

CHICKASHA MUNICIPAL AUTHORITY

AGENDA

LOCATION OF MEETING

CITY HALL COUNCIL CHAMBERS

117 NORTH FOURTH STREET

CHICKASHA, OKLAHOMA 73018

TIME OF MEETING

6:30 PM

DATE OF MEETING

JUNE 16, 2025

All items on this agenda, including but not limited to any agenda item concerning the adoption of any ordinance, resolution, contract, agreement, or any other item of business, are subject to amendment, including additions and/or deletions. This rule will apply to every individual agenda item without exception, and without providing this same amendment language with respect to each individual agenda item. Such amendments should be rationally related to the topic of the agenda item, or the governing body will be advised to continue the item.

The governing body may adopt, approve, ratify, deny, defer, recommend, amend, strike, or continue any agenda item. When more information is needed to act on an item, the governing body may refer the matter to its City/Trust Manager, staff, attorney or to the recommending board, commission or committee.

1. Call to Order / Roll Call.

2. Consent Docket:

- a. Acceptance of the Minutes of the June 2, 2025, regular meeting.
- b. Acceptance of Claims List.
- c. Authorization to declare the property located at 1407 1st Street, Chickasha, Oklahoma, as surplus and to approve the sale and conveyance of the surface rights only to Rehoboth Ventures LLC, Adedipe (Taiwo Adedipe), by Quit Claim Deed for the fair market value of \$4,000.00; to approve the Contract for Transfer of Real Property; and to authorize the Mayor to execute the contract, deed, and all related documents.
- d. Acknowledgment of the real estate purchase agreement with Chickasha Golf and Country Club, LLC, approved by the CMA Board of Trustees on May 19, 2025, for \$1,600,000 plus closing costs. The transaction is being completed without financing, with closing anticipated on June 20, 2025. The purchase will appear on the July 7, 2025, Claims List. This

item is presented for transparency.

- e. Accept and ratify Resolution 2025-15R amending the Master Fee Schedule.
- f. Accept and ratify Resolution 2025-16R amending the FY 24/25 Budget.

3. Discussion/Approval of Items Removed from Consent Docket:

4. Consideration and Discussion Items:

- a. Discussion, consideration, and possible action to adopt or reject Resolution 2025-14R on the proposed budget for the Chickasha Municipal Authority for Fiscal Year 2025-2026 as proposed at the public hearing on the budget held June 16, 2025, and possible approval or rejection of any amendments proposed and considered by the Board of Trustees.
- b. Discussion, consideration, and possible action to declare an emergency pursuant to Title 61 Oklahoma Statutes Sections 130 due to a damaged sanitary sewer extension located on Illinois Avenue and finding that the condition resulted from a sudden unexpected happening or unforeseen occurrence or condition whereby the public health or safety is endangered or further damage to state property is likely if the situation is not addressed promptly and awarding a bid CMA-2502 to Bear Creek Construction for a project consisting of repairing/replacing existing sanitary sewer.
- c. Discussion, consideration, and possible action to allow the Chickasha Chamber of Commerce the use of the golf course to host and conduct the annual Washita Valley Golf Tournament from July 3rd through July 6th.

5. Motion for Adjournment.

CHICKASHA

Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: City Clerk

Agenda Item No. 2.a.

AGENDA ITEM: Acceptance of the Minutes of the June 2, 2025, regular meeting.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:
NAME, TITLE

Fund	Account	Amount
(To)		
FUND	ACCOUNT	AMOUNT
(From)		

Meeting Date:
June 16, 2025

V. ATTACHMENTS:

1. CMA 6-2-2025

June 2, 2025

The **REGULAR** meeting of the **CHICKASHA MUNICIPAL AUTHORITY** was held in the council chambers in city hall on the 2nd day of June 2025 as specified by advance public notice with a properly prepared agenda stating the subject matter or matters to be discussed at said meeting. Chairman Grayson called the meeting to order at 7:17 p.m.

ITEM 1. **Call to Order / Roll Call:**

CHAIRMAN AND TRUSTEES

PRESENT: Zachary Grayson, Chairman
Georgianne Hebblethwaite, Vice Chairman
Lisa Hatchett
Kim Irving
Kea Ginn
John P. Smith
Erica Alexander
Charlie Burruss
Clark Southard

ABSENT: None.

STAFF

PRESENT: Jim Crosby, City Manager
Rachel Bernish, Asst. City Manager
Amanda Mullins, City Attorney
Susan M. McDaniel, City Clerk
Tony Samaniego, Fire Chief
Darren Martin, Chief Building Inspector & Airport Manager
Lillie Huckaby, Library Director
Omar Fierro, Public Works Director
Spencer Winzenried, Parks & Rec Director
Elaine Jensen, Finance Director
Tracey Austin, HR Director
Shae Mortimer, Marketing and Civic Engagement Manager

ITEM 2. **Consent Docket: ITEM 2a – ITEM 2b.**

ITEM 2a. **Acceptance of the Minutes of May 19, 2025, regular meeting.**
ITEM 2b. **Acceptance of the Claims List.**

*Motion by Trustee Alexander, second by Trustee Ginn to approve Items 2a – 2b.

Roll call vote:

Ayes:” Hatchett, Irving, Ginn, Hebblethwaite, Smith, Alexander, Burruss, Southard, and Grayson.

“Nays:” None

“Abstain:” None

Motion carried. 9-0

ITEM 3. **Discussion / Approval of Items Removed from Consent Docket:**

No Action Taken.

ITEM 4. **Discussion and Consideration Items:**

ITEM 4a. **Discussion, consideration, and possible action to approve Change Order No. 1 for CMA-2501 – Sanitary Sewer Main Replacement – Colorado Avenue & 4th Street, in the amount of \$167,819.44.**

*Motion by Trustee Hebblethwaite, second by Trustee Smith to approve Change Order No. 1 for CMA-2501 – Sanitary Sewer Main Replacement – Colorado Avenue & 4th Street, in the amount of \$167,819.44.

Roll call vote:

Ayes:” Hatchett, Irving, Ginn, Hebblethwaite, Smith, Alexander, Burruss, Southard, and Grayson.

“Nays:” None

“Abstain:” None

Motion carried. 9-0

ITEM 5. **Motion to Adjourn.**

*Motion by Trustee Alexander, second by Trustee Hebblethwaite to adjourn.

Meeting adjourned.

TIME: 7:19 PM

Approved this 16th day of June 2025.

Zachary Grayson, Chairman

Chickasha Municipal Authority Meeting 6-2-2025
TIME 7:17 P.M.

Susan M. McDaniel, CMC – City Clerk

(ATTEST)

CHICKASHA

Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: Finance

Agenda Item No. 2.b.

AGENDA ITEM: Acceptance of Claims List.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

Fund	Account	Amount
(To)		
FUND	ACCOUNT	AMOUNT
(From)		

Meeting Date:
June 16, 2025

V. ATTACHMENTS:

CHICKASHA

Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: Community Development

Agenda Item No. 2.c.

AGENDA ITEM: Authorization to declare the property located at 1407 1st Street, Chickasha, Oklahoma, as surplus and to approve the sale and conveyance of the surface rights only to Rehoboth Ventures LLC, Adedipe (Taiwo Adedipe), by Quit Claim Deed for the fair market value of \$4,000.00; to approve the Contract for Transfer of Real Property; and to authorize the Mayor to execute the contract, deed, and all related documents.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Declare as surplus and authorize the Mayor to execute the Sale of 1407 1st Street to Rehoboth Ventures LLC Adedipe (Taiwo Adedpie)

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

Fund	Account	Amount
(To)		
FUND	ACCOUNT	AMOUNT
(From)		

Meeting Date:
June 16, 2025

V. ATTACHMENTS:

1. 1407 1st street

CONTRACT FOR TRANSFER OF REAL PROPERTY

This agreement made and entered into this ___16th___ day of ___June_____, 2025_, by and between the Chickasha Municipal Authority, a public trust, hereinafter referred to as “Chickasha” and ___Rehoboth Ventures LLC Adedipe___, hereinafter referred to as the “client.”

WHEREAS, the Chickasha Municipal Authority, a public trust, is the record title owner of certain property described as;

1407 S 1st St - 34-07-07-11300 ALL LOT 3 BLOCK 1 ROCK ISLAND ADDN

Chickasha, Oklahoma; SURFACE RIGHTS ONLY (“Subject Property”)

WHEREAS, the Chickasha Municipal Authority has determined that the subject property is surplus property and is not necessary for any governmental purpose by Chickasha;

WHEREAS, the Chickasha Municipal Authority desires to transfer the Subject Property to ___Rehoboth Ventures LLC Adedipe___ in order to relieve the Authority of ongoing maintenance obligations and to encourage use of the Property in a manner that supports the betterment of the City of Chickasha;

WHEREAS, ___Rehoboth Ventures LLC Adedipe___ has agreed to accept the subject property from the Chickasha Municipal Authority under the terms, covenants and conditions herein set forth as follows:

NOW, THEREFORE, in consideration of the mutual covenants and for the total sum of \$___\$4,000___ paid by ___Rehoboth Ventures LLC Adedipe___ to Chickasha, the parties agree as follows:

I

The Chickasha Municipal Authority shall convey the Subject Property to ___Rehoboth Ventures LLC Adedipe___ on or before the ___16th___ day of ___June_____, **2025**, by way of a Quitclaim Deed. Chickasha makes no warranties, representations, or assurances as to the marketability or status of title to the Subject Property. ___Rehoboth Ventures LLC Adedipe___ acknowledges and agrees that certain actions may be required to clear title to the Property, and any such actions shall be undertaken at ___Rehoboth Ventures LLC Adedipe’s___ sole cost and expense. Chickasha shall provide no abstract of title, and shall bear no responsibility for any costs associated with title clearance, recording, closing, or any other expenses related to the transfer of ownership.

II

No waiver or modification of this agreement or of any covenant, condition, or limitation herein contained shall be valid unless in writing and duly executed by both parties, and no evidence of waiver of modification shall be received in evidence of any proceeding, arbitration, or litigation between the parties hereto arising out of, or affecting this agreement or the rights or obligations of the parties hereunder, unless such wavier, or modification is in writing, duly executed as aforesaid, and the parties further agree that the provisions of this section may not be waived.

III

This contract constitutes the entire agreement and understanding between the parties hereto, and shall not be modified, altered, changed, or amended in any respect unless in writing and signed by both parties hereto.

IV

This agreement shall be governed by the laws of the State of Oklahoma both as to interpretation and performance, and venue of any litigation shall be in the District Court of Grady County Oklahoma.

IN WITNESS THEREOF, the parties have caused this agreement to be executed as of the day and year first above written.

Approved by the Board of Trustees of the Chickasha Municipal Authority, a public trust, on this

_____ day of _____, 202____.

CHICKASHA MUNICIPAL AUTHORITY,

A PUBLIC TRUST

By:_____

Title: Zachary Grayson, Chairman, Board of Trustees of the
Chickasha Municipal Authority, a public trust

ATTEST:

Susan McDaniel, Secretary

By:_____

CHICKASHA

Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: City Clerk

Agenda Item No. 2.d.

AGENDA ITEM: Acknowledgment of the real estate purchase agreement with Chickasha Golf and Country Club, LLC, approved by the CMA Board of Trustees on May 19, 2025, for \$1,600,000 plus closing costs. The transaction is being completed without financing, with closing anticipated on June 20, 2025. The purchase will appear on the July 7, 2025, Claims List. This item is presented for transparency.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: June 16, 2025	(From)		

V. ATTACHMENTS:

- 20250610143152389

THIS REAL ESTATE PURCHASE AGREEMENT (hereinafter referred to as the "Agreement") is made and entered into on this ____ day of _____, 2025, by and between:

SELLER AND NOTICE ADDRESS: Chickasha Golf and Country Club LLC, an Oklahoma limited liability company With a mailing address of: 2900 S 16th St, Chickasha, OK 73018 With Jimmy Crews as Manager Email: JCREWS@goodwillson.org

BUYER AND NOTICE ADDRESS: Chickasha Municipal Authority, a Public Trust Authority 117 N. 4th St Chickasha, OK 73018 Phone: (405) 222-6000 Email: Jim.Crosby@Chickasha.org

RECITALS

WHEREAS, Seller is the owner of certain real property consisting of approximately 70.48 acres of land, commonly known as Chickasha Golf and Country Club located at 2900 S 16th St, Chickasha, Oklahoma 73018, and more particularly described in Exhibit A attached hereto and incorporated herein by reference (the "Property"); and

WHEREAS, Seller desires to sell the Property to Buyer, and Buyer desires to purchase the Property from Seller, upon the terms and conditions set forth herein;

WHEREAS, the Buyer is a public trust whose purpose includes promoting, financing, and developing recreational, sports, cultural, and tourism-related facilities; and

WHEREAS, the Buyer intends to acquire the Property for purposes that are consistent with the trust's authorized purposes, including but not limited to the development and use of the Property for recreational, sports, and tourism facilities;

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. AGREEMENT TO PURCHASE AND SELL

1.1 Subject to the terms and conditions set forth in this Agreement, Seller agrees to sell and convey to Buyer, and Buyer agrees to purchase from Seller, the Property described in Exhibit A, surface rights only, together with: (a) All buildings, improvements, and structures located thereon; (b) All fixtures, equipment, machinery, tools, and personal property used in connection with the operation of the golf course, including without limitation all indoor furnishings that are part of the amenities offered at the Chickasha Golf and Country Club, such as couches, chairs, tables, televisions, vendor stations, electronics, computers, cameras, refrigerators, kitchen equipment, office equipment, maintenance equipment, golf carts, and all other personal property located on the premises and used in connection with the operation of the golf course, as more particularly itemized in Exhibit B; (c) All easements, rights-of-way, and appurtenances pertaining to the Property; (d) All water rights, water courses, and riparian rights associated with the Property; (e) All licenses, permits, and approvals related to the operation of the golf course; (f) All transferable

warranties and guaranties associated with the Property; (g) All intellectual property associated with the golf course operation including tradenames, logos, websites, and social media accounts; (h) All customer lists, vendor contracts, and business records associated with the golf course operation; and (i) All other rights, privileges, and appurtenances owned by Seller and associated with the above-described Property, subject to easements, restrictions, and rights-of-way of record.

1.2 Purpose of Acquisition. Buyer is acquiring the Property for a purpose consistent with the trust purposes of the Chickasha Municipal Authority, including but not limited to promoting, financing, and developing recreational, sports and tourism-related projects or facilities. Nothing herein shall be construed to limit Buyer's discretion in determining the appropriate public use of the Property in accordance with applicable laws and regulations.

2. PURCHASE PRICE AND PAYMENT TERMS

2.1 Purchase Price. The purchase price for the Property shall be \$1,600,000.00 (One Million Six Hundred Thousand Dollars) (the "Purchase Price"). In addition to the monetary payment, Buyer shall, as part of the consideration for the purchase of the Property, provide funding in the amount of \$9,428.57 to cover necessary maintenance costs to preserve the property and shall be responsible for the payment of water and electricity utility charges incurred during the thirty (30) days preceding Closing. This maintenance funding shall not be construed as creating a landlord-tenant relationship, lease, license, bailment, agency relationship or any possessory interest by Buyer prior to Closing.

2.2 Payment of Purchase Price. The Purchase Price shall be payable as follows: At Closing, Buyer shall pay the full Purchase Price, subject to any adjustments and prorations as provided herein, by cashier's check, certified check, or wire transfer of immediately available funds.

2.3 Governmental Immunity. Nothing in this Agreement shall be construed as a waiver by Buyer of any rights, defenses, immunities, or limitations of liability available under the Governmental Tort Claims Act, 51 O.S. §151 et seq., or any other applicable law.

2.4 Effective Date. The Effective Date shall be the date on which the last party, whether Buyer or Seller, executes this Agreement.

3. DUE DILIGENCE

3.1 Due Diligence Period. Buyer shall have a period of thirty (30) days from the Effective Date of this Agreement (the "Due Diligence Period") to conduct, at Buyer's expense, whatever examinations, inspections, investigations, tests, surveys, title searches, document reviews, and evaluations (collectively, "Inspections") that Buyer deems necessary or desirable to determine, in Buyer's sole discretion, whether the Property is suitable for Buyer's intended use. This expedited timeline is established to facilitate closing before the end of June 2025.

3.2 Access to Property During the Due Diligence Period. Seller shall provide Buyer and Buyer's agents, employees, consultants, and contractors with reasonable access to the Property at reasonable times for the purpose of conducting Inspections. Buyer shall provide Seller with

reasonable notice prior to entering the Property. Buyer shall conduct all Inspections in a manner that does not unreasonably interfere with Seller's use of the Property.

3.3 Documents to be Provided by Seller Within five (5) business days after the Effective Date. Seller shall provide Buyer with copies of the following documents to the extent they are in Seller's possession or control: (a) All surveys, plats, and maps of the Property; (b) All environmental reports, soil tests, and engineering reports; (c) All licenses, permits, and approvals related to the Property; (d) Real estate tax bills for the past three (3) years; (e) Utility bills for the past twelve (12) months; (f) All service contracts, equipment leases, and maintenance agreements; (g) All warranties and guaranties related to the Property; (h) Financial statements, profit and loss statements, and other financial information related to the golf course operations for the past three (3) years; (i) Inventory of all equipment, machinery, tools, and personal property included in the sale; (j) Existing title insurance policies; (k) Any notices of violations of laws, ordinances, regulations, or covenants; (l) List of all current employees, including position, length of service, compensation, and benefits; and (m) Any other documents reasonably requested by Buyer related to the Property.

3.4 Termination. During Due Diligence Period If Buyer determines, in Buyer's sole discretion, that the Property is not suitable for Buyer's intended use, Buyer may terminate this Agreement by delivering written notice to Seller prior to the expiration of the Due Diligence Period. Upon such termination neither party shall have any further rights or obligations under this Agreement except for those obligations that expressly survive termination.

3.5 Confidentiality. Buyer agrees to maintain the confidentiality of all documents and information provided by Seller in connection with the due diligence process. Buyer shall not disclose such documents or information to any third party, except as may be required by law, including the Oklahoma Open Records Act or to Buyer's attorneys, accountants, consultants, and potential lenders, all of whom shall be advised of the confidential nature of such documents and information.

3.6 As-Is, Where-Is. Except as expressly set forth in this Agreement, Buyer acknowledges that the Property is being sold "as-is, where-is," without any representations or warranties, express or implied, with respect to the physical condition of the Property.

3.7 Environmental Assessment. Buyer shall have the right, but not the obligation, to conduct an environmental assessment of the Property during the Due Diligence Period, including Phase I and, if necessary, Phase II environmental assessments, at Buyer's expense. Seller shall provide reasonable access to the Property for such assessments. This provision is intended to provide Buyer with information about the environmental condition of the Property and does not obligate Buyer to conduct such assessments. The results of any environmental assessments shall be subject to the confidentiality provisions of this Agreement. Notwithstanding any other provision of this Agreement, Seller represents and warrants that Seller has disclosed to Buyer in writing all known environmental conditions, hazards, or issues affecting the Property, including but not limited to the presence of any hazardous substances, underground storage tanks, or non-compliance with environmental laws and regulations. Seller shall indemnify, defend, and hold harmless Buyer from and against any and all claims, losses, liabilities, costs, or expenses (including reasonable attorneys' fees) arising from any environmental contamination, condition, or violation of

environmental law existing on or before the Closing Date and attributable to Seller's ownership or operation of the Property.

3.8 No Assumption of Prior Agreements or Liabilities. Buyer shall not assume or be responsible for any agreements, contracts, memberships, obligations, or liabilities previously made or incurred by Seller or any previous owners of the Property, whether written or oral, express or implied, including but not limited to membership agreements, vendor contracts, employee agreements, service agreements, equipment leases, or any other obligations associated with the operation of the Chickasha Golf and Country Club prior to Closing. Seller shall be solely responsible for terminating all such agreements and satisfying all such obligations and liabilities prior to Closing, and shall indemnify, defend, and hold Buyer harmless from any claims, demands, or liabilities arising from such agreements or obligations. This includes, without limitation, all claims by any members, vendors, or users of the golf course related to prepaid dues, deposits, or refunds. This provision shall survive Closing.

3.9 Employees. Seller acknowledges and agrees that Buyer is not assuming any employment relationships, obligations, or liabilities with respect to any employees of the Chickasha Golf and Country Club. Seller shall be solely responsible for terminating all employees prior to Closing and for all obligations and liabilities associated with such terminations, including but not limited to payment of all wages, salaries, benefits, severance payments, taxes, and any other employment-related obligations or liabilities. Seller shall provide Buyer with documentation evidencing full compliance with all final wage payments, benefits, and related employment tax obligations. Seller shall indemnify, defend, and hold Buyer harmless from any claims, demands, or liabilities arising from such employment relationships or terminations. This provision shall survive Closing.

4. TITLE AND SURVEY

4.1 Title Commitment. Within ten (10) days after the Effective Date, Seller shall, at Seller's expense, provide Buyer with a current commitment for an ALTA Owner's Policy of Title Insurance (the "Title Commitment") issued by a nationally recognized title insurance company acceptable to Buyer (the "Title Company"), in the amount of the Purchase Price, showing title to the Property vested in Seller, together with legible copies of all documents referenced in the Title Commitment.

4.2 Survey. Within thirty (30) days after the Effective Date, Buyer may, at Buyer's expense, obtain a current ALTA/NSPS Land Title Survey of the Property (the "Survey") prepared by a licensed surveyor acceptable to Buyer.

4.3 Title and Survey Review. Buyer shall have fifteen (15) days from receipt of the later of the Title Commitment or Survey to review the same and notify Seller in writing of any objections to title or survey matters (the "Title Objections"). Any matters shown on the Title Commitment or Survey to which Buyer does not object within such period shall be deemed "Permitted Exceptions."

4.4 Seller's Response to Title Objections. Seller shall have ten (10) days from receipt of Buyer's Title Objections to notify Buyer whether Seller will cure such Title Objections. If Seller fails to respond within such period, Seller shall be deemed to have elected not to cure the Title Objections. If Seller elects not to cure any Title Objections, Buyer may either (i) terminate this Agreement by written notice to Seller within five (5) business days after Seller's response (or deemed response),

(ii) waive such Title Objections and proceed to Closing, in which case such Title Objections shall become Permitted Exceptions.

4.5 Title Insurance At Closing, Seller shall convey good and marketable title to the Property to Buyer, subject only to the Permitted Exceptions. Seller shall pay the premium for the ALTA Standard Owner's Policy of Title Insurance. Buyer shall pay any additional premium for extended coverage or endorsements requested by Buyer.

4.6 Abstract of Title. Seller agrees to furnish complete abstract of title to the Property showing good and merchantable title in Seller, clear of all encumbrances, as set forth in the Oklahoma Bar Association Title Standards. Such abstract of title is to be updated to the date of this Contract and is to be furnished within 45 days. Seller agrees to pay all of the cost of updating the abstract. Buyer agrees to have the abstract examined within 45 days from receipt of the same, and in the case of any requirements thereon, Seller shall have a reasonable time to meet such requirements. In the event Seller is unable or unwilling to comply with or satisfy Buyer's objections to title or any requirement, Buyer shall have (i) the right to waive such objection or requirement and to proceed to Closing or (ii) the right to terminate this Contract. Should Buyer elect to terminate this Contract, Buyer shall do so by giving Seller written notice of the election within 10 days.

5. CONDITIONS PRECEDENT TO CLOSING

5.1 Buyer's Conditions Precedent. Buyer's obligation to purchase the Property is contingent upon the satisfaction or waiver of the following conditions precedent: (a) Seller's representations and warranties shall be true and correct as of the Closing Date; (b) Seller shall have performed all covenants and obligations required to be performed by Seller under this Agreement; (c) The physical condition of the Property shall not have materially changed since the Effective Date; (d) Buyer shall have obtained all necessary governmental approvals for its intended use of the Property; (e) Buyer shall have secured financing for the Purchase Price on terms acceptable to Buyer; (f) The Title Company shall be prepared to issue the Title Policy subject only to the Permitted Exceptions; (g) No litigation or administrative proceeding shall be pending or threatened that would adversely affect the Property or Buyer's intended use thereof; (h) No condemnation or eminent domain proceedings shall be pending or threatened against any portion of the Property; (i) No moratorium, statute, regulation, ordinance, or similar restriction that would adversely affect Buyer's intended use of the Property shall have been enacted or adopted; and (j) The City Council of Chickasha shall have approved the purchase of the Property.

5.2 Seller's Conditions Precedent. Seller's obligation to sell the Property is contingent upon the satisfaction or waiver of the following conditions precedent: (a) Buyer's representations and warranties shall be true and correct as of the Closing Date; and (b) Buyer shall have performed all covenants and obligations required to be performed by Buyer under this Agreement.

5.3 Failure of Conditions. If any condition precedent is not satisfied or waived on or before the Closing Date, the party benefited by such condition may, by written notice to the other party, either (i) terminate this Agreement or (ii) extend the Closing Date for a period not to exceed thirty (30) days to allow additional time for the condition to be satisfied.

6. CLOSING

6.1 Closing Date. The closing of the purchase and sale contemplated by this Agreement (the "Closing") shall take place at the offices of the Escrow Agent on a date mutually agreeable to the parties, but in no event later than June 30, 2025 (the "Closing Date"), unless extended by mutual agreement of the parties or as otherwise provided in this Agreement.

6.2 Seller's Deliveries at Closing. At Closing, Seller shall deliver to Buyer the following: (a) General Warranty Deed conveying good and marketable title to the Property to Buyer, subject only to the Permitted Exceptions, duly executed and acknowledged by Seller. The title so conveyed shall be a good and merchantable fee simple title, both of record and in fact, free of all liens and encumbrances created by Seller, except those specifically accepted or consented to by Buyer. Marketable title to the Property shall be determined in accordance with the title standards as adopted by the Oklahoma Bar Association; (b) Bill of Sale conveying all personal property included in the sale, free and clear of all liens and encumbrances, duly executed by Seller; (c) Assignment and Assumption of only those Leases, Service Contracts, and other agreements that Buyer has expressly agreed in writing to assume, duly executed by Seller; (d) Assignment of all transferable licenses, permits, and approvals relating to the Property, duly executed by Seller; (e) FIRPTA Certificate stating that Seller is not a "foreign person" within the meaning of Section 1445 of the Internal Revenue Code; (f) Seller's affidavit of title and gap indemnity in form acceptable to the Title Company; (g) Evidence of Seller's authority to sell the Property and consummate the transaction contemplated by this Agreement; (h) Closing statement setting forth the financial details of the transaction, duly executed by Seller; (i) All keys, security codes, and access devices for the Property; (j) All original documents, plans, specifications, and warranties relating to the Property in Seller's possession; (k) Notice to tenants, if any, of the change in ownership of the Property; and (l) Such other documents as may be reasonably required to consummate the transaction contemplated by this Agreement.

6.3 Buyer's Deliveries at Closing. At Closing, Buyer shall deliver to Seller the following: (a) The Purchase Price, less any adjustments and prorations as provided herein; (b) Evidence of Buyer's authority to purchase the Property and consummate the transaction contemplated by this Agreement; (c) Assignment and Assumption of only those Leases, Service Contracts, and other agreements that Buyer has expressly agreed in writing to assume, duly executed by Buyer, if any; (d) Closing statement setting forth the financial details of the transaction, duly executed by Buyer; and (e) Such other documents as may be reasonably required to consummate the transaction contemplated by this Agreement.

6.4 Closing Costs. Closing costs shall be allocated as follows: (a) Seller shall pay: i. The cost of preparing the Deed; ii. All costs related to the Abstract; iii. The premium for the ALTA Standard Owner's Policy of Title Insurance; iv. Any transfer taxes or documentary stamps; v. One-half of the escrow fees; vi. Any costs required to clear title; vii. Seller's attorney's fees; and One-half of any other Closing Fees.

(b) Buyer shall pay: i. The cost of recording the Deed; ii. The cost of the Survey; iii. Any additional premium for extended coverage or endorsements to the Title Policy; iv. One-half of the escrow fees; v. Buyer's attorney's fees; and One-half of any other Closing Fees.

6.5 Prorations. The following items shall be prorated between Seller and Buyer as of the Closing Date: (a) Rents and other income actually received from the Property; (b) Utility charges

attributable to the period prior to the Closing Date shall be prorated between the parties based on actual meter readings where available. If final readings are not available as of the Closing Date, such charges shall be estimated using a reasonable daily average rate based on the most recent full billing cycle, multiplied by the number of days in the applicable pre-closing period; and (c) Payments due under service contracts that Buyer elects in writing to assume.

6.6 Taxes. Buyer is a tax-exempt public trust authority. Seller shall be responsible for all ad valorem and personal property taxes associated with the property, if any, up to the Closing Date.

6.7 Condition of Equipment and Personal Property. Seller represents that all personal property conveyed pursuant to this Agreement shall be in good working order, condition, and repair, ordinary wear and tear excepted, unless otherwise disclosed in writing to Buyer prior to Closing.

6.8 Post-Closing Cooperation. Seller shall reasonably cooperate with Buyer, at no additional cost, in transferring all applicable permits, licenses, accounts, and operational information, and shall promptly execute any additional documents reasonably required to effectuate such transfer.

6.9 Possession. Buyer shall have possession of the Property on the date of Closing.

7. REPRESENTATIONS AND WARRANTIES

7.1 Seller's Representations and Warranties. Seller represents and warrants to Buyer as follows: (a) Seller is the sole owner of fee simple title to the Property and has full power and authority to sell the Property to Buyer on the terms set forth herein; (b) There are no leases, licenses, or other agreements granting any person or entity the right to use or occupy the Property, except as disclosed to Buyer in writing; (c) There are no pending or threatened condemnation or eminent domain proceedings affecting the Property; (d) There are no pending or threatened litigation or administrative proceedings affecting the Property; (e) Seller has not received any notice of violation of any law, ordinance, regulation, or covenant affecting the Property; (f) To the best of Seller's knowledge, there are no hazardous substances on, in, or under the Property in violation of applicable environmental laws; (g) All information provided by Seller to Buyer regarding the Property is true, complete, and accurate in all material respects; (h) There are no unrecorded easements, restrictions, or encumbrances affecting the Property; (i) All taxes, assessments, and other charges affecting the Property have been paid when due; (j) Seller is not a "foreign person" within the meaning of Section 1445 of the Internal Revenue Code; (k) There are no service contracts, employment agreements, or other obligations that will bind Buyer after Closing, except as disclosed to Buyer in writing; (l) Seller has not granted any option, right of first refusal, or similar right to purchase the Property to any other person or entity; (m) Seller has disclosed to Buyer in writing all known material defects, damages, or issues affecting the Property, including but not limited to structural defects, roof leaks, mechanical system failures, electrical issues, plumbing problems, drainage issues, environmental contamination, or any other condition that might materially affect the value or use of the Property; (n) Seller acknowledges and agrees that the discovery of any material defect, damage, or issue affecting the Property that was known to Seller and not disclosed to Buyer prior to Closing may, at Buyer's option, result in termination of this Agreement, return of all deposits to Buyer, and reimbursement to Buyer of all reasonable costs and expenses incurred in connection with this transaction; and (o) Seller has provided Buyer with a complete and accurate inventory of all personal property to be included in the sale.

7.2 Buyer's Representations and Warranties. Buyer represents and warrants to Seller as follows: (a) Buyer is a Public Trust Authority duly organized and validly existing under the laws of the State of Oklahoma; (b) Buyer has full power and authority to purchase the Property from Seller on the terms set forth herein; (c) The execution, delivery, and performance of this Agreement by Buyer have been duly authorized by all necessary action; (d) This Agreement constitutes the legal, valid, and binding obligation of Buyer, enforceable against Buyer in accordance with its terms; and (e) There are no pending or threatened litigation or administrative proceedings that would adversely affect Buyer's ability to perform its obligations under this Agreement.

7.3 Survival of Representations and Warranties. The representations and warranties set forth in this Section 7 shall survive the Closing.

8. COVENANTS

8.1 Seller's Covenants From the Effective Date until the Closing Date. Seller covenants and agrees as follows: (a) Seller shall maintain the Property in its current condition, reasonable wear and tear excepted; (b) Seller shall maintain all existing insurance policies on the Property; (c) Seller shall operate the golf course in the ordinary course of business consistent with past practice; (d) Seller shall not enter into any new leases, service contracts, or other agreements affecting the Property without Buyer's prior written consent; (e) Seller shall not grant any easements, liens, or encumbrances affecting the Property without Buyer's prior written consent; (f) Seller shall promptly notify Buyer of any material change in the condition of the Property or any notice of violation of laws, ordinances, regulations, or covenants affecting the Property; and (g) Seller shall promptly notify Buyer of any litigation, condemnation, or administrative proceeding threatened or initiated against the Property.

8.2 Buyer's Covenants From the Effective Date until the Closing Date. Buyer covenants and agrees as follows: (a) Buyer shall pursue in good faith all necessary approvals for its intended use of the Property; and (b) Buyer shall promptly notify Seller of any material change in circumstances that would adversely affect Buyer's ability to perform its obligations under this Agreement.

9. CASUALTY AND CONDEMNATION

9.1 Casualty. If, prior to Closing, the Property is damaged or destroyed by fire or other casualty, Seller shall promptly notify Buyer of such damage or destruction. If the cost to repair such damage or destruction exceeds ten percent (10%) of the Purchase Price (as determined by an independent insurance adjuster selected by the parties), Buyer may either (i) terminate this Agreement by written notice to Seller within ten (10) days after receipt of such notice or (ii) proceed to Closing, in which case Seller shall assign to Buyer all insurance proceeds payable with respect to such damage or destruction, plus credit Buyer with the amount of any deductible under Seller's insurance policy.

9.2 Condemnation. If, prior to Closing, any portion of the Property is taken or threatened to be taken by condemnation or eminent domain, Seller shall promptly notify Buyer of such taking or threatened taking. If such taking or threatened taking would materially affect Buyer's intended use of the Property or reduce the value of the Property by more than ten percent (10%) of the Purchase Price (as determined by an independent appraiser selected by the parties), Buyer may either (i)

terminate this Agreement by written notice to Seller within ten (10) days after receipt of such notice (ii) proceed to Closing, in which case Seller shall assign to Buyer all condemnation awards payable with respect to such taking.

10. DEFAULT AND REMEDIES

10.1 Seller's Default. If Seller fails to perform any of its obligations under this Agreement for any reason other than Buyer's default or the permitted termination of this Agreement by Seller or Buyer as provided herein, Buyer may, as its sole and exclusive remedy, either (i) terminate this Agreement by written notice to Seller, in which case the Buyer may recover from Seller Buyer's actual out-of-pocket expenses incurred in connection with this Agreement, not to exceed \$50,000, or (ii) seek specific performance of this Agreement.

10.2 Buyer's Default. If Buyer fails to perform any of its obligations under this Agreement for any reason other than Seller's default or the permitted termination of this Agreement by Seller or Buyer as provided herein, Seller may, as its sole and exclusive remedy, terminate this Agreement by written notice to Buyer.

11. MISCELLANEOUS

11.1 Notices. All notices required or permitted hereunder shall be in writing and shall be served on the parties at the addresses set forth in the introductory paragraph of this Agreement. Any such notices shall be either (i) sent by certified mail, return receipt requested, in which case notice shall be deemed delivered three (3) business days after deposit, postage prepaid, in the U.S. mail, (ii) sent by overnight delivery using a nationally recognized overnight courier, in which case it shall be deemed delivered one (1) business day after deposit with such courier, (iii) sent by personal delivery, in which case notice shall be deemed delivered upon delivery, or (iv) sent by email, in which case notice shall be deemed delivered upon receipt of confirmation of transmission of such email notice. The above addresses may be changed by written notice to the other party; provided, however, that no notice of a change of address shall be effective until actual receipt of such notice.

11.2 Entire Agreement; Amendment. This Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof, and supersedes all prior agreements, understandings, or negotiations between the parties. This Agreement may be amended only by a written instrument executed by both parties.

11.3 Assignment. Neither party may assign this Agreement without the prior written consent of the other party, which consent shall not be unreasonably withheld.

11.4 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Oklahoma, without giving effect to principles of conflicts of law.

11.5 Venue. Any action or proceeding arising out of this Agreement shall be brought in the courts of Grady County, Oklahoma, and each party consents to the jurisdiction of such courts.

11.6 Attorney's Fees. In the event of any litigation between the parties arising out of this Agreement, the prevailing party shall be entitled to recover its reasonable attorney's fees and costs from the non-prevailing party.

11.7 Time of Essence. Time is of the essence with respect to all provisions of this Agreement.

11.8 Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

11.9 Severability. If any provision of this Agreement is held to be invalid or unenforceable, such provision shall be struck and the remaining provisions shall be enforced.

11.10 No Waiver. No waiver of any provision of this Agreement shall be deemed a waiver of any other provision, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the party making the waiver.

11.11 No Third-Party Beneficiaries. This Agreement is for the sole benefit of the parties hereto and their permitted assigns, and nothing herein expressed or implied shall give or be construed to give any person or entity, other than the parties hereto and their permitted assigns, any legal or equitable rights hereunder.

11.12 Risk of Loss. Risk of loss or damage to the Property shall remain with Seller until Closing.

11.13 Further Assurances. Each party agrees to execute and deliver such additional documents and take such additional actions as may be reasonably necessary or desirable to carry out the provisions of this Agreement and the transactions contemplated hereby.

11.14 Effective Date. As used herein, the term "Effective Date" shall mean the date on which this Agreement is fully executed by both parties.

11.15 Headings. The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

11.16 Exhibits. All exhibits attached to this Agreement are incorporated herein by reference and made a part hereof.

11.17 Escrow Agent. The Escrow Agent shall act in accordance with the terms of this Agreement. The Escrow Agent shall not be liable to any party for any act or omission, except for bad faith, gross negligence, or willful misconduct, and the parties agree to indemnify and hold the Escrow Agent harmless from any claims, damages, losses, or expenses arising in connection with this Agreement.

11.18 Confidentiality. The parties agree to maintain the confidentiality of this Agreement and all information related to the transactions contemplated hereby to the fullest extent allowed by law. No public announcement, press release, or other disclosure regarding this Agreement or the transactions contemplated hereby shall be made prior to Closing without the prior written consent of both parties. The parties shall limit knowledge of this transaction to a need-to-know basis among their respective officials, employees, attorneys, and agents. Following Closing, any public

announcement, press release, or other disclosure regarding this Agreement or the transactions contemplated hereby shall be subject to the prior approval of the other party, which approval shall not be unreasonably withheld. Notwithstanding the foregoing, nothing herein shall prevent either party from making any disclosure required by law, including but not limited to disclosure required by the Oklahoma Open Records Act.

11.19 Water Rights At Closing. Seller shall execute and deliver to Buyer an Assignment of Water Rights in form and substance reasonably acceptable to Buyer, transferring to Buyer all water rights, water permits, water allocations, and water credits, if any, associated with the Property. Seller represents and warrants that all water rights associated with the Property are in good standing and that all required fees and assessments have been paid. Seller shall cooperate with Buyer after Closing to complete any administrative transfer processes required by applicable water authorities.

11.20 Brokerage. Each party represents and warrants to the other that no broker or agent is entitled to any commission or compensation in connection with this transaction. Each party shall indemnify and hold the other harmless from and against any claims arising out of any agreement or alleged agreement with any broker or agent by the indemnifying party. This provision shall survive the termination of the Agreement.

11.21 No Obligation to Maintain Current Use. Nothing in this Agreement shall obligate Buyer to continue operating the Property as a golf course following Closing. Buyer shall have the unrestricted right to use or develop the Property in any lawful manner, in accordance with applicable laws, zoning ordinances, and development regulations.

11.22 Joint Preparation. This Contract is to be deemed to have been prepared jointly by the parties hereto after arms-length negotiations, and any uncertainty or ambiguity existing herein shall not be construed against any party on the ground that one party or the other drafted some, or all, of this Contract or any related document.

[The remainder of this page is intentionally left blank.]

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date.

SELLER: Chickasha Golf and Country Club LLC, an Oklahoma limited liability company

By: _____

Jimmy Crews, Owner and Managing Member

STATE OF OKLAHOMA)
)
GRADY COUNTY)

Before me, a notary public in and for said county and state, on this _____ day of _____, 2025, personally appeared _____, to me known to be the identical persons who executed the within and foregoing instrument, and acknowledged to me that he is the Owner and Managing Member of the Chickasha Golf and Country Clubb LLC and that he has the legal authority to bind Chickasha Golf and Country Club LLC and that he has executed the same as his voluntary act and deed for the uses and purposes therein set forth.

My commission expires: _____

_____ Notary Public

CHICKASHA MUNICIPAL AUTHORITY

By: _____
Chairman

ATTEST:

(SEAL)

Date: _____

EXHIBIT A

Legal Description of the Property

ATTACHMENT "A"		Crafton Tull 235 Foothill Parkway, Suite 200 Olathe, KS 66061 913.767.4000 www.craftontull.com CA 102 (10/18) Rev. 12-2018
 Legal Description		
A tract of land situated within the East Half of the Southeast Quarter (E/2 SE/4) of Section Five (5), Township Six North (T6N), Range Seven West (R7W) of the Indian Meridian (IM), Grady County, Oklahoma, being more particularly described by metes and bounds as follows: BEGINNING at the Southeast corner of said SE/4, marked by a broken P-K nail found in place; thence S 89° 58' 25" W along the South line of said SE/4 a distance of 1319.82 feet to the Southwest corner of said E/2 SE/4, marked by a 1/2" Iron Pin found in place; thence N 00° 10' 54" W along the West line of said E/2 SE/4 a distance of 2066.39 feet; thence N 89° 49' 39" E a distance of 490.00 feet; thence N 00° 10' 54" W a distance of 580.00 feet to a point on the North line of said SE/4; thence N 89° 49' 39" E along said line a distance of 2.73 feet; thence S 00° 07' 07" E a distance of 155.00 feet; thence N 89° 49' 39" E a distance of 830.00 feet to a point on the East line of said SE/4; thence S 00° 07' 07" E along said line a distance of 2494.76 feet to the POINT OF BEGINNING. Said tract contains 3,085.988 Sq Ft or 0.07085 Acres, more or less.		
BASE COURSE BEARING = S 00° 07' 07" E EAST LINE E/2 SE/4 SECTION 5, T6N, R7W, IM TRACT EXHIBIT PROJECT NUMBER 0000 DATE: 9/19/2023 SCALE: 1" = 500' SHEET 2 OF 2		

EXHIBIT B

Inventory of Equipment, Machinery, Tools, and Personal Property

Item No.	Description	Quantity	Condition Rating
1	Gas-powered Golf Carts	30 (26 operational, 4 with issues)	☐ New ☒ Good ☐ Fair ☐ Poor
2	Limousine Golf Cart (gas-powered, longer style)	1	☐ New ☐ Good ☒ Fair ☐ Poor
3	18-foot Utility Trailer (with working lights, no title, bill of sale included)	1	☐ New ☐ Good ☐ Fair ☐ Poor
4	250-Gallon Gravity-Fed Gas Tanks	2	☐ New ☐ Good ☐ Fair ☐ Poor
5	Woods 14/15-foot Batwing Mower (tractor attachment)	1	☐ New ☐ Good ☐ Fair ☐ Poor
6	Nitrogen Fertilizer (34-0-0) - 600 lbs on pallet	1 pallet	☐ New ☐ Good ☐ Fair ☐ Poor
7	Sand Top Dresser (for leveling)	1	☐ New ☐ Good ☐ Fair ☐ Poor
8	Utility Cart (needs motor)	1	☐ New ☐ Good ☐ Fair ☒ Poor
9	20-Ton Hydraulic Bottle Press	1	☐ New ☐ Good ☐ Fair ☐ Poor
10	Water Pump (for grounds)	1	☒ New ☐ Good ☐ Fair ☐ Poor
11	John Deere E-Cut Hybrid (reel mower for golf course)	1	☐ New ☐ Good ☐ Fair ☐ Poor
12	Jacobsen Greens King 4 Plus	4 (3 operational, 1 for parts)	☐ New ☐ Good ☒ Fair ☐ Poor
13	Trade-in Mini Splits (in warehouse)	2	☐ New ☐ Good ☐ Fair ☐ Poor
14	Round Tables	10	☐ New ☐ Good ☐ Fair ☐ Poor
15	6-foot Rectangular Tables	3	☐ New ☐ Good ☐ Fair ☐ Poor
16	8-foot Rectangular Tables	3	☐ New ☐ Good ☐ Fair ☐ Poor
17	Banquet Chairs	100	☐ New ☐ Good ☐ Fair ☐ Poor
18	John Deere 3720	1	☐ New ☒ Good ☐ Fair ☐ Poor

19	5-foot Box Blade Attachment	1	☐ New ☐ Good ☐ Fair ☐ Poor
20	Cutter Attachment	1	☐ New ☐ Good ☐ Fair ☐ Poor
21	3-point V Blade	1	☐ New ☒ Good ☐ Fair ☐ Poor
22	John Deere Utility Vehicle (2-seater, gas-powered with sprayer)	1	☐ New ☐ Good ☒ Fair ☐ Poor
23	Spare Tires for John Deere Utility Vehicle	4	☐ New ☐ Good ☒ Fair ☐ Poor
24	Hydraulic Fluid Storage Tanks	2	☐ New ☐ Good ☐ Fair ☐ Poor
25	Stihl Weed Eaters	4	☐ New ☐ Good ☐ Fair ☐ Poor
26	Stihl Blowers	3	☐ New ☐ Good ☐ Fair ☐ Poor
27	ABB Control Module for Water Pump	1	☐ New ☐ Good ☐ Fair ☐ Poor
28	YardMax Tiller	1	☐ New ☐ Good ☐ Fair ☐ Poor
29	BlueBird Ground Maintenance Equipment with Small Utility Trailer	1	☐ New ☐ Good ☐ Fair ☐ Poor
30	John Deere E-Cut Hybrid (newer model)	1	☒ New ☐ Good ☐ Fair ☐ Poor
31	Reel Master with 10 Sets of Reels	2	☐ New ☐ Good ☐ Fair ☐ Poor
32	Jacobsen Greens King 4 Plus	4 (3 operational, 1 for parts)	☐ New ☐ Good ☒ Fair ☐ Poor
33	Toro Grass Cutter	1	☐ New ☐ Good ☐ Fair ☐ Poor
34	US General Toolbox (large, green)	1	☐ New ☐ Good ☐ Fair ☐ Poor
35	Storage Shelves	7	☐ New ☐ Good ☐ Fair ☐ Poor
36	Ryobi Power Tools	6	☐ New ☐ Good ☐ Fair ☐ Poor
37	Ryobi 40V Chargers	2	☐ New ☐ Good ☐ Fair ☐ Poor
38	Bayer Drills	Multiple	☐ New ☐ Good ☐ Fair ☐ Poor
39	DeWalt Charger	1	☐ New ☐ Good ☐ Fair ☐ Poor
40	The Andersons Grass Seeder/Spreader	1	☐ New ☐ Good ☐ Fair ☐ Poor

41	Pool Pilot Digital Soft Touch Water Filtration Systems	2	☒ New ☐ Good ☐ Fair ☐ Poor
42	250+ Gallon Propane Tank	1	☐ New ☐ Good ☐ Fair ☐ Poor
43			☐ New ☐ Good ☐ Fair ☐ Poor
44			☐ New ☐ Good ☐ Fair ☐ Poor
45			☐ New ☐ Good ☐ Fair ☐ Poor
46			☐ New ☐ Good ☐ Fair ☐ Poor
47			☐ New ☐ Good ☐ Fair ☐ Poor
48			☐ New ☐ Good ☐ Fair ☐ Poor
49			☐ New ☐ Good ☐ Fair ☐ Poor
50			☐ New ☐ Good ☐ Fair ☐ Poor

CHICKASHA

Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: Administration

Agenda Item No. 2.e.

AGENDA ITEM: Accept and ratify Resolution 2025-15R amending the Master Fee Schedule.

I. BACKGROUND/DESCRIPTION:

Increases of \$200 for the Annual Lake Leases for 2025-2026.

Per the terms of the agreement with Waste Connections, the City of Chickasha will have a fee adjustment beginning on July 1, 2025.

II. RECOMMENDED ACTION:

Accept and ratify Resolution 2025-15R amending the Master Fee Schedule.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: June 16, 2025	(From)		

V. ATTACHMENTS:

1. Res. 2025-15R Master Fee Schedule
2. FY25-26 Fee Schedule

RESOLUTION NO. 2025-15R

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF CHICKASHA, GRADY COUNTY, STATE OF OKLAHOMA, ESTABLISHING A MASTER FEE SCHEDULE FOR SERVICE FEES FOR CITY DEPARTMENTS, AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, the Mayor and Council of the City of Chickasha, Grady County, Oklahoma, have determined that it is necessary to establish a master fee schedule for services that are provided to our citizens, and

WHEREAS, the fee in the attached Exhibit "A" shall take effect on the date of adoption of this Resolution notwithstanding any provision to the contrary, and

WHEREAS, any existing fee not included in this Resolution or amendments thereafter shall remain in full force and effect according to its specific authorization, whether by Resolution, Ordinance, or State Statutes, and

WHEREAS, the Mayor and Council shall adopt revisions and amendments from time-to-time as needed, and

NOW, THEREFORE, BE IT RESOLVED By the Mayor and Council, City of Chickasha, Grady County, Oklahoma, establish a master fee schedule for services provided to our citizens.

ADOPTED AND APPROVED on 16th day of June 2025.

Zachary Grayson, Mayor

ATTEST:

Susan M. McDaniel, CMC - City Clerk

(SEAL)

ALL DEPARTMENT FEES

All Department Fees	
Returned Check Fee	\$30.00
Insufficient Draft Fee	\$30.00
Website Transaction Fee	Pass through to Customer
Copy Fee	\$.25
Kiosk	
Cash, Check or Credit Card Fee	Pass through to Customer

ADMINISTRATION

ADMINISTRATION	
Itinerate Vendor Permit	\$27.50
Open Records Request - copy	\$.25/page
Certified Copy	\$1.00/page

AIRPORT

Hangar Rates	
North Hangar #1	
Single Engine Aircraft	\$150.00
Twin & Jet Engine Aircraft	\$280.00
South Hangar #1	
Single Engine Aircraft	\$150.00
Twin & Jet Engine Aircraft	\$280.00
Hangar #3	
Single Engine Aircraft	\$115.00
Twin & Jet Engine Aircraft	\$140.00
8 Unit T-Hangar	
\$170.00, Regardless of size of Aircraft	
10 Unit T-Hangar	
\$350.00 per month Regardless of size of Aircraft	
Private Box Hangar	
\$0.22 Per Square Foot	
Hangar 3A	
\$900.00/Month	

Hangar 4	
\$600.00/Month	
Fuel Flowage Fee	
0.10/Gallon	
Service	Rate
Fuel**	50% Markup
City Manager may authorize special rates, promotions, and waivers	

CEMETERY

LOT PRICES	
SERVICE	RATE
Adult	\$750.00
Infant	\$425.00
Half Plot Rosehill Only (Cremains Only)	\$675.00
Deed Filing	\$18.00

OPENING AND CLOSING- WEEKDAY	
SERVICE	RATE
Adult	\$650.00
Infant (40'x24")	\$350.00
Cremains	\$375.00

OPENING AND CLOSING- WEEKEND	
SERVICE	RATE
Adult	\$800.00
Infant (40'X24")	\$375.00

City of Chickasha Annual Fee Schedule

Cremains	\$400.00
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ADDITIONAL FEES	
SERVICE	RATE
Cremains set in Headstone	\$275.00
Disinterment (Plus appropriate interment fee, if necessary)	\$1,200.00
Test Dig	\$250.00
Movement of Monument	\$35.00 per foot
Setting Concrete Box	\$25.00
Marker per Each (Flat Stone)	\$16.50
Lot Markers per SET (Corner Stone)	\$12.00
Monument per Each (Raised Stone)	\$28.00
Memorial per Each (Raised Stone)	\$28.00
Flat Stone Markers provided by the US Government/ Veterans Administration	No Charge
Funerals before 8:00am or after 4:00pm	\$550.00

COMMUNITY DEVELOPMENT

BUILDING PERMITS	
SERVICE	RATE
Residential New Construction	\$0.20/sq ft
Residential Remodel	\$0.18/sq ft
Commercial/ Industrial New Construction	\$0.22/sq ft
Commercial/ Industrial Remodel	\$0.20/sq ft
Minimum Residential Building Permit	\$55.00 + State Fee
Minimum Commercial Building Permit	\$110.00 + State Fee
Storm Shelter Permit	\$55.00 + State Fee
Misc. Permits not Covered	\$85.00 + State Fee
Any work started without proper permits	3x Permit Fee
Development Inspection Fee	1% of the cost of infrastructure development over \$50,000.00
Building Code Violation Citation	\$200.00 + Court Costs

PLUMBING PERMITS	
SERVICE	RATE
1 st Fixture	\$55.00
Each Additional Fixture	\$12.00

City of Chickasha Annual Fee Schedule

Sewer Line Tap Fee (Inspector to be Present when Saddle Installed)	\$85.00 + State Fee
Minimum Residential Plumbing Permit Fee	\$55.00 + State Fee
Minimum Commercial Plumbing Permit Fee	\$110.00 + State Fee

ELECTRICAL PERMITS	
SERVICE	RATE
Residential New Construction	\$0.55/ Amp of Electrical Service
Residential Remodel	\$0.55/ Amp of Electrical Service
Commercial/ Industrial New Construction	\$1.00/ amp of Electrical Service
Commercial/ Industrial Remodel	\$1.00/ amp of Electrical Service
Reconnect Inspection Fee	\$55.00 + State Fee
Minimum Residential Electrical Permit Fee	\$55.00 + State Fee
Minimum Commercial Electrical Permit Fee	\$110.00 + State Fee

FIRE PERMITS	
SERVICE	RATE
Fire Alarm	\$150.00
Fire Sprinkler	\$250.00

MECHANICAL PERMITS	
SERVICE	RATE
Gas Piping Systems	\$55.00 + most recently adopted State Fee
Gas Pressure Test	\$55.00 + most recently adopted State Fee
Central Heat Unit < 120,000 BTU	\$55.00 + most recently adopted State Fee
Central Heat Unit > 120,000 BTU (includes rtus)	\$110.00 + most recently adopted State Fee
Residential Hot Water Heater	\$55.00 + most recently adopted State Fee
Commercial Hot Water Heater	\$110.00 + most recently adopted State Fee
Air Conditioners<= 5 Tons	\$55.00 + most recently adopted State Fee
Air Conditioners 6 to 20 Tons	\$77.00 + most recently adopted State Fee
Mini Splits 3 Control Heads or Less	\$55.00 + most recently adopted State Fee
Mini Splits Each Additional Head	\$10.00 each
Refrigeration Units	\$110.00 + most recently adopted State Fee
Exhaust System< 120 cfm	\$12.00 each
Exhaust Systems > 120 cfm	\$44.00 each
Minimum Residential Mechanical Permit Fee	\$55.00 + most recently adopted State Fee
Minimum Commercial Mechanical Permit Fee	\$110.00 + State Fee

PLAN REVIEW	
SERVICE	RATE
Residential	\$110.00
Commercial / Industrial	\$220.00
Commercial/ Industrial over 5,000 SQ FT.	\$0.04 / SQ. FT.
Plan Review Consultation	160% of Fee
Contracted Plan Review	160% of Fee
Engineering Plan Review	160% of Fee

CERTIFICATE OF OCCUPANCY	
SERVICE	RATE
Residential	\$44.00
Commercial/ Industrial	\$88.00

DEMOLITION PERMITS	
SERVICE	RATE
Residential Single Family	\$65.00
Residential Multi- Family Fee Per Unit	\$44.00
Residential Accessory Building	\$33.00

City of Chickasha Annual Fee Schedule

Commercial/ Industrial Less Than 10,000 SQ. FT.	\$110.00
Commercial / Industrial Over 10,000 SQ. FT.	\$220.00

HOUSE MOVING PERMITS	
SERVICE	RATE
Each Building	\$310.00

SIGN PERMITS	
Service	RATE
New Panel For Existing on Premise Sign	\$55.00
On Premise Sign Wall Mount	\$110.00
On Premise Sign Ground Mount	\$110.00
On Premise Pole Sign	\$110.00
Off Premise Sign	\$220.00
Temporary Banner or Flag (Max 30-Day Display)	\$55.00
Special Event Sign	\$25.00 Each

MISCELLANEOUS PERMITS	
SERVICE	RATE

City of Chickasha Annual Fee Schedule

All Community Development Re-Inspection Fees	\$66.00
OMMA Compliance Inspection	\$1,000.00
ABLE Compliance Inspection	\$150.00
Curb Cut/ Driveway Permit	\$55.00
Residential Roof Installation	\$33.00
Commercial Roof Installation<Than 5,000 SQ.FT.	\$110.00
Commercial Roof Installation > Than 5,000 SQ.FT.	\$220.00
Siding Installation/ Windows	\$55.00
Lawn Sprinkler Systems and Plumbing	\$55.00
Residential Fence Permit	\$33.00
Commercial Fence Permit	\$55.00
Swimming Pool Permit (Above Ground)	\$55.00 + most recently adopted State Fee
Swimming Pool Permit (In Ground)	\$110.00 + most recently adopted State Fee
Documents Filed at Courthouse	\$25.00 for First Page
Snow Cone Stand	\$55.00
Donation Boxes per Box	\$110.00
Mobile Food Vendor (2 Day Permit)	\$55.00
Satellite Food Truck (with local anchor restaurant based within City Limits)	\$55.00
Mobile Food Vendor Permit	\$150.00

City of Chickasha Annual Fee Schedule

Carnivals	Sect 12-45 and Certificate of insurance required \$110.00 per Day
Power driven vehicle food peddlers	Sect 12-45 and OSBI Certified Background\$55.00 per year
Revocable Permit Non-Franchise	\$110.00 + \$5.50 per Rod
Revocable Permit Franchise Holder	\$110.00
Garage Sale Permit	\$5.50 per day or \$10.00 for a two (2) day permit

OPERATORS LICENSE LICENSES ARE EFFECTIVE JULY 1 TO JUNE 30 OF CURRENT FISCAL YEAR	
SERVICE	RATE
Auctioneer (not prorated)	\$55.00
Childcare	\$35.00
Gun Range Annual License	\$57.75
Tree Trimmers Annual License	\$66.00
RV Park Annual License	\$55.00 + \$2.00 per RV Space
Mobile Home Park License	\$55.00 + \$2.00 per Mobile Home Site
Pawnbrokers	\$35.00
Salvage Yard	\$55.00
Second Hand Store	\$55.00

City of Chickasha Annual Fee Schedule

Security Company License without firearm	\$55.00 plus Certificate of insurance of \$10,000 Expiration 1 year from date of issuance
Security Company License Renewal without firearm	\$22.00 plus Certificate of insurance of \$10,000 Expiration 1 year from date of issuance
Security Company License w/firearm	\$85.00 plus Certificate of insurance of \$10,000 Expiration 1 year from date of issuance
Security Company License Renewal w/firearm	\$55.00 plus Certificate of insurance of \$10,000 Expiration 1 year from date of issuance
Solicitor Pedestrian	\$27.50 per day application needed
Taxicab Driver	\$3.30 per year
Taxicab Operator	\$110.00 annual fee
Taxicab Vehicle	\$16.50 each
Transient Merchant	\$220.00 per day
Tattoo Parlor	\$1,100.00 Annually
Body Piercing Parlor	\$275.00 Annually
Tattoo Artist	\$275.00 Annually
Body Piercing Artist	\$55.00 Annually
Wrecker & Towing	\$11.00 Annually
Wrecker Unit	\$5.50 per unit

NEW CITY REGISTRATION OF STATE TRADE LICENSE LICENSES ARE EFFECTIVE JULY 1 – JUNE 30 OF CURRENT FISCAL YEAR	
SERVICE	RATE
PLUMBING, ELECTRICAL & MECHANICAL	
Contractor	\$330.00
Journeyman	\$66.00
Apprentice	\$25.00
OTHER CONTRACTORS	
General Contractor	\$85.00
Commercial Roofing Contractor	\$110.00
Residential Roofing Contractor	\$55.00
Fire Alarm (State License Required)	\$55.00

Fire Sprinkler (State License Required)	\$55.00
Fire Extinguisher Service	\$55.00
RENEWAL CITY REGISTRATION OF STATE TRADE LICENSE LICENSES ARE EFFECTIVE JULY 1 – JUNE 30 OF CURRENT FISCAL YEAR	
SERVICE	RATE
PLUMBING, ELECTRICAL & MECHANICAL	
Contractor	\$85.00
Journeyman	\$66.00

City of Chickasha Annual Fee Schedule

Apprentice	\$25.00
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LIVESTOCK AND FOWL PERMITS	
Zoning Special Exception	\$500.00
Fowl Permit	\$35.00
Pig Permit	\$35.00
Livestock	\$35.00

ZONING RELATED PERMITS	
SERVICE	RATE
Variance Applications	\$500.00
Use on Review Applications	\$500.00
Rezoning Application	\$500.00
Revocable Permit	\$200.00
Zoning Verification Letter	\$150.00
Road and Alley Closure	\$500.00

ZONING RELATED PERMITS - SUBDIVISION	
SERVICE	RATE
Short Form Plat	\$150.00

City of Chickasha Annual Fee Schedule

Preliminary Plat-Two Acre Development or Greater	\$500.00
Preliminary Plat-Less Than Two Acre Development	\$415.00
Final Plat-Two Acre Development or Greater	\$600.00
Final Plat-Less Than Two Acre Development	\$550.00
Administrative Lot Split	\$150.00

FLOODPLAIN FEES	
SERVICE	RATE
Commercial/Industrial Floodplain Application Review	\$415.00
Commercial / Industrial Floodplain Development Permit Fee	\$165.00
Commercial / Industrial Floodplain Inspection Fee	\$85.00
New Residential Construction Floodplain Application Review	\$415.00
New Residential Construction Development Permit Fee	\$165.00
New Residential Construction Floodplain Inspection Fee	\$85.00
Existing Residential Construction Floodplain Application Review	\$165.00

City of Chickasha Annual Fee Schedule

Existing Residential Construction Floodplain Development Permit Fee	\$85.00
Existing Residential Construction Floodplain Inspection Fee	\$55.00
New Residential Accessory Structures Floodplain Application Review	\$85.00
New Residential Accessory Structures Floodplain Development Permit Fee	\$85.00
New Residential Accessory Structures Floodplain Inspection Fee	\$55.00

ENERGY SYSTEMS	
SERVICE	RATE
Wind Energy Commercial	\$415.00
Wind Energy Residential	\$85.00
Solar Energy Commercial	\$1,200.00
Solar Energy Residential	\$500.00

OILWELL DRILLING PERMIT	
SERVICE	RATE
New Oilwell Drilling Permit	\$10,000.00
Workover Rig on Existing Well Site	\$5,500.00

City of Chickasha Annual Fee Schedule

Re-Entry Permit Fee	\$5,500.00
Oil Well Permit Renewal	\$500.00

CITY ALCOHOL BEVERAGE LICENSE LICENSES ARE EFFECTIVE APRIL 1 TO MARCH 31 EACH YEAR	
RATE	
Following Services 100% of most recently adopted State Fee	
SERVICE	
Certificate of Compliance Application	Annual Special Event
Brewer	Quarterly Special Event
Small Brewer	Hotel Beverage
Distiller	Airline/Railroad Beverage
Winemaker	Agent
Oklahoma	Employee Restaurant and Bar
Rectifier	Employee C -Store
Wine and Spirits Wholesaler	Industrial
Beer Distributor	Carrier
Retail Spirits	Private Carrier
Retail Wine	Bonded Warehouse
Retail Beer	Storage

City of Chickasha Annual Fee Schedule

Mixed Beverage Initial	Nonresident Seller License or Manufacturer's
	Manufacturers Agent
Mixed Beverage/Caterer Combination	Sacramental Wine Supplier
On-Premises Beer and Wine	Charitable Auction
	Charitable Alcoholic Beverage
Bottle Club	Winemaker Self-Distribution
	Annual Public Event
Caterer	One-Time Public Event
	Small Brewer Self-Distribution
	Brewpub
	Brewpub Self-Distribution

CODE COMPLIANCE	
SERVICE	RATE
Admin Fee	\$300.00
Abatement Fee	\$150.00
Code Enforcement Citation	\$200.00 + Court Costs

EMS

EMS	
SERVICE	RATE
Advanced Life Support 1 (ALS1)	\$1,800.00
Advanced Life Support 2 (ALS2)	\$2,000.00
Advanced Life Support (ALS) Non-Emergency	\$1,200.00
Basic Life Support (BLS)	\$1,200.00
Basic Life Support (BLS) Non-EMERGENCY	\$1,000.00
Mileage	\$20.00 per mile
Emergency Call with Specialized Care and No Transport	\$150.00 (I.E. Diabetic Wakeup)
Lift Assist without Transport	\$82.50 Outside City
Outside EMS Annual Inspection	\$5,000.00

HAZMAT	
SERVICE	RATE
Leaks from Damage to Low-Pressure Natural Gas Lines	\$275.00 Plus Actual Costs Incurred
Small Fuel Spills of Less Than 20 Gallons	\$275.00 Plus Actual Costs Incurred
All Other Hazardous Materials Incidents	-

City of Chickasha Annual Fee Schedule

Initial Response Inside City Limits	\$550.00
Initial Response Outside the City Limits	\$2,750.00
Each Responding Vehicle	\$220.00/hr with 2 hr Minimum (Billed in 15 Minute Increments)
Equipment and Supplies	Actual cost
Contract Labor or Materials	Actual cost

INSPECTIONS	
SERVICE	RATE
First Inspection	No Charge
Second and Subsequent Inspections	\$110.00 per Site Visit

FINANCE

SERVICE	RATE
Utility Application Fee	\$20.00
Transfer Fee	\$5.00
Request Re-read/Meter Check	\$10.00
Stolen Water Fee	\$400.00

LAKE CHICKASHA

ONE DAY ACTIVITY PERMITS (Must obtain permit for each activity)	
Fishing, Boating, Vehicle, Equine, Golf Cart or Personal Watercraft	\$10.00

OTHER PERMITS		
SERVICE	SINGLE RATE	FAMILY RATE (2 TO 5 PEOPLE)
Vehicle Fees, & Golf Cart Permit (Must be at least 16 Years of age and have valid driver licenses to operate golf cart on roadways)	\$40.00 Annual Per Vehicle and Golf Cart/UTV	N/A
Motorized Watercraft Fees	\$40.00 Annual	N/A
Fishing Permit (Age 17-64)	\$40.00 Annual	\$95.00
Equine Permit	\$40.00 Annual	\$95.00
Primitive Camping	\$15.00 per night	SAME
Full Hook Up Camping	\$25.00 per night	SAME
Combo: Fishing & Motorized Watercraft Yearly	\$75.00	\$110.00
Combo: Fishing & Motorized Watercraft Day	\$15.00	\$30.00
Dock	\$1400.00	SAME
CW-WC Shore	\$1400.00	SAME
CW-WC Non-Shore	\$1000.00	SAME
Cabin	\$1900.00	SAME

City of Chickasha Annual Fee Schedule

Trailer	\$1900.00	SAME
Sanitation	\$165.00	SAME
Water	\$300.00	SAME

PARKS & RECREATION

FACILITY RENTALS	
SERVICE	RATE
Pavilion Rental	\$15.00/Hour
Community Buildings - Shannon Springs Bathhouse and Washita Valley Park	\$30 per hour
Amphitheater	\$30.00 for 3 Hours \$55 for 6 Hours, \$80.00 for 9 Hours \$105.00 for 12 Hours
Security/Damage Deposit (Community Buildings)	\$125.00 Refundable
Special Event Permit Fee	\$330.00
City Manager may approve special rates, promotions or waivers for Facility Rentals	

REPLACEMENT CHARGES	
SERVICE	RATE
Panasonic Projector	\$1349.00**
Samsung DVD Player	\$99.99**
Pyle Speakers	\$250.00 each**
Surge Protectors	\$38.99 each**
CBI Speaker Cable	\$159.99**
Y Cable 3.5 mm to dual 1/4	\$79.95**
Speaker Cable	\$89.99**

City of Chickasha Annual Fee Schedule

Mixer and power supply	\$130.99**
Yellow extension cord	\$69.99**
Blower (to fill up screen with air)	\$252.99**
Screen	\$295.45**
The deposit will be refunded once the item is returned in the same condition. Failure to return the item or returning the item damaged will result in complete forfeiture of the deposit. By checking out the items, you agree to these terms.	

POLICE DEPARTMENT

ANIMAL CONTROL	
SERVICE	RATE
Adoption	\$45.00
Impound Fee	\$30.00
Daily Boarding Fee	\$10.00
Surrender Fee	\$55.00
City Tag - Altered	\$5.00
City Tag - Unaltered	\$10.00
Potentially D/V Registration	\$125.00
Kennel License Fee	\$100.00
Rodent License	\$35.00
Small-Medium Trap Deposit	\$85.00
Large Trap Deposit	\$170.00
Deceased Animal Pickup	\$45.00
Deceased Animal Drop Off	\$30.00

MUNICIPAL COURT	
SERVICE	RATE
Admin Fee	\$12.00

City of Chickasha Annual Fee Schedule

Costs	\$18.00
Technology Fee	\$40.00
State Fees** Set by Oklahoma Statutes 20 O.S. § 1313	\$30.00
Total Fees & Costs per Citation including Fees Required and Sent to State	\$100.00
Deferral Fee	\$55.00

POLICE RECORDS	
SERVICE	RATE
Per Page	\$0.25
Certified Copy/Page	\$3.00
Fax Report	\$7.00
Email Report	\$7.00
Mail Report	\$7.00
CD/DVD Recording	\$7.00
Blue Ray Disc & Thumb Drive	\$12.00
Fingerprints per Card	\$7.00
Research	\$20.00 per Hour + Cost of Producing Record. One-Hour Minimum.
Arrest Impound Fee	\$100.00

City of Chickasha Annual Fee Schedule

False Alarms	1st 2 nothing, 3+ = \$300.00 each
	** Set by Oklahoma Statutes 510.S. §24A.5

PUBLIC LIBRARY

SERVICE	RATE
Replacement Fee	Cost + \$5.00
Copy/Printing	\$0.25 per page for black & white \$1.00 per page for color
Send/Receive a FAX	\$1.00 per page
Late Fees for Material	\$0.20 per day per item
Persons who Reside Outside of Grady County May Purchase a Borrower's Card	\$25.00 annually

MEETING ROOM RENTAL	
4 Hours	\$50.00
8 Hours	\$100.00

PUBLIC WORKS

TAP FEES	
SERVICE	RATE
¾ "	Cost + 10%
1"	Cost + 10%
1.5"	Cost + 10%
2"	Cost + 10%
3"	Cost + 10%
4"	Customer hires out, then \$150 inspection fee
6"	Customer hires out, then \$150 inspection fee
All Others	Customer hires out, then \$150 inspection fee
MXU	Cost + 10%
Meter Box and Lid	Cost + 10%

CONES & BARRICADES	
Customer rents from local business & submits traffic control plan to PW for approval.	\$25.00

BULKY ITEM DISPOSAL INCLUDING LIMBS: Drop-off at PW	
Pickup Bed (Approximately 5 cubic yards)	\$15.00
Pickup Above bed & below Cab (Approximately 10 cubic yards)	\$20.00

City of Chickasha Annual Fee Schedule

Pickup – Above Cab of Truck (Approximately 15 cubic yards)	\$25.00
Small Trailer Load	\$50.00
Large Trailer Load	\$125.00

FIRE HYDRANTS	
Installation	Cost + 10%

SPORTS COMPLEX

SERVICE	RATE
Deposit	\$300.00 \$50.00 retainer, \$250 Refundable
Field Rental: Baseball	\$250.00 per field per day. Games played after midnight are subject to a \$25.00/game fee. Lights are included in fee
Field Rental: Softball	\$250.00 per field per day. Games played after midnight are subject to a \$25.00/game fee. Lights are included in fee
Field Rental: Football/Soccer/Cross Country Course	\$300.00/ Field/ Day This rate includes painting, use of down markers, & soccer goals
Lights for Football Only	\$30.00/Day per Field (Football/Soccer Fields Only)
Quick-Dry	\$30 a Bag
++ Cancellation of a Tournament ++	90 – 60 days notice – Full Refund 59-31 days notice – Half (½)Refund 30 days or less notice –No Refund
City Ran Tournament Gate Fee	\$8.00 for Adults \$4.00 for Students (ages 7-17)
Practice Fee	\$35.00/weekday for Locals \$45.00/weekday for people 25 miles outside of Chickasha For lights add \$10.00
City Manager may authorize special rates, promotions, and waivers	

UTILITY BILLING

WATER RATES	
SERVICE	RATE
Bulk Water	\$7.25 per 1,000 Gallons (\$7.25 Minimum) + \$10.00/ Per Trip Charge

MONTHLY WATER RATES INSIDE CITY LIMITS	
SERVICE	RATE
Residential, Commercial, Irrigation Meters and No Sewer	
0-2,000 Gallons (Inside City Limits)	\$23.50 Minimum
2,001-25,000 Gallons (Inside City Limits)	\$3.50 per 1,000 Gallons
25,001-50,000 Gallons (Inside City Limits)	\$3.65 per 1,000 Gallons
50,001-75,000 Gallons (Inside City Limits)	\$4.25 per 1,000 Gallons
75,001-100,000 Gallons (Inside City Limits)	\$4.55 per 1,000 Gallons
100,001 Gallons and Above (Inside City Limits)	\$5.05 per 1,000 Gallons
MONTHLY WATER RATES OUTSIDE CITY LIMITS	
0-2,000 Gallons (Outside City Limits)	\$47.00 Minimum
2,001-25,000 Gallons (Outside City Limits)	\$7.00 per 1,000 Gallons
25,001-50,000 Gallons (Outside City Limits)	\$7.30 per 1,000 Gallons
50,001-75,000 Gallons (Outside City Limits)	\$8.50 per 1,000 Gallons

City of Chickasha Annual Fee Schedule

75,001-100,000 Gallons (Outside City Limits)	\$9.10 per 1,000 Gallons
100,001 Gallons and Above (Outside City Limits)	\$10.10 per 1,000 Gallons
Industrial Bulk User	
0-2,000 Gallons	\$20 minimum
2001-9999999999 Gallons	\$4.00 per 1,000 Gallons
Fire Hydrant Meter	
0-9999999999 Gallons	\$7.25 per 1,000 Gallons
Ft Cobb Water	
Flat Charge	\$10.18

SEWER RATES	
SERVICE	RATE
Residential & Commercial	
Basic Sewer Rates (Inside City Limits)	\$9.60 plus \$4.75 per 1,000 Gallons
Basic Sewer Rates (Outside City Limits)	\$19.20 plus \$9.50 per 1,000 Gallons

FEES	
SERVICE	RATE
Late Penalty	10% of Bill
Disconnect Fee	\$50.00

City of Chickasha Annual Fee Schedule

Administrative Fee (Formerly tamper fee)	\$100.00
Residential Deposit	\$100.00
Commercial Deposit	\$300.00
Landlord Bulk Deposit	\$300.00
Clean and Show	\$50.00
Hydrant Meter Deposit	\$1500.00
Meter Test Fee Sizes $\frac{5}{8}$ " to 3" #	\$275.00
Meter Test Fee Sizes 4" to 6" ^	\$525.00
Monthly Meter Fee (Inside City Limits)	\$1.10
Monthly Meter Fee (Outside City Limits)	\$2.20
NSF Check	\$30.00
EMS Subscriber Fee	\$4.40
Limb Pick Up	\$55.00 up to 4 cubic yards
Limb Pick Up	\$7.70 per cubic yard in excess of 4 cubic yards
Traffic Cone Rental Fee	\$55.00 per event
Barricade Rental Fee	\$55.00 per event

SOLID WASTE	
	RATE

City of Chickasha Annual Fee Schedule

Commercial Polycart	\$42.00
Commercial Polycart Extra Pickup	\$42.00
Residential Trash/Recycle	\$24.00 per month
Residential Trash/Recycle with House Side Service	\$32.00
Residential Trash/Recycle Extra Pickup	\$20.00
Extra Trash Cart	\$10.00 per Month
Extra Recycle Cart	\$9.00 per Month
Lock Mech	\$91.00
Large / Bulky Items (inside city limits)	\$20.00 per Estimated Cubic Yard

SOLID WASTE CONTINUED	
3 YD x 1	\$76.00
3 YD x 2	\$135.00
3 YD x 3	\$188.00
3 YD x 4	\$250.00
3 YD x 5	\$370.00
3 YD x 6	\$460.00
3 YD Extra Pickup	\$76.00

City of Chickasha Annual Fee Schedule

4 YD x 1	\$108.00
4 YD x 2	\$193.00
4 YD x 3	\$298.00
4 YD x 4	\$391.00
4 YD x 5	\$490.00
4 YD x 6	\$558.00
4 YD Extra Pickup	\$108.00
6 YD x 1	\$126.00
6 YD x 2	\$230.00
6 YD x 3	\$331.00
6 YD x 4	\$394.00
6 YD x 5	\$522.00
6 YD x 6	\$610.00
6 YD Extra Pickup	\$126.00
SOLID WASTE CONTINUED	
8 YD x 1	\$140.00
8 YD x 2	\$273.00
8 YD x 3	\$462.00

City of Chickasha Annual Fee Schedule

8 YD x 4	\$538.00
8 YD x 5	\$655.00
8 YD x 6	\$739.00
8 YD Extra Pickup	\$140.00

CHICKASHA

Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: Finance

Agenda Item No. 2.f.

AGENDA ITEM: Accept and ratify Resolution 2025-16R amending the FY 24/25 Budget.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Accept and ratify Resolution 2025-16R amending the FY 24/25 Budget.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

Fund	Account	Amount
(To)		
FUND	ACCOUNT	AMOUNT
(From)		

Meeting Date:
June 16, 2025

V. ATTACHMENTS:

1. Res. 2025-16R Budget Amendment
2. Exhibits

RESOLUTION NO. 2025-16R

**A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF CHICKASHA,
GRADY COUNTY, STATE OF OKLAHOMA, AMENDING THE CITY OF
CHICKASHA ADOPTED BUDGET FOR FISCAL YEAR 2024-25**

WHEREAS, pursuant to the Oklahoma Municipal Budget Act, 11 O.S. Section 17-201 through 17-216, all steps in the process of developing the City's Budget for FY 2024-25 were followed, culminating the adoption of the Budget by the Mayor and Council on June 17, 2024; and

WHEREAS, Sections 17-215 and 17-216 of the Oklahoma Municipal Budget Act specifically authorizes amendments to the adopted budget; and

WHEREAS, the Mayor and Council have determined a need to amend the adopted budget; and

NOW THEREFORE, be it resolved by the Mayor and Council of the City of Chickasha, Grady County, Oklahoma, that:

Section 1. The adopted FY 2024-25 Budget for the CHICKASHA MUNICIPAL AUTHORITY Fund #31 is hereby amended and attached hereto as "Exhibit A"; and

FY 2024-25 Budget for the ECONOMIC DEVELOPMENT DEDICATED SALES TAX Fund #26 is hereby amended and attached hereto as "Exhibit B".

This Resolution shall be in full force and effect from and after the passage and approval by the Mayor and Council of the City of Chickasha, Grady County, Oklahoma.

Adopted this 16th day of June 2025.

Zachary Grayson, Mayor

ATTEST:

Susan M. McDaniel, CMC - City Clerk

(SEAL)

Exhibit A

CITY OF CHICKASHA

BUDGET AMENDMENT FORM

<u> X </u>	INCREASE	<u> </u>	DECREASE	<u> </u>	TRANSFER
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Fund: CHICKASHA MUNICIPAL AUTHORITY (CMA)
Fund No.: 31
Amendment No.: 6
Fiscal Year: 2024-2025

Account #	Account Name	Estimated Revenue(s)		Appropriation(s)	
		Increase	Decrease	Increase	Decrease
530-6450-026	LAND ACQUISITION			1,600,000.00	
4700-001	AVAILABLE FUND BALANCE	700,000.00			
4500-026	TRANSFER IN-ED-DST	900,000.00			
TOTALS		1,600,000.00	-	1,600,000.00	-

EXPLANATION:

Budget Revision(s) to accommodate purchase of Chickasha Golf and Country Club Property

Approved by City Manager:

6/11/2025 James D. Cruse
Date Signature

Approved by City Council:

Date Signature

Exhibit B

CITY OF CHICKASHA

BUDGET AMENDMENT FORM

☒ INCREASE	☐ DECREASE	☒ TRANSFER
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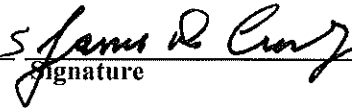
Fund: ECONOMIC DEVELOPMENT-DEDICATED SALES TAX
Fund No.: 26
Amendment No.: 2
Fiscal Year: 2024-2025

Account #	Account Name	Estimated Revenue(s)		Appropriation(s)	
		Increase	Decrease	Increase	Decrease
526-5350-006	INCENTIVES				812,109.00
526-5500-031	TRANSFER OUT-CMA			812,109.00	
4700-001	AVAILABLE FUND BALANCE	87,891.00			
526-5500-031	TRANSFER OUT-CMA			87,891.00	
TOTALS		87,891.00	-	900,000.00	812,109.00

EXPLANATION:

Budget Revision(s) to accommodate purchase of Chickasha Golf and Country Club property

Approved by City Manager:

12/11/2025 
Date Signature

Approved by City Council:

Date Signature

CHICKASHA

Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: City Clerk

Agenda Item No. 4.a.

AGENDA ITEM: Discussion, consideration, and possible action to adopt or reject Resolution 2025-14R on the proposed budget for the Chickasha Municipal Authority for Fiscal Year 2025-2026 as proposed at the public hearing on the budget held June 16, 2025, and possible approval or rejection of any amendments proposed and considered by the Board of Trustees.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Approve Resolution 2025-14R, accepting the proposed Budget as presented at the June 16, 2025 Public Hearing.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: June 16, 2025	(From)		

V. ATTACHMENTS:

1. Res. 2025-14R 2025-26 Budget Resolution

RESOLUTION NO. 2025-14R

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF CHICKASHA, GRADY COUNTY, STATE OF OKLAHOMA, ADOPTING THE BUDGET FOR FISCAL YEAR 2025-26 TO FUND THE VARIOUS OPERATIONS OF THE CITY OF CHICKASHA, THE CHICKASHA MUNICIPAL AUTHORITY, THE CHICKASHA MUNICIPAL AIRPORT AUTHORITY, AND THE DEBT SERVICE AND SPECIAL FUNDS OF THE CITY OF CHICKASHA, OKLAHOMA

WHEREAS, pursuant to the Oklahoma Municipal Budget Act, 11 O.S. Section 17-201 through 17-216, the proposed budget for the City of Chickasha, the Chickasha Municipal Authority, the Chickasha Municipal Airport Authority, and the Debt Service and Special Funds of the City of Chickasha was prepared by the City Manager and submitted to the City Council thirty (30) days prior to the beginning of the fiscal year; and

WHEREAS, Notice of a Public Hearing on the budget was given on June 12, 2025, and subsequent thereto a public hearing was held by the City Council of the City of Chickasha in the Council Chambers at the City Hall in the City of Chickasha, Grady County, Oklahoma, on June 16, 2025, at which time input was received concerning the proposed budget.

NOW THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF CHICKASHA, GRADY COUNTY, OKLAHOMA, THAT:

1. The City of Chickasha hereby adopts the budget for the fiscal year 2025-2026.
2. The estimate of revenues and expenditures are shown in the FY 2025-26 annual budget for the City of Chickasha, and that the estimate of revenues and expenditures are hereby incorporated by reference as if fully included herein and that the same are on file as a matter of public record in the office of the City Clerk of the City of Chickasha.
3. That all the revenues and money contained in any fund may be used for the budget appropriations except money which is specifically restricted by the Statutes of the State of Oklahoma, the Code of the City of Chickasha, or the Chickasha City Charter.
4. That any and all transfers within or without specific appropriations shall conform to applicable State law at the time said transfers are made.

This Resolution shall be in full force and effect from and after its passage and approval by the Mayor and Council of the City of Chickasha, Grady County, Oklahoma.

Adopted this 16th day of June 2025.

Zachary Grayson, Mayor

ATTEST:

Susan M. McDaniel, CMC - City Clerk

(SEAL)

CHICKASHA



Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: City Clerk

Agenda Item No. 4.b.

AGENDA ITEM: Discussion, consideration, and possible action to declare an emergency pursuant to Title 61 Oklahoma Statutes Sections 130 due to a damaged sanitary sewer extension located on Illinois Avenue and finding that the condition resulted from a sudden unexpected happening or unforeseen occurrence or condition whereby the public health or safety is endangered or further damage to state property is likely if the situation is not addressed promptly and awarding a bid CMA-2502 to Bear Creek Construction for a project consisting of repairing/replacing existing sanitary sewer.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Declare an emergency pursuant to Title 61 Oklahoma Statutes Sections 130 due to a damaged sanitary sewer extension located on Illinois Avenue and finding that the condition resulted from a sudden unexpected happening or unforeseen occurrence or condition whereby the public health or safety is endangered or further damage to state property is likely if the situation is not addressed promptly and awarding a bid CMA-2502 to Bear Creek Construction for a project consisting of repairing/replacing existing sanitary sewer.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director: Omar Fierro, Public Works Director	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: June 16, 2025	(From)		

V. ATTACHMENTS:

1. Chickasha Illinois Ave SS Contractor Recommendation
2. Bear Creek Construction
3. Luckinbill Construction Co., LLC
4. Matthews Trenching Co., Inc.
5. Bid Specs - CMA-2502



June 11, 2025

Omar Fierro
City of Chickasha
117 N 4th Street
Chickasha, OK 73018

RE: Award Recommendation for Illinois Ave. Sanitary Sewer Replacement

Dear Mr. Fierro,

Pursuant to the request for quotes, the request resulted in three (3) responsive contractors.

The apparent low quote of \$79,695.00 for the subject project is from Bear Creek Construction LLC.

Cowan Group Engineering, LLC recommends the City of Chickasha award the subject contract to the low base quote prepared by Bear Creek Construction LLC, at \$79,695.00.

Should you have any questions, please contact the undersigned at 405.463.3369.

Sincerely,

COWAN GROUP ENGINEERING, LLC

A handwritten signature in blue ink, appearing to read 'B. S. Schwegal'.

Brian Schwegal, P.E.
Project Manager

BID PROPOSAL FORM

CITY OF CHICKASHA

BID NOTICE: 25-120

THE UNDERSIGNED BIDDER, having examined the plans, specifications, the locations, arrangements, and conditions of roads, street, utilities and other facilities or appurtenances which affect or may be affected by the proposed work, the actual sites of the proposed improvements and being acquainted with and fully understanding: (1) the extent and character of the work covered by this proposal; (2) the locations and specified requirements of and for the proposed improvements and other items of work appurtenant thereto; and (3) the normal existing and probable construction difficulties, hazards or all other factors or conditions which may or may not be apparent, which may affect or be affected by the specified work.

HEREBY PROPOSES to furnish all required materials, supplies, equipment, tools, and plant; to perform all necessary labor; and to construct, erect, equip, and complete all work stipulated in, required by, and in accordance with the contract documents hereto attached and the specifications referred to therein (as altered, changed, or modified by any and all addenda thereto), for and in connection with the Contract for which this proposal is herein submitted for and in consideration of the prices set out herein.

The undersigned bidder hereby agrees to furnish the required Performance Bond, Statutory Bond, Maintenance Bond, and evidence of insurance and to enter into a contract within fifteen (15) days after the acceptance of this proposal, and further agrees to complete the work in 45 days (stipulated in the Contract Agreement) from the date of the issuance by the City Engineer of a Work Order authorizing commencement of work.

Attached hereto is a Certified Check, Cashier's Check or Bidder's Surety Bond in the amount of: 79,695 DOLLARS \$ 3,984.75 which the undersigned agrees is to be forfeited to and become the property of the City of Chickasha/Chickasha Municipal Authority, as liquidated damages, should this proposal be accepted and the Contract be awarded to him, he fails to enter into a Contract in the form prescribed and to furnish the required bonds and evidence of insurance within fifteen (15) days as above stipulated, but otherwise the proposal guarantee shall be returned to the undersigned upon the signing of the Contract and delivery of the approved bonds and evidence of insurance to the City of Chickasha.

DATED this 10 day of June 20 25

Signature: [Signature]

Name and Title Seth Battisto PVI

Company: Bear Creek Construction Circle one: Corporation / Partnership / Individual

Address: 600 W Commerce Rd Clinton, OK 73601

Phone: 405-448-0880 Fax: N/A E-mail Address: bids@bearcreekconstruction

Federal Tax I.D.: 85-1139494

Attest: _____
Secretary

Corporate Seal
(if applicable)

BID SCHEDULE

ILLINOIS AVENUE SANITARY SEWER EXTENSION 25-120

BASE BID

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
1	MOBILIZATION	1	LSUM	6,750	6,750
2	CLEARING & GRUBBING	1	LSUM	3,600	3,600
3	8" SDR 35 PVC PIPE BY TRENCHING	488	LF	68	33,184
4	TRENCHING 0' TO 10'	488	LF	7	3,416
5	4' DIAMETER MANHOLE	3	EA	1,962	5,886
6	CONNECT TO EXISTING MANHOLE	1	LSUM	1,300	1,300
7	PLUG & ABANDON EXISTING SANITARY SEWER	1	LSUM	1,542	1,542
8	SERVICE LINE CONNECTION	4	EA	1,025	4,100
9	SOLID SLAB SOD	109	SY	10.91	1,190
10	REMOVE & REPLACE GRAVEL PAVEMENT	3	SY	85	255
11	REMOVE & REPLACE ASPHALT PAVEMENT	18	SY	116.66	2,100
12	POST-INSTALLATION VIDEO INSPECTION	488	LF	.92	450
13	LEAKAGE AND DEFLECTING TESTING	1	LSUM	3,100	3,100
14	BYPASS PUMPING	1	LSUM	9,682	9,682
15	TEMPORARY EROSION AND SEDIMENT CONTROL	1	LSUM	1,600	1,600
16	CONSTRUCTION SIGNING AND TRAFFIC CONTROL	1	LSUM	1,540	1,540

ALL ITEMS TO INCLUDE APPURTENANCES NECESSARY TO PROVIDE A COMPLETE AND OPERABLE SYSTEM AS DESCRIBED IN THE PLANS AND SPECIFICATIONS.

TOTAL BASE BID \$ 79,695

TOTAL BASE BID IN WORDS Seventy nine thousand, six hundred ninety five. ⁰⁰/₁₀₀

MERCHANTS BONDING COMPANY™

MERCHANTS BONDING COMPANY (MUTUAL) • MERCHANTS NATIONAL BONDING, INC.
2100 FLEUR DRIVE • DES MOINES, IOWA 50321-1158 • (800) 678-8171 • (515) 243-3854 FAX

Bid Bond

CONTRACTOR:

(Name, legal status and address)

Bear Creek Construction, LLC

600 W. Commerce
Clinton, OK 73601

OWNER:

(Name, legal status and address)

City of Chickasha
117 N. 4th Street
Chickasha, OK 73018

BOND AMOUNT: Five Percent of Total Amount Bid (5%)

PROJECT:

(Name, location or address, and Project number, if any)

Illinois Avenue Sanitary Sewer Replacement

SURETY:

(Name, legal status and principal place

of business)

Merchants National Bonding, Inc.
A Corporation
2100 Fleur Drive, Des Moines, IA 50321-1158

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

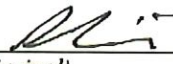
If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 10th day of June, 2025

Bear Creek Construction, LLC

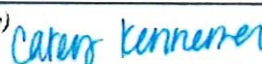

(Witness)


(Principal)
President
(Title)

(Seal)


(Witness) Callie Woodard

Merchants National Bonding, Inc.

(Surety)

(Title) Carey Kenner, Attorney-in-Fact

(Seal)



CON 0657 (6/12)

Printed in cooperation with American Institute of Architects (AIA). The language in this document conforms exactly to the language used in AIA Document A310-Bid Bond-2010 edition.

MERCHANTS
BONDING COMPANY
POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations of the State of Iowa, d/b/a Merchants National Indemnity Company (in California only) (herein collectively called the "Companies") do hereby make, constitute and appoint, individually,

Becky Killman; Bobby J Young; Carey Kennemer; Daniel A Woolsey; Deborah L Raper; Dwight A Pilgrim; Faith Burleson; Gary Liles; Jamie M Burris; John Kelly Deer; John McClellan; Kristin Lewis; Michael Bettlach; Randy D Webb; Shelli R Samsel; Stephen Poleman; Teresa Allen; Thomas Perrault; Travis E Brown; Vaughn Graham; Vaughn Graham Jr; Vicki Wilson

their true and lawful Attorney(s)-in-Fact, to sign its name as surety(ies) and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

This Power-of-Attorney is granted and is signed and sealed by facsimile under and by authority of the following By-Laws adopted by the Board of Directors of Merchants Bonding Company (Mutual) on April 23, 2011 and amended August 14, 2015 and April 27, 2024 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 16, 2015 and amended on April 27, 2024.

"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof."

"The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.

In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner-Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 29th day of July, 2024.



MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.
d/b/a MERCHANTS NATIONAL INDEMNITY COMPANY

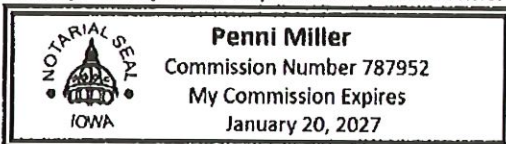
By

Larry Taylor

President

STATE OF IOWA
COUNTY OF DALLAS ss.

On this 29th day of July, 2024, before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument are the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.



(Expiration of notary's commission does not invalidate this instrument)

[Signature]

Notary Public

I, Elisabeth Sandersfeld, Secretary of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 10th day of June, 2025.



Elisabeth Sandersfeld

Secretary

POA 0018 (6/24)

BUSINESS RELATIONSHIP AFFIDAVIT

STATE OF OK)
COUNTY OF Custer) ss.

Seth Battiato, of lawful age, being first duly sworn, on oath 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:

NO

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:

NO

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:

NO

(If none of the business relationships hereinabove mentioned exists, affiant should so state.)

Seth Battiato
Contractor Signature

Seth Battiato
Printed Name/Title

SUBSCRIBED AND SWORN TO before me this 10 day of June 2025

Amber Lee
Notary Public

(Seal)

My commission expires:

1/13/27



NOTE: This form is to be submitted with the bid.

CERTIFICATE OF NONDISCRIMINATION

In connection with the performance under the Contract, the Contractor agrees as follows:

- A. The Contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, ancestry, age, or disability, as defined by the Americans with Disabilities Act of 1990, Sec. 3(2). Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruiting or recruitment, advertising, layoff or termination, rate of pay or other forms of compensation and selection for training, including apprenticeship. The Contractor and Subcontractors shall agree to post in a conspicuous place, available to employees and applicants for employment, notices to be provided by the City Clerk setting forth the provisions of this Section.
- B. In the event of the Contractor's noncompliance with this Nondiscrimination Certificate, the Contract may be cancelled, terminated, or suspended by the Contracting Public Entity. The Contractor may be declared by the Contracting Public Entity ineligible for further contracts until satisfactory proof of intent to comply shall be made by the Contractor and/or Subcontractors.
- C. The Contractor agrees to include the requirements of this Nondiscrimination Certificate in any subcontracts connected with the performance of this Contract.

I have read the above and agree to abide by these requirements.

***This form must be fully completed and signed
by the Contractor or Contractor's Authorized Agent.***

Bear Creek Construction LLC

Name of individual, Partnership, Limited Liability Company,
Or Corporation, herein called "Contractor"



Signature of Contractor or Contractor's Authorized Agent

Seth Battisto Estimator / PM

Type or Print name and title of person who signed above.

NOTE: This form is to be submitted with the bid.

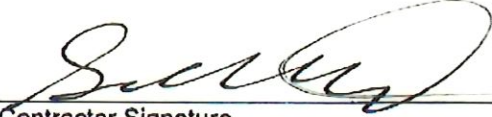
NON-COLLUSION AFFIDAVIT

STATE OF OK)
COUNTY OF Custer) SS.

Seth Battiato, of lawful age, being first duly sworn on oath that (s)he is the agent authorized by the firm of Bear Creek Construction LLC to submit the above Contract to the City of Chickasha/Chickasha Municipal Authority.

Affiant further states that such firm has not paid, given, or donated or agreed to pay, give, or donate to any officer or employee of the City of Chickasha/Chickasha Municipal Authority, any money or other thing of value, either directly or indirectly, in the procuring of the Contract.

Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any city official or employee as to quantity, quality or price in the prospective contract, or any other terms of said prospective contract; or in any discussions between bidders and any state officials concerning exchange of money or other thing of value for special consideration in the letting of a contract.


Contractor Signature

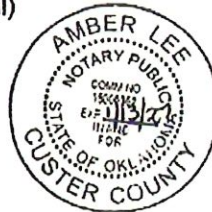
Seth Battiato
Printed Name/Title

SUBSCRIBED and SWORN TO before me this 10 day of June 2025
Amber Lee
Notary Public

(Seal)

My Commission Expires:

1/13/27



NOTE: This form is to be submitted with the bid.

STATEMENT OF QUALIFICATIONS

Bear Creek Construction LLC
Bidder

600 W Commerce Rd
Address
Clinton, OK 73601

Similar Projects Completed by Bidder:

1. NAME OF PROJECT: Mid-America park
OWNER: City of Midwest city ADDRESS: _____
DATE STARTED: 1-29-25 DATE COMPLETED: 3-25-25
APPROX. QUANTITIES OF MAJOR ITEMS: Sewer Main Rehab & Manhole Rehab
VALUE OF CONTRACT: 127,000
2. NAME OF PROJECT: Verdon RWD #6 / WDB Engineering
OWNER: Grady county ADDRESS: _____
DATE STARTED: 2-17-25 DATE COMPLETED: 5-1-25
APPROX. QUANTITIES OF MAJOR ITEMS: 2 mile 6" water Main
VALUE OF CONTRACT: 469,355
3. NAME OF PROJECT: Mustang #9 Middle School
OWNER: Mustang PS ADDRESS: _____
DATE STARTED: 3-1-24 DATE COMPLETED: 1-15-25
APPROX. QUANTITIES OF MAJOR ITEMS: over 16 thousand feet combined water/sewer & storm
VALUE OF CONTRACT: 1 Mil
4. NAME OF PROJECT: _____
OWNER: _____ ADDRESS: _____
DATE STARTED: _____ DATE COMPLETED: _____
APPROX. QUANTITIES OF MAJOR ITEMS: _____
VALUE OF CONTRACT: _____

NOTE: This form is to be submitted with the bid.

BID PROPOSAL FORM

CITY OF CHICKASHA
BID NOTICE: 25-120

THE UNDERSIGNED BIDDER, having examined the plans, specifications, the locations, arrangements, and conditions of roads, street, utilities and other facilities or appurtenances which affect or may be affected by the proposed work, the actual sites of the proposed improvements and being acquainted with and fully understanding: (1) the extent and character of the work covered by this proposal; (2) the locations and specified requirements of and for the proposed improvements and other items of work appurtenant thereto; and (3) the normal existing and probable construction difficulties, hazards or all other factors or conditions which may or may not be apparent, which may affect or be affected by the specified work.

HEREBY PROPOSES to furnish all required materials, supplies, equipment, tools, and plant; to perform all necessary labor; and to construct, erect, equip, and complete all work stipulated in, required by, and in accordance with the contract documents hereto attached and the specifications referred to therein (as altered, changed, or modified by any and all addenda thereto), for and in connection with the Contract for which this proposal is herein submitted for and in consideration of the prices set out herein.

The undersigned bidder hereby agrees to furnish the required Performance Bond, Statutory Bond, Maintenance Bond, and evidence of insurance and to enter into a contract within fifteen (15) days after the acceptance of this proposal, and further agrees to complete the work in 45 days (stipulated in the Contract Agreement) from the date of the issuance by the City Engineer of a Work Order authorizing commencement of work.

Attached hereto is a Certified Check, Cashier's Check or Bidder's Surety Bond in the amount of: _____ DOLLARS \$ _____ which the undersigned agrees is to be forfeited to and become the property of the City of Chickasha/Chickasha Municipal Authority, as liquidated damages, should this proposal be accepted and the Contract be awarded to him, he fails to enter into a Contract in the form prescribed and to furnish the required bonds and evidence of insurance within fifteen (15) days as above stipulated, but otherwise the proposal guarantee shall be returned to the undersigned upon the signing of the Contract and delivery of the approved bonds and evidence of insurance to the City of Chickasha.

DATED this 6 th day of June 20 25

Signature: Robert Gibson

Name and Title Robert Gibson President

Company: Luckinbill Construction Co., LLC Circle one: Corporation / Partnership / Individual

Address: 409 Centennial Blvd. Edmond OK 73013

Phone: (405) 237-8515 Fax: (405) 359-0222 E-mail Address: robert.gibson@luckinbillconstruction.com

Federal Tax I.D.: 86-1773648

Attest: Cindy Cooley
Secretary

Corporate Seal
(if applicable)

BID SCHEDULE

ILLINOIS AVENUE SANITARY SEWER EXTENSION 25-120

BASE BID

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
1	MOBILIZATION	1	LSUM	35,000.00	35,000.00
2	CLEARING & GRUBBING	1	LSUM	6,500.00	6,500.00
3	8" SDR 35 PVC PIPE BY TRENCHING 379	488	LF	150.00	56,850.00
4	TRENCHING 0' TO 10' 379	488	LF	30.00	11,370.00
5	4' DIAMETER MANHOLE	3	EA	8,000.00	24,000.00
6	CONNECT TO EXISTING MANHOLE	1	LSUM	2,000.00	2,000.00
7	PLUG & ABANDON EXISTING SANITARY SEWER	1	LSUM	3,500.00	3,500.00
8	SERVICE LINE CONNECTION	4	EA	2,800.00	11,200.00
9	SOLID SLAB SOD 85	100	SY	12.00	1,020.00
10	REMOVE & REPLACE GRAVEL PAVEMENT	3	SY		
10	REMOVE & REPLACE ASPHALT PAVEMENT 2	18	SY	160.00	320.00
11	POST-INSTALLATION VIDEO INSPECTION 379	488	LF	5.00	1,895.00
12	LEAKAGE AND DEFLECTING TESTING	1	LSUM	2,000.00	2,000.00
13	BYPASS PUMPING	1	LSUM	2,500.00	2,500.00
14	TEMPORARY EROSION AND SEDIMENT CONTROL	1	LSUM	4,500.00	4,500.00
15	CONSTRUCTION SIGNING AND TRAFFIC CONTROL	1	LSUM	5,000.00	5,000.00

ALL ITEMS TO INCLUDE APPURTENANCES NECESSARY TO PROVIDE A COMPLETE AND OPERABLE SYSTEM AS DESCRIBED IN THE PLANS AND SPECIFICATIONS.

TOTAL BASE BID \$ \$167,655.00

TOTAL BASE BID IN WORDS One hundred sixty-seven thousand
Six hundred fifty-five & 00/100 ————— dollars

BID BOND

We, the undersigned, Luckinbill Construction Company, LLC, as Principal, and RLI Insurance Company, as Surety, are hereby held and firmly bound unto City of Chickasha/Chickasha Municipal Authority, as Owner, in the penal sum of Five Percent of Bid Amount (*5%*) for the payment of which, well and truly to be made, hereby jointly and severally bind ourselves, our successors and our assigns.

Signed this 6th day of June 2025.

The condition of the above obligation is such that, whereas the Principal has submitted to City of Chickasha/Chickasha Municipal Authority, a certain bid, attached hereto and hereby made a part hereof, to enter into a contract, in writing, for the Illinois Avenue Sanitary Sewer Replacement;

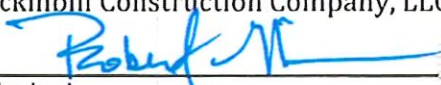
NOW, THEREFORE, if said bid shall be rejected or if said bid shall be accepted and the Principal shall execute and deliver a contract in the form of the contract attached hereto (properly completed in accordance with said bid) and shall furnish a bond for faithful performance of said contract and for the payment of all persons performing labor or furnishing materials in connection therewith and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void; otherwise, the same shall remain in force and effect, it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bonds shall in no way be impaired or affected by any extension of the time within which the Owner may accept such bid and said Surety does hereby waive notice of any such extension.

NOTE: This form is to be submitted with the bid.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers the day and year first set forth above.

Luckinbill Construction Company, LLC

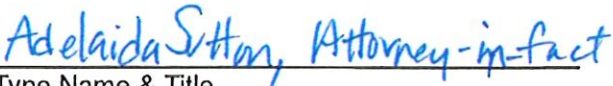

Principal Robert Gibson, Managing Member

RLI Insurance Company
Surety

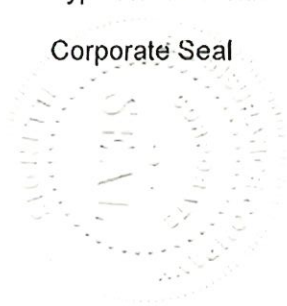
By: 
Donald C. Bowers, Attorney-in-Fact

ATTEST: (if by corporation)




Type Name & Title

Corporate Seal



NOTE: This form is to be submitted with the bid.

POWER OF ATTORNEY

RLI Insurance Company Contractors Bonding and Insurance Company

9025 N. Lindbergh Dr. Peoria, IL 61615
Phone: 800-645-2402

Know All Men by These Presents:

That this Power of Attorney is not valid or in effect unless attached to the bond which it authorizes executed, but may be detached by the approving officer if desired.

That **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, each an Illinois corporation, (separately and together, the "Company") do hereby make, constitute and appoint:

Adelaida Sutton, Donald C. Bowers, Joshua Curran, Kelly Stebbins, Brandy M Million, Nicole Campbell, Gabrielle Thompson, jointly or severally

in the City of Oklahoma City, State of Oklahoma its true and lawful Agent(s) and Attorney(s) in Fact, with full power and authority hereby conferred, to sign, execute, acknowledge and deliver for and on its behalf as Surety, in general, any and all bonds and undertakings in an amount not to exceed Twenty Five Million Dollars (\$25,000,000.00) for any single obligation.

The acknowledgment and execution of such bond by the said Attorney in Fact shall be as binding upon the Company as if such bond had been executed and acknowledged by the regularly elected officers of the Company.

RLI Insurance Company and/or Contractors Bonding and Insurance Company, as applicable, have each further certified that the following is a true and exact copy of a Resolution adopted by the Board of Directors of each such corporation, and is now in force, to-wit:

"All bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

IN WITNESS WHEREOF, the **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, as applicable, have caused these presents to be executed by its respective Sr. Vice President with its corporate seal affixed this 28th day of April, 2025.



**RLI Insurance Company
Contractors Bonding and Insurance Company**

By: Eric Raudins Sr. Vice President

State of Ohio }
County of Cuyahoga } SS

On this 28th day of April, 2025, before me, a Notary Public, personally appeared Eric Raudins, who being by me duly sworn, acknowledged that he signed the above Power of Attorney as the aforesaid officer of the **RLI Insurance Company and/or Contractors Bonding and Insurance Company** and acknowledged said instrument to be the voluntary act and deed of said corporation.

By: Jill A. Scott
Jill A. Scott Notary Public



JILL A SCOTT
Notary Public
State of Ohio
My Comm. Expires
September 22, 2025

CERTIFICATE

I, the undersigned officer of **RLI Insurance Company and/or Contractors Bonding and Insurance Company**, do hereby certify that the attached Power of Attorney is in full force and effect and is irrevocable; and furthermore, that the Resolution of the Company as set forth in the Power of Attorney, is now in force. In testimony whereof, I have hereunto set my hand and the seal of the **RLI Insurance Company and/or Contractors Bonding and Insurance Company** this 28th day of JUNE, 2025

**RLI Insurance Company
Contractors Bonding and Insurance Company**

By: Jeffrey D. Dick
Jeffrey D. Dick Corporate Secretary

BUSINESS RELATIONSHIP AFFIDAVIT

STATE OF Oklahoma)
COUNTY OF Oklahoma) SS.

Robert Gibson, of lawful age, being first duly sworn, on oath 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:

None

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:

None

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:

None

(If none of the business relationships hereinabove mentioned exists, affiant should so state.)

Robert Gibson
Contractor Signature

Robert Gibson President

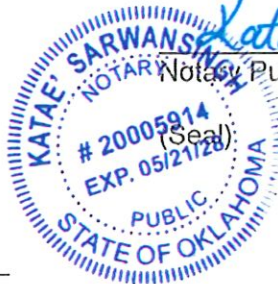
Printed Name/Title

SUBSCRIBED AND SWORN TO before me this 6th day of June 2025

Katae Sarwans
Notary Public

My commission expires:

may 21, 2028



NOTE: This form is to be submitted with the bid.

CERTIFICATE OF NONDISCRIMINATION

In connection with the performance under the Contract, the Contractor agrees as follows:

- A. The Contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, ancestry, age, or disability, as defined by the Americans with Disabilities Act of 1990, Sec. 3(2). Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruiting or recruitment, advertising, layoff or termination, rate of pay or other forms of compensation and selection for training, including apprenticeship. The Contractor and Subcontractors shall agree to post in a conspicuous place, available to employees and applicants for employment, notices to be provided by the City Clerk setting forth the provisions of this Section.
- B. In the event of the Contractor's noncompliance with this Nondiscrimination Certificate, the Contract may be cancelled, terminated, or suspended by the Contracting Public Entity. The Contractor may be declared by the Contracting Public Entity ineligible for further contracts until satisfactory proof of intent to comply shall be made by the Contractor and/or Subcontractors.
- C. The Contractor agrees to include the requirements of this Nondiscrimination Certificate in any subcontracts connected with the performance of this Contract.

I have read the above and agree to abide by these requirements.

*This form must be fully completed and signed
by the Contractor or Contractor's Authorized Agent.*

Luckinbill Construction Co., LLC
409 Centennial Blvd. Edmond OK 73013

Name of individual, Partnership, Limited Liability Company,
Or Corporation, herein called "Contractor"



Signature of Contractor or Contractor's Authorized Agent

Robert Gibson President

Type or Print name and title of person who signed above.

NOTE: This form is to be submitted with the bid.

NON-COLLUSION AFFIDAVIT

STATE OF Oklahoma)
COUNTY OF Oklahoma) SS.

Robert Gibson, of lawful age, being first duly sworn on oath that (s)he is the agent authorized by the firm of Luckinbill Construction Co., LLC to submit the above Contract to the City of Chickasha/Chickasha Municipal Authority.

Affiant further states that such firm has not paid, given, or donated or agreed to pay, give, or donate to any officer or employee of the City of Chickasha/Chickasha Municipal Authority, any money or other thing of value, either directly or indirectly, in the procuring of the Contract.

Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any city official or employee as to quantity, quality or price in the prospective contract, or any other terms of said prospective contract; or in any discussions between bidders and any state officials concerning exchange of money or other thing of value for special consideration in the letting of a contract.

Robert Gibson

Contractor Signature

Robert Gibson President

Printed Name/Title

SUBSCRIBED and SWORN TO before me this 6th day of June 2025



My Commission Expires:

may 21, 2028

NOTE: This form is to be submitted with the bid.



MATTHEWS TRENCHING CO., INC.

Post Office Box 15479
Oklahoma City, Oklahoma 73155-5479

Office: 677-4525
FAX: 677-4835

Date: June 5, 2025

PROPOSAL

TO: CITY OF CHICKASHA
117 N 4TH ST
CHICKASHA, OK 73018
ATTN: OMAR FIERRO

PROJECT: ILLINOIS AVE SAN. SEWER
ADDRESS: CHICKASHA, OK

PHONE #
Engineer

FAX# omar.fierro@chickasha.org

EXCLUDES: CITY FEES, CONSTRUCTION STAKING, SOIL TESTING IF REQUIRED, PAVING AND RESTORATION. RR INSURANCE, FLAGGING, INSPECTOR, BADGES.

ITEM	QUANTITY		
SANITARY SEWER			
MOBILIZATION	1 LS	\$10,000.00	\$10,000.00
CLEARING & GRUBBING	1 LS	\$15,000.00	\$15,000.00
8" SDR-35	379 LF	\$140.00	\$53,060.00
TRENCHING 0-10'	379 LF	\$10.00	\$3,790.00
4' DIA M.H.	3 EA	\$2,500.00	\$7,500.00
CONNECT TO EXIST M.H.	1 LS	\$750.00	\$750.00
PLUG & ABANDON EXIST. SAN. SWR	1 LS	\$500.00	\$500.00
SERV. LINE CONNECTION	4 EA	\$1,500.00	\$6,000.00
SOLID SLAB SOD	85 SY	\$20.00	\$1,700.00
REM. & REP. ASP. PAV.	2 SY	\$2,000.00	\$4,000.00
POST-INSTALLATION VIDEO INSP.	379 LF	\$10.00	\$3,790.00
LEAKAGE & DEFLECTING TESTING	1 LS	\$2,000.00	\$2,000.00
BYPASS PUMPING	1 LS	\$500.00	\$500.00
TEMP EROSION & SED. CONTROL	1 LS	\$500.00	\$500.00
CONST. SIGN. & TRAFFIC CONTROL	1 LS	\$500.00	\$500.00
TOTAL:			\$109,590.00

ONE HUNDRED NINE THOUSAND FIVE HUNDRED NINETY AND NO CENTS-----DOLLARS

MONTHLY APPLICATIONS FOR PAYMENT BASED UPON WORK COMPLETE AND MATERIAL STORED, LESS 5% RETAINAGE. RETAINAGE DUE UPON PROJECT COMPLETION.

Submitted By:  Title: ESTIMATOR Date: 6/5/2025

Accepted By: _____ Title: _____ Date: _____

CHICKASHA

CONTRACT DOCUMENTS AND SPECIFICATIONS

FOR

ILLINOIS AVENUE SANITARY SEWER REPLACEMENT

PROJECT NUMBER: 25-120

BID DATE: **TBD**

By:

Cowan Group Engineering, LLC
7100 N. Classen Blvd., Suite 500
Oklahoma City, OK 73116
Phone: 405.463.3369
CA # 6414 Expires 6/30/26

MAY 2025

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Responsible Registrant

Cowan Group Engineering, LLC
CA No. 6414 (Expires 6/30/26)



Brian Schwegal, P.E.
Project Manager
OK PE #25508

City of Chickasha

SOLICITATION FOR BIDS

Notice is hereby given that the City of Chickasha will receive and open sealed Bids for the construction of:

**ILLINOIS AVENUE SANITARY SEWER REPLACEMENT
25-120**

in the Office of the City Clerk, 117 N 4th St, Chickasha, Oklahoma 73018, until **##:## a.m.**, C.S.T., on the **##th day of MONTH 2024** for the construction of **Illinois Avenue Sanitary Sewer Replacement**. Bids shall be opened at the above stated time for receipt of Bids or as soon thereafter as practicable. This project consists of furnishing all required materials, supplies, equipment, tools, and personnel to perform all necessary labor for the replacement of **Illinois Avenue Sanitary Sewer Replacement**. This project is eligible for sales tax exemption.

The work shall be done in accordance with plans and specifications on file in the City Manager's Office. Plans, specifications and other bidding documents are available for public inspection and copies may be obtained by visiting the respective ENGINEER; Cowan Group Engineering, LLC, 7100 N. Classen, Suite 500, Oklahoma City, OK 73116.

Complete digital project bidding documents are available for a non-refundable fee of \$50.00 by going to www.cowangroup.co, navigating to the Bid Documents page, and by entering Quest Project **#TBD** on the website's project search page. Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading and working with this digital project information.

Hardcopy plans and specifications are available for a non-refundable fee of \$100.00 from Cowan Group Engineering, LLC. No documents will be mailed until payment is received in full.

Each bid must be submitted in a sealed envelope bearing on the outside, the name of the bidder, his/her address and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form. All blank spaces for bid prices must be completed in ink, or typewritten and in both words and figures.

Bids received more than ninety-six (96) hours, excluding Saturdays, Sundays and holidays, before the time set for opening of bids, as well as bids received after the time set for receipt of bids, WILL NOT be considered and will be RETURNED UNOPENED.

A cashier's check, a certified check or a surety bond in the amount of five percent (5%) of the bid shall accompany the sealed proposal of each bidder. Deposits will be returned to unsuccessful bidders. Each bid submitted is a legal offer and when accepted by the City, constitutes a FIRM AND BINDING CONTRACT. The City reserves the right to REJECT ANY or ALL BIDS. The City of Chickasha reserves the unconditional right to cancel all or any portion of this project within thirty (30) days of the date of the opening of the bids, for any reason and at its sole discretion.

INSTRUCTIONS TO BIDDERS

PRE-BID MEETING NOT APPLICABLE

EXAMINATION OF SITE Each bidder by making his bid represents that he has visited the site and familiarized himself with all the conditions under which the work is to be performed. No extra compensation will be allowed by reason of any matters or things concerning which the bidder did not inform himself prior to bidding.

EASEMENTS Work performed on, or use of, easements shall be subject to the provisions of the easement agreements on file and open to inspection in the office of the OWNER.

EXAMINATION OF BIDDING DOCUMENTS Each bidder by making his bid represents that he has read and understands the bidding documents. The bidder shall include in his bid prices any and all costs that may be necessary to complete the work in accordance with the requirements of the contract documents.

SUBSURFACE EXPLORATION DATA Investigations of subsurface conditions at the site is the responsibility of the CONTRACTOR. The OWNER assumes no responsibility whatsoever with respect to the sufficiency of the CONTRACTOR's investigations, or of their interpretation, and there is no guarantee, either expressed or implied, that the conditions found by the CONTRACTOR are representative of those existing throughout the work or any part of it, or that unforeseen developments may not occur. The CONTRACTOR shall plan his work based upon his own subsurface information and assume responsibility for conditions other than those he may find.

INTERPRETATION OF CONTRACT DOCUMENTS Questions regarding documents, discrepancies, omissions, or intent of the specifications or drawings shall be submitted in writing to the OWNER through the ENGINEER at least seven (7) days prior to opening of bids to provide time for issuing and forwarding an addendum. Any interpretation of the contract documents will be made only by addendum duly issued or delivered by the OWNER to each person receiving a set of documents. The OWNER will not be responsible for any other explanations or interpretation of the contract documents.

MATERIAL SUBSTITUTION Each bidder shall base his bid upon the materials and equipment as described in the bidding documents. The successful CONTRACTOR will not be allowed to make any substitutions on his own initiative, but in each instance will be required to obtain authorization from the OWNER before installing any work in variance with the requirements of the contract documents.

APPROXIMATE QUANTITIES On all items on which bids are to be received on a unit price basis, the quantities stated in the bid will not be used in establishing final payment due the CONTRACTOR. The quantities stated, on which unit prices are invited, are approximate only and each bidder shall make his own estimate from the contract drawings of the quantities required on each item and calculate his unit price bid for each item accordingly. Bids will be compared on the basis of number of units stated in the bidding schedule. Payment on the contract or unit price items shall be based on the actual number of units installed in the completed work.

BID SECURITY No bid will be considered unless the original copy filed with the City of Chickasha is accompanied by a Bidder's Bond, Certified Check, or Cashier's Check in the required amount, made payable to the OWNER. The bid security shall be in the amount of five percent (5%) of the total amount of the bid. It shall be five percent (5%) of the highest amount in the event of an alternate or several bids. The bid security is required as evidence of good faith and as a guarantee that if awarded the Contract, the bidder will execute the Contract and furnish the required bonds and insurance within the required time and the guarantee will serve as liquidated damages in the event of failure to do so.

QUALIFICATIONS OF BIDDERS IN DETERMINING THE LOWEST RESPONSIBLE BID, THE FOLLOWING ELEMENTS WILL BE CONSIDERED: WHETHER THE BIDDER INVOLVED (A) MAINTAINS A PERMANENT PLACE OF BUSINESS; (B) HAS ADEQUATE STATION EQUIPMENT TO DO THE WORK PROPERLY AND EXPEDITIOUSLY; (C) HAS A SUITABLE FINANCIAL STATUS TO MEET OBLIGATIONS INCIDENT TO THE WORK; AND (D) HAS APPROPRIATE TECHNICAL EXPERIENCE.

Each bidder may be required to show that former work performed by him has been handled in such manner that there are no just or proper claims pending against such work. No bidder will be acceptable if he is engaged in any other work which impairs his ability to finance this contract or provide proper equipment for the proper execution of same. Each bidder shall demonstrate his ability of meeting all requirements herein stipulated, if asked for them.

Each bidder shall submit a STATEMENT OF QUALIFICATIONS (SOQ) which demonstrates the bidder's experience with similar projects. The SOQ must list all similar projects in progress or completed within the past five (5) years. The SOQ shall include the name of project; location; construction cost; summary of work completed; date completed; client contact name and phone number.

RETURN OF BID SECURITIES The security of the three lowest bidders will be returned after the execution of the agreement with the successful bidder and the approval of his bonds and insurance. The security of all other bidders will be returned promptly after the bids have been opened and reviewed by the OWNER. If all bids are rejected, the securities will be returned at the time of rejection.

AGREEMENT, BONDS, INSURANCE The attention of bidders is specifically directed to the forms of agreement and bonds to be executed and the types of insurance to be taken out in the event a contract award is made.

BID SUBMITTAL Each bid, properly signed, together with the bid security, affidavits, and qualification statements (if required), shall be enclosed in a sealed envelope addressed and entitled as specified in the Invitation to Bid. All addenda issued shall be signed and included with the documents at the time of bid submittal.

Complete and submit one (1) original and two (2) copies of the following documents:

- 1. Bid Proposal Form**
- 2. Bid Bond, Cashier's Check, or Certified Check**
- 3. Business Relationship Affidavit**
- 4. Non-Collusion Affidavit**
- 5. Statement of Qualifications**

WITHDRAWAL OF BID Any bid may be withdrawn at any time prior to the hour fixed in the Invitation to Bid for the opening of bids, provided that a request in writing executed by the bidder or his duly authorized representative for the withdrawal of such bid is filed with the OWNER prior to the time specified for the opening of bids. The withdrawal of a bid will not prejudice the right of a bidder to file a new bid, except that the new bid must be submitted prior to the date and time for submitting bids.

PENALTY FOR COLLUSION If at any time it shall be found that the person, firm, or corporation to whom the Contract has been awarded has, in presenting any bid or bids, colluded with any other party or parties, then the Contract so awarded shall be null and void, and the CONTRACTOR and his sureties shall be liable to the OWNER for all loss for damage which the OWNER may suffer thereby, and the OWNER may advertise for new bids for said work.

LICENSE Each bidder shall possess state and local licenses as are required by law and shall furnish satisfactory proof to the OWNER upon request that the licenses are in effect during the entire period of the Contract.

AWARD OF CONTRACT The award of any contract or contracts will be made to the lowest responsible bidder or bidders. The OWNER reserves the right to reject any or all bids, or to waive irregularities or informalities at its discretion. In the event that the approvals are not received, or the OWNER cannot award or reject said proposals within 90 days from the date of opening of bids, bidders shall have the right to withdraw their bids on written notice to the OWNER.

EFFECTIVE DATE OF AWARD If a contract is awarded by the OWNER, such award shall be effective when formal notice of such award, signed by the authorized representative of the OWNER, has been delivered to the intended awardee, or mailed to him at the main business address shown on his bid, by some officer or agent of the OWNER duly authorized to give such notice.

EXECUTION OF AGREEMENT Copies of the agreement in the number stated in the form of agreement shall be executed by the successful bidder and returned, together with the required bonds and insurance, within fifteen (15) days from and after the date of the award of the Contract. Effective date of bonds shall be the same or later than the date of the agreement.

FAILURE TO EXECUTE AGREEMENT AND FILE BONDS AND INSURANCE Failure of a successful bidder to execute the agreement and file required bonds and insurance within the required time shall be just cause for the annulment of the award. On failure of a successful bidder to execute the agreement and file the required bonds and insurance within the required time, he shall forfeit his bid security as agreed herein above. Upon annulment of an award as aforesaid, the OWNER may then award a contract to the next lowest responsible bidder.

PAYMENT FOR EXCESS COSTS AND LIQUIDATED DAMAGES The successful CONTRACTOR will be required to pay for the excess cost of field engineering and inspection and liquidated damages as defined in the General Conditions of the Standard Specifications for Construction and the Contract Agreement, if extensions of time are not granted by OWNER because of avoidable delays as therein defined.

WAGE DETERMINATION The CONTRACTOR shall comply with the current determinations, as required by law.

STANDARD SPECIFICATIONS FOR CONSTRUCTION City of Chickasha's Standard Specifications for Construction and Standard Design Drawings shall be a part of these contract documents as if included herein.

ADMINISTRATIVE MATTERS The CONTRACTOR shall obtain all permits and licenses required. The CONTRACTOR shall pay all fees associated with such permits, licenses and other.

This project is eligible for sales tax exemption.

BID PROPOSAL FORM

CITY OF CHICKASHA

BID NOTICE: 25-120

THE UNDERSIGNED BIDDER, having examined the plans, specifications, the locations, arrangements, and conditions of roads, street, utilities and other facilities or appurtenances which affect or may be affected by the proposed work, the actual sites of the proposed improvements and being acquainted with and fully understanding: (1) the extent and character of the work covered by this proposal; (2) the locations and specified requirements of and for the proposed improvements and other items of work appurtenant thereto; and (3) the normal existing and probable construction difficulties, hazards or all other factors or conditions which may or may not be apparent, which may affect or be affected by the specified work.

HEREBY PROPOSES to furnish all required materials, supplies, equipment, tools, and plant; to perform all necessary labor; and to construct, erect, equip, and complete all work stipulated in, required by, and in accordance with the contract documents hereto attached and the specifications referred to therein (as altered, changed, or modified by any and all addenda thereto), for and in connection with the Contract for which this proposal is herein submitted for and in consideration of the prices set out herein.

The undersigned bidder hereby agrees to furnish the required Performance Bond, Statutory Bond, Maintenance Bond, and evidence of insurance and to enter into a contract within fifteen (15) days after the acceptance of this proposal, and further agrees to complete the work in 45 days (stipulated in the Contract Agreement) from the date of the issuance by the City Engineer of a Work Order authorizing commencement of work.

Attached hereto is a Certified Check, Cashier's Check or Bidder's Surety Bond in the amount of: _____ DOLLARS \$ _____ which the undersigned agrees is to be forfeited to and become the property of the City of Chickasha/Chickasha Municipal Authority, as liquidated damages, should this proposal be accepted and the Contract be awarded to him, he fails to enter into a Contract in the form prescribed and to furnish the required bonds and evidence of insurance within fifteen (15) days as above stipulated, but otherwise the proposal guarantee shall be returned to the undersigned upon the signing of the Contract and delivery of the approved bonds and evidence of insurance to the City of Chickasha.

DATED this _____ day of _____ 20____

Signature: _____

Name and Title _____

Company: _____ Circle one: Corporation / Partnership / Individual

Address: _____

Phone: _____ Fax: _____ E-mail Address: _____

Federal Tax I.D.: _____

Attest: _____

Secretary

Corporate Seal

(if applicable)

BID SCHEDULE

ILLINOIS AVENUE SANITARY SEWER EXTENSION 25-120

BASE BID

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	TOTAL COST
1	MOBILIZATION	1	LSUM		
2	CLEARING & GRUBBING	1	LSUM		
3	8" SDR 35 PVC PIPE BY TRENCHING	488	LF		
4	TRENCHING 0' TO 10'	488	LF		
5	4' DIAMETER MANHOLE	3	EA		
6	CONNECT TO EXISTING MANHOLE	1	LSUM		
7	PLUG & ABANDON EXISTING SANITARY SEWER	1	LSUM		
8	SERVICE LINE CONNECTION	4	EA		
9	SOLID SLAB SOD	109	SY		
10	REMOVE & REPLACE GRAVEL PAVEMENT	3	SY		
11	REMOVE & REPLACE ASPHALT PAVEMENT	18	SY		
12	POST-INSTALLATION VIDEO INSPECTION	488	LF		
13	LEAKAGE AND DEFLECTING TESTING	1	LSUM		
14	BYPASS PUMPING	1	LSUM		
15	TEMPORARY EROSION AND SEDIMENT CONTROL	1	LSUM		
16	CONSTRUCTION SIGNING AND TRAFFIC CONTROL	1	LSUM		

ALL ITEMS TO INCLUDE APPURTENANCES NECESSARY TO PROVIDE A COMPLETE AND OPERABLE SYSTEM AS DESCRIBED IN THE PLANS AND SPECIFICATIONS.

TOTAL BASE BID \$ _____

TOTAL BASE BID IN WORDS _____

BID BOND

We, the undersigned, _____, as Principal, and _____, as Surety, are hereby held and firmly bound unto **City of Chickasha/Chickasha Municipal Authority**, as Owner, in the penal sum of _____ for the payment of which, well and truly to be made, hereby jointly and severally bind ourselves, our successors and our assigns.

Signed this _____ day of _____ 20____.

The condition of the above obligation is such that, whereas the Principal has submitted to **City of Chickasha/Chickasha Municipal Authority**, a certain bid, attached hereto and hereby made a part hereof, to enter into a contract, in writing, for the **Illinois Avenue Sanitary Sewer Replacement**;

NOW, THEREFORE, if said bid shall be rejected or if said bid shall be accepted and the Principal shall execute and deliver a contract in the form of the contract attached hereto (properly completed in accordance with said bid) and shall furnish a bond for faithful performance of said contract and for the payment of all persons performing labor or furnishing materials in connection therewith and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void; otherwise, the same shall remain in force and effect, it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bonds shall in no way be impaired or affected by any extension of the time within which the Owner may accept such bid and said Surety does hereby waive notice of any such extension.

NOTE: This form is to be submitted with the bid.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers the day and year first set forth above.

Principal

Surety

By: _____

ATTEST: (if by corporation)

Type Name & Title

Corporate Seal

NOTE: This form is to be submitted with the bid.

BUSINESS RELATIONSHIP AFFIDAVIT

STATE OF _____)
) SS.
COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath 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 hereinabove mentioned exists, affiant should so state.)

Contractor Signature

Printed Name/Title

SUBSCRIBED AND SWORN TO before me this ____ day of _____ 20__

Notary Public

(Seal)

My commission expires:

NOTE: This form is to be submitted with the bid.

CERTIFICATE OF NONDISCRIMINATION

In connection with the performance under the Contract, the Contractor agrees as follows:

- A. The Contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, ancestry, age, or disability, as defined by the Americans with Disabilities Act of 1990, Sec. 3(2). Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruiting or recruitment, advertising, layoff or termination, rate of pay or other forms of compensation and selection for training, including apprenticeship. The Contractor and Subcontractors shall agree to post in a conspicuous place, available to employees and applicants for employment, notices to be provided by the City Clerk setting forth the provisions of this Section.
- B. In the event of the Contractor's noncompliance with this Nondiscrimination Certificate, the Contract may be cancelled, terminated, or suspended by the Contracting Public Entity. The Contractor may be declared by the Contracting Public Entity ineligible for further contracts until satisfactory proof of intent to comply shall be made by the Contractor and/or Subcontractors.
- C. The Contractor agrees to include the requirements of this Nondiscrimination Certificate in any subcontracts connected with the performance of this Contract.

I have read the above and agree to abide by these requirements.

***This form must be fully completed and signed
by the Contractor or Contractor's Authorized Agent.***

Name of individual, Partnership, Limited Liability Company,
Or Corporation, herein called "Contractor"

Signature of Contractor or Contractor's Authorized Agent

Type or Print name and title of person who signed above.

NOTE: This form is to be submitted with the bid.

NON-COLLUSION AFFIDAVIT

STATE OF _____)
) SS.
COUNTY OF _____)

_____, of lawful age, being first duly sworn on oath that (s)he is the agent authorized by the firm of _____ to submit the above Contract to the City of Chickasha/Chickasha Municipal Authority.

Affiant further states that such firm has not paid, given, or donated or agreed to pay, give, or donate to any officer or employee of the City of Chickasha/Chickasha Municipal Authority, any money or other thing of value, either directly or indirectly, in the procuring of the Contract.

Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any city official or employee as to quantity, quality or price in the prospective contract, or any other terms of said prospective contract; or in any discussions between bidders and any state officials concerning exchange of money or other thing of value for special consideration in the letting of a contract.

Contractor Signature

Printed Name/Title

SUBSCRIBED and SWORN TO before me this _____ day of _____ 20____

Notary Public

(Seal)

My Commission Expires:

NOTE: This form is to be submitted with the bid.

STATEMENT OF QUALIFICATIONS

Bidder

Address

Similar Projects Completed by Bidder:

1. NAME OF PROJECT: _____
OWNER: _____ ADDRESS: _____
DATE STARTED: _____ DATE COMPLETED: _____
APPROX. QUANTITIES OF MAJOR ITEMS: _____

VALUE OF CONTRACT: _____
2. NAME OF PROJECT: _____
OWNER: _____ ADDRESS: _____
DATE STARTED: _____ DATE COMPLETED: _____
APPROX. QUANTITIES OF MAJOR ITEMS: _____

VALUE OF CONTRACT: _____
3. NAME OF PROJECT: _____
OWNER: _____ ADDRESS: _____
DATE STARTED: _____ DATE COMPLETED: _____
APPROX. QUANTITIES OF MAJOR ITEMS: _____

VALUE OF CONTRACT: _____
4. NAME OF PROJECT: _____
OWNER: _____ ADDRESS: _____
DATE STARTED: _____ DATE COMPLETED: _____
APPROX. QUANTITIES OF MAJOR ITEMS: _____

VALUE OF CONTRACT: _____

NOTE: This form is to be submitted with the bid.

CONTRACT AGREEMENT

THIS CONTRACT AND AGREEMENT, made and entered into this ____ day of _____, 20__ by and between the City of Chickasha/Chickasha Municipal Authority, Chickasha, Oklahoma, party of the first part, hereinafter termed "Owner", and ____ party of the second part, hereinafter termed "Contractor".

WITNESSETH:

WHEREAS, the Owner has caused to be prepared, in accordance with law, certain specifications, plans, and other bidding documents for the work hereinafter described and has approved and adopted all of said bidding documents and has received sealed proposals for furnishing materials, labor, and equipment for either of the indicated works.

This project consists of furnishing all required materials, supplies, equipment, tools, and plant to perform all necessary labor for the construction of Illinois Avenue Sanitary Sewer Replacement.

The work shall be done in accordance with plans and specifications on file in the City Engineer's Office as outlined and set out in the bidding documents and in accordance with the terms, specifications, plans, and provisions of said Contract; and,

WHEREAS, Contractor, in response to request for bids, has submitted to the City of Chickasha in the manner and at the time specified, a sealed proposal in accordance with the terms of this Contract; and,

WHEREAS, the City of Chickasha, in the manner provided by law, has publicly opened, examined, and canvassed the proposals submitted and has determined and declared the above named Contractor to be the lowest responsible bidder on the above described project, and has duly awarded this Contract to said Contractor, for the sum named in the proposal to-wit:

_____ DOLLARS (\$_____)

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

(1) That the Contractor hereby agrees to furnish all tools, equipment, materials, and labor, and to build and complete the above described project in accordance with the specifications therefore on file in the office of the City Clerk of Chickasha, Oklahoma.

(2) That the Owner shall pay the Contractor for the work performed, as follows:

- a. Payment for unit price items shall be at the unit price bid for actual construction quantities.
- b. Construction items specified but not included as bid items shall be considered incidental and shall not be paid for directly but shall be included in the bid price for any or all of the pay quantities.

- c. At the end of each month the Engineer will make written estimates of the materials in place and accepted, and the amount of work performed in accordance with the contract during the current period of time between estimates and the value thereof computed at the contract unit prices. Payment to the Contractor shall be in the amount of the estimate minus the retainage as permitted by law.
- d. Should any defective work or materials be discovered or should a reasonable doubt arise as to the quality of any work completed, there will be deducted from the next estimate an amount equal to the value of the defective or questionable work and shall not be paid until the defects are remedied.
- e. And that the Contractor's bid is hereby made a part of this Agreement.

(3) That the City of Chickasha reserves the right to add to or subtract from the estimated quantities or amount of work to be performed. The work to be performed or deducted shall be at the unit price bid.

(4) That the Contractor will not undertake to furnish any materials or to perform any work not specifically authorized under the terms of this Agreement unless additional materials or work are authorized by written work directive change; and that in the event any additions are provided by the Contractor without such authorization, the Contractor shall not be entitled to any compensation therefor whatsoever.

(5) That if any additional work is performed or additional materials provided by the Contractor upon authorization by the Owner, the Contractor shall be compensated therefore at the unit price bid and as agreed to by both parties in the execution of the Change Order.

(6) That the Contractor shall perform the work and provide the materials strictly in accordance with the specifications as to quality and kind and all work and materials shall be subject to rejection by the Owner through its authorized representatives for failure to meet such requirements, and in the event of such rejection, the Contractor shall replace the work and materials without compensation therefore by the Owner.

(7) The Contractor shall complete the work in accordance with the terms of this Agreement within a period of time not to exceed **120 calendar days** following the issuance by the City Engineer of a Work Order authorizing the Contractor to commence work on the project.

(8) The Contractor shall furnish bonds and certificate of insurance as specified in the "Instructions to Bidders" and/or the "General Provisions", which must be approved by the Owner prior to issuance of the Work Order and commencement of the work on the project.

(9) On completion of the work, but prior to the acceptance thereof by the City of Chickasha, it shall be the duty of the City Engineer or other appropriate person to determine that said work has been completely and fully performed in accordance with said Contract Documents; and upon making such determination said official shall make his final certificate to the City of Chickasha.

(10) Liquidated damages shall be paid by the Contractor at the rate of **\$500** per each and every **calendar** day required by him to complete the contract in excess of the contract time.

(11) APPROXIMATE QUANTITIES on all items which bids are to be received on a unit price basis; the quantities stated in the bid will not be used in establishing final payment due the contractor. The quantities stated, on which unit prices are invited, are approximate only and each bidder shall make his own estimate from the contract drawings of the quantities required on each item and calculate his unit price bid for each item accordingly. Bids will be compared on the basis of number of units stated in the bidding schedule. Payment on the contract or unit price items will be based on the actual number of units installed in the completed work. No increases or decreases in the approximate quantities shall exceed twenty (20%) percent without approval of the City Engineer.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed, in four duplicate originals, the day and year first above written.

"OWNER"

CITY OF CHICKASHA

By: _____

ATTEST

City Clerk

APPROVED as to form and legality this ____ day of _____, 20____.

CITY ATTORNEY

APPROVED by the City of Chickasha this ____ day of _____, 20____.

"CONTRACTOR"

If an Individual: *(signature)* _____

doing business as: _____

If a Partnership: *(signature)* _____

By *(Printed Name and Title)*: _____

Names of other partners: _____

If a Corporation: *(signature)* _____

By *(Printed Name and Title)*: _____

ATTEST:

Business Address of Contractor

Secretary

(CORPORATE SEAL)

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we,
_____, hereinafter called the Principal, and the _____
of, _____, a corporation duly organized under the laws of the State of
_____, hereinafter called the Surety, as Surety, are held and firmly bound
unto City of Chickasha/Chickasha Municipal Authority, hereinafter call the Obligee, in the sum of
_____ Dollars (\$_____),

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind
ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by
these presents.

WHEREAS, said Principal entered into a written Contract with said Obligee dated _____,
for Illinois Avenue Sanitary Sewer Replacement, all in compliance with the plans and specifications
therefore, made a part of said Contract and on file in the office of Cowan Group Engineering, LLC, 7100 N.
Classen Blvd., Ste. 500, Oklahoma City, OK 73116.

WHEREAS, this bond is given in compliance with Title 61, Oklahoma Statutes 2001, Section 113(B)(2).

NOW THEREFORE, if said Principal shall, in all particulars, well, truly and faithfully perform and abide by
said Contract and each and every covenant, condition, and part thereof, and shall fulfill all obligations
resting upon said Principal by the terms of said Contract and said specifications, and if said Principal shall
protect and save harmless said Obligee from any pecuniary loss resulting from the breach of any of the
items, covenants and conditions of said Contract resting upon said Principal, the 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 alternations 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 obligations of this Bond.

IN WITNESS WHEREOF, this instrument is executed in 3 counterparts, each of which shall be deemed an original, this ____ day of _____, 20____.

WITNESS AS TO PRINCIPAL

(_____
(PRINCIPAL
(
(BY: _____

WITNESS AS TO SURETY

(_____
(SURETY
(
(BY: _____
(ATTORNEY-IN-FACT

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Oklahoma. Attach a certified Copy of the Power of Attorney.

STATUTORY BOND

KNOW ALL MEN BY THESE PRESENTS, that we,
_____, hereinafter called the Principal, and the _____
of, _____, a corporation duly organized under the laws of the State of
_____, hereinafter called the Surety, as Surety, are held and firmly bound
unto City of Chickasha/Chickasha Municipal Authority, hereinafter call the Obligee, in the sum of
_____ Dollars (\$_____),

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal entered into a written Contract with said Obligee dated _____, for Illinois Avenue Sanitary Sewer Replacement, all in compliance with the plans and specifications therefore, made a part of said Contract and on file in the office of Cowan Group Engineering, LLC, 7100 N. Classen Blvd., Ste. 500, Oklahoma City, OK 73116.

WHEREAS, this bond is given in compliance with Title 61, Oklahoma Statutes 2001, Sections 1 and 113(B)(1).

NOW THEREFORE, if said Principal shall fail or neglect to pay all indebtedness incurred by said Principal or subcontractors 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 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.

It is further expressly agreed and understood by the parties hereto that no changes or alternations 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 obligations of this Bond.

IN WITNESS WHEREOF, this instrument is executed in 3 counterparts, each of which shall be deemed an original, this ____ day of _____, 20____.

WITNESS AS TO PRINCIPAL

(_____
(PRINCIPAL
(
(BY: _____

WITNESS AS TO SURETY

(_____
(SURETY
(
(BY: _____
(ATTORNEY-IN-FACT

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Oklahoma. Attach a certified Copy of the Power of Attorney

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we,
_____, hereinafter called the Principal, and the _____
of, _____, a corporation duly organized under the laws of the State of
_____, hereinafter called the Surety, as Surety, are held and firmly bound
unto City of Chickasha/Chickasha Municipal Authority, hereinafter call the Obligee, in the sum of
_____ Dollars (\$_____),

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal entered into a written Contract with said Obligee dated _____, for Illinois Avenue Sanitary Sewer Replacement, all in compliance with the plans and specifications therefore, made a part of said Contract and on file in the office of Cowan Group Engineering, LLC, 7100 N. Classen Blvd., Ste. 500, Oklahoma City, OK 73116.

WHEREAS, this bond is given in compliance with Title 61, Oklahoma Statutes 2001, Section 113(B)(3).

NOW THEREFORE, if said Principal shall pay or cause to be paid to Obligee 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 after acceptance of said project by Obligee; 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 Obligee 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 alternations 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 obligations of this Bond.

IN WITNESS WHEREOF, this instrument is executed in 3 counterparts, each of which shall be deemed an original, this ____ day of _____, 20____.

WITNESS AS TO PRINCIPAL

(
(PRINCIPAL
(
(BY: _____

WITNESS AS TO SURETY

(
(SURETY
(
(BY: _____
(ATTORNEY-IN-FACT

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Oklahoma. Attach a certified Copy of the Power of Attorney.

APPENDIX A:

VERIFICATION OF NON-BOYCOTTING OF ENERGY COMPANIES

Reference: 74 O.S. § 12005

STATE OF _____)
) SS.
COUNTY OF _____)

I, _____ (print name), as the
agent of _____ (print company or business name)
located at _____ (address) do hereby
swear and affirm that the named company does not boycott energy companies, and will not
boycott energy companies during the term of the contract.

_____, (print affiant's full name), being
first duly sworn on oath according to law, deposes and states that he/she has read the foregoing
AFFIDAVIT OF NON-BOYCOTTING OF ENERGY COMPANIES and that the matters stated
herein are true to the best of his/her information, knowledge and belief.

Affiant's Signature

Affiant's Printed Name and Title

SUBSCRIBED AND SWORN TO before me this ____ day of _____ 20____,

Notary Public

(Seal)

My commission expires:

NOTE: For purposes of this affidavit the boycott of energy companies means:

Boycott energy company" means, without an ordinary business purpose, refusing to deal with,
terminating business activities with, or otherwise taking any action that is intended to penalize,
inflict economic harm on, or limit commercial relations with a company because the company:

- a. engages in the exploration, production, utilization, transportation, sale, or manufacturing of
fossil-fuel-based energy and does not commit or pledge to meet environmental standards
beyond applicable federal and state law, or
- b. does business with a company described by subparagraph a of this paragraph

INVOICE AFFIDAVIT

STATE OF _____)
) SS.
COUNTY OF _____)

The undersigned (architect, contractor, supplier, engineer, or supervisory official), of lawful age, being first duly sworn, on oath says that this invoice is true and correct. Affiant further states that the (work, services, or materials) as shown by this invoice have been (completed or supplied) in accordance with the plans, specifications, orders, or requests furnished to the affiant. Affiant further states that (s)he has made no payment, given, or donated or agreed to pay, give, or donate, either directly or indirectly, to any elected official, officer, or employee of the City of Chickasha/Chickasha Municipal Authority, of money or any other thing of value to obtain payment of this invoice.

Contractor or Supplier

SUBSCRIBED AND SWORN TO before me this ____ day of _____ 20__

Notary Public

(SEAL)

My commission expires:

Architect, Engineer, or other
Supervisory Official

SUBSCRIBED AND SWORN TO before me this ____ day of _____ 20__

Notary Public

(SEAL)

My commission expires:

APPLICATION AND CERTIFICATE FOR PAYMENT

PROJECT: Illinois Avenue Sanitary Sewer Replacement
TO: (OWNER): City of Chickasha/Chickasha Municipal Authority

ENGINEER: Cowan Group Engineering, LLC
CONTRACTOR:
CONTRACT FOR:
APPLICATION DATE: APPLICATION NO:
PERIOD FROM: TO:

CHANGE ORDER SUMMARY

Application is made for Payment, as shown below, in connection with the Contract.
The present status of the account for this Contract is as follows:

Change Orders approved	ADDITIONS \$	DEDUCTIONS \$	ORIGINAL CONTRACT SUM	\$
in previous months by				
Owner			Net change by Change Orders	\$
TOTAL				
Subsequent Change Orders				
No. Approved			CONTRACT SUM TO DATE	\$
(Date)			TOTAL COMPLETED TO DATE	\$
			RETAINAGE <u>5</u> %	\$
			TOTAL EARNED LESS RETAINAGE	\$
			LESS PREVIOUS CERTIFICATES FOR PAYMENT	\$

TOTALS

Net change by Change Orders \$ _____ CURRENT PAYMENT DUE \$ _____
The undersigned Contractor certifies that the work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by him for work for which previous Certificates for Payment were issued and payments received from the Owner, and that the current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Engineer certifies to the Owner that to the best of the Engineer's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED. \$ _____

INSPECTOR:

ENGINEER:

By: _____

OWNER:

By: _____

[illegible]

Subtotal or Total

CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES; CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS COMPLETION OR MODIFICATION.

TO OWNER: City of Chickasha/Chickasha Municipal Authority
117 N 4th St
Chickasha, OK 73018

PROJECT: Illinois Avenue Sanitary Sewer Replacement

CONTRACT DATED: _____

STATE OF: _____

COUNTY OF: _____

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered against any property of the Owner arising in any manner out of the performance of the Contract referenced above:

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

The following supporting documents should be attached hereto if required by Owner:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.
3. Contractor's Affidavit of Release of Liens.

CONTRACTOR:

(Name and address)

BY: _____

(Signature of authorized representative)

(Printed name and title)

SUBSCRIBED AND SWORN TO before me on this date:

Notary Public: _____

My Commission Expires: _____

CONTRACT SPECIFICATIONS

A. GENERAL

1. This Contract is intended to, and hereby does, provide for complete in place, **Illinois Avenue Sanitary Sewer Replacement** including all necessary work and material for a total job, whether or not such work and material is shown or implied in the plans and specifications.
2. All construction and materials shall conform to the City of Chickasha's Standard Specifications and/or the latest revision of the Oklahoma Department of Transportation Construction Standards and Specifications. All work necessary to make for a complete and operable **Illinois Avenue Sanitary Sewer Replacement** as intended by these plans and specifications for which bid items are not provided, shall be considered incidental work and the cost thereof shall be included in other appropriate bid items.
3. The cost to include the furnishing and installation of all temporary sheeting, shoring, timbering and bracing required to maintain any excavation in a condition to furnish safe working conditions and to permit the safe and efficient installation of all items of contract work shall be included in other items of work. The Contractor shall further, at his own expense, shore up or otherwise protect all fences, buildings, walls, walks, curbs, or other property adjacent to any excavation which might be disturbed during the progress of the work. The Contractor will be held liable for any damage which may result to neighboring property from excavation or construction operations.
4. Whenever any excavation is carried beyond the lines and grades shown on the Contract Drawings, written in the Contract Documents, and/or given by the Engineer, the Contractor shall, at his own expense, refill all such excavated space with such materials and in such a manner as may be directed. Beneath and around concrete structures, space excavated without authority shall be thoroughly compacted when refilling, or if deemed necessary by the Engineer, shall be refilled with concrete at the Contractor's expense.
5. If the materials encountered on any excavation are not suitable for structural foundations, or if necessary, to go an additional depth or width from that designated on the contract drawings to provide proper bearing for pipe and concrete, the Contractor shall make such additional excavations outside the regular limits of the work as may be directed by the Engineer. The cost of such additional excavation shall be merged into the appropriate unit price.
6. Excavated material shall be deposited so as to interfere as little as possible with the execution of the whole work or its several parts. Such material as cannot be placed in its final position in fills and embankment shall be removed to a temporary spoil bank, from which it shall later be taken and placed in embankment or fills.
7. Unsuitable and surplus excavated material not incorporated in the improvement shall be disposed of by the Contractor at his own expense unless otherwise designated in the project specifications, or on the contract drawings.

8. If private land is used by the Contractor as a spoil site, the Contractor shall obtain written permission from the owner or agent of the land agreeing to its use for this purpose and provide the project owner with a certified copy of such agreement.
9. The Contractor shall notify residents and business owners of construction by distributing door hangers to each and every house, business, and /or occupied structure located on the street or alley where the construction shall occur, at least 48 hours in advance of the commencement of construction.

B. SITE CONDITIONS

The CONTRACTOR shall be responsible for familiarizing himself with surface and subsurface conditions. The base bid as shown in the proposal shall include cost for unclassified excavating of earth, rock, dewatering, stabilizing unsuitable soils such as quicksand or other unsuitable materials, or any hazard that may be encountered. The cost for such work shall be included in the appropriate bid item. No additional compensation shall be given for such work. The CONTRACTOR shall satisfy himself as to the accuracy of all measurements before constructing any permanent structure.

C. SURVEYS

The CONTRACTOR shall develop and make all detailed surveys needed for construction such as slope stakes, batter boards, stakes for construction location and other working points, lines and elevations. The CONTRACTOR shall carefully preserve all benchmarks, reference points and stakes established by the ENGINEER and in case he causes damage or disturbance, he will be charged for the cost of replacement and shall be responsible for any mistakes that may be caused by their loss.

D. UTILITY LOCATIONS

The elevation and location of all utilities shown on the contract drawings were taken from public records. It shall be the duty of the CONTRACTOR to make final and exact determination of the location and extent of these utilities, and he will be liable for any expense resulting from damage to them. Unless otherwise indicated on the contract drawings or unless otherwise taken care of by the OWNER thereof, all utilities and all structures of any nature, whether below or above ground, that may be affected by the work shall be protected and maintained by the CONTRACTOR and shall not be disturbed or damaged by him during the progress of the work. Should the CONTRACTOR disturb, disconnect or damage any utility or any structure, all expenses of whatever nature arising from such disturbance or the replacement or repair thereof shall be borne by the CONTRACTOR. This provision shall apply whether or not said utility or structure is shown on the plans. All utility locations shown or not shown on these plans shall be the responsibility of the CONTRACTOR prior to excavation. Utility location telephone numbers are:

1-800-522-6543	Statewide
1-800-654-8349	Out of State

E. AS-BUILT RECORDS

The CONTRACTOR is required to keep a current record of all field changes on jobsite at all times. They shall be legibly marked on his plan and shall become property of the City

of Chickasha/Chickasha Municipal Authority prior to completion for purposes of constructing an as-built record of this project.

F. ARRANGEMENT AND CHARGE FOR WATER FURNISHED BY THE CITY

If the CONTRACTOR desires to use City water, he shall pay the rate established by City Ordinance for such service and he shall make complete and satisfactory arrangements with the City Utility Department for so doing. Flush meters will be used and the CONTRACTOR shall deposit the cost of the flush meter with the Utility Department and will pay for repairs and maintenance of the meter for the period which he has the meter in use in his possession. CONTRACTOR shall be charged for the amount of water he uses, including any monthly minimum charge.

G. USE OF FIRE HYDRANTS

The CONTRACTOR or his employees shall not open, turn off, interfere with, attach pipe or hose to, or connect anything with any fire hydrant, stop valve or stop cock or tap any water main belonging to the City unless duly authorized to do so by the OWNER.

H. PROTECTION AND OPENING TO PEDESTRIANS AND TRAFFIC

The CONTRACTOR is required to receive permission from the CITY ENGINEER to close any traffic lanes or alleys or roads during construction. No road shall be permanently or temporarily closed without prior approval by the CITY ENGINEER. The CONTRACTOR shall conduct his work so as to interfere as little as possible with public travel, whether vehicle or pedestrian; whenever it is necessary to cross, obstruct, or temporarily close roads, driveways and walks, whether public or private. The CONTRACTOR shall, at his own expense, provide and maintain suitable and safe bridges, detours, barricades, signing, lighting, striping and/or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them; provided, however, that such maintenance of traffic will not be required at any point where the CONTRACTOR has obtained permission from the owner and/or tenant of private property, or from the authority having jurisdiction over public property involved to obstruct traffic at any designated point thereon and for the duration of whatever period of time as may be agreed upon. All work pertaining to traffic control shall be in accordance with the latest revision of "The Manual on Uniform Traffic Control Devices."

I. MATERIALS & CONSTRUCTION

All materials and construction shall be in accordance with the latest Oklahoma Department of Transportation Standard Specifications for Construction (Standard Specifications) and Construction Standards, unless otherwise specified in the contract plans and specifications.

J. TESTING AND ACCEPTANCE REQUIREMENTS

The CONTRACTOR shall be responsible for paying the cost of all testing outlined in the Standard Specifications. Testing shall be performed by a qualified testing laboratory approved by the OWNER.

K. PROTECTION AND PRESERVATION OF PROPERTY AND LANDSCAPE

The CONTRACTOR will be solely and completely responsible for the conditions of the job site, including the safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. The CONTRACTOR shall furnish such watchmen, guards, fences, warning signs, lights and walkways, and shall take all other precautions as shall be necessary to prevent damage to persons or property. All structures and improvements damaged by the CONTRACTOR, his employees, subcontractors, or agents, shall be restored to a condition as good as when he entered upon the work. The duty of the ENGINEER to conduct construction inspection of the CONTRACTOR'S performance does not include any review of the adequacy of the CONTRACTOR'S safety measures in, on, or near the construction site or sites. The ENGINEER has not been retained or compensated to provide design and construction review services relating to the CONTRACTOR'S safety precautions or to means, methods, techniques, sequences, or procedures required for the CONTRACTOR to perform his work.

No trees shall be removed on the site of the work where outside of excavation limits, except where their removal is authorized by the ENGINEER. Where trees are on the line of the trench or adjacent thereto such trees and roots shall be removed and disposed of by and at the expense of the CONTRACTOR.

Trees remaining at the end of construction shall be adequately protected from permanent damage by reason of construction operations. Trimming of remaining trees where required shall be as directed by the ENGINEER.

All turf, shrubbery, and other landscaping, damaged or removed by the CONTRACTOR shall be replaced under the direction and to the satisfaction of the OWNER, by and at the expense of the CONTRACTOR.

Any traffic signal loop wire, pull box, or conduit that is damaged or destroyed shall be replaced under the direction and to the satisfaction of the OWNER, by and at the expense of the CONTRACTOR.

L. ADMINISTRATION MATTERS

All permits, fees, and licenses required under City Ordinance not regulated by state or federal law will be collected.

ILLINOIS AVENUE SANITARY SEWER REPLACEMENT

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 00 00 – GENERAL CONDITIONS

PART 1 – GENERAL

1.1 DESCRIPTION

The General Conditions shall govern and control all work to which they apply; however, since these specifications are of a general nature, they may refer to work not found in this project, in which case such non-applicable stipulations will have no meaning in this Contract. In case of conflict between the General Conditions and the Special Conditions, the Special Conditions shall govern. In case of conflict with either the General or Special Conditions by Supplemental Conditions of a funding agency such as EPA, FMHA, EDA or HUD, the Supplemental Conditions will govern.

PART 2 – DEFINITIONS

2.1 DEFINITIONS

DEFINITIONS: Whenever the words defined below, or pronouns used in their stead occur hereinafter, they shall have the meanings given as follows:

- A. "OWNER" shall mean the City of Chickasha or Chickasha Municipal Authority.
- B. "ENGINEER" shall mean Cowan Group Engineering, LLC, who has been employed by the OWNER for this work, or his duly authorized agent.
- C. "Inspector" shall mean the engineering or technical inspector or inspectors duly authorized by the ENGINEER, limited to the particular duties entrusted to him or them.
- D. "CONTRACTOR" shall mean the person, persons, partnership, company, firm or corporation entering into this contract for the performance of the work, or the agent appointed to act for such party.
- E. "Specification" shall mean, collectively, all of the terms and stipulations contained in the written portion of information furnished.
- F. "Drawings or Plan Sheets" shall mean, collectively, all of the drawings pertaining to the contract and made a part thereof, and also such supplementary drawings as the ENGINEER may issue from time to time in order to clarify the drawings, or for the purpose of showing authorized changes in the work, or for showing details which are not shown thereon.
- G. The term "Grade" used in these Specification is understood to refer to and indicate the established elevations of the paving, flow line of waterlines and other appurtenances as shown on the drawings.
- H. Whenever in these CONTRACT DOCUMENTS the words "as ordered", "as directed", "as permitted", "as allowed", or words or phrases of like import are used, it shall

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be understood that the order, direction, requirements, permission, or allowance of the OWNER and ENGINEER is intended.

- I. Similarly, the words "approved", "reasonable", "suitable", "acceptable", "properly", "satisfactory", or words of like effect and import, unless otherwise particularly specified herein, shall mean approved, reasonable, suitable, acceptable, proper, or satisfactory in the judgment of the OWNER and ENGINEER.
- J. Whenever the term "or equal" is used in the drawings and/or Specification it shall refer to a material which will adequately perform the same function, in the opinion of the ENGINEER, as the material specified or shown on the drawings.

PART 3 - SCOPE OF WORK

The work to be covered under these contracts in accordance with the drawings listed herein and, in these specifications, consists of the furnishing of all materials, equipment, tools, labor, transportation and services necessary to complete the construction as outlined herein and as shown on the drawings. The complete installation shall not lack any part which can be reasonably implied as necessary to its proper functioning nor any subsidiary which is customarily furnished.

PART 4 - EXAMINATION OF SITE OF WORK

It is the obligation of the bidder to examine carefully the site of the proposed work; to ascertain for himself all the facts concerning conditions therein, including all physical characteristics above, on and below the surface of the ground; to investigate the subsurface conditions and to determine for his information the character and proportionate quantities of soils, rock and other subsurface material which may be encountered in the work; to inform himself by independent research of the difficulties to be encountered and judge for himself the accessibility of the work and all other circumstances affecting the cost of doing the work or the time required for its completion; and the bidder agrees to this obligation in signing the proposal. When provided, the soils boring and testing report is attached to these Specification for the CONTRACTOR'S information and is not a part of the contract. No guarantee is made as to their accuracy or completeness. The OWNER assumes no responsibility whatsoever with respect to ascertaining for the bidder such facts covering physical characteristics at the site of the work. The bidder agrees that, if awarded the contract, he will make no claim for, and will have no right to, additional payment or extension of time for completion of the work or any other concession because of any failure on his part to fully acquaint himself with all conditions relating to the work. The bidder shall rely exclusively upon his own estimate, investigation and evaluation of site conditions.

PART 5 - SITE CONDITIONS

Where connections to existing utilities are shown on the drawings, the work may be required to be done at night or at a time which will least interfere with the operation of the existing facility.

The tie to existing utilities will be coordinated with personnel of the OWNER of the existing lines and will be done at a time to least inconvenience their operation. The work may be required to be done at night or weekends or both.

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Where possible the existing utilities (water, gas, etc.) have been noted on the drawings. There may be additional buried lines that are not shown and if such is encountered, said lines will be left in service. CONTRACTOR shall take all precautions available prior to construction to locate, identify, and verify utilities. If said lines are broken by the CONTRACTOR, they shall be repaired as soon as possible.

The work along or across state highways shall be done in accordance with the permit from Division Engineer, Department of Transportation. The right-of-way shall be maintained in a satisfactory manner at all times. All roads, streets, drives, etc., cut during construction shall be properly protected by barricades, flashing lights, etc., and shall be made passable as soon as possible after laying of lines during the day and always at night. CONTRACTOR shall maintain the above cut roads in a passable condition until the wearing surface is replaced and then kept in a satisfactory condition for five (5) years after job is completed.

PART 6 - EXPLOSIVES

In handling explosives used during the construction of the project, the CONTRACTOR shall adhere to all Federal and State laws and City ordinances regulating the purchase, transportation, storage, handling, and use of such explosives. No blasting shall be done without 12-hour notification of the OWNER and ENGINEER, proof of insurance, and the presence of the Inspector. All equipment, tools, and materials used shall be of the correct type and in good condition for the operation. The CONTRACTOR shall take all necessary precautions to avoid damage to property resulting from the transportation, storage, handling and use of explosives. Before blasting, the CONTRACTOR shall take all necessary precautions to ensure that rock and debris will be confined to the excavation. Any blasting within 10 ft. of a water, sewer, gas or pipeline shall be done with very light charges, and utmost care shall be taken to avoid disturbance to these lines.

PART 7 - SUBMITTALS

Engineering data covering all equipment and fabricated materials to be furnished under this contract shall be submitted to the ENGINEER for review. This data shall include drawings and operation of component materials and devices; the external connections; anchorages and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment. Data submitted shall include drawings showing essential details of any changes proposed by CONTRACTOR and all required structural layout and wiring diagrams.

No work shall be performed in connection with the fabrication or manufacture of materials and equipment, nor shall any accessory or appurtenance be purchased until the drawings and data therefore have been reviewed, except at the CONTRACTOR'S own risk and responsibility.

At least five (5) copies of each drawing and necessary data with statement of approval by the CONTRACTOR, shall be submitted to the ENGINEER. Each drawing or data sheet shall be clearly marked with the name of the project, the ENGINEER'S name, CONTRACTOR'S name and references to applicable specification paragraphs and drawing sheets. When catalog pages are submitted, the applicable items shall be identified.

The ENGINEER'S review of drawings and data submitted by the CONTRACTOR will cover only general conformity to the drawings and specifications, external connections and

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dimensions which affect the layout. The ENGINEER'S review of drawings returned marked NO EXCEPTIONS NOTED or EXCEPTIONS NOTED does not indicate a thorough review of all dimensions, quantities and details of the material, equipment, device or items shown and does not relieve the CONTRACTOR from any responsibility for errors, omissions, or deviations from the contract requirements.

All drawings and data, after final processing by the ENGINEER, shall become a part of the contract documents, and the work shown or described thereby shall be performed in conformance therewith unless otherwise authorized by the OWNER or the ENGINEER.

After drawings and data have been accepted by OWNER or ENGINEER, the CONTRACTOR shall submit three (3) additional copies of all data and one (1) set of reproducible drawings to OWNER for file records. Also, CONTRACTOR shall keep accurate "record drawings" records of the work and turn these records over to the OWNER at the completion of the work.

PART 8 - SURVEYS

The OWNER shall establish base lines or control points for the location of the principal component parts of the work together with benchmarks adjacent to the work as shown or indicated on the Drawings. The CONTRACTOR shall develop and make all detailed surveys necessary for construction. The CONTRACTOR shall be responsible for the accuracy of all lines and grades for all parts of the work. He shall do all field work necessary to lay out and maintain the work and shall make available to the OWNER all facilities and information necessary for properly checking the accuracy of such field work. Such checking shall in no way relieve the CONTRACTOR of his responsibility for the correctness of all field work.

The OWNER will provide survey of property including reference points, property corners and benchmarks where necessary in the opinion of the ENGINEER. If necessary, the CONTRACTOR shall transfer these reference points and benchmarks to permanent locations where they will not be disturbed. If disturbed, the CONTRACTOR shall re-install them to OWNER'S satisfaction, at CONTRACTOR'S cost.

PART 9 - PERMITS AND REGULATIONS

The CONTRACTOR shall secure and pay for all construction permits required to carry out the work unless otherwise specified and shall produce same upon demand of the OWNER. The CONTRACTOR shall give all notices and pay all fees and shall, before starting work, ascertain whether the drawings and specification are in variance with any codes or regulations applying at the site. The CONTRACTOR shall obtain completion survey, certificate of completion or occupancy if required by local regulations.

All features of design and construction shall comply with the local building regulations and/or other lawful or public regulations which apply at the site. If any features of construction as shown on the OWNER'S plan do not conform to the regulations, the CONTRACTOR shall notify the OWNER of such discrepancy and shall base his quotation and work on features of construction which do conform to the regulations.

If the CONTRACTOR performs any work contrary to such laws, ordinances, rules and regulations and without such notice to the OWNER, he shall bear all costs arising therefrom.

PART 10 - INSPECTION

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The CONTRACTOR will provide access to the work site and facilities for representatives of the Environmental Protection Agency, Oklahoma Department of Environmental Quality and other agencies, as well as OWNER and ENGINEER, as required whenever the work is in progress.

PART 11 - 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.

PART 12 - PROTECTION OF PROPERTY

- A. The protection of City, State and Government monuments, street signs and other OWNER's 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. Disturbance to this property must first be approved by the agency which controls it.
- B. No valves or other control on any utility main or building service line shall be operated for any purpose by the CONTRACTOR.
- C. At places where the CONTRACTOR'S operations are adjacent to the plant of railway, telegraph, telephone, electric and gas companies, or water, sanitary sewers and storm sewers, damage to which might result in expense, loss or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made.
- D. The OWNER has attempted to locate all storm sewers, culverts, buried telephone or electrical conduits, sanitary sewers and water mains that might interfere with the construction of this project. The CONTRACTOR shall cooperate with the owners of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner and duplication, or rearrangement work may be reduced to a minimum and that services rendered by those parties will not be unnecessarily interrupted. The revision and crossings of the various types of lines shall be made as follows:
 1. Storm sewers and culverts may be removed at the time of crossing or may be adequately braced and held in position while the pipe is placed beneath them. If the storm sewer or culvert is removed, it shall be replaced with pipe of the same type and size as that removed and it shall be re-joined to the undisturbed line with a joint satisfactory to the ENGINEER. Backfill over the main up to and around the storm sewer shall be thoroughly compacted in order that no settlement will occur. The revision and crossing of said lines shall be at the expense of the CONTRACTOR.
 2. All overhead and buried telephone and electrical conduits, to be revised or crossed by the construction of this project shall be protected in accordance with the directions of the utility company owning the conduits and/or mains. The CONTRACTOR shall notify the companies and obtain their permission before making any crossing or revisions. The revision and crossing of said lines shall be at the expense of the CONTRACTOR. Any overhead cables or buried cables

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or conduits damaged by the CONTRACTOR shall be repaired at his expense to the satisfaction of the ENGINEER and of the OWNER.

3. The CONTRACTOR shall not remove any water or sanitary sewer lines except as directed by the ENGINEER or as required by the Drawings and specifications and shall adequately brace and protect them from any damage during construction. Any existing water main or sewer main or lateral damage caused by the CONTRACTOR'S operations will be repaired by the CONTRACTOR. The repairs will be made at the CONTRACTOR'S expense.
- E. The location of utility service lines serving individual properties may or may not be shown on the Drawings, but the CONTRACTOR shall assume that such service lines exist whether or not they are shown on the Drawings, and it shall be the responsibility of the CONTRACTOR to make any necessary changes in the line and/or grade of such services, or to secure the necessary changes therein to be made by the particular utility company involved or other OWNER thereof, or by an agent or individual CONTRACTOR approved by such utility company or other OWNER. CONTRACTOR shall pay the cost of all such revisions whether performed by CONTRACTOR, the utility company or other OWNER, or an approved CONTRACTOR. In the event of interruption of a utility service as a result of accidental breakage, CONTRACTOR shall promptly notify the ENGINEER and the OWNER of the utility and shall repair or cause the same to be repaired, in the same manner as necessary changes above are provided for, the CONTRACTOR shall do all things necessary to see that the restoration of services is done as promptly as may be reasonably done. All sanitary sewer service lines damaged shall be replaced with cast iron pipe regardless of type or kind damaged.
- F. In the event the CONTRACTOR in any way fails to comply with the requirements of protecting, repairing and restoring of any utility or utility service, the OWNER may, upon forty-eight (48) hours written notice proceed to protect, repair, rebuild or otherwise restore such utility or utility service as may be deemed necessary, and the cost thereof will be deducted from any money due, or which may become due the CONTRACTOR pursuant to the terms of his contract.

PART 13 - FIELD OFFICE

Copies of the drawings, specification, and other contract documents shall be kept at the site of the work available for use at all times.

PART 14 – MATERIALS AND CONSTRUCTION

All materials and construction shall be in accordance with the latest Oklahoma Department of Transportation Standard Specifications for Construction (Standard Specifications) and Construction Standards unless otherwise specified in the contract plans and specifications.

PART 15 - ALTERATION OF QUANTITIES

The CONTRACTOR agrees that the quantities of work as stated in the Bid Schedule or indicated on the drawings are only approximate, and that the OWNER shall have the right to omit portions of the work and to increase or decrease the quantities of any item of work. Final payment will be

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based on the actual quantities used and installed in accordance with the drawings and Specification.

PART 16 - QUALITY CONTROL

When required in writing by the ENGINEER, the CONTRACTOR shall make such tests as may be necessary to show that the requirements of the Specification have been fulfilled.

All tests shall be made under the supervision and direction of the ENGINEER, and the CONTRACTOR will provide all required materials, labor and apparatus, etc., or so directed, engage an approved testing laboratory for making same. Any work found defective shall be removed, replaced and retested until satisfactory to the ENGINEER, all at the CONTRACTOR'S expense.

Should tests required by the ENGINEER, except those specifically called for elsewhere in these General Requirements or in the Specification show that the requirements of the Specification have been fulfilled, then the costs of such tests shall be paid for by the OWNER.

PART 17 - MEASUREMENT AND FITTING OF PARTS

The CONTRACTOR, without extra charge, shall make such slight alterations as may be necessary to make adjustable parts fit the fixed parts, leaving all complete and in proper shape when done. The CONTRACTOR shall verify all dimensions given in the drawings and shall report any error or inconsistency to the ENGINEER before commencing work.

PART 18 - CONTRACTOR'S SUPERINTENDENT

The CONTRACTOR shall keep a competent Superintendent and any necessary assistants at the site throughout the progress of the work. All directions given to said Superintendent shall be as binding as if given to the CONTRACTOR. Upon request, such directions will be confirmed, in writing, to the CONTRACTOR.

The CONTRACTOR'S Superintendent and/or any of his assistants shall be promptly replaced in the event he or they shall prove to be incompetent and/or unsatisfactory to the ENGINEER.

PART 19 - ASSISTANCE BY ENGINEER

It is distinctly understood and agreed that such assistance as the ENGINEER may render to the CONTRACTOR in connection with the interpretation of drawings and specification shall not relieve the CONTRACTOR from any responsibility for the work. Any work which proves faulty shall be made right by the CONTRACTOR without delay. The failure of the ENGINEER, or his Inspectors to call the CONTRACTOR'S attention to faulty work or work done which is not in accordance with drawings and specification shall not prevent the OWNER from insisting that the CONTRACTOR make all work right.

PART 20 - INCIDENTAL WORK

Work called for on the drawings and/or specifications and are not set forth in the Bid Schedule as pay items, shall be considered as incidental work and will not be paid for directly, but shall be included in the price bid for the various pay items.

PART 21 - TERMINATION OF CONTRACT

If the CONTRACTOR shall be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse, or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen, equipment or proper materials, or if he should fail to make prompt payment to SUBCONTRACTOR or for material or labor, or persistently disregard laws, ordinances or the instructions of the ENGINEER, or otherwise be guilty of a substantial violation of any provision of the Contract, then the OWNER upon the certificate of the ENGINEER that sufficient cause exists to justify such action, may without prejudice to any other right or remedy and after giving the CONTRACTOR seven days written notice, terminate the employment of the CONTRACTOR and take possession of the premises and of all materials, tools and appliances thereon and finish the work by whatever method the OWNER may deem expedient. In such case, the CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract Price shall exceed the expense of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the CONTRACTOR. If such expense exceed such unpaid balance, the CONTRACTOR shall pay the difference to the OWNER as herein provided, and the damage incurred through the CONTRACTOR's default shall be certified by the ENGINEER.

In the event of termination of Contract before completion of the work, due to abandonment of the project or discontinuance thereof, the CONTRACTOR will be paid in proportion to the work completed and in progress as per scope of work described in the drawings and specification and in accordance with the unit price schedule.

PART 22 – PROGRESS PAYMENTS, ACCEPTANCE AND FINAL PAYMENT

Basis for Progress Payments: The Schedule of Quantities as shown in the Plans will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period. The amount of retainage with respect to progress payments will be 5% until 50 percent completion after which retainage shall be 2.5%.

Upon receipt of written notice from the CONTRACTOR that the work is ready for final inspection and acceptance, the ENGINEER shall promptly make such inspection and when he finds the work acceptable under the Contract and the Contract fully performed, he shall promptly issue a final certificate over his own signature, stating that the work provided for in this Contract has been completed and is accepted by him under the terms and conditions thereof, and the entire balance found to be due the CONTRACTOR, including the retained percentage, shall be paid to the CONTRACTOR, as approved by the OWNER, at the office of the OWNER within 30 days after the date of said final certificate.

If, after receipt of written notice from CONTRACTOR requesting final inspection and the performance of said final inspection by ENGINEER, additional inspections are necessary in order for ENGINEER to issue a final certificate; the OWNER shall withhold the cost associated with said additional inspections from the final payment due the CONTRACTOR.

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Before issuance of final certificate, the CONTRACTOR shall submit evidence satisfactory to the ENGINEER that all payrolls, material bills, equipment rentals, and all other indebtedness connected with the work have been paid.

PART 23 - PLACING WORK IN SERVICE

If desired by the OWNER, portions of the work may be placed in service when completed and the CONTRACTOR shall give prior access to the work for this purpose, but such use and operation shall not constitute an acceptance of the work.

PART 24 - SCHEDULES

The CONTRACTOR shall furnish the ENGINEER with a tentative schedule, in a format approved by the ENGINEER, setting forth in detail the procedure he proposes to follow, and giving the dates on which he expects to start and to complete separate portions of the work. 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, or extension thereof made as herein provided.

CONTRACTOR is to prepare list of proposed SUBCONTRACTORS including material suppliers; submit to ENGINEER for approval before subcontracts are awarded. No SUBCONTRACTOR is to be employed on work unless approved by OWNER and ENGINEER.

PART 25 - PROJECT SIGN

A project sign is not required for this project.

PART 26 - INSURANCE

The CONTRACTOR shall protect, indemnify, save and hold harmless the OWNER, their officers, agents, and employees from all suits, actions or claims of any kind or character brought because of bodily injuries, sickness, disease or personal injury, or damages received or sustained by any person, persons, or property on account of any operations of the CONTRACTOR, his agents, employees, his subcontractors or any others authorized by the CONTRACTOR to perform work on the project.

Third Party Beneficiary Clause. It is specifically agreed by and between the parties executing this Contract, that it is not intended by any of the provisions of any part of the Contract to create in the public or any member thereof any third-party beneficiary provisions or to authorize anyone not a party to this Contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Contract.

The CONTRACTOR shall carry insurance of the following kinds and amounts on all City Contracts:

- A. CONTRACTOR'S Public Liability, Auto Liability and Property Damage Liability Insurance.** The CONTRACTOR shall provide regular CONTRACTOR'S Public Liability Insurance for a combined amount of one million (\$1,000,000) dollars of coverage for all damages arising out of bodily injury, death, and property damage for

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each occurrence with an aggregate limit of two million (\$2,000,000) dollars.

The CONTRACTOR shall provide business auto liability coverage for an aggregate limit of one million (\$1,000,000) dollars of coverage for bodily injury and property damage arising out of the operation or maintenance of any vehicle including owned, non-owned and hired vehicles, and employee non-ownership use.

B. Insurance for SUBCONTRACTOR'S and CONTRACTOR'S Protective Public Liability and Property Damage Liability Insurance. In the event that any of the work to be performed by the CONTRACTOR on the project is sublet or assigned or is otherwise to be performed by anyone other than the CONTRACTOR'S own employees, then the insurance specified above shall extend to cover such work.

C. Workmen's Compensation Insurance and Employer's Liability Insurance. The CONTRACTOR shall furnish satisfactory evidence to the City that, with respect to the work to be performed by him on the project, he carries regular Workmen's Compensation and Employers Liability Insurance covering his liability under the "Workmen's Compensation Law of the State of Oklahoma". The CONTRACTOR shall maintain the aforementioned insurance in full force and effect for the duration of the Contract. Should the CONTRACTOR fail or neglect to maintain the aforementioned insurance, the City specifically reserves the right to withhold all funds due and owing the CONTRACTOR until such time as the required insurance is in effect.

In addition to the aforementioned insurance coverage, on any project in which the CONTRACTOR shall perform any Railway-Highway work, the CONTRACTOR shall also secure the following: "Railroads' Protective Liability and Property Damage Insurance".

D. Railroads' Protective Liability and Property Damage Insurance. In addition to the above, the CONTRACTOR shall furnish satisfactory evidence to the City that, with respect to the work to be performed by him under the Contract, he has provided for and on behalf of the Railway Company or Railway Companies involved, Protective Public Liability Insurance in an amount as may be required by the Railway Company, which amount shall be specified in the bid documents. Policies shall not include liability for negligence on the part of the Railway Company, its agents or employees, except as set out in Coverage A, B, or C of the form of policy, or amendments thereto, referred to under paragraph 6 below. This insurance applies to each and all Railway Companies involved in the work.

E. General. The insurance hereinbefore specified shall be carried in Insurance Companies approved by the City, and where applicable the Railway Company, during all times when work is being carried on under the terms of the Contract, until all work required to be performed under the Contract is satisfactorily completed as evidenced by the formal acceptance by the City.

F. Certificates of Insurance. Required insurance shall be documented by Certificates of Insurance which provide that the OWNER shall be notified at least thirty (30) days in advance of cancellation, non-renewal or adverse change. The Certificate of Insurance shall show the OWNER as the named insured.

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For general liability, the CONTRACTOR shall provide an indication of the amounts of claims, payments or reserves chargeable to the aggregate amount of liability coverage.

PART 27 - SAFETY STANDARDS AND ACCIDENT PREVENTION

With respect to all work performed under this Contract, the CONTRACTOR shall:

- A. Comply with the safety standards provisions of applicable laws, building and construction codes and the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1910 or 1926 as applicable.
- B. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.
- C. Trench Excavation and Safety System: All work under this item shall be in accordance with the current edition of the OSHA Standard for Excavation and Trench Safety Systems, 29 CFR 1926 Subpart P.

The CONTRACTOR shall notify all utility companies and OWNERS in accordance with the OSHA requirements given in 29 CFR 1926.651 (b) (2) for the purpose of locating utilities and underground installations.

Where the trench or excavation endangers the stability of a building, wall, street, highway, utilities, or other facility, the CONTRACTOR shall provide support systems such as shoring, bracing, or underpinning to ensure the stability of such facility. The CONTRACTOR may elect to remove and replace or relocate such facilities with the written approval of the facility owner, the ENGINEER, and the OWNER.

Payment for the work required by this item shall be included in the lump sum price bid. With each periodic payment request, CONTRACTOR shall submit a certification that the CONTRACTOR has complied with the provisions of the OSHA standards.

PART 28 - WAGE RATES

NO SPECIFIC REQUIREMENTS FOR THIS PROJECT.

PART 29 - WORKMEN

The CONTRACTOR shall employ foreman and skilled laborers where necessary, and if any person employed on the work shall refuse or neglect to obey orders of the ENGINEER or Inspector when such orders are in keeping with the provisions of these specifications or shall appear to the ENGINEER or his Inspector to be incompetent, disorderly or unfaithful, he shall, upon order of the ENGINEER, be at once discharged and not again employed upon any part of the work. It shall be the responsibility of the superintendent representing the CONTRACTOR to transmit all necessary orders and instructions. If requested by the ENGINEER, the CONTRACTOR shall submit, in written form, qualifications including work experience of any workman used on the project.

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PART 30 - NUMBER OF WORKING DRAWINGS AND SPECIFICATIONS

The ENGINEER will furnish to the CONTRACTOR not more than two (2) sets of drawings and specifications for construction. The CONTRACTOR may procure additional copies of drawings and specifications for construction at cost of reproduction. Such costs are reimbursable by the ENGINEER.

PART 31 - PRECONSTRUCTION CONFERENCE

Prior to the commencement of work at the site, a preconstruction conference will be held at a mutually agreed time and place. The conference shall be attended by:

- A. CONTRACTOR and his superintendent.
- B. Principal SUBCONTRACTORS.
- C. Representatives of principal suppliers and manufacturers as appropriate.
- D. ENGINEER and its Resident Project Representative.
- E. Representatives of OWNER.
- F. Government representatives as appropriate.
- G. Others as requested by CONTRACTOR, OWNER, or ENGINEER.
- H. Unless previously submitted to ENGINEER, CONTRACTOR shall bring to the conference a preliminary schedule for each of the following:
 - 1. Progress.
 - 2. Procurement.
 - 3. Values for progress payment purposes.
 - 4. Shop Drawings and other submittals.

The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:

- A. CONTRACTOR'S preliminary schedules.
- B. Transmittal, review, and distribution of CONTRACTOR'S submittals.
- C. Processing applications for payment.
- D. Maintaining record documents.
- E. Critical work sequencing.
- F. Field decisions and change orders.

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- G. Use of premises, office and storage areas, security, housekeeping, and OWNER'S needs.
- H. Major equipment deliveries and priorities.
- I. CONTRACTOR'S assignments for safety and first aid.

ENGINEER will preside at the conference and will arrange to keep the minutes and distributing the minutes to all persons in attendance.

PART 32 - PROGRESS MEETINGS

CONTRACTOR shall schedule and hold regular progress meetings at least monthly and at other times as requested by ENGINEER or required by progress of the work. CONTRACTOR, ENGINEER, and all SUBCONTRACTORS active on the site shall be represented at each meeting. CONTRACTOR may at its discretion request attendance by representatives of its suppliers, manufacturers, and other SUBCONTRACTORS.

CONTRACTOR shall preside at the meetings. Meeting minutes will be prepared and distributed by CONTRACTOR. The purpose of the meetings will be to review the progress of the work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop.

PART 33 - SUBSTANTIAL AND FINAL COMPLETION

All work including site restoration shall be finished within the time called out on the Bid Form for final completion.

PART 34 - EXCAVATION

All excavation shall be unclassified. No additional payment shall be made for rock, groundwater, or other natural formations encountered. Payment for excavation shall be included in other items of work.

PART 35 - SUBCONTRACTORS

CONTRACTOR is to prepare a list of proposed SUBCONTRACTORS including material suppliers and submit to ENGINEER for approval before SUBCONTRACTORS are awarded.

No SUBCONTRACTOR is to be employed at work unless approved by OWNER and ENGINEER.

PART 36 - RIGHT-OF-WAY/PROJECT VIDEO

CONTRACTOR shall video the complete right-of-way of the project prior to initiating construction and deliver video tape to the ENGINEER at the pre-construction conference. The video shall be taken in such a way to document pre-construction conditions for use in documenting satisfactory right-of-way restoration and other issues relative to initial conditions prior to construction.

PART 37 - RECORD DRAWINGS

37.1 GENERAL

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- A. The CONTRACTOR shall be responsible for accumulation and maintenance of a complete set of Project Record Documents and upon completion and acceptance of the project shall submit these documents to the ENGINEER, as the OWNER'S representative, for a permanent record.
- B. The Project Record Documents shall consist of:
 - 1. One complete set of drawings, with revisions.
 - 2. One complete Project Manual with all addenda, field bulletins and change orders.
 - 3. Complete set of all field test data.
 - 4. Complete set of approved shop drawings, product data brochures and samples.
 - 5. Six complete sets of maintenance and operating instructions, parts lists and supplier identification on all operating fixtures and equipment.

37.2 MAINTENANCE OF RECORD DOCUMENTS

- A. The CONTRACTOR shall maintain, on the site, one complete set of contract documents, other than those used for construction, throughout the life of the job.
 - 1. This set of documents shall be marked "Record Set" and shall be maintained up to date at all times and available to the ENGINEER for inspection.
 - 2. The only notations or other markings to be made on this set are notations of field variations made from the work shown on the drawings for purposes of "Record Drawings" revisions when the project is complete. Failure to record revisions by each CONTRACTOR shall be considered a breach of contract.
 - 3. This set of Documents will be turned over to the ENGINEER for preparation of "Record Drawings" prior to approval of final application for payment.

37.3 MAINTENANCE AND OPERATING INSTRUCTIONS

- A. A complete set of maintenance and operating instructions on the project shall be prepared for the OWNER'S continual use.
 - 1. To be bound in booklet form, 8-1/2" x 11" in size, labeled "Operating Manual".
 - 2. To be indexed for quick reference use.
 - 3. To contain manufacturer's printed data, record forms, diagrams, parts lists, maintenance procedures, start-up procedures, operating procedures, service requirements and schedules, and names, addresses and phone numbers of SUBCONTRACTOR, manufacturer and local service agent.
 - 4. To contain all written warranties and guarantees.
- B. Each CONTRACTOR shall submit six complete copies of this "Operating Manual" material from his trade to the ENGINEER at the completion of the project.

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- C. The ENGINEER shall assemble, bind, label and index this material for the OWNER as stated above. Failure to submit the data listed on the part of any CONTRACTOR may be considered cause to withhold final payment until all such information is received.

PART 38 - CHANGES IN THE WORK

ALL CHANGES SHALL BE MADE IN WRITING AND APPROVED BY THE OWNER OR ENGINEER. THIS INCLUDES CHANGES INVOLVING COST OR THOSE NOT INVOLVING COST. NO CHANGE WILL BE ACCEPTABLE UNLESS APPROVED IN WRITING.

The OWNER, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work with the Contract Total being adjusted accordingly. All changes involving cost shall be made using a written modification order and shall be supported with necessary documentation as to the increase or decrease in cost and time. No increase or decrease in cost or time will be made without an approved modification order that is completed at or before the change is made. Increases in cost or time will not be allowed at the end of the job for work completed earlier without an approved change order. The OWNER shall have authority to make minor changes in the work which do not involve extra cost, and which do not significantly change the design. All such changes shall be made with a written field order.

PART 39 – WEATHER DAYS

CONTRACTOR IS RESPONSIBLE FOR TRACKING ADVERSE WEATHER DAYS. CONTRACTOR SHALL NOTIFY THE ENGINEER THAT THEY WILL BE TAKING A WEATHER DAY. THE WEATHER DAY WILL NOT BE CONSIDERED UNLESS IT MEETS THE REQUIREMENTS BELOW. IT IS UP TO THE ENGINEER TO ACCEPT THE WEATHER DAY.

The contract time consists of the number of calendar days stated in the Contract for the completion of the work beginning on the effective date of the work order including all weekends, holiday, and normal adverse weather days. All calendar days elapsing between effective dates of any orders of the Owner to suspend work and to resume work for suspensions, not the fault of the Contractor shall be excluded.

The occurrence of unusually severe weather during the life of the Contract will be considered a basis for extending contract time when work is not already suspended for other reasons. Unusually severe weather shall mean weather which at the time of year occurs is unusual for the place in which it occurs.

Extension of time for unusually severe weather will include only those actual adverse weather days in excess of the normal adverse weather days included in the contract time. Normal adverse weather shall mean adverse weather which, regardless of its severity, is to be reasonably expected for that particular place at that particular time of year. The normal adverse weather days included in the contract time as shown in Table A are based on historical records of temperature and precipitation.

Actual adverse weather days are those days meeting one or more of the criteria in A, B, C, or D below. Time extensions for days meeting more than one criterion will take into consideration only that criterion having the greatest impact. Those actual adverse weather days covered by criterion A, B, or C that are in excess of the days in Table A will be allowed without regard to when they occur (except prior to mobilization, during suspension for other reasons, or after the

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project completion date) or their impact on contract completion. However, those days covered by criterion D will be subject to the limitations as noted.

- A. Days with Maximum temperature of 32°F or less - one full day allowed.
- B. Days with Minimum temperature of 32°F or less, but whose maximum temperature is over 32°F - one-half day allowed.
- C. Days when 1" or more precipitation (rain or snow equivalent) occur - one full day allowed.
- D. Days when weather-related conditions exist which prohibit proper performance of work as specified - one full day allowed. Allowance of such days will be subject to the work, which is being delayed, being critical to timely contract completion and the Contractor making every reasonable effort to minimize the adverse impact of the conditions.

TABLE A
NORMAL ADVERSE WEATHER DAYS
(BY MONTH)

<u>MONTH</u>	<u>NORMAL ADVERSE WEATHER DAYS</u>
January	8
February	7
March	5
April	3
May	3
June	3
July	2
August	2
September	2
October	3
November	4
December	7

END OF SECTION 01 00 00

SECTION 01 11 00 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The work covered by these specifications and drawings shall consist of all materials, transportation costs, equipment, and tools that are related to, or are to be incorporated in this contract and must be received, unloaded, stored, installed, erected, service connections provided, and coordinated with the construction by the CONTRACTOR under this contract. Installation of equipment and materials shall mean furnishing of all labor and materials as required to place the improvements in successful operation. The CONTRACTOR shall be responsible for all equipment and materials and shall replace at his own expense all such equipment and materials found defective in manufacture or damaged in handling after delivery by the manufacturer. The improvements are as listed:

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- B. This contract shall include minor items not specifically mentioned herein but shown on the accompanying plans or obviously necessary to provide a complete job.
- C. The following description, while not intended to cover all details, outlines some items of the work to be accomplished under this Contract:
1. Construction by trenching approximately 379 LF of eight (8) inch SDR 35 PVC sanitary sewer pipe.
 2. Construction of three (3) manholes, each with an internal diameter of four (4) feet.
 3. Connection to an existing manhole; plugging and abandoning existing sanitary sewer.
 4. Construction of four (4) new service connections.

Note: The sanitary sewer system must stay in operation throughout construction. Temporary pumping, piping, plugs, shut offs, etc. shall be considered incidental and included in the cost of other bid items.

- D. The price named in the Proposal shall include the furnishing of all labor, material, transportation costs, equipment rental, etc., necessary to construct the project as herein specified and as shown on the accompanying plans.
- E. The CONTRACTOR shall cooperate with the OWNER during construction so as to place the improvements in operation at minimum inconvenience and without significant disruption of the OWNER. The CONTRACTOR shall minimize his area of operation. Any areas disturbed will be restored to the OWNER'S satisfaction.

END OF SECTION 01 11 00

SECTION 01 11 50 – MEASUREMENTS AND PAYMENTS**PART 1 – PAY REQUESTS****1.1 CONTRACTOR TO SUBMIT DETAILED BREAKDOWN OF CONTRACT AMOUNT**

- A. Except in the cases where the unit prices form the basis for payment under the contract, the CONTRACTOR shall, within ten (10) days of receipt of the Notice to Proceed, submit a complete breakdown of the contract amount showing the value assigned to each part of the work, including an allowance for profit and overhead. Upon approval of the breakdown of the contract amount by the ENGINEER, it shall be used as the basis for all requests for payment.

1.2 CONTRACTOR MONTHLY PAY REQUESTS

- A. The CONTRACTOR may submit periodically, but not more than once each month, a request for payment for work done and materials delivered and stored on the site. The CONTRACTOR shall furnish the ENGINEER all reasonable facilities required for obtaining the necessary information relative to the progress and execution of the work. Payment for materials stored on the site will be conditioned upon evidence submitted to establish the OWNER'S title to such materials.
- B. Each request for payment shall be computed from the work completed on all items listed in the detailed breakdown of contract amount, less five (5) percent to be retained until 50 percent completion and acceptance of the work, and less previous payments, provided that any after 50 percent of the work has been satisfactorily completed, the OWNER shall reduce the percentage retainage to two and one-half (2 ½) percent where unit prices are specified. The request for payment shall be based on the quantities completed.
- C. Mobilization shall be paid in the following phases:
- 50% of bid price until 50% of work complete
 - 75% of bid price until 75% of work complete
 - 90% of bid price until 90% of work complete
 - 100% of bid price on final pay application
- D. Erosion control shall be paid in the following phases:
- 50% of bid price after initial installation of ALL erosion control devices acceptable to the ENGINEER.
 - 100% of bid price upon completion of the contract and upon maintenance of erosion control devices as acceptable to the ENGINEER.

1.3 MATERIAL STORED ON SITE

- A. The following items will be required if the CONTRACTOR requests payment for material stored on the site.
- CONTRACTOR must furnish invoices showing quantity, size, costs, etc. of the material.

2. The invoices must be approved by the OWNER, PROJECT INSPECTOR and/or ENGINEER.
3. Payment will be made only for material stored in a location approved by the ENGINEER and the OWNER. The storage area must provide adequate protection from the weather and vandalism.
4. The 5 percent retainer which applies to materials installed will also apply to materials stored.
5. Payment for materials stored on the site for this project will be made as follows: The above items must be furnished with the current pay estimate, and the CONTRACTOR will be paid as per invoice. In order for the CONTRACTOR to receive payment for the next pay estimate, he must furnish a notarized statement of payment in full of the suppliers for materials invoiced in preceding pay estimate. The procedure shall hold true for all successive materials payments until all materials have been acquired by the CONTRACTOR.

1.4 ENGINEER'S ACTIONS TO PENDING PAY REQUESTS

- A. Within ten (10) days of submission of any request for payment by the CONTRACTOR, the ENGINEER shall:
 1. Approve the request for payment as submitted.
 2. Approve such other amount as he shall decide is due the CONTRACTOR, informing the CONTRACTOR in writing of his reasons for approving the amended amount.
 3. Withhold the request for payment, informing the CONTRACTOR in writing for his reasons for withholding it.

1.5 OWNER'S ACTIONS TO APPROVED PAYMENT REQUEST

- A. Within thirty (30) days from the date of approval of a request for payment by the ENGINEER, the OWNER shall:
 1. Pay the request of payment as approved.
 2. Pay such other amount in accordance as herein provided as he shall decide is due the CONTRACTOR, informing the CONTRACTOR and the ENGINEER in writing of his reasons for paying the amended amount.
 3. Withhold payment in accordance as herein provided informing the CONTRACTOR and the ENGINEER of his reasons for withholding payment in writing.

1.6 OWNER'S RIGHT TO WITHHOLD PAYMENT ON APPROVED REQUESTS

- A. The OWNER may withhold payment as a whole or in part on an approved request for payment to the extent necessary to protect himself from loss on account of any of the following causes discovered subsequent to approval of a request for payment by the ENGINEER:
 1. Defective work.

2. Evidence indicating the probable filing of claims by other parties against the CONTRACTOR.
3. Failure of the CONTRACTOR to make payments to SUBCONTRACTORS, material suppliers or labor.
4. Damage to another CONTRACTOR.

1.7 PAYMENT FOR UNCORRECTED WORK

- A. If, in the opinion of the ENGINEER, it is undesirable to replace any defective or damaged material or to reconstruct or correct any portion of the work injured or not performed in accordance with the contract documents, the compensation to be paid the CONTRACTOR hereunder shall be reduced by such amount as in the judgment of the ENGINEER shall be equitable.

1.8 PAYMENT FOR REJECTED WORK AND MATERIALS

- A. The removal of work and materials rejected by the OWNER and the re-execution of acceptable work by the CONTRACTOR shall be at the expense of the CONTRACTOR, and he shall pay the cost of replacing the work of other CONTRACTORS destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement of acceptable work.
- B. Removal of rejected work or materials and storage of materials by the OWNER shall be paid by THE CONTRACTOR within thirty (30) days after written notice to pay is given by the OWNER. If the CONTRACTOR does not pay expenses of such removal and after ten (10) days written notice being given by the OWNER of his intent to sell the materials, the OWNER may sell the materials at auction or at private sale and shall pay to the CONTRACTOR the net proceeds therefrom after deducting all the costs and expenses that should have been borne by the CONTRACTOR.

1.9 ACCEPTANCE AND FINAL PAYMENT

- A. When the CONTRACTOR shall have completed the work in accordance with the terms of the contract documents, the ENGINEER shall certify his acceptance to the OWNER and his approval of the CONTRACTOR'S final request for payment, which shall be the contract amount plus all approved additions less all approved deductions and less previous payments made. The CONTRACTOR shall furnish evidence that he has fully paid all debts for labor, materials, and equipment incurred in connection with the work, following which the OWNER shall accept the work and release the CONTRACTOR except as to the conditions of the Performance Bond, any legal rights of the OWNER, required guarantee and correction of faulty work after final payment, and shall authorize payment of the CONTRACTOR'S final request for payment. The CONTRACTOR must allow sufficient time between the time of completion of the work and approval of the final request for payment for the ENGINEER to assemble and check the necessary data.

1.10 CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT

- A. The approval of the final request for payment by the ENGINEER and the making of the final payment by the OWNER to the CONTRACTOR shall not relieve the

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CONTRACTOR of responsibility for faulty materials or workmanship. The OWNER shall promptly give notice of faulty materials or workmanship, and the CONTRACTOR shall promptly replace any such defects discovered within one year from the date of written acceptance of the work. The ENGINEER shall decide all questions arising under this paragraph.

END OF SECTION 01 11 50

SECTION 01 33 00 - SUBMITTALS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included

1. Wherever possible throughout the contract documents, the minimum acceptable quality of workmanship and materials has been defined by manufacturer's name and catalog number, reference to recognized industry and government standards, or description of required attributes and performance.
2. To ensure that the specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for their review by the ENGINEER.
3. Make all submittals required by the contract documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

B. Related Work Described Elsewhere: Individual requirements for submittals are described in pertinent other Sections of these specifications.

1.2 QUALITY ASSURANCE

A. Coordination of Submittals: Prior to each submittal, carefully review and coordinate all aspects of each item being submitted and verify that each item and the submittal for it conforms in all respects with the requirements of the contract documents. By affixing the CONTRACTOR'S signature to each submittal, certify that this coordination has been performed.

B. Certificates of Compliance

1. When requested, certify that materials used in the work comply with specified provisions thereof. Certification shall not be construed as relieving the CONTRACTOR from furnishing satisfactory materials if, after tests are performed on selected samples, the material is found to not meet specified requirements.
2. Show on each certification the name and location of the work, name and address of CONTRACTOR, quantity and date or dates of shipment or delivery to which the certificate applies, and name of the manufacturing or fabricating company. Certification shall be in the form of letter or company-standard forms containing all required data. Certificates shall be signed by an officer of the manufacturing or fabricating company.
3. In addition to the above information, all laboratory test reports submitted with certificates of compliance shall show the date or dates of testing, the specified requirements for which testing was performed, and results of the test or tests.

1.3 SUBMITTALS

- A. Submittal Schedule: Within 10 days after award of Contract, and before any items are submitted for approval, submit to the ENGINEER two copies of the schedule described in Article 2.1 of this Section.
- B. Certificates of Compliance: Upon completion of the work, and as a condition of its acceptance, submit to the ENGINEER all Certificates of Compliance.
- C. Procedures: Make submittals in strict accordance with the provisions of this Section.
- D. Schedule of Values: Within 10 days of the Pre-Construction Conference, submit a schedule of values for lump sum bid items indicating the cost breakdown of lump sum bid items for use in progress payment preparation. Submit to the ENGINEER two copies of the schedule described in Article 2.2 of this Section.

PART 2 - PRODUCTS

2.1 SUBMITTAL SCHEDULE

- A. General: Compile a complete and comprehensive schedule of all submittals anticipated to be made during progress of the work. Include a list of each type of item for which CONTRACTOR'S drawings, Shop Drawings, Certificates of Compliance, material samples, guarantees, Operations and Maintenance manuals or other types of submittals are required. Upon approval by the ENGINEER this schedule will become part of the Contract, and the CONTRACTOR will be required to adhere to the schedule except when specifically otherwise permitted.
- B. Coordination: Coordinate the schedule with all necessary subcontractors and materials suppliers to ensure their understanding of the importance of adhering to the approved schedule and their ability to adhere. Coordinate as required to ensure the grouping of submittals as described in Article 1.3.
- C. Revisions: Revise and update the schedule on a monthly basis as necessary to reflect conditions and sequences. Promptly submit revised schedules to the ENGINEER for review and comment.

2.2 SCHEDULE OF VALUES

- A. The ENGINEER will review the tentative schedule of values to determine whether, in his judgment, the schedule of values is of sufficient detail and if the prices included are "unbalanced" or "front-end loaded", in an effort to inflate the prices of those items of work to be completed in the early stages of the work.
- B. Breakdown cost to list major products or operations for each line item which has an installed value of more than \$5,000.00. The sum of the items listed on the schedule of values shall equal the contract lump sum price.

- C. The ENGINEER will provide the CONTRACTOR with his comments and/or may request additional information from the CONTRACTOR to justify certain item quantities and prices, therefore. On the basis of the ENGINEER'S comments, the CONTRACTOR shall revise and resubmit the tentative schedule for further review and/or approval.
- D. Once the ENGINEER accepts the tentative schedule, it shall become the schedule of values to be used in determining partial payment estimates. Two (2) copies of this schedule shall be submitted to the ENGINEER for distribution and his use. No modifications will be made to the schedule of values, except as required by approved change orders.
- E. No partial payment request (including the first) shall be approved until the schedule of values has been approved by the OWNER and ENGINEER.

2.3 SHOP DRAWINGS AND COORDINATION DRAWINGS

A. Shop Drawings

- 1. Scale and Measurements: Make all Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the work.
- 2. Type of Prints Required: Submit all Shop Drawings in the form of electronic (.pdf) or hardcopy, minimum of 8 1/2" by 11".

2.4 MANUFACTURERS' LITERATURE

- A. General: Where contents of submitted literature from manufacturers include data not pertinent to the submittal clearly indicates which portion of the contents is being submitted for review.
- B. Number of Copies Required: Submit the number of copies which are required to be returned plus two copies which will be retained by the ENGINEER. Under no circumstances shall less than five copies be submitted.

2.5 SAMPLES

- A. Accuracy of Samples: Samples shall be of the precise article proposed to be furnished. Samples shall have stickers or tags which bear identification of the project, the subcontractor, the vendor or manufacturer, the product color name or number, model, style or series, and the size and thickness of components.
- B. Number of Samples Required: Unless otherwise specified, submit all Samples in the quantity which is required to be returned plus one which will be retained by the ENGINEER.
- C. Reuse of Samples: In situations specifically so approved by the ENGINEER, the ENGINEER'S retained sample may be used in the construction as one of the installed items.

- D. Match Existing Materials: Brick or other materials that are to match existing materials shall require a "test panel" to be erected adjacent to the existing material to allow the OWNER to approve the match in size, color, and texture.

2.6 COLORS AND PATTERNS

- A. Unless the precise color and pattern is specifically described in the contract documents, and whenever a choice of color or pattern is available in a specified product, submit accurate color and pattern charts to the ENGINEER for review and selection.

2.7 SUBSTITUTIONS

A. Approval Required

1. The Contract is based on the standards of quality established in the contract documents.
2. All products proposed for use, including those specified by required attributes and performance, shall require approval by the ENGINEER before being incorporated into the work.
3. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by the ENGINEER.

B. "Or Equal":

1. Where the phrase "or equal" or "approved or equal" occurs in the contract documents, do not assume that materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this work by the ENGINEER.
2. The decision of the ENGINEER shall be final.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

- A. General: Bind submittals with cover label that identifies project, division of work, subcontractor, and vendor/manufacturer. Consecutively number all submittals. Accompany each submittal with a letter of transmittal containing all pertinent information required for identification and checking of submittals.
- B. Internal Identification: On at least the first page of each copy of each submittal, and elsewhere as required for positive identification, clearly indicate the submittal number in which the item was included.
- C. Resubmittals: When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new submittal number.

3.2 COORDINATION OF SUBMITTALS

- A. General: Prior to submittal for approval, use all means necessary to fully coordinate all material including, but not necessarily limited to:
 - 1. Determine and verify all interface conditions, catalog numbers, and similar data.
 - 2. Coordinate with other trades as required.
 - 3. Clearly indicate all deviations from requirements of the contract documents.
- B. Grouping of Submittals: Unless otherwise specified, make all submittals in groups containing all associated items to ensure that information is available for checking each item when it is received. Partial submittals may be rejected as not complying with the provisions of the contract documents and the CONTRACTOR shall be strictly liable for all delays so occasioned.

3.3 TIMING OF SUBMITTALS

- A. General: Make all submittals far enough in advance of scheduled dates for installation to provide all time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.
- B. ENGINEER'S Review Time: In scheduling, allow at least 21 calendar days for review by the ENGINEER following his receipt of the submittal. Should unanticipated circumstances prevent the normal review time, a minimum of 10 working days review time must be allowed for reviews.
- C. Delays: Delays caused by tardiness in receipt of submittals will not be an acceptable basis for extension of the contract completion date.

3.4 ENGINEER'S REVIEW

- A. CONTRACTOR'S approval: Prior to submission to the ENGINEER, all submittals shall have been reviewed and approved by the CONTRACTOR.
- B. General: Review by the ENGINEER shall not be construed as a complete check, but only that the general method of construction and detailing is satisfactory. Review shall not relieve the CONTRACTOR from responsibility for errors which may exist.
- C. Authority to Proceed: The notations "Reviewed, No Exceptions Noted" or "Reviewed, Exceptions Noted" authorize the CONTRACTOR to proceed with fabrication, purchase, or both, of the items so noted, subject to the revisions, if any, required by the ENGINEER'S review comments.
- D. Revisions: Make all revisions required by the ENGINEER. If the CONTRACTOR considers any required revision to be a change, he shall notify the ENGINEER as provided for under "Changes" in the General Considerations. Show each drawing by number, date, and subject in a revision block on the drawing. Make only those revisions directed or approved by the ENGINEER.

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- E. Revisions After Approval: When a submittal has been reviewed by the ENGINEER, for substitution of materials or equipment will not be considered unless accompanied by an acceptable explanation as to why the substitution is necessary.

END OF SECTION 01 33 00

SECTION 01 45 00 - QUALITY CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Section Includes

1. Quality assurance - control of installation.
2. Tolerances
3. References and standards.
4. Mock-up.
5. Testing laboratory services.
6. Inspection services.
7. Manufacturers' field services.
8. Subcontracting.

B. Related Sections

1. Section 01 33 00 – Submittals and Substitutions: Submission of manufacturers' instructions and certificates.

1.2 QUALITY ASSURANCE

- A. The CONTRACTOR will be held strictly to the intent of the contract documents in regard to the quality of materials, workmanship, and execution of the work. Inspections may be made at the factory or fabrication plant of the source of material supply.
- B. The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedure, or construction safety.
- C. The CONTRACTOR shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- D. The CONTRACTOR will supervise and direct the work. He will be solely responsible for the means, methods, techniques, sequences, and procedures of construction. The CONTRACTOR will employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervisor and coordination of the work.
- E. The CONTRACTOR shall comply with manufacturers' instructions, including each step in sequence.

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- F. Should the manufacturers' instructions conflict with Contract Documents, the CONTRACTOR shall request clarification from ENGINEER before proceeding.
- G. The CONTRACTOR shall comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- H. The CONTRACTOR shall perform work by persons qualified to produce required and specified quality.
- I. The CONTRACTOR shall verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- J. The CONTRACTOR shall secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 IMPROPER COVERAGE OF BURIED CONSTRUCTION

- A. If any work is covered contrary to the written instructions of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for the ENGINEER'S observation, and replaced at the CONTRACTOR'S expense.
- B. If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require that portion of the work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such work is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction; if, however, such work is not found to be defective, the CONTRACTOR will be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate change order shall be issued.
- C. Defect Assessment
 - 1. Replace the work, or portions of the work, not conforming to specified requirements.
 - 2. If, in the opinion of the ENGINEER it is not practical to remove and replace the work, the ENGINEER will direct an appropriate remedy or adjust payment.
- D. Tolerances
 - 1. The CONTRACTOR shall monitor fabrication and installation tolerance control of all products to produce acceptable work. Do not permit products and installation outside of allowable tolerances to accumulate.
 - 2. The CONTRACTOR shall comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from ENGINEER before proceeding.

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3. The CONTRACTOR shall adjust products to appropriate dimension and position before securing products in place.

E. References and Standards

1. For products or workmanship specified by association, trade, or other consensus standards, the CONTRACTOR shall comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
2. The CONTRACTOR shall conform to reference standard by date of issue current date for receiving bids, except where a specific date is established by code.
3. The CONTRACTOR shall obtain copies of standards where required by product specification sections.
4. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the ENGINEER shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

F. Mock-Up

1. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.
2. The CONTRACTOR shall assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
3. Accepted mock-ups shall be a comparison standard for the remaining work.
4. Where mock-up has been accepted by ENGINEER and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

G. Testing Services

1. The CONTRACTOR will appoint and employ services of an independent firm to perform testing. CONTRACTOR shall pay for services and include the price in the respective bid items.
2. The independent firm will perform tests and other services specified in individual specification sections and as required by the ENGINEER.
3. Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the ENGINEER or the OWNER.
4. Reports will be submitted by the independent firm to the ENGINEER and CONTRACTOR, in duplicate indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
5. The CONTRACTOR shall cooperate with the independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.

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- a. Notify ENGINEER and independent firm 24 hours prior to expected time for operations requiring services.
 - b. Make arrangements with independent firm and pay for additional samples and tests required for CONTRACTOR'S use.
6. Testing does not relieve CONTRACTOR to perform work to contract requirements.
 7. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the ENGINEER. Payment for re-testing will be charged to the CONTRACTOR or by deducting testing charges from the Contract Sum/Price.

J. Removal of Defective and Unauthorized Work

1. All work which has been rejected or condemned shall be repaired, or, if it cannot be satisfactorily repaired, it shall be removed and replaced at the CONTRACTOR'S expense. Defective materials shall be removed immediately from the site of the work.
2. Work done without lines and grades having been given, work done beyond the lines or not in conformity with the grades shown on the plans or as given, save as herein provided, work done without proper inspection will be done at the contractor's risk and will be considered unauthorized and at the option of the ENGINEER may not be accepted and may be ordered removed at the CONTRACTOR'S expense.
3. If any work is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for the ENGINEER'S observation, and replaced at the CONTRACTOR'S expense.
4. If the ENGINEER considers it necessary or advisable that covered work be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such work is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction; if, however, such work is not found to be defective, the CONTRACTOR will be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate change order shall be issued.

K. Inspection Services

1. Owner will appoint, employ, and pay for specified services of an independent firm to perform inspection.

L. Manufacturers' Field Services

1. When specified in individual specification sections, material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment,

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test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

2. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
3. Refer to Section 01 33 00 – Submittals and Substitutions, Manufacturers' Field Reports article.
4. Coordination of Plans, Specifications, and Special General Conditions: The plans, these specifications, Special General Conditions, and all supplementary documents are intended to describe a complete work and are essential parts of the contract. A requirement occurring in any of them is binding. In case of discrepancies, figured dimensions shall govern overscale dimensions; plans shall govern over specifications. Special General Conditions shall govern both General and Standard Specifications, and the plans and quantities shown on the plans shall govern over those shown on the proposal. The CONTRACTOR shall take no advance of any apparent error or omission in the plans and specifications, and the ENGINEER shall be permitted to make such corrections or interpretations as may be deemed necessary for the fulfillment of the intent of the plans and specification.

In the event the CONTRACTOR discovers any apparent error or discrepancy, he shall immediately call such error or discrepancy to the attention of the ENGINEER, and request in writing an interpretation thereof by the ENGINEER.

M. Subcontracting

1. The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the work which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.
2. The CONTRACTOR shall not award work to SUBCONTRACTOR(S) in excess of fifty (50) percent of contract price, or in excess of fifty (50) percent of the labor and equipment required to install the project, without prior written approval of the OWNER.
3. The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of its SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as the CONTRACTOR is for the acts and omissions of persons directly employed by the CONTRACTOR.
4. The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the contract documents insofar as applicable to the work of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.
5. Nothing contained in this CONTRACT shall create any contractual relationship between the SUBCONTRACTOR and the OWNER.

PART 2 - PRODUCTS

NOT USED.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Beginning new work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION 01 45 00

SECTION 01 50 00 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Electricity, Lighting.
- B. Heat, Ventilation.
- C. Telephone Service.
- D. Water.
- E. Sanitary Facilities.
- F. Construction Aids.
- G. Barriers.
- H. Cleaning During Construction.
- I. Field Offices and Sheds.

1.2 ELECTRICITY, LIGHTING

- A. Provide and pay the cost of service required for construction operations.
- B. Arrange for connection of permanent power to operate the permanent facilities and pay the cost for power to operate each individual facility until such time as the individual facility is substantially complete.
- C. Provide and pay the cost of power required for all testing of each facility, including testing of the completed permanent installation.

1.3 HEAT, VENTILATION

- A. Provide as required to maintain specified conditions for construction operations, to protect materials and finishes from damage due to temperature or humidity.
- B. Provide ventilation of enclosed areas to cure materials, to disperse humidity, and to prevent accumulations of dust, fumes, vapors, or gases.

1.4 WATER

- A. Provide all water required for construction operations.

1.5 SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures.

1.6 CONSTRUCTION AIDS

- A. Provide and operate drainage and pumping equipment; maintain excavations and site free of standing water.
- B. Provide special equipment required to locate prior to excavation all buried utilities and pipelines, regardless of whether or not they are shown on the drawings.

1.7 BARRIERS

- A. Provide traffic control required to direct and maintain an orderly flow of traffic in public roadways affected by the CONTRACTOR'S operations.
- B. Provide qualified and suitably equipped flagmen when construction operations encroach on traffic lanes as required for regulation of traffic.
- C. Provide barriers around existing trees and plants. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.

1.8 CLEANING DURING CONSTRUCTION

- A. Control accumulation of waste materials and rubbish; periodically dispose of off-site.
- B. Clean interior areas prior to start of finish work; maintain areas free of dust and other contaminants during finishing operations.

1.9 FIELD OFFICES AND SHEDS

- A. Storage sheds for tools, materials, and equipment: Weathertight, with heat and ventilation for products requiring controlled conditions, with adequate space for organized storage and access, and lighting for inspection of stored materials.

1.10 REMOVAL

- A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations to a depth of two (2) feet; grade site as indicated. Restore existing facilities used during construction to specified or to original condition.

END OF SECTION 01 50 00

SECTION 01 54 00 – TEMPORARY BYPASS PUMPING SYSTEMS

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

NOT USED.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and other specifications apply to this section.

B. Related Sections

1. Section 01 11 00 – Summary of Work

1.3 SUBMITTALS

A. The CONTRACTOR shall submit to the ENGINEER detailed plans and a description outlining all provisions and precautions to be taken by the CONTRACTOR regarding the handling of existing wastewater flows. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials and all other incidental items necessary and/or required to insure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these Contract Documents. No construction shall begin until all provisions and requirements have been reviewed by the ENGINEER.

B. The plan shall include, but not be limited to, details of the following:

1. Staging areas for pumps;
2. Sewer plugging method and types of plugs;
3. Number, size, material, location and method of installation of suction piping;
4. Number, size, material, method of installation and location of installation of discharge piping;
5. Bypass pump sizes, capacity, number of each size to be on site and power requirements;
6. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted);
7. Standby power generator size, location;
8. Downstream discharge plan;
9. Method of protecting discharge manholes or structures from erosion and damage;
10. Thrust and restraint block sizes and locations;
11. Sections showing suction and discharge pip depth, embedment, select fill and special backfill;

12. Method of noise control for each pump and/or generator;
13. Any temporary pipe supports and anchoring required;
14. Design plans and computation for access to bypass pumping locations indicated on the drawings;
15. Calculations for selection of bypass pumping pipe size;
16. Schedule for installation of and maintenance of bypass pumping lines;
17. Plan indication of proposed bypass pumping lines showing accepting and receiving locations.

1.4 EQUIPMENT

- A. All pumps used shall be fully automatic self-priming units that do not require the use of foot valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flows.
- B. The CONTRACTOR shall provide the necessary stop/start controls for each pump.
- C. The CONTRACTOR shall include one stand-by pump of each size to be maintained on site. Back-up pumps shall be on-line, isolated from the primary system by a valve.
- D. Discharge Piping – In order to prevent the accidental spillage of flows, all discharge systems shall be temporarily constructed of rigid pipe with positive, restrained joints. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the ENGINEER.

1.5 SYSTEM DESCRIPTION

A. Design Requirements

1. Bypass pumping systems shall have sufficient capacity to pump a peak flow of 3.0 MGD. The CONTRACTOR shall provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow can be safely diverted around the section to be repaired. Bypass pumping system will be required to be operated 24 hours per day.
2. The CONTRACTOR shall have adequate stand-by equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One stand-by pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.
3. Bypass pumping system shall be capable of bypassing the flow around the work area and of releasing any amount of flow up to full available flow into the work area as necessary for satisfactory performances of work.
4. Bypass pump system must overcome any existing force main pressure on discharge.

B. Performance Requirements

1. It is essential to the operation of the existing system that there be no interruption in the flow of sewage throughout the duration of the project. To this end, the CONTRACTOR shall provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labor and equipment necessary to intercept the flow before it reaches the point where it would interfere with work, carry it past the work and return it downstream of the work.
2. The design, installation and operation of the temporary pumping system shall be the CONTRACTOR'S responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
3. The CONTRACTOR shall provide all necessary means to safely convey the flow past the work area. The CONTRACTOR will not be permitted to stop or impede the flows under any circumstances.
4. The CONTRACTOR shall maintain flow around the work area in a manner that will not cause surcharging of sewers, damage to downstream facilities and that will protect public and private property from damage and flooding.
5. The CONTRACTOR shall protect water resources, wetlands and other natural resources.

1.6 FIELD QUALITY CONTROL AND MAINTENANCE

A. Test

1. The CONTRACTOR shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The ENGINEER will be given 24-hours' notice prior to testing.

B. Inspection

1. CONTRACTOR shall inspect bypass pumping system every two hours to ensure that the system is working correctly.

C. Maintenance Service

1. The CONTRACTOR shall insure that the temporary pumping system is properly maintained, and a responsible operator shall be on hand at all times when pumps are operating.

D. Extra Materials

1. Spare parts for pumps and piping shall be kept on site as required.
2. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

1.7 PREPARATION

A. Precautions

1. CONTRACTOR is responsible for locating any existing utilities in the area the CONTRACTOR selects to locate the bypass pipelines. The CONTRACTOR shall locate bypass pipelines to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from the pipeline owner and the ENGINEER. All costs associated with relocating utilities and obtaining all approvals shall be paid by the CONTRACTOR.
2. During all bypass pumping operation, the CONTRACTOR shall protect all effected facilities and all downstream facilities from damage inflicted by any equipment. The CONTRACTOR shall be responsible for all physical damage caused by human or mechanical failure.

1.8 INSTALLATION AND REMOVAL

- A. The CONTRACTOR shall modify or make connections to existing facilities and construct temporary bypass pumping structures only at the access location indicated on the Drawings and as may be required to provide adequate suction conduit.
- B. Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.
- C. When working inside manhole or force main, the CONTRACTOR shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces.
- D. The installation of the bypass pipelines is prohibited in all saltmarsh/wetland areas. The pipeline must be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the CONTRACTOR must place the bypass pipelines in trenches and cover with temporary pavement. Upon completion of the bypass pumping operations, and after the receipt of written permission from the ENGINEER, the CONTRACTOR shall remove all the piping, restore all property to pre-construction condition and restore all pavement. The CONTRACTOR is responsible for obtaining any approvals for placement of the temporary pipeline within public ways.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

END OF SECTION 01 54 00

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Section Includes

1. Products.
2. Transportation and handling.
3. Storage and protection.
4. Product options.
5. Substitutions.

B. Related Sections

1. Section 01 45 00 - Quality Control: Product quality monitoring.

C. Products

1. The CONTRACTOR shall not use materials and equipment removed from existing premises, except as specifically permitted by the contract documents.
2. The CONTRACTOR shall provide interchangeable components of the same manufacture for components being replaced.

D. Transportation and Handling

1. The CONTRACTOR shall:
 - a. Transport and handle products in accordance with manufacturer's instructions.
 - b. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
 - c. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

E. Storage and Protection

1. The CONTRACTOR shall:
 - a. Store and protect products in accordance with manufacturers' instructions.
 - b. Store with seals and labels intact and legible.
 - c. Store sensitive products in weathertight, climate controlled enclosures in an environment favorable to product.
 - d. Provide for exterior storage of fabricated products, which shall be placed on sloped supports above ground.

- e. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- f. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- g. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- h. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- i. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

F. Product Options

1. The CONTRACTOR shall provide products specified by reference standards or by description only: any product meeting those standards or description.
2. The CONTRACTOR shall provide products specified by naming one or more manufacturers with a provision for substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

G. Substitutions

1. ARCHITECT / ENGINEER will consider requests for substitutions only within 15 days after date established in Notice to Proceed.
2. Substitutions may be considered when a product becomes unavailable through no fault of the CONTRACTOR.
3. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

A request constitutes a representation that the BIDDER or CONTRACTOR:

- a. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - b. Will provide the same warranty for the substitution as for the specified product.
 - c. Will coordinate installation and make changes to other work which may be required for the work to be completed with no additional cost to OWNER.
 - d. Waives claims for additional costs or time extension which may subsequently become apparent.
 - e. Will reimburse OWNER and ARCHITECT / ENGINEER for review or redesign services associated with re-approval by authorities.
4. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the contract documents.

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5. Substitution Submittal Procedure:

- a. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
- b. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
- c. The ARCHITECT / ENGINEER will notify CONTRACTOR in writing of decision to accept or reject request.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION 01 60 00

SECTION 01 70 00 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures
- B. Final cleaning
- C. Adjusting
- D. Project record documents
- E. Operation and maintenance data
- F. Spare parts and maintenance products
- G. Maintenance service

1.2 CLOSEOUT PROCEDURES

- A. The CONTRACTOR shall:
 - 1. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for ENGINEER'S review.
 - 2. Provide submittals to ENGINEER that are required by governing or other authorities.
 - 3. Submit final Application for Payment identifying total adjusted contract sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

- A. The CONTRACTOR shall:
 - 1. Execute final cleaning prior to final project assessment.
 - a. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
 - b. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
 - c. Replace filters of operating equipment.
 - d. Clean debris from roofs, gutters, downspouts, and drainage systems.
 - e. Clean site, sweep paved areas, rake clean landscaped surfaces.
 - f. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.4 ADJUSTING

- A. The CONTRACTOR shall adjust operating products and equipment to ensure smooth and unhindered operation.

1.5 PROJECT RECORD DOCUMENTS

- A. The CONTRACTOR shall maintain on site one set of the following record documents and record actual revisions to the work:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other modifications to the Contract
 - 5. Reviewed Shop Drawings, Product Data, and Samples
 - 6. Manufacturer's instruction for assembly, installation, and adjusting
- B. The CONTRACTOR shall ensure entries are complete and accurate, enabling future reference by OWNER.
- C. The CONTRACTOR shall store record documents separate from documents used for construction.
- D. The CONTRACTOR shall record information concurrent with construction progress.
- E. Specifications: The CONTRACTOR shall legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 1. Product substitutions or alternates utilized.
 - 2. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: The CONTRACTOR shall legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original contract drawings.

1.6 OPERATION AND MAINTENANCE DATA

A. The CONTRACTOR shall:

1. Submit data bound in 8 ½ x 11-inch text pages, three D side ring binders with durable plastic or cloth covers.
2. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
3. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
4. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, typed on 20-pound white paper, in three parts as follows:
 - a. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, CONTRACTOR, SUBCONTRACTORS, and major equipment suppliers.
 - b. Part 2: Operation and maintenance instructions, arranged by system. For each category, identify names, addresses, and telephone numbers of SUBCONTRACTORS and suppliers. Identify the following:
 - 1) Significant design criteria
 - 2) List of equipment
 - 3) Parts list for each component
 - 4) Operating instructions
 - 5) Maintenance instructions for equipment and systems
 - 6) Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents
 - c. Part 3: Project documents and certificates, including the following:
 - 1) Shop drawings and product data
 - 2) Air and water balance reports
 - 3) Certificates
 - 4) Photocopies of warranties and bonds
5. Submit one (1) draft copy of completed volumes 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with ENGINEER'S comments. Revise content of all document sets as required prior to final submission.
6. Submit five sets of revised final volumes, prior to final payment.

1.7 SPARE PARTS AND MAINTENANCE PRODUCTS

A. The CONTRACTOR shall:

1. Provide spare parts, maintenance, and extra products in quantities specified in individual specification sections.
2. Deliver to project site and place in location as directed and obtain a receipt prior to final payment.

1.8 MAINTENANCE SERVICE

A. The CONTRACTOR shall:

1. Furnish service and maintenance of components indicated in specification sections during the warranty period.
2. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
3. Maintenance service shall not be assigned or transferred to any agent or SUBCONTRACTOR without prior written consent of the OWNER.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION 01 70 00

DIVISION 02 – EXISTING CONDITIONS

SECTION 02 10 00 – SITE REMEDIATION

PART 1 - GENERAL

1.1 SCOPE

Work under this heading shall include all items of demolition and clearing necessary to prepare the site for construction.

PART 2 - PRODUCTS

2.1 MATERIALS

All salvage materials from demolition or other clearing shall remain the property of the OWNER, unless specifically noted otherwise.

PART 3 - EXECUTION

- A. Protection of trees and improvements: CONTRACTOR shall exercise extreme care in the protection of all existing trees and other improvements on the site designated by the OWNER'S REPRESENTATIVE to remain.
- B. Topsoil shall be stripped from the area to be occupied by building, walks, drives, parking etc., and stockpiled in area designated by OWNER'S REPRESENTATIVE where it will not interfere with building or utility operations. Use topsoil for finish grading.
- C. Remove from site all brush, rubbish and miscellaneous debris resulting from demolition and clearing ahead of construction to meet all safety standards on the site. All wood, vegetation and non-vegetable matter to be removed from topsoil as it is being stockpiled and hauled off with other debris.
- D. Care must be taken to confine clearing operation to the building site with no encroachments on adjacent foliage or possible damage to adjacent areas.
- E. OWNER shall designate area to be cleared for parking, storage of materials and other workspace in addition to building site. This area shall not be cleared of trees and no soil to be stripped or disturbed. Fill and level holes and depressions, prior to final acceptance of project.

END OF SECTION 02 10 00

SECTION 02 42 00 - REMOVALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK INCLUDED

- A. The work required under this section consists of operations, methods, labor, and materials for partial interior, exterior, and/or site underground removals with all related items necessary to complete the Work indicated on the contract drawings.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.1 CONDITION OF SITE AND BUILDINGS

- A. The condition of site and buildings shall be accepted as found. The OWNER will not assume responsibility for conditions found or continuation of conditions existing at time of Proposal Invitation or thereafter. Any damage or loss, whether by reason of fire, theft, or other casualty or happening on the site, will not relieve the CONTRACTOR'S obligations to complete the work.

3.2 PROTECTION OF LIFE, STRUCTURES AND PROPERTY

- A. Execute work to insure against damages to remaining property. Do not interfere with property or portions of building without permission from authorized persons approved by the OWNER. Maintain free and safe passages in and around work areas. Do not seal off required exits without permission from authorities having jurisdiction.
- B. Provide, erect, and maintain lights, barriers, barricades as necessary to protect life, meeting all Federal, OSHA, State and local laws and regulations.

3.3 UTILITY SERVICES

- A. Remove all utility services as required and/or indicated on the drawings. Provide temporary utilities and services into areas requiring continued services before and after removal work.
- B. All electrical equipment and circuits shall be restored to original condition that are damaged or destroyed during removals and are not called out to be removed on the contract drawings.

3.4 REMOVALS

- A. Before starting demolition work, review all requirements for final remodeling work so that useable existing system components as required for completion of the new work is not destroyed. Coordinate all work with other CONTRACTORS.
- B. Remove any personal property, equipment, machinery, or other fixtures and turn them over to the OWNER as called for on the contract drawings.

3.5 DEBRIS

- A. Remove from the areas of removals, all debris as it accumulates. Do not store or permit debris to accumulate on the site. If the CONTRACTOR fails to remove excess debris promptly, the ENGINEER shall reserve the right to have debris removed by others at CONTRACTOR'S expense.
- B. Upon work completion, remove all tools, materials, equipment, apparatus, temporary toilets, and rubbish of every sort. Leave all existing building surfaces, not scheduled to be removed, swept clean condition at completion of work within any given area. Leave buildings and site clean, neat, and orderly.

3.6 REMOVAL OF PAVEMENT, SIDEWALKS, CURBS, ETC.

- A. Break concrete pavement, base course, and other similar materials designated for removal into pieces no heavier than 150 lbs. [68 kg]. Stockpile at locations shown on the plans.
- B. If the contract documents require the removal of asphalt concrete or Portland cement concrete pavement, saw the joint to the line and depth, as approved by the ENGINEER, to prevent under-break or shatter of adjacent areas.

3.7 REMOVAL AND DISPOSAL OF SALVAGED MATERIALS, STRUCTURES, AND OBSTRUCTIONS

- A. Unless otherwise required by the contract documents, all salvaged material shall become the property of the CONTRACTOR. Ownership of salvaged materials implies the responsibility to dispose of the salvaged material in accordance with all applicable local, state, and federal rules and regulations. CONTRACTOR is not allowed to bury or otherwise dispose of material within the project's boundaries or on any publicly owned property without the ENGINEER'S prior written approval.

END OF SECTION 02 42 00

SECTION 02 44 00 - ADJUSTMENT OF EXISTING STRUCTURES

PART 1 - GENERAL REQUIREMENTS

1.1 SCOPE

This work shall consist of the necessary adjustments, alterations, relocating, or resetting to the required grade and alignment of existing structures, equipment or appurtenances which are not to be removed or abandoned and which are not the property of a private company, firm, or corporation required to move their own property, in accordance with these specifications and in reasonably close conformity with the lines, grades, elevations and dimensions shown on the drawings or established by the ENGINEER.

PART 2 - PRODUCTS

2.1 MATERIALS

Materials for use in this work shall be as set out on the drawings, or if not specified, shall be of the same grade of material as specified elsewhere in these specifications for a similar type of work or of a material equivalent to that in the structure being adjusted.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

A. General

1. The materials and workmanship necessary in raising, lowering, or otherwise adjusting or resetting existing structures shall conform to the requirements of the drawings and specifications for the class of work involved, or as directed by the ENGINEER. Whole bricks salvaged in good condition from structures may be used in rebuilding such structures provided the bricks are cleaned satisfactorily and approved by OWNER. Existing structures shall be rebuilt in accordance with the drawings and specifications. The final adjustment to grade shall be completed after the final surface course has been placed if the structure is in the pavement.
2. The CONTRACTOR shall guard against damage or breakage to any portion of the structure or appurtenance to be altered, removed, or reset. Any damage or breakage due to the CONTRACTOR'S negligence or failure to properly protect such structure or appurtenances, shall be repaired or replaced at the CONTRACTOR'S expense.

B. Manholes

1. Where the tops of the manholes are to be lowered to a new grade, the walls shall be removed and rebuilt to an elevation far enough below the new grade so that the maximum batter of the walls does not exceed 4 in. (10.1 cm) per foot (30.5 cm).
2. Where manholes are to be built up a distance of one foot (0.305 m) or less to a new grade, the walls may be carried up vertically and one new standard step shall

be set. Where the walls are to be built up a distance exceeding one foot (0.305 m), the existing walls shall first be removed to the bottom of the batter section of the walls, or to such elevation that the inside diameter of the manhole is not less than 3.5 ft. (1.1 m). The manhole shall then be rebuilt in conformity with the size and shape requirements for new manholes.

C. Catch Basins, Inlets, Manholes

1. Where inlets, catch basins, manholes or similar structures are to be revised to grade or rebuilt, the work shall be done in conformity with the requirements for new construction of this class of work as provided elsewhere in these specifications.

D. Valve Boxes, Meter Boxes, Lampholes

1. Care shall be taken in removing and resetting to grade, valve boxes, meter boxes, etc., to avoid breaking and any breakage shall be replaced by the CONTRACTOR at his expense.

E. Fire Hydrants, Valves, Water Meters, Water Line, etc.

1. Where adjustment or relocation of water lines and appurtenances is to be done by the OWNER, the CONTRACTOR shall be responsible for coordinating the arrangements with the OWNER for lowering or relocating of all water lines and the resetting of water valves, meters, manholes, and fire hydrants. When the alteration is part of the work to be performed by the CONTRACTOR as a part of his contract, such work shall be done in conformity with the requirements of the OWNER and in accordance with the requirements of these specifications for new work of this type.

F. Electric Traffic Signals or Right-of-Way Systems

1. Where the adjustment or relocation of electric traffic signals, highway lighting standard or conduits, cables, or appurtenances is to be done by the OWNER where the work is located, the CONTRACTOR shall make complete arrangements with the proper City or ODOT officials for the work to be done. When the alteration is part of the work to be performed by the CONTRACTOR as a part of his contract, such work shall be done in conformity with requirements of the OWNER, or as specified on the Drawings or in the Proposal and as directed by the ENGINEER.

G. Sewer Pipe

1. Sewer pipe removed to be re-laid shall be re-laid in conformity with the requirements of new sewers.

3.2 METHOD OF MEASUREMENT

Unless otherwise shown on bid form, the cost for various items, listed in Part 3.3, but not limited to, shall be included in other items of work.

3.3 BASIS OF PAYMENT

A. Accepted items, measured as provided above, will be paid for at the contract unit price for:

1. MANHOLES ADJUST TO GRADE	EA.
2. MANHOLES REBUILT	EA.
3. CATCH BASINS ADJUST TO GRADE	EA.
4. CATCH BASINS REBUILT	EA.
5. INLETS ADJUST TO GRADE	EA.
6. INLETS REBUILT	EA.
7. VALVE BOXES ADJUST TO GRADE	EA.
8. METER BOXES ADJUST TO GRADE	EA.
9. LAMPHOLES ADJUST TO GRADE	EA.
10. FIRE HYDRANT RESET	EA.
11. VALVES RESET	EA.
12. WATER METERS RESET	EA.
13. WATER LINE LOWERED	L.F.
14. WATER LINE REMOVED AND RELAID	L.F.
15. ELECTRIC TRAFFIC SIGNALS RESET	EA.
16. HIGHWAY LIGHTING STANDARDS RESET	EA.
17. ELECTRIC CABLE RELAID	L.F.
18. ELECTRIC CABLE CONDUIT RELAID	L.F.
19. PIPE SEWER REMOVED AND RELAID	L.F.
20. REMOVE AND RESET MANHOLE FRAME AND COVER	EA.

B. Valve boxes, meter boxes, etc., in conjunction with valves or meters to be reset will be considered as part of the valve or meter and will not be paid for as a separate item.

C. Valves in water lines or fire hydrant leads will not be considered as a separate pay item, but the cost of resetting same, and shall be included in the price bid for the water line or lead.

D. When the valve is under pavement, adjustment of valve box will be a separate pay item.

END OF SECTION 02 44 00

DIVISION 31 – EARTHWORK

SECTION 31 00 00 – GENERAL EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION

This section covers the requirements and procedures for excavation and backfill for structures.

1.2 STANDARD SPECIFICATIONS

A. The following is a list of standard specifications with the accompanying abbreviations used in this specification section:

1. American Association of State Highway and Transportation Officials Standard Specifications - AASHTO.

1.3 QUALITY ASSURANCE

- A. Compaction shall be in accordance with Section 31 23 33 - Trenching, Backfilling and Compaction.
- B. The OWNER shall be the sole and final judge of suitability of all materials.
- C. Materials in question, pending test results, shall not be used in the work. The CONTRACTOR shall remove all materials that fail to meet the requirements of the specifications, whether in stockpiles or in place.
- D. Fills, embankments, backfills or subgrades which do not meet the specification requirements shall be removed or recompacted until the requirements are satisfied.

1.4 PROTECTION

A. Protection of Existing Improvements

1. Protection shall be provided to prevent damage to existing improvements indicated to remain in place on the OWNER'S property and adjoining properties.
2. Damaged improvements shall be restored to their original condition, as acceptable to parties having jurisdiction.
3. Land areas outside the limits of permanent work performed under this contract shall be preserved in their present condition. The CONTRACTOR shall confine his construction activities to areas defined for work on the Drawings.

B. Protection of Existing Utilities

1. The CONTRACTOR shall verify all existing utility locations either shown or not shown on the drawings.

2. The CONTRACTOR shall immediately notify the OWNER and applicable utility company of any damages to existing utilities.
 3. Repairs to damaged utilities shall be made in accordance with the requirements of the OWNER and applicable utility company at no extra cost to the OWNER.
 4. The CONTRACTOR shall coordinate with the OWNER and the applicable utility company for shutoff of or connection to active utilities. Existing utility services shall not be interrupted except as authorized in writing by the OWNER.
- C. Protection of Work Site: Barricades or other type protectors shall be provided to prevent unauthorized personnel from entering work sites.

1.5 JOB CONDITIONS

A. Classification of Excavation

1. No classification shall be made to differentiate the various surface and subsurface conditions the CONTRACTOR may encounter during his performance under this contract.
2. It is the CONTRACTOR'S sole responsibility to verify the site surface and subsurface conditions.

B. Dewatering

1. Excavation and embankment shall be performed in such manner that the area of the site and the area immediately surrounding the site will be continually and effectively drained by gravity or temporary pumps.
2. Water shall not be permitted to accumulate in excavations or other areas of the site.
3. The excavation shall be drained by methods which prevent the softening of subgrades and embankments.

C. Blasting shall not be allowed.

1. Shoring, including sheet piling, shall be furnished and installed as necessary to protect workmen, banks, adjacent paving, structures, and utilities.
2. Shoring, bracing, and sheeting shall be removed as excavations are backfilled, in a manner to prevent caving.

PART 2 - PRODUCTS

2.1 SUITABLE MATERIALS

- A. Suitable materials for fill and, backfill include materials that are free of debris, roots, organic or frozen materials, stones having a maximum dimension of four (4) inches in the upper six (6) inches of fill or six (6) inches in the remainder of fill.

- B. Otherwise, suitable material which is unsuitable due to excess moisture content will not be classified as unsuitable material unless it cannot be dried by manipulation, aeration or blending with other materials to the satisfaction of the OWNER.
- C. Unsuitable materials shall include those materials that are determined by the OWNER to be inadequate for providing a stable slope, fill, subgrade, or foundation for structure.
- D. Expansive clay soils shall be classified as unsuitable unless treated or mixed in a manner approved by the OWNER.

2.2 CAPILLARY WATER BARRIER

A. Coarse Aggregate (Gravel) Capillary Water Barrier.

- 1. Coarse aggregate shall meet the requirements of AASHTO M80.
- 2. Coarse aggregate shall consist of gravel, crushed gravel, or crushed stone.
- 3. Gradation of coarse aggregate shall conform to the requirements of AASHTO M 43, Size Number 57:

Sieve	Mass-Percent Passing
1 ½ inches	(38 mm) 100
1 inch	95 – 100
½ inch (13 mm)	25 – 60
No. 4	0 – 10
No. 8	0 - 5

- 4. Maximum allowable percent of deleterious substances shall meet the requirements of AASHTO M 80, Class B.

B. Fine Aggregate (Sand) Capillary Water Barrier:

- 1. Fine aggregate shall meet the requirements of AASHTO M6.
- 2. In general, fine aggregate shall consist of natural sand having hard, strong, durable particles free from deleterious substances and meeting the following gradation requirements:

Sieve	Mass-Percent Passing
3/8 inch (9.5 mm)	100
No. 4	95 – 100
No. 16	45 – 80
No. 50	10 - 30
No. 100	2 - 10

2.3 FINE AGGREGATE (SAND) BACKFILL

- A. Fine aggregate backfill shall meet the requirements of Paragraph 2.2.B.

2.4 SELECTION OF BORROW MATERIAL

- A. Borrow material, if required, shall be selected to meet requirements and conditions of the particular fill for which it is to be used.
- B. For borrow material obtained outside the limits of the project site, the CONTRACTOR shall obtain the right to procure material and shall pay all royalties and other charges involved.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Excavation, regardless of material encountered, shall conform to the dimensions and elevations indicated on the Drawings for each building and structure, and shall include trenching for utility and foundation drainage systems to a point five (5) feet beyond the building line of each building and structure.
- B. Excavation shall extend a sufficient distance from walls and footings to allow for placing and removal of forms, installation of services, and for inspection, except where the concrete for walls and footings is authorized by the OWNER to be deposited directly against excavated surfaces.
- C. Suitable excavated material shall be transported to and placed to fill areas within the limits of the work.
- D. Unsuitable materials encountered within the limits of the work shall be excavated below grade and replaced with suitable materials as directed by the OWNER, except that concrete footings shall be increased in thickness to the bottom of the over-depth excavations and over-break in rock excavation.
- E. No excavated material shall be wasted without the authorization of the OWNER.
 - 1. Surplus excavated material and unsuitable material shall be disposed of by the CONTRACTOR at his own expense and responsibility.
 - 2. Material authorized to be wasted shall be disposed of in such manner as not to obstruct the flow characteristics of any stream or to impair the efficiency or appearance of any structure.
- F. No excavated material shall be deposited in a manner that may endanger a partly finished structure by direct pressure or by overloading banks contiguous to the operations or that may otherwise be detrimental to the completed work.
- G. Blasting shall not be allowed.

3.2 PREPARATION OF GROUND SURFACE FOR FILL

- A. Areas upon which fills are to be placed shall be cleared and grubbed before the fill is started.

- B. Sloped ground surfaces steeper than one (1) vertical to four (4) horizontal on which fill is to be placed shall be plowed, stepped, or benched, or broken up as directed by the OWNER, in such a manner that the fill material will bond with the existing surface.
- C. When surfaces on which fills are to be placed do not meet the specified density requirements, the ground surface shall be broken up, pulverized, and compacted to the specified density.
- D. When surfaces on which fills are to be placed do not meet the specified moisture content requirements, the ground shall be wetted, aerated, or dried to the specified density.
- E. When the subgrade is part fill and part excavation, the excavated portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

3.3 FILL AND BACKFILL

- A. Fills and backfills shall conform to the dimensions and elevations indicated on the Drawings for each building and structure.
- B. Placing Fill and Backfill
 - 1. Suitable material shall be placed in successive horizontal uniformly spread layers of loose material not more than six (6) inches thick, except that in areas not accessible or permitted for the use of self-propelled rollers or vibrators, the loose layer shall be four (4) inches thick.
 - 2. Fills and backfills shall not be placed in wet or frozen areas.
- C. Backfill
 - 1. Backfill shall not begin until construction below finish grade has been completed, underground utility systems have been inspected and tested, form removed, and the excavation cleaned of trash and debris.
 - 2. Fine aggregate backfill shall be placed to the dimensions and elevations indicated on the Drawings.
 - 3. Heavy equipment for spreading and compacting backfill shall not be operated closer to foundation or retaining walls than a distance equal to the height of backfill above the top of footing; the area remaining shall be compacted by power-driven hand tampers suitable for the material being compacted.
 - 4. Backfill shall be placed carefully around pipes to avoid damage to coatings.
 - 5. Backfill shall not be placed against foundation walls prior to 7 days after placement of the walls.
 - 6. As far as practical, backfill shall be brought up evenly on each side of the wall and sloped to drain away from the wall.

7. Where fill or backfill is to be placed and compacted against structure walls, the walls shall be supported laterally as necessary to prevent damaging or displacing the walls. Any wall so damaged as a result of the CONTRACTOR'S operation shall be completely and promptly replaced.

3.4 COMPACTION

- A. For fill and backfill compaction densities and moisture contents, see Section 31 23 33.
- B. Compaction shall be accomplished by those methods listed in Section 31 23 33. Material shall be aerated or moistened to maintain the required moisture content.
- C. Fine aggregate backfill shall be compacted with a minimum of two (2) passes of a power-driven hand tamper.

3.5 CAPILLARY WATER BARRIER

- A. Either coarse aggregate (gravel) or fine aggregate (sand) capillary water barriers shall be installed under slabs-on-grade as indicated on the Drawings.
- B. The capillary water barrier shall be placed directly on the subgrade after the subgrade has been compacted to the required density and placed to the elevation indicated on the Drawings.
- C. The barrier shall be constructed to the thickness shown in layers not exceeding six (6) inches in compacted thickness.
- D. Each layer shall be compacted to the required density, with a minimum of two passes of a plate-type vibratory compactor.

3.6 FINISH GRADING

- A. Excavated and filled sections, and adjacent transition areas, shall be uniformly smoothly graded. The finished surface shall be reasonably smooth, compacted, and free from irregular surface changes.
- B. The degree of finish shall be that ordinarily obtainable from blade-grader operations, except as otherwise specified.
- C. The surface of fills or excavated areas for slabs-on-grade shall not vary more than 0.05 foot from the established grade.
- D. Other finished surfaces shall not vary more than 0.15 foot from the established grade and cross section and shall be free of depressed areas where water would pond.

END OF SECTION 31 00 00

SECTION 31 22 00 – SITE GRADING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The work covered under this item includes all supervision, labor, equipment, and materials required for rough and final site grading. Included in this item are any stripping, filling, excavating, backfilling and compaction required to complete the grading as shown on the plans or as specified herein.

1.2 DUST AND BLOWING MATERIAL CONTROL

- A. The CONTRACTOR shall use all means necessary to control dust on and near the site and on and near all off-site borrow areas if such dust is caused by the CONTRACTOR'S operations during performance of the work or if resulting from the condition in which the CONTRACTOR leaves the site.
- B. All surfaces shall be thoroughly moistened as required to prevent dust being a nuisance to the public, neighbors, and concurrent performance of other work on the site.
- C. Any landfilled material which is uncovered during any construction operation will immediately be covered with a minimum of 12 inches of soil and compacted to 90% Standard Proctor Density. The CONTRACTOR will be responsible for ensuring that existing landfilled material is not allowed to be blown or carried off the site and will clean up any material uncovered by his operations which is blown from the site.
- D. Protection of Existing Utilities
 - 1. The CONTRACTOR shall verify all existing utility locations either shown or not shown on the Drawings.
 - 2. The CONTRACTOR shall immediately notify the OWNER and applicable utility company of any damages to existing utilities.
 - 3. Repairs to damaged utilities shall be made in accordance with the requirements of the OWNER and applicable utility company at no extra cost to the OWNER.
 - 4. The CONTRACTOR shall coordinate with the OWNER and the applicable utility company for shutoff of or connection to active utilities. Existing utility services shall not be interrupted except as authorized in writing by the OWNER.
- E. Protection of Work Site: Barricades or other type protectors shall be provided to prevent unauthorized personnel from entering work sites.

PART 2 - PRODUCTS

2.1 FILL MATERIAL, GENERAL

- A. All fill material shall be subject to the approval of the ENGINEER.

2.2 ON-SITE FILL MATERIAL

- A. All on-site fill material used shall be soil or soil-rock mixture which is free from organic matter and other deleterious substance. It shall contain no rocks or lumps over 6 inches in greatest dimension, and not more than 15 percent of the rocks or lumps shall be larger than 2-1/2 inches in greatest dimension.

2.3 IMPORTED FILL MATERIAL (BORROW)

- A. All imported fill material shall meet the requirements stated in Section 31 00 00 and, in addition, shall be predominantly granular with a maximum particle size of 2 inches and a plasticity index of 12 or less.
- B. Any fill material, including topsoil, must be approved by the ENGINEER prior to placement. The CONTRACTOR shall notify the ENGINEER at least four working days in advance of intention to import material, designating the location of proposed borrow material. The CONTRACTOR shall be responsible for obtaining any permits or permission required for ENGINEER to sample, as necessary, from the borrow area for the purpose of making acceptance tests to prove the quality of proposed borrow material.

2.4 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation, shall be as selected by the CONTRACTOR subject to the approval of the ENGINEER.

PART 3 – EXECUTION

3.1 FINISH ELEVATIONS AND LINES

- A. Grade stakes will be set by the CONTRACTOR and approved by OWNER'S REPRESENTATIVE establishing rough and finish elevations and lines. The CONTRACTOR shall take care to preserve all survey control data and monuments set by the ENGINEER and, if displaced or lost, immediately replace to the approval of the ENGINEER and at no additional cost to the OWNER.

3.2 GRADING

- A. General Requirements
 - 1. The CONTRACTOR will perform all rough and finish grading required to obtain the elevations shown in the Drawings.
- B. Grading Tolerances
 - 1. All rough and finished grading shall be performed with approved equipment to a tolerance of plus or minus 0.1 ft.

C. Compaction

1. Existing cover material will be compacted prior to the placement of any additional fill material. Two passes, at right angles to each other, will be made on existing cover with a sheep's foot roller, to obtain this compaction.
2. New fill material and material disturbed by grading will be compacted to a minimum of 90% Standard Proctor Density using approved compaction equipment.

D. Treatment after Completion of Grading

1. After grading is completed and the ENGINEER has finished his inspection, no further excavating, filling, or grading except with the approval of an inspection of the ENGINEER will be allowed.
2. The CONTRACTOR shall use all means necessary to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

END OF SECTION 31 22 00

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 specifications sections, apply to this section.

1.2 SUMMARY

- A. This section includes construction dewatering.
- B. Related sections include the following:
 - 1. Division 31- Section 31 00 00 - Earthwork

1.3 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control ground water flow into excavations and permit construction to proceed on dry, stable subgrades.
 - 1. Maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.
 - 2. Prevent surface water from entering excavations by grading, dikes, or other means.
 - 3. Accomplish dewatering without damaging existing buildings adjacent to excavation.
 - 4. Remove dewatering system if no longer needed.

1.4 SUBMITTALS

- A. Shop Drawings for Information: For dewatering system. Show arrangement, locations, and details of wells and well points; locations of headers and discharge lines; and means of discharge and disposal of water.
 - 1. Include layouts of piezometers and flow-measuring devices for monitoring performance of dewatering system.
 - 2. Include a written report outlining control procedures to be adopted if dewatering problems arise.
 - 3. Include shop drawings signed and sealed by the qualified professional engineer responsible for their preparation.
- B. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by dewatering operations.

- C. Record drawings at project closeout identifying and located capped utilities and other subsurface structural, electrical, or mechanical conditions performed during dewatering.

- 1. Note locations and capping depth of wells and well points.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with water disposal requirements of authorities having jurisdiction. Discharge water into existing storm drainage system.
- B. Pre-installation Conference: Conduct conference at project site to comply with requirements in Division 01.

1.6 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by OWNER or others unless permitted in writing by OWNER and then only after arranging to provide temporary utility services according to requirements indicated.
- B. Project Site Information: Boring logs have been prepared for this Project and are available for information only. OWNER / ENGINEER will not be responsible for interpretations or conclusions drawn from this data.
 - 1. Make additional test borings and conduct other exploratory operations necessary for dewatering.
- C. Survey adjacent structures and improvements, employing a qualified professional engineer or land surveyor, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
 - 1. During dewatering, regularly re-survey benchmarks, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify ENGINEER if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, 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 and surrounding area.

2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
- B. Install dewatering system to ensure minimum interference with roads, streets, 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.

3.2 INSTALLATION

- A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.
- B. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until sewers and structures have been constructed and fill materials have been placed, or until dewatering is no longer required.
- C. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to 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.
- D. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
1. Maintain piezometric water level a minimum of 24 inches below surface of excavation.
- E. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water in a manner that avoids inconvenience to others. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities.
- F. 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. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to OWNER.
1. Remove dewatering system from project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches (900 mm) below overlying construction.

ILLINOIS AVENUE SANITARY SEWER REPLACEMENT

G. Damages: Promptly repair damages to adjacent facilities caused by dewatering operations.

END OF SECTION 31 23 19

SECTION 31 23 33 - TRENCHING, BACKFILLING & COMPACTION**PART 1 - GENERAL****1.1 DESCRIPTION**

- A. The work under this item shall include all earth, shale, gravel, loose rock, solid rock, debris, junk and/or other material excavated or otherwise removed in the preparation of the trench, all work in connection with the excavation, removal and subsequent handling and disposal of such material regardless of its type, character, composition or condition; subgrade preparation, all sheeting, piling, shoring, bracing; and dewatering of trenches; protection of adjacent property; backfilling; sand cushion; grade base stabilization; all specified backfill consolidation; and other work necessary or required. The CONTRACTOR shall fully inform himself of the conditions to be encountered and shall include all payment for same in his bid prices stated in the proposal. No payment will be made for extra work caused by unusual conditions not anticipated by the CONTRACTOR.

PART 2 - PRODUCTS**2.1 STANDARD BEDDING MATERIAL**

- A. Standard Bedding Material (SBM) shall meet the requirements of ASTM D-2321 for the class of materials described in this subsection.
1. Class I shall be an angular, 1/4 in. to 1-1/2 in. graded crushed stone.
 2. Class II shall include coarse sands and gravels with maximum particle size of 1-1/2 inch. These materials may have small percentages of fines but shall be generally granular and non-cohesive, either wet or dry. Class II materials shall include Unified Soil Classification System (USCS) Soil Types GW, GP, SW and SP.
 3. Class III shall include fine sands, sand-clay mixtures and gravel-clay mixtures. USCS Soil Types GM, GC, SM and SC are included in this class.

2.2 BACKFILL

- A. Initial Backfill material used shall be as described below and/or as shown on the standard details.
1. Paved area: SBM material in accordance with section 2.1 of this specification.
 2. Non-Paved area:
 - a. For flexible pipe, SBM material used shall be in accordance with section 2.1 of this specifications at depths greater than 10-feet. Select Fill shall be used from depth 0-10 feet.
 - b. For rigid pipe, Select Fill shall be used.
 - i. Select Fill consists of excavated materials free of rocks larger than 2-1/2 inches, organic material, rubbish, debris, and all other objectionable material.

- B. Final Backfill material used shall be as described below and/or as shown on the standard details.

1. Paved area: SBM material in accordance with section 2.1 of this specification.
2. Non-Paved area: Excavated material shall be used.

PART 3 - EXECUTION

3.1 TRENCH EXCAVATION

- A. The trench shall be excavated so that the pipe can be laid to the alignment and grades shown on the drawings, or as directed by the OWNER'S REPRESENTATIVE. It shall be excavated a maximum of 150 feet in advance of pipe laying, or less, as permitted by the OWNER'S REPRESENTATIVE. Opening of trenches in excess of the maximum requires specific approval of the ENGINEER.
- B. Trenches shall be dry when the trench bottom is prepared. The trench bottom shall be shaped so that even bearing is obtained for the barrel of the pipe, with the bells unsupported. Any required dewatering shall be incidental to the trenching.
- C. From 12-inches above the pipe and below, the standard trench width as shown on the standard drawings shall not be exceeded. If, for any reason this portion of the trench exceeds the permitted width and if the OWNER'S REPRESENTATIVE shall determine that cradling or encasement then is required, said concrete cradle or encasement shall be installed.
- D. Any part of the bottom of the trench excavated more than 4 inches below the specified grade shall be considered incidental and shall be corrected with approved material as directed by the OWNER'S REPRESENTATIVE. In the event suitable material is not available, standard bedding material shall be used. When rock is encountered and concrete cradle is required, it shall be excavated 4 inches below the bottom of the pipe and the trench refilled to grade with standard bedding material.
- E. When quicksand or other unstable earth is encountered, the CONTRACTOR shall excavate to sufficient depth to permit backfilling with crushed stone to provide a stable base for the pipe and shall be considered incidental.

3.2 STANDARD BEDDING MATERIAL

- A. Standard Bedding Material (SBM) shall be used for embedding all pipe as shown on the Standard Details. SBM shall be carefully placed, compacted and tested along the entire length of the pipe to be installed to the limits of trench excavation until the thickness specified in the Standard Details is obtained. This layer of bedding material shall be smoothed by flat bottomed shovel or other appropriate means prior to the placement of pipe.
 1. Gravity Pipelines: SBM shall be placed simultaneously on each side of pipe and shall be carefully compacted in accordance with the SPECIFICATIONS for the type of pipe to be installed.

- a. Class I SBM requires little or no compaction due to the nature of the angular particles.
 - b. Class II SBM shall be compacted to a minimum 85% Standard Proctor Density using hand or mechanical tamping methods. Slightly damp material will generally result in maximum compaction with minimum effort. Avoid saturation of Class II SBM.
 - c. Class III SBM shall be compacted to a minimum 90% Standard Proctor Density using hand or mechanical methods. Take care to avoid excessive moisture in using Class III SBM.
2. Pressure Pipelines (except Rural Water): SBM shall be placed simultaneously on each side of pipe and compacted by hand sufficiently to maintain proper grade and alignment.

3.3 BACKFILL

- A. When the type of backfill material to be placed above the standard bedding material is not indicated on the drawings or specified, the backfill may be made with the excavated material, provided that such material, in the opinion of the OWNER'S REPRESENTATIVE, is suitable for backfilling. In the event the excavated material is not suitable, standard bedding material or other approved material shall be used.
- B. The trench shall be backfilled 12" above the pipe by hand or by other methods approved by the OWNER'S REPRESENTATIVE. Special care shall be used in placing this portion of the backfill to avoid damaging or moving the pipe. The remainder of the trench may be backfilled by mechanical methods. Backfilling operation shall be completed within 100 feet or less of the finished line at all times as directed by the OWNER'S REPRESENTATIVE.
- C. ALL clearing requiring proposed underground sewer line trench backfill materials and its placement must meet referenced ASTM D 2321, in accordance with OAC 252:656-5-3(b).

3.4 COMPACTION

- A. All trenching and backfill shall be tested every 400 lineal feet for sanitary sewer, every 800 lineal feet for waterlines and all other applications. The trenching and backfill shall meet the specification listed in section 3.2 of this specification or otherwise the required standards below:
 - 1. Paved area: 95% Standard Proctor Density (SPD)
 - 2. Non-Paved area: 90% SPD if cover is less than 10-feet and 95% SPD if cover is greater than 10-feet
- B. If the backfilling has been completed and the backfill material does not meet the requirements for compaction, all the material shall be removed and hauled from the job site and the trenches refilled with material as specified above. Boring will be required at all paved street crossings unless otherwise specified or approved by the ENGINEER.

END OF SECTION 31 23 33

SECTION 31 25 00 - EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Temporary and permanent erosion control systems.
2. Slope protection systems.

1.2 REFERENCES

A. United States Environmental Protection Agency (EPA):

1. NPDES - National Pollutant Discharge Elimination System.

B. Oklahoma Department of Environmental Quality (ODEQ):

1. DEQ General Storm Water Permit (OKR10 and OKR05)

C. Oklahoma Department of Transportation (ODOT):

1. ODOT - State of Oklahoma Department of Transportation Standard Specifications for Highway Construction, Section 735 - Material for Roadside Development and Erosion Control.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with the following ODOT standards:

1. Section 220 – Management of Erosion Sedimentation, and Storm Water Pollution Prevention and Control
2. Section 221 - Temporary Sediment
3. Section 230 - Sodding and Sprigging.

B. Regulatory Requirements: Conform to requirements of local Authority Having Jurisdiction for prevention of erosion and sediment control.

1. Conform to NPDES and ODEQ requirements, where required.

1.4 PROJECT CONDITIONS

A. Environmental Requirements: Protect adjacent properties and water resources from erosion and sediment damage throughout work. Take all necessary measures to prevent sedimentation from construction operations to enter adjacent property. Offsite discharge of sedimentation is not permitted.

B. Storm Water Pollution Prevention Plan: Maintain plan at project site at all times available for inspection during contract duration.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Quick Growing Grasses: Wheat, rye, or oats.
- B. Straw Bales: Free of weed seed.
- C. Fencing for Siltation Control: UV resistant geotextile fabric.
- D. Slab Sod: Rectangular slabs of Bermuda grass.
- E. Temporary Mulches: Loose straw, netting, wood cellulose, or agricultural silage free of seed.
- F. Bale Stakes:
 - 1. Minimum 3 feet length.
 - 2. 2 No. 4 steel reinforcing bars or,
 - 3. 2 steel pickets or,
 - 4. 2 - 2x2 inch hardwood stakes driven 18 inches to 24 inches into ground.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive work.
- B. Report in writing to ENGINEER prevailing conditions that will adversely affect satisfactory execution of the work of this section. Do not proceed with work until unsatisfactory conditions have been corrected.
- C. By beginning work, CONTRACTOR accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the OWNER.

3.2 EROSION CONTROL AND SLOPE PROTECTION

- A. Provide erosion control and slope protection measures to prevent sediment from site entering adjacent property or public right-of-way to include but not be limited to:
 - 1. Temporary silt fences.
 - 2. Straw bales placed around culvert openings or inlets.
 - 3. Diked area with earth berm and silt trap for draining dredged material.
- B. Install erosion control and slope protection in accordance with ODOT standards.
- C. Place all erosion and siltation control measures before start of earthwork and grading construction operations.

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- D. Mulch and seed all storm and sanitary sewer trenches not in streets no later than 10 days after backfill. Do not permit more than 500 feet of trench to be open at any one time.
- E. Place all excavated material on uphill side of trenches where possible. Do not place materials in stream beds. Seed any stockpiled material which remains in place longer than 30 days with temporary vegetation and mulch.
- F. Mulch and seed all temporary earth berms, diversions, erosion barriers and temporary stockpiles with temporary vegetative cover with 10 days after grading.
- G. Do not stockpile or otherwise place dredged, excavated or other material, at any time, in or near stream bed which may increase turbidity of water. If turbidity producing materials are present, hold surface drainage from cuts and fills within construction area and from borrow and waste disposal areas in suitable sedimentation ponds or grade surface drainage to control erosion within acceptable limits. Provide and maintain temporary erosion and sediment control measures such as berms, dikes, drains, or sedimentation basins, if required, until permanent damage and erosion control facilities are completed and operative. Hold to minimum area of bare soil exposed at any one time by construction operations.
- H. Drain dredged material minimum 7 days. Store material for drainage to a maximum height of 4 feet.
- I. OWNER'S REPRESENTATIVE may direct CONTRACTOR to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and embankment operations and may direct CONTRACTOR to provide immediate permanent or temporary erosion control measures.
- J. Maintain temporary erosion control systems as directed by OWNER'S Representative to control siltation during construction. Provide maintenance or additional work directed by OWNER'S REPRESENTATIVE immediately upon notification by OWNER'S REPRESENTATIVE.

END OF SECTION 31 25 00

SECTION 31 41 00 - SHEET PILING, SHEETING, SHORING AND BRACING

PART 1 – GENERAL

1.1 DESCRIPTION

- A. General provisions of the Contract Documents including General and Supplementary Conditions and Division 01 specifications sections apply to all work in this section.
- B. Work included: Furnishing and installing lateral restraint within trenches and excavations as required.

1.2 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 – Submittals and Substitutions.
- B. Submit design of sheet piling, sheeting, shoring and bracing.

1.3 REGULATORY REQUIREMENTS – LATERAL RESTRAINT

- A. Materials and installation work shall conform to all applicable federal, state and local regulations.
- B. Provide material for sheet piling, sheeting, shoring and bracing. Drive or set in place in accordance with federal, state and local regulations for excavations and construction, and as may be required to protect the workers and the public, or to maintain the trench widths as specified.
- C. Design Requirements:
 - 1. The CONTRACTOR shall retain the services of a registered PROFESSIONAL ENGINEER to design lateral restraint facilities. This design will include any necessary sheet piling, sheeting, shoring or bracing to protect any facilities, stockpiles, excavations or construction materials adjacent to the excavation and/or personnel required to be in or near the excavation. The CONTRACTOR shall retain the services of a registered PROFESSIONAL ENGINEER to design all aspects of shoring and bracing.
- D. Bracing elements shall not be cast into or included in the permanent concrete work, except where directed by the ENGINEER, in which case the proper keys, cutoffs, water stops and waterproofs must be provided.
- E. The CONTRACTOR shall indemnify and save harmless the ENGINEER and the OWNER from any and all personal injuries or property damages resulting from his failure to provide and properly maintain the previously mentioned lateral restraints.

1.4 QUALITY ASSURANCE

- A. Prior to installation, review methods and procedures related to excavation support and protection system including, but not limited to, the following:
 - 1. Geotechnical report
 - 2. Existing utilities and subsurface conditions
 - 3. Proposed excavations
 - 4. Proposed equipment
 - 5. Monitoring of excavation support and protection system
 - 6. Working area location and stability
 - 7. Coordination with waterproofing
 - 8. Abandonment or removal of excavation support and protection system

PART 2 – MATERIALS

2.1 MATERIAL REQUIREMENTS

- A. Materials, wales and braces shall be new or of sound material. If steel, they shall be standard structural steel sections, as listed in the American Institute of Steel Construction's "Manual of Steel Construction," current edition. If timber, they shall be of structural grade southern pine or Douglas fir.
- B. The steel sections used shall have no more than surface rust and shall conform to the requirements of the ASTM Specification A36 or A572, "Requirements for Delivery of Structural Steel," current edition, in respect to straightness, defect deformations, camber and any other condition which would affect efficient performance in the bracing system.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.
 - 1. Shore, support, and protect utilities encountered.
- B. Install excavation support and protection systems to ensure minimum interference with roads, streets, 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. Locate excavation support and protection systems clear of permanent construction so that forming and finishing of concrete surfaces are not impeded.
- D. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protections system remain stable.
- E. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

3.2 SOLDIER PILES AND LAGGING

- A. Install steel soldier piles before starting excavation. Extend soldier piles below excavation grade level to depths adequate to prevent lateral movement. Space soldier piles at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than 2 inches (50 mm) from a horizontal line and not more than 1:120 out of vertical alignment.
- B. Install wood lagging within flanges of soldier piles as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.
- C. Install wales horizontally at locations indicated on Drawings and secure to soldier piles.

3.3 SHEET PILING

- A. Before starting excavation, install one-piece sheet piling lengths and tightly interlock to form a continuous barrier. Accurately place the piling, using templates and guide frames unless otherwise recommend in writing by the sheet piling manufacturer. Limit vertical offset of adjacent sheet piling to 60 inches (1500 mm). Accurately align exposed faces of sheet piling to vary not more than 2 inches (50 mm) from a horizontal line and not more than 1:120 out of vertical alignment. Cut tops of sheet piling to uniform elevation at top of excavation.

3.4 TIEBACKS

Most tieback systems are proprietary. Insert material requirements in Part 2 if a particular tieback is required. If tiebacks are permanent, consider level of corrosion protection of tendons and anchorage connections.

- A. Tiebacks: Drill, install, grout, and tension tiebacks. Test load-carrying capacity of each tieback and replace and retest deficient tiebacks
 - 1. Test loading shall be observed by a qualified professional engineer responsible for design of excavation support and protection system.
 - 2. Maintain tiebacks in place until permanent construction is able to withstand lateral soil and hydrostatic pressures.

3.5 BRACING

- A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.
1. Do not place bracing where it will be cast into or included in permanent concrete work unless otherwise approved by ENGINEER.
 2. Install internal bracing, if required, to prevent spreading or distortion of braced frames.
 3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.6 REMOVAL AND REPAIRS

- A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.
1. Remove excavation support and protection systems to a minimum depth of 48 inches (1200 mm) below overlaying construction and abandon remainder.
 2. Fill voids immediately with approved backfill compacted to density specified in Division 2 Section "Earthwork."
 3. Repair or replace, as approved by ENGINEER, adjacent work damaged or displaced by removing excavation support and protection systems.
 4. Leave excavation support and protection systems permanently in place.

END OF SECTION 31 41 00

SECTION 32 12 13.13 – TACK COAT**PART 1 – GENERAL****1.1 DESCRIPTION**

- A. This work consists of preparing and treating an existing bituminous or concrete surface with bituminous material.
1. Original Emulsion. A mixture of asphalt, water, and a small amount of emulsifying agent to maintain a uniform blend.
 2. Diluted Emulsion. An original emulsion diluted with additional water to reduce the viscosity and to allow easier spraying, typically used for fog seals.
 3. Residual Asphalt Content. The amount of asphalt remaining on the pavement surface after all of the water, both in the original emulsion and any additional water, has evaporated.

1.2 MATERIALS

- A. Provide materials in accordance with Section 32 12 16.39 Part 2, "Asphalt Materials."

1.3 EQUIPMENT

- A. Distributors and Supply Tanks
1. Provide distributors and supply tanks capable of uniformly applying bituminous material in accordance with the following:
 - a. At the temperatures specified in the relevant specification sections;
 - b. On variable widths of surface not to exceed 26 ft [7.8 m];
 - c. At rates from 0.010 gal/yd² to 1.000 gal/yd² [0.045 L/m² to 4.525 L/m²]; and
 - d. With constant pressure and uniform temperature.
 2. Ensure the distributor can apply material to vertical faces of asphalt pavement at the joints between paving operations.
 3. Prevent variation that exceeds the specified application rate by more than 0.01 gal/yd² [0.045 L/m²].
 4. Provide a distributor equipped with the following:
 - a. A tachometer,
 - b. Pressure gauges,
 - c. Volume-metering devices or a calibrated tank,
 - d. A thermometer for measuring temperatures of tank contents,
 - e. A power unit for the pump,

- f. Full circulation spray bars adjustable vertically and laterally,
 - g. A positive shut-off valve, and
 - h. Fittings that prevent bituminous material from dripping.
5. Frequently check and adjust the angle of the spray nozzles and the height of the spray bar to ensure uniform distribution of the bituminous material. The ENGINEER will not allow drilling, clogging, or streaking the bituminous material. If any of these conditions occur, stop the operation and correct the problems creating these conditions before resuming distribution.
 6. Check the rate and uniformity of distribution if directed by the ENGINEER. Provide supply tanks in accordance with AASHTO M 156, Section 3.

B. Compactors

1. Provide rollers of the following types:
 - a. Vibratory steel-wheel,
 - b. Non-vibratory steel-wheel,
 - c. Pneumatic tire, or
 - d. A combination of the three types.
2. Provide rollers in good condition, capable of reversing without backlash, and operating at speeds that do not displace the bituminous mixture.
3. Equip vibratory rollers with working amplitude controls or frequency controls designed specifically for the compaction of the specified bituminous material.
4. Use rollers of a type, number, and weight to complete the compaction of the bituminous material before its temperature drops below the specified minimum.
5. Do not use equipment that crushes the aggregate in the bituminous material.

1.4 CONSTRUCTION METHODS

A. Preparation

1. Clean the existing roadbed surface before placing tack coat. Paint a thin, uniform tack coat on all surfaces of curbs and gutters, manholes, and other structures that will come in contact with hot mix asphalt. Ensure the tack coat applications minimize damage and inconvenience to traffic and allow one-way traffic without pickup or tracking the bituminous material.
2. Do not apply tack coat during wet or cold weather or in windy conditions that would cause the tack coat emulsion to drift. Do not apply tack coat to wet surfaces with free standing water. The ENGINEER will allow tack coat application to damp surfaces.
3. The ENGINEER must approve of the following before application:
 - a. Quantity,
 - b. Rate of application,

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- c. Temperature, and
- d. Areas to be treated.

B. Fog Seal

1. Apply the fog seal at a rate of 0.100 gal/yd² [0.455 L/m²] of diluted emulsion diluted at 5:1 water to original emulsion. Alter the application rate or dilution ratio as directed by the ENGINEER (based on weather, type of emulsion, and surface type or layer).

C. Tack Coat

1. Apply the tack coat or NT tack material as shown in Table 1 on the following page, unless otherwise required by the Contract. Alter the application rate as directed by the ENGINEER (based on weather and surface type or layer). Use the highest rate in the table for the surface type or layer (top or bottom).

Table 1 Tack Application Rates		
Surface Type/Layer	Original Emulsion gal/yd² [L/m²]	Residual gal/yd² [L/m²]
New Asphalt (bottom)	0.060 [0.270]	0.035 [0.160]
Old Asphalt (bottom)	0.085 [0.385]	0.050 [0.225]
Milled (bottom)	0.085 [0.385]	0.050 [0.225]
New Fabric (bottom)	----	0.200 [0.905]
PFC, OGFSC (top)	0.100 [0.455]	0.060 [0.270]
UTBWC (top)	0.200 [0.905]	0.120 [0.545]
PCC (bottom)	0.075 [0.340]	0.45 [0.205]

2. Ensure that the tack breaks before the application of the next surfacing layer.
3. Re-apply tack at a rate that ensures proper bonding if the tack loses its adhesive properties or is damaged by traffic before being covered by the next surfacing layer, as directed by the ENGINEER, at no additional cost to the OWNER.

1.5 METHOD OF MEASUREMENT

- A. The ENGINEER will measure the volume of Emulsion for Fog Seal, Tack Coat, and NT Tack Material as delivered, before dilution.
- B. The ENGINEER will measure bituminous material by the gallon [liter] or ton [metric ton].

1.6 BASIS OF PAYMENT

- A. The OWNER will pay for each pay item at the contract unit price per the specified pay unit as follows:

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Pay Item:	Pay Unit:
(A) FOG SEAL	Gallon [Liter]
(B) TACK COAT	Gallon [Liter]
(C) NT TACK MATERIAL	Gallon [Liter]

- B. The OWNER considers the cost of water for dilution to be included in the contract unit price for *Fog Seal* and *Tack Coat*.

END OF SECTION 32 12 13.13

SECTION 32 12 16.13 – PLANT- MIX ASPHALT PAVING**PART 1 – GENERAL****1.1 DESCRIPTION**

- A. This work consists of constructing one or more courses of bituminous mixture on the prepared foundation (roadbed or base).
1. Asphalt mixture includes Hot Mix Asphalt and Warm Mix Asphalt.
 2. Hot Mix Asphalt (HMA) includes Superpave, Type A, Type B, and Type C.
 3. Warm Mix Asphalt (WMA) is defined as an asphalt binder and aggregate mixture which, by additive or process, can be produced and placed at a reduced temperature from normal HMA temperatures. WMA requirements are the same as for HMA except where noted.

1.2 MATERIALS

- A. ENGINEER must approve aggregate sources and blend percentages on a project basis before use.
- B. Coarse Aggregate
1. Course aggregate is defined as that part of the aggregate retained on the No. 8 [2.36 mm] sieve. Provide coarse aggregate consisting of clean, tough and durable particles that are free of soft and disintegrated pieces, shale, clay, organic, or other deleterious material.
 2. Natural gravel is not allowed as a source of insoluble material unless it is crushed so that at least 75 percent of the material retained on the No. 4 (4.75 mm) sieve has at least two mechanically fractured faces.
- C. Fine Aggregate
1. Fine aggregate is defined as that part of the aggregate that passes the No. 8 (2.36 mm) sieve and consists of hard, durable natural sand grains, crushed stone, stone dust, crushed gravel, mine chat, jig sand or any combination of these. Produce crushed materials from a source that meets the requirements for coarse aggregate in Table 1.
- D. Asphalt Requirements
1. Provide asphalt cement in accordance with AASHTO M 320 and Table 2.

Table 2 Additional Requirements to AASHTO M 320 for Asphalt Cement			
Test	PG 64-22 OK	PG 70-28 OK	PG 76-28 OK
Elastic recovery at 77°F (25°C), %	-----	≥65	≥75
Separation ^a , %	-----	≤10	≤10
Original DSR $G^*/\sin(\delta)$, kPa	≤2.50	≤2.50	≤2.50

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RTFO DSR $G^*/\sin(\delta)$, kPa	≤5.50	≤5.50	≤5.50
PAV DSR change in testing temperature, °F (°C)	-----	77 [25]	77 [25]
Spot test ^b	Negative	-----	-----
Flash point, °F (°C)	≥500 [260]	≥500 [260]	≥500 [260]
Solubility in trichloroethylene, %	≥99	≥99	≥99
Note: Asphalt binder suppliers will provide handling requirements and recommended field mixing and compaction temperatures for their product to the hot-mix producer. ^a Separation test samples are prepared in accordance with ASTM D 5976 but are reported as the difference in G^* between the top and bottom samples. ^b Spot test using solvent blend of 65 percent heptane and 35 percent xylene by volume.			

PART 2 - EQUIPMENT

2.1 MIXING PLANTS

- A. Provide asphalt preparation plants in accordance with AASHTO M 156.
- B. Avoid exposing reclaimed asphalt paving material to the burner flame or high temperature combustion gases. Ensure plants modified for this purpose meet the manufacturer's requirements for the specific modifications.
- C. Allow the ENGINEER access to the mineral filler feeder systems for approval before use.
- D. Provide a closed system for storing and feeding mixtures with mineral fillers that maintains a constant material supply with minimal loss throughout the mix production system. Ensure the mineral filler measuring device provides a consistent percentage of filler. Provide a system that includes flow indicators or sensing devices to automatically stop mix production if mineral filler introduction ceases.
- E. Provide a separate system for mixtures with cellulose fibers to feed fibers into the mixture to obtain a uniform distribution. Ensure the fiber supply system includes low level, no-flow indicators and a file or printout that tracks the feed rate. Include a section of transparent pipe in the fiber supply for observing consistency of flow or feed.

2.2 SCALES

- A. Provide digital scales to weigh the bituminous mixture. For approved automatic printer systems with an automatic batching and mixing control system, use the printed batch weights or truck scales. Provide a weigh ticket for each load to record the weights. Provide certification of scales every six months, or after every move, unless otherwise directed by the ENGINEER.

2.3 PAVERS

- A. Provide self-contained, self-propelled asphalt pavers equipped with an activated heated screed, and an automatic control device for placing the mixture to the slopes and grades shown on the Plans. Ensure the pavers can spread and finish asphalt

courses on lanes, shoulders, and similar construction to the widths and thicknesses shown on the Plans.

- B. Equip the paver with a receiving hopper and a distribution system to uniformly place and spread the asphalt in front of the screed without causing asphalt segregation. The ENGINEER will not allow equipment designed to pick up asphalt from windrows.
- C. Ensure the paver can operate at forward speeds to place consistently the mixture.
- D. Use a heated strike-off assembly to produce a finished surface that meets the specified evenness and uniform texture without tearing, shoving, or gouging the mixture or causing asphalt segregation.

2.4 TRUCKS AND TRANSPORTS

- A. Ensure trucks hauling asphalt comply with legal load limits and have tight, clean, smooth metal beds thinly coated with a minimum amount of soap solution, lime solution, or other material that prevents the mixture from adhering to the beds as approved by the ENGINEER. Prevent ponds of these anti-adhesive solutions from forming in truck beds.
- B. Refrain from using solutions that contain diesel fuel or other contaminating solvents during material delivery.
- C. Provide trucks with a canvas cover or other material large enough to protect the asphalt from the weather. If necessary, insulate the truck beds and fasten the covers so that the mixture remains at the specified temperature until delivery.
- D. Provide transports to haul liquid asphalt materials in accordance with Subsection 32 12 16.39 Part 2, "Asphalt Materials." Keep a record of the following:
 - 1. Delivery date,
 - 2. Asphalt grade,
 - 3. Source,
 - 4. Quantity,
 - 5. Invoice number, and
 - 6. Material hauled in the previous load.
- E. Provide these records to the ENGINEER upon request.

2.5 COMPACTOR

- A. Use self-propelled, steel wheel, and pneumatic tired compactors. Ensure the steel wheeled compactors weigh at least 10 tons [9 metric tons]. Ensure the pneumatic tired compactors have at least seven pneumatic tires of equal size and diameter. Ensure the total weight of the tires produces an operating weight of at least 3,500 lbs. [1,588 kg] per tire. Inflate the tires to at least 90 percent of the maximum pressure recommended by the tire manufacturer. Maintain the tire pressure for at least one (1) hour after the start of operations and ensure the range in pressure among the tires does not exceed 10 psi [68 kPa].

PART 3 - CONSTRUCTION METHODS**3.1 ASPHALT MIX DESIGN AND INITIAL JOB MIX FORMULA**

- A. The ENGINEER will determine if the mix design meets the design criteria. Provide one mix design for each asphalt concrete mixture required by the contract documents.
- B. Ensure that the initial JMF is in accordance with Tables 8, 10, and 11, or Tables 9, 10, and 11 for the type of mix required by the contract documents. Prepare a trial mixture in accordance with Section 32 12 16.13 Plant Mix Asphalt Paving, Subsection 1.4C. Propose changes to the JMF if the trial, prepared at the initial JMF proportions, fails to meet the requirements of Tables 8, 12, 13, and 14, or Tables 9, 12, 13, and 14. If the changes do not produce a mix design in accordance with these tables, the ENGINEER will require a new mix design. If the changes do produce a mix design in accordance with these tables, the ENGINEER will approve the changes for adjustment of the JMF.
- C. Ensure the JMF establishes a percentage of aggregate passing each required sieve, a percentage of asphalt contained in the mixture, and a mixture temperature at the point of discharge from the plant.
- D. The JMF with the allowable tolerances shown in Table 15, establish the specification limits for each mixture. These limits may be outside the range in Table 8 or Table 9 except for the following conditions:
1. The absolute maximum sieve size,
 2. When no tolerances are shown in Table 15, the broad ranges given in Table 9 are the specification limits.
- E. All mix types shall be allowed 15% maximum recycled asphalt pavement (RAP).

Table 8					
Mixtures for Superpave					
Sieve Size ^a	Percent Passing per Superpave Mixture Type				
	S2	S3	S4	S5 / RIL	S6
1½ in [37.5 mm]	100	—	—	—	—
1 in [25.0 mm]	90 – 100	100	—	—	—
¾ in [19.0 mm]	≤ 90	90 – 100	100	—	—
½ in [12.5 mm]	—	≤ 90	90 – 100	100	—
⅜ in [9.5 mm]	—	—	≤ 90	90 – 100	100
No. 4 [4.75 mm]	≥ 40	—	—	≤ 90	80 – 100
No. 8 [2.36 mm]	29 – 45	31 – 49	34 – 58	37 – 67	54 – 90
No. 16 [1.18 mm]	—	—	—	—	—
No. 30 [0.600 mm]	—	—	—	—	—
No. 50 [0.300 mm]	—	—	—	—	—

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No. 100 [0.150 mm]	—	—	—	—	—
No. 200 [0.075 mm]	1.0 – 7.0 ^b	2.0 – 8.0 ^b	2.0 – 10.0 _b	2.0 – 10.0 ^b	5.0 – 15.0
Other Mixture Requirements					
NMS ^c	1 in [25 mm]	$\frac{3}{4}$ in [19 mm]	$\frac{1}{2}$ in [12.5 mm]	$\frac{3}{8}$ in [9.5 mm]	No. 4 [4.75 mm]
Asphalt Cement ^d , % of mix mass	≥ 3.9	≥ 4.3	≥ 4.8	≥ 5.3 / ≥ 5.5	≥ 5.8
Performance grade asphalt cement	e	e	e	e	e
^a Table 8 reflects the sieve size boundaries for design and JMF purposes. After the design is established, the JMF will designate combined aggregate sieve requirements with tolerances in Table 14.					
^b Ensure the ratio of the percent passing the No. 200 (75 μm) sieve to the percent effective asphalt cement is from 0.6 to 1.6.					
^c Nominal Maximum Size (NMS) is defined as one size larger than the first sieve to retain more than 10 percent.					
^d The ENGINEER may adjust the lower limit if the effective specific gravity of the combined aggregates is greater than 2.65. The ENGINEER may allow adjustments if a theoretical lab molded specimen at the JMF asphalt content meets the VMA requirement at 4% air voids.					
^e The CONTRACTOR may substitute a higher grade of asphalt than that shown on the Plans at no additional cost to the OWNER.					

Table 10 Mix Design Properties of Laboratory Molded Specimens							
Property	Superpave			RIL	SMA	PFC	RBL
	PG64	PG70	PG76	PG76E-28	PG76	PG76	PG64
Number of SGC Gyrations							
Nini	6	7	8	—	—	—	—
Ndes	50	65	80	50	50	50	50
Required Density, % of Gmm							
Nini	85.5 – 91.5	85.5 – 90.5	85.5 – 89.0	—	—	—	—
Table 10, Continued Mix Design Properties of Laboratory Molded Specimens							
Ndes	96	96	96	97	96	≤ 82.0	98

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VMA, %	See Table 3.3:5						
VFA, %	See Table 3.3:5						
Lab Permeability, $\text{cm/s} \times 10^{-5}$	≤ 12.5	≤ 12.5	≤ 12.5	≤ 12.5	≤ 12.5	—	≤ 12.5
TSR, Min.	0.8	0.8	0.8	0.8	0.8	—	0.8
ITS ^a , psi	—	—	≥ 75	—	—	—	—
Draindown, %	—	—	—	—	≤ 0.20	≤ 0.20	—
Hamburg Rut Test, Min. No. of Cycles to 12.50 mm, 122 °F	10,000	15,000	20,000	20,000	20,000	—	5,000
Note: For this table: PG64, PG70, and PG76 refer to the high temperature grade of the binder. Unless otherwise noted, specifications for PG binder grades higher than PG76 will use PG76 specifications. ^a Indirect Tensile Strength from AASHTO T 283, preconditioned specimen average, in psi.							

Table 11 Mix Design Properties of laboratory Molded Specimens									
Property	Superpave					RIL	SMA	PFC	RBL
	S2	S3	S4	S5	S6				
VMA ^a , %	≥ 12.5	≥ 13.5	≥ 14.5	≥ 15.5	≥ 16.5	≥ 15.5	≥ 17.0	—	≥ 14.0
VFA, ^b %	67 - 73	70 - 75	72 - 77	73 - 78	75 - 79	73 - 79	—	—	—
^a VMA is based on the bulk specific gravity of the aggregates. ^b VFA is defined as the percentage of VMA containing asphalt binder.									

Table 12 Field Properties of Laboratory Molded Specimens							
Property	Superpave			RIL	SMA	PFC	RBL
	PG64	PG70	PG76	PG76E-28	PG76	PG76	PG64
Number of SGC Gyrations							
Nini	6	7	8	—	—	—	—
Ndes	50	65	80	50	50	50	50
Required Density, % of Gmm							
Nini	85.5 – 91.5	85.5 – 90.5	85.5 – 89.0	—	—	—	—
Table 12, Continued Field Properties of Laboratory Molded Specimens							
Ndes	94.5 - 97.4	94.5 - 97.4	94.5 - 97.4	95.5 – 98.4	94.5 - 97.4	≤ 82.0	96.5 - 99.4

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VMA, %	See Table 13						
VFA, %	See Table 13						
Lab Permeability, cm/s $\times 10^{-5}$	—	—	—	—	—	—	—
TSR, Min.	0.75	0.75	0.75	0.75	0.75	—	0.75
ITS ^a , psi	—	—	—	—	—	—	—
Draindown, %	—	—	—	—	—	—	—
Hamburg Rut Test, Min. No. of Cycles to 12.50 mm, 122 °F	—	—	—	—	—	—	—
Note: For this table: PG64, PG70, and PG76 refer to the high temperature grade of the binder. Unless otherwise noted, specifications for PG binder grades higher than PG76 will use PG76 specifications.							
^a Indirect Tensile Strength from AASHTO T 283, preconditioned specimen average, in psi.							

Table 13									
Field Properties of Laboratory Molded Specimens									
Property	Superpave					RIL	SMA	PFC	RBL
	S2	S3	S4	S5	S6				
VMA ^a , %	≥ 12.0	≥ 13.0	≥ 14.0	≥ 15.0	≥ 16.0	≥ 15.0	≥ 16.5	—	≥ 13.5
VFA ^b , %	—	—	—	—	—	—	—	—	—
^a VMA is based on the bulk specific gravity of the aggregates. Compute a new bulk specific gravity from each AASHTO T 209 test. Calculate the value by multiplying the aggregate Effective Specific Gravity (Gse) calculated from the latest AASHTO T 209 test by the aggregate Bulk Specific Gravity (Gsb) from the design. Afterwards, divide the product by the aggregate Gse from the design.									
^b VFA is defined as the percentage of VMA containing asphalt binder.									

Table 14	
Hamburg Test Requirements ^a	
Binder Grade	Minimum Number of Passes to 12.50 mm Rut Depth, Tested at 122°F
PG 58	10,000
PG 64	10,000
PG 70	15,000
PG 76	20,000
Table 14, Continued Hamburg Test Requirements	

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Note: For the purposes of this table PG64, PG70, and PG76 refer to the high temperature grade of the binder.

^a Rut test requirements apply to Superpave, SMA, and RIL mixes only.

Table 15

JMF Tolerances Per Mixture

Sieve Size	Superpave	Stone Matrix Asphalt	Permeable Friction Course	Rich Bottom Layer	Open Graded Friction Course	Open Graded Bitum. Base
	Percent Passing					
≥No. 4 [4.75 mm]	±7	±7	±7	±7	±7	—
No. 8 [2.36 mm]	±5	±5	±5	±5	±5	—
No. 16 [1.18 mm]	±4	±4	—	±4	—	—
No. 30 [0.600 mm]	±4	±4	—	±4	—	—
No. 50 [0.300 mm]	±4	±4	—	±4	—	—
No. 100 [0.150 mm]	±3	±3	—	±3	—	—
No. 200 [0.075 mm]	±2	±2	±2	±2	±2	—

3.2 PREPARATION OF MATERIALS

A. Mat Irregularities

1. Ensure the mat is free of segregation, non-uniform texture, bleeding, fat spots, and cracking.

B. Tack Coat

1. If required by the contract documents, provide a tack coat in accordance with Section 32 12 13.13, "Tack Coat."

C. Temperature and Weather Limitations

1. Ensure the minimum surface temperature of the foundation is in accordance with Table 1.

Table 1 Compacted Thickness and Surface Temperature			
Lift Thickness, in [mm]	Surface Temperature, °F [°C]		
	Hot Mix Asphalt	Warm Mix Asphalt (Foamed)	Warm Mix Asphalt (Non-Foamed)
>3 [>75]	40 [4]	35 [2]	35 [2]
2-3 [50-75]	45 [7]	40 [4]	35 [2]
1,2 [<50]	50 [10]	45 [7]	40 [4]

- Do not place asphalt if frost exists in or on the foundation. Stop operations if the material becomes too cold to be leveled and consolidated. If it starts raining, stop plant production immediately. During adverse weather conditions, the CONTRACTOR may place material already in transit; however, the CONTRACTOR shall assume the risk of weather related impacts.

D. Spreading and Finishing

- Remove foreign material from the surface of the foundation before placing asphalt. Place the asphalt on a dry surface with a paver in accordance with Subsection 1.3.C, "Pavers." Establish the alignment along one pavement edge with a string or wire line.
- Do not windrow asphalt. Deliver the asphalt to the paver at the optimum temperature shown on the mix design ± 25 °F [± 14 °C] or as approved by ENGINEER, but not to exceed plant mix temperature of 345 °F [174 °C].
- Use hand tools to dump, spread, rake, and compact the asphalt to the compacted thickness in areas inaccessible to mechanical spreading and finishing equipment shown on the Plans.
- To ensure a continuous operation, operate the spreading and finishing machine at a uniform forward speed consistent with the plant production rate, hauling capacities, and roller train capability. Maintain a paver speed that will minimize stopping and starting between trucks. If the ENGINEER determines that sporadic material delivery is adversely affecting the mat quality, the ENGINEER may direct paving operations to suspend until the CONTRACTOR makes adjustments.
- Spread the asphalt mixture uniformly adjacent to curbs, gutters, manholes, and other structures so that the compacted surface is ¼ inch [6 mm] above the edges of the structures. Before placing the mixture against these structures, clean and coat them with a thin, uniform tack coat in accordance with Section 32 12 13.13, "Tack Coat."
- Correct unsatisfactory asphalt mat immediately. The ENGINEER may suspend paving operation until the CONTRACTOR produces a satisfactory result. Remove and replace unsatisfactory asphalt as directed by the ENGINEER, at no additional cost to the OWNER.

E. Joints

- General

- a. Stagger longitudinal and transverse joints on succeeding layers by 6 inches [150 mm].
- b. Construct longitudinal joints within 1 ft [0.3 m] of the lane lines and ensure the longitudinal joints in the top asphalt layer are at the lane lines.
- c. Bond and seal longitudinal and transverse joints. If making joints between old and new pavements, or between successive days' work, create a continuous bond between the surfaces. Cut back the transverse edge of the previous course to its full depth to expose a fresh surface. Paint the edge with a tack coat and place the asphalt mixture directly against it. Rake the mixture to the depth and grade shown on the Plans.

2. Longitudinal Joint Density

- a. Perform a joint density evaluation at each pavement edge that is or will become a longitudinal joint for each lot or subplot at locations where roadway density tests are to be taken. Determine the joint density in accordance with the Oklahoma Department of Transportation's OHD L-14. The joint density is considered failing if the density at the joint is more than 3.0 pcf below the density at the random sample location at the same station and the measured (by core or correlation) joint density is less than 90%.
- b. Investigate joint density failures and take corrective actions during production and placement to improve the joint density. Suspend production if two (2) consecutive evaluations fail unless otherwise approved. Resume production after the ENGINEER approves changes to production or placement methods.

F. Compaction

1. General

- a. Operate compactors (rollers) in accordance with the manufacturer's recommendations.
- b. Perform the initial compaction for each placed layer of asphalt mixture using steel-drum rollers and follow with self-propelled pneumatic-tired rollers. Finish with a steel-drum roller. The ENGINEER requires at least two coverages with the pneumatic-tired roller on each layer.
- c. Use rakes and additional fresh material to correct the surface if mat displacement occurs during rolling. Avoid displacing the line and grade of the edges of asphalt. Ensure the mixture does not adhere to the compactors.
- d. Compact the mixture using hot hand tampers, smoothing irons, or mechanical tampers for areas inaccessible to compaction equipment. If approved by the ENGINEER, use a trench compactor to transmit compression to depressed areas.
- e. Remove mixture that is defective, loose, broken, or mixed with dirt, and replace with new asphalt, at no additional cost to the OWNER. Compact to conform to the surrounding area.

- f. Ensure the asphalt immediately behind the paver is at least 250 °F [121 °C] for HMA or 215°F [102°C] for WMA. Before the temperature of the asphalt drops below 140 °F [60 °C], compact thicker layers to the target density and thinner layers to the optimum density in accordance with Subsection 1.4.K.2.a, "Layers At Least 1½ in [38 mm] Thick," and Subsection 1.4.K.2.b, "Layers Less Than 1½ in [38 mm] Thick."

2. Acceptance

- a. The ENGINEER will accept layers at least 1½ in [38 mm] in nominal thickness on the basis of density in accordance with Subsection 1.4.K.2.a, "Layers At Least 1½ in [38 mm] Thick."
- b. The ENGINEER will accept layers less than 1½ inch [38 mm] in nominal thickness on the basis of compactive effort in accordance with Subsection 1.4.K.2.b, "Layers Less Than 1½ in [38 mm] Thick."
- c. The ENGINEER will accept layers of all thicknesses on a lot-by-lot basis. The ENGINEER considers a lot to be 500 ton [500 metric ton] of asphalt. The ENGINEER may terminate a lot and designate a new one if the CONTRACTOR makes adjustments to the material or production and placement procedures. For jobs less than 500 ton, if all the asphalt for each lift is placed in the same day, one sample is sufficient. If more than one day will be required for asphalt to be placed, a sample from each day shall be required.

1. Layers At Least 1½ in [38 mm] Thick

- a) Ensure the target density of each lot is 94 percent of the Maximum Theoretical Density, determined by the specific gravity of the asphalt in accordance with AASHTO T 209.
- b) The asphalt density for each lot is the average of two random samples from the lot. At times and locations directed by the ENGINEER, core samples from the pavement of 4" minimum diameter. The CONTRACTOR will perform tests on the samples or on the mat using a nuclear density gauge at the ENGINEER discretion.

Table 2 Pay Adjustments for Lot Density	
Pay Adjustment Factor (PAF) ^a % of Maximum Theoretical Density	Average Lot Density (ALD)
> 97.0 ^c	Unacceptable ^b
92.0 – 97.0 ^c	1
91.0 – 91.9	1.00 – (0.07)(92.0 – ALD)
88.1 – 90.9	0.93 – (0.15)(91.0 – ALD)
< 88.1	Unacceptable ^b

^a Use PAF for Roadway Density in the Combined Pay Factor equation in accordance with Subsection 1.4.N.2.a, "Basis of Acceptance and Payment."

^b Unless otherwise directed by the ENGINEER, remove and replace unacceptable lots at no additional cost to the OWNER.

^c For Rich Intermediate Layer (RIL) only, change 97.0 to 98.0.

3. The OWNER will base acceptance and pay adjustments on ENGINEER-approved tests in accordance with the following schedule:

4. Documentation

a. Document asphalt pavement work in accordance with Subsection 1.4.K.2.b, "Layers Less Than 1½ in [38 mm] Thick" if required by the Contract. Include records of the ENGINEER'S directions and the resulting corrective actions. Ensure the records include a detailed description of the equipment, including weight, tire pressure, speed, and the number of coverages. Ensure the roller operators and superintendent (or other CONTRACTOR representative), sign the records at the end of each day's operation. Immediately after signing, submit the records to the ENGINEER for inspection. Submit the records to the ENGINEER at the conclusion of work on each day in accordance with Subsection 1.4.K.2.b, "Layers Less Than 1½ in [38 mm] Thick."

G Tolerances

1. Surface

a. Finish the surface elevations for new pavement construction and overlays within ½ in [13 mm] of the elevations shown on the Plans. If the Plans do not show the elevations for overlays, provide a finished surface in accordance with the surface smoothness tolerances. Ensure the surface smoothness is within ⅛ in in 10 ft [3 mm in 3 m]. Test for surface smoothness by placing a straightedge between two contacts on the finished surface and measuring the distance from the surface to the straightedge.

2. Width and Thickness

A. Construct a finished pavement structure in conformance to the widths and thicknesses of individual layers and the total thicknesses of asphalt shown on the Plans or directed by the ENGINEER.

H. Opening to Traffic

1. Do not allow traffic on the pavement until after final rolling and the pavement has cooled sufficiently to ensure traffic will not damage the pavement surface. Use water or other artificial means to assist in cooling, as approved by the ENGINEER.

I Mix Properties

1. General

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- a. Provide quality control personnel to ensure the production of acceptable products. Ensure the quality control personnel oversee the process control of asphalt materials during handling, mixing, and placing operations.
 - b. At no time will the ENGINEER provide instructions to the CONTRACTOR or producer as to the setting of dials, gauges, scales, or meters; however, the ENGINEER may advise the CONTRACTOR or producer against continuing any operations or sequences of operations that will result in non-compliance with the Contract requirements.
2. Acceptance
- a. The ENGINEER will accept and pay for, or reject, each lot of asphalt pavement as defined in accordance with the following:
 - 1) Basis of Acceptance and Payment
 - a) The ENGINEER will consider asphalt cement content, air voids, and roadway density to determine acceptance and payment for asphalt pavement.
 - b) The ENGINEER may use several test methods to determine acceptability of asphalt cement content, air voids, and roadway density (in accordance with Subsection 1.4.K, "Compaction"). The ENGINEER will only use one test method but may perform several tests using that method to measure each characteristic. The ENGINEER will calculate the average deviation for each characteristic in accordance with Table 4, "Acceptance Schedule," and use the average to determine acceptance and calculate pay factors. For the characteristics of asphalt cement content and air voids, the ENGINEER will disregard algebraic signs of the deviations to calculate averages. The ENGINEER will address deviations above or below the target for these characteristics.
 - c) Perform sieve analyses in accordance with Subsection 32 12 16.39 Part 3, "Composition of Mixtures," or as modified by the special provisions. If a sieve analysis result does not fall within the tolerances specified in the JMF, provide test results that demonstrate that the asphalt mixture meets the following requirements in accordance with Subsection 32 12 16.39 Part 3, "Composition of Mixtures":
 - i. The gradation falls within the broad band; and
 - ii. The air voids at Ndes and VMA fall within the ranges.
 - d) The ENGINEER will apply calculated pay factors for asphalt cement content, air voids, and roadway density to all acceptable asphalt pavement. The ENGINEER may consider additional pay factors for other characteristics including but not limited to smoothness. The ENGINEER will base the total pay adjustments for deficiencies on the following:
 - i. All pay adjustments will be based on the individual pay factors shown in Table 2, "Pay Adjustments for Lot Density" and Table 4, "Acceptance Schedule."
 - ii. Except for smoothness, pay factors will be applied on a lot by lot basis.

- e) Pay adjustments on lots, (all characteristics except smoothness) as each 500 tons (500 metric tons) lot is complete, will be made for deficiencies in asphalt cement content, roadway density, and air voids using the following formulas. If test results are incomplete at that time, an interim adjustment will be made assuming pay factors of 1.00 for the then unknown characteristics and corrected later when testing is completed.
- f) The ENGINEER will determine the total pay adjustment (combined pay factor) for asphalt pavement with deviations, using the following equation:

$$CPF = \frac{4RD + 3AC + 3AV}{10}$$

10

Where

CPF = Combined pay factor,
 RD = Pay factor for roadway density,
 AC = Pay factor for asphalt cement content, and
 AV = Pay factor for air voids.

- g) For layers less than 1½ inches [38 mm] thick, the ENGINEER will use a pay factor of "one" for roadway density. For permeable friction course, open-graded friction surface course, and open-graded bituminous base mixes, that do not have a target roadway density or target for air voids, the ENGINEER will use pay factors of "one" for both roadway density and air voids.
- b. ENGINEER'S Acceptance Procedures
- 1) Once a lot has been defined, maintain its identity throughout the mixing and placement process.
 - 2) The CONTRACTOR may perform varying amounts of the following sampling and testing per lot at ENGINEER discretion.
 - a) Asphalt cement content test: one mixture sample randomly selected, split and tested in accordance with Table 4.
 - b) Roadway density: three specimens randomly selected and each tested, averaged, and considered as one test in accordance with Table 2. Run one maximum theoretical specific gravity test or if applicable run two and average as one test split from the mixture sample.
 - c) Air voids (lab-molded): two specimens split from mixture sample, tested, averaged, and considered as one test in accordance with Table 4.
 - d) The ENGINEER will use Table 4 for determining acceptance and calculating pay factors:

Table 4 Acceptance Schedule		
Characteristics	1 Test	Pay Factor
Deviation from JMF (without Regard to Sign)		
Asphalt Cement Content (Extraction, Nuclear or Ignition Oven) Target JMF Percent	0.000 – 0.40	1
	0.41 – 0.80	1.40 – (Deviation from JMF)
	>0.80	Unacceptable ^b
Asphalt Cement Content (Digital Printout from Hot-Mix Plant) Target JMF Percent	0.00 – 0.20	1
	0.21 – 0.30	1.80 – 4 x (Deviation from JMF)
	>0.30	Unacceptable ^b
Average of Deviations from Target (Without Regard to Sign)		
Air Void (Lab Molded Samples) ^a	0.00 – 1.50	1
	1.51 – 2.50	-0.16X + 0.24X + 1.00
Target (Superpave, Type A,B,& C) = 4%	>2.50	Unacceptable ^b
^a X is the average of deviations. ^b Unless otherwise directed by the ENGINEER, remove and replace unacceptable lots at no additional cost to the OWNER.		

J. Patching

1. Patch existing asphalt pavement as shown on the Plans or as directed by the ENGINEER.

K. Sampling and Testing

- A. The ENGINEER will inspect, test, and approve material before its incorporation in the work. Unless otherwise specified, tests will be performed using the most recent cited standard methods or specifications, AASHTO, ASTM, or other referenced authority. For differing test procedures, the ENGINEER will use the following order of precedence:
 1. AASHTO, and
 2. ASTM.
- B. For acceptance testing, samples will be taken and tested by certified technicians.
- C. The ENGINEER may inspect, test, or reject material before or during its incorporation into the work. The ENGINEER will address unacceptable material in accordance with Section 01 45 00, "Quality Control." The ENGINEER may retest material and reject material that does not meet the requirements of the contract documents, even if the material was previously tested and conditionally approved at the source of supply. The CONTRACTOR will provide copies of test results to the ENGINEER upon request.

D. Sample and tests shall be in accordance with Table 16 below.

Table 16	
Sampling and Testing of Asphalt Mixtures	
Materials	Testing Method
Mechanical analysis of extracted aggregate	AASHTO T 30
Sampling asphalt mixtures	AASHTO T 168
Bulk specific gravity (Gmb) of compacted asphalt mixtures using saturated surface-dry specimens	OHD L-14
Maximum specific gravity of asphalt mixtures	AASHTO T 209
Resistance to moisture damage ^a , g	AASHTO T 283
Draindown characteristics of uncompacted asphalt samples	AASHTO T 305
Preparing specimens by superpave gyratory compactor ^b	AASHTO T 312
Bulk specific gravity (Gmb) and density of compacted asphalt mixtures using automatic vacuum sealing method CoreLok™	OHD L-45

1.5 METHOD OF MEASUREMENT

- A. The ENGINEER will measure asphalt pavement as a combined mixture including the aggregate, liquid asphalt, and other materials required in accordance with the mix design.
- B. The ENGINEER will measure bituminous material by the gallon [liter] or ton [metric ton].
- C. The CONTRACTOR shall submit all delivery tickets to the ENGINEER

1.6 BASIS OF PAYMENT

A. General

- 1. The OWNER will pay for each pay item at the contract unit price per the specified pay unit as follows:

Pay Item:	Pay Unit:
(A) SUPERPAVE, TYPE S3	Ton [Metric Ton]
(B) SUPERPAVE, TYPE S4	Ton [Metric Ton]

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(C) SUPERPAVE, TYPE S5	Ton [Metric Ton]
(D) SUPERPAVE, TYPE S6	Ton [Metric Ton]
(E) TYPE A	Ton [Metric Ton]
(F) TYPE B	Ton [Metric Ton]
(G)TYPE C	Ton [Metric Ton]

2. The OWNER will pay for asphalt by the lot, in accordance with Subsection 1.4.N 2, "Acceptance," on the basis of acceptance test results.
3. Include the cost of startup operations in the contract unit price for the relevant asphalt pavement pay item.
4. Include the cost of cutting samples and replacing sample materials 1000in the contract unit price for the relevant asphalt pay item.
5. Include the cost of tack coat in the contract unit price for the relevant asphalt type pay item.

END OF SECTION 32 12 16.13

SECTION 32 92 23 - SODDING

PART 1 - GENERAL

1.1 SCOPE

- A. This work shall consist of furnishing and planting viable Bermuda grass sod in accordance with these specifications. All areas which are not covered by pavement or structures shall be sodded, and/or areas utilized for construction staging.

PART 2 - PRODUCTS

2.1 SOD

- A. Bermuda grass sod to be used as source material shall be a thick stand of common Bermuda grass growing on fertile topsoil. Types of Bermuda grass other than "Common" may not be used unless approved by the ENGINEER. The vegetative parts (rhizomes, stolons, and roots) of Bermuda grass shall be viable as indicated by a dense, deep rooted stand.
- B. The source for sod shall be free of reproducing parts of weeds classified as "Prohibited Noxious" and shall be as free of other legally "Restricted Noxious" plant materials as required by the Oklahoma Department of Agriculture Seed Law. The proposed source of sod will be approved by the ENGINEER before the beginning of sodding operations. Prior to approval, the area shall not be tilled or mowed. However, all vegetative growth exceeding 3 inches in height shall be mowed and the residue removed prior to harvesting the sod or sprigs.
- C. The sod shall be moist when excavated from the source and shall be kept moist until planted. Sod in storage which becomes dry, shall not be re-moistened and used, but shall be discarded.
- D. Sod material shall consist of vegetative parts (rhizomes, stolons and roots) of Bermuda grass with an appreciable quantity of adhering soil.
- E. Solid slab sod shall be rectangular slabs of Bermuda grass. Bermuda grass vegetative parts shall exist throughout the slab and shall be obtained from soils with a minimum P.I. of 3. The slab must have a dense vegetative growth and be capable of being transported in a condition closely resembling its original state.

2.2 FERTILIZER

- A. Fertilizer of 10 20 10 grade and ammonium nitrate (33.5% N), uniform in composition, free flowing and suitable for application with approved equipment shall be provided. The fertilizer shall be delivered to the site in bags or other convenient containers, each fully labeled, conforming to the applicable State fertilizer laws, and bearing the name, trade name or trademark and warranty of the producer.

PART 3 - EXECUTION**3.1 PREPARATION**

- A. Preparation of areas to be sodded shall include filling, reshaping of eroded areas, cleaning ditches and refinishing slopes to the established grading section. The area shall be cleared of all litter and debris.

3.2 APPLICATION

- A. The slabs of sod shall be placed soil side down. They shall be placed in rows, which on slopes shall run perpendicular to flow of water. Each slab shall fit tightly against the edge of adjoining slabs and shall be placed so that the vertical joints are not continuous across adjoining horizontal rows. Voids shall be filled with additional sod. All slabs shall be thoroughly pressed into firm contact with the soil underneath.
- B. After the slabs have been placed, the sodded area shall be thoroughly watered. When sufficiently dry, additional voids shall be filled with good soil and watered again. The area shall then be thoroughly watered daily for a period of at least seven days after placement.
- C. Soil moisture shall exist throughout the zone from 1 inch below the surface to at least 5 inches below the surface at the time of planting. The required moisture content of the soil may be estimated and judged closely by the hand squeeze test. The soil should readily form a tight cast when squeezed in the hand. The cast should break into two pieces without crumbling and without leaving excess water on the hand after casting.
- D. Fertilizer shall not be placed on hard or glazed surfaces. Fertilizer shall be applied at the rates shown on the plans or specifications.
- E. When satisfactory results can be obtained, disking for soil preparation, weed removal and incorporation of fertilizer may be accomplished in one operation.
- F. If a fertilizer containing phosphorous is specified, one half of the fertilizer shall be applied before placement of solid slab sod and shall then be incorporated into the soil by disking. After placement and compaction of the sod, the remaining one half of the fertilizer shall be applied and immediately incorporated into the soil with water.
- G. Fertilizer containing nitrogen only shall be applied after the sodding and sprigging operations have been completed.

3.3 SEASON

- A. If the construction work is not completed during the normal planting season (beginning April 15 through September 1), the CONTRACTOR shall seed the entire area with an approved temporary vegetative cover, such as wheat, oats or rye grass to prevent erosion until the following spring at which time the CONTRACTOR will be required to return and prepare the area to be sodded as specified above and sod the entire area with Bermuda grass as specified above at no additional cost to the OWNER. All areas

which have eroded will at this time be brought back to original line and grade as directed by the ENGINEER.

3.4 WATER SUPPLY

- A. The CONTRACTOR must make provisions to obtain water for this operation at his own expense. It will be the CONTRACTOR'S responsibility to transport the water to the area where it is needed.

END OF SECTION 32 92 23

DIVISION 33 – UTILITIES

SECTION 33 01 29 – TELEVISION INSPECTION OF SEWER LINES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. This section covers closed-circuit television (CCTV) inspection of existing sewer lines and rehabilitated and newly constructed sewer lines.
2. The work shall consist of furnishing all labor, materials, accessories, equipment, tools, transportation, services, and technical competence for performing all operations required to professionally execute the internal inspection of sewers in strict accordance with these specifications.

B. Safety Considerations

1. Information concerning depths of flow, manhole depths, air quality in the sewers, accessibility of manholes, traffic conditions, and other safety considerations are to be the sole responsibility of the CONTRACTOR to obtain and to incorporate the necessary provisions into the overall contract price to complete the specified work under the conditions existing in the sewers to be inspected.

1.2 LARGE-DIAMETER SEWER INSPECTIONS

A. Potential Requirements

1. For large-diameter sewer inspections, the CONTRACTOR may be required to submit sample video recordings from recently completed projects demonstrating the picture quality obtained with each available inspection system for pipe diameters twenty-seven inches (27") and larger.

1.3 GUIDELINES

- A.** All television testing shall be performed in accordance with guidelines published by the National Association of Sewer Service Companies (NASSCO) and as modified or specified in these specifications.

PART 2 – EQUIPMENT

2.1 EQUIPMENT REQUIREMENTS

- A.** All television cameras used for inspection shall be color units specifically designed and constructed for the method of inspection performed.
- B.** Camera(s) may be modified by mounting on conventional or floating skids, or rafts, for use in multiple-diameter, sewer line inspection work.

- C. Units shall have either automatic or remote focus and iris controls.
- D. The complete system(s) shall be operable in conditions of hundred (100) percent humidity.
- E. Lighting shall be suitable to allow a clear picture of the entire periphery of the main sewer pipe.
- F. For large-diameter (twenty-seven inches (27") and larger) pipe, the camera lens shall have not less than a sixty-five (65°) degree viewing angle.
- G. A radial viewing camera with a three hundred and sixty (360°) degree vertical rotation and a two hundred and seventy (270°) degree horizontal rotation, or any combination of the two, may be required to properly evaluate the condition of the main sewer and laterals. Lighting shall operate in a manner that allows the viewed object to be illuminated no matter what the angle of the lens. For a radial viewing camera, the lighting shall be built into the unit so that the lamp(s) remains aligned with the lens.
- H. A minimum illumination of three (3) lux with a light color in the twenty-two hundred (2200°) to thirty-two hundred (3200°) degree Kelvin range shall be provided. Auxiliary lighting acceptable to the ENGINEER shall be provided for large diameter pipe. For diameters of sixty inches (60") and greater, a minimum of one million (1,000,000) candlepower lighting in the thirty-two hundred (3200°) degree Kelvin range shall be made available.
- I. The CONTRACTOR shall be responsible for having the necessary camera skids, floats, and rafts available to allow for inspection of lines in a manner acceptable to the OWNER under live flow conditions.
- J. In all cases, the complete video system (camera, lens, lighting, cables, monitors, and recorders) shall be capable of providing a picture quality acceptable to the ENGINEER, and if unsatisfactory, equipment shall be removed, and no payment shall be made for unsatisfactory inspections.

PART 3 – CONSTRUCTION METHODS

3.1 GENERAL

- A. The CONTRACTOR shall use one of the following methods individually or in combination, as approved by the ENGINEER:
 - 1. Conventional color inspection cameras specifically designed for use in sewer line inspection work, mounted on conventional camera skids or tracks.
 - 2. Conventional color inspection cameras specifically designed for use in sewer line inspection work, mounted on floating skids or rafts.
 - 3. Special industrial grade, color-inspection cameras contained in waterproof housings, and mounted on floating skids or rafts

4. Special industrial grade, color-inspection cameras, either handheld or contained in waterproof housings, and carried manually through the sewer during inspection work.

3.2 PROCEDURES

- A. Pre-Work Submittals for Inspection of Large Diameter Pipes: For pipes 27 inches and larger, the CONTRACTOR shall submit a listing of actual measured flow depths and times of measurement at a sufficient number of locations to indicate the flow depths that could be expected during inspection work. A minimum of one (1) flow depth measurement shall be provided for each line section at no additional cost to the OWNER. Additional off-peak flow measurements (i.e., night flow measurements) may be requested by the ENGINEER at various locations, also at no additional cost to the OWNER.
- B. A meeting shall be scheduled prior to beginning any internal pipe inspection work to review the CONTRACTOR'S proposed inspection methods for each of the line section groupings. At that time, the CONTRACTOR shall have available the necessary flow depth data as well as the overall listing of proposed inspection methods in each area.
- C. Remote Inspections: Remote pipe inspections shall be permitted in cases where conditions are, as determined by the ENGINEER, to be unsafe or impractical for manual inspections, and where acceptable picture quality can be obtained by the CONTRACTOR.
- D. The main sewer shall be cleaned as directed by the ENGINEER and free of grease, roots and debris that may hinder movement of inspection equipment through the lines. Major line obstructions that require point repairs are excluded.
- E. The maximum flow depth for remote inspection work in pipes twenty-four inches (24") and less is twenty (20%) percent of the pipe diameter.
- F. For large pipe diameters [twenty-seven inches and greater], the maximum flow shall be thirty (30%) percent of the pipe diameter. The CONTRACTOR may be required to perform inspections during off-peak hours (night inspections) when specifically requested by the ENGINEER to obtain this flow standard.
- G. No inspections shall be performed where flow depths exceed 50 percent of pipe diameter without prior approval of the ENGINEER.
- H. Suspended moisture or fog in pipes shall be cleared with blowers. Filming shall commence only when the ambient temperature above ground is a minimum of 40° degrees Fahrenheit.
- I. CCTV inspection shall be done one manhole section at a time and the flow in the section being inspected shall be suitably controlled as specified in Section 33 01 31. The inspection shall proceed from one section to another starting either upstream or downstream and completing in that order for the entire line. When an obstruction prevents the camera from passing through the entire manhole

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section, the inspection shall be continued from the opposite manhole before proceeding to the next section.

- J. The camera shall be moved through the line at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. The maximum speed of the camera shall not exceed 30 feet per minute. Caution shall be taken to not linger in one spot allowing the heat generated from the unit to ignite roots, debris, etc.
- K. The camera shall be moved through the line by conventional means of manual winches, power winches, television cable, and powered rewinds or other devices, which do not obstruct camera view or interfere with proper documentation of the sewer conditions. In instances where manual or remote power winches are used to pull the camera through the sewer constant two-way communication shall be set up between the two manholes of the line being inspected.
- L. Accurate and continuous footage readings shall be superimposed on the video recording for each line inspected by remote inspection methods. Also shown shall be the date of inspection and a manhole number designation that corresponds to the field logs for each manhole on the line section inspected.
- M. When specified, a lateral sewer camera shall be employed to inspect up to 25 feet of the lateral. The lateral camera launcher shall be brought into position by the main sewer television camera. Lateral sewers entering manholes shall be inspected with a mini push camera. Actual footage inspected shall vary depending on the condition of the pipe. Videotapes of laterals may be in black and white and shall show a view of the lateral connection by the main sewer camera before showing the internal view of the lateral by the launcher.
- N. The CONTRACTOR shall provide photographs developed from the television screen of problems revealed by the CCTV camera upon the request of the ENGINEER, as long as such photographing does not interfere with the CONTRACTOR'S operations.
- O. Manual (Walk Through) Inspections: Manual inspections shall be required in lines where conditions will allow the CONTRACTOR'S inspection crew to safely walk through the sewer. In general, lines 60 inches in diameter and larger and having flow depths of less than 20 percent of the pipe diameter, shall be manually inspected as directed by the ENGINEER.
- P. Inspection crews shall consist of two or more people. Blowers and exhaust fans shall be available to provide ventilation for the sewer line being inspected.
- Q. Manual pipe inspections shall be conducted in such a manner as to transmit the video signal to an above-ground viewing room to permit the ENGINEER to watch the inspection work live on a color monitor in the viewing facility. In addition, direct voice communication between the ENGINEER, the in-pipe inspection personnel, and the recording technician in the aboveground unit shall be maintained at all times during the manual inspection work. Video recording equipment shall also be located above ground in the inspection truck and accurate, continuous footage

readings shall be superimposed on the video recording for permanent record. Camcorders shall not be permitted for use as the sole means of obtaining video records.

- R. During manual inspections, the video camera shall be used to look up sidelines and laterals, whenever practical. Conditions noted in these sidelines and laterals shall be noted on the inspection logs and videotapes for the project.
- S. During manual inspections, thirty-five (35mm) millimeter color photographs shall be obtained as instructed by the ENGINEER or as deemed necessary by the in-pipe technicians to document line conditions.

PART 4 – DOCUMENTATION

4.1 REQUIREMENTS

- A. Television Inspection Logs: Printed location records shall be kept by the CONTRACTOR and will clearly show the location in relation to an adjacent manhole of each infiltration point observed during inspection. In addition, other points of significance such as locations of building sewers, unusual conditions, roots, storm sewer connections, broken pipe, presence of scale and corrosion, and other discernible features will be recorded, and a copy of such records shall be supplied to the ENGINEER. The video audio recording and written report of the condition of each lateral, if inspected, shall be included along with an identification number corresponding to main sewer log and approximate locations of any pipe defects.
- B. If preliminary inspection occurs in conjunction with a rehabilitation or replacement project, no construction activities shall begin without prior review and subsequent approval by the ENGINEER of the work outlined in the submittals.
- C. During large-diameter pipe inspections, the CONTRACTOR shall document in writing observed conditions and comments given about each sewer line. These field logs shall then be reviewed by the CONTRACTOR'S technical staff, along with reviewing the associated video record, as a means of insuring that no defects or entries are omitted or incorrect, and as a means of gaining a second opinion as to the condition of each sewer line. Edited field logs shall then be reprinted or typed for use in the final project reports. Detailed, one-page summaries shall also be prepared for each line section inspected, during the data review, presenting the ENGINEER'S synopsis of the line's general condition and the relative severity of observed defects. These summaries shall also be included in all field report copies immediately before each associated inspection report. Direct submittal of copies of the field technician's field logs, without this secondary review and summary pages, shall not be acceptable.
- D. Five (5) complete copies of the final project reports shall be submitted to the OWNER within fifteen (15) calendar days of completion of all field activities. One of the five (5) copies shall contain the original photos.
- E. An overall summary narrative shall be provided in the final report describing the overall conditions found in each associated line section grouping and

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detailed summary tables shall also be compiled showing those lines where major and significant defects were located.

- F. Original recordings, along with the required submittals, shall be forwarded to the ENGINEER upon completion of the inspection and shall become the property of the OWNER.
- G. Video Audio Recordings - A forward introduction sequence stating the time and date, location or segment number, depth, diameter, and pipe material for each length between manholes shall precede the recording of each line segment. The camera shall progress through the pipe indicating the beginning manhole and destination manhole as it marks the footage continuously. Should there be a need to access the line from the other direction, a new introduction track shall precede the setup, and the footage shall begin at zero.
- H. The camera shall pause as it approaches a service so that the connection between pipe and service may be evaluated. The lens shall then rotate to display the interior of the service. The service inspection should reveal any roots, cracks, or capped risers.
- I. Audio description shall accompany the visual. Operator's comments shall contain verbal verification of footage and condition of each service, and any defects or unusual conditions noted in the main. When television inspection is performed as a part of final examination for acceptance of project, it shall be performed after all the lines have been constructed and within twenty-four hours of conducting deflection test on a line. It shall be continuous and present each segment in the order laid out in the plans (e.g., Line A: station 0+00 to 4+00, station 4+00 to 8+00, Line B: station 0+00 to 3+00, etc.).
- J. All recordings shall be DVD format, or a format specified by the ENGINEER. Each tape shall be professionally labeled showing the OWNER'S name, project number, project location, the date(s), etc., lines recorded on the tape, and name of the Contractor. If the quality of the recordings is not satisfactory to the ENGINEER, the lines shall be re-recorded at the CONTRACTOR'S expense.
- K. Photographs: All photographs taken during manual walk-through inspections shall be properly mounted and labeled on eight and one half by eleven (8½" x 11") inch paper for inclusion in the final project reports. One (1) copy of the final reports shall contain the original thirty-five (35) millimeter photos, on fully laminated pages, and the remaining requested copies shall contain copier of pages of these photos. The photo pages shall be presented immediately following the inspection report for the line section in which they were taken.

Photographs taken from the monitor for remote television inspections shall also be presented in the same manner as described above.

PART 5 – METHOD OF MEASUREMENT

5.1 PAYMENT DEFINITIONS

- A. Payment shall be made for pre-construction inspection, when required for construction, and post construction inspection only. Unless separately specified, all other recording and/or photographs requested by the ENGINEER shall be considered incidental to the project and the cost included in the price for other items.
- B. "Television Inspection" shall be measured along the stations, through manholes, junction boxes and other small structures. Payment for "Television Inspection (CCTV)" shall be made at the unit price bid per lineal foot of pipe regardless of size. The price established shall be full compensation for all equipment, labor, materials, mobilization, demobilization, reverse setups, recordings, reports, photographs, and incidentals necessary to complete these items of work.

PART 6 – BASIS OF PAYMENT

6.1 PAYMENT TERMS

- A. The items measured as provided above will be paid for at the contract unit price bid:

PRE AND POST VIDEO INSPECTION

L.F.
- B. Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools, and incidentals, and for performing the work in accordance with these specifications.

END OF SECTION 33 01 29

SECTION 33 01 31 – SEWER FLOW CONTROL**PART 1 – DESCRIPTION**

- A. This section covers necessary sewer flow control to the extent required for each operation, as specified, and directed by the ENGINEER.

1.1 SEWER FLOW CONTROL FOR TELEVISION INSPECTION & SMOKE TESTING

- A. When depth of flow at the upstream manhole of the section being worked is above the allowable for television inspection, the flow shall be reduced to the level shown below by operation of pumps, plugging, or blocking of the flow, or by pumping and bypassing of the flow as specified. Depth of flow shall not exceed that shown below for the respective pipe sizes as measured in the manhole when performing television inspection.

Pipe Nominal Size (inch)	Allowable Depth of Flow (% of pipe diameter)
10	20
12 – 24	25
27	30

1.2 SEWER FLOW CONTROL FOR ALL OTHER OPERATIONS

- A. General: The line shall be completely blocked off and plugged and all flows shall be by-passed to the extent necessary or as required by the ENGINEER.
- B. Plugging or Blocking: A sewer line plug shall be inserted into the line upstream of the section being worked. The plug shall be so designed that all or any portion of the sewage can be released.
- C. Pumping and Bypassing- When pumping and bypassing is required the CONTRACTOR shall supply the pumps, conduits, and other equipment to divert the flow of sewage around the manhole section in which work is to be performed. The bypass system shall be of sufficient capacity to handle existing flow plus additional flow that may occur during a rainstorm. The CONTRACTOR will be responsible for furnishing the necessary labor and supervision to set up and operate the pumping and bypassing system. If pumping is required on a twenty-four (24) hour basis, engines shall be equipped in a manner to keep noise to a minimum.
- D. Flow Control Precautions: When flow in a sewer line is plugged, blocked, or bypassed; sufficient precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging. Furthermore, precautions must be taken to ensure sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved. The CONTRACTOR shall be liable for damages resulting from sewer surcharge.

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PART 2 – METHOD OF MEASUREMENT

- A. Payment for "Sewer Flow Control" shall be made at the unit price bid per lump sum. The price established shall include furnishing and operation of pumping and by-passing, labor tools, and incidentals necessary to complete this item of work.

Plugging or blocking of the sewer flow shall be considered incidental to the work and shall not be considered for payment.

PART 3 – BASIS OF PAYMENT

- A. The items measured as provided above will be paid for at the contract unit price bid:

SEWER FLOW CONTROL

L.S.

Such payment shall be compensation in full for furnishing all materials, labor, equipment, tools, and incidentals, and for performing the work in accordance with these specifications.

END OF SECTION 33 01 31

SECTION 33 05 61 - MANHOLES AND CLEANOUTS

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Manholes and cleanouts shall be constructed at the location to the size and with the type as shown on the plans and in accordance with the specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Concrete: Section 03 30 00 – CAST-IN-PLACE CONCRETE, except as noted herein.
- B. Frames, Covers and Steps: Cast Iron, ASTM A48, Class 30.
- C. Non-Shrink Grout: BASF Master Builders® 885 (formerly Embeco® 885), BASF Sonneborn "Ferrolith G-DS" or equal.
- D. Mastic Sealer: Carbolite® Bitumastic 300 M, Tnemec "Series 46-465 H.B. Tnemecol" or equal.
- E. Pre-Cast Reinforced Concrete Manholes: ASTM C478-77 with the following modifications:
 - 1. Cement, Section 03 30 00 shall be revised to read: Portland Cement shall conform to the requirements of ASTM C150, Type II or V. For Type II Cement, the tricalcium aluminate (C_3A) content shall not exceed 5 1/2 percent.
 - 2. Precast Sections: Precast concrete; ASTM C478, except as modified herein.
 - 3. Minimum Thickness: As indicated on drawings; ASTM C76, B wall.
 - 4. Reinforcing: ASTM C76, Class III, with circular reinforcement as required for Type A wall. ASTM C507, Class HEIII, for elliptical sections.
 - 5. Openings for Pipe: Provide as required for pipe type and size, and specific connection at each manhole.
- F. Membrane Curing Compound: ASTM C309, Type 2, Class B.
- G. Sand for Mortar: Concrete sand (fine aggregate) sieved through 8-mesh screen.
- H. Mortar: Eight sacks of Type I cement per cubic yard. Use of hydrated lime shall not be allowed.
- I. Non-shrinking Mortar: Premixed or job mixed; job mixed shall be one-part shrinkage-correcting aggregate, one part Portland cement, and one part sand.
- J. Gaskets:
 - 1. Mastic: Fed. Spec. SS-S-210; Henry® "Ram-Nek®" or Kent Seal No. 2.

2. Rubber: Neoprene or other synthetic, 40 plus or minus 5 hardness when measured by ASTM D2240, Type A durometer.
- K. Rubber Joint Filler: Natural or synthetic.
1. Hardness: 40 plus or minus 5 when measured by ASTM D2240, Type A durometer.
 2. Tensile Strength: 1200 psi minimum.
- L. Mastic Sealing: Tnemec "Series 46-465 H.B. Tnemecol", Porter Paints "Tarmastic 102", or approved equal.
- M. Castings: ASTM A48, with hot asphaltum varnish coating applied at the foundry. Frames and covers as shown on the plans. Bolt down type shall be Clay and Bailey No. 2014 M with brass bolts and rubber gasket.
- N. Bolts: Cadmium plated.
- O. Delivery: Precast concrete section shall not be delivered to the job until representative concrete control cylinders have attained a strength of at least 80 percent of the specified minimum.
- P. Inspection: Precast concrete sections shall be inspected when delivered and all cracked or otherwise visibly defective units rejected.

PART 3 - CONSTRUCTION METHODS

3.1 CAST-IN-PLACE MANHOLES

- A. Forms used in the construction of cast in place circular concrete manholes shall be inspected and approved by the ENGINEER prior to use. The forms shall be made of metal and fabricated in sections which will permit easy installation and removal without damage to complete manhole. The forms shall be constructed such that the walls will have a thickness of 8 inches without any form marks on the interior or exterior exceeding 1/4 inch. The upper portion of the form shall be constructed such that the finished manhole will taper from 48-inch diameter to 26-inch diameter in a minimum distance of 30 inches and a maximum distance of 48 inches.
- B. The concrete base shall be poured monolithically with the rest of the manhole as approved by the ENGINEER. Concrete used in the construction of cast-in-place manholes shall be Class I Mix Concrete with a maximum permissible slump of 4 inches. Concrete shall be placed and compacted in the forms in 2-foot layers in such a manner that will prevent segregation. Forms shall not be removed from the walls of the manhole until the concrete has set up sufficiently to prevent damage to the walls by the form removal operation. Backfilling will not be permitted until a period of 12 hours has expired after the removal of the forms.
- C. Manhole locations which require pipe inlets through cast-in-place circular manhole walls will be constructed by cutting an opening in the manhole wall at the proper location after the forms have been removed. The pipe will then be installed in the opening using the correct alignment and grouted in place. The space between the pipe and manhole shall be completely filled with grout. All grouting shall be done with non-shrink grout as specified below for "Sewer Connections".

- D. Frames and Covers and Steps (when shown): Shall be set so that the top of the frames will be flush with all paved surfaces, will be 0.1 foot otherwise directed by the ENGINEER.

3.2 BRICK MANHOLES REHABILITATION

- A. The joints shall be completely filled and shall be smooth and free from surplus mortar on the inside of the manhole. Brick manholes shall be plastered with 1 inch minimum or mortar over the entire outside surface of the walls. Brick shall be laid radially with every sixth course laid as a stretcher course.

3.3 PRECAST REINFORCED CONCRETE MANHOLES

- A. The thickness of precast sections shall be at least 4 inches for manholes less than 16 feet in depth and shall be not less than 5 inches for manhole depths greater than 16 feet. The minimum internal diameter of manholes shall be 4 feet. The bottom sections of all precast manholes shall extend into the manhole base a minimum of 4 inches.
- B. All precast sections shall be adequately reinforced to withstand erection and temperature stresses as well as other applied loads.
- C. Joints between precast sections shall provide for the use of mastics or rubber gaskets (natural or synthetic) to prevent leakage or infiltration.
- D. Prior to moving precast sections to the job site, the CONTRACTOR shall submit certified test results showing a random number of precast sections have been sampled, tested for compressive strength and absorption and are in compliance with ASTM-C497. Sections shall be inspected when delivered and all cracked or other wise visibly defective units rejected.
- E. Sewer Connections
 - 1. Sewer connections to manholes shall be correctly aligned and grouted in place. All grouting shall be done with an approved non-shrink grout. The grouted inlet pipe connection shall be sealed on the exterior with an approved mastic sealing material. The sealer application shall conform to the manufacturer's recommendations.
 - 2. PVC pipe shall be installed with approved water stop gaskets in all manhole walls.
 - 3. All sewers extending from manholes shall be supported by concrete (Class II) for a distance of 3 feet from the face of the outside wall, or to the limits of manhole excavation, whichever is greater. When clay pipe is used, the cradle shall be terminated at the first joint outside the manhole in a manner which will maintain flexibility of the joint.

3.4 INVERT CHANNELS

- A. Shall be smooth and semicircular in shape conforming to the inside of the adjacent sewer section. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of manhole will permit. Changes in size and grade of the channels shall be made gradually and evenly. The invert channels shall be formed directly in the concrete of the manhole base or shall be constructed by laying full-section sewer pipe through the manhole and cutting out the top half after the surrounding

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concrete has hardened. The floor of the manhole outside the channels shall be smooth and shall slope toward the channels at three inches per foot.

3.5 DROP MANHOLES

A. Drop manholes shall be constructed as shown on the plans.

END OF SECTION 33 05 13

SECTION 33 11 00 - WATERLINE AND SANITARY SEWER SPECIFICATIONS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This division shall consist of the material and construction specification of sanitary sewer lines, appurtenances, and related work, at the locations and grades as set out on the plans or established by the ENGINEER.

1.2 SUBMITTALS

- A. Submittals shall be in accordance with Section 01 33 00 "Submittal Procedures" and shall include:
 - 1. Shop Drawings:
 - a. Drawings shall show complete physical description and performance capabilities of the equipment, including, but not necessarily limited to dimensions, flange ratings, weights, materials of construction, assemblies, sectional views.
 - b. Hydraulic calculations and CV characteristics certifying the valve can meet all the design conditions attached to this specification.
 - 2. Operation and Maintenance Manuals: Manuals shall be prepared by the equipment manufacturer and shall also incorporate appropriate final certified shop drawings. Manuals may be the manufacturer's standard instructions but shall be supplemented as necessary to cover any special feature not included in standard material. O&M manuals shall include storage instructions, valve installation and adjustment procedures and troubleshooting procedures. Manuals shall be provided in hard copy and digital format fully indexed.

PART 2 - APPLICABLE SPECIFICATIONS

2.1 DESCRIPTION

- A. The specifications, standards, and publications, including the latest amendments thereto, listed in these specifications by basic designation only, form a part of this specification to the extent indicated by the references thereto.
- B. Specification 03 30 00 – Cast-In Place Concrete
- C. Specification 31 23 33 – Trenching, Backfilling, & Compaction
- D. Specification 32 12 16.39 – Plant Mix Bituminous Bases and Surfaces
- E. Specification 33 05 07.13 – Directional Bore
- F. Specification 33 31 30 – Pipe Busting

PART 3 - CAST IRON AND DUCTILE IRON PIPE, FITTINGS AND VALVES**3.1 DESCRIPTION**

- A. The work under this item shall include furnishing, hauling, placing, and jointing of Cast Iron and Ductile Iron Pipe in the trench in specific conformity with the lines and levels given. For all pipe, the AWWA Standard for Installation of Cast Iron Water Mains, AWWA Designation C-600 shall govern the installation as applicable. The method of bedding shall be in accordance with Specification 31 23 33 and as shown on the plan Standard Details. If the paint is damaged, the valve shall be cleaned by wire-brushing and given two coats of black asphalt paint.

3.2 PIPE AND FITTINGS

- A. Where Ductile Iron Pipe (DIP) three (3) inches in diameter and larger is specified or required, it shall conform to, and be tested in accordance with, the current American Standard Specification for Ductile Iron Pipe, Centrifugally Cast in metal molds or sand-lined molds, for water or other liquids, AWWA Designation C 151 (ANSI A21.51). Ductile iron pipe less than three (3) inches in diameter shall conform to the manufacturer's standards, either centrifugally or statically cast with a minimum thickness of 0.25 inches. The ductile iron (nodular cast iron) shall conform to ASTM Specification A536 with physical properties of Grade 60-40-18. Length of joints shall be either eighteen or twenty feet. The minimum standard thickness of each size pipe shall be as follows:

<u>Pipe Size</u>	<u>Thickness Class</u>
3" through 4"	51
6" through 24"	50
30" through 54"	51

For larger diameter or deep cover, special design will be provided.

- B. Where Cast Iron Pipe (CIP) is specified or required, it shall conform to, and be tested in accordance with, the American Standard for Gray Iron Pipe Centrifugally Cast in Metal Molds for water or other liquids, AWWA Designation C106. Lengths shall be either eighteen feet or twenty feet. Strength of iron shall be 18/40 and the minimum standard thickness of each pipe shall be as follows:

<u>Pipe Size</u>	<u>Thickness Class</u>
3" through 10"	22
12"	23
14" through 24"	24
30" through 48"	25

- C. Where Cast Iron Pipe (CIP) and Ductile Iron Fittings are specified or required, they shall conform to and be tested in accordance with the American Standard for Gray Iron and Ductile Iron Fittings, 3-inch through 48-inch for water and other liquids, AWWA Designation C110. Pressure rating shall be 250 psi. All sleeves shall be the longest of the lengths allowed.
- D. The work under this item shall include all of the requirements specified under the item of pipe, in that "pipe" is understood to also mean "bends, tees, crosses, sleeves, outlet

assemblies and other specified fittings". Unless otherwise specified, outlet assemblies shall consist of a flanged outlet constructed into the wall of steel or concrete pipe. If cast or ductile iron pipe is used, the outlet shall consist of a tee with the outlet flanged. If a gate valve or butterfly valve is shown on the drawings to be attached to the outlet, the line side end shall be flanged, and the opposite end shall be bell or mechanical joint according to the item for valves. All bends, tees, crosses, outlet assemblies, and plugs shall be blocked with concrete as shown on the attached Standard Details, except where the fittings have flanged, welded, or harnessed joints, the ENGINEER may under certain conditions delete the blocking. Concrete blocking shall be placed so that joints are accessible for repair.

3.3 JOINTS

- A. Cast Iron and Ductile Iron Pipe and Fittings shall be jointed with any of the end types as specified below unless a particular end type is specified. Flange ends shall be used only where specifically noted on the drawings except that the valve connection end of all tapping sleeves shall be flanged.
- B. Push-on joints shall conform to, and be tested in accordance with, the American Standard for Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings, AWWA Designation C111.
- C. Mechanical joints shall conform to, and be tested in accordance with, the American Standard for Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings, AWWA Designation C111.
- D. Bell and spigot joints shall consist of square, braided, sterilized hemp and 99.73 percent pure lead caulking.
- E. Flange joints shall conform to the American Standard for Cast Iron Pipe Flanges and Flanged Fittings, A.S.A. Designation B.16.1.

3.4 LINING AND COATING

- A. All Cast Iron and Ductile Iron Pipe and Fittings shall be bituminous coated outside, and cement-mortar lined inside with seal coat in accordance with American Standards for Cement Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water, AWWA Designation C104.

3.5 VALVES

- A. All valves shall be rated for 250 psi working pressure.
- B. Valve boxes shall consist of a cast iron valve box, encased with a concrete collar over a section of 6-inch PVC pipe, SDR-35 typically, which is of adequate length enabling the valve box to be set at ground level as shown on the standard drawings.

3.6 GATE VALVES

- A. Where gate valves are specified or required, they shall conform to, and be tested in accordance with, the AWWA Standard for Gate Valves, 3-inch through 48-inch NPS for Water and Sewage Systems, AWWA Designation C500. Valves shall have double disc parallel seats, non-rising stem, vertical mounting "O" ring stem seal, counterclockwise opening, and ends to fit the pipe or fitting to which attached.

3.7 BUTTERFLY VALVES

- A. Where butterfly valves are specified or required, they shall conform to, and be tested in accordance with the AWWA Standard for Rubber-Seated Butterfly Valves, AWWA Designation C504. Valves shall have operators which are side mounted with plumb, non-rising stems, counterclockwise opening, and have mechanical joint connections of the size shown on the plans. The operator shall be mounted so that the square operating nut on the valve can be operated from the top.

3.8 AIR RELIEF VALVES

- A. Where air relief valves are specified or required, the valve shall be heavy-duty combination air release and vacuum type for 300 psi water working pressure, tested to 300 psi unless otherwise specified, two-inch size. Body, cover, and baffle shall be cast iron. All internal parts to be either highest quality stainless steel or bronze, and the inside of valve coated with rust inhibitor. Air relief valves shall be set so that the square operating nut on the valve can be operated from the top. Construction standards for air relief valve vaults shall be the same as for manholes.

3.9 CHECK VALVES

- A. Where check valves are specified or required, they shall conform to, and be tested in accordance with the AWWA Standard for Swing Check Valves for Ordinary Water Works Service, AWWA Designation C508. They shall be horizontally mounted, single disc, swing type with a full diameter passage providing minimum pressure loss. Valves shall be of the non-slamming type designed for the future installation of outside lever and weight. Disc faces and seat rings shall be bronze. Ends shall fit the pipe or fitting to which attached (push-on, mechanical, bell and spigot, or flanged). Construction standards for check valve vaults shall be the same as for manholes.

3.10 TAPPING VALVES

- A. Tapping valves shall have the same features as above double disc gate valves and shall have piloted flange or centering lip on the valve flange to fit the tapping sleeve flange.

3.11 FIRE HYDRANTS

- A. Fire hydrants shall conform to the AWWA Standard for Dry-Barrel Fire Hydrants, AWWA Designation C502 as to design, composition, quality of materials, workmanship and shall be manufactured by Mueller, American, M & H, or approved equal by ENGINEER.

- B. All fire hydrants shall be 6" mechanical joint connection, 5-1/4" valve openings furnished with two 2-1/2" nozzles, and one 4-1/2" pumper connection, with National Standard threads. Two 2-1/2" nozzles shall be spaced 180 degrees apart, with the 4-1/2" pumper nozzle centered between them.
- C. Hydrants shall be of the compression type and shall have incorporated in their design a special section or bolts which intentionally have a lower breaking point than the balance of the unit (traffic flange).
- D. Hydrants shall have a 1-1/2" pentagon shaped operating nut, open left and shall be sized for 3-1/2 feet depth of bury.
- E. All nozzles shall be equipped with chained caps provided with gaskets made of suitable plastic or neoprene.
- F. All fire hydrants shall be painted with two coats of Pittsburg, first line, or approved equal paint. Colors are to be designated by the OWNER'S Fire Department to conform with color-coding system.
- G. Where fire hydrant extensions are specified or required, they shall be of the proper design to accommodate the make of fire hydrant installed.

3.12 CONSTRUCTION

- A. Proper implements, tools and facilities satisfactory for the ENGINEER shall be provided and used by the CONTRACTOR for the safe and convenient performance of the work. All pipe, valves and hydrants shall be carefully lowered into the trench piece by piece by means of a derrick, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench. If damage occurs to any pipe or water main accessories in handling, the damage shall be immediately brought to the ENGINEER'S attention. The ENGINEER shall prescribe corrective repairs or rejection of the damaged items. All pipe and fittings shall be carefully examined for cracks and other defects while suspended above the trench immediately before installation in final position. Defective pipe or fittings shall be laid aside for inspection by the ENGINEER, who will prescribe corrective repairs or rejection. All lumps, blisters, and excess coating shall be removed from the bell and spigot end of each pipe, and the outside of the spigot and the inside of the bell shall be wire brushed and wiped clean and dry and free from oil and grease before the pipe is laid.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe. As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it except at the bells. Precautions shall be taken to prevent dirt from entering the joint space.

1. **Joining of Push-On Joint Pipe:** The inside of the bell and the outside of the spigot end shall be thoroughly cleaned to remove oil, grit, excess coating and other foreign matter. The circular rubber gasket shall be flexed inward and inserted in the gasket recess of the bell socket.

A thin film of gasket lubricant shall be applied to either the inside surface of the gasket or the spigot end of the pipe or both. Gaskets lubricant shall be supplied by the pipe manufacturer and approved by the ENGINEER.

The spigot end of the pipe shall be entered into the socket with care used to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end to the bottom of the socket with a forked tool, jack-type tool or other device approved by the ENGINEER.

Pipe that is not furnished with a depth mark shall be marked before assembly to assure that the spigot end is inserted to the full depth of the joint. Field-cut pipe lengths shall be filed or ground to resemble the spigot end of such pipe as manufactured.

2. **Joining of Mechanical-Joint Pipe:** The outside of the spigot and inside of the bell of mechanical-joint pipe shall be thoroughly cleaned to remove oil, grit, excess coating and other foreign matter from the joint, and then a thin film of gasket lubricant shall be applied to either the inside surface of the gasket or the spigot end of the pipe or both. Gasket lubricant shall be as supplied by the pipe manufacturer and approved by the ENGINEER.

The cast-iron gland shall be coated with the lubricant and placed on the spigot end with the thick edge toward the gland. The entire section of the pipe shall be pushed forward to seat the spigot end in the bell. The gasket shall then be pressed into place within the bell; care shall be taken to locate the gasket evenly around the entire joint.

When tightening bolts, the gland shall be brought up toward the pipe flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket. This shall be done by partially tightening the bottom bolt first then the top bolt, next the bolts at either side, and last, the remaining bolts. This cycle should be repeated until all bolts are within the range of torques as shown below:

Bolt Size (Inches)	Range of Torque (Ft. – Lb.)	Length of Wrench (Inches)
5/8	40 – 60	8
3/4	60 – 90	10
1	70 – 100	12
1 1/4	90 – 120	14

The torque loads may be applied with torque-measuring or torque-indicating wrenches, which may also be used to check the application of approximate torque loads applied by men trained to give an average pull on a definite length or regular socket wrench. If effective sealing is not attained at the maximum torque indicated, the joint should be disassembled, thoroughly cleaned, and reassembled. Overstressing of bolts to compensate for poor installation practice shall not be allowed.

3. For waterlines, all fittings or specials included as pipe shall be blocked in accordance with the attached Standard Details.
 4. For sanitary sewers, a joint between cast iron pipe and vitrified clay pipe or reinforced concrete pipe shall be made with special adapters as approved by the ENGINEER. If adapters are not available, the joint shall be made as instructed by the ENGINEER and encased with concrete one foot (1 ft.) each side of the joints and six inches (6) in thickness.
- H. Fire hydrants shall be located as shown or as directed to provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians.
1. When placed behind the curb, the hydrant barrel shall be set so that no portion of the pumper or hose nozzle cap will be closer than three (3) feet nor more than six (6) feet from the face of the curb.
 2. When set in the lawn space between the curb and the sidewalk, no portion of the hydrant or nozzle cap shall be within six (6) inches of the sidewalk.
 3. All hydrants shall stand plumb and shall have their nozzles parallel with, or at right angles to the curb, with the pumper nozzle facing the curb, and centerline nozzles at least eighteen (18) inches above the ground.
 4. Each hydrant shall be connected to the main with a six (6) inch ductile iron branch controlled by an independent six (6) inch gate valve, unless otherwise specified.
 5. Each hydrant shall be placed upon a slab of stone or concrete not less than six (6) inches thick and fifteen (15) inches square. The rear side of the hydrant, opposite the pipe, shall be blocked with concrete or stone, firmly wedged between the hydrant and the vertical face of the end of the trench of undisturbed earth or it shall be tied to the pipe with suitable straps or metal tension rods as shown on the standard drawings or as directed by the ENGINEER.
 6. Dry walls shall be constructed of crushed stone or coarse gravel having a volume of approximately one-half cubic yard and shall be placed beneath and around the drain ports of the hydrant so the hydrant will properly drain when closed.
 7. Fire hydrant extensions shall be required to bring the fire hydrant up to the existing or proposed grade of the surrounding areas, whereby an 18-inch minimum distance from the ground level to the center of the pumper nozzle may be obtained as shown on the standard drawings.

3.13 METHOD OF PAYMENT

- A. Cast Iron and Ductile Iron Pipe (CIP and DIP) shall be measured for payment by the linear foot of pipe of the size specified in the proposal and shown on the plans and placed as shown on the drawings. Total footage shall be the actual horizontal measurement along the center line of the pipe. No additional payment shall be made for vertical bends in the pipe, fittings used with drop manholes, fittings or specials not included in this specification, or for concrete blocking.
- B. Deductions will not be made for bends or specials.

3.14 BASIS OF PAYMENT

- A. Accepted quantities of Cast Iron and Ductile Iron Pipe (CIP and DIP) measured as provided above, will be paid for at the contract unit price for:

Cast Iron Pipe Linear Feet

Ductile Iron Pipe. Linear Feet

which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 4 - STEEL PIPE AND FITTINGS**4.1 DESCRIPTION**

- A. The work under this item shall include furnishing, hauling, placing, and jointing of steel pipe in the trench in specific conformity with the lines and levels given. For all lines, the AWWA Standard for Installation of Cast Iron Water Mains, AWWA Designation C-600 shall govern the installation, as applicable. The method bedding shall be in accordance with Specification 31 23 33 and as shown on the attached Standard Details. The drawings show the plan and grade for the pipeline. The CONTRACTOR shall submit detailed drawings to the ENGINEER for approval, showing his proposed method of laying the pipe to these grades. All pipelines to be crossed shall be located before these drawings are prepared. Fittings or specials included as pipe shall be blocked in accordance with the attached Standard Details

4.2 PIPE AND FITTINGS

- A. Where steel pipe is specified or required, it shall conform to the AWWA Standard for Steel Water Pipe 6-inches and larger, AWWA Designation C200. Only the following mill pipes specified under AWWA C200 shall be acceptable: ASTM A139, Grades B and C; ASTM A53, Grade B; ASTM A135, Grade B. Only the following steel plate fabricated under ASTM A134 shall be acceptable: ASTM A36, ASTM A572.
- B. All pipe shall be hydrostatically tested to 80% of the minimum yield point with the hydrostatic test pressure indicated on shop fabrication drawings. AWWA Designation C200 shall govern the testing. Pipe length shall be not less than 35 feet per joint, except for specials unless otherwise noted. There shall be no more than one longitudinal or girth seam per section. Nominal pipe diameter and steel thickness shall be as specified on the drawings. The diameter shown is the required inside diameter of steel pipe if coal tar lining is used or inside diameter of lining if mortar lining is used.
- C. All pipe shall be manufactured by an established manufacturer who has had at least three (3) years' experience in successfully building this type of pipe. Openings for air valves, main connections, and blow-off connections must be provided with suitable reinforcements around the opening, welded to the body of the pipe. Openings of the sizes shown on the drawings shall be furnished with steel blind flanges of proper strength to withstand the working pressure of the line where no other provision is made for closing the openings. The pipe shall have ends for slip joints for field welding,

beveled ends for field welding, beveled ends for field butt welding, or plain ends for mechanically coupled field joints.

- D. Twenty-four inch (24") or smaller pipe shall be manufactured with ends of true circular shape, free from indentations, projections, or roll marks for a distance of eight inches (8") from the end of the pipe. This shall be done by hydraulic expansion or some other method satisfactory to the ENGINEER. The outside diameter of the pipe shall be true enough in dimension to permit the passage for a distance of eight inches (8") from the end of the pipe a ring gauge with a bore three-thirty seconds (3/32") of an inch larger than the outside diameter of the pipe.
- E. Where steel fittings or special fittings are specified or required, they shall conform to all of the steel pipe specification requirements and to the AWWA Standard for Dimensions for Steel Water Pipe Fittings, AWWA Designation C208. Where fittings and specials are fabricated from mill pipe, they shall be fabricated from pipe hydrostatically tested to 80% of the pipe steel yield point with mitered joints dye checked for welding flaws. Where fittings and specials are fabricated from plate, they shall be hydrostatically tested to 80% of the minimum plate steel yield point. Changes in line and grade shall be made by steel specials or in the joints. Steel specials shall be used wherever the angle exceeds ten degrees (10°).
- F. Where field cutting of steel pipe is permitted, pipe shall be cut by sawing. The inside lining shall be removed for a minimum of eight inches, each side of the cut and the pipe surface shall be cleaned and brushed to bright metal. After welding, the inside lining shall be replaced in accordance with AWWA C203.
- G. All steel blind flanges supplied in accordance with Section 405 shall be ASTM A36 Steel, 5/8-inch thick with approved gaskets and bolts. All bolts shall be carbon steel ASTM A307 Grade A only, in accordance with AWWA C207.
- H. The work under this item shall include all of the requirements specified under the item of pipe, in that "pipe" is understood to also mean "bends, tees, crosses, sleeves, outlet assemblies and other specified fittings". Unless otherwise specified, outlet assemblies shall consist of a flanged outlet constructed into the wall of steel or concrete pipe. If cast or ductile iron pipe is used, the outlet shall consist of a tee with the outlet flanged. If a gate valve or butterfly valve is shown on the drawings to be attached to the outlet, the line side end shall be flanged, and the opposite end shall be bell or mechanical joint according to the item for valves. All bends, tees, crosses, outlet assemblies, and plugs shall be blocked with concrete as shown on the attached Standard Details, except where the fittings have flanged, welded, or harnessed joints, the ENGINEER may under certain conditions delete the blocking. Concrete blocking shall be placed so that joints are accessible for repair.

4.3 JOINTS

- A. Steel Pipe and fittings shall be jointed with any of the end types as specified below unless a particular end type is specified. Flange ends shall be used only where specifically noted on the drawings.
- B. Welded joints shall conform to, and be tested in accordance with, the AWWA Standard

for Field Welding of Steel Water Pipe, AWWA Designation C206.

- C. Mechanically coupled joints shall consist of Dresser Couplings, Style 38, or equal, or as specified on the drawings.
- D. Flanged joints shall conform to the AWWA Standard for Steel Pipe Flanges for Waterworks Service Size 4-inch through 144-inch, AWWA Des. C207, Class E.

4.4 LINING AND COATING

- A. Steel pipe and fittings shall be lined in accordance with the AWWA Standard for Cement Mortar Protective Lining and Coat for Steel Water Pipe, AWWA Designation C205, or the AWWA Standard for Coal-Tar Enamel Protective Coatings for Steel Water Pipe, AWWA Designation C203. The exterior of all underground pipe shall be cleaned, primed, and coated with coal-tar enamel, fibrous glass mat, and a bonded asbestos felt wrapper, and with either a whitewash coating or a final wrap of kraft paper, and the exterior of all above ground pipe shall be cleaned, primed, and painted, all in accordance with the AWWA Standard for Coal-Tar Enamel Protective Coatings and Linings for Steel Water Pipe, AWWA Designation C203, or in accordance with the AWWA Standard for Chlorinated Rubber-Alkyd Paint System for the Exterior of Above Ground Steel Water Piping.
- B. If mechanical couplings are used for field joints, the ends of the pipe shall be primed and enameled before the pipe is laid. If field welding is used, the pipe joints shall be furnished with the inside lining and outside coating held back twelve inches on each end for field welding. All of the lining and coating, including any field touch-up work, shall be done under the direction of the manufacturer of the lining and coating to the satisfaction of the ENGINEER. The lining at the joints on welded pipe may be patched with a minimum of two (2) coats of a coal tar or epoxy-based paint which shall be compatible with the interior lining, and which shall impart no taste or odor to the water in the lines.

4.5 CONSTRUCTION

- A. If joints are field-welded, they shall develop the full strength of the pipe. The CONTRACTOR shall file with the ENGINEER a description of the method of welding which he proposes to use, the name of the individual or company who will do the welding, and a statement regarding the previous experience of such individual or company in this particular line of work. If requested, coupons shall be cut across the field welds and tested by an approved testing laboratory. The line may be welded continuously with provisions for slack in the line, or in sections to be lowered in the trench and connected by a position weld.
- B. If joints are to be mechanically coupled, sections up to 240 feet may be coupled and lowered carefully into the ditch. Electrical continuity shall be provided at all joints. Preparation for, protection of, and repair of pipe coating and lining, and coating of mechanical couplings shall conform to the applicable section of these specifications.

4.6 METHOD OF PAYMENT

- A. Steel pipe shall be measured for payment by the linear foot of pipe specified in the proposal and placed as shown in the drawings. Total footage shall be the actual horizontal measurement along the centerline of the pipe. No additional payment shall be made for vertical bends in the pipe, fittings used with drop manholes, fittings or specials included as pipe, or for concrete blocking.

4.7 BASIS OF PAYMENT

- A. Accepted quantities of steel pipe measured as provided above will be paid for at the contract unit price for:

STEEL PIPE Linear Feet

which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 5 - REINFORCED CONCRETE PIPE AND FITTINGS**5.1 DESCRIPTION**

- A. The work under this item shall include furnishing, hauling, placing and jointing of reinforced concrete pipe (RCP) in the trench in specific conformity with the lines and levels given.

5.2 PIPE AND FITTINGS

- A. Where reinforced concrete pipe (RCP) and fittings are specified or required for waterlines, they shall conform to and be tested in accordance with the AWWA Standard for Prestressed Concrete Pressure Pipe, Steel Cylinder Type, for Water and Other Liquids, AWWA Designation C301. All pipe shall be manufactured by an established manufacturer who has had at least three years' experience in successfully building this type of pipe. All specials and fittings shall be either of Type A or Type B and must be built to the details furnished by the manufacturer and approved by the ENGINEER. Each special and each length of straight pipe shall be plainly marked to indicate the head for which the pipe is designed and to indicate where the pipe will be used by reference to the layout drawings.
- B. Where reinforced concrete pipe (RCP) and fittings are specified or required for sanitary sewers, they shall conform to and be tested in accordance with the specifications for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, ASTM Designation C76, Class as shown on the drawings. No lengths of pipe shall be less than eight feet. All concrete pipe shall be coated inside with two (2) coats of a coal-tar base paint (Standard Inertol®, or approved equal), with a twenty-four hour drying period between coats.

5.3 JOINTS

- A. Reinforced concrete pipe and fittings for waterlines shall be jointed according to AWWA Standard for Prestressed Concrete Pressure Pipe Steel Cylinder Type, for Water and Other Liquids, AWWA Designation C301.
- B. Reinforced concrete pipe and fittings for sanitary sewer shall be jointed with a single natural rubber or neoprene gasket and cement mortar formed by a diaper. It shall be formed in a continuous ring of suitable cross sections and of such size as to assure a watertight joint. Each length of pipe shall be provided with bell-and-spigot ends formed in the concrete wall. The spigot end shall contain a groove so that the gasket will be enclosed and compressed on four surfaces when the joint is in final position. All jointing materials shall be used in accordance with the manufacturer's instructions and subject to approval of the ENGINEER.

5.4 CONSTRUCTION

- A. For waterlines, the AWWA Standard for Installation of Cast Iron Water Mains, AWWA designation C-600, shall govern the installation as applicable. The method of bedding shall be in accordance with Specification 31 23 33 and as shown on the attached Standard Details. The drawings show the plan and grade for the pipeline. The CONTRACTOR shall submit detailed drawings to the ENGINEER for approval, showing the proposed method of laying the pipe to these grades. All pipelines to be crossed shall be located before these drawings are prepared. The ends of the pipes to be jointed shall be cleaned immediately prior to joining and the rubber gasket thoroughly lubricated with a thin film of gasket lubricant before it is placed in position on the spigot end.
- B. Gasket lubricant shall be as supplied by the pipe manufacturer and approved by the ENGINEER. Extreme care shall be taken to move the spigot end of the pipe into the bell end of previously laid pipe. If the gasket is damaged or moved out of place, the new pipe shall be removed, and a new gasket applied before rejoining. Any lubricant remaining on the exposed concrete surfaces inside or outside the pipe shall be completely removed. Fittings or specials included as pipe shall be blocked in accordance with the attached Standard Details.
- C. For sanitary sewers, the methods of laying pipe, foundation, and grade specified under Pipe, Vitrified Clay, shall apply. All pipe shall be installed with the mark "C-76" visible on the top of the pipe. The ends of the pipes to be jointed shall be cleaned immediately prior to joining and the rubber gasket thoroughly lubricated with gasket lubricant before it is placed in position on the spigot end. Extreme care shall be taken in moving the spigot end of the pipe into the bell end of the previously laid pipe. If the gasket is damaged or moved out of place, the new pipe shall be removed, and a new gasket applied before rejoining.
- D. For all lines, after the pipe has been jointed, a band at least 5-1/2 inches wide shall be placed around the outside of the pipe at the joint. This band shall serve as a form for placing 1:1 cement mortar grout in the external recess formed by the face of the groove and the shoulder of the tongue. If a reinforced paper joint bank is used, it shall be drawn up tight around the pipe and the backfill tamped against it up to the spring line

before pouring the grout. If a cloth band is used, it shall be wired around the outside of the pipe, and the grout poured before backfilling. On all pipes, the joint space remaining on the inside of the pipe shall be filled with a stiff mixture of 1:1 cement mortar which shall be troweled in place to produce a continuous, smooth, flush surface across the joint.

5.5 METHOD OF PAYMENT

- A. Reinforced Concrete Pipe (RCP) shall be measured for payment by the linear foot of pipe of the size specified in the proposal and on the plans and placed as shown on the drawings. Total footage shall be the actual horizontal measurement along the centerline of the pipe. No additional payment shall be made for vertical bends in the pipe, fittings used with drop manholes, fittings or specials included as pipe, or for concrete blocking.

5.6 BASIS OF PAYMENT

- A. Accepted quantities of Reinforced Concrete Pipe (RCP), measured as provided above, will be paid for at the contract unit price for:

REINFORCED CONCRETE PIPE (RCP) Linear Feet

which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 6 - THERMOPLASTIC POLYVINYL CHLORIDE (PVC) WATER PIPE AND FITTINGS

6.1 DESCRIPTION

- A. Thermoplastic Polyvinyl Chloride (PVC) water pipe 6 to 12-inches in size shall be allowed in the distribution system of the OWNER. The AWWA Standard for the installation of PVC water mains, AWWA Designation C-605 shall govern the installation, as applicable.

6.2 PIPE AND FITTINGS

- A. Where thermoplastic polyvinyl chloride (PVC) water pipe is specified or required, it shall conform to the AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch through 12-inch, for water, AWWA Designation C900. PVC pipe shall conform to the dimensions shown in Table 2 of AWWA C900, Dimensions and Pressure Classes for Dimension Ratio (DR) for PVC 1120 Pipe with Cast Iron Pipe Equivalent ODS. The minimum DR shall be in accordance with the plans and the minimum working pressure rating shall be 150 psi.
- B. Unless otherwise specified, fittings for use with PVC pipe must conform to provisions of AWWA C-110/A21.10, "Ductile-Iron and Gray -Iron Fittings" and must be full-bodied style and AWWA C-153, "Ductile Iron Compact Fittings", for short-bodied style. All fittings shall be designed and rated for 250 psi water working pressure.

- C. The work under this item shall include all of the requirements specified under the item of pipe, in that "pipe" is understood to also mean "bends, tees, crosses, sleeves, outlet assemblies and other specified fittings". Unless otherwise specified, outlet assemblies shall consist of a flanged outlet constructed into the wall of steel or concrete pipe. If cast or ductile iron pipe is used, the outlet shall consist of a tee with the outlet flanged. If a gate valve or butterfly valve is shown on the drawings to be attached to the outlet, the line side end shall be flanged, and the opposite end shall be bell or mechanical joint according to the item for valves. All bends, tees, crosses, outlet assemblies, and plugs shall be blocked with concrete as shown on the attached Standard Details, except where the fittings have flanged, welded, or harnessed joints, the ENGINEER may under certain conditions delete the blocking. Concrete blocking shall be placed so that joints are accessible for repair.

6.3 JOINTS

- A. Jointing of plastic pipe shall be accomplished by push-on type joints. Push-on joints consisting of a rubber "O" ring shall be used. The CONTRACTOR shall furnish to the ENGINEER details of the proposed joint in triplicate for approval before any such jointing material is delivered to the job site.

6.4 CONSTRUCTION

- A. Pipe shall be laid to the lines and grades established by the ENGINEER. The bottom of the trench shall be relatively uniform and in no case shall pipe be laid on rock. Where rock is encountered, Class "A" bedding shall be required.
- B. Long plastic pipelines, over three hundred feet (300 ft.) in length without an abrupt change in direction, shall be "snaked" in the trench to provide for expansion and contraction. Snaking shall be equivalent to the pipe touching opposite sides of a twenty-four inch (24) wide trench within a distance of eighty feet (80 ft.). It is recommended that, during warm weather, whenever practical, pipelines be filled with cold water or allowed to cool overnight before backfilling trench. Push-on joints shall be made with extreme care and by following the manufacturer's recommendation as to installation procedures. If the design of the joint permits for linear expansion of the pipe, the trench width may be reduced. Adequate thrust blocks as approved by the ENGINEER will be required at all bends, tees, and crosses.

6.5 METHOD OF PAYMENT

- A. Thermoplastic Polyvinyl Chloride (PVC) water pipe shall be measured for payment by the linear foot of pipe of the size specified in the proposal and on the plans and placed as shown on the drawings. Total footage shall be the actual horizontal measurement along the centerline of the pipe. No additional payment shall be made for vertical bends in the pipe.

6.6 BASIS OF PAYMENT

- A. Accepted quantities of Thermoplastic Polyvinyl Chloride (PVC) water pipe, measured as provided above, will be paid for at the contract unit price for:

THERMOPLASTIC POLYVINYL CHLORIDE (PVC) PIPE Linear Feet

which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 7 - TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS**7.1 DESCRIPTION**

- A. Type PSM Polyvinyl Chloride (PVC) sewer pipe ranging in size from 4 inches to 15 inches, may be installed within the OWNER'S collection system, as approved by the ENGINEER. The work under this item shall include furnishing, hauling, placing, and joining of PVC sewer pipe within the trench in specific conformity with lines and levels given. For all pipe, the ASTM Standard 2321-89 "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications" shall govern with respect to installation of the pipe. The method of bedding shall be in accordance with PART 5 of this specification and any exceptions listed below, and as shown on the attached standard details.

7.2 PIPE AND FITTINGS

- A. Where Type PSM polyvinyl chloride (PVC) sewer pipe is specified or required, it shall conform to ASTM Standard D3034-94 "Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings". Nominal pipe diameter may be from 4 inches to 15 inches in size. All PVC sewer pipe shall have a minimum pipe stiffness of 115 psi and shall have a Standard Thermoplastic Pipe Dimension Ratio (SDR) in accordance with the plans. The pipe shall be made of PVC plastic having a cell classification of 12454-B or 12454-C or 12364-C or 13364-B (with minimum tensile modulus of 3450 MPa (500,000 psi) as defined in ASTM Standard D1784. The pipe shall be clearly marked at intervals of 1.5 meters (5 ft.) or less, and the markings shall indicate manufacturer's name or trademark and code, nominal pipe size, the cell classification, the designation "Type PSM SDR-XX PVC Sewer Pipe", and the designation "Specification D3034". The fittings shall be marked with manufacturer's name or trademark, nominal size, the material designation "PVC", PSM, and the designation "Specification D3034".

7.3 JOINTS

- A. Jointing plastic pipe shall be accomplished by push-on type joint, with an elastomeric seal conforming to ASTM Standard D3212-92 "Standard Specification for Joint for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals". The CONTRACTOR shall furnish with the ENGINEER details of proposed joint in triplicate for approval before any such jointing material is delivered to the job site.

7.4 CONSTRUCTION

- A. The pipe shall be laid on a firm foundation as required in over-excavated areas, and a bedding with a minimum thickness of 4 inches (6 inches in rock cuts). Haunching material shall be placed to the spring-line of the pipe and be installed in layers with a maximum thickness of 6 inches. The haunching material shall be worked around the pipe by hand, and the shovel slicing method to provide uniform support of the pipe. The initial backfill shall be placed in layers to a minimum depth of 6 inches to the top of the pipe and be placed in layers with a maximum thickness of 6 inches. All material for foundation, bedding, haunching and initial backfill shall be compacted to 85% or 95% of Standard Proctor as required according to the USCS soil classification system, and in conjunction with ASTM Standard D2321-89. Maximum particle size for all backfill material shall be 3/4 inch. All backfills shall be free from clods, lumps, boulders and frozen matter.
- B. Place pipe and fittings in the trench with the invert conforming to the required elevations, slopes and alignment. Provide bell holes in the pipe bedding, no larger than necessary, in order to ensure uniform pipe support. Fill all voids under the bell by working in bedding material. In special cases where the pipe is to be installed to a curved alignment, maintain angular "joint deflection" (axial alignment) or pipe bending radius, or both, within acceptable design limits.
- C. Comply with manufacturers' recommendation for assembly of joint components, lubrication, and making of joints. When pipe laying is interrupted, secure piping against movement and seal open ends to prevent the entrance of water, mud, or foreign material.
- D. For elastomeric seal joints conforming to ASTM D3212-92 "Standard Specification for Joints for Drain and Sewer Plastic Pipe Using Flexible Elastomeric Seal", the pipe ends shall be marked to indicate insertion stop position and ensure that the pipe is inserted into pipe or fitting bells to this mark. Push spigot into bell using methods recommended by the manufacturer, keeping pipe true to line and grade. Protect end of the pipe during home and do not use excessive force that may result in over-assembled joints or dislodged gaskets. If full entry is not achieved, disassemble and clean the joint and reassemble. Use only lubricant supplied or recommended for use by the pipe manufacturer. Do not exceed manufacturer's recommendation for angular "joint deflection" (axial alignment).
- E. Where coarse and open-graded material is placed adjacent to finer material and within anticipated ground water elevations, a geotextile filter fabric shall be placed around the bedding and initial backfill material to prevent the migration of the surrounding fines into the open voided area.
- F. After installation of the pipe has been completed and air tested, the CONTRACTOR shall pull a mandrel that has been machined to 5% of the inside diameter of the pipe from manhole to manhole. The pulling of the mandrel shall be performed no earlier than 30 days from the date of the air testing.

7.5 METHOD OF PAYMENT

- A. Type PSM Polyvinyl Chloride (PVC) sewer pipe shall be measured for payment by linear foot of pipe of the size specified in the proposal and on the plans and placed as shown on the drawings. Total footage shall be the actual horizontal measurement along the centerline of the pipe. No additional payment shall be made for vertical bends in the pipe or fittings used with drop manholes.

7.6 BASIS OF PAYMENT

- A. Accepted quantities of Polyvinyl Chloride (PVC) sewer pipe, measured as provided above, will be paid for at the contract price for:

Polyvinyl Chloride (PVC) Sewer Pipe Linear Feet

which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 8 – HDPE PIPE AND FITTINGS**8.1 DESCRIPTION**

- A. This specification covers the material, joining methods, and general installation practice for high density polyethylene pipe (HDPE) piping systems for use as indicated on the drawings. For all pipe, it must be installed in accordance with AWWA C901 and C906.

8.2 PIPE AND FITTINGS

- A. All materials shall be manufactured from a PE 4710 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material shall meet the specifications of ASTM D3350 with a minimum call classification of 445474C or 445574C. HDPE pipe and fittings shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. HDPE products shall be homogenous throughout and free of visible cracks, holes, foreign inclusions, voids, or other injurious defects.
- B. Pipe shall be made of HDPE material with a minimum material designation code of PE 4710 and with a minimum Cell classification as noted in Section A. The polyethylene compound shall be suitably protected against degradation by ultraviolet light by means of carbon black of not less than 2 percent. The manufacturer of the HDPE resin shall certify the cell classification indicated.
- C. Pipe sizes 3" DIPS/4" IPS and larger shall have a manufacturing standards of ASTM F714, while IPS pipe 3" and smaller shall be manufactured to the dimensional requirements listed in ASTM D3035. Dimension Ratio (DR) and Outside Diameter (IPS/DIPS) shall be as specified on plans.

- D. Pipe shall be manufactured by an ISO 9001 certified manufacturer. The pipe manufacturer shall have an ongoing Quality Control program for incoming and outgoing materials and shall assure that the pipe will meet the material requirements of this specification. HDPE resins for manufacturing of pipe shall be checked for density, melt flow rate, and decontamination. For potable water systems the facility shall have the necessary testing equipment to verify that pipe meets the AWWA and NSF standards. Pipe shall be checked for outside diameter, wall thickness, length, and surface finish on the inside and outside. The manufacturer's production facilities shall be open for inspection by the Owner or Engineer.
- E. All pipe may be color coded for the intended service. When required, the color coding shall be permanently co-extruded stripes on the pipe outside surface as part of the pipe's manufacturing process. Painting HDPE pipe to accomplish color coding is not permitted.
- F. All fabricated elbows, tees, reducing tees and end caps shall be produced and meet the requirements of ASTM F2206, as manufactured by ISCO Industries, Inc or other approved manufacturer holding an ISO 9001 quality system certificate. Each fitting will be marked by SATM F2206 section 10 including the nominal size and fitting EDR, which will meet or exceed the pipe DR identified for the project. Fabricated fittings shall be manufactured using a data recording device to record fusion pressure and temperature and shall be stamped with unique joint number that corresponds to the joint report. A graphic representation of the temperature and pressure data for all fusion joints made producing fittings shall be maintained for a minimum of 5 years as part of the quality control and will be available upon request of owner. Test results to validate ASTM F2206 section 7.3 and 9 shall be provided to owner or owner's representative upon request.
- G. Fittings shall have a minimum pressure rating equal to or greater than the pipe to which they are joined unless otherwise specified on the plans or accepted by ENGINEER.
- H. The work under this item shall include all of the requirements specified under the item of pipe, in that "pipe" is understood to also mean "bends, tees, crosses, sleeves, outlet assemblies and other specified fittings". Unless otherwise specified, outlet assemblies shall consist of a flanged outlet constructed into the wall of steel or concrete pipe. If cast or ductile iron pipe is used, the outlet shall consist of a tee with the outlet flanged. If a gate valve or butterfly valve is shown on the drawings to be attached to the outlet, the line side end shall be flanged, and the opposite end shall be bell or mechanical joint according to the item for valves. All bends, tees, crosses, outlet assemblies, and plugs shall be blocked with concrete as shown on the attached Standard Details, except where the fittings have flanged, welded, or harnessed joints, the ENGINEER may under certain conditions delete the blocking. Concrete blocking shall be placed so that joints are accessible for repair.
- I. Bolted Connections
 - 1. Flanged and Mechanical Joint Adapters can be made to ASTM D3261. Flange adapters, if machined, may also meet the requirements of ASTM F2880. Flanges and MJ Adapters shall be fused onto the pipe and have a minimum pressure rating equal to or greater than the pipe unless otherwise specified on the plans.

2. Metallic back-up rings (Van-Stone style lap joint flanges), shall have a radius on the inside diameter of the bore so as to be compatible with AWWA C207 Class D (or B or E), ASME/ANSI B 16.5 Class 150, ASME/ANSI B 16.1 Class 125, or ASME/ANSI B16.47 Series A.
3. Flange assemblies shall be assembled and torqued according to PPI TN-38, "Bolt Torque for Polyethylene Flanged Joints."

J. Mechanical Fittings

1. The use of mechanical coupling and saddles shall be approved by the ENGINEER prior to installation. Mechanical fittings shall be designed for use an compatible with HDPE pipe.
2. Coupling without self-restraining capabilities (integrated serrated teeth or grippers) shall include a plan for external restraint or isolation from pipeline generated forces.
3. Mechanical saddles shall have wide straps for distribution of clamping loads. No U-Bolts shall be allowed.
4. When required by mechanical coupling manufacturer, pipe stiffeners shall be employed to support the interior wall of the HDPE. The stiffeners shall support the pipe's end and control the "necking down" reaction to the pressure applied during normal installation. The pipe stiffeners shall be formed of 304 or 316 stainless steels, with a wedged style design to fit the HDPE manufacturers published average inside diameter of the specific size and DR of the HDPE.

8.3 EQUIPMENT

- A. All fusion equipment, whether new or used, rented or owned, shall comply with the requirements of ISO 12176-1 "Equipment for Fusion Jointing Polyethylene Systems".

B. Butt Fusion

1. Butt fusion equipment must be in satisfactory working order and the hydraulic system must be leak free. Heater plates shall be free from scrapes, gouges, and have a consistent clean coated surface. The pressure gauge and thermometer should be properly calibrated. When requested by the ENGINEER, records showing a maintenance service or inspection within 3 months prior to use for this project shall be provided.
2. For 16" and larger pipe sizes, the butt fusion machine shall be capable of autonomously calculating the drag pressure and perform the shift sequence autonomously.

3. For 6" and larger pipe sizes, the pipe butt fusion machine shall be a self-contained hydraulic fusion machine capable of butt fusing HDPE pipe. The carriage must be removable from the chassis for in-ditch use. The machine must be compatible with an electronic data recording device. Accessories will include all butt fusion inserts for the specified range of pipe sizes, a pyrometer kit for checking the surface temperature of the heater, extension cord of appropriate gauge (25' minimum), and hydraulic extension hoses (minimum of four). The butt fusion machine will be McElroy, or approved equivalent.
 4. In areas where there may be insufficient space for layout of the entire length of fused pipe to be pulled-back, the Contractor shall utilize a continuous HDPE pipe fusion equipment such as a PolyHorse by McElroy or other means in order to fuse the length of pipe necessary for the installation.
- C. Electrofusion processors shall be maintained and calibrated per manufacturers' requirements and recommendations.

8.4 JOINTS

- A. All HDPE pipe shall be joined to by the heat fusion process which produces homogeneous, sealed, leak-tight joints. Tie-ins between sections of HDPE pipe shall be made by butt fusion whenever possible.
- B. Butt Fusion
1. The pipe shall be joined by the butt fusion procedure outlined in ASTM F2620 or PPI TR-33. All fusion joints shall be made in compliance with the pipe or fitting manufacturer's recommendations. Fusion joints shall be made by qualified fusion technicians per ASTM F3190. A record or certificate of training for the fusion operator must be provided that documents training to the fundamentals of ASTM F2620. Considerations should be given to and provisions made for adverse weather conditions, such as temperatures below freezing, precipitation, or wind, which is accepted by the owner/engineer. The use of a controlled cooling cycle procedure to reduce cooling time is acceptable only as part of a controlled cooling cycle procedure where testing demonstrates that acceptable joints are produced using the controlled cooling cycle procedure.
- C. Electrofusion
1. Electrofusion joining shall be done in accordance with the manufacturers' recommended procedure. Other sources of electrofusion joining information are PPI TN 34 and PPI Municipal Advisory Board (MAB) Generic Electrofusion Procedure for Field Joining of 12 Inch and Smaller Polyethylene (PE) Pipe. The process of electrofusion requires an electric source, commonly called an electrofusion processor that has wire leads and a method to read electronically (by laser) or otherwise input the barcode of the fitting. The electrofusion processor must be capable of reading and storing the input parameters and the fusion results for later download to a record file. Qualification of the fusion technician shall be demonstrated by evidence electrofusion training within the past year on the equipment to be utilized for this project.

D. Data Recording

1. For 6" and larger pipe sizes, McElroy DataLogger or equivalent fusion data recorder shall be used to record all fusion welds on hydraulically operated fusion machines. The device shall be capable of meeting the requirements of ASTM F3124, "Standard Practice for Data Recording the Procedure used to Produce Heat Butt Fusion Joints in Plastic Piping Systems or Fittings". The device, or combination of devices, shall record the following variables of each fused joint:
 - i. Heater surface temperature- immediately before inserting the heater plate, measure with a pyrometer and manually enter into the weld record.
 - ii. Gauge pressure during the initial heat cycle
 - iii. Gauge pressure and elapsed time during the heat-soak cycle
 - iv. Heater removal (dwell) time
 - v. Gauge pressure and elapsed time during the fusing/cool cycle
 - vi. Drag pressure
 - vii. Pipe diameter and wall thickness
 - viii. Type of HDPE material (Specification and Classification) and manufacturer
 - ix. Fusion Machine Identification
2. The device shall record the operator's name and a unique operator ID number, along with the date and time of each weld.
3. Records showing the device is up to date on all required calibration should be available for presentation when requested.
4. All fusion welds should be traceable to the report (via operator and weld ID) with an indentation weld stamp or by permanent paint marker/pen next to fusion weld.
5. A weld location map may be requested, prior to commencement of work, by the owner or owner's representative.

8.5 CONSTRUCTION

A. For direct burial, refer to Specification 31 23 33.

B. Pull-In Installation

1. Per ASTM F1804 and/or www.HDPEapp.com, the contractor shall determine and document the maximum proposed pull-in length and pull-in force for the pressure class and pipe diameter to be pulled into an open trench. Pull-in lengths will not exceed the maximum lengths for the class and diameter pipe. A commercially available load limiter (weak link) approved by the Engineer shall be used between the puller and the pipe.
2. Prior to pulling the pipeline, contractor shall place rollers or other approved devices beneath the pipe to avoid unnecessary damage and to reduce pipe drag.

3. Trenchless installations:

- i. For Horizontal Directional Drilling (HDD), refer to Specification 33 05 07.13 and ASTM F1962, PPI TR-46, PPI PE Handbook (Chapter 12).
- ii. For slip lining, refer to ASTM F585, PPI PE Handbook (Chapter 11).
- iii. For pipe bursting, refer to Specification 33 31 30 and PPI PE Handbook (Chapter 16)

C. Appurtenances

- 1. All appurtenances (tees, elbows, services, valves, air relief valves, fire hydrants, etc.), must be independently supported and shall not rely on the pipeline and its connections for this support. Excessive stresses may be encountered when appurtenances are inadequately supported.
- 2. Hydrant Assemblies shall be installed and field tested according to the requirements of AWWA M17.
- 3. Installation of Tracer Wire. When tracer wire is required, the Contractor shall install along the entire section of pipeline and along all service connections as listed below. The tracer wire shall be installed simultaneously with the polyethylene piping system. Tracer wire shall be installed by the Contractor once backfill has been placed and compacted to at least 12 inches above the top of the pipe and not more than 18 inches above the top of the pipe. Tracer wire shall be properly spliced at each end connection and each service connection. Care should be taken to adequately wrap and protect wire at all splice locations. No bare tracer wire shall be accepted. Provide Magnesium alloy anode for cathodic protection that conforms to the requirements of ASTM B843. Install tracer wire per local and manufacturer's requirements.

8.6 METHOD OF PAYMENT

- A. HDPE pipe shall be measured for payment by the linear foot of pipe of the size specified in the proposal and on the plans and placed as shown on the drawings. Total footage shall be the actual horizontal measurement along the centerline of the pipe. No additional payment shall be made for vertical bends in the pipe.

PART 9 – SEWER CONNECTION**9.1 DESCRIPTION**

- A. The work under this item shall include all excavation, furnishing all materials required, construction, finishing, and backfilling of connections to existing mains, manholes, drop connections to manholes, special connections, service line connections, or plugs, as indicated on the drawings or as directed by the ENGINEER.

9.2 CONSTRUCTION

- A. Connections to existing manholes shall be made by cutting into the manhole at the specified grade, inserting the pipe, and encasing the joint with concrete. CONTRACTOR shall not break into any existing sewer unless the OWNER'S REPRESENTATIVE is present, and the work done shall be under the direction of the OWNER'S REPRESENTATIVE. The manhole base shall be cut and reconstructed in such a manner that a proper invert section is maintained. All waste mortar, debris, and sharp edges shall be removed from the joints, bottom, and invert. CONTRACTOR shall remove and replace the manhole steps in the proper location and in accordance with the attached standard details if they are not properly located after the connection is made. Any and all diversion or pumping of water or sewage in a wet connection is included in this item.
- B. Methods of construction shall be the same for sewer service line reconnections as for main sewers. All reconnections shall be constructed in conformance with the Plumbing Code of the OWNER unless modified herein. New pipe used shall be of the same diameter as the existing line.
- C. Plugs shall be constructed of manhole brick and mortar, extending at least one foot into the line plugged from the manhole. The plug shall be watertight and troweled to a smooth finish on the interior of the manhole.
- D. At points indicated on the plans or by the ENGINEER, risers of the size indicated on the plans, or as required by the ENGINEER, shall be constructed. A 45-degree bell and spigot bend shall be jointed to the wye to a point level with lower side of bell of 45-degree bend. Pipe for risers shall be regular length joints of sewer pipe. Risers using full joints of pipe shall be set so that the top of riser is near to but not less than ten (10) feet below finished ground grade at rear of building location. If the OWNER desires, the CONTRACTOR may, at the OWNER's expense, extend risers to a point not less than six (6) feet below finished grade at rear of the building locations, but, in no case, shall there be less than four (4) feet of cover over riser.

When contained wholly on the public right-of-way, or within the boundaries of utility easements, risers may be laid on a slope of 45 degrees.

9.3 METHOD OF MEASUREMENT

- A. Connections will be measured for payment per each classification of connection as shown on the proposal. No additional payment will be made for excavation, backfilling, furnishing and placing concrete, removing and replacing manhole steps, or for diversion or pumping of water or sewage necessary to make the connection. Connections shown on the plans but not classified in the proposal shall be considered incidental to the work and will not be measured for payment, but the cost shall be included in other items.

9.4 BASIS OF PAYMENT

- A. Accepted quantities measured as provided above will be paid for at the contract unit price as shown on the proposal for each connection which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 10 – WATER CONNECTION**10.1 DESCRIPTION**

- A. The work under this item shall include all excavation, furnishing all materials required, construction, finishing, and backfilling of connections to existing mains, valves, special connections, service line connections, as indicated on the drawings or as directed by the ENGINEER.

10.2 CONSTRUCTION

- A. The drawing shows details of the various connections and they shall be made in accordance with the details or as directed by the ENGINEER. On water mains, the CONTRACTOR will make the pressure and wet connections to existing mains as shown on the drawing unless specifically noted otherwise. In making these connections all material, equipment, and personnel necessary for the job shall be assembled at the site and all work possible shall be done before the service is interrupted. The order and time of the work will be under the jurisdiction of the ENGINEER. If deemed necessary, the ENGINEER may order the CONTRACTOR to make the connection at night so as to inconvenience the public as little as possible.

- B. Where called for on the plans, or by the specifications, tapping valves and sleeves shall be used to make connections with existing water mains. The CONTRACTOR, when ready to make any of these connections, will notify the ENGINEER 48 hours in advance. The CONTRACTOR shall furnish all material, labor and equipment to make the taps.

The tapping valves furnished shall be Mueller, American Flow, or approved equal and tapping sleeves furnished shall be Ford, Smith Blair, or approved equal satisfactory to the ENGINEER. The tapping sleeves shall be the bolted type, heavy duty, using iron bolts, cast iron or equal satisfactory to the ENGINEER.

- C. Service line connections for water services shall be constructed as shown on the standard drawings and materials shall be copper, brass, municipex, or approved equal by ENGINEER.
- D. The material and workmanship for brass goods shall be of the highest quality and shall be interchanged with brass goods presently in use by the owner. Brass goods shall conform to the same precise standards as described in AWWA Specifications Number C800 Standard Specifications for underground service line fittings.
- E. Brass goods shall contain 85 percent copper and 5 percent each of tin, lead, and zinc and shall be tested by hydrostatic pressure of 200 pounds per square inch. The bidder shall furnish a complete description of brass goods with his bid.

- F. Copper tubing shall be Type "K" soft annealed seamless tubing and shall conform to ASTM-B88 Standard Specification for Seamless Copper Water Tube.
- G. The coils of copper tubing shall be in individual packages. The CONTRACTOR shall furnish an affidavit that the copper tubing furnished complies with all specifications.
- H. Municipex pipe shall be in accordance with AWWA 904 and ASTM F876.

PART 11 – CASTINGS

11.1 GENERAL

- A. Castings for valve boxes, valve vaults, manholes, lamp holes, and other appurtenances shall conform to, and be tested in accordance with the specifications for Gray Cast Iron, ASTM Designation A48, Class 30. Design shall be according to the attached Standard Details. Frames and covers that are to be located within dedicated public right-of-way, or any other location subject to vehicular traffic, shall have all bearing surfaces machined so that fittings parts will not rattle or rock under traffic. All castings shall be subject to a hammer test before installation.

PART 12 - RIGHT-OF-WAY CLEARING AND RESTORING

12.1 DESCRIPTION

- A. Work under this item shall include the removal and reconstruction or replacement of all obstructions affected, other than those covered in this specification, by the construction of the project including, but not limited to fences, retaining walls, patios, barbecues, signs, mailboxes, outbuildings, landscaping, sidewalks, driveways, parking lot surfacing, curbs, and the like. Any such obstructions which are not to be reconstructed are so designed on the drawings. Such shall be removed and disposed of by the CONTRACTOR. All obstructions to be replaced or reconstructed shall be restored to substantially the same condition as existed prior to the construction, except as otherwise noted. All sidewalk, driveway, and parking lot replacement shall be of at least equal quality, thickness, compacted subgrade and base course, and surface course as that removed or damaged. The CONTRACTOR shall remove and dispose of all debris, restore the grade of the surface of the earth as reasonably as may be done to the grade existing prior to construction, and upon completion of the work shall leave the site in as neat, clean, and orderly condition as nearly as it was prior to construction as may be reasonably done.

12.2 MATERIALS AND TESTS

- A. Backfill materials under parking lots and driveways shall be in accordance with Specification 31 23 33 or as approved by the ENGINEER.
- B. Portland Cement Concrete shall be in accordance with Specification 03 30 00. All concrete placed in parking lots, driveways, sidewalks, and all other concrete structures within the right-of-way shall use high-early strength cement.
- C. Asphaltic Concrete - Bituminous pavement shall meet the requirements shown in Section 32 12 16.39.

- D. Sampling and Testing - Sampling of materials will be made in accordance with the appropriate methods specified in the corresponding section listed above. Tests will be conducted in accordance with the schedule of tests provided in the special provisions or as shown on the plans.

12.3 CONSTRUCTION

- A. Passable surfaces across or along the construction vicinity shall be maintained at all times with gravel, steel mat or plate, or temporary bituminous surfacing material where a sidewalk, driveway, or parking lot previously existed.
- B. Sidewalks, driveways, parking lots, and other paved areas, all or partially composed of concrete, asphaltic concrete, or bituminous material shall be saw-cut, removed, and replaced to at least the standard trench width if the project crossing is at right angles to the obstruction. If a construction joint is within two (2) feet of any proposed sawed line, the cut shall be extended to the joint, or as directed by the ENGINEER. Curbs shall be tunneled under in all cases, unless otherwise approved in writing by the ENGINEER.
- C. Backfill under sidewalks, driveways, parking lots, and other paved areas shall be in accordance with Specification 31 23 33. All backfills shall be thoroughly compacted with sufficient moisture and by mechanical means to prevent settlement. Settlement or other failure of backfill or restored right-of-way shall be corrected immediately. The method of correction shall be as directed by the ENGINEER.
- D. Existing water and sewer lines: Wherever existing water or sewer lines are encountered; the CONTRACTOR shall protect the same from damage. In case damage does result, the CONTRACTOR shall, as directed by the ENGINEER, repair the same at his own expense.
- E. Vertical and horizontal separation of water and sewer lines: Where a sanitary sewer crosses any existing or proposed water main and is closer than 10-feet horizontally or 2-feet vertically the sanitary sewer shall be ductile iron pipe for a distance of 20-feet horizontally. If the sanitary sewer crosses above the water main, the sanitary sewer shall be ductile iron pipe and concrete encased. Where a sanitary sewer is constructed closer than 50 feet to a water well (existing or proposal) the sanitary sewer shall be ductile iron pipe.

Where a water main crosses any existing or proposed sanitary sewer and is closer than 10-feet horizontally or 2-feet vertically, the sanitary sewer shall be replaced for a distance of 20-feet horizontally with ductile iron pipe. If the water main crosses below the sanitary sewer, the sanitary sewer shall be replaced with ductile iron pipe and concrete encased.

- F. Existing structures which are to be abandoned shall be broken off or removed to a depth of not less than six (6) inches below the foundation grade of new structures. Any blasting or other operation which might endanger the new work shall be completed prior to the construction of any part of the new structure. After the removal of any existing structures, all excavations not to be occupied by new structures and all holes created shall be cleaned up and the site left in a neat and orderly condition.

- G. If an obstruction is of public ownership, the CONTRACTOR shall notify the appropriate agency and obtain any necessary permit or license forty-eight (48) hours before beginning any operations affecting the obstruction. All work shall conform to the current standards and specifications of that agency and shall be approved by the agency before completion of the project. At the CONTRACTOR'S request, the ENGINEER will furnish information as to what licenses or permits are required.
- H. The CONTRACTOR shall notify all utility companies prior to beginning construction and shall provide an electrical or mechanical device or use such other means he may select, to locate any hidden utility line, oil or gas pipe line, water pipe line, sewer pipe line, telegraph and telephone line or other structures provided for in these specifications and locate such line or structures shown on the plans and any uncharted line or structure whether shown on the plans or not and protect, adjust to grade, disconnect and replace, relocate and replace, remove, provide supports during the construction and settlement of backfill and protect against freezing or unnecessary damage by the elements of existing utility lines, oil or gas pipe lines, water pipe lines, sewer pipe lines, telegraph and telephone lines, railroad right-of-way lines and other structures and shall pay all fees to County, City, State or Federal agencies which may be required in the performance of this work. In the event injury does result to any gas lines, power lines or poles, telephone lines or poles, etc., the CONTRACTOR shall, holding the OWNER entirely blameless, make proper restitution.

12.4 METHOD OF MEASUREMENT

- A. Remove and replace paved driveways, paved parking lots and other paved areas, except sidewalks, shall be measured by the square yard. This area will be derived by multiplying the length along the centerline of the pipe by the standard trench width and converting to square yards, unless otherwise approved by the ENGINEER.
- B. Remove and replace sidewalks shall be measured by the square foot, whereby the area was measured in the same manner as paved driveways in 12.3(B) above.
- C. Gravel and rock driveways, parking lots, and other areas will not be measured for payment, but rather shall be considered incidental to the work.
- D. Temporary materials required for maintenance of traffic through pavement cut locations will not be measured for payment.
- E. Compaction of backfill to 90% Standard Density in driveways, parking lots, etc. will not be measured for payment, and the cost of this work shall be included in other bid items.
- F. Other structures and obstructions shall not be measured for payment, unless shown on the proposal, and the cost of this work shall be included in other bid items.

12.5 BASIS OF PAYMENT

- A. Accepted quantities measured as provided above will be paid at the contract unit price for:

Pavement repair, HES concrete Sq. Yd.

Pavement repair, asphaltic Sq. Yd.

Sidewalk repair, concrete Sq. Yd.

which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 13 - STREET AND ALLEY, RIGHT-OF-WAY CROSSINGS**13.1 DESCRIPTION**

- A. Work under this item shall consist of backfilling, compacting, and pavement repair, where applicable, of all trenches crossing streets and alleys, dedicated or proposed to be dedicated to the public in accordance with the lines, grades and dimensions shown on the plans or as directed by the ENGINEER.

13.2 MATERIALS AND TESTS

- A. Backfill materials and streets and alleys shall be in accordance with Specification 31 23 33.
- B. Portland Cement Concrete shall be in accordance with 03 30 00. All concrete placed within the right-of-way shall be high-early-strength (HES) cement.
- C. Asphaltic Concrete - Bituminous Pavement shall meet the requirements of Specification 32 12 16.39.
- D. Sampling and Testing - Sampling of materials will be made in accordance with the appropriate methods specified in the corresponding section listed above. Tests will be conducted in accordance with the schedule of tests provided in the special provisions or as shown on the plans.

13.3 CONSTRUCTION

- A. Compaction: The CONTRACTOR shall place the select soil in accordance with Specification 31 23 33.
- B. Pavement Removal: Removal of paved surfaces shall be in accordance with the standard drawings.
- C. Pavement Repair: Concrete and Bituminous Pavement shall be repaired in accordance with the standard drawings and the Standard Specifications for Streets and Alley Construction of the OWNER.

13.4 METHOD OF MEASUREMENT

- A. Compacted backfills in unpaved streets and alleys will be measured by the cubic yard. This volume will be derived by multiplying the length along the centerline of the pipe by the standard trench width and by the average depth of the trench and converting to cubic yards, unless otherwise approved by the ENGINEER.
- B. Compaction of backfill to 95% Standard Density in paved streets and alleys will not be measured for payment, and the cost of this work shall be included in removal and replacement of pavement.
- C. Remove and replace concrete and bituminous pavement will be measured by the square yard. This area will be derived by multiplying the length along the centerline of the pipe by the standard trench width plus 12-inches on each side of the trench and converting to square yards.
- D. Over-breakage (the removal of more paving than is specified in 4.4(C) above) will not be measured for payment but shall be repaired in accordance with these specifications at the expense of the CONTRACTOR.

13.5 BASIS OF PAYMENT

- A. Accepted quantities of the specified on the proposal, measured as provided above, will be paid for at the contract unit price for:

Remove and replace pavement Sq. Yd.

which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 14 - PIERS, REINFORCED CONCRETE**14.1 DESCRIPTION**

- A. The work under this item shall include all materials, forming, pipe anchorage, construction and finishing of above ground standard reinforced concrete piers and below ground, restraining collar, reinforced concrete piers. Piers shall be located and constructed as shown on the drawings and the attached standard drawings.

14.2 MATERIALS AND TESTS

- A. Materials and testing shall be in accordance with Section 03 30 00.

14.3 CONSTRUCTION

- A. Forms shall be made to conform to the shape of the pier and securely braced. Reinforcing steel shall be bent as detailed and securely tied in place. Bearing area for the pipe shall be made to fit the outside diameter of the pipe and shall support the pipe at the proper grade. Any honeycomb or other unevenness in the concrete shall be patched with cement mortar immediately after form removal. Construction of piers shall be in accordance with Specification 03 30 00.

14.4 METHOD OF PAYMENT

- A. Reinforced concrete piers and restraining collars shall be measured by the number of units constructed. No additional payment will be made for excavation, forming, bracing, dewatering, backfilling, reinforcing steel, or pipe anchorage.

14.5 BASIS OF PAYMENT

- A. Accepted quantities of reinforced concrete piers, measured as provided above, will be paid at the contract unit price for:

Reinforced Concrete Pier, Standard EA.

Reinforced Concrete Pier, Restraining Collar EA.

which shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

PART 15 - FIELD TESTS AND REVISIONS:**15.1 DESCRIPTION**

- A. Field tests and revisions of water and sewer mains shall be successfully completed prior to final acceptance. All discrepancies shall be corrected by the CONTRACTOR to make a complete and workable system.

15.2 MATERIALS AND TESTS**A. Sewer:**

1. Alignment: After joints have been inspected and approved and trench backfilled as specified, the ENGINEER shall check alignment between manholes or manhole locations. Any misplaced pipes detected shall be corrected to line and grade at the CONTRACTOR'S expense.
2. Deflection: In accordance with OAC 252:656-5-5(a), CONTRACTOR shall perform deflection tests on all flexible pipe after the final backfill has been in place at least 30 days. Deflection must not exceed 5%. Tests must be run using a rigid ball or mandrel with a diameter equal to 95% of the inside diameter of the pipe, taking into account manufacturing tolerances. Tests must be performed without mechanical pulling devices. Tests must be in accordance with applicable ASTM standards.
3. Line Leakage Test: Leakage tests shall be required for all new construction in accordance with OAC 252:656-5-5(b). The leakage test shall be an exfiltration test, whereby a minimum positive head of two (2) feet shall be exerted on a section of line by plugging the lower end and filling the manhole upstream with water. The leakage outward shall not exceed 10 gallons per inch of pipe diameter per mile per day (10 gallons/inches/miles/day) for any section of the system. If infiltration is observed due to hydrostatic ground water leakage the infiltration shall be reduced so as not to exceed 10 gallons/inches/miles/day. The procedures listed in the Handbook of PVC Pipe, Uni-Bell PVC Pipe Association, 2001 may be used for PVC pipe. Pipe testing must meet the provisions for the applicable ASTM standard

for the test to be used.

4. Manhole Leakage Test: Leakage tests shall be required for all new construction in accordance with OAC 252:656-5-4(g)(7) and shall be performed per ASTM C1244.
5. Where test results, in the opinion of the ENGINEER, indicate construction deficiencies, the CONTRACTOR shall make all effort to locate same and make satisfactory corrections. Infiltration through manhole walls shall be corrected regardless of the results of these tests.

B. Water:

1. Hydrostatic and Leakage Test:
 - a. PVC: Shall be in accordance with AWWA C605 procedures. After the pipe has been laid and backfilled, all newly laid pipe or any valved section thereof shall be subjected to a hydrostatic gauge pressure of 200 psi, for a duration of two hours, said pressure not to vary more than five pounds, except that PVC pipe shall be tested a design working pressure.
 - b. HDPE: Shall be in accordance with AWWA C906 procedures. After the pipe has been laid and backfilled, subject the pipe to a pressure of 1.5 times the design working pressure at the lowest point in the test section is used as the test pressure. Acceptance is found by reducing the test pressure by 10 psi and monitoring the pressure for one hour. If the pressure remains steady – within five percent of the target value – for one hour, leakage is not indicated.
2. Each valved section of pipe shall be slowly filled with water and the specified test pressure, based on the elevation of the lowest point of the line of lowest point of the section under test, and corrected to the elevation of the test gauge shall be applied by means of a test pump connected to the pipe in a manner satisfactory to the ENGINEER. The CONTRACTOR shall make arrangements for metering the amount of water used during the test.
3. The CONTRACTOR shall backfill all pipe and provide all reaction blocking before hydrostatic testing. It shall be the CONTRACTOR'S responsibility to locate and repair any and all leaks that may develop. The ENGINEER may direct the CONTRACTOR to leave certain joints and connections uncovered until testing has been completed.
 - a. Before applying the specified test pressure, all air shall be expelled from the pipe. If hydrants or blow-offs are not available at high places taps at points of highest elevation shall be made before test is made and plugs inserted after the test has been completed. Any cracked or defective pipe, fittings, valves or hydrants discovered in consequence of this pressure test shall be removed and replaced with sound material and the test shall be repeated until satisfactory to the ENGINEER.
 - b. In conjunction with the hydrostatic test, a leakage test shall be conducted as detailed in Section 4 of ANSI/AWWA Specification C-600/605, a portion of which is stated below.
 - c. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within

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5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{ND P^{1/2}}{7400}$$

in which "L" is the allowable leakage in gallons per hour; "N" is the number of joints in the length of pipe test; "D" is the nominal diameter of the pipe, in inches; and "P" is the average test pressure during the leakage test, in pounds per square inch gage. Allowable leakage per 1000 ft. of pipeline in gallons per hour at 200 psi for selected pipe diameters is listed below for 18-foot nominal lengths. Leakage tests for PVC pipe shall be at the design working pressure.

Nominal Pipe Diameter (Inches)	Allowable Leakage Per 1000 Feet of Pipeline (GPH)
2	0.22
3	0.33
4	0.44
6	0.65
8	0.87
10	1.09
12	1.31
Nominal Pipe Diameter (Inches)	Allowable Leakage Per 1000 Feet of Pipeline (GPH)
16	1.74
18	1.96
20	2.18
24	2.61
30	3.27
36	3.92
42	4.58
48	5.23
54	5.88

- d. When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gallons/hours/inches of nominal valve size shall be allowed. When hydrants are in the test section, the test shall be made against the closed hydrant. Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid discloses leakage greater than that specified, the CONTRACTOR shall, at his own expense, locate and repair the defect until the leakage is within the specified allowance. All visible leaks are to be repaired regardless of the amount of leakage.
- e. In accordance with OAC 252:626-19-2 (e), leakage must not exceed 10 gal/inch diameter per mile of pipe per 24 hours at 150 psi testing pressure.
4. Disinfection of Waterlines: All waterlines shall be flushed and disinfected, after testing and before being placed in service, by the methods detailed in AWWA C-601 except as modified herein.
 - a. Chlorine shall be introduced into the main in a liquid solution or as dry gas in a

continuous feed unless otherwise approved by the ENGINEER.

- b. The results of the disinfection procedure shall produce a residual of a minimum of ten parts per million (10 ppm) of chlorine in the portion of the main farthest from the point of application, after a period of twenty-four (24) hours has elapsed, as well as any other portion of the main. Samples shall be taken at location determined by the ENGINEER for tests of residual chlorine.
5. Water and sewer lines shall be constructed at the locations shown on the plans or as directed by the ENGINEER. Planned locations, grades or depths shall be adhered to unless, in the opinion of the ENGINEER, actual field conditions dictate revisions thereof. When the ENGINEER considers it necessary to deviate from planned locations, the CONTRACTOR shall construct said water or sewer lines to new alignment and/or grades established by the ENGINEER or as directed by the ENGINEER, such directions, construction stakes showing alignment and depth of cut, or revised construction plans issued by the ENGINEER.

15.3 BASIS OF PAYMENT

- A. No extra payment will be made for construction to revised locations other than increased or decreased quantities of pipe, fittings, manholes, or other items tabulated on the proposal. No extra payment will be made for additional excavation required by deviations from planned alignment or grades. Leakage tests will not be measured for payment, but the cost shall be included in other bid items. The CONTRACTOR'S bid price for waterlines to include all costs of hydrostatic and leakage test and sterilization as no separate payment will be made for these items.

END OF SECTION 33 11 00

SECTION 34 41 16.16 - CONSTRUCTION SIGNING AND TRAFFIC CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

This work consists of providing and erecting signs, lights, barricades, and other devices.

PART 2 – PRODUCTS

2.1 MATERIALS

A. General

1. Provide materials for construction signing and traffic control in accordance with NCHRP 350 report or MASH Test Level 3 (TL-3), with letter of acceptance/eligibility from the FHWA.

B. Construction Signing and Traffic Control Materials

1. Arrow Display

- a. Provide each arrow display with a circuitry control unit, a mounting frame, and a sign panel with yellow sealed beam lamps attached in accordance with MUTCD Section 6F-3.
- b. Provide non-reflective black finish for panel faces exposed to oncoming traffic.
- c. Provide a control unit to display higher intensity during the day and lower intensity at night. Ensure lamps display the same light intensity for a given setting. The ENGINEER will only allow the substitution of larger panels for smaller panels.
- d. Provide a mounting frame to support the sign panel so the bottom edge of the panel is at least 7 ft [2.1 m] above the roadway surface when displayed to oncoming traffic. Mount arrow displays so the panel rotates on a horizontal axis to hide it from the view of oncoming traffic when not in use. Mount mobile arrow displays on pneumatic-tired vehicles.
- e. Provide a power source with a separate auxiliary power source that can be immediately available to operate flashing lights. Provide a self-contained battery or electric generator power source on mobile arrow displays.
- f. Provide arrow displays with a solid-state electronic circuitry control unit with four modes that contain switching controls for operator selection in accordance with Table 1:

Table 1 Arrow Display Controls	
Mode	Display
Pass Right	Flashing arrow
Pass Left	Flashing arrow
Pass either side	The apex of the outermost chevrons point to the nearest panel edge
Caution	At least four lamps in a pattern not indicating a direction

2. Construction Signs and Barricades

- a. Provide metal, wood, or plastic supports and sign blanks. Provide two supporting legs for each sign 10 ft² [1 m²] or larger. Provide wide-angle flat-top retroreflective sheeting for signs and barricades in accordance with Type IV-A sheeting, unless otherwise shown on the Plans.
- b. Construct sign messages and symbols in accordance with MUTCD and as shown on the Plans.
- c. Mark and immediately replace construction signs not in accordance with the following retroreflective sheeting requirements:
 - 1) Provide materials for retroreflective sheeting in accordance with ASTM D 4956, and the supplementary specifications of S3. Provide sheeting with a Class 1 adhesive backing. Perform outdoor weathering on an AASHTO, National Transportation Product Evaluation Program test deck.
 - 2) The Resident Engineer will inspect completed signs and will not accept sign faces with faults or blemishes that impair serviceability or mismatched colors visible from a distance of 25 ft [7.6 m] under day or night light conditions.

3. Construction Signs 32.3 ft² [3 m²] and Larger

- a. Provide aluminum or galvanized steel to construct signs. If ground mounting, provide and install breakaway signs in accordance with GMS-1, FGS-1, FGS-2, and SPA-1. The ENGINEER will approve installation locations before construction begins. The ENGINEER will not require reinforcing steel in the sign footings. Place signs on existing overhead signs if shown on the Plans.
- b. Provide retroreflective signs, as required by the Contract, of the designs and colors shown on the Plans.

4. Vertical Panels

- a. Provide vertical panels in accordance with MUTCD Section 6F-5. Place Type IV-A reflectorized sheeting on both sides of each vertical panel.

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5. Warning Lights
 - a. Provide warning lights in accordance with MUTCD Section 6F-7OF.
6. Cones
 - a. Provide cones in accordance with MUTCD Section 6F-7.
7. Surveillance of Traffic Control
 - a. Provide an ATSSA or certified observer to maintain traffic control devices in position for work zones at the construction site 24 hours a day, seven days a week when traffic is directed away from the normal traffic lanes or when directed by the ENGINEER. Provide the observer with a cell phone. Certification must be issued by a National or State Traffic Engineering/Safety association and approved by the ENGINEER.
8. Traffic Surveillance, Police
 - a. Make arrangements through the Oklahoma Highway Patrol, Chief's office to provide one officially marked Oklahoma Highway Patrol car and one law enforcement officer capable of issuing traffic citations. Ensure the Oklahoma Highway Patrol insures, licenses, bonds, and approves the officer for this work. Ensure the duty hours of the officer and vehicle match the CONTRACTOR's working hours.
9. Flagger
 - a. If required by the contract documents, provide two flaggers per sign day. Provide lighting to illuminate the flagger stations at night.
10. Plastic Drums
 - a. Provide two-piece breakaway drums in accordance with the MUTCD. The drums must accommodate conventional barricade warning lights that are in accordance with the NCHRP 350 or MASH, Category I device requirements. These drums will be used as channelizing devices for construction and maintenance operations.
 - b. Provide plastic drums at least 36 inches [900 mm] high and at least 18 inches [450 mm] wide regardless of orientation. The plastic drum must be capable of withstanding 60 mph [100 km/h] winds, turbulence created by vehicles, and repeated movements during construction and maintenance operations. Ensure the top portion of the unit deforms and breaks away from the base upon vehicular impact. Ensure the base remains in place, allowing the vehicle to pass over it. Ensure the base, or combination of stacked bases, weighs at least 40 lbs., and the outside edge does not exceed 4 inches [100 mm]. Provide rubber base collars that are clean cut, the proper size, black in color, and not curved at the top edges. Ensure the maximum diameter of the base does not exceed 36 inches [900 mm].
 - c. Provide bright orange plastic drums that resist color fading. Ensure the plastic drum is crash worthy in accordance with the NCHRP 350 or MASH. Ensure sheeting surfaces provide maximum adhesion of reflective sheeting to the drum body.

- d. Provide weather tight drums designed to accept horizontal, circumferential bands of reflectorized sheeting, 4 inches to 6 inches [100 mm to 150 mm] wide. Provide drums with a D-shaped configuration at the base attachment point to minimize rolling after impact. Provide drums with enclosed tops and drains to prevent water accumulation. Ensure that stacking the drums will not damage the reflective surface. Ensure each drum allows the attachment of two Type A conventional barricade warning lights. Provide warning lights capable of remaining attached during repeated impacts at speeds of at least 55 mph [88 km/h] and in accordance with NCHRP 350 or MASH.
- e. Provide drums that have alternating fluorescent orange and white horizontal circumferential stripes of retro-reflectorized sheeting. Ensure there is a minimum of two fluorescent orange and two white stripes, beginning with a fluorescent orange stripe at the top of the drum. If there are non-reflectorized spaces between the horizontal orange and white stripes, ensure they are no more than 2 inches [50 mm] wide. Ensure the non-reflectorized portions of the drum are orange. Provide reflective sheeting that meets the requirements of the latest ASTM D4956, and the Federal Highway Administration Luminance Factor for fluorescent orange, Type VI reboundable sheeting (see Table 2).

Table 2 Luminance Factor, YT			
Sheeting Type	Min	Max	Fluorescence Luminance Factor Limit YF
Fluorescent Orange	25	None	15

11. Tube Channelizers

- a. Provide orange tube channelizers, at least 27 inches [700 mm] high and at least 2 inches [190 mm] wide when facing traffic. Ensure the channelizers do not damage vehicles upon impact.
- b. For nighttime use, equip each tube channelizer with two 3 inch [75 mm] wide white bands with retro-reflectivity at least that of Type IV sheeting. Place the white bands no greater than 2 inches [50 mm] from the top of the tube and no greater than 6 inches [150 mm] apart.

12. Cone Channelizers

- a. Provide orange cone channelizers, at least 42 inches [1000 mm] high and at least 7.5 inches [50 mm] wide at the bottom of the cone portion. Provide a base for each cone channelizer of a minimum 30 lbs.
- b. Each channelizer shall have alternating 6 inch stripes of white (2) and orange (2) Type IV retroreflective sheeting (4 total sheeting stripes) to be spaced 4 inches apart.

13. Sampling and Testing

- a. Submit to the ENGINEER a manufacturer prepared certification stating that the material meets the contract documents requirements, listed by specification reference number, section reference, or other appropriate identification approved by the ENGINEER.

14. Temporary Roadway Lighting Assembly

- a. Provide temporary roadway lighting assemblies of the type specified, meeting the material requirements of applicable subsections of these specifications. Include all of the following items, unless otherwise specified:
 - 1) 2/C or 3/C No. 4 ACSR electric conductor (aerial), between the lighting poles and to the temporary service pole.
 - 2) 1/C No. 12 electric conductor, to the luminaires.
 - 3) In-line fuse connector with a 15 amp fuse. (Optional)
 - 4) An existing or new permanently installed roadway pole with either one or two luminaires may be considered a temporary roadway lighting assembly for payment as outlined in Section 4.1, "Method of Measurement."
- b. Provide the following specific items for the various assembly types:
 - 1) Assembly Type 40
 - a) 40 foot (12.2 m) Class 6 wood pole with an 8 foot (2.4 m) galvanized steel mast arm
 - b) 250 watt high pressure sodium roadway luminaire rated at 27,000 lumen, Type M-S-III
 - 2) Assembly Type 55
 - a) 55 foot (16.8 m) Class 4 wood pole with a 10 foot (3.0 m) galvanized steel mast arm.
 - b) 400 watt high pressure sodium roadway luminaire rated at 50,000 lumen, Type M-S-III

15. Temporary Service Pole Assembly

- a. Provide temporary service pole assemblies meeting the material requirements of applicable subsections of these specifications. Include all of the following items, unless otherwise specified:
 - 1) 35' (10.7 m) Class 6 wood pole
 - 2) 60 or 100 amp. , 2-pole lighting controller
 - 3) 60 or 100 amp. disconnect switch
 - 4) Miscellaneous equipment including PE cell, conduit, electrical conductors, fuses, connectors and meter base, if required

2.2 EQUIPMENT

NOT USED

PART 3 – EXECUTION**3.1 CONSTRUCTION METHODS**

- A. Perform construction traffic control in accordance with MUTCD Chapter VI and as shown on the Plans, or as further modified by the ENGINEER.
- B. Traffic control devices shall meet the requirements of the MUTCD as pertains to shape, size, color, mounting height, and placement.
- C. Place signs, lights, and barricades on portable or fixed supports as required by the Contract.
- D. Monitor and maintain the condition of devices. Immediately replace damaged signs or devices as directed by the ENGINEER. If directed by the ENGINEER, clean the sign or device.
- E. Coordinate with the ENGINEER to conduct nighttime traffic control device reviews at the beginning of the Project, in conjunction with major changes to traffic signing, and at monthly intervals. Record the date and result of the nighttime inspection in the contractor signing log.
- F. Immediately remove or cover unnecessary traffic control devices as approved by the ENGINEER.
- G. Light the flagger stations at night and ensure the lighting does not impede the vision of passing drivers.
- H. The ENGINEER will give written notice of unacceptable conditions to facilitate prompt maintenance and changes in construction traffic control devices. Correct the specified devices within 24 hours of notice.
- I. Continue providing construction traffic control and maintain the log of devices until completion and acceptance at no additional cost to the OWNER.
- J. Install the temporary roadway lighting assembly and temporary service pole assembly at the direction of the ENGINEER, and in cooperation with the local utility company and the local governmental agency.
- K. Repair any damage to the temporary roadway lighting assembly and/or temporary service pole assembly inflicted during the installation, relocation, and/or removal of these items at no additional cost to the OWNER.
- L. Install Assembly Type 40 on two-lane and three-lane roadways. Install Assembly Type 50 on roadways with more than three lanes.
- M. The suggested maximum spacing between temporary lighting poles is 150' to 170' (45.7 m to 51.8 m) for Assembly Type 40, and 180' to 210' (54.9 m to 64 m) for Assembly Type 55. Connect the temporary lighting poles to electrical power at a temporary service pole using aerial conductors. Using portable median barrier, protect

the temporary light poles and service pole assemblies from the traffic flow in a manner approved by the ENGINEER.

N. Operate temporary roadway lighting at 480 volts.

PART 4 – METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.1 METHOD OF MEASUREMENT

A. Sign Day Pay Item

1. If Plans show itemized pay items for construction traffic control devices, the ENGINEER will measure each device used for construction traffic control per calendar day. For non-working periods, the ENGINEER will use the sign log from the previous and successive working days to measure payment for devices. The ENGINEER will measure one calendar day for devices used at multiple locations in one day.
2. Maintain a log of devices used for construction traffic control per calendar day. Update the log daily throughout the project to confirm the addition or deletion of individual devices. Submit the log to the ENGINEER before each pay period.
3. The OWNER will not allow unnecessary devices to remain in place for more than 5 days unless covered as directed by the ENGINEER. The ENGINEER will not measure unnecessary devices left in place. After 5 calendar days, the ENGINEER will deduct the contract unit price of the relevant pay item every day the unnecessary device remains in place and uncovered. If an unnecessary device remains in place and uncovered for more than 30 calendar days, the device will become the property of the OWNER.

B. Lump Sum Pay Item

1. Additional compensation for prolonged use of the traffic control devices will be considered for the following instances:
 - a. A change order is approved that provides additional work and additional time, or
 - b. A delay beyond the control of the CONTRACTOR occurs which renders the project unable to be completed within the contract time; such as a utility or OWNER caused delay.
2. If additional and compensation is warranted, the ENGINEER will calculate a daily rate by dividing the lump sum contract unit price for Construction Traffic Control by the number of calendar days in the contract time. The ENGINEER will calculate the additional compensation by multiplying the daily rate by the number of additional days.
3. If the CONTRACTOR fails to make corrections to devices as directed by the ENGINEER within 24 hours, the ENGINEER will assess a daily charge equal to half of the daily rate calculated in the previous paragraph. The ENGINEER may assess the daily charge for each additional 24 hours until the devices are

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corrected. The OWNER will deduct this amount, as a non-recoverable charge, from the next progress payment.

C. Luminaire Day Pay Item

1. The installation and removal of the Temporary Roadway Lighting Assembly will be measured by the unit, complete in place, for each calendar day the device is required and is in place in an acceptable condition and position to meet all of the above requirements. Measurement for payment will be by the Luminaire Day (LMDY) beginning on the day that the temporary roadway lighting assembly is in place and operational. A Luminaire Day is defined as any 24-hour day that the assembly is operational.
2. Temporary or permanent lighting assemblies with two luminaires will be measured as two luminaire days.
3. Temporary Roadway Lighting Assembly will be measured for payment with a 30-day minimum for each relocation.
4. The cost bid for Temporary Roadway Lighting Assembly may also be used for compensation for temporary lighting utilizing existing and/or permanent pole installations during the interim time between the time they are installed and operational and before the final circuit is accepted and the permanent service pole is operational.
5. Any existing lighting pole assembly that is being used for temporary lighting during construction will not be paid for until that assembly is connected to a circuit for which the CONTRACTOR is furnishing the electrical energy.

4.2 BASIS OF PAYMENT

- A. The OWNER will pay for each pay item at the contract unit price per the specified pay unit as follows:

Pay Item:	Pay Unit:
(A) ARROW DISPLAY (TYPE)	Sign Day
(B) CONSTRUCTION SIGNS (SIZE)	Sign Day
(C) CONSTRUCTION BARRICADES	Sign Day
(D) VERTICAL PANELS	Sign Day
(E) WARNING LIGHTS (TYPE)	Sign Day
(F) DRUMS	Sign Day
(G) TUBE CHANNELIZERS	Sign Day
(H) CONES (SIZE)	Sign Day
(I) FLAGGER	Sign Day
(J) CONSTRUCTION TRAFFIC CONTROL	Lump Sum
(K) SURVEILLANCE OF TRAFFIC CONTROL	Sign Day
(L) TRAFFIC SURVEILLANCE, POLICE	Hour
(M) TEMPORARY ROADWAY LIGHTING ASSEMBLY	Luminaire Day

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- B. The OWNER will consider the cost of installing, maintaining and removing all construction traffic control to be included in the contract unit price for relevant traffic control pay item.
- C. Unless otherwise shown on the Plans or Special Provisions, construction traffic control devices remain the property of the CONTRACTOR upon project completion.
 - 1. Sign Day Pay Item
 - a. The OWNER will consider the cost of providing two flaggers and lighting the flagger stations at night and any other incidental items to be included in the contract unit price for Flagger.
 - b. If the ENGINEER suspends contract time for public safety the OWNER will pay for construction traffic control during the period of suspension.
 - c. The OWNER will not pay for devices on liquidated damage days.
 - 2. Lump Sum Pay Item
 - a. The OWNER will pay for Construction Traffic Control as a percentage equal to the project percent complete. The OWNER will pay for amounts of Construction Traffic Control remaining on the date of completion in the next estimate.
 - b. The OWNER will pay for Surveillance of Traffic Control, Traffic Surveillance, Police, and Temporary Roadway Lighting Assembly separate from the Lump Sum construction traffic control pay items.
 - c. If the ENGINEER requires additional signage for safety, the OWNER will pay for work approved by the ENGINEER. In support of the material costs, provide itemized invoices prepared by the materials supplier.
 - d. The OWNER will not pay additional compensation for construction traffic control for time extensions due to unusually severe weather.
 - 3. Luminaire Day Pay Item
 - a. Payment will be considered full pay for this item of work. Include all costs for the Temporary Roadway Lighting Assembly in the unit price bid for this item of work, including all materials, hardware, installation, relocations, removal upon completion of the project, any temporary service pole assembly, costs of electrical energy to the service pole necessary to operate the completed temporary lighting system, and all maintenance or repairs required to keep the system in operation during construction.
 - b. Do not include the cost for portable median barrier used to protect the temporary lighting assembly in this item of work.

END OF SECTION 34 41 16.16

CHICKASHA

Meeting Type: CMA Agenda 6-16-2025

Meeting Date: 6/16/2025

Department: Administration

Agenda Item No. 4.c.

AGENDA ITEM: Discussion, consideration, and possible action to allow the Chickasha Chamber of Commerce the use of the golf course to host and conduct the annual Washita Valley Golf Tournament from July 3rd through July 6th.

I. BACKGROUND/DESCRIPTION:

See the attached request received from the Chickasha Chamber of Commerce for more details.

If the request is approved, an Indemnification Agreement as well as a Certificate of Liability Insurance will be required.

II. RECOMMENDED ACTION:

Allow the Chickasha Chamber of Commerce the use of the golf course to host and conduct the annual Washita Valley Golf Tournament from July 3rd through July 6th contingent upon the execution of an Indemnification Agreement and provide a Certificate of Liability Insurance showing the City of Chickasha as an addition insured.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

Fund	Account	Amount
(To)		
FUND	ACCOUNT	AMOUNT
(From)		

Meeting Date:

June 16, 2025

V. ATTACHMENTS:

1. 20250611100845191

Susan McDaniel, CMC

From: Jim Cowan <jim@chickashaedc.com>
Sent: Monday, June 9, 2025 1:04 PM
To: Jim Crosby
Cc: Susan McDaniel, CMC
Subject: Request to host the Washita Valley Golf Tournament

Mr. Crosby:

The Chickasha Chamber of Commerce is working with a local group of volunteers to keep the longest running golf tournament in Oklahoma going this year.

This will be the 97th year for the Washita Valley Golf Tournament and we don't want it to end.

We would like permission from the City to use the entire golf course and club house area July 3^d through July 6th.

The Chamber will keep a spreadsheet of the revenue and expenses for the tournament and we will split the profit from the tournament with the City (50/50) if we are approved.

We have asked Mosley Insurance to name the City in our event policy and email over to you the certificate of insurance.

We appreciate the City considering this as we work to keep this tradition rich event going for our Community.

Please let me know if you have any questions,

Thanks

Jim

Jim Cowan
Executive Director Chickasha Economic Development Council
President Chickasha Chamber of Commerce
Office: 405-224-0787
www.chickashaedc.com
www.chickashachamber.com