JACOBSON-WESTERGARD & ASSOCIATES, INC.
Consulting Engineers & Land Surveyors

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Estherville IA 51334
Phone (712) 362-2647
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2024
DRAINAGE DISTRICT NO. 5
MAIN TILE IMPROVEMENT / RE-ROUTE
BREMER COUNTY, IOWA

JWA PROJECT NO: E22159

OWNER: Bremer County Board of Supervisors

Ken Kammeyer
Corey Cerwinske
Duane Hildebrandt

Shelley Wolf, Auditor
Jennifer Bremner, Drainage Administrator

BID DATE: June 4, 2024 @ 8:00 a.m.

CONTRACT COMPLETION DATE: December 20, 2024

LICENSED PROFESSIONAL ENGINEER
COLLIN J. KLINGBEIL
24741
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

_____ Date _____
Collin J. Klingbeil, P.E.
License number 24741
My license renewal date is December 31, 2025
Pages or sheets covered by this seal: _____

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NOTICE TO BIDDERS

Public notice is hereby given that the Bremer County Board of Supervisors will meet at the Bremer County Courthouse in Waverly, Iowa, on **Tuesday, June 4, 2024, at 8:00 a.m.**, at which time said Board proposes to adopt plans, specifications and form of contract and to receive bids for the **2024 DRAINAGE DISTRICT NO. 5 MAIN TILE IMPROVEMENT / RE-ROUTE**, Bremer County, Iowa, and to enter into the contract for the construction of said improvements. Proposals will be acted upon by the Board at a meeting to be held on the day and hour above specified or such later time and date as may then be specified.

The work involved in the **2024 DRAINAGE DISTRICT NO. 5 MAIN TILE IMPROVEMENT / RE-ROUTE, for the Base Bid** consists generally of furnishing and installing approximately 2,819 linear feet (LF) of 42" diameter reinforced concrete pipe (RCP), 2,490 LF of removal and disposal of existing 36" diameter cement tile, 2,480 LF of dual-wall HDPE ranging from 12" to 8" in diameter, 1,440 LF of 5" diameter single-wall HDPE, 964 CY of soil fill, clearing and grubbing and riprap at the outlet, 42" diameter cast-iron flap gate, and tile connections. Bid alternate includes 42" diameter dual-wall HDPE pipe for the Main Tile improvement/re-route, including two 18" diameter access risers.

All materials are to be in strict compliance with specifications prepared by Jacobson-Westergard & Associates of Estherville, Iowa, which, together with the proposed form of contract, have heretofore been approved by the Board and are now on file for public examination the office of the Bremer County Auditor, and are by this reference made a part hereof as though fully set out and incorporated herein.

Each proposal shall have been sealed in an envelope and marked "Proposal for 2024 DRAINAGE DISTRICT NO. 5 MAIN TILE IMPROVEMENT / RE-ROUTE, Bremer County, Iowa." Each bid must be accompanied in a separate envelope by a bid bond, cash or certified check in an amount equal to five percent (5%) of the total bid, drawn on and certified by an Iowa Bank, made payable to the Bremer County Auditor, 415 E. Bremer Avenue, Waverly, IA 50677, as security that the bidder will furnish the required bonds, and enter into a contract within 15 days after the award of the contract to them.

The successful bidder will be required to furnish a bond in the amount of the contract price, said bond to be issued by a responsible surety approved by the Board and shall guarantee the faithful performance of the contract and the terms and the conditions therein contained, and shall guarantee the prompt payment of all materials and labor and protect and save harmless the Board from claims and damages of any kind

caused by the operations of the Contractor or failure of the materials for a period of one year from and after the acceptance of the work by the Board and guaranteeing the complete project against defective workmanship and/or materials for a period of one year from and after acceptance.

All work shall be completed by **December 20, 2024**. If the Contractor fails to complete the work within the specified time, he shall forfeit to the Board $300.00 for each calendar day after this date that the work is incomplete.

Payments shall be made in cash on monthly estimates of work and material delivered and completed during the preceding month. Payment for materials will only be made for materials authorized for delivery by the Owner or Engineer. The Board shall pay the Contractor 90 percent of the monthly estimate for work completed. Final payment shall be made to the Contractor as set forth in the contract documents and as provided for in Chapter 455 of the Code of Iowa as amended.

Plans and specifications may be downloaded free of charge from www.QUESTCDN.COM – eBidDoc#9100493.

Published upon order of the Board of Supervisors, acting as Trustees for Drainage District No. 5, Bremer County, Iowa.

BREMER COUNTY BOARD OF SUPERVISORS

END OF SECTION

1.1 DEFINED TERMS

Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract, an EJCDC C-700 document prepared by the Engineers Joints Contract Documents Committee and published jointly by ACEC, NSPE and ASCE (2007 Edition), have the meanings assigned to them in the General Conditions. The term "Successful Bidder" means the lowest qualified, responsible Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

1.2 COPIES OF BIDDING DOCUMENTS

A. **Complete sets of the plans and specifications may be downloaded free of charge from www.QUESTCDN.COM #9100493.**

B. Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

1.3 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. It is the responsibility of each Bidder before submitting a bid to:

a) examine the Contract Documents thoroughly including specifications, drawings and addendas.

b) visit the site to become familiar with local conditions that may affect cost, progress, or performance of the Work,

c) become familiar with federal, state and local laws, ordinances, rules and regulations that may affect cost, progress or performance of the Work; and

d) study and carefully correlate Bidder's observations with the Contract Documents.

e) notify Engineer of all conflicts, errors, ambiguities, or discrepancies in or between contract documents and other related data.

B. Information and data reflected in the Contract Documents will respect to Underground Utilities at or contiguous to the site is based upon information and data furnished to the Owner and the Engineer by the owners of such Underground Utilities or others, and neither the Owner nor the Engineer assume responsibility for the accuracy or completeness thereof.

C. Any additional reports, explorations or data relating to the subsurface conditions, soil conditions, water table conditions or other physical conditions is included at the end of this section. The interpretation of such technical data, including any interpolation or extrapolation thereof, together with non-technical data, interpretations, and opinions contained therein or the completeness thereof, is the responsibility of the Bidder.

D. Before submitting a bid the Bidder, at their own expense, may perform or obtain any additional examinations, investigations, explorations and data which pertain to the physical conditions (surface or subsurface) at the project site. Upon request the Owner will provide the Bidder access to the site to conduct such examinations, investigations and explorations as the Bidder deems necessary in preparation of a bid. Bidder shall be responsible for all explorations and shall restore all surfaces to existing conditions.

E. The lands upon which the Work is to be performed, rights-of-way for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Special Conditions, Technical Specifications or Drawings. All additional lands and accesses required for construction or storage of materials and equipment are to be provided by the successful Bidder.

F. The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this section and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

1.4 PRE BID MEETING

A pre bid meeting, if scheduled, will be detailed in the Notice of Hearing and Letting. Pre bid meetings are not required to be attended however are encouraged. Written minutes from the pre bid meeting, if scheduled, will be developed by the Engineer and mailed to all Planholders prior to bid date regardless of attendance to the pre bid meeting.

1.5 INTERPRETATIONS

All questions about the meaning or intent of the Contract Documents shall be submitted to Engineer in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

1.6 BID SECURITY

A. Bid Security shall be made payable to Owner, in an amount of five percent (5%) of the Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond (on form attached) issued by a Surety meeting the requirements of Article 5 of the General Conditions.

B. The Bid Security of the Successful Bidder will be retained by the Owner until such Bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned; if the successful Bidder fails to execute and deliver the Agreement and furnish the required Contract Security within 15 days of the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the 7th day after the "effective date of the Agreement" (which term is defined in the General Conditions) by Owner to Contractor and the required Contract Security is furnished or the 31st day after the Bid opening. Bid Security of other Bidders will be returned within 7 days of the Bid opening.

1.7 CONTRACT TIME

The number of days within which, or the date by which, the Work is to be completed (the Contract Time) is stated in the Notice of Hearing and Letting and set forth in the Agreement.

1.8 LIQUIDATED DAMAGES

Liquidated damages if applicable are stated in the Notice of Hearing and Letting and set forth in the Agreement.

1.9 SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the "effective date of the Agreement". The procedure for submittal of any such application by Contractor and consideration by Engineer is set forth in the General Conditions which may be supplemented in the Special Conditions.

1.10 FEDERAL TAX I.D. NUMBER

Each Bidder shall state its Federal Identification Number on the line provided on the Bid Form. The Owner is required to report to IRS on Form 1099 all payments involving labor or services provided by vendors, and lack of this number may delay contract payments until the number is provided.

1.11 LOCAL PREFERENCE

By virtue of statutory authority, preference will be given to materials, products, and supplies found or produced within the State of Iowa. Bidders resident in Iowa shall be allowed a preference over the bid of any Bidder from any other state enforcing or having a preference for resident Bidders, equal to such preference. So far as may be done under the law, CONTRACTOR shall give preference to labor residing in the vicinity of the community in which the project is located and to local concerns in the purchase of materials, insurance and bonds.

1.12 BID FORM

A. The Bid Form is included in the Contract Documents. An unbound copy is included and is to be used for submission of bid. Additional copies may be obtained from Engineer.

B. Bid Forms must be completed in ink or by typewriter and the bid signed. Names shall be printed below all signatures.

C. Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

D. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

E. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).

F. The address to which communications regarding the Bid are to be directed must be shown.

G. Bidders shall submit a Bid on a unit price or lump sum basis for each item of Work listed in the Bid schedule.

H. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

1.13 SUBMISSION OF BIDS

A. Bids shall be submitted at the time and place indicated in the Notice of Hearing and Letting and shall be in an opaque sealed envelope, marked with the Project title and name and address of the Bidder and clearly marked "BID PROPOSAL". If the Bid is sent through the mail or other delivery system, the Bid Security shall be in a separate sealed envelope and labeled as noted above.

B. A copy of the Bid Security or Bid Bond is included in the Contract Documents. The Bid Bond shall be completed and submitted along with the Bid Proposal however sealed in a separate envelope marked "BID SECURITY".

1.14 MODIFICATION AND WITHDRAWAL OF BIDS

A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

B. Once Bids are being opened any unopened bids may not be withdrawn.

1.15 OPENING OF BIDS

Bids will be opened at the location indicated in the Notice of Hearing and Letting and will be publicly read aloud, and an abstract of the amounts of the base bids and major alternates (if any) will be made available after the opening of Bids.

1.16 BIDS TO REMAIN OPEN

All Bids shall remain open for thirty days after the day of the Bid opening, but Owner may, in their sole discretion, release any Bid and return the Bid Security prior to that date.

1.17 AWARD OF CONTRACT

A. Owner reserves the right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive or conditional Bids. Discrepancies between unit prices and extensions will be resolved in favor of unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

B. In evaluating Bids, Owner shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements and alternates and unit prices. It is Owner's intent to accept alternates (if any are accepted) in the order in which they are listed in the Bid form, but Owner may accept them in any order or combination.

C. Owner may conduct such investigations as necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidder's, proposed Subcontractors and other persons and organizations to do the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

D. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

E. If the contract is to be awarded, it will be awarded to the lowest Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

F. If the contract is to be awarded, Owner will give the Successful Bidder a written Notice of Award within thirty days after the day of the Bid opening unless specifically changed in Notice of Hearing and Letting.

1.18 PERFORMANCE AND OTHER BONDS

Article 5 of the General Conditions set forth Owner's requirements as to performance and other bonds. When the successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by the required Contract Security.

1.19 SIGNING OF AGREEMENT

A. When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three unsigned counterparts of the Agreement and all other Contract Documents including but not limited to Performance and Payment bond and insurance certificates. Within fifteen (15) days thereafter, Contractor shall sign and deliver at least three counterparts of the Agreement to Owner with all other Contract Documents attached.

B. If the bidder fails to enter into such contract within the period specified, the bid security deposited by the bidder shall be forfeited and shall become the property of the Owner.

1.20 SALES AND USE TAXES

A. The County, as owner, will complete an online application to register this Contract with the Iowa Department of Revenue and Finance if this option is available. The County will distribute tax exemption certificates and authorization letters to the Contractor and all subcontractors who have been identified at or before filing the Performance Bond. These tax exemption certificates and authorization letters are applicable only for the specific project under this Contract.

B. At or before the time the Performance Bond is filed, Contractor shall provide a listing to the County identifying all subcontractors. Contractor and subcontractors may make copies of the certificate and provide to each supplier providing construction material a copy of the tax exemption certificate.

C. The Owner has elected to file a tax exemption status online with the State of Iowa. The Bidder does not need to include Sales and Use Tax in their bid.

END OF SECTION

BID FORM SECTION 0300

THIS BID IS SUBMITTED TO:
Board of Supervisors, Trustees
Drainage District No. 5
Bremer County Courthouse
Waverly, IA 51360

PROJECT:
Drainage District No. 5
MAIN TILE IMPROVEMENT / RE-ROUTE
Bremer County, Iowa
JWA PROJECT: E22159

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to complete all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the Contract Documents.

2. BIDDER accepts all of the terms and conditions of the Instructions to Bidders, including, without limitation, those dealing with the disposition of Bid Security. This Bid will remain open for thirty days after the day of Bid opening. BIDDER will sign the Agreement and submit the Contract Security and other documents required by the Contract Documents within fifteen days after the date of OWNER's Notice of Award.

3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

   a. BIDDER has examined copies of all the Contract Documents and of the following **Addenda**:

   Identify by Date & Number_____
   (receipt of all of which is hereby acknowledged) and also copies of the Advertisement or Notice to Contractors and the Instructions to Bidders;

   b. BIDDER has examined the site and locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as BIDDER deems necessary;

   c. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or a corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for himself any advantage over any other Bidder or over OWNER

4. BIDDER agrees that the Work will be substantially completed and completed on or before the dates or within the number of calendar days indicated in the Agreement. BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

5. The following documents are attached to and made a condition of this Bid:

   a. Required Bid Security of the type and in an amount equal to the sum set out in the Advertisement or Notice to Contractors.

   b. A tabulation of Subcontractors and other persons and organizations required to be identified in this Bid.

   c. Required Bidder's Qualifications Statement with supporting data.

6. BIDDER will complete the Work for the following prices:

DRAINAGE DISTRICT NO. 5 MAIN TILE IMPROVEMENT / RE-ROUTE
BREMER COUNTY, IOWA

SECTION 1: CONSTRUCTION ASSESSABLE TO PRIVATE LANDS

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
1	42" Dia. Flap Gate, Cast-Iron	1	EA	$_____	$_____
2	42" Dia. RCP, 2000D, Gasketed	500	LF	$_____	$_____
3	42" Dia. RCP, 2000D	2,319	LF	$_____	$_____
4	Riprap, Class E	20	TN	$_____	$_____
5	Remove & Dispose, 36" Dia. Tile	2,490	LF	$_____	$_____
6	12" Dia. CMP, Annual Corrugations, Riveted, 14 Gage (incl. Animal Guard)	20	LF	$_____	$_____
7	12" Dia. Dual-Wall HDPE, Perforated	840	LF	$_____	$_____
8	10" Dia. Dual-Wall HDPE, Perforated	350	LF	$_____	$_____
9	8" Dia. Dual-Wall HDPE, Perforated	1,290	LF	$_____	$_____
10	5" Dia. Single-Wall Corrugated HDPE, Heavy-Duty, Perforated	1,440	LF	$_____	$_____
11	Soil Fill	964	CY	$_____	$_____
12	Exploratory Excavation	10	HR	$_____	$_____
13	Tile Connections, less than 8" Dia.	12	EA	$_____	$_____
14	Tile Connections, 8" Dia. and larger	3	EA	$_____	$_____
15	Trench Stabilization	50	TN	$_____	$_____
16	Bedding Stone, 3/4"	40	TN	$_____	$_____
17	Clearing and Grubbing	1	LS	$_____	$_____
18	Mobilization	1	LS	$_____	$_____

BASE BID TOTAL: $_____

BID ALTERNATES

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
2-ALT	42" DIA. DUAL-WALL HDPE, NON-PERFORATED, GASKETED	500	LF	$_____	$_____
3-ALT	42" DIA. DUAL-WALL HDPE, NON-PERFORATED	2,299	LF	$_____	$_____
19-ALT	48" DIA. CMP, 3" X 1" CORRUGATIONS, 12 GAGE	20	LF	$_____	$_____
20-ALT	18" ON 42" HDPE TEE	2	EA	$_____	$_____
21-ALT	18" DUAL-WALL HDPE RISER	2	EA	$_____	$_____
22-ALT	18" END CAP	2	EA	$_____	$_____

BID ALTERNATES TOTAL: $_____

TOTAL BID INCLUDING BID ALTERNATES: $_____

7. Bid prices are required for Section 1. The Bid Alternates section is optional.

8. Bidder agrees that the work will be started, substantially completed or completed as stated in the Notice of Hearing and Letting and in accordance with the Contract Documents which are made part of the Agreement. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to start or complete the work as specified.

9. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

SUBMITTED ON _____.

COMPANY NAME: _____

SIGNED BY/TITLE: _____

PRINT NAME: _____

FEDERAL TAX ID. NO: _____

ADDRESS: _____

_____

PHONE NUMBER: _____ FAX NUMBER: _____

END OF SECTION

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as Principal, and _____, as Surety, are held and firmly bound unto the _____, Iowa, hereinafter called "OWNER", in the penal sum of _____Dollars ($_____), lawful money of the United States of America, for the payment of which sum will truly be made, we bind ourselves our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. Whereas the Principal has submitted the accompanying bid, dated _____, for _____ _____ Project;

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

By virtue of statutory authority, the full amount of this bid bond shall be forfeited to the Owner as liquidation of damages sustained in the event that the Principal fails to execute the contract and provide the bond as provided in the specifications or by law.

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

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their property officer this _____ day of _____.

_____ _____
Witness Principal (Seal)

By _____
(Bidder's signature) Title

_____ _____
Witness Surety (Seal)

By _____
Title

ATTACH POWER OF ATTORNEY

IMPORTANT: Surety companies executing this Bond must appear on the U.S. Treasury Department's current list (Circular 570, as amended) and be authorized to transact business in the State of Iowa.

END OF SECTION

NOTICE OF AWARD SECTION 0410

To:

Re: 2024 DRAINAGE DISTRICT NO. 5
MAIN TILE IMPROVEMENT / RE-ROUTE
WAVERLY, IOWA
JWA PROJECT NO: E-22159

Gentlemen:

The Owners, represented by the undersigned, have considered the proposal submitted by you for the above-referred work in response to its "Notice of Hearing and Letting".

It appearing that it is the best interest of the said Owner to accept your proposal in the amount of $_____, you are hereby notified that your proposal has been accepted for the construction of the 2024 DRAINAGE DISTRICT NO. 5 MAIN TILE IMPROVEMENT / RE-ROUTE, BREMER COUNTY, IOWA.

You are required to execute the formal contract with the undersigned Owner and to furnish the required Contractor's performance and payment bond and certificate of insurance within the terms specified in the Instructions to Bidders.

If you fail to execute said contract and to furnish said bond within fifteen (15) days from the date of delivery of the Notice of Award, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your proposal as abandoned and to award the work covered by your proposal to another, or to re-advertise the work or otherwise dispose thereof as the Owner may see fit. Further, your bid bond enclosed with your bid will be forfeited if you neglect or refuse to enter into a contract and to furnish bond within the time specified.

Three (3) copies of the Agreement are enclosed. You are required to return all the copies, together with the required bond and certificate of insurance, after putting your dated signature and attestation at places indicated. You shall submit a listing of all subcontractors and contact information including company name, address, phone number and Federal Tax ID number for tax exemption certificates.

Dated this _____ day of _____, 2024.

OWNER **BREMER COUNTY BOARD OF SUPERVISORS**

SIGNED BY _____

PRINT NAME _____

END OF SECTION

AGREEMENT SECTION 0500

THIS AGREEMENT, made and entered into this ___ day of _____, 2024, by and between the BREMER COUNTY BOARD OF SUPERVISORS, hereinafter called OWNER, and _____, hereinafter called CONTRACTOR.

WITNESSETH: That whereas the OWNER has heretofore caused to be prepared certain plans, specifications and proposal blanks, for the Project generally described as follows: BREMER COUNTY DRAINAGE DISTRICT NO. 5, MAIN TILE IMPROVEMENT / RE-ROUTE, under the terms and conditions therein fully stated and set forth, and,

Whereas, said plans, specifications and proposal accurately and fully describe the terms and conditions upon which the CONTRACTOR is willing to perform the work specified:

NOW, THEREFORE, IT IS AGREED:

1. That the OWNER hereby accepts the proposal of the CONTRACTOR as shown on Bid Form, and shall pay Contractor for completion of all work at the prices stated in Bid Form in the amount of $_____,

2. With a written Notice to Proceed received by the Contractor within 30 days of Bid opening the work shall be completed and accepted as detailed in the Notice of Hearing and Letting by **December 20, 2024** subject to any contract time extensions granted by the Owner.

3. Owner and Contractor recognize that time is of the essence on this Project and that the Owner may suffer financial loss if the work is not completed by the specified date plus any approved time extensions. Both parties also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss by the Owner should the work not be completed before the Contract completion date. 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 the Owner $300.00 for each day that expires after the time specified in Paragraph 2 above for completion and ready for final payment.

4. That this Contract consists of the following component parts which are made a part of this Agreement and Contract as fully and absolutely as if they were set out in detail in this Contract:

   a. Specifications
   b. Plans
   c. Notice of Hearing and Letting
   d. Special Conditions
   e. General Conditions
   f. CONTRACTOR's Bid
   g. This Agreement
   h. Performance and Payment Bond
   i. Addenda Numbers _____

   Above components are complementary, and what is called for by one shall be as binding as if called for by all.

5. That payments are to be made to the CONTRACTOR in accordance with and subject to the provisions embodied in the documents made a part of this Contract.

6. That this Contract is executed in three copies.

7. In WITNESS WHEREOF, the Owner and Contractor have caused this Agreement to be executed the date first written above.

OWNER **Bremer County Board of Supervisors**

By _____

Title _____

(SEAL)

ATTEST:

_____

Title _____

CONTRACTOR _____

By _____

Title _____

(SEAL)

ATTEST:

_____

Title _____

END OF SECTION

DATED_____

TO:

PROJECT: **2024 DRAINAGE DISTRICT NO. 5, MAIN TILE IMPROVEMENT / RE-ROUTE**

0WNER: **BREMER COUNTY BOARD OF SUPERVISORS**

You are hereby notified that the Owner has authorized you to commence work on the Project in accordance with the Agreement dated _____. In accordance with that Agreement the Completion Date is **December 20, 2024**.

BREMER COUNTY BOARD OF SUPERVISORS

By:
_____
(AUTHORIZED SIGNATURE)

_____
(TITLE)

ACCEPTANCE OF NOTICE

Receipt of this Notice to Proceed is hereby acknowledged by:

CONTRACTOR: _____

SIGNED BY: _____

TITLE: _____

DATE: _____

END OF SECTION

SURETY BOND NO. _____

KNOW ALL BY THESE PRESENTS, that we, _____, as Principal, hereinafter "Contractor" or "Principal", and _____, as Surety, are held and firmly bound unto _____, the Owner, and to all persons who may be injured by any breach of any of the conditions of this Bond in the penal sum of

_____
dollars ($_____), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, legal representatives and assigns, jointly or severally, firmly by these presents.

The conditions of the above obligations are such that whereas said Contractor entered into a contract with the Owner, bearing date the _____ day of _____, 20___, hereinafter the "Contract") wherein said contractor undertakes and agrees to construct the following described improvements:

WHEREAS, Contractor has by written agreement dated _____, _____, entered into a Contract with Owner for . . .

Project Description:_____

_____

in accordance with drawings and specifications prepared by Jacobson-Westergard & Associates, Inc., which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract and to faithfully perform all the terms and requirements of said Contract within the time therein specified, in a good and workmanlike manner, and in accordance with the Contract Documents. Provided, however, that one year after the date of acceptance as complete of the work under the above referenced Contract, the maintenance portion of this Bond shall continue in force but the penal sum for maintenance shall be reduced to the sum of _____dollars ($_____), which is the cost associated with those items shown on the proposal and in the Contract that require a maintenance bond period in excess of one year.

It is expressly understood and agreed by the Contractor and Surety in this bond that the following provisions are a part of this Bond and are binding upon said Contractor and Surety, to-wit:

1. **PERFORMANCE**: The Contractor shall well and faithfully observe, perform, fulfill, and abide by each and every covenant, condition, and part of said Contract and Contract Documents, by reference made a part hereof, for the above referenced improvements, and shall indemnify and save harmless the Owner from all outlay and expense incurred by the Owner by reason of the Contractor's default of failure to perform as required. The Contractor shall also be responsible for the default or failure to perform as required under the Contract and Contract Documents by all its subcontractors, suppliers, agents, or employees furnishing materials or providing labor in the performance of the Contract.

2. **PAYMENT:** The Contractor and the Surety on this Bond hereby agreed to pay all just claims submitted by persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the performance of the Contract on account of which this Bond is given, including but not limited to claims for all amounts due for labor, materials, lubricants, oil, gasoline, repairs on machinery, equipment, and tools, consumed or used by the Contractor or any subcontractor, wherein the same are not satisfied out of the portion of the contract price the Owner is required to retain until completion of the improvement, but the Contractor and Surety shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portion of the contract price shall have been established as provided by law. The Contractor and Surety hereby bind themselves to the obligations and conditions set forth in Chapter 573 of the Iowa Code, which by this reference is made a part hereof as though fully set out herein.

3. **MAINTENANCE:** The Contractor and the Surety on this Bond hereby agree, at their own expense:

A. To remedy any and all defects that may develop in or result from all work to be performed under the Contract within the period of ***1 year*** from the date of acceptance of the work under the Contract, by reason of defects in workmanship or materials used in construction of said work; and

B. To keep all work in continuous good repair; and

C. To pay the Owner's reasonable costs of monitoring and inspection to assure that any defects are remedied, and to repay the Owner all outlay and expense incurred as a result of Contractor's and Surety's failure to remedy any defect as required by this section.

4. **GENERAL**: Every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:

A. To consent without notice to any extension of time to the Contractor in which to perform the Contract;

B. To consent without notice to any change in the Contract or Contract Documents, which thereby increases the total contract price and the penal sum of this bond, provided that all such changes do not, in the aggregate, involve an increase of more than 20% of the total contract price, and that this bond shall then be released as to such excess increase; and

C. To consent without notice that this Bond shall remain in full force and effect until the Contract is completed, whether completed within the specified contract period, within an extension thereof, or within a period of time after the contract period has elapsed and the liquidated damage penalty is being charged against the Contractor.

D. That no provision of this Bond or of any other contract shall be valid that limits to less than 5 years after the acceptance of the work under the Contract the right to sue on this Bond.

E. That as used herein, the phrase "all outlay and expense" is not to be limited in any way but shall include the actual and reasonable costs and expenses incurred by the Owner including interest, benefits, and overhead where applicable. Accordingly, "all outlay and expense" would include but not be limited to all contract or employee expense, all equipment usage or rental, materials, testing, outside experts, attorney fees (including overhead expenses of the Owner's staff attorneys), and all costs and expenses of litigation as they are incurred by the Owner. It is intended the Contractor and Surety will defend and indemnify the Owner on all claims made against the Owner on account of Contractor's failure to perform as required in the Contract and Contract Documents, that all agreements and promises set forth in the Contract and Contract Documents, in approved change orders, and in this Bond will be fulfilled, and that the Owner will be fully indemnified so that it will be put into the position it would have been in had the Contract been performed in the first instance as required.

In the event the Owner incurs any "outlay and expense" in defending itself against any claim as to which the Contractor or Surety should have provided the defense, or in the enforcement of the promises given by the Contractor in the Contract, Contract Documents, or approved change orders, or in the enforcement of the promises given by the Contractor and Surety in this Bond, the Contractor and Surety agree that they will make the Owner whole for all such outlay and expense, provided that the Surety's obligation under this bond shall not exceed 125% of the penal sum of this bond.

In the event that any actions or proceedings are initiated regarding this Bond, the parties agree that the venue thereof shall be _____ County, State of Iowa. If legal action is required by the Owner to enforce the provisions of this Bond or to collect the monetary obligation incurring to the benefit of the owner, the Contractor and the Surety agree, jointly, and severally, to pay the Owner all outlay and expense incurred therefor by the Owner. All rights, powers, and remedies of the Owner hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers, and remedies given to the Owner, by law. The Owner may proceed

against surety for any amount guaranteed hereunder whether action is brought against the Contractor or whether Contractor is joined in any such action(s) or not.

NOW THEREFORE, the condition of this obligation is such that if said Principal shall faithfully perform all the promises of the Principal, as set forth and provided in the Contract, in the Contract Documents, and in this Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

When a word, term, or phrase is used in this Bond, it shall be interpreted or construed first as defined in this Bond, the Contract, or the Contract Documents; second, if not defined in the Bond, Contract, or Contract Documents, it shall be interpreted or construed as defined in applicable provisions of the Iowa Code; third, if not defined in the Iowa Code, it shall be interpreted or construed according to its generally accepted meaning in the construction industry; and fourth, if it has no generally accepted meaning in the construction industry, it shall be interpreted or construed according to its common or customary usage.

Failure to specify or particularize shall not exclude terms or provisions not mentioned and shall not limit liability hereunder. The Contract and Contract Documents are hereby made a part of this Bond.

SIGNED AND SEALED THIS _____ DAY OF _____, 20___.

PRINCIPAL:	**SURETY:**
_____ Contractor	_____ Surety Company
By _____ Signature	By _____ Signature Attorney-in-Fact Officer
_____ Title	_____ Printed Name of Attorney-in-Fact Officer
	_____ Company Name
	_____ Company Address
	_____ City, State, Zip Code
	_____ Company Telephone Number

NOTE:

1. **All signatures on this performance, payment, and maintenance bond must be original signatures in ink; copies, facsimile, or electronic signatures will not be accepted.**
2. **This bond must be sealed with the Surety's raised, embossing seal.**
3. **The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal.**
4. **The name and signature of the Surety's Attorney-in-Fact/Officer entered on this bond must be exactly as listed on the Certificate or Power of Attorney accompanying this bond.**

END OF SECTION

1.1 STANDARD FORM OF GENERAL CONDITIONS

A. EJCDC C-700, Standard General Conditions of the Construction Contract, current edition, a document prepared by the Engineers Joint Contract Documents Committee and published jointly by ACEC, NSPE and ASCE, forms the General Conditions of this Contract.

B. Copies of EJCDC C-700 are on file in the Engineer's office and may be obtained at a cost of $20.00 per copy.

END OF SECTION

(BLANK)

END OF SECTION

1.1 SCOPE

A. Work generally includes:

furnishing and installing approximately 2,819 linear feet (LF) of 42" diameter reinforced concrete pipe (RCP), 2,490 LF of removal and disposal of existing 36" diameter cement tile, 2,480 LF of dual-wall HDPE ranging from 12" to 8" in diameter, 1,440 LF of 5" diameter single-wall HDPE, 964 CY of soil fill, clearing and grubbing and riprap at the outlet, 42" diameter cast-iron flap gate, and tile connections. Bid alternate includes 42" diameter dual-wall HDPE pipe for the Main Tile improvement/re-route, including two 18" diameter access risers.

B. Contractor's Duties:

1. Provide and pay for: labor, materials, equipment, tools, construction equipment and machinery.

2. Pay legally required sales, consumers and use taxes.

3. Give required notices.

4. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of work.

5. Enforce strict discipline and good order among employees. Do not employ unfit persons or persons not skilled in assigned task.

1.2 WORK BY OTHERS (SEPARATE CONTRACTORS) **N/A**

1.3 WORK BY ENGINEER

A. Engineer will perform all required construction staking for line and grade in order to construct the work. Any additional staking by Engineer will be detailed in the Special Conditions.

1.4 WORK BY OWNER **N/A**

1.5 CONTRACTS

A. Construct work under a lump sum and single unit-price contract as shown in Agreement.

1.6 PERMITS

A. The Owner will be responsible for applying for, paying all fees and obtaining the following permits if required:

1. Construction Permit(s) from the Iowa Department of Natural Resources (IDNR).

2. Construction Permit(s) from the US Army Corp of Engineers.

3. NPDES Storm Water Discharge Permit administered by IDNR.

4. Utility Construction Permit(s) and Entrance Permit(s) from Iowa Department of Transportation (IDOT).

5. Utility Construction Permit(s) from County Engineer.

6. Construction or Crossing Permit from Railroad including any insurance premiums required by the Railroad.

7. Sanitary Sewer Connection Permit.

B. The Contractor shall be responsible for applying for, paying all fees and obtaining any other permits including but not limited to:

1. Local building permits.

2. Local landscaping or erosion control permits.

3. Equipment hauling permits.

4. Local union permits.

1.7 SCHEDULING OF WORK

A. TIME IS AN ESSENTIAL CONDITION OF COMPLETION. Each subcontractor shall organize his work in such a way as to be able to enter upon the site at the scheduled date for the start of the Work and shall perform the Work diligently and expeditiously to complete the various phases within the allotted times.

1.8 COMPLETION DATE

A. Work shall be complete by December 20, 2024.

B. The Contractor shall schedule his operations in performing the work so as to complete all work on the project by the completion date specified in the "Notice of Hearing and Letting" and set forth in the Agreement. The Contractor will be entitled to an extension of the contract completion date only for delays caused by injunction, legal actions, delays in delivery of material and/or equipment required on the project and acts of God. Rain, wind, flood or any other natural phenomenon of normal intensity for the locality shall not be construed as an Act of God. Application for extension of time shall be made by the Contractor to the Owner in writing and shall state reasons for the request for the extension of time. No extension of time shall be valid unless it is requested in writing by the Contractor nor shall an extension of time be valid unless it is given in writing by the Owner.

1.9 LIQUIDATED DAMAGES

A. Liquidated damages if applicable are stated in the Notice of Hearing and Letting and set forth in the Agreement.

1.10 EXAMINATION OF SITE

A. It is expected that each contractor and/or subcontractor, before submitting a proposal for Work required under these Contract Documents visit the site, make a thorough examination of conditions, familiarize himself with all existing conditions and all the limitations pertaining to the work herein contemplated.

B. No additional compensation will be allowed because of any Contractor or Subcontractor's misunderstanding as to the amount of work involved or his lack of knowledge of any of the conditions pertaining to the work based on his neglect or failure to visit or make an examination of the site.

C. It is also expected that in the event that any of this specification is not clear or in the event there are any discrepancies or changes in conditions, these will be brought to the attention of the Engineer and the Owner, and a decision in writing will be rendered as soon as possible by the Engineer.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL

These Special Conditions make additions, deletions, or revisions to the General Conditions as indicated herein. All provisions which are not so amended or supplemental remain in full force and effect. Terms used in these Special Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

1.2 DEFINITIONS

A. Whenever the term "Owner" is used in this specification, it refers to Owner as identified in the Advertisement.

B. Whenever the term "Engineer" is used in this specification, it refers to Jacobson-Westergard & Assoc., Inc., 105 South 6th Street, Estherville, IA 51334 (Phone: 712/362-2647; Fax: 712/362-2668).

C. The word "approved" as used herein means "approved by Engineer".

D. "Or equal" means "or approved equal".

E. "IDOT Section" means a section of the Standard Specifications for Highway and Bridge Construction, Iowa Department of Transportation, including all Supplemental Specifications thereto.

1.3 GUARANTEE OF WORKMANSHIP, MATERIALS AND MAINTENANCE BOND

A. The Contractor shall guarantee all work and equipment against defects for a period of at least one year from and after acceptance of the work.

B. All construction shall be guaranteed for a period of one (1) year from the date of final acceptance by the Owner. Surety bonds approved by the Owner shall run for a like period. The Contractor shall repair or replace or cause the subcontractor to repair or replace any defective workmanship or materials, which will be decided by the Owner, and in a manner acceptable to the Owner of such defects. If said repairs or replacements are not done and completed as specified above, the Owner shall cause same to be done and completed as specified above, the Owner shall cause same to be done and the expenses incurred will be charged to the Contractor or their Surety. With the signed contracts, the Contractor shall provide the Owner with a maintenance bond, the length of which will be one (1) year and the coverage shall be for one hundred percent (100%) of the contract price. The time of said coverage for maintenance shall begin on the date of final acceptance by the Owner of the project.

C. Materials and Workmanship: Unless otherwise stipulated in the specifications, all workmanship and equipment, materials and articles incorporated in the work covered by this contract are to be new and of the best grade of their kind respectively, for the purpose intended. At any time during the course of construction, when in the opinion of the Owner, provisions of this contract are being violated by the Contractor or subcontractor, the Owner shall have the right and authority to order all construction to cease until said violation is corrected.

1.4 SALVAGE RIGHTS

A. Unless specifically noted on the plans or specified herein, all items to be abandoned, removed or replaced shall become the property of the Contractor. Contractor shall be responsible for disposal or removal. If something is uncovered during the project the Owner shall retain right of ownership.

1.5 TESTS AND INSPECTIONS

A. Where tests or inspections by an independent testing laboratory are required, the Contractor shall employ and arrange for, at their expense, the services of an approved independent testing laboratory, satisfactory to the Engineer. Submit reports and certificates of all inspections and tests to Engineer in duplicate for all materials required. No materials will be allowed to be incorporated into the project without written certification delivered and on file with the Engineer.

B. Each subcontractor shall provide material samples required. Without additional charge, deliver the material to the testing laboratory or other agency as directed by the testing laboratory.

1.6 CONSTRUCTION STAKING

A. Engineer shall set the necessary grade and line stakes to construct the work. Contractor shall give Engineer a minimum of 48 hours notice that such stakes are needed. The Engineer will try to accommodate the Contractor's request for staking, offsets, benchmarks, etc.

B. The Contractor shall be responsible for reimbursing the Engineer to replace grade and line stakes disturbed by their operations or by their subcontractor. If the Engineer is requested to restake, they will bill the Contractor for that work at the rate of $200.00 per hour.

C. If during the course of construction, survey monuments (property lines), that were marked and shown to the Contractor are destroyed as a result of negligence by the Contractor then the Contractor shall be held responsible for replacement. The Contractor shall, prior to final payment, reimburse the Engineer at the rate of $200.00 per hour for the replacement of any survey monuments.

1.7 CONTRACTOR'S USE OF PREMISES

A. All improvements will be constructed on Owner's property, easement, public right-of-way or on easements secured by Owner.

B. Contractor shall confine their operations at the site to the project limits or temporary construction easements as shown or specified.

C. Do not unreasonably encumber the site with materials and equipment. Maintain access to the site at all times for emergency vehicles.

D. Assume full responsibility for protection and safekeeping of materials stored on the site.

E. Contractor shall provide their own utilities on site including water, electric, phone and proper sanitary facilities.

1.8 CLEANING UP

A. Contractor shall maintain the premises free from accumulation of waste materials or rubbish caused by the work. At the completion of the work, the Contractor shall restore all areas to original or better condition, including streets, drives, sidewalks, parking areas and lawns.

1.9 SHOP DRAWINGS AND SUBMITTALS

A. After Award of Contract, Contractor shall submit five (5) copies of manufacturer's literature, product data, catalog cuts or other information as specified in each specification section to allow Engineer to review such data prior to incorporation into the work. Such information submitted is herein referred to as Shop Drawings.

B. Contractor shall submit shop drawings on items that will be constructed off site for which dimensions, sizes, elevations, etc. should be reviewed prior to construction. Contractor shall also submit shop drawings for which specific manufacturers are mentioned.

C. The Contractor may wish to submit shop drawings for a substitute manufacturer or an "as-equal" product. This request shall be in writing to the Engineer during any shop drawing submittal.

D. Each shop drawing submittal shall contain a statement and signature by the Contractor that they have reviewed the enclosed shop drawings and the products meet the specifications. The submittal shall also include any substitute or as-equal requests.

E. Engineer will review and comment on all shop drawings. If marked "Rejected, resubmit" Contractor shall supply corrected shop drawings. If marked "Reviewed" the Contractor shall at their risk furnish products for incorporation into the project.

1.10 HISTORICAL OR ARCHAEOLOGICAL DISCOVERY

If during the course of construction, evidence of deposits or objects of historical or archaeological interest is found, the Contractor shall cease operations affecting the find and shall notify the Engineer who shall notify the Iowa Department of Natural Resources and the State Historic Preservation Officer (SHPO). No further disturbance of the deposits shall \ continue until the Contractor has been notified in writing by the Engineer that the State official has surveyed the find and made a determination to Owner of its significance. Compensation to the Contractor, if any, for lost time or changes in construction to avoid the find, shall be determined in accordance with changed conditions or change order provisions of the General Conditions.

1.11 SHIPMENT OF MATERIALS

Proper shop drawing submittal and review must be accomplished prior to delivery of any materials to the site. Before making any shipment of materials to the project site, the contractor or subcontractor shall determine whether the project site is suitable to receive the shipment. If site is not suitable for storage materials shall be properly stored elsewhere at the expense of the contractor or subcontractor with adequate insurance coverage provided for all off-site storage.

1.12 SUBCONTRACTORS

Prior to commencing any work the Contractor shall notify the Engineer and Owner of the names of the subcontractors proposed and shall not employ any subcontractor that the Owner objects to as incompetent or unfit to do the work either in materials or workmanship. The Contractor agrees to be fully responsible to the Owner for the acts or omissions of their subcontractors and anyone employed directly or indirectly by them and this contract obligation shall be in addition to the liability imposed by law upon the Contractor. Nothing contained in the Contract Documents shall create any contractual

ties between the subcontractor and the Owner. The Contractor shall have, at all times, a competent superintendent on the job site who can act as their stead in any case of disagreement between the subcontractor and the Owner.

1.13 UTILITY APPURTENANCES

Appropriate utility companies shall be given sufficient notice to locate and mark appurtenances which might be uncovered or damaged by construction. Any damage to appurtenances subsequently located shall be repaired to the satisfaction of the utility company and Engineer at the Contractor's expense. This includes areas adjacent to the project limits which may be disturbed or traveled upon in the process of construction.

1.14 CONTRACT TERMINATION AND SUSPENSION OF WORK

A. The provisions of the law as contained in HF288, an act to provide for termination of contractors for construction of public improvements when construction of work thereon is stopped because of a national emergency, shall apply to and be a part of this contract and shall be binding upon all parties hereto, including subcontractors and sureties upon any bond given or filed in connection herewith.

B. Upon seven days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, Contractor shall be paid for all Work executed and any expense sustained plus reasonable termination expenses.

C. Owner may, at any time without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to Contractor and Engineer which shall fix the date on which Work shall be resumed. Contractor shall resume the Work on the date so fixed. Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension, as agreed to by both parties.

D. If, through no act or fault of Contractor, the Work is suspended for a period of more than ninety days by Owner or under an order of court or other public authority, then Contractor may, upon seven days' written notice to Owner and Engineer, terminate the Agreement and recover from Owner payment for all Work executed and any expense sustained plus reasonable termination expenses.

1.15 INSURANCE COVERAGE

A. The Contractor or any subcontractor shall not commence work under this contract until they have obtained all insurance required in the Contract Documents or such insurance as required by the Owner.

B. The limits of liability for the insurance required shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation:

a.	State	As required by the State	
b.	Applicable Federal	As required by the Statue	
c.	Employer's Liability	$500,000	Each Occurrence

2. Commercial General Liability:

a. Combined Single Limit $1,000,000 Each Occurrence
$2,000,000 Annual Aggregate

1) Products/Completed Operations $2,000,000 Annual Aggregate

2) Personal and Advertising Injury $1,000,000 Each Occurrence
$2,000,000 Annual Aggregate

b. The Contractor's General Liability and Comprehensive Automobile liability insurance policy shall be endorsed to add the Owner and Engineer as additional insured.

3. Comprehensive Automobile Liability (including owned, hired and non-owned vehicles):

a. Bodily Injury $1,000,000 Each Person
$1,000,000 Each Occurrence

b. Property Damage or combined single limit of $1,000,000 Each Occurrence
$2,000,000

4. Umbrella form excess liability coverage may be utilized to reach or exceed any of the limits defined above.

C. Property Insurance: Contractor shall secure all-risk type of builders risk insurance covering Work performed under the contract and materials, equipment or other items to be incorporated therein, while the same are located at the construction site, stored off site, or at the place of manufacture. The policy shall cover not less than losses due to fire, flood, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke until the date of final acceptance of the Work. The policy may exclude loss or damage caused by or resulting from errors in design or from the use of substandard materials or supplies used knowingly by or at the direction of the insured, but not excluding results, physical loss, or damage to other property covered hereunder. Neither exclusion shall apply in the event of fire, explosion, or acts of God.

D. The policies providing this insurance shall name the Owner, Contractor, and their subconsultants as additional insureds as their respective interests shall appear. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for the Owner or being construed as relieving the Contractor or Subcontractors of responsibility for loss or direct physical loss, damage or destruction occurring prior to final acceptance.

E. Certificate of Insurance: The Contractor and all Subcontractors shall furnish the Owner with satisfactory proof of carriage of the insurance required in a reliable company or companies, before commencing work. Such proof shall consist of certificates executed by the respective insurance companies and filed with the Owner. Said policies shall not be thereafter canceled, permitted to expire, or be changed without notice of 10 days in advance to the Owner and consented by the Owner.

1.16 MODIFIED DRAWINGS

A. The Contractor shall maintain at the construction site one complete set of drawings suitably marked to show all deviations from the original set of drawings and other information as specified. Supplementary sketches shall be included, if necessary, to clearly indicate all work as constructed.

B. The modified drawings or “As-Built” shall be kept in good legible condition and shall show any deviations from shown location, show unknown utilities or features and show dimensions, sizes, elevations, material and locations to the best accuracy possible. One complete set of the modified drawings shall be furnished to the Engineer prior to submittal of the final Application for Payment. Failure of the Contractor to maintain an up-to-date set of modified drawings on the project site shall be reason to withhold payments.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

A. The contract unit prices for the various bid items of the Contract shall be full compensation for all labor, materials, supplies, equipment, tools, and all things of whatsoever nature required for the complete incorporation of the item into the work the same as though the item were to read “Furnish and Place”.

B. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material. Payment will be made only for materials actually incorporated in the work or stockpiled as provided herein.

1.2 MEASUREMENT

A. The determination of pay quantities of work performed under the Contract will be made by the Engineer based upon the lines, grades and cross sections given, or measurements made by him or his assistants. All items will be computed in the units in the proposal.

1.3 PAYMENT

A. The Contractor shall accept the compensation, as herein provided, in full payment for furnishing all materials, labor, tools and equipment necessary to the completed work and for performing all work contemplated and embraces under the contract; also for loss or damage arising from the nature of the work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work until the final acceptance by the Owner for all risks of every description connected with all prosecution of the work; also for all expenses incurred in consequence of the suspension or discontinuance of the work as herein specified; and for completing the work according to the plans and specifications.

B. Payment will be made at the current unit prices listed in the BID.

C. Final payment will be made only after Contractor submits Form No. 35-002 for Sales and/or Use Tax paid in the construction of this project.

1.4 EXTRA WORK

Extra work ordered by the Owner, of a quality or class not covered by the contract, will be paid for at an agreed price. The Owner and Contractor shall enter into a written agreement before such work is undertaken.

1.5 ITEMS

A. Specific measurement and payment descriptions are detailed in each section of the specification for the type of work involved.

B. The following work items are considered incidental to the project unless there is a specific bid item for the work. Their costs shall be included in unit prices developed by the Bidder. This list is intended to assist the Contractor in delineating incidental work, but are not all inclusive.

1. Stripping, stockpiling and replacement of topsoil. Minimum of 12". Includes picking up rocks 4" and larger, and fine grading.

2. Disposing of construction rubble, concrete, asphalt, trees, brush and all other excess excavated material.

3. Dewatering.

4. Removal and replacement of street signs, fences, etc.

5. Installing and maintaining all signing, including road closures.

6. Compacting backfill material to 95% Standard Proctor Density through all roads and driveways.

7. Cleanup of site and disposal of construction materials upon completion of project.

8. Flagmen for traffic control and notifications to adjoining property owners of temporary road closures

9. Coordination time while shutting down utility services or temporarily closing a portion of any street or driveway.

10. Engineering fabric beneath riprap.

11. Installing crushed stone around all the tile connections.

12. Placing approved engineering fabric completely around each joint in the RCP pipe, overlapping sufficiently to avoid movement while backfilling.

13. Animal guards on aprons and CMP outlet pipe.

14. Plugs for lift holes and joint connectors on apron and first two pipe.

15. Concrete fillets in junction boxes and intake, and any other concrete required for installation.

16. Pipe elbows.

17. Pipe transition sections, e.g. arch pipe to round pipe.

18. Plastic pipe collars and pipe sections less than 5 feet in length.

19. Providing Engineer with set of drawings suitably marked to show any deviations from the original set of drawings.

20. Disc - chiseling entire work area following leveling, picking up and disposal of all rock 4" and larger, brush and other debris and releveling as necessary.

21. Concrete collars at locations where pipe size changes and tile lines are connected and at any connections of dissimilar pipe.

22. **MarMac DP Couplers at any connection of dissimilar pipe, or pre-approved equal.**

23. Excavating for bells on any pipe with bell joints.

24. Seeding and fertilizing road ditches.

25. Factory caps on tile extensions and plugging of downstream side of tile where connections are made.

26. Trench backfill compaction

27. Supplying well closure forms for each ag drainage well closed and/or removed; if applicable.

28. Providing a photograph to the Engineer showing each tile connection before it is backfilled. Must include adequate location information for each photograph.

29. Providing the Engineer with the GPS location of each tile location and the size and material of each tile connected. Also the approximate angle of the tile being connected compared to the new pipe.

30. Providing crushed stone bedding for polypropylene elbows as shown in SUDAS Figure 3010.103 (IDOT Standard Road Plan Detail SW 103), Class F-2.

31. Crushing old tile as shown on plans.

32. Coordination and cooperation with affected property owners, Bremer County, utility companies, other contractors, and with other projects in the area.

33. Protection of existing utilities.

34. Maintenance of erosion control measures, including silt removal.

35. Temporary sheeting and shoring.

36. Construction staging and phasing.

1.6 RIGHT-OF-WAY

A. The Contractor shall keep all operations as close to the centerline as possible.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

A. This section covers costs incurred by the Contractor prior to beginning construction on the project including but not limited to the movement of personnel, equipment, materials, and supplies to the project site, bonding, permits, or any other expenses incurred. Also included are any costs of re-mobilization incurred during the course of the project.

1.2 MEASUREMENT AND PAYMENT

A. This is a lump sum bid item.

B. When a bid item for Mobilization is not included on the proposal form, all costs incurred by the contractor for mobilization are incidental.

C. When a bid item for Mobilization is included on the proposal form, payment will be made as follows, consistent with SUDAS Section 11,020 – 1.08(A)2:

a. When 5% of the original contract amount is completed, 25% of the lump sum contract price for mobilization will be paid.

b. When 10% of the original contract amount is completed, 50% of the lump sum contract price for mobilization will be paid.

c. When 50% of the original contract amount is completed, 100% of the lump sum contract price for mobilization will be paid.

PART 2 PRODUCTS

None

PART 3 EXECUTION

None

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

A. This section covers the requirements, materials, installation and maintenance of erosion control features.

B. Furnish, install and maintain all erosion control improvements as shown, specified or required by governing agencies.

C. Perform work in accordance with best present day installation and construction practices.

1.2 RELATED WORK SPECIFIED ELSEWHERE

Section 2485 Seeding and Fertilizing

1.3 MEASUREMENT AND PAYMENT

A. Stormwater Pollution Prevention Plan (SWPPP) Management:

1. Payment will be at the lump sum price for SWPPP Management

2. Includes all work required to comply with the administrative provisions of the Iowa DNR NPDES General Permit No. 2; including record keeping, documentation, updating the SWPPP, etc.

B. Erosion control items such as silt fencing, filter socks, wattles, compost, mulching, inlet protection devices, temporary seeding, and erosion fabric will be measured and paid for on a lineal foot, square foot, acre, or per each basis. Unit price shall include material, installation and removal.

1.4 APPROVALS AND PERMITS

A. Owner/Engineer shall obtain the following erosion control permits as required.

1. Joint 401 Construction Permit from the Iowa Department of Natural Resources (IDNR) and US Army Corps of Engineers.

2. NPDES Storm Water Discharge Permit administered by IDNR.

B. Contractor shall be responsible for applying for, paying all fees and obtaining any other erosion control permits including but not limited to:

1. Local silt screen or erosion control ordinance.

2. General building permits.

3. Any additional permits required.

C. Contractor shall notify Engineer and/or governing agency when erosion control measures are in place prior to commencing any land disturbing activities.

PART 2 PRODUCTS

A. Silt Fence: Synthetic Monofilament Woven material, 36 inches tall meeting IDOT 4196.01.

B. Fence Post: Steel "T" posts with lugs to prevent vertical slipping. Length to be minimum six feet.

C. Jute Mesh: Non-toxic, single jute, plain weave meeting IDOT 4169.10.

D. Wood Excelsior Mat: Interlocking wood fiber or straw with plastic netting on one side. Matting shall meet IDOT 4169.10-C.

E. Manufactured Surface Intake Covers: Fabric covers with rigid frame as manufactured by Silt Saver, Inc. or equal.

F. Manufactured Curb Intake Filter: Tube form as manufactured by Mirafi Geosynthetic or Gutterbuddy by ACF Environmental.

G. Drop-in Intake Protection: Use a manufactured device that is inserted into the intake and is capable of filtering sediment from runoff. All components must be contained entirely below the surface of the intake grate.

H. Wattles: Open weave, degradable netting. Nominal diameter of 9 inches. Filled with straw, wood excelsior, coir, or other materials approved by the Engineer. Stakes minimum 1 inch by 1 inch wooden stakes, or as otherwise approved by the Engineer.

I. Compost: Controlled production compost consisting of yard trimmings, sewage sludge, animal manure or food processing residue. Compost shall meet the following AASHTO specifications:

1) Carbon to Nitrogen Ratio – minimum 30:1

2) Organic Matter – 30-60%

3) Moisture Content – 40% Target

4) Particle Size – 1/4" -- 5/8" for turf area, 1¼" for mulch

5) pH – 5.0 – 8.5

6) Soluble Salts – maximum 4 mmhos/cm

7) Heavy Metals – as regulated by US EPA, Class A 40 CFR 503.13, Tables 1 & 3

Compost facility shall comply with U.S. Composting Councils Seal of Testing Assurance (STA) Program.

PART 3 EXECUTION

A. Prior to any site disturbing activities all required silt fence, compost fences, temporary detention ponds and hay bale silt checks shall be installed and approved.

B. A copy of an approved permit from all governing agencies shall be kept on site or with the responsible individual.

C. Installation:

1. Silt fence shall be installed in accordance with IDOT Standard Road Plan. Location of silt fence shall be according to approved plans.

2. Compost erosion control measures shall be installed in accordance with current installation practices.

3. Jute Mesh or Wood Excelsior Mat shall be installed according to IDOT Section 2601.

4. After installation of storm intakes, field drains or culverts, adequate erosion and sediment control shall be installed in accordance with the standard details shown in the specification or on the drawing.

D. Monitoring:

1. The Contractor shall designate an individual, including name, title, address and phone number, to be responsible for the following duties throughout the duration of the project.

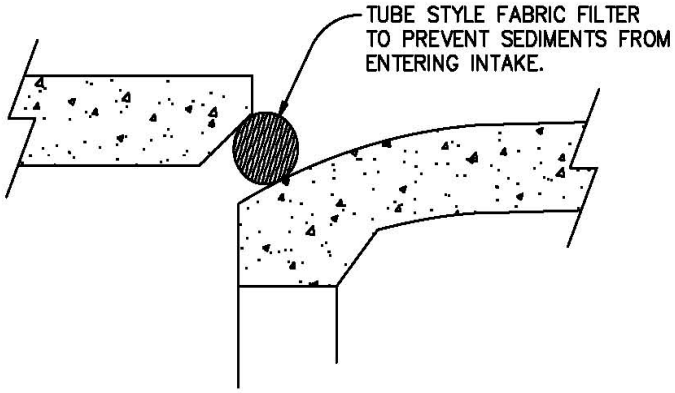
   a. Initial installation of the erosion control measures.

   b. Site inspections on a weekly basis and after rains greater than 1/2" to assess the effectiveness of existing erosion control measures and to direct installation of additional erosion control measures in response to problems noted during said inspections. The designated individual will keep a log of the inspections and any corrective measures taken. No inspections are required while the ground is frozen or there is snow cover. Inspection will resume when the snow begins to melt. Inspections will continue until adequate ground cover is established to control erosion.

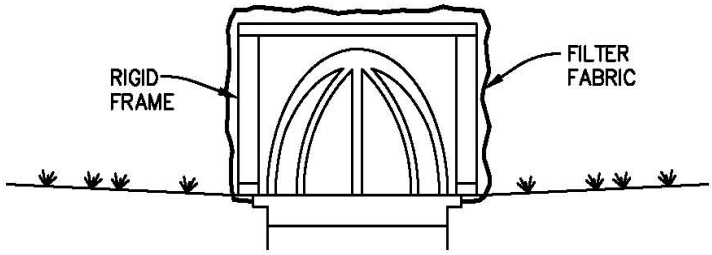
E. Maintenance: Erosion control devices shall be kept in proper working condition until all land disturbing activities are complete, all turf re-establishment is complete and final inspections are performed.

F. Removal: Contractor shall be responsible for complete removal of silt fence, posts, or any non-biodegradable items used for installation of erosion control measures after Owner, Engineer or governing agency indicates they are no longer needed.

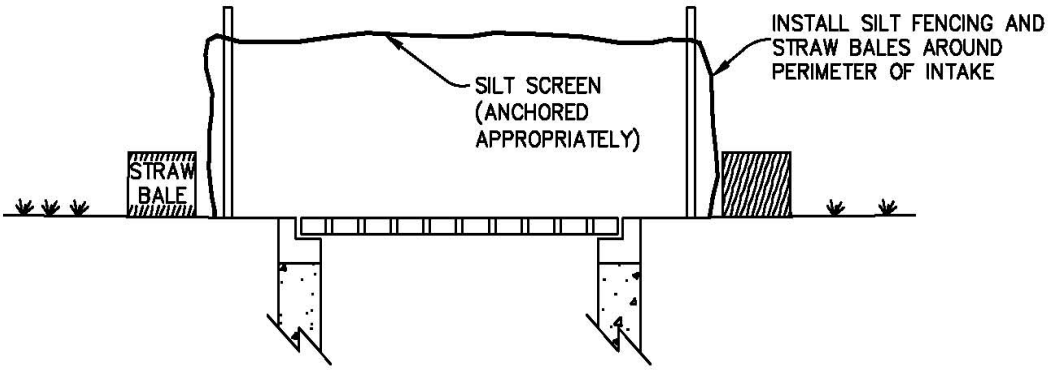
S-35



CURB INLET STYLE STORM INTAKE

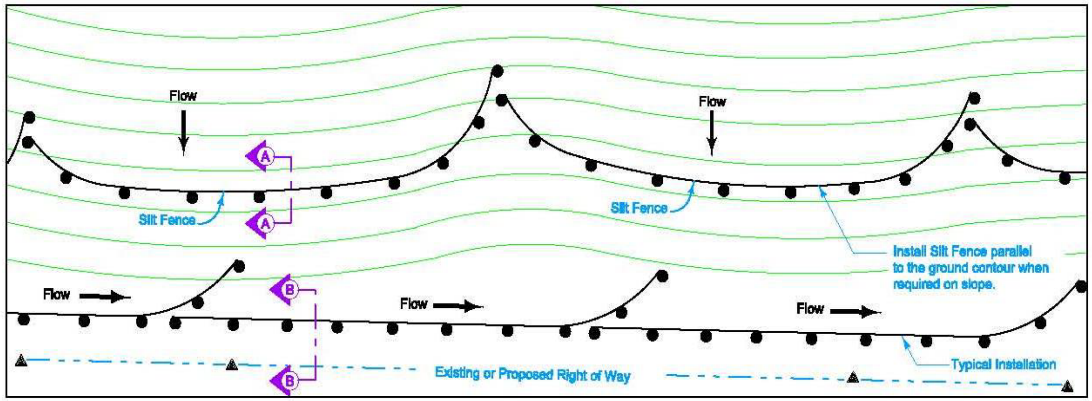


FIELD OR SURFACE INTAKE



FIELD OR SURFACE INTAKE

JACOBSON-WESTERGARD & ASSOCIATES, INC.
105 SOUTH SIXTH ST. ESTHERVILLE, IOWA



PLAN FOR SILT FENCE

Install all silt fence using a silt fence machine. Use manual (trench) installation if phyical conditions prohibit machine installation.

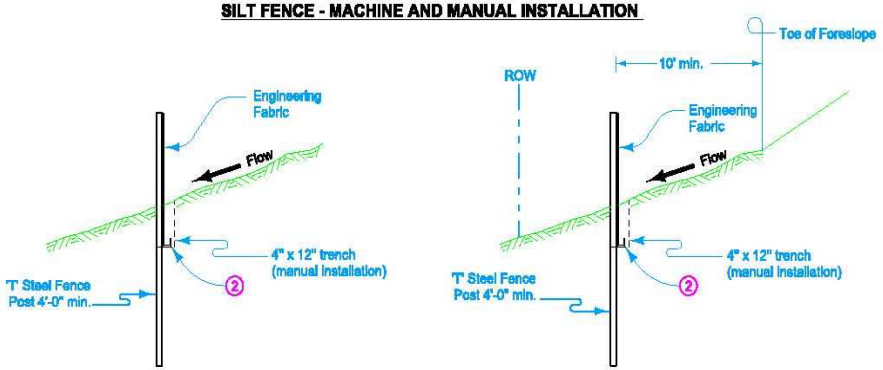
For machine installation, compact by driving over each side of silt fence at least two times with device exerting 60 p.s.i. or greater.

For manual installation, compact with a mechanical or pneumatic tamper.

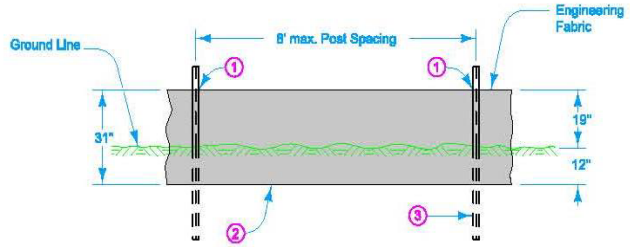
Place silt fence continuously up to a maximum length of 200 feet. For every segment of silt fence that is placed, flare up the slope the last 20 feet of the segment to contain runoff as shown.

1. Secure top of engineering fabric to steel posts using cable ties (50 lb.) or wire. See back view attachment to post.
2. For manual installation only, fold engineering fabric along bottom of trench.
3. Embed all posts 28 inches below the ground line.

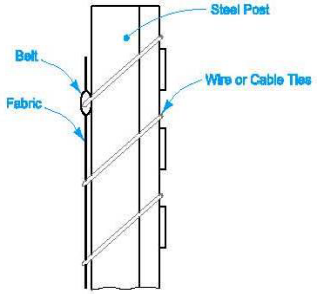
SILT FENCE - MACHINE AND MANUAL INSTALLATION



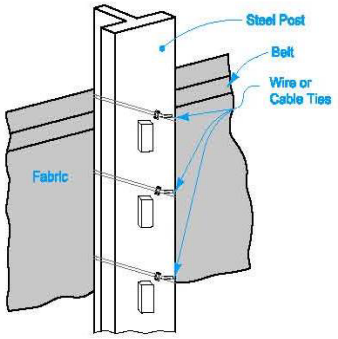
SECTION A-A **SECTION B-B**



FRONT VIEW



PROFILE VIEW ATTACHMENT TO POST



BACK VIEW ATTACHMENT TO POST

Contour Lines

Possible Contract Items:
Silt Fence
Silt Fence for Ditch Checks

Possible Tabulations:
100-17
100-18

Iowa Department of Transportation

STANDARD ROAD PLAN

REVISION	
New	04-20-10

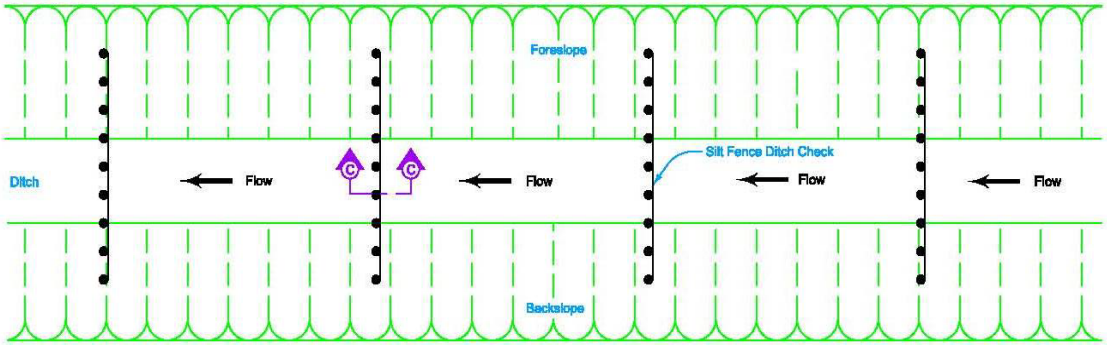
EC-201

SHEET 1 of 3

REVISIONS: New. Replaces RC-17.

Deanna Maifeld
APPROVED BY DESIGN METHODS ENGINEER

SILT FENCE

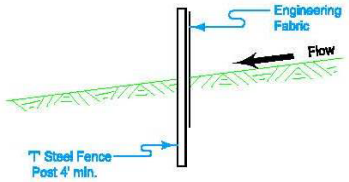


PLAN FOR DITCH CHECK

1. Secure top of engineering fabric to steel posts using cable ties (50 lb.) or wire. See attachment to post.
2. For manual installation only, fold engineering fabric along bottom of trench.
3. Embed all posts 28 inches below the ground line.
4. Locate posts at toe of foreslope and toe of backslope and space remaining posts equally.
5. The minimum end span of ditch check from the toe of slope will be according to the following table:

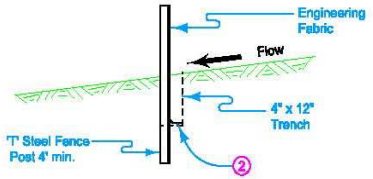
Foreslope or Backslope	Width
6:1	12'
6:1/3.5:1	10'
6:1/3:1	9'
3.5:1	7'
3:1	6'

DITCH CHECK - MACHINE INSTALLATION

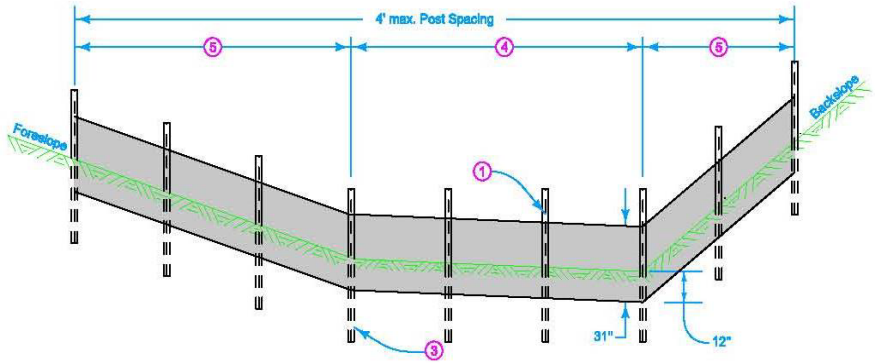


SECTION C-C

DITCH CHECK - MANUAL INSTALLATION



SECTION C-C



FRONT VIEW

Iowa Department of Transportation

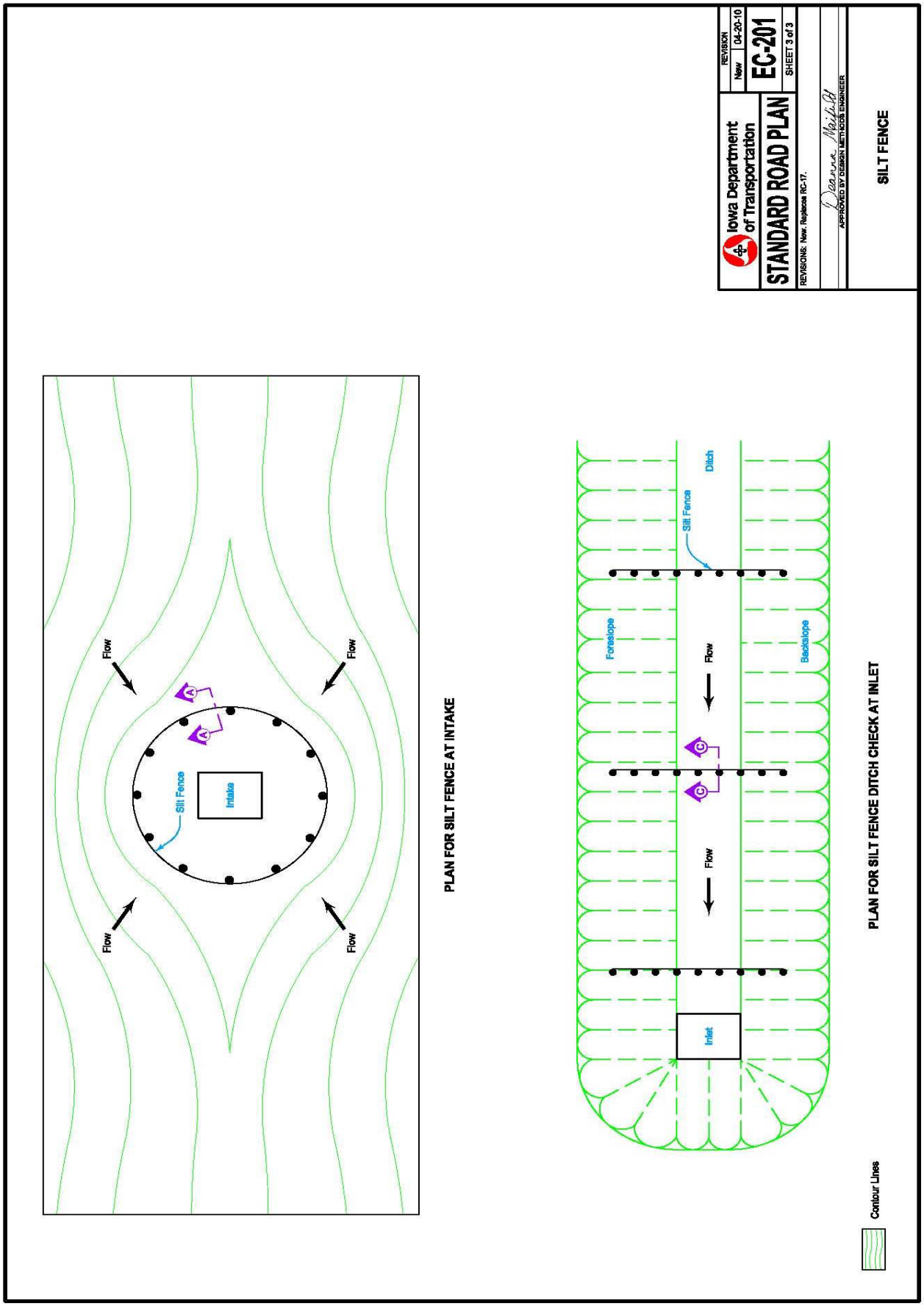
REVISION	
New	04-20-10

STANDARD ROAD PLAN — **EC-201** — SHEET 2 of 3

REVISIONS: New. Replaces RC-17.

Deanna Maifeld
APPROVED BY DESIGN METHODS ENGINEER

SILT FENCE


Iowa Department of Transportation
STANDARD ROAD PLAN
EC-201
SHEET 3 of 3
REVISION
New 04-20-10
REVISIONS: New. Replaces RC-17.
APPROVED BY DESIGN METHODS ENGINEER
SILT FENCE
Flow
Flow
Flow
Flow
Silt Fence
Intake
A
A
PLAN FOR SILT FENCE AT INTAKE
Ditch
Silt Fence
Foreslope
Backslope
Flow
Flow
C
C
Inlet
PLAN FOR SILT FENCE DITCH CHECK AT INLET
Contour Lines

PART 1 GENERAL

1.2 SCOPE

A. Work under this section includes clearing and grubbing all trees, bushes and brush as shown on the plans or as directed by the Engineer.

1.2 MEASUREMENT AND PAYMENT

A. Payment will be made based on the unit specified in the bid documents, either by lump sum, by the acre, or by clearing and grubbing units.

B. Clearing and grubbing of trees and bushes will be measured and paid for in accordance with SUDAS Section 2010 Part 1.08. No measurement will be made for clearing and grubbing bid as lump sum unit price.

PART 2 PRODUCTS

NOT APPLICABLE.

PART 3 EXECUTION

3.1 CLEARING & GRUBBING

A. Utilize any method preferred to remove trees and brush that does not cause property damages.

B. Remove trees and stumps, including roots, to a depth of at least 12 inches. Remove logs and downed timber, hedge rows, brush, field fence, vegetation, rubbish, etc.

C. Trees are to be sawn as near as practically possible to ground level. Stumps are to be left in place, and herbicide applied to the fresh cut per label directions (Rodeo or other approved herbicide that is permissible to use near water).

D. Use of a mulcher is not permissible for trees within the channel, or where debris is likely to enter the channel.

3.9 DISPOSAL - GENERAL

A. Burning of material is permitted as allowed by state law, and state and local regulations. contractor is responsible for obtaining necessary burn permit. unsupervised fires shall not be allowed. debris may be buried, at a depth of at least 4 feet below finished grade.

B. Other disposal methods may be allowed if previously approved by the Engineer.

END OF SECTION

PART 1 GENERAL

1.3 SCOPE

A. This section covers the labor and equipment required for exploratory excavation.

B. Contractor shall perform all necessary exploratory excavation, backfill, compaction, grading and cleanup as required to uncover utilities, tiles, soils and structures as shown on plans as directed by Engineer.

C. Perform all work in accordance with best present day construction practices.

1.4 MEASUREMENT AND PAYMENT

A. Exploratory excavation will be measured and paid for in hours of equipment and labor used as authorized and determined by the Engineer. For bid purposes a crew consisting of a rubber tired backhoe, operator and laborer with conventional tools including shovels, tile probes and level. Contractor may elect at his discretion to use track excavator for exploratory excavation at no additional cost to Owner. Should some excavations exceed depths capable by backhoe the Contractor and Engineer shall agree on new rate of exploratory crew and convert revised crew hours to original bid crew rate unit prices.

B. Does not include time spent repairing tile lines or utilities damaged during the search due to negligence as determined by the Engineer.

PART 2 PRODUCTS

2.1 MATERIALS

A. Any damaged utilities shall be repaired using new materials intended for the use at approval of Engineer.

PART 3 EXECUTION

3.1 EXCAVATION

A. Contractor shall be responsible for making an Iowa One Call to have utility companies field locate existing utilities before the start of any excavation.

B. Take necessary precautions to protect utilities from damage due to any construction activity. Repair all damages to utilities. Assess no cost to Owner, Engineer or auxiliary part for any damages.

END OF SECTION

PART 1 GENERAL

1.3 SCOPE

A. This section covers the labor and materials relating to excavation, backfilling and compaction of backfill.

B. Contractor shall perform all necessary excavation, shoring, bracing, dewatering, bottom stabilization, utility protection, pipe bedding, initial backfill, trench backfill, compaction, grading and cleanup as required to install utilities and structures as shown on plans or specified herein.

C. Includes separating the topsoil from subsoil during the course of excavation, and returning most of the topsoil to the top one (1) foot of the completed excavation, unless otherwise specified or approved by the Engineer.

1.2 MEASUREMENT AND PAYMENT

A. All granular material eligible for payment will be measured and paid for in tons of material incorporated into the project based on scale tickets supplied. Payment will be for only material authorized and approved by the Engineer. Unit price shall include material, hauling, placing and compacting.

B. Unless specified as a separate bid item, all excavation is considered incidental and will not be measured or paid. Excavation bid items may be paid based on lump sum, in which case no measurement will be made, or by cubic yard (CY).

C. Disposal of excess excavated material shall be incidental unless a separate bid item is included in the proposal.

1.3 EXISTING UTILITIES

A. Contractor shall be responsible for making an Iowa One call to have utility companies field locate existing utilities before the start of any excavation.

B. Contractor shall be responsible for verifying location and existence of all underground utilities. Omission from or inclusion of located utility items does not constitute non-existence or definite location. Secure and examine local utility records for available location data. Cooperate with Owner and utility companies for maintaining service.

C. Take necessary precautions to protect existing utilities from damage due to any construction activity. Repair all damages to utility items at sole expense. Assess no cost to Owner, Engineer or auxiliary party for any damages.

1.4 WORK BY OTHERS

A. Contractor shall be responsible to obtain the services of an independent testing laboratory for all soil compaction testing. Contractor shall coordinate with the Engineer for testing time and submit report to Engineer. The Owner shall reimburse the Contractor for compaction testing that meets minimum specifications, however the Contractor will be responsible for paying the cost of failed tests.

B. Reference to percent maximum density shall mean a soil density not less than the stated percent of maximum density for soil as determined by ASTM D698 “Moisture-Density Relations of Soils using 5.5 lb. Hammer and 12” Drop (Standard Proctor).

1.5 JOB CONDITIONS

A. Contractor shall accept site in condition at time of construction. Notify Engineer immediately if site conditions are significantly different than during solicitation of construction bids. Surface water or groundwater level fluctuation shall not be considered change in site condition.

B. Contractor shall make provisions if working in wet or frozen conditions to prevent installation on frozen ground or backfilling with excessively wet or frozen material.

1.6 SAFETY

A. Nothing as indicated in these specifications or drawings shall relieve the Contractor from complying with appropriate safety regulations including OSHA Standards or state and local building codes.

B. Pile excavated material suitable for backfill in an orderly manner sufficient distance back from edge of excavation to avoid rollbacks, slides or cave-ins.

C. Erect sheeting, shoring and bracing as necessary for protection of persons, improvements and excavations.

PART 2 PRODUCTS

2.1 EXCAVATION CLASSIFICATION

All excavation shall be considered as unclassified excavation, unless otherwise specified.

2.2 FILL MATERIALS

A. Provide acceptable material from the site for fill, free of large rock, debris, waste, frozen materials, vegetative and other deleterious matter.

B. Trench stabilization material shall be 2” coarse, sharp, clean crushed stone. Material shall be crushed to 100% passing a 2” sieve, 10-50% passing a ¾” sieve, and less than 5% passing a No. 8 sieve, or other material approved by Engineer. Use of trench stabilization material must be approved by Engineer.

C. Porous backfill shall be ¾” washed rock with less than 5% passing No. 8 sieve. Material must be approved by Engineer.

D. Granular Bedding Material shall be Class I material complying with IDOT Aggregate Gradation No. 3, or approved alternative.

E. Granular Bedding Material, or approved equal, and shall be considered incidental to the installation of the tile.

PART 3 EXECUTION

3.2 GENERAL

Excavation consists of removal of all material to the proposed grade. The existing topsoil shall be stripped and stockpiled separately for final cover. Excess material shall be disposed of off site or as directed by Engineer.

3.2 INSPECTION

A. Verify that preceding work affecting work of this section has been satisfactorily completed.

B. Correct conditions adversely affecting work of this section.

C. Verify that existing utilities are marked prior to excavation.

D. Perform any excavation as shown or specified.

3.3 STRUCTURES AND APPURTENANCES

A. Includes excavation for manholes and other appurtenances.

B. Strip suitable topsoil or granular surfacing materials for later replacement.

C. Excavate as required to firm, undisturbed soil. If excavation is carried below bottom of foundations as shown on plans, stabilizing material as directed by Engineer at no expense to Owner.

D. When unstable material is encountered which will not provide suitable foundation, fill with stabilizing material as directed by Engineer. Extra work provisions shall apply.

E. Backfill after poured-in-place concrete or masonry has cured.

F. Backfill with material removed from excavation except where sand or granular backfill is specified. Use no debris, frozen earth, large clods, stones or other unsuitable material.

G. Backfill simultaneously on all sides of structure. Save structure from damage at all times.

H. Compact backfill at structures to density not less than specified for adjacent trench.

3.4 TRENCH EXCAVATION

A. Excavate trenches by open cut method. Permission to tunnel under crosswalks, driveways or utility lines may be granted by Engineer or Owner.

B. Limit open trench to 300 lineal feet at any one time.

C. For pipe installation, minimum trench width is the outer diameter of the pipe plus 18-inches, however keep width of trench as narrow as possible. See Section 2731 for maximum trench widths.

D. Keep sides of trench as nearly vertical as practicable within the limits of excavating safety and applicable codes. Maintain vertical walls of excavation below top of pipe.

E. Provide access to operable fire hydrants, driveways and accesses unless specifically noted otherwise.

F. When unstable material is encountered which may not provide a suitable foundation for pipe:

1. Notify Engineer immediately.

2. Engineer will investigate questionable material to determine its suitability for pipe foundation.

3. If material is considered unsuitable for foundations, Engineer will specify and authorize remedial measures in writing.

4. If removal of unsuitable material is authorized:

   a. Replace with trench stabilizing material.

   b. Authorized over-excavation and trench stabilizing material will be paid for as trench stabilizing material.

   c. Place bedding material on top of stabilizing material to prevent point load. Bedding material shall be graded sufficiently coarse to prevent movement and loss of bedding into trench stabilizing material.

5. Authorized remedial measures not covered by contract unit prices will be paid for as Extra Work.

G. Excavate by hand:

1. Under and around utilities.

2. Where overhead clearance prevents use of machine.

3. Under trees and shrubs that are shown to remain.

3.5 ROCK AND RUBBLE EXCAVATION

A. Excavate to provide for 2" of granular bedding under pipe, structures and appurtenances.

B. Use of explosives: Submit detailed plans outlining all proposed blasting operations, locations, methods and use of mats and other safety measures.

1. Obtain written approval from municipal authority and Engineer before using explosives.

2. Provide Special Hazard Insurance covering liability for all blasting operations. Cost is incidental to cost of rock excavation.

3. Use experienced demolition personnel.

C. Remove excavated rock or rubble not suitable for backfill to an acceptable disposal area. Disposal is incidental to cost of rock excavation.

D. Trench bottom carried below required elevations: Replace with pipe bedding material.

3.6 DEWATERING

A. Perform all work in the dry to satisfaction of Engineer.

B. Lay no pipe in, and pour no concrete on, excessively wet soil.

C. Divert stream flow away from areas of construction.

D. Contractor's method of managing water encountered during construction shall conform to all laws and permits in effect.

E. Contractor shall obtain approval from Engineer prior to any dewatering.

F. Do not pump water onto adjacent property without approval of Engineer and adjacent property owner. Do not use sanitary sewers for disposal of ground water.

3.7 SHEETING, SHORING AND BRACING

A. Construct sheeting, shoring and bracing required to hold walls of excavation and to provide safety for workmen; to protect existing utilities or structures; or to permit construction in the dry.

B. Wood sheeting driven below level of pipe: Leave in place to a level 5' below finish grade.

C. Pull steel sheeting except where shown on plans.

D. When moveable trench shield is used below spring-line of pipe, it shall be lifted prior to any forward movement to avoid pipe displacement.

3.8 BEDDING

A. Place specified bedding after excavation or trench has been excavated to proper grade.

B. Place, compact and shape bedding material to uniformly support structure or full length of piping.

C. Provide bedding as shown on plans or specified in utility sections.

3.10 TRENCH BACKFILL AND COMPACTION

C. Backfill with material removed from excavation except where alternative fill is specified or approved by the Engineer. Use no debris, frozen earth, large clods, stones or other unsuitable material.

D. Compact to 95% minimum standard proctor density under and within six feet of pavement; 85% minimum density in cropland, including within city limits, 90% minimum density in other areas within city limits, or as otherwise specified.

1. Coordinate test time with Engineer and provide report of all tests.

2. Test each 2 vertical feet of consolidated fill and at a maximum horizontal spacing of 200 feet and at all road crossings. However, in cropland density testing will be ordered by the Engineer on an as-needed basis.

3. Contractor shall rework all areas not meeting compaction specification.

E. Top 12 inches of backfill shall match soil equivalent to adjacent excavation. Mound excess excavation above the trench, or level off to original surface, as directed by the Engineer. Remove excess material from site to ensure fill is not more than 12" above the natural grade. This removal is considered incidental.

F. Place backfill into the trench at an angle so that impact on installed pipe is minimized.

G. Prior to using heavy compacting equipment, install cushion of 4 feet of backfill above pipe envelope.

H. For trenches where "granular" is shown on the plans.

1. Backfill with pit run up to bottom of specified surface restoration.

2. Hydraulic compaction permitted only upon approval by Engineer.

3. Top 12 inches of backfill shall match soil equivalent to adjacent excavation.

4. Refer to Paving Section for subbase requirements beneath pavements.

I. If settlement of compacted or sand backfill occurs within period of guarantee and bond, refill, compact, level off and resurface.

J. If new pipe is installed below existing utilities (i.e. water, sewer, gas, electric, etc.) then Contractor shall backfill beneath utility to satisfaction of utility owner.

END OF SECTION

PART 1 GENERAL

1.1 SUBMITTALS

Manufacturer's Literature: Manufacturer's descriptive literature and recommended method of installation.

A. Certificates: Manufacturer's certification that products meet specification requirements.

1.2 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials on manufacturer's original skids, or in original unopened protective packaging.

B. Protect materials during transportation, storage and installation to avoid physical damage.

PART 2 PRODUCTS

2.1 HIGH-DENSITY POLYETHYLENE PIPE

A. AASHTO M 294, Type S, ASTM D 2412, ASTM F 477

2.2 REINFORCED CONCRETE PIPE

A. Tongue and groove, ASTM C76, pipe strength class as per plans, IDOT Sec. 4145.

2.3 CORRUGATED METAL PIPE

A. ASTM A444 (2 2/3" x 1/2" annular corrugations, 14 gauge or corrugated aluminum, AASHTO M-196, riveted or welded seam)

B. Minimum 12" diameter for tile outlets, minimum 15" diameter for surface drains

2.4 INSERTA TEE

A. As manufactured by Inserta Fittings Co., or approved equal.

PART 3 EXECUTION

3.1 INSPECTION

A. Tile connection method shall be approved by Engineer prior to construction. Tile connections of 8" and larger shall be made according to detail SW-211, Type PC-1 Connection.

B. Crushed stone shall be placed under and around each tile connection. This shall be incidental.

C. Strip 24 inches of existing topsoil separately for final cover material.

D. Begin pipe laying at lowest point.

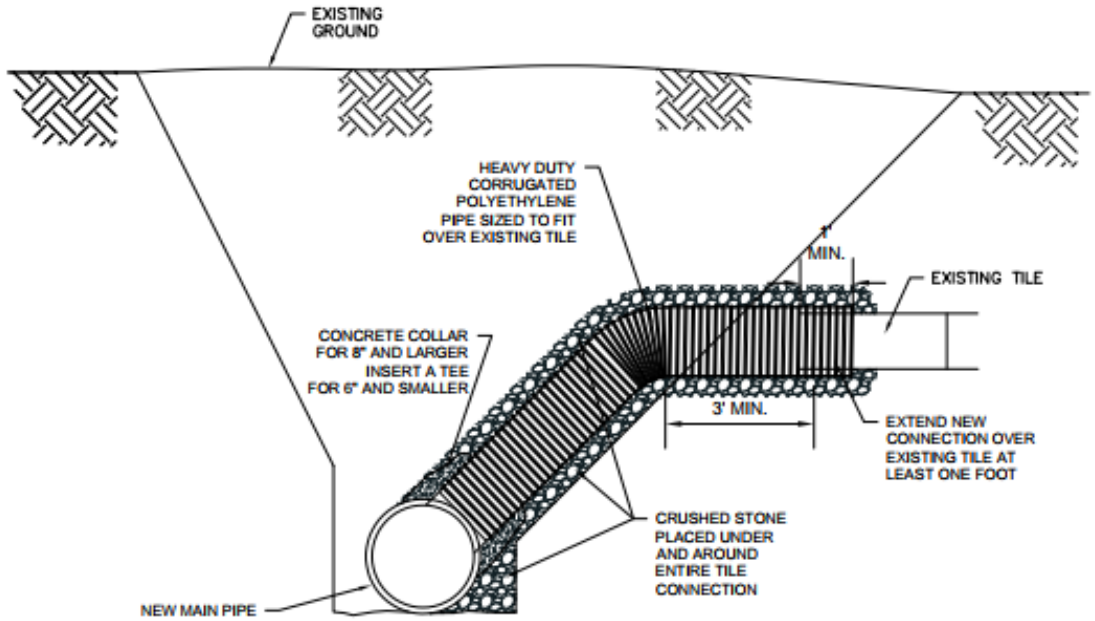
E. Keep interior of tile clean and free of dirt.

F. Plug pipe at the end of each day's work.

G. Use no defective pipe, and check for defects and hairline cracks prior to lowering into trench.

H. **The Contractor shall provide the Engineer with a photograph of each tile connection before it is backfilled with an accurate description of the location of the photograph. The Contractor shall provide the Engineer with the GPS location of each tile connection and the size and material type of each tile connected. Failure to comply with these requirements will result in the Contractor being required to expose the connection(s) for field verification purposes, at their expense.**

DD–12



TYPICAL TILE CONNECTION

INSTALL PIPE USED FOR TILE CONNECTION ON UNDISTURBED SOIL OR CRUSHED STONE.

JACOBSON–WESTERGARD & ASSOCIATES, INC.
105 SOUTH SIXTH ST. ESTHERVILLE, IOWA

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

A. This sections covers construction of intakes and drainage structures to collect surface water and facilitate maintenance for storm sewers. Includes manholes, catch basins, intakes, flap gates, junction boxes, etc.

B. Do work in accordance with best present-day installation and construction practices.

1.2 RELATED WORK SPECIFIED ELSEWHERE

Section 2100 Erosion Control
Section 2731 Storm Sewers and Culverts

1.3 MEASUREMENT AND PAYMENT

Structures will be measured and paid for as a complete unit for each structure installed. Unit prices shall include excavation, bedding, structure, backfill, castings, piping tie-ins, concrete fillets, casting, adjustment rings and adjustments to proper grades.

PART 2 PRODUCTS

2.1 MATERIALS

A. Cast-in-Place Concrete: Class C IDOT Sec. 2403. Minimum compressive strength, 3000 psi.

B. Cement Mortar: 1 part Portland cement to 2 parts sand.

C. Reinforcing Steel: Deformed bars meeting ASTM A615, grade 40

D. Formwork: Construction-grade plywood or styrofoam (Liteform Systems) forming systems, or equal.

E. Granular Backfill: Pit run gravel free of material larger than 2 inches in diameter.

F. Precast Structures: Meeting standard IDOT details.

G. Grates and Covers: Cast iron meeting service required. For specific make and model, refer to standard details or plans.

H. Flap Gates: Shall be heavy-duty with circular opening and double-hinged. Top pivot points shall be adjustable. The seat shall be one-piece cast or ductile iron with raised section around the perimeter of the waterway opening to provide the seating face. The seating face of the seat shall be cast or ductile iron. The cover shall be one-piece cast or ductile iron with necessary reinforcing rib, lifting eye for manual operation, and bosses to provide a pivot point connection with the links. The seating face of the cover shall be cast or ductile iron. Links or hinge arms shall be cast or ductile iron. Holes of pivot points shall be bronze bushed. All fasteners shall be either galvanized steel, bronze or stainless steel.

2.2 SUBMITTALS

A. Contractor shall submit five (5) copies of manufacturer's shop drawings of intakes & structures

B. Drawings shall include all sizes, elevations and orientations for Engineer to adequately review.

C. Submit shop drawings for grates, castings, covers, etc.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install structures as shown on standard detail sheets or with Engineer's approval, by manufacturer instructions.

B. Shape and contour finish surface to pipe inlets.

C. Follow IDOT Sec. 2403 for cast-in-place concrete.

D. Tolerance shall be limited to 0.02 feet in vertical alignment.

E. Place granular backfill where directed by the Engineer.

F. Compact all backfill to top of structure to 95 percent of Standard Density or to satisfaction of Engineer.

G. Use of concrete block is not allowed for storm sewer box construction.

H. Place sediment and erosion control measures around all intakes and pipe inlets.

I. Connect dissimilar pipes with manufactured adapters or collars if available. If not available use a concrete collar as shown in SUDAS SW-211 (Figure 4020.211).

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

A. Includes the requirements for open ditch, road ditch, and urban seeding.

1.2 SUBMITTALS

A. Seed: submit seed tags for all seeds, specifying the purity and germination.

B. Fertilizer: submit fertilizer analysis label or bill of lading with scale weight and statement of guaranteed analysis.

1.3 MEASUREMENT AND PAYMENT

A. Open Ditch Seeding and Fertilizing: Payment will be made per 100 linear foot station (STA) as measured along the centerline of the open ditch in the extent of the work area.

B. Road Ditch Seeding and Fertilizing: If not listed as a separate bid item this is incidental to the work. If a bid item is included in the proposal, payment will be made either per each road crossing for the project, or as a lump sum payment. For a lump sum unit price, partial payment may be considered as the project progresses.

C. Urban Seeding & Fertilizing: Seeding shall be measured and paid for in acres as measured by the Engineer. Unit price shall include prep work, mulching, seeding, fertilizing and watering.

PART 2 PRODUCTS

2.1 MATERIALS

A. Open Ditch Seed Mixture:	Perennial Ryegrass	50 lbs/acre
	Oats	50 lbs/acre
	Brome Grass	37 lbs/acre
B. Ditch Native Grass Mix:	Canada Wildrye	3 lbs/acre
	Big Bluestem	3 lbs/acre
	Side-oats Grama	5 lbs/acre
	Switchgrass	3 lbs/acre
	Indian grass	4 lbs/acre
	Little Bluestem	3 lbs/acre
	Oats (Apr 1 – Jun 30)	32 lbs/acre
	Winter Wheat (Nov 1 – Mar 31)	25 lbs/acre
C. Rural Seed Mixture:	Fescue, KY 31	25 lbs/acre
	Perennial Ryegrass	15 lbs/acre
	Oats	5 lbs/acre
	Switchgrass	3 lbs/acre
	Birdsfoot Trefoil	5 lbs/acre
D. Urban Seed Mixture:	Kentucky Bluegrass	195 lbs/acre
	Perennial Ryegrass	40 lbs/acre
	Fescue, Creeping Red	25 lbs/acre

E. Fertilizer:
   1. Open Ditch Seeding – 250 lbs. per acre; 13-13-13 or equivalent
   2. No fertilizer required for native grass mix
   3. Rural Seeding – 300 lbs. per acre; 6-24-24 or equivalent
   4. Urban Seeding – 300 lbs. per acre; 6-24-24 or equivalent

F. Mulch: IDOT Section 2601. Any areas to be mulched shall be at a rate of 3000 lbs./acre

PART 3 EXECUTION

3.1 INSTALLATION

A. Open Ditch Seeding & Fertilizing:
   Spread on disturbed inside slopes as soon as practical following excavation, while the exposed bank is still wet, so that the placed materials will adhere.

   2. Unless hydroseeding, or as otherwise approved by the Engineer, seeding shall take place daily from March 15 – October 15.

   3. Seed may be broadcast from the top of bank, but the method of application must be approved by Engineer.

B. Rural and Urban Seeding & Fertilizing:

   1. Prepare seeding bed as per IDOT Sec. 2601.03(B).

   2. If using a hydraulic seeder, apply fertilizer in combination with seeding at the specified rates. Add 50 lbs of wood cellulose fiber for each 500 gallons of water in hydraulic seeder tank.

   3. Apply fertilizer at the specified rate, using a mechanical spreader. Disc, then roll, harrow, or rake area prior to application of seed.

   4. Furnish and spread seed at the specified rate.

   5. Normal seeding periods shall be March 1 through May 31 and August 10 through September 30. Deviation from these seeding periods will be considered by the Engineer upon written request from the Contractor.

   6. Seed all disturbed areas requiring re-seeding with rural seed mixture except residential type lawns shall be urban mixture.

   7. For urban seeding, mulch all seeded areas in accordance with IDOT Sec. 2601.03(E). Mulch is not required for rural seeding & fertilizing.

   8. Install silt fencing as shown on the drawings or as directed by the Engineer.

   9. Contractor shall regrade and reseed disturbed or unestablished turf areas.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

This section covers the requirements for furnishing and installing rock or granular surfacing for new road construction or repair of road and driveways after construction.

1.2 MEASUREMENT AND PAYMENT

A. Granular, Gravel, Crushed Stone and Rock Surfacing will be measured and paid for in tons based on scale tickets supplied with the material. Payment will be for only material authorized and approved by Engineer. Unit price shall include material, trucking, placement, compaction and grading.

PART 2 PRODUCTS

2.1 MATERIALS

A. Crushed Stone: 100% crushed material with 100% passing the 2" sieve, 50%-80% passing the ¾" sieve and 0%-15% passing the No. 8 sieve. For repair work material shall match existing material, i.e. gravel, limestone, quartzite, etc.

B. Class "C" Gravel: ¾" gravel meeting IDOT Section 4120.03.

C. Pea Gravel: IDOT Section 4131 Gradation 29.

D. Macadam Stone: As specified for trench stabilization material Section 2210.

PART 3 EXECUTION

3.1 INSTALLATION

A. Remove, stockpile and replace existing material as practical.

B. Match existing surface materials as close as possible.

1. Compact existing soils and new roadway fill to 95% of Standard Proctor Density. Fine grade subgrade to within 0.05 feet tolerance as applicable.

2. Furnish, place, spread and compact a uniform layer of material to thickness as shown on plans.

3. Provide extra moisture or dry as necessary prior to compaction.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

A. The work involves removing and replacing all fencing necessary to complete the project.

1.2 MEASUREMENT AND PAYMENT

A. Fence removal will be measured and paid based on either linear feet of fence removed, or per each fence crossing.

PART 2 PRODUCTS

2.1 MATERIALS

None

PART 3 EXECUTION

3.1 REMOVAL

A. Existing fence that interferes with the work are to be removed to the width necessary to complete the project. Fencing is to be removed in a manner such that the fence can be reinstalled upon completion of work in the fenced area. Fence damaged due to contractor negligence will be replaced with new fence of the same type at the contractor's expense.

3.2 REPLACEMENT

A. Fence is to be re-installed to its pre-project location and condition.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

A. This section covers the requirements for materials to furnish and install all pipe, fittings, structures and accessories required for moving existing utility mains and services out of the way of new storm, sanitary sewer, water main or other construction to be installed as specified or shown on the plans.

B. Before installation of new facilities, verify sizes, measurements, type and location of existing piping and appurtenances at points of connection to existing system.

C. Make necessary field measurements to determine piping laying lengths; work pipe into place without forcing or springing.

D. Do work in accordance with best present-day installation and construction practices.

1.2 RELATED WORK SPECIFIED ELSEWHERE

Section 2210 Excavation, Backfilling & Compaction

Section 2115 Exploratory Excavation

PART 2 PRODUCTS

2.1 MATERIALS

A. Ductile Iron Pipe (water main):

1. AWWA C151, Class 52, unless specified otherwise

B. PVC C900 or C909 (water main or sanitary sewer main)

C. PVC SCH40 (sanitary sewer service lines):

1. ASTM D2665

2. Joints and Fittings, solvent weld

D. Copper Pipe (water service lines): ASTM B88, Type K, annealed
E. Fittings: AWWA C153 compact, restrained, mechanical joint for water main.
F. Repair Sleeves: Clow Band-Seal or approved equal meeting ASTM C-594
G. Coupling: “Dresser” style coupling with gaskets to suit pipe encountered.
H. Concrete: IDOT Section 2301, Class B Mix or solid concrete block as directed by the Engineer.
I. Field Tile:
   1. PVC Plastic, ASTM C900, Class 150. Use Fernco rubber adapters as necessary.
   2. HDPE, Heavy Duty, perforated with connecting bands.

PART 3 EXECUTION

3.1 PIPE INSTALLATION

A. Ductile Iron Pipe: AWWA C600

B. PVC C900 or C909: ASTM D2321

C. PVC SCH 40 Pipe: ASTM D2774

D. Minimum depth to top of water line pipe: 6.0 feet or as directed by the Engineer.

E. The width of the trench shall be ample to permit the pipe to be laid and joined properly but should be no more than 12 inches on either side of the pipe.

F. Lay pipe in the dry and thoroughly compact backfill.

G. Clean pipe interior of foreign material before lowering into trench; keep clean at all times by securely closing open ends of pipe and fittings with watertight plug to prevent ingress of foreign material at all times when pipe jointing operation is not in progress. If water is in the trench, the seal shall remain in place until the trench is pumped dry.

H. Place in trench in sound, undamaged conditions. Do not injure pipe coating or lining. Do not use end hooks to install or move pipe.

I. Cut pipe in neat and workmanlike manner without damage to pipe; mechanical pipe cutters subject to approval of Engineer; bevel cut ends of push-on type pipe.

J. Before installation, visually inspect for cracks or defects; damaged or unsound pipe will be rejected.

K. Deflect pipe joints, as shown on plans, in accordance with pipe manufacturer's recommendations.

L. Plug or cap and block all pipe ends or fittings left for future connections.

M. Uncover existing mains a sufficient time ahead of pipe laying operations to determine fittings required to make connections; make connections between existing and new water mains with specials and fittings as required.

3.2 WATER MAIN AND SERVICE LOWERING OR RAISING WITH ELBOWS OR PIPE EXTENSIONS

A. Locate valves and shut off line.

B. Cut and install necessary elbows, pipe restrained fitting and thrust blocks.

C. Provide a minimum of two inch clearance between water line and storm sewers.

D. Refer to water main or sanitary sewer specifications for clearances.

E. Maintain uniform, thoroughly compacted trench bottom to support piping.

F. Secure pipe and return pressure to the line and inspect all joints for leaks before completion of backfilling and compaction.

E. Backfill with granular material if directed by the Engineer.

H. Use 45° elbows on mains 4" and larger.

3.3 SEWER SERVICE LINE RECONSTRUCTION

A. Where sewer service lines cannot be supported across the proposed storm sewer trench, the lines may be temporarily removed and reconstructed. Keep length to be replaced to a minimum.

B. Prevent service lines from being plugged during construction.

C. Backfill and compact sewer trench to maximum density under all sewer services. Use granular material if directed by the Engineer.

D. Cut pipe and place watertight repair sleeve on firm, undisturbed soil. Contractor may use PVC or DIP across sewer trench.

E. Backfill and compact granular material around sewer repair to 24" above pipe with hand tamper.

F. Complete backfilling and compaction as directed by the Engineer.

G. Reference sewer repair location and depth for future location.

3.4 SANITARY SEWER SERVICE RECONSTRUCTION

A. Relocate existing sanitary sewer services that conflict with new storm and sanitary sewer installations. Existing services located within a conflict zone from 6 inches below the bottom of the proposed sewer pipe to 2 inches above the top of the proposed sewer pipe require relocation.

B. When a conflicting service is encountered.

1. Determine grades and elevations of the existing service and proposed main.

2. Determine the extent of service replacement necessary to relocate the service outside of the conflict zone while maintaining a minimum 1% slope on the sewer service.

3. It is not feasible to maintain a minimum slope of 1% on the relocated service, a special design and additional work may be required. Stop work and contact the Engineer. Do not remove sewer service unless directed by the Engineer.

4. If service relocation with a minimum slope of 1% is feasible, proceed with removal and replacement of the existing sanitary sewer service.

   a. Length of replacement varies. Remove the existing service to the extent necessary to move the service out of the conflict zone.

   b. Use all new materials complying with IDOT Section 4149.

   c. Re-install the service according to IDOT Section 4149.

   d. Maintain a minimum 1% grade no relocated service.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

A. This section covers the materials to furnish and install all pipe, fittings, and accessories required for storm sewer and culvert construction as shown on plans and/or specified herein.

B. Before installation of new storm sewer facilities, verify sizes, measurements, type and location of existing piping and appurtenances at points of connection to existing system.

C. Do work in accordance with best present-day installation and construction practices.

1.2 MEASUREMENT AND PAYMENT

A. Storm sewer piping and culverts will be measured and paid for in actual lineal feet of piping installed as measured from center of intake to end of line. Lengths of elbows and tees will be included in the length of pipe measured for payment. Unit prices shall include excavation; furnishing and installing pipe; elbows; furnishing, placing & compaction of bedding and backfill; joint wrapping; pipe joints, including joint sealing if required; and testing and inspection.

B. R.C.P. aprons will be paid per each, and include furnishing and installing the apron, animal guard, and tying together the first two concrete pipe sections and the apron together with two pipe connections per joint. Comply with IDOT DR-121. Also includes installation of dissipator blocks. Also includes 8 tons of Class D or E riprap to be placed at the outlet.

1.3 WORK BY OTHERS

Engineer will stake storm sewer construction for line and grade. Contractor shall coordinate with Engineer for staking preferences.

PART 2 PRODUCTS

2.1 MATERIALS

A. Storm Sewer Pipe: Reinforced concrete pipe (RCP), tongue and groove meeting ASTM C76, IDOT Sec. 4145. Pipe shall be manufactured by an IDOT Certified Facility.

1. Joint Sealer: IDOT Section 4149. Seal all joints of pipe under roads, drives and parking areas. Joint performance shall meet ASTM C443.

2. Joint Wrap: Meeting IDOT Section 4196.01, manufactured by Trevira or equal.

3. Joint Connections: IDOT Type 1, 2 or 3 as shown on plans. Refer to IDOT Standard Road Plan Detail RF-14.

B. Agricultural Storm Sewer Pipe: Polypropylene, PP.

1. Dual wall pipe shall have smooth interior and annular exterior corrugations meeting ASTM F2736 and AASHTO M330.
2. Joints shall be gasketed integral bell and spigot meeting requirements of ASTM F2306.
3. Perforated pipe locations shall be noted on plans and perforations shall be in accordance with AASHTO M330.

4. Fittings shall conform to ASTM F2306 and AASHTO M330, for the respective diameters. Bell and spigot connections shall utilize a spun on, welded or integral bell and spigot with gaskets meeting ASTM F477. Fittings and connections shall provide a watertight connection according to the requirements of ASTM D3212. Fittings shall be encased with a minimum of 12 inches of 1½" rock.

5. Connections of private tile lines shall use inserta-tee and be encased in rock. (See detail)

C. Agricultural Storm Sewer Pipe: Dual Wall – HDPE

1. Dual wall pipe shall have smooth interior and annular exterior corrugations meeting ASTM 2648 and AASHTO M252 and AASHTO M294.

2. Joints shall be gasketed integral bell and spigot meeting requirements of ASTM F2648.

3. Perforated pipe locations shall be noted on plans and perforations shall be in accordance with AASHTO M330.

4. Fittings shall conform to ASTM F2306 and AASHTO M252 (4-10 inch) and AASHTO M294 (12-60 inch), for respective diameters. Bell and spigot connections shall utilize a spun on or welded bell and valley or saddle gasket meeting the watertight joint performance requirements of ASTM F2306. Fittings and connections shall provide a watertight connection according to the requirements of ASTM D3212. Fittings shall be encased with a minimum of 12 inches of 1½" rock.

D. Culverts:

1. R.C.P. as specified for storm sewer pipe above.

2. Polypropylene pipe as specified for storm sewer pipe above.

3. Corrugated Metal Pipe (CMP):
   a. Pipe: ASTM A444, 2 2/3" x 1/2" annular corrugations

   b. Seams: Riveted (rivets ASTM A31) or Welded (AASHTO M-16)

   c. Connecting Bands: 12" wide, ASTM A307, Grade A

E. Aprons:

1. RCP – IDOT Type 2 Standard Road Plan RF-3.

2. CMP – IDOT Standard Road Plan RF-5

F. Trench Stabilization Material: 2" coarse, sharp and clean crushed stone or other material as approved.

G. Pipe Bedding: Class 1 material (1 ½ inch crushed stone)

H. Granular Pipe Backfill: IDOT Sec. 4133, Class "C" Gravel or pit run sand as approved by Engineer for R.C.P.

I. Engineering Fabric: Meeting IDOT Section 4196.01, manufactured by Trevira or equal.

J. Rip Rap: See Section 2732.

PART 3 EXECUTION

3.1 INSTALLATION

A. Reinforced Concrete Pipe

1. Follow IDOT Section 2503 for installation of reinforced concrete pipe (R.C.P.).

2. For a shaped trench, contractor is to utilize a “spoon” to shape the trench bottom such that a minimum of 45% of the outer circumference of the pipe is firmly bedded in undisturbed soil. Pipe bedding rock is not required to be used unless otherwise required or approved. Where soil conditions do not allow for a stable shaped trench, a flat bottom trench will be required.

3. Where soil is unsuitable for a shaped trench as determined or approved by the engineer, the pipe bedding rock as required by the engineer, if any, used in the flat-bottom trench will be paid separately. Where a shaped trench is feasible and the contractor elects to use a flat-bottom trench, the pipe bedding rock used is incidental to the pipe bid item.

4. Subgrade shall be firm so that the pipe rests and bears uniformly along its length. If unsuitable subgrade conditions are encountered, Engineer may authorize use of trench stabilization material.

5. Place each pipe to line and grade with closed joints.

6. Apply joint sealer to all R.C.P. pipe under roadway, drives and parking areas and where shown on plans.

7. Tie pipe sections and aprons as shown or specified.

8. All R.C.P. interior pipe joints with an installed gap greater than one inch (1”) shall be hand-grouted from the inside using non-shrink grout.

9. Connect dissimilar pipes with manufactured adaptors or couplings if available. If not available, use a concrete collar as shown in SUDAS Figure 4020.211. Also may use MarMac DP Couplers, or pre-approved equal.

10. All joints shall be completely covered on the outside with engineering fabric consistent with IDOT SW-211 detail.

11. Work in and tamp haunching material in the area between the bedding and the underside of the pipe before placing and compacting the remainder of the embedment in the pipe zone.

12. Embedment material and foundation shall not be disturbed when using movable trench wall supports or removing trench wall supports.

B. Polypropylene Pipe/Dual Wall HDPE

1. Shall be in accordance with AASHTO M 294.

2. For a flat-bottom trench, all HDPE and Polypropylene Pipe shall have Class I – material from a minimum of 4” below the pipe to 6” above the top of pipe, per ASTM D2321. Class I – Crushed Stone required is incidental to the pipe bid item. Class 1 material shall be placed in 8 inch lifts and compacted/densified until no further densification is visible.

3. Minimum spacing for parallel pipe installations shall not be less than half of the pipe diameter for pipes larger than 24” and not less than 12” for pipe diameters 24” and smaller; unless approved by Engineer.

4. Pipe shall not be installed in standing or running water. At all times prevent runoff and surface water from entering the trench.

5. Work in and tamp haunching material in the area between the bedding and the underside of the pipe and between corrugations before placing and compacting the remainder of the embedment in the pipe zone. Lack of adequate compaction of embedment material in haunch zone can result in excessive deflection.

6. Embedment material and foundation shall not be disturbed when using movable trench wall supports or removing trench wall supports.

3.2 TRENCH WIDTH

A. Reinforced Concrete Pipe

1. Keep width of trench as narrow as possible within the pipe envelope. The maximum trench widths for the various pipes from 12” above the top of the pipe to the bottom of the trench shall be as follows (modified from IDOT SW-102):

Pipe Size	Maximum Trench Width
12”	No Max Trench Width
15”	No Max Trench Width
18”	No Max Trench Width
24”	54”
30”	54”
36”	60”
42”	64”
48”	72”
54”	80”

2. There shall be a minimum of 9” clearance between the trench wall and pipe.

B. Polypropylene Pipe/Dual Wall HDPE

1. For rectangular trench the minimum trench width shall be no less than the greater of either the pipe OD +16” or the pipe (OD x 1.25) + 12”. Trench width shall not be greater than necessary to ensure working room to properly and safely place and compact haunching and other embedment materials.

	ASTM D2321
Pipe Size	Minimum Trench Width (inch)
12”	30”
15”	34”
18”	39”
24”	47”
30”	56”
36”	64”
42”	72”
48”	80”
60”	95”

2. If trench is in unsupported, unstable soils, then width will depend on size and stiffness of pipe, stiffness of embedment and in-situ soil and depth of cover. Consult with Engineer.

3.3 DEFLECTION TESTING (Polypropylene & Dual Wall HDPE Pipe)

A. All PPP/HDPE > 12" in diameter must be tested by video inspection, or mandrel.

B. Maximum deflection is 5% of the nominal inside diameter.

C. Any other testing method must be approved by the Engineer.

D. Repair and retest any failing pipe to satisfaction of the Engineer. Re-rounders shall not be utilized for correcting excess deflection.

END OF SECTION

Refer to the contract documents for specific material and placement requirements.

(1) Required only when specified in the contract documents or when directed by the Engineer.

Key

OD = Outside diameter of pipe

D = Inside diameter of pipe

TW = Trench width at top of pipe

d = Depth of bedding material below pipe

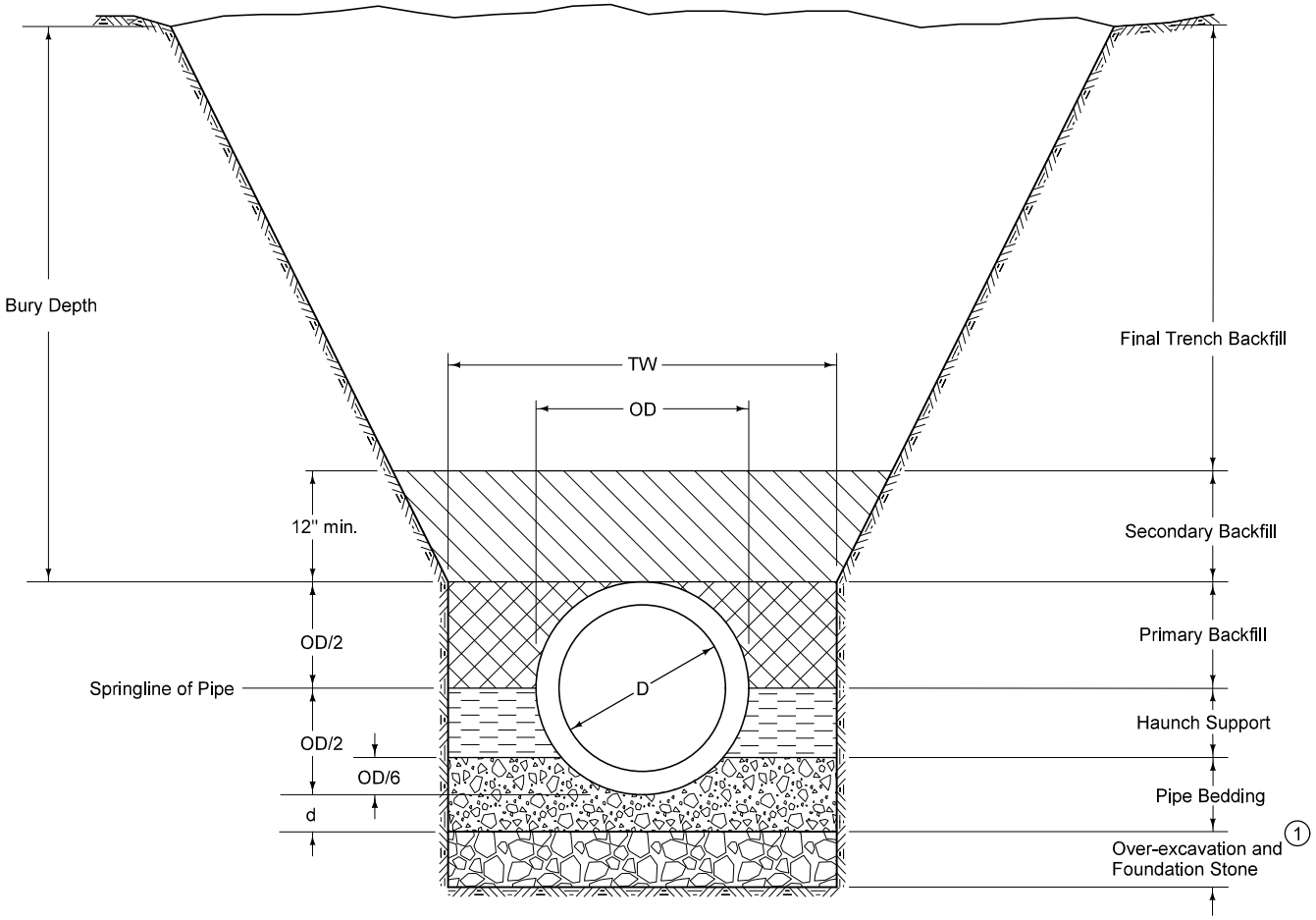


FIGURE 3010.101 SHEET 1 OF 1

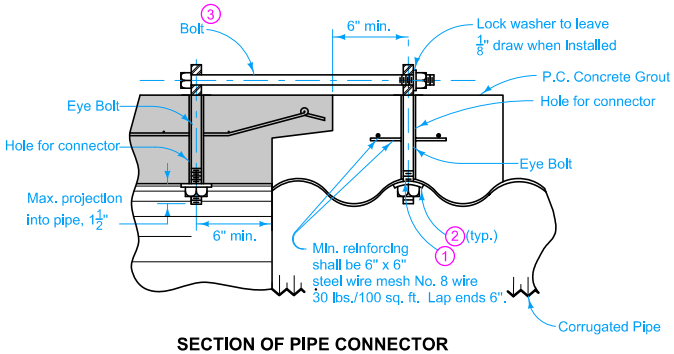
SUDAS | IOWADOT | REVISION 1 04-17-18

FIGURE 3010.101 | STANDARD ROAD PLAN | SW-101 | SHEET 1 of 1

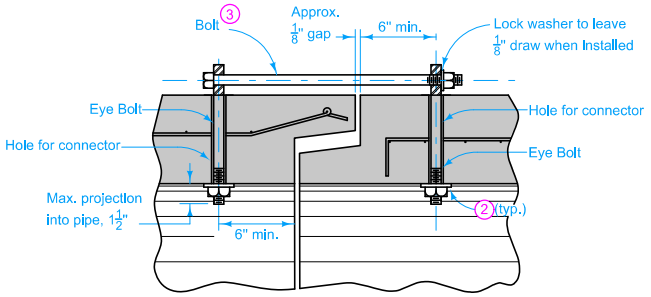
REVISIONS: Replaced Iowa DOT and SUDAS logos.

Paul D. Wigand, SUDAS DIRECTOR — Brian Smith, DESIGN METHODS ENGINEER

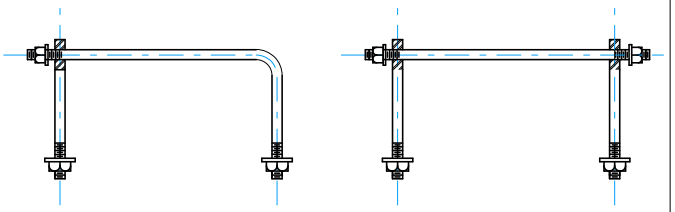
TRENCH BEDDING AND BACKFILL ZONES



SECTION OF PIPE CONNECTOR
(Concrete Pipe to Corrugated Pipe)

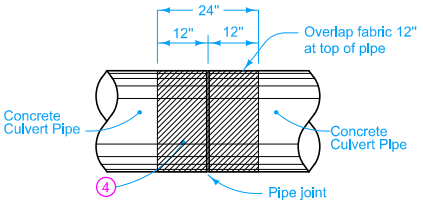


SECTION OF PIPE CONNECTOR
(Concrete Pipe to Concrete Pipe)



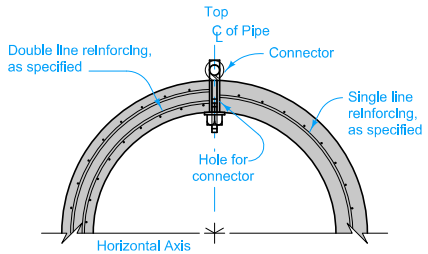
ONE BEND END **THREADED AT BOTH ENDS**

OPTIONAL BOLTS/CONNECTORS

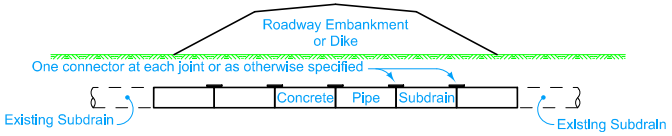


PIPE JOINT WRAPPING

PIPE SIZE (In)	CONNECTOR AND BOLT SIZE (in.)	HOLE FOR CONNECTOR (In.)
12 to 27	5/8	7/8
30 to 60	3/4	1.0
66 to 132	1.0	1 1/4



TYPICAL SECTION
(Non-Sealed Joint)



TYPICAL INSTALLATION

TYPE 1 CONNECTION

Wrap all joints on concrete roadway pipe culverts.

Use Type 3 Connections on all culvert pipes, unless specified otherwise. Refer to Materials I.M. 445.01 for Connector requirements.

Minimum 2 threads showing at all threaded ends.

Connections not required on pipe sections installed by trenchless methods.

For belled concrete pipe joints, connectors may be installed on the inside of the pipe.

TYPE 1

One connector at the top of the pipe section.

TYPE 2 (Sealed Joint)

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required. Refer to Materials I.M. 491.09 for seal requirements.

TYPE 3 (Non - Sealed Joint)

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required.

(1) If holes are field drilled, place a ribbon of butyl sealant around bolts before placing 3 in. x 3 in. x 1/4 in. plate on bolts through corrugated metal pipe and tightening nuts.

(2) 1 3/4 inch round x 9/64 inch thick washer or 3 in. x 3 in. x 1/4 in. square plate (shaped to pipe radius).

(3) Connectors with One Bend End and Bell End spacers allowed per Materials I.M. 451. Refer to Optional Bolts detail.

(4) Engineering fabric for embankment erosion control.

Possible Tabulations:
104-3
104-5B

IOWA DOT

STANDARD ROAD PLAN

REVISION	
3	10-17-17

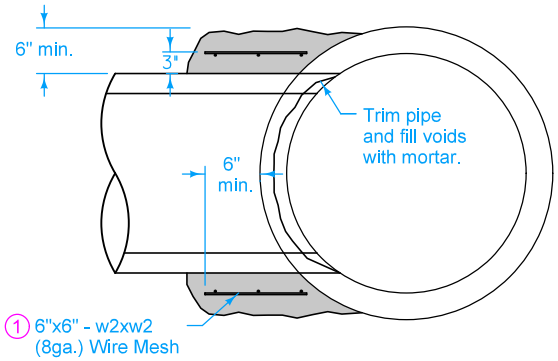
DR-121

SHEET 1 of 2

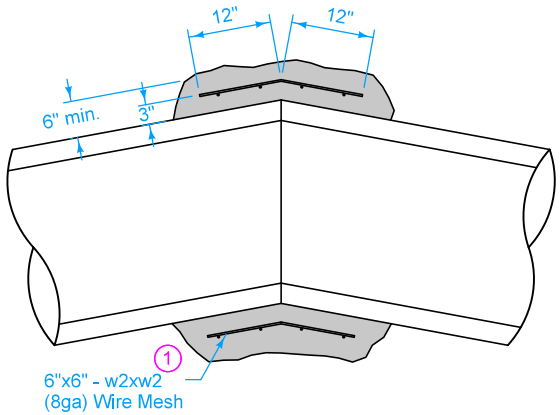
REVISIONS: Added 104-5B to Possible Tabulations. Added Type 3 connection to storm sewer outlet.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

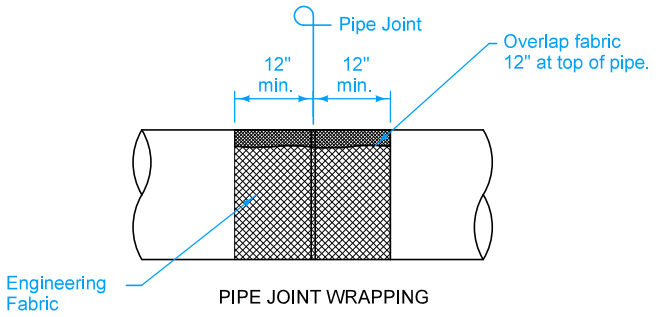
CONNECTED PIPE JOINTS



TYPE PC-1 CONCRETE COLLAR CONNECTION

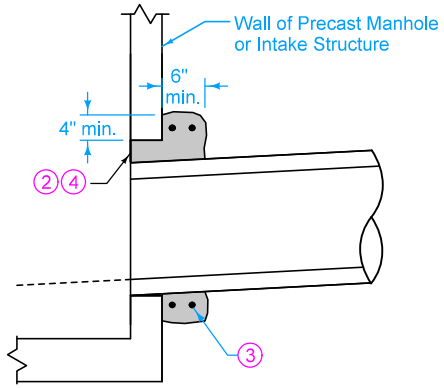


TYPE PC-2 CONCRETE COLLAR CONNECTION

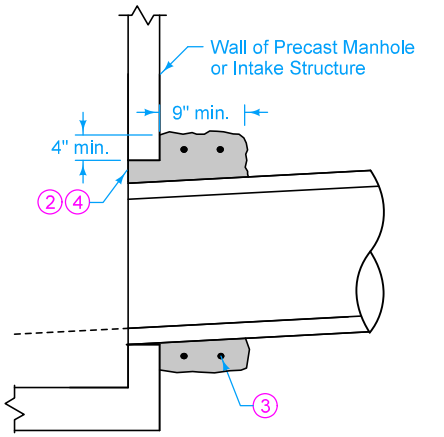


PIPE JOINT WRAPPING

PIPE TO PIPE CONNECTION



CONCRETE COLLAR FOR PIPES 12" AND SMALLER



CONCRETE COLLAR FOR PIPES GREATER THAN 12"

PIPE TO STRUCTURE CONNECTION

1. Lap ends of wire mesh a minimum of 6 inches.
2. Concrete collar is required when annular space between the outside of the pipe and the wall of the structure is 2 inches or greater.
3. Provide two #4 hoop bars in concrete collar. Lap bars a minimum of 6 inches.
4. Trowel concrete flush with inside wall of structure.

SUDAS | IOWADOT

REVISION 2 04-17-18

FIGURE 4020.211 | STANDARD ROAD PLAN

SW-211

SHEET 1 of 1

REVISIONS: Removed 'Invert' callout on Pipe to Structure View. Redrawn and replaced old Iowa DOT and SUDAS logos with new logos.

Paul D. Wigand
SUDAS DIRECTOR

Brian Smith
DESIGN METHODS ENGINEER

STORM SEWER PIPE CONNECTIONS

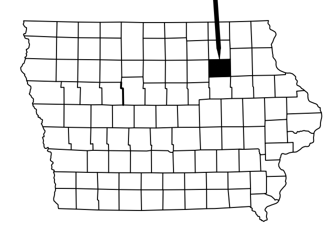
FIGURE 4020.211 | SHEET 1 OF 1

2024

DRAINAGE DISTRICT No. 5

MAIN TILE IMPROVEMENT/RE-ROUTE

Bremer County, Iowa



BOARD OF SUPERVISORS:

Ken Kammeyer
Corey Cerwinske
Duane Hildebrandt

Shelley Wolf, Auditor
Jennifer Bremner, Drainage Administrator

IOWA ONE CALL
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www.iowaonecall.com
811 Know what's below. Call before you dig.

INDEX OF SHEETS

SHEET A.01 - TITLE
SHEET A.02 - LANDOWNER PLAT & ALIGNMENT GEOMETRY
SHEET C.01 - NOTES & TABLES
SHEET C.02 - ESTIMATE REFERENCE & QUANTITIES
SHEET D.01 - D.03 - PLAN & PROFILE - MAIN TILE IMPROVEMENT
SHEET D.04 - D.06 - PLAN & PROFILE - MAIN TILE REPLACEMENT

LICENSED PROFESSIONAL ENGINEER
COLLIN J. KLINGBEIL
24741
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

_______________________________ Date __________

Collin J. Klingbeil, P.E.
License number 24741
My license renewal date is December 31, 2025

PROJECT DATUM: NAD 1983 UTM ZONE 15N & NAVD 88

JACOBSON–WESTERGARD & ASSOCIATES, INC.
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Web Site: www.jacobson–westergard.com
CONSULTING ENGINEERS LAND SURVEYING

REVISIONS	BY	DATE

DRAINAGE DISTRICT No. 5
MAIN TILE IMPROVEMENT/RE-ROUTE
BREMER COUNTY, IOWA

TITLE SHEET

Date 4/18/24
Designer CJK
Draftsman CJK
Checker CJK

Project Number E22159

Sheet A.01

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240TH ST

240TH ST

APPROX. LOCATION OF 3" DIA. NATURAL GAS PIPELINE

LAU, DAWN M
NW NE EX RR
SEC. 16–91–12

LAU, DAWN M
NE NE EX RR
SEC. 16–91–12

GROBER, THOMAS
W $\frac{2}{3}$ NW NW
SEC. 15–91–12

HESSE'S D&H FARM INC.
NE NW
SEC. 15–91–12

203
988.671
CP-5/8 REBAR
N: 15509891.8400
E: 1839667.0200

LAU, DAWN M
N $\frac{1}{2}$ SE NE
SEC. 16–91–12

LAU, DAWN M
SW NE
SEC. 16–91–12

GROBER, THOMAS
W $\frac{2}{3}$ SW NW
SEC. 15–91–12

HESSE'S D&H FARM INC.
SE NW
SEC. 15–91–12

GROBER, THOMAS
S $\frac{1}{2}$ SE NE
SEC. 16–91–12

END MAIN TILE RE-ROUTE & CRUSH AND REPLACE

BEGIN MAIN TILE CRUSH AND REPLACE

15

14

GAS

GAS

SUBMAIN

SUBMAIN

BEGIN MAIN TILE RE-ROUTE

STROTTMANN, LARRY & CAROL
NW SE
SEC. 16–91–12

STROTTMANN, LARRY & CAROL
NE SE EXC PARCEL A
SEC. 16–91–12

BRUNS, NADEAN
NW SW
SEC. 15–91–12

PIEDMONT AVE

N

Drainage District No. 5 Main Tile Improvement/Re-Route Alignment Geometry

No.	Type	Length	Start Station	End Station	Start Northing, Easting	End Northing, Easting
1	Line	400.00'	0+00.00	4+00.00	N15508067.6803', E1837402.7162'	N15508198.2901', E1837780.7917'
2	Line	600.00'	4+00.00	10+00.00	N15508198.2901', E1837780.7917'	N15508595.8621', E1838230.1652'
3	Line	500.00'	10+00.00	15+00.00	N15508595.8621', E1838230.1652'	N15508799.8925', E1838686.6425'
4	Line	946.83'	15+00.00	24+46.83	N15508799.8925', E1838686.6425'	N15509371.8895', E1839441.1665'
5	Line	371.90'	24+46.83	28+18.73	N15509371.8895', E1839441.1665'	N15509720.1574', E1839571.6303'

ALIGNMENT GEOMETRY OF THE EXISTING MAIN TILE TO BE REPLACED IS NOT KNOWN TO SURVEY LEVEL QUALITY, AND IS THEREFORE NOT PROVIDED. SEVERAL POINTS WERE COLLECTED ALONG THE TILE AT LOCATIONS WHERE THE TILE IS EXPOSED. ALIGNMENT SHOWN IN THESE PLANS IS APPROXIMATE.

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E-MAIL: jwa@jacobson–westergard.com
Web Site: www.jacobson–westergard.com
CONSULTING ENGINEERS' LAND SURVEYING

REVISIONS	BY	DATE

DRAINAGE DISTRICT No. 5
MAIN TILE IMPROVEMENT/RE-ROUTE
BREMER COUNTY, IOWA

LANDOWNER PLAT
ALIGNMENT GEOMETRY

Date	Designer	Drafterman	Checker
4/18/24	CJK	CJK	CJK

Project Number
E22159

Sheet
A.02

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GENERAL CONSTRUCTION NOTES:

PLAN NOTES SUPERCEDE ANY CONFLICTS WITH SPECIFICATIONS

1. EXPLORATORY EXCAVATION WILL BE REQUIRED PRIOR TO BEGINNING CONSTRUCTION. DESIGN MAY CHANGE AS A RESULT.
2. CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A PHOTOGRAPH OF EACH TILE CONNECTION BEFORE IT IS BACKFILLED. AN ADEQUATE DESCRIPTION OF THE LOCATION OF THE PHOTOGRAPH SHALL BE INCLUDED. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH THE GPS LOCATION OF EACH TILE CONNECTION AND THE SIZE AND MATERIAL TYPE OF EACH TILE CONNECTED. FAILURE TO COMPLY WITH THESE REQUIREMENTS WILL RESULT IN THE CONTRACTOR BEING REQUIRED TO EXPOSE THE CONNECTION FOR FIELD VERIFICATION PURPOSES, AT CONTRACTOR'S EXPENSE.
3. TILE CONNECTION METHOD SHALL BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION. TILE CONNECTIONS FOR 8" AND LARGER TILE SHALL BE INSTALLED ACCORDING TO IDOT DETAIL SW-211, TYPE PC-1. SMALLER CONNECTIONS SHALL BE CORE DRILLED.
4. WORK LIMITS ARE GENERALLY SET AT **50 FEET** FROM CENTERLINE AND ARE SHOWN ON THE PLANS. PRIOR APPROVAL FROM THE ENGINEER IS REQUIRED TO GO OUTSIDE THE WORK AREAS SHOWN.
5. SAFETY AT THE JOBSITE IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR
6. ARRANGING FOR A STORAGE OR STAGING AREA OUTSIDE THE WORK LIMITS, IF NEEDED, SHALL BE ARRANGED FOR BY THE CONTRACTOR.
7. SEPARATING AND RETURNING TOPSOIL TO THE SURFACE IS REQUIRED AND IS INCIDENTAL TO THE WORK.
8. CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE-CALL AT 1-800-292-8989 AND TO COORDINATE WITH UTILITY COMPANIES AND THE ENGINEER IN MARKING, LOCATING, AND PROTECTING UTILITIES.
9. CONTRACTOR SHALL MAKE REASONABLE EFFORT TO LIMIT SOIL EROSION.

MAIN IMPROVEMENT/RE-ROUTE NOTES:

1. TYING FIRST THREE PIPES (TWO JOINTS) TOGETHER WITH TYPE 1 CONNECTION AS SHOWN IN IOWA DOT STANDARD ROAD PLAN DR-121 IS INCIDENTAL.
2. FIRST 500 LF OF PIPE SHALL BE GASKETED.
3. TREE CLEARING AND GRUBBING IS REQUIRED AT THE OUTLET, TO WHATEVER IS NEEDED TO INSTALL THE PIPE AND ALSO A MINIMUM OF 20 FEET ON EITHER SIDE OF THE PIPE. ALL DEBRIS SHALL BE CLEANED UP AND DISPOSED OF. BURNING OF MATERIAL IS PERMITTED AS ALLOWED BY STATE LAW, AND STATE AND LOCAL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY BURN PERMIT. UNSUPERVISED FIRES SHALL NOT BE ALLOWED. DEBRIS MAY BE BURIED, AT A DEPTH OF AT LEAST 4 FEET BELOW FINISHED GRADE. SEEDING AND FERTILIZING DISTURBED AREA IS REQUIRED AND SUBSIDIARY.
4. PROPOSED TILE OUTLET IS LOCATED ON AN OUTSIDE BEND OF CRANE CREEK. TO PROTECT THE OUTLET FROM DAMAGES, THE TILE SHALL BE RECESSED INTO THE BANK. THE BANK SHALL BE SHAPED ACCORDINGLY, AND ARMORED WITH RIPRAP. BANK IS CURRENTLY LINED WITH BROKEN CONCRETE, WHICH IS TO BE REMOVED, AND REPLACED AND IS INCIDENTAL.
5. WE SUGGEST THAT ANY EXCESS EXCAVATED MATERIAL BE USED AS FILL FOR THE MAIN TILE REPLACEMENT PIPE. THE AMOUNT OF TOPSOIL MOVED TO THE MAIN TILE REPLACEMENT TRENCH SHALL BE MINIMIZED.
6. SUB-MAINS:
   - 6.1. 5" DIA. SINGLE-WALL CORRUGATED SUB-MAINS TO BE INSTALLED APPROXIMATELY AS SHOWN ON PLANS. GRADE TO BE DETERMINED IN COORDINATION WITH THE ENGINEER.
   - 6.2. SHALL BE INSTALLED NO CLOSER THAN 2 FEET TO THE 42" DIA. MAIN TILE.

Pipe Table - Main Tile Improvement

STA	Description	Length	Slope	FL OUT	FL IN
4+00 - 0+00	42" 2000D RCP	400	0.12%	975.49	975.00
10+00 - 4+00	42" 2000D RCP	600	0.12%	976.24	975.49
15+00 - 10+00	42" 2000D RCP	500	0.12%	976.85	976.24
24+47 - 15+00	42" 2000D RCP	947	0.12%	978.02	976.85
28+19 - 24+47	42" 2000D RCP	372	0.12%	978.48	978.02

Structure Table - Main Tile Improvement

Name	Description	Details
STRC 1 **STA 0+00**	BEGIN CONSTRUCTION 42" DIA. FLAP GATE TIE FIRST THREE PIPES RECESS OUTLET IN BANK RIPRAP BANKS	42" FL IN = 975.00
STRC 2 **STA 4+00**	FURNISH & INSTALL 22° RCP ELBOW	42" FL IN = 975.49 42" FL OUT = 975.49
STRC 3 **STA 10+00**	FURNISH & INSTALL 17° RCP ELBOW	42" FL IN = 976.24 42" FL OUT = 976.24
STRC 4 **STA 15+00**	FURNISH & INSTALL 13° ELBOW	42" FL IN = 976.85 42" FL OUT = 976.85
STRC 5 **STA 24+47**	FURNISH & INSTALL 32° ELBOW	42" FL IN = 978.02 42" FL OUT = 978.02
STRC 6 **STA 28+19**	FURNISH & INSTALL TWO 22° ELBOWS CONNECT TO EXISTING MAIN END CONSTRUCTION	42" FL OUT = 978.48

MAIN REMOVAL AND REPLACEMENT NOTES:

1. MAIN REMOVAL AND REPLACEMENT SHALL NOT BE COMPLETED UNTIL AFTER THE MAIN TILE IMPROVEMENT / RE-ROUTE IS COMPLETED AND IN OPERATION.
2. EXISTING MAIN TILE DOWNSTREAM FROM WHERE MAIN IMPROVEMENT / RE-ROUTE INTERCEPTS SHALL BE REMOVED AND DISPOSED OF. PIPE BECOMES THE PROPERTY OF THE CONTRACTOR, AND MUST BE DISPOSED OF OFFSITE (NOT IN THE TRENCH), OR AS OTHERWISE APPROVED BY THE ENGINEER. THE PIPE MATERIAL IS UNREINFORCED CONCRETE.
3. REPLACEMENT PIPE IS INTENDED TO BE PLACED AT APPROXIMATELY THE SAME ELEVATION AND GRADE OF THE BOTTOM OF THE EXISTING MAIN.
4. EVERY EFFORT SHOULD BE MADE TO MINIMIZE DISTURBANCE TO THE SOIL UNDER THE EXISTING MAIN. 3/4" CRUSHED ROCK UNDER THE PIPE IS TO BE USED AT THE DIRECTION OF THE ENGINEER TO ACHIEVE GRADE. IF OVERDUG BY THE CONTRACTOR, 3/4" CRUSHED ROCK REQUIRED TO BRING PIPE TO GRADE WILL BE INCIDENTAL.
5. AT THE OUTLET, THE REPLACEMENT DUAL-WALL PIPE SHALL BE CONNECTED TO THE EXISTING OUTLET STRUCTURE. METHOD OF CONNECTION MUST BE APPROVED BY THE ENGINEER.
6. IN ORDER TO FOLLOW THE ALIGNMENT OF THE EXISTING MAIN, A MAXIMUM OF 1.5 DEGREES OF DEFLECTION CAN BE APPLIED AT EACH JOINT. IF THIS IS NOT ADEQUATE, MANUFACTURED ELBOWS MAY BE USED AND ARE INCIDENTAL TO THE PIPE BID ITEM.

NATURAL GAS PIPELINE NOTES:

1. MAIN TILE REPLACEMENT INCLUDES A CROSSING OF A 3" DIA. NATURAL GAS LINE.
2. GAS LINE COMPANY: NORTHERN NATURAL GAS
3. CONTACT INFORMATION:
   - 3.1. JIM JOHNSON (JIM.JOHNSON@NNGCO.COM, 319-269-5005)
   - 3.2. TRACY KELLER (TRACY.KELLER@NNGCO.COM, 402-530-6632)
4. NORTHERN NATURAL GAS WILL BE ONSITE WHEN WORK IS BEING DONE WITHIN 25 FEET OF THE PIPELINE.
5. CONTRACTOR SHALL NOTIFY ENGINEER AND NORTHERN NATURAL GAS AT LEAST 48 HOURS PRIOR TO NEEDING EXCAVATION STANDBY.
6. HAND EXCAVATION IS REQUIRED WHEN EXCAVATING WITHIN 24 INCHES AROUND THE PIPELINE.
7. THE CONTRACTOR SHALL SUPPORT, SUSTAIN, AND PROTECT PIPELINE LOCATED UNDER, OVER, ALONG, ACROSS, OR ADJACENT TO THE WORK SITE. IF SUCH UTILITIES ARE DAMAGED THROUGH CONTRACTOR'S NEGLIGENCE, THEY WILL BE REPAIRED BY THE AGENCIES HAVING CONTROL OF SAME, BUT THE COST OF SUCH REPAIRS SHALL BE PAID BY THE CONTRACTOR.

Pipe Table - Main Tile Replacement

STA	Description	Length	Slope	FL OUT	FL IN
0+10 - 1+97	12" Corrugated HDPE Pipe	187	-0.08%	976.47	976.63
1+97 - 7+94	12" Corrugated HDPE Pipe	597	-0.06%	976.63	977.01
7+94 - 8+50	12" Corrugated HDPE Pipe	56	-0.04%	977.01	977.04
8+50 - 12+00	10" Corrugated HDPE Pipe	350	-0.09%	977.04	977.37
12+00 - 13+03	8" Corrugated HDPE Pipe	103	-0.08%	977.36	977.44
13+03 - 16+89	8" Corrugated HDPE Pipe	386	-0.13%	977.44	977.95
16+89 - 24+90	8" Corrugated HDPE Pipe	801	-0.13%	977.95	979.02

Structure Table - Main Tile Replacement

Name	Description	Details
STRC 7 **STA 0+10**	BEGIN REPLACEMENT MAIN CONNECT TO EXISTING 36" DIA. TILE APPROX. 10 FT FROM OUTLET STRUCTURE	12" FL OUT = 976.47
STRC 8 **STA 8+50**	FURNISH & INSTALL 12" TO 10" DIA. REDUCER	12" FL IN = 977.04 10" FL OUT = 977.04
STRC 9 **STA 12+00**	FURNISH & INSTALL 10" TO 8" DIA. REDUCER	10" FL IN = 977.37 8" FL OUT = 977.36

PIPE INSTALLATION REQUIREMENTS:

1. REINFORCED CONCRETE PIPE (RCP)

- 1.2. FOR SHAPED TRENCH, CONTRACTOR IS TO UTILIZE A "SPOON" TO SHAPE THE TRENCH BOTTOM SUCH THAT A MINIMUM OF 45% OF THE OUTER CIRCUMFERENCE OF THE PIPE IS FIRMLY BEDDED IN UNDISTURBED SOIL. PIPE BEDDING ROCK IS NOT REQUIRED TO BE USED UNLESS OTHERWISE REQUIRED OR APPROVED. WHERE SOIL CONDITIONS DO NOT ALLOW FOR A STABLE SHAPED TRENCH, A FLAT BOTTOM TRENCH WILL BE REQUIRED.
- 1.3. FOR FLAT BOTTOM TRENCH,
  - 1.3.1. WITH ENGINEER'S APPROVAL, A FLAT BOTTOM TRENCH MAY BE USED. A SHAPED TRENCH SHOULD BE USED WHEREVER FEASIBLE.
  - 1.3.2. IF ENGINEER DETERMINES THAT BEDDING ROCK IS NEEDED FOR USE IN A FLAT BOTTOM TRENCH, THE BEDDING ROCK WILL BE PAID SEPARATELY.

2. DUAL WALL PLASTIC PIPE (GREATER THAN 12" DIA.)

- 2.1. FOR THIS PROJECT, A SHAPED TRENCH IS NOT ALLOWED. A FLAT BOTTOM TRENCH IS REQUIRED.
- 2.2. FOR FLAT BOTTOM TRENCH,
  - 2.2.1. SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321.
  - 2.2.2. THE PIPE SHALL BE INSTALLED IN AN ENVELOPE OF CLASS 1 BEDDING ROCK, FROM 4" BELOW THE PIPE TO A MINIMUM OF 6" ABOVE THE TOP OF THE PIPE. BEDDING ROCK IS INCIDENTAL TO THE PIPE BID ITEM. CLASS 1 MATERIAL SHALL BE PLACED IN 8 INCH LIFTS AND COMPACTED/DENSIFIED UNTIL NO FURTHER DENSIFICATION IS VISIBLE.
  - 2.2.3. WORK IN AND TAMP HAUNCHING MATERIAL IN THE AREA BETWEEN CORRUGATIONS BEFORE PLACING AND COMPACTING THE REMAINDER OF THE EMBEDMENT IN THE PIPE ZONE. LACK OF ADEQUATE COMPACTION OF EMBEDMENT MATERIAL IN THE HAUNCH ZONE CAN RESULT IN EXCESSIVE DEFLECTION.
- 2.3. PIPE SHALL NOT BE INSTALLED IN STANDING OR RUNNING WATER, TRENCH DE-WATERING IS SUBSIDIARY.
- 2.4. TAKE CARE TO NOT OVERHOME THE PIPE INTO THE JOINT.
- 2.5. ALL DUAL-WALL PLASTIC PIPE MUST BE TESTED BY VIDEO INSPECTION, OR MANDREL AND IS INCIDENTAL. DEFLECTION TESTING SHALL BE COMPLETED NOT LESS THAN 30 DAYS AFTER FINAL BACKFILL IS PLACED, MAXIMUM DEFLECTION ALLOWED IS 5% OF THE NOMINAL INSIDE DIAMETER OF THE PIPE. **FAILING PIPE SHALL BE REPAIRED AND RETESTED TO THE SATISFACTION OF THE ENGINEER, THIS COST IS ALSO INCIDENTAL.**
- 2.6. ACCESS RISERS
  - 2.6.1. ACCESS RISERS USED TO FACILITATE VIDEO INSPECTION OF THE PIPE.
  - 2.6.2. TO BE PLACED AT LOCATION(S) DESIGNATED BY THE ENGINEER.
  - 2.6.3. RISER TO EXTEND TO 18-INCHES BELOW EXISTING GROUND SURFACE.
  - 2.6.4. END CAP TO BE INSTALLED ON RISER
  - 2.6.5. LEAVE TOP OF RISER UNCOVERED UNTIL APPROVED BY THE ENGINEER.
- 2.7. IF THE PIPE FLOATS OUT OF THE TRENCH, THE CONTRACTOR WILL BE RESPONSIBLE FOR RE-INSTALLATION AT NO ADDITIONAL COST.

BACKFILL USED SHALL BE COMPACTED TO 95% MINIMUM STANDARD PROCTOR DENSITY UNDER ROADS, AND 85% MINIMUM DENSITY IN OTHER AREAS. CONTRACTOR WILL DEMONSTRATE COMPACTION METHOD TO ENGINEER AND TESTING WILL BE COMPLETED AT THE COST OF THE CONTRACTOR. ADDITIONAL TESTING MAY BE REQUIRED AT THE REQUEST OF THE ENGINEER AT THE COST OF THE CONTRACTOR.

3. DUAL-WALL PLASTIC PIPE (12" OR LESS DIA.)

- 3.1. TO BE INSTALLED ON THE TRENCH BOTTOM OF THE EXISTING MAIN TILE TO BE REPLACED. BEDDING STONE (3/4") TO BE USED UNDERNEATH WHERE NECESSARY TO BRING PIPE TO GRADE.
- 3.2. SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321.
- 3.3. NATIVE MATERIAL MAY BE USED FOR BACKFILL.
- 3.4. BACKFILL IN THE PIPE ZONE SHALL BE COMPACTED TO 90% MINIMUM STANDARD PROCTOR DENSITY. BACKFILL ABOVE THE TOP OF THE PIPE SHALL BE COMPACTED TO 85% MINIMUM STANDARD PROCTOR DENSITY.
- 3.5. WORK IN AND TAMP HAUNCHING MATERIAL IN THE AREA BETWEEN CORRUGATIONS BEFORE PLACING AND COMPACTING THE REMAINDER OF THE EMBEDMENT IN THE PIPE ZONE. LACK OF ADEQUATE COMPACTION OF EMBEDMENT MATERIAL IN THE HAUNCH ZONE CAN RESULT IN EXCESSIVE DEFLECTION.
- 2.3. PIPE SHALL NOT BE INSTALLED IN STANDING OR RUNNING WATER, TRENCH DE-WATERING IS SUBSIDIARY.
- 2.4. VIDEO INSPECTION / MANDREL TESTING IS NOT REQUIRED.

3. SINGLE-WALL CORRUGATED POLYETHYLENE PIPE (LESS THAN 10" DIA.)

- 3.1. SHALL BE INSTALLED IN ACCORDANCE WITH ASTM F449.
- 3.2. PIPE QUALITY SHALL BE HEAVY-DUTY UNDER ASTM F667.
- 3.3. MAY BE PLOWED IN OR INSTALLED IN OPEN TRENCH.
- 3.4. VIDEO INSPECTION / MANDREL TESTING IS NOT REQUIRED.
- 3.5. CONNECTIONS TO BE MADE WITH SINGLE-WALL SNAP TEES, WHICH ARE INCLUDED IN THE CONNECTION BID ITEM.

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CONSULTING ENGINEERS LAND SURVEYING

REVISIONS	BY	DATE

DRAINAGE DISTRICT No. 5
MAIN TILE IMPROVEMENT/RE-ROUTE
BREMER COUNTY, IOWA

NOTES & TABLES

Date 4/24/24
Designer CK
Draftsman CK
Checker CK

Project Number
E22159

Sheet
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ESTIMATE REFERENCE AND QUANTITIES

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	ESTIMATE REFERENCE	COMMENTS
1	42" DIA. FLAP GATE, CAST-IRON	1	EA	JWA 2430	
2	42" DIA. RCP, 2000D, GASKETED	500	LF	JWA 2731	
3	42" DIA. RCP, 2000D	2,319	LF	JWA 2731	
4	RIPRAP, CLASS E	20	TN	SUDAS 9040, 1.08, J	
5	REMOVE & DISPOSE, 36" DIA. TILE	2,490	LF	SUDAS 2010, 1.08, K, 3	
6	12" DIA. CMP, ANNUAL CORRUGATIONS, RIVETED, 14 GAGE	20	LF	JWA 2731	INCLUDES FURNISHING AND INSTALLING ANIMAL GUARD
7	12" DIA. DUAL-WALL HDPE, PERFORATED	840	LF	JWA 2731	
8	10" DIA. DUAL-WALL HDPE, PERFORATED	350	LF	JWA 2731	
9	8" DIA. DUAL-WALL HDPE, PERFORATED	1,290	LF	JWA 2731	
10	5" DIA. SINGLE-WALL CORRUGATED HDPE, HEAVY-DUTY, PERFORATED	1,440	LF	JWA 2731	
11	SOIL FILL	964	CY	--	QUANTITY BASED ON VOID CREATED BY REMOVAL OF EXISTING 36" DIA. CEMENT TILE, MINUS THE VOID FILLED BY THE REPLACEMENT TILE, INCLUDING SHRINKAGE OF 30%. FILL MATERIAL MUST BE APPROVED BY THE ENGINEER. INCLUDES EXCAVATION, TRANSPORTATION, PURCHASE (IF NECESSARY), COMPACTION, GRADING, AND ANY AND ALL OTHER WORK OR EQUIPMENT NEEDED TO FILL THE VOID CREATED IN REMOVING THE EXISTING MAIN TILE. THERE WILL BE SUFFICIENT EXCESS MATERIAL FROM THE MAIN TILE IMPROVEMENT TO SUPPLY THE NECESSARY FILL. WILL NOT BE MEASURED
12	EXPLORATORY EXCAVATION	10	HR	JWA 2115	
13	TILE CONNECTIONS, LESS THAN 8" DIA.	12	EA	JWA 2420	INCLUDES CONNECTIONS TO MAIN TILE IMPROVEMENT, REPLACEMENT, AND SUBMAINS.
14	TILE CONNECTIONS, 8" DIA. AND LARGER	3	EA	JWA 2420	
15	TRENCH STABILIZATION	50	TN	JWA 2210	MUST BE APPROVED BY THE ENGINEER PRIOR TO USE.
16	BEDDING STONE, 3/4"	40	TN	JWA 2210	FOR USE WHERE REQUIRED UNDER REPLACEMENT MAIN
17	CLEARING AND GRUBBING	1	LS	JWA 2110	INCLUDES TREES GROWING ON THE BANK OF CRANE CREEK AT THE OUTLET OF THE MAIN TILE IMPROVEMENT, TO WHATEVER IS NEEDED TO INSTALL THE PIPE AND ALSO A MINIMUM OF 20 FEET ON EITHER SIDE OF THE PIPE.
18	MOBILIZATION	1	LS	JWA 1600	
2-ALT	42" DIA. DUAL-WALL HDPE, NON-PERFORATED, GASKETED	500	LF	JWA 2731	FLAT-BOTTOM TRENCH REQUIRED, INCLUDES CRUSHED ROCK BEDDING ENVELOPE FROM 4" BELOW TO 6" ABOVE THE PIPE. ESTIMATED 3,220 TONS OF BEDDING ROCK REQUIRED.
3-ALT	42" DIA. DUAL-WALL HDPE, NON-PERFORATED	2,299	LF	JWA 2731	
19-ALT	48" DIA. CMP, 3" X 1" CORRUGATIONS, 12 GAGE	20	LF	JWA 2731	
20-ALT	18" ON 42" HDPE TEE	2	EA	JWA 2420	ACCESS RISERS
21-ALT	18" DUAL-WALL HDPE RISER	2	EA	JWA 2430	
22-ALT	18" END CAP	2	EA	JWA 2420	

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CONSULTING ENGINEERS LAND SURVEYING

REVISIONS	BY	DATE

DRAINAGE DISTRICT No. 5
MAIN TILE IMPROVEMENT/RE-ROUTE
BREMER COUNTY, IOWA

ESTIMATE REFERENCE & QUANTITIES

Date 4/24/24
Designer CK
Draftsman CK
Checker CK

Project Number E22159

Sheet C.02

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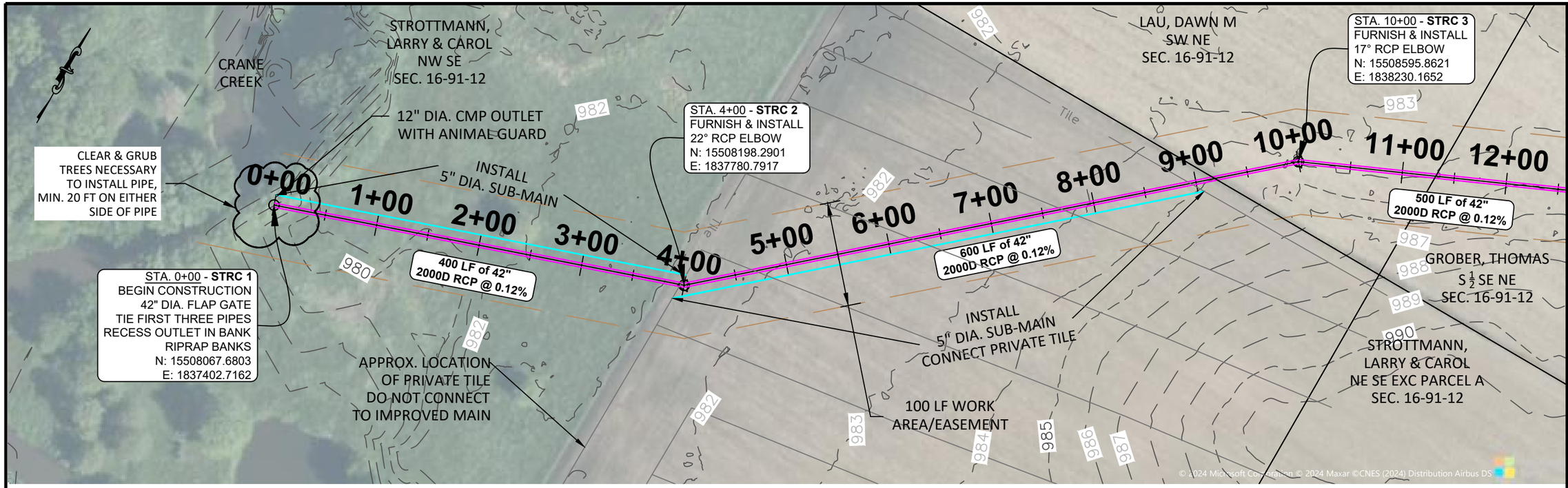

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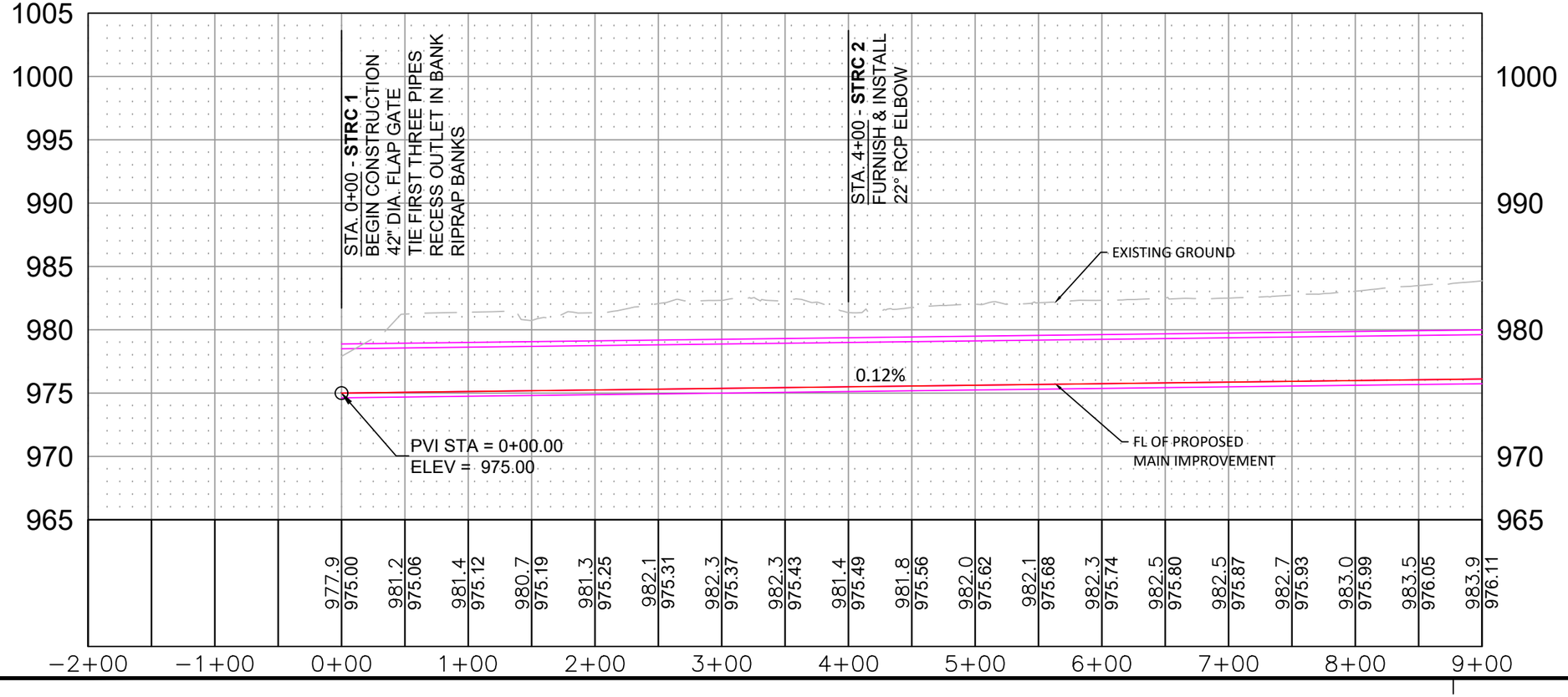

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PLAN & PROFILE

Date 4/24/24
Designer CK
Draftsman CK
Checker CK

Project Number E22159
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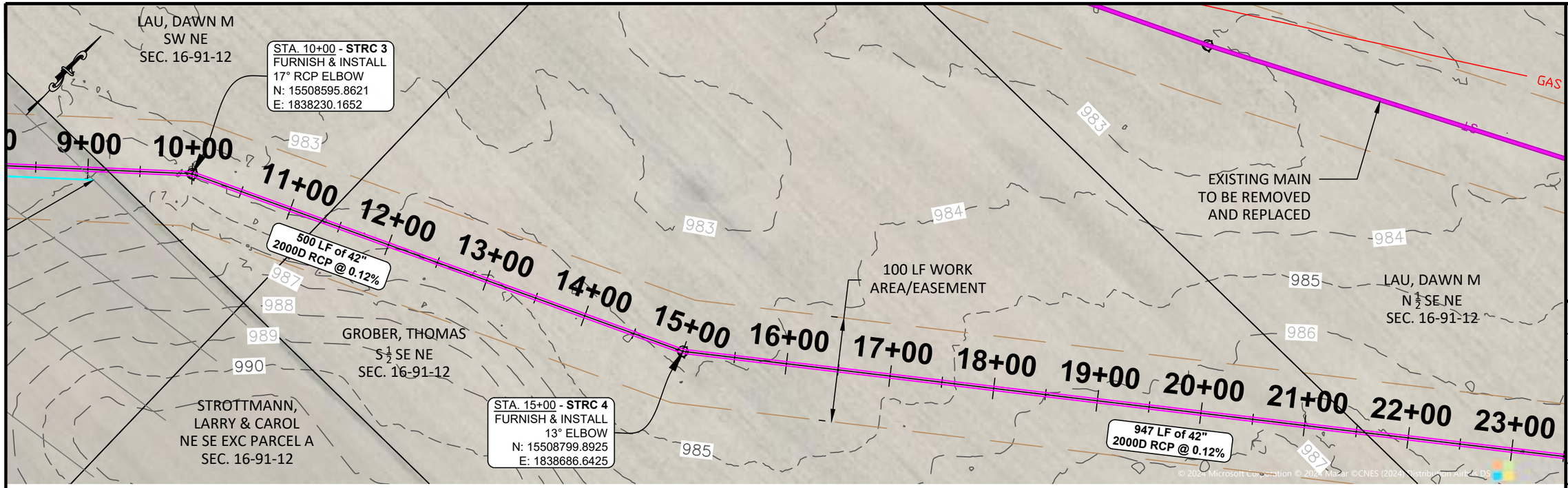

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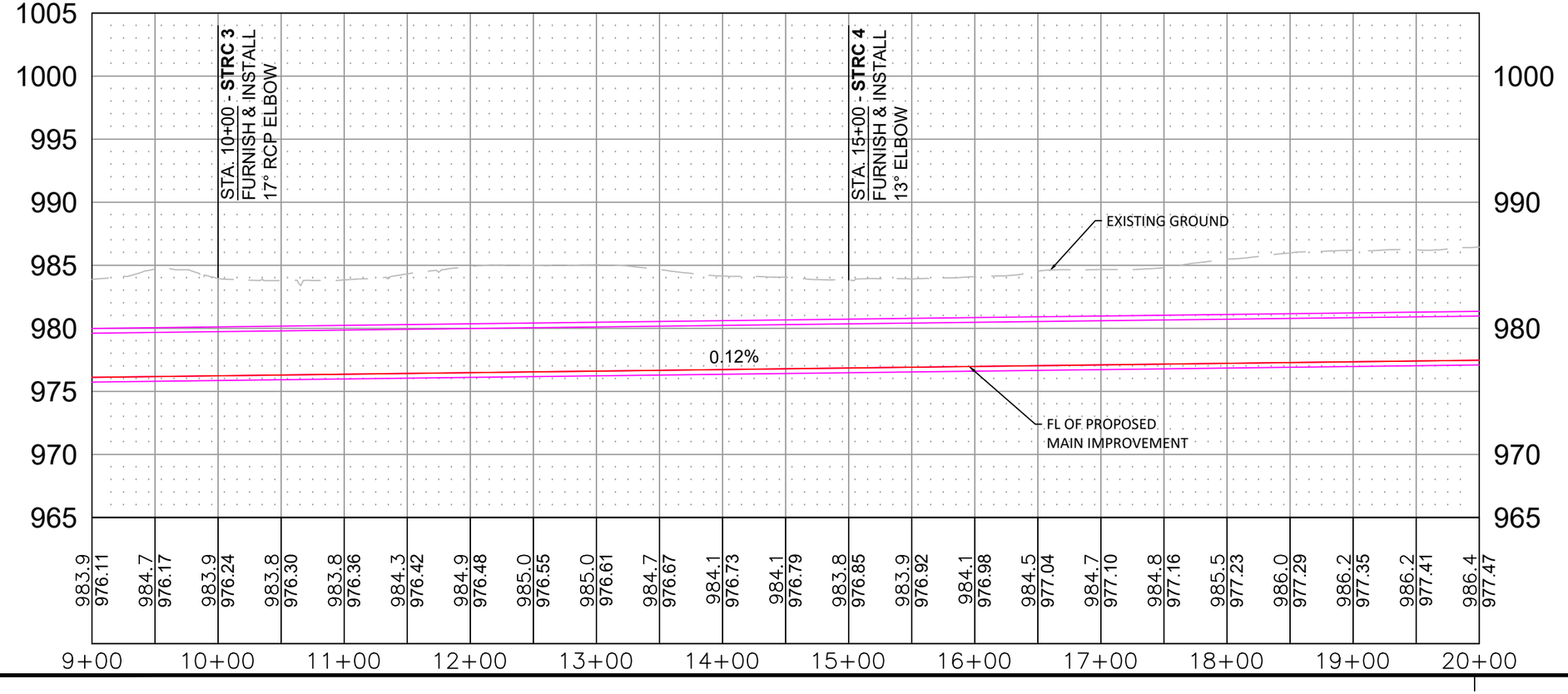

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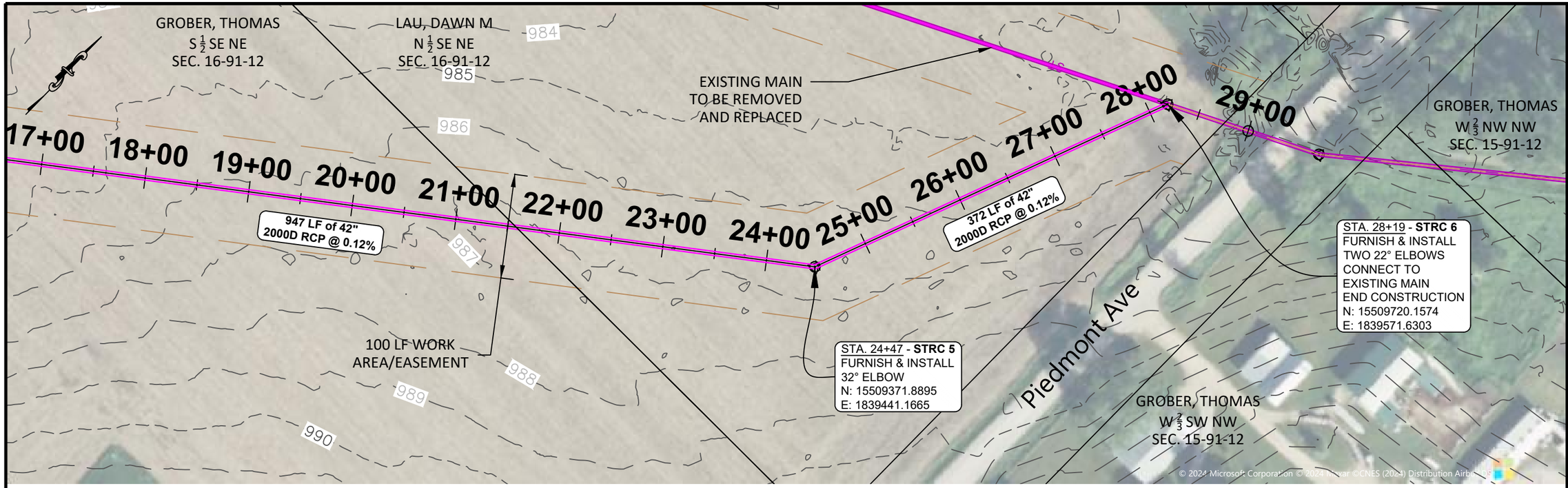

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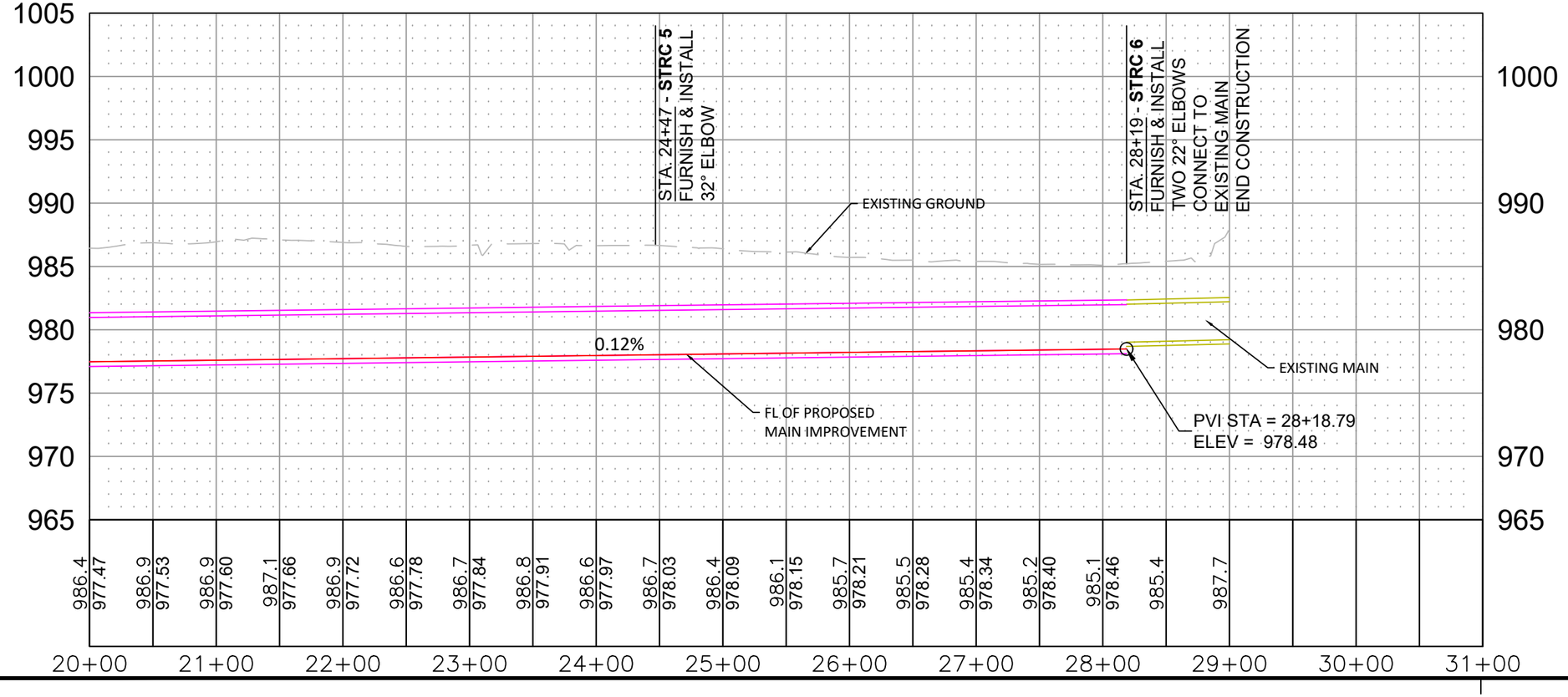

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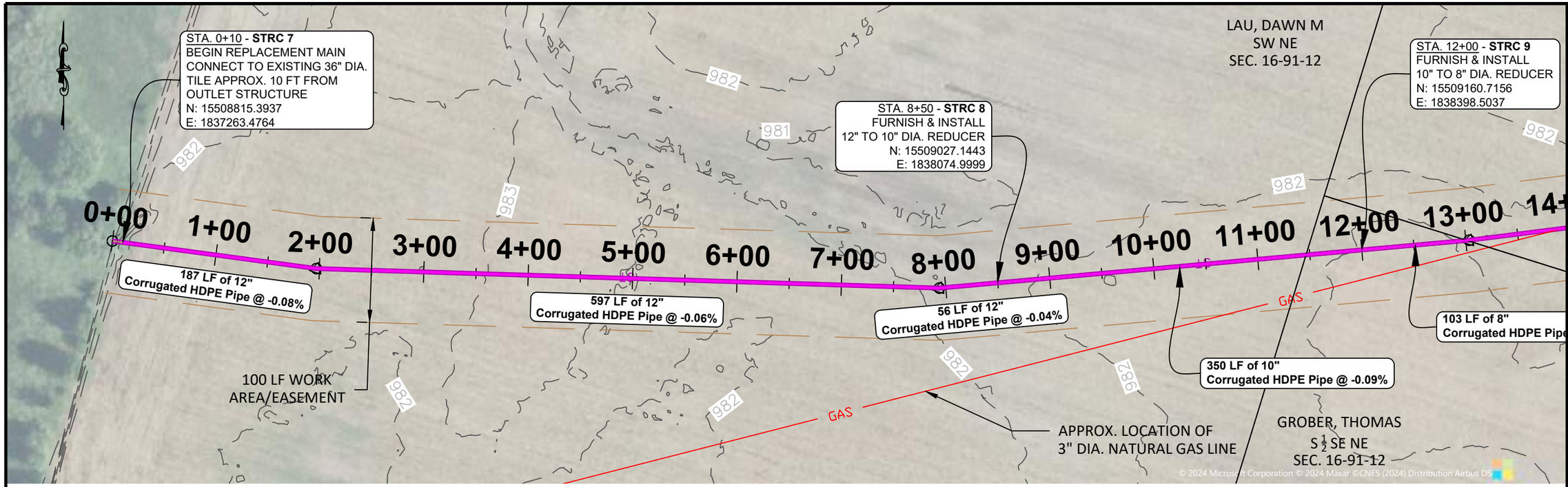

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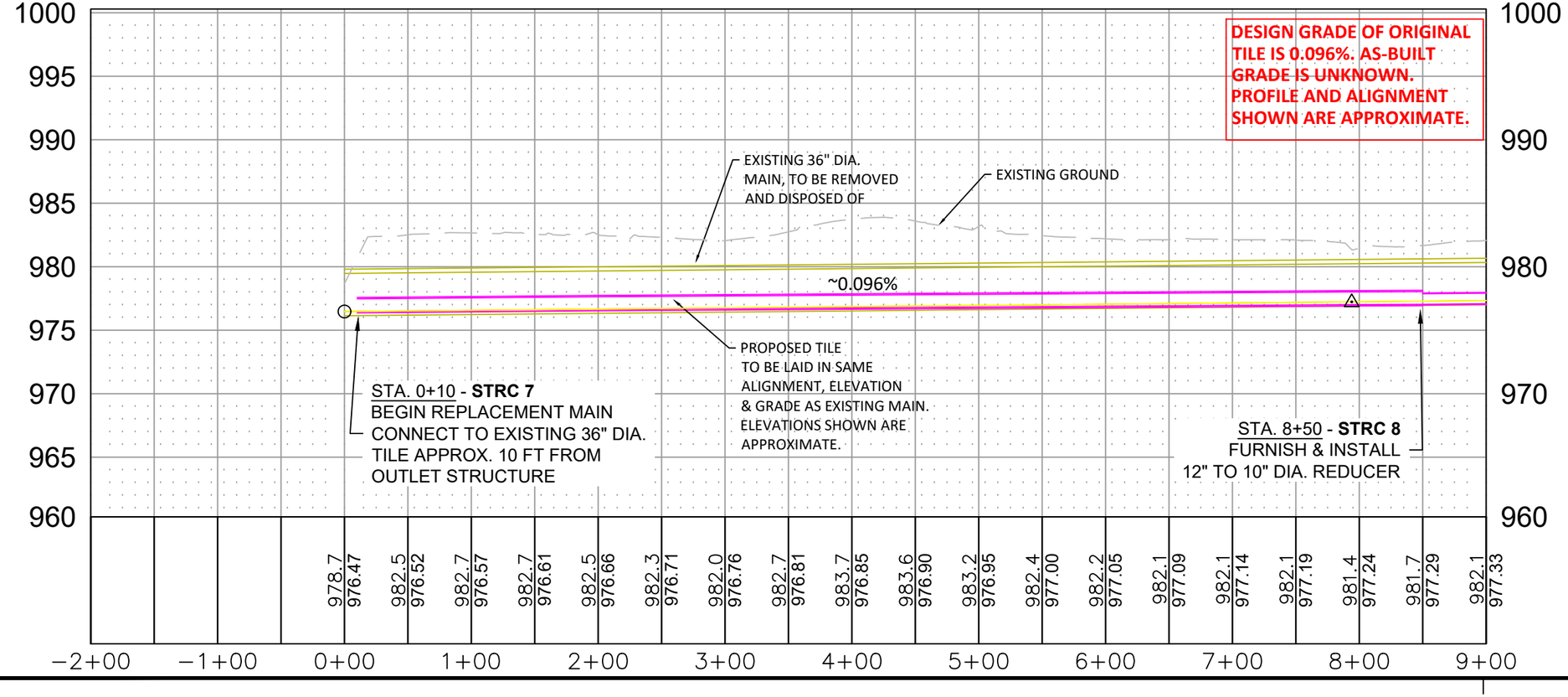

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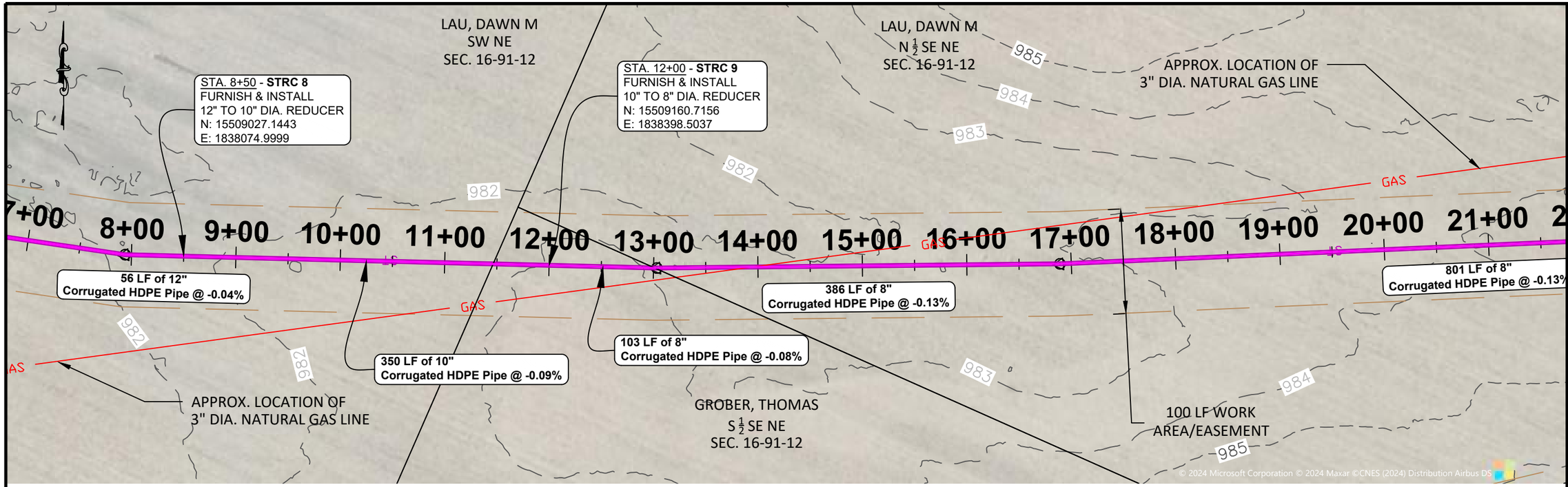

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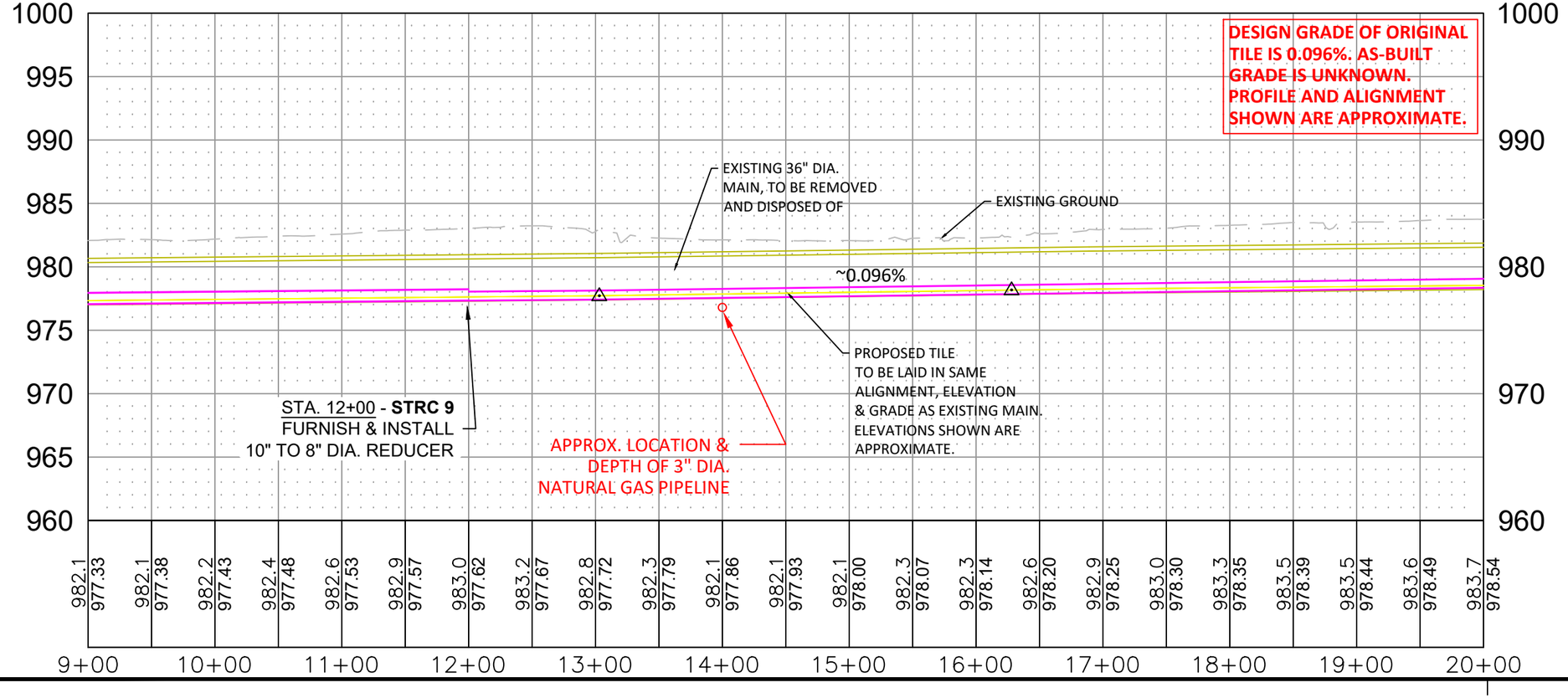

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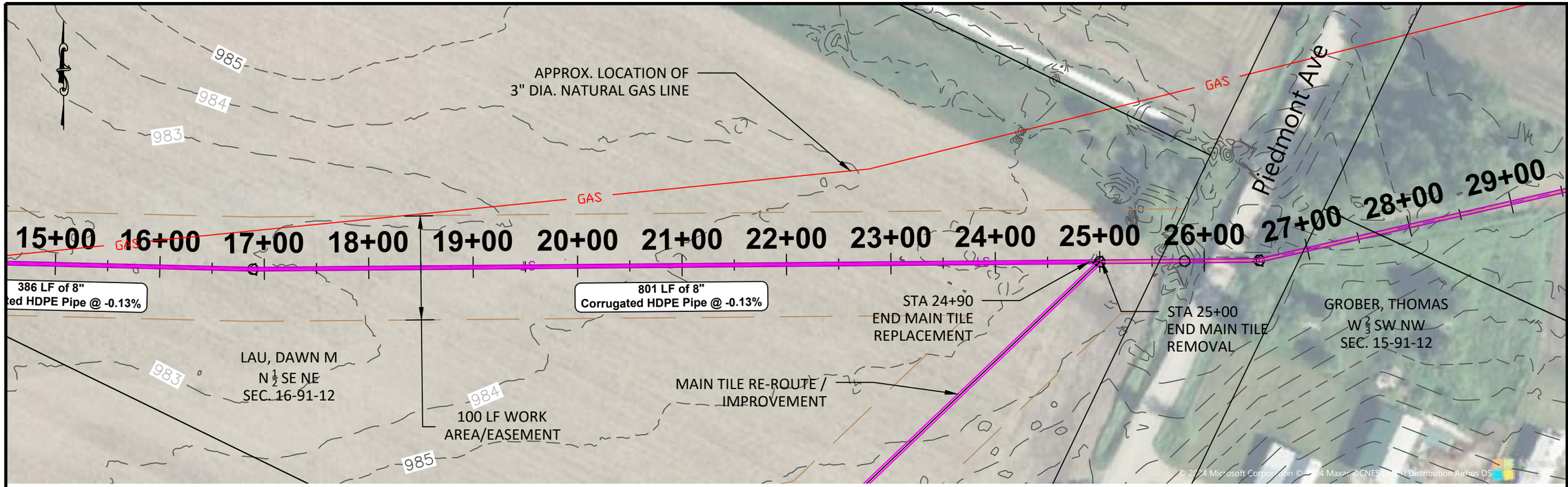

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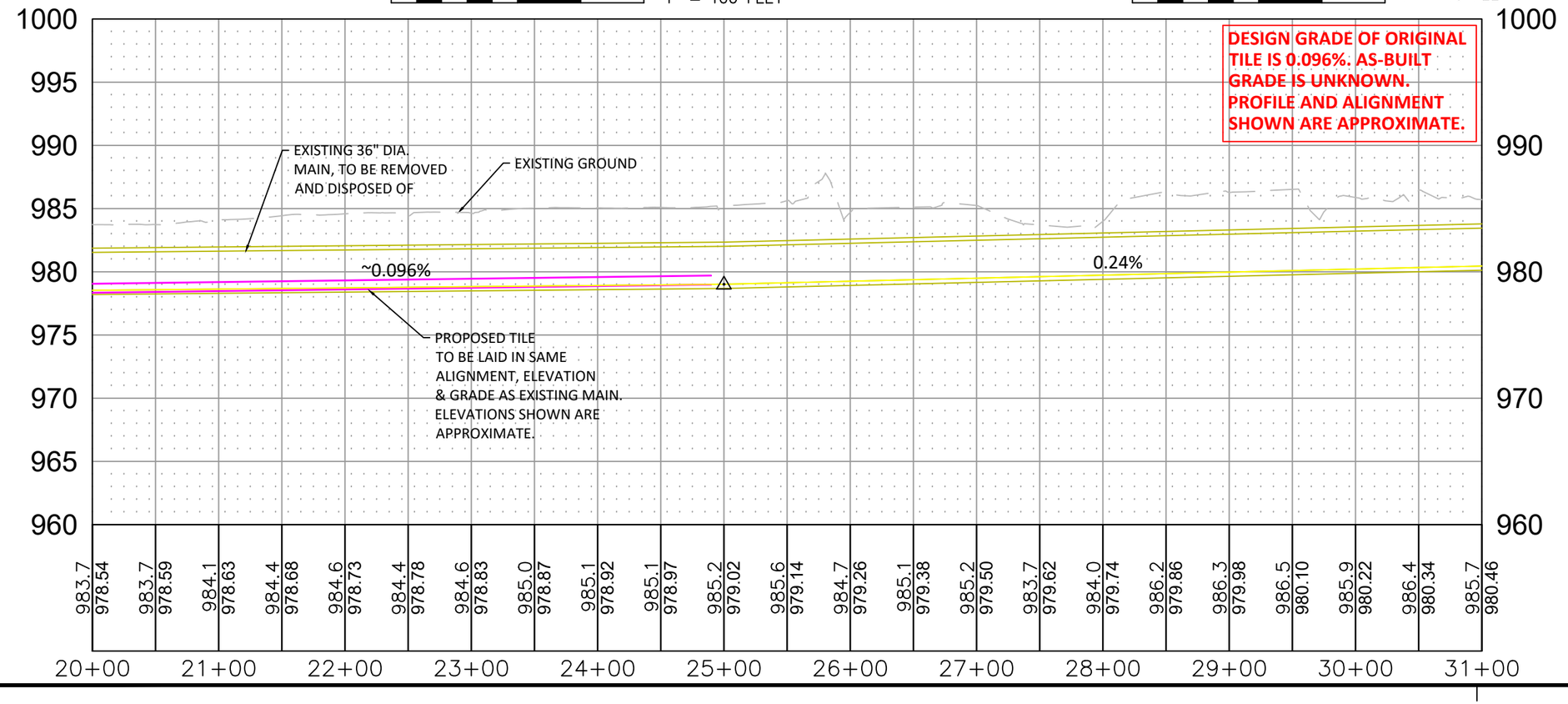

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