, as amended and updated.
- E. Performance (Open-Channel Flow): The design of the ACB system shall be in accordance with the Factor-of-Safety design methodology as described in "Erosion and Sedimentation" by Pierre Julien, Cambridge University Press, Second Ed. 2010. The minimum designed safety factor shall be 1.5 by utilizing the following equation.

$$SF = ((\vartheta_2 / \vartheta_1) \alpha_\theta) / ((1 - \alpha_\theta^2)^{0.5} \cos \beta + \eta (\vartheta_2 / \vartheta_1) + (\vartheta_3 F_d' \cos \delta + \vartheta_4 F_l') / \vartheta_1 W_s) \geq 1.5$$

where  $\vartheta_1$ ,  $\vartheta_2$ ,  $\vartheta_3$ , &  $\vartheta_4$  are geometric properties of the block,  $\alpha_\theta$ ,  $\beta$ , &  $\delta$  are angles characteristic of the site and application,  $\eta$  is the stability number for a sloped surface,  $F_d$  &  $F_l$  are the drag

and lift forces, respectively, and  $W_s$  is the submerged weight of the block. ArmorFlex block geometric parameters are available upon request.

The analysis shall be performed based upon the stability of the ACB's due to gravity forces alone, neglecting conservative forces added by cabling, mechanical anchorage, contact with adjacent blocks, or other restraints not attributable to gravity based forces. The analysis must account for a 0.5-inch block projection, in accordance with *ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems*, Section 6.3.3. **Site grading requirements may not be used to omit this requirement for standard (non-tapered) block.**

In order to analyze the performance of the unit, the hydraulic information listed below is required:

### ACB HYDRAULIC INFORMATION

Design Volumetric Flow Rate (ft <sup>3</sup> /sec)	Less than 2 fps (wave action only)
Minimum Shear Stress (lb/ft <sup>2</sup> )	NA
Channel Friction or Bed Slope (ft/ft)	Not a channel
Channel Side Slopes ( H:1V)	2H:1V max
Channel Bottom Width (ft)	NA
Allowable Unit Protrusion (in)	0.5

## 2.2 ARTICULATING CONCRETE BLOCKS

- A. Scope: This specification covers articulating concrete blocks used in revetments for soil stabilization. Installations may be exposed to infrequent and/or light-duty vehicular loading, such as for low-water crossings or boat ramps, by specifying a minimum thickness of 6". Concrete units covered by this specification are made from lightweight or normal weight aggregates, or both. The values stated in U.S. customary units are to be regarded as the standard.
- B. Materials: Cementitious Materials shall conform to the following applicable ASTM specifications:
  1. Portland Cements - Specification C 150, for Portland Cement.
  2. Blended Cements - Specification C 595, for Blended Hydraulic Cements.
  3. Hydrated Lime Types - Specification C 207, for Hydrated Lime Types.
  4. Pozzolans - Specification C 618, for Fly Ash and Raw or Calcined Natural Pozzolans for use in Portland Cement Concrete.
  5. Aggregates - Specification C 33, for Concrete Aggregates, except that grading requirements shall not necessarily apply.
- C. Casting: The ACB units shall be produced by a dry cast method. Dry cast units obtain strength more quickly than wet cast blocks, and will also achieve a greater uniformity of quality and greater durability.

- D. Physical Requirements: At the time of delivery to the work site, the units shall conform to the physical requirements prescribed in Table 1 below.

TABLE 1. PHYSICAL REQUIREMENTS

<b>Compressive Strength Net Area</b> <b>Min. p.s.i (mPa)</b>		<b>Water Absorption</b> <b>Max. lb/ft<sup>3</sup> (kg/m<sup>3</sup>)</b>	
Avg. of 3 units	Individual Unit	Avg. of 3 units	Individual Unit
4,000 (27.6)	3,500 (24.1)	9.1 (160)	11.7 (192)

Units will be sampled and tested in accordance with ASTM D 6684-04, Standard Specification for Materials and Manufacture of Articulating Concrete Block (ACB) Revetment Systems.

E. Visual Inspection:

1. All units shall be sound and free of defects that would interfere with either the proper placement of the unit or impair the performance of the system. Surface cracks incidental to the usual methods of manufacture, or surface chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.
2. Cracks exceeding 0.25 inches (.635 cm) in width and/or 1.0 inch (2.54 cm) in depth shall be deemed grounds for rejection. Chipping resulting in a weight loss exceeding 10% of the average weight of a concrete unit shall be deemed grounds for rejection.
3. Blocks rejected prior to delivery from the point of manufacture shall be replaced at the manufacturer's expense. Blocks rejected at the job site shall be repaired with structural grout or replaced at the expense of the contractor.

F. Sampling and Testing:

1. The purchaser (or their authorized representative) shall be accorded access to the relevant manufacturing facility or facilities, if desired, in order to inspect and/or sample the ACB units from lots ready for delivery prior to release for delivery to the job site. Such inspections are at the sole expense of the requesting entity.
2. Field installation shall be consistent with the way the system was installed in preparation for hydraulic testing pursuant to ASTM D 7277, Standard Test Method for Performance Testing of Articulating Concrete Block (ACB) Revetment Systems for Hydraulic Stability in Open Channel Flow. Any external restraints, anchors, or other ancillary components (such as synthetic drainage mediums) shall be employed as they were during testing; e.g., if the hydraulic testing installation utilized a drainage layer, then the field installation must also utilize a drainage layer. This does not preclude the use of other section components for other purposes, e.g., a geogrid for strengthening the subgrade for vehicular loading, or an intermediate filter layer of sand to protect very fine-grained native soils.
3. Hydraulic testing shall be conducted on the thinnest block in a "family" of similar blocks (i.e., same footprint but different thicknesses), with the tested critical shear value then converted to a critical shear at 0° before extrapolation to thicker blocks within the same family. Such extrapolation may not be made from a thicker block to a thinner block. The

extrapolation method is detailed in the National Concrete Masonry Association (NCMA) "Design Manual for Articulated Concrete Block (ACB) Revetment Systems", section 4.2.

4. Purchaser may request additional testing other than that provided by the manufacturer as needed. Such requested testing will extend any stated lead times for manufacturing and delivery, if the results of such testing are a prerequisite to approval (i.e., approval for release to manufacturing). Costs associated with such testing shall be borne by the purchaser.

G. Manufacturer: ACB's shall be ArmorFlex® as manufactured and sold by:

ARMORTEC, A Contech Company Phone: 1-800-645-7000

9025 Centre Pointe Dr., Suite 400 Fax: 1-513-645-7993

West Chester, OH 45269

URL: <http://www.conteches.com/Products/Erosion-Control/Hard-Armor/ArmorFlexThe>

H. The selected ARMORFLEX® blocks shall have the following nominal characteristics:

**STANDARD SIZES OF ARMORFLEX® BLOCKS**

CLASS	TYPE	MIN. WEIGHT (lbs)	BLOCK SIZE			OPEN AREA %
			Length (in)	Width (in)	Height* (in)	
30S	Open	32	13.0	11.6	4.75	20
50S	Open	42	13.0	11.6	6.0	20
45S	Closed	39	13.0	11.6	4.75	10
55S	Closed	50	13.0	11.6	6.0	10
40	Open	59	17.4	15.5	4.75	20
50	Open	76	17.4	15.5	6.0	20
60	Open	93	17.4	15.5	7.5	20
70	Open	113	17.4	15.5	8.5	20
45	Closed	71	17.4	15.5	4.75	10
55	Closed	91	17.4	15.5	6.0	10
75	Closed	112	17.4	15.5	7.5	10
85	Closed	135	17.4	15.5	8.5	10
40L	Open	97	17.4	23.6	4.75	20
50L	Open	115	17.4	23.6	6.0	20
70L	Open	174	17.4	23.6	8.5	20
45L	Closed	109	17.4	23.6	4.75	10
55L	Closed	138	17.4	23.6	6.0	10
85L	Closed	207	17.4	23.6	8.5	10

*\*Block height may vary based on local manufacture's capabilities.*

I. Filter Fabric

1. The geotextile filter shall meet the minimum physical requirements listed in Table No. 2 of these Specifications. Consultation with the manufacturer is recommended; the standard

for sizing geotextile for these applications is AASHTO M-288, Permanent Erosion Control. Either woven or non-woven geotextile are acceptable, as long as they meet the other project requirements.

2. The geotextile fiber shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, ester, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic, if necessary, to make the filaments resistant to deterioration due to ultraviolet and heat exposure. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile.
3. The Contractor shall furnish manufacturer's certified test results to the EOR, showing actual test values obtained when the physical properties are tested for compliance with the specifications.
4. During all periods of shipment and storage, the filter fabric shall be protected from direct sunlight, UV radiation, and temperatures greater than 140°F. To the extent possible, the fabric shall be maintained wrapped in its protective covering. The geotextile shall not be exposed to sunlight or UV radiation until the installation process begins.

TABLE 2. PHYSICAL REQUIREMENTS

Physical Property	Test Procedure	Minimum Value
Grab Tensile Strength (Unaged Geotextile)	ASTM D4632	<i>IAW AASHTO M288 Class 2</i>
Breaking Elongation (Unaged Geotextile)	ASTM D4632	50% max. (in any principal direction)
Burst Strength	ASTM D3786	<i>IAW AASHTO M288 Class 2</i>
Puncture Strength	ASTM D4833	<i>IAW AASHTO M288 Class 2</i>
A.O.S., U.S. Std. Sieve	ASTM D4751	No. 70
Permittivity	ASTM D4491	$\geq 1.5 \text{ sec}^{-1}$

5. Final acceptance of the filtration geotextile must be made by the EOR based on project specific soil information. Soil characteristics such as grain size distribution, permeability, and plasticity shall be determined for every 200,000 square feet of geotextile installed or for each source of borrow material used during construction. Significant differences in soil characteristics may require the performance of further sieve and possible hydrometer testing at the discretion of the EOR. The locations for which the material to be tested is extracted shall be approved by the EOR. The Contractor shall provide the site-specific soil and modified proctor curves for the site soil, at his own expense, to the manufacturer. Also, the contractor shall be responsible for the performance of the test by a certified independent laboratory experienced in performing such test. The test shall be performed under the actual field soil conditions or as otherwise required by the EOR.
6. At the time of installation, the filter fabric shall be rejected if it has been removed from its protective cover for over 72 hours or has defects, tears, punctures, flow deterioration, or damage incurred during manufacture, transportation or storage. With the acceptance of the Engineer, placing a filter fabric patch over the damaged area prior to placing the mats shall repair a torn or punctured section of fabric. The patch shall be large enough to overlap a minimum of three (3) feet in all directions.

### **PART 3 FOUNDATION PREPARATION, GEOTEXTILE AND PLACEMENT**

#### **3.1 SUBGRADE PREPARATION**

- A. General: All subgrade preparation shall be performed in accordance with ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems, as updated and amended.
- B. Grading:
  - 1. The slope shall be graded to a smooth plane surface to ensure that intimate contact is achieved between the slope face and the geotextile (filter fabric), and between the geotextile and the entire bottom surface of the articulating concrete blocks. All slope deformities, roots, grade stakes, and stones which project normal to the local slope face must be re-graded or removed. No holes, "pockmarks", slope board teeth marks, footprints, or other voids greater than 1.0 inch in depth normal to the local slope face shall be permitted. No grooves or depressions greater than 0.5 inches in depth normal to the local slope face with a dimension exceeding 1.0 foot in any direction shall be permitted. Where such areas are evident, they shall be brought to grade by placing compacted homogeneous material. The slope and slope face shall be uniformly compacted, and the depth of layers, homogeneity of soil, and amount of compaction shall be as required by the Engineer.
  - 2. Excavation and preparation for anchor trenches, side trenches, and toe trenches or aprons shall be done in accordance to the lines, grades and dimensions shown in the Contract Drawings. The anchor trench hinge-point at the top of the slope shall be uniformly graded so that no dips or bumps greater than 0.5 inches over or under the local grade occur. The width of the anchor trench hinge-point shall also be graded uniformly to assure intimate contact between all articulating concrete blocks and the underlying grade at the hinge-point.
- C. Inspection: Immediately prior to placing the filter fabric and articulating concrete blocks, the prepared subgrade shall be inspected by the Engineer as well as the owner's representative. No fabric or blocks shall be placed thereon until that area has been approved by each of these parties.

#### **3.2 PLACEMENT OF GEOTEXTILE FILTER FABRIC**

- A. General: All placement and preparation should be performed in accordance with ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems, as updated and amended. Filter Fabric, or filtration geotextile, as specified elsewhere, will be placed within the limits of ACBs shown on the Contract Drawings.
- B. Placement: The filtration geotextile shall be placed directly on the prepared area, in intimate contact with the subgrade, and free of folds or wrinkles. The geotextile shall not be walked on or disturbed when the result is a loss of intimate contact between the articulating concrete block and the geotextile or between the geotextile and the subgrade. The geotextile filter fabric shall be placed so that the upstream strip of fabric overlaps the downstream strip. The longitudinal and transverse joints shall be overlapped at least three (3) feet. The geotextile shall extend at least one foot beyond the top and bottom revetment termination points. If articulating concrete blocks are assembled and placed as large mattresses, the top lap edge of the geotextile should

not occur in the same location as a space between articulating concrete mats unless the space is concrete filled.

### 3.3 PLACEMENT OF ARTICULATING CONCRETE BLOCKS

- A. General: ACB placement and preparation should be performed in accordance with ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems, as amended and updated. Articulating concrete blocks, as specified in Part 2 of these Specifications, shall be constructed within the specified lines and grades shown on the Contract Drawings.
- B. Placement:
  - 1. The articulating concrete blocks shall be placed on the filter fabric in such a manner as to produce a smooth plane surface in intimate contact with the filter fabric. No individual block within the plane of placed articulating concrete blocks shall protrude more than one-half inch or as otherwise specified by the Engineer. To ensure that the articulating concrete blocks are flush and develop intimate contact with the subgrade, the blocks shall be "seated" with a roller or other means as approved by the Engineer.
  - 2. Anchor trenches and side trenches shall be backfilled and compacted flush with the top of the blocks. The integrity of a soil trench backfill must be maintained so as to ensure a surface that is flush with the top surface of the articulating concrete blocks for its entire service life. Toe trenches shall be backfilled as shown on the Contract Drawings. Backfilling and compaction of trenches shall be completed in a timely fashion. No more than 500 linear feet of placed articulating concrete blocks with non-completed anchor and/or toe trenches shall be permitted at any time.
- C. Finishing: The cells or openings in the articulating concrete blocks shall be backfilled and compacted immediately with suitable material to assure there are no voids and so that compacted material extends from the filter fabric to one-inch above the surface of the articulating concrete block. Backfilling and compaction shall be completed in a timely manner so that no more than 500 feet of exposed mats exist at any time.
- D. Consultation: The manufacturer of the articulating concrete blocks shall provide design and construction advice during the design and initial installation phases of the project when required. The ACB supplier shall provide, at a minimum, one full day or two half-days of on-site project support upon request.

END OF SECTION

**SECTION 40 05 59.23**  
**STAINLESS STEEL SLIDE GATES**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. The Contractor shall provide all labor, materials, equipment, and incidentals required to furnish and install slide gates, operating stems, and operating floor stands, complete and operational with all necessary accessories as shown on the Contract Drawings, as specified herein, or as required for complete operation.
- B. The Contractor shall obtain all equipment specified in this Section from one manufacturer to ensure proper coordination and functionality. The manufacturer shall have responsibility for the performance and compatibility of the entire system. This does in no way relieve the Contractor for ultimate responsibility under this Contract for equipment, coordination, installation, operation and guarantee.
- C. The Contract Drawings are for purpose of guidance and to show functional features and required external connections. They do not necessarily show all components necessary to accomplish the desired results nor do they necessarily show all components required to interface with the equipment. The Contractor shall provide all parts, equipment, and devices necessary to meet the functional requirements of the system.

**1.2 REFERENCES**

- A. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified:
  - 1. American Water Works Association (AWWA C561)
  - 2. American National Standards Institute (ANSI)
  - 3. American Society for Testing and Materials (ASTM)

**1.3 SYSTEM DESCRIPTION**

- A. Design Requirements:
  - 1. The slide gates shall be manufactured in accordance with the latest version of AWWA C561, which shall be constructed of stainless-steel ASTM 304.
  - 2. Liberal safety factors will be used in the design of all equipment. Gate, frame, and yoke design shall be such that the flexural stress does not exceed 18,750 psi or that the minimum safety factor is 4-to-1 based on the ultimate strength of the material used.
  - 3. Slide gates shall be provided in accordance with the Schedule below:
    - a. East Berm Gate Structure:

- (1) Operating Head: 14-ft seated, 14-ft unseated
  - (2) Design Head: 14-ft seated, 14-ft unseated
  - (3) Thimble Type: N/A
  - (4) Operator Type: IB5 6:1 Geared Crank Lift
  - (5) Other: 2" Square AWWA nut w/ removeable hand crank
- b. West Berm Gate Structure:
- (1) Operating Head: 14-ft seated, 14-ft unseated
  - (2) Design Head: 14-ft seated, 14-ft unseated
  - (3) Thimble Type: N/A
  - (4) Operator Type: IB5 6:1 Geared Crank Lift
  - (5) Other: 2" Square AWWA nut w/ removeable hand crank
- c. One (1) Portable Electric Drill with a tripod for 2" square AWWA nut to be provided by the manufacturer.

#### 1.4 SUBMITTALS

- A. For approval: Submit the following shop drawings for approval:
1. Manufacturer's information, specifications, and data showing dimensions, materials of construction, and weight of all major items of equipment.
  2. Installation diagrams showing location, arrangement, and size of all fasteners required for the equipment.
  3. Setting drawings, templates, and instructions for installation of frames, thimbles, etc.
  4. Certification with structural calculations that all components were designed based upon the maximum seating and unseating heads described herein.
- B. Upon completion of installation, submit one (1) electronic copy of the Operation and Maintenance Manual for this equipment. A final copy of this manual shall be approved by the Engineer prior to distribution and as a minimum it shall contain the following:
1. Operational and maintenance manuals shall include all approved shop drawings associated with this Section, complete instructions for installation, and parts list for all components.
  2. Include a list and frequency of specific maintenance activities.

## 1.5 WARRANTY

- A. Minimum 2-year warranty shall be provided by manufacturer.

## PART 2 PRODUCTS.

### 2.1 MANUFACTURERS

- A. Provide two (2) slide gates as manufactured by the following:
  - 1. Hydro Gate a Mueller Brand.
    - a. Representative: Tim Hunt <Thunt@cogentcompanies.com>
  - 2. Or Approved equal.
- B. Provide one (1) Portable Electric Drill with a tripod for 2" square AWWA nut to be provided by the manufacturer.
  - 1. Hydro Gate a Mueller Brand
    - a. Representative: Tim Hunt <Thunt@cogentcompanies.com>

### 2.2 EQUIPMENT MATERIALS

- A. All slide gates shown on the plans and listed in the specifications shall conform in all respects to the latest version of AWWA C561, with the noted changes and additions: Materials used in construction of slide gates and appurtenances will be best suited for the application and will conform to the following specifications:
  - 1. Frame, Slide, Yoke, and Reinforcing: Stainless Steel, ASTM A240/A240M, Type 316L
  - 2. Stainless Steel for stems: ASTM A-276, Type 316L.
  - 3. Stainless Steel for fasteners: ASTM F-593/F-594, Alloy Group 1, 2 (SS316)
  - 4. Invert seals and compression load pad: Rubber (Neoprene or EPDM), ASTM D2000, 60 Durometer, with a stainless-steel ASTM A276, Type 316L retainer bar.
  - 5. Side Seal/Guide: Ultra High Molecular Weight (UHMW) Polymer, ASTM D4020
  - 6. Top Wedges: Type 316L Stainless Steel ASTM A351-CF8M
- B. Gate frame shall be flange back, embedded, or channel mount as shown in the "Gate Schedule." Spigot-back frames are not acceptable. The frame shall be an integral unit of brake form and structural shapes, rigidly assembled to form the waterway openings. Holes shall be provided for mounting on anchor bolts. The head channels shall be welded or bolted to the gate frame. The channels are to be sufficiently spaced to allow removal of the gate slide. The primary frame shall contain polymer guide, to prevent metal-to-metal contact between slide and frame.

- C. Gate slide shall conform to the safety factors stated under “General”, but shall, in no case, be less than ¼-in. thickness. Deflection under full head shall be limited to 1/720 of the span. The stem connector clips, or stem block pocket shall be welded to the slide. Gates over 24” wide shall have adjustable top wedges in order to prevent deflection in the slide resulting from over closure.
- D. Flush Bottom: Slide gates shall incorporate a flush-bottom seal that is mechanically fastened to the bottom frame invert member. The seal shall be of the materials shown in “Materials of Construction.” Seals attached to the slide or “press fit seals” are not acceptable.
- E. Side Seals: UHMW seals shall be provided as specified in the “Gate Schedule.” Seals shall be securely fastened to the frame with stainless steel retainers and shall be replaceable and adjustable without removing the gate from the installed position. A mechanically fastened compression cord with tail shall be set behind the UHMW seal to allow for a self-adjusting seal system. The UHMW guide shall have a recess for the compression cord to create a cantilever of the UHMW seal onto the slide and to allow for secondary adjustment of the seal clamp force. Contact surfaces of UHMW seals shall be extruded to ensure smooth surface finish.
- F. Top Seals: Top member shall be sufficiently flexible to self-adjust, using a mechanically fastened compression cord with a tail, accounting for deflection in the slide plate under unseating loads. For gate widths 24” and greater, top wedges may be used to ensure engagement of the top seal and prevent overclosure of the slide.
- G. The operating stem shall be of a size to safely withstand the stresses induced by normal operating forces without buckling or permanent distortion. In addition, the stem shall be designed to transmit in compression at least 2 times the rated output of the floor stand or bench stand with a 40-pound effort on the crank or handwheel. The threaded portion of the stem shall have cold rolled threads of the double lead Acme type with a minimum surface finish of 24 micro-inches. Cut threads shall not be acceptable. Stainless Steel couplings, threaded and keyed to the stems, will join stems of more than one section. All threaded and keyed couplings of the same size will be interchangeable. Manually operated, rising stem type gates will be provided with an adjustable stop collar on the stem to prevent over-opening of the gate.
- H. When the gate width is greater than twice the height and over 48” wide a tandem stem arrangement shall be used.
- I. For non-self-contained gates, stem guides will be split collar bronze type, mounted on cast iron brackets to allow for installation after the stem is installed. They will be adjustable in two directions and will be spaced at sufficient intervals to adequately support the stem. For self-contained gates, stem guides shall be pre-assembled integral UHMW collars mounted to stainless steel cross members. Stem guide spacing will not exceed an L/r ratio of 200.
- J. Gate lifts shall be handwheel or geared crank type as shown in the “Gate Schedule.” Lifts shall operate the gate with a maximum pull of 40 lb. on the handwheel or crank. Handwheel or crank shall be located approximately 36 in. above grating or walkway. All lifts shall have thrust bearings, bronze lift nuts, and an aluminum stop nut to limit the downward travel of the stem and slide. All geared lifts shall have cast or ductile iron housings and pedestals unless otherwise noted. All lifts shall be rising stem type if practical. Non-geared lifts shall be grease lubricated and re-greaseable through stainless grease zerks. Oil bath lifts are not acceptable.

- K. Motor-Operated Lift: One (1) Portable Electric Drill with a tripod for 2" square AWWA nut to be provided by the manufacturer.
- L. A clear, polycarbonate plastic stem cover and indicator shall be provided on each slide gate manual operator. Stem indication shall be provided to denote gate level at quarter, half, three-quarter, and full open. A cast aluminum adaptor shall be used to mount the cover to the lift. The aluminum adaptor shall be equipped with a stainless-steel grease zerk to all stem lubrication without removal of the stem cover. The stem covers shall be capped, vented, and of sufficient length to allow full travel of the gate.

### **PART 3 EXECUTION**

#### **3.1 3.1 INSTALLATION**

- A. The slide gate equipment and appurtenances shall be installed in accordance with the Installation Manual furnished by the gate manufacturer. Extreme care should be used in handling, storage, and installation of this equipment to prevent damage or distortion of the equipment and to ensure proper performance.

#### **3.2 FIELD QUALITY CONTROL**

- A. Field testing shall be performed after installation of the equipment. The field testing shall demonstrate the following:
  - 1. The equipment has been properly installed in accordance with the manufacturer's instructions and recommendations.
  - 2. The equipment has been installed in the specified location and orientation or as shown on the Contract Drawings.
  - 3. The equipment has been aligned.
  - 4. There are no mechanical defects in any of the parts.
  - 5. The slide gates shall undergo a leakage test following installation. The leakage test shall be in accordance with the latest version of AWWA C561.

END OF SECTION

**SECTION 41 22 13**  
**PORTABLE DAVIT CRANE WITH ANCHORED BASE**

**PART 1 GENERAL**

1.1 SUMMARY

A. SECTION INCLUDES:

1. Portable davit crane assemblies.
2. Anchored base pedestals and mounting hardware.
3. Hoists and lifting attachments.
4. Anchors, grout, and hardware for complete installation.

B. Related Sections:

1. Section 03 30 00 – Cast-in-Place Concrete (for foundations and anchor pads).
2. Section 05 50 00 – Metal Fabrications (custom steel supports).
3. Section 26 29 00 – Low-Voltage Controllers (if electric hoist is specified).

1.2 REFERENCES

- A. ASTM A36 – Carbon Structural Steel.
- B. ASTM A500 – Cold-Formed Welded and Seamless Carbon Steel Tubing.
- C. ASTM A123 – Hot-Dip Zinc Coating on Iron and Steel Products.
- D. ASTM F1554 – Anchor Bolts, Steel.
- E. ACI 318 – Building Code Requirements for Structural Concrete (anchor design).
- F. ASME B30.2 – Overhead and Gantry Cranes.
- G. ASME B30.10 – Hooks.
- H. ASME B30.16 – Overhead Hoists.
- I. ASME B30.20 – Below-the-Hook Lifting Devices.
- J. AWS D1.1 – Structural Welding Code – Steel.
- K. OSHA 29 CFR 1910.179 – Overhead and Gantry Cranes.

### 1.3 SUBMITTALS

- A. Product Data: Manufacturer's technical data, load charts, and anchor requirements.
- B. Shop Drawings: Show crane mast, boom, anchored base details, swing radius, and clearances.
- C. Certificates:
  - 1. Manufacturer's compliance with OSHA and ASME.
  - 2. Anchor bolt compliance with ASTM F1554.
- D. Test Reports: Factory proof load test documentation.
- E. Operation and Maintenance Data: Instructions for assembly/disassembly, anchoring, and inspection.
- F. Warranty documents.

### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 years' experience producing davit cranes.
- B. Installer Qualifications: Minimum 3 years' experience with crane/anchor installation.
- C. Regulatory Compliance: OSHA 1910, ASME B30.16.
- D. Testing: Factory proof test cranes at 125% rated capacity.

### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pedestal bases and davit cranes in manufacturer's packaging.
- B. Store components in dry, protected location.
- C. Protect anchoring surfaces from damage until installation.

### 1.6 WARRANTY

- A. Provide manufacturer's standard 1-year warranty.
- B. Warranty covers mast, boom, base, and anchoring system integrity.

## **PART 2 PRODUCTS**

### 2.1 MANUFACTURERS

- A. Basis of Design: [Insert Manufacturer – e.g., Thern, OZ Lifting, David Round, or equal].
- B. Substitutions: In accordance with Section 01 25 00 – Substitution Procedures.

## 2.2 MATERIALS

### A. Davit Crane Assembly:

1. Mast and Boom: ASTM A500 structural tubing.
2. Rotation: 360 degrees, manual, with 4 height settings.
3. Finish: Hot-dip galvanized (exterior and interior).

### B. Anchored Base:

1. Steel pedestal or baseplate with predrilled anchor bolt holes.
2. Anchor Bolts: ASTM F1554, mechanical wedge type or adhesive type.
3. Base designed for 3.5:1 safety factor minimum.

### C. Hoist:

1. Manual worm gear winch with brake.
2. Wire Rope: Stainless steel with swivel safety hook and thimble.

### D. Hardware and Fasteners: ASTM A325 high-strength bolts, hot-dip galvanized or stainless steel.

## 2.3 PERFORMANCE REQUIREMENTS

### A. Capacity: Hoist Heavy Duty, up to 1,000 lb operation capacity plus safety factor.

### B. Lift Height: As indicated.

### C. Safety Factor:

1. Structure: 3.5:1 minimum.
2. Hoist and rigging: 5:1 minimum.

## 2.4 FABRICATION

### A. Weld per AWS D1.1.

### B. Provide grease fittings at pivot points.

### C. Label each davit with rated load in permanent lettering.

### D. Provide removable mast and boom for portability.

## 2.5 FINISHES

### A. Galvanized Finish: Hot-dip galvanized per ASTM A123.

- B. Powder-Coated Finish (optional interior) not allowed : Minimum 2.0 mil thickness.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify foundation surface is level, plumb, and capable of resisting loads.
- B. Confirm concrete strength meets minimum requirements before anchor installation.

#### **3.2 INSTALLATION**

- A. Install base pedestal in accordance with manufacturer's instructions.
- B. Drill anchor holes using manufacturer-recommended diameters and embedment depths.
- C. Set and torque anchors per anchor manufacturer's requirements.
- D. Mount davit crane mast into anchored base and verify free rotation.
- E. Install hoist and rigging, tensioning per manufacturer's instructions.

#### **3.3 FIELD QUALITY CONTROL**

- A. Proof Load Testing: Test each crane at 125% rated capacity in accordance with ASME B30.16.
- B. Verify smooth rotation, hoisting, and lowering.
- C. Replace defective anchors or crane components.

#### **3.4 ADJUSTING AND CLEANING**

- A. Lubricate pivot points and winch gears.
- B. Touch up damaged galvanizing with zinc-rich paint per ASTM A780.
- C. Remove debris and packaging.

#### **3.5 PROTECTION**

- A. Protect pedestal base from construction impact until turnover.
- B. Store removable mast and boom indoors when not in service.
- C. Replace damaged finishes or anchor hardware prior to final acceptance.

END OF SECTION