

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
MARCH 17, 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 Claims List.
3. **Consideration and Discussion Items:**
 - a. Discussion, consideration and possible action to approve a long-term lease agreement with the Evie Jo Erwin 2012 Revocable Trust for the site of the new water treatment plant project, with monthly rent of \$2,500, subject to annual increases based on the Consumer Price Index (CPI).
 - b. Discussion, consideration and possible action to authorize an Irrevocable Agreement to Transfer Real Property with the Evie Jo Erwin 2012 Revocable Trust, providing for the transfer of the property to the Chickasha Municipal Authority (CMA) following the lease term and

ensuring recognition of the Erwin Family's contribution.

- c. Discussion, consideration and possible action to name the new water treatment plant The Erwin Family Waterworks.
- d. Discussion, consideration and possible action to declare an emergency exists pursuant to Title 61 O.S. § 130 of the Oklahoma Competitive Bidding Act, finding that immediate action is necessary to address the sudden unexpected happening or unforeseen occurrence or condition whereby the public health or safety is endangered if the situation is not addressed promptly relating to the condition of the sanitary sewer system, and to waive the publication requirements as to CMA-2501 Sanitary Sewer Main Replacement Project.
- e. Discussion, consideration and possible action to award the contract for the CMA-2501 Sanitary Sewer Main Replacement Project to the lowest responsive and responsible bidder, Matthews Trenching Co., Inc., in the amount of Four Hundred Fifty-Two Thousand Eight Hundred Seventy Dollars (\$452,870.00) and authorize the Chairman to execute all necessary documents related to the project.

4. Motion for Adjournment.

CHICKASHA

Meeting Type: Special CMA Meeting 3-17-2025

Meeting Date: 3/17/2025

Department: Finance

Agenda Item No. 2.a.

AGENDA ITEM: Acceptance of the Claims List.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Accept the Claims List.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: March 17, 2025	(From)		

V. ATTACHMENTS:

CHICKASHA

Meeting Type: Special CMA Meeting 3-17-2025

Meeting Date: 3/17/2025

Department: Administration

Agenda Item No. 3.a.

AGENDA ITEM: Discussion, consideration and possible action to approve a long-term lease agreement with the Evie Jo Erwin 2012 Revocable Trust for the site of the new water treatment plant project, with monthly rent of \$2,500, subject to annual increases based on the Consumer Price Index (CPI).

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Approve a long-term lease agreement with the Evie Jo Erwin 2012 Revocable Trust for the site of the new water treatment plant project, with monthly rent of \$2,500, subject to annual increases based on the Consumer Price Index (CPI).

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: March 17, 2025	(From)		

V. ATTACHMENTS:

1. doc02722120250307162445

LEASE AGREEMENT

This Lease Agreement ("hereinafter may be referred to as "Lease" or "Agreement") entered into this Seventh day of March, 2025 by and between the Evie Jo Erwin 2012 Revocable Trust (hereinafter "Lessor") and the Chickasha Municipal Authority, a Public Trust Authority having the City of Chickasha as its sole beneficiary (hereinafter called the "Lessee")

1. The Leased Premises. For and in consideration of the items hereinafter provided and the performance by the Lessee of the covenants hereinafter set forth, Lessor does hereby lease to Lessee, and Lessee does hereby lease from Lessor, those three (3) certain tracts of real property described as

22-07-07-00300 PART OF SW/4 NE/4 SW/4 N OF RWY EXCEPT 7' & BEG 855' W OF NE/C SW/4 TH W 465' S 667' E 556' TO R/O/WTH NE/4 ALG R/O/WTO A POINT 540.60' SW/4 OF NE/C SW/4 TH W 239.85' N 83 DEG 05 MIN W 124.4' TH N 387.77' TO BEG, Section 22-7N-7W, Grady County, OK and

22-07-07-00250 N/2 NW/4 SW/4 & SE/4 NW/4 SW/2-LESS .04 AC RW & N 1 AC OF SW/4 NW/4 SW/4 & THAT PART OF NE/4 SW/4 SW/4 N OF RR, Section 22-7N-7W, Grady County, OK

and

22-07-07-00150 TR BG SW/C NW/4 THE 1785' N 660' W 1785' S 660' TO BEG, Section 22-7N-7W, Grady County, OK

located in Grady County Oklahoma (hereinafter may be referred to as "Leased Premises" or "Property")

2. Use of Leased Premises. Lessee hereby agrees to use and occupy the leased premises as a location to build, operate, repair, improve, and maintain a municipal fresh water supply treatment plant for the City of Chickasha Oklahoma (hereinafter "City") and any related infrastructure, including but not limited to the construction, installation, improvement, and maintenance of both underground and surface water supply lines and related equipment together with any other gathering and distribution infrastructure for potable water to the City and Chickasha Municipal Authority's water distribution system and to the users of potable water

delivered by the City and the Chickasha Municipal Authority to its customers. Further, the leased premises may be used for any other lawful purpose during the term of this Lease without the prior written consent of the Lessor.

3. Lease Term. The term of this Lease shall commence on the 1st day of April 2025 and shall end on the 1st day of April 2075 at 11:59 PM or at the death of Evie Erwin, whichever is earlier.

4. Rent. In consideration for this Agreement, Lessee shall pay Lessor \$2,500 per month. The rental amount shall be adjusted annually based on the consumer price index (CPI), provided that the rental amount shall not decrease.

5. Maintenance and Improvements. Lessee has inspected the Leased Premises and acknowledges that the Leased Premises are being leased in its current "AS IS" condition. Lessor shall have no obligation of any nature to maintain the Leased Premises or to make any improvements of any nature.

6. Utility Charges. In addition to the rent, Lessee shall pay all water, gas, electric services, and solid waste disposal charges for the Leased Premises which shall be billed directly to the Lessee. Upon execution of this Agreement Lessee shall make arrangements with the supplier of each of the above-named utility services for inception of service in Lessee's name as of the commencement date of this agreement as stated in paragraph 3 above. Lessee shall also be responsible for any damage to any utility equipment or system resulting from Lessee's use of the leased premises.

7. Taxes. Lessee during the lease term shall be responsible for payment of any and all of the below relating to the Leased Premises:

- a. Real and personal property, ad valorem taxes or other tax levied in lieu of real property taxes, if any
- b. Municipal taxes, assessments or similar charges, if any, and
- c. All other taxes, assessments or governmental charges levied or assessed against the building, the land, or any other improvements, fixtures or personal property located upon the leased premises, if any.

8. Insurance. Lessee shall be required to secure general liability insurance at Lessee's sole expense in amounts not less than the amounts of the maximum liability imposed upon political subdivisions under the Governmental Tort Claims Act, 51 O.S. §151 et seq. Lessor shall be named as an additional insured on the policy and Lessee shall provide proof of insurance showing said policy to be in effect at all times during the term of this Lease and any renewals hereof. The Lessee shall further furnish Lessor renewal certificates or copies of renewal policies

on or before the expiration date of any policy set out within this paragraph with said coverages to be in full force and effect during the entire lease term covered by this lease agreement. Provided that failure to provide the proof of insurance shall not be deemed a default under this Lease Agreement. Lessee may, but is not required to insure any real estate improvements.

9. Exclusive Use. Lessee shall have and enjoy the exclusive use and possession of the Property.

10. Quiet Enjoyment. Lessor covenants that Lessee shall peacefully and quietly have, hold and enjoy the leased premises for the agreed term,

11. Hazardous Materials. Lessee shall be allowed certain Hazardous Materials to be brought upon, kept or used in or about the building or the leased premises by the Lessee, its agents, employees, contractors or invitees for purposed of treating raw water supplies to make them potable for a municipal fresh water supply system including human consumption and agricultural and industrial use.

12. Indemnification of Lessor. Lessee will indemnify, defend and hold harmless Lessor from any and all claims, demands, causes of action, or damages which result from Lessee's use of the Leased Premises or from any activities conducted thereon to the extent allowed by law.

13. Damage to or Destruction of Leased premises. If the leased premises shall be damaged or destroyed by fire, flood, or by the elements, or other causes so as to render the leased premises unfit for use, this Lease may be terminated at the option of Lessee.

14. Material Default. If any material default is made in the performance of or compliance with any term or condition hereof, Lessee shall be given a written notice of any material default or material breach, and given (60) days to correct or take some action reasonably likely to effect such correction within a reasonable time. In the event of default, Lessor waives any right to terminate or otherwise interfere with CMA's continued possession, use, occupancy and eventual ownership of the Property for the purposes set forth in Paragraph 2 of this Agreement. Lessor waives no other legal rights or remedies available under Oklahoma law.

15. Assignment and Sub-letting. Neither Lessor nor Lessee shall assign this Lease Agreement nor sub-lease the leased premises without the prior written consent of the other party.

16. Discharge of Liens.

a *Specific Covenant.* Neither Lessor nor Lessee will create or permit to be created or

asserted or to remain any lien, encumbrance or charge (levied on account of any Tax or any mechanic's, laborer's or materialman's lien) against the Land, the Leased Premises or any part thereof. Any Tax may, however, after the same becomes or is asserted to be a lien on the Land or any part thereof, be paid or contested in accordance with Section 16 (c) hereof, and any asserted mechanic's, laborer's or materialman's lien may be discharged in accordance with Section 16 (b) hereof. Each party shall remain solely responsible for any lien, encumbrance, or charge against the Property that was created or permitted by that party. Neither the Lessor nor the Lessee shall be liable for any such lien, encumbrance, or charge created or permitted by the other party.

b. *Discharge of Liens.* If any mechanic's, laborer's or materialman's lien shall at any time be filed against the Land or any part thereof, the Buildings or the Leased Premises, the party which created or permitted to be created or asserted or to remain any lien, encumbrance or charge on the leased premises (hereinafter "responsible party") will cause the same to be discharged of record by payment, deposit, bond, order of a court of competent jurisdiction or otherwise. If the responsible party shall fail to cause such lien to be discharged within the period aforesaid, then, in addition to any other right or remedy, the other party may, but shall not be obligated to, discharge the same either by paying the amount claimed to be due or by procuring the discharge of such lien by deposit or by bonding proceedings and the responsible party shall reimburse the other party.

c. *Contesting Liens.* Notwithstanding the foregoing, the responsible party shall not be required to pay or discharge any such mechanic's lien so long as the responsible party shall in good faith proceed to contest the same by appropriate Legal Proceedings; provided, however, that the responsible party shall give written notice to the other party of the responsible party's intention to contest the validity of such lien. If such lien shall be reduced to judgment or such process as may be issued for the enforcement thereof is not promptly stayed, or if so stayed and such stay thereafter expires, then in that event the responsible party shall pay and discharge said judgment forthwith.

17. No Liens. Lessor has not and shall not create any liens, including but not limited to mechanics', materialmen's or laborers' liens, leases, encumbrances, exceptions, reservations, restrictions, limitations, easements or claims of third parties during the lease term of this Agreement.

18. Surrender of Leased premises. At the expiration of the Lease term, Lessor surrenders all interest in the leased premises and title transfers entirely and without further encumbrance to the Lessee as set forth in the Irrevocable Agreement to Transfer Real Property.

19. Captions. The captions, headings and arrangements used in this agreement are for

convenience only and do not in any way affect, limit, amplify, or modify the terms and provisions hereof.

20. Number and Gender of Words. Whenever the singular number is used herein, the same shall include the plural where appropriate, and vice versa, and words of any gender shall include each other gender where appropriate.

21. Notices. Each notice, demand, request or other communication required or permitted hereunder shall be in writing and shall be deemed delivered if delivered in person, if mailed by United States Certified Mail, Return Receipt Requested, postage prepaid, or private contract carrier against signed delivery receipt, on the date evidenced by the signed receipt or the date upon which the postal service or carrier service certifies that delivery has been refused by the addressee or is otherwise deemed impossible, addressed to the party to be notified at the address stated below:

if to the Lessee,

Chickasha Municipal Authority.
ATTN: Trust Manager
117 North 4th Street
Chickasha, Oklahoma 73018

if to the Lessor,

Evie Jo Erwin 2012 Revocable
Trust ATTN: Trustee
Trust Company Oklahoma
PO Box 14940 | Oklahoma City,
OK 73113 | Mail

22. Governing Law/Venue. This agreement is being executed and delivered in the State of Oklahoma, and the laws of such state shall govern the validity, construction, enforcement and interpretation hereof, and the obligations, liabilities, rights, remedies, powers and privileges of the parties hereto. Venue shall be in the District Courts of Grady County, Oklahoma.

23. Specific Performance. In addition to all legal remedies, Lessee shall be entitled to seek specific performance or other equitable remedies to enforce this Lease Agreement. The Chickasha Municipal Authority further does not waive the power and authority to obtain the property/leased premises by eminent domain.

24. Recording of Agreement. This Agreement shall be recorded in the land records of the office of the Grady County Clerk to provide notice of the Lessee's interest in the leased premises and property.

25. Time of the Essence. It is expressly agreed by the parties hereto that time is of the essence with respect to this Agreement and all terms and provisions herein.

26. Entire Agreement. This Lease Agreement constitutes the entire agreement between the parties and may not be modified or amended except by written instrument executed by both parties.

27. Binding Effect. This Lease Agreement shall be binding on the parties hereto and their respective heirs, representatives, successors and assigns. The Lessor and Evie Jo Erwin waive any right to terminate this Agreement for any reason except as explicitly provided herein.

28. Non-Waiver. The Chickasha Municipal Authority's failure to immediately enforce its rights under this Agreement shall not constitute a waiver of those rights.

29. Attorney Fees. In the event that either the Lessor or the Lessee is required to resort to legal proceedings or to incur expenses of any kind or nature in the enforcement of their rights hereunder, then in such event, the successful party shall have the right and the losing party shall be liable in damages for all reasonable attorney fees and expenses incurred by the successful party in the enforcement of any of their respective rights hereunder.

30. Joint Preparation. This Lease Agreement 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 Lease Agreement or any related document.

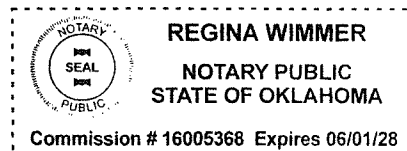
31. Severability, Savings. If any provision of this Lease Agreement is determined to be invalid or unenforceable to any extent, the remainder of the provisions will not be affected and will be valid and enforceable to carry out, to the fullest extent possible, the original intent of the parties as permitted by law or in equity.

Executed the date and year first written herein above.

LESSOR
THE EVIE ERWIN 2012 REVOCABLE TRUST

Emily Crain
Emily Crain
Senior Vice President
Trust Company Oklahoma

STATE OF OKLAHOMA)
Oklahoma)
~~GRADY~~ COUNTY)



Before me, a notary public in and for said county and state, on this 17th day of March, 2025, personally appeared Emily Crain, the Senior Vice President of Trust Company Oklahoma, the Trustee of the Evie Jo Erwin 2012 Revocable Trust and executed the within and foregoing instrument, and acknowledged to me that she executed the same as her voluntary act and deed for the uses and purposes therein set forth and further acknowledged that she has the full authority to sign on behalf of the Evie Jo Erwin 2012 Revocable Trust.

My commission expires:
6/01/2028

Regina Wimmer
Notary Public

CHICKASHA MUNICIPAL AUTHORITY
LESSEE

Chairman

Secretary

CHICKASHA

Meeting Type: Special CMA Meeting 3-17-2025

Meeting Date: 3/17/2025

Department: Administration

Agenda Item No. 3.b.

AGENDA ITEM: Discussion, consideration and possible action to authorize an Irrevocable Agreement to Transfer Real Property with the Evie Jo Erwin 2012 Revocable Trust, providing for the transfer of the property to the Chickasha Municipal Authority (CMA) following the lease term and ensuring recognition of the Erwin Family's contribution.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Authorize an Irrevocable Agreement to Transfer Real Property with the Evie Jo Erwin 2012 Revocable Trust, providing for the transfer of the property to the Chickasha Municipal Authority (CMA) following the lease term and ensuring recognition of the Erwin Family's contribution.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: March 17, 2025	(From)		

V. ATTACHMENTS:

1. doc02722020250307162434

IRREVOCABLE AGREEMENT TO TRANSFER REAL PROPERTY

This Irrevocable Agreement to Transfer Real Property (hereinafter may be referred to as "Agreement") entered into this Seventh day of March, 2026 by and between the Evie Jo Erwin 2012 Revocable Trust (hereinafter may be referred to as "the Erwin Trust") and the Chickasha Municipal Authority, a Public Trust Authority having the City of Chickasha as its sole beneficiary (hereinafter may be referred to as "CMA").

RECITALS

WHEREAS, the Evie Jo Erwin 2012 Revocable Trust is the owner of certain real property described as follows:

22-07-07-00300 PART OF SW/4 NE/4 SW/4 N OF RWY EXCEPT 7' & BEG 855' W OF NE/C SW/4 TH W 465' S 667' E 556' TO R/O/WTH NE/4 ALG R/O/WTO A POINT 540.60' SW/4 OF NE/C SW/4 TH W 239.85' N 83 DEG 05 MIN W 124.4' TH N 387.77' TO BEG, Section 22-7N-7W, Grady County, OK and

22-07-07-00250 N/2 NW/4 SW/4 & SE/4 NW/4 SW/2-LESS .04 AC RW & N 1 AC OF SW/4 NW/4 SW/4 & THAT PART OF NE/4 SW/4 SW/4 N OF RR, Section 22-7N-7W, Grady County, OK

and

22-07-07-00150 TR BG SW/C NW/4 THE 1785' N 660' W 1785' S 660' TO BEG, Section 22-7N-7W, Grady County, OK

(hereinafter the "Property");

WHEREAS, the Erwin Trust and CMA have entered into a long-term lease agreement allowing CMA to construct a Water Treatment Plant on the Property;

WHEREAS, the construction of the Water Treatment Plant is anticipated to cost in excess of \$60,000,000;

WHEREAS, the Erwin Trust desires to transfer the Property, surface rights only, to CMA upon the death of Evie Erwin in consideration of CMA naming the Water Treatment Plant after Ms. Erwin's father;

WHEREAS, CMA agrees to accept the Property upon Ms. Erwin's death and to name the Water Treatment Plant after Ms. Erwin's father as consideration for the transfer;

NOW, THEREFORE, in consideration of the mutual covenants and promises contained herein, the parties agree as follows:

1. IRREVOCABLE TRANSFER COMMITMENT

1.1 The Erwin Trust hereby expresses its unequivocal intent to convey the Property to CMA upon the death of Evie Erwin.

1.2 The Erwin Trust hereby irrevocably agrees to transfer the Property to CMA upon Evie Erwin's death, with such transfer to be effectuated through a legally binding testamentary instrument, including but not limited to a trustee deed executed contemporaneously with this Agreement and placed in escrow for recording upon Evie Erwin's death.

1.3 The Erwin Trust hereby relinquishes control of the Property, including, but not limited to the rights to sell, transfer, encumber, or otherwise dispose of or manage the Property in any manner.

2. ESCROW ARRANGEMENT

2.1 Within thirty (30) days of executing this Agreement, The Erwin Trust shall deliver a duly executed Trustee Deed and any necessary transfer documents (collectively, the "Escrow Documents") to a mutually agreed-upon escrow agent (the "Escrow Agent").

2.2 The Escrow Agent shall hold the Escrow Documents in trust and shall record them in the official land records of Grady County, Oklahoma, immediately upon the death of Evie Erwin.

2.3 The Erwin Trust and CMA shall execute escrow instructions, attached hereto as Exhibit "A," and the Escrow Agent shall act strictly in accordance with such instructions.

2.4 In the event of any dispute regarding the escrow arrangement, either party may seek enforcement through a court of competent jurisdiction.

3. CONSIDERATION FOR THE TRANSFER OF THE PROPERTY

3.1 In consideration of the Chickasha Municipal Authority's (CMA) agreement to name the Water Treatment Plant after Ms. Erwin's father, no later than June 1, 2025; the City's commitment to cover the cost of amending the Erwin Trust, up to \$1,000; and the City's agreement to fund a memorial honoring Ms. Erwin's family, to be placed in the lobby of the Water Treatment Plant, at a cost not to exceed \$40,000; and for other valuable consideration, the sufficiency of which is hereby acknowledged, the Erwin Trust irrevocably grants, bargains, sells, and conveys the Property to CMA in fee simple. The deed shall be held in escrow until the condition precedent of Ms. Erwin's death is met.

4. ENFORCEMENT AND REMEDIES

4.1 This Agreement shall be binding upon the Evie Erwin 2012 Revocable Trust, current and future Trustees, current and future beneficiaries, heirs, successors, assigns, and personal representatives.

4.2 In the event of any breach by The Erwin Trustor, and/or heirs, CMA shall be entitled to seek specific performance of this Agreement in a court of law, in addition to any other legal or equitable remedies available.

5. GENERAL PROVISIONS

5.1 Governing Law/Venue. This agreement is being executed and delivered in the State of Oklahoma, and the laws of such state shall govern the validity, construction, enforcement and interpretation hereof, and the obligations, liabilities, rights, remedies, powers and privileges of the parties hereto. Venue shall be in the District Courts of Grady County, Oklahoma.

5.2 Recording of Agreement. This Agreement shall be recorded in the land records of the office of the Grady County Clerk to provide notice of the CMA'S interest in the Property.

5.3 Time of the Essence. It is expressly agreed by the parties hereto that time is of the essence with respect to this Agreement and all terms and provisions herein.

5.4 Entire Agreement. This Agreement constitutes the entire agreement between the parties and may not be modified or amended except by written instrument executed by both parties.

5.5 Attorney Fees. In the event CMA is required to initiate legal proceedings or incur expenses to enforce its rights hereunder, the Erwin Trust shall be liable for all reasonable attorney fees and costs incurred by CMA in such enforcement.

5.6 Joint Preparation. This Agreement 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

Agreement or any related document.

5.7 Severability, Savings. If any provision of this Agreement is determined to be invalid or unenforceable to any extent, the remainder of the provisions will not be affected and will be valid and enforceable to carry out, to the fullest extent possible, the original intent of the parties as permitted by law or in equity.

Executed the date and year first written herein above.

THE EVIE ERWIN 2012 REVOCABLE TRUST

Emily Crain
Senior Vice President
Trust Company Oklahoma

STATE OF OKLAHOMA)
)
GRADY COUNTY)

Before me, a notary public in and for said county and state, on this _____ day of _____, 202_, personally appeared **Emily Crain , the Senior Vice President of Trust Company Oklahoma, the Trustee of the Evie Jo Erwin 2012 Revocable Trust** and executed the within and foregoing instrument, and acknowledged to me that she executed the same as her voluntary act and deed for the uses and purposes therein set forth and further acknowledged that she has the full authority to sign on behalf of the Evie Jo Erwin 2012 Revocable Trust.

My commission expires:

Notary Public

CHICKASHA MUNICIPAL AUTHORITY

Chairman

Secretary

EXHIBIT "A"

ESCROW INSTRUCTIONS

These Escrow Instructions (the "Instructions") are entered into this ____ day of _____, 20, by and among the Evie Jo Erwin 2012 Revocable Trust (the "Erwin Trust"), the Chickasha Municipal Authority ("CMA"), and [Escrow Agent Name] (the "Escrow Agent").

Delivery of Escrow Documents. Within thirty (30) days of executing the Irrevocable Agreement to Transfer Real Property (the "Agreement"), the Erwin Trust shall deliver the following documents (collectively, the "Escrow Documents") to the Escrow Agent:

- a. A duly executed and acknowledged Trustee Deed conveying the real property described in the Agreement (the "Property") to CMA.
- b. Any necessary transfer documents required to effectuate the conveyance of the Property, including but not limited to an affidavit of trust or other certification of trust, if required.
- c. Any other documentation mutually agreed upon by the Erwin Trust and CMA.

Duties of Escrow Agent. The Escrow Agent shall:

- a. Hold the Escrow Documents in trust and not release them except as provided in these Instructions.
- b. Maintain the Escrow Documents in a safe and secure location.
- c. Notify CMA and the Erwin Trust in writing upon receipt of the Escrow Documents.

Conditions for Release of Escrow Documents. The Escrow Agent shall release and record the Escrow Documents in the official land records of Grady County, Oklahoma, upon receipt of the following:

- a. A certified copy of the death certificate of Evie Erwin; or other verifiable certification of death; and
- b. Written instructions from CMA directing the Escrow Agent to record the Escrow Documents.

Dispute Resolution. In the event of any dispute between the Erwin Trust and CMA regarding the release or recording of the Escrow Documents, the Escrow Agent shall retain the Escrow Documents until receipt of a joint written instruction from both parties or a final court order directing the Escrow Agent's actions.

Escrow Fees. Any fees or costs associated with the Escrow Agent's services shall be paid by the CMA unless otherwise agreed in writing.

Indemnification. The Erwin Trust and CMA shall jointly and severally indemnify and hold the Escrow Agent harmless from any claims, losses, liabilities, or expenses incurred in good faith performance of its duties under these Instructions, except in cases of the Escrow Agent's gross negligence or willful misconduct.

General Provisions.

a. **Governing Law:** These Instructions shall be governed by the laws of the State of Oklahoma. Venue shall be in the District Courts of Grady County.

b. **Modification:** These Instructions may only be modified by a written agreement signed by all parties.

c. **Counterparts:** These Instructions may be executed in counterparts, each of which shall be deemed an original and all of which shall constitute one and the same document.

d. **Entire Agreement.** This Agreement constitutes the entire agreement between the parties and may not be modified or amended except by written instrument executed by both parties.

e. **Joint Preparation.** This Agreement 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 Agreement or any related document.

f. **Severability, Savings.** If any provision of this Agreement is determined to be invalid or unenforceable to any extent, the remainder of the provisions will not be affected and will be valid and enforceable to carry out, to the fullest extent possible, the original intent of the parties as permitted by law or in equity.

IN WITNESS WHEREOF, the parties have executed these Escrow Instructions as of the date first above written.

Executed the date and year first written herein above.

THE EVIE ERWIN 2012 REVOCABLE TRUST

Emily Crain

Emily Crain
Senior Vice President
Trust Company Oklahoma

STATE OF OKLAHOMA)

Oklahoma)

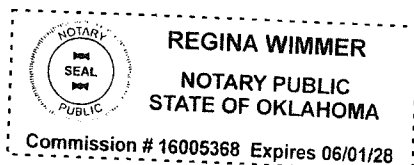
~~GRADY~~ COUNTY)

Before me, a notary public in and for said county and state, on this 7th day of March, 2025, personally appeared Emily Crain, the Senior Vice President of Trust Company Oklahoma, the Trustee of the Evie Jo Erwin 2012 Revocable Trust and executed the within and foregoing instrument, and acknowledged to me that she executed the same as her voluntary act and deed for the uses and purposes therein set forth and further acknowledged that she has the full authority to sign on behalf of the Evie Jo Erwin 2012 Revocable Trust.

My commission expires:

6/01/2028

Regina Wimmer
Notary Public



CHICKASHA MUNICIPAL AUTHORITY

Chairman

Secretary

_____, Escrow Agent

CHICKASHA

Meeting Type: Special CMA Meeting 3-17-2025

Meeting Date: 3/17/2025

Department: Administration

Agenda Item No. 3.c.

AGENDA ITEM: Discussion, consideration and possible action to name the new water treatment plant The Erwin Family Waterworks.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

	Fund	Account	Amount
	(To)		
	FUND	ACCOUNT	AMOUNT
Meeting Date: March 17, 2025	(From)		

V. ATTACHMENTS:

CHICKASHA

Meeting Type: Special CMA Meeting 3-17-2025

Meeting Date: 3/17/2025

Department: Public Works

Agenda Item No. 3.d.

AGENDA ITEM: Discussion, consideration and possible action to declare an emergency exists pursuant to Title 61 O.S. § 130 of the Oklahoma Competitive Bidding Act, finding that immediate action is necessary to address the sudden unexpected happening or unforeseen occurrence or condition whereby the public health or safety is endangered if the situation is not addressed promptly relating to the condition of the sanitary sewer system, and to waive the publication requirements as to CMA-2501 Sanitary Sewer Main Replacement Project.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Declare an emergency exists pursuant to Title 61 O.S. § 130 of the Oklahoma Competitive Bidding Act, finding that immediate action is necessary to address the sudden unexpected happening or unforeseen occurrence or condition whereby the public health or safety is endangered if the situation is not addressed promptly relating to the condition of the sanitary sewer system, and to waive the publication requirements as to CMA-2501 Sanitary Sewer Main Replacement Project.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

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

Meeting Date:
March 17, 2025

V. ATTACHMENTS:

1. RFQ Colorado SS Main Repl 25.03.04
2. CMA-2501 COLO SS REPL DWGS SNS 25.02.28



SANITARY SEWER MAIN REPLACEMENT

RFP CMA-2501

CHICKASHA MUNICIPAL AUTHORITY

CHICKASHA, OKLAHOMA

SPECIFICATIONS & BIDDING DOCUMENTS

Contract Administered by:

**Omar Fierro
Acting Public Works Director
117 N. 4th Street
Chickasha, OK 73018
(405) 222-6080**

Omar Fierro

Date

Request for Proposal – RFP CMA-2501
Sanitary Sewer Main Replacement

The Chickasha Municipal Authority, Chickasha, Oklahoma is accepting proposals for Sanitary Sewer Main Replacement.

The project consists of replacing existing sanitary sewer main by installing new manholes and pipe along Colorado Avenue at 4th Street in Chickasha, Oklahoma.

Bids shall be made in accordance with this Invitation for Bids and the Bidding Documents.

Bids shall be addressed to the City Clerk, City of Chickasha, 117 North 4th Street, Chickasha, Oklahoma 73018, and shall be labeled “RFP CMA-2501, DO NOT OPEN” and “Sanitary Sewer Main Replacement.” Proposals shall be submitted no later than 4:00 p.m. local time on **March 7, 2025**. It is the sole responsibility of the proponent to ensure that this proposal is actually in the City Hall of the City of Chickasha prior to the expiration of the time and date stated above. Bids may be delivered in person, by mail, delivery service, fax or e-mail. Fax bids to 405-222-6004. E-mail bids to Susan.mcdaniel@chickasha.org.

The Issuing Office for the Bidding Documents is: Chickasha Municipal Authority. Technical questions should be emailed to R. Scott Vaughn, P.E., at rscottv11@gmail.com or by calling 580-467-8130.

Upon consideration of the proposals, the Chickasha Municipal Authority reserves the right to accept or reject any and all proposals, to waive technicalities and to make any investigation deemed necessary concerning the proponent’s ability to provide the services as covered by the specifications, and to accept what in their judgment is the most advantageous proposal.

Due to the type of project this is, the contractor will be not able to make purchases exempt from use taxes and sales taxes on this project.

Jim Crosby
Jim Crosby, City Manager

C E R T I F I C A T I O N

I certify that the above “Request for Proposal” was posted on the bulletin board of City Hall, City of Chickasha, Oklahoma, on the _____ day of _____, 2025.
Susan McDaniel, City Clerk

INVITATION TO BID

MAIL SEALED BIDS TO:	PERSONAL OR COMMON CARRIER DELIVERY	
CHICKASHA CITY CLERK	CHICKASHA CITY CLERK	
117 NORTH 4TH STREET	117 NORTH 4TH STREET	
CHICKASHA, OKLAHOMA 73018	CHICKASHA, OKLAHOMA 73018	

DATE BID TYPED: 3/3/2025	BID NO: CMA-2501	TITLE: Sanitary Sewer Main Replacement	
NO BIDS WILL BE ACCEPTED AFTER: March 7, 2025 @ 4:00 p.m.		CONTRACT PERIOD	
VENDORS NAME:		REASON FOR NO BID:	
MAILING ADDRESS:			
CITY:	STATE:	ZIP:	TERMS:
AREA CODE:	TELEPHONE NO.	FAX NO.	DELIVERY:
E-MAIL ADDRESS			FEDERAL EMPLOYER IDENTIFICATION NO. OR SOCIAL SECURITY NO.

NON-COLLUSION AFFIDAVIT

(This bid is invalid if BOTH Affidavits are not signed and notarized)

STATE OF _____, COUNTY OF _____

_____ of lawful age, being first duly sworn on oath, says that 1. (s)he is the duly authorized agent of the above bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and city officials or employees, as well as facts pertaining to the giving or offering of things of value to city personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached. 2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and 3. Neither the bidder nor anyone subject to the bidder's direction or control has 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,
- to any collusion with any city official or employee as to quantity, quality or price in the prospective contract, nor
- in any discussions between bidders and any city official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

Bidder

Subscribed and sworn to before me this _____ day of _____, 20____

Notary

My Commission Expires:

THIS AFFIDAVIT MUST BE SIGNED AND NOTARIZED!

BUSINESS RELATION AFFIDAVIT

(This bid is invalid if BOTH Affidavits are not signed and notarized)

STATE OF _____, 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 relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

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

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

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

Bidder

Subscribed and sworn to before me this _____ day of _____, 20____

Notary

My Commission Expires:

THIS AFFIDAVIT MUST BE SIGNED AND NOTARIZED!

SEALED BIDS: All sheets bid on and this form must be executed and submitted in a sealed envelope. (DO NOT INCLUDE MORE THAN ONE BID PER ENVELOPE). The face of the envelope shall contain, in addition to the mailing address, the words "SEALED BID" the date of the bid opening and the contract number. Bids submitted in Federal Express or other specialized delivery envelopes shall be enclosed in a separate envelope marked as indicated above. Bids not submitted in properly marked envelopes or on the attached bid form shall be rejected. In the case of "No Bid" the vendor shall return the "Invitation to Bid" with the "Reason for No Bid" properly filled in, to remain on the City of Chickasha's active vendor/contractor list.

EXECUTION OF BID: Bid must contain an original signature of an authorized representative in the space provided. Bids must be typed or printed in ink. Use of erasable ink is not permitted. ALL CORRECTIONS MADE BY BIDDER TO HIS BID MUST BE INITIALED.

BID OPENING: It is bidder's responsibility to assure that his bid is delivered at the proper time and place of the bid opening. Bids which for any reason are not so delivered, will not be considered. Offers by telegram or telephone **are not acceptable.** **NOTE:** Bid files may be examined during normal working hours by appointment. Bid tabulations WILL NOT be provided by telephone.

MISTAKES: Bidders are expected to examine the specifications, delivery schedule, bid prices and all instructions pertaining to supplies and services. Failure to do so will be at bidder's risk. In case of mistake in extension, the unit price will govern.

INVOICING AND PAYMENT: The vendor shall be paid upon submission of proper certified invoices to the Chickasha Municipal Authority at the prices stipulated on the contract. Invoices shall contain the contract number and purchase order number. Failure to follow these instructions may result in delay of processing invoices for payment.

WAIVER: Chickasha Municipal Authority reserves the right to waive any general provision, special provision or minor specification deviation when considered to be in the best interest of the Chickasha Municipal Authority. Any bid received by the awarding public agency or an officer or employee thereof, more than ninety-six (96) hours excluding Saturdays, Sundays and holidays before the time set for the opening of bids, or any bid so received after the time set for opening of bids, shall not be considered by the awarding public agency and shall be returned unopened to the bidder submitting same.

Bid Proposal

I/We, the undersigned propose to provide, construct, and install Sanitary Sewer Main Replacement, in Chickasha, Ok meeting or exceeding specifications as described herein:

BID SCHEDULE

PAY ITEM	PAY ITEM DESCRIPTION	UNITS	EST QTY	UNIT PRICE	TOTAL PRICE
UTILITY QUANTITIES					
1	DEWATERING	LSUM	1	\$	\$
614	ABANDONING SEWER	LSUM	1	\$	\$
618	SEWER FLOW CONTROL	LSUM	1	\$	\$
625	SEWER PIPE LEAKAGE TESTING	L.SUM	1	\$	\$
626	SANITARY SEWER MANHOLES	EA	4	\$	\$
651	SDR 26 PVC SANITARY SEWER MAIN (15-INCH), INSTALLED	LF	152	\$	\$
654	STEEL CASING, INSTALLED	LF	80	\$	\$
ROADWAY QUANTITIES					
230(A)	SOLID SLAB SODDING, INSTALLED	SY	159	\$	\$
411	ASPHALT PAVEMENT REMOVAL AND REPLACEMENT	SY	330	\$	\$
501(G)	CLSM BACKFILL	CY	207	\$	\$
609(B)	CURB AND GUTTER REMOVAL AND REPLACEMENT	LF	51	\$	\$
610(A)	4" CONCRETE SIDEWALK REMOVAL AND REPLACEMENT	SY	56	\$	\$
610(B)	6" CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	SY	135	\$	\$
610(I)	TACTILE WARNING DEVICE REMOVAL AND REPLACEMENT	SF	8	\$	\$
855(B)	TRAFFIC STRIPE (PLASTIC) (24" WIDE)	LF	132	\$	\$
880(J)	CONSTRUCTION TRAFFIC CONTROL	LSUM	1	\$	\$

TOTAL BID (NUMBERS) \$ _____

TOTAL BID (WORDS) _____

Completion Time _____

Bidder: _____
Name of Company

By: _____
Signature & Title

Mailing Address: _____

Phone No

Fax No

Email

SUBSCRIBED AND SWORN TO BEFORE ME THIS ____ DAY OF ____ 20____.

MY COMMISSION EXPIRES:

NOTARY PUBLIC

GENERAL PROVISIONS

1. Definitions

- A. “City” means the City of Chickasha.
- B. “CMA” means Chickasha Municipal Authority.
- C. “Acquisition” means items, products, materials, supplies, services, and equipment the City acquires by purchase, lease purchase, or rental.
- D. “Bid” means an offer in the form of a bid, proposal, or quote a bidder submits in response to a solicitation;
- E. “Bidder” means an individual or business entity that submits a bid in response to a solicitation;
- F. “Solicitation” means a request or invitation by the appropriate City Official for a supplier to submit a priced offer to sell acquisitions to the City. A solicitation may be an invitation to bid, request for proposal, or a request for quotation; and
- G. “Supplier” or “Vendor” means an individual or business entity that sells or desires to sell acquisitions to the city.

2. Submission

Sealed bids will be received by the Chickasha Municipal Authority for furnishing of equipment, materials, and supplies and incidental items necessary to perform the work as outlined in these specifications. Work will include the installation of pedestal mounted electrical panels. Copies of all bid documents are available for inspection in the Office of the City Clerk. Bids are to be submitted to the City Clerk, City of Chickasha, 117 North 4th Street, Chickasha, OK 73018, no later than the date and time indicated on the BID FORM. Submission of a Bid shall constitute an agreement on the part of the Bidder to all terms and conditions contained therein.

Bids received by the city after the response due date and time shall be deemed non-responsive and shall NOT be considered for any resultant award.

3. Insurance and Bonds

The policies of insurance shall be executed by an insurance or indemnity carrier authorized to do business in the State of Oklahoma and shall in all respects conform to the requirement of Governmental Tort Claims Act, Title 51 Oklahoma Statutes Sections 151 et seq. With liability limits to be no less than the amount specified therein and with the Chickasha Municipal Authority to be additional insured on all such required policies of insurance.

The successful Bidder will be required to execute the agreement and provide all necessary bonds and insurance within ten (10) calendar days from the date the Notice of Award is delivered to the Bidder.

The following bonds are required for this project:

- 1. Bid Bond
- 2. Statutory Payment Bond
- 3. Construction Bond

4. Maintenance Bond

The following insurance documents are required for this project:

Public Liability Insurance in the amount of not less than fifty thousand dollars (\$50,000) for injuries, including accidental death, or one hundred thousand dollars (\$100,000) for one accident.

1. Comprehensive Public Liability and Property Damage

Bodily Injury \$ 125,000 per individual
 \$1,250,000 in the aggregate per occurrence
Property Damage \$ 25,000 per occurrence
 \$ 125,000 in the aggregate

2. Worker's Compensation Insurance. Statutory limits as required by the laws of the State of Oklahoma, including employer's liability insurance with \$500,000 limit.

3. Automobile Public Liability Insurance

Bodily Injury \$ 125,000 per individual
 \$1,000,000 in the aggregate per occurrence

The City shall be named as an additional insured.

4. Rejection of Bid

The city reserves the right to reject any and all bids, and any bids that do not comply with the requirements and specifications of the solicitation. A bid may be rejected when the bidder imposes terms or conditions that would modify requirements of the solicitation or limit the bidder's liability to the city.

5. Award of Contract

One contract will be awarded to the lowest and best bidder unless the solicitation specifies that the best value criteria is being used.

Only properly completed bids will be considered. A completed Bid shall include the following:

1. A fully completed "Bid Form".
2. A completed and Notarized "Non-Collusion Affidavit", "Business Relation Affidavit".
3. A Certified, Cashier's Check or Bid Bond made payable to the Chickasha Municipal Authority in
an amount of Five percent (5%) of the total amount of the bid submitted.

Any addenda issued to these specification, if any, shall be considered part of the specifications, subject to ratification by the Chickasha Municipal Authority at the time of awarding a contract for this project.

BID SUBMITTAL DEADLINE

Bids shall be submitted to the City Clerk at City Hall, 117 N. 4th, Chickasha, Oklahoma 73018 no later than the 6th day of March, 2025 at 4:00 o'clock p.m. local time. Bids may be submitted in person, by mail, delivery service, fax or e-mail. Fax to 405-222-6004. E-mail to Susan.mcdaniel@chickasha.org.

**Chickasha Municipal Authority
Sanitary Sewer Main Replacement**

INSTRUCTIONS TO BIDDERS

1. Bid documents, plans, and specifications may be examined at the City Clerk's Office, 117 N. 4th Street, Chickasha, Oklahoma 73018.
2. All bids shall be accompanied by cashier's check or a certified check on a solvent bank in Oklahoma or a bid bond in the amount of five percent (5%) of the bid shall accompany the proposal of each bidder. The check or bond shall be made payable to the Owner. All checks or bonds will be returned to unsuccessful bidders. This check or bond shall be as a guarantee of contractor's ability to perform the contract bid upon, and that he will enter into a written contract with the Owner to perform said work and/or furnish said materials in accordance with said specifications and furnish the required bonds within ten (10) business days after the acceptance of his bid. No bidder may withdraw his bid for a period of sixty (60) days after the closing date for the receipt of bids.
3. In accordance with Oklahoma statutes, any bid must be accompanied by a Non-Collusion Affidavit and a Business Relations Affidavit. All bidders shall use the enclosed forms to satisfy this requirement.
4. Any bids received after the closing time will be returned unopened. Minority and small business owners are encouraged to submit proposals.
5. A Maintenance Bond in the amount of 100% of the contract price with a Corporate Surety licensed in Oklahoma and approved by the Owner guaranteeing the repair of all damage due to improper materials or workmanship for a period of one (1) year after the acceptance of the work by the Owner will be required. A Performance Bond and a Statutory Payment Bond in the amount of 100% of the contract price each with a Corporate Surety licensed in Oklahoma and approved by the Owner will be required for the faithful performance of the contract, and the bidder shall state in the proposal the name and address of the Surety or Sureties who will sign this bond in case the contract is awarded to him. Copies of required bond forms are included in the bid packet.

**Chickasha Municipal Authority
Sanitary Sewer Main Replacement**

SPECIFICATIONS

1. GENERAL CONDITIONS

- 1.1. The successful bidder (Contractor) will be acting as an authorized agent of the Chickasha Municipal Authority for Sanitary Sewer Main Replacement. The Contractor(s) will be issued a purchase order in the amount of quotation. This will serve as a notice to proceed.
- 1.2. Scope of Work - The purpose of these specifications is to define the minimum requirements for Sanitary Sewer Main Replacement along Colorado Avenue at 4th Street in Chickasha, Oklahoma.
- 1.3. Quoted prices shall remain valid for not less than 30-days.
- 1.4. The prices bid shall be for completed work as specified herein.
- 1.5. Bidders must include in their bid in the space provided the proposed completion time for the project. Said completion time will be considered part of the bid and if a contract is awarded, shall be the contract time.
- 1.6. The Chickasha Municipal Authority reserves the right to reject any and all bids.
- 1.7. The Chickasha Municipal Authority reserves the right to consider alternative proposals submitted in writing.
- 1.8. Contractor shall be responsible for Quality Control of all products and the work.
- 1.9. The work shall proceed continuously from Notice to Proceed until Final Completion.
- 1.10. Contractor shall perform all work consistent with MUTCD and OSHA regulations and requirements.
- 1.11. Construction Traffic Control shall meet the requirements of ODOT.
- 1.12. The contractor shall comply with the codes and ordinances of the City of Chickasha and all applicable laws of the State of Oklahoma.
- 1.13. Contractor shall participate in a pre-work conference with the Owner before beginning work.
- 1.14. All materials shall be new and shall be of standard production as offered by the manufacturer, unless otherwise approved by the Owner.
- 1.15. All work shall comply with the applicable Rules, Codes and Standards listed in these Specifications, and all Federal, State and Local codes and ordinances, as well as any other authorities that may have lawful jurisdiction pertaining to the work specified. None of the terms or provisions of this specification shall be construed as waiving any of the rules, regulations, or requirements of these authorities. The contractor shall procure all necessary permits or licenses to carry out his work.
- 1.16. Purchases of materials for this project shall not be exempt from Sales taxes and use taxes as provided for by State law.
- 1.17. Buy American requirements do not apply to this project.
- 1.18. The Contractor, by signing the bid proposal form herein, hereby represents that it shall hold the Chickasha Municipal Authority, Chickasha, Oklahoma, its employees or agents, harmless from any liability resulting from property damages and/or personal injuries that occur during, or as a result of, the demolition activity.
- 1.19. Default in performance or failure to meet specifications authorizes the City to withhold payment and cancel the contract.

- 1.20. All costs in connection with the work, including furnishing of materials, supplies and appurtenances, providing all demolition equipment and tools, and performing all necessary labor to fully complete the work, shall be included in the unit price named in the proposal.
- 1.21. Payment will be made when all work and clean-up of the entire site is completed and accepted by the Public Works Director.

2. SEQUENCE OF CONSTRUCTION

- 2.1. OWNER and CONTRACTOR recognize that time is of the essence of this agreement and that OWNER will suffer financial loss if the work is not substantially complete within the time specified in II.B above, plus any extensions thereof allowed. They also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the work is not substantially completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER One Thousand Five Hundred Dollars (\$1,500.00) for each day that expires after the time specified in paragraph 2.3 above for substantial completion until the work is substantially complete. Said liquidated damages, if any, may be deducted from progressive or final payments due the CONTRACTOR.
- 2.2. See Sheet 3 of the drawings for the Sequence of Construction.

3. TECHNICAL PROVISIONS

- 3.1. Oklahoma Department of Environmental Quality (ODEQ) Rules and Regulations, Oklahoma Pollutant Discharge Elimination System (OPDES) permit OK0026018, City of Chickasha Standard Specifications and Drawings and Oklahoma Department of Transportation Standard Specifications shall govern the technical provisions.
- 3.2. During execution of this contract, the term "Department" shall mean the City of Chickasha Public Works Department.
- 3.3. During execution of this contract, the terms "Engineer" or "Resident Engineer" shall mean the Engineer retained by the Chickasha Municipal Authority. The Owner reserves the right to consider alternative proposals submitted in writing by Bidders or by the Contractor.
- 3.4. Refer to the Drawings for additional information.
- 3.5. The work shall proceed continuously from Notice to Proceed until Final Completion.
- 3.6. Dimensions and distances provided are approximate. Contractor shall verify dimensions in the field before ordering materials.

AGREEMENT
(CONTRACT)

Chickasha Municipal Authority
RFP CMA-2501
SANITARY SEWER REPLACEMENT

THIS AGREEMENT is dated as of the ____ day of _____ in the year of 2025, by and between the CHICKASHA MUNICIPAL AUTHORITY, hereinafter referred to as OWNER, and _____ hereinafter referred to as the CONTRACTOR.

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK

CONTRACTOR shall complete all work as specified or indicated in the contract documents. The work is generally described as follows:

RFP CMA-2501 SANITARY SEWER REPLACEMENT

ARTICLE 2. CONTRACT TIME

2.1 The work will be completed in _____ after the effective date of the Notice to Proceed.

2.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this agreement and that OWNER will suffer financial loss if the work is not substantially complete within the time specified in 2.1 above, plus any extensions thereof allowed. They also recognize the delays, expense and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the work is not substantially completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER One Thousand Five Hundred Dollars (\$1,500.00) for each day that expires after the time specified in paragraph 2.1 for substantial completion until the work is substantially complete.

ARTICLE 3. CONTRACT PRICE

3.1 OWNER shall pay CONTRACTOR for performance of the work in accordance with the contract documents in current funds as follows:

_____ Dollars.
(\$ _____)

ARTICLE 4. PAYMENT PROCEDURES

4.1 CONTRACTOR may submit an invoice or application for payment on a monthly basis at any time prior to completion of the work. All payments made by the Owner are subject to procedures established by the Owner to authorize payment at its regularly scheduled meetings. The Owner regularly scheduled meetings are held on the 1st and 3rd Monday of each month. Invoice or application for payment must be received in the Public Works Department office no

less than ten (10) business days prior to the regular meeting at which authorization for payment is to be requested.

4.2 Final Payment. Upon final completion and acceptance of the work, including all submittals, OWNER shall pay the remainder of the contract price, subject to the procedures noted in paragraph 4.1 above.

ARTICLE 5. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this agreement, CONTRACTOR makes the following representations:

5.1 CONTRACTOR has familiarized himself with the nature and extent of the contract documents, and the written resolution thereof by the Owner is acceptable to CONTRACTOR.

5.2 CONTRACTOR has given the Owner written notice of all conflicts, errors, discrepancies or omissions that he has discovered in the contract documents, and the written resolution thereof by the Owner is acceptable to CONTRACTOR.

ARTICLE 6. CONTRACT DOCUMENTS

The contract documents which comprise the entire agreement between OWNER and CONTRACTOR are attached to this agreement, made a part hereof, and consists of the following:

6.1 This agreement (pages 1 to 3 inclusive).

6.2 Exhibits to this agreement (pages N/A to inclusive).

6.3 Performance and other bonds, consisting of 4 pages.

6.4 Notice of Award.

6.5 Specifications and Drawings bearing the title: **RFP CMA-2501 SANITARY SEWER REPLACEMENT.**

6.6 Addenda numbers N/A to , inclusive.

6.7 CONTRACTOR'S bid (pages 1 to , inclusive).

6.8 Documentation submitted by CONTRACTOR prior to Notice of Award (pages N/A to inclusive).

6.9 Any modification, including change orders, duly delivered after execution of agreement.

There are no contract documents other than those listed above in Article 6.

The contract documents may only be altered, amended, or repealed by written and approved change order.

ARTICLE 7. MISCELLANEOUS

7.1 No assignment by a party hereto of any rights under or interests in the contract documents will be binding on another party hereto without written consent of the party sought to be bound;

and specifically but without limitations, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment. No assignment will release or discharge the assignor from any duty or responsibility under the contract documents.

7.2 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns, and legal representatives to the other party hereto, his partners, successors, assigns, and legal representatives in respect to all covenants, agreements and obligations contained in the contract documents.

IN WITNESS WHEREOF, the parties hereto have signed this agreement in duplicate. One counterpart has been delivered to OWNER and CONTRACTOR. All portions of the contract documents have been signed or identified by OWNER and CONTRACTOR.

This agreement will be effective the 5th day of August 2024.

OWNER:
CHICKASHA MUNICIPAL AUTHORITY

CONTRACTOR:

By: _____
Mayor

By: _____
Signature & Title

CORPORATE SEAL
Attest:

CORPORATE SEAL
Attest:

By: _____

By: _____

ADDRESS FOR GIVING NOTICES:

ADDRESS FOR GIVING NOTICES:

Chickasha Municipal Authority

ATTN: City Manager

117 North 4th Street

Chickasha, OK 73018

Phone: 405-222-6086

Fax: 405-222-6084

Jim.crosby@chickasha.org

Phone: _____

Fax: _____

Email: _____

STATUTORY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and
_____, as Surety, are
held firmly bound unto the Chickasha Municipal Authority in the sum of

_____ DOLLARS (\$ _____), for the payment of which, well and truly to be made, we, and each
of us, bind ourselves, our heirs, executors and assigns, themselves, and its successors and assigns, jointly
and severally, firmly by these presents.

Dated this _____ day of _____, 20__.

The conditions of this obligation are such, that whereas, the above Bonded Principal
_____ is the lowest and best bidder for the making of the following work
and improvements, viz:

CMA-2501 Sanitary Sewer Main Replacement in Chickasha, Oklahoma (Project)
and has entered into a certain written contract with the Chickasha Municipal Authority on the _____
day of _____ 20__, for the construction of said work and improvement, in exact
accordance with the bid of said Principal, and according to certain specifications heretofore made, adopted
and placed on file in the office of the City Clerk of the City of Chickasha.

NOW, THEREFORE, if said principal shall fail or neglect to pay all indebtedness incurred by said Principal
or subcontractor of said Principal who perform work in the performance of such, for labor and materials
furnished by any supplier and consumed in the performance of said contract, and such repairs to and rental
of machinery and equipment as may be furnished by a subcontractor to the person or persons contracting
with this Owner within thirty (30) days after the same becomes due and payable, the person, firm or
corporation entitled thereto may sue and recover on this bond, the amount so due and unpaid.

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

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

ATTEST:

Secretary

Principal

By: _____

Surety

By: _____

ATTEST:

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS THAT:

_____, as Principal,
and _____, a corporation
organized under the laws of the State of _____, as Surety, are held and firmly bound unto
the Chickasha Municipal Authority, in the penal sum of _____
_____ Dollars (\$ _____) in
lawful money of the United States of America, for the payment of which, well and truly to be made, we
bind ourselves and each of us, our heirs, executors, administrators, trustees, successors, and assigns, jointly
and severally, firmly by these presents.

The condition of this obligation is such that WHEREAS, said Principal entered into a written contract with
the Chickasha Municipal Authority, dated _____, 20____, for the CMA-2501 Sanitary Sewer Main
Replacement in Chickasha, Oklahoma (PROJECT) all in compliance with the specifications therefore, made
a part of said Contract and on file in the office of the City Clerk, City of Chickasha, Oklahoma.

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 Chickasha Municipal Authority from any pecuniary loss resulting from the
reach of any of the items, covenants and conditions of said Contract resting upon said Principal, then this
obligation shall be null and void, otherwise to be and retain 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, the said Principal has caused these presents to be executed in its name and its
corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these
presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly
authorized so to do, the day and year set forth below.

Dated this _____ day of _____, 20____.

Principal

ATTEST:

Secretary

By: _____

Surety

ATTEST:

By: _____

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____ as Principal,
and _____, as Surety, are
held and firmly bound into the CHICKASHA MUNICIPAL AUTHORITY, a Public Trust in the
State of Oklahoma, in the full and just sum of _____ DOLLARS

(\$_____) such sum being equal to the contract price for the payment of
which, well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, and
assigns, themselves, and its successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such, that whereas, said Principal, has by certain contract
between _____ and the CHICKASHA MUNICIPAL
AUTHORITY dated this _____ day of _____ 20____, agreed to perform for
the Chickasha Municipal Authority, CMA-2501 Sanitary Sewer Main Replacement in compliance
with the specifications therefore, made part of said contract and on file in the office of the City
Clerk of the City of Chickasha; and to maintain the said improvement in the amounts set forth
above against any failure due to workmanship or material for a period of ONE year from the date
of acceptance of the work by the Chickasha Municipal Authority.

NOW THEREFORE, if said Principal shall pay or cause to be paid to the Chickasha Municipal
Authority all damages, 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 year from and after
acceptance of said project by the OWNER; and if Principal shall save and hold harmless the
OWNER 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 agreed that if the said Principal or Surety herein shall fail to maintain said
improvements against any failure due to defective workmanship and/or material for a period of
ONE year and at any time repairs shall be necessary, that the cost of making said repairs shall be
determined by the Chickasha Municipal Authority or some person(s) designated by them to
ascertain the same; and if, upon thirty (30) days' notice, the said amount ascertained shall not be
paid by the Principal or Surety herein, or if the necessary repairs are not made, that said amount
shall become due upon the expiration of thirty (30) days and suit may be maintained to recover the
amount so determined in any court of competent jurisdiction; and that the amount so determined
shall be conclusive upon the parties as to the amount due on this bond for the repair(s) included
therein, and that the cost of all repairs shall be so determined from time-to-time during the life of
this bond as the conditions of the improvements may require.

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

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

its attorney-in-fact, duly authorized so to do, the day and year first above written.

ATTEST:

Principal

Secretary

By: _____

Surety

ATTEST:

By: _____



**SANITARY SEWER MAIN REPLACEMENT
COLORADO AT 4TH STREET
STANDARD SPECIFICATIONS
RFQ CMA-2501**

Prepared by:



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SECTION 600 – SANITARY SEWER MAIN CONSTRUCTION

SECTION 600 – GENERAL REQUIREMENTS

600.1 – DESCRIPTION

This section covers general construction requirements of sanitary sewer mains and sewer appurtenances as described herein. All materials and work shall comply with Oklahoma Department of Environmental Quality (ODEQ) rules and regulations, specifically to include requirements in OAC 252:656.

600.2 – MATERIALS

Construction materials shall not be delivered to the site of the work more than three (3) days in advance of their anticipated use nor shall the quantity of pipe or other materials on hand at the site of the work at any time be in excess of the amount required to complete three hundred (300) feet of sewer main unless with special permission of the Engineer.

Unless otherwise specified, all concrete used in construction of sewer mains and their appurtenances shall have a minimum twenty-eight (28) day compressive strength of three thousand five hundred (3,500) pounds per square inch (psi). All steel reinforcement used shall be grade sixty (60) with a minimum yield strength of sixty thousand (60,000) psi.

600.4 – ORDER OF CONSTRUCTION

The Contractor shall start at enough different locations to complete the entire contract within the time limit specified. The construction of all sewer mains shall begin at the low point in the line in every case working toward the high point. When the construction involves the building of main or submain sewer mains having one or more lateral or tributary, the construction of tributary lines shall not be started until the main or submain sewer has been completed to the point where the tributaries or laterals discharge into it, except as may be approved by the Engineer. Approval by the Engineer does not relieve the Contractor of any responsibility for making the specified connections in reasonable conformance to the design.

Sewer appurtenances shall be constructed as soon as the sewer main to which they are to be connected is constructed to their locations. The postponing of the construction of appurtenances until the entire sewer main has been completed, or the building of appurtenances in advance of the construction of the sewer main, will not be permitted.

The construction of sewer mains eighteen (18) inches in diameter and smaller for more than six hundred (600) feet, and sewer mains twenty-one (21) inches in diameter and larger for more than three hundred (300) feet in advance of appurtenances which are incomplete or the construction of which has not been started, will not be permitted.

Unless otherwise directed by the Engineer, the Contractor shall leave no more than nine hundred (900) feet between backfilling operations and the complete restoration of paving, paving repairs, fencing, sodding, etc.

When temporary surfacing is provided for in the contract documents, the Contractor shall complete temporary paving repair immediately after backfill is completed.

600.4.1 – TEST HOLES

Test hole information, when shown on the plans or included in the specifications, shall only represent subsurface characteristics to the extent indicated, and only for the point location of the test hole.

Each bidder shall make his own interpretation of the character and condition of the materials that will be encountered between test hole locations. Each prospective Bidder may, at his own expense, make additional surveys and investigations as he may deem necessary to determine conditions which will affect performance of the work.

600.4.2 – SEWER GRADES

General - The grade line shown on the plans is the elevation of the invert or flow line of the sewer. The sewer grade shall be established by use of laser beam, or other methods approved by the Engineer.

Laser Beams - When laser beams are used to establish line and grade, they shall first be calibrated in accordance with the equipment manufacturers recommended procedures. The Contractor shall establish horizontal and vertical controls (offset stakes) with a transit or theodolite or any other equipment approved by the Engineer. The Contractor may then proceed to establish line and grade using the laser equipment. In conjunction with the laser beam, the Contractor may also be required to provide temporary benchmarks at intervals as specified by the Engineer.

600.4.3 – STOPPERS OR BULKHEADS

Dead ends of all sewer mains, wyes, tees, etc., shall be closed with approved stoppers securely cemented in place. When shown on the plans or required by the Engineer, such openings shall be tightly walled up with brick masonry or concrete. Tight fitting stoppers or bulkheads shall be securely placed in or across the end of all sanitary sewer lines when construction is stopped at the end of each day's work or for any other cause. When work is stopped temporarily on sanitary sewer mains twenty-four (24) inches in diameter and smaller, the exposed end of the pipe shall be closed to prevent trash or debris from entering the pipe. Such stoppers need not be watertight.

600.4.4 – SURFACE DRAINAGE STRUCTURES

When not called for on the plans or specified as separate bid item, all surface drainage structures and appurtenances shall be removed and replaced in a condition equal to or better than the original installation when required. No additional compensation shall be made for this work, and the cost of same shall be included in the other pay items.

600.4.5 – TEMPORARY SEWER AND DRAIN CONNECTIONS

When existing sewer mains have to be taken up or removed, the Contractor at his own expense, shall provide and maintain temporary outlets and connections for all private or public drains, sewer mains or sewer inlets. He shall also take care of all sewage and drainage which will be received from these drains, sewer mains and sewer inlets; and for this purpose he shall provide and maintain at his own expense, adequate pumping facilities and temporary outlets or diversions. He shall construct such trough, pipe or other structures necessary and be prepared at all times to dispose of drainage and sewage received from these temporary connections until such time as the permanent connections are built and in service. The existing sewer mains and connections shall be kept in service and maintained under the contract, save where specified or ordered to be abandoned by the Engineer. All water or sewage shall be disposed of in a satisfactory manner so that no nuisance is created and that the work under construction will be adequately protected.

600.4.6 – CLEANUP

After installation of each section of sewer line, the Contractor shall remove all spoils resulting from work, debris, construction materials and equipment from the site of work, grade, and smooth over surfaces on both sides of the line, and leave the right-of-way in a clean, neat, and serviceable condition prior to placement of permanent erosion control.

SECTION 610 - PIPE INSTALLATION

610.1 - DESCRIPTION

This section covers installation of pipes in open-cuts, in conformity with the lines, grades, and dimensions and as provided in applicable sections of these specifications.

610.2 – PIPE MATERIALS

610.2.1 - PIPE

Acceptable pipe materials and fittings shall meet the requirements of the appropriate sections listed below:

Pipe Type	Pipe Material	Section
Rigid	Vitrified Clay Pipe (VCP)	649
Flexible	Ductile-Iron Pipe (DIP)	650
	Polyvinyl Chloride (PVC) Pipe	652

610.2.2 - EMBEDMENT MATERIAL

General - Embedment material shall be 3/8-inch limestone screenings, or approved equivalent. Prior to delivery, the Contractor shall submit laboratory tests for materials to be used for embedment. Approval shall be issued by the Engineer prior to placement.

Invoices - The Contractor shall submit invoices for the purpose of complying with the minimum quantities necessary to complete installation pursuant to the appropriate standard details and the minimum dimensions specified.

610.4 – CONSTRUCTION METHODS

610.4.1 – BEDDING

Rigid Pipes - All rigid pipes shall be bedded a minimum of six (6) inches below the bottom of the pipe to the springline of the pipe (half the pipe diameter).

Flexible Pipes - All flexible pipes shall be bedded a minimum of six (6) inches below the bottom of the pipe to a minimum of six (6) inches above the top of the pipe.

610.4.2 - INSTALLATION REQUIREMENTS

Shipping, Handling and Storage - Pipe shall be transported from the plant, where it is manufactured, to the job site employing special methods of packaging to prevent damage to the pipe. After the pipe is received at the job site, it shall be carefully inspected for any damage that may have occurred in transit. The pipe shall be handled at all times with care using padded slings or hooks. The pipe shall not be dropped, skidded or rolled against pipe already on the ground. If any damage occurs to pipe, the pipe shall be rejected. All pipe and accessories shall be stored on flat, level ground with no rocks or other objects under the pipe. Gaskets for push-on joints and pipe shall be stored in cool location out of direct sunlight in accordance with the manufacturer's recommendations.

Quality of Work - Watertight joints, first grade material and accurate construction shall be required. Furthermore, utmost care shall be exercised in laying pipe to line and grade, constructing inverts in manholes, transitions, drop manhole connections and etc.

Pipe Foundation - No sewer shall be laid unless the foundation is in a condition satisfactory to the Engineer. Where trenches are excavated in soft, unsuitable soil, or rock, the trench bottom shall be stabilized as approved by the Engineer.

Laying Requirements - All pipes, specials, fittings and other appurtenances shall be examined carefully for damage and other defects before installation. The City retains the right to reject damaged and defective materials.

The pipe ends shall be free of all lumps, blisters and they shall be wiped clean of foreign materials such as dirt and sand before installation.

Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells uphill,

using laser beams or other methods approved by the Engineer.

Bell holes for bell-and-spigot pipe shall be excavated at proper intervals so that the barrel of the pipe will rest for its entire length upon the bottom of the trench. Bell holes shall be large enough to permit proper installation of pipe. Bell holes shall not be excavated more than ten (10) joints ahead of pipe laying. Filling and ramming earth or other material beneath the pipe to raise it to grade shall not be permitted.

The Contractor shall use every precaution at all times during construction of the pipeline. All pipe, specials, fittings, and other appurtenances shall be lowered carefully into the trench with suitable equipment, to prevent damage to the sewer main materials. In rock trenches, plywood shields or other approved means shall be used to prevent the cradled pipe from swinging against the sides of the trench.

All joint preparation and joining operations shall comply with the instructions and recommendations of the pipe manufacturer and meet the joint requirements in the appropriate material section. For reinforced concrete pipe the position of the rubber gasket shall be checked with a feeler after each joint is completed. Rubber gaskets shall be positioned on the joint in accordance with the manufacturer's recommendations. Immediately before joints are pushed together, all joint surfaces shall be coated with the lubricant furnished with the pipe.

Any damage to the pipe, from any cause during installation of the pipeline shall be cause for replacement, as directed by the Engineer, and at the expense of the Contractor.

610.4.3 BACKFILLING

After a section of pipe is properly installed and approved for backfill, the trench shall be backfilled and compacted in accordance with the following.

A) Description - Backfill is that portion of the total trench from the top of the pipe embedment material to the top of natural or proposed ground line. The backfill material shall be only material approved by the Engineer consisting of loose earth, free of clods, stones, organic matter, debris or other objectionable materials. All backfilling shall be done in such a manner so as not to disturb or injure the pipe or structures over or against which it is being placed. Damaging or moving any pipe or structure from its proper line or grade during backfilling operations shall be cause for excavating, repairing and replacing backfill in a manner approved by the Engineer.

The placing of backfill material shall not begin until approval for so doing has been given by the Engineer, but backfilling about structures or portions of structures shall be done immediately when so ordered by the Engineer. The top surface or slopes of all backfill shall be neatly graded off where select topsoil, sod or other material is removed and piled separately; such material shall be carefully replaced in a manner satisfactory to the Engineer. The top twelve inches (12") of backfill material shall be of as good quality as the original topsoil that was removed.

B) Compaction Requirements - All backfill shall be placed and compacted in six inch (6") lifts for hand-tamped equipment and eighteen inch (18") lifts for self-propelled or power-driven equipment to the following minimum percent of Standard Proctor Density or Relative Density as determined by ASTM D-698, "Tests for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures". Cohesive backfill material shall reach the indicated compaction levels at plus or minus ($\pm$) three percent (3%) of optimum moisture content. The lift thickness shall be reduced, if necessary, to meet the compaction requirements specified herein.

General Location	Percent Compaction (%)
Under Traffic Area or Existing Improved Surfaces	95
Urban and Residential areas not under pavement	90
Undeveloped areas	85

610.6 – METHOD OF MEASUREMENT

Payment for "Sanitary Sewer Main" shall be made at the unit price bid per lineal foot of pipe

installed for each size. The price established shall be full compensation for all materials including pipe, material, labor, tools, equipment and incidentals necessary to complete this item of work. Payment shall include the cost of trench excavation. backfill AND foundation material, unless noted otherwise.

Measurement for "Sanitary Sewer Main" shall be from station to station through manholes, junction boxes and other small structures.

610.7 - BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit

price bid: SANITARY SEWER MAIN (SIZE)

L.F.

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.

SECTION 611 – SEWER SERVICE CONNECTION

611.1 – DESCRIPTION

This section covers construction of sewer service connections where called for on the plans or as directed by the Engineer.

611.2 – MATERIALS

611.2.1 – PIPE MATERIALS

Acceptable pipe materials and fittings shall meet the requirements of the appropriate sections listed below:

Pipe Type	Pipe Material	Section
Rigid	Vitrified Clay Pipe (VCP)	649
Flexible	* Ductile-Iron Pipe (DIP)	650
	Polyvinyl Chloride (PVC) Pipe	652

* Not to be used for wye branches but for risers only.

611.2.2 – CONNECTION TYPES

The following connection types may be required to make sewer service connections: External Connections for New Construction

Wye Branches - For new construction there shall be installed wye branches of size and type shown on the plans with a minimum of four inch (4") openings at locations shown on the plans or as designated by the Engineer.

External Connections to Existing Main - Connections to existing main may be accomplished as follows:

Saddles - Connections may be made by excavating to the existing main and cutting a hole using approved equipment and installing a saddle. When existing main has been rehabilitated by a trenchless method of construction, the saddle connection shall be made to the trenchless pipe and/or liner.

Tees - Connections may be made by removing a section of the existing pipe and installing a tee.

Wye Branches - Connections may be made by removing a section of the existing pipe and installing a wye branch.

Fittings, riser, and closure assembly shall be used to make the connection and shall be supplied in a nominal diameter a minimum of four inches (4"). The external connections shall be

considered complete when backfilling and subsequent surface restoration is completed.

Internal Connections (Reinstatements) – Shall not be allowed.

611.2.3 – RISER

General - Risers shall be connected to sewer pipe using standard wyes, tees or saddles. No services may be connected to sewer pipe that is twenty-one inches (21") and larger in diameter unless approved by the Engineer. Concrete encasement support and collar shall be required in all cases and constructed in accordance with the following schedule:

Pipe Nominal Size (inches)	Depth of Encasement (feet)	Width of Encasement (feet)	Length of Encasement (feet)
8	1.5	2.2	2.0
10	2.0	2.2	2.0
12	2.0	2.2	2.0
15	2.5	2.6	2.0
18	3.0	3.0	2.5

Riser Construction - Particular care shall be exercised in cutting the sewer pipe so that no damage is done to the pipe and its strength impaired by shattering or cracking of the pipe wall. The end of the fitting shall not protrude beyond the inside surface of the sewer main. The annular space around the fitting shall be completely filled and smoothly finished with concrete, as specified in Section 600.2. The backfill shall be thoroughly compacted under and above the pipe in the main sewer trench and up to at least the top of the concrete riser support. The backfill around the vertical pipe shall be carefully placed and tamped avoiding disturbance of the alignment of the pipe and damage to the joints. The vertical pipe shall be anchored to sewer trench wall with one-fourth inch (1/4") round hairpin bars.

A locator tape, green in color, and stating "CAUTION - SANITARY SEWER RISER PIPE BURIED BELOW" shall be attached to the sanitary sewer riser and extend to a minimum of two feet (2') above ground. The tape shall be three inch (3") width DuraTec as manufactured by THOR Enterprises, Inc. of Sun Prairie, Wisconsin or approved equal.

611.4 – CONSTRUCTION METHODS

General - All work shall be constructed in accordance with the Standard Details. Unless otherwise specified, sanitary sewer connections shall be installed so that a plane through the center of the branch and the centerline of the main sewer shall make an angle of forty-five (45°) degrees with the horizontal. A minimum of one (1) cubic foot of concrete shall be placed around each connection, the cost of which shall be included in other items.

Wye Branches - Sewer Service Connections constructed with wye branches shall include a one-eighth (1/8°) degree bend, elbow, and when required, a closure piece.

Tees - Sewer Service Connections constructed with tees shall include a one-eighth (1/8°) degree bend, and when required, an elbow and a closure piece.

Saddles - Sewer Service Connections constructed with saddles shall include straps, a one-eighth (1/8°) degree bend, and a closure piece.

611.6 – METHOD OF MEASUREMENT

Payment for "Sewer Service Connection" shall be made at the unit price bid for each external connection. The price established shall be full compensation for all material, labor, equipment, trench excavation, backfill, and incidentals necessary to complete this item of work.

Payment for "Riser Pipe" shall be made at the unit price bid per lineal foot of pipe for new sewer construction. The price established shall be full compensation for materials, labor, tools, equipment and incidentals necessary to complete this item of work.

Payment for "Riser Pipe" for replacement and/or rehabilitative sewer construction shall not be made directly, but shall be included in the cost for "Sewer Service Line".

611.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit

price bid: SEWER SERVICE CONNECTION EA.

RISER PIPE L.F.

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.

SECTION 612 – SEWER SERVICE LINE

612.1 – DESCRIPTION

This section covers service lines for future or existing connections. The service line shall be installed to a point where an acceptable connection can be made to the existing service if necessary. Pipe shall be supplied in nominal diameter a minimum of four inches (4").

612.2 – MATERIALS

Acceptable pipe materials and fittings shall meet the requirements of the appropriate sections listed below:

Pipe Type	Pipe Material	Section
Rigid	Vitrified Clay Pipe (VCP)	649
Flexible	Ductile-Iron Pipe (DIP)	650
	Polyvinyl Chloride (PVC) Pipe	652

612.4 – CONSTRUCTION METHODS

The installation of a service line includes removing any cap or plug from existing riser, cutting and removing any existing service line, and reconnecting the riser and the existing service line if necessary.

612.6 – METHOD OF MEASUREMENT

Payment for "Sewer Service Line" shall be made at the unit price bid per lineal foot of pipe, including closure piece, and when required, adapters and other fittings. The price established shall be full compensation for all material, labor, tools, equipment and incidentals necessary to complete this item of work.

612.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit

price bid: SEWER SERVICE LINE L.F.

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.

SECTION 613- DELETED

SECTION 614 – ABANDONING SEWER MAINS AND MANHOLES

614.1 – DESCRIPTION

Abandoning sewer mains shall include construction of embedment plugs and/or pressure grouting in order to control groundwater infiltration and/or to provide stabilized fill of the interior of the existing pipe. Other methods may be approved by the Engineer.

Embedment plugs shall be placed as near as practical to the nearest manhole on each end of the sewer main segment. The minimum length of embedment plugs shall be ten feet (10'), and shall extend six inches (6") below the bottom and above top of pipe at the accessible end of the pipe. Embedment Plugs shall be made using Controlled Low-Strength Material (CLSM), as specified in Section 701.19 of ODOT Standard Specifications for Highway Construction, 2009 Edition having a minimum twenty-eight (28) day compressive strength of five hundred pounds per square inch (500 psi).

Pressure grouting: Design grout mix to be pumped through a 2-inch-diameter hose for a distance of 1000 feet, with a minimum pressure at point of placement of 10 psi. The cast density shall be 55 pcf plus or minus 5 pcf. Minimum penetration resistance after 24 hours shall be 100 psi in accordance with ASTM C 403. The minimum compressive strength at 28 days shall be 500 psi in accordance with ASTM C 495. Grout mix shall have less than 1 percent shrinkage by volume.

The application system shall have sufficient gages, monitoring devices and tests to determine the efficiency and effectiveness of the grouting work and to provide a means of accurately determining the amount of grout injected. Contractor shall be prepared to modify the operation should grouting not perform as proposed.

Sewer mains to be abandoned shall first be cleaned by jetting, flushing and/or vacuuming to the satisfaction of the Engineer.

Unless otherwise noted or approved by the Engineer, remove the top two feet of manholes to be abandoned and fill the remaining void with CLSM.

614.2 – MATERIALS

The materials shall meet the requirements listed above.

614.6 – METHOD OF MEASUREMENT

Payment for "Abandoning Sewer" shall be made at the unit price bid per cubic yard. The price established shall be full compensation for furnishing and placing all materials, labor, tools, equipment and incidentals necessary to complete this item of work.

614.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

ABANDONING SEWER

C.Y.

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.

SECTION 615 – PIPE BURSTING

615.1 – DESCRIPTION

This section covers furnishing and installation of pipe by trenchless method of bursting existing pipes as shown on the plans and in conformity with these specifications. The operation shall be conducted with a hydraulic pulling or pushing apparatus and a pipe expander (i.e. pig and swab). The pipe expander shall be pushed or pulled through the existing pipe on grade, widening the existing pipe material for insertion of the new pipe material.

615.1.01 QUALIFICATIONS

615.1.01.01 The contractor shall be trained by the respective manufacturer of the pipe bursting equipment in the use of that machinery. The contractor shall provide certification

from the manufacturer that the contractor has been trained and is proficient in the use of the equipment. Only the contractor's employees trained and certified by the manufacturer shall be allowed to operate the equipment during the project.

615.1.01.02 The contractor must have successfully completed 3,000 feet of pipe bursting projects within the past 10 years. Contractor shall submit a list of these projects including the owner, engineer, addresses, phone numbers and dates that said projects were completed with their proposal.

615.2 – MATERIALS

615.02.01 – SUBMITTALS

The Contractor shall furnish for the Engineer's approval, a plan showing his proposed method of handling, including the design for the equipment, equipment support of backstop, arrangement and position of jacks, pipe guides, etc., complete in assembled position. The approval of this plan by the Engineer will not relieve the Contractor from his responsibility to obtain the specified results.

615.02.02 – PIPE MATERIALS

Acceptable pipe materials and fittings shall meet the requirements of the appropriate sections listed below:

Pipe Type	Pipe Material	Section
Flexible	High Density Polyethylene (HDPE) Pipe	651
	Polyvinyl Chloride (PVC) Pipe	652

615.4 – CONSTRUCTION METHODS

615.4.1 – GENERAL

Where pipe is required to be installed under railroad embankments or under highways, streets, or other facilities by trenchless methods, construction shall be made in such a manner that will not interfere with the operation of the railroad, street, highway, or other facility, and shall not weaken or damage any embankment or structure. During construction operations, barricades and lights to safeguard traffic and pedestrians shall be furnished and maintained, as directed by the Engineer, until such time as the backfill has been completed and then shall be removed from the site.

The Contractor shall take proper precautions to avoid excavating earth or rock or shattering rock beyond the limits of excavation shown on the plans. All damages caused by excavating, either to surface or subsurface structures, shall be repaired or replaced by the Contractor at his own cost and expense.

Pipe bursting tool shall be static. The bursting action of the tool shall increase the external dimensions sufficiently, causing breakage of the pipe at the same time expanding the surrounding ground. This action shall not only break the pipe, but also create the void into which the expander head can be statically pulled which enables forward progress to be made. Simultaneously, the new pipe shall also move forward, either directly attached to the expander or connected via a pipe pulling head. The unit must maintain automatic thrust and pull back.

Suitable pit shafts, or trenches shall be excavated for the purpose of conducting the trenchless operations and for placing end joints of the pipe. Wherever end trenches are cut in the sides of the embankment or beyond it, such work shall be sheeted securely and braced in a manner satisfactory to the Engineer to prevent earth caving. No more than one entry pit and one exit pit shall be used, unless otherwise approved by the Owner.

The removal of any obstruction that may be found to conflict with the placing of the pipe shall not

be measured for payment nor paid for as a separate contract pay item. The removal of any such obstruction shall be included in the cost of other items.

Once the pipe installation has commenced it shall be continued uninterrupted around the clock until the pipe has been installed between the specified limits.

Any pipe damaged during operations shall be removed and replaced by the contractor at his expense.

The pits or trenches excavated to facilitate the operations shall be backfilled immediately after the pipe has been installed.

615.4.2 – SEWER SERVICE CONNECTIONS

All sewer service connections shall be accomplished and paid for in accordance with Section 611.

615.6 – METHOD OF MEASUREMENT

"Pipe Bursting" shall be measured by the lineal foot of pipe completed. Payment for "Pipe Bursting" shall be made at the unit price bid per lineal foot of pipe for each size. The price established shall be full compensation for all materials, including pipe, labor, tools, equipment and incidentals necessary to complete this item of work.

615.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

PIPE BURSTING (SIZE) L.F.

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.

SECTION 618 – SEWER FLOW CONTROL

618.1 – DESCRIPTION

This section covers sewer flow control when necessary, to be completed in a manner approved by the Engineer.

618.2 – CONSTRUCTION METHODS

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. In no event will an unpermitted bypass or overflow of the sanitary sewer system be permitted.

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.

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 sewer main segment or manhole 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 equipment in a manner to keep noise to a minimum.

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. Further, precautions must be taken to insure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewer mains involved. The Contractor shall be liable for damages resulting from sewer

surcharge.

618.6 – METHOD OF MEASUREMENT

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.

618.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

SEWER FLOW CONTROL	L.S.
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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.

SECTION 619 – CLEANING SEWER LINE

619.1 – DESCRIPTION

This section covers cleaning of existing sewer lines. The designated sewer manhole sections and the manholes themselves shall be cleaned using mechanical, hydraulically propelled and/or high velocity sewer cleaning equipment. Selection of the equipment shall be based on the condition of the sewer mains at the time the work commences. The equipment shall be capable of removing dirt, roots, sand, rocks, grease, and other materials from the sewer lines.

619.2 – EQUIPMENT

619.2.1 – APPROVAL OF CLEANING EQUIPMENT AND PROCEDURE

The Engineer shall approve the cleaning system and plan for each manhole section. The Contractor shall demonstrate the performance of the proposed cleaning equipment for use on the project. No work shall begin until the Engineer gives such time approval.

619.2.2 – MECHANICALLY POWERED CLEANING EQUIPMENT

Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of three hundred (300) feet of rod. The rod shall be heat-treated (tempered) steel. To ensure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

619.2.3 – HYDRAULICALLY PROPELLED CLEANING EQUIPMENT

Hydraulically propelled devices that require a head of water to operate shall utilize a collapsible dam to obtain the head. The dam shall be designed to easily collapse in the event of a sudden surcharge of the line to prevent damage to the sewer, property, etc. Sewer cleaning balls are acceptable for use only in sanitary sewer mains having a diameter of eighteen inches (18") or greater.

The movable dam shall be of equal diameter as the pipe being cleaned and shall provide a flexible scraper around the outer periphery to ensure effective operation.

Whenever possible, flows present in the sewer lines shall be used to provide necessary fluid for hydraulic cleaning devices.

619.2.4 – HIGH-VELOCITY CLEANING EQUIPMENT

All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two (2) or more high-velocity nozzles. The

nozzles shall be capable of producing a scouring action from fifteen (15°) degrees to forty-five (45°) degrees in all size lines designated to be cleaned. Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel. Filler piping on the tank shall have an air cap to prevent backflow and contamination of water supply system.

619.4 – CONSTRUCTION METHODS

619.3.1 – CLEANING PRECAUTIONS

Satisfactory precautions shall be taken to protect the sewer lines from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled cleaning force or any tools which retard the flow of water in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to public or private property being served by the manhole section involved. Additionally, the Contractor shall not allow the overflow from sanitary sewer mains to enter storm sewer mains.

The Contractor, at no additional cost to the City, and to the satisfaction of the Engineer, shall repair any damage inflicted upon the sewer, regardless of the cleaning method used.

619.4.2 – ROOT AND DEBRIS REMOVAL

All roots shall be removed. Special attention shall be given during the cleaning operation to assure complete removal of roots from the joints. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaners. Chemical root treatment may also be used.

When chemicals are used to aid in the removal of roots, the chemical shall be EPA registered and labeled for use in sewer lines and acceptable to all applicable State and City agencies.

All materials and mixing/application procedures for chemical root treatment shall be consistent with the latest standards, requirements, and recommendations of the manufacturer of the chemical root treatment material used.

All sludge, dirt, sand, rocks, grease, and other solid or semi-solid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. Passing of debris from manhole to manhole shall not be permitted.

When hydraulic cleaning equipment is used, a suitable sand trap, weir, or dam shall be constructed in the downstream manhole in such a manner that the solids shall be trapped.

All solids or semi-solids resulting from the cleaning operations shall be removed from the site and disposed of at no additional cost to the City. The City shall provide a dumpsite for all debris removed from the sewer mains during the cleaning operation.

Under no circumstances shall sewage or solids removed therefrom be dumped onto streets or into ditches, catch basins, storm drains, or sanitary sewer manholes.

619.5 – TESTING (CLEANING AND FINAL ACCEPTANCE)

Acceptance of sewer line cleaning shall be made upon the successful completion of the television inspection and shall be to the satisfaction of the Engineer. If television inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to clean and inspect the sewer line again until the cleaning is shown to be satisfactory.

619.6 – METHOD OF MEASUREMENT

Payment for "Cleaning Sewer Line" shall be made at the unit price bid per lineal foot of pipe regardless of size. The price established shall be full compensation for furnishing and operation of all equipment, labor, tools, and incidentals necessary to complete this item of work. No deduction shall be made for manholes.

619.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

CLEANING SEWER LINE

L.F.

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.

SECTION 620 – BORING

620.01 – DESCRIPTION

This section covers furnishing of pipe by boring and casing as shown on the plans or specified.

Boring and casing consists of the initial installation of a steel casing pipe, installed mechanically, and with a suitable assembly designed to produce a smooth, straight shaft at the established line and grade. The pipe is then installed inside the casing pipe pursuant to the Standard Detail for Boring.

620.02 – MATERIALS

For casing pipe materials and submittal requirements, refer to section 654.

620.04 - CONSTRUCTION METHODS

A) General – Where pipe is required to be installed under railroad embankments, highways, streets, or other facilities by boring and casing, construction shall be made in such a manner that will not interfere with the operation of the railroad, street, highway, or other facility, and shall not weaken or damage any embankment or structure. During construction operations, barricades and lights to safeguard traffic and pedestrians shall be furnished and maintained, until such time as the backfill has been completed after which the barricades and lights shall be removed from the site.

The Contractor shall take proper precautions to avoid excavating earth or rock or shattering rock beyond the limits of excavation shown on the plans. All damages caused by the construction to either surface or subsurface structures, shall be repaired or replaced by the Contractor at his own cost and expense.

Suitable pits, shafts, or trenches shall be excavated for the purpose of conducting the boring and casing operations and for placing end joints of the pipe. Wherever end trenches are cut in the sides of the embankment or beyond it, such work shall be sheeted securely and braced in a manner satisfactory to the Engineer to prevent earth caving.

The removal of any obstruction that may be found to conflict with the placing of the pipe shall not be measured for payment nor paid for as a separate contract pay item. The removal of any such obstruction shall be included in the cost of other items.

Once the casing installation has commenced it shall be continued uninterrupted around the clock until the pipe has been installed between the specified limits.

Any pipe damaged during operations shall be removed and replaced by the contractor at his expense. The pits or trenches excavated to facilitate the operations shall be backfilled immediately after the pipe has been installed.

B) Boring Requirements - Work shall comply with the Standard Detail for Boring. The excavation and backfill for pits shall be as outlined in Section 610.

Boring without the concurrent installation of a casing pipe shall not be permitted, unless shown on plans or directed by the Engineer. All joints in casing pipe shall be welded. Casing pipe shall extend through the entire fill and be installed in a manner that shall not disrupt traffic nor damage roadway grade and surface. The introduction of water into the excavation shall be prohibited.

The size of the bored hole shall not exceed the outside diameter of the pipe bell or casing pipe more than one inch (1"). The use of water or other fluids in connection with the boring operation shall only be permitted when approved by the Engineer.

Nothing contained herein shall be construed as relieving the Contractor from his responsibility for the safety of the work and for all damage to persons and property.

C) Skid Supports

Plastic or rubber skid supports, shall be used and fastened securely to the carrier pipe with steel strapping, cables or clamps. Use of petroleum products shall not be allowed as a lubricant to ease installation. Skid support spacing and position shall be in accordance with the Standard Detail for Boring.

D) Casing Pipe End Seals - Both ends of the casing pipe shall be sealed with a pull-on type EPDM, neoprene or comparable material flexible end seal manufactured for this purpose. End Seals shall be secured with stainless steel straps or clamps.

E) Filling Annular Space - The annular space between the sewer pipe and the steel casing pipe shall not be filled. Sewers under highway crossings shall include annular space vents meeting ODOT requirements.

620.06 – METHOD OF MEASUREMENT

Bored and cased pipe shall be measured by the lineal foot of pipe bored and cased. Payment shall be made at the unit price bid per lineal foot for each size. The price established shall be full compensation for furnishing and placing all materials including steel casing pipe, carrier pipe, grout or concrete, excavation and backfill, sheeting, shoring, bracing and drainage, disposal of all surplus materials, labor, tools, equipment, and incidentals necessary to complete this item of work

620.07 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

(PIPE SIZE) Bored/Cased..... L.F.

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.

SECTION 623 – DEFLECTION TEST

623.1 – DESCRIPTION

This section covers deflection tests intended to be performed on all flexible pipe installations.

623.5 – TESTING

All testing shall be observed by the Owner's Representative. The test shall be performed not less than thirty (30) days after backfill has been placed. The maximum allowable deflection shall not exceed five (5%) percent of the pipe's base internal diameter.

A mandrel (go/no-go) device cylindrical in shape shall be hand-pulled by the Contractor through all sewer mains. Any sections of pipe not passing the mandrel test shall be uncovered and the Contractor, at no additional cost to the Owner, shall replace the pipe to the satisfaction of the Engineer. The repaired sections shall be re-tested.

The Engineer shall approve the mandrel and the testing procedures. Proving rings furnished by the Contractor shall be used to verify the mandrel diameter.

623.6 – METHOD OF MEASUREMENT

Payment for "Deflection Test" shall be made at the unit price bid per lump sum for pipes smaller than twenty-four inches (24") and per lineal foot for pipes twenty-four inches (24") and larger in diameter. The price established shall be full compensation for all material, labor, tools, equipment and incidentals necessary to complete this item of work.

623.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit

price bid: DEFLECTION TEST (< 24")

L.S.

DEFLECTION TEST (>= 24")

L.F.

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.

SECTION 624 – TELEVISION INSPECTION

624.1 – DESCRIPTION

This section covers closed-circuit television (CCTV) inspection of existing sewer lines and rehabilitated and newly constructed sewer lines.

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 sewer mains in strict accordance with these specifications.

Information concerning depths of flow, manhole depths, air quality in the sewer mains, 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 sewer mains to be inspected.

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.

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.

624.3 – EQUIPMENT

All television cameras used for inspection shall be color units specifically designed and constructed for the method of inspection performed. Camera(s) may be modified by mounting on conventional or floating skids, or rafts, for use in multiple-diameter, sewer line inspection work. Units shall have either automatic or remote focus and iris controls, and the complete system(s) shall be operable in conditions of hundred (100) humidity.

Lighting shall be suitable to allow a clear picture of the entire periphery of the main sewer pipe. 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. 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 angel 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. 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 15greater, a minimum of one million (1,000,000) candlepower lighting in the thirty- two hundred (3200°) degree Kelvin range shall be made available.

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 City under live flow conditions.

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.

624.4 – CONSTRUCTION METHODS

624.4.1 – GENERAL

The Contractor shall use one of the following methods individually or in combination, as approved by the Engineer:

Conventional color inspection cameras specifically designed for use in sewer line inspection work, mounted on conventional camera skids or tracks.

Conventional color inspection cameras specifically designed for use in sewer line inspection work, mounted on floating skids or rafts.

Special industrial grade, color-inspection cameras contained in waterproof housings, and mounted on floating skids or rafts

Special industrial grade, color-inspection cameras, either hand held or contained in waterproof housings, and carried manually through the sewer during inspection work.

624.4.2 – PROCEDURE

Pre-work Submittals for Inspection of Large Diameter Pipes - For pipes twenty-seven 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 prestart-up 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.

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.

The main sewer shall be cleaned as directed by the Engineer and in accordance with Section 619 of grease, roots and debris that may hinder movement of inspection equipment through the lines. Major line obstructions that require point repairs are excluded.

The maximum flow depth for remote inspection work in pipes twenty-four inches (24") and less is twenty (20%) percent of the pipe diameter.

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.

No inspections shall be performed where flow depths exceed fifty (50%) percent of pipe diameter without prior approval of the Engineer.

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 forty (40°) degrees Fahrenheit.

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 624. 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 section, the inspection shall be continued from the opposite manhole before proceeding to the next section.

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 thirty (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.

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.

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.

When specified, a lateral sewer camera shall be employed to inspect up to twenty-five feet (25') of the lateral. The lateral camera launcher shall be brought into position by the main sewer television camera. Lateral sewer mains 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.

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.

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 sixty inch (60") in diameter and larger, and having flow depths of less than twenty (20%) percent of the pipe diameter, shall be manually inspected as directed by the Engineer.

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.

Manual pipe inspections shall be conducted in such a manner as to transmit the video signal to an aboveground 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.

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.

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.

624.5 – DOCUMENTATION

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 sewer mains, 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.

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.

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 general line 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.

Five (5) complete copies of the final project reports shall be submitted to the City within fifteen (15) calendar days of completion of all field activities. One of the five (5) copies shall contain the original photos.

An overall summary narrative shall be provided in the final report describing the overall conditions found in each associated line section grouping and detailed summary tables shall also be compiled showing those lines where major and significant defects were located.

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 City.

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.

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.

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.).

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 rerecorded at the Contractor's expense.

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.

624.6 – METHOD OF MEASUREMENT

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.

"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.

624.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit

price bid: TELEVISION INSPECTION (CCTV) L.F.

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.

SECTION 625 – SEWER PIPE LEAKAGE TESTING

625.1 – DESCRIPTION

After backfilling has been completed, the Contractor shall conduct leakage tests as approved by the Engineer and shall submit the results of all testing to the Engineer. All tests shall be performed in the presence of the Owner's Representative.

Hydrostatic tests must use a two-foot head. The procedures listed in the *Handbook of PVC Pipe*, Uni-Bell PVC Pipe Association, 2001 may be used for PVC pipe. An air test result must assure a leakage limit equivalent to the hydrostatic test limit.

625.2– TESTING

If at any time the leakage between two adjacent manholes is observed and measured to exceed ten (10) gallons per inch of nominal pipe diameter per mile of sewer per day, the Contractor shall locate the leakage and shall make such repairs as are necessary to reduce the infiltration. The infiltration shall be measured under the direction of the Engineer by use of a weir or other suitable flow rate-measuring device furnished and installed by the Contractor.

For purposes of determining the maximum allowable leakage, manholes shall be considered as sections of pipe having an inside diameter equal to the diameter of the manhole times depth of the manhole.

The Contractor shall provide all necessary piping between the reach to be tested and the source of water supply, together with equipment and materials required for the tests. The methods used and the time of conducting the exfiltration tests shall be subject to the approval of the Engineer.

If the leakage in any reach exceeds the allowable maximum, the Contractor shall locate the leakage and shall make such repairs as are necessary for the pipe to pass testing. The pipe reach shall be retested after the leaks are repaired.

625.3. – METHOD OF MEASUREMENT

Payment for "Sewer Leakage Test" shall be made at the unit price bid per lump sum for pipes smaller than twenty-four inches (24") and per lineal foot for pipes twenty-four inches (24") and larger in diameter. The price established shall be full compensation for all material, labor, tools, equipment and incidentals necessary to complete this item of work.

625.4- BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

SEWER LEAKAGE TEST (SIZE) L.S. (<24")

SEWER LEAKAGE TEST (SIZE) L.F. (>=24")

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.

SECTION 626 – SANITARY SEWER MANHOLES

626.1 – DESCRIPTION

This section covers construction of sanitary sewer manholes, zero (0') to six (6') feet deep. Manholes may be constructed of the following types at locations specified or directed by the Engineer:

- A) Precast Reinforced Concrete
- B) Cast-In-Place Non-Reinforced Concrete

626.2 – MATERIALS

626.2.1 – PRECAST REINFORCED CONCRETE MANHOLES

General - This specification covers construction of precast reinforced concrete manhole base sections, riser sections (walls) and appurtenances in accordance with ASTM C-478 Standard Specification for "Precast Reinforced Concrete Manhole Sections" and as modified herein.

Submittals - When requested by the Engineer, the Contractor shall submit the following, but not limited to, for review and approval.

- 1) Concrete cylinder compressive test results as per ASTM C-478.
- 2) Amount and detail layout of steel reinforcement as per ASTM C-478.
- 3) Type "D" Certification for the specified protective coating.
- 4) Daily log of applied protective coating per Part "J".
- 5) Affidavit of compliance with these specifications.

Types - Components of manholes shall be as follows:

- 1) Precast Risers and Grade Rings - Precast risers and grade rings shall be cylindrical type.
- 2) Precast Tops - Precast tops shall be of the following two types:
 - a) Concentric cone
 - b) Eccentric cone
- 3) Precast Base Sections - Base section types shall be as follows:
 - a) Base riser section and separate base slab with Mastic sealer.
 - b) Base riser section with integral floor and preformed socket to accept a rubber ring.

Sizes - The standard internal diameter of a manhole shall be four feet (4').

Dimensions - The manholes shall be constructed pursuant to the appropriate Standard Details for Pre-Cast Manholes.

Materials - All materials for construction of manholes shall be in accordance with Section 6 of ASTM 20

C- 478.

Design - Design including concrete properties, reinforcement type and grade, joints,

manufacturing and physical requirements shall be in accordance with Section 7 to 10 of ASTM C-478.

Base slabs or floors shall have a minimum riser thickness of six (6") inches for diameters up to and including forty-eight (48") inches.

Manhole Steps and Ladders - Steps and ladders shall not be constructed unless otherwise directed by the Engineer. If called for, they shall conform to Section 13 of ASTM C-478.

Handling - All lifting holes shall be repaired with a mixture of cement and sand grout firmly packed.

Protective Coating - All inside surfaces (walls, bottom, and etc.) of pre-cast concrete manholes shall be shop coated with a total dry film thickness of not less than 8 mils of TNEMEC Series 69 Hi-Build Epoxoline II, or approved equal. The material manufacturer shall furnish an affidavit attesting to the successful use of their material as a lining for applications where sewage conditions are recognized as corrosive or otherwise detrimental to concrete. Coating materials shall be stored, mixed, applied and cured in accordance with guidelines set by the manufacturer.

For every manhole coated as required, a daily log shall be kept indicating the date, weather conditions, size and identification numbers of manholes coated, and number of gallons of coating applied to each manhole. The average number of gallons applied per manhole shall be equal to or exceed the manufacturer's recommended coverage rate for the coating.

Field Testing - When directed by the Engineer, a set of three cylinders, three (3") inches in diameter, shall be cut from randomly selected manholes. Testing shall be performed to verify compliance with the requirements of these specifications. Basis of acceptance for testing shall be in accordance with the appropriate ASTM requirements.

Acceptance - Acceptance of manhole structure shall be based on the conformance and performance of materials required in ASTM C-478, and the Engineer's inspection of the installed product. The assessment shall include, but not be limited to, the Engineer's random plant inspections during production, the quantity and the placement of reinforcement, surface fractures and roughness, and the test results of compressive strength performed on cores and cured cylinders in accordance with Section 7 of ASTM C-497.

626.2.2 - CAST-IN-PLACE NON-REINFORCED CONCRETE MANHOLES

General - This specification covers construction of cast-in-place non-reinforced manholes consisting of plain concrete walls with brick masonry or precast grade ring at the surface and rings and covers (castings), shall be constructed in accordance with the dimensions and requirements of the standard details.

Types - Manholes may be constructed of the following three (3) types, when called for on the plans:

- 1) Concentric Manholes
- 2) Eccentric Manholes
- 3) Offset Manholes

Sizes - The standard manhole size shall be four (4') feet internal diameter.

Dimensions - The manholes shall be constructed pursuant to the appropriate Standard Details "Cast-In-Place Concrete Manholes".

Materials - All materials for the construction of cast-in-place manholes shall be in accordance with the Material Specifications.

Protective Coating - Protective coating shall not be required unless otherwise called for on the plans or as directed by the Engineer.

Acceptance - Ready-mix concrete may be accepted on the basis of Type "E" Certification, provided that all applicable requirements are met, and that visual inspection at destination shows the workmanship and condition of the material to be satisfactory.

626.2.3 – MANHOLE INVERT AND BENCH

All loose materials shall be removed prior to shaping the invert. The invert shall be smooth, U-shaped, have a minimum depth of one half (1/2) pipe diameter and be channeled across the floor of the manhole using the materials specified herein to obtain the proper form and shape. The bench shall also be formed and built up with concrete approved by the Engineer. Additionally, all work shall comply with the appropriate "Standard Details for Precast Manholes" and the "Standard Details for Cast-In-Place Concrete Manholes".

For precast manholes, inverts and benches shall be formed and poured in place after manhole base and pipe sections are in place.

Materials used for invert or benches shall not be allowed to enter the sewer line. Finished benches shall be smooth and free of any defects that could cause the accumulation of debris.

626.3.4 – MANHOLE RING AND COVER

General - Cast iron rings, tops, covers, gratings and all cast iron fittings shall be sound, true to form and thickness and neatly finished and shall fit together in a satisfactory manner. Castings shall be clean, uniform and whole, and without blow or sand holes, deposits, hard spots, shrinkage, distortion or any other surface defects which would impair serviceability. Casting surfaces shall be smooth and well cleaned by shot blasting or other approved cleaning method. Plugging or filling of holes or other defects shall not be permitted. Parting fins and pouring gates shall be removed. Sharp edges resulting from fabrication shall be dulled by any acceptable method to ensure safety in handling. Casting shall conform to the requirements of the Standard Specifications for Grey Iron Fittings ASTM A-48, Class "30 B" for rings and "35 B" for covers and the appropriate Standard Details.

All rings and covers shall be accurately and carefully placed. All rings shall be bedded in a substantial layer of mortar, or a flexible ring seal, shall have a full bearing, and shall be set to the exact grade. Unless otherwise shown, the top of covers shall be flush with, or slightly above, the surrounding surface. When each cover is placed in any position on the ring, the side play shall not exceed one-eighth (1/8") inch in any direction. Wording and markings on covers shall be in accordance with the Standard Details.

Rings - Rings shall be manufactured in accordance with the Standard Details.

Covers -

- 1) General - Manhole covers shall be manufactured in accordance with the appropriate Standard Detail. Unless otherwise specified or directed by the Engineer, non-vented manhole covers shall not be used in the streets.
- 2) Coating - When called for on the plans or specified, the underside of all manhole covers shall be given one (1) coat of asphalt varnish after visual inspection and approval on the job site.

626.4 – CONSTRUCTION METHODS

Foundation - Manholes shall be constructed in a dry excavation. A crushed rock foundation mat shall be constructed under the manhole. The mat shall be a minimum of six (6) inches thick.

Backfilling - Backfilling for all manholes shall conform to the requirements of Section 610.

Manhole to Pipe Connection at Inverts - Manhole to pipe connections shall be made pursuant to manufacturer's recommendations and to the Standard Details. In addition, flexible gasket pipe seals shall be required where each pipe enters the wall of manholes. Where possible, the opening for each connecting sewer pipe shall be circular and match the diameter of the pipe. For manholes built over existing lines or for special conditions, horseshoe shaped openings shall be accepted. Flexible gaskets shall be ALoK, or an approved equal. The Engineer prior to construction shall approve the method and materials used for grouting any remaining annular space. Flexible pipe seals may be accepted on

the basis of Type "D" Certification and a sample, provided that all applicable requirements are met, and that visual inspection shows the workmanship and condition of the material to be satisfactory. All material furnished under certification shall be tagged, stenciled, stamped or otherwise marked with a lot number, heat number, order number, or other appropriate identification which can be readily recognized and checked against the certification.

Finishing Manhole to Grade - The manhole ring and cover shall be adjusted to grade with concrete grade rings or course(s) of brick masonry.

Mortar shall be ASTM C270 Type M, composed of one volume Portland Cement, one volume of masonry cement and six volumes of sand. All brick shall be laid in a full bed of mortar and all joints shall be shoved joints completely filled with mortar. The joints on the inside face or exposed face of the masonry shall be rubbed full and cut as the brickwork is built up. The masonry shall be built up in level courses, true to line, grade and dimension. Bats shall be used only when necessary to close joints. All brick shall be thoroughly wet down immediately before being placed unless otherwise permitted by the Engineer. All work shall be completed and finished in a careful, workmanlike manner. Old brick masonry shall be thoroughly cleaned and wetted before joining new masonry thereto. Where a mortar coating is required it shall have the minimum thickness shown on the plans, shall be troweled and re-troweled until a uniform, smooth and impervious surface is obtained.

All pipes that extend through masonry walls shall be tightly sealed in the wall with mortar throughout the circumference of the pipe. The mortar shall be pressed in and troweled off flush with the face of the wall.

626.5 – TESTING

626.5.1 – MANHOLE INSPECTION

After manhole construction has been completed, the manhole shall be visually inspected by the Engineer for acceptability. Visual inspection shall be done to check for leaks, thin spots, honey combs, voids, pinholes and conformance with these specifications.

626.5.2 – MANHOLE TESTING

Manhole testing shall be accomplished in accordance with Section 627.

626.6 – METHOD OF MEASUREMENT

Payment for "Sanitary Sewer Manhole" shall be made at the unit price bid. The price established shall be full compensation for excavation, backfill, crushed rock foundation, inverts and benches, walls and cones, ring and cover, protective coating, outside waterproofing when specified, removal of existing manhole when necessary or specified or called for on the plans, brick masonry or precast grade ring and all labor, materials, tools, equipment and incidentals necessary to complete this item of work.

626.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit

price bid: SANITARY SEWER MANHOLE

EA.

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.

SECTION 627 – MANHOLE TESTING

627.1 – DESCRIPTION

This section covers testing of manholes when called for on the plans or specified. Manholes shall be tested, before acceptance, by either performing exfiltration or vacuum test. The Engineer shall determine which test shall be performed.

627.5 – TESTING

627.5.1 – HYDROSTATIC TESTING

All incoming and outgoing lines (including services) shall be plugged and the manhole filled with water up to the bottom of the manhole ring. If the water loss exceeds the maximum allowable as shown, the manhole shall be considered to have failed the test. The Contractor shall drain, perform the necessary repairs as directed by the Engineer, and then retest the manhole until it passes, all at no additional cost to the City.

Manhole Depth (feet)	Maximum Allowable Water Loss
< 8	One (1") inch over Five (5) minutes
> 8	One-eighth (1/8") inch per vertical Foot of depth over five (5) minutes

627.5.2 – VACUUM TESTING

All incoming and outgoing sewer and service lines shall be plugged, the plugs restrained and the vacuum tester head placed on the manhole ring and sealed. A vacuum of ten inches (10") Hg shall then be drawn on the manhole and the time measured for the vacuum to drop to nine inches (9") Hg. The time measured shall be not less than 60 seconds.

627.6 – METHOD OF MEASUREMENT

No separate payment will be made for "Manhole Testing".

627.7 – BASIS OF PAYMENT

No separate payment will be made for "Manhole Testing".

SECTION 650 – DUCTILE IRON PIPE (DIP)

650.1 – DESCRIPTION

This section covers Ductile Iron Pipe (DIP) and fittings intended to be used for conveyance of sewage and industrial waste. Pipes may be supplied in sizes ranging from four (4) to sixty-four (64) inches in diameter.

650.2 – MATERIALS

650.2.1 – SUBMITTALS

The Contractor shall submit the following provided that all applicable requirements are met, and that visual inspection at destination shows the workmanship and condition of the material to be satisfactory.

- A) Type "A" Certification for pipe
- B) Type "D" Certification for elastomeric gasket
- C) Shop drawings of the pipe and joints
- D) Documentation of an ongoing manufacturer's quality control program

All material furnished under certification shall be tagged, stenciled, stamped or otherwise marked with a lot number, heat number, order number, or other appropriate identification which can be readily recognized and checked against the certification.

The Contractor shall submit six (6) copies of all submittals requested in this specification.

650.2.2 – GENERAL, FITTINGS

All ductile iron pipe and fittings shall conform to the requirements of the following ASTM Standards listed below or as modified herein.

- A) ASTM A-746, Standard Specifications for Ductile Iron Gravity Sewer Pipe
- B) B) AWWA C-111/ANSI A21.11, Rubber Gasket Joints for Ductile-Iron and Gray-Iron

Pressure Pipe and Fittings

- C) AWWA C-150/ANSI A21.60, Thickness Design of Ductile-Iron Pipe
- D) AWWA C-151/ANSI A21.61, Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lines Molds, for Water or Other Liquids
- E) AWWA C-600, Installation of Ductile Iron Water Mains and Their Appurtenances

Pipe shall be provided on nominal lengths of twenty (20') feet. Pipe joints shall be push-on joints and comply with all applicable requirements of AWWA C-111/ANSI A21.11.

650.2.3 – COATING AND LINING

- A) **Exterior Coating** - The exterior of ductile iron pipe, specials and fittings shall be coated with an asphaltic coating in accordance with ASTM A-746, Section 6.1.
The coating shall have a minimum thickness of one (1) mil. The finished coating shall be smooth, continuous and strongly adherent to the pipe. Any damage to the outside coating during shipping, storage, handling and installation shall be field repaired with a fresh coating in accordance with the manufacturer's recommendations.
- B) **Interior Lining** - Interior surfaces of pipe and fittings shall be lined with forty (40) mils of Virgin Polyethylene complying with ASTM D-1248 or Madison Polyurethane Lining, Corropipe II TX-5 Minute Number 17115, manufactured by Madison Chemicals, Inc., Canada, or an approved equal. The lining materials shall be compounded with a minimum of two (2%) percent carbon black to resist ultra violet rays.

650.6 – METHOD OF MEASUREMENT

Will be measured by the linear foot in place. Payment shall be by the linear foot in place, but not to exceed quantity shown on the plans or called for in the special provisions.

650.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit

price bid: DUCTILE IRON PIPE (DIP)(SIZE) L.F.

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.

SECTION 651 – HIGH DENSITY POLYETHYLENE (HDPE) PIPE

651.1 – DESCRIPTION

This section covers High Density Polyethylene (HDPE) pipe and fittings intended to be used for conveyance of sewage and industrial waste.

651.2 – MATERIALS

651.2.1 – SUBMITTALS

Submittals shall be furnished in accordance with Section 650.02.

651.2.2 – PIPE MATERIALS

The HDPE pipe shall be made of high density plastic compound meeting the requirements of Type III, Class C, Category 5, Grade P34 as defined in ASTM D-1248 and with an established hydrostatic design basis (HDB) of not less than sixteen hundred (1,600) pounds per square inch for water at 73.4° F determined in accordance with ASTM Test Method D-2837. Materials shall also meet the

requirements of cell classification PE 345434C or higher cell classification with light color inside, when classified in accordance with ASTM D-3350, and as shown below.

HDPE pipes manufactured for trenchless installations such as sliplining, pipe bursting, etc. may be made, entirely or having inside surface, in light color (e.g. natural, white, green, etc.) to allow light reflection for robotic television inspection. Contractor/Manufacturer shall provide certification that the product has sufficient UV stabilizer for a minimum two (2) years of storage life and meets the requirements established below at the time of installation.

Property	ASTM Test Method	Minimum Value
Density	D-1505	0.941 (gm/cm ³)
Melt Index	D-1238	< 0.15 (gm/10 min.)
Initial Flexural Modulus	D-790	110,000 psi
Long-Term Flexural Modulus	*	28,200 psi
Initial Flexural Strength	D-790	3,000 psi
Long-Term Flexural Strength	*	1,500 psi
Environmental Stress Crack Resistance, Test Condition C, (failure % = hours)	D-1693	F20 = 192
Hydrostatic Design Basis	D-2837	1,500 psi
Color & Ultraviolet Stabilizer	D-3350	Black with minimum 2% carbon black

* Note: The long-term values are considered to be for a continuous load duration of fifty (50) years for design loading conditions and shall be certified by the manufacturer.

651.2.3 – SOLID WALL (HDPE)

- A) General - All solid wall HDPE pipes may be used for open-cut and sliplining installations, in sizes ranging from six (6") inches to forty-eight (48") inches in diameter. All solid wall HDPE pipe and fittings shall be manufactured in accordance with ASTM F-714.
- B) Joint System - Sections of polyethylene pipe shall be assembled and joined on the job site. Jointing shall be accomplished by the heating and butt-fusion method in strict conformance with the manufacturer's printed instructions.

The butt-fusion method for pipe jointing shall be carried out in the field by operators with prior experience in fusing polyethylene pipe with similar equipment using proper jigs and tools per standard procedures outlined by the pipe manufacturer. These joints shall have a smooth, uniform, double rolled back bead made while applying the proper melt, pressure, and alignment. It shall be the sole responsibility of the Contractor to provide an acceptable water-tight butt-fusion joint. Butt fusion procedures shall be qualified in accordance with Title 49 Code of Federal Register, Part 192.283 and personnel qualified in accordance with 49 CFR 192.285. Pipe Stiffness - For all open-cut installations, HDPE pipe shall have a minimum pipe stiffness of forty-six (46 psi) pounds per square inch as determined in accordance with ASTM D-2412.

651.02.04 – PROFILE WALL (HDPE)

- A) General - All open or closed profile wall HDPE pipe and fittings may be manufactured in accordance with ASTM F-894. Pipes shall be supplied in sizes from eighteen (18") inches to one hundred and twenty (120") inches in diameter. Regardless of size, open profile wall pipes will be allowed only on sections of pipe when there are no apparent service connections. Otherwise, open profile wall pipes will not be allowed.
- B) Pipe Stiffness - For all installations specified, HDPE pipe and fittings shall have a minimum pipe

stiffness of forty-six (46 psi) pounds per square inch as determined in accordance with ASTM D- 2412.

- C) Joint System - Pipe joining system shall be gasketed type and consist of integrally formed bell and spigot, one which is designed to accommodate a gasket, which when assembled forms a watertight seal by the radial compression. Joints shall provide a watertight seal and meet the requirements of ASTM D-3212.
- D) Gaskets - Gaskets shall meet the requirements of ASTM F-477 and be molded into a circular form or extruded to the proper section, then spliced into circular form, and shall be made of a properly cured high grade elastomeric compound. The basic polymer shall be neoprene, synthetic elastomer, or a blend of both. The gasket shall be designed with an adequate compressive force, so as to effect a positive seal under all combinations of joint tolerances. Natural rubber gaskets will not be acceptable.
- E) Lubricant - The lubricant used for assembly shall have no detrimental effect on the gasket or on the pipe. Type and application of the lubricant shall be in accordance with the manufacturer's recommendations.

651.04 – CONSTRUCTION METHODS

651.04.01 – SLIPLINING

- A) General - Pipes used for sliplining installations shall meet the following requirements:
 - 1) For existing pipes with a nominal inside diameter (I.D.) less then or equal to thirty-three (= 33") inches, the outside diameter (O.D.) of the sliplining pipe shall not be more than three (> 3") inches smaller than the nominal I.D. of the existing pipe.
 - 2) For existing pipes with a nominal I.D. greater than thirty-three (> 33") inches, the O.D. of the sliplining pipe shall not be more than six (6") inches smaller than the nominal I.D. of the existing pipe.
 - 3) In addition, sliplining pipes shall meet the requirements outlined in parts B or C as applicable.
- B) Solid Wall HDPE Pipes
 - 1) General - Solid Wall HDPE Pipes shall meet the requirements of Section 651.2.3 Parts "A" and "B".
 - 2) SDR - The HDPE liner pipe shall have the following minimum Standard Dimension Ratio (SDR) for various depths:

Maximum Depth of Cover (feet)	SDR
10	26
15	21
20	19
30	17

- 3) Outside Diameter - The minimum outside diameter (O.D.) of HDPE liner pipe shall be as designated below:

Existing Sewer Line Nominal Inside Diameter (inches)	Minimum O.D. of Liner (inches)
8	7.125
10	8.625
12	10.750
15	12.750

18	16.000
21	18.000
24	22.000
27	24.000
30	28.000
33	30.000
36	32.000
42	36.000
48	42.000
54	48.000

C) Profile Wall HDPE Pipes - Profile wall HDPE pipe shall meet the requirements of Section 651.2.4 Parts "A" through "E".

651.04.02 – PIPE BURSTING, BORING, AND TUNNELING

The HDPE pipe used for these installations shall meet the material requirements of Section 651 and meet the SDR requirements of Section 651.04.01 Paragraph B 2. and have a minimum inside diameter equal to nominal pipe size. Outside diameter requirements of Section 651.04.01 Paragraph B 3 are not applicable.

651.6 – METHOD OF MEASUREMENT

Will be measured by the linear foot in place. Payment shall be by the linear foot in place, but not to exceed quantity shown on the plans or called for in the special provisions.

651.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid for HIGH DENSITY

POLYETHYLENE (HDPE) PIPE (SIZE) L.F.

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.

SECTION 652 – POLYVINYL CHLORIDE (PVC) PIPE

652.1 – DESCRIPTION

This section covers polyvinyl chloride (PVC) pipe and fittings intended to be used for conveyance of sewage and industrial waste.

652.2 – MATERIALS

652.2.1 – SUBMITTALS

Submittals shall be furnished in accordance with Section 650.2.

652.2.2 – SOLID WALL (PVC)

All solid wall PVC pipe and fittings shall conform to the requirements of the appropriate ASTM listed below or as modified herein.

A) **ASTM D-3034** - Standard Specification for "Type PSM Poly (Vinyl Chloride) (VC)

Sewer Pipe and Fittings". Pipe and fittings shall have a minimum stiffness of forty-six (46 psi) pounds per square inch and a minimum SDR of thirty-five (35). Pipe and fittings may be supplied in sizes ranging from four (4") inches to fifteen (15") inches in diameter.

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 500,000 psi) as defined in ASTM D-1784. The fittings shall be made of PVC plastic having a cell classification of 12454-B, 12454-C, or 13343-C as defined in ASTM D-1784.

Elastomeric Gasketed Joints shall be used to provide a watertight seal and shall meet the requirements of ASTM D-3212.

- B) **ASTM F-679** - Standard Specification for "Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings". Pipe and fittings shall have a minimum stiffness of forty-six (46 psi) pounds per square inch and a minimum SDR of thirty-five (35). Pipe and fittings may be supplied in sizes ranging from eighteen (18") inches to thirty-six (36") inches in diameter.

The pipe and fitting materials shall be made of PVC plastic having a minimum cell classification of 12364-C or 12454-C as defined in ASTM D-1784. Homopolymer PVC compounds must equal or exceed the requirements of the above listed minimum cell classification number.

Integral Bell Gasket Joint shall be used to provide a watertight seal and shall meet the requirements of ASTM D-3212.

- C) **ASTM F789** - Standard Specification for "Type PS-46 Poly (Vinyl Chloride) (PVC) Plastic Gravity Flow Sewer Pipe and Fittings". Pipe and fittings shall have a minimum stiffness of forty-six (46 psi) pounds per square inch. Pipe and fittings may be supplied in sizes ranging from four (4") inches to eighteen (18") inches in diameter.

The pipe shall be made of PVC plastic having a minimum cell classification of 12164-B as defined in ASTM D-1784. The fittings shall be made of PVC plastic having a cell classification of 12454-C or 13343-C as defined in ASTM D-1784.

Elastomeric Gasketed Joints shall be used to provide a watertight seal and shall meet the requirements of ASTM D-3212. Joints shall also be compatible to ASTM D-3034 joint dimensions.

652.2.3 – PROFILE WALL (PVC)

All profile (open or closed) wall PVC pipe and fittings shall conform to the requirements of the appropriate ASTM listed below and modified herein. Regardless of size, open profile wall pipes will be allowed only on sections of pipe when there are no apparent service connections. Otherwise, open profile wall pipe will not be allowed.

- A) **ASTM F-794** - Standard Specification for "Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter". Pipe and fittings shall have a minimum stiffness of forty-six (46 psi) pounds per square inch. Pipe and fittings may be supplied in sizes ranging from twelve (12") inches to forty-eight (48") inches in diameter.

The pipe and fittings shall be made of PVC plastic having a minimum cell classification of 12454-B or 12364-C as defined in ASTM D-1784.

Gasketed Joint Systems shall be used. The integral bell gasketed joint, coupling or fitting joints shall be designed so that when assembled, the gasket will be compressed radially on the pipe spigot or in the bell to form a watertight seal. The joints shall be designed to comply with and show no leakage when tested in accordance with ASTM D-3212.

The pipe shall be made of PVC plastic having a minimum cell classification 12454-B or 12454-C as defined in ASTM D-1784. The fittings shall be made of PVC plastic having a cell classification of 12464-B, 12464-C, or 13343-C as defined in ASTM D-1784.

Elastomeric Gasketed Joints shall be used to provide watertight seal and shall meet the requirements of ASTM D-3212.

652.6 – METHOD OF MEASUREMENT

Will be measured by the linear foot in place. Payment shall be by the linear foot in place, but not to exceed quantity shown on the plans or called for in the special provisions.

652.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit

price bid: POLYVINYL CHLORIDE (PVC) (SIZE) L.F.

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.

SECTION 654 – STEEL CASING PIPE

654.1 – DESCRIPTION

This section covers steel pipe intended to be used as a carrier pipe for sanitary sewer aerial crossings or casing pipe for boring and micro and small diameter tunneling installations.

654.2 – MATERIALS

654.2.1 – SUBMITTALS

When requested, the Contractor shall submit the following, provided that all applicable requirements are met, and that visual inspection at destination shows the workmanship and condition of material to be satisfactory.

- A) Type "A" certification for pipe and coating
- B) Shop drawings of pipe, joints and seams
- C) Documentation of manufacturer's on-going quality control program.

654.2.2 – GENERAL

- A) General - Steel pipe shall conform to ASTM A139, Standard Specification for Electric-Fusion (ARC)-Welded Steel Pipe (NPS 4 and Over). The steel material shall be new, smooth wall, carbon steel, Grade B, with minimum sixty thousand (60,000 psi) pounds per square inch tensile strength, and minimum thirty-five thousand (35,000 psi) pounds per square inch yield strength.

The pipe shall be straight seam pipe, seamless pipe, or spiral weld pipe. For spiral weld pipe, the spiral shall be one hundred (100%) percent welded, and the weld's height over the outside wall surface shall be equal to or less than three-sixteenths (3/16") inch. All steel pipe shall be square cut and shall have a roundness such that the difference between the major and minor outside diameters shall not exceed one (1%) percent of the specified nominal outside diameter or one-fourth (1/4") inch, whichever is less. The outside circumference must be within plus or minus ($\pm$) one (1%) percent of the nominal circumference or within plus or minus ($\pm$) one-half (1/2") inch, which is less. The pipe shall have a maximum allowable straightness deviation in any ten (10') foot length of one-eighth (1/8") inch. Steel pipe joints shall be continuously welded with an approved butt weld. The welds shall attain the full strength of the pipe and shall result in a fully watertight section. The welded joints shall conform to the requirements of AWWA C-206.

B) Boring Installations

- 1) Casing Pipe Size - Steel casing pipe shall have the following suggested inside diameters:

Pipe Nominal Size (inches)	Casing Pipe Inside Diameter (inches)
4	8 to 10
6	10 to 12
8	14 to 16
10	16 to 18
12	18 to 20
15	20 to 22

- 2) Casing Pipe Thickness - Steel casing pipe shall have a minimum wall thickness of 3/8 inch, unless special conditions required by Railroads for railroad crossings apply.

654.2.4 – EXTERIOR PROTECTIVE COATING

Exposed exterior surfaces shall have protective coating, shop applied coal-tar enamel, conforming to the requirements of AWWA C-203. The coating thickness shall be forty (40) mils, applied in two (2) coats.

654.6 – METHOD OF MEASUREMENT

Will be measured by the linear foot in place. Payment shall be by the linear foot in place, but not to exceed quantity shown on the plans or called for in the special provisions.

654.7 – BASIS OF PAYMENT

The items measured as provided above will be paid for at the contract unit price bid:

STEEL CASING PIPE (SIZE)

L.F.

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.

LEGEND			
Ø	POWER POLE	Ⓜ	GAS METER
○	UTILITY POLE	ⓧ	GAS VALVE
☆	LIGHT POLE	Ⓜ	GAS PIPELINE MARKER
←	GUY ANCHOR	—	SIGN
Ⓜ	ELECTRIC METER	Ⓜ	FIRE HYDRANT
Ⓜ	ELECTRIC MANHOLE	Ⓜ	WATER METER
ⓧ	ELEC. TRANSFORMER	Ⓜ	WATER VALVE
Ⓜ	SANITARY SEWER MANHOLE	Ⓜ	MAIL BOX
●	SANITARY SEWER CLEANOUT	Ⓜ	ELECTRIC BOX
Ⓜ	STORM SEWER MANHOLE	Ⓜ	TELEPHONE MANHOLE
≡	IRON GRATE INLET	Ⓜ	TELEPHONE PEDESTAL

UTILITY LINES			
—	UW	—	WATER
—	GAS	—	GAS
—	SS	—	SANITARY SEWER
—	SD	—	STORM DRAIN
—	UT	—	TELEPHONE
—	UP	—	UNDERGROUND ELECTRIC
—	OHE	—	OVERHEAD POWERLINE
—	RW	—	RECLAIMED WATERLINE
—	SSP	—	SANITARY SEWER FORCE MAIN (PROJECTED)
MISC. LINES			
—	x	—	FENCE

TOTAL DISTURBED AREA = 0.10 ACRES

PRIOR TO PERFORMING ANY GRADING OR EXCAVATING WORK, THE CONTRACTOR SHALL CALL OKIE811, THE OKLAHOMA ONE-CALL SYSTEM NOT LESS THAN 48 HOURS IN ADVANCE AND SHALL VERIFY OR ESTABLISH THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND LINES.

ALL WORK LIES ENTIRELY WITHIN THE CORPORATE LIMITS OF CHICKASHA.

CITY OF CHICKASHA SPECIFICATIONS AND CONSTRUCTION STANDARDS, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY RULES AND REGULATIONS, OKLAHOMA DEPARTMENT OF TRANSPORTATION UTILITY PERMIT REQUIREMENTS AND DETAILS PROVIDED HEREIN SHALL GOVERN THE WORK.

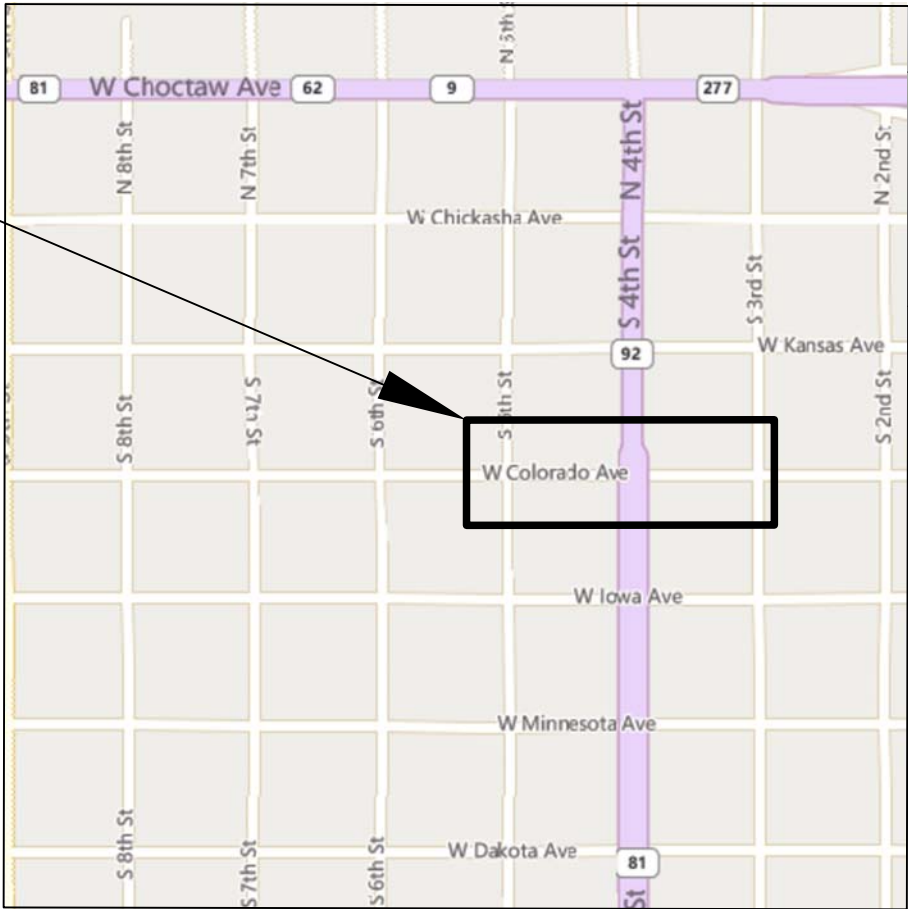
CHICKASHA MUNICIPAL AUTHORITY

PLAN OF PROPOSED SANITARY SEWER MAIN REPLACEMENT RFP CMA-2501

JIM CROSBY
CITY MANAGER

OMAR FIERRO
ACTING PUBLIC WORKS DIRECTOR

PROJECT
LOCATION



LOCATION MAP

ALL DIMENSIONS AND STATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND STATIONS PRIOR TO ORDERING MATERIALS.

INDEX OF SHEETS

SHEET NUMBER	SHEET TITLE
1	TITLE SHEET
2	GENERAL CONSTRUCTION NOTES
3	QUANTITIES AND NOTES
4	PLAN AND PROFILE 100 SCALE
5	PLAN AND PROFILE 50 SCALE SURVEY DRAWING

CITY OF CHICKASHA STANDARD DRAWINGS REQUIRED

P1	P.C. CONCRETE STREET PAVING DETAILS
P2	TYPICAL SECTIONS
P3	DRIVEWAY DETAILS
P4	SIDEWALK AND JOINT DETAILS
SSM1	SANITARY SEWER MAIN DETAILS
SSM2	SANITARY SEWER MAIN DETAILS
SSM3	CAST-IN-PLACE MANHOLE DETAILS
SSM4	PRECAST MANHOLE DETAILS

UTILITY PAVEMENT CUT REPAIRS DETAILS

UCPR1	ASPHALT SURFACE
UCPR2	ASPHALT OVER CONCRETE
UCPR3	P.C. CONCRETE

ODOT STANDARD DRAWINGS REQUIRED

TCS1-1-01	TCS10-1-00
TCS2-1-00	TCS11-1-01
TCS3-1-01	TCS13-1-00
TCS4-1-01	TCS14-1-00
TCS5-1-00	TCS15-1-00
TCS6-1-02	TCS16-1-00
TCS7-1-02	TCS21-1-02
TCS8-1-00	TCS22-1-00
TCS9-1-01	WCR-4-2
TWD-2-2	

DATE APPROVED BY CHICKASHA MUNICIPAL AUTHORITY

2/28/2025

DATE RANDALL SCOTT VAUGHN, OKLA. REG. NO. 15194

PREPARED BY:



CHISHOLM TRAIL CONSULTING, LLC
OK CA 7771
P.O. BOX 684
MARLOW, OK 73055
580-467-8130

GENERAL CONSTRUCTION NOTES

ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE ODEQ REGULATIONS, CITY OF CHICKASHA STANDARD SPECIFICATIONS AND STANDARD DRAWINGS AND THE CONTRACT DOCUMENTS.

ALL COSTS OF MAINTENANCE DURING CONSTRUCTION AND BEFORE THE PROJECT IS ACCEPTED SHALL BE INCLUDED IN THE UNIT PRICES BID ON THE VARIOUS PAY ITEMS. THE CONTRACTOR SHALL MAINTAIN THE WORK DURING CONSTRUCTION AND UNTIL THE PROJECT IS ACCEPTED. THIS MAINTENANCE SHALL CONSTITUTE CONTINUOUS AND EFFECTIVE WORK PROSECUTED DAY BY DAY, WITH ADEQUATE EQUIPMENT AND FORCES TO THE END THAT THE DRAINAGE CHANNEL, PRIVATE PROPERTY AND STRUCTURES ARE KEPT IN A SATISFACTORY CONDITION AT ALL TIMES. IF THE CONTRACTOR, AT ANY TIME, FAILS TO COMPLY WITH THESE PROVISIONS, THE OWNER’S REPRESENTATIVE MAY IMMEDIATELY NOTIFY THE CONTRACTOR OF SUCH NON-COMPLIANCE. IF THE CONTRACTOR FAILS TO REMEDY UNSATISFACTORY MAINTENANCE WITHIN 24 HOURS AFTER RECEIPT OF SUCH NOTICE, THE OWNER MAY IMMEDIATELY PROCEED TO MAINTAIN THE PROJECT, AND THE ENTIRE COST OF THIS MAINTENANCE WILL BE DEDUCTED FROM MONIES DUES OR BECOME DUE TO THE CONTRACTOR ON THIS CONTRACT.

THE CONTRACTOR SHALL NOTIFY THE CHICKASHA PUBLIC WORKS DIRECTOR OR HIS DESIGNEE 48 HOURS PRIOR TO STARTING WORK.

CONTRACTOR SHALL MAINTAIN A MINIMUM OF TWO LANES OF TRAVEL, ONE LANE IN EACH DIRECTION, ON 4TH STREET (US HIGHWAY 81) ALL TIMES.

COLORADO AVENUE FROM 3RD STREET TO 5TH STREET MAY BE CLOSED TO THROUGH THROUGH TRAFFIC DURING CONSTRUCTION. 5TH STREET FROM IOWA TO COLORADO MAY BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, INSTALLING AND MAINTAINING ALL TRAFFIC CONTROL DEVICES. CONSTRUCTION TRAFFIC CONTROL SHALL BE DONE ACCORDING TO THE STANDARDS SET FORTH IN THE CURRENT EDITION OF THE "MUTCD", "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND ODOT STANDARDS.

CONTRACTOR SHALL GIVE WRITTEN NOTICE TO ALL RESIDENTS, OCCUPANTS OR BUSINESSES THAT MAY BE AFFECTED BY THE WORK. SAID WRITTEN NOTICE SHALL BE DELIVERED NO LESS THAN 48 HOURS, NOR MORE THAN 2 WEEKS PRIOR TO THE START TIME OF ANY DISRUPTION. THE WRITTEN FORM MAY BE "DOOR HANGERS", BUT IN ANY EVENT SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO USE. AT A MINIMUM THE FORM SHALL CONTAIN: PROJECT IDENTIFICATION, CONTRACTOR NAME, CONTRACTOR ADDRESS, CONTRACTOR TELEPHONE NUMBER, TYPE OF CONSTRUCTION, REASON FOR AFFECTING OR DISRUPTING SERVICE AND DURATION OF SUCH.

REVISIONS PROPOSED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE OWNER’S REPRESENTATIVE FOR APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION SUBJECT TO THE REVISION.

THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO ENSURE ADEQUATE DRAINAGE DURING CONSTRUCTION. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

ANY DAMAGE CAUSED BY THE CONTRACTOR TO ANY STRUCTURES, ROADWAY SURFACES, STRIPING, RAISED PAVEMENT MARKERS, SIGNS, GUARDRAIL, AND SLOPES SHALL BE REPAIRED AT CONTRACTORS EXPENSE TO THE SATISFACTION OF THE OWNER’S REPRESENTATIVE.

GENERAL CONSTRUCTION NOTES (CONT.)

THE PROJECT SHALL BE CONSTRUCTED TO MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES.

BIDDERS SHALL FULLY INFORM THEMSELVES OF THE NATURE OF THE WORK AND CONDITIONS UNDER WHICH IT WILL BE PERFORMED. THE CONTRACTOR SHALL ADOPT METHODS CONSISTENT WITH GOOD CONSTRUCTION PRACTICE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DAMAGE IN EXISTING RIGHT-OF-WAY OR TO PRIVATE PROPERTY. ANY DAMAGE DONE DUE TO CONTRACTOR’S NEGLIGENCE SHALL BE PREPARED AT THE CONTRACTOR’S EXPENSE TO THE SATISFACTION OF THE OWNER’S REPRESENTATIVE.

THE PRICE BID ON ALL ITEMS SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS.

EXISTING UTILITIES MAY OR MAY NOT BE SHOWN ON PLAN SHEETS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE INFLICTED TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF THEIR DIGGING, TRENCHING, BORING, ETC. PRIOR TO DIGGING NEAR THE UTILITIES, THE CONTRACTOR SHALL CALL THE "OKIE 811" NOTIFICATION CENTER FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION. THE "OKIE 811" NOTIFICATION CENTER MAY BE NOTIFIED ONLINE AT okie811.org, BY CALLING 811 OR 1-800-522-6543. DEPTH OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. NO UTILITY RELOCATIONS TO ACCOMMODATE THE WORK ARE PLANNED.

ALL WORK SHALL BE CONDUCTED WITHIN EXISTING EASEMENTS AND RIGHTS-OF-WAY.

SANITARY SEWER MAIN MATERIALS AND INSTALLATION SHALL MEET REQUIREMENTS OF ODEQ 252:656 AND THE DETAILS PROVIDED HEREIN.

THE CONTRACTOR SHALL PERFORM LEAKAGE TESTING ON ALL SANITARY SEWER MAINS IN ACCORDANCE WITH THE SPECIFICATIONS. LEAKAGE MUST NOT EXCEED 10 GALLONS PER INCH OF DIAMETER PER MILE OF PIPE PER 24 HOUR PERIOD.

CONTRACTOR SHALL REMOVE AND RESET MAILBOXES DURING THE WORK TO ACCOMMODATE REGULAR MAIL DELIVERY. COST OF THIS WORK TO BE INCLUDED IN OTHER ITEMS OF WORK. ALL MAILBOXES SHALL BE RELOCATED TO THE ORIGINAL LOCATIONS PRIOR TO COMPLETING THE WORK.

CONTRACTOR SHALL REMOVE AND RESET ALL REGULATORY SIGNS DURING THE WORK TO ENSURE ADEQUATE TRAFFIC CONTROL IS IN PLACE AT ALL TIMES. ALL SIGNS SHALL BE RELOCATED TO THE ORIGINAL LOCATIONS UNLESS NOTED OTHERWISE PRIOR TO COMPLETING THE WORK.

CONCRETE CONTAINING FLY ASH, SLAG OR SILICA FUME WILL NOT BE ACCEPTED.

BIDDERS SHALL FULLY INFORM THEMSELVES OF THE NATURE OF THE WORK AND CONDITIONS UNDER WHICH IT WILL BE PERFORMED. THE CONTRACTOR SHALL ADOPT METHODS CONSISTENT WITH GOOD CONSTRUCTION PRACTICE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DAMAGE IN EXISTING RIGHT-OF-WAY OR TO PRIVATE PROPERTY. ANY DAMAGE DONE DUE TO CONTRACTOR’S NEGLIGENCE SHALL BE PREPARED AT THE CONTRACTOR’S EXPENSE TO THE SATISFACTION OF THE OWNER’S REPRESENTATIVE.

ABBREVIATIONS USED IN THESE DRAWINGS:

- C&G = CURB AND GUTTER
- EST. = ESTIMATED
- EX. = EXISTING
- FH = FIRE HYDRANT OR FIRE HYDRANT ASSEMBLY
- FH ASSY. = FIRE HYDRANT ASSEMBLY
- GV = GATE VALVE
- MIN. = MINIMUM
- REF. = REFER TO

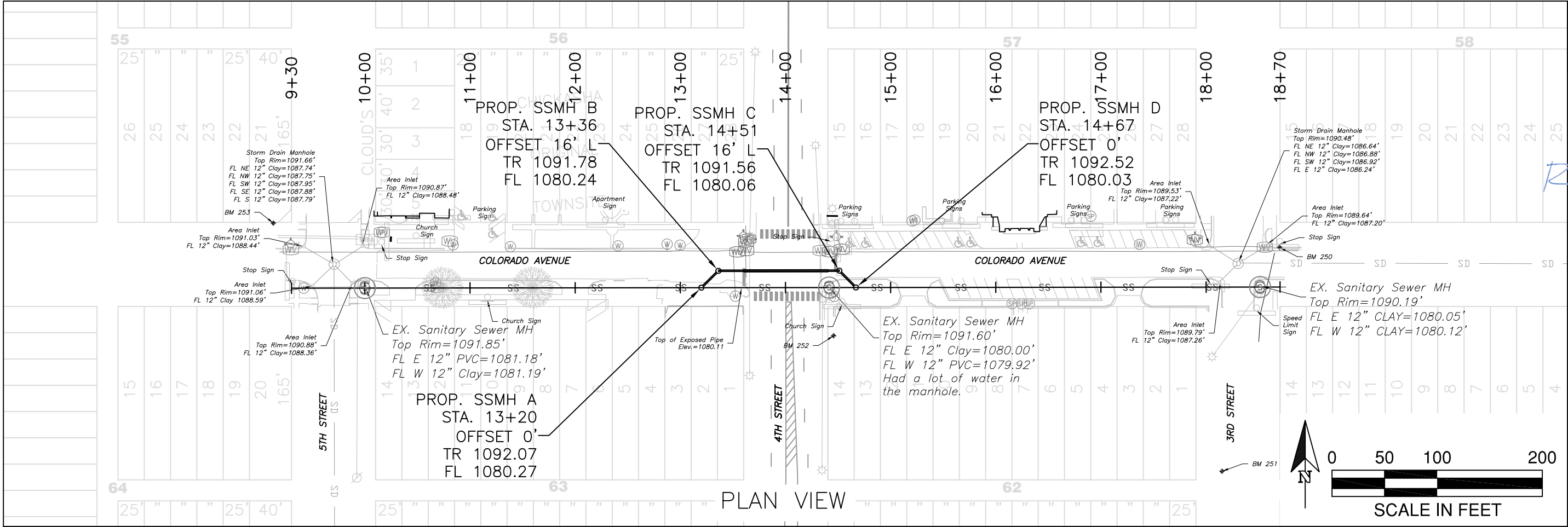
PAY ITEM NOTES:

1. PRICE BID FOR THIS ITEM SHALL INCLUDE ALL COST OF ALL LABOR, EQUIPMENT AND MATERIALS TO INSTALL AND MAINTAIN AN ADEQUATE DEWATERING SYSTEM TO LOWER AND CONTROL GROUNDWATER LEVELS AND HYDROSTATIC PRESSURES TO PERMIT EXCAVATION AND CONSTRUCTION TO BE PERFORMED PROPERLY UNDER DRY CONDITIONS.
2. AFTER NEW SANITARY SEWER MAIN IS BUILT AND PLACED INTO SERVICE, REMOVE FROM SERVICE THE EXISTING SANITARY SEWER MAIN AND MANHOLE BETWEEN NEW MANHOLES A AND B. GROUT THE EXISTING SANITARY SEWER MAIN AND MANHOLE TO BE REMOVED FROM SERVICE.
3. BYPASS PUMPING TO THE NEAREST SANITARY SEWER MANHOLE LOCATED IN THE ALLEY ON 5TH STREET SOUTH OF COLORADO IS RECOMMENDED.
4. PRICE BID SHALL INCLUDE THE COST OF ALL EXCAVATION, BEDDING AND BACKFILL.
5. PRICE BID SHALL INCLUDE THE COST OF APPLYING FERTILIZER AND WATER TO RE-ESTABLISH PERENNIAL STAND OF GRASS.
6. PRICE BID SHALL INCLUDE THE COST OF CONSTRUCTING ONE LAYER EACH OF THE FOLLOWING MATERIALS: 8-INCH THICK TYPE A AGGREGATE BASE, 4-INCH THICK TYPE S2 HOT-MIX ASPHALT, 3-INCH THICK TYPE S3 HOT-MIX ASPHALT AND 2-INCH THICK TYPE S4 HOT-MIX ASPHALT. PRICE BID SHALL INCLUDE APPLYING TACK COAT AT THE RATE FO 0.05 GAL./SY BETWEEN EACH LAYER OF HOT-MIX ASPHALT.
7. PAY ITEM INTENDED FOR FILLING ANY EXISTING VOIDS UNDER THE EXISTING ROADWAY OR STREET. PRICE BID SHALL INCLUDE THE COST OF EXCAVATION, IF NECESSARY, TO VERIFY THE EXISTENCE AND LOCATION AND VOIDS UNDER THE PAVEMENT.
8. PRICE BID SHALL INCLUDE THE COST OF 2-INCH THICK LAYER OF 3/8" SCREENINGS AS BASE UNDER SIDEWALK.
9. PRICE BID SHALL INCLUDE THE COST OF AGGREGATE BASE. REF. DRAWING UCPR.
10. COLOR – RED. REF. ODOT STD. TWD-2-2.
11. PAY ITEM INTENDED FOR REPLACING EXISTING STOP BAR AND CROSS-WALK STRIPING.
12. CONTRACTOR SHALL IMMEDIATELY INSTALL AND MAINTAIN ADEQUATE CONSTRUCTION TRAFFIC CONTROL ON 4TH STREET (US HIGHWAY 81) TO DIVERT TRAFFIC FROM THE SOUTHBOUND LANES. A MINIMUM OF ONE LANE OF TRAVEL IN EACH DIRECTION SHALL BE MAINTAINED. CONTRACTOR SHALL PROVIDE ADEQUATE CONSTRUCTION TRAFFIC CONTROL TO CLOSE COLORADO AVENUE AND 5TH STREET TO THROUGH TRAFFIC. SEE SHEET 2 FOR ADDITIONAL INFORMATION.

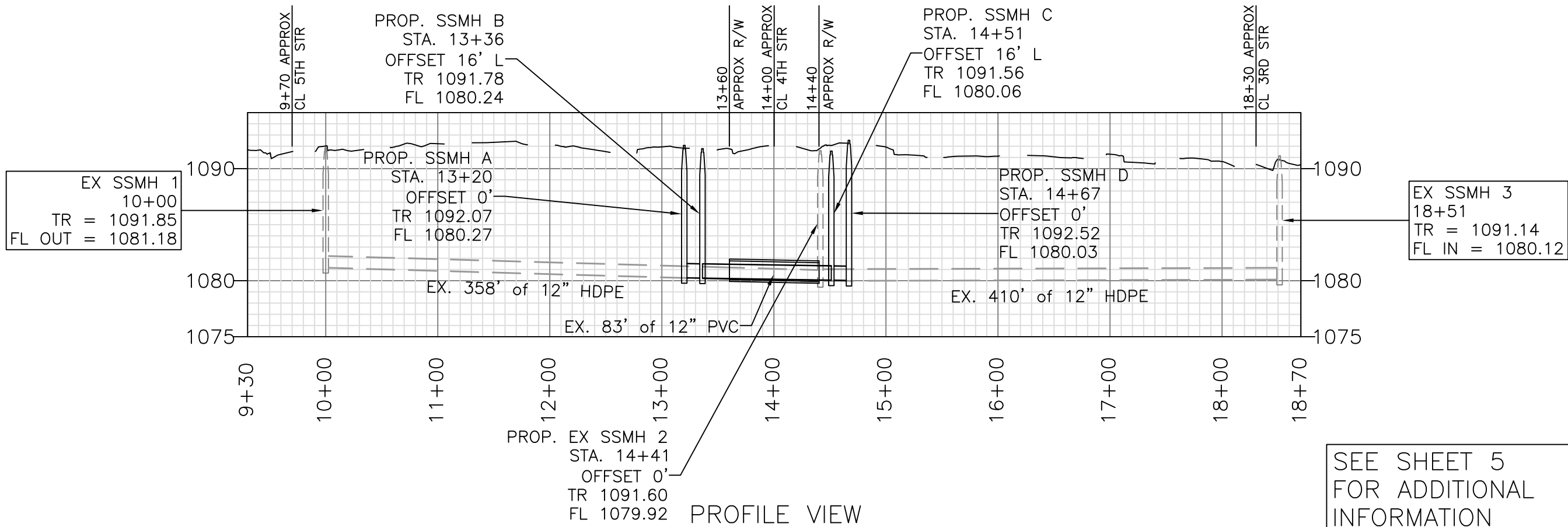
SUMMARY OF QUANTITIES				
PAY ITEM NO.	PAY ITEM DESCRIPTION	NOTES	UNITS	EST QTY
UTILITY QUANTITIES				
1	DEWATERING	1	LSUM	1
614	ABANDONING SEWER	2	LSUM	1
618	SEWER FLOW CONTROL	3	LSUM	1
625	SEWER PIPE LEAKAGE TESTING		L.SUM	1
626	SANITARY SEWER MANHOLES	4	EA	4
651	SDR 26 PVC SANITARY SEWER MAIN (15-INCH), INSTALLED	4	LF	152
654	STEEL CASING, INSTALLED		LF	80
ROADWAY QUANTITIES				
230(A)	SOLID SLAB SODDING, INSTALLED	5	SY	159
411	ASPHALT PAVEMENT REMOVAL AND REPLACEMENT	6	SY	330
501(G)	CLSM BACKFILL	7	CY	207
609(B)	CURB AND GUTTER REMOVAL AND REPLACEMENT		LF	51
610(A)	4" CONCRETE SIDEWALK REMOVAL AND REPLACEMENT	8	SY	56
610(B)	6" CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	9	SY	135
610(I)	TACTILE WARNING DEVICE REMOVAL AND REPLACEMENT	10	SF	8
855(B)	TRAFFIC STRIPE (PLASTIC) (24" WIDE)	11	LF	132
880(J)	CONSTRUCTION TRAFFIC CONTROL	12	LSUM	1

SEQUENCE OF CONSTRUCTION

1. INSTALL CONSTRUCTION TRAFFIC CONTROL.
2. DEWATER CONSTRUCTION AREA.
3. CONSTRUCT NEW SANITARY SEWER MAIN AND PLACE INTO SERVICE.
4. ABANDON EXISTING SANITARY SEWER MAIN.
5. REMOVE PAVEMENT OVER EXISTING SANITARY SEWER MAIN. IDENTIFY ANY VOIDS. FILL ANY VOIDS WITH CLSM. REPLACE ASPHALT PAVEMENT AND STRIPE.
6. RESTORE TRAFFIC ON ALL ROADS AND STREETS TO ALL DIRECTIONS OF TRAVEL, ALL NUMBER OF TRAVEL LANES AND ALL LEGAL POSTED SPEED LIMITS.
7. THE CITY MANAGER OR HIS DESIGNEE MAY APPROVE REVISIONS TO THIS SEQUENCE.



PLAN VIEW



PROFILE VIEW

SEE SHEET 5
FOR ADDITIONAL
INFORMATION



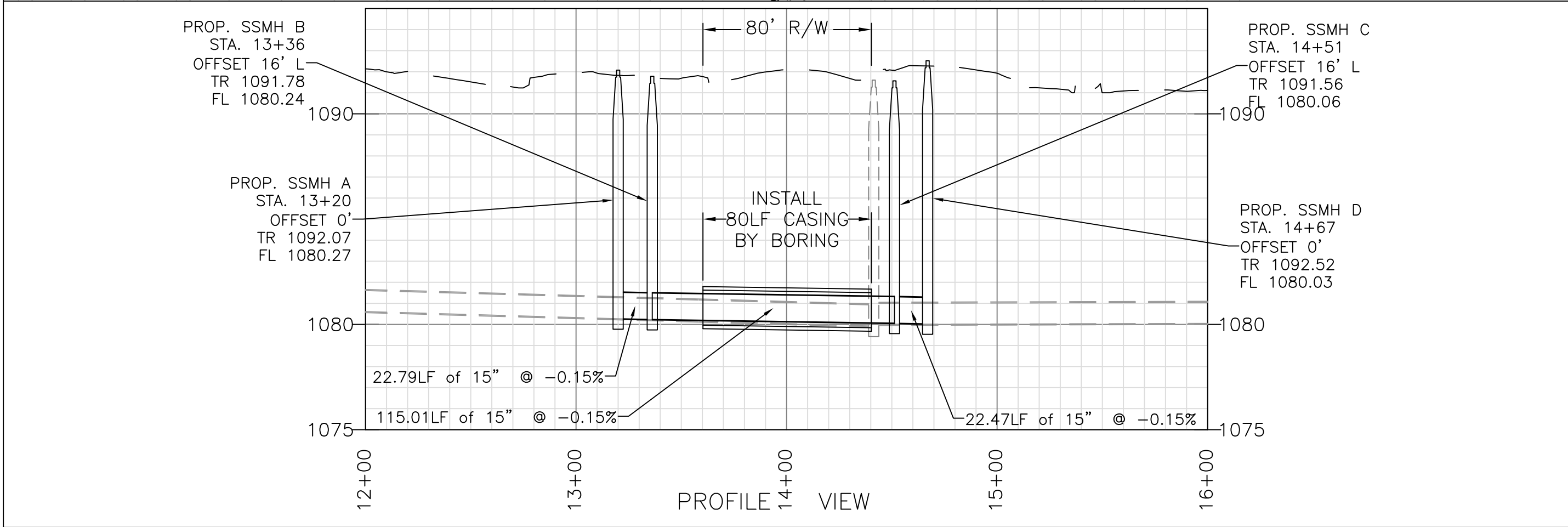
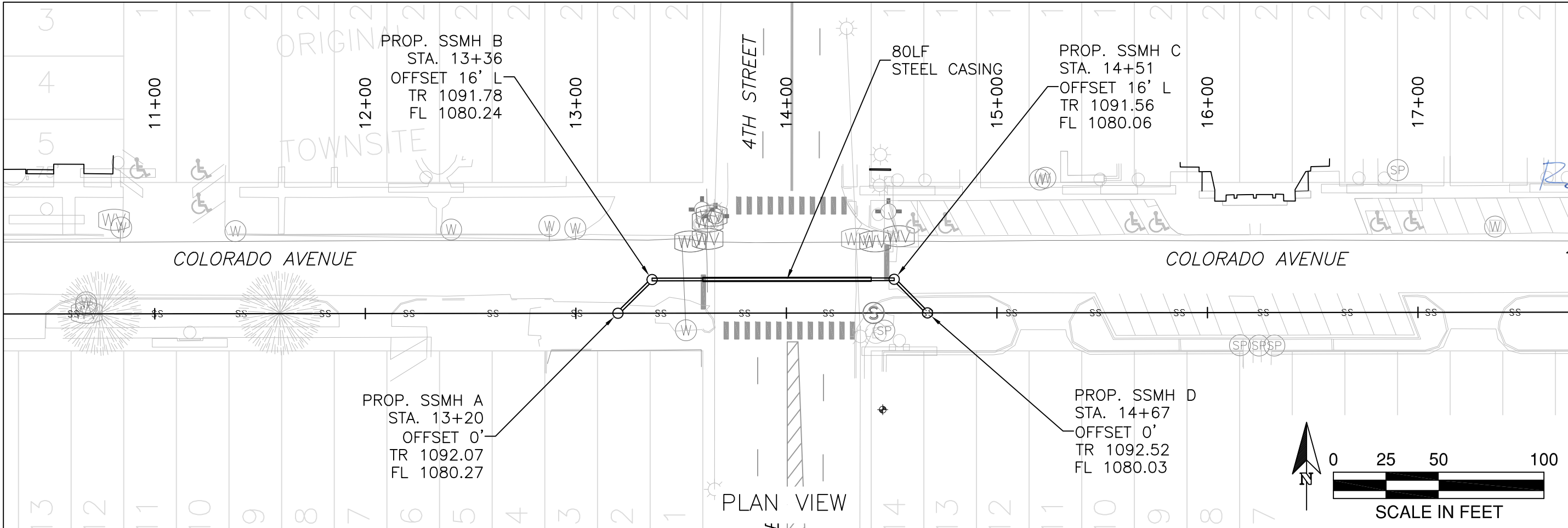
2/28/2025

Project **CMA-2501**
SANITARY SEWER MAIN REPLACEMENT
Chickasha, OK

#	Description	Date

Sheet Title
PLAN AND PROFILE

Scale: AS NOTED
Drawn: RSV
Checked: RSV
Date: 2/28/2025
Sheet #: **4**



2/28/2025

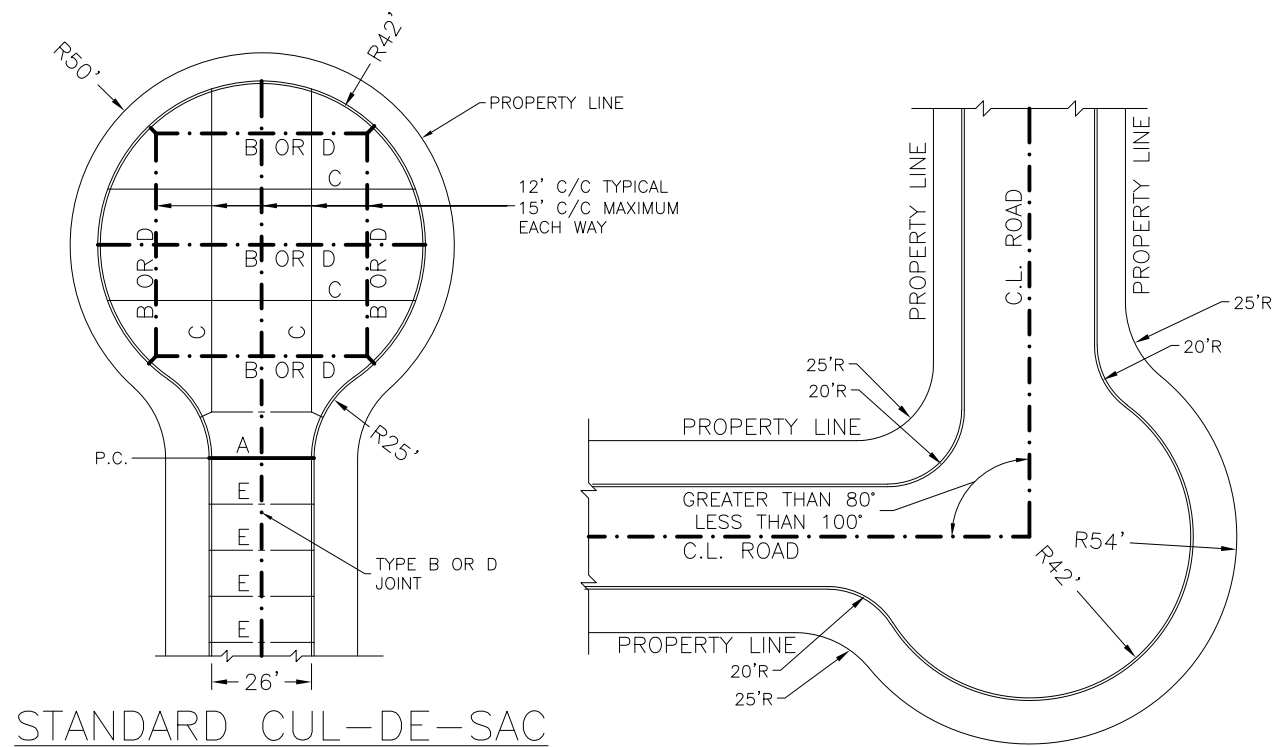
Project
CMA-2501
SANITARY SEWER MAIN REPLACEMENT
Chickasha, OK

#	Description	Revisions	Date

Sheet Title
PLAN AND PROFILE

Scale: AS NOTED
Drawn: RSV
Checked: RSV
Date: 2/28/2025

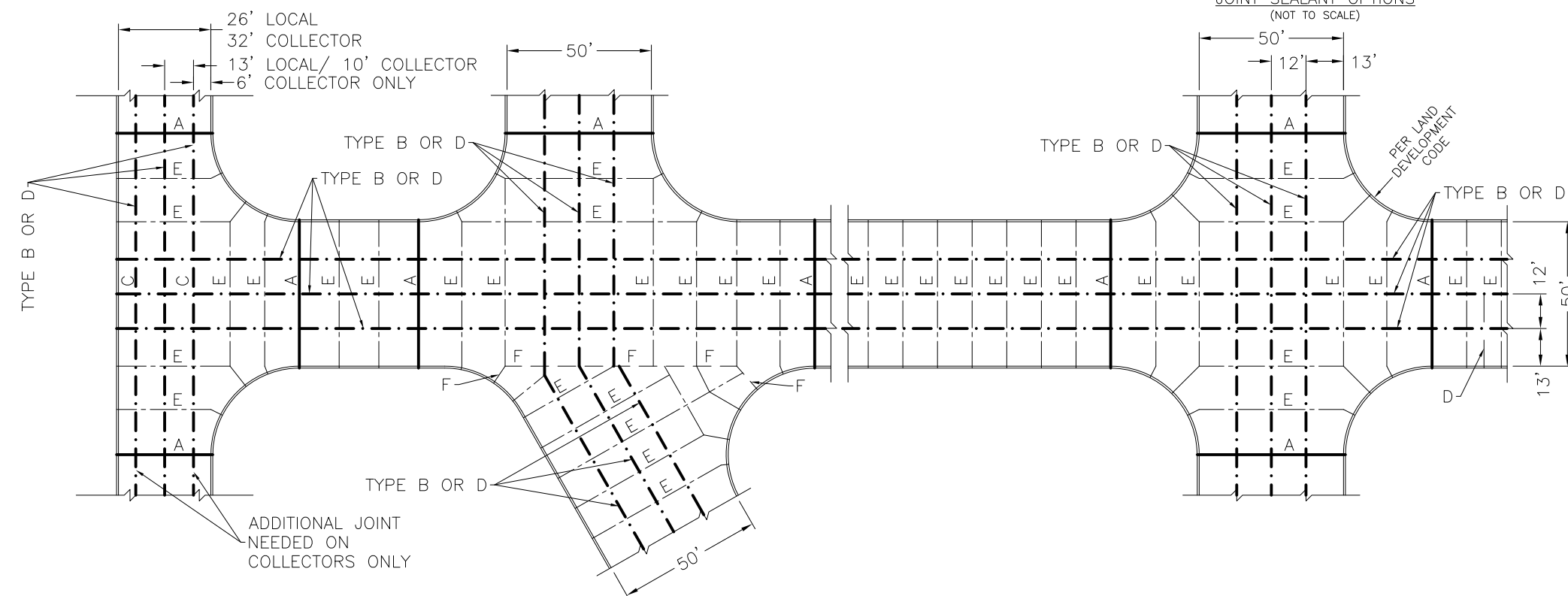
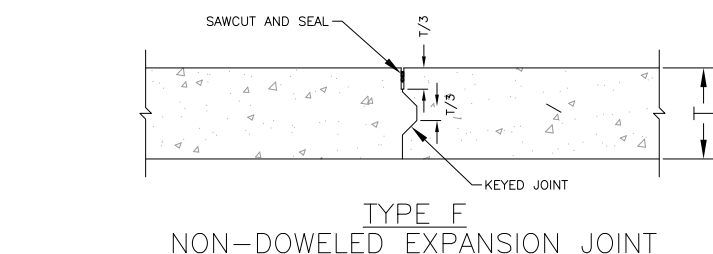
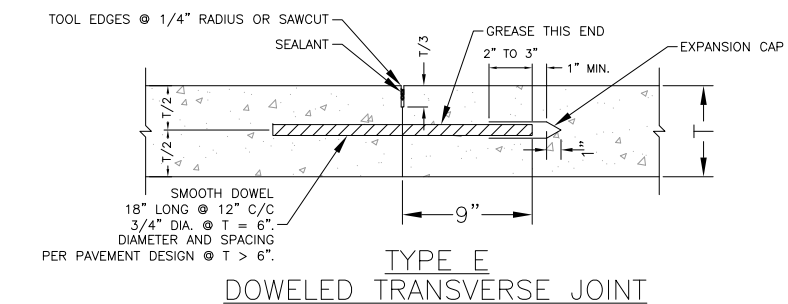
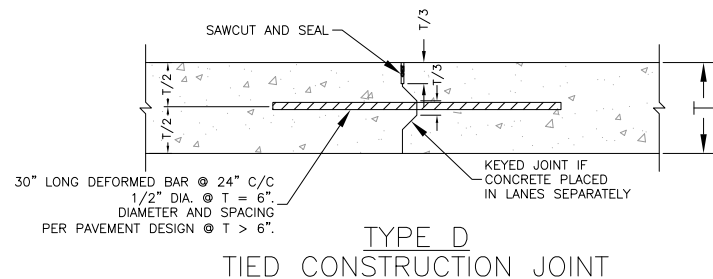
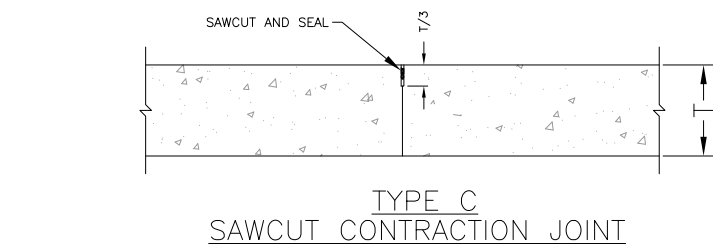
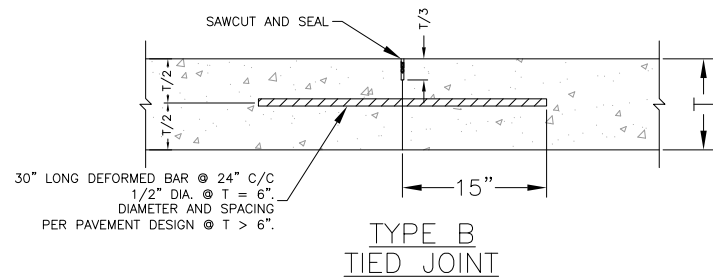
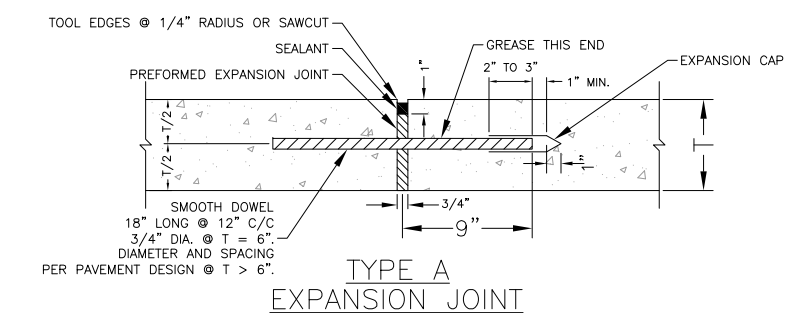
Sheet #:
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STANDARD CUL-DE-SAC
FULL SECTION PAVED
(NOT TO SCALE)

KNUCKLE DIMENSIONS
(NOT TO SCALE)

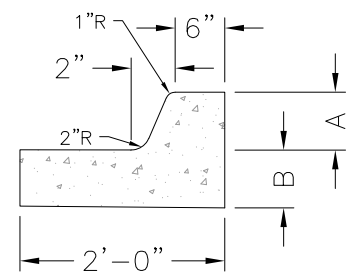
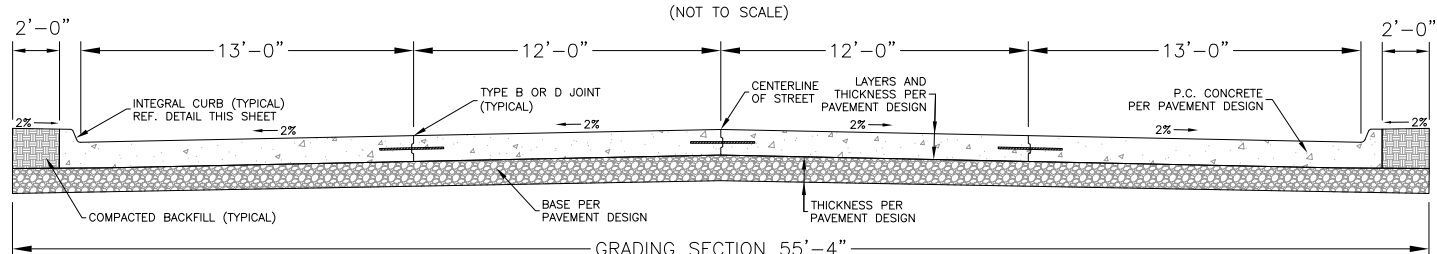
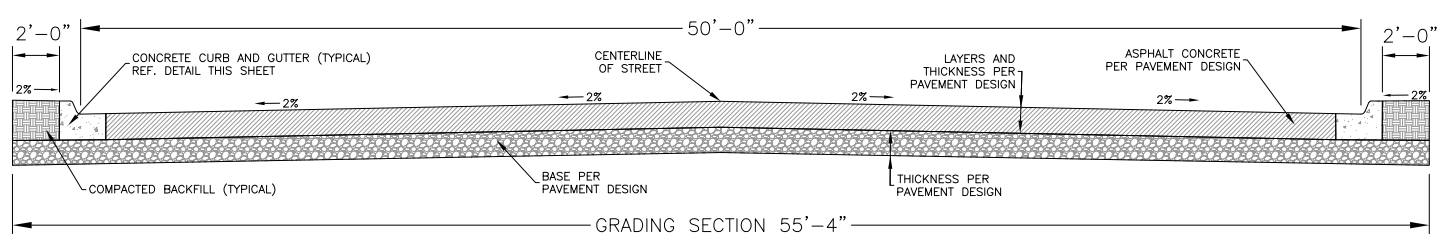
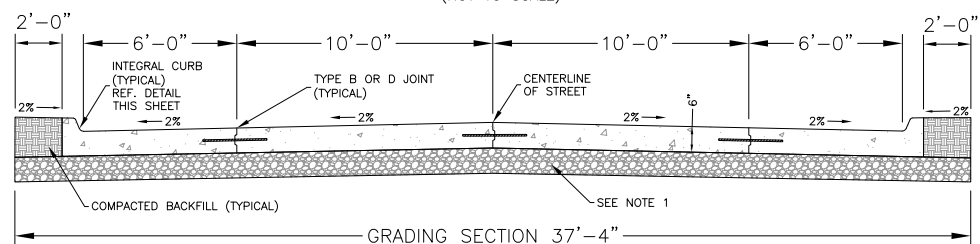
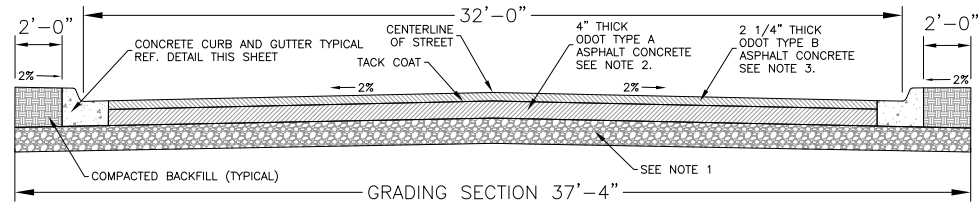
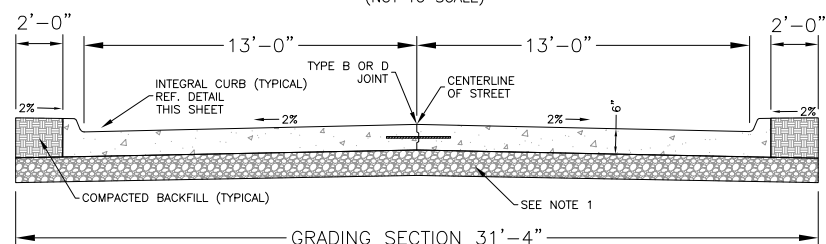
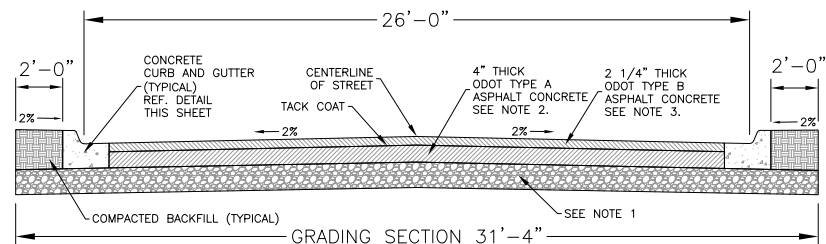
- NOTES
1. TYPICAL TRANSVERSE JOINT SPACING = 12'
 2. MAXIMUM SPACING B/W EXPANSION JOINTS = 100'
 3. PLACE TYPE A, TYPE D OR TYPE E JOINT, AS APPROPRIATE, AT THE END OF DAYS' PLACEMENT OR WHEN PLACEMENT OPERATIONS ARE DELAYED MORE THAN 30 MINUTES.
- TYPE A EXPANSION JOINT
- . - . - TYPE B TIED LONGITUDINAL JOINT
- TYPE C SAWCUT CONTRACTION JOINT
- TYPE D TIED CONSTRUCTION JOINT
- TYPE E DOWELED TRANSVERSE JOINT
- TYPE F NON-DOWELED EXPANSION JOINT



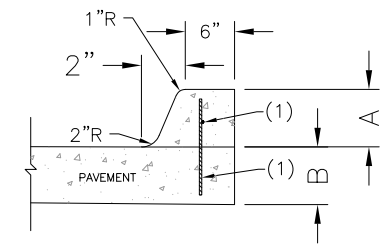
TYPICAL JOINT LAYOUT
(NOT TO SCALE)

PREPARED BY: CHISHOLM TRAIL CONSULTING, LLC 2124 SCOTT LANE DUNCAN, OKLAHOMA 73533 CA OK7771 RANDALL SCOTT VAUGHN, P.E. 15194	CITY OF CHICKASHA, OKLAHOMA STANDARD PAVING DETAILS APPROVED AND ADOPTED BY THE CITY COUNCIL THIS ____ DAY OF ____ 202__. MAYOR _____ ATTEST: CITY CLERK _____ P.C. CONCRETE STREET PAVING DETAILS DO NOT SCALE
--	---

DIGITALLY SIGNED 12/1/2022

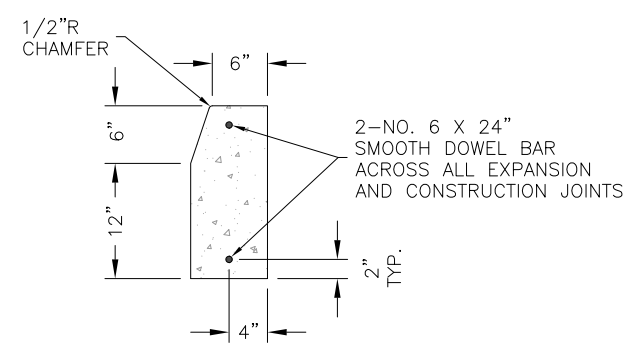


STANDARD CURB AND GUTTER (NOT TO SCALE)

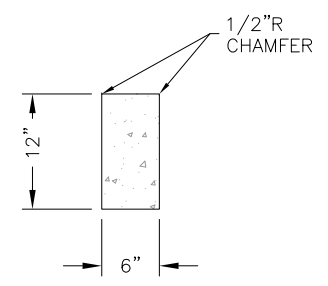


INTEGRAL CURB (NOT TO SCALE)

CURB HEIGHTS AND PAVEMENT THICKNESSES		
	LOCAL STREETS & COLLECTORS	ALL STREET WIDER THAN 32'
A	6 INCHES	8 INCHES
B	6 INCHES	PER PAVEMENT DESIGN



STANDING CURB (NOT TO SCALE)



CONCRETE HEADER (NOT TO SCALE)

NOTES:

1. MINIMUM 6-INCH THICK LAYER OF ODOT TYPE A AGGREGATE BASE. OTHER BASE MATERIALS AND THICKNESSES MAY BE CONSIDERED BY THE CITY ENGINEER IF GEOTECHNICAL INVESTIGATION AND RECOMMENDATION IS PROVIDED.
2. SUBSTITUTION WITH 4-INCH THICK LAYER OF ODOT TYPE S3 SUPERPAVE MAY BE CONSIDERED BY THE CITY ENGINEER.
3. SUBSTITUTION WITH 2 1/2" THICK LAYER OF ODOT TYPE S4 SUPERPAVE MAY BE CONSIDERED BY THE CITY ENGINEER.

PREPARED BY:
CHISHOLM TRAIL CONSULTING, LLC
2124 SCOTT LANE
DUNCAN, OKLAHOMA 73533
CA OK7771
RANDALL SCOTT VAUGHN, P.E. 15194

RANDALL SCOTT VAUGHN
REGISTERED PROFESSIONAL ENGINEER
15194
OKLAHOMA

DIGITALLY SIGNED 12/1/2022

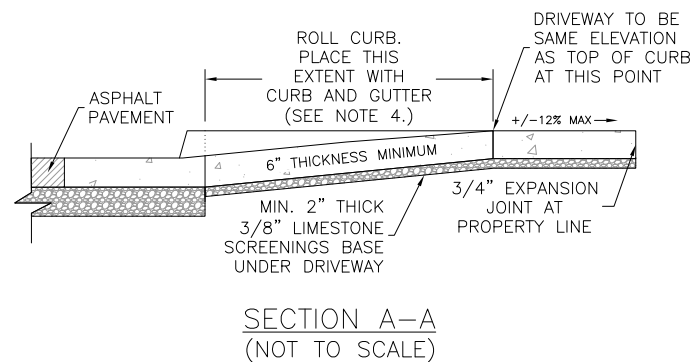
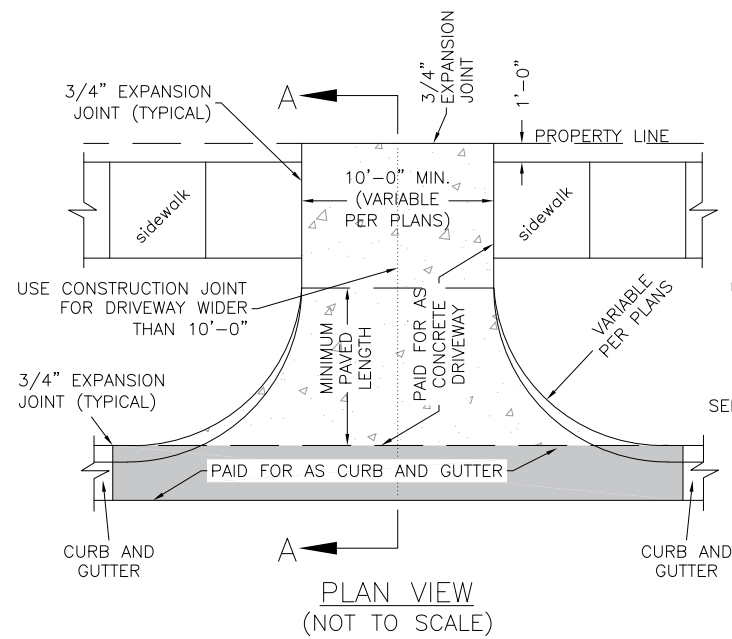
CITY OF CHICKASHA, OKLAHOMA
STANDARD PAVING DETAILS

APPROVED AND ADOPTED BY THE CITY COUNCIL
THIS ____ DAY OF ____ 202__.

MAYOR _____ ATTEST: CITY CLERK _____

TYPICAL SECTIONS
DO NOT SCALE

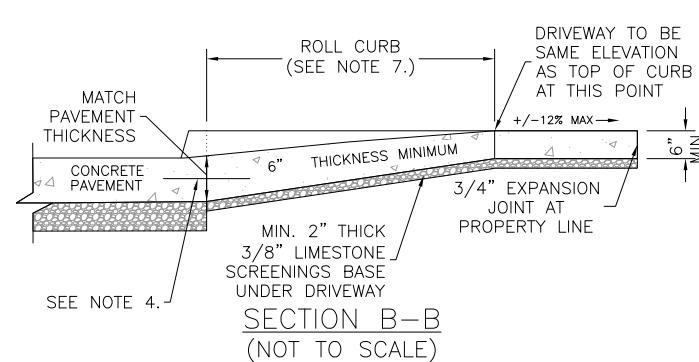
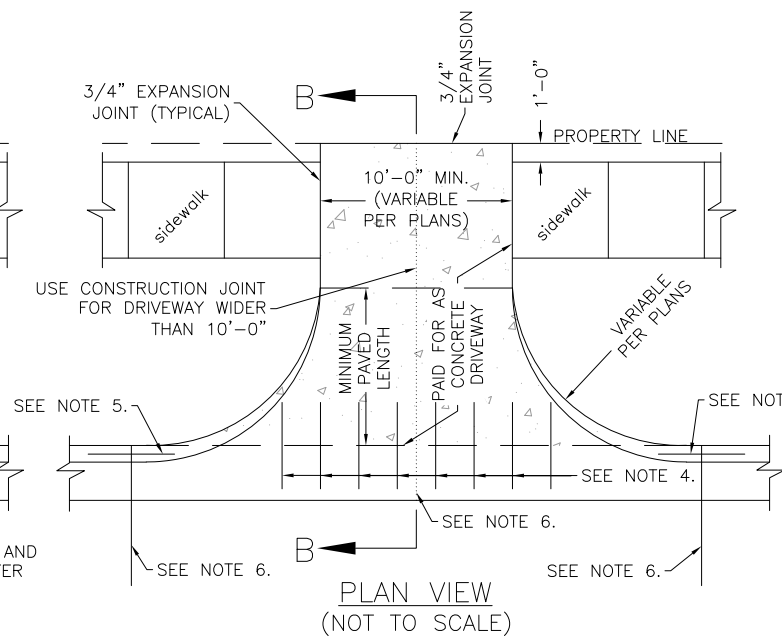
Sheet P2



NOTES:

- REFER TO CHAPTER 46 OF CHICKASHA CITY ORDINANCES (LAND DEVELOPMENT CODE) FOR DETAILS NOT PROVIDED HEREIN.
- IF DETAILS ARE SPECIFIED IN THE APPROVED PLANS THAT DIFFER FROM THE DETAILS SHOWN HEREIN, THE PLANS SHALL GOVERN.
- BLOCKOUT OR REMOVE AND REPLACE CURB AND GUTTER WITHIN LIMITS OF DRIVEWAY.
- DRIVEWAYS FOR OTHER THAN ONE & TWO FAMILY DWELLINGS MAY HAVE FULL SECTION CURB THROUGHOUT CURB RETURN.
- ALTERNATE MATERIALS MAY BE APPROVED (e.g., ASPHALT, BRICK, ETC.), BUT ALL DRIVEWAYS MUST BE HARD-SURFACED AND MUST MEET STANDARD DIMENSION REQUIREMENTS. THINNER PAVING SURFACES MAY REQUIRE THICKER BASES, AS DETERMINED BY THE BUILDING OFFICIAL.

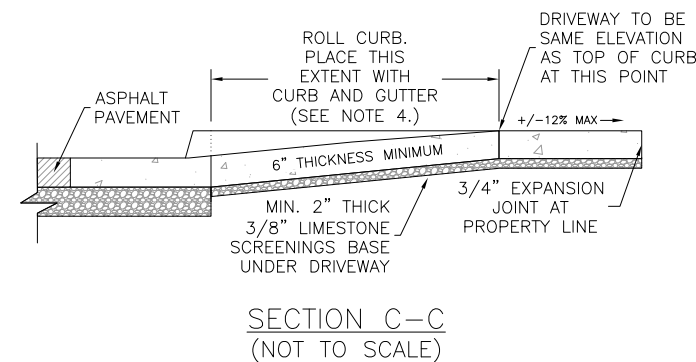
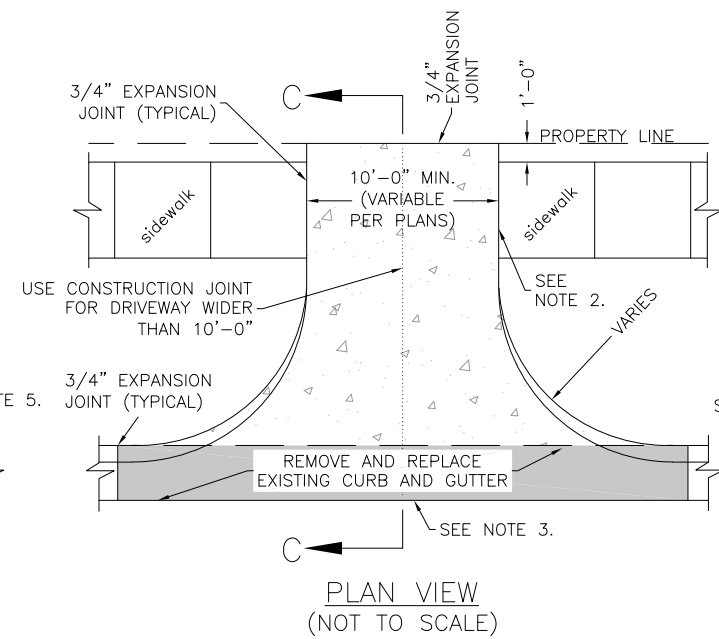
DRIVEWAY DETAILS FOR ASPHALT STREET
(BUILT WITH NEW STREET CONSTRUCTION)



NOTES:

- REFER TO CHAPTER 46 OF CHICKASHA CITY ORDINANCES (LAND DEVELOPMENT CODE) FOR DETAILS NOT PROVIDED HEREIN.
- IF DETAILS ARE SPECIFIED IN THE APPROVED PLANS THAT DIFFER FROM THE DETAILS SHOWN HEREIN, THE PLANS SHALL GOVERN.
- SAWCUT AND REMOVE INTEGRAL CURB TO NEAT LINES. DO NOT BLOCK OUT STREET PAVEMENT.
- IF DRIVEWAY IS NOT PLACED MONOLITHICALLY WITH STREET PAVEMENT, INSTALL NO. 4 X 18" LONG DEFORMED BARS AT 24" C/C (TYPICAL) WHERE SLAB WIDTH ALLOWS. MAINTAIN MINIMUM 2-INCH CLEARANCE BETWEEN END OF REBAR AND EDGE OF SLAB.
- IF DRIVEWAY IS NOT PLACED MONOLITHICALLY WITH STREET PAVEMENT, INSTALL 1 - NO. 4 X 18" DEFORMED BAR AT CENTER OF CURB.
- PLACE JOINTS IN CURB AND DRIVEWAY AT SAME LOCATION AS STREET TRANSVERSE JOINTS.
- DRIVEWAYS FOR OTHER THAN ONE & TWO FAMILY DWELLINGS MAY HAVE FULL SECTION CURB THROUGHOUT CURB RETURN.
- ALTERNATE MATERIALS MAY BE APPROVED (e.g., ASPHALT, BRICK, ETC.), BUT ALL DRIVEWAYS MUST BE HARD-SURFACED AND MUST MEET STANDARD DIMENSION REQUIREMENTS. THINNER PAVING SURFACES MAY REQUIRE THICKER BASES, AS DETERMINED BY THE BUILDING OFFICIAL.

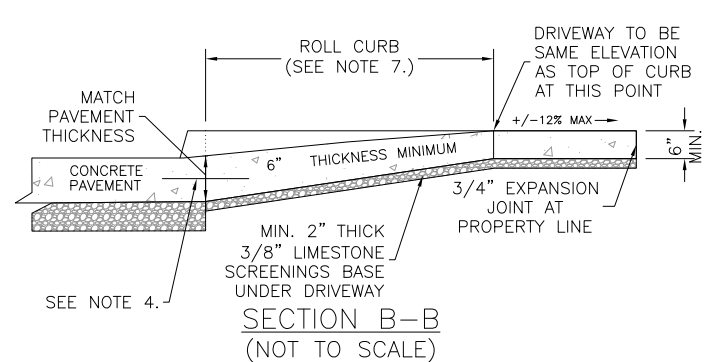
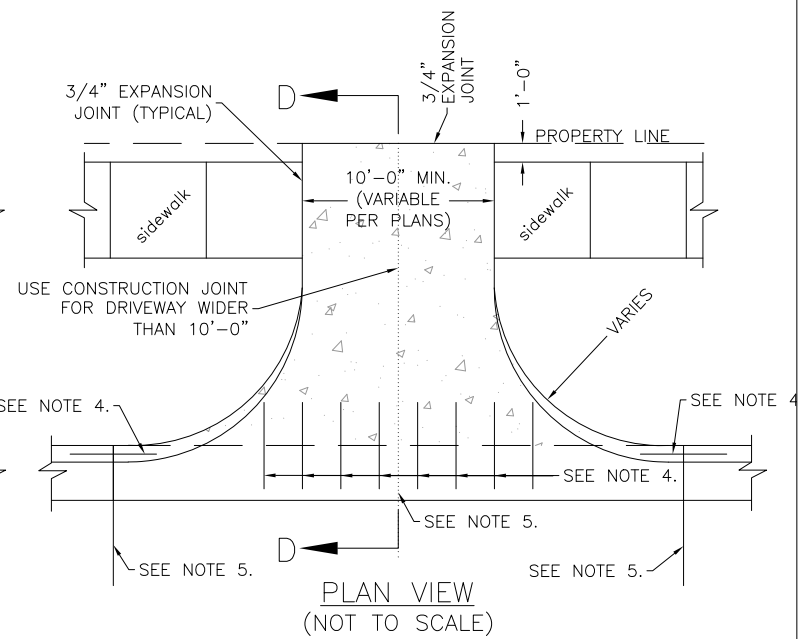
DRIVEWAY DETAILS FOR CONCRETE STREET
(BUILT WITH NEW STREET CONSTRUCTION)



NOTES:

- REFER TO CHAPTER 46 OF CHICKASHA CITY ORDINANCES (LAND DEVELOPMENT CODE) FOR DETAILS NOT PROVIDED HEREIN.
- SAWCUT FULL DEPTH AND REMOVE SIDEWALK FROM WITHIN LIMITS OF DRIVEWAY.
- SAWCUT FULL DEPTH AND REMOVE AND REPLACE CURB AND GUTTER WITHIN LIMITS OF DRIVEWAY.
- DRIVEWAYS FOR OTHER THAN ONE & TWO FAMILY DWELLINGS MAY HAVE FULL SECTION CURB THROUGHOUT CURB RETURN. IF WATER STANDS IN THE EXISTING GUTTER THE CONTRACTOR SHALL NOTIFY THE BUILDING OFFICIAL OF SUCH BEFORE STARTING WORK. NEW WORK WILL NOT BE ALLOWED THAT RESULTS IN STANDING WATER WITHIN LIMITS OF DRIVEWAY OR EITHER SIDE OF DRIVEWAY.
- ALTERNATE MATERIALS MAY BE APPROVED (e.g., ASPHALT, BRICK, ETC.), BUT ALL DRIVEWAYS MUST BE HARD-SURFACED AND MUST MEET STANDARD DIMENSION REQUIREMENTS. THINNER PAVING SURFACES MAY REQUIRE THICKER BASES, AS DETERMINED BY THE BUILDING OFFICIAL.

DRIVEWAY DETAILS FOR ASPHALT STREET
(BUILT ON EXISTING STREET)

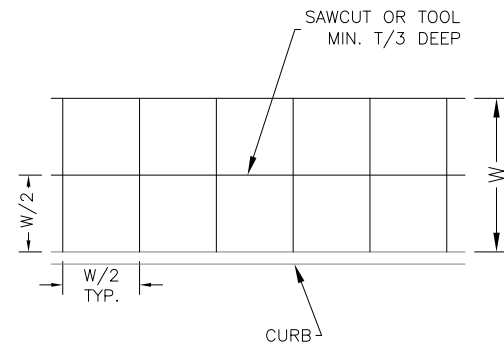
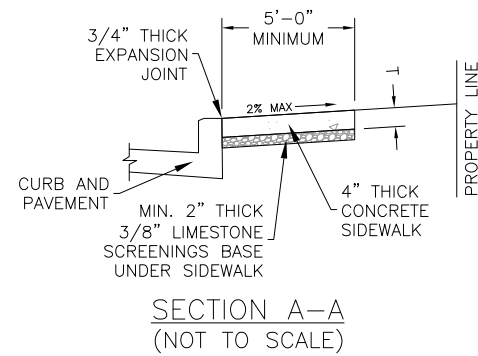
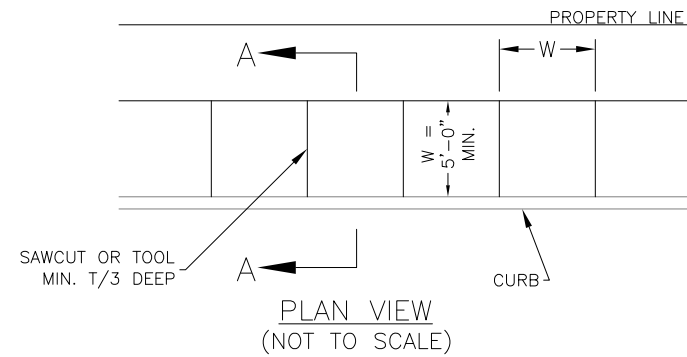


NOTES:

- REFER TO CHAPTER 46 OF CHICKASHA CITY ORDINANCES (LAND DEVELOPMENT CODE) FOR DETAILS NOT PROVIDED HEREIN.
- SAWCUT AND REMOVE INTEGRAL CURB TO NEAT LINES. DO NOT SAWCUT STREET PAVEMENT.
- INSTALL NO. 4 X 18" LONG DEFORMED BARS AT 24" C/C WHERE SLAB WIDTH ALLOWS. MAINTAIN MINIMUM 2-INCH CLEARANCE BETWEEN END OF REBAR AND EDGE OF SLAB.
- INSTALL 1 - NO. 4 X 18" DEFORMED BAR AT CENTER OF CURB.
- PLACE JOINTS IN CURB AND DRIVEWAY AT SAME LOCATION AS STREET TRANSVERSE JOINTS.
- DRIVEWAYS FOR OTHER THAN ONE & TWO FAMILY DWELLINGS MAY HAVE FULL SECTION CURB THROUGHOUT CURB RETURN.
- ALTERNATE MATERIALS MAY BE APPROVED (e.g., ASPHALT, BRICK, ETC.), BUT ALL DRIVEWAYS MUST BE HARD-SURFACED AND MUST MEET STANDARD DIMENSION REQUIREMENTS. THINNER PAVING SURFACES MAY REQUIRE THICKER BASES, AS DETERMINED BY THE BUILDING OFFICIAL.

DRIVEWAY DETAILS FOR CONCRETE STREET
(BUILT ON EXISTING STREET)

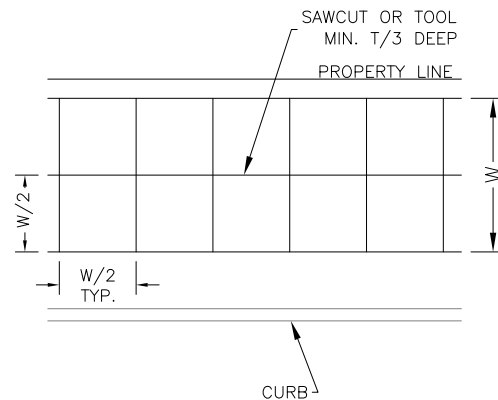
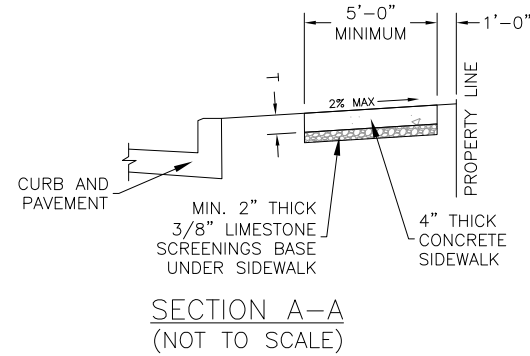
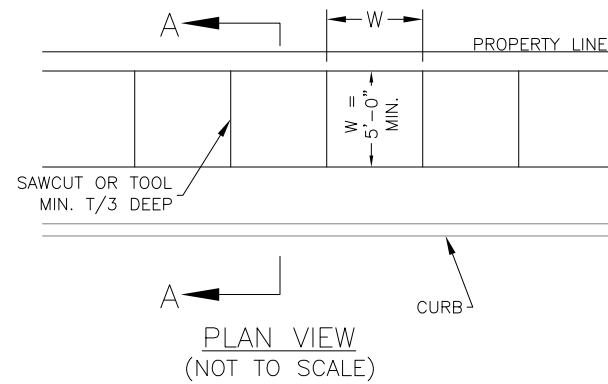
PREPARED BY: CHISHOLM TRAIL CONSULTING, LLC 2124 SCOTT LANE DUNCAN, OKLAHOMA 73533 CA OK7771 RANDALL SCOTT VAUGHN, P.E. 15194		CITY OF CHICKASHA, OKLAHOMA STANDARD PAVING DETAILS	
APPROVED AND ADOPTED BY THE CITY COUNCIL THIS ____ DAY OF ____ 202__.		MAYOR _____ ATTEST: CITY CLERK _____	
DRIVEWAY DETAILS DO NOT SCALE		SHEET P3	



NOTES:

1. REFER TO CHAPTER 46 OF CHICKASHA CITY ORDINANCES (LAND DEVELOPMENT CODE) FOR DETAILS NOT PROVIDED HEREIN.
2. PLACE 3/4" THICK X 4" WIDE EXPANSION JOINT MATERIAL BETWEEN SIDEWALK AND ALL CURBS, OTHER PAVEMENTS OR STRUCTURES.
3. PLACE 3/4" THICK X 4" WIDE TRANSVERSE EXPANSION JOINTS AT A MAXIMUM SPACING OF 100 FEET.

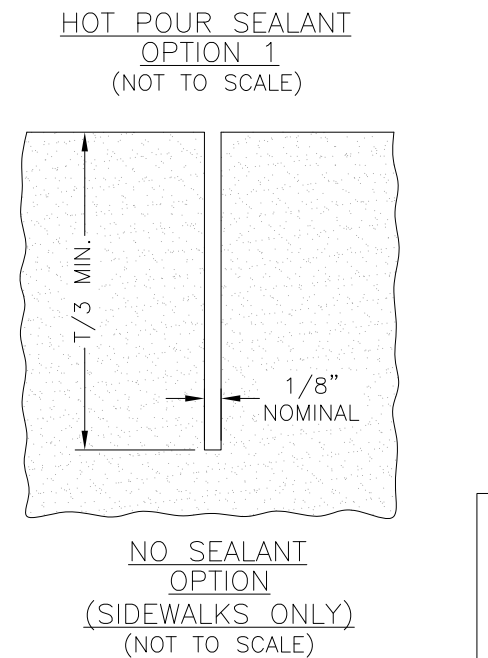
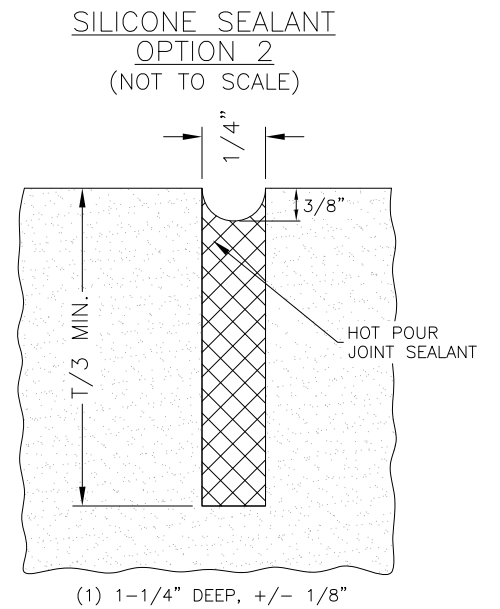
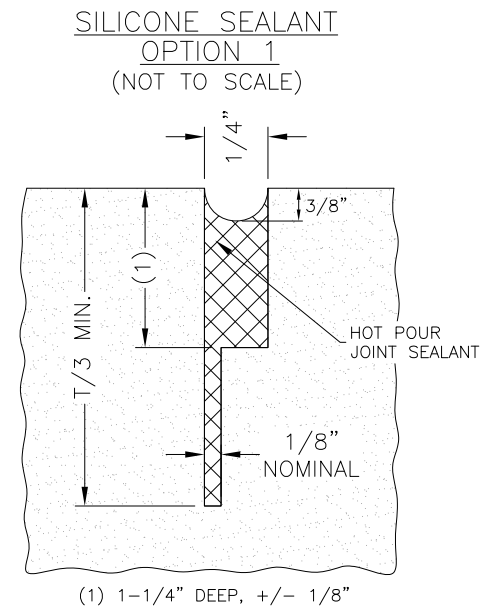
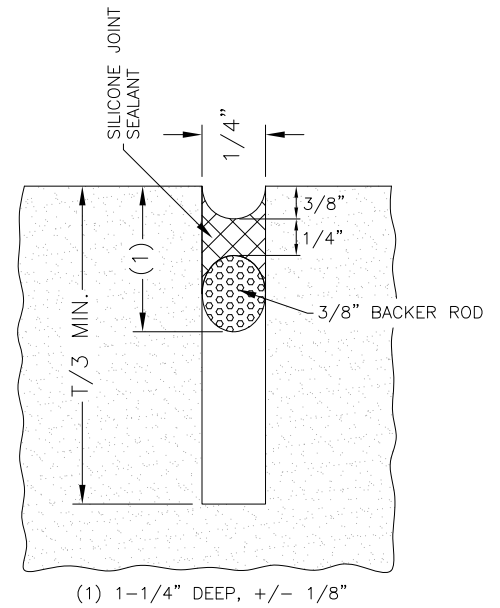
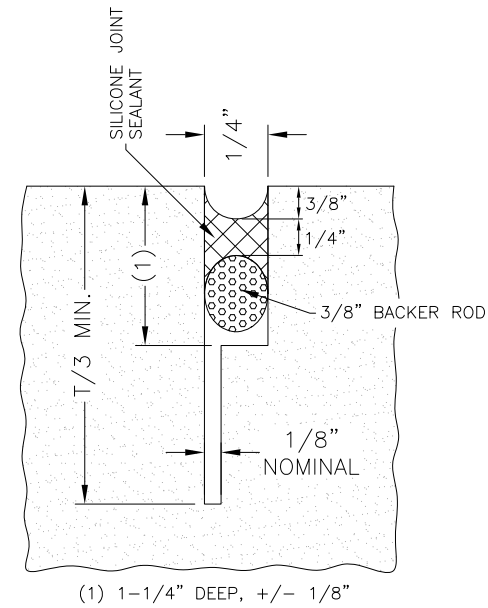
DETAILS FOR CONCRETE SIDEWALK
(LOCATED ADJACENT TO CURB)
(NOT TO SCALE)



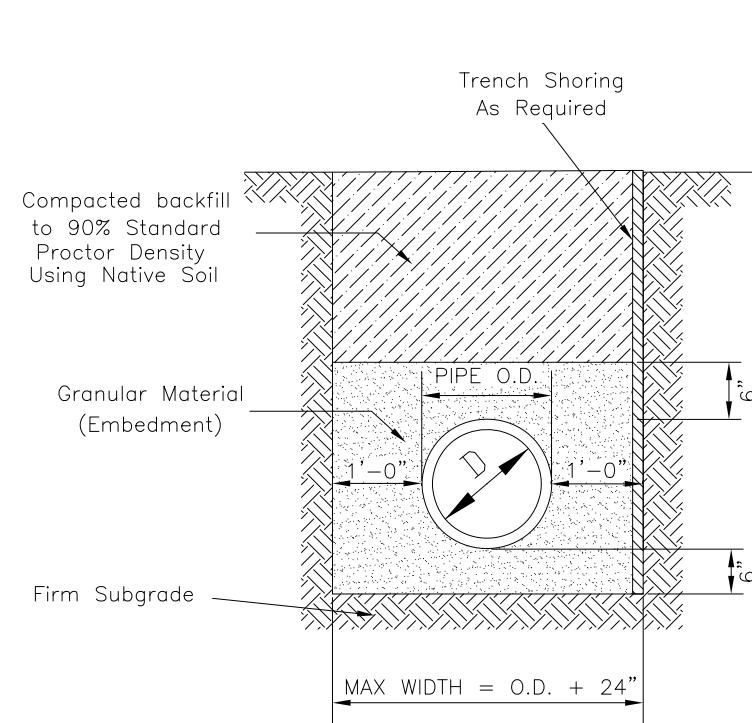
NOTES:

1. REFER TO CHAPTER 46 OF CHICKASHA CITY ORDINANCES (LAND DEVELOPMENT CODE) FOR DETAILS NOT PROVIDED HEREIN.
2. PLACE 3/4" THICK X 4" WIDE EXPANSION JOINT MATERIAL BETWEEN SIDEWALK AND ALL CURBS, OTHER PAVEMENTS OR STRUCTURES.
3. PLACE 3/4" THICK X 4" WIDE TRANSVERSE EXPANSION JOINTS AT A MAXIMUM SPACING OF 100 FEET.

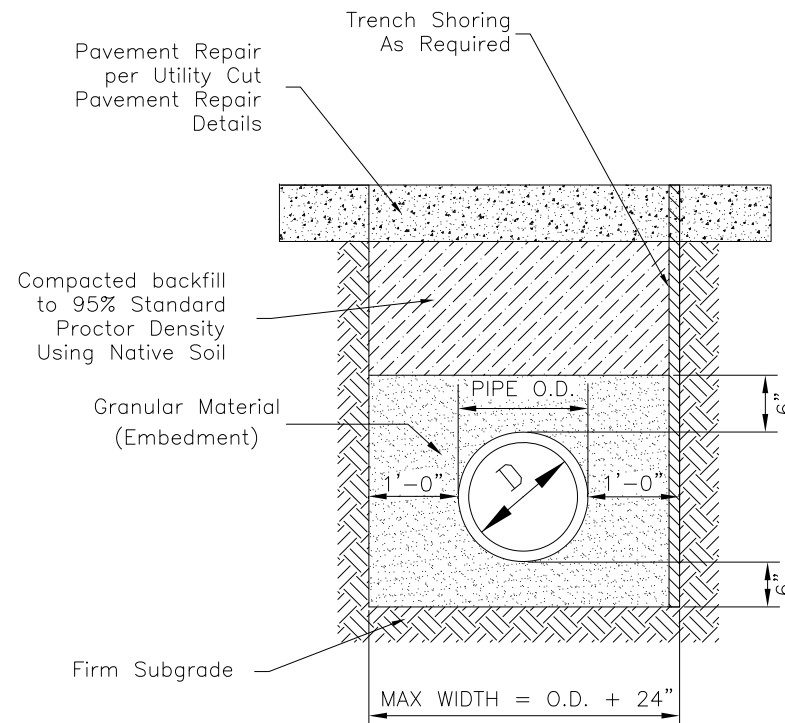
DETAILS FOR CONCRETE SIDEWALK
(LOCATED NEAR PROPERTY LINE)
(NOT TO SCALE)



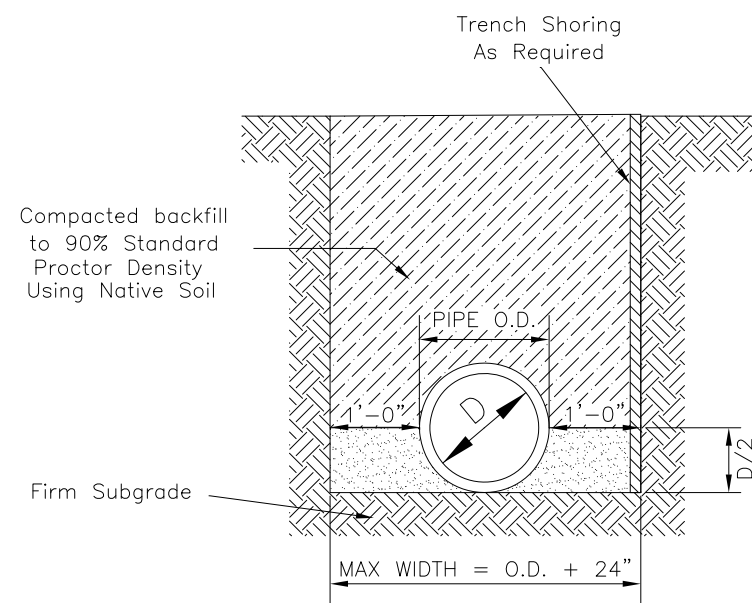
PREPARED BY: CHISHOLM TRAIL CONSULTING, LLC 2124 SCOTT LANE DUNCAN, OKLAHOMA 73533 CA OK7771 RANDALL SCOTT VAUGHN, P.E. 15194		CITY OF CHICKASHA, OKLAHOMA STANDARD PAVING DETAILS APPROVED AND ADOPTED BY THE CITY COUNCIL THIS ____ DAY OF _____, 202___.	
MAYOR _____		ATTEST: CITY CLERK _____	
SIDEWALK AND JOINT DETAILS DO NOT SCALE		Sheet P4	



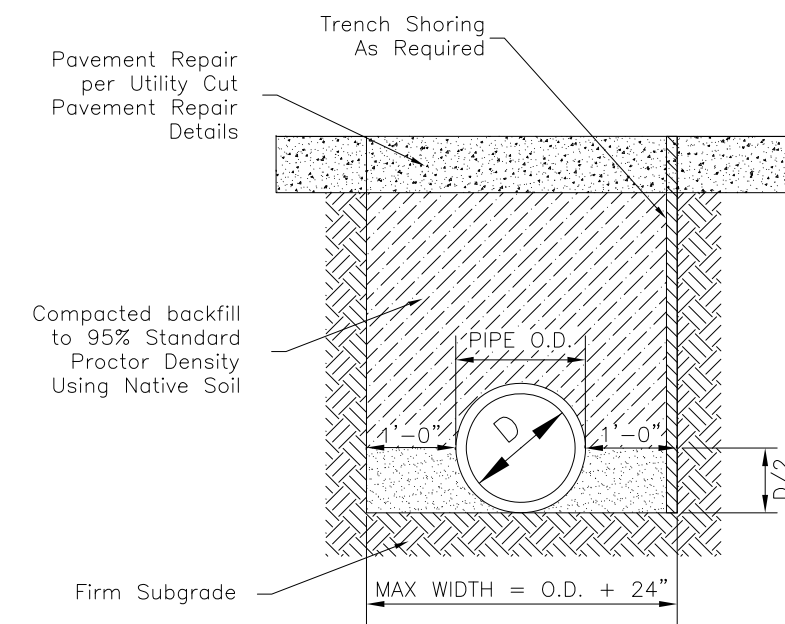
FLEXIBLE PIPE TYPICAL



FLEXIBLE PIPE UNDER PAVEMENTS



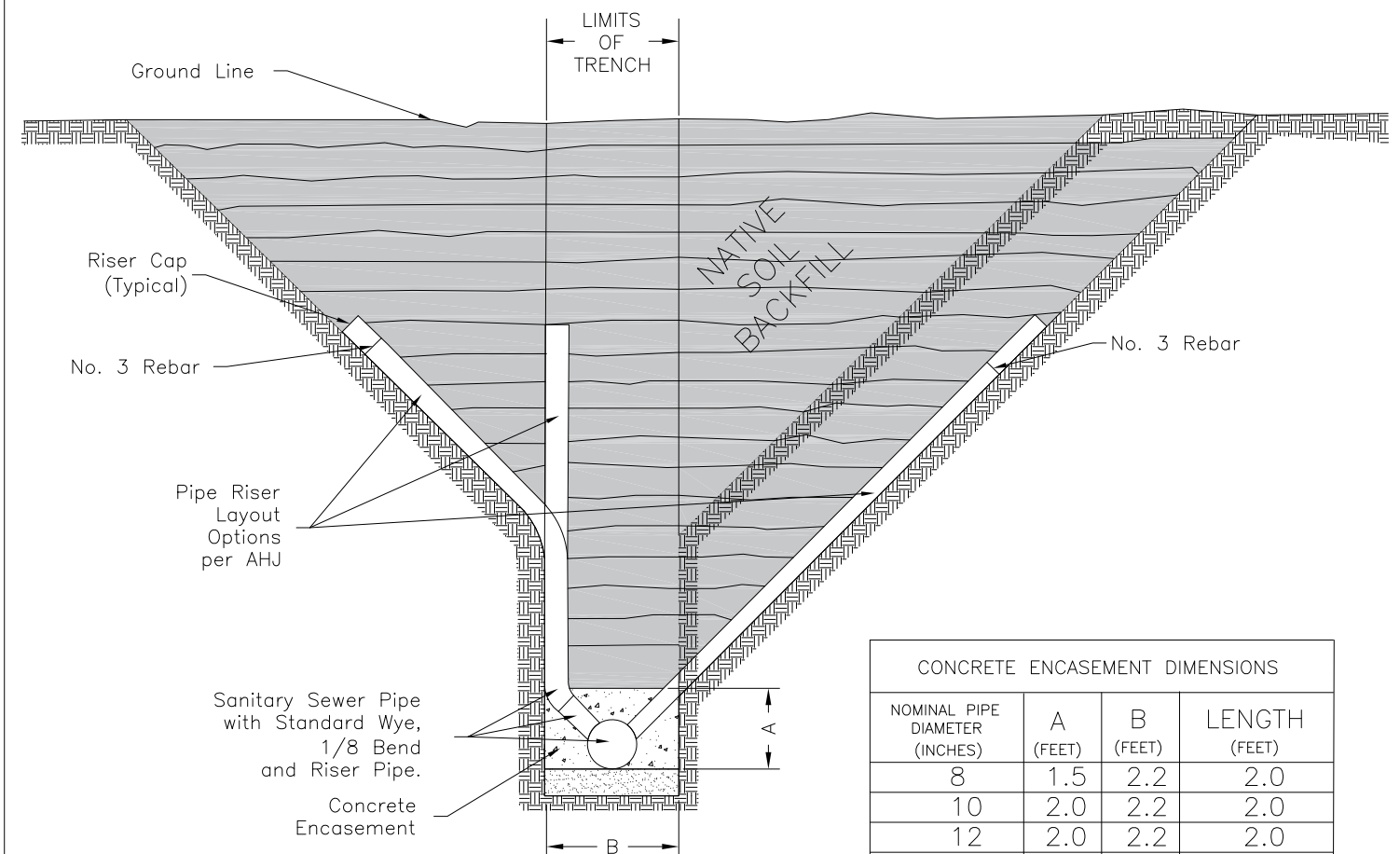
RIGID PIPE TYPICAL



RIGID PIPE UNDER PAVEMENTS

TRENCH WIDTHS		
NOMINAL PIPE DIAMETER (INCHES)	MINIMUM TRENCH WIDTH (INCHES)	MAXIMUM TRENCH WIDTH (INCHES)
8	22	34
10	24	38
12	28	40
15	34	42

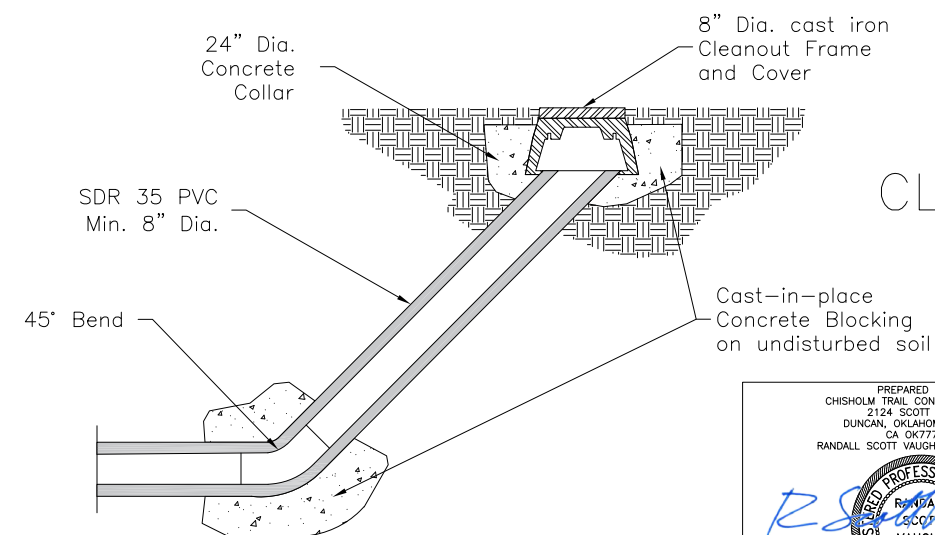
TRENCH TYPICALS



RISER PIPE OPTIONS

RISER PIPE ORPTIONS – TO BE APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ)

- Riser Pipe constructed in a vertical trench with No. 3 Rebar supports as required, backfilled with suitable native soil in compliance with the specifications.
- Riser Pipe constructed in a vertical trench with 1/8 bend on a 1:1 slope, supported by No. 3 Rebar as required, backfilled with suitable native soil in compliance with the specifications.
- Riser Pipe constructed on a 1:1 slope connected to a Wye with No. 3 Rebar supports as required, backfilled with suitable native soil in compliance with the specifications.
- When tapping existing sanitary sewer main, using a Wye saddle and clamp in accordance with AHJ requirements.



CLEANOUT DETAILS

PREPARED BY:
CHISHOLM TRAIL CONSULTING, LLC
2124 SCOTT LANE
DUNCAN, OKLAHOMA 73533
CA 0K7771
RANDALL SCOTT VAUGHN, P.E. 15194

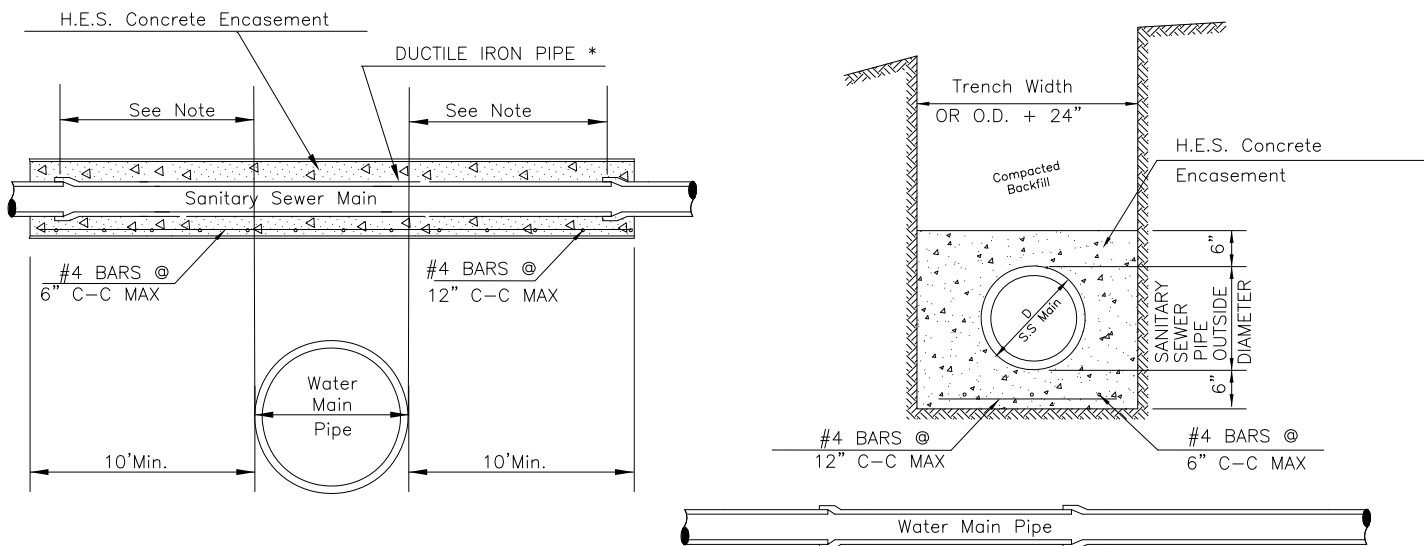
DIGITALLY SIGNED 12/1/2022

CITY OF CHICKASHA, OKLAHOMA
STANDARD DRAWINGS

APPROVED AND ADOPTED BY THE CITY COUNCIL
THIS ____ DAY OF ____ 202__.

MAYOR _____ ATTEST: CITY CLERK _____

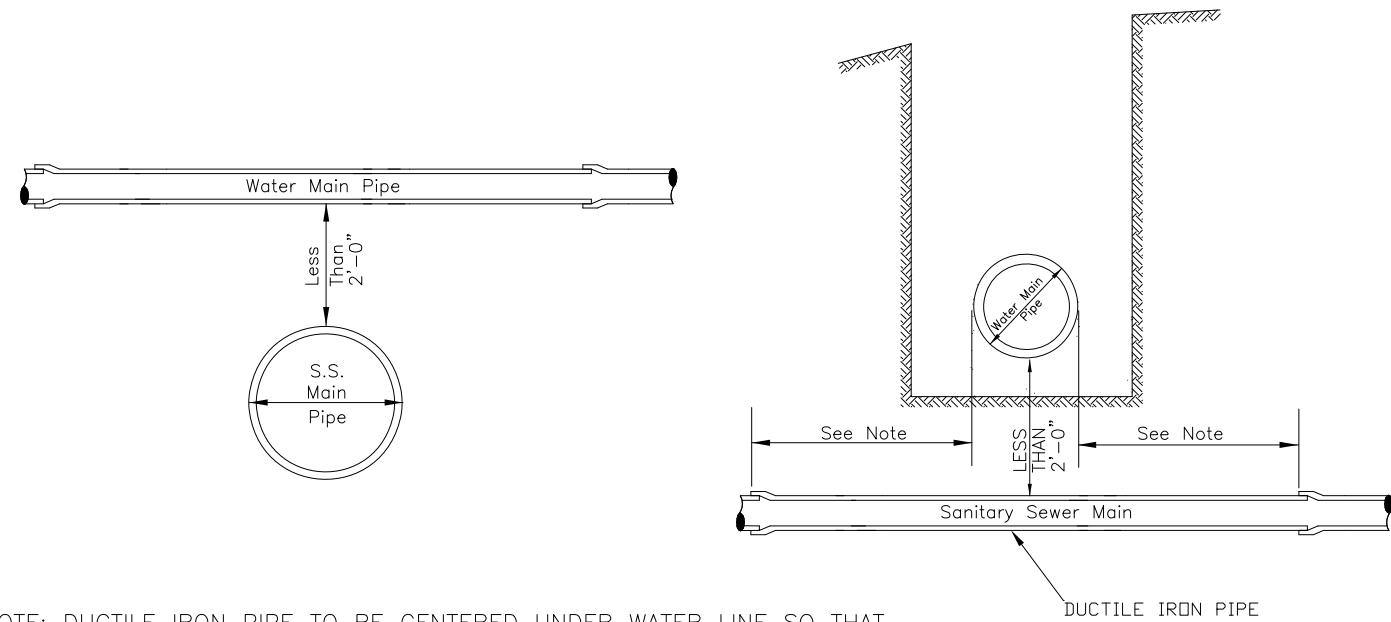
SANITARY SEWER MAIN DETAILS
DO NOT SCALE



NOTE: CONCRETE ENCASEMENT IS TO EXTEND 4-INCHES PAST THE NEAREST JOINT AT OR BEYOND THE 10-FOOT MINIMUM SHOWN. REINFORCEMENT STEEL SHALL HAVE TWO INCHES OF CONCRETE COVER. THE ENGINEER MAY APPROVE OTHER MEANS OF STRUCTURAL SUPPORT OF THE SANITARY SEWER MAIN.

*NOTE: IF CLEARANCE BETWEEN WATER MAIN AND SS MAIN IS LESS THAN 2 FEET DUCTILE IRON PIPE TO BE CENTERED OVER WATER LINE SO THAT JOINTS ARE PLACED EQUAL DISTANCE FROM CROSSING AS SHOWN.

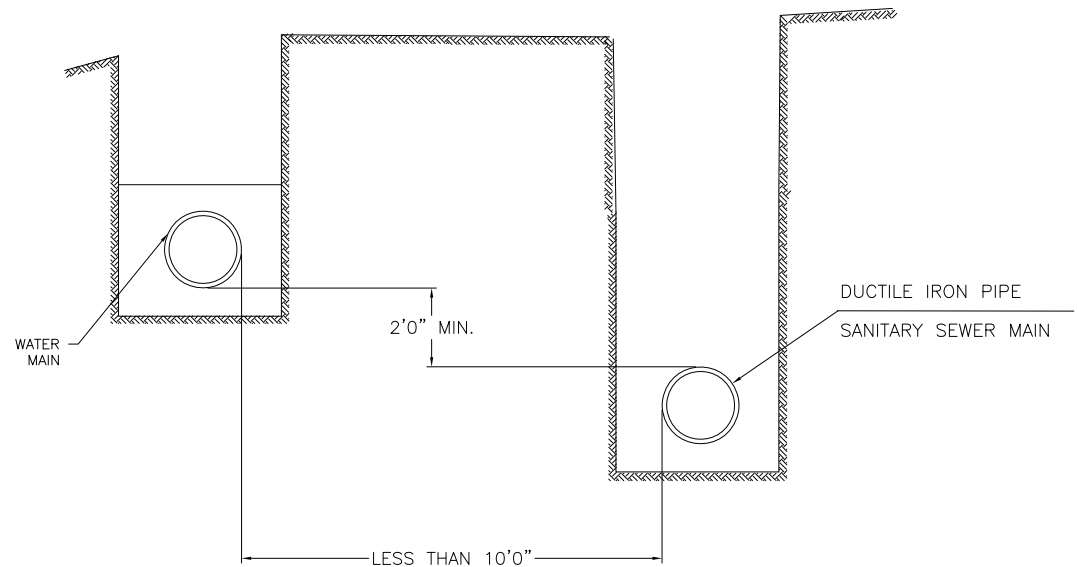
TYPICAL SECTIONS FOR WATER MAIN BELOW SEWER MAIN



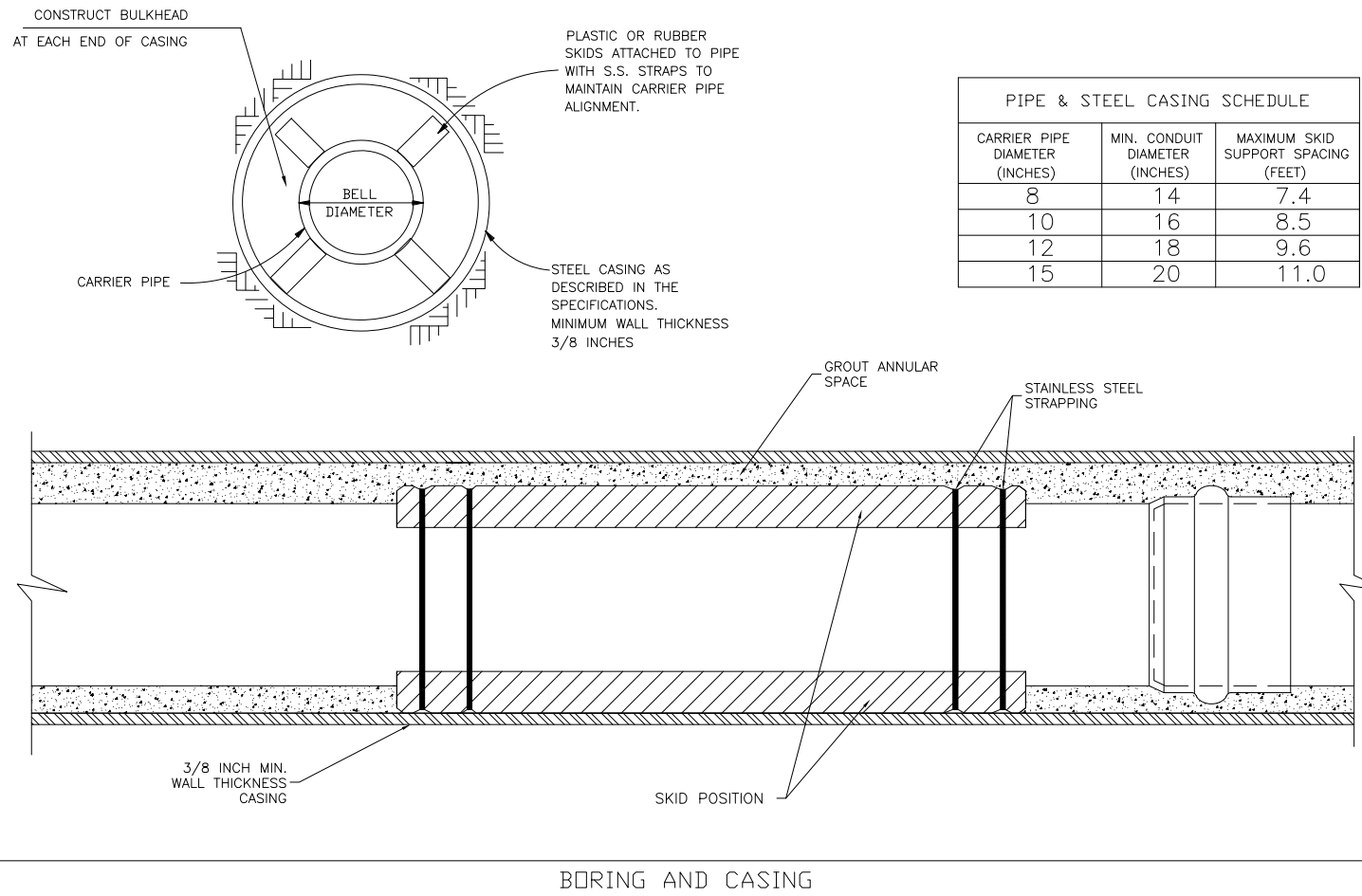
NOTE: DUCTILE IRON PIPE TO BE CENTERED UNDER WATER LINE SO THAT JOINTS ARE PLACED EQUAL DISTANCE FROM CROSSING AS SHOWN.

TYPICAL SECTIONS FOR WATER MAIN LESS THAN 2-FOOT ABOVE SEWER MAIN

WATER LINE AND SEWER CROSSINGS



WATER AND SEWER LINES WITH HORIZONTAL CLEARANCE OF LESS THAN TEN FEET



PIPE & STEEL CASING SCHEDULE		
CARRIER PIPE DIAMETER (INCHES)	MIN. CONDUIT DIAMETER (INCHES)	MAXIMUM SKID SUPPORT SPACING (FEET)
8	14	7.4
10	16	8.5
12	18	9.6
15	20	11.0

PREPARED BY:
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DIGITALLY SIGNED 12/1/2022

CITY OF CHICKASHA, OKLAHOMA
STANDARD DRAWINGS

APPROVED AND ADOPTED BY THE CITY COUNCIL
THIS ____ DAY OF ____ 202__.

MAYOR _____ ATTEST: CITY CLERK _____

SANITARY SEWER MAIN DETAILS
DO NOT SCALE

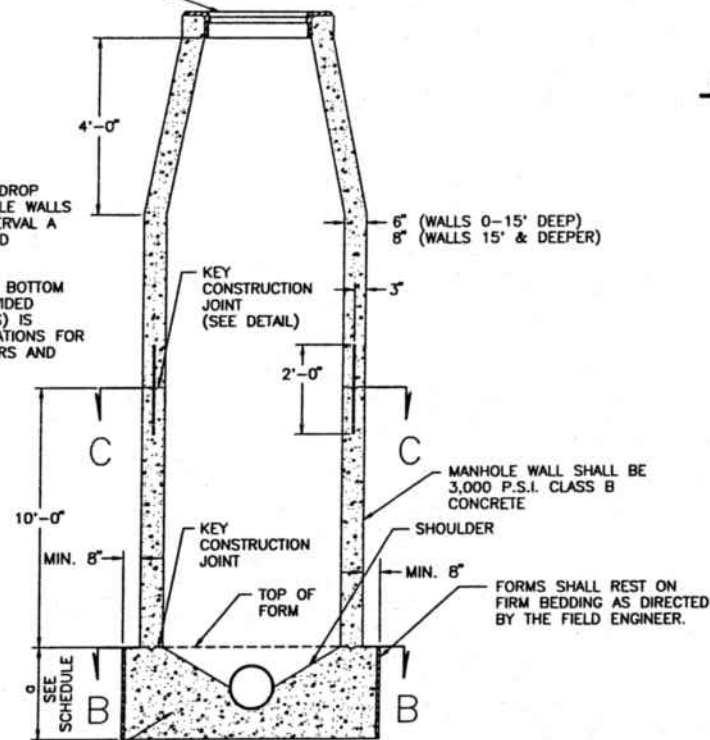
STANDARD POURED-IN-PLACE MANHOLE

TYPE "B" FRAME IS TYPICAL

CONCRETE POURS (ACTUAL VERTICAL DROP OF CONCRETE) FOR HEIGHT OF MANHOLE WALLS SHALL NOT EXCEED 10'. AT THIS INTERVAL A CONSTRUCTION JOINT WILL BE REQUIRED CONFORMING TO THE DETAILS SHOWN.

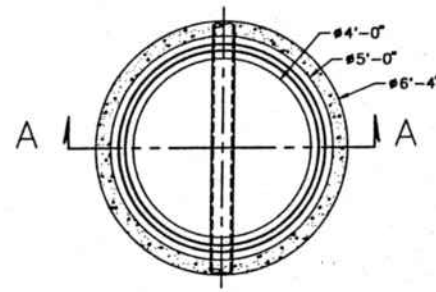
MONOLITHIC POURS OF THE MANHOLE BOTTOM AND WALLS SHALL BE PERMITTED PROVIDED THAT ALL CONCRETE (BOTTOM & WALLS) IS VIBRATED ACCORDING TO THE SPECIFICATIONS FOR THE CONSTRUCTION OF SANITARY SEWERS AND APPURTENANCES.

SCHEDULE OF THICKNESS	
PIPE DIAMETER	a
8"	1'-8"
10"	1'-10"
12"	2'-1"
15"	2'-4"
18"	2'-8"
21"	3'-0"
24"	3'-3"

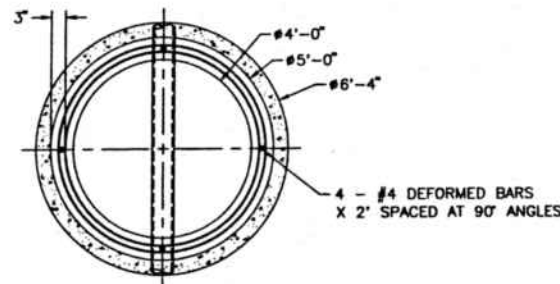


3500 P.S.I. CLASS A CONCRETE

SECTION A-A



SECTION B-B



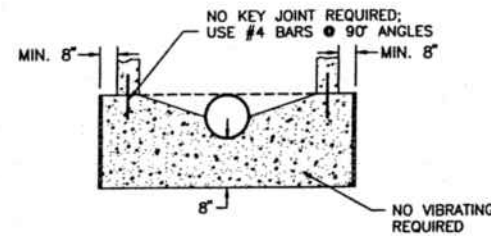
SECTION C-C

CASTING WEIGHTS (FOR COVERS)

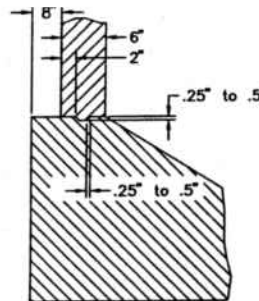
THE AVERAGE WEIGHTS OF CASTING WILL NOT BE LESS THAN 98% OF WEIGHTS SHOWN BELOW.

WEIGHTS OF INDIVIDUAL CASTINGS SHALL NOT BE LESS THAN 95% OF WEIGHTS SHOWN BELOW.

TOTAL TYPE "A" 300 LBS.
TOTAL TYPE "B" 551 LBS.



ALTERNATE JOINT



KEY CONSTRUCTION JOINT
DETAIL
FOR BOTTOM & WALLS

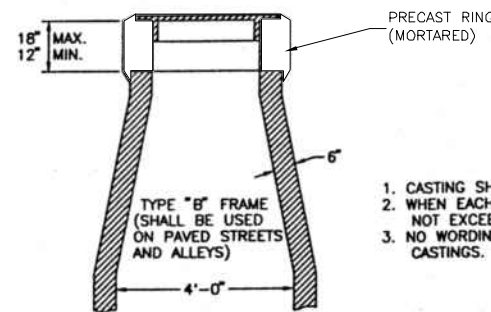
SCALE = 2X

THIS MANHOLE IS STANDARD ONLY FOR SEWERS 36" IN DIAMETER OR LESS, PROVIDED THAT AT JUNCTION POINTS, SPECIAL MANHOLES MAY BE REQUIRED FOR SEWERS SMALLER THAN 36" IN DIAMETER.

INTERIOR SURFACES OF ALL MANHOLE WALLS SHALL RECEIVE TWO (2) COATS OF INERTOL (BLACK SEWER TYPE) PAINT. A MINIMUM INTERVAL OF 24 HOURS SHALL ELAPSE BETWEEN APPLICATIONS OF COATINGS.

FORMS SHALL BE PROVIDED FOR THE SHAPING & FINISHING OF THE MANHOLE BOTTOMS. A MINIMUM OF 24 HOURS SHALL ELAPSE PRIOR TO POURING OF MANHOLE WALLS. CONSTRUCTION OF MANHOLE BOTTOM SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF SANITARY SEWERS AND APPURTENANCES.

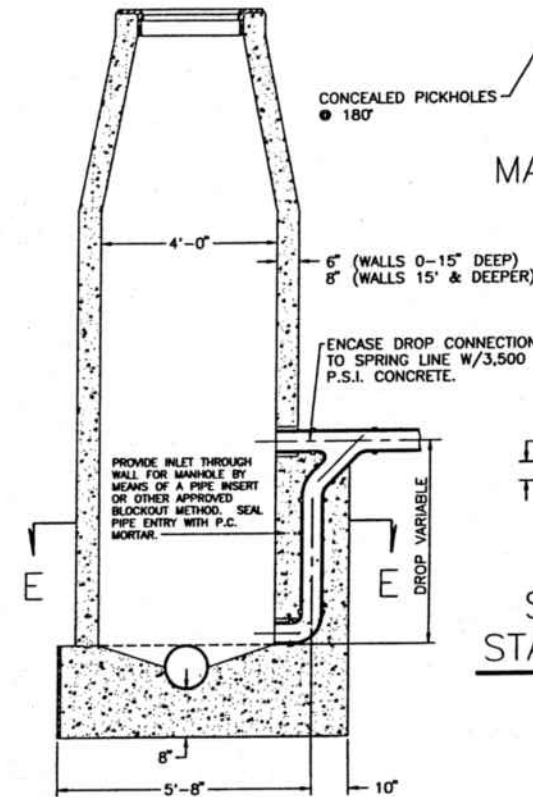
MORTAR FOR FINISHING AND SEALING SHALL BE CLASS "C". ANY HONEYCOMBING OF CONCRETE LESS THAN 2" DEEP IN 6" MANHOLE WALLS MAY BE REPAIRED USING CLASS "D" MORTAR.



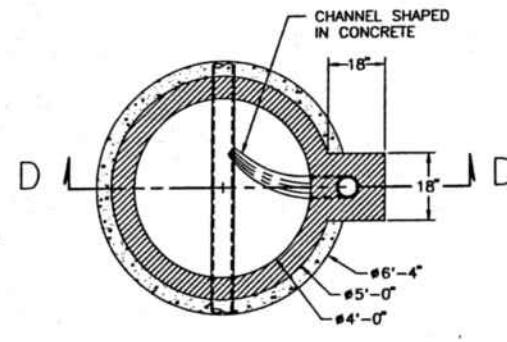
TYPICAL SECTION

TO BE USED ON EXISTING AND FUTURE PAVING

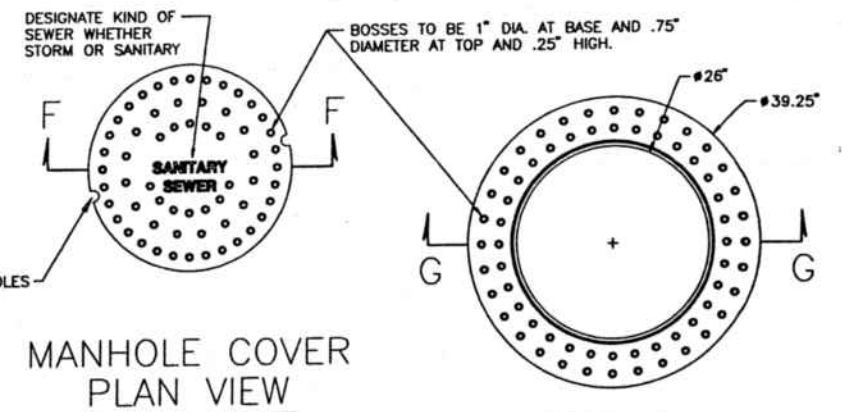
STANDARD POURED-IN-PLACE DROP MANHOLE



SECTION D-D



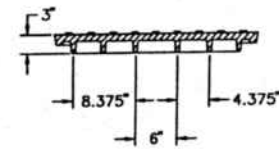
SECTION E-E



MANHOLE COVER
PLAN VIEW

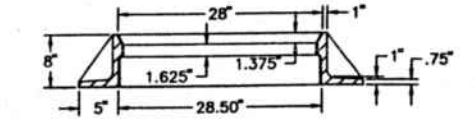
SCALE = 2X

NOTE: TYPE "B" FRAMES SHALL BE USED ON PAVED STREETS AND ALLEYS.



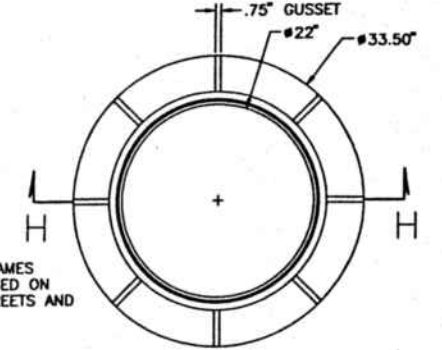
SECTION F-F
STANDARD COVER

SCALE = 2X



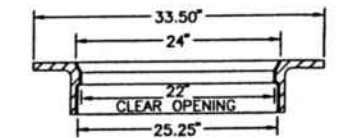
SECTION G-G

SCALE = 2X



TYPE A
STANDARD FRAME
PLAN VIEW

SCALE = 2X

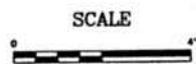


SECTION H-H

SCALE = 2X

GENERAL NOTES

1. CASTING SHALL CONFORM TO THE A.S.T.M. SPECIFICATIONS FOR GRAY-IRON CASTINGS, SERIAL DESIGNATION A 48-74.
2. WHEN EACH COVER IS PLACED IN ANY POSITION IN ITS ASSOCIATED FRAME, THE SIDE PLAY IN ANY DIRECTION SHALL NOT EXCEED ONE-EIGHTH (1/8) INCH.
3. NO WORDING OR MARKINGS OF ANY KIND, OTHER THAN THOSE SHOWN ON THE PLAN, WILL BE PERMITTED ON THESE CASTINGS.



PREPARED BY:
CHISHOLM TRAIL CONSULTING, LLC
2124 SCOTT LANE
DUNCAN, OKLAHOMA 73533
C# 047771
RANDALL SCOTT VAUGHN, P.E. 15194

DIGITALLY SIGNED
12/1/2022

CITY OF CHICKASHA, OKLAHOMA
STANDARD DRAWINGS

APPROVED AND ADOPTED BY THE CITY COUNCIL
THIS ____ DAY OF ____ 202__.

MAYOR ATTEST: CITY CLERK

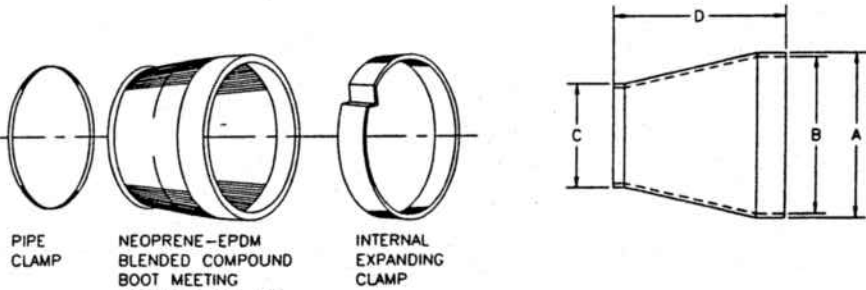
CAST-IN-PLACE MANHOLE DETAILS

DO NOT SCALE

Sheet SSM3

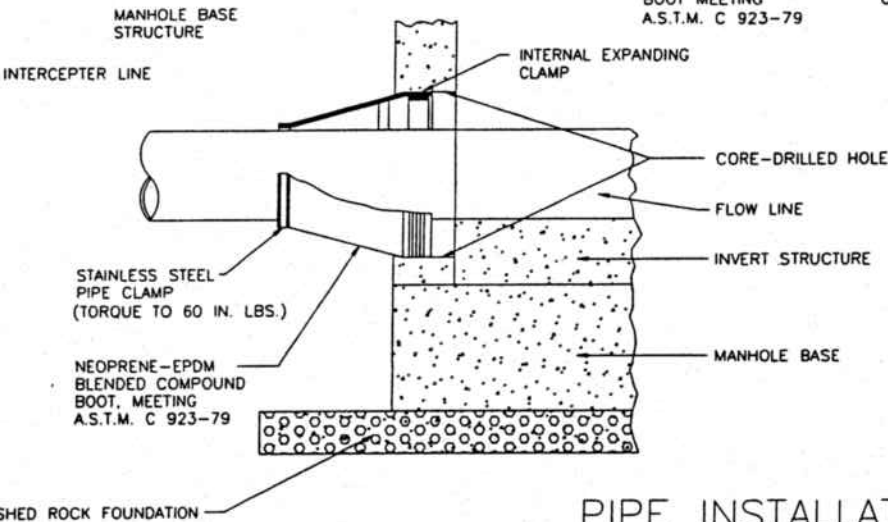
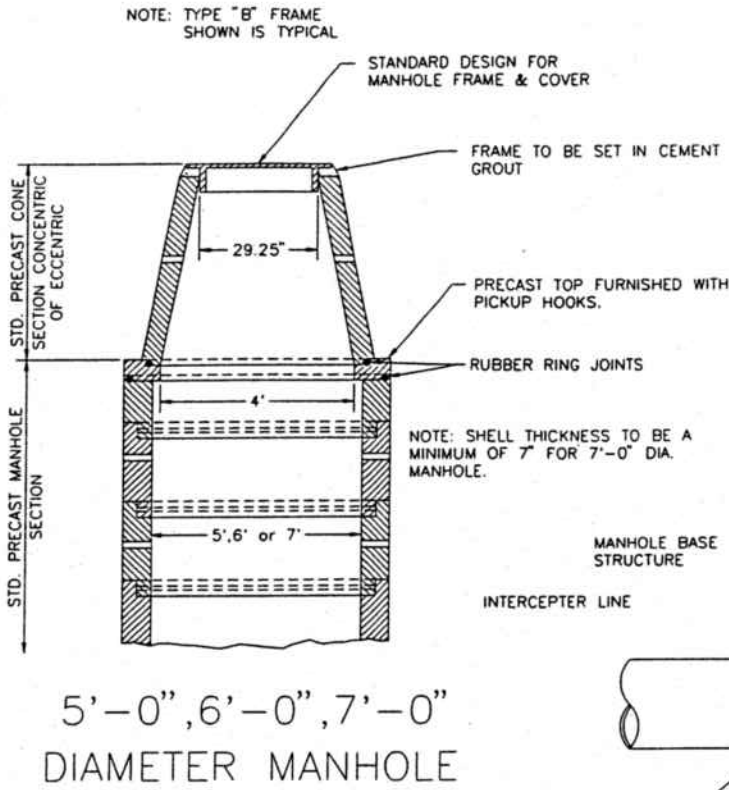
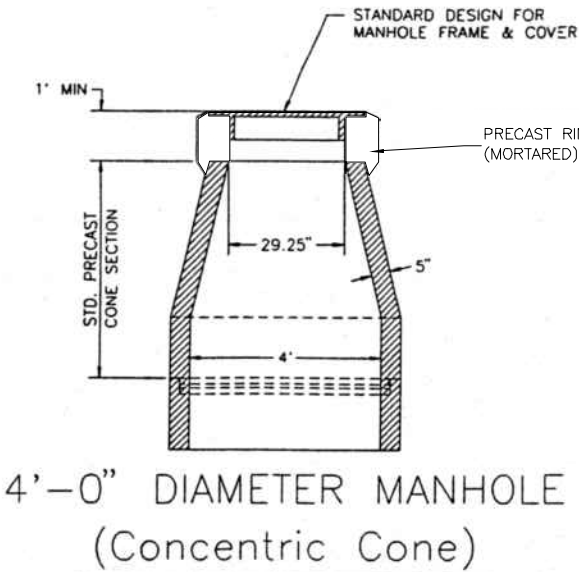
GENERAL NOTES

- 1. ALL PRECAST COMPONENTS SHALL BE REINFORCED WITH THE RESPECTIVE A.S.T.M. SPECIFICATIONS. (C-478-72)
- 2. REINFORCED CONCRETE WALL THICKNESS SHALL BE GOVERNED BY A.S.T.M. SPECIFICATIONS.
- 3. ALL JOINTS SHALL HAVE APPROVED RUBBER RINGS.
- 4. ALL LIFTING HOLES SHALL BE REPAIRED WITH A MIXTURE OF CEMENT AND SAND GROUT FIRMLY PACKED.
- 5. THE INTERIOR SURFACES OF MANHOLE AND CONE SECTIONS SHALL BE COATED WITH TWO COATS OF INERT OR APPROVED EQUAL.
- 6. ALL MASONRY FOR HANDWORK SHALL CONFORM TO STANDARD SPECIFICATIONS.
- 7. ALL CASTINGS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
- 8. THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE IN MANHOLE AND CONE SECTIONS SHALL BE 4,000 P.S.I.



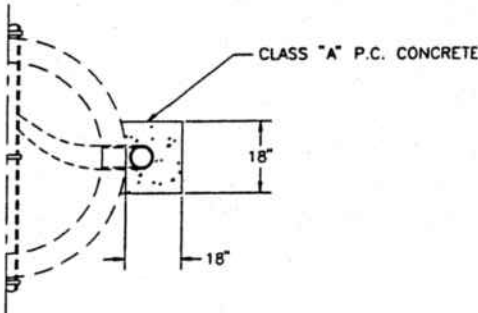
SUGGESTED PIPE O.D. RANGE	HOLE & BOOT DIAMETER DIMENSIONS			
	A	B	C	D
3.5" - 4.5"	7"	6.125"	4.25"	6"
5.375" - 7.0"	12"	10.875"	6.5"	8"
7.0" - 8.5"	12"	10.875"	8"	8"
8.1875" - 9.75"	12"	10.875"	9.25"	8"
9.25" - 11.0"	16"	14.875"	10.5"	8"
10.75" - 12.5"	16"	14.875"	12"	8"
12.0" - 12.75"	16"	14.875"	13.25"	8"
14.5" - 16.25"	20"	18.875"	15.75"	8"
15.75" - 17.5"	20"	18.875"	17"	8"
19.5" - 21.25"	24"	22.875"	20.75"	8"

NOTE: ALL CLAMPS SHALL BE STAINLESS STEEL.

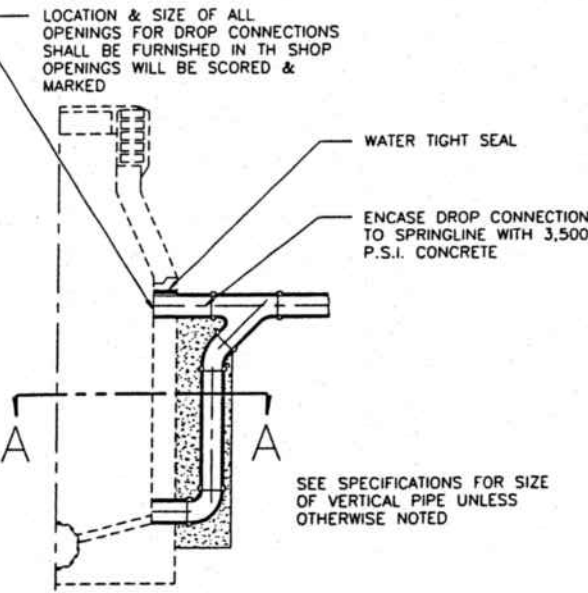
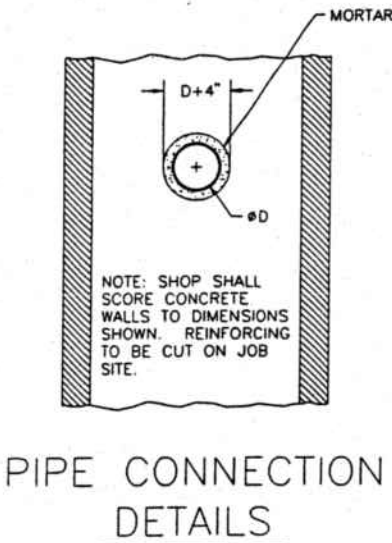
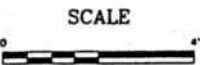


PIPE INSTALLATION DETAIL

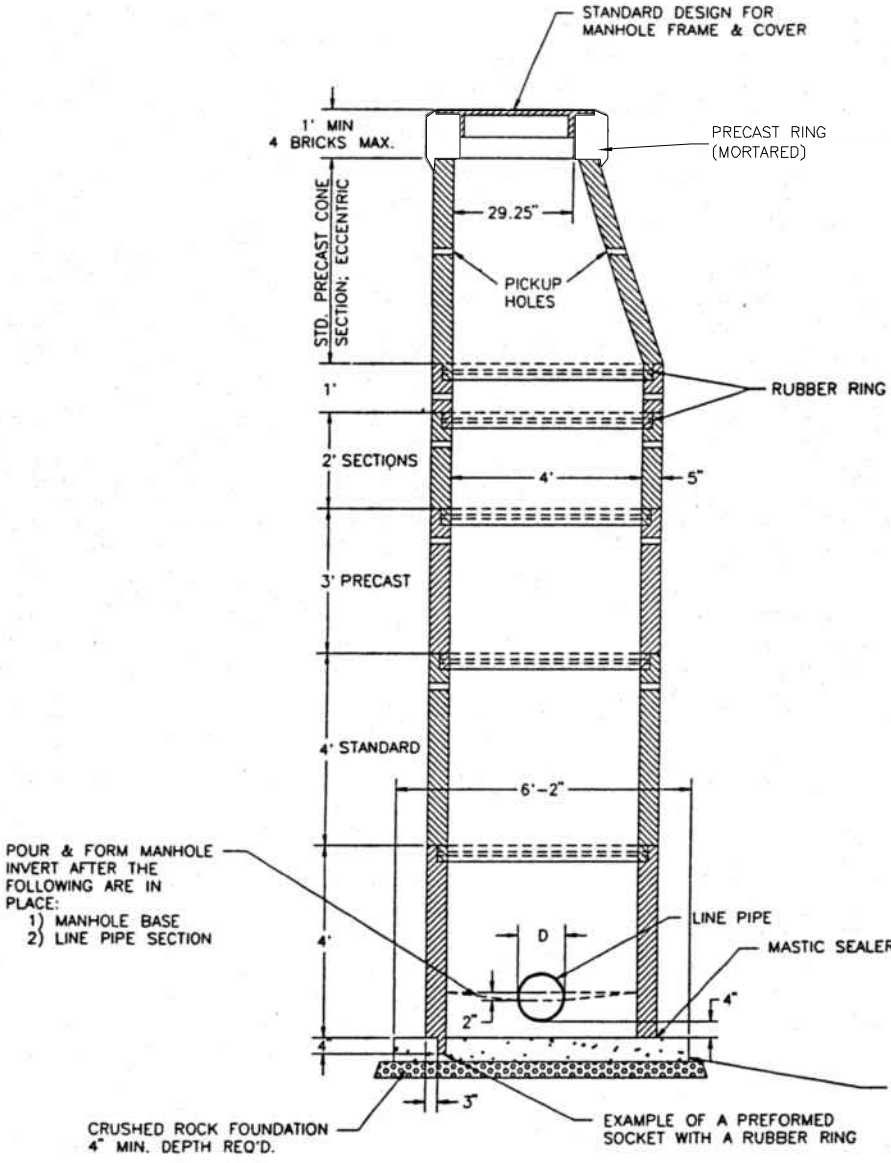
NOT TO SCALE



SECTION A-A



DROP MANHOLE CONNECTION



TYPICAL BASE DETAILS
4'-0" DIAMETER MANHOLE
(Eccentric Cone)

MANHOLE BOTTOM WILL BE POURED OR PRECAST PRECAST SHALL BE OF TWO TYPES:
1) FLAT PRECAST WITH MASTIC SEALER OR
2) BOTTOM WITH PREFORMED SOCKET TO ACCEPT A RUBBER RING.

PREPARED BY:
CHISHOLM TRAIL CONSULTING, LLC
2124 SCOTT LANE
DUNCAN, OKLAHOMA 73533
OK 047771
RANDALL SCOTT VAUGHN, P.E. 15194

R. Scott Vaughn

DIGITALLY SIGNED 12/1/2022

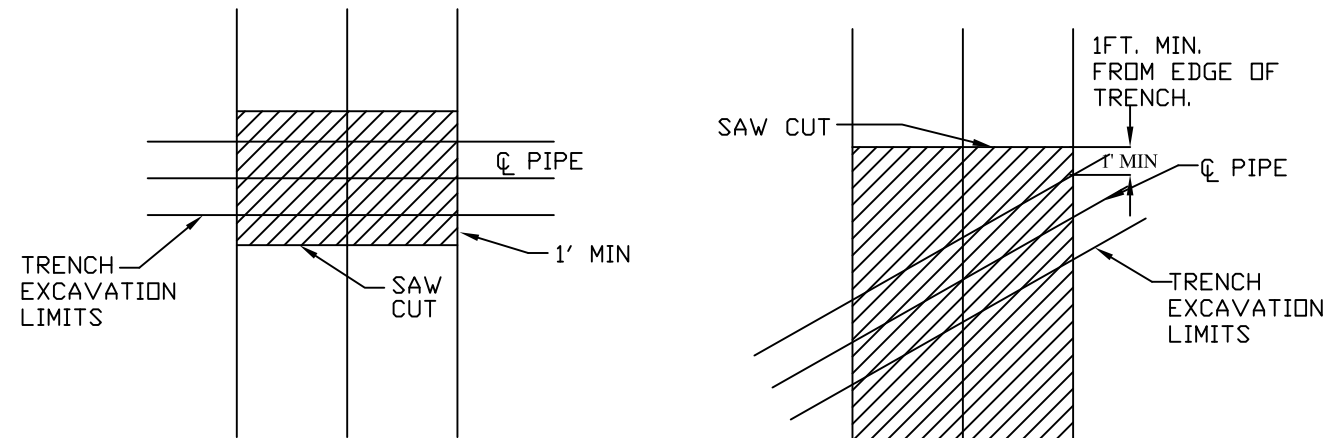
CITY OF CHICKASHA, OKLAHOMA
STANDARD DRAWINGS

APPROVED AND ADOPTED BY THE CITY COUNCIL
THIS ____ DAY OF ____ 202__.

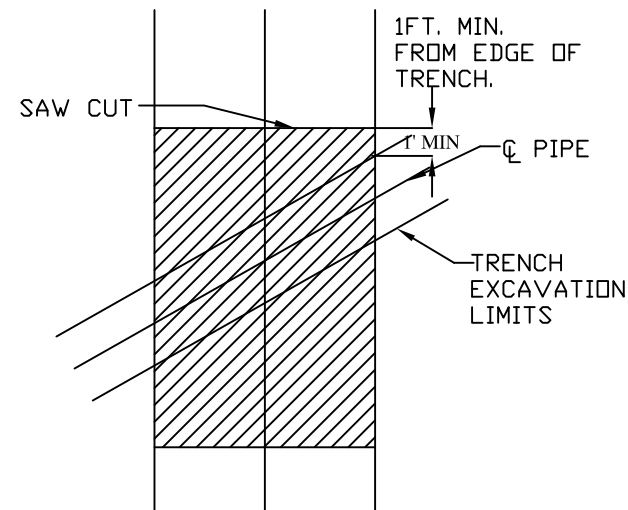
MAYOR _____ ATTEST: CITY CLERK _____

PRECAST MANHOLE DETAILS
DO NOT SCALE

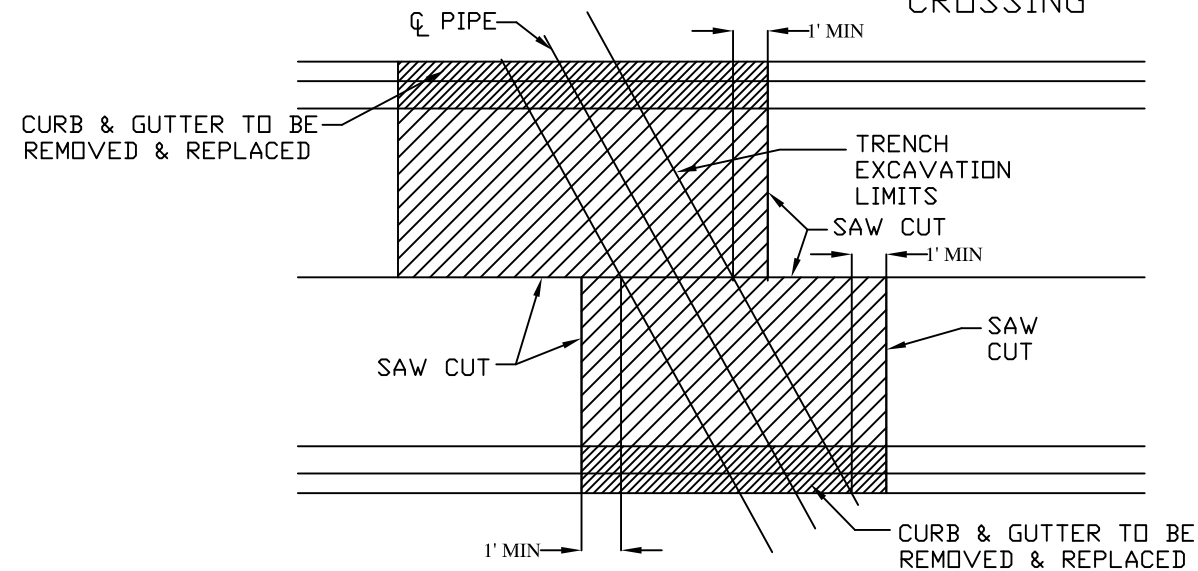
Sheet SSM4



TYP. STREET, DRIVEWAY, OR SIDEWALK WITH RIGHT ANGLE CROSSING



TYP. DRIVEWAY OR SIDEWALK W/ DIAGONAL CROSSING

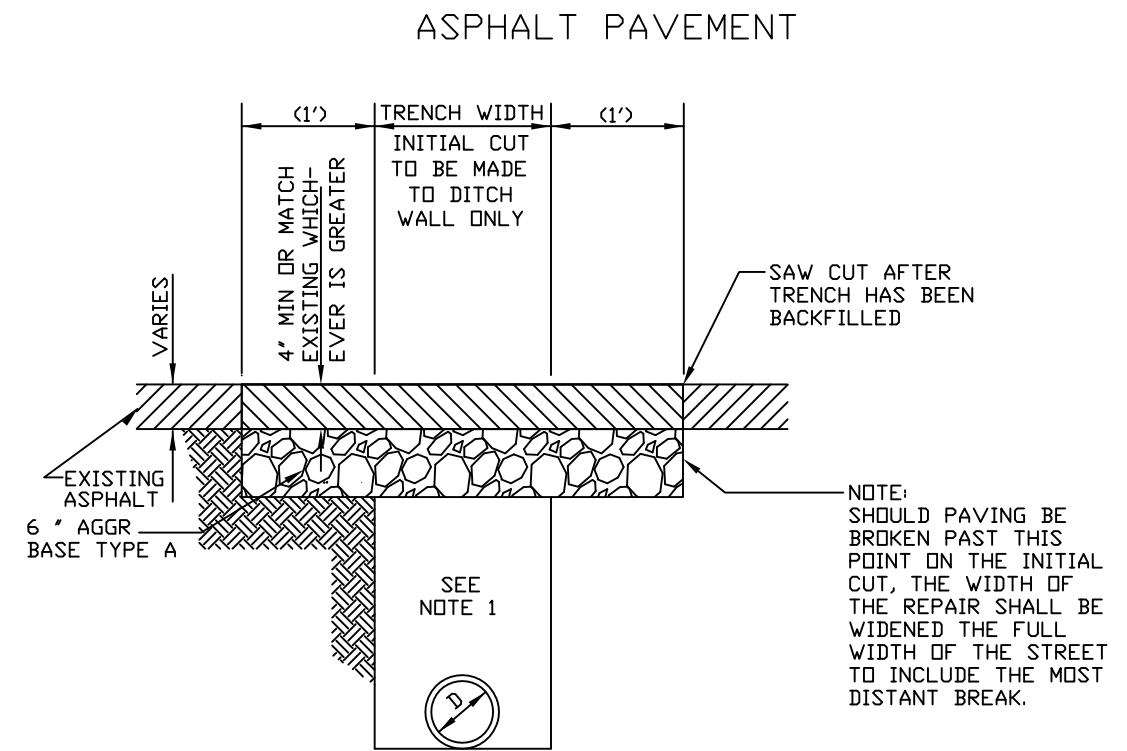


TYPICAL STREET WITH DIAGONAL CROSSING

NOTES:

1. REMOVE AND REPLACE PAVEMENT WITHIN SHADED AREAS BOUNDED BY SAW CUTS
2. FOR DIAGONAL CROSSING, REPLACE PAVEMENT USING SQUARED CUTS, AS SHOWN. PAY QUANTITY WILL INCLUDE SQUARED AREA.
3. FOR LONGITUDINAL INSTALLATIONS: REMOVE AND REPLACE PAVEMENT AND CURB TO EDGE OF STREET, IF THE SAW CUT IS LESS THAN 3 FT. FROM THE OUTSIDE EDGE OF THE PAVEMENT OR CURB. AVOID SAW CUTS IN THE EXISTING WHEEL PATH.

STANDARD PAVEMENT CUTS



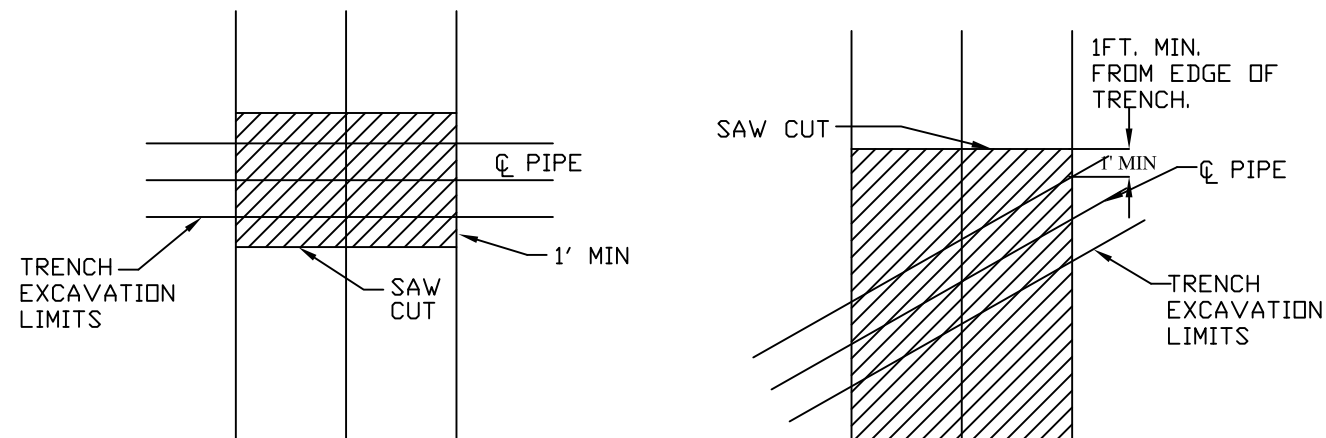
D	STD. TRENCH WIDTH
IN.	IN.
6	20
8	22
10	24
12	28
15	32
18	34
21	42
24	42
27	48
30	48
33	54
36	54
42	60
54	72
60	78
66	84

NOTE: SHOULD PAVING BE BROKEN PAST THIS POINT ON THE INITIAL CUT, THE WIDTH OF THE REPAIR SHALL BE WIDENED THE FULL WIDTH OF THE STREET TO INCLUDE THE MOST DISTANT BREAK.

GENERAL NOTES:

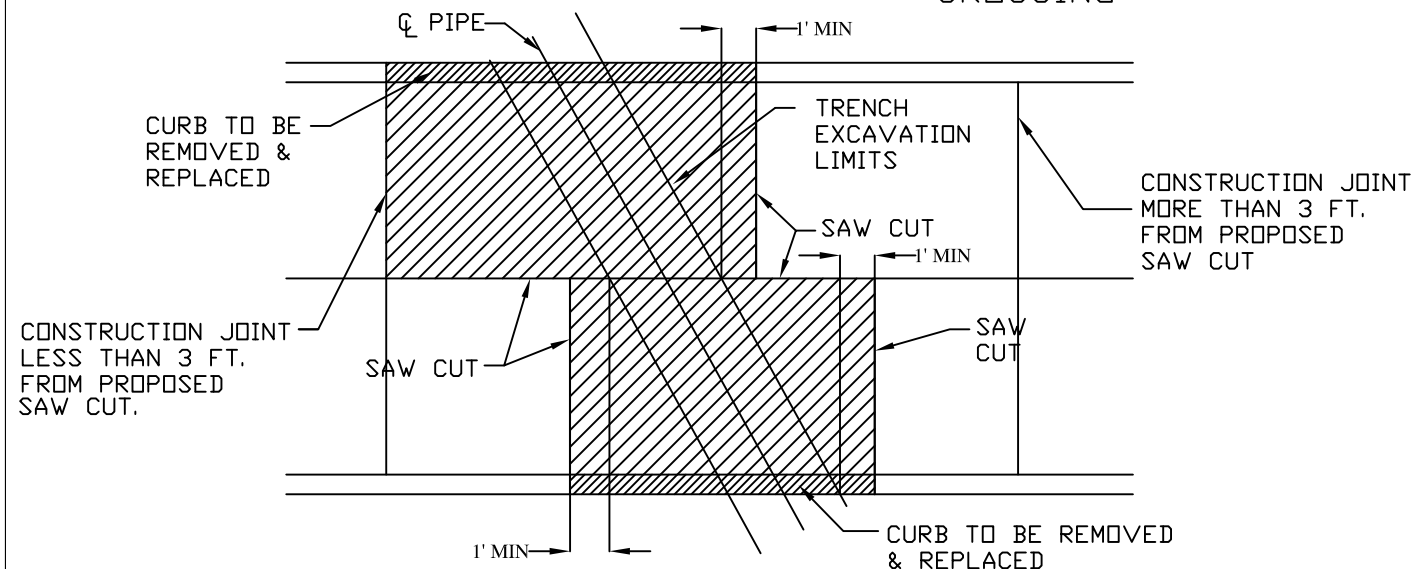
1. ALL PUBLIC ROAD CROSSINGS ARE TO BE BACKFILLED WITH ODOT 703.01 TYPE A AGGREGATE BASE OR APPROVED EQUIVALENT.
2. NO PAYMENT WILL BE MADE FOR REPLACEMENT OF PAVEMENT OUTSIDE OF STD. PAY WIDTH DUE TO TRENCH EXCAVATION WIDER THAN STANDARD TRENCH WIDTH.
3. PAY QUANTITY WILL INCLUDE REPLACEMENT OF PAVEMENT DUE TO SQUARING OF DIAGONAL CUTS.
4. WHERE TRENCH EXCAVATION IS WITHIN 12" OF BACK OF CURB, BACKFILL SHALL BE COMPACTED TO 95% STD. DENSITY FROM 6" ABOVE PIPE TO TOP OF TRENCH.
5. ASPH CONC TO BE TYPE B AS PER ODOT STD SPECS, SECTION 708.

PAVEMENT REMOVAL AND REPLACEMENT



TYP. STREET, DRIVEWAY, OR SIDEWALK WITH RIGHT ANGLE CROSSING

TYP. DRIVEWAY OR SIDEWALK W/ DIAGONAL CROSSING



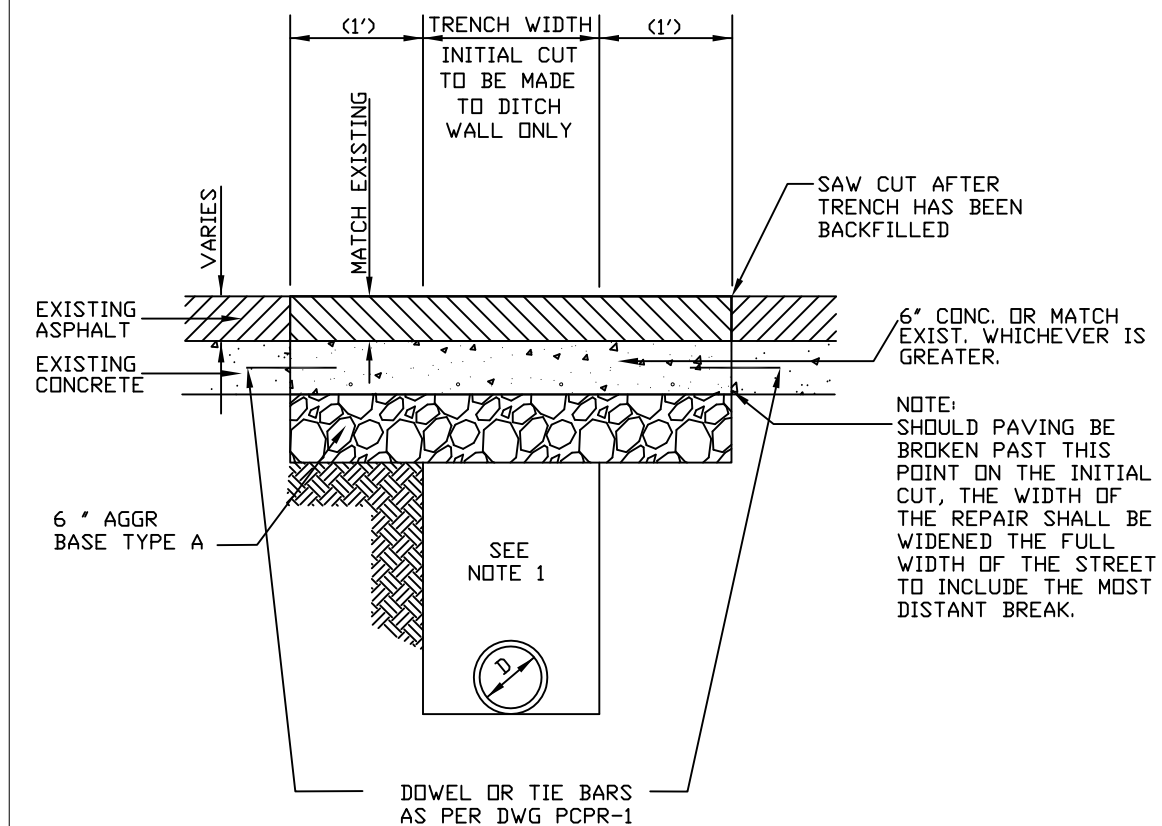
TYPICAL STREET WITH DIAGONAL CROSSING

NOTES:

1. REMOVE AND REPLACE PAVEMENT WITHIN SHADED AREAS BOUNDED BY SAW CUTS AND/OR CONSTRUCTION JOINTS.
2. FOR DIAGONAL CROSSING, REPLACE PAVEMENT USING SQUARED CUTS, AS SHOWN. PAY QUANTITY WILL INCLUDE SQUARED AREA.
3. REMOVE AND REPLACE PAVEMENT TO CONSTRUCTION JOINT IF LESS THAN 3 FT. FROM PROPOSED SAW CUT. EXTRA AREA WILL BE INCLUDED IN PAY QUANTITY.
4. FOR LONGITUDINAL INSTALLATIONS: REMOVE AND REPLACE PAVEMENT AND CURB TO EDGE OF STREET, IF THE SAW CUT IS LESS THAN 3 FT. FROM THE OUTSIDE EDGE OF THE PAVEMENT OR CURB. AVOID SAW CUTS IN THE EXISTING WHEEL PATH.
5. ALL JOINTS SHALL BE RE-ESTABLISHED IN ACCORDANCE WITH THE APPROPRIATE CITY STANDARDS FOR PORTLAND CEMENT CONCRETE PAVEMENT.

STANDARD PAVEMENT CUTS

ASPHALT OVER CONC. PAVEMENT

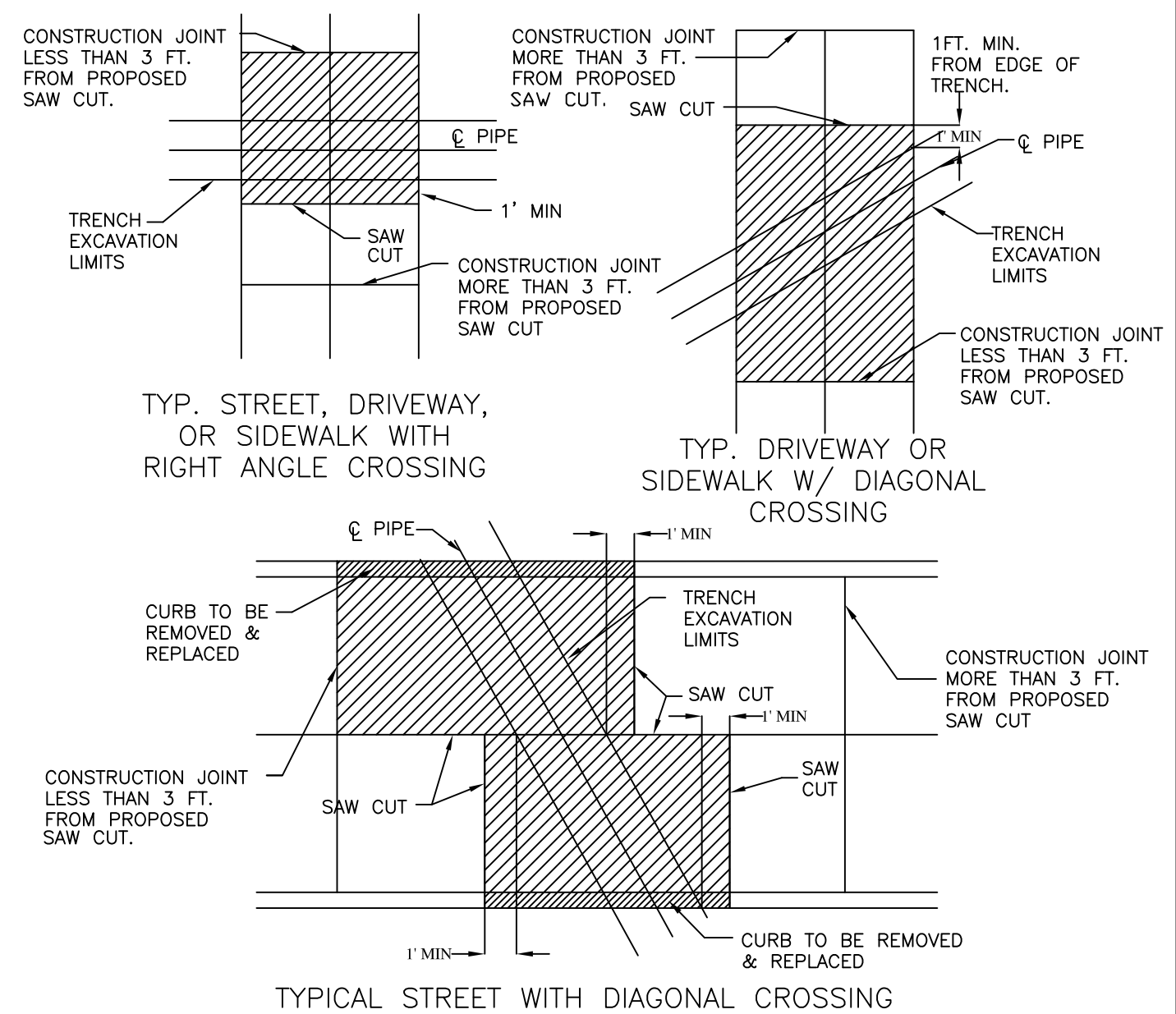


D	STD. TRENCH WIDTH
IN.	IN.
6	20
8	22
10	24
12	28
15	32
18	34
21	42
24	42
27	48
30	48
33	54
36	54
42	60
54	72
60	78
66	84

GENERAL NOTES:

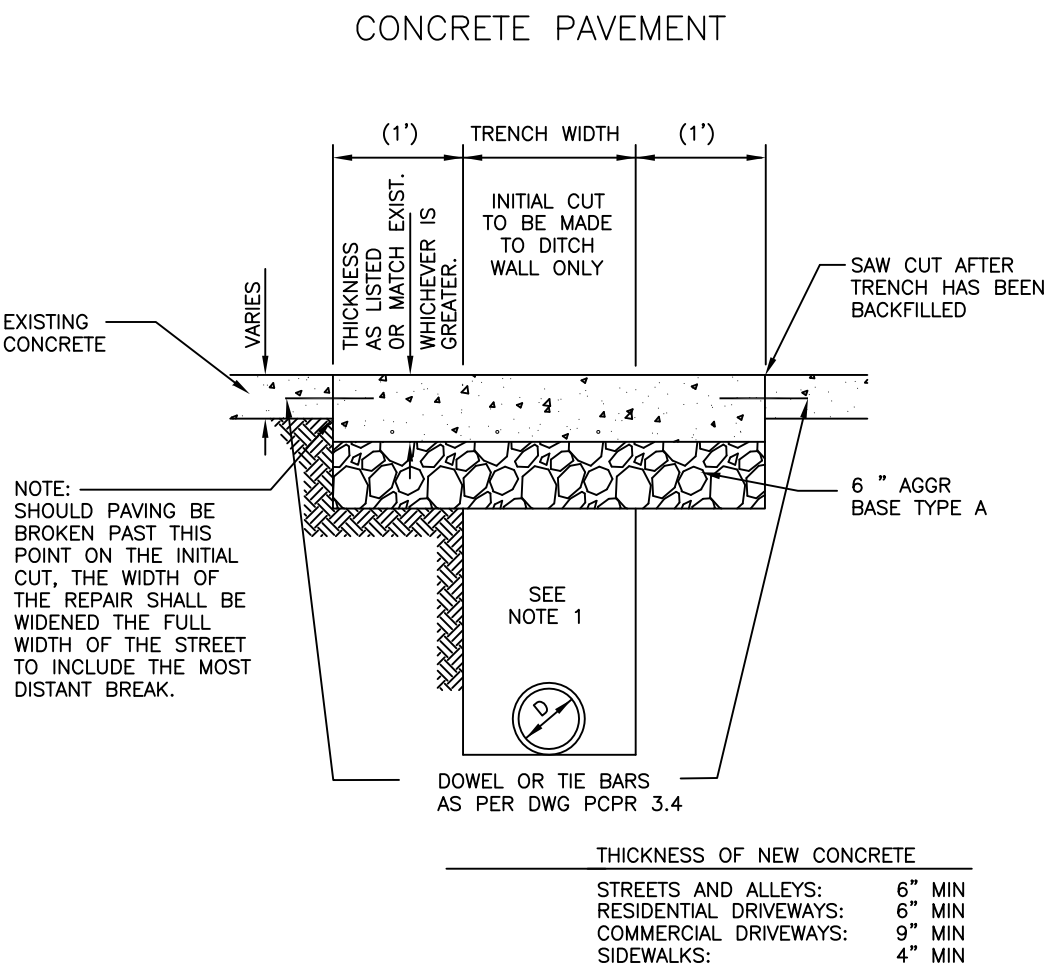
1. ALL PUBLIC ROAD CROSSINGS ARE TO BE BACKFILLED WITH ODOT 703.01 TYPE A AGGREGATE BASE OR APPROVED EQUIVALENT.
2. REMOVE AND REPLACE PAVEMENT TO NEAREST JOINT IF PROPOSED SAW CUT IS LESS THAN 3' FROM JOINT.
3. NO PAYMENT WILL BE MADE FOR REPLACEMENT OF PAVEMENT OUTSIDE OF STD. PAY WIDTH DUE TO TRENCH EXCAVATION WIDER THAN STANDARD TRENCH WIDTH.
4. PAY QUANTITY WILL INCLUDE REPLACEMENT OF PAVEMENT DUE TO SQUARING OF DIAGONAL CUTS.
5. WHERE TRENCH EXCAVATION IS WITHIN 12" OF BACK OF CURB BACKFILL SHALL BE COMPACTED TO 95% STD. DENSITY FROM 6" ABOVE PIPE TO TOP OF TRENCH.
6. ASPH CONC TO BE TYPE B AS PER ODOT STD SPECS, SECTION 708.
7. CONCRETE SHALL BE CLASS A OR CLASS A(HES) AS SPECIFIED IN THE PROPOSAL, AND SHALL COMPLY TO ODOT SPECS. SECTION 701. MIX DESIGNS SHALL BE APPROVED BY THE ENGINEER.
8. REFER TO DRAWING PCPR FOR ADDITIONAL DETAILS.

PAVEMENT REMOVAL AND REPLACEMENT



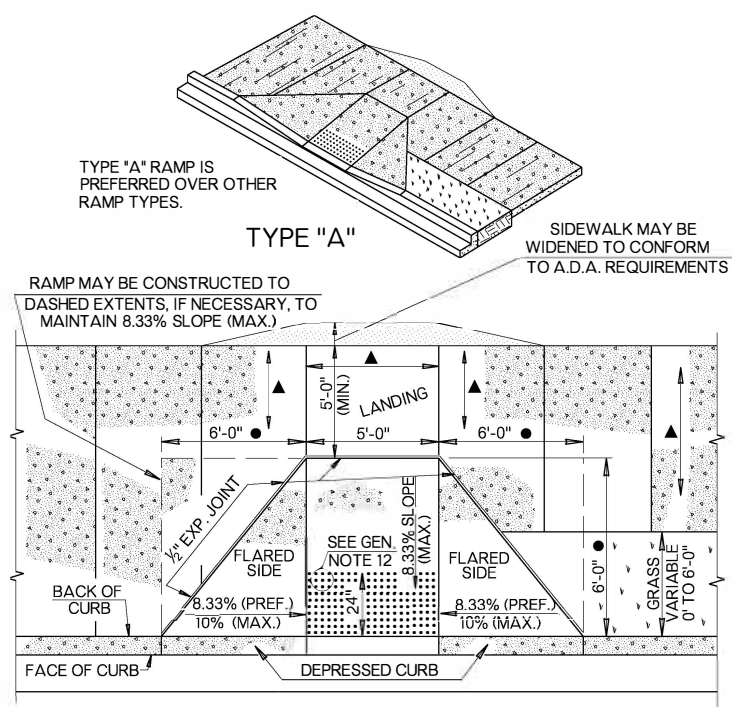
- NOTES:
1. REMOVE AND REPLACE PAVEMENT WITHIN SHADED AREAS BOUNDED BY SAW CUTS AND/OR CONSTRUCTION JOINTS.
 2. FOR DIAGONAL CROSSING, REPLACE PAVEMENT USING SQUARED CUTS, AS SHOWN. PAY QUANTITY WILL INCLUDED SQUARED AREA.
 3. REMOVE AND REPLACE PAVEMENT TO CONSTRUCTION JOINT IF LESS THAN 3 FT. FROM PROPOSED SAW CUT. EXTRA AREA WILL BE INCLUDED IN PAY QUANTITY.
 4. FOR LONGITUDINAL INSTALLATIONS: REMOVE AND REPLACE PAVEMENT AND CURB TO EDGE OF STREET, IF THE SAW CUT IS LESS THAN 3 FT. FROM THE OUTSIDE EDGE OF THE PAVEMENT OR CURB. AVOID SAW CUTS IN THE EXISTING WHEEL PATH.
 5. ALL JOINTS SHALL BE REESTABLISHED IN ACCORDANCE WITH THE CITY OF CHICKASHA STANDARDS FOR PORTLAND CEMENT CONCRETE PAVEMENT.

STANDARD PAVEMENT CUTS



- GENERAL NOTES:
1. ALL PUBLIC ROAD CROSSINGS ARE TO BE BACKFILLED WITH ODOT 703.01 TYPE A AGGREGATE BASE OR APPROVED EQUIVALENT.
 2. REMOVE AND REPLACE PAVEMENT TO NEAREST JOINT IF PROPOSED SAW CUT IS LESS THAN 3' FROM JOINT.
 3. NO PAYMENT WILL BE MADE FOR REPLACEMENT OF PAVEMENT OUTSIDE OF STD. PAY WIDTH DUE TO TRENCH EXCAVATION WIDER THAN STANDARD TRENCH WIDTH.
 4. PAY QUANTITY WILL INCLUDE REPLACEMENT OF PAVEMENT DUE TO SQUARING OF DIAGONAL CUTS.
 5. WHERE TRENCH EXCAVATION IS WITHIN 12" OF BACK OF CURB BACKFILL SHALL BE COMPACTED TO 95% STD. DENSITY FROM 6" ABOVE PIPE TO TOP OF TRENCH.
 6. CONCRETE SHALL BE CLASS A OR CLASS A(HES) AS SPECIFIED IN THE PROPOSAL, AND SHALL COMPLY TO ODOT SPECS. SECTION 701. MIX DESIGNS SHALL BE APPROVED BY THE ENGINEER.
 7. REFER TO DRAWING PCPR FOR ADDITIONAL DETAILS.

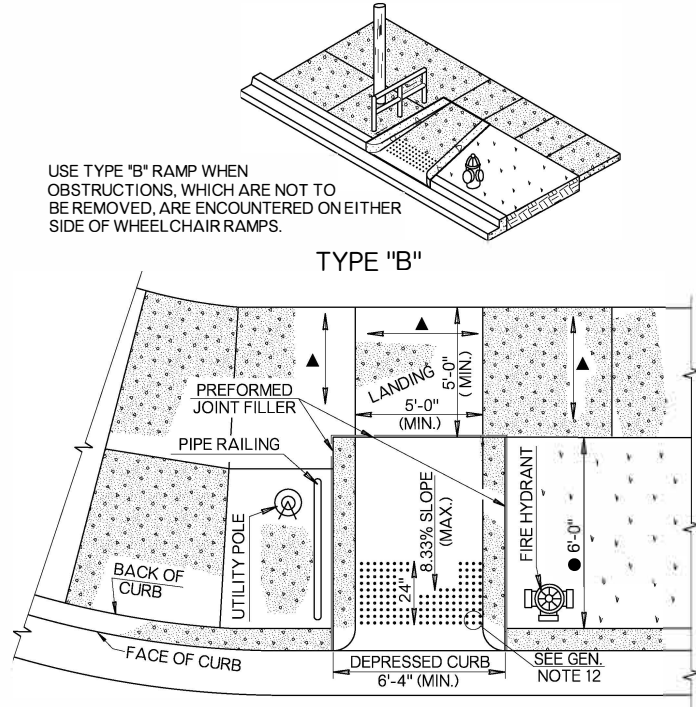
PAVEMENT REMOVAL AND REPLACEMENT



TYPE "A"

PLAN

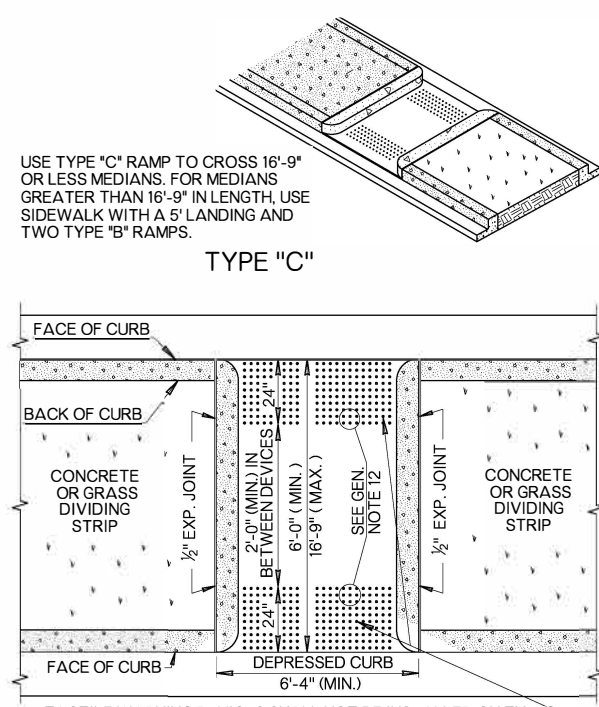
ELEVATION



TYPE "B"

PLAN

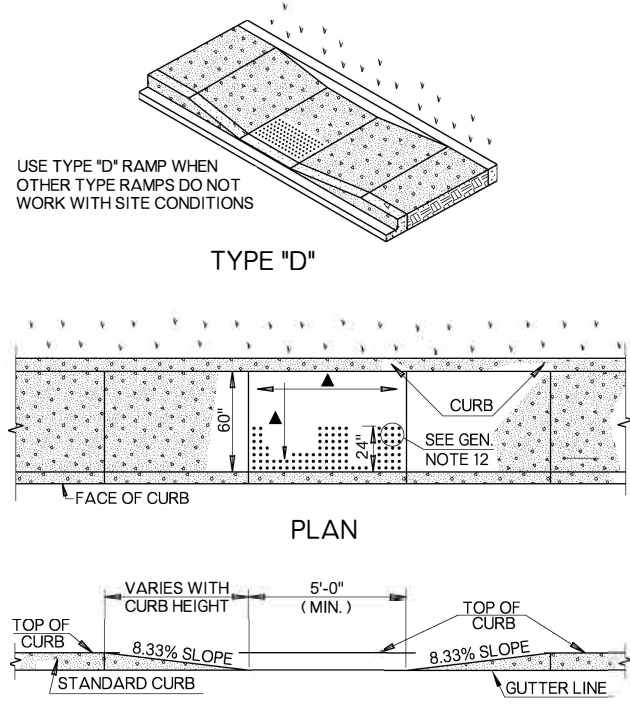
ELEVATION



TYPE "C"

PLAN

ELEVATION



TYPE "D"

PLAN

ELEVATION

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 ODOT STANDARD SPECIFICATIONS.
2. THERE WILL BE NO DEDUCTION OF PAYMENT FOR CONCRETE CURB & GUTTER AND/OR INTEGRAL CURB FOR THE LENGTH OF THE DEPRESSED CURB.
3. RAMP DIMENSIONS SHOWN ARE BASED ON A CURB HEIGHT OF SIX INCHES. THE DIMENSIONS SHOULD BE ADJUSTED FOR OTHER CURB HEIGHTS. THE MAXIMUM PERMISSIBLE SLOPE OF THE WHEELCHAIR RAMP IS 8.33%. RAMP SLOPE MAY BE 10% MAXIMUM ALONG FACE OF TAPERED CURB.
4. DRAINAGE STRUCTURES SHALL NOT BE PLACED IN LINE WITH THE RAMPS.
5. THE NORMAL GUTTER LINE PROFILE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP WITH A 2% SLOPE (MAX.). SEE GENERAL NOTE NO. 10.
6. WHEELCHAIR RAMPS SHOULD BE LOCATED SO THAT THE RAMP WILL BE ON THE TRAFFIC APPROACH SIDE OF ANY OBSTACLE.
7. WHEELCHAIR RAMPS SHOULD BE BUILT AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE TYPE OF RAMP WILL BE DESIGNATED ON THE PLANS. IF A RAMP IS TO BE CONSTRUCTED AS A COMBINATION OF TWO TYPES (ONE SIDE TYPE A AND ONE SIDE TYPE B) THE RAMP SHALL BE DESIGNATED AS "TYPE A-B".
8. PIPE RAILING CONSTRUCTION DETAILS, WHEN REQUIRED AT TYPE B WHEEL CHAIR RAMPS, WILL BE SHOWN ON THE PLANS.
9. EXCAVATION, BACKFILL, EXPANSION JOINT MATERIAL, SEALERS, AND OTHER RELATED MISCELLANEOUS ITEMS WILL NOT BE PAID FOR SEPARATELY BUT THE COST THEREOF SHALL BE INCLUDED IN THE COST OF THE SIDEWALK.
10. ALL FEATURES OF CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, CURB RAMPS AND CROSSWALK MARKINGS SHALL COMPLY WITH THE PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG). WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THE PROWAG, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF SUCH FEATURE(S). THE CONTRACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK WHICH IS NOT IN FULL COMPLIANCE WITH THE PROWAG WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. ANY WORK WHICH IS NOT PERFORMED WITHIN THE GUIDELINES OF THE PROWAG, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
11. ALL WHEELCHAIR RAMP CURBS SHALL BE INCLUDED IN COST OF SIDEWALK.
12. FOR DETAILS OF TACTILE WARNING DEVICES, SEE STANDARD TWD-2.
13. ALL CROSS SLOPES AND RUNNING SLOPES FOR LANDINGS AND CROSS SLOPES FOR SIDEWALKS SHALL BE 1.5% PREFERRED TO 2% MAXIMUM.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
610 (A)	CONCRETE SIDEWALK	SY
622 (A)	PIPE RAILING	LF

■ SIDEWALK THICKNESS SHALL BE SPECIFIED IN INCHES.

APPROVED BY ROADWAY ENGINEER: *[Signature]* DATE: 6/30/22
ROADWAY DESIGN DIVISION STANDARD

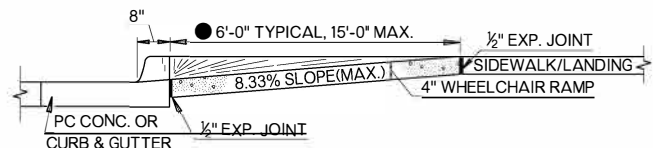
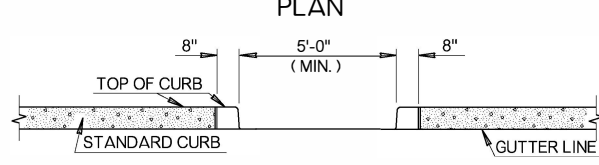
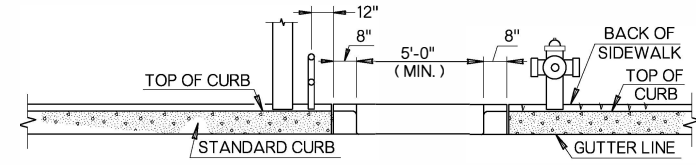
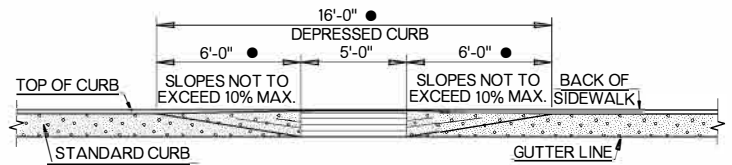


WHEELCHAIR RAMPS

2019 SPECIFICATIONS

WCR-4 2

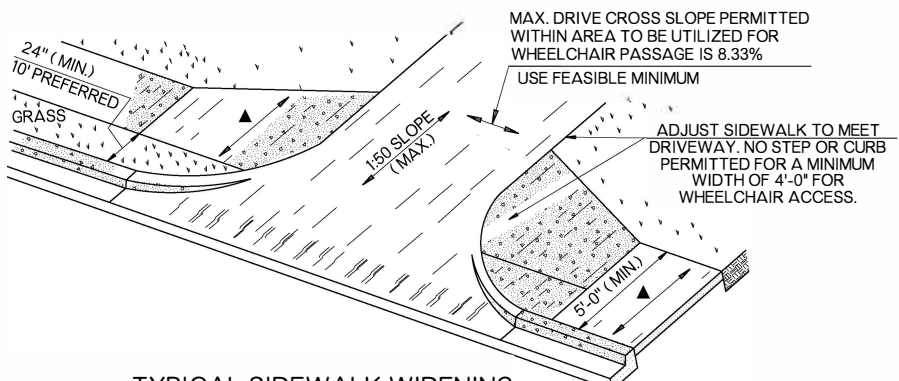
R-25



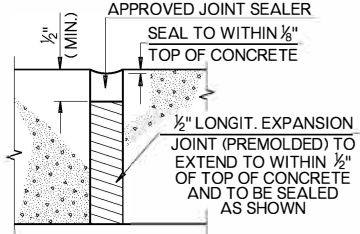
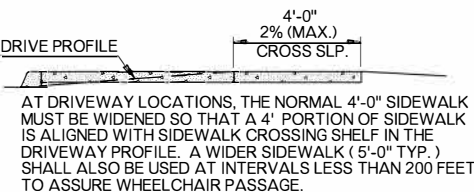
WHEELCHAIR RAMP PROFILES (TYPE A AND B)



SIDEWALK THICKENING FOR TYPE A TACTILE WARNING DEVICES



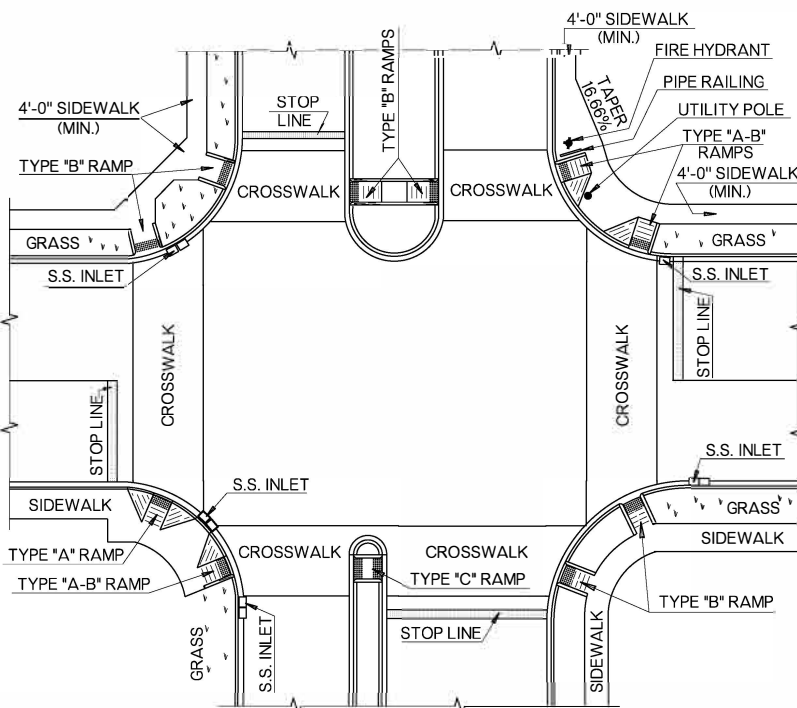
TYPICAL SIDEWALK WIDENING AT DRIVEWAY



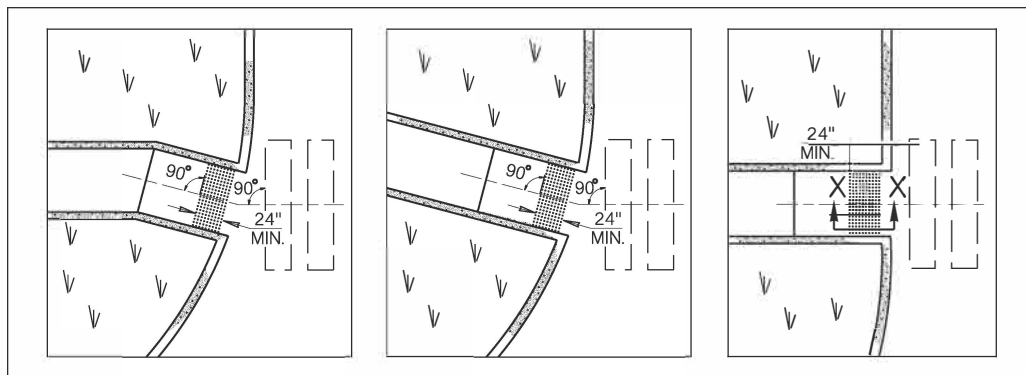
1/2" EXPANSION JOINT

JOINT FILLER SHALL MEET THE REQUIREMENTS OF SECTION 701.08 OF THE SPECIFICATIONS.

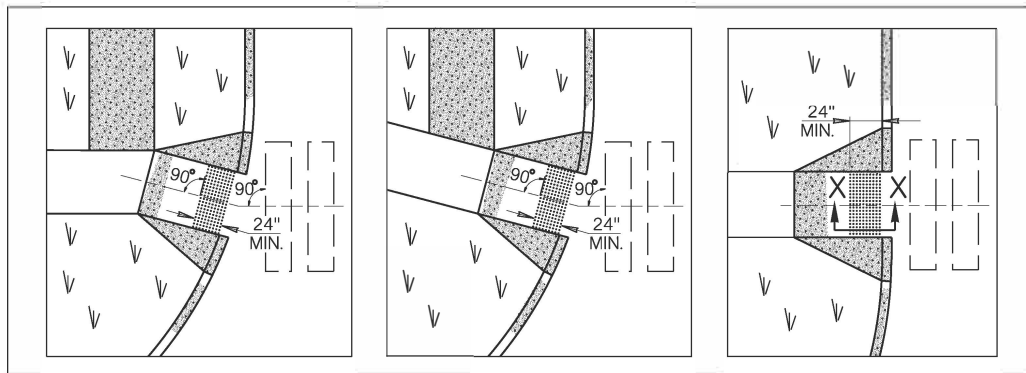
JOINT FILLER SHALL BE USED BETWEEN SIDEWALK AND CURBS, WHEELCHAIR RAMPS, DRIVEWAYS, STREETS, RETAINING WALLS, ETC.



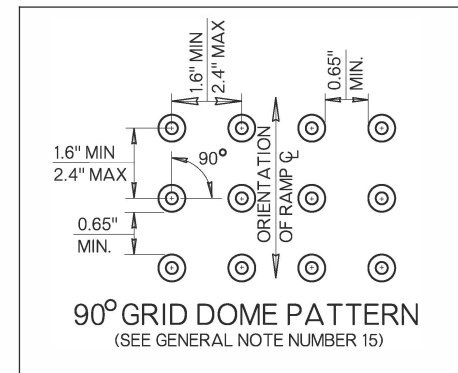
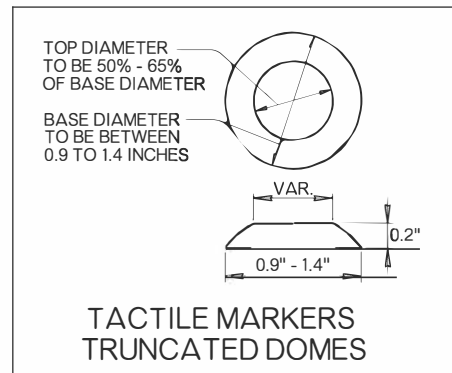
THE ABOVE EXAMPLES ARE TYPICAL ONLY AND ARE SHOWN TO ILLUSTRATE POSSIBLE RAMP TYPES, POSSIBLE RAMP LOCATIONS, POSSIBLE INLET LOCATIONS, AND HOW THE RAMP WILL BE DESIGNATED ON THE PLANS. CARE SHOULD BE EXERCISED TO ASSURE THAT MEDIAN RAMP AND CURB RAMP LINE UP, AND THAT RAMPS THROUGHOUT A PROJECT ARE LOCATED WITH SOME DEGREE OF UNIFORMITY.



TACTILE SYSTEM ORIENTATION - TYPICAL CURBED RAMPS

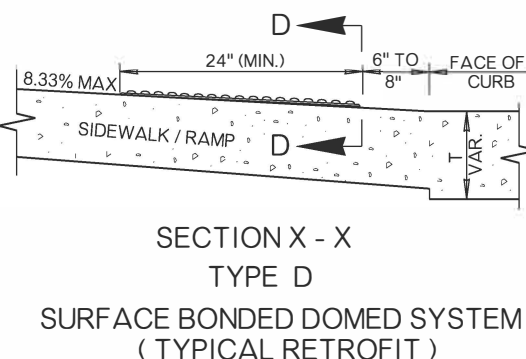
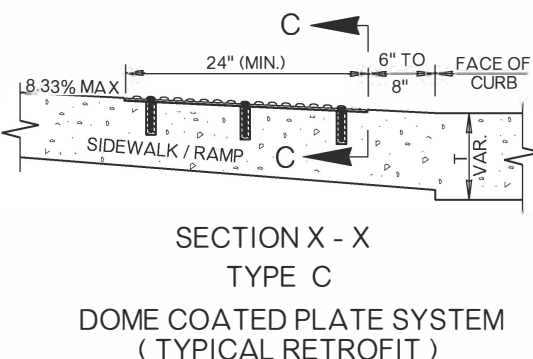
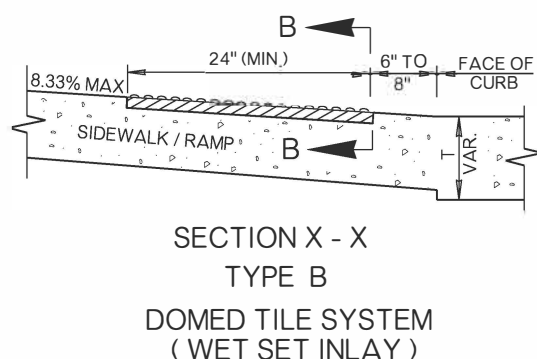
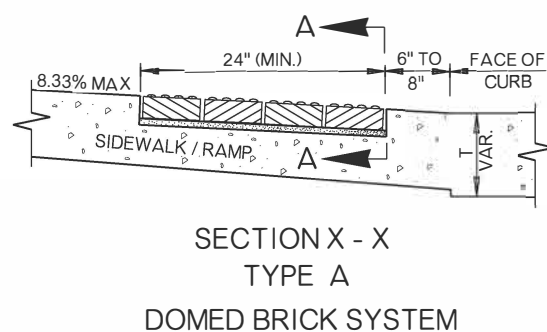
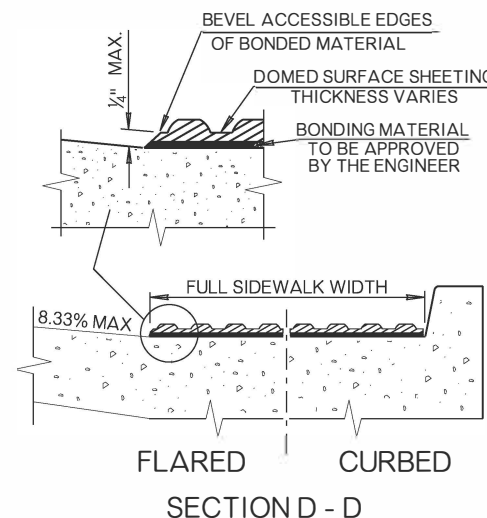
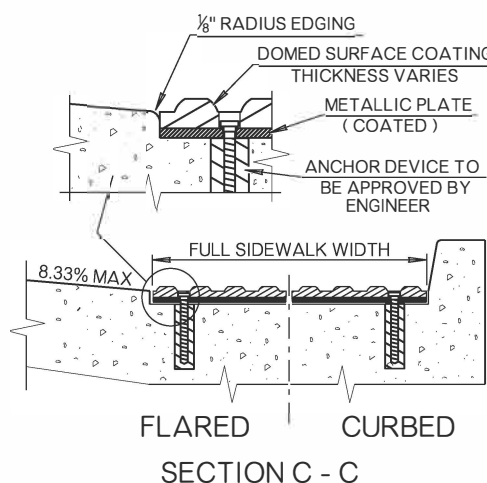
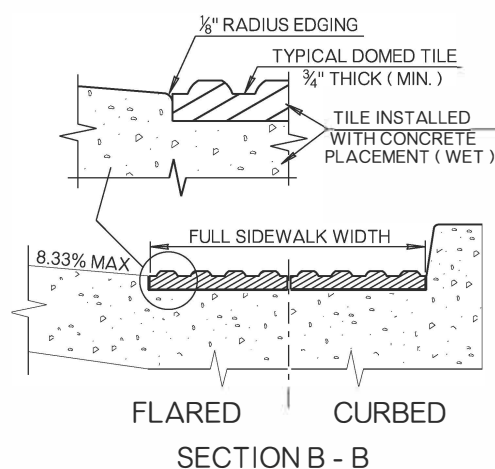
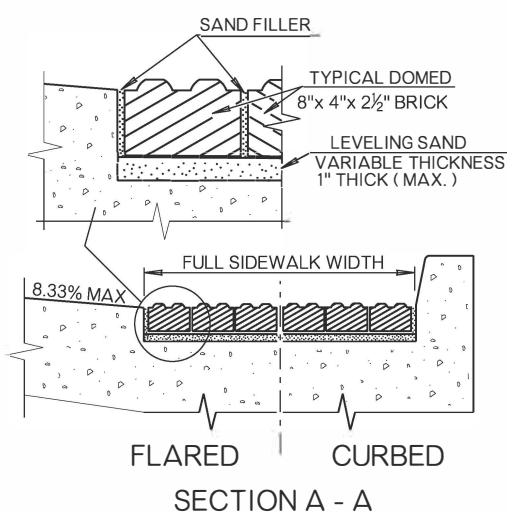


TACTILE SYSTEM ORIENTATION - TYPICAL FLARED RAMPS



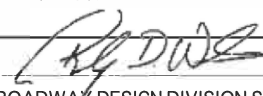
GENERAL NOTES

- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 ODOT STANDARD SPECIFICATIONS.
- ALL FEATURES OF TACTILE WARNING DEVICE DESIGN AND FINAL INSTALLATION SHALL COMPLY WITH THE PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG). WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THE PROWAG, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF SUCH FEATURE(S). THE CONTRACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK WHICH IS NOT IN FULL COMPLIANCE WITH THE PROWAG WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. ANY WORK WHICH IS NOT PERFORMED WITHIN THE GUIDELINES OF THE PROWAG, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- TACTILE WARNING SURFACE SHALL EXTEND FROM EDGE TO EDGE OF WALKWAY ENTERING THE CROSSWALK, AT STREET LEVEL.
- CURB IS NOT SHOWN IN THE SECTION X-X DETAIL ON THIS SHEET.
- THICKNESS 'T' OF PAVEMENT ABUTTING SIDEWALK/RAMP VARIES.
- SIDEWALK, RAMP AND FLARE THICKNESS SHALL BE 4" MINIMUM THICKNESS AFTER INSTALLATION OF TACTILE WARNING TREATMENT.
- TRUNCATED DOME SURFACE SHALL CONTRAST VISUALLY WITH THE ADJOINING WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE TRUNCATED SURFACE.
- LEVELING SAND FOR DOMED BRICK SYSTEMS SHALL MEET THE REQUIREMENTS OF SECTION 703.06B(2) OF THE SPECIFICATIONS.
- SURFACE BONDED TACTILE SYSTEMS MAY ONLY BE PLACED ON NEWLY POURED CONCRETE AFTER AN APPROPRIATE PERIOD OF CURING, IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
- ROWS OF TACTILE DOME TREATMENT SHOULD BE ORIENTED PARALLEL WITH CENTERLINE OF SIDEWALK/RAMP OR TOWARD THE CENTERLINE OF MARKED CROSSWALK.
- EXPANSION JOINTS DEEMED NECESSARY, BUT NOT SHOWN ON THE PLANS, MAY BE ADDED AND PLACED DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER.
- TACTILE SYSTEMS, DOME PATTERNS OR FEATURES DIFFERING FROM THOSE SHOWN ON THIS DETAIL, BUT MEETING CURRENT PROWAG SPECIFICATIONS, SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER BEFORE INSTALLATION.
- THE SAME TACTILE DOME PATTERN AND COLOR SHALL BE USED THROUGHOUT ANY NEW OR RETROFIT PROJECT. DOME PATTERN AND LOCATION OF EXISTING RAMPS TO BE RETROFIT WITH TACTILE DEVICES SHALL BE DESIGNATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- RETROFIT INSTALLATIONS WILL NOT REQUIRE REPLACING EXISTING DEPRESSED CURBING. A NOMINAL 6 TO 8 INCH SETBACK FROM FACE OF CURB SHALL BE ENFORCED FOR NEAR EDGE OF TACTILE DOMES.
- TYPES A & B TACTILE SYSTEMS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI. TYPES C & D SYSTEMS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI. COMPRESSIVE TESTS MEET ASTM D695.
- TACTILE WARNING SURFACES MAY NOT BE STAMPED IN WET CONCRETE.



BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
610 (1)	TACTILE WARNING DEVICE - NEW	SF
610 (1)	TACTILE WARNING DEVICE - RETROFIT	SF

NOTE: TYPE A OR B TACTILE WARNING DEVICE SHALL BE SPECIFIED ON THE PLANS FOR NEW CONSTRUCTION & TYPE C OR D SHALL BE SPECIFIED ON THE PLANS FOR RETROFIT CONSTRUCTION.

APPROVED BY
ROADWAY ENGINEER:  DATE: 6/30/22
ROADWAY DESIGN DIVISION STANDARD



TACTILE WARNING DEVICES

2019 SPECIFICATIONS	
TWD-2	2
	R-26

\$\$\$date\$\$

ALL GENERAL NOTES SHOWN BELOW SHALL APPLY
TO ALL OF THE STANDARD DRAWINGS IN TCS SERIES.

DESCRIPTION	REVISIONS	DATE
MODIFIED NOTES		3/15/2011

CONTRACTOR

ON CONSTRUCTION PROJECTS IT WILL BE THE CONTRACTORS RESPONSIBILITY TO INSTALL THE NECESSARY TRAFFIC CONTROL BEFORE CONSTRUCTION BEGINS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL DEVICES TO ASSURE A HIGH DEGREE OF BOTH DAY AND NIGHT VISIBILITY, WHICH WILL INCLUDE ANY WASHING, REPLACEMENT AND/OR REPOSITIONING WHERE DEEMED NECESSARY BY THE ENGINEER.

THE CONTRACTOR SHALL REPAIR OR REPLACE ANY NEW OR EXISTING PERMANENT STATE OWNED SIGNS WHICH ARE DAMAGED DUE TO HIS NEGLIGENCE OR CARELESS HANDLING DURING THE CONSTRUCTION OF THIS PROJECT. THIS SHALL BE DONE AT THE CONTRACTORS EXPENSE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TEMPORARY TRAFFIC CONTROL WORK ZONE AND EXISTING PAVEMENT MARKINGS ON ALL ROADWAYS OPEN TO TRAFFIC WITHIN THE PROJECT. SUFFICIENT QUANTITIES HAVE BEEN PROVIDED FOR MAINTAINING PAVEMENT MARKINGS FOR PRESCRIBED DETOUR ROUTES WHEN DEEMED NECESSARY BY THE ENGINEER.

SIGN MATERIALS

ALL SIGN BLANK MATERIALS SHALL BE THE OPTION OF THE CONTRACTOR BUT SHALL BE OF SUCH MATERIAL THAT WILL RETAIN A SATISFACTORY APPEARANCE THROUGHOUT THE LIFE OF THE PROJECT.

ALL SIGNS, LIGHTS, FLAGS, ETC. SHALL CONFORM IN SIZE, SHAPE, COLOR, LEGENDS AND APPLICATIONS TO THE STANDARDS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND/OR OKLAHOMA STATE STANDARD DRAWINGS FOR SIGNS. STANDARD DRAWINGS ARE AVAILABLE FROM THE DEPARTMENT OF TRANSPORTATION. INTERPRETATIONS THAT MAY BE NECESSARY SHALL BE REFERRED TO THE ENGINEER.

SIGN SHEETING

REFLECTORIZATION OF TRAFFIC CONTROL DEVICES SHALL BE BY MEANS OF WIDE ANGLE, FLAT TOP REFLECTIVE SHEETING MEETING THE REQUIREMENTS OF 2009, OKLAHOMA STANDARD SPECIFICATIONS.

SIGN INSTALLATION

ALL SIGNS SHALL BE SECURELY PLACED OR WEIGHTED TO PREVENT BLOWING OVER. ROCKS, BROKEN CONCRETE OR OTHER SUCH OBJECTS SHALL NOT BE CONSIDERED AN ACCEPTABLE SUBSTITUTE FOR SAND BAGS WHEN USED TO OBTAIN ADDED STABILITY FOR MOVABLE SIGNS AND BARRICADES.

SPACING OF SIGNING, ON THE PLANS OR TCS STANDARDS, SHOULD BE NO LESS THAN THE DISTANCES SHOWN. THE DISTANCE BETWEEN SIGNS SHOULD BE INCREASED ON HIGH SPEED OR MORE HEAVILY TRAVELED HIGHWAYS, OR WHERE SIGHT DISTANCE IS RESTRICTED.

IN ALL CONSTRUCTION ZONES, THE 48 INCH X 48 INCH WARNING SIGNS SHALL HAVE ATTACHED THERETO FLORESCENT FLAGS AND TYPE "A" WARNING LIGHTS. THIS SHALL ALSO APPLY WHEN SIGNS ARE USED ON BOTH SIDES OF THE ROADWAY. ADDITIONAL FLASHING LIGHTS MAY BE REQUIRED WHEN SO DESIRED BY THE ENGINEER.

ALL DIAMOND SHAPED CONSTRUCTION WARNING SIGNS ON EXPRESSWAYS OR FREEWAYS SHALL BE 48 INCH X 48 INCH, WITH THE APPROPRIATE ADVISORY SIGN WHERE REQUIRED UNLESS OTHERWISE NOTED IN THE PLANS.

DUE TO THE TEMPORARY NATURE OF CONSTRUCTION, SIGNS WHICH ARE 33 S.F. AND OVER WILL HAVE NO REINFORCING STEEL IN THEIR FOOTINGS.

ALL SIGNS AND SIGN ASSEMBLIES WITH A TOTAL SURFACE AREA OF 10 S.F. OR MORE SHALL BE INSTALLED ON TWO (2) POSTS. THE EXCEPTION BEING SINGLE ROUTE MARKER ASSEMBLIES.

SIGNS MOUNTED ON BARRICADES SHALL BE MOUNTED AS HIGH AS NECESSARY TO BE VISIBLE.

BARRICADES

ONE (1) WING BARRICADE SHALL BE SET ON EACH SIDE OF THE ROADWAY IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN. THE EXCEPTIONS ARE MINOR CROSS STREETS AND SECTION LINE ROADS WHICH INTERSECT THE WORK AREA.

WING BARRICADES SHALL BE INSTALLED ON TWO (2) BREAKAWAY POSTS.

WORK DURATION

THE FIVE CATEGORIES OF WORK DURATION AND THIER TIME AT A LOCATION SHALL BE:
A) LONG-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN 3 DAYS.
B) INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 DAYS, OR NIGHTTIME WORKLASTING MORE THAN 1 HOUR.
C) SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.
D) SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
E) MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.

LIGHTING

TYPE "A" WARNING LIGHTS SHALL BE USED ON BARRICADES (AS REQUIRED) AND WARNING SIGNS.

TYPE "C" WARNING LIGHTS MAY BE USED ON VERTICAL PANELS (OPTIONAL).

CONSTRUCTION NOTES

SHOULD THE REQUIRED WORK ON ANY PROJECT, INCLUDING ANY TRAFFIC CONTROL, OVERLAP OR OTHERWISE INTERFERE WITH THE ON-GOING WORK OR TRAFFIC CONTROL OF ANOTHER PROJECT, IT SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTORS TO COORDINATE THEIR WORK ACTIVITIES TO FACILITATE THE SAFE MOVEMENT OF TRAFFIC THROUGHOUT OR AROUND THEIR COLLECTIVE WORK AREAS. ANY SUCH RECOMMENDED CHANGES SHALL BE SUBMITTED IN WRITING TO EACH PROJECT RESIDENT ENGINEER FOR REVIEW AND APPROVAL.

ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC OR OTHERWISE TAKEN OUT OF SERVICE. DEVICES SHALL NOT BE STORED ALONG THE ROADWAY, WITHIN 15 FEET (15') OF AN OPEN DRIVING LANE, EITHER BEFORE OR AFTER THEY ARE TO BE USED UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. THESE DEVICES SHALL BE REMOVED FROM THE TEMPORARY TRAFFIC CONTROL ZONE WHEN THE ENGINEER DETERMINES THEY ARE NO LONGER NEEDED. WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY TO PROVIDE FOR THIS 15 FEET (15') SETBACK, THE CONTRACTOR SHALL DETERMINE ALTERNATE LOCATIONS AND REQUEST THE ENGINEERS APPROVAL TO USE THEM.

TRAFFIC CONTROL DEVICES, WARNING DEVICES, AND BARRIERS SHALL BE KEPT IN CORRECT POSITION, PROPERLY DIRECTED, CLEARLY VISIBLE AND CLEAN AT ALL TIMES. DAMAGED, DEFACED OR DIRTY DEVICES OR BARRICADES SHALL IMMEDIATELY BE REPAIRED, REPLACED OR CLEANED BY THE CONTRACTOR AND APPROVED FOR USE BY THE ENGINEER.

NO EQUIPMENT OR VEHICLES BELONGING TO THE CONTRACTOR, HIS SUB-CONTRACTORS OR EMPLOYEES SHALL BE PARKED OR STOPPED WITHIN 30 FEET (30') OF A LANE CARRYING TRAFFIC, AT ANY TIME, UNLESS REQUIRED BY ONGOING WORK OPERATIONS.

ALL DETOURS AND DIVERSIONS SHOULD BE IN PLACE, WITH SIGNING, STRIPING AND CHANNELIZING DEVICES, AS SHOWN IN THE PLANS OR STANDARD DRAWINGS. BEFORE THEY ARE OPENED TO TRAFFIC.

WHEN IT BECOMES NECESSARY TO CLOSE THE ROAD TO THROUGH TRAFFIC, NO LESS THAN SEVEN DAYS PRIOR TO THE CLOSURE, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING INDIVIDUALS OR AGENCIES DESCRIBING THE AFFECTED ROAD AND THE APPROXIMATE DURATION OF THE CLOSURE. THOSE TO BE NOTIFIED INCLUDE BUT ARE NOT LIMITED TO 1) LOCAL LAW ENFORCEMENT OFFICIALS, 2) LOCAL FIRE OFFICIALS, 3) AMBULANCE SERVICES, 4) LOCAL SCHOOL SUPERINTENDENT, 5) UNITED STATES POSTAL SERVICE, AND 6) CITY OR COUNTY ROAD SUPERINTENDENT.

ALL TEMPORARY TRAFFIC CONTROL DEVICES, AND THIER CONDITIONS THROUGHOUT THE LIFE OF THE CONSTRUCTION PROJECT, SHALL MEET O.D.O.T.'S LATEST "QUALITY STANDARDS FOR TEMPORARY TRAFFIC CONTROL DEVICES". THE O.D.O.T. RESIDENT ENGINEER WILL MAKE FINAL DECISION OF ALL TEMPORARY TRAFFIC CONTROL DEVICES BASED ON THE O.D.O.T. GUIDELINES.

NO GENDER BIAS SIGNS ARE ALLOWED.

ARROW DISPLAY

USE OF AN ARROW DISPLAY, IN THE ARROW OR CHEVRON MODE, SHALL BE LIMITED TO STATIONARY OR MOVING LANE CLOSURES.

AN ARROW DISPLAY, IN THE CAUTION MODE, SHALL BE USED ONLY FOR SHOULDER WORK, BLOCKING THE SHOULDER, ROADSIDE WORK NEAR THE SHOULDER, OR FOR MOBILE OPERATIONS (I.E. STRIPING).

AN ARROW DISPLAY IN THE ARROW OR CHEVRON MODE, SHALL NOT BE USED ON A TWO-LANE, TWO-WAY ROADWAY FOR TEMPORARY ONE-LANE OPERATION.

AN ARROW DISPLAY SHALL NOT BE USED ON A MULTI-LANE ROADWAY TO LATERALLY SHIFT TRAFFIC.

CHANNELIZING DEVICES

IN THOSE AREAS WHERE DRIVERS ARE ASKED TO MAKE A DECISION OR MUST BE GUIDED THROUGH A PRECISE MOVEMENT, BY USE OF CHANNELIZING DEVICES, IT IS ESPECIALLY IMPORTANT TO PROVIDE A CLEARLY DEFINED PATH. EXAMPLES OF THIS COULD BE IN DELINEATING A TEMPORARY GORE OR TURNING RADIUS. IN SUCH AREAS THE SPACING OF CHANNELIZING DEVICES MAY BE REDUCED TO 10 FEET FOR SPEEDS OF 40 M.P.H. OR LESS, AND 20 FEET FOR SPEEDS GREATER THAN 40 M.P.H.

WHEN CHANNELIZING DEVICES ARE USED TO DIRECT TRAFFIC ACROSS EXISTING LANE LINES OR EDGE LINES, THE SPACING BETWEEN CHANNELIZING DEVICES SHALL BE REDUCED 50%. SPACING SHOULD ALSO BE REDUCED WHEN CHANNELIZING DEVICES ARE PLACED ON CURVES, HILLS, OR NEXT TO POTENTIAL HAZARDS.

ALL TRAFFIC CONTROL CHANNELIZING DEVICES SHALL MEET MUTCD COLOR REQUIREMENTS.

FLAGGERS

FLAGGERS MUST BE CLEARLY VISIBLE TO APPROACHING TRAFFIC FOR A DISTANCE SUFFICIENT TO PERMIT PROPER RESPONSE BY MOTORISTS TO THE FLAGGING INSTRUCTIONS, AND TO PERMIT TRAFFIC TO REDUCE SPEED OR STOP BEFORE ENTERING THE TEMPORARY TRAFFIC CONTROL ZONE. FLAGGERS SHALL BE POSITIONED TO MAINTAIN MAXIMUM COLOR CONTRAST BETWEEN THE FLAGGER'S REFLECTIVE CLOTHING AND EQUIPMENT AND THE WORK AREA BACKGROUND.

DURING HOURS OF DARKNESS, FLAGGER STATIONS SHALL BE ILLUMINATED SUCH THAT THE FLAGGER WILL BE CLEARLY VISIBLE TO APPROACHING TRAFFIC. LIGHTS TO BE USED FOR ILLUMINATING THE STATION SHALL BE APPROVED BY THE ENGINEER. REFLECTORIZED PADDLES AND REFLECTORIZED VESTS, SHIRTS OR JACKETS SHALL BE USED FOR NIGHTTIME FLAGGING.

UNLESS OTHERWISE SPECIFIED IN THE PLANS, THE COST OF FLAGGING OPERATIONS SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

MINIMUM STANDARDS FOR TRAFFIC CONTROL DEVICES

- WARNING LIGHTS (TYPE A FLASHERS AND TYPE C STEADY BURN)
 - NOT LESS THAN NINETY (90) PERCENT OF THE TOTAL NUMBER OF LIGHTS BEING USED AT ANY ONE TIME SHALL BE FULLY OPERATIONAL.
 - NOT MORE THAN THREE (3) LIGHTS ADJACENT TO ONE ANOTHER SHALL BE FAILING.
- ARROW DISPLAY
 - WHEN IN ARROW MODE, NO MORE THAN TWO (2) LAMPS IN THE STEM AND ZERO (0) LAMPS IN THE HEAD SHALL BE FAILING. THE DIMMING FUNCTION SHALL BE OPERATING PROPERLY.
 - WHEN IN CAUTION MODE (CORNERS), A MINIMUM OF FOUR (4) LAMPS SHALL BE OPERATIONAL. THE DIMMING FUNCTION SHALL BE OPERATING PROPERLY.
 - ANY LAMP WHICH IS LIGHTED BUT IMPROPERLY ALIGNED SHALL NOT BE CONSIDERED OPERATIONAL.
- CHANGEABLE MESSAGE SIGNS
 - NOT LESS THAN NINETY (90) PERCENT OF THE PIXELS SHALL BE FUNCTIONAL IN EACH CHARACTER MODULE.
 - NO SANDBAG BALLASTING OVER 3 FEET IN HEIGHT.
- PAVEMENT MARKING TAPE
 - NOT MORE THAN TEN (10) PERCENT OF ALL TAPE, PAINT, MESSAGE OR SYMBOL SHALL BE MISSING
 - NOT MORE THAN TWO (2) CONSECUTIVE DASHED LINES SHALL BE MISSING.
 - NOT MORE THAN FIFTY (50) CONTINUOUS FEET OF A SOLID LINE SHALL BE MISSING.
- CONSTRUCTION ZONE PAVEMENT MARKERS
 - NOT MORE THAN TEN (10) PERCENT OF THE TOTAL NUMBER OF MARKERS SHALL BE MISSING.
 - NOT MORE THAN THREE (3) CONSECUTIVE MARKERS SHALL BE MISSING.

STRIPING

WHENEVER THE WORK CAUSES THE OBLITERATION OF PAVEMENT MARKINGS, EITHER TEMPORARY OR PERMANENT MARKINGS SHALL BE IN PLACE PRIOR TO OPENING THE ROADWAY TO TRAFFIC. CENTERLINE PAVEMENT MARKINGS SHALL BE PROVIDED AT ALL TIMES FOR ROADWAYS OPEN TO TRAFFIC.

THE APPLICATION SURFACES FOR PAVEMENT MARKINGS SHALL BE FREE OF DUST, DIRT, MOISTURE OR OTHER FOREIGN MATTER WHICH WOULD INTERFERE WITH ADHESION. INSTALLATION OF ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

ALL TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED IMMEDIATELY AHEAD OF THE PERMANENT STRIPING OPERATIONS OR RE-STRIPING FOR FOLLOWING CONSTRUCTION PHASES.

WHEN REMOVABLE PAVEMENT MARKINGS TAPE IS TO BE INSTALLED ON NEW CONCRETE PAVEMENT, THE CURING COMPOUND SHALL BE REMOVED PRIOR TO INSTALLATION.

IF REMOVABLE PAVEMENT MARKING TAPE IS INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND FAILS DURING THE FIRST SIX MONTHS OF SERVICE, IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. REPLACEMENT SHALL BE ACCOMPLISHED IN A TIMELY MANNER UPON BEING NOTIFIED, BY THE ENGINEER, OF SUCH FAILURE.

PILOT CAR

WHEN LANE CLOSURES ARE REQUIRED ON TWO-LANE / TWO-WAY ROADWAYS, THE CONTRACTOR MAY, AT HIS OPTION, UTILIZE A PILOT CAR. IF THE CONTRACTOR ELECTS TO USE A PILOT CAR, CHANNELIZING DEVICES ALONG THE CENTERLINE WILL NOT BE REQUIRED. THE PILOT CAR OPERATOR SHALL BE IN RADIO CONTACT WITH PERSONNEL IN THE TEMPORARY TRAFFIC CONTROL ZONE. MAXIMUM SPEED OF THE PILOT CAR THROUGH THE WORK AREA SHALL BE 25 M.P.H.. FULL COMPENSATION FOR FURNISHING AND OPERATING THE PILOT CAR, (INCLUDING DRIVER, RADIOS, AND ANY OTHER EQUIPMENT OR LABOR REQUIRED) SHALL BE CONSIDERED AS INCLUDED IN THE COST OF OTHER ITEMS OF WORK.

MISCELLANEOUS

TRAFFIC CONDITIONS MAY NECESSITATE CHANGES IN THE USE AND/OR QUANTITIES OF THE TRAFFIC CONTROL DEVICES AS SHOWN IN THE PLANS OR IN THE STANDARDS. ANY SUCH CHANGES ARE SUBJECT TO APPROVAL BY THE ENGINEER.

ALL CHANNELIZING DEVICES PROVIDED ON THIS PROJECT SHALL BE IN GOOD CONDITION AND SHALL BE APPROVED FOR USE ON THIS PROJECT BY THE ENGINEER.

THE REGULATORY SPEED LIMITS THROUGH THE WORK ZONE MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER WITH THE DOCUMENTED APPROVAL OF THE DIVISION ENGINEER IN ACCORDANCE WITH TITLE 47 OF THE OKLAHOMA MOTOR VEHICLE LAWS.

THE TERMINATION AREA EXTENDS FROM THE DOWNSTREAM END OF THE WORK AREA TO THE TEMPORARY TRAFFIC CONTROL DEVICE SUCH AS "END ROAD WORK" SIGNS, IF POSTED. A SPEED SIGN, OR OTHER SIGNS MAY BE USED TO INFORM ROAD USERS THAT THEY CAN RESUME NORMAL OPERATIONS.

THE CONSTRUCTION SIGNING AND BARRICADE CONTRACTOR SHOULD AFFIX THEIR COMPANY NAME AND/OR LOGO INCONSPICUOUSLY ON EACH TRAFFIC CONTROL DEVICE.



APPROVED BY
TRAFFIC ENGINEER: David Gray DATE: 3/21/11

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL CONSTRUCTION NOTES

2009 SPECIFICATIONS

TCS1-1

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TAPER LENGTH CRITERIA FOR WORK ZONES												
SPEED LIMIT M.P.H.	"L" FORMULA	"L" TAPER LENGTH (MINIMUM) (FT)			NUMBER OF CHANNELIZING DEVICES REQUIRED (MINIMUM)			SPACING CHANNELIZING DEVICES (MAXIMUM)		MAXIMUM HORIZONTAL ALIGNMENT THRU DETOUR (DEGREE) (S=0)	SPEED LIMIT M.P.H.	
		10' OFFSET	11' OFFSET	12' OFFSET	10' OFFSET	11' OFFSET	12' OFFSET	① THRU TAPER SECTION (FT.)	② THRU TANGENT SECTION (FT.)			
20	$L = \frac{W \times S^2}{60}$	70	75	80	5	5	5	20	40	—	20	
25		105	115	125	6	6	6	25	50	—	25	
30		150	165	180	6	7	7	30	60	15	30	
35		205	225	245	7	8	8	35	70	11	35	
40	$L = W \times S$	265	295	320	8	9	9	40	80	8	40	
45		450	495	540	11	12	13	45	90	6	45	
50		500	550	600	11	12	13	50	100	5	50	
55		550	605	660	12	14	15	50	100	4	55	
60		600	660	720	13	15	16	50	100	3	60	
65		650	715	780	14	16	17	50	100	2.5	65	
70		700	770	840	15	17	18	50	100	2	70	
75		750	825	900	16	18	19	50	100	1.8	75	
NOTES:					TYPE OF TAPER					TAPER LENGTH		
① RECOMMENDED SIGNING TO BE USED THRU LANE TAPER IS (1) CW1-8 ON EVERY OTHER DRUM.					UPSTREAM TAPERS					L MINIMUM		
② RECOMMENDED SIGNING TO BE USED THRU TANGENT LANES IS (1) R4-7A(R) OR (1) R4-7A(L) (AS APPLIES) ON EVERY OTHER DRUM.					MERGING TAPER					1/2 L MINIMUM		
L = TAPER LENGTH IN FEET					SHIFTING TAPER					1/3 L MINIMUM		
W = WIDTH OF OFFSET IN FEET					SHOULDER TAPER					100 FEET MAXIMUM		
S = POSTED SPEED OR OFF-PEAK 85 PERCENTILE SPEED IN MPH					TWO-WAY TRAFFIC TAPER							
					DOWNSTREAM TAPERS (USE IS OPTIONAL)					100 FEET PER LANE		

RECOMMENDED CLEAR ZONE DISTANCE (FT) (CONSTRUCTION WORK ZONES)								
DESIGN SPEED	DESIGN ADT	FILL SLOPES			CUT SLOPES			
		6:1 OR FLATTER	5:1 OR 4:1	3:1	3:1	4:1 OR 5:1	6:1 OR FLATTER	
40 MPH OR LESS	UNDER 750	4	4	SEE NOTE 3	4	4	4	
	750-1500	5	6		5	5	5	
	1500-6000	6	7		6	6	6	
	OVER 6000	7	8		7	7	7	
45-50 MPH	UNDER 750	5	6		4	4	5	
	750-1500	7	8		5	6	7	
	1500-6000	8	10		6	7	8	
	OVER 6000	10	12		7	9	10	
55 MPH	UNDER 750	6	7		4	5	5	
	750-1500	8	10		5	7	8	
	1500-6000	10	12		7	8	10	
	OVER 6000	11	13		8	10	11	
60 MPH	UNDER 750	8	10		5	6	7	
	750-1500	10	13		6	8	10	
	1500-6000	13	16 *		7	9	12	
	OVER 6000	15	18 *		10	12	13	
65-70 MPH	UNDER 750	9	10		5	7	7	
	750-1500	12	14		6	9	10	
	1500-6000	14	17 *		8	11	13	
	OVER 6000	15	19 *		11	13	14	
NOTES:								
* THE CLEAR ZONE MAY BE LIMITED TO 15 FEET FOR PRACTICALITY AND TO PROVIDE A CONSISTENT ROADWAY TEMPLATE.								
(1) ALL DISTANCES ARE MEASURED FROM EDGE OF THE TRAVEL LANE.								
(2) FOR CLEAR ZONES, THE "DESIGN ADT" WILL BE THE TOTAL ADT ON TWO-WAY ROADWAYS AND DIRECTIONAL ADT ON ONE-WAY ROADWAYS (E.G., RAMPS AND ONE ROADWAY OF A DIVIDED HIGHWAY).								
(3) FILL SLOPES WHICH ARE 3:1 OR STEEPER ARE CRITICAL AND MAY REQUIRE A BARRIER. THEREFORE THERE IS NOT A CLEAR ZONE APPLICATION.								

FLARE RATES FOR CONCRETE MEDIAN BARRIER IN TEMPORARY TRAFFIC CONTROL ZONES	
SPEED ★	FLARE RATE (MINIMUM)
40 M.P.H.	9 TO 1
45 M.P.H.	10 TO 1
50 M.P.H.	11 TO 1
55 M.P.H.	12 TO 1
60 M.P.H.	13 TO 1
65 M.P.H.	14 TO 1
70 M.P.H.	15 TO 1
75 M.P.H.	16 TO 1
★ POSTED SPEED LIMIT PRIOR TO CONSTRUCTION	

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED	
SPEED ★ (MPH)	LENGTH (FEET)
20 M.P.H.	115
25 M.P.H.	155
30 M.P.H.	200
35 M.P.H.	250
40 M.P.H.	305
45 M.P.H.	360
50 M.P.H.	425
55 M.P.H.	495
60 M.P.H.	570
65 M.P.H.	645
70 M.P.H.	730
75 M.P.H.	820
★ POSTED SPEED, OFF-PEAK 85th PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.	

RECOMMENDED DISTANCE BETWEEN SIGNS (MIN.)			
ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	100	100	100
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY /FREEWAY	1,000	1,500	2,640

DESCRIPTION

REVISIONS

DATE

PAVEMENT MARKINGS THROUGH TEMPORARY TRAFFIC CONTROL ZONE

DRIVING SURFACE		FLEX TAB MARKERS	TAPE (REMOVABLE)	TAPE (NON-REMOVABLE)	PAINT	CONSTRUCTION ZONE PAVEMENT MARKERS
ASPHALT	EXISTING PAVEMENT TO BE REMOVED OR OVERLAYED IN THE NEXT PHASE	X	X	X	X	X
	EXISTING PAVEMENT TO BE LEFT IN PLACE THRU THE NEXT PHASE	X	X			X
	INTERMEDIATE LIFT	X	X	X	X	X
	MILLED SURFACE	X	X	X	X	X
	FINAL LIFT	X	X			
CONCRETE	EXISTING PAVEMENT TO BE REMOVED OR OVERLAYED IN THE NEXT PHASE	X	X	X	X	X
	EXISTING PAVEMENT TO BE LEFT IN PLACE THRU THE NEXT PHASE	X	X			X
	FINAL SURFACE	X	X		X	X

NOTE:
USE OF NON-REMOVABLE TAPE (FOILBACK) SHALL BE LIMITED TO THOSE CONDITIONS SHOWN IN THE TABLE.

CROSSOVER CRITERIA FOR WORK ZONES													
WIDTH OF MEDIAN (W) (FT)	LATERAL SHIFT - (P) (FT)	LENGTH OF CROSSOVER - LC ★ (FT)											
		V.	30 M.P.H.	35 M.P.H.	40 M.P.H.	45 M.P.H.	50 M.P.H.	55 M.P.H.	60 M.P.H.	65 M.P.H.	70 M.P.H.	75 M.P.H.	
		D.	15°	11°	8°	6°	5°	4°	3°	2.5°	2°	1.8°	
		R.	382	521	716	955	1146	1433	1910	2292	2865	3183	
20	32		219	256	301	348	382	427	493	541	605	637	
30	42		250	293	344	398	437	489	565	619	692	730	
40	52		277	325	382	443	485	543	628	688	770	812	
50	62		301	354	417	483	529	593	685	751	841	886	
60	72		324	381	448	519	570	638	738	809	905	955	
70	82		344	405	478	554	608	681	787	863	966	1,018	
80	92		363	428	505	586	643	720	833	914	1,023	1,078	
90	102		381	450	531	616	676	758	877	962	1,076	1,135	
100	112		398	470	555	644	708	793	918	1,007	1,127	1,189	
110	122		414	489	578	672	738	827	958	1,050	1,176	1,240	
120	132		429	508	601	698	767	860	995	1,092	1,223	1,290	
★ CROSSOVER = REVERSE CURVE CONNECTION TYING TWO (2) PARALLEL ROADWAYS.													



APPROVED BY
TRAFFIC ENGINEER *David Smart* DATE: 6/23/10

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL TABLES AND CHARTS

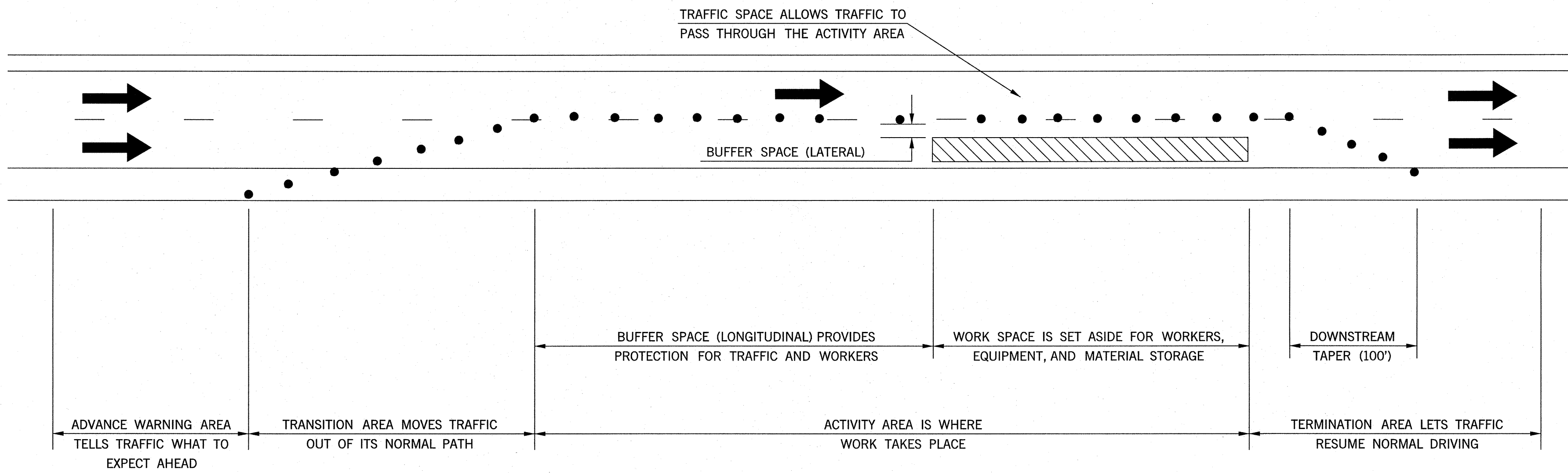
2009 SPECIFICATIONS

TCS2-1

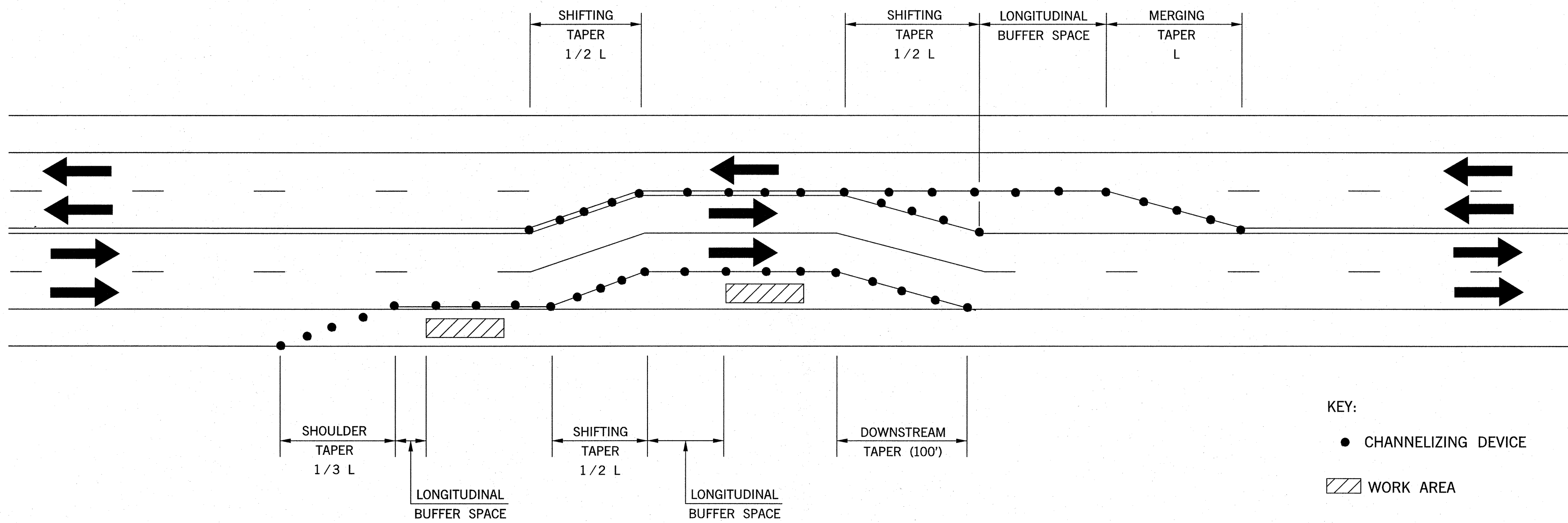
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T-502

DESCRIPTION	REVISIONS	DATE
CHANGED TRANSITION NOTATION		5/31/2011

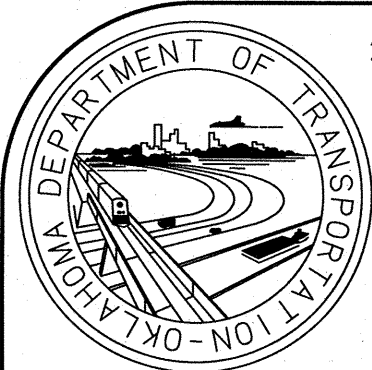


COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL ZONE



TAPERS AND BUFFER SPACE

TEMPORARY TRAFFIC CONTROL ELEMENTS



APPROVED BY
TRAFFIC ENGINEER: *[Signature]* DATE: 5/31/2011

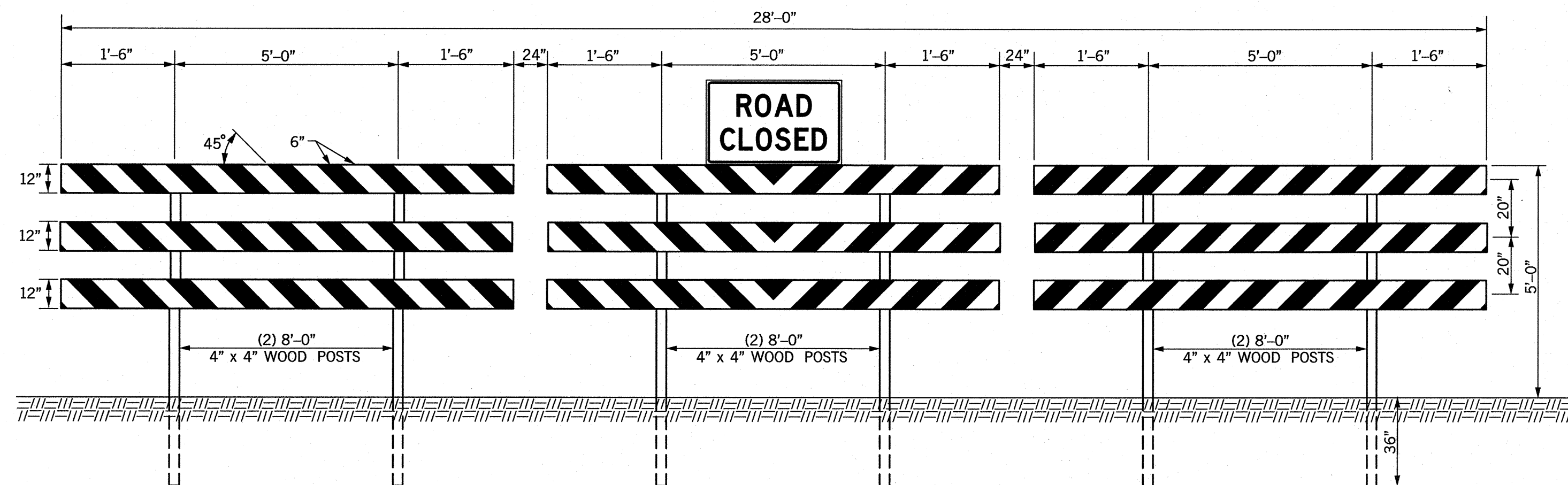
TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD

TEMPORARY TRAFFIC CONTROL ELEMENTS

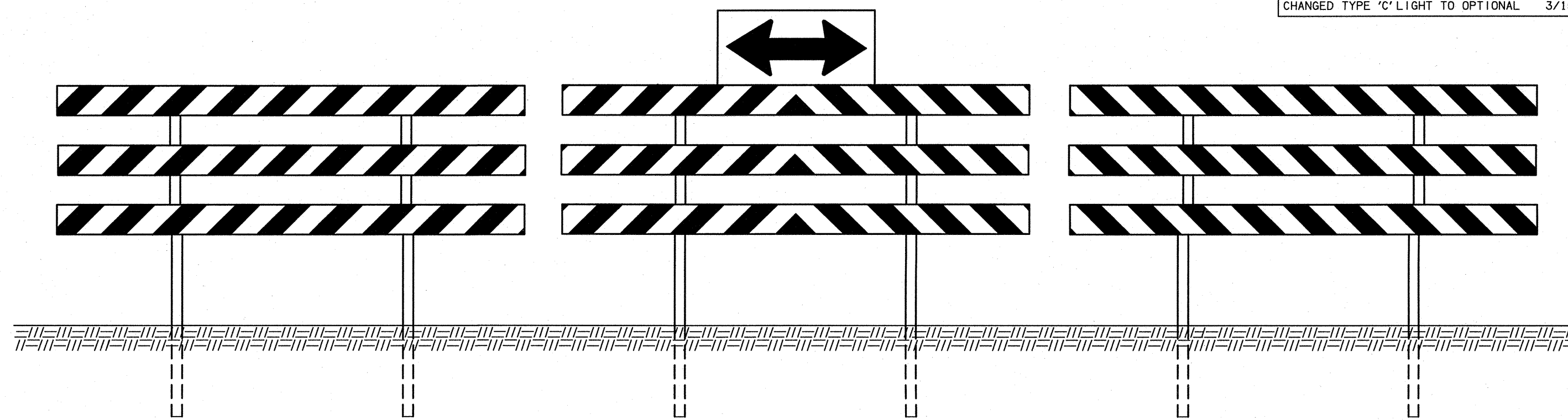
2009 SPECIFICATIONS

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T-503	



WHEN ROAD ENDS

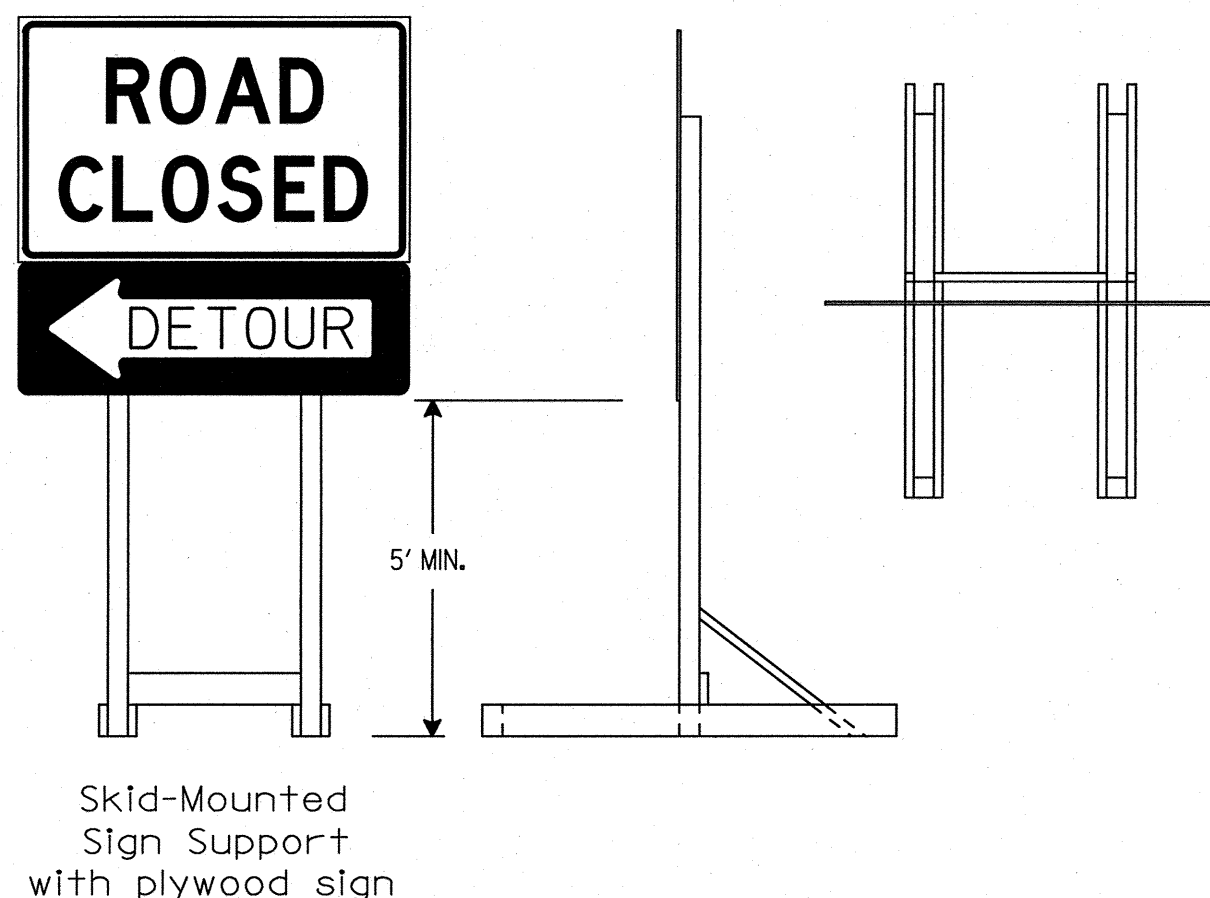
PERMANENT TYPE III(A/B) BARRICADE
(DIMENSIONS ARE TYPICAL FOR BOTH BARRICADES)



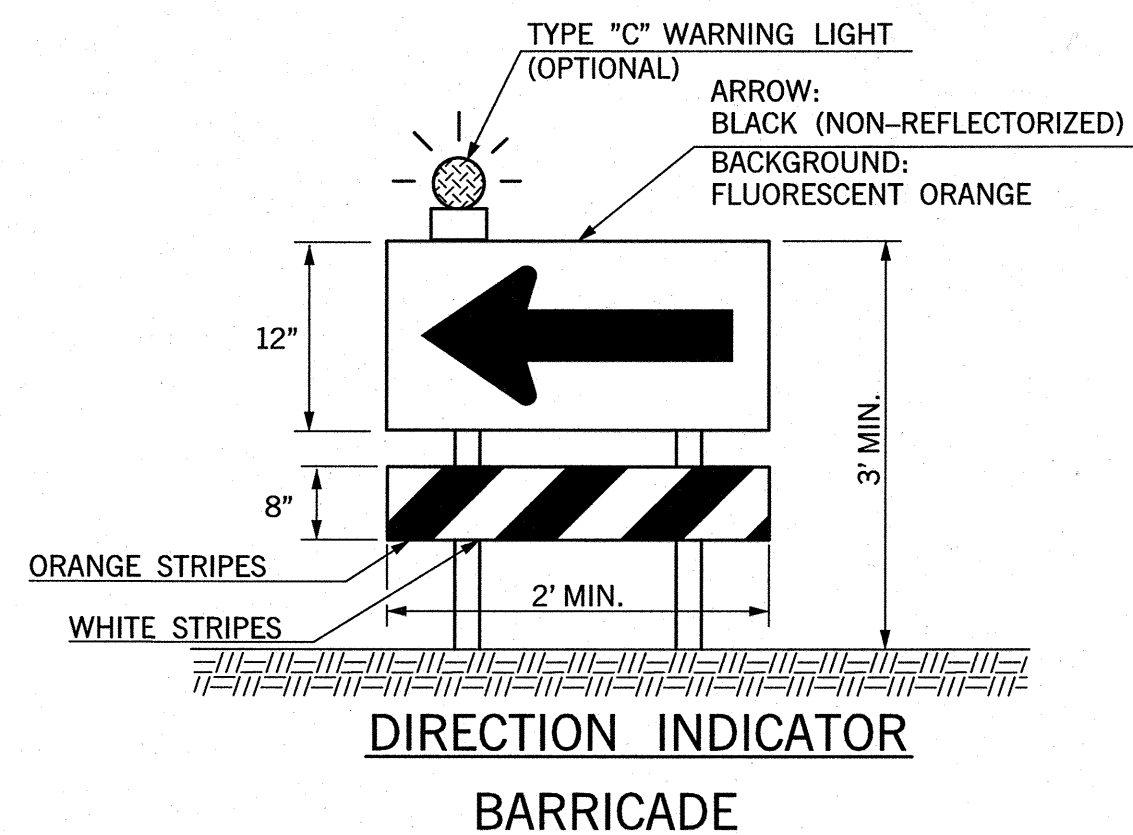
FOR T-INTERSECTIONS

NOTES: A PERMANENT BARRICADE TYPE III(A) SHALL CONSIST OF NINE (9) PANELS AND SIX (6) POSTS.
TYPICAL INSTALLATION AS SHOWN IS FOR AN ABSOLUTE CLOSURE.
BARRICADES SHOULD NOT BE PLACED PARALLEL TO TRAFFIC IF NOT OUTSIDE OF CLEAR ZONE.

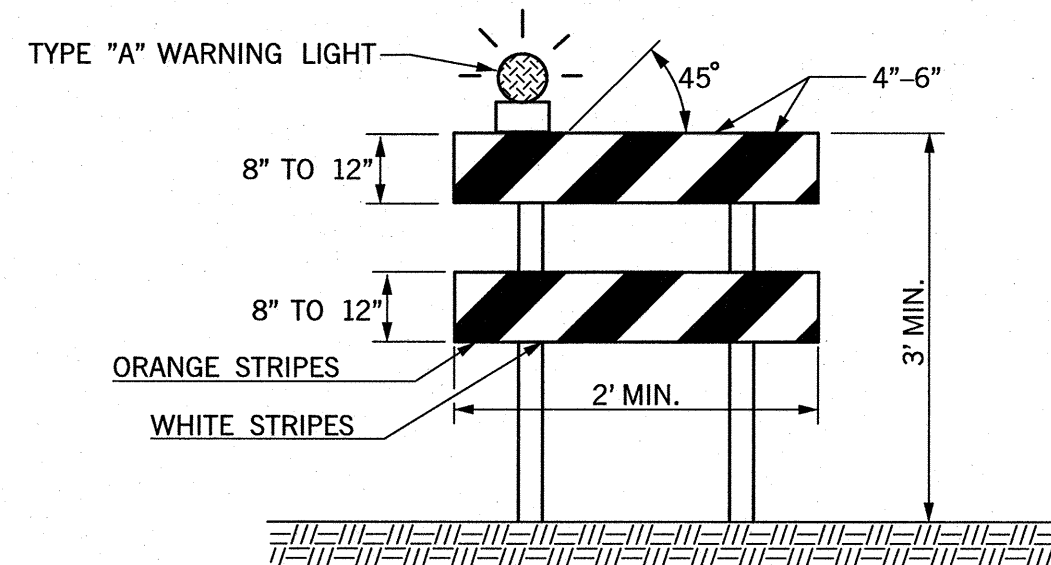
PERMANENT BARRICADE TYPE III(B) WILL BE IDENTICAL TO TYPE III(A) WITH NINE (9) ADDITIONAL REFLECTORIZED 3/4"x12" LUMBER PANELS ATTACHED TO THE BACK SIDE OF THE BARRICADE.
COLOR: BACKGROUND - WHITE (REFLECTORIZED)
DIAGONAL STRIPES - RED (REFLECTORIZED)



LONG/INTERMEDIATE TERM STATIONARY
PORTABLE SIGN SUPPORTS
5 Foot Mounting Height
(SKID MOUNTED)
(SHALL BE PLACED BEHIND TYPE III BARRICADE)



DIRECTION INDICATOR
BARRICADE



TYPE II BARRICADE

NOTES: FOR WOODEN BARRICADES NOMINAL LUMBER DIMENSIONS WILL BE SATISFACTORY.
FOR RAILS LESS THAN 3 FEET LONG, 4 INCH WIDE STRIPES SHALL BE USED.
TYPE III BARRICADES SHALL BE CONSTRUCTED USING A MINIMUM OF TWO (2) POSTS.
FOR WOODEN BARRICADES, PANEL THICKNESS SHALL NOT EXCEED ONE-HALF INCH (1/2").
BARRICADES SHOULD NOT BE PLACED PARALLEL TO TRAFFIC IF NOT OUTSIDE OF CLEAR ZONE.
PROJECTS WITH WORK LIMITS OF 2.0 MILES OR MORE IN LENGTH WILL REQUIRE THE G20-1A SIGN. THE SIGN (G20-1A) WILL BE REQUIRED ON ONE SIDE OF A 2-LANE ROADWAY AND BOTH SIDES OF A DIVIDED HIGHWAY.
ALL BARRICADE STRIPES SHALL BE RETROREFLECTIVE.
COLOR: BACKGROUND - WHITE (REFLECTORIZED)
DIAGONAL STRIPES - FLUORESCENT ORANGE (REFLECTORIZED)

IF BARRICADES ARE USED TO CHANNELIZE PEDESTRIANS, THERE SHALL BE CONTINUOUS DETECTABLE BOTTOM AND TOP RAILS WITH NO GAPS BETWEEN INDIVIDUAL BARRICADES TO BE DETECTABLE TO USERS OF LONG CANES. THE BOTTOM OF THE BOTTOM RAIL SHALL BE NO HIGHER THAN 6 INCHES ABOVE THE GROUND SURFACE. THE TOP OF THE TOP RAIL SHALL BE NO LOWER THAN 36 INCHES ABOVE THE GROUND SURFACE.

SIGNS MOUNTED ON TYPE III BARRICADES SHOULD NOT COVER MORE THAN 50 PERCENT OF THE TOP TWO RAILS OR 33 PERCENT OF THE TOTAL AREA OF THE THREE RAILS

SIGNS MOUNTED ON BARRICADES, OR OTHER PORTABLE SUPPORTS, SHALL BE NO LESS THAN 1' ABOVE THE TRAVELED WAY.

SANDBAGS MAY BE PLACED ON LOWER PARTS OF THE FRAME OR THE STAYS OF BARRICADES TO PROVIDE THE REQUIRED BALLAST.

BALLAST SHALL NOT BE PLACED ON TOP OF ANY STRIPED RAIL. BARRICADES SHALL NOT BE BALLASTED BY NONDEFORMABLE OBJECTS SUCH AS ROCKS OR CHUNKS OF CONCRETE. BALLAST SHALL NOT EXTEND INTO THE ACCESSIBLE PASSAGE WIDTH OF 60".

DIRECTION INDICATOR BARRICADE SHALL CONSIST OF A ONE-DIRECTION LARGE ARROW (W1-6) SIGN MOUNTED ABOVE A DIAGONAL STRIPED, HORIZONTALLY ALIGNED, RETRO-REFLECTIVE RAIL.

WHERE BARRICADES EXTEND ENTIRELY ACROSS A ROADWAY, THE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH ROAD USERS MUST TURN.

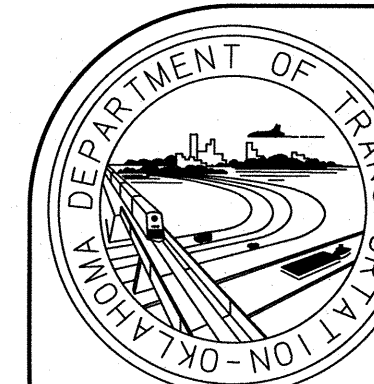
WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE BARRICADE STRIPES SHOULD SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES.

WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD BE POSITIONED TO SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD
880(C)	CONSTRUCTION BARRICADES	SD
880(E)	WARNING LIGHTS	SD

APPROVED BY
TRAFFIC ENGINEER: *[Signature]* DATE: 3/21/11



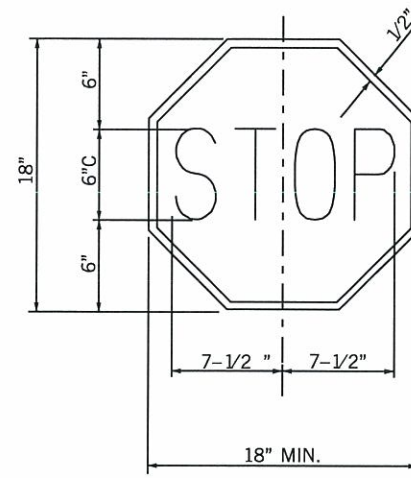
TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL DEVICES

2009 SPECIFICATIONS

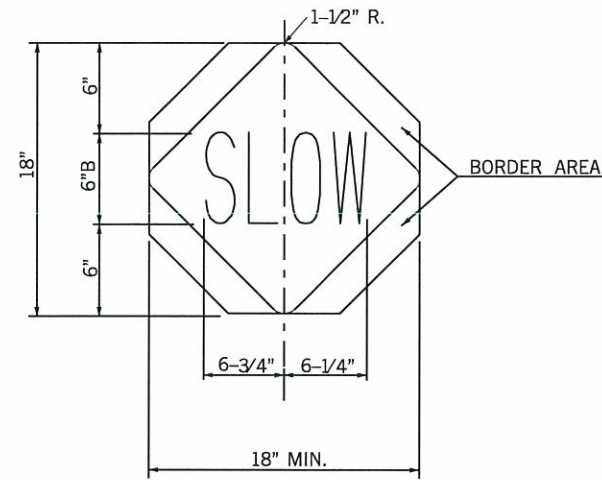
TCS4-1

01

T-504

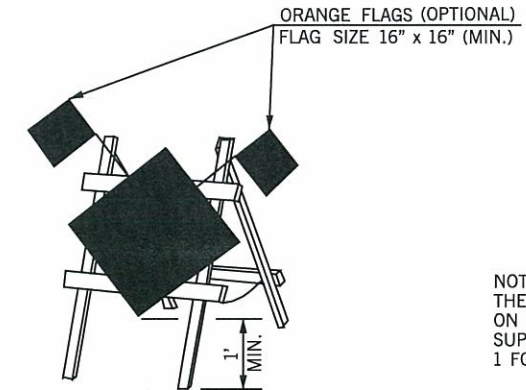
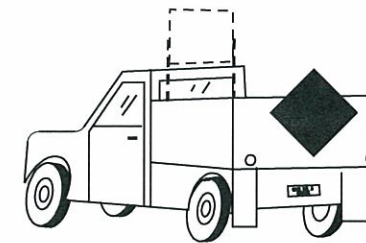
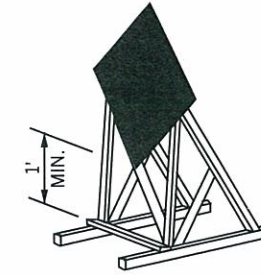
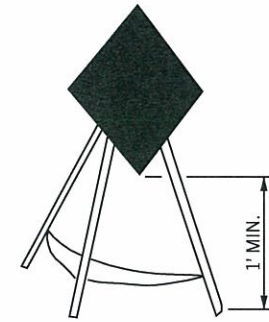


STOP:
LEGEND AND BORDER: WHITE (REFLECTORIZED)
BACKGROUND: RED (REFLECTORIZED)



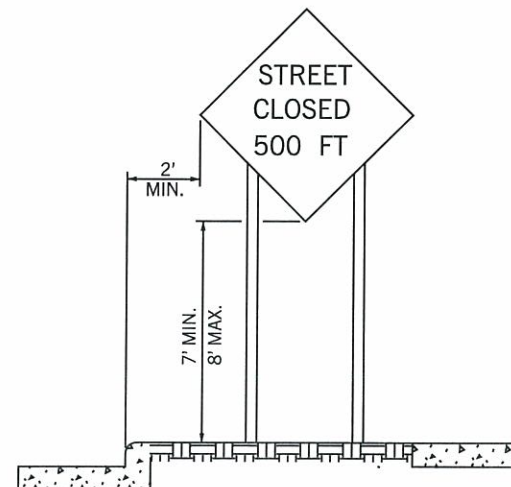
SLOW:
LEGEND AND BORDER AREA: BLACK (NON-REFLECTORIZED)
BACKGROUND: ORANGE (REFLECTORIZED)

STOP-SLOW PADDLE

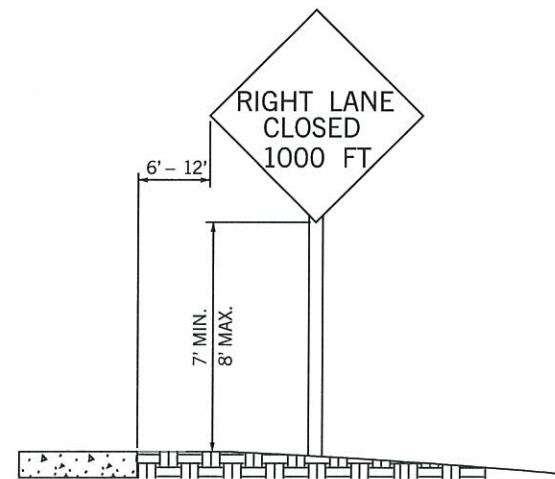


NOTE:
THE BOTTOM OF SIGNS MOUNTED
ON BARRICADES OR TEMPORARY
SUPPORTS SHALL NOT BE LESS THAN
1 FOOT ABOVE THE TRAVELED WAY.

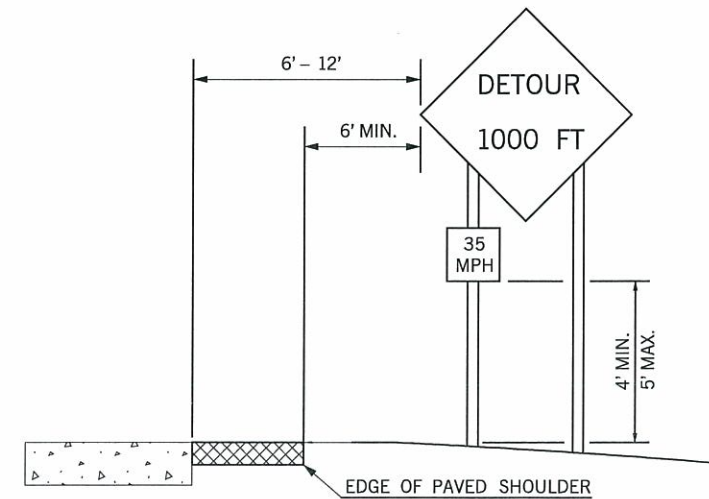
PORTABLE AND TEMPORARY MOUNTINGS
METHODS OF MOUNTING SIGNS OTHER THAN ON POSTS



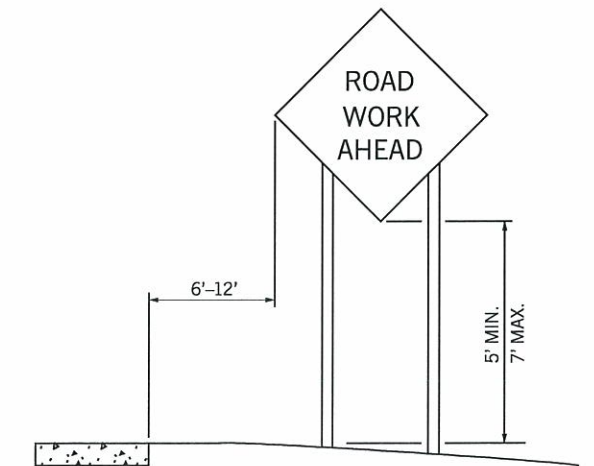
URBAN DISTRICT
(WITH CURB)



URBAN DISTRICT
(WITHOUT CURB)



RURAL DISTRICT WITH
ADVISORY SPEED PLATE



RURAL DISTRICT

HEIGHT AND LATERAL LOCATIONS OF SIGNS – TYPICAL INSTALLATIONS

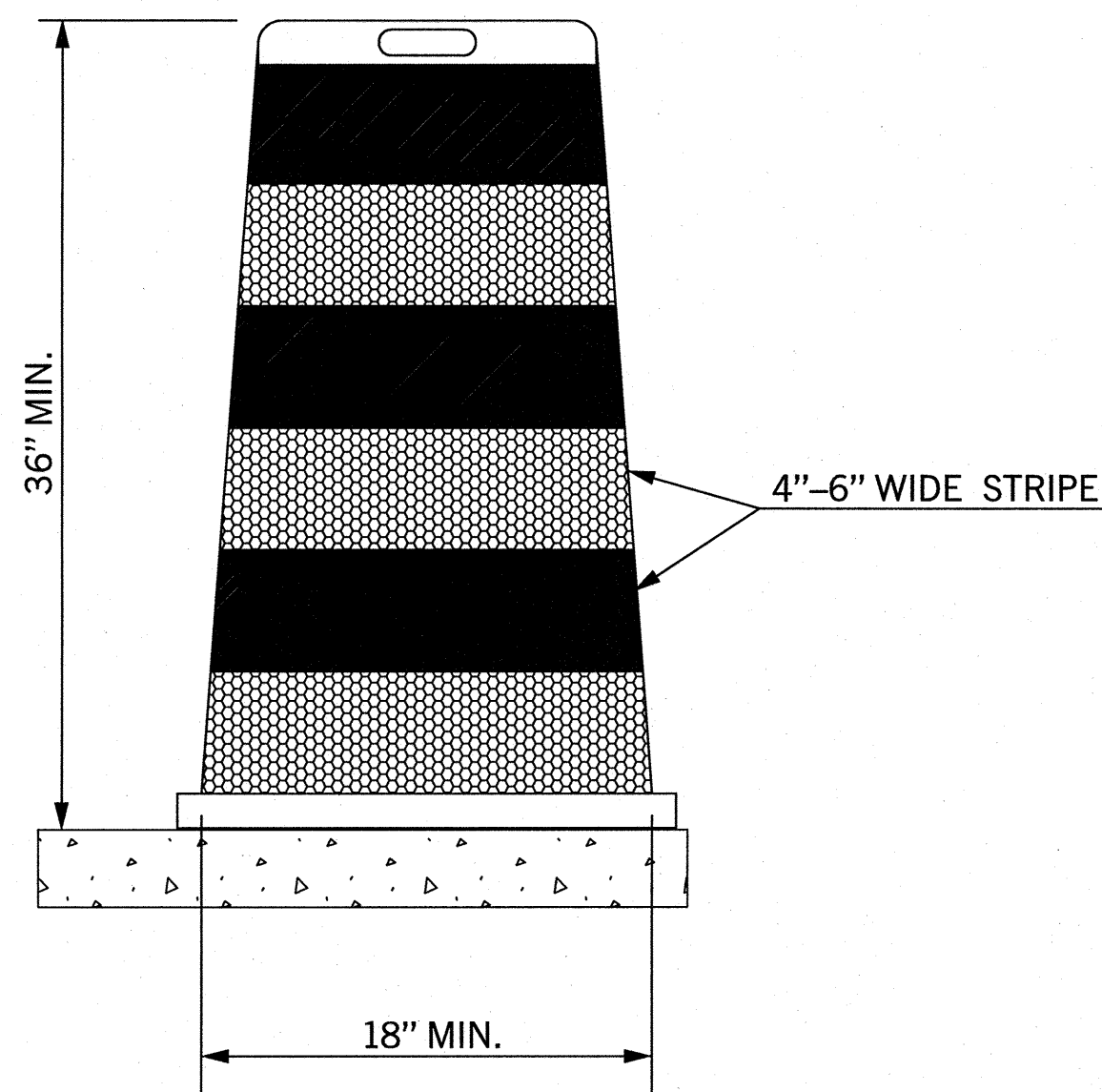


APPROVED BY
TRAFFIC ENGINEER: *Charles Smith* DATE: 5/23/10
TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
TYPICAL SIGN INSTALLATION

2009 SPECIFICATIONS

TCS5-1 00
T-505



DRUM

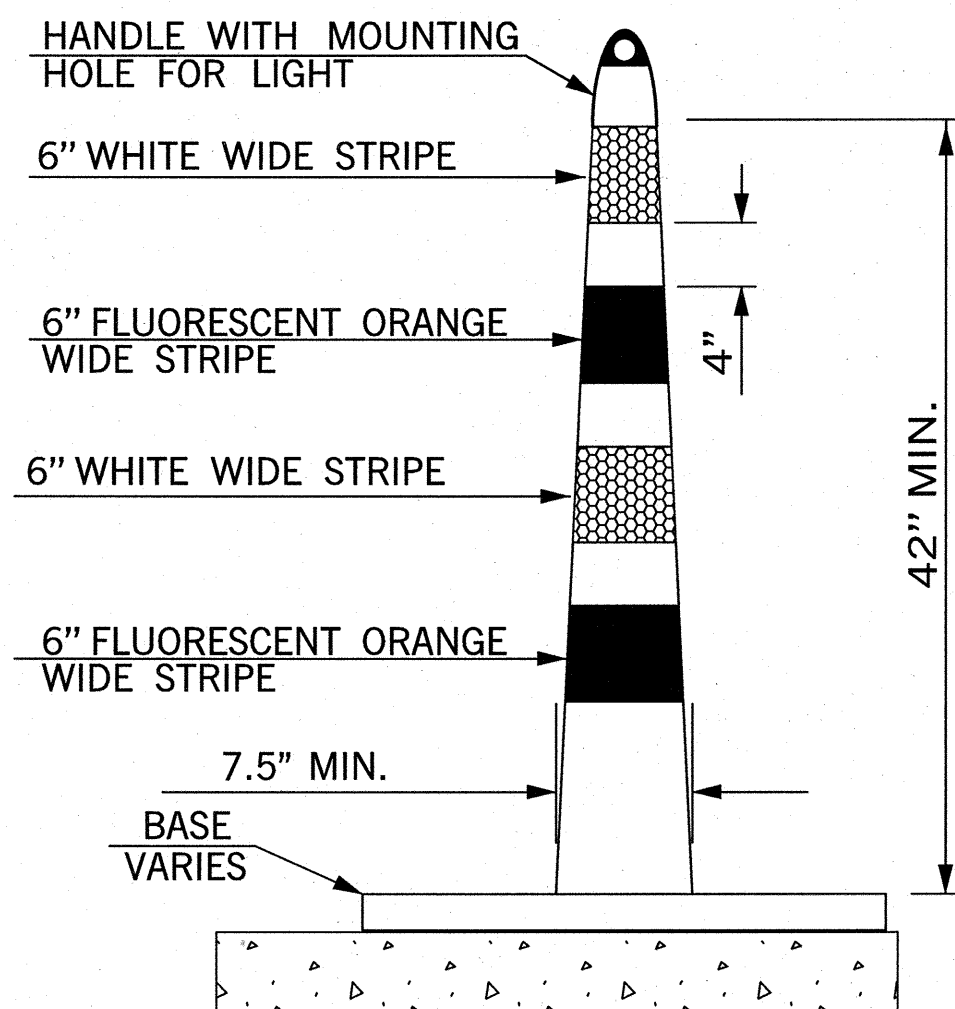
NOTES:

METAL DRUMS SHALL NOT BE USED.

EACH DRUM SHALL HAVE A MINIMUM OF TWO (2) FLUORESCENT ORANGE STRIPES ALTERNATING WITH A MINIMUM OF TWO (2) WHITE STRIPES. THESE STRIPES SHALL CONSIST OF RETROREFLECTIVE SHEETING.

BALLAST SHALL NOT BE PLACED ON TOP OF A DRUM.

DRUMS SHALL NOT BE USED TO DELINEATE AN EDGE DROP OFF IF THEY MUST BE PLACED IN THE DROP OFF AREA BELOW THE LEVEL OF THE DRIVING SURFACE.



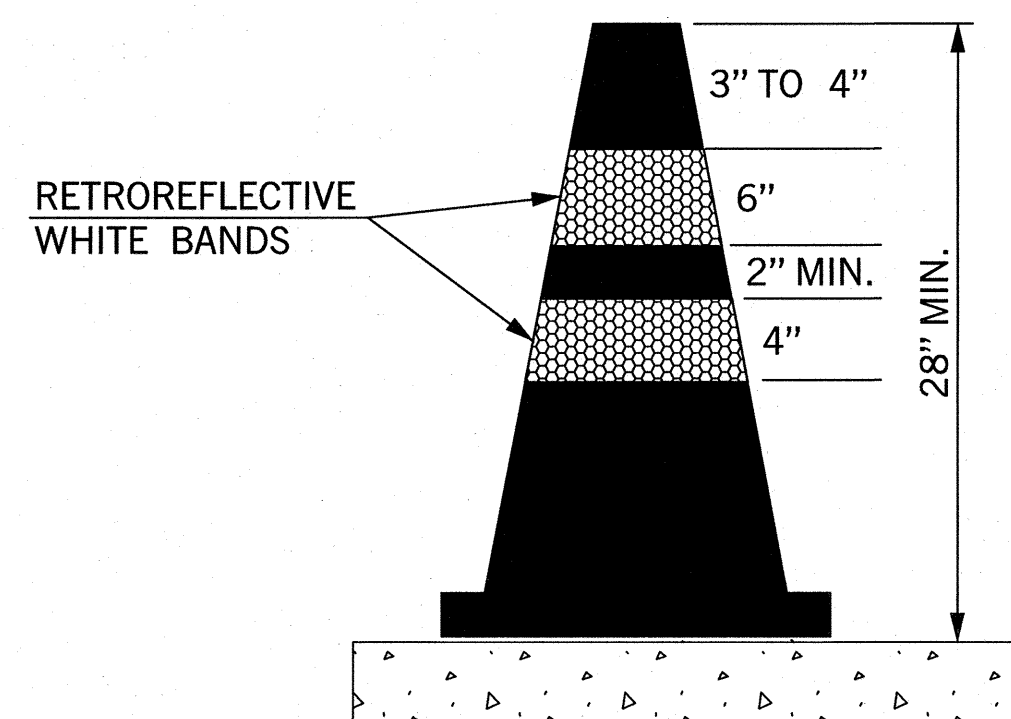
CHANNELIZER CONE

NOTES:

CHANNELIZER CONES USED ON HIGH SPEED ROADWAYS, ON ALL HIGHWAYS DURING NIGHTTIME, OR WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED SHALL BE A MINIMUM OF 42 INCHES HIGH.

EACH CHANNELIZERS CONES SHALL HAVE A MINIMUM OF TWO (2) FLUORESCENT ORANGE STRIPES ALTERNATING WITH A MINIMUM OF TWO (2) WHITE STRIPES. THESE STRIPES SHALL CONSIST OF RETROREFLECTIVE SHEETING.

BASE SHALL WEIGH 30 LBS. OR MORE.



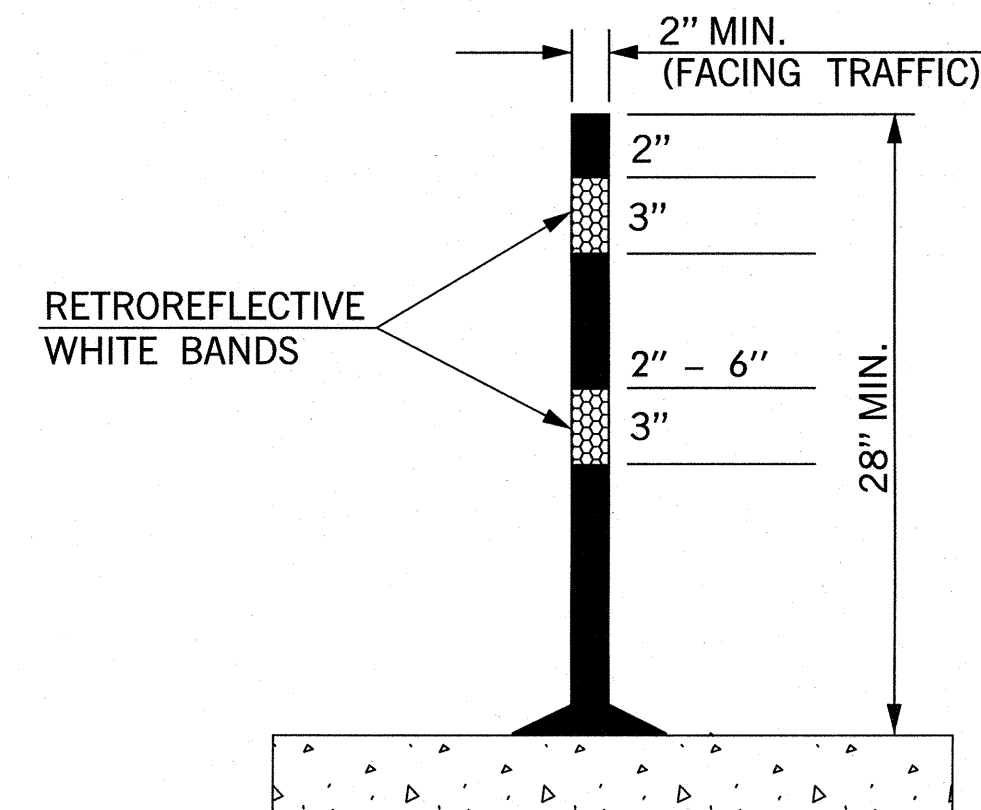
CONE

NOTES:

CONES USED ON HIGH SPEED ROADWAYS, ON ALL HIGHWAYS DURING NIGHTTIME, OR WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED SHALL BE A MINIMUM OF 28 INCHES HIGH.

CONES SHALL BE PREDOMINANTLY ORANGE, WITH WHITE RETROREFLECTIVE SHEETING.

DESCRIPTION	REVISIONS	DATE
ADD NOTE TO VERTICAL PANEL		07/19/10
CHANGED TYPE 'C' LIGHT TO OPTIONAL		3/15/2011

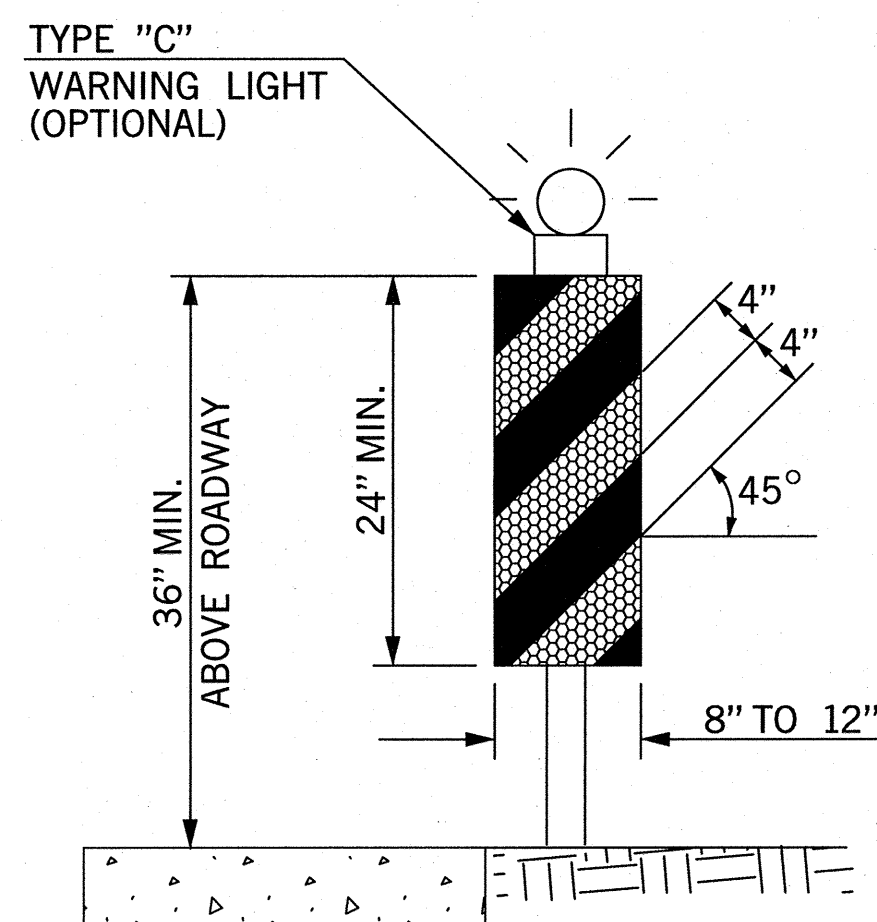


TUBE CHANNELIZER

NOTES:

TUBE CHANNELIZERS USED ON HIGH SPEED ROADWAYS, ON ALL HIGHWAYS DURING NIGHTTIME, OR WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED SHALL BE A MINIMUM OF 28 INCHES HIGH.

TUBE CHANNELIZERS SHALL BE PREDOMINANTLY ORANGE, WITH WHITE RETROREFLECTIVE SHEETING.



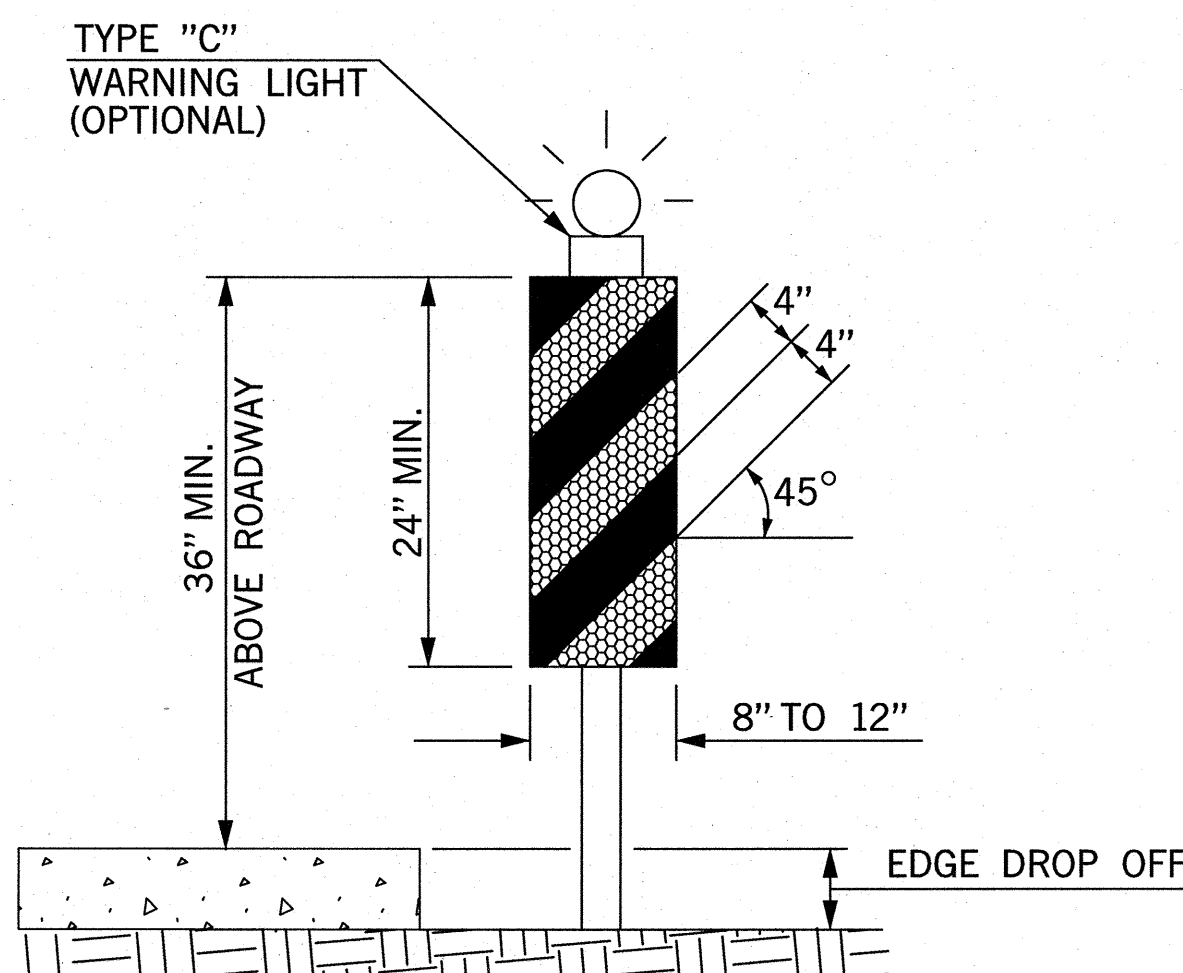
**VERTICAL PANEL
W/NO DROP OFF**

NOTES:

PANEL STRIPE WIDTHS SHALL BE 6 INCHES EXCEPT WHERE PANELS LENGTHS ARE LESS THAN 36 INCHES, THEN 4 INCH WIDE STRIPES MAY BE USED.

MARKINGS FOR VERTICAL PANELS SHALL BE ALTERNATING FLUORESCENT ORANGE AND WHITE RETROREFLECTORIZED STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS).

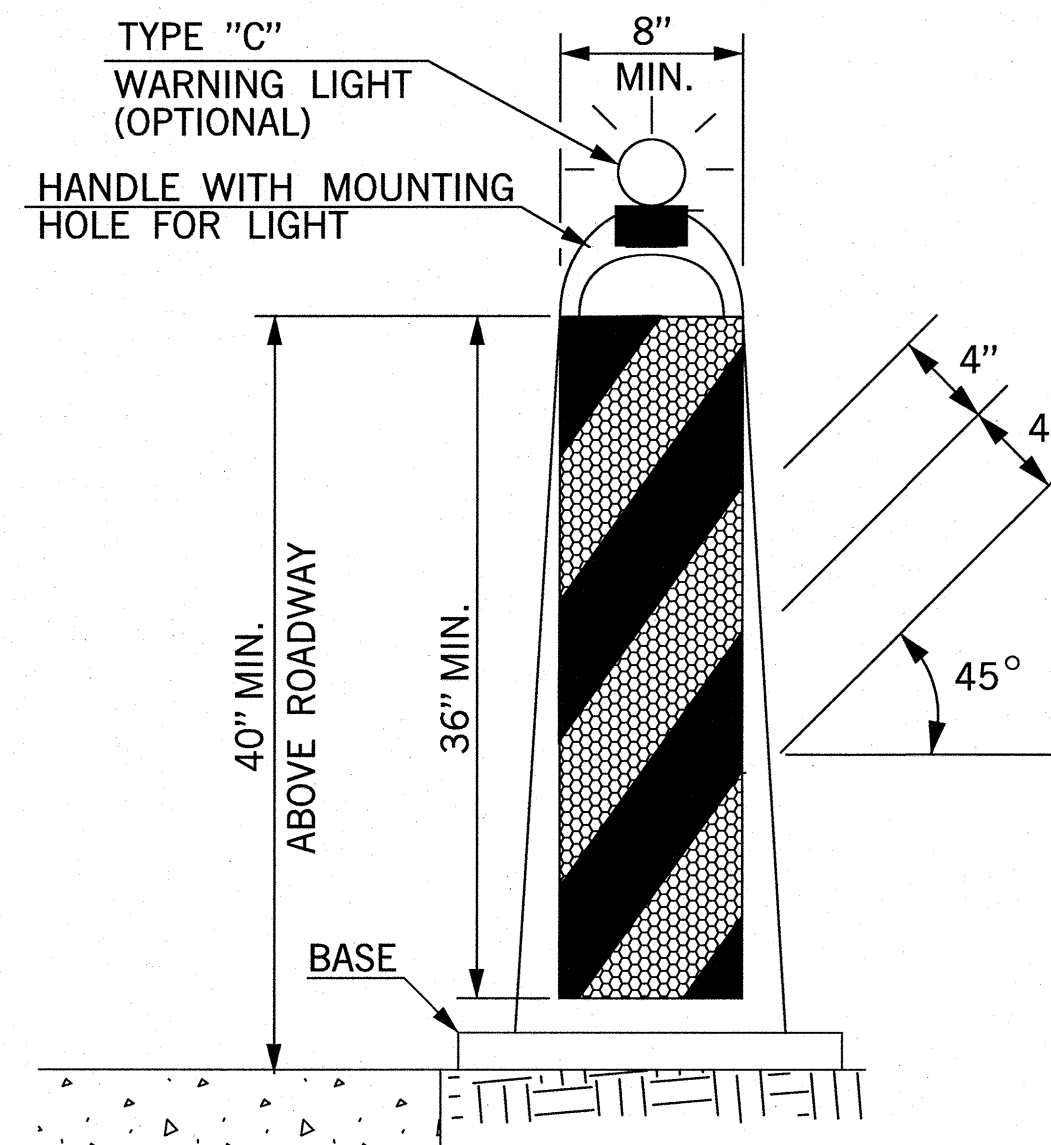
SHALL HAVE A MINIMUM OF TWO (2) FULL FLUORESCENT ORANGE STRIPES.



**VERTICAL PANEL
W/DROP OFF**

ON UNDIVIDED HIGHWAYS, VERTICAL PANELS SHALL HAVE A MINIMUM OF 192 SQUARE INCHES OF RETROREFLECTIVE SHEETING ON EACH PANEL (FRONT AND BACK). WHEN USED ON HIGH SPEED ROADWAYS, VERTICAL PANELS SHALL HAVE MINIMUM OF 270 SQUARE INCHES OF RETROREFLECTIVE SHEETING ON EACH PANEL (FRONT AND BACK). THIS SHALL CONSTITUTE ONE (1) COMPLETE VERTICAL PANEL.

ON DIVIDED HIGHWAYS A VERTICAL PANEL MAY HAVE SHEETING ON ONLY ONE SIDE.



STACKABLE VERTICAL PANEL

NOTES:

(1) VERTICAL PANEL SIGNS SHALL BE MOUNTED BACK TO BACK WHEN USED FOR TWO-WAY TRAFFIC.

(2) BASE SHALL BE NO LARGER THAN 28" LONG BY 20" WIDE, AND 2" THICK.

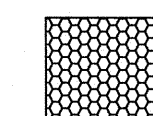
(3) BASE SHALL WEIGHT 30 LBS. OR MORE.

(4) THESE DEVICES SHALL BE CONSTRUCTED OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT.

KEY:



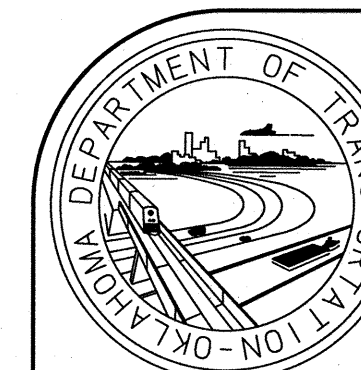
FLUORESCENT ORANGE (REFLECTORIZED)



WHITE (REFLECTORIZED)

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
880(D)	VERTICAL PANEL	SD
880(E)	WARNING LIGHTS	SD
880(F)	DRUMS	SD
880(G)	TUBE CHANNELIZERS	SD
880(H)	CONES	SD
880(G)	CHANNELIZER CONES	SD



APPROVED BY
TRAFFIC ENGINEER: *David Smalley* DATE: 3/21/11

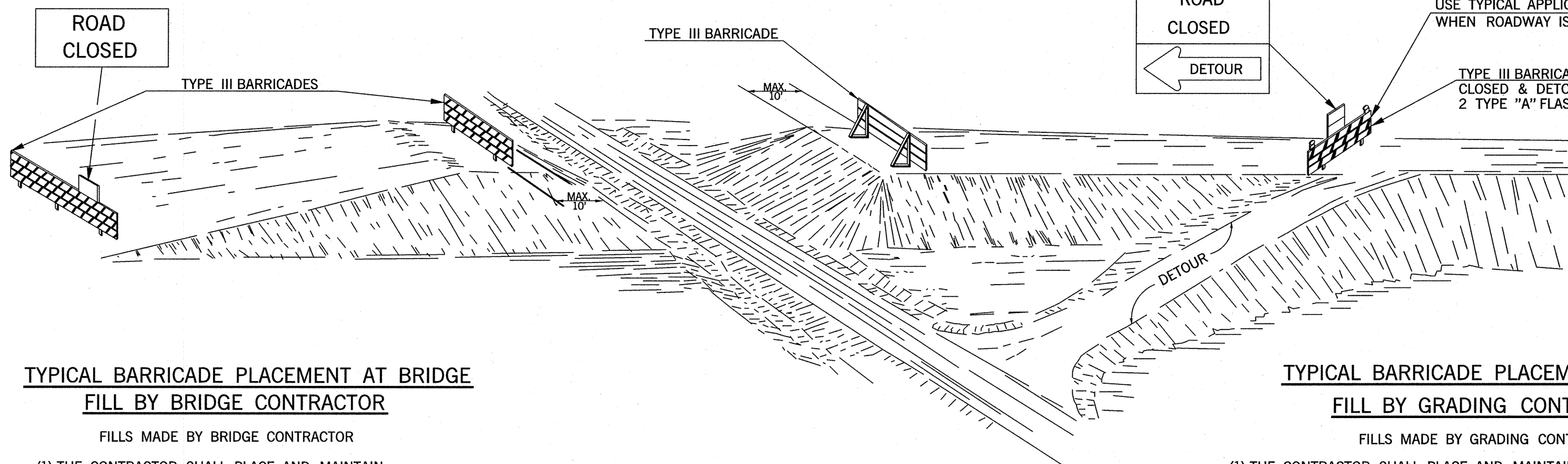
**TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
CHANNELIZING DEVICES**

2009 SPECIFICATIONS

TCS6-1

02

T-506

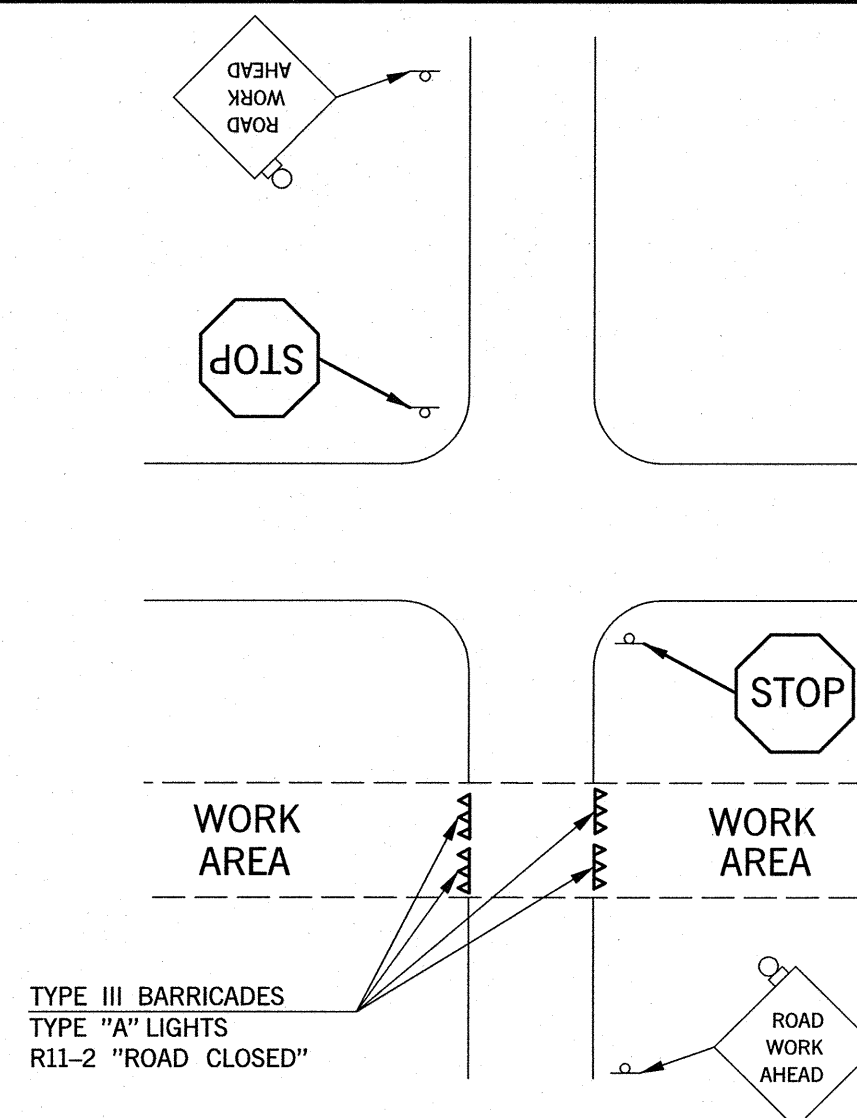


TYPICAL BARRICADE PLACEMENT AT BRIDGE
FILL BY BRIDGE CONTRACTOR

- FILLS MADE BY BRIDGE CONTRACTOR
- (1) THE CONTRACTOR SHALL PLACE AND MAINTAIN THE BARRICADES AS SHOWN UNTIL THEY ARE NO LONGER NEEDED.
 - (2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL OF THE BARRICADES.
 - (3) THE ENGINEER SHALL NOTIFY THE GRADING CONTRACTOR TO FURNISH AND ERECT HIS BARRICADES "IMMEDIATELY" AFTER THE BRIDGE CONTRACTOR REMOVES HIS BARRICADES. THE GRADING CONTRACTOR SHALL MAINTAIN HIS BARRICADES UNTIL FINAL INSPECTION OR UNTIL THEY ARE NO LONGER NEEDED.
 - (4) BARRICADES AT BRIDGE FILL SHALL BE IN PLACE AND MAINTAINED AT ALL TIMES UNTIL OPENED TO TRAFFIC; HOWEVER, BARRICADES MAY BE REMOVED OR ADJUSTED, AS NEEDED, TO ALLOW ACCESS TO THE WORK AREA.

TYPICAL BARRICADE PLACEMENT AT BRIDGE
FILL BY GRADING CONTRACTOR

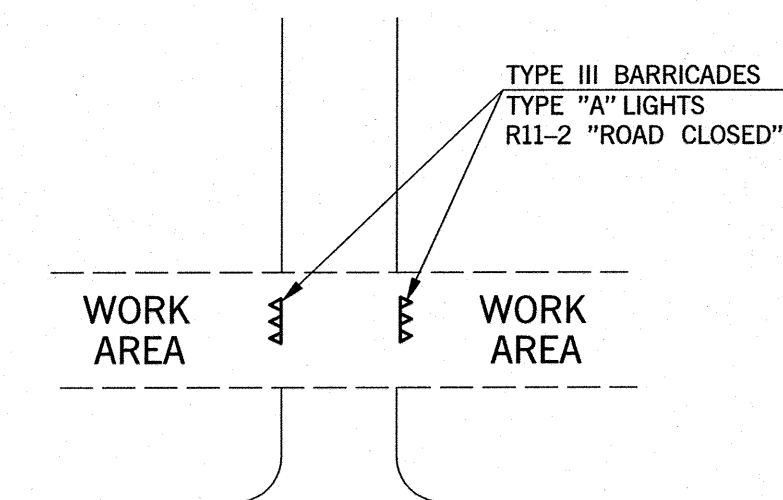
- FILLS MADE BY GRADING CONTRACTOR
- (1) THE CONTRACTOR SHALL PLACE AND MAINTAIN THE BARRICADES AS SHOWN UNTIL FINAL INSPECTION OR UNTIL THEY ARE NO LONGER NEEDED.
 - (2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL OF THE BARRICADES.
 - (3) IF THE BRIDGE WORK ORDER IS ISSUED PRIOR TO COMPLETION OF THE GRADING CONTRACT, THE BRIDGE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE GRADING CONTRACTOR TO ASSUME RESPONSIBILITY FOR PROTECTION OF THE BRIDGE WORK AREA. THIS WILL INCLUDE FURNISHING, INSTALLING, AND MAINTAINING ALL BARRICADES AND SIGNS NECESSARY TO PROVIDE THAT PROTECTION UNTIL THE BRIDGE IS COMPLETED AND THE FINAL INSPECTION IS COMPLETED.
 - (4) IF THE BRIDGE WORK ORDER HAS NOT BEEN ISSUED PRIOR TO THE FINAL INSPECTION OF THE GRADING, THEN THE GRADING CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OKLAHOMA DEPARTMENT OF TRANSPORTATION FOR STATE FORCES TO SUPPLY, INSTALL AND MAINTAIN ANY NECESSARY TRAFFIC CONTROL DEVICES NEEDED TO PROTECT THE WORK AREA. THESE STATE OWNED DEVICES SHALL REMAIN IN PLACE UNTIL SUCH TIME THAT THE BRIDGE WORK ORDER IS ISSUED. AT THAT TIME THE BRIDGE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR TRAFFIC CONTROL AND REPLACE THE STATE OWNED DEVICES WITH HIS OWN.
 - (5) SUFFICIENT NUMBER OF TYPE II BARRICADES WITH SIGNS SHALL BE USED TO COMPLETELY CLOSE THE WORK AREA TO THROUGH TRAFFIC.
 - (6) BARRICADES AT BRIDGE FILL SHALL BE IN PLACE AND MAINTAINED AT ALL TIMES UNTIL OPENED TO TRAFFIC; HOWEVER, BARRICADES MAY BE REMOVED OR ADJUSTED, AS NEEDED, TO ALLOW ACCESS TO THE WORK AREA.



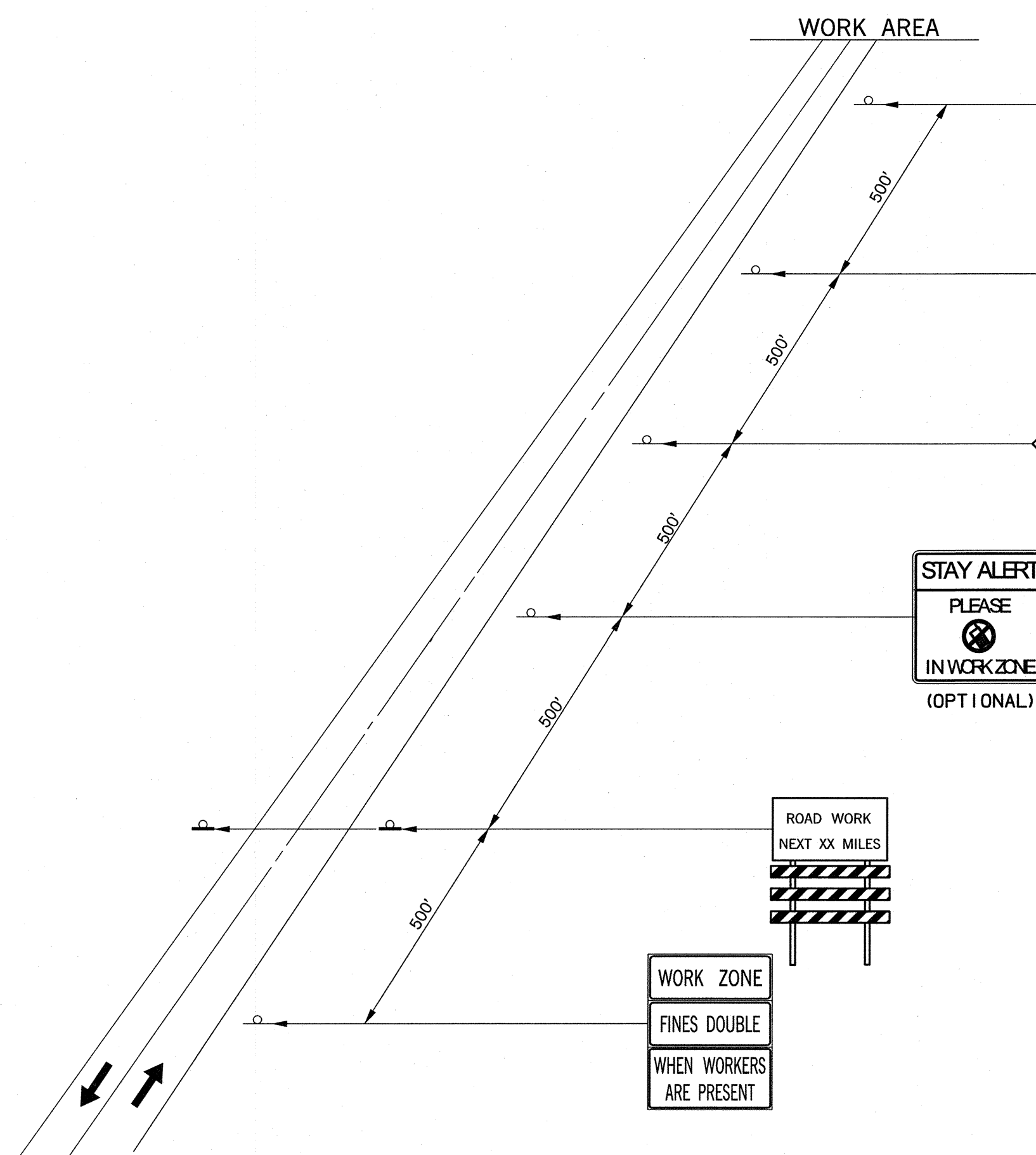
TYPICAL SIGN PLACEMENT FOR
INTERSECTING ROADS AND STREETS

DESCRIPTION	REVISIONS	DATE
MODIFIED NOTE		3/15/2011
ADD "NO CELL PHONE" USAGE IN WORK ZONE, DISTANCE SIGN TO WARNING SIGNS		4/2/2013

- NOTES:
- (1) SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
 - (2) FLASHING WARNING LIGHTS SHALL BE USED TO CALL ATTENTION TO THE EARLY WARNING SIGNS.
 - (3) WARNING LIGHTS SHOULD BE USED TO MARK CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 - (4) PLACEMENT OF TYPE III BARRICADES SHALL BE APPROVED BY THE ENGINEER.
 - (5) TYPE II BARRICADES, DRUMS AND/OR VERTICAL PANELS MAY BE SUBSTITUTED FOR TYPE III BARRICADES TO AVOID OBSTRUCTING THE MOTORISTS VIEW.
 - (6) IF TWO OR MORE DRIVEWAYS ARE IN CLOSE PROXIMITY, THE BARRICADES BETWEEN THE DRIVEWAYS MAY BE OMITTED AT THE DISCRETION OF THE ENGINEER.
 - (7) THE "ROAD WORK AHEAD" SIGN, WHICH SERVES AS A GENERAL WARNING OF OBSTRUCTIONS OR RESTRICTIONS, SHALL BE LOCATED ON ALL INTERSECTING ROADS AND STREETS.



TYPICAL SIGN PLACEMENT FOR
PRIVATE DRIVE OR RESIDENCE



TYPICAL APPLICATION
ADVANCE WARNING SIGNS ON 2-LANE HIGHWAY

TYPICAL CONSTRUCTION WARNING SIGNS WITH MESSAGES OTHER THAN DETAILED ON STANDARD DRAWINGS SHALL BE CONSTRUCTED USING THE LARGEST POSSIBLE LETTER SIZE, SIGN SIZE AND COLOR SHALL BE THE SAME AS OTHER CONSTRUCTION WARNING SIGNS USED FOR SIMILAR CONDITIONS.

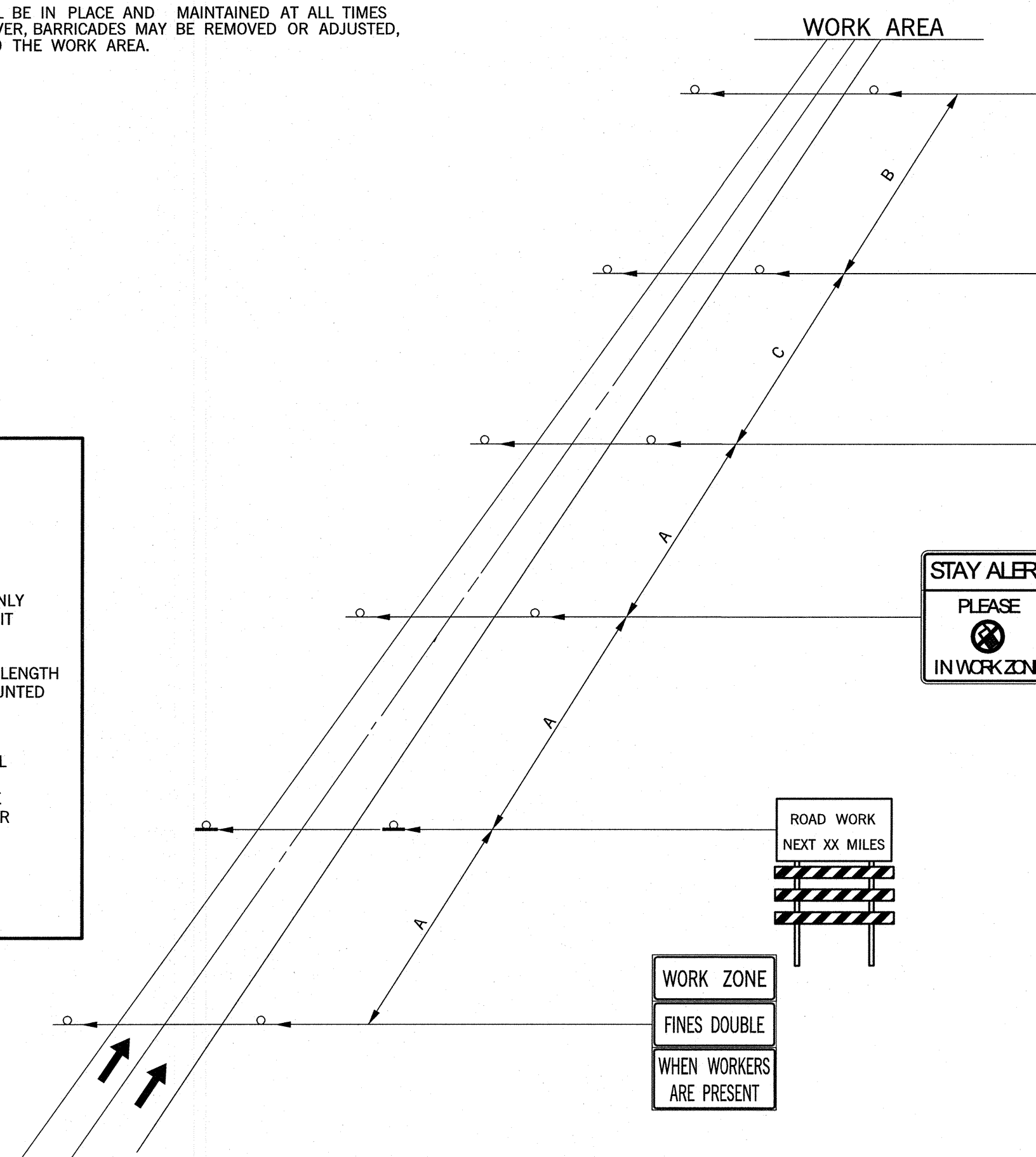
FINES DOUBLE IN WORK ZONE SIGNS ARE TO BE USED ONLY ON STATE OR FEDERAL HIGHWAYS WHERE THE SPEED LIMIT IS REDUCED OR AS DIRECTED BY THE ENGINEER.

PROJECTS WITH WORK LIMITS OF 1.0 MILES OR MORE IN LENGTH WILL REQUIRE THE G20-1A SIGN. THE SIGN SHALL BE MOUNTED AS SHOWN ON TC54-1 (LATEST REVISION).

WARNING SIGNS SHOWN ARE "ADVANCE" WARNING SIGNS AND ARE REQUIRED ON ALL STATE HIGHWAYS. ADDITIONAL WARNING SIGNS MAY BE REQUIRED WITHIN THE PROJECT LIMITS TO WARN DRIVERS OF SPECIFIC HAZARDS. ADVANCE "WARNING SIGNS" MAY CHANGE AS CONDITIONS CHANGE OR AS DIRECTED BY THE ENGINEER.

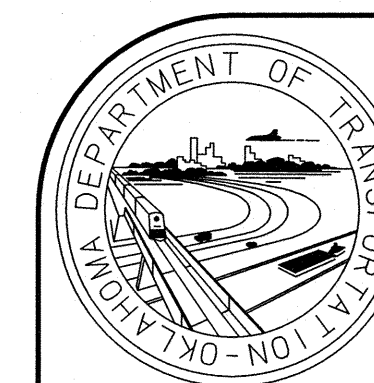
PROJECT WORK OF 1.0 MILE OR MORE IN LENGTH WILL REQUIRE SIGNS CS-14 AND R2-1 TO BE PLACED EVERY 1/2 MILE THROUGH WORK ZONE.

ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	100	100	100
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY /FREEWAY	1,000	1,500	2,640



TYPICAL APPLICATION
ADVANCE WARNING SIGNS ON A DIVIDED HIGHWAY

TYPICAL APPLICATION
ADVANCE SIGNING WHERE TRUCKS ARE CROSSING



APPROVED BY
TRAFFIC ENGINEER: *David J. Smith* DATE: 4/8/2013

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
PLACEMENT OF ADVANCE
WARNING SIGNS

2009 SPECIFICATIONS

TCS7-1	02
T-507	

T:\RFP36 M\2009 Standards TC\508.dgn 8:18:06 AM 6/2/2010 d:\usr2\files\erohy\pen R:\TRAFF PLOT\bw.tbl

DESCRIPTION	REVISIONS	DATE



STOP

R1-1 30 x 30 5.18 SF
R1-1E 36 x 36 7.46 SF
R1-1F 48 x 48 13.26 SF

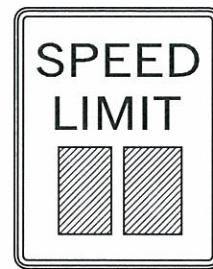
COLOR:
LEGEND AND BORDER:
WHITE (REFLECTORIZED)
BACKGROUND:
RED (TRANSPARENT REFLECTORIZED)



YIELD

R1-2 36 x 36 x 36 3.90 SF
R1-2E 48 x 48 x 48 6.93 SF
R1-2F 60 x 60 x 60 10.83 SF

COLOR:
LEGEND AND BORDER:
RED (TRANSPARENT REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



SPEED LIMIT

SPEED
R2-1() 24 x 30 5.00 SF
R2-1E() 36 x 48 12.00 SF
R2-1F() 48 x 60 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



NO RIGHT TURN

R3-1 24 x 24 4.00 SF
R3-1E 36 x 36 9.00 SF
R3-1F 48 x 48 16.00 SF

COLOR:
ARROW AND BORDER:
BLACK (NON-REFLECTORIZED)
CIRCLE AND DIAGONAL:
RED (TRANSPARENT REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



NO LEFT TURN

R3-2 24 x 24 4.00 SF
R3-2E 36 x 36 9.00 SF
R3-2F 48 x 48 16.00 SF

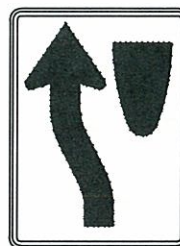
COLOR:
ARROW AND BORDER:
BLACK (NON-REFLECTORIZED)
CIRCLE AND DIAGONAL:
RED (TRANSPARENT REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



KEEP RIGHT SIGN

R4-7 24 x 30 5.00 SF
R4-7E 36 x 48 12.00 SF
R4-7F 48 x 60 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



KEEP LEFT SIGN

R4-8 24 x 30 5.00 SF
R4-8E 36 x 48 12.00 SF
R4-8F 48 x 60 20.00 SF

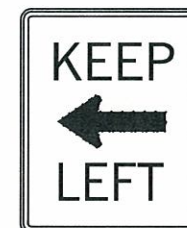
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



KEEP RIGHT

R4-7a(R) 24 x 30 5.00 SF
R4-7a(R)E 36 x 48 12.00 SF
R4-7a(R)F 48 x 60 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



KEEP LEFT

R4-7a(L) 24 x 30 5.00 SF
R4-7a(L)E 36 x 48 12.00 SF
R4-7a(L)F 48 x 60 20.00 SF

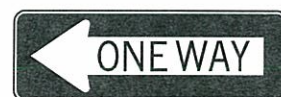
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



DO NOT ENTER

R5-1 30 x 30 6.25 SF
R5-1E 36 x 36 9.00 SF
R5-1F 48 x 48 16.00 SF

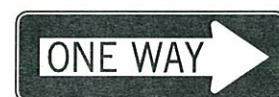
COLOR:
SYMBOL: :
RED (TRANSPARENT REFLECTORIZED)
LEGEND AND BACKGROUND: :
WHITE (REFLECTORIZED)



ONE WAY

R6-1(L) 36 x 12 3.00 SF
R6-1E(L) 54 x 18 6.75 SF
R6-1F(L) 54 x 18 6.75 SF

COLOR:
ARROW AND BORDER:
WHITE (NON-REFLECTORIZED)
LEGEND AND BACKGROUND:
BLACK (REFLECTORIZED)



ONE WAY

R6-1(R) 36 x 12 3.00 SF
R6-1E(R) 54 x 18 6.75 SF
R6-1F(R) 54 x 18 6.75 SF

COLOR:
ARROW AND BORDER:
WHITE (NON-REFLECTORIZED)
LEGEND AND BACKGROUND:
BLACK (REFLECTORIZED)



STOP HERE ON RED

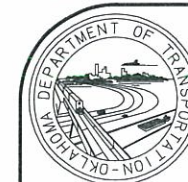
R10-6 24 x 36 6.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)

NOTES:
WORD SIGNS MAY BE USED IF SYMBOL SIGNS ARE NOT
AVAILABLE EITHER IN "STANDARD HIGHWAY SIGNS MANUAL" OR
IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"
(MUTCD) (CURRENT EDITION).

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER *David J. Smith* DATE 6/23/10

TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS8-1

00

T-508

DESCRIPTION	REVISIONS	DATE
CHANGED SIGN DESIGNATION		3/15/2011



ROAD CLOSED

R11-2 48 x 30 10.00 SF

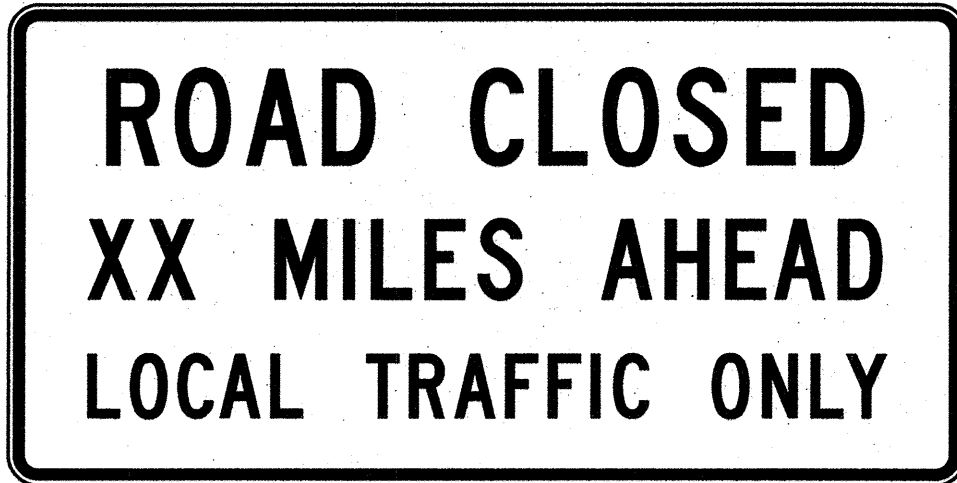
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



LANE CLOSED

R11-2(LANE) 48 x 30 10.00 SF

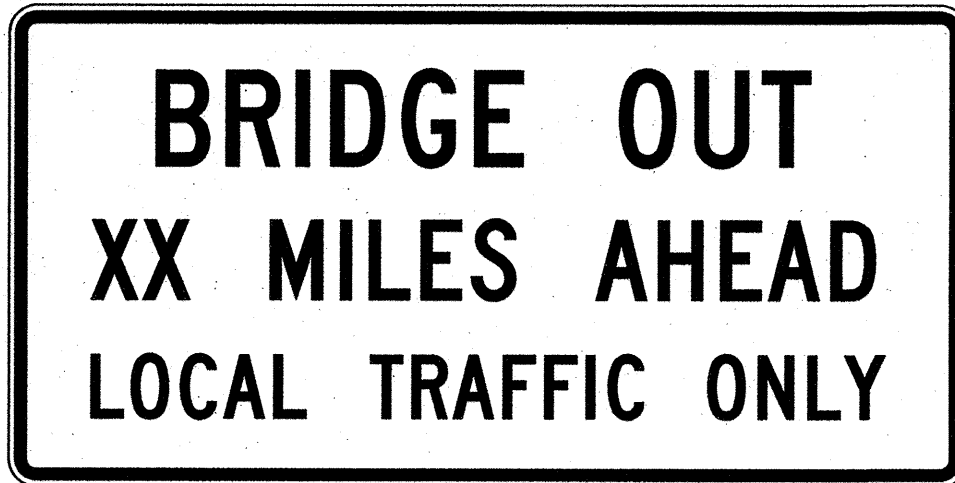
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



ROAD CLOSED XX MILES AHEAD

R11-3a 60 x 30 12.50 SF

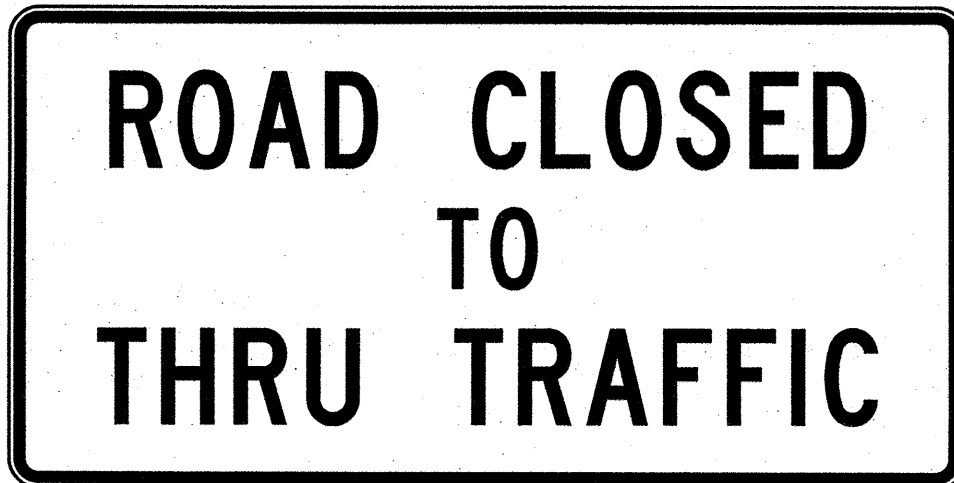
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



BRIDGE OUT XX MILES AHEAD

R11-3b 60 x 30 12.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



ROAD CLOSED TO THRU TRAFFIC

R11-4 60 x 30 12.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



DETOUR SIGN

M4-8 24 x 12 2.00 SF
M4-8E 30 x 15 3.13 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-9(R) 30 x 24 5.00 SF
M4-9(R)E 48 x 36 12.00 SF
M4-9(R)F 60 x 48 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-9(L) 30 x 24 5.00 SF
M4-9(L)E 48 x 36 12.00 SF
M4-9(L)F 60 x 48 20.00 SF

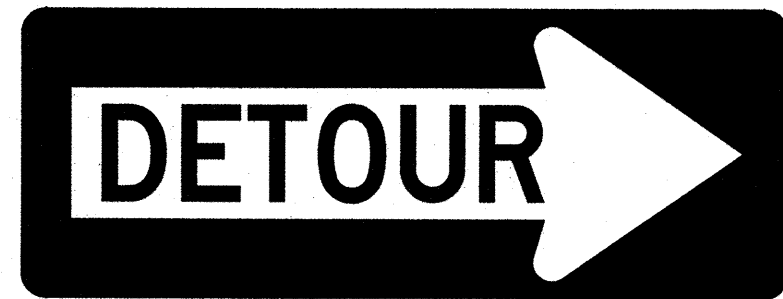
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-9(V) 30 x 24 5.00 SF
M4-9(V)E 48 x 36 12.00 SF
M4-9(V)F 60 x 48 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-10(R) 48 x 18 6.00 SF

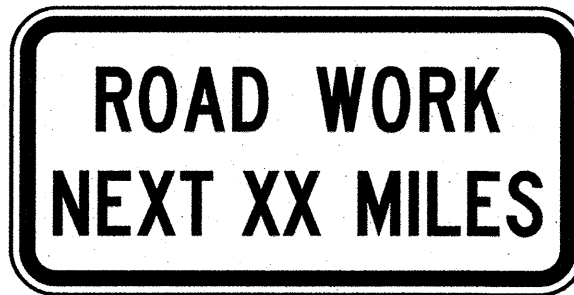
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-10(L) 48 x 18 6.00 SF

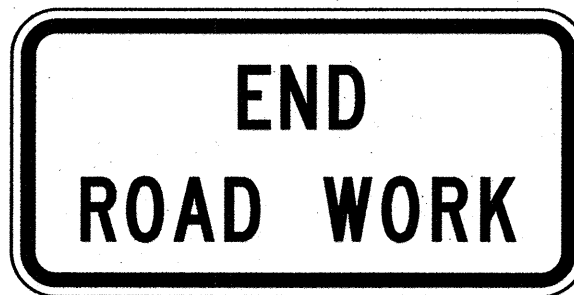
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



ROAD WORK NEXT XX MILES SIGN

G20-1A 36 x 18 4.50 SF

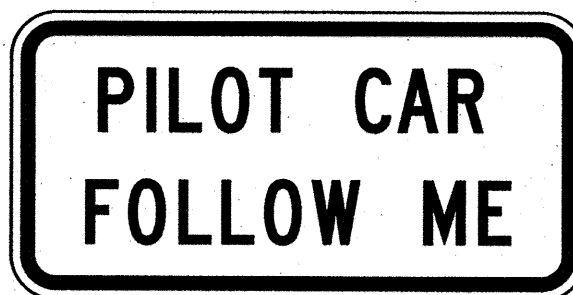
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



END ROAD WORK SIGN

G20-2A 36 x 18 4.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



PILOT CAR FOLLOW ME SIGN

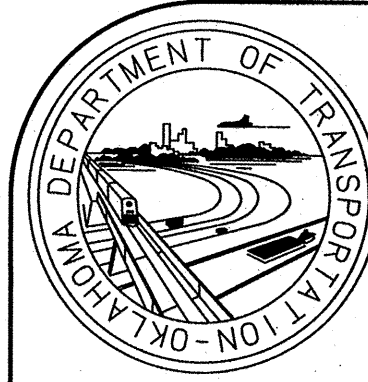
G20-4 36 x 18 4.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)

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BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER: *David Smith* DATE: 3/21/11

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS9-1 01
T-509

TRFPC36 M:\2009 Standards TC\510.dgn 8:18:46 AM 6/2/2010 d:\usr2\lib\erohy\pen R:\TRAFF PLOT\bw.tbl



TURN LEFT

W1-1(L) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



TURN RIGHT

W1-1(R) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



CURVE LEFT

W1-2(L) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



CURVE RIGHT

W1-2(R) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



LEFT REVERSE TURN

W1-3(L) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



RIGHT REVERSE TURN

W1-3(R) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



LEFT REVERSE CURVE

W1-4(L) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



RIGHT REVERSE CURVE

W1-4(R) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



LEFT REVERSE CURVE

W1-4B(L) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



RIGHT REVERSE CURVE

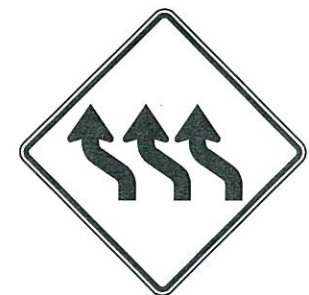
W1-4B(R) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)

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FOR USE WITH A 48 INCH X 48 INCH WARNING
SIGN UNLESS OTHERWISE NOTED IN THE PLANS.



LEFT REVERSE CURVE

W1-4C(L) 48 x 48 16.00 SF

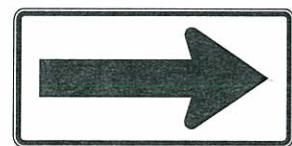
COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



RIGHT REVERSE CURVE

W1-4C(R) 48 x 48 16.00 SF

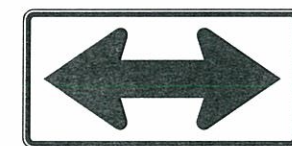
COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



ARROW

W1-6 48 x 24 8.00 SF
W1-6E 60 x 30 12.50 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DOUBLE ARROW

W1-7 48 x 24 8.00 SF
W1-7E 60 x 30 12.50 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER: *David Smith* DATE: 6/23/10

TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS10-1 00
T-510

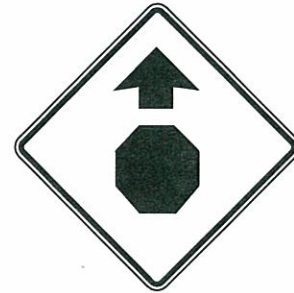
TRFPC36 U:\Traffic\TRAFFIC STD CURRENT\2009 DRAWINGS\TCS11-1-01 1511.dgn 10:38:39 AM 7/19/2010 R:\TRAFFIC PLOT\erohy\pen R:\TRAFFIC PLOT\bw.tbl



CHEVRON

W1-8 18 x 24 3.00 SF
W1-8E 30 x 36 7.50 SF
W1-8F 36 x 48 12.00 SF

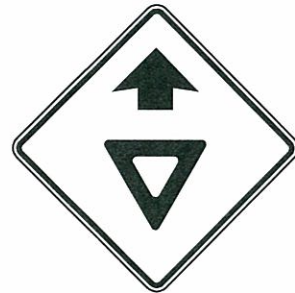
COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



STOP AHEAD

W3-1 48 x 48 16.00 SF

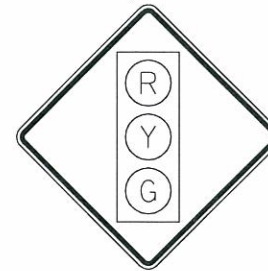
COLOR:
BORDER AND ARROW:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)
SYMBOL:
WHITE BORDER ON RED BACKGROUND
(REFLECTORIZED)



YIELD AHEAD

W3-2 48 x 48 16.00 SF

COLOR:
BORDER AND ARROW:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)
SYMBOL:
WHITE BORDER ON RED BACKGROUND
(REFLECTORIZED)



SIGNAL AHEAD

W3-3 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)
R = RED (REFLECTORIZED)
Y = YELLOW (REFLECTORIZED)
G = GREEN (REFLECTORIZED)



BE PREPARED TO STOP SIGN

W3-4 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

DESCRIPTION	REVISIONS	DATE
CHANGE DESIGN NUMBER		07/19/10



SPEED REDUCTION

W3-5 48 x 48 16.00 SF

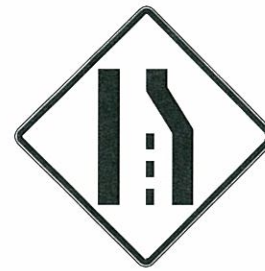
COLOR:
BORDER AND ARROW:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)
SYMBOL:
BLACK BORDER AND TEXT ON
WHITE BACKGROUND (REFLECTORIZED)



LEFT LANE ENDS

W4-2(L) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



RIGHT LANE ENDS

W4-2(R) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



ROAD NARROWS

W5-1 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



NARROW BRIDGE

W5-2 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

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48 INCHES UNLESS OTHERWISE NOTED IN THE
PLANS.

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IN CONJUNCTION WITH DIAMOND SHAPE
CONSTRUCTION WARNING SIGNS. THE SIZE OF
SUPPLEMENTAL SIGNS SHALL BE APPROPRIATE
FOR USE WITH A 48 INCH X 48 INCH WARNING
SIGN UNLESS OTHERWISE NOTED IN THE PLANS.



ONE LANE BRIDGE

W5-3 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DIVIDED HIGHWAY

W6-1 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DIVIDED HIGHWAY

W6-2 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

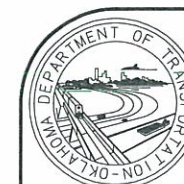


TWO WAY TRAFFIC SIGN

W6-3 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER: *Chad G. Smith* DATE: 8/6/10
TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS11-1 01
T-511

TRFPC36 M:\2009 Standards TC\1513.dgn 8:19:50 AM 6/2/2010 d:\usr2\jib\eroh\pen R:\TRAF PLOT\bw.tbl



LOW SHOULDER SIGN
W8-9 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



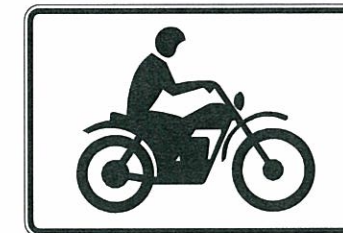
UNEVEN LANES SIGN
W8-11 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



NO CENTER LINE SIGN
W8-12 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



GROOVED PAVEMENT SIGN
W8-15 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



MOTORCYCLE (PLAQUE) *
W8-15P 18 x 36 4.50 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



SHOULDER DROP-OFF (SYMBOL)
W8-17 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



SHOULDER DROP-OFF (PLAQUE) *
W8-17P 18 x 36 4.50 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



LANE ENDS MERGE LEFT SIGN
W9-2(L) 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



LANE ENDS MERGE RIGHT SIGN
W9-2(R) 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



TRUCK CROSSING SIGN
W11-10 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

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CONSTRUCTION WARNING SIGNS. THE SIZE OF
SUPPLEMENTAL SIGNS SHALL BE APPROPRIATE
FOR USE WITH A 48 INCH X 48 INCH WARNING
SIGN UNLESS OTHERWISE NOTED IN THE PLANS.



DOUBLE ARROW SIGN
W12-1 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



CLEARANCE SIGN
W12-2 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



ADVISORY SPEED SIGN *
W13-1P 18 x 18 2.25 SF
W13-1PE 24 x 24 4.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



XX FEET SIGN *
W16-2P 24 x 18 3.00 SF
W16-2PE 30 x 24 5.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER *David G. Smith* DATE 6/23/10

TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS13-1 00
T-513

TRFPC36 WA-2009_Standards.TCY1514.dgn 6/23/2010 8:33:25 AM R:\TRAF.PLOT\eroyh\ben R:\TRAF.PLOT\eroyh\ben

DESCRIPTION	REVISIONS	DATE



ROAD WORK SIGN

W20-1 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DETOUR SIGN

W20-2 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



ROAD CLOSED SIGN

W20-3 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



STREET CLOSED SIGN

W20-3A 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



ONE LANE ROAD SIGN

W20-4 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



LEFT LANE CLOSED SIGN

W20-5(L) 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



RIGHT LANE CLOSED SIGN

W20-5(R) 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



FLAGGER SIGN

W20-7 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



FLAGGER SIGN

W20-7a 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



WORKERS SIGN

W21-1 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



FRESH OIL SIGN

W21-2 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



ROAD MACHINERY AHEAD SIGN

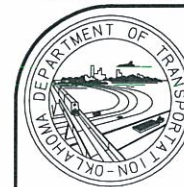
W21-3 48 x 48 16.00 SF
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

NOTES:
WORD SIGNS MAY BE USED IF SYMBOL SIGNS ARE NOT AVAILABLE EITHER IN "STANDARD HIGHWAY SIGNS MANUAL" OR IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) (CURRENT EDITION).

ALL DIAMOND SHAPE CONSTRUCTION WARNING SIGNS SHALL BE 48 INCHES X 48 INCHES UNLESS OTHERWISE NOTED IN THE PLANS.

* SUPPLEMENTAL SIGNS SHALL ONLY BE USED IN CONJUNCTION WITH DIAMOND SHAPE CONSTRUCTION WARNING SIGNS. THE SIZE OF SUPPLEMENTAL SIGNS SHALL BE APPROPRIATE FOR USE WITH A 48 INCH X 48 INCH WARNING SIGN UNLESS OTHERWISE NOTED IN THE PLANS.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER
DATE: 6/23/10

TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

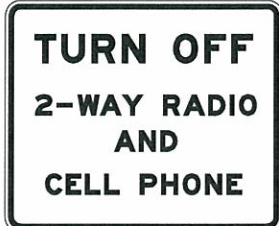
2009 SPECIFICATIONS

TCS14-1

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T-514

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 SHOULDER WORK SIGN W21-5 48 x 48 16.00 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					 SURVEY CREW SIGN W21-6 48 x 48 16.00 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					 UTILITY WORK AHEAD SIGN W21-7 48 x 48 16.00 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					 MOWING AHEAD SIGN W21-8 48 x 48 16.00 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					 BRIDGE REPAIR SIGN W21-9 48 x 48 16.00 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					<table><tr><th>DESCRIPTION</th><th>REVISIONS</th><th>DATE</th></tr><tr><td colspan="3"> </td></tr></table>					DESCRIPTION	REVISIONS	DATE			
DESCRIPTION	REVISIONS	DATE																																	
 MATERIAL ON SHOULDER SIGN W21-10 48 x 48 16.00 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					 MATERIAL ON ROADWAY SIGN W21-11 48 x 48 16.00 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					 BLASTING ZONE AHEAD SIGN W22-1 48 x 48 16.00 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					 CELL TELEPHONES SIGN W22-2 36 x 30 7.50 SF W22-2E 42 x 36 10.50 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					 END BLASTING ZONE SIGN W22-3 36 x 30 7.50 SF W22-3E 42 x 36 10.50 SF COLOR: LEGEND AND BORDER: BLACK (NON-REFLECTORIZED) BACKGROUND: FLUORESCENT ORANGE (REFLECTORIZED)					NOTES: WORD SIGNS MAY BE USED IF SYMBOL SIGNS ARE NOT AVAILABLE EITHER IN "STANDARD HIGHWAY SIGNS MANUAL" OR IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) (CURRENT EDITION). ALL DIAMOND SHAPE CONSTRUCTION WARNING SIGNS SHALLBE 48 INCHES X 48 INCHES UNLESS OTHERWISE NOTED IN THE PLANS. * SUPPLEMENTAL SIGNS SHALL ONLY BE USED IN CONJUNCTION WITH DIAMOND SHAPE CONSTRUCTION WARNING SIGNS . THE SIZE OF SUPPLEMENTAL SIGNS SHALL BE APPROPRIATE FOR USE WITH A 48 INCH x 48 INCH WARNING SIGN UNLESS OTHERWISE NOTED IN THE PLANS.										
<table><tr><th colspan="3">BASIS OF PAYMENT</th></tr><tr><th>ITEM NO.</th><th>ITEM</th><th>UNIT</th></tr><tr><td>880(B)</td><td>CONSTRUCTION SIGNS</td><td>SD</td></tr></table>															BASIS OF PAYMENT			ITEM NO.	ITEM	UNIT	880(B)	CONSTRUCTION SIGNS	SD												
BASIS OF PAYMENT																																			
ITEM NO.	ITEM	UNIT																																	
880(B)	CONSTRUCTION SIGNS	SD																																	
 APPROVED BY TRAFFIC ENGINEER <i>David Small</i> DATE: <i>6/23/10</i> TRAFFIC STANDARD TRAFFIC CONTROL STANDARD CONSTRUCTION SIGNS																																			
2009 SPECIFICATIONS																																			
TCS15-1													00																						
T-515																																			

TRFPC36 M:\2009 Standards TC\516.dgn 8:21:00 AM 6/2/2010 d:\usr2\filb\eroyh\pen R:\TRAF PLOT\bw.tbl



DOUBLE REVERSE CURVE (1 LANE)

W24-1(L) 48 X 48 16.00 SF

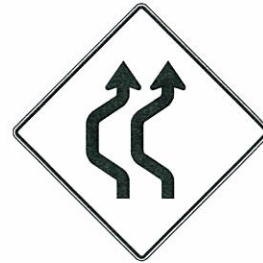
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DOUBLE REVERSE CURVE (1 LANE)

W24-1(R) 48 X 48 16.00 SF

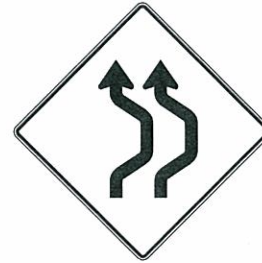
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DOUBLE REVERSE CURVE (2 LANE)

W24-1a(L) 48 X 48 16.00 SF

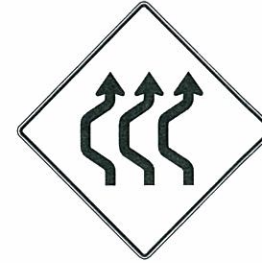
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DOUBLE REVERSE CURVE (2 LANE)

W24-1a(R) 48 X 48 16.00 SF

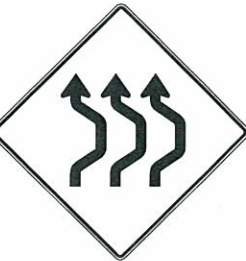
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DOUBLE REVERSE CURVE (3 LANE)

W24-1b(L) 48 X 48 16.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DOUBLE REVERSE CURVE (3 LANE)

W24-1b(R) 48 X 48 16.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



ALL LANES*

W24-1cP 24 X 24 4.00 SF
W24-1cEP 30 X 30 6.25 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

DESCRIPTION	REVISIONS	DATE

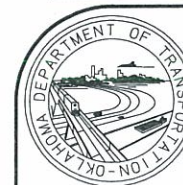
NOTES:
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BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER: *Charles Smoot* DATE: 6/23/10

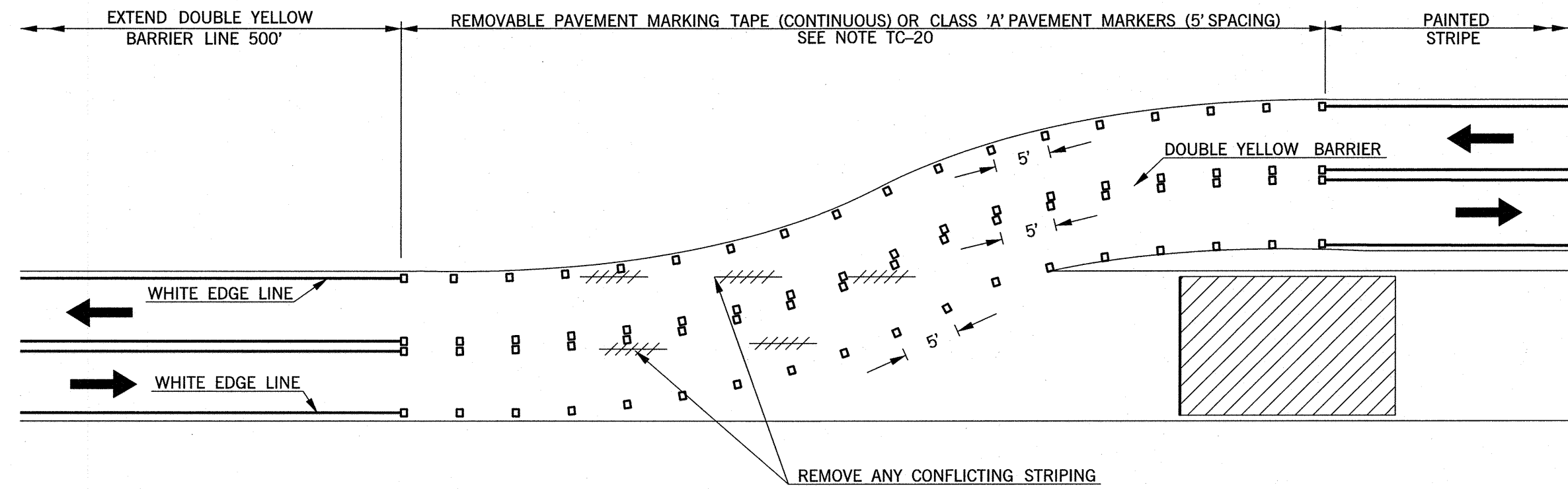
TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

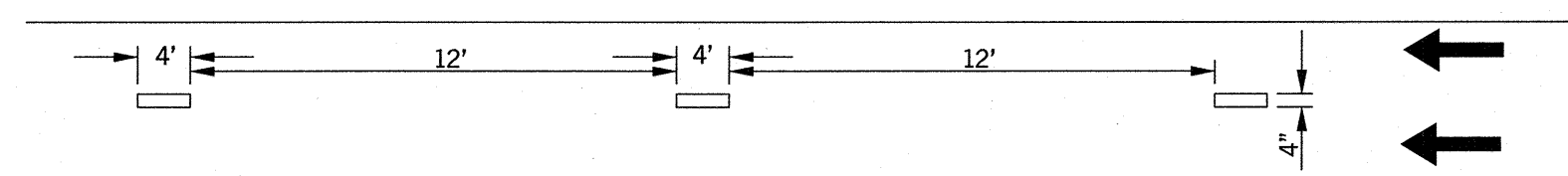
2009 SPECIFICATIONS

TCS16-1 00

T-516

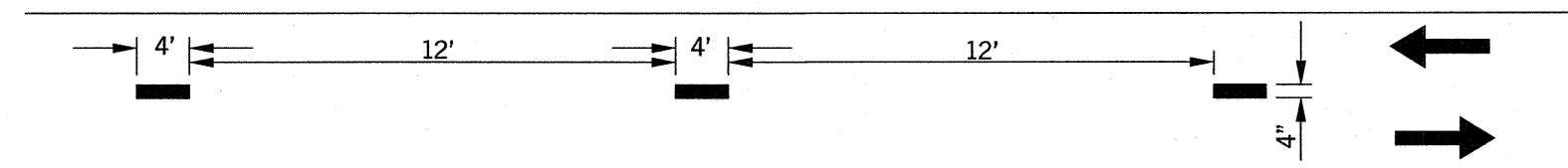


CONSTRUCTION ZONE PAVEMENT MARKINGS THRU SHOO-FLY

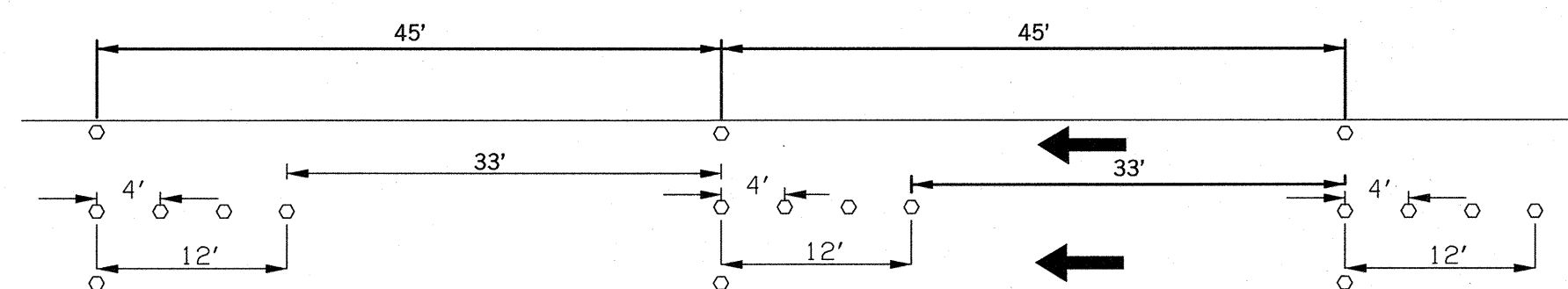


ONE-WAY PAVEMENT MARKING REMOVABLE TAPE OR PAINT

PAVEMENT MARKINGS: REMOVABLE TAPE OR PAINT
WIDTH OF STRIPED LANE LINES SHALL BE A MINIMUM OF 4".
INTERMEDIATE-TERM STATIONARY PAVEMENT MARKINGS ARE THOSE THAT MAY BE USED UNTIL THE EARLIEST DATE WHEN IT IS PRACTICAL AND POSSIBLE TO INSTALL PERMANENT PAVEMENT MARKINGS THAT MEET THE FULL OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARDS FOR PAVEMENT MARKINGS.

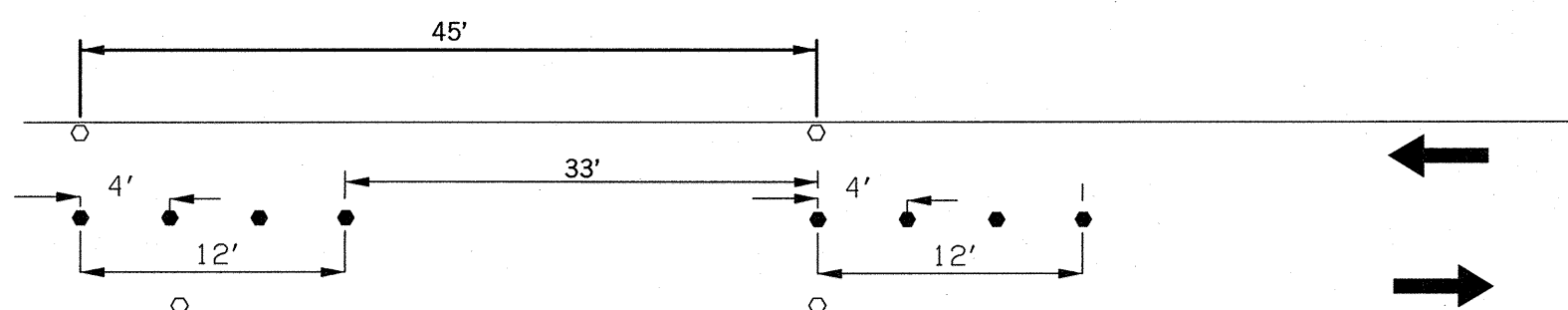


TWO-WAY PAVEMENT MARKING REMOVABLE TAPE OR PAINT



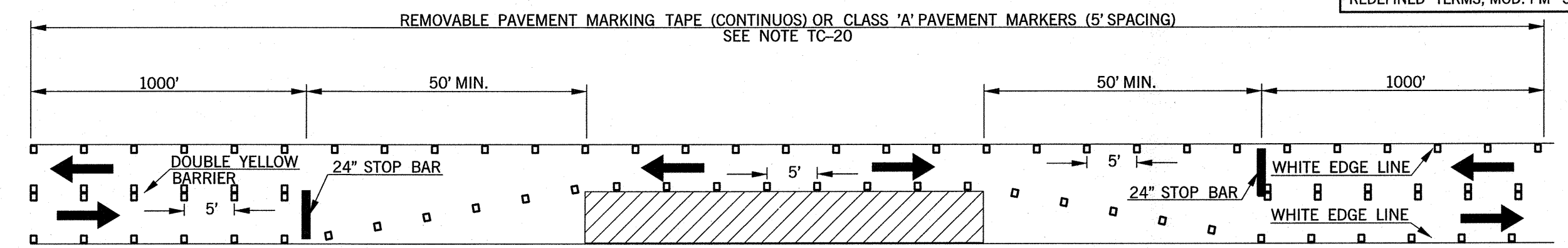
ONE-WAY PAVEMENT MARKING FLEX TABS

PAVEMENT MARKINGS: FLEX TABS
TYPE I - FLEX TAB MARKERS SHALL HAVE REFLECTORIZED MATERIAL ON BOTH SIDES.
TYPE II - FLEX TAB MARKERS SHALL HAVE REFLECTORIZED MATERIAL ON BOTH SIDES AND SHALL HAVE A CLEAR REMOVABLE COVER.
FLEX TABS MAY BE INSTALLED AS SHOWN FOR LONG-TERM STATIONARY PAVEMENT MARKINGS.



TWO-WAY PAVEMENT MARKING FLEX TABS

INTERMEDIATE-TERM STATIONARY PAVEMENT MARKINGS



TYPICAL PAVEMENT MARKINGS FOR ONE LANE CLOSURE ON TWO LANE /TWO WAY ROADWAY REMOVABLE TAPE OR CONSTRUCTION ZONE PAVEMENT MARKERS

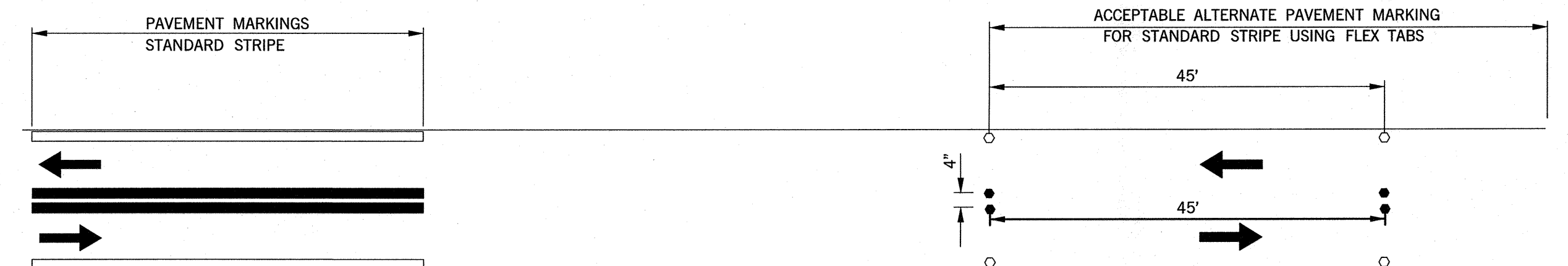
NOTES:

CONSTRUCTION ZONE PAVEMENT MARKINGS SHALL CONSIST OF EITHER PAINT, CONSTRUCTION ZONE PAVEMENT MARKERS (FLEX TABS) OR REMOVABLE MARKING TAPE. THERMO-PLASTIC STRIPE MAY BE USED IN CONJUNCTION WITH PAINT, FLEX TABS OR TAPE WHEN SPECIFIED IN THE PLANS.
ALL PAVEMENT MARKINGS TO BE PLACED ON TEMPORARY SURFACES OR ON SURFACES SCHEDULED TO BE REMOVED SHALL BE DONE WITH PAINT UNLESS OTHERWISE SHOWN IN THE PLANS OR STANDARD DRAWINGS. ALL FINAL OR FINISHED SURFACES SHALL BE MARKED WITH EITHER REMOVABLE PAVEMENT MARKING TAPE OR CONSTRUCTION ZONE PAVEMENT MARKERS, UNLESS OTHERWISE NOTED ON THE PLANS.

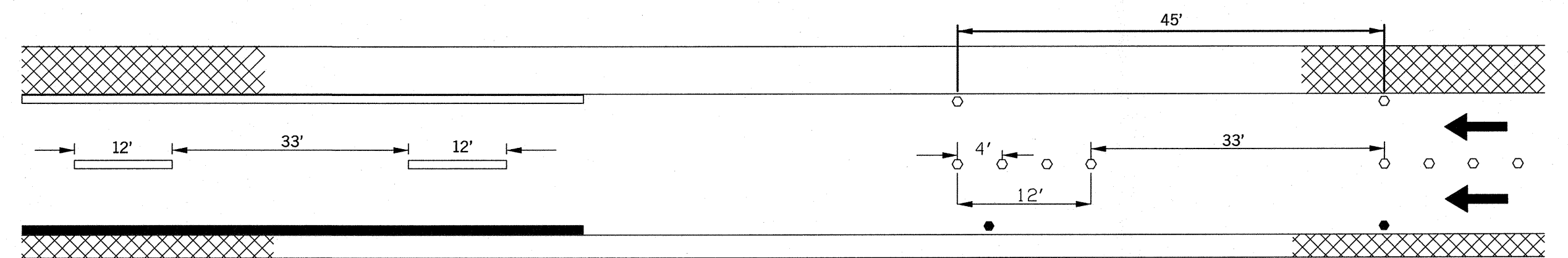
WIDTH OF STRIPED LANE LINES SHALL BE A MINIMUM OF 4".

KEY:

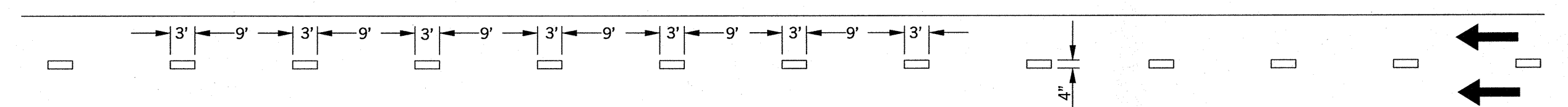
- WORK ZONE
- WHITE LANE LINE (PAINT OR TAPE)
- YELLOW LANE LINE (PAINT OR TAPE)
- WHITE FLEX TAB
- YELLOW FLEX TAB
- CLASS A PAVEMENT MARKER



TWO-LANE /TWO-WAY



4 -LANE DIVIDED ROADWAY

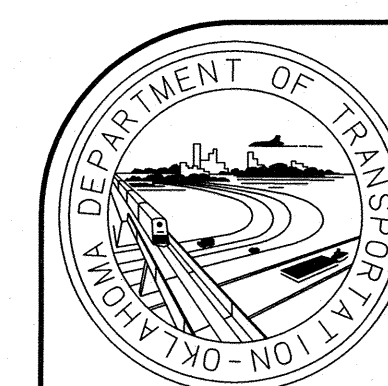


WHITE DOTTED LINE

LONG-TERM STATIONARY PAVEMENT MARKINGS

MUTCD DEFINITIONS OF THE FIVE CATEGORIES OF WORK DURATION, AND THEIR TIME AT A LOCATION SHALL BE:

- A. LONG-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN 3 DAYS.
- B. INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.
- C. SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.
- D. SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
- E. MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.



APPROVED BY
TRAFFIC ENGINEER: *David J. Smith* DATE: 4/8/2013

TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
CONSTRUCTION ZONE PAVEMENT MARKINGS

2009 SPECIFICATIONS

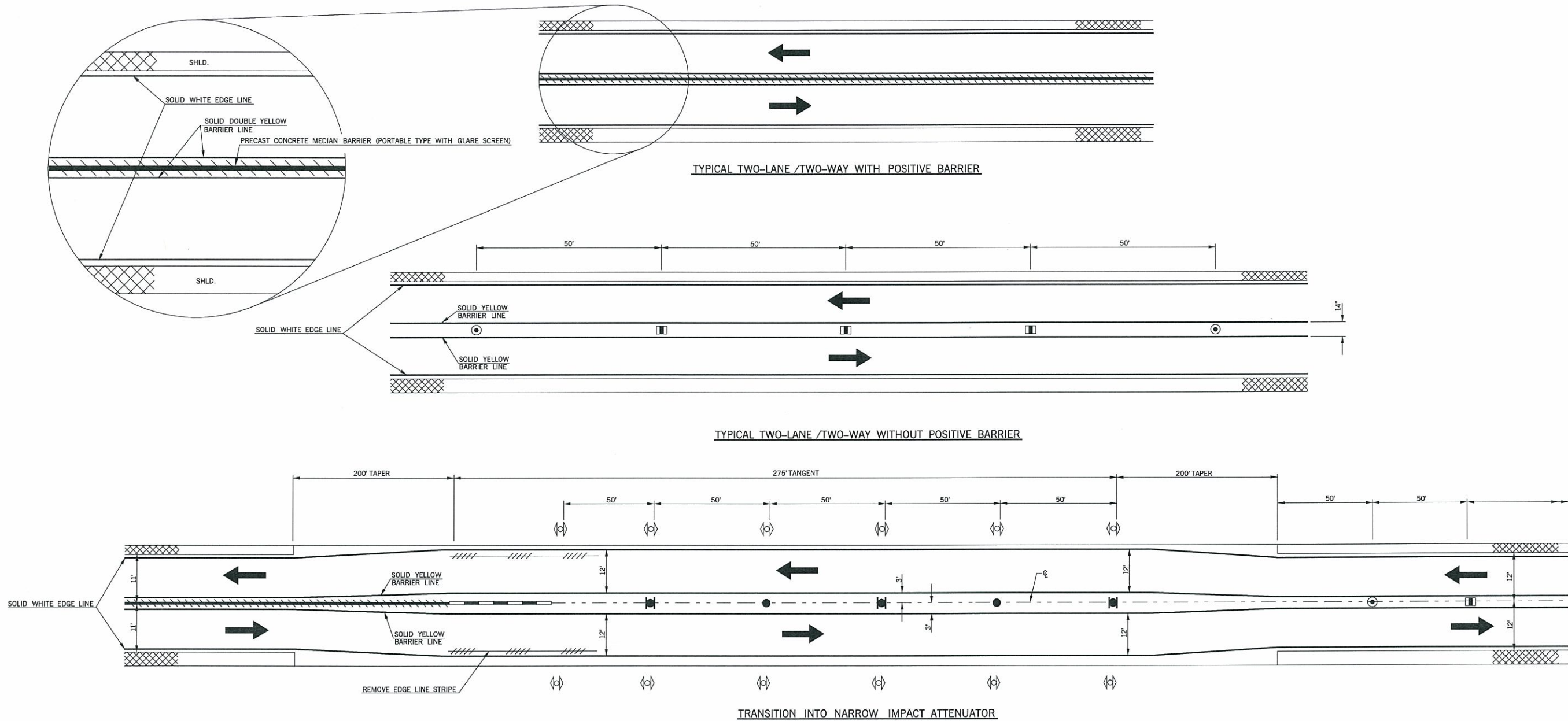
TCS21-1

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T-521

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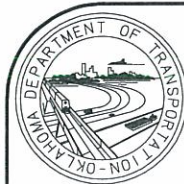
DESCRIPTION	REVISIONS	DATE
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- KEY:
- VERTICAL PANEL W-TYPE "C" STEADY BURN LIGHT
 - CENTERLINE CONST. ZONE PAVEMENT MARKER (YELLOW)
 - TUBE CHANNELIZERS
 - NARROW CZ IMPACT ATTENUATOR
 - PRECAST CONCRETE MEDIAN BARRIER (PORTABLE TYPE WITH GLARE SCREEN)
 - EXISTING PAVEMENT MARKINGS TO BE REMOVED
 - DRUM
 - DRUM WITH SIGNS MOUNTED ON BOTH SIDES

NOTES:
CONSTRUCTION ZONE PAVEMENT MARKINGS SHALL CONSIST OF EITHER PAINT, CONSTRUCTION ZONE PAVEMENT MARKERS (FLEX TAB) OR REMOVABLE PAVEMENT MARKING TAPE. THERMO-PLASTIC STRIPE MAY BE USED IN CONJUNCTION WITH PAINT, MARKERS OR TAPE WHEN SPECIFIED IN THE PLANS.

CONSTRUCTION ZONE PAVEMENT MARKINGS



APPROVED BY
TRAFFIC ENGINEER: *David Smith* DATE: 6/23/10

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
CONSTRUCTION ZONE PAVEMENT MARKINGS

2009 SPECIFICATIONS

TCS22-1 00
T-522

CHICKASHA

Meeting Type: Special CMA Meeting 3-17-2025

Meeting Date: 3/17/2025

Department: Public Works

Agenda Item No. 3.e.

AGENDA ITEM: Discussion, consideration and possible action to award the contract for the CMA-2501 Sanitary Sewer Main Replacement Project to the lowest responsive and responsible bidder, Matthews Trenching Co., Inc., in the amount of Four Hundred Fifty-Two Thousand Eight Hundred Seventy Dollars (\$452,870.00) and authorize the Chairman to execute all necessary documents related to the project.

I. BACKGROUND/DESCRIPTION:

II. RECOMMENDED ACTION:

Award the contract for the CMA-2501 Sanitary Sewer Main Replacement Project to the lowest responsive and responsible bidder, Matthews Trenching Co., Inc., in the amount of Four Hundred Fifty-Two Thousand Eight Hundred Seventy Dollars (\$452,870.00) and authorize the Chairman to execute all necessary documents related to the project.

III. FISCAL INFORMATION -

IV. FUND INFORMATION:

Dept. Director:

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

Meeting Date:

March 17, 2025

V. ATTACHMENTS:

- 20250311103355169



CHISHOLM TRAIL CONSULTING, LLC

R. Scott Vaughn, P.E., CFM
Professional Engineering Services
580-467-8130
rscottv11@gmail.com

March 7, 2025

Chickasha Municipal Authority
Mr. Jim Crosby, City Manager
117 North 4th Street
Chickasha, Oklahoma 73018

RE: RFP CMA-2501
SANITARY SEWER MAIN REPLACEMENT
COLORADO AVENUE AT 4TH STREET
CHICKASHA, OK

Dear Sir:

After carefully reviewing the bids submitted on March 7, 2025 for the referenced project, I find that the lowest responsive bid was submitted by Matthews Trenching Co., Inc. of Oklahoma City, Oklahoma. Please refer to the attached detailed Bid Tabulation and Bid Tabulation Summary for more information.

This project consists of installing a new sanitary sewer main on a new alignment by boring under 4th Street. It is needed to replace an existing sanitary sewer main that has failed and has been a continuous operational/maintenance problem. As you know, this has been an ongoing problem that is affecting travel on 4th Street.

Matthews Trenching Co., Inc. has successfully completed many similar construction projects, including several in Chickasha. It is my recommendation that the Chickasha Municipal Authority award a contract to Matthews Trenching Co., Inc. for CMA-2501 Sanitary Sewer Main Replacement in the amount of \$452,870.00.

If you have any questions or require additional information, please do not hesitate to call me.

Sincerely,

R. Scott Vaughn, P.E., CFM

Enclosures

Cc: File

REASONABLE ■ SENSIBLE ■ QUALITY

CHICKASHA MUNICIPAL AUTHORITY
RFP CMA-2501
SANITARY SEWER MAIN REPLACEMENT
COLORADO AVENUE AT 4TH STREET
BID TABULATION SUMMARY

DATE OF BID OPENING
TIME OF BID OPENING

3/7/2025
4:00 p.m.

COMPANY NAME	TOTAL BID	COMPLETION TIME	BID BOND	AFFIDAVIT OF NON-COLLUSION	BUSINESS RELATIONSHIPS AFFIDAVIT
Luckinbill Construction	\$ 1,157,875.00	80 CD	NO	YES	YES
Marsau Enterprises	\$ 947,145.00	80 CD	NO	YES	YES
Matthews Trenching	\$ 452,870.00	20 DAYS	YES	YES	YES
Engineer's Estimate	\$ 621,277.50	N/A	N/A	N/A	N/A



CHISHOLM TRAIL CONSULTING, LLC

CITY OF CHICKASHA
CMA-2501
SANITARY SEWER MAIN REPLACEMENT
COLORADO AT 4TH STREET
BID TAB DETAILED

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNITS	EST QTY	LUCKINBILL		MARSAU		MATTHEWS TRENCHING		ENGINEER ESTIMATE	
				EST UNIT PRICE	EST TOTAL COST	EST UNIT PRICE	EST TOTAL COST	EST UNIT PRICE	EST TOTAL COST	EST UNIT PRICE	EST TOTAL COST
UTILITY QUANTITIES											
1	DEWATERING	LSUM	1	\$ 300,000.00	\$ 300,000.00	\$ 142,380.00	\$ 142,380.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00
614	ABANDONING SEWER	LSUM	1	\$ 7,000.00	\$ 7,000.00	\$ 4,500.00	\$ 4,500.00	\$ 3,500.00	\$ 3,500.00	\$ 10,000.00	\$ 10,000.00
618	SEWER FLOW CONTROL	LSUM	1	\$ 10,000.00	\$ 10,000.00	\$ 9,000.00	\$ 9,000.00	\$ 22,500.00	\$ 22,500.00	\$ 30,000.00	\$ 30,000.00
625	SEWER PIPE LEAKAGE TESTING	L.SUM	1	\$ 5,000.00	\$ 5,000.00	\$ 12,500.00	\$ 12,500.00	\$ 2,000.00	\$ 2,000.00	\$ 2,500.00	\$ 2,500.00
626	SANITARY SEWER MANHOLES	EA	4	\$ 40,000.00	\$ 160,000.00	\$ 10,980.00	\$ 43,920.00	\$ 7,500.00	\$ 30,000.00	\$ 7,500.00	\$ 30,000.00
651	SDR 26 PVC SANITARY SEWER MAIN (15-INCH), INSTALLED	LF	152	\$ 2,000.00	\$ 304,000.00	\$ 1,165.00	\$ 177,080.00	\$ 800.00	\$ 121,600.00	\$ 250.00	\$ 38,000.00
654	STEEL CASING, INSTALLED	LF	80	\$ 2,000.00	\$ 160,000.00	\$ 3,346.00	\$ 267,680.00	\$ 1,000.00	\$ 80,000.00	\$ 1,000.00	\$ 80,000.00
ROADWAY QUANTITIES											
230(A)	SOLID SLAB SODDING, INSTALLED	SY	159	\$ 10.00	\$ 1,590.00	\$ 16.00	\$ 2,544.00	\$ 10.00	\$ 1,590.00	\$ 7.50	\$ 1,192.50
411	ASPHALT PAVEMENT REMOVAL AND REPLACEMENT	SY	330	\$ 200.00	\$ 66,000.00	\$ 500.00	\$ 165,000.00	\$ 150.00	\$ 49,500.00	\$ 350.00	\$ 115,500.00
501(G)	CLSM BACKFILL	CY	207	\$ 250.00	\$ 51,750.00	\$ 275.00	\$ 56,925.00	\$ 175.00	\$ 36,225.00	\$ 1,000.00	\$ 207,000.00
609(B)	CURB AND GUTTER REMOVAL AND REPLACEMENT	LF	51	\$ 80.00	\$ 4,080.00	\$ 150.00	\$ 7,650.00	\$ 150.00	\$ 7,650.00	\$ 75.00	\$ 3,825.00
610(A)	4" CONCRETE SIDEWALK REMOVAL AND REPLACEMENT	SY	56	\$ 75.00	\$ 4,200.00	\$ 175.00	\$ 9,800.00	\$ 115.00	\$ 6,440.00	\$ 175.00	\$ 9,800.00
610(B)	6" CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	SY	135	\$ 85.00	\$ 11,475.00	\$ 190.00	\$ 25,650.00	\$ 175.00	\$ 23,625.00	\$ 200.00	\$ 27,000.00
610(I)	TACTILE WARNING DEVICE REMOVAL AND REPLACEMENT	SF	8	\$ 100.00	\$ 800.00	\$ 650.00	\$ 5,200.00	\$ 75.00	\$ 600.00	\$ 100.00	\$ 800.00
855(B)	TRAFFIC STRIPE (PLASTIC) (24" WIDE)	LF	132	\$ 15.00	\$ 1,980.00	\$ 13.00	\$ 1,716.00	\$ 20.00	\$ 2,640.00	\$ 5.00	\$ 660.00
880(J)	CONSTRUCTION TRAFFIC CONTROL	LSUM	1	\$ 70,000.00	\$ 70,000.00	\$ 15,600.00	\$ 15,600.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00
TOTAL CONSTRUCTION COST ESTIMATE					\$ 1,157,875.00		\$ 947,145.00		\$ 452,870.00		\$ 621,277.50

CITY OF CHICKASHA
CMA-2501
SANITARY SEWER MAIN REPLACEMENT
COLORADO AT 4TH STREET
COST ESTIMATE

SCHEDULE OF QUANTITIES					
PAY ITEM NO.	PAY ITEM DESCRIPTION	UNITS	EST QTY	EST UNIT PRICE	EST TOTAL COST
UTILITY QUANTITIES					
1	DEWATERING	LSUM	1	\$ 50,000.00	\$ 50,000.00
614	ABANDONING SEWER	LSUM	1	\$ 10,000.00	\$ 10,000.00
618	SEWER FLOW CONTROL	LSUM	1	\$ 30,000.00	\$ 30,000.00
625	SEWER PIPE LEAKAGE TESTING	L.SUM	1	\$ 2,500.00	\$ 2,617.99
626	SANITARY SEWER MANHOLES	EA	4	\$ 7,500.00	\$ 30,000.00
651	SDR 26 PVC SANITARY SEWER MAIN (15-INCH), INSTALLED	LF	152	\$ 250.00	\$ 38,068.20
654	STEEL CASING, INSTALLED	LF	80	\$ 1,000.00	\$ 80,000.00
ROADWAY QUANTITIES					
230(A)	SOLID SLAB SODDING, INSTALLED	SY	159	\$ 7.50	\$ 1,191.67
411	ASPHALT PAVEMENT REMOVAL AND REPLACEMENT	SY	330	\$ 350.00	\$ 115,422.22
501(G)	CLSM BACKFILL	CY	207	\$ 1,000.00	\$ 207,407.41
609(B)	CURB AND GUTTER REMOVAL AND REPLACEMENT	LF	51	\$ 75.00	\$ 3,825.00
610(A)	4" CONCRETE SIDEWALK REMOVAL AND REPLACEMENT	SY	56	\$ 175.00	\$ 9,800.00
610(B)	6" CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	SY	135	\$ 200.00	\$ 27,066.67
610(I)	TACTILE WARNING DEVICE REMOVAL AND REPLACEMENT	SF	8	\$ 100.00	\$ 800.00
855(B)	TRAFFIC STRIPE (PLASTIC) (24" WIDE)	LF	132	\$ 5.00	\$ 660.00
880(J)	CONSTRUCTION TRAFFIC CONTROL	LSUM	1	\$ 15,000.00	\$ 15,000.00
TOTAL CONSTRUCTION COST ESTIMATE					\$ 546,199.16



ENGINEER

3/7/2025
DATE

INVITATION TO BID

MAIL SEALED BIDS TO:		PERSONAL OR COMMON CARRIER DELIVERY	
CHICKASHA CITY CLERK		CHICKASHA CITY CLERK	
117 NORTH 4TH STREET		117 NORTH 4TH STREET	
CHICKASHA, OKLAHOMA 73018		CHICKASHA, OKLAHOMA 73018	
DATE BID TYPED: 3/3/2025	BID NO. CMA-2501	TITLE: Sanitary Sewer Main Replacement	
NO BIDS WILL BE ACCEPTED AFTER: March 7, 2025 @ 4:00 p.m.		CONTRACT PERIOD	
VENDORS NAME: Ludcibill Const. Co. LLC		REASON FOR NO BID	
MAILING ADDRESS: 409 Centennial Blvd			
CITY: Edmond	STATE: OK	ZIP: 73013	TERMS:
AREA CODE: (405)	TELEPHONE NO: 237-8515	FAX NO: (405) 359-0222	DELIVERY:
E-MAIL ADDRESS: robert.gibson@ludcibillconst.com		FEDERAL EMPLOYER IDENTIFICATION NO. OR SOCIAL SECURITY NO. 86-1773649	

NON-COLLUSION AFFIDAVIT

(This bid is invalid if BOTH Affidavits are not signed and notarized)

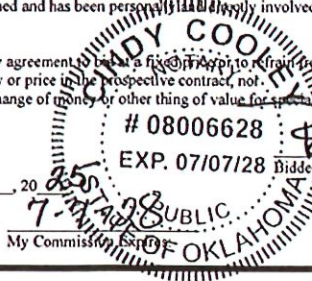
STATE OF Oklahoma, COUNTY OF Oklahoma

Robert Gibson of lawful age, being first duly sworn on oath, says that 1. (s)he is the duly authorized agent of the above bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and city officials or employees, as well as facts pertaining to the giving or offering of things of value to city personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached. 2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and 3. Neither the bidder nor anyone subject to the bidder's direction or control has been a party:

- a. to any collusion among bidders in restraint of freedom of competition by agreement to bid a fixed price or to refrain from bidding,
- b. to any collusion with any city official or employee as to quantity, quality or price in the prospective contract, not,
- c. in any discussions between bidders and any city official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

Subscribed and sworn to before me this 7th day of March, 2025

Notary



Robert Gibson Bidder

THIS AFFIDAVIT MUST BE SIGNED AND NOTARIZED!

BUSINESS RELATION AFFIDAVIT

(This bid is invalid if BOTH Affidavits are not signed and notarized)

STATE OF Oklahoma, COUNTY OF Oklahoma

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 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 herein above mentioned exist; Affiant should so state).

Subscribed and sworn to before me this 7th day of March, 2025

Notary

My Commission Expires: 7-7-28

Robert Gibson Bidder

THIS AFFIDAVIT MUST BE SIGNED AND NOTARIZED!

SEALED BIDS: All sheets bid on and this form must be enclosed and submitted in a sealed envelope. (DO NOT INCLUDE MORE THAN ONE BID PER ENVELOPE). The face of the envelope shall contain, in addition to the mailing address, the words "SEALED BID" the date of the bid opening and the contract number. Bids submitted in Federal Express or other specialized delivery envelopes shall be enclosed in a separate envelope marked as indicated above. Bids not submitted in properly marked envelopes or on the attached bid form shall be rejected. In the case of "No Bid" the vendor shall return the "Invitation to Bid" with the "Reason for No Bid" properly filled in, to remain on the City of Chickasha's active vendor/contractor list.

EXECUTION OF BID: Bid must contain an original signature of an authorized representative in the space provided. Bids must be typed or printed in ink. Use of erasable ink is not permitted. ALL CORRECTIONS MADE BY BIDDER TO HIS BID MUST BE INITIALED.

BID OPENING: It is bidder's responsibility to assure that his bid is delivered at the proper time and place of the bid opening. Bids which for any reason are not so delivered, will not be considered. Offers by telegram or telephone are not acceptable. **NOTE:** Bid files may be examined during normal working hours by appointment. Bid tabulations WILL NOT be provided by telephone. **MISTAKES:** Bidders are expected to examine the specifications, delivery schedule, bid prices and all instructions pertaining to supplies and services. Failure to do so will be at bidder's risk. In case of mistake in extension, the unit price will govern.

INVOICING AND PAYMENT: The vendor shall be paid upon submission of proper certified invoices to the Chickasha Municipal Authority at the prices stipulated on the contract. Invoices shall contain the contract number and purchase order number. Failure to follow these instructions may result in delay of processing invoices for payment.

WAIVER: Chickasha Municipal Authority reserves the right to waive any general provision, special provision or minor specification deviation when considered to be in the best interest of the Chickasha Municipal Authority. Any bid received by the awarding public agency or an officer or employee thereof, more than ninety-six (96) hours excluding Saturdays, Sundays and holidays before the time set for the opening of bids, or any bid so received after the time set for opening of bids, shall not be considered by the awarding public agency and shall be returned unopened to the bidder submitting same.

Bid Proposal

I/We, the undersigned propose to provide, construct, and install Sanitary Sewer Main Replacement, in Chickasha, Ok meeting or exceeding specifications as described herein:

BID SCHEDULE

PAY ITEM	PAY ITEM DESCRIPTION	UNITS	EST QTY	UNIT PRICE	TOTAL PRICE
UTILITY QUANTITIES					
1	DEWATERING	LSUM	1	\$ 300,000.00	\$ 300,000.00
614	ABANDONING SEWER	LSUM	1	\$ 7,000.00	\$ 7,000.00
618	SEWER FLOW CONTROL	LSUM	1	\$ 10,000.00	\$ 10,000.00
625	SEWER PIPE LEAKAGE TESTING	L.SUM	1	\$ 5,000.00	\$ 5,000.00
626	SANITARY SEWER MANHOLES	EA	4	\$ 40,000.00	\$ 160,000.00
651	SDR 26 PVC SANITARY SEWER MAIN (15-INCH), INSTALLED	LF	152	\$ 2,000.00	\$ 304,000.00
654	STEEL CASING, INSTALLED	LF	80	\$ 2,000.00	\$ 160,000.00
ROADWAY QUANTITIES					
230(A)	SOLID SLAB SODDING, INSTALLED	SY	159	\$ 10.00	\$ 1,590.00
411	ASPHALT PAVEMENT REMOVAL AND REPLACEMENT	SY	330	\$ 200.00	\$ 66,000.00
501(G)	CLSM BACKFILL	CY	207	\$ 250.00	\$ 51,750.00
609(B)	CURB AND GUTTER REMOVAL AND REPLACEMENT	LF	51	\$ 80.00	\$ 4,080.00
610(A)	4" CONCRETE SIDEWALK REMOVAL AND REPLACEMENT	SY	56	\$ 75.00	\$ 4,200.00
610(B)	6" CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	SY	135	\$ 85.00	\$ 11,475.00
610(I)	TACTILE WARNING DEVICE REMOVAL AND REPLACEMENT	SF	8	\$ 100.00	\$ 800.00
855(B)	TRAFFIC STRIPE (PLASTIC) (24" WIDE)	LF	132	\$ 15.00	\$ 1,980.00
880(J)	CONSTRUCTION TRAFFIC CONTROL	LSUM	1	\$ 70,000.00	\$ 70,000.00

TOTAL BID (NUMBERS) \$ 1,157,875.00

TOTAL BID (WORDS) One Million, one hundred fifty-seven thousand

eight hundred seventy-five & 00/100 ————— Dollars

Completion Time 80 Calendar Days

* Note - the dewatering is crucial to this project. It may take 2-3 weeks to get the ground water down so we can even start the project.

Bidder: Luckenhill Const. Co. LLC
Name of Company

By: Robert M. Prosser
Signature & Title

Mailing Address: 409 Centennial Blvd, Edmond, Ok. 73013

(405) 237-8515
Phone No

(405) 409-8576
~~Fax~~ No
Cell

rdobart.gibson@luckenhillconst.com
Email

SUBSCRIBED AND SWORN TO BEFORE ME THIS 7th DAY OF Mar, 2025.

MY COMMISSION EXPIRES:



Cindy Cooley
NOTARY PUBLIC

INVITATION TO BID

MAIL SEALED BIDS TO:		PERSONAL OR COMMON CARRIER DELIVERY	
CHICKASHA CITY CLERK		CHICKASHA CITY CLERK	
117 NORTH 4TH STREET		117 NORTH 4TH STREET	
CHICKASHA, OKLAHOMA 73018		CHICKASHA, OKLAHOMA 73018	
DATE BID TYPED: 3/3/2025	BID NO: CMA-2501	TITLE: Sanitary Sewer Main Replacement	
NO BIDS WILL BE ACCEPTED AFTER: March 7, 2025 @ 4:00 p.m.		CONTRACT PERIOD:	
VENDORS NAME: Matthews Trenching Co., Inc.		REASON FOR NO BID:	
MAILING ADDRESS: 919 S. Fairmont Ave.			
CITY: Oklahoma City	STATE: OK	ZIP: 73129	TERMS:
AREA CODE: 405	TELEPHONE NO: 677-4525	FAX NO: 405-677-4835	DELIVERY:
E-MAIL ADDRESS: gmatthews@mtciokc.com		FEDERAL EMPLOYER IDENTIFICATION NO. OR SOCIAL SECURITY NO: 73-0955397	

NON-COLLUSION AFFIDAVIT

(This bid is invalid if BOTH Affidavits are not signed and notarized)

STATE OF Oklahoma COUNTY OF Oklahoma

Gary L. Matthews

of lawful age, being first duly sworn on oath, says that 1. (s)he is the duly authorized agent of the above bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and city officials or employees, as well as facts pertaining to the giving or offering of things of value to city personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached. 2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid, and 3. Neither the bidder nor anyone subject to the bidder's direction or control has 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,
- to any collusion with any city official or employee as to quantity, quality or price in the prospective contract, nor
- in any discussions between bidders and any city official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

Subscribed and sworn to before me this 7th day of March

Notary



Matthews Trenching Co., Inc.

Bidder

[Signature]
THIS AFFIDAVIT MUST BE SIGNED AND NOTARIZED!

BUSINESS RELATION AFFIDAVIT

(This bid is invalid if BOTH Affidavits are not signed and notarized)

STATE OF Oklahoma COUNTY OF Oklahoma

Gary L. Matthews

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 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 herein above mentioned exist, Affiant shall so state)

Subscribed and sworn to before me this 7th day of March

Notary



Matthews Trenching Co., Inc.

Bidder

[Signature]
THIS AFFIDAVIT MUST BE SIGNED AND NOTARIZED!

SEALED BIDS: All sealed bids on and this form must be executed and submitted in a sealed envelope. (DO NOT INCLUDE MORE THAN ONE BID PER ENVELOPE). The face of the envelope shall contain, in addition to the mailing address, the words "SEALED BID" the date of the bid opening and the contract number. Bids submitted in Federal Express or other specialized delivery envelopes shall be enclosed in a separate envelope marked as indicated above. Bids not submitted in properly marked envelopes or on the attached bid form shall be rejected. In the case of "No Bid" the vendor shall return the "Invitation to Bid" with the "Reason for No Bid" properly filled in, to remain on the City of Chickasha's active vendor/contractor list.

EXEMPTION OF BID: Bid must contain an original signature of an authorized representative in the space provided. Bids must be typed or printed in ink. Use of erasable ink is not permitted. ALL CORRECTIONS MADE BY BIDDER TO THIS BID MUST BE INITIALED.

BID OPENING: It is bidder's responsibility to assure that his bid is delivered at the proper time and place of the bid opening. Bids which for any reason are not so delivered, will not be considered. Offers by telegram or telephone are not acceptable. **NOTE:** Bid files may be examined during normal working hours by appointment. Bid tabulations WILL NOT be provided by telephone. **MISTAKES:** Bidders are expected to examine the specifications, delivery schedule, bid prices and all instructions pertaining to supplies and services. Failure to do so will be at bidder's risk. In case of mistake in extension, the unit price will govern.

INVOICING AND PAYMENT: The vendor shall be paid upon submission of proper certified invoices to the Chickasha Municipal Authority at the prices stipulated on the contract. Invoices shall contain the contract number and purchase order number. Failure to follow these instructions may result in delay of processing invoices for payment.

WAIVER: Chickasha Municipal Authority reserves the right to waive any general provision, special provision or minor specification deviation when considered to be in the best interest of the Chickasha Municipal Authority. Any bid received by the awarding public agency or an officer or employee thereof, more than ninety-six (96) hours excluding Saturdays, Sundays and holidays before the time set for the opening of bids, or any bid so received after the time set for opening of bids, shall not be considered by the awarding public agency and shall be returned unopened to the bidder submitting same.

Bid Proposal

I/We, the undersigned propose to provide, construct, and install Sanitary Sewer Main Replacement, in Chickasha, Ok meeting or exceeding specifications as described herein:

BID SCHEDULE

PAY ITEM	PAY ITEM DESCRIPTION	UNITS	EST QTY	UNIT PRICE	TOTAL PRICE
UTILITY QUANTITIES					
1	DEWATERING	LSUM	1	\$50,000.00	\$50,000.00
614	ABANDONING SEWER	LSUM	1	\$3,500.00	\$3,500.00
618	SEWER FLOW CONTROL	LSUM	1	\$22,500.00	\$22,500.00
625	SEWER PIPE LEAKAGE TESTING	L.SUM	1	\$2,000.00	\$2,000.00
626	SANITARY SEWER MANHOLES	EA	4	\$7,500.00	\$30,000.00
651	SDR 26 PVC SANITARY SEWER MAIN (15-INCH), INSTALLED	LF	152	\$800.00	\$121,600.00
654	STEEL CASING, INSTALLED	LF	80	\$1,000.00	\$80,000.00
ROADWAY QUANTITIES					
230(A)	SOLID SLAB SODDING, INSTALLED	SY	159	\$10.00	\$1,590.00
411	ASPHALT PAVEMENT REMOVAL AND REPLACEMENT	SY	330	\$150.00	\$49,500.00
501(G)	CLSM BACKFILL	CY	207	\$175.00	\$36,225.00
609(B)	CURB AND GUTTER REMOVAL AND REPLACEMENT	LF	51	\$150.00	\$7,650.00
610(A)	4" CONCRETE SIDEWALK REMOVAL AND REPLACEMENT	SY	56	\$115.00	\$6,440.00
610(B)	6" CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	SY	135	\$175.00	\$23,625.00
610(I)	TACTILE WARNING DEVICE REMOVAL AND REPLACEMENT	SF	8	\$75.00	\$600.00
855(B)	TRAFFIC STRIPE (PLASTIC) (24" WIDE)	LF	132	\$20.00	\$2,640.00
880(J)	CONSTRUCTION TRAFFIC CONTROL	LSUM	1	\$15,000.00	\$15,000.00

TOTAL BID (NUMBERS) \$ 452,870.00

TOTAL BID (WORDS) Four Hundred Fifty Two Thousand Eight Hundred Seventy & No/100 Dollars

Completion Time 20 Days

Bidder: Matthews Trenching Co., Inc.
Name of Company

By: 
Signature & Title President

Mailing Address: PO Box 15479 Oklahoma City, OK 73155

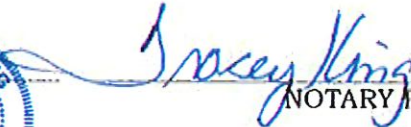
405-677-4525 405-677-4835 gmatthews@mtciokc.com
Phone No Fax No Email

SUBSCRIBED AND SWORN TO BEFORE ME THIS 7th DAY OF 03 2025.

MY COMMISSION EXPIRES:

August 6, 2028




NOTARY PUBLIC

Bond No. -----

Fidelity and Deposit Company

1299 Zurich Way

OF MARYLAND

Schaumburg, IL 60196

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, Matthews Trenching Co., Inc.

as Principal, (hereinafter called the "Principal"),
and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, 1299 Zurich Way, Schaumburg, Illinois 60196, a corporation
duly organized under the laws of the State of Illinois, as Surety, (hereinafter called the "Surety"), are held and
firmly bound unto Chickasha Municipal Authority

as Obligor, (hereinafter called the "Obligor"),
in the sum of Five Percent of Total Amount Bid Dollars (\$ 5%),
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, the Principal has submitted a bid for
Sanitary Sewer Main Replacement, RFP CMA-2501

NOW, THEREFORE, if the Obligor shall accept the bid of the Principal and the Principal shall enter into a contract
with the Obligor in accordance with the terms of such bid and give such bond or bonds as may be specified in the bidding
or contract documents with good and sufficient surety for the faithful performance of such contract and for the prompt
payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter
into such contract and give such bond or bonds, if the Principal shall pay to the Obligor the difference not to exceed
the penalty hereof between the amount specified in said bid and such larger amount for which the Obligor 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.

Signed and sealed this 7th day of March

Tracey King

Witness

Matthews Trenching Co., Inc.

Principal

Shyld. Hunt
President



FIDELITY AND DEPOSIT COMPANY OF MARYLAND

Surety

Austin K. Greenhaw

Witness

By

Carey L. Kenemer

Carey L. Kenemer, Attorney-in-Fact Title



C3251-50M, 7-92 216174
Conforms to American Institute of Architects Document A-310,
February 1970 Edition

**ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by Robert D. Murray, Vice President, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint to Clayton HOWELL, Vicki WILSON, Austin K. GREENHAW, J. Kelly DEER, Shelli R. SAMSEL, Travis E. BROWN, Jamie BURRIS, Vaughn P. GRAHAM, Vaughn P. GRAHAM, JR., Stephen M. POLEMAN, Deborah L. RAPER, Dwight A. PILGRIM, Gary LILES, Randy D. WEBB, Bobby Joe YOUNG, Aaron WOOLSEY, Carey L. KENNEMER, Kristin LEWIS, Joshua BRYAN, Becky KILLMAN of Tulsa, Oklahoma, its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings**, and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND, this 04th day of January, A.D. 2024.



**ATTEST:
ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND**

A handwritten signature in black ink, appearing to read 'Robert D. Murray', is written over a horizontal line.

By: Robert D. Murray
Vice President

A handwritten signature in black ink, appearing to read 'Dawn E. Brown', is written over a horizontal line.

By: Dawn E. Brown
Secretary

State of Maryland
County of Baltimore

On this 04th day of January, A.D. 2024, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, Robert D. Murray, Vice President and Dawn E. Brown, Secretary of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, depose and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.



Genevieve M. Maison

GENEVIEVE M. MAISON
NOTARY PUBLIC
BALTIMORE COUNTY, MD
My Commission Expires JANUARY 27, 2025



Authenticity of this bond can be confirmed at bondvalidator.zurichna.com or 410-559-8790

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify or revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 7th day of March, 2025.



Thomas O. McClellan
Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT A COMPLETE DESCRIPTION OF THE CLAIM INCLUDING THE PRINCIPAL ON THE BOND, THE BOND NUMBER, AND YOUR CONTACT INFORMATION TO:

Zurich Surety Claims

Authenticity of this bond can be confirmed at bondvalidator.zurichna.com or 410-559-8790

1299 Zurich Way
Schaumburg, IL 60196-1056
reportsfclaims@zurichna.com

800-626-4577

Authenticity of this bond can be confirmed at bondvalidator.zurichna.com or 410-559-8790

INVITATION TO BID

MAIL SEALED BIDS TO:		PERSONAL OR COMMON CARRIER DELIVERY	
CHICKASHA CITY CLERK		CHICKASHA CITY CLERK	
117 NORTH 4TH STREET		117 NORTH 4TH STREET	
CHICKASHA, OKLAHOMA 73018		CHICKASHA, OKLAHOMA 73018	

DATE BID TYPED: 3/3/2025	BID NO: CMA-2501	TITLE: Sanitary Sewer Main Replacement
NO BIDS WILL BE ACCEPTED AFTER: March 7, 2025 @ 4:00 p.m.		CONTRACT PERIOD
VENDORS NAME: Marsau Enterprises, Inc.		REASON FOR NO BID:
MAILING ADDRESS: 1209 N. 30th Street		
CITY: Enid	STATE: OK	ZIP: 73701
AREA CODE: 580	TELEPHONE NO. 233-3910	FAX NO. 233-5063
E-MAIL ADDRESS: terry.alexander@marsauenterprises.com		FEDERAL EMPLOYER IDENTIFICATION NO. OR SOCIAL SECURITY NO. 73-1172366

NON-COLLUSION AFFIDAVIT

(This bid is invalid if BOTH Affidavits are not signed and notarized)

STATE OF Oklahoma, COUNTY OF Garfield
Marlin L. Esau

of lawful age, being first duly sworn on oath, says that 1. (s)he is the duly authorized agent of the above bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and city officials or employees, as well as facts pertaining to the giving or offering of things of value to city personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached. 2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and 3. Neither the bidder nor anyone subject to the bidder's direction or control has 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,
- to any collusion with any city official or employee as to quantity, quality or price in the prospective contract, nor
- in any discussions between bidders and any city official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

Subscribed and sworn to before me this 6th day of March, 2025
Kristina G. Taber
Notary
My Commission Expires: 06/16/2028

Bidder Marlin L. Esau, President

THIS AFFIDAVIT MUST BE SIGNED AND NOTARIZED!

BUSINESS RELATION AFFIDAVIT

(This bid is invalid if BOTH Affidavits are not signed and notarized)

STATE OF Oklahoma, COUNTY OF Garfield
Marlin L. Esau

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 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 exist

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 exist

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 exist

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

Subscribed and sworn to before me this 6th day of March, 2025
Kristina G. Taber
Notary
My Commission Expires: 06/16/2028

Bidder Marlin L. Esau, President

THIS AFFIDAVIT MUST BE SIGNED AND NOTARIZED!

SEALED BIDS: All sheets bid on and this form must be executed and submitted in a sealed envelope. (DO NOT INCLUDE MORE THAN ONE BID PER ENVELOPE). The face of the envelope shall contain, in addition to the mailing address, the words "SEALED BID" the date of the bid opening and the contract number. Bids submitted in Federal Express or other specialized delivery envelopes shall be enclosed in a separate envelope marked as indicated above. Bids not submitted in properly marked envelopes or on the attached bid form shall be rejected. In the case of "No Bid" the vendor shall return the "Invitation to Bid" with the "Reason for No Bid" properly filled in, to the City of Chickasha's active vendor/contractor list.

EXECUTION OF BID: Bid must contain an original signature of an authorized representative in the space provided. Bids must be typed or printed in ink. Use of erasable ink is not permitted. ALL CORRECTIONS MADE BY BIDDER TO HIS BID MUST BE INITIALED.

BID OPENING: It is bidder's responsibility to assure that his bid is delivered at the proper time and place of the bid opening. Bids which for any reason are not so delivered, will not be considered. Offers by telegram or telephone are not acceptable. NOTE: Bid files may be examined during normal working hours by appointment. Bid tabulations WILL NOT be provided by telephone.

MISTAKES: Bidders are expected to examine the specifications, delivery schedule, bid prices and all instructions pertaining to supplies and services. Failure to do so will be at bidder's risk. In case of mistake in extension, the unit price will govern.

INVOICING AND PAYMENT: The vendor shall be paid upon submission of proper certified invoices to the Chickasha Municipal Authority at the prices stipulated on the contract. Invoices shall contain the contract number and purchase order number. Failure to follow these instructions may result in delay of processing invoices for payment.

WAIVER: Chickasha Municipal Authority reserves the right to waive any general provision, special provision or minor specification deviation when considered to be in the best interest of the Chickasha Municipal Authority. Any bid received by the awarding public agency or an officer or employee thereof, more than ninety-six (96) hours excluding Saturdays, Sundays and holidays before the time set for the opening of bids, or any bid so received after the time set for opening of bids, shall not be considered by the awarding public agency and shall be returned unopened to the bidder submitting same.

Bid Proposal

I/We, the undersigned propose to provide, construct, and install Sanitary Sewer Main Replacement, in Chickasha, Ok meeting or exceeding specifications as described herein:

BID SCHEDULE

PAY ITEM	PAY ITEM DESCRIPTION	UNITS	EST QTY	UNIT PRICE	TOTAL PRICE
UTILITY QUANTITIES					
1	DEWATERING	LSUM	1	\$ 142,380.00	\$ 142,380.00
614	ABANDONING SEWER	LSUM	1	\$ 4,500.00	\$ 4,500.00
618	SEWER FLOW CONTROL	LSUM	1	\$ 9,000.00	\$ 9,000.00
625	SEWER PIPE LEAKAGE TESTING	L.SUM	1	\$ 12,500.00	\$ 12,500.00
626	SANITARY SEWER MANHOLES	EA	4	\$ 10,980.00	\$ 43,920.00
651	SDR 26 PVC SANITARY SEWER MAIN (15-INCH), INSTALLED	LF	152	\$ 1,165.00	\$ 177,080.00
654	STEEL CASING, INSTALLED	LF	80	\$ 3,346.00	\$ 267,680.00
ROADWAY QUANTITIES					
230(A)	SOLID SLAB SODDING, INSTALLED	SY	159	\$ 16.00	\$ 2,544.00
411	ASPHALT PAVEMENT REMOVAL AND REPLACEMENT	SY	330	\$ 500.00	\$ 165,000.00
501(G)	CLSM BACKFILL	CY	207	\$ 275.00	\$ 56,925.00
609(B)	CURB AND GUTTER REMOVAL AND REPLACEMENT	LF	51	\$ 150.00	\$ 7,650.00
610(A)	4" CONCRETE SIDEWALK REMOVAL AND REPLACEMENT	SY	56	\$ 175.00	\$ 9,800.00
610(B)	6" CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	SY	135	\$ 190.00	\$ 25,650.00
610(I)	TACTILE WARNING DEVICE REMOVAL AND REPLACEMENT	SF	8	\$ 650.00	\$ 5,200.00
855(B)	TRAFFIC STRIPE (PLASTIC) (24" WIDE)	LF	132	\$ 13.00	\$ 1,716.00
880(J)	CONSTRUCTION TRAFFIC CONTROL	LSUM	1	\$ 15,600.00	\$ 15,600.00

TOTAL BID (NUMBERS) \$ 947,145.00

TOTAL BID (WORDS) Nine hundred forty-seven thousand, one hundred forty-five dollars and no/100

Completion Time 80 days

NOTE: We reserve the right to utilize 20" or 24" Steel Casing for Pay Item 654

Bidder: Marsau Enterprises, Inc.
Name of Company

By: 
Signature & Title
Martin L. Esau, President

Mailing Address: 1209 N. 30th Street

(580)233-3910 (580)233-5063 terry.alexander@marsauenterprises.com
Phone No Fax No Email

SUBSCRIBED AND SWORN TO BEFORE ME THIS 6th DAY OF March 2025.

MY COMMISSION EXPIRES:

06/16/2028


NOTARY PUBLIC



GREAT AMERICAN INSURANCE COMPANY
OHIO

Bond No. _____

BID BOND

Approved by The American Institute of Architects, A.I.A. Document No. A310 February, 1970 Edition

KNOW ALL MEN BY THESE PRESENTS: that we Marsau Enterprises, Inc.

Marsau Enterprises, Inc.

as Principal, hereinafter called Principal, and GREAT AMERICAN INSURANCE COMPANY, a corporation duly organized under the laws of the State of Ohio, with
Administrative Offices at Oklahoma

as Surety, hereinafter called the Surety, are held firmly bound unto _____

Chickasha Municipal Authority

as Oblige, hereinafter called Oblige, in the sum of Five (5) Percent of the amount bid Dollars (\$ 5%)

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

WHEREAS, the Principal has submitted a bid for _____

Sanitary Sewer Main Replacement

NOW, THEREFORE, if the Oblige shall accept the bid of the Principal and the Principal shall enter into a Contract with the Oblige in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Oblige the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Oblige 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.

Signed and sealed this 7th day of March, 2025

In the presence of:

Kristina J. [Signature]
Barclay Seal

Marsau Enterprises, Inc.
(Principal) (Seal)
By: [Signature] (Title)
Martha L. Esau, President
GREAT AMERICAN INSURANCE COMPANY
(Surety)
By: [Signature]
Paula Conrady (Attorney-in-Fact)



MID-CONTINENT CASUALTY COMPANY

1437 South Boulder, Suite 200, Tulsa, Oklahoma 74119 • Ph: 918-587-7221 • Fax: 918-588-1296

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the Mid-Continent Casualty Company, a corporation organized and existing under and by virtue of the laws of the State of Ohio, does hereby nominate, constitute and appoint the person or persons named below, each individually if more than one is named, its true and lawful attorney-in-fact, for it and in its name, place and stead to execute on behalf of the said Company, as surety, any and all bonds, undertakings and contracts of suretyship, or other written obligations in the nature thereof. Donald C Bowers, John W. Bowers III, John W. Bowers IV, Paula B. Conrady, Shawna Hobbs, all of ENID, OK.

IN WITNESS WHEREOF, the Mid-Continent Casualty Company has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 29 day of November, 2022.



ATTEST:

MID-CONTINENT CASUALTY COMPANY

Sharon Hackl
Sharon Hackl, Assistant Secretary

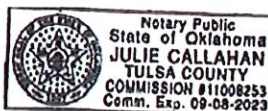
Todd Bazata
Todd Bazata, Vice President

On this 29 day of November, 2022 before me personally appeared Todd Bazata, to me known, being duly sworn, deposes and says that s/he resides in Broken Arrow, Oklahoma, that s/he is a Vice President of Mid-Continent Casualty Company, the company described in and which executed the above instrument; that s/he knows the seal of the said Company; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by authority of her/his office under the By-Laws of said Company, and that s/he signed his name thereto by like authority.

STATE OF OKLAHOMA

COUNTY OF TULSA

} SS



Commission # 11008253

My Commission Expires: 09-08-23

Julie Callahan

Julie Callahan, Notary Public

This Power of Attorney is granted by authority of the following resolutions adopted by the Board of Directors of Mid-Continent Casualty Company by unanimous written consent dated September 25, 2009.

RESOLVED: That the President, the Executive Vice President, the several Senior Vice Presidents and Vice Presidents or any one of them, be and hereby is authorized, from time to time, to appoint one or more Attorneys-in-Fact to execute on behalf of the Company, as surety, any and all bonds, undertakings and contracts of suretyship, or other written obligations in the nature thereof; to prescribe their respective duties and the respective limits of their authority; and to revoke any such appointment at any time.

RESOLVED FURTHER: That the Company seal and the signature of any of the aforesaid officers and any Secretary or Assistant Secretary of the Company may be affixed by facsimile to any power of attorney or certificate of either given for the execution of any bond, undertaking, contract of suretyship, or other written obligation in the nature thereof, such signature and seal when so used being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

CERTIFICATION

I, Sharon Hackl, Assistant Secretary of Mid-Continent Casualty Company, do hereby certify that the foregoing Power of Attorney and the Resolutions of the Board of Directors of September 25, 2009 have not been revoked and are now in full force and effect.



Sharon Hackl
Sharon Hackl, Assistant Secretary

Signed and sealed this

7th

day of

March

2025

VOID IF BOX IS EMPTY