



PROJECT MANUAL FOR

**S. BROAD STREET AND E. SEWARD STREET
WATERMAIN REPLACEMENT
HR # 850-1684**

Prepared for

City of Hillsboro
Montgomery County, Illinois

DATE: April 2026



SIGNATURE _____
DATE 04-24-2026
DATE 11-30-2027
LICENSE EXPIRES _____

DOCUMENT 00 01 10

TABLE OF CONTENTS

S. Broad Street and E. Seward Street Watermain Replacement
City of Hillsboro, Montgomery County, Illinois 62049
HR #850-1684

PROCUREMENT AND CONTRACTION REQUIREMENTS GROUP
DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS
INTRODUCTORY INFORMATION

<u>Section</u>	<u>Title.....</u>	<u>Pages</u>
00 01 10	Table of Contents.....	00 01 10 - 1-3

PROCUREMENT REQUIREMENTS

<u>Section</u>	<u>Title.....</u>	<u>Pages</u>
00 11 16	Invitation to Bid.....	00 11 16 - 1-3
00 21 14	Instructions to Bidders - AIA.....	00 21 14 - 1-9
00 41 13	Bid Form - Unit Price.....	00 41 13 - 1-8
00 43 00	Procurement Form Supplements.....	00 43 00 - 1-4

CONTRACTING REQUIREMENTS

<u>Section</u>	<u>Title.....</u>	<u>Pages</u>
00 52 14	Agreement Form - AIA.....	00 52 14 - 1-4
00 63 00	Notice of Award.....	00 63 00 - 1-1
00 63 50	Notice to Proceed.....	00 63 50 - 1-1
00 63 70	Change Order.....	00 63 70 - 1-1
00 64 00	Contractor's Affidavit for Final Completion.....	00 64 00 - 1-1
00 64 50	Contractor's Release and Waiver of Lien.....	00 64 50 - 1-1
00 65 00	Affidavit of Payment to Material Suppliers and Subcontractors.....	00 65 00 - 1-1
00 65 50	Consent of Surety Company to Final Payment.....	00 65 50 - 1-1
00 72 14	General Conditions - AIA Stipulated Sum.....	00 72 14 - 1-1
00 73 13	Supplementary Conditions - AIA.....	00 73 13 - 1-6
00 82 50	Prevailing Rate of Wages.....	00 82 50 - 1-1

SPECIFICATIONS GROUP
GENERAL REQUIREMENTS SUBGROUP
DIVISION 01 - GENERAL REQUIREMENTS

<u>Section</u>	<u>Title.....</u>	<u>Pages</u>
01 10 00	Summary.....	01 10 00 - 1-3
01 20 00	Price and Payment Procedures.....	01 20 00 - 1-5
01 30 00	Administrative Requirements.....	01 30 00 - 1-3
01 32 16	Construction Progress Schedule.....	01 32 16 - 1-2
01 33 00	Submittal Procedures.....	01 33 00 - 1-6
01 40 00	Quality Requirements.....	01 40 00 - 1-4
01 50 00	Temporary Facilities and Controls.....	01 50 00 - 1-7

01 60 00	Product Requirements.....	01 60 00 - 1-3
01 70 00	Execution and Closeout Requirements	01 70 00 - 1-7

DIVISION 03 - CONCRETE

Section	Title.....	Pages
03 20 00	Concrete Reinforcing.....	03 20 00 - 1-5
03 30 00	Cast-In-Place Concrete	03 30 00 - 1-12

DIVISION 31 - EARTHWORK

Section	Title.....	Pages
31 05 13	Soils	31 05 13 - 1-3
31 23 16	Excavation	31 23 16 - 1-3
31 23 17	Trenching and Backfill	31 23 17 - 1-6
31 23 18	Rock Removal.....	31 23 18 - 1-2
31 23 23	Fill.....	31 23 23 - 1-4
31 25 13	Erosion Controls and SWPPP.....	31 25 13 - 1-6

DIVISION 32 - EXTERIOR IMPROVEMENTS

Section	Title.....	Pages
32 05 16	Aggregates	32 05 16 - 1-3
32 11 16	Aggregate Surfacing	32 11 16 - 1-1
32 12 16	Asphalt Paving.....	32 12 16 - 1-4
32 13 13	Concrete Paving.....	32 13 13 - 1-7
32 91 19	Landscape Grading	32 91 19 - 1-2
32 92 19	Seeding	32 92 19 - 1-7

DIVISION 33 - UTILITIES

Section	Title.....	Pages
33 11 13	Public Water Utility Distribution Piping	33 11 13 - 1-14
33 12 13	Water Service Connections.....	33 12 13 - 1-7
33 12 16	Water Utility Distribution Valves.....	33 12 16 - 1-8
33 13 00	Disinfection of Water Utility Distribution.....	33 13 00 - 1-4

ATTACHMENTS


Section	Title.....	Pages
1	City of Hillsboro Water Meter Data Sheets.....	1-14
2	Prevailing Wage Rates for Montgomery County.....	1-10

PROFESSIONAL SEALS AND CERTIFICATIONS

The following design professional(s) has/have signed and sealed the original plans and specifications for this project, S. Broad Street and E. Seward Street Watermain Replacement for City of Hillsboro of Montgomery County, Illinois, HR # 850-1684.

Jeremy Connor, PE
Professional Civil Engineer
Illinois PE-062-057938
Hurst-Rosche, Inc.
1400 E. Tremont Street
Hillsboro, Illinois 62049
Phone: (217) 532-3959





SIGNATURE
04-24-2026

DATE
11-30-2027

LICENSE EXPIRES

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

DOCUMENT 00 11 16

INVITATION TO BID

Project: S. Broad Street and E. Seward Street
Watermain Replacement
Hillsboro, Montgomery County, Illinois
HR # 850-1684

Owner: City of Hillsboro
447 S. Main Street
Hillsboro, Illinois 62049
Phone (217) 532-5566

Engineer: Hurst-Rosche, Inc.
1400 E. Tremont Street
Hillsboro, Illinois 62049

Date: April 2026

The Owner will receive Bids until 10:00 AM local prevailing time on Wednesday the 20 day of May 2026 at the City Hall Clerk's Office, 447 S. Main Street, Hillsboro, Illinois 62049. Any bid received after this time will be returned to the Bidder unopened. The Bids will be opened and publicly read at the City Hall Clerk's Office, 447 S. Main Street, Hillsboro, Illinois 62049 for the following work:

Work includes watermain replacement along S. Broad Street and E. Seward Street from Church Street to Courthouse Square including 8-inch AWWA C900 DR-25 restrained joint PVC watermain piping; 16-inch 5/16-inch thick steel casing pipe with casing spacers and end seals for watermain piping at storm and sewer pipe crossings; roadway pavement removal and replacement; rolled curb and gutter removal and replacement; full height granular backfill; fittings; mechanical restraints; tapping sleeves and gate valves; line stops; gate valves with valve boxes and lids; blowoff assemblies; water service line trimming and/or extending and connection; granular bedding; traffic control; flagmen; testing; disinfection; all appurtenances and minor details necessary to make the completed improvements fully operational with the project plans and specifications.

A Pre-bid Meeting will be held on Thursday the 7 day of May 2026, at 10:00 AM local prevailing time, at the City Hall, 447 S. Main Street, Hillsboro, Illinois 62049. Prospective bidders are highly recommended to attend for site visit to review limiting site conditions/constraints and site access.

Bidding Documents, Drawings and Specifications may be obtained at the office of **Hurst-Rosche, Inc., 1400 E. Tremont Street, Hillsboro, Illinois 62049**, after April 24, 2026.

Bidding Documents, Drawings and Specifications, may be examined by prospective bidders and material suppliers at the office of **Hurst-Rosche, Inc., 1400 E. Tremont Street, Hillsboro, Illinois 62049** and the following Plan Rooms:

1. Central Illinois Plan Room
1620 S. 5th Street
Springfield, Illinois 62703
Phone: (217) 679-1077
Fax: (217) 544-6570
Email: plans@ciplanroom.com

- | | |
|---|---|
| 2. Southern Illinois Builders Association
1468 Green Mount Road, P.O. Box 1390
O'Fallon, Illinois 62269 | Phone: (618) 624-9055
Fax: (618) 624-9065
Email: projects@siba-agc.org |
| 3. Greater Peoria Contractors & Suppliers Assoc.
1811 W. Altorfer Drive
Peoria, Illinois 61615 | Phone: (309) 692-5710
Fax: (309) 692-5790
Email: info@gpcsa.org |
| 4. MO-KAN, CCAC
4666 Natural Bridge
St. Louis, Missouri 63115 | Phone: (314) 454-9675
Fax: (314) 361-9806
Email: planroom@mokanccac.org |
| 5. Dodge Data & Analytics
7265 Kenwood Road, Suite 200
Cincinnati, Ohio 45236 | Phone: (866) 223-3876
Fax: (866) 730-6151
Email: dodge.docs@construction.com |
| 6. ConstructConnect
30 Technology Parkway South, Suite 100
Norcross, Georgia 30092 | Phone: (800) 424-3996
Fax: (800) 467-2860
Email: projects@cmdgroup.com |

Bidding Documents, Drawings and Specifications will be available for viewing on the internet at: www.hurst-rosche.com. The documents are being provided for reference purposes only. Bidders must obtain a signed and sealed set of the bidding documents, including bid form from the offices of **Hurst-Rosche, Inc., 1400 E. Tremont Street, Hillsboro, Illinois 62049** to submit a bid for this project.

The Owner requires the Project to be substantially complete in 90 calendar days from the Construction Start Date as stipulated in the Notice to Proceed.

Bidders will be required to provide Bid security of a sum no less than 5 percent of the Bid Sum. The bid security shall be either certified check, cashier's check, bank money order or bid bond issued by surety licensed to conduct business in the State of Illinois. Hereinafter this bid security shall be referred to as the bid bond.

Submit one copy of your Bid on the Bid Form provided. Bidders may supplement this form as appropriate.

Your Bid submittal will be required to be under a condition of irrevocability for a period of **Ninety (90)** days after submission.

Successful bidders shall be required to observe Illinois Public Act 77-1552 and the Illinois Department of Human Rights and Illinois Human Rights Commission Rules pertaining to Equal Employment Opportunity as provided for in paragraphs 2-101, et seq., Article II, Chapter 68, of the Illinois Revised Statutes; and comply with paragraph 271 of Chapter 48 of the Illinois Revised Statutes concerning the employment of citizens of the State of Illinois; and comply with Chapter 48, Sections 39s-1 through 39s-12, of the Illinois Revised Statutes, as amended, known as the Prevailing Wage Determination, as issued by the Illinois Department of Labor.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents must be paid on this project, and that the Contractor must ensure that

employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin.

The Owner reserves the right to accept or reject any or all Bids or any part thereof, to waive any informality in bidding, and to accept bids deemed most favorable to the Owner.

CITY OF HILLSBORO

DON E. DOWNS, MAYOR

END OF DOCUMENT

THIS PAGE INTENTIONALLY LEFT BLANK

DOCUMENT 00 21 14

INSTRUCTIONS TO BIDDERS - AIA

PART 1 GENERAL

1.1 SUMMARY

- A. Document Includes:
 - 1. Instructions to Bidders.
 - 2. Site examination.
 - 3. Prebid conference.
 - 4. Schedule for Bidding.

- B. Related Documents:
 - 1. Document 00 11 16 - Invitation To Bid.
 - 2. Document 00 41 43 - Bid Form - Unit Price.
 - 3. Document 00 43 00 - Procurement Form Supplements.
 - 4. Document 00 72 14 - General Conditions - AIA.
 - 5. Document 00 73 13 - Supplementary Conditions - AIA.

1.2 INSTRUCTIONS TO BIDDERS

- A. These Instructions to Bidders amend or supplement AIA Document A201-2007 - Instructions to Bidders and other provisions of Bidding Documents and Contract Documents.

- B. To be considered all bids must be in accordance with these Instructions to Bidders.

- C. Those interested parties may obtain sets of Bidding Documents, Drawings and Specifications from the Engineer.

1.3 SITE EXAMINATION

- A. Bidders shall carefully examine documents and construction site to obtain first-hand knowledge of existing conditions. Contractors will not be given extra payments for conditions, which can be determined by examining site and these documents.

- B. Contact City of Hillsboro at the following address and phone number to arrange date and time to visit Project site. A site visit will also be held during the pre-bid meeting date listed below:
 - 1. Address: 447 S. Main Street
Hillsboro, Illinois 62049
 - 2. Telephone: (217) 532-5566

1.4 THE SCHEDULE FOR BIDDING THIS PROJECT IS AS FOLLOWS

- A. Plans Available: April 24, 2026

- B. Pre-Bid Meeting May 7, 2026 at 10:00 AM
City Hall
- C. Latest Time to Submit Request for Interpretation: May 13, 2026
- D. Latest Time to Issue an Addendum: May 15, 2026
- E. Bid Closing May 20, 2026 at 10:00 AM
City Hall Clerk's Office
- F. Bid Opening May 20, 2026 at 10:00 AM
City Hall Clerk's Office
- G. All requests for interpretations shall be in writing via mail or e-mail addressed to the Engineer and must be received seven (7) calendar days prior to date fixed for opening of bids in order to be given consideration. All questions must be submitted on the "Request for Interpretation Pre-Bid Question and Comment Form" included at the end of this section, and questions not submitted in accordance with this form and specified time frame will not be accepted. Any and all interpretations and supplemental instructions will be made by addendum to the Drawings and Specifications and forwarded to all bidders either by certified mail or e-mail transmittal. All responses by the Engineer must be in writing to be binding. Any response general in nature or affecting these Instructions to Bidders shall be sent via addendum as previously described. All bidders are required to return the signature page of the addendum signed to the Engineer within 24 hours after receipt. Failure of any bidder to receive any such addendum or interpretations shall not relieve such bidder from an obligation under the bid as submitted. All addenda so issued shall become part of the Contract Documents. No addendum will be issued later than five (5) calendar days prior to bid date except one withdrawing the request for Bids or one postponing date for receiving Bids. Oral interpretations, changes or corrections will not be binding and Bidders shall not rely upon such interpretations, changes and corrections. Each Bidder shall ascertain prior to submitting Bid that all addenda issued have been received and shall acknowledge receipt in Bid.

Questions shall be directed to:

e-mail: jconnor@hurst-rosche.com

- H. Materials, products and equipment described in Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitution will be considered prior to receipt of Bids unless the Engineer has received a written request for approval at least ten days prior to the date for receipt of Bids. Each such request shall include name of material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or other work that incorporation of the substitute would require shall be included. The burden of proof of the merit of proposed substitute is upon the proposer. Engineer's decision of approval or disapproval of a proposed substitution shall be final. If the Engineer

approves any proposed substitution prior to receipt of Bids, such approval will be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner. The Contractor may submit a request for substitution after Bids, however such a request will require justification for such substitution and may be rejected by the Engineer and or Owner for any reason.

- I. Alternative Bids - No alternative bids will be considered unless alternative bids are specifically requested by the technical specifications.
- J. Bids shall be made on unaltered Bid Forms furnished by the Engineer. Fill in all blank spaces and submit one (1) copy. Bids shall be signed with name typed below signature. Where bidder is a corporation, bids must be signed with legal name of corporation followed by name of state of incorporation and legal signature of an officer authorized to bind the corporation to a contract.
- K. Each bidder submitting a bid shall submit on form provided a list of any subcontractors and major suppliers he proposes to use with the bid. Failure to do so could disqualify the bid.
- L. Each bidder shall designate on the attached bid form one person who shall serve as the bidder's contact person for all matters pertaining to the bid. In absence of such designation, the person who signs the bid shall be deemed the bidder contact.
- M. Each bid shall be accompanied by bid bond made payable to the Owner, in the amount of 5 percent of the bid sum. Security shall be either certified check, cashier's check, bank money order or bid bond issued by surety licensed to conduct business in the State of Illinois. Successful bidder's security will be retained until he has signed the contract and furnished required separate 100% payment and 100% performance bonds. Owner reserves the right to retain security of the next two (2) lowest bidders until the lowest bidder enters into contract or until Ninety (90) days after bid opening, whichever is shorter. All other bid security will be returned as soon as practicable. If any bidder refuses to enter into a contract, Owner will retain bid security as liquidated damages, but not as a penalty.
- N. All costs associated with the preparation and submission of a bid is the sole responsibility of the bidder. These costs shall not be chargeable to the Owner by any successful or unsuccessful bidder. All bids become the property of the Owner and shall not be returned except in the case of a late submission.
- O. Simultaneously, with delivery of the executed contract, the successful bidder, at its own expense, shall furnish surety in the form of separate performance and labor and material payment bonds each in the amount of one hundred percent (100%) of the contract amount. Surety for such bonds shall be a company duly authorized and licensed in the State of Illinois and acceptable to the Owner. The Attorney-In-Fact who signs bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney. Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and authorized to transact business in Illinois.
- P. All copies of the bid, bid security, Non-Collusion Affidavit, Certification of Bidder Regarding Equal Employment Opportunity, Statement of Bidder's Qualifications (if

requested) and any other documents required to be submitted with bid shall be enclosed in a sealed opaque envelope. Envelope shall be addressed to **City of Hillsboro, City Hall Clerk's Office, 447 S. Main Street, Hillsboro, Illinois 62049**, and shall be identified with project name, bidder's name and address. Mailed bid envelopes shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof. Oral, telephonic or telegraphic Bids are invalid and will not receive consideration. Bids shall be deposited at the location designated in the Invitation to Bid prior to time and date designated for opening, or any extension thereof made by addendum. Bidder shall assume full responsibility for timely delivery at location designated for receipt of Bids. Bids received after time and date for receipt of bids will be returned unopened.

- Q. A bid may not be modified, withdrawn or canceled during the Ninety (90) days immediately following bid opening, and each bidder so agrees in submitting his Bid. Any bidder may withdraw, cancel or modify its bid, at any time prior to scheduled time for opening of bids, by letter or telegram actually received by Owner prior to bid time, or, with proper identification, by personally securing bid submitted; if by telegram, written confirmation over signature of bidder shall be mailed and postmarked on or before date and time of bid opening. Withdrawn bids may be resubmitted up to bid opening time provided that they are in full compliance with these Instructions to Bidders.
- R. Protests
1. Any bidder who submitted a bid and believes the bid was improperly rejected or that the bid selected by the Owner is not in the best interest of the Owner may submit a written notice of intent to protest the bid to the Owner within seven (7) days. The Owner shall consider all protests before execution of a contract. Each protest must specify the reasons supporting the protest. The Owner may require that additional information be provided. Failure to supply such required information shall be cause for dismissal of the protest.
 2. The Owner shall immediately investigate the allegations against the Owners actions and shall issue a written response to the protest.
 3. This provision allowing for the submission of protest shall not confer any right on any bidder but is intended solely to assist the Owner in determining the best responsible bid.
- S. Any complaint or protest of the bidding procedure must be filed by the bidder to the Owner within 7 days of bid opening. The bidder shall notify the Owner in writing of his intent to protest bidding. The bidder shall perfect this notice of intent within 7 days.
- T. Owner reserves right to disqualify bids and bidders, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices upon part of bidder, lack of responsibility as evidenced by poor workmanship and progress of past work, incomplete work which, in judgment of Owner, might hinder or prevent prompt completion of additional work if awarded, for being in arrears on existing contracts, in litigation with the Owner, or having defaulted on a previous contract.
- U. Bidder's attention is directed to the fact that all Federal and Illinois State Laws, municipal ordinances and regulations of any and all authority having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full. Successful Bidders shall be required to comply with 775 ILCS 10 concerning equal employment

opportunities; comply with 30 ILCS 570 concerning the employment of citizens of the State of Illinois; comply with 820 ILCS 265 concerning substance abuse prevention on public works projects; and comply with 820 ILCS 130 concerning prevailing wages.

- V. Owner is exempt from payment of Illinois Department of Revenue's Use and Sales Tax on material entering permanently into structure. Retail sales tax shall not be included in the bid amount.
- W. Bids will be opened as announced in Invitation for Bids.
- X. Owner reserves the right to reject any or all bids or any part thereof, to waive any informality in bidding and to accept bids deemed most favorable to the Owner.
- Y. Notwithstanding any delay in preparation and execution of the formal Contract Agreement, each bidder shall be prepared, upon written notice of bid acceptance, to commence work within ten (10) days following receipt of official written Notice to Proceed, or on date stipulated in such notice.
- Z. Any work in providing or preparing to provide the services specified herein that is commenced by the successful bidder prior to execution of a written contract agreement shall be at the bidder's expense.
- AA. Accepted bidder shall assist and cooperate with the Owner in preparing the formal Contract Agreement, and, within fifteen (15) days following its presentation, shall execute it and return it to Owner.
- BB. The Owner requires the Project to be substantially complete in 90 consecutive days from the Construction Start Date as stipulated in the Notice to Proceed. Should the Contractor fail to complete the Work within such time, contractor agrees to pay and will apply to the Owner for each and every day of such delay in completion of the Work beyond the Contract Time the sum of **Five Hundred Dollars (\$500)** per day for Work not completed by the substantial completion date as liquidated damages.
- CC. Accepted bidder shall provide the Owner a copy of all laborer's driver's license, OSHA card, and title for prevailing wage purposes.
- DD. Any successful bidder that is a corporation organized in a state other than Illinois shall furnish to the Owner, upon request, a properly certified copy of its current Certificate of Authority to do business in the State of Illinois, such certificate to remain on file with the Owner. No contract will be awarded by the Owner unless such certificate is furnished by the bidder.
- EE. Any successful bidder that is a corporation organized in the State of Illinois shall furnish at its own cost to the Owner, if requested, a Certificate of Good Standing issued by the Secretary of State, such certificate to remain on file with the Owner.

1.5 STATEMENT OF BIDDER'S QUALIFICATIONS

- A. Each bidder shall upon request of the Owner submit on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of bidder's qualifications, experience record in constructing the type of improvements

embraced in the contract, organization and equipment available for the work contemplated, and, when specifically requested by the Owner, a detailed financial statement. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform his obligations under the Contract and the bidder shall furnish to the Owner such additional information and data for this purpose as is requested. The Owner reserves the right to reject any bid where an investigation or consideration of the information submitted by such bidder does not satisfy the Owner that the bidder is qualified and experienced in performing the requirements of the contract documents.

1.6 TIME FOR RECEIVING BIDS

- A. Bids received prior to the advertised hour of opening will be securely kept sealed. The officer whose duty is to open them will decide when the specified time has arrived. No Bid received thereafter will be considered, except when a Bid arrives by United States mail after the time fixed for opening, but before the reading of all other Bids is completed, and it is shown to the satisfaction of the Owner that the non-arrival on time was due solely to delay in the mails for which the Bidder was not responsible, such Bid will be received and considered.

1.7 OPENING OF BIDS

- A. At the time and place fixed for the opening of Bids, the Owner will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

1.8 OWNER APPROVAL OF CONTRACTOR'S SUBCONTRACTORS, PROFESSIONAL CONSULTANTS AND MAJOR SUPPLIERS

- A. The Owner reserves the right to review and approve all Contractor's subcontractors, professional consultants and major suppliers, proposed to be used on this contract. The Owner is endeavoring the use of subcontractors, professional consultants and major suppliers, who have past experience with the type of construction, professional services and supplier of construction materials that the project requires, for the successful and timely completion. All professional consultants shall be registered in the State of Illinois to provide the services to be rendered for this project. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the subcontractors, professional consultants and suppliers to perform their contract requirements, and the Contractor shall furnish to the Owner a statement of qualifications for such purpose, with the Owner having the right to request additional information. The Owner reserves the right to reject any of the Contractor's subcontractors, professional consultants and suppliers where an investigation or consideration of the information submitted does not satisfy the Owner that the subcontractor, professional consultant or supplier is qualified and experienced to perform their respective obligations and duties of the contract documents. Contractor shall be required to resubmit names and credentials of replacement firms, within seven (7) days after receipt of a Letter of Denial, for those firms not approved by the Owner. Owner's denial of any of the Contractor's subcontractors, professional consultants or major suppliers will not cause the Contractor to be entitled to any additional compensation for having to replace unapproved firm(s),

nor abrogate the Contractor's responsibility to complete and fulfill this contract in a satisfactory and timely manner.

1.9 TRANSFER OF ELECTRONIC FILES

A. USE AND LIMITATIONS OF DIGITAL PLAN INFORMATION

Subsequent to award of contract and execution of an agreement between A/E and receiving party for transfer of electronic files, digital plan information will be provided by the Engineer to the Contractor for the express purpose of locating existing project control points and benchmarks, and locating limited proposed plan information. All information will be provided in a "read only" standard AutoCAD 2010 format. Digital plan information is for users convenience and not contract documents.

WARNING

These electronic files are non-certified recordings of printed documents and are not a part of the contract documents. These files are provided only for the convenience of the receiving party and are intended solely for the exclusive use by that party for the purposes expressly authorized. In accordance with standard industry practice, only printed copies of documents conveyed to you may be relied upon. Any use of the information obtained or derived from these electronic files will be at the receiving party's sole risk. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the receiving party agrees that it has the obligation to perform acceptance tests prior to using any of the data. Upon use of the data, receiving party shall be deemed to have accepted the data thus transferred. Please check this electronic file for virus contamination prior to use. The receiving party also agrees to all terms and conditions contained within the agreement for transfer of electronic files.

AGREEMENT FOR TRANSFER OF ELECTRONIC FILES TERMS AND CONDITIONS

1. A/E makes no representation as to the compatibility of the Electronic files with any hardware or software.
2. Since the information set forth on the Electronic files can be modified unintentionally or otherwise, the A/E reserves the right to remove all indicia of its ownership and/or involvement from each Electronic display.
3. All information on the Electronic files is considered instruments of the services of the A/E and shall not be used for other projects, for additions to this project, or completion of this project by others. Electronic files shall remain the property of the A/E, and in no case shall the transfer of these files be considered a sale.
4. A/E makes no representation or warranties (either expressed or implied) regarding the accuracy, completeness, or permanence of Electronic files, nor for their merchantability or fitness for a particular purpose. Addenda information or revisions made after this date indicated on the Electronic files may not have been incorporated. In the event of a conflict between the A/E's sealed contract drawings and Electronic files, the sealed contract drawings shall govern. It is the

Contractor's responsibility to determine if any conflicts exist. The Electronic files shall not be considered to be Contract Documents as defined by the General Conditions of the Contract for Construction. In no event shall the A/E be liable for any loss of profit or any consequential damages as a result of your use or reuse of these Electronic files.

5. The use of the Electronic files prepared by the A/E shall not in any way obviate the receiving party's responsibility for the proper checking and coordination of dimensions, details, member sizes and gage, and quantities of materials as required to facilitate complete and accurate fabrication and erection.
6. The receiving party shall, to the fullest extent permitted by law, indemnify, defend and hold harmless the A/E and its sub consultants from all claims, damages, losses, expenses, penalties and liabilities of any kind, including attorney's fees, arising out of or resulting from the use of the Electronic files by the Contractor, or third party recipients of the Electronic files from the receiving party.
7. The A/E believes that no licensing or copyright fees are due to others on account of the transfer of the Electronic files, but to the extent any are, the receiving party will pay the appropriate fees and hold the A/E harmless for such claims.
8. This agreement shall be governed by the laws of the principal place of business of the A/E.

1.10 EXISTING UTILITIES INFORMATION

- A. Contractor shall review all existing utilities information, including information contained herein, when considering their bid for this project for possible utility conflicts, possible utility relocates and/or possible construction damage to existing utilities. Any underground facilities, structures, or utilities that have been shown are from available records. Therefore, the relationship between the proposed work and the existing facilities, structures, or utilities must be considered approximate. It is the contractor's responsibility to notify all the local, and/or governing utility companies prior to construction to determine their exact locations and the existence of any not shown. Contractor shall coordinate with utility companies and the Owner as to the relocation or removal of any utilities shown or not shown.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

THIS PAGE INTENTIONALLY LEFT BLANK

DOCUMENT 00 41 43

BID FORM - UNIT PRICE

To: City of Hillsboro
447 S. Main Street
Hillsboro, Illinois 62049
Phone (217) 532-5566

Project: S. Broad Street and E. Seward Street
Watermain Replacement
Hillsboro, Montgomery County, Illinois
HR # 850-1684

Date: _____

Submitted by: _____
(full name)

(full address) _____

Contact Name: _____

PART 1 GENERAL

1.1 OFFER

- A. Having examined the Place of the Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by the Engineer for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Unit Prices listed in this bid form in lawful money of the United States of America.
- B. We have included the security Bid Bond as required by the Instruction to Bidders.
- C. All applicable federal taxes are included in the Unit Prices.
- D. Bidder declares that he understands that the quantities mentioned are approximate only and that they are subject to increase or decrease; that he will take in full payment therefore the amount and the summation of the actual quantities as finally determined, multiplied by the Unit Prices contained herein.
- E. Bidder further agrees that the Unit Prices submitted herewith are for the purpose of obtaining a gross sum and for use in computing the value of extras and deductions; that if

there is a discrepancy between the gross sum bid and that resulting from the summation of the quantities multiplied by their respective unit prices, the latter shall apply.

1.2 REVIEW OF BID DOCUMENTS

- A. The bidder represents that he is skilled and experienced in the use and interpretation of drawings and specifications such as those included in the bid documents for this contract. He has carefully reviewed the drawings, specifications and other bid documents, and has found them free of ambiguities and sufficient for bid purposes. Further, the Bidder has carefully examined the site of the work and, from his own observations, has satisfied himself as to the nature and location of the work; the character, quality and quantity of materials; the difficulties likely to be encountered; and any other items which may affect the performance of the Work. He has based his bid solely on these documents and observations, and has not relied in any way on any explanation or interpretation, oral or written, from any other source.

1.3 ACCEPTANCE

- A. This offer shall be open to acceptance and is irrevocable for 90 days from the bid closing date.
- B. If the Owner accepts this bid within the time period stated above, we will:
 - 1. Execute the Agreement within 15 days of receipt of Notice of Award.
 - 2. Furnish the required bonds within 15 days of receipt of Notice of Award in the form described in Supplementary Conditions.
 - 3. Commence work within 10 days after written Notice to Proceed of this bid.
- C. If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required bonds, the security deposit shall be forfeited as damages to the Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.
- D. In the event our bid is not accepted within the time stated above, the required security deposit will be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

1.4 CONTRACT TIME

- A. Undersigned agrees that, if awarded the Contract for Work bid upon herein, work will start on date designated in a written Notice to Proceed order issued by the Engineer and will be completed in accordance with the contract documents, with all phases of work completed and operational and ready for acceptance by the Owner no later than 90 calendar days from the Construction Start Date as stipulated in the Notice to Proceed.

1.5 UNIT PRICES

- A. The following are Unit Prices for specific portions of the Work as listed. The following is the list of Unit Prices:

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
1	8" Ø AWWA C900 DR-25 Restrained Joint PVC Watermain	520	Lineal Foot		
2	16" Ø 5/16" Thick Steel Casing Pipe with Casing Spacers and End Seals	75	Lineal Foot		
3	8" Ø Gate Valve (MJ) with Gate Valve Box, Lid and Fitting Restraints	3	Each		
4	6" Ø Tapping Sleeve and Gate Valve with Valve Box, Lid and Fitting Restraints	1	Each		
5	8" Ø Tapping Sleeve and Gate Valve with Valve Box, Lid and Fitting Restraints	2	Each		
6	10" x 8" Ø Tapping Sleeve and Valve with Valve Box, Lid and Fitting Restraints	1	Each		
7	6" Ø Line Stop and Fitting Restraints	1	Each		
8	8" Ø Line Stop and Fitting Restraints	1	Each		
9	10" Ø Line Stop and Fitting Restraints	1	Each		
10	8" Ø 22.5° Fitting (MJ) and Fitting Restraints	3	Each		
11	8" Ø 45° Fitting (MJ) and Fitting Restraints	2	Each		
12	8" Ø 90° Fitting (MJ) and Fitting Restraints	2	Each		
13	Cut-In 6" Ø Cap Fitting (MJ) and Fitting Restraints	1	Each		
14	Cut-In 8" Ø Cap Fitting (MJ) and Fitting Restraints	2	Each		
15	Cut-In 10" Ø Cap Fitting (MJ) and Fitting Restraints	1	Each		
16	8" x 8" Ø Tee Fitting (MJ) and Fitting Restraints	2	Each		
17	8" x 6" Ø Reducer Fitting (MJ) and Fitting Restraints	1	Each		
18	Complete Blowoff Assembly including Piping, Service Clamp and Saddle, Ball Curb Stop, Corporation Stop, Meter Tile with Lid, and Gravel Pit, Etc.	2	Each		
19	Water Service Line Trimming and/or Extending and Connection including Piping, Service Clamp and Saddle, Ball Curb Stop, Corporation Stop, Compression Fittings, Etc.	4	Each		
20	Roadway Asphalt/Brick Pavement Removal, Disposal, and Replacement with Asphalt Pavement Patch including Full Height Granular Backfill	600	Lineal Foot		
21	Concrete Rolled Curb and Gutter Removal, Disposal, and Replacement including Full Height Granular Backfill	25	Lineal Foot		
22	Miscellaneous Work Items, such as but not limited to street cleaning, flagmen, traffic and pedestrian control, construction and temporary traffic signs, litter control, materials to protect curbs from equipment damage, and any other miscellaneous work necessary to provide a complete and satisfactory job, Etc.	1	Lump Sum		

23	Insurance, Bonds and Permits, Etc.	1	Lump Sum		
24	Mobilization / Demobilization	1	Lump Sum		
TOTAL					

TOTAL _____ Dollars
(Amount in Words)

1.6 INCIDENTALS

The following Items are incidental to the construction:

- The above unit prices include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.
- All items indicated on the plans or referenced in the specifications shall be included in the bid price under appropriate line items. All specified testing services and construction staking services shall be included in the bid price. All installations, piping, fittings, fitting restraints, mega-lugs restraints, accessory kits, glands, gaskets, valves, tapping sleeves, fire hydrant assemblies, blowoff assemblies, line stops, water meter settings, casing pipe, casing spacers, casing end seals, thrust blocks, granular bedding, backfilling, full height granular backfill, rock boring, heavy stone revetment blanket, trench excavation, all rock excavation and removal, rock excavation for fire hydrants, spoiling unsuitable materials and replacement with approved materials, tracer wire and tracer wire accessories, pressure testing, disinfection of watermains, installation of 6" of top soil, additional fill upon settlement of trenches, asphalt sawcutting, concrete sawcutting as necessary, protection from storm inflows, all appurtenances and other necessary components shall be included in the construction.
- Construction staging and washdown area onsite, onsite siltation control (including any required inlet protection), and additional siltation control as necessary during construction.
- Clean cutting and preservation of existing pavement edge and existing pavement to be protected for trenches and proposed driveway / pavement connections shall be included in the construction.
- Existing fencing that is necessary to be removed and replaced to install proposed improvements shall be removed and replaced to the same location prior to removal, once the existing fencing is removed during construction the contractor shall install temporary interim fencing and said temporary fencing shall be maintained and remain in place until the existing fencing is to be replaced as close to its original condition as possible, temporary fencing to be structurally sound. Contractor may reuse existing fencing materials so long as the materials are in good, stable, aesthetically pleasing condition, if not, the existing fencing materials shall be replaced with new materials of same type of construction, size and dimensions, existing fencing materials to be coordinated with and agreed upon by the District for reuse on the project. Contractor shall verify all fencing that may have to be removed and replaced prior to submitting a Bid and, include the cost for said removal and replacement in their Bid.
- Unit Price for bores or pushes shall include all aspects of installation, such as, but not limited to, bore / push pit excavation; bore / push pit backfill; bore / push pit granular bedding; shoring; any type of rock removal / excavation; boring and reaming operations; boring and reaming through solid rock; boring and reaming through fragmented, weathered, cobble or any other type of rock; casing pipe; casing support spacers; casing rubber end seal and stainless steel bands; other miscellaneous excavation, backfilling and/or granular bedding as necessary; etc.

- Contractor to provide all necessary items for equipment and worker ingress and egress during construction, such items but not limited to, traffic control flagmen, pedestrian control flagmen, sidewalk protection from equipment, curb protection from equipment, timbers to mount vertical curbs, continuous use of sidewalk by pedestrians except during equipment crossing and any other items necessary. All necessary items being considered incidental to the work including any repairs to pavement, curb, sidewalk or any other items.
- Contractor shall protect and abstain from damage all existing utilities, pavement, curb and gutter, sidewalk, guardrail, trees, bushes and all other existing improvements during boring process or any other construction process. Contractor will be responsible for any damages to any existing improvement and damage repair, at Contractor's expense. Contractor will include all parties that need to be listed as additional insured as describe in the Contract Documents.
- All additional items shown on the Drawings, Technical Specifications or Contract Documents, or small items, appurtenances and minor details not mentioned, which are clearly necessary to make the completed improvements fully functional and operational in full accordance with the Contract Documents and Technical Specifications shall be included in the construction.

1.7 AWARD OF CONTRACT

- A. Contract will be awarded to the lowest responsive, responsible bidder for the base bid of the contract.

1.8 BIDDER AGRESS TO THE FOLLOWING:

- Bidder shall include the required security deposit as required by the Instruction to Bidders.
- All applicable federal taxes are included in the Bid Sum.
- Cost associated with obtaining separate 100% Performance and 100% Payment Bonds are included in the Bid Sum.
- Costs associated with obtaining all required construction permits and any other necessary permits are included in the Bid Sum.
- Comply with 775 ILCS 10 concerning equal employment opportunities.
- Comply with 30 ILCS 570 concerning the employment of citizens of the State of Illinois.
- Comply with 820 ILCS 265 concerning substance abuse prevention on public works projects.
- Comply with 820 ILCS 130 concerning prevailing wages.
- Bidder agrees to an agreement between A/E and receiving party for transfer of electronic files.
- Bidder agrees/certifies compliance with the provisions as required by the Instruction to Bidders.

1.9 ADDENDA

- A. The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Price.

1. Addendum # _____ Dated _____
2. Addendum # _____ Dated _____
3. Addendum # _____ Dated _____

1.10 APPENDICES

- A. The following information is included with Bid submission:
- Bid Bond in form of either certified check, cashier's check, bank money order or bid bond issued by surety licensed to conduct business in the State of Illinois.
 - Bidder's qualifications statement and supporting data.
 - Document 00 43 00 - Bid Form Supplements including Appendix A - List of Subcontractors and Appendix B - List of Major Suppliers.

1.11 EQUAL EMPLOYMENT OPPORTUNITY

During performance of this contract, Contractor agrees as follows:

- a. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.
- b. The contractor will in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- c. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract of understanding, notice advising the labor union or worker's representative of the contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- d. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and by the rules, regulations, and relevant orders of the Secretary of Labor.
- e. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and order of the Secretary of Labor pursuant thereto, and will permit access to his books, records and accounts by the Department of the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
- f. In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any such rules, regulations or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies involved as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

- g. The contractor will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Department may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with the subcontractor or vendor as a result of such direction by the Department, the contractor may request the United States to enter into such litigation to protect the interest of the United States.

1.12 NOT BARRED

- A. The Contractor by submitting its bid certifies that the Contractor is not barred from bidding on the contract as a result of a conviction for either bid-rigging or bid-rotating. 720 ILCS 5/33/E-11.

1.13 DRUG FREE WORKPLACE

- A. The Contractor by submitting its bid certifies that it will provide a drug free workplace and that it is in compliance with the requirements of the Drug Free Workplace Act 30 ILCS 580.1 et. seq., and the Substance Abuse Prevention on Public Works Projects Act PA095-0635.

1.14 SEXUAL HARASSMENT POLICY

- A. The Contractor by submitting its bid certifies that it has (i) a written sexual harassment policy, (ii) a description of sexual harassment, utilizing examples; (iv) an internal complaint process including penalties; (v) the legal resource, investigative and complaint process through the Illinois Department of Human Rights; (vi) directions on how to contact the Department and Commission; and (vii) protection against retaliation for exercising rights under the policy in accordance with 775 ILCS 5/2-105(A)(4).

1.15 DEBARMENT AND SUSPENSION

- A. Contracts funded with Federal grant monies may not be awarded to contractors that have been debarred or suspended from receiving Federal monies pursuant to the Federal Excluded Parties List System.

1.16 BYRD ANTI-LOBBYING AMENDMENT

- A. Contractors that apply or bid for an award of \$100,000 must certify that they have not used Federal funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award.

1.17 BID FORM SIGNATURES

The Corporate Seal of

(Bidder - print the full name of your firm)

was hereunto affixed in the presence of:

(Authorized signing officer)

(Title)

(Seal)

(Authorized signing officer)

(Title)

(Seal)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF DOCUMENT

DOCUMENT 00 43 00

PROCUREMENT FORM SUPPLEMENTS

To: City of Hillsboro
447 S. Main Street
Hillsboro, Illinois 62049
Phone (217) 532-5566

Project: S. Broad Street and E. Seward Street
Watermain Replacement
Hillsboro, Montgomery County, Illinois
HR # 850-1684

Date: _____

Submitted by: _____
(full name)

(full address) _____

Contact Name: _____

In accordance with Document 00 21 14 - Instructions to Bidders - AIA and Document 00 41 13, we include the Appendices to Bid Form Supplements listed below. The information provided shall be considered an integral part of the Bid Form.

The following Appendices are attached to this document:

Appendix A - List of Subcontractors: Include names of all Subcontractors and portions of the Work each Subcontractor will perform.

Appendix B - List of Major Suppliers: Include names of all Major Suppliers and portions of the Work each Major Suppliers will supply materials for.

BID FORM SUPPLEMENTS SIGNATURES

The Corporate Seal of

(Bidder - print the full name of your firm)

was hereunto affixed in the presence of:

(Authorized signing officer)

(Title)

(Seal)

(Authorized signing officer)

(Title)

(Seal)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

DOCUMENT 00 52 14

AGREEMENT FORM - AIA

PART 1 GENERAL

1.1 SUMMARY

- A. Document Includes:
 - 1. Contract Agreement.
- B. Related Documents:
 - 1. Document 00 72 14 - General Conditions - AIA.
 - 2. Document 00 73 13 - Supplementary Conditions - AIA.

1.2 CONTRACT AGREEMENT BETWEEN OWNER AND CONTRACTOR

A. THIS AGREEMENT, made and entered into as of the _____ day of _____ in the year of 2026 by and between _____ hereinafter and in the Contract Documents called "Contractor" and the City of Hillsboro, hereinafter and in the Contract Documents called "Owner."

B. WITNESSETH: That for and in consideration of the mutual covenants and agreements, hereinafter stated, Contractor and Owner covenant and agree as follows:

C. THE CONTRACT WORK:

- 1. Contractor covenants and agrees to furnish all labor, materials, equipment, transportation, construction plant and facilities necessary to perform all Work required by the Contract Documents, for the Project entitled:

**S. Broad Street and E. Seward Street
Watermain Replacement
City of Hillsboro
Hillsboro, Montgomery County, Illinois
HR #850-1684**

As shown on Drawings and described in Specifications prepared by Hurst-Rosche, Inc., acting as, and in these Contract Documents referred to as Engineer and covenants and agrees to do and perform all acts and things required of Contractor by this Contract and the Contract Documents.

D. TIME OF COMPLETION:

- 1. The Owner requires the Project to be substantially complete within 90 calendar days from the Construction Start Date as stipulated in the Notice to Proceed. Should the Contractor fail to complete the Work within such time, contractor agrees to pay and will apply to the Owner for each and every day of such delay in completion of the Work beyond the Contract Time the sum of Five Hundred

Dollars (\$500.00) per day for Work not completed by the substantial completion date as liquidated damages.

E. CONTRACT SUM AND TERMS OF PAYMENT:

1. Contract Sum: The Owner, if Contractor shall faithfully fulfill and perform this Contract, covenants and agrees to pay Contractor in current funds, subject to additions and deductions by Change Order as provided in the Contract Documents, the sum of _____ Dollars (\$ _____), which sum shall constitute the Contract Sum, said Contract Sum being derived from Contractor's Bid dated _____. It is understood and agreed that should there be any increase in wage rates, or in cost of materials or equipment, or in any other of Contractor's costs or should Contractor be compelled to pay premium wages, or for overtime work, during the life of this Contract and/or prior to completion of Contractor's work thereunder, Contractor shall absorb all such increased costs, without addition to the Contract Sum except when otherwise expressly provided in Contract Documents.
2. Payments: Owner shall make payments for work performed under the Contract as provided in Article Nine of the General Conditions and in accordance with other applicable articles of the Supplementary Conditions and Contract Documents.
3. Contractor's Fees for Changes in Work: In accordance with Contractor's bid, it is agreed that the following percentages for overhead and profit shall be applied on work added to or omitted from the Contract by written Change Order approved by Engineer and Owner in advance of performance of the work.

Additional Work performed by:

- | | |
|----------------------|--------------------------|
| 1. Own Forces _____% | 2. Subcontractors _____% |
|----------------------|--------------------------|

Omitted Work originally required by:

- | | |
|----------------------|--------------------------|
| 1. Own Forces _____% | 2. Subcontractors _____% |
|----------------------|--------------------------|

F. CONTRACT DOCUMENTS:

1. Contract Documents include the Contract Agreement, Contractor's Bid as accepted by Owner, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract Agreement.

G. ILLINOIS LABOR REQUIREMENTS:

Contractor shall comply with all Illinois statutory requirements regarding labor, including, but not limited to, the following:

1. Illinois Public Act 77-1552 and Chapter 48, Sections 39S-1 through 39S-12 of the Illinois Revised Statutes regulating wages of laborers, mechanics and other workers employed in any public works and known as the "Prevailing Wage Act,"

which provides in part that all laborers, mechanics and workers performing work under the Contract shall be paid not less than the prevailing rate of wages as determined by the Illinois Department of Labor (820 ILCS 130).

2. Illinois Public Act 83-1472, Article 2 and Chapter 48, Sections 2201 through 2207, 1984 of the Illinois Revised Statutes pertaining to hiring of Illinois labor and known as the "Illinois Preference Act (30 ILCS 570)."
3. "Illinois Human Rights Act of 1980," Chapter 68, Illinois Revised Statutes, and the Rules and Regulations, Title 44, Section 750 of the Illinois Administrative Code, Illinois Department of Human Rights; pertaining to equal employment opportunity (777 ILCS 10).

H. FEDERAL LABOR REQUIREMENTS:

1. The project or program to which the work covered by this Contract pertains is being assisted by the United States of America and the Federal Labor Standards Provision included in the General Conditions, Part II of the Contract Documents are applicable along with the prevailing wage rates within the Contract Documents.

I. PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND:

1. Within fifteen (15) days immediately following date of his receipt of this contract, Contractor shall furnish Owner the signed Contract and separate Performance and Labor and Material Payment Bonds as required by and in accordance with the terms of Contract Documents in a penal sum of one hundred percent (100%) of the Contract sum.
2. In the event Contractor fails to furnish Owner such Contract and Bonds within said period, this Contract shall thereupon become null and void at Owner's option, exercised by written registered notice and mailed to Contractor by said Owner within five (5) days thereafter. Owner may then retain and enforce as liquidated damages, bid guarantee heretofore deposited with it in connection with Contractor's proposal for this Contract or the difference between his bid and a subsequent awarded bid, whichever is lesser.

J. IN WITNESS HEREOF, the parties hereto have executed this agreement as of the day and year first written above.

OWNER:

City of Hillsboro

Attest:

BY _____

BY _____
Clerk

TITLE _____

CONTRACTOR:

Attest:

BY _____
Secretary

BY _____

TITLE _____

(Corporate Seal)

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF DOCUMENT

NOTICE OF AWARD

To: _____

PROJECT Description: _____ S. Broad Street and E. Seward Street Watermain Replacement _____

City of Hillsboro _____

Hillsboro, Montgomery County, Illinois _____

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated _____, 20____ and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$ _____.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR’S Performance BOND, Payment BOND and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER’S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 20____.

City of Hillsboro
(Owner)
By _____
Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged,

by _____,
this the _____ day of _____, 20____.
By _____
Title _____

THIS PAGE INTENTIONALLY LEFT BLANK

NOTICE TO PROCEED

To: _____

Date: _____
Project: S. Broad Street and E. Seward Street
Watermain Replacement
City of Hillsboro
Hillsboro, Montgomery County, Illinois

You are hereby notified to commence WORK in accordance with the Agreement dated _____
_____, 20____, on or before _____, 20____, and you are to complete the WORK by _____
_____, 20____.

City of Hillsboro
(Owner)

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED
is hereby acknowledged by _____

this the _____ day of
_____, 20____.

By _____

Title _____

THIS PAGE INTENTIONALLY LEFT BLANK

CHANGE ORDER

Order No. _____

Date: _____

Agreement Date: _____

NAME OF PROJECT: S. Broad Street and E. Seward Street Watermain Replacement

_____ City of Hillsboro

_____ Hillsboro, Montgomery County, Illinois

OWNER: _____ City of Hillsboro

CONTRACTOR: _____

The following changes are hereby made to the CONTRACT DOCUMENTS:

Justification:

Change to CONTRACT PRICE:

Original CONTRACT PRICE \$ _____

Current CONTRACT PRICE adjusted by previous CHANGE ORDER \$ _____

The CONTRACT PRICE due to this CHANGE ORDER will be (increased) (decreased) by: \$ _____

The new CONTRACT PRICE including this CHANGE ORDER will be \$ _____

Change to CONTRACT TIME:

The CONTRACT TIME will be (increased)(decreased) by _____ calendar days.

The date for completion of all work will be _____ (Date).

Approvals Required:

To be effective this Order must be approved by the Federal agency if it changes the scope or objective of the PROJECT, or as may otherwise be required by the SUPPLEMENTAL GENERAL CONDITIONS.

Requested by: _____

Recommended by: _____

Ordered by: _____

Accepted by: Contractor: _____ Owner: City of Hillsboro

THIS PAGE INTENTIONALLY LEFT BLANK

CONTRACTOR'S AFFIDAVIT FOR FINAL COMPLETION
(To be filed with final request for payment)

STATE OF _____)

COUNTY OF _____)

_____, being
first duly sworn upon oath deposes and says:

That he/she is _____ of _____

hereinafter termed "The Contractor" for all work upon the hereinafter termed "Said Project," work for the CITY OF HILLSBORO, under that certain contract between said Contractor and said Owner, bearing date of _____ pertaining to said work.

Affiant further states, of his/her own knowledge, that all bills incurred by the Contractor, for services, labor and material furnished, for work done by the Contractor under said Contract, or in connection with said project have been paid and all subcontractors who have furnished services, labor or materials have no claim or demand against Owner for any services, labor and/or materials furnished and/or work done by them upon said Project.

Affiant further states that this affidavit is made on behalf of the Contractor for the purpose of obtaining payment of the sum of

_____ (\$ _____) dollars, which affiant states, upon his/her own knowledge, constitutes the full balance due the Contractor for all services, labor and materials furnished and work done to and upon Said Project by the Contractor whether under and pursuant to provisions of said Contract and all subsequent modifications thereof and changes therein or otherwise; and that payment of the sum to the Contractor will constitute payment in full on everything due for such services, labor, materials and work, and will fully satisfy any and all claims or demands which Contractor may have or assert against said Owner, arising out of anything done or furnished by the Contractor or occurring in connection with said Project and/or Contract.

CONTRACTOR

Subscribed and Sworn to before me the _____ day of _____, 20____.

NOTARY PUBLIC

THIS PAGE INTENTIONALLY LEFT BLANK

CONTRACTOR'S RELEASE AND WAIVER OF LIEN
(To be filed with final request for payment)

TO WHOM IT MAY CONCERN:

For good and valuable consideration, the receipt and sufficiency of which is

hereby acknowledged, the undersigned _____

_____ hereinafter termed "Contractor," hereby waives and releases any and all liens, and any and all claims and rights to liens against the S. Broad Street and E. Seward Street Watermain Replacement, City of Hillsboro, Montgomery County, Illinois, hereinafter termed "Said Project," and any and all other property owned by or the title to which is in the name of the CITY OF HILLSBORO hereinafter termed "Owner" and upon construction and/or equipping of Said Project, any and all warrants drawn upon or issued against any such funds or monies which Contractor may have acquired or possessed or may hereafter acquire or possess, as a result or on account of, the furnishing by the Contractor of services, labor and material used in connection with the construction under and pursuant to the certain Contract between it and said Owner, bearing date of _____ and pertaining to Said Project, or otherwise; and which said liens or claims or rights to lien may exist under and by virtue of an act of the General Assembly of the State of Illinois entitled "An Act to Revise the Law in Relation to Mechanic's Liens," approved May 18, 1903, as amended and in accordance with Chapter 82, Illinois Revised Statutes, 1976 or subsequent amendments thereto.

The undersigned further hereby acknowledges that the sum of _____

_____ Dollars, constitutes the entire balance due the Contractor from said Owner, for all services, labor and materials furnished and work done by it, upon or for Said Project and/or under said Contract, and that the payment in full to the undersigned for everything furnished and/or done by the Contractor in connection with Said Project, whether under the Contract or otherwise, and will satisfy in full, and will operate to fully and completely release said Owner from any and all claims or demands, of whatever nature, which the undersigned may have or assert against it, arising out of the construction and equipping of Said Project, said Contract, and any and all things done or furnished by the undersigned in connection therewith.

CONTRACTOR

BY _____

TITLE _____

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

NOTARY PUBLIC

THIS PAGE INTENTIONALLY LEFT BLANK

AFFIDAVIT OF PAYMENT TO MATERIAL SUPPLIERS AND SUBCONTRACTORS

STATE OF _____

COUNTY OF _____

_____, being first duly sworn upon oath deposes and says, that he/she entered into a Contract with the CITY OF HILLSBORO, known as the Owner, for furnishing of labor, work services, materials, fixtures, and supplies for construction of the following described real estate: S. Broad Street and E. Seward Street Watermain Replacement, City of Hillsboro, Montgomery County, Illinois.

That for the purpose of said Contract, the following persons, firms or corporations have been contracted with to furnish, have furnished or prepared, or will furnish or prepare labor, services, materials, fixtures, apparatus, machinery or supplies, or are furnishing and preparing material for said construction; that there are due or to become due to them respectively, the amounts set opposite their names for said labor, services, materials, fixtures, apparatus, machinery and supplies as stated; that there are no other contractors outstanding and there is nothing due or to become due any person, firm, or corporation, for labor, services, materials, fixtures, machinery, apparatus, or supplies, other than as stated herewith.

Material Supplier And / Or Subcontractor	Contract Item	Contract Amount	Amount Paid To Date	Amount Due Or To Become Due

CONTRACTOR

Subscribed and sworn to before me, a Notary Public, this _____ day of _____; A.D. 20_____.

NOTARY PUBLIC

THIS PAGE INTENTIONALLY LEFT BLANK

THIS PAGE INTENTIONALLY LEFT BLANK

DOCUMENT 00 72 14

GENERAL CONDITIONS - AIA

PART 1 GENERAL

1.1 SUMMARY

- A. Document Includes:
 - 1. General Conditions.
- B. Related Documents:
 - 1. Document 00 52 14 - Agreement Form - AIA.
 - 2. Document 00 73 13 - Supplementary Conditions - AIA.

1.2 GENERAL CONDITIONS

- A. AIA Document A201-2007, General Conditions of the Contract for Construction, is the General Conditions of the Contract. A copy of this document may be purchased online on www.aia.org at the following link: <https://documentsondemand.aia.org/>.

1.3 SUPPLEMENTARY CONDITIONS

- A. Refer to Document 00 73 13 for modifications to General Conditions.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF DOCUMENT

THIS PAGE INTENTIONALLY LEFT BLANK

DOCUMENT 00 73 13

SUPPLEMENTARY CONDITIONS - AIA

PART 1 GENERAL

1.1 SUMMARY

- A. Document Includes:
 - 1. General Conditions.
 - 2. Supplementary Conditions.
- B. Related Documents:
 - 1. Document 00 41 13 - Bid Form - Unit Price
 - 2. Document 00 52 14 - Agreement Form - AIA

1.2 GENERAL CONDITIONS

- A. The General Conditions of the Contract for Construction, AIA Document A201, Sixteenth Edition, 2007, Articles 1 through 15, is a part of this Contract and is incorporated herein as fully as if here set forth. Copies of the General Conditions are on file and may be reviewed at the offices of the Engineer, or may be obtained from the American Institute of Architects website: <https://documentsondemand.aia.org/>.

1.3 SUPPLEMENTARY CONDITIONS

- A. The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction," AIA Document A201, Sixteenth Edition, 2007. Where any Article of the General Conditions is modified or changed or any Paragraph, Subparagraph or Clause thereof is modified, changed or deleted by these supplements, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

1.4 REFERENCE TO DIVISION 01

- A. Where provisions of General Conditions relate to project administrative or work-related requirements of the Contract, and those provisions differ from those specified in Division 01, provisions outlined in Division 01 shall prevail.

1.5 ARTICLE 1: GENERAL PROVISIONS

- A. 1.5.1 In the second line following the word "Specifications" insert the words "and Project Manual,".
- B. 1.6 TRANSMISSION OF DATA IN DIGITAL FORM: Add new subparagraph 1.6.1:
 - 1. 1.6.1 Electronic drawings provided by the Owner or Architect are for informational purposes only and are not intended for any other use. The paper copies provided are a true representation of the completed design and if

discrepancies should exist between the paper copy and the electronic copy, the paper copy shall govern.

C. Delete Subparagraph 1.1.8 its entirety and substitute the following:

1. 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2. If the Initial Decision Maker is not specifically identified in the Agreement, the responsibilities of the Initial Decision Maker shall default to the Architect.

D. DEFINITIONS: Add Paragraph 1.1.9

1. 1.1.9 PROJECT MANUAL

The Project Manual is the collection of documents which includes the bidding requirements, sample forms and, certain Contract Documents such as the Conditions of the Contract and the Specifications.

1.6 ARTICLE 2: OWNER

A. 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER:

B. Delete Subparagraphs 2.2.3 and 2.2.5 in their entireties and substitute the following:

1. 2.2.3 The Owner shall, at the request of the Contractor, furnish to Contractor any survey or other similar descriptive information of project site that Owner has in his possession. Upon demonstration of need by Contractor for specific additional survey information, Owner shall obtain and furnish such information to Contractor.
2. 2.2.5 Contractor will be furnished, free of charge, 2 copies of Drawings, Specifications, and Project Manual as set forth in Division 1 of the Specifications. Additional copies will be furnished to Contractor at cost of reproduction, postage and handling.

1.7 ARTICLE 3: CONTRACTOR

A. 3.2. REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR: Add Subparagraphs 3.2.5 and 3.2.6:

1. 3.2.5 The Contractor by executing the Contract represents that he has carefully examined the Site of the Work at each location and that he has full knowledge of and fully understands the facilities, site conditions, difficulties and restrictions attending performance of the Work. Contractor further represents that he has taken all required measurements and carefully inspected existing constructions, irregularities and interferences which may affect the Work. No additional compensation will be allowed for conditions increasing Contractor's cost which were not known to or appreciated by him prior to executing the Contract if they

could have been discovered by him following the foregoing procedures and thoroughly informing himself of all existing conditions affecting the Work.

2. 3.2.6 Contractor will not, however, be required to excavate, penetrate or demolish any constructions or other work and conditions prior to executing the Contract in order to uncover and/or expose concealed conditions that affect the Work. If, during course of construction, Contractor uncovers conditions that affect the work that could not have been known and understood by the above described careful examination of conditions affecting the Work, he shall promptly notify the Architect, in writing, who will determine if claims for additional costs or extensions of time are justified. If such claims are found to be justified, Contract will be modified in accordance with Article 7 of the General Conditions.

1.8 ARTICLE 4: ARCHITECT

- A. 4.1 GENERAL: Delete Subparagraph 4.1.1 in its entirety and substitute the following:
 1. 4.1.1 The Owner shall retain an architect or engineer (who will be working within their field of expertise as dictated by the scope of the Project) lawfully licensed to practice architecture or engineering or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

1.9 ARTICLE 5: SUBCONTRACTORS

- A. 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK: Add new Subparagraph 5.2.1.1.:
 1. 5.2.1.1. Within ten (10) days of notification of acceptance of his proposal, Contractor shall submit the names of those to whom he intends to award a Subcontract.

1.10 ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

- A. 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS: Delete Subparagraph 6.1.3 in its entirety and substitute the following:
 1. 6.1.3 General Contractor shall have responsibility of coordinating efforts of all contractors and to maintain overall direction of job progress. Each Contractor shall coordinate operational methods with other contractors and encourage communications among all trades. All Contractors shall make other contractors aware of any problems, delays in materials shipments or lack of work force, and assist other contractors in maintaining job momentum and direction of overall project.

1.11 ARTICLE 9: PAYMENTS AND COMPLETION

- A. 9.3 APPLICATIONS FOR PAYMENT: Add new Subparagraph 9.3.1.3
 - 1. 9.3.1.3.: Until Substantial Completion, the Owner will pay 90 percent of the amount due Contractor on account of approved progress payments.

1.12 ARTICLE 11: INSURANCE AND BONDS

- A. 11.1.1 In the first line following the word "maintain," insert the words "in a company or companies licensed to do business in the state in which the project is located."

- B. Add new Subparagraph 11.1.1.9:

- 1. 11.1.1.9 General Liability Insurance shall be comprehensive, on occurrence, and shall include:
 - a. Premises and Operations.
 - b. Independent Contractors.
 - c. Products and Completed Operations.
 - d. Broad Form Property Damage.
 - e. Personal Injury.
 - f. Explosion, Collapse and Underground damage where the hazard exists.
 - g. Contractual liability.

- C. Add the following Sub-Subparagraphs to Subparagraph 11.1.2:

- 1. 11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than the following, or greater if required by law:

- 1. Worker's Compensation:
 - a. State: Statutory
 - b. Applicable Federal: Statutory
 - c. Employer's Liability: \$1,000,000
- 2. Comprehensive General Liability:
 - a. Bodily Injury:
 - \$ 500,000 Each Person
 - \$1,000,000 Aggregate
 - b. Property Damage:
 - \$ 500,000 Each Occurrence
 - \$1,000,000 Aggregate
 - c. \$1,000,000 Combined Single

Limit Coverage for bodily injury and property damage per occurrence and in the same aggregate limit will be accepted in lieu of the separate limits specified above.

- 3. Personal Injury:
 - \$ 1,000,000 Combined single limit including owned non-owned, and hired motor vehicle.

4. Comprehensive Automobile Liability:
 - a. Bodily Injury:

\$1,000,000	Each Person
\$1,000,000	Each Occurrence
 - b. Property Damage:

\$ 500,000	Each Occurrence
\$1,000,000	Aggregate
 - c. \$1,000,000 Combined Single

Limit coverage for bodily injury and property damage per occurrence and in the same aggregate limit will be accepted in lieu of the separate limits specified above.

2. 11.1.2.2 Umbrella Form Liability Coverage:

An Umbrella Form Liability coverage to not less than \$2,000,000 for any one occurrence and subject to the same aggregate over the Employer's Liability, Comprehensive General Liability, and Comprehensive Automobile Liability coverage is required.

D. Add the following Subparagraph 11.1.3.1:

1. 11.1.3.1 Contractor shall furnish one copy each of Certificates of Insurance herein required for each copy of the Agreement which shall specifically set forth evidence of all coverage required by Paragraph 11.1. The form of the Certificate shall be AIA Document G705, Certificate of Insurance. Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits. The Contractor shall furnish to the Owner notice of any policy cancellation at least 30 days prior to the effective date of cancellation. The Contractor shall submit copies of subcontractor's Certificates of Insurance prior to the beginning of work.

E. Add the following Subparagraph 11.1.4.1:

1. 11.1.4.1 The Owner and Architect shall be named as additional insureds by endorsement for the purpose of coverage only with no liability for premium payments.

F. 11.3. PROPERTY INSURANCE: Delete Subparagraph 11.3.1 in its entirety and substitute the following:

1. 11.3.1: The General Contractor shall be responsible to maintain property (builder's risk) insurance upon the completed value of all work at the site under this contract to the full insurable value thereof. This insurance shall include the interests of the Owner, the General Contractor, Subcontractors, and Sub-subcontractors in the work and as their interests may appear in the work, and shall be an all-risk type policy, including theft, subject to the exclusions generally accepted in the insurance industry. This coverage is not intended to, and shall not, provide coverage for tools, equipment, scaffolding, forms, or other devices used by the Contractors or Subcontractors in performing work under this contract.

2. 11.3.1.2 Delete this Paragraph in its entirety.

G. Delete Subparagraphs 11.3.1.3 in its entirety and substitute the following:

1. 11.3.1.3 If the property insurance requires deductibles, the Contractor shall pay costs not covered because of such deductibles.

1.13 ARTICLE 13: MISCELLANEOUS PROVISIONS

A. Add new paragraph 13.8 as follows:

1. 13.8 REFERENCED STANDARDS

13.8.1 No provision of any referenced standard specification, manual or code; whether or not specifically incorporated by reference in the Contract Documents; shall be effective to change the duties and responsibilities of Owner, Contractor or Architect, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Architect, or any of Architect's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Articles 1 through 15.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

DOCUMENT 00 82 50

PREVAILING WAGE RATE

PART 1 GENERAL

- 1.1 This contract requires payment of the prevailing hourly rate of wages for each craft or type of work required to execute the contract as determined by the Illinois Department of Labor. The applicable state wage rates for this contract are detailed in the Montgomery County prevailing wage rates (10 pages) that is attached to this bidding document.
- 1.2 Pursuant to Illinois Compiled Statutes 820 ILCS 130/0.01 et seq., these specifications include the Illinois Department of Labor prevailing rate of wages for the county where the contract is being performed and for each craft or type of worker needed to execute the contract.
- 1.3 **Not less** than the prevailing hourly rate of wages, as set out in the prevailing wage rates attached to and made part of the specification for work under the contract, **must** be paid to all workers performing work under the contract.
- 1.4 Contractor shall comply with all Illinois statutory requirements regarding labor, including, but not limited to, the following:
 - A. Illinois Public Act 77-1552 and Chapter 48, Sections 39S-1 through 39S-12 of the Illinois Revised Statutes regulating wages of laborers, mechanics and other workers employed in any public works and known as the "Prevailing Wage Act," which provides in part that all laborers, mechanics and workers performing work under the Contract shall be paid not less than the prevailing rate of wages as determined by the Illinois Department of Labor (820 ILCS 130).
 - B. Illinois Public Act 83-1472, Article 2 and Chapter 48, Sections 2201 through 2207, 1984 of the Illinois Revised Statutes pertaining to hiring of Illinois labor and known as the "Illinois Preference Act (30 ILCS 570)."
 - C. "Illinois Human Rights Act of 1980," Chapter 68, Illinois Revised Statutes, and the Rules and Regulations, Title 44, Section 750 of the Illinois Administrative Code, Illinois Department of Human Rights; pertaining to equal employment opportunity (777 ILCS 10).

END OF DOCUMENT

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contract description.
- B. Contractor's use of site.
- C. Owner occupancy.
- D. Specification Conventions.
- E. Contractor's Duties.
- F. Contract Documents.

1.2 CONTRACT DESCRIPTION

- A. Work of the Project includes:

Watermain replacement along S. Broad Street and E. Seward Street from Church Street to Courthouse Square including 8-inch AWWA C900 DR-25 restrained joint PVC watermain piping; 16-inch 5/16-inch thick steel casing pipe with casing spacers and end seals for watermain piping at storm and sewer pipe crossings; roadway pavement removal and replacement; rolled curb and gutter removal and replacement; full height granular backfill; fittings; mechanical restraints; tapping sleeves and gate valves; line stops; gate valves with valve boxes and lids; blowoff assemblies; water service line trimming and/or extending and connection; granular bedding; traffic control; flagmen; testing; disinfection; all appurtenances and minor details necessary to make the completed improvements fully operational with the project plans and specifications.

- B. Perform Work of Contract per unit price cost with Owner in accordance with Conditions of Contract.

1.3 CONTRACTOR'S USE OF SITE

- A. Limit use of site to allow:
 - 1. Owner occupancy.
 - 2. Work by Others and Work by Owner.
- B. Access to Site: Limited to normal working hours.
- C. Construction Operations: Limited to areas noted on Drawings and in Specifications.
- D. Allow for public use of all adjoining streets and sidewalks.

- E. Light duty vehicle parking is permitted. All parking lots and sidewalks are to be restored to their original condition.

1.4 OWNER OCCUPANCY

- A. The Owner will occupy the site during the entire period of construction for use of the existing watermains and appurtenances.
- B. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

1.5 SPECIFICATION CONVENTIONS

- A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.6 CONTRACTOR'S DUTIES

- A. Except as specifically noted, Contractor shall provide and pay for:
 - 1. All labor, materials, and equipment used for construction of and/or incorporated into the project.
 - 2. All tools, construction equipment and machinery.
 - 3. Required building permits, and all inspection fees by governmental authorities.
 - 4. Other facilities and services necessary for proper execution and complete of work.
- B. Owner is exempt from sales tax on product permanently incorporated in work.
 - 1. Obtain sales tax exemption certificate number from Owner.
 - 2. Place exemption certificate number on invoices for materials incorporated in work.
 - 3. Upon completion of work, file with Owner a notarized statement that all purchases made under exemption certificate were entitled to be exempt and furnish copies of invoice to Owner.
 - 4. Pay legally assessed penalties for improper use of exemption certificate number.
- C. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities which bear on performance of work.
- D. Promptly submit written notice to Engineer of observed variance of contract documents from legal requirements.
 - 1. It is not the Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
 - a. Appropriate modifications to contract documents will account for/reflect necessary changes.
 - b. Assume responsibility for work known to be contrary to such requirements if written notice is not provided by the Contractor to the Engineer.

- E. Enforce strict discipline and good order among employees.
- F. Do not unreasonably encumber site with materials or equipment.
- G. Do not load structure with weight that will endanger structure.
- H. Assume full responsibility for protection and safe-keeping of products stored on premises.
- I. Move any stored products, which interfere with operations of Owner or other Contractors.
- J. Obtain and pay for use of additional storage or work areas needed for operations.
- K. Contractor shall maintain buildings free from entrance of water at all times during construction.
- L. Contractor shall furnish, erect and maintain temporary ladders, ramps, or hoists as may be required for performance of his work.
 - 1. All such equipment shall be substantially designed, constructed, and maintained in accordance with applicable federal, state, and local laws, ordinances, and regulations, and shall be promptly removed when no longer needed.
- M. Contractor shall design, furnish, erect, maintain, and move all ladders and scaffolding required for this work.
 - 1. All ladders and scaffolding shall be designed, constructed, and maintained in accordance with applicable federal, state, and local law, ordinances, and regulations, and shall be promptly removed when no longer needed.

1.7 CONTRACT DOCUMENTS

- A. Contractor will be furnished free of charge two (2) copies of drawings and specifications.
- B. On request, additional copies will be furnished to Contractor at cost of reproduction, postage and handling.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Applications for payment.
- B. Change order procedures.
- C. Defect assessment.
- D. Unit prices.

1.2 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on form supplied by Engineer or Contractor's standard form or electronic media printout will be considered.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment.
- D. For payment of stored materials (when permitted by the contract), include a line for Stored Materials on the Pay Application. (The contractor may wish to submit a sample payment application for Engineer Approval or request a payment application from the Engineer.) A separate schedule listing the stored and installed materials should be included as well as supplier price quotes justifying the price of the stored materials. The payments for stored materials will be deducted from the application as they are installed. All payments of stored materials shall be in accordance with paragraph K of this Section.
- E. Payment Period: Submit applications for payment to Engineer for processing no later than 10 days prior to date established for progress payment meeting.
- F. Submit with transmittal letter as specified for Submittals in Section 01 33 00.
- G. Submit lien waivers.
- H. Substantiating Data: When Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
 - 1. Current construction photographs specified in Section 01 33 00.
 - 2. Partial release of liens from major subcontractors and vendors.
 - 3. Record documents as specified in Section 01 70 00, for review by Owner/Engineer, which will be returned to Contractor.
 - 4. Affidavits attesting to off-site stored products.
 - 5. Construction progress schedules, revised and current as specified in Section 01 32 16.

- I. Application for Payment No. 1 shall be accompanied by a notarized statement on Contractor's letterhead as follows:
 - 1. I certify that the funds requested for the accompanying Pay Request No. 1 will be used to pay all just and lawful bills against the undersigned and his subcontractors for labor, material and equipment employed in the performance of the work. I further certify that such bills will be paid no later than ten (10) calendar days from date of receipt of the Owner's disbursement.
 - 2. Execute statement with signature of a responsible officer of contracting firm.

- J. Each subsequent application for progress payment shall be accompanied by the following supporting documents:
 - 1. Partial or final waivers of lien in monetary amount from Contractor, each material supplier and/or subcontractor reflecting amounts incorporated into preceding request for progress payment.
 - 2. A notarized Affidavit of Payment to Material Suppliers and Subcontractors.
 - a. Affidavit shall be submitted in exact text as exhibit furnished by Engineers, signed by Contractor or Subcontractor.
 - b. Include unit item, actual amount of contract without overhead or profit, amount paid to date, and amount to become due (balance of account).

- K. Progress payments will be made for materials and equipment not incorporated in the work provided that:
 - 1. Such materials and equipment have been delivered to and suitable stored at site or some other location approved in writing by Owner and Engineer. All such materials stored off-site shall be marked or tagged with identification of project to which they are assigned.
 - 2. Contractor submits evidence of title to such materials and equipment.
 - 3. Care and custody of such materials and equipment and all costs incurred for movement and storage shall be responsibility of Contractor.
 - 4. Such materials and equipment are suitably insured by Contractor. Contractor shall submit a certificate of insurance showing the Owner as an additional insured and showing amount of insurance coverage of suitable proof that material and equipment are stored in a bonded warehouse.

- L. Refer to Section 01 70 00 for submittal requirements for application for final payment and related closeout procedures.

- M. If Owner Fails to make payment thirty (30) days after receipt of the Contractor's application for payment, in addition to other remedies available to the Contractor, then shall be added to each such payment interest in accordance with Illinois Compiled Statutes.

1.3 CHANGE ORDER PROCEDURES

- A. Submittals: Submit name of individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

- B. The Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum or Contract Time by issuing supplemental instructions in writing.

- C. The Engineer may issue a Proposal Request including a detailed description of proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with stipulation of overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit estimate within 10 days.
- D. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change, and effect on Contract Sum and Contract Time with full documentation and a statement describing effect on Work by separate or other Contractors. Document requested substitutions in accordance with Section 01 60 00.
- E. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on fixed unit price basis. For unit costs or quantities of units of work, which are not pre-determined, execute Work under Construction Change Order. Changes in Contract Sum or Contract Time will be computed as specified for Change Order.
- F. Engineer may issue directive, on HR Field Change Order form signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum or Contract Time. Promptly execute change.
- G. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Engineer will determine change allowable in Contract Sum and Contract Time as provided in Contract Documents.
- H. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- I. Document each quotation for change in cost or time with sufficient data to allow evaluation of quotation.
- J. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- K. Correlation Of Contractor Submittals:
 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
 3. Promptly enter changes in Project Record Documents.

1.4 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.

- B. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct appropriate remedy or adjust payment.
- C. Individual specification sections may modify these options or may identify specific formula or percentage sum reduction.
- D. Engineer and the Owner or Owner's representative have the authority to assess defects and identify payment adjustments.
- E. Non-Payment For Rejected Products: Payment will not be made for rejected products for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.5 UNIT PRICES

- A. Authority: Measurement methods are delineated in individual specification sections.
- B. Measurement methods delineated in individual specification sections complement criteria of this section. In event of conflict, requirements of individual specification section govern.
- C. Contractor shall take measurements and compute quantities. Engineer and/or Owner will verify measurements and quantities.
- D. Unit Quantities: Quantities and measurements indicated in Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment. Actual quantities provided and installed shall determine payment.
 - 1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at unit sum/prices contracted.
 - 2. When actual Work requires 25 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim for Contract Price adjustment.
- E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application or installation of item of the Work; overhead and profit.
- F. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- G. Measurement of quantities shall be as follows unless otherwise stated in the pertinent Technical Specification Section:
 - 1. Weigh Scales: Inspected, tested and certified by applicable state Weights and Measures department within past year.

2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.
3. Metering Devices: Inspected, tested and certified by applicable state department within past year.
4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
5. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
6. Measurement by Area: Measured by square dimension using mean length and width or radius.
7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and project conditions.
- B. Field engineering.
- C. Preconstruction meeting.
- D. Progress meetings.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various sections of the Contract Documents to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD ENGINEERING

- A. Control datum for survey is that shown on Drawings. Employ Land Surveyor registered in State of Illinois and acceptable to the Owner and Engineer.
- B. Verify set-backs and easements; confirm drawing dimensions and elevations.
- C. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

- D. Maintain complete and accurate log of control and survey work as Work progresses.
- E. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- F. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

1.4 PRECONSTRUCTION MEETING

- A. Engineer will schedule meeting after Notice of Award.
- B. Attendance Required: Owner, Engineer, and Contractor.
- C. Agenda:
 - 1. Distribution of Contract Documents.
 - 2. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
 - 3. Designation of personnel representing parties in Contract and Engineer.
 - 4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 5. Scheduling.
- D. Engineer will record minutes and distribute copies with reasonable promptness after meeting to participants, with one copy to Engineer, Owner, and those affected by decisions made.

1.5 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Engineer, as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems impeding planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.

9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to Work.
- E. Engineer will record minutes and distribute copies with reasonable promptness after meeting to participants, with one copy to Engineer, Owner, and those affected by decisions made.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Format.
- B. Schedules.
- C. Submittals.
- D. Review and evaluation.
- E. Updating schedules.
- F. Distribution.

1.2 FORMAT

- A. Listings: Reading from left to right, in ascending order for each activity. Identify each activity with applicable specification section number.
- B. Diagram Sheet Size: 8-1/2" x 11"

1.3 SCHEDULES

- A. Illustrate order and interdependence of activities and sequence of work; how start of given activity depends on completion of preceding activities, and how completion of activity may restrain start of subsequent activities.
- B. Illustrate complete sequence of construction by activity, identifying work of separate stages. Indicate dates for submittals including dates for Owner furnished items and return of submittals; dates for procurement and delivery of critical products; and dates for installation and provision for testing. Include legend for symbols and abbreviations used.
- C. Mathematical Analysis: Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:
 - 1. Preceding and following event numbers.
 - 2. Activity description.
 - 3. Estimated duration of activity, in maximum 15 day intervals.
 - 4. Earliest start date.
 - 5. Earliest finish date.
 - 6. Actual start date.
 - 7. Actual finish date.
 - 8. Latest start date.
 - 9. Latest finish date.
 - 10. Monetary value of activity, keyed to Schedule of Values.
 - 11. Percentage of activity completed.
 - 12. Responsibility.

- D. Required Sorts: List activities in sorts or groups:
 - 1. By preceding work item or event number from lowest to highest.
 - 2. Listing of activities on critical path.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 00.

1.5 REVIEW AND EVALUATION

- A. Review and Evaluate project status to determine work behind schedule and work ahead of schedule.

1.6 UPDATING SCHEDULES

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity. Update diagrams to graphically depict current status of Work.
- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Indicate changes required to maintain Date of Substantial Completion.
- E. Prepare narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken or proposed and its effect including effects of changes on schedules of separate contractors.

1.7 DISTRIBUTION

- A. Following joint review, distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Engineer, Owner and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Product data.
- E. Shop drawings.
- F. Samples.
- G. Design data.
- H. Test reports.
- I. Certificates.
- J. Manufacturer's instructions.
- K. Manufacturer's field reports.
- L. Construction photographs.

1.2 SUBMITTAL PROCEDURES

- A. **Transmit each submittal with shop drawing submittal form found at the end of this section**, which identifies the project, contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.
- B. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- C. Schedule submittals to expedite Project, and deliver to Engineer at 1400 E. Tremont Street, Hillsboro, Illinois 62049.
- D. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.
- E. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.

- F. Allow space on submittals for Contractor and Engineer review stamps.
- G. When revised for resubmission, identify changes made since previous submission.
- H. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- I. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Prepare Construction Progress Schedule in accordance with Section 01 32 16.
- B. Submit initial schedules within 20 days after date established in Notice to Proceed. After review, resubmit required revised data within 10 days.
- C. Submit revised Progress Schedules with each Application for Payment.
- D. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- E. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- F. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration.
- G. Indicate estimated percentage of completion for each item of Work at each submission.
- H. Submit separate schedule of submittal dates for shop drawings, product data, and samples, and dates reviewed submittals will be required from Engineer. Indicate decision dates for selection of finishes.
- I. Revisions To Schedules:
 - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
 - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
 - 3. Prepare narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect including effect of changes on schedules of separate contractors.

1.4 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.5 PRODUCT DATA

- A. Product Data: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Submit number of copies Contractor requires, plus 3 copies Engineer will retain.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, produce copies and distribute in accordance with Submittal Procedures article and for record documents described in Section 01 70 00.

1.6 SHOP DRAWINGS

- A. Shop Drawings: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
 - 1. Include signed and sealed calculations to support design.
 - 2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit number of opaque reproductions Contractor requires, plus 3 copies Engineer will retain.
- E. After review, produce copies and distribute in accordance with Submittal Procedures article and for record documents described in Section 01 70 00.

1.7 SAMPLES

- A. Samples: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Samples For Selection as Specified in Product Sections:
 - 1. Submit to Engineer for aesthetic, color, or finish selection.
 - 2. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Engineer selection.

- C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- D. Include identification on each sample, with full Project information.
- E. Submit number of samples specified in individual specification sections; Engineer will retain one sample.
- F. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- G. Samples will not be used for testing purposes unless specifically stated in specification section.
- H. After review, produce duplicates and distribute in accordance with Submittal Procedures article and for record documents purposes described in Section 01 70 00.

1.8 DESIGN DATA

- A. Submit for Engineer's knowledge as contract administrator or for Owner.
- B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.9 TEST REPORTS

- A. Submit for Engineer's knowledge as contract administrator or for Owner.
- B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.10 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for Engineer's benefit as contract administrator or for Owner.
- B. Submit report in duplicate within 30 days of observation to Engineer for information.
- C. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.13 CONSTRUCTION PHOTOGRAPHS

- A. Photographs: Take photographs as evidence of existing project conditions:
- B. Identify each print on back. Identify name of Project, contract number, orientation of view, date and time of view.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.



SHOP DRAWING SUBMITTAL

PROJECT: S. Broad Street and E. Seward Street
Watermain Replacement
City of Hillsboro
Hillsboro, Montgomery County, Illinois

DATE: _____

A/E PROJECT NO: 850-1684

CONTRACTOR: _____

PRESENTED BY: _____
(Subcontractor/Supplier) Company Name

Address

Phone/Fax

Contact Person

ITEM: _____

SPEC SECTION: _____

By approving and submitting these shop drawings, product data and samples, we represent that we have determined and verified all materials, field measurements and field construction criteria related thereto, or will do so, and that we have checked and coordinated information contained within submittal with requirements of the work and contract documents.

Contractor's Signature

Date

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality control and control of installation.
- B. Tolerances
- C. References.
- D. Testing and inspection services.
- E. Manufacturers' field services.
- F. Examination.
- G. Preparation.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. When specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.5 TESTING AND INSPECTION SERVICES

- A. Contractor shall employ and pay for specified services of an independent testing agency or laboratory acceptable to Engineer and Owner to perform all testing and inspection services.
 - 1. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time responsible officer.
 - 2. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.
- B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by Engineer or Owner.
 - 1. Laboratory: Authorized to operate in State of Illinois.
 - 2. Laboratory Staff: Maintain full time specialist on staff to review services.
 - 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing as required by Engineer or Owner.
- D. Reports will be submitted by independent firm to Engineer, Owner and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- E. Contractor shall coordinate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.

2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- G. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent firm or other firm on instructions by Engineer. Payment for re-testing or re-inspection shall be the Contractor's responsibility.
- H. Agency Responsibilities:
1. Test samples of mixes submitted by Contractor.
 2. Provide qualified personnel at site. Cooperate with Engineer, Owner and Contractor in performance of services.
 3. Perform specified sampling and testing of products in accordance with specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
 6. Perform additional tests required by Engineer or Owner.
 7. Attend preconstruction meetings and any progress meetings.
- I. Agency Reports: After each test, promptly submit one copy of report to Engineer, Owner and Contractor. When requested by Engineer, provide interpretation of test results. Include the following:
1. Date issued.
 2. Project title and number.
 3. Name of inspector.
 4. Date and time of sampling or inspection.
 5. Identification of product and specifications section.
 6. Location in Project.
 7. Type of inspection or test.
 8. Date of test.
 9. Results of tests.
 10. Conformance with Contract Documents.
- J. Limits On Testing Authority:
1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Agency or laboratory may not approve or accept any portion of the Work.
 3. Agency or laboratory may not assume duties of Contractor.
 4. Agency or laboratory has no authority to stop the Work.

1.6 MANUFACTURERS' FIELD SERVICES

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

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

- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer subject to approval of Engineer and Owner.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Refer to Section 01 33 00 - Submittal Procedures, Manufacturers' Field Reports article.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities:
 - 1. Temporary electricity.
 - 2. Temporary lighting for construction purposes.
 - 3. Temporary heating.
 - 4. Temporary cooling.
 - 5. Temporary ventilation.
 - 6. Temporary water service.
 - 7. Temporary sanitary facilities.

- B. Construction Facilities:
 - 1. Field offices and sheds.
 - 2. Vehicular access.
 - 3. Parking.
 - 4. Progress cleaning and waste removal.
 - 5. Traffic regulation.

- C. Temporary Controls:
 - 1. Barriers.
 - 2. Enclosures and fencing.
 - 3. Security.
 - 4. Water control.
 - 5. Dust control.
 - 6. Erosion and sediment control.
 - 7. Noise control.
 - 8. Pollution control.

- D. Removal of utilities, facilities, and controls.

- E. Clean Air Act.

- F. Clean Water Act.

- G. Historical or Archaeological.

1.2 TEMPORARY ELECTRICITY

- A. Provide and pay for power service required from utility source as needed for construction operation.

- B. Complement existing power service capacity and characteristics as required for construction operations.

- C. Permanent convenience receptacles may be utilized during construction.
- 1.3 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES
- A. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps for specified lighting levels or as construction project requires.
 - B. Maintain lighting and provide routine repairs.
- 1.4 TEMPORARY HEATING
- A. Provide and pay for heating devices and heat as needed to maintain specified conditions for construction operations.
- 1.5 TEMPORARY COOLING
- A. Provide and pay for cooling devices and cooling as needed to maintain specified conditions for construction operations.
- 1.6 TEMPORARY VENTILATION
- A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- 1.7 TEMPORARY WATER SERVICE
- A. Provide and pay for suitable quality water service as needed to maintain specified conditions for construction operations. Connect to existing water source. Owner to provide water free of charge for testing purposes. Exercise measures to conserve energy.
- 1.8 TEMPORARY SANITARY FACILITIES
- A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of project mobilization.
- 1.9 FIELD OFFICES AND SHEDS
- A. Do not use existing facilities for field offices or for storage.
 - B. Office: Weather tight, with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture, drawing rack, and drawing display table.
 - C. Provide space for Project meetings, with table and chairs to accommodate 6 persons.
 - D. Locate offices and sheds minimum distance of 30 feet from existing and new structures.
 - E. Do not use permanent facilities for field offices or for storage.
 - F. Construction: Portable or mobile buildings, or buildings constructed with floors raised above ground, securely fixed to foundations with steps and landings at entrance doors.

1. Construction: Structurally sound, secure, weather tight enclosures for office and storage spaces. Maintain during progress of Work; remove at completion of Work.
 2. Temperature Transmission Resistance of Floors, Walls, and Ceilings: Compatible with occupancy and storage requirements.
 3. Exterior Materials: Weather resistant, finished in one color acceptable to Owner.
 4. Interior Materials in Offices: Sheet type materials for walls and ceilings, pre-finished or painted; resilient floors and bases.
 5. Lighting for Offices: 50 ft C at desk top height, exterior lighting at entrance doors.
 6. Fire Extinguishers: Appropriate type fire extinguisher at each office and each storage area.
 7. Interior Materials in Storage Sheds: As required to provide specified conditions for storage of products.
- G. Environmental Control:
1. Heating, Cooling, and Ventilating for Offices: Automatic equipment to maintain comfort conditions, 68 degrees F heating and 76 degrees F cooling.
 2. Storage Spaces: Heating and ventilation as needed to maintain products in accordance with Contract Documents; lighting for maintenance and inspection of products.
- H. Storage Areas and Sheds: Size to storage requirements for products of individual Sections, allowing for access and orderly provision for maintenance and for inspection of products to requirements of Section 01 60 00.
- I. Preparation: Fill and grade sites for temporary structures sloped for drainage away from buildings.
- J. Removal: At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

1.10 VEHICULAR ACCESS

- A. Extend and relocate vehicular access as Work progress requires, provide detours as necessary for unimpeded traffic flow.
- B. Provide unimpeded access for emergency vehicles. Maintain 12 foot wide driveways with turning space between and around combustible materials.
- C. Provide and maintain access to fire hydrants and control valves free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.
- E. Use designated existing on-site roads for construction traffic.
- F. Access to site from limited access highways not permitted except at permitted access points.

1.11 PARKING

- A. Construct temporary gravel surface parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.
- B. Locate as approved by Owner.
- C. Use of existing on-site streets and driveways used for construction traffic is not permitted. Tracked vehicles not allowed on paved areas.
- D. Use of existing parking facilities used by construction personnel is not permitted.
- E. Do not allow heavy vehicles or construction equipment in parking areas.
- F. Do not allow vehicle parking on existing pavement.
- G. Permanent Pavements and Parking Facilities:
 - 1. Prior to Substantial Completion, bases for permanent roads and parking areas may be used for construction traffic.
 - 2. Avoid traffic loading beyond paving design capacity. Tracked vehicles not allowed.
 - 3. Use of permanent parking structures is not permitted.
- H. Maintenance:
 - 1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
 - 2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.
- I. Removal, Repair:
 - 1. Remove temporary materials and construction before Substantial Completion.
- J. Mud From Site Vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.12 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.
- C. Collect and remove waste materials, debris, and rubbish from site weekly and dispose off-site.

1.13 TRAFFIC REGULATION

- A. Signs, Signals, And Devices:
 - 1. Post Mounted and Wall Mounted Traffic Control and Informational Signs: As approved by authority having jurisdiction.

2. Traffic Control Signals: As approved by authority having jurisdiction.
 3. Traffic Cones and Drums, Flares and Lights: As approved by authority having jurisdiction.
 4. Flagperson Equipment: As required by authority having jurisdiction.
- B. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- C. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- D. Haul Routes:
1. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.
- E. Traffic Signs And Signals:
1. Provide signs at approaches to site and on site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
 2. Provide, operate, and maintain traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control, and areas affected by Contractor's operations.
 3. Relocate as Work progresses, to maintain effective traffic control.
- F. Removal:
1. Remove equipment and devices when no longer required.
 2. Repair damage caused by installation.
 3. Remove post settings to depth of 2 feet.

1.14 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades and covered walkways required by authorities having jurisdiction for public rights-of-way.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.15 ENCLOSURES AND FENCING

- A. Construction: Plastic construction netting or chain link.

1.16 SECURITY

- A. Security Program:
 1. Protect Work from theft, vandalism, and unauthorized entry.
 2. Initiate program at project mobilization.
 3. Maintain program throughout construction period until Owner occupancy.

1.17 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.18 DUST CONTROL

- A. Execute Work by methods to minimize raising dust from construction operations.
- B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

1.19 EROSION AND SEDIMENT CONTROL

- A. Refer to Erosion Control and SWPPP Specification.
- B. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- C. Minimize surface area of bare soil exposed at one time.
- D. Provide temporary measures including berms, dikes, and drains, and other devices to prevent water flow.
- E. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
- F. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.20 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.21 POLLUTION CONTROL

- A. Refer to Erosion Control and SWPPP Specification.
- B. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.
- C. Comply with pollution and environmental control requirements of State of Illinois.

1.22 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to final inspection.
- B. Clean and repair damage caused by installation or use of temporary work.

- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.23 CLEAN AIR ACT

- A. All parties of the contract are required to comply with the Clean Air Act [42 U.S.C. 7506 (C)].

1.24 CLEAN WATER ACT

- A. All parties of the contract are required to comply with the Clean Water Act (33 U.S.C. 1368).

1.25 HISTORICAL OR ARCHAEOLOGICAL

- A. If during the course of construction evidence of deposits of historical or archaeological interest is found, the contractor shall cease operations affecting the find and shall notify the owner who shall notify the State of Illinois. No further disturbances of the deposits shall ensue until the contractor has been notified by the owner that he may proceed. The owner will issue a notice to proceed only after the state official has surveyed the find and made a determination to the State of Illinois and the owner. 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 specifications.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.
- E. Product substitution procedures.

1.2 PRODUCTS

- A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- C. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.
- C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.

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

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.

1.6 PRODUCT SUBSTITUTION PROCEDURES

- A. Instructions to Bidders specify time restrictions for submitting requests for Substitutions during bidding period to requirements specified in this section.
- B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that Bidder:
 1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 2. Will provide same warranty for Substitution as for specified product.
 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 5. Will reimburse Owner and Engineer for review or redesign services associated with re-approval by authorities having jurisdiction.

- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to Contract Documents.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 - 2. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
 - 3. Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Starting of systems.
- D. Demonstration and instructions.
- E. Testing, adjusting, and balancing.
- F. Protecting installed construction.
- G. Project record documents.
- H. Operation and maintenance data.
- I. Manual for materials and finishes.
- J. Manual for equipment and systems.
- K. Spare parts and maintenance products.
- L. Product warranties and product bonds.
- M. Maintenance services.

1.2 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
- B. Provide submittals to Engineer required by authorities having jurisdiction.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces.

- C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.
- D. Clean site; sweep paved areas, rake clean landscaped surfaces.
- E. Remove rocks from grassed or landscaped areas.
- F. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 STARTING OF SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Engineer seven days prior to start-up of each item.
- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
- D. Verify wiring and support components for equipment are complete and tested.
- E. Execute start-up under supervision of applicable manufacturer's representative in accordance with manufacturers' instructions.
- F. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- G. Submit a written report in accordance with Section 01 33 00 that equipment or system has been properly installed and is functioning correctly.

1.5 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. Demonstrate Project equipment and instruct in classroom environment located at Owner's office and instructed by qualified manufacturer's representative who is knowledgeable about the Project.
- C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- D. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- F. Required instruction time for each item of equipment and system is specified in individual sections.

1.6 TESTING, ADJUSTING AND BALANCING

- A. Contractor will appoint, employ, and pay for services of independent firm to provide testing, adjusting, and balancing.
- B. Reports will be submitted by independent firm to Engineer indicating observations and results of tests and indicating compliance or non-compliance with requirements of Contract Documents.

1.7 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Prohibit traffic from landscaped areas.

1.8 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
 - 7. Permits including the following:
 - a. Land Disturbance (NPDES) and Storm Water Pollution Prevention Plan.
 - b. IEPA Water/Sewer Extension.
 - c. IDOT Right-of-Way Permit.
 - d. Local Agency Permits (building, plumbing, etc.)
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 4. Field changes of dimension and detail.
 5. Details not on original Contract drawings.
- G. Submit documents to Engineer with claim for final Application for Payment.

1.9 OPERATION AND MAINTENANCE DATA

- A. Submit data bound in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
- C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
 2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section or as accepted by the Owner. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties and bonds.

1.10 MANUAL FOR MATERIALS AND FINISHES

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

- C. Submit one copy of completed volumes fifteen days prior to final inspection. Draft copy be reviewed and returned after final inspection, with Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes in final form within 10 days after final inspection.
- E. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Include information for re-ordering custom manufactured products.
- F. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- G. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.
- H. Additional Requirements: As specified in individual product specification sections.
- I. Include listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.11 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes fifteen days prior to final inspection. Draft copy to be reviewed and returned after final inspection, with Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes in final form within 10 days after final inspection.
- E. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- F. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- G. Include color-coded wiring diagrams as installed.
- H. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.

- I. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- J. Include servicing and lubrication schedule, and list of lubricants required.
- K. Include manufacturer's printed operation and maintenance instructions.
- L. Include sequence of operation by controls manufacturer.
- M. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- N. Include control diagrams by controls manufacturer as installed.
- O. Include Contractor's coordination drawings, with color-coded piping diagrams as installed.
- P. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- Q. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- R. Include test and balancing reports as specified in Section 01 40 00.
- S. Additional Requirements: As specified in individual product specification sections.
- T. Include listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

1.12 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

1.13 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.

- E. Include Table of Contents and assemble in three D side ring binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Time Of Submittals:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
 - 2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

1.14 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in specification sections during warranty period.
- B. Examine system components at frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.
- D. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 03 20 00

CONCRETE REINFORCING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Reinforcing bars.
 - 2. Welded wire fabric.
 - 3. Fiber Reinforced Concrete.
 - 4. Reinforcement accessories.

- B. Related Sections:
 - 1. Section 03 30 00 - Cast-in-Place Concrete.
 - 2. Section 32 05 16 - Aggregates.
 - 3. Section 32 13 13 - Concrete Paving.

1.2 REFERENCES

- A. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.
 - 2. ACI 318 - Building Code Requirements for Structural Concrete.
 - 3. ACI 530.1 - Specifications for Masonry Structures.
 - 4. ACI SP-66 - ACI Detailing Manual.

- B. American Society for Testing and Materials:
 - 1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
 - 2. ASTM A184 - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
 - 3. ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
 - 4. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
 - 5. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 6. ASTM A616 - Standard Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement.
 - 7. ASTM A617 - Standard Specification for Axle-Steel Deformed and Plain Bars for Concrete Reinforcement.
 - 8. ASTM A641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - 9. ASTM A704 - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
 - 10. ASTM A706 - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
 - 11. ASTM A767 - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.

12. ASTM A775 - Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
 13. ASTM A884 - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement.
 14. ASTM A934 - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
 15. ASTM A996/A996M - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
 16. ASTM C1116 / C1116M - 08a Standard Specification for Fiber-Reinforced Concrete.
 17. ASTM D3963 - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Reinforcing Steel Bars.
- C. American Welding Society:
1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.
- D. Concrete Reinforcing Steel Institute:
1. CRSI - Manual of Standard Practice.
 2. CRSI - Placing Reinforcing Bars.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and welded wire fabric, bending and cutting schedules, and supporting and spacing devices.
- C. Certificates: Submit AWS qualification certificate for welders employed on the Work.
- D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
- E. Submit certified copies of mill test report of reinforcement materials analysis.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with CRSI - Manual of Standard Practice, ACI 301, ACI SP-66, and ACI 318.
- B. Arrange with access to fabrication plant to facilitate Architect/Engineer's inspection of reinforcement. Notify Architect/Engineer of commencement and duration of shop fabrication in sufficient time to allow inspection.

1.5 QUALIFICATIONS

- A. Welders: AWS qualified within previous 12 months.

1.6 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate with placement of formwork, formed openings and other Work.

PART 2 PRODUCTS

2.1 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, 60-ksi-yield grade; deformed billet steel bars, unfinished.
- B. Reinforcing Steel Plain Bar and Rod Mats: ASTM A704/A704M, ASTM A615/A615M, Grade 60; steel bars or rods, unfinished.
- C. Stirrups Steel: ASTM A82, unfinished.
- D. Welded Steel Wire Fabric: ASTM A185 Plain Type; in flat sheets; unfinished.
- E. Deformed and Plain Reinforcement: ASTM A615/A615M; 60 ksi (420 MPa) yield strength, steel bars, unfinished.
- F. Deformed Bar Mats: ASTM A184/A184M; fabricated from ASTM A615/A615M; 60 ksi (420 MPa) yield strength, steel bars, unfinished.
- G. Plain Bar Mats: ASTM A704/A704M; fabricated from ASTM A615/A615M; 60 ksi (420 MPa) yield strength, steel bars, unfinished.
- H. Deformed Wire: ASTM A496; unfinished.
- I. Plain Wire: ASTM A82; unfinished.
- J. Fiber Reinforced Concrete:
- K. Epoxy-Coated Reinforcing Bars:
 - 1. Steel Bars: ASTM A615, Grade 60.
 - 2. Epoxy Coating: ASTM A775 with less than 2 percent damaged coating in each 12 inch bar length.

2.2 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16 gage annealed type.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor retarder puncture.
- C. Epoxy Coating Patching Material: Type as recommended by coating manufacturer.

2.3 FABRICATION

- A. Fabricate concrete reinforcement in accordance with ACI SP-66 and ACI 318.
- B. Form reinforcement bends with minimum diameters in accordance with ACI 318.
- C. Fabricate column reinforcement with offset bends at reinforcement splices.

- D. Weld reinforcement in accordance with AWS D1.4.
- E. Locate reinforcement splices not indicated on Drawings, at point of minimum stress. Review location of splices with Architect/Engineer.

PART 3 EXECUTION

3.1 PLACEMENT

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position beyond specified tolerance.
 - 1. Do not weld crossing reinforcement bars for assembly except as permitted by Architect/Engineer.
- B. Do not displace or damage vapor retarder.
- C. Accommodate placement of formed openings.
- D. Conform to applicable code for concrete cover over reinforcement.
- E. Splice reinforcing in accordance with splicing device manufacturer's instructions.
- F. Space reinforcement bars with minimum clear spacing in accordance with ACI 318 of one bar diameter, but not less than 1 inch (25 mm).
 - 1. Where bars are indicated in multiple layers, place upper bars directly above lower bars.

Reinforcement Location		Minimum Concrete Cover
Footings and Concrete Formed Against Earth		3 inches (75 mm)
Concrete exposed to earth or weather	No. 6 (19) bars and larger	2 inches (50 mm)
	No. 5 (16) bars and smaller	1-1/2 inches (38 mm)
Supported Slabs, Walls, and Joists	No. 14 (43) bars and larger	1-1/2 inches (38 mm)
	No. 11 (36) bars and smaller	3/4 inches (19 mm)
Beams and Columns		1-1/2 inches (38 mm)
Shell and Folded Plate Members	No. 6 (19) bars and larger	3/4 inches (19 mm)
	No. 5 (16) bars and smaller	1/2 inches (13 mm)

- G. Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating in accordance with ASTM D3963.

3.2 ERECTION TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Install reinforcement within the following tolerances for flexural members, walls, and compression members:

Reinforcement Depth	Depth Tolerance	Concrete Cover Tolerance
Greater than 8 inches (200 mm)	plus or minus 3/8 inch (10 mm)	minus 3/8 inch (10 mm)
Less than 8 inches (200 mm)	plus or minus 1/2 inch (13 mm)	minus 1/2 inch (13 mm)

- C. Install reinforcement within the tolerances specified in ACI 530.1 for foundation walls.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing and Inspection Services and Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Perform field inspection and testing in accordance with ACI 318.
- C. Provide free access to Work and cooperate with appointed firm.
- D. Reinforcement Inspection:
 - 1. Placement Acceptance: Specified and ACI 318 material requirements and specified placement tolerances.
 - 2. Welding: Inspect welds in accordance with AWS D1.1.
 - 3. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.
 - 4. Weldability Inspection: Inspect for reinforcement weldability when formed from steel other than ASTM A706/A706M.
 - 5. Periodic Weld Inspection: Other welded connections.

3.4 SCHEDULES

- A. Reinforcement For Foundation Wall Framing Members and Slab-on-Grade: Deformed bars, wire fabric and steel reinforcing, epoxy coated finish.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

0SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes cast-in-place concrete for the following:
 - 1. Slabs on grade.
 - 2. Control, expansion, and contraction joint devices.
 - 3. Thrust blocks.
 - 4. Manholes.
 - 5. Control and expansion/contraction joint devices associated with concrete work, including joint sealants.

- B. Related Sections:
 - 1. Section 03 20 00 - Concrete Reinforcing.
 - 2. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 3. Section 33 12 13 - Water Service Connections.
 - 4. Section 33 12 16 - Water Utility Distribution Valves.
 - 5. Section 33 13 13 - Concrete Paving.

1.2 REFERENCES

- A. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.
 - 2. ACI 305.1 - Hot Weather Concreting.
 - 3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
 - 4. ACI 308.1 - Standard Specification for Curing Concrete.
 - 5. ACI 318 - Building Code Requirements for Structural Concrete.
 - 6. ACI 350 - Code Requirements for Environmental Engineering Concrete Structures.

- B. ASTM International:
 - 1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 2. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 - 3. ASTM C33 - Standard Specification for Concrete Aggregates.
 - 4. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - 5. ASTM C42/C42M - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
 - 6. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
 - 7. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic Cement Concrete.
 - 8. ASTM C150 - Standard Specification for Portland Cement.
 - 9. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.

10. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
11. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
12. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
13. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
14. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.
15. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
16. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
17. ASTM C685/C685M - Standard Specification for Concrete Made By Volumetric Batching and Continuous Mixing.
18. ASTM C845 - Standard Specification for Expansive Hydraulic Cement.
19. ASTM C989 - Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.
20. ASTM C1017/C1017M - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
21. ASTM C1064/C1064M - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
22. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
23. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
24. ASTM C1157 - Standard Performance Specification for Hydraulic Cement.
25. ASTM C1218/C1218M - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
26. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
27. ASTM D994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
28. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
29. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
30. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
31. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.
32. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
33. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
34. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

C. South Coast Air Quality Management District:

1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Concrete - Thrust Blocks:
 - 1. Basis of Payment: Includes concrete, placement accessories, consolidating and leveling, troweling, curing. Cast-in-place concrete for thrust blocks shall not be paid for separately, but shall be considered incidental to the water line installation pay items.
- B. Concrete - Sidewalk:
 - 1. Basis of Payment: Includes removal of existing sidewalk and replacement with concrete, placement accessories, consolidating and leveling, troweling, curing. Cast-in-place concrete for sidewalks shall be paid for per square foot as 4-inch PCC Sidewalk Removal & Replacement.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data on joint devices, attachment accessories, and admixtures.
- C. Design Data:
 - 1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
 - a. Hot and cold weather concrete work.
 - b. Air entrained concrete work.
 - 2. Identify mix ingredients and proportions, including admixtures.
 - 3. Identify chloride content of admixtures and whether or not chloride was added during manufacture.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301 and ACI 318.
- B. Conform to ACI 305.1 when concreting during hot weather.
- C. Conform to ACI 306.1 when concreting during cold weather.
- D. Acquire cement and aggregate from one source for Work.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.

- B. Maintain concrete temperature after installation at minimum 50 degrees F for minimum 7 days.

1.8 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I - Normal Portland type.
- B. Normal Weight Aggregates: ASTM C33.
 - 1. Coarse Aggregate Maximum Size: In accordance with ACI 318.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Lightweight Aggregate: ASTM C330.
 - 1. Coarse Aggregate Maximum Size: In accordance with ACI 318.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Water: ACI 318; potable, without deleterious amounts of chloride ions.

2.2 ADMIXTURES

- A. Manufacturers:
 - 1. Axim Italcementi Group.
 - 2. The Euclid Chemical Company.
 - 3. BASF Construction Company.
 - 4. Concrete Earth.
 - 5. Substitutions: Section 01 60 00 - Product Requirements
- B. Air Entrainment: ASTM C260.
- C. Chemical: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride. Chemical admixtures shall conform to ASTM C494/C494M of the following types:
 - 1. Type A - Water Reducing.
 - 2. Type B - Retarding.
 - 3. Type D - Water Reducing and Retarding.
- D. Fly Ash: ASTM C618 Class C or F.
- E. Silica Fume: ASTM C1240
- F. Slag: ASTM C989; Grade 80; ground granulated blast furnace slag.

- G. Plasticizing: ASTM C1017/C1017M Type I, plasticizing and Type II, plasticizing and retarding.

2.3 ACCESSORIES

- A. Bonding Agent: Polymer resin emulsion, Polyvinyl Acetate, Latex emulsion, Two component modified epoxy resin, Non-solvent two component polysulfide epoxy, Mineral filled polysulfide polymer epoxy, Mineral filled polysulfide polymer epoxy resin, Polyamid cured epoxy.
 - 1. Manufacturers:
 - a. Conproco.
 - b. The Euclid Chemical Company.
 - c. Atlas Tech. Products.
 - d. SPECCO Speccobond and/or SPECCO B-40 Epoxy Binder.
 - e. Substitutions: Section 01 60 00 - Product Requirements.
- B. Vapor Retarder: ASTM E1745 Class A; 15 mil thick clear polyethylene film; type recommended for below grade application. Furnish joint tape recommended by manufacturer.
- C. Non-Shrink Grout: ASTM C1107/C1107M; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.
- D. Waterstops: Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricated corners, intersections, and directional changes.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Sika Greenstreak; PVC Waterstop
 - 2. Profile: Ribbed with center bulb, unless otherwise noted on contract documents.
 - 3. Dimensions: 6 inches by 3/8 inch thick (150 mm by 10 mm thick); nontapered.
 - 4. Tensile Strength: Minimum of 1,750 psi.

2.4 JOINT DEVICES AND FILLER MATERIALS

- A. Joint Filler Type A: ASTM D1751; Asphalt impregnated fiberboard or felt; tongue and groove profile.
- B. Construction Joint Devices: Integral galvanized steel; formed to tongue and groove profile, ribbed steel spikes with tongue to fit top screed edge.
- C. Expansion and Contraction Joint Devices: ASTM B221, extruded aluminum; resilient elastomeric filler strip with Shore A hardness of 35 to permit plus or minus 25 percent joint movement with full recovery; extruded aluminum cover plate, of longest manufactured length at each location, flush mounted.
- D. Sealant and Primer: as specified in Section 03 30 00.

2.5 CONCRETE MIX

- A. Select proportions for concrete in accordance with ACI 318 trial mixtures and field experience.
- B. Provide concrete to the following criteria:

Material and Property	Measurement
Compressive Strength (7 day)	2,800 psi
Compressive Strength (28 day)	4,000 psi
Weight of Concrete	Normal Weight: 145-pfc max Light Weight: 110-pcf max
Cement Type	ASTM C150
Aggregate Type	Normal weight or Lightweight as required by contract plans
Slump	3 inches plus or minus 1 inch slab on grade. 4 inches plus or minus 1 inch footings, foundation walls, and structural concrete.

- C. Admixtures:
 - 1. Include admixture types and quantities indicated in concrete mix designs only when approved by Engineer.
 - 2. Do not use calcium chloride nor admixtures containing calcium chloride.
 - 3. Use set retarding admixtures during hot weather.
 - 4. Add air entrainment admixture to concrete mix for work exposed to freezing and thawing or deicing chemicals.
 - 5. For concrete exposed to deicing chemicals, limit fly ash, pozzolans, silica fume, and slag content as required by applicable code.
- D. Average Compressive Strength Reduction: Not permitted.
- E. Ready Mixed Concrete: Mix and deliver concrete in accordance with ASTM C94/C94M.
- F. Site Mixed Concrete: Mix concrete in accordance with ACI 318.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify requirements for concrete cover over reinforcement.

- C. Verify anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained form facing material.
- E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- G. Chamfer exterior corners and edges of permanently exposed concrete.
- H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.3 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Remove laitance, coatings, and unsound materials.
- B. Remove debris and ice from formwork, reinforcement, and concrete substrates.
- C. Remove water from areas receiving concrete before concrete is placed.

- D. Concrete for slabs scheduled to receive concrete stain shall not receive any curing compounds, sealers, or water repellents.
 - 1. Allow concrete slabs scheduled for concrete stain to cure a minimum of 30 to 90 days as recommended by the manufacturer based on color selected by Engineer.

3.4 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301 and ACI 318.
- B. Notify testing laboratory and Engineer minimum 24 hours prior to commencement of operations.
- C. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints, are not disturbed during concrete placement.
- D. Install vapor retarder under interior slabs on grade in accordance with ASTM E1643. Lap joints minimum 6 inches and seal watertight by taping edges and ends.
- E. Repair vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas minimum 6 inches and seal watertight.
- F. Separate slabs on grade from vertical surfaces with 1/2 inch thick joint filler.
- G. Place joint filler in floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- H. Extend joint filler from bottom of slab to within 1/8 inch of finished slab surface. Conform to Section 03 30 00 for finish joint sealer requirements.
- I. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- J. Install joint device anchors. Maintain correct position to allow joint cover to be flush with floor and wall finish.
- K. Install joint covers in one piece longest practical length, when adjacent construction activity is complete.
- L. Deposit concrete at final position. Prevent segregation of mix.
- M. Place concrete in continuous operation for each panel or section determined by predetermined joints.
- N. Consolidate concrete.
- O. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- P. Place concrete continuously between predetermined expansion, control, and construction joints.
- Q. Do not interrupt successive placement; do not permit cold joints to occur.

- R. Saw cut joints within 12 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.

3.5 SEPARATE FLOOR TOPPINGS

- A. Prior to placing floor topping, remove deleterious material. Broom and vacuum clean.
- B. Place required dividers, edge strips, reinforcing, and other items to be cast in.
- C. Apply bonding agent to substrate.

3.6 CONCRETE FINISHING

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Use set retarding admixtures during hot weather.
 - 2. Apply to concrete surfaces exposed to public view, to receive a rubbed finish. Or to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where left exposed unless noted otherwise:
 - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.
- E. Finishing Floors and Slabs:
 - 1. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
 - 2. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - a. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.

- b. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
 - 1) Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.
 - 2) Specified overall values of flatness, F(F) 30; and of levelness F(L) 20; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 15; for suspended slabs.
- F. Finish concrete floor surfaces in accordance with ACI 301 and ACI 318.
- G. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on Drawings.
- H. Finish concrete floor surfaces scheduled for concrete floor stain as recommended by stain manufacturer.

3.7 CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Concrete for slabs scheduled to receive concrete stain shall not receive any curing compounds, sealers, or water repellents.
- F. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.

- Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.8 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform field inspection and testing in accordance with ACI 318.
- C. Provide free access to Work and cooperate with appointed firm.
- D. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.
- E. Concrete Inspections:
 1. Continuous Placement Inspection: Inspect for proper installation procedures.
 2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.
- F. Strength Test Samples:
 1. Sampling Procedures: ASTM C172.
 2. Cylinder Molding and Curing Procedures: ASTM C31/C31M, cylinder specimens, standard cured.
 3. Sample concrete and make one set of three cylinders for every 75 cu yds or less of each class of concrete placed each day and for every 5,000 sf of surface area for slabs and walls.
 4. When volume of concrete for any class of concrete would provide less than 5 sets of cylinders, take samples from five randomly selected batches, or from every batch when less than 5 batches are used.
 5. Make one additional cylinder during cold weather concreting, and field cure.
- G. Field Testing:

1. Slump Test Method: ASTM C143/C143M.
 2. Air Content Test Method: ASTM C173/C173M ASTM C231.
 3. Temperature Test Method: ASTM C1064/C1064M.
 4. Measure slump and temperature for each compressive strength concrete sample.
 5. Measure air content in air entrained concrete for each compressive strength concrete sample.
- H. Cylinder Compressive Strength Testing:
1. Test Method: ASTM C39/C39M.
 2. Test Acceptance: In accordance with ACI 318.
 3. Test one cylinder at 7 days.
 4. Test two cylinders at 28 days.
 5. Dispose remaining cylinders when testing is not required.
- I. Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.
- J. Soil bearing surfaces beneath foundations shall be inspected by geotechnical engineer or authorized representative to verify the required minimum design bearing capacity has been met or exceeded. The inspection shall be completed prior to placement of reinforcement and concrete.

3.9 PATCHING

- A. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.
- C. Patch imperfections as directed by Engineer in accordance with ACI 318.

3.10 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by Engineer at the Contractor's expense.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

END OF SECTION

SECTION 31 05 13

SOILS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Subsoil materials.
 - 2. Topsoil materials.

- B. Related Sections:
 - 1. Section 31 32 16 - Excavation.
 - 2. Section 31 23 17 – Trenching and Backfill.
 - 3. Section 31 23 18 - Rock Removal.
 - 4. Section 31 23 23 - Fill.
 - 5. Section 31 25 13 - Erosion Controls and SWPPP.
 - 6. Section 32 05 16 - Aggregates.
 - 7. Section 32 91 19 - Landscape Grading.
 - 8. Section 32 92 19 - Seeding.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5 kg (5.5 lb) Rammer and a 305 mm (12 in.) Drop.

- B. ASTM International:
 - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m^{3 - 2. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft³ (2,700 kN-m/m^{3 - 3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).}}

- C. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, 2022, and all addenda. References made to compensation, method of measurement and basis of payment shall not apply.

1.3 UNIT PRICES - MEASUREMENT AND PAYMENT

- A. Subsoil:
 - 1. Basis of Payment: Includes excavating existing subsoil, supplying subsoil materials, and stockpiling. Subsoil shall not be paid for separately, but considered incidental to the water line installation pay items.

- B. Topsoil:

1. Basis of Payment: Includes excavating existing topsoil, supplying topsoil materials, and stockpiling. Topsoil shall not be paid for separately, but considered incidental to the water line installation pay items.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Samples: Submit, in air-tight containers, a 10 lb sample of each type of fill to the Engineer.
- C. Materials Source: Submit name of imported materials source.

1.5 QUALITY ASSURANCE

- A. Furnish each material from single source throughout the Work.

PART 2 PRODUCTS

2.1 SUBSOIL MATERIALS

- A. Subsoil: Conforming to IDOT Standard Specification Section 204.
 1. Graded.
 2. Free of lumps larger than 3 inches, rocks larger than 2 inches and debris.
 3. Soil classified as ML, CL, ML-CL, SM or SC according to ASTM D2487.

2.2 TOPSOIL MATERIALS

- A. Topsoil: Conforming to IDOT Standard Specification Article 1081.05.
 1. Graded.
 2. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.

2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing and Inspection Services and analysis of soil material.
- B. Testing and analysis of subsoil material shall be performed in accordance with ASTM D698.
- C. Testing and analysis of topsoil material shall be performed in accordance with ASTM D698.
- D. When tests indicate materials do not meet specified requirements, change material and retest.
- E. Furnish materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXCAVATION

- A. Excavate subsoil and topsoil from areas designated. Strip topsoil to full depth of topsoil in designated areas.
- B. Stockpile excavated material meeting requirements for subsoil and topsoil materials.
- C. Remove excess excavated subsoil and topsoil not intended for reuse, from site.
- D. Remove excavated materials not meeting requirements for subsoil and topsoil materials from site.

3.2 STOCKPILING

- A. Stockpile materials on site as directed by the Engineer in accordance with the Drawings.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Stockpile topsoil 8 feet high maximum.
- E. Prevent intermixing of soil types or contamination.
- F. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- G. Stockpile unsuitable materials on impervious material and cover to prevent erosion and leaching, until disposed of.

3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31 23 16

EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Soil densification.
 - 2. Excavating for paving, roads, and parking areas.
 - 3. Excavating for slabs-on-grade.
 - 4. Excavating for utilities.

- B. Related Sections:
 - 1. Section 03 30 00 - Cast-In-Place Concrete.
 - 2. Section 31 05 13 - Soils: Stockpiling excavated materials.
 - 3. Section 31 23 17 – Trenching and Backfill: Excavating for utility trenches.
 - 4. Section 31 23 18 - Rock Removal.
 - 5. Section 31 23 23 - Fill.
 - 6. Section 31 25 13 - Erosion Controls and SWPPP.
 - 7. Section 32 05 16 - Aggregates: Stockpiling excavated materials.
 - 8. Section 32 91 19 - Landscape Grading.
 - 9. Section 32 92 19 - Seeding.
 - 10. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 11. Section 33 12 13 - Water Service Connections.
 - 12. Section 33 12 16 - Water Utility Distribution Valves.

1.2 REFERENCES

- A. Local utility standards when working within 24 inches of utility lines.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Excavating Soil Materials:
 - 1. Basis of Measurement: N/A.
 - 2. Basis of Payment: Includes general excavating to required elevations, loading and removing from site. Over Excavating: Payment will not be made for over excavated work nor for replacement materials. Excavating shall not be paid for separately, but shall be considered incidental to the water line installation pay items.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

1.5 QUALIFICATIONS

- A. Prepare excavation protection plan under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Illinois.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PREPARATION

- A. Call Local Utility Line Information service at J.U.L.I.E. (1-800-892-0123) not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.
- C. Notify utility company to remove and relocate utilities.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- F. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.2 EXCAVATION

- A. Excavate subsoil to accommodate building foundations, slabs-on-grade paving and site structures, construction operations.
- B. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with Sections 31 23 17 and 31 23 23.
- C. Slope banks with machine to angle of repose or less until shored.
- D. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- E. Trim excavation. Remove loose matter.
- F. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume. Remove larger material as specified in Section 31 23 23.
- G. Notify Engineer of unexpected subsurface conditions.
- H. Correct areas over excavated as directed by Engineer.
- I. Stockpile excavated material in area designated on site in accordance with Section 31 05 13 and Section 31 05 16.
- J. Repair or replace items indicated to remain damaged by excavation.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

3.4 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31 23 17

TRENCHING AND BACKFILL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavating trenches for utilities from 5 feet outside building to utility service.
 - 2. Compacted fill from top of utility bedding to subgrade elevations.
 - 3. Backfilling and compaction.

- B. Related Sections:
 - 1. Section 03 30 00 - Cast-In-Place Concrete.
 - 2. Section 31 05 13 - Soils.
 - 3. Section 31 23 16 - Excavation.
 - 4. Section 31 23 18 - Rock Removal.
 - 5. Section 31 23 23 - Fill.
 - 6. Section 31 25 13 - Erosion Controls and SWPPP.
 - 7. Section 32 05 16 - Aggregates.
 - 8. Section 32 11 16 - Aggregate Surfacing.
 - 9. Section 32 12 16 - Asphalt Paving.
 - 10. Section 32 13 13 - Concrete Paving.
 - 11. Section 32 91 19 - Landscape Grading.
 - 12. Section 32 92 19 - Seeding.
 - 13. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 14. Section 33 12 13 - Water Service Connections.
 - 15. Section 33 12 16 - Water Utility Distribution Valves.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5 kg (5.5 lb) Rammer and a 305 mm (12 in.) Drop.

- B. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D1556 - Standard Test Method for Density of Soil in Place by the Sand-Cone Method.
 - 4. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
 - 5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

1.4 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Trenching:
 - 1. Basis of Measurement: N/A.
 - 2. Basis of Payment: Includes excavating to required elevations, protecting excavation, and removing excavated materials from site. Over Excavating: Payment is not made for over excavated work nor for replacement materials. Trenching shall not be paid for separately, but shall be considered incidental to the water line installation pay items.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.
- C. Product Data: Submit data for geotextile fabric indicating fabric and construction.
- D. Samples: Submit, in air-tight containers, 25 lb. sample of each type of fill to the Engineer.
- E. Materials Source: Submit name of imported fill materials suppliers.

1.6 QUALIFICATIONS

- A. Prepare excavation protection plan under direct supervision of Professional Engineer experienced in design of this Work and licensed in the State of Illinois.

1.7 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.8 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Subsoil Fill: As specified in Section 31 05 13.
- B. Granular Fill: As specified in Section 32 05 16.

- C. Concrete: As specified in Section 03 30 00.

PART 3 EXECUTION

3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
 - 1. The Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required due to Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.2 PREPARATION

- A. Call Local Utility Line Information service at 1-800-892-0123, not less than 48 hours before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.
- F. Establish temporary traffic control and detours when trenching is performed in public right-of-way. Relocate controls and reroute traffic as required during progress of Work.

3.3 TRENCHING

- A. Excavate subsoil required for utilities to utility service.
- B. Remove lumped subsoil, boulders, and rock up to 1/6 cubic yard, measured by volume. Remove larger material as specified in Section 31 23 18.
- C. Perform excavation within 36 inches of existing utility service in accordance with utility's requirements.
- D. Do not advance open trench more than 40 feet ahead of installed pipe.
- E. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- F. Excavate bottom of trenches a maximum of 2 feet wider than outside diameter of pipe.
- G. Excavate trenches to depth indicated on Drawings and to maintain a minimum of 42" of cover at the top of the pipe. Provide uniform and continuous bearing and support for bedding material and utilities.

- H. Do not interfere with 45 degree bearing splay of foundations.
- I. When Project conditions permit, slope side walls of excavation starting 2 feet above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- J. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by the Engineer until suitable material is encountered.
- K. Cut out soft areas of subgrade not capable of proper compaction. Backfill with appropriate fill and compact to density equal to or greater than requirements for subsequent backfill material.
- L. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- M. Correct overexcavated areas with compacted backfill as specified for excavation or replace with concrete as directed by the Engineer.
- N. Remove excess subsoil, not intended for reuse, from site.
- O. Stockpile subsoil in designated areas on site to a depth not exceeding 8 feet and protect from erosion in accordance with Section 31 05 13.

3.4 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation work.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.
- F. Sheeting, shoring and bracing activities shall be performed in accordance with applicable Occupational Safety and Health (OSHA) rules and regulations.

3.5 BEDDING

- A. Refer to Specification Section 32 05 16 for aggregates specified for use as bedding material.
- B. Bedding shall be in accordance with ASTM D2321. Bedding class shall be determined by the bedding material used.

3.6 BACKFILLING

- A. Granular backfill shall be used to backfill trenches under existing or proposed improved surfaces.
- B. Backfill trenches to contours and elevations with unfrozen fill materials.
- C. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- D. Place fill in continuous layers and compact.
 - 1. Compactive effort shall be applied to fine aggregate and subsoil fill to the satisfaction of the Engineer.
 - 2. Coarse aggregate fill not located beneath footings or pavement shall be compacted to 95% Standard Proctor density.
- E. Maintain a maximum variation of 3% from optimum moisture content of backfill materials to attain the required compaction density.
- F. Place fill material in continuous layers and compact.
- G. Employ placement method that does not disturb or damage foundation perimeter drainage and utilities in trench.
- H. Do not leave more than 40 feet of trench open at end of working day.
- I. Protect open trench to prevent danger to the public.

3.7 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.8 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Laboratory testing of materials shall be performed in accordance with ASTM D698.
- C. Field compaction and moisture testing of materials shall be performed in accordance with ASTM D698.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.9 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

SECTION 31 23 18

ROCK REMOVAL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Removing discovered rock during excavation.
 - 2. Expansive tools to assist rock removal.
 - 3. Hydraulic rock breaker to assist rock removal.

- B. Related Sections:
 - 1. Section 31 23 16 - Excavation.
 - 2. Section 31 23 17 - Trenching and Backfill: Trenching and backfilling for utilities.
 - 3. Section 31 23 23 - Fill: Backfill materials.
 - 4. Section 32 05 16 - Aggregates.
 - 5. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 6. Section 33 12 13 - Water Service Connections.
 - 7. Section 33 12 16 - Water Utility Distribution Valves.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Trench Rock Removal Basis of Measurement: By cubic yard measured after removal.

- B. Trench Rock Removal Basis of Payment: Includes preparation of rock for removal, mechanical removal of rock, removal from position, loading and removing from site. For over excavation, payment will not be made for over excavated work nor for replacement materials.

1.3 DEFINITIONS

- A. Trench Rock: Solid mineral material with volume in excess of 1/3 cubic yard; solid material in original beds, well-defined ledges, bedding deposits, and un-stratified masses that cannot be removed with without systematic mechanical method (i.e., rock breaker, rock saw, drilling, blasting, etc.); and conglomerate deposits that are so firmly cemented that they possess the characteristics of solid rock and that cannot be removed with without systematic mechanical method (i.e., rock breaker, rock saw, drilling, blasting, etc.)

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify site conditions and note subsurface irregularities affecting Work of this section.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.

3.3 ROCK REMOVAL BY MECHANICAL METHOD

- A. Excavate and remove rock by mechanical method.
 - 1. Drill holes and use impact tools, expansive tools, wedges, mechanical disintegration compound to fracture rock.
 - 2. Hydraulic rock breaker, such as, a powerful percussion hammer fitted to an excavator for demolishing concrete structures or rocks.
- B. Cut away rock at bottom of excavation to form level bearing.
- C. Remove shaled layers to provide sound and unshattered base for structures and roads.
- D. In utility trenches, excavate to 6 inches below invert elevation of pipe and 24 inches wider than pipe diameter.
- E. Remove excavated materials from site.
- F. Correct unauthorized rock removal in accordance with backfilling and compacting requirements of Section 31 23 23.

3.4 FIELD QUALITY CONTROL

- A. Request visual inspection of structures and roads bearing surfaces by Engineer before installing subsequent work.

END OF SECTION

SECTION 31 23 23

FILL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fill under slabs-on-grade.
 - 2. Fill under paving.
 - 3. Fill for over-excavation.

- B. Related Sections:
 - 1. Section 03 30 00 - Cast-In-Place Concrete: Concrete materials.
 - 2. Section 31 05 13 - Soils: Soils for fill.
 - 3. Section 31 23 16 - Excavation.
 - 4. Section 31 23 17 - Trenching and Backfill: Backfilling of utility trenches.
 - 5. Section 31 23 18 - Rock Removal.
 - 6. Section 31 25 13 - Erosion Controls and SWPPP.
 - 7. Section 32 05 16 - Aggregates: Aggregates for fill.
 - 8. Section 32 91 19 - Landscape Grading.
 - 9. Section 32 92 19 - Seeding.
 - 10. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 11. Section 33 12 13 - Water Service Connections.
 - 12. Section 33 12 16 - Water Utility Distribution Valves.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- B. ASTM International:
 - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 - 5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Fill Type (Select Granular Backfill):
 - 1. Basis of Measurement: By cubic yard.
 - 2. Basis of Payment: Includes supplying fill materials, stockpiling, placing where required, and compacting. Fill shall be paid for per cubic yard as Select Granular Backfill.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Subsoil Fill: Type S1 as specified in Section 31 05 13.
- B. Structural Fill: Type A1 as specified in Section 32 05 16.
- C. Granular Fill: Type A1 as specified in Section 32 05 16.
- D. Concrete: Structural concrete as specified in Section 03 30 00 with compressive strength of 3,500 psi.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
- C. Verify underground tanks are anchored to their own foundations to avoid flotation after backfilling.
- D. Verify structural ability of unsupported walls to support loads imposed by fill.

3.2 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with granular fill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.3 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place material in continuous layers as follows:
 - 1. Subsoil Fill: Maximum 8 inches compacted depth.
 - 2. Structural Fill: Maximum 6 inches compacted depth.
 - 3. Granular Fill: Maximum 6 inches compacted depth.
- D. Employ placement method that does not disturb or damage other work.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density.
- F. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.
- G. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- H. Slope grade away from building minimum 5 percent slope for minimum distance of 10 ft, unless noted otherwise.
- I. Make gradual grade changes. Blend slope into level areas.
- J. Remove surplus backfill materials from site.
- K. Leave fill material stockpile areas free of excess fill materials.

3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.

3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform laboratory material tests in accordance with ASTM D1557.
- C. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556, ASTM D2167, or ASTM D2922.
 - 2. Moisture Tests: ASTM D3017.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- E. Frequency of Tests: As directed by Engineer.

3.6 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

SECTION 31 25 13

EROSION CONTROLS AND SWPPP

PART 1 GENERAL

1.1 SUMMARY

- A. Related Sections:
1. Section 03 30 00 - Cast-In-Place Concrete.
 2. Section 31 05 13 - Soils.
 3. Section 31 23 16 - Excavation.
 4. Section 31 23 17 – Trenching and Backfill.
 5. Section 31 23 23 - Fill.
 6. Section 32 05 16 - Aggregates.
 7. Section 32 91 19 - Landscape Grading.
 8. Section 32 92 19 - Seeding.
 9. Section 33 11 13 - Public Water Utility Distribution Piping.
 10. Section 33 12 13 - Water Service Connections.
 11. Section 33 12 16 - Water Utility Distribution Valves.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
1. AASHTO T88 - Standard Specification for Particle Size Analysis of Soils.
 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
- C. ASTM International:
1. ASTM C127 - Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.
 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 3. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
- D. Precast/Prestressed Concrete Institute:
1. PCI MNL-116S - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.
- E. U.S. Environmental Protection Agency:
1. Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices, (Document No. EPA 832-R-

92-005) published by the U.S. Environmental Protection Agency (USEPA) in September 1992.

- F. Illinois Department of Transportation:
 - 1. Illinois Bureau of Design and Environment Manual.
 - 2. Illinois Drainage Manual.
 - 3. Illinois Construction Manual.
 - 4. Illinois Erosion and Sediment Control Field Guide for Construction Inspection.
 - 5. Illinois Maintenance Policy Manual
 - 6. Illinois Standard Specification for Road and Bridge Construction.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Illinois requirements.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.

PART 2 PRODUCTS

2.1 ROCK AND GEOTEXTILE MATERIALS

- A. Rock: In accordance with 32 05 16 Drainage Aggregate Material.

2.2 CONCRETE MATERIALS AND REINFORCEMENT

- A. Cement: Type as specified in Section 03 30 00. Furnish in accordance with Illinois Department of Transportation Standard Specifications.
- B. Fine and Coarse Aggregates: Type as specified in Section 03 30 00. Furnish in accordance with Illinois Department of Transportation Standard Specifications.
- C. Water: Clean and not detrimental to concrete.
- D. Aggregate, Sand, Water, Admixtures - Precast: Determined by precast fabricator, as appropriate to design requirements and PCI MNL-116S.
- E. Reinforcement Steel: Type as specified in Section 03 30 00.
- F. Welded Steel Wire Fabric: Type as specified in Section 03 30 00.

2.3 PLANTING MATERIALS

- A. Seeding: as specified in Section 32 92 19.

2.4 MIXES

- A. Concrete: as specified in Section 03 30 00.

2.5 SOURCE QUALITY CONTROL (AND TESTS)

- A. Section 01 40 00 - Quality Requirements: Testing, inspection and analysis requirements.
- B. Perform tests on cement, aggregates, and mixes to ensure conformance with specified requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements. Verification of existing conditions before starting work.
- B. Verify compacted subgrade or granular base is acceptable and ready to support devices and imposed loads.
- C. Verify gradients and elevations of base or foundation for other work are correct.

3.2 SITE STABILIZATION

- A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.
- B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.
- C. Stockpile and waste pile heights shall not exceed 15 feet. Slope stockpile sides at 2:1 or flatter.
- D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.
 - 1. During non-germinating periods, apply mulch at recommended rates.
 - 2. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 32 92 19 permanent seeding specifications.
- E. Stabilize diversion channels, sediment traps, and stockpiles immediately.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

- B. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.
- C. Field test concrete in accordance with Section 03 30 00.
- D. Compaction Testing: As specified in Section 31 23 23.

3.4 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.
- B. When sediment accumulation in sedimentation structures has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.
- C. Do not damage structure or device during cleaning operations.
- D. Do not permit sediment to erode into construction or site areas or natural waterways.
- E. Clean channels when depth of sediment reaches approximately one half channel depth.

3.5 PROTECTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Immediately after placement, protect paving from premature drying, excessive hot or cold temperatures, and mechanical injury.
- C. Protect paving from elements, flowing water, or other disturbance until curing is completed.

3.6 EROSION AND SEDIMENT CONTROL

- A. Structural Best Management Practices:
 - 1. Silt Fences or Straw Bales shall be utilized as needed to prevent sediment from washing downstream. Silt fences and straw bales shall be maintained by the contractor. Built-up sediment shall be removed from the silt fence or straw bales when it has reached a third the height of the bale or silt fence. Straw bales and silt fencing shall be replaced as needed.
- B. Offsite Vehicle Tracking:
 - 1. Contractor to clean vehicles prior to entering City, County, or State roads to prevent tracking of sediments. Dump truck shall be covered with tarpaulin when hauling materials to and from the construction site.

3.7 CONTROL OF WASTE MATERIALS

- A. Waste Materials:
 - 1. All waste materials will be removed off-site for proper disposal. No waste materials will be allowed to be buried onsite. Contractor shall be responsible for removal and disposal of waste materials. All sanitary waste to be collected from portable sanitary units.

- B. Inventory of Materials:
1. The following materials or substances are anticipated to be present onsite during construction.
 - a. Fertilizers.
 - b. Cement.
 - c. Aggregate.
 - d. Wood Building Materials.
 - e. Masonry Building Materials.
 - f. Steel Reinforcing.
 - g. Paints and Coatings.
 - h. Oil Products.
- C. Material Management Practices
1. The following practices shall be used onsite during the construction project to reduce the risk of spills or other exposure of materials and substances to storm water runoff:
 - a. Contractor will only store materials onsite needed for this particular project.
 - b. All materials stored onsite will be stored in a neat, orderly manner in Products stored onsite shall be kept in their original container supplied by the manufacturer.
 - c. Contractor shall follow manufacturer's recommendations for proper use and disposal of materials.
 - d. All vehicles and equipment shall be monitored for oil, gas, diesel, or other hazardous fluid leaks.
 - e. Fertilizers used will be applied in accordance with manufacturer's recommendations. Fertilizers shall not be stored onsite. Partial bags of fertilizer shall be transferred to a sealable bin.
- D. Hazardous Materials:
1. The following practices shall be used to reduce the risk associated with hazardous materials:
 - a. Products should be kept in the original containers unless they are not resealable.
 - b. Original labels and material safety data will be retained by the Contractor and provided to the Owner and Engineer.
 - c. Contractor shall follow manufacturer's recommendations for proper use and disposal of materials. In addition, contractor shall follow the local, State, and Federal requirements/recommendations for proper disposal.
- E. Spill Cleanup
1. The following practices will be followed for spill cleanup:
 - a. Manufacturer's recommended methods for spill cleanup will be made aware to the job site superintendent as well as locations for spill prevention and cleanup.
 - b. Materials and equipment for spill cleanup shall be readily available to the contractor. Suggested onsite equipment includes, but is not limited to brooms, rags, gloves, goggles, sawdust, plastic, and metal trash containers.
 - c. All spills will be cleaned up immediately upon discovery.

- d. Spills of toxic or hazardous material will be reported to the appropriate local, State, or Federal agency.
- F. Contractor shall be responsible for spill prevention and cleanup. Should any spills occur, the contractor shall be responsible for taking appropriate action to prevent future occurrences of a similar spill.

3.8 ADDITIONAL REQUIREMENTS

- A. The storm water pollution plan reflects current federal, state, and local regulations regarding storm water management and erosion and sediment control. In addition to the storm water pollution plan, the contractor shall perform work in general conformance with the following documents:
 - 1. Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices, (Document No. EPA 832-R-92-005) published by the U.S. Environmental Protection Agency (USEPA) in September 1992.
 - 2. Illinois Bureau of Design and Environment Manual.
 - 3. Illinois Drainage Manual.
 - 4. Illinois Construction Manual.
 - 5. Illinois Erosion and Sediment Control Field Guide for Construction Inspection.
 - 6. Illinois Maintenance Policy Manual
 - 7. Illinois Standard Specification for Road and Bridge Construction.

END OF SECTION

SECTION 32 05 16

AGGREGATES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Coarse aggregate materials.
 - 2. Fine aggregate materials.

- B. Related Sections:
 - 1. Section 31 05 13 - Soils.
 - 2. Section 31 23 16 - Excavation.
 - 3. Section 31 23 17 – Trenching and Backfill.
 - 4. Section 31 23 23 - Fill.
 - 5. Section 31 25 13 - Erosion Controls and SWPPP.
 - 6. Section 32 11 16 - Aggregate Surfacing.
 - 7. Section 32 12 16 - Asphalt Paving.
 - 8. Section 32 13 13 - Concrete Paving.
 - 9. Section 32 91 19 - Landscape Grading.
 - 10. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 11. Section 33 12 13 - Water Service Connections.
 - 12. Section 33 12 16 - Water Utility Distribution Valves.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses.
 - 2. AASHTO T99 - Standard Specification for Moisture-Density Relations of Soils Using a 2.5 kg (5.5 lb) Rammer and a 305 mm (12 in.) Drop.

- B. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 4. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

- C. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, 2022, and all addenda. References made to compensation, method of measurement and basis of payment shall not apply.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Aggregate:
 - 1. Basis of Measurement: By cubic yard.
 - 2. Basis of Payment - Aggregates for select granular backfill: Includes supplying aggregate materials, stockpiling, placement and compaction of materials. Aggregates for select granular backfill shall be paid for per cubic yard as Select Granular Backfill.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Samples: Submit, in air-tight containers, a 25 lb. sample of each type of aggregate fill to the Engineer.
- C. Materials Source: Submit name of imported materials suppliers.
- D. Manufacturer's Certificate: Certify aggregate suppliers are IDOT approved.

1.5 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.

PART 2 PRODUCTS

2.1 COARSE AGGREGATE MATERIALS

- A. All coarse aggregates used to complete the Work shall conform to IDOT Standard Specification Section 1004.
- B. Granular Subbase Material: CA-6 or CA-10; Place in accordance with IDOT Standard Specification Section 311.
- C. Aggregate Base: CA-6 or CA-10; Place in accordance with IDOT Standard Specification Section 351.
- D. Aggregate Surface: CA-6 or CA-10; Place in accordance with IDOT Standard Specification Section 402.
- E. Trench Bedding and/or Backfill: CA-7; Place in accordance with Specification Section 31 23 17.

2.2 FINE AGGREGATE MATERIALS

- A. All fine aggregate used to complete the Work shall conform to IDOT Standard Specification Section 1003.
- B. Trench Bedding and/or Backfill: FA-1, FA-2, FA-6 or FA-21; Place in accordance with Specification Section 31 23 17.

2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing and inspection services.
- B. Testing and analysis of coarse aggregate material shall be performed in accordance with ASTM D698.
- C. Testing and analysis of fine aggregate material shall be performed in accordance with ASTM D698.
- D. When tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.1 STOCKPILING

- A. If necessary, stockpile materials on site at locations indicated by the Engineer.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.2 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 32 11 16

AGGREGATE SURFACING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Aggregate Surface Course, Type B
- B. Related Sections:
 - 1. Section 31 23 23 - Fill.
 - 2. Section 32 05 16 - Aggregates.
 - 3. Section 32 12 16 - Asphalt Paving.

1.2 REFERENCES

- A. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, including all addenda. Deleting all references to methods of measurement and payment.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Aggregate Surface Course:
 - 1. Basis of Measurement: By the square yard to elevations indicated on Drawings.
 - 2. Basis of Payment: Includes supplying fill material, stockpiling, placing where required, and compacting. Aggregate Surface Course shall be paid for per square yard as Aggregate Surface Course, Type B.

PART 2 PRODUCTS

2.1 AGGREGATE SURFACE COURSE, TYPE B

- A. Materials for Aggregate Surface Course, Type B shall be CA-6 in accordance with Section 402 of the IDOT Standard Specifications.

PART 3 EXECUTION

3.1 AGGREGATE SURFACE COURSE, TYPE B

- A. Aggregate surface shall be furnished, placed and compacted as indicated on the plans and in accordance with the applicable articles of Section 402 of the IDOT Standard Specifications.
- B. Aggregate surface course shall be crushed stone and shall be constructed to a minimum thickness of 8 inches at the centerline and 6 inches at the edge of pavement unless otherwise shown on the plans.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 32 12 16

ASPHALT PAVING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Asphalt materials.
 - 2. Aggregate materials.
 - 3. Aggregate base course.
 - 4. Bituminous concrete paving, binder, and surface course.
 - 5. Asphalt paving base course, binder course, and wearing course.
 - 6. Asphalt paving overlay for existing paving.
 - 7. Surface sealer.
- B. Related Sections:
 - 1. Section 31 23 23 - Fill.
 - 2. Section 32 05 16 - Aggregates.
 - 3. Section 32 11 16 - Aggregate Surfacing.

1.2 REFERENCES

- A. The IDOT Standard Specifications for Road and Bridge Construction.
- B. The IDOT "Manual of Instructions for Bituminous Proportioning and Testing".

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Asphalt Paving:
 - 1. Basis of Measurement: By the square yard to elevations indicated on Drawings.
 - 2. Basis of Payment: Includes supplying fill material, stockpiling, placing where required, and compacting. Asphalt paving shall be paid for per square yard as Bituminous Surface Pavement Replacement.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit product information and mix design.
 - 1. Course Aggregate.
 - 2. Bituminous Materials.
- C. Manufacturer's Certificate: Certify Asphalt Drive - Hot-Mix Asphalt (HMA) surface course and bituminous concrete HMA binder course meet or exceed IDOT specifications. Mixing plant and all mixes must be IDOT approved.

1.5 QUALITY ASSURANCE

- A. The following materials shall be tested in accordance with the requirements of the IDOT Standard Specifications and a certificate issued to the Engineer certifying the material meets said requirements.
 - 1. Course aggregate.
 - 2. Bituminous materials.
- B. Testing laboratory to submit two (2) copies of test reports to Engineer, with one (1) copy to the Contractor, of density tests performed on compacted subbase granular material and paving.

1.6 TESTING AND INSPECTION

- A. Tests:
 - 1. Standard laboratory density test shall be performed in accordance with AASHTO T99.
 - 2. Standard compaction test shall be performed in accordance with AASHTO T191.
- B. Testing and Inspection:
 - 1. Testing and inspection of bituminous concrete mix, testing of placed Aggregate Base Course-Type B course and HMA pavement will be performed by a testing laboratory employed and paid by the Engineer. Testing and inspection will be performed in a manner to minimize disruption of work.
 - 2. When requested, the Testing Laboratory will perform test on proposed HMA pavement mix to determine conformity with specifications.
 - 3. Testing Laboratory will perform one series of compaction tests on Aggregate Base Course-Type B and each pavement course. Contractor shall pay all costs for additional testing due to improper performance of work.
 - 4. Contractor shall notify Engineer and Testing Laboratory to perform tests when Aggregate Base Course-Type B, or portion thereof, has been placed and compacted in accordance with specifications. HMA pavement shall not be placed until satisfactory test results have been verified and the Aggregate Base Course-Type B placement approved by the Engineer.
 - 5. When compaction test results indicate nonconforming work, the contractor shall remove defective work, replace and retest.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.
- B. Do not place bituminous concrete when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Aggregate Base Course-Type B in accordance with Article 351 of the IDOT Standard Specifications.

- B. Bituminous Concrete Surface Course in accordance with Article 406 of the IDOT Standard Specifications.
- C. Bituminous Concrete Binder Course in accordance with Article 406 of the IDOT Standard Specifications.
- D. Prime Coat as specified by Section 406.05 of the IDOT Standard Specifications.

2.2 BITUMINOUS PAVING MIX

- A. Coarse Aggregate in accordance with Article 1004 of the IDOT Standard Specifications.
- B. Fine Aggregate in accordance with Article 1003 of the IDOT Standard Specifications.
- C. Hot-Mix Asphalt in accordance with Article 1030 of the IDOT Standard Specifications and as described in the Mixture Tables within the plans.
- D. Bituminous Materials in accordance with Article 1032 of the IDOT Standard Specifications.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify compacted subgrade, granular subbase is dry and ready to support paving and imposed loads.
- C. Verify gradients and elevations of base are correct.
- D. Verify gutter drainage grilles and frames, manhole frames, and inlets are installed in correct position and elevation.
- E. The Contractor shall prepare subgrade in accordance with Section 301 of the IDOT Standard Specifications.

3.2 PREPARATION - PRIMER

- A. Apply primer in accordance with Sections 406.05 of the IDOT Standard Specifications.
- B. Use clean sand to blot excess primer.

3.3 PLACING ASPHALT ROADWAY

- A. Place aggregate base course to 6 inch compacted thickness on Asphalt Roadway
- B. Place binder course to match existing compacted thickness on Asphalt Roadway.

- C. Place wearing course within 24 hours of placing and compacting binder course. When binder course is placed more than 24 hours before placing wearing course, clean surface and apply tack coat in accordance with Section 406.06 before placing wearing course.
- D. Place wearing course to match existing compacted thickness on Asphalt Roadway.
- E. Compact each course by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
- F. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Flatness: Maximum variation of 1/4 inch measured with a 10 foot straight edge (1/8 inch measured with a 10 foot straight edge for tennis courts).
- C. Scheduled Compacted Thickness: Within 1/4 inch.
- D. Variation from Indicated Elevation: Within 1/2 inch.
- E. Density: An average density of 93 to 97 percent of the maximum theoretical density as determined by Illinois Modified AASHTO T-209. No individual test shall be below 91 percent.

3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Take samples and perform tests in accordance with AI or MS-2.

3.6 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution Requirements: Protecting finished work.
- B. Immediately after placement, protect pavement from mechanical stress or injury for 7 days.

3.7 SCHEDULES

- A. Asphalt Roadway: Two courses: Binder course and wearing course to match existing pavement thickness on full height compacted granular backfill.

END OF SECTION

SECTION 32 13 13
CONCRETE PAVING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Concrete pavement.
 - 2. Concrete sidewalks.
 - 3. Concrete curbs and gutters.

- B. Related Sections:
 - 1. Section 03 20 00 - Concrete Reinforcing.
 - 2. Section 03 30 00 - Cast-In-Place Concrete.
 - 3. Section 31 23 16 - Excavation.
 - 4. Section 31 23 23 - Fill.
 - 5. Section 32 05 16 - Aggregates.
 - 6. Section 32 91 19 - Landscaping Grading.

1.2 REFERENCES

- A. The IDOT Standard Specifications for Road and Bridge Construction, including all addenda.

- B. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M324 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

- C. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.
 - 2. ACI 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.

- D. American Society for Testing and Materials:
 - 1. ASTM A184/A184M - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
 - 2. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
 - 3. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
 - 4. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 5. ASTM A706/A706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
 - 6. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
 - 7. ASTM A775/A775M - Standard Specification for Epoxy-Coated Reinforcing Steel Bars.

8. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement.
9. ASTM A934/A934M - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
10. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
11. ASTM C33 - Standard Specification for Concrete Aggregates.
12. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
13. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
14. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic Cement Concrete.
15. ASTM C150 - Standard Specification for Portland Cement.
16. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
17. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
18. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
19. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
20. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
21. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
22. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
23. ASTM C979 - Standard Specification for Pigments for Integrally Colored Concrete.
24. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
25. ASTM C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
26. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
27. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
28. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data on concrete materials, joint filler, admixtures, and curing compounds.
- C. Design Data:
 1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
 - a. Hot and cold weather concrete work.
 2. Identify mix ingredients and proportions, including admixtures.

3. Identify chloride content of admixtures and whether or not chloride was added during manufacture.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301, and requirements of Sections 03 20 00 and 03 30 00.
- B. Obtain cementitious materials from same source throughout.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years experience.
- B. Installer: Company specializing in performing work of this section with minimum three years experience.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.
- B. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.1 FORM MATERIALS

- A. Form Materials: In accordance with IDOT Specifications Section 1103.05.
- B. Joint Filler: Preformed expansion joint filler in accordance with IDOT Standard Specifications Section 1051.

2.2 REINFORCEMENT

- A. Reinforcement Bars: In accordance with IDOT Standard Specification Section 1006.10.
- B. Welded Wire Fabric: In accordance with IDOT Standard Specification Section 1006.10.

2.3 CONCRETE MATERIALS

- A. Cement: Portland Cement: In accordance with IDOT Standard Specification Section 1001.
- B. Water: In accordance with IDOT Standard Specification Section 1002.
- C. Fine Aggregate: In accordance with IDOT Standard Specification Section 1003.
- D. Coarse Aggregate: In accordance with IDOT Standard Specification Section 1004.

E. Admixtures: In accordance with IDOT Standard Specification Section 1021.

2.4 CONCRETE MIX

A. Portland Cement Concrete: In accordance with IDOT Standard Specifications Section 1020.

2.5 ACCESSORIES

A. Curing Compound: ASTM C309, Type 1, Class A.

B. Joint Sealer: In accordance with IDOT Standard Specification Section 1050.

2.6 SOURCE QUALITY CONTROL AND TESTS

A. Section 01 40 00 - Quality Requirements: Testing and Inspection Services.

B. Submit proposed mix design of each class of concrete to appointed firm for review prior to commencement of Work.

C. Tests on cement, aggregates, and mixes will be performed to ensure conformance with specified requirements.

D. Test samples in accordance with ACI 301.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify compacted subgrade is dry and compacted granular base is acceptable and ready to support paving and imposed loads.

C. Verify gradients and elevations of base are correct.

3.2 SUBBASE

A. Aggregate Base: Install as specified in Section 32 11 23.

3.3 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

B. Notify Architect/Engineer minimum 24 hours prior to commencement of concreting operations.

3.4 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.5 REINFORCEMENT

- A. Place reinforcement as indicated on Drawings.
- B. Interrupt reinforcement at contraction joints and expansion joints.
- C. Place reinforcement to achieve pavement and curb alignment as detailed.

3.6 PLACING CONCRETE

- A. Concrete design mix shall meet the requirements of IDOT Standard Specification Section 1020.
- B. PCC Pavement: Concrete shall be placed in accordance with IDOT Standard Specification Section 420.
- C. PCC Sidewalk: Concrete shall be placed in accordance with IDOT Standard Specification Section 424.
- D. PCC Curb Ramps: Concrete shall be placed in accordance with IDOT Standard Specification Section 424.
- E. Concrete Curb and Gutter: Concrete shall be placed in accordance with IDOT Standard Specification Section 606.
- F. Ensure reinforcing, inserts, embedded parts and preformed expansion joints are not disturbed during concrete placement.
- G. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.7 JOINTS

- A. Place expansion and contraction joints at 20 foot intervals (or as shown on details). Align curb and sidewalk joints.
- B. Place joint filler between paving components and building or other appurtenances. Recess top of filler 1/4 inch for joint sealant installation.
- C. Provide joints at 5 foot intervals or as shown on details.
- D. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut into slab to depth shown in the plan set.

3.8 FINISHING

- A. Sidewalk Paving: Light broom, radius to 1/8 inch radius, and trowel joint edges.
- B. Curbs: Light broom.
- C. Direction of Texturing: Transverse to paving direction.
- D. Inclined Vehicular Ramps: Broomed perpendicular to slope.
- E. Place curing compound and/or sealer on exposed concrete surfaces immediately after finishing.

3.9 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.10 JOINT SEALING

- A. Separate pavement from vertical surfaces with 1/2-inch thick joint filler.
- B. Place joint filler in pavement pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

3.11 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- C. Maximum Variation From True Position: 1/4 inch.

3.12 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform field testing in accordance with ACI 301.
- C. Inspect reinforcing placement for size, spacing, location, support.
- D. Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ACI 301 and Section 1020 of the IDOT Standard Specifications.
- E. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.13 PROTECTION

- A. Immediately after placement, protect paving from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian or vehicular traffic on pavement until 75 percent design strength of concrete has been achieved.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 32 91 19
LANDSCAPE GRADING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Final grade topsoil for finish landscaping.
- B. Related Sections
 - 1. Section 32 05 13 - Soils.
 - 2. Section 32 92 19 - Seeding.

1.2 QUALITY ASSURANCE

- A. Furnish topsoil material from single source throughout the Work.
- B. Perform Work in accordance with IDOT Standard Specification Section 211.

PART 2 PRODUCTS

2.1 MATERIAL

- A. Topsoil: From site.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify substrate base has been contoured and compacted.
- C. Verify trench backfilling have been inspected.

3.2 PREPARATION

- A. Protect landscaping and other features remaining as final Work.
- B. Protect sidewalks, utilities, paving, and curbs.

3.3 SUBSTRATE PREPARATION

- A. Eliminate uneven areas and low spots.

- B. Remove debris, roots, branches, stones, in excess of 1 inch in size. Remove contaminated subsoil.

3.4 PLACING TOPSOIL

- A. Place topsoil in areas where seeding will occur to nominal depth of 4 inches. Place topsoil during dry weather.
- B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.
- C. Remove roots, weeds, rocks, and foreign material while spreading.
- D. Manually spread topsoil close to plant material, building, and paved areas to prevent damage of stated items.
- E. Roll placed topsoil.
- F. Remove surplus subsoil and topsoil from site.

3.5 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Top of Topsoil: Plus or minus 1/2 inch.

3.6 PROTECTION OF INSTALLED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Prohibit construction traffic over topsoil.

END OF SECTION

SECTION 32 92 19

SEEDING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preparation of subsoil.
 - 2. Seeding lawns shown and specified herein.
 - 3. Mulching.
 - 4. Maintenance.
 - 5. Reconditioning existing lawns disturbed during construction.
- B. Related Sections:
 - 1. Section 31 05 13 - Soils.
 - 2. Section 31 23 23 - Fill.
 - 3. Section 32 91 19 - Landscape Grading.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Grassed Areas:
 - 1. Basis of Measurement: By lump sum.
 - 2. Basis of Payment: Includes seeding, watering and maintenance to specified time limit. Seeding shall be paid for per lump sum as Grading and Seeding.

1.4 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit seed vendor's certification for required grass seed mixture, indicating percentage by weight, and percentages of purity, germination, and weed seed for each grass species.
 - 1. Submit the following material samples:
 - a. Seed.
 - b. Mulch.

2. Submit fertilizer analysis certification.
- C. Upon seeded lawn acceptance, submit written maintenance instructions recommending procedures for maintenance of seeded lawns.

1.6 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Operation and Maintenance Data: Include maintenance instructions, cutting method and maximum grass height.

1.7 QUALITY ASSURANCE

- A. Section 01 40 00 - Quality Requirements: Testing, inspection and analysis requirements.
- B. Engineer will provide and pay for materials testing accordance with Section 01 40 00. Provide the following data:
 1. Test representative material samples proposed for use.
 2. Topsoil:
 - a. pH factor.
 - b. Mechanical analysis.
 - c. Percentage of organic content.
 - d. Recommendations on type and quantity of additives required to establish satisfactory pH factor and supply of nutrients to bring nutrients to satisfactory level for planting.
 3. Allowable tolerances:
 - a. Finish grade of lawn areas shall be one inch below grade of adjacent pavement of any kind.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging and location of packaging. Damaged packages are not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis and manufacturer's name.
- D. Deliver all products in sufficient quantity and time to maintain approved construction schedule, as amended.
- E. Store all products off the ground, in a dry location, out of the way of construction operations. Provide protection to prevent damage until installed.

1.9 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate with installation of underground drainage system.

1.10 PROJECT CONDITIONS

- A. Work Notification: Notify Engineer at least 7 working days prior to start of seeding operations.
- B. Protect existing utilities, paving and other facilities from damage caused by seeding operations.
- C. Perform seeding work only after work affecting ground surface has been completed.
- D. Restrict traffic from lawn areas until grass is established. Erect signs and barriers as required.
- E. Provide hose and lawn watering equipment as required.

1.11 WARRANTY

- A. Contractor's Warranty: Supply Owner with warranty in accord with General Conditions for a period of one year plus one growing season.

1.12 MAINTENANCE

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance service.
- B. Owner or Property Owner will perform maintenance of installed and accepted seeded lawns.
- C. Maintain seeded lawn areas, including watering, spot weeding, mowing, applications of herbicides, fungicides insecticides and re-seeding until a full, uniform stand of grass free of weeds, undesirable grass species, disease, and insects is achieved and accepted.
 - 1. Water daily to maintain adequate surface soil moisture for proper seed germination. Continue daily watering for not less than 30 days. Thereafter, apply 1/2" of water twice weekly until acceptance.
 - 2. Repair, rework, and re-seed all areas that have washed out, are eroded, or do not catch.
 - 3. Mow lawn areas as soon as lawn top growth reaches a 3 inch height. Cut back 2 inches in height. Repeat mowing as required to maintain specified height.
 - 4. Apply Type B fertilizer to lawns approximately 30 days after seeding at a rate equal to 1.0 lb. Of actual nitrogen per 1,000 square feet. (140 lbs./acre). Apply with mechanical rotary or drop type distributor. Thoroughly water into soil.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Lawn Seed: Fresh, clean, and new crop seed mixture.
 - 1. Mixed by an approved method.

2. Composed of following varieties, mixed to specified proportions by weight and tested to minimum percentages of purity and germination. Poa Annua, bent grass, and noxious weed seed free.

<u>Blend</u>	<u>Parts</u>	<u>Purity</u>	<u>Min. Germination</u>
Rate: 10 lbs Per 1,000 S.F.			
Rebel II - type Tall Fescue	29%	98%	90%
Olympic - type Tall Fescue	24%	98%	90%
Tribute - Type Tall Fescue	20%	98%	90%
Bonanza - type Tall Fescue	15%	98%	90%
Adventure - Type Tall Fescue	10%	98%	90%
Other Crop Seed	1%		
Inert Matter	1%		
Weed Seed	0.15%		
Noxious Weeds	0.0%		

B. Fertilizer:

1. Granular, non-burning product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer.
 - a. Type A: Starter fertilizer containing 9% nitrogen, 13% phosphoric acid, and 7% potash by weight, or similar approved composition.
 - b. Type B: Top dressing fertilizer containing 16% nitrogen, 4% phosphoric acid, and 8% potash by weight or similar approved composition.

C. Straw Mulch: Clean oat or wheat straw well seasoned before bailing, free from mature seed bearing stalks or roots of prohibited or noxious weed.

D. Water: Free of substance harmful to seed growth. Hoses or other methods of transportation furnished by Contractor.

E. Erosion control blankets shall be manufactured of degradable materials, consisting of curled wood fibers, 80% six-inch length of longer and covered with photodegradable extruded plastic mesh, installed with staples in length and size as recommended by manufacturer.

PART 3 EXECUTION

3.1 INSPECTION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Examine finish surfaces, grades, topsoil quality, and depth. Do not start seeding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Limit preparation to areas, which will be immediately seeded. Remove existing vegetation or temporary seeding.

- B. Loosen topsoil of lawn areas to minimum depth of 4 inches. Remove stones over one inch in any dimension and sticks, roots, rubbish, and extraneous matter.
- C. Grade lawn areas to a smooth, free draining even surface with a loose, moderately coarse texture. Roll and rake, remove ridges and fill depressions as required to drain.
- D. Apply limestone, at rate determined by soil test, to adjust pH of topsoil to not less than 6.0 nor more than 6.8. Distribute evenly by machine and incorporate thoroughly into topsoil.
- E. Apply Type A fertilizer to indicated turf areas at a rate equal to 1.0 lb. of actual nitrogen per 1,000 sq. ft. (220 lbs./acre).
- F. Apply fertilizers by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with soil to a depth of 3 inches by disking or other approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
- G. Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to seeding.

3.3 INSTALLATION

A. SEEDING

1. After fertilizing and prior to seeding, the ground surface shall be smooth, dry, friable and of uniformly fine texture. No seed shall be placed when the ground is not in a proper condition, and no seed shall be placed until the prepared ground surface has been approved by the Engineer. If, as a result of rain, the prepared ground surface becomes crusted or eroded; or if eroded places, ruts, or depressions exist for any reason, the Contractor shall rework the soil to the satisfaction of the Engineer.
2. No seed shall be sown during high winds, nor shall any seed be sown until the purity test has been completed for the seed to be used and shows that the seed meets the noxious weed seed requirements.
3. The optimum depth for seeding shall be 1/4-inch. Seeding shall be applied evenly with a rotary or drop type distributor in two directions at right angles to each other. Half of the specified pounds of seed shall be placed in one direction, and the other half of specified pounds shall be placed at right angle to the first direction.
4. Broadcasting will not be allowed except in inaccessible areas as approved by the Engineer. The seed shall be broadcast evenly by hand or with an approved seeding device. The seed shall be covered with a thin layer of topsoil by light raking or other approved method. The optimum depth for broadcast seeding shall be 1/4-inch.
5. The beginning and termination dates for placing the seed shall be as follows and shall not be adjusted except as approved by the Engineer in writing:
 - a. Fall Seeding: August 15 to September 30
 - b. Spring Seeding: April 1 to May 15
6. Seed indicated areas and all areas disturbed as a result of construction operations.
7. Perform seeding operations when the soil is dry and when winds do not exceed 5 miles per hour velocity.
8. Sow grass seed at a rate of 10.0 lbs. per 1,000 sq. ft. (435 lbs./acre).

9. After seeding, rake or drag surface of soil lightly to incorporate seed into top 1/8 inch of soil. Roll with light lawn roller.

B. MULCHING:

1. Place straw mulch on seeded areas within 24 hours after seeding.
2. Place straw mulch uniformly in a continuous blanket at the rate of 2-1/2 tons per acre, or two 50 lb. bales per 1,000 sq. ft. of area. A mechanical blower may be used for straw mulch application.
3. Crimp straw into soil by mechanical means.

- C. Provide straw bale checking in ditches or problem swales at intervals required to adequately slow water velocity and impede soil loss.

3.4 HYDROSEEDING

- A. Apply fertilizer, mulch and seeded slurry with hydraulic seeder at rate of 1,000 gal per acre evenly in one pass.
- B. After application, apply water with fine spray immediately after each area has been hydroseeded. Saturate to 4 inches of soil and maintain moisture levels two to four inches.

3.5 REPAIR OF SEEDING

- A. The Contractor is responsible for the proper care of the seeded areas during the period when the vegetation is being established. If, at any time before completion and acceptance of the entire work covered by this contract, any portion of the surface becomes eroded, gullied or otherwise damaged or vandalized following seeding; has been winter-killed or otherwise destroyed, the affected portion shall be repaired to re-establish the condition and grade of the soil and reseed the areas as specified herein to attain established turf.

3.6 SEED PROTECTION ON SLOPES

- A. Cover seeded slopes where grade is 4:1 or steeper with matting. Roll erosion control blanket down over slopes without stretching or pulling.
- B. Lay erosion control blanket smoothly on soil surface, burying top end of each section in narrow 6 inch trench. Leave 12 inch overlap from top roll over bottom roll. Leave 4 inch overlap over adjacent section.
- C. Staple outside edges and overlaps at 36 inch intervals.
- D. Lightly dress slopes with topsoil to ensure close contact between matting and soil.
- E. In ditches, unroll matting in direction of flow. Overlap end of strips six inch with upstream section on top.

3.7 ACCEPTANCE

- A. Inspection to determine acceptance of seeded lawns will be made after 60 days of completed installation upon Contractor's request. Provide notification at least ten working days before requested inspection date.
 - 1. Seeded areas will be acceptable provided all requirements, including maintenance, have been complied with, and a healthy, uniform, close stand of specified grass is established free of weeds, undesirable grass species, disease, and insects.
 - 2. No individual lawn areas shall have bare spots or unacceptable cover totaling more than two percent of the individual areas, in areas requested to be inspected.
- B. Upon acceptance, Owner will assume lawn maintenance.

3.8 CLEANING

- A. Perform cleaning during installation of work and upon completion of work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from seeding operations.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 33 11 13

PUBLIC WATER UTILITY DISTRIBUTION PIPING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings for potable water line.
2. Tapping Sleeves and Gate Valves.
3. Gate Valves.
4. Underground pipe markers.
5. Pipe Support Systems.
6. Bedding and cover materials.
7. Accessories.

B. Related Sections:

1. Section 03 30 00 - Cast-In-Place Concrete: Concrete for thrust restraints.
2. Section 31 05 13 - Soils: Soils for backfill in trenches.
3. Section 31 23 16 - Excavation: Product and execution requirements for excavation and backfill required by this section.
4. Section 31 23 17 - Trenching and Backfill: Execution requirements for trenching required by this section.
5. Section 31 23 18 - Rock Removal.
6. Section 31 23 23 - Fill: Requirements for backfill to be placed by this section.
7. Section 31 25 13 - Erosion Controls and SWPPP.
8. Section 32 05 16 - Aggregates: Aggregate for backfill in trenches.
9. Section 32 91 19 - Landscape Grading.
10. Section 32 92 19 - Seeding.
11. Section 33 12 13 - Water Service Connections.
12. Section 33 12 16 - Water Utility Distribution Valves.
13. Section 33 13 00 - Disinfecting of Water Utility Distribution: Disinfection of water piping.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- ###### A. Pipe - Basis of Measurement: By the linear foot. Basis of Payment: Includes hand trimming excavation and setting of utility lines in concrete cradle, piping and fittings, fitting accessories and mechanical restrainers, bedding, concrete thrust restraints and other restraints, locating devices (tracer wire, etc.), disinfection, pressure testing, connection to public utility water source.

1.3 REFERENCES

A. American Society of Mechanical Engineers (ASME):

1. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

B. ASTM International:

1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

2. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
3. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
4. ASTM A139/A139M - Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe.
5. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
6. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
7. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort 56,000 ft-lbf/ft³.
8. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
9. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
10. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
11. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. American Welding Society (AWS):

1. AWS D1.1 - Structural Welding Code - Steel.

D. American Water Works Association (AWWA):

1. AWWA C104 - ANSI Standard for Cement Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. AWWA C105 - ANSI Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - ANSI Standard for Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In. (76 mm Through 1,219 mm), for Water.
4. AWWA C111 - ANSI Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C115 - ANSI Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
6. AWWA C151 - ANSI Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
7. AWWA C153 - ANSI Standard for Ductile-Iron Compact Fittings for Water Service.
8. AWWA C500 - Gate Valves for Water and Sewage Systems.
9. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
10. AWWA C605 - Water Treatment - Underground Installation of Polyvinyl Chloride PVC Pressure Pipe and Fittings for Water.
11. AWWA C651 - Disinfecting Water Mains.
12. AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case.
13. AWWA C701 - Cold-Water Meters - Turbine Type, for Customer Service.
14. AWWA C702 - Cold-Water Meters - Compound Type.
15. AWWA C706 - Direct-Reading, Remote-Registration Systems for Cold-Water Meters.
16. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 In. through 12 In. (100 mm Through 300 mm), for Water Distribution.

17. AWWA C905 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 36 In. (350 mm Through 1,200 mm), for Water Transmission and Distribution.
 18. AWWA M6 - Water Meters - Selection, Installation, Testing, and Maintenance.
- E. Factory Mutual (FM):
1. FM 1120/1130 - Fire Service Water Control Valves (OS&Y and NRS Type Gate Valves).
 2. FM 1510/1511 - Fire Hydrant (Dry and Wet Barrel Type) for Private Fire Service.
 3. FM 1610 - Ductile Iron Pipe and Fittings, Flexible Fittings and Couplings.
 4. FM 1620 - Pipe Joints and Anchor Fittings for Underground Fire Service Mains.
 5. FM 1612 - Polyvinyl Chloride (PVC) Pipe and Fittings for Underground Fire Protection Service.
- F. Great Lakes - Upper Mississippi River Board:
1. Recommended Standards for Water Works (Ten State Standards).
- G. Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS):
1. MSS SP-60 - Connecting Flange Joint between Tapping Sleeves and Tapping Valves.
- H. National Fire Protection Association (NFPA):
1. NFPA 24 - Installation of Private Fire Service Mains and Their Appurtenances.
 2. NFPA 291 - Recommended Practice for Water Flow Testing and Marking of Hydrants.
- I. National Sanitation Foundation (NSF) International:
1. NSF 14 - Plastics Piping System Components and Related Materials.
 2. NSF 61 - Drinking Water System Components - Health Effects.
 3. NSF 372 - Drinking Water System Components - Lead Content.
- J. State of Illinois:
1. Standard Specifications for Water and Sewer Construction in Illinois.
 2. Title 35 - Environmental Protection, Subtitle F: Public Water Supplies.
 3. Title 77 - Public Health, Part 890 Illinois Plumbing Code.
- K. Underwriters Laboratories, Inc. (UL):
1. UL 194 - Gasketed Joints for Ductile Iron Pipe and Fittings for Fire Protection Service.
 2. UL 246 - Hydrants for Fire - Protection Service.
 3. UL 262 - Gate Valves for Fire - Protection Service.
 4. UL 1285 - Piping and Couplings, Polyvinyl Chloride (PVC) for Underground Fire Service.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Indicate piping layout, including piping specialties.
- C. Product Data: Submit data on pipe materials, pipe fittings, valves and accessories.

- D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
- E. Pre-Construction Photographs:
 - 1. Submit photographs of work areas and material storage areas.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with Standard Specifications for Water and Sewer Construction in Illinois and Owner's standards.
- B. Maintain one copy of each document on site.
- C. Valves: Manufacturer's name and pressure rating marked on valve body.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Deliver and store valves in shipping containers with labeling in place.
- C. Block individual and stockpiled pipe lengths to prevent moving.
- D. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
- E. Store polyethylene materials out of sunlight.

1.8 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 WATER DISTRIBUTION PIPING

- A. Water Distribution Piping: Piping shall be the size and type as indicated in drawings.
- B. PVC Pipe: Newest revision of AWWA C900, DR-25, Class 165 psi:
 - 1. Fittings: Compact fittings, newest revision of AWWA C153 ductile iron, standard thickness, rubber gasket mechanical joint. All fittings shall be restrained with mechanical restrainers per Owner's standards.

2. Restrained Joints: Newest revision of AWWA C111 and ASTM D3139, boltless, push-on type, joint restraint independent of joint seal with elastomeric sealing gaskets meeting the newest revision of ASTM F477.

C. FLANGE ADAPTERS

1. The preference of flange adapters selected shall be given to those made in America by American Manufacturers and materials
2. Flange adapters shall consist of gray cast iron flanges for 12” and smaller pipes, steel flanges for pipe that is larger than 12” with ductile iron follower flanges. The bolt circle, bolt size and spacing shall conform to ASME/ANSI B16.1 - 1998 - Cast Iron Pipe Flanges and Flanged Fittings for 125-pound flanges.
3. Gaskets used shall be of the synthetic rubber type.
4. “O” rings shall be neoprene.
5. Each flange adapter shall be furnished with four or more anchor studs where noted on the plans.

D. KWIK FLANGE

1. The preference of Kwik Flanges selected shall be given to those made in America by American Manufacturers and materials
2. The Kwik Flange shall be designed for use on cast iron piping.
3. The unit shall be provided with setscrews giving restraint against the pressure force and shall have both Underwriter’s Laboratories, Inc. and Factory Mutual Research Corp. approval. It shall be as manufactured by Standard or approved equal.

- E. All iron, steel and fittings shall be the product of a United States of America manufacturer.

2.2 CASING PIPE MATERIALS

- A. Furnish materials in accordance with Illinois Department of Transportation and Owner’s standards for road crossing.

B. Steel Casing Pipe

1. ASTM A139/A139M, Grade B, 35,000 psi minimum yield strength, minimum wall thickness and diameter per standards.
2. Full circumference welded joints in accordance with AWS D1.1 to withstand excavation forces.

C. Accessories

1. Pipe Casing Supports:
 - a Casing Support Spacers Construction: Cross-sectional size to allow placement of carrier pipe in casing and to support barrel of carrier pipe.
 - b Casing Spacers shall be per Owner’s standards.
2. Casing Rubber End Seal shall be provided at each end of the casing as shown on the Drawing. This end seal shall be secured with Stainless Steel Bands.

- D. Install casing pipe to vertical and horizontal alignment on Drawings within plus or minus 3 inches prior to installation of carrier pipe.

2.3 TAPPING SLEEVES AND GATE VALVES

A. Stainless Steel Tapping Sleeves:

1. Verify the type of existing pipe and the outside diameter of the pipe on which the tapping sleeve is to be installed. Install the tapping sleeves in accordance with AWWA C223, MSS SP-60 and the manufacturer's instructions. The tapping procedure is to be in accordance with AWWA C223 and the tapping machine manufacturer's instructions.
2. The stainless steel band flange shall be manufactured in compliance with AWWA C207, Class D ANSI B.16.1 drilling, recessed for tapping valve MSS-SP60. Mechanical joint tapping sleeve outlet shall meet or exceed all material specifications as listed below and be suitable for use with standard mechanical joint by mechanical joint resilient wedge gate valves per ANSI/AWWA C509 or ANSI/AWWA C515 and be NSF 61 approved.
3. Tapping sleeves to be attached to 4" through 12" nominal pipe diameter shall meet the following minimum requirements.
 - a. The entire fitting shall be stainless steel type 304 (18-8). The body, lug, and gasket armor plate shall be in compliance with ASTM A240. The MJ outlet shall be one-piece casting made of ductile iron, meeting or exceeding ASTM A536, Grade 65-45-12. MJ style in accordance with AWWA C111. The test plug shall be 3/4" NPT in compliance with ANSI B2.1 and shall be lubricated or coated to prevent galling. All metal surfaces shall be passivated after fabrication in compliance with ASTM A380.
 - b. The gasket shall provide a 360-sealing surface of such size and shape to provide an adequate compressive force against the pipe after assembly, to affect a positive seal under the combinations of joint and gasket tolerances. The materials used shall be vulcanized natural or vulcanized synthetic rubber with antioxidant and antiozonant ingredients to resist set after installation. No reclaimed rubber shall be used. A heavy-gauge-type 304-stainless armor plate shall be vulcanized into the gasket to span the lug area. Each tapping sleeve shall be furnished complete with all necessary split end gaskets, longitudinal gaskets and two-piece (split) steel glands. Material for split end gaskets and rubber longitudinal gaskets shall conform to AWWA C111.
 - c. The lugs shall be heliarc welded (GMAW) to the shell. The lug shall have a pass-through-bolt design to avoid alignment problems and allow tightening from either side of the main. Bolts shall not be integrally welded to the sleeve. Finger lug designs are not approved.
 - d. Bolts and nuts shall be type 304 (18-8) stainless steel and Teflon coated. Bent or damaged units will be rejected. MJ bolts and nuts shall be UNC T-Bolts, heavy hex nuts, high strength low alloy steel per AWWA C111. All bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all as specified in ANSI B18.2.
 - e. Quality control procedures shall be employed to ensure that the shell, lug, (4" and Larger Nominal Pipe Diameter) armor plate, gasket and related hardware are manufactured to be free of any visible defects. Each unit, after proper installation, shall have a working-pressure rating up to 250 psi.
 - f. The sleeve construction shall provide a positive means of preventing gasket cold flow and/or extrusion.

- g Each sleeve shall be stenciled, coded or marked in a satisfactory manner to identify the size range. The markings shall be permanent type, water resistant, that will not smear or become illegible.

B. Tapping Gate Valves:

1. The horizontal tapping valve shall conform to the applicable requirements of Section 33 12 16 and AWWA C509 or AWWA C515. Install the tapping valve in accordance with Section 33 12 16, AWWA C509 or AWWA C515, AWWA C223, MSS SP-60 and the manufacturer's instructions. The tapping procedure is to be in accordance with AWWA C223 and the tapping machine manufacturer's instructions.
2. All tapping valves, 3 inches through 12 inches NPS, shall be ductile iron body, resilient-seated, nut-operated, non-rising stem gate valves suitable for buried service. The valve interior and exterior shall be epoxy coated at the factory by the valve manufacturer in accordance with AWWA Standard C550 (6-8 mil average, 4 mil minimum). The tapping valves shall have mechanical joint inlets for connection to tapping sleeve with flanged outlets for connection to new piping, enclosed bevel gears, rollers, tracks and scrapers. All joints and gaskets shall conform to AWWA C111.
3. The tapping valves shall be furnished complete with glands, bolts and gaskets. The tapping valve when open shall have a clear, full-port, unobstructed waterway. The seat rings shall be of a large diameter to permit the entry of the full diameter tapping machine cutters. The valve end that mates with the tapping machine shall have an alignment lip to fit the recess in the valve flange for proper alignment. The lip will be dimensioned in accordance with MSS SP-60.

2.4 GATE VALVES

- A. Gate Valves: Conform to Section 33 12 16.

2.5 UNDERGROUND PIPE MARKERS

- A. Trace Wire: Furnish materials in accordance with Owner's standards:

1. Utilize Copperhead "Reinforced Tracer Wire" (blue) or Owner approved equal for underground pipe tracer wire.
2. Utilize Copperhead Directional Drill Wire tracer wire (yellow) or Owner approved equal for underground pipe tracer wire for directional drilling operations.
3. Utilize splicing materials specifically made for underground splicing of tracer wire.

- B. Tracer Boxes: Furnish materials in accordance with Owner' standards:

1. Utilize one Tracer Box at every Fire Hydrant or every 1,000 feet whichever is less and at tees and dead ends.
2. Utilize Valve Box in lieu of Tracer Box if permitted by Owner.
3. Install Tracer Box next to Valve Box for ease of locating.
4. If Owner has no recommendations for tracer boxes, utilize Snake Pit tracer boxes for the following applications:
 - a Lite Duty Box with Blue Top for all tracer boxes to be installed in non-traffic areas.
 - b Roadway Box with Blue Top for all asphalt driveways and roadways.

- c Concrete/Driveway Box for all concrete driveways and roadway applications.
- 5. Unless required by site conditions, all tracer boxes should be installed in non-traffic areas.
- C. Buried Warning Tape: Furnish materials in accordance with Owner's requirements.
 - 1. Utilize Buried Warning Tape only when required by Owner.
 - 2. If no trace wire is required on project, utilize buried warning tape with foil backing.
 - 3. Utilize minimum 4 mil polyethylene tape with 3 inch minimum width.
- D. Above Ground Pipe Markers: Furnish materials in accordance with Owner's requirements.
 - 1. Utilize Above Ground Pipe Markers only when required by Owner.

2.6 PIPE SUPPORTS AND ANCHORING

- A. Metal for pipe support brackets: Structural steel, painted.
- B. Metal tie rods and clamps or lugs: Stainless powder coated steel.

2.7 CONCRETE ENCASEMENT AND CRADLES

- A. Concrete: Conforming to Section 03 30 00, 3,000 psi 28 day reinforced concrete, rough troweled finish.
- B. Concrete Reinforcement: Conform to Section 03 30 00.

2.8 BEDDING AND COVER MATERIALS

- A. See Specification Section 31 23 17 - Trenching.
- B. Soil Backfill from Above Pipe to Finish Grade: Subsoil with no rocks over 6 inches in diameter, frozen earth or foreign matter unless otherwise specified and with the exception of improved areas requiring select granular backfill.

2.9 ACCESSORIES

- A. Concrete for Thrust Restraints: Conform to Section 03 30 00.
- B. Steel bolt, lugs and brackets: ASTM A36/A36M or ASTM A307 carbon steel.
- C. Mega-Lugs or other restraint device per Owner's requirements. Said restraint devices shall be installed on all mechanical joint fittings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

- B. Verify existing utility water main size, location are as indicated on Drawings.

3.2 PREPARATION

- A. Pre-Construction Site Photos:
 - 1. Take photographs along centerline of proposed pipe trench; minimum one photograph for each 50 feet of pipe trench.
 - 2. Show mailboxes, curbing, lawns, driveways, signs, culverts, and other existing site features.
 - 3. Include project description, date taken and sequential number on back of each photograph.
- B. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs. Use only equipment specifically designed for pipe cutting. The use of chisels or hand saws will not be permitted. Grind edges smooth with beveled end for push-on connections.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare pipe connections to equipment with flanges or unions.

3.3 BEDDING

- A. See Specification Section 31 23 17 - Trenching.
- B. Form and place concrete for pipe thrust restraints at change of pipe direction. Place concrete to permit full access to pipe and pipe accessories. Provide thrust restraint bearing on subsoil.
- C. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 8 inches compacted depth; compact to 95 percent.
- D. Backfill around sides and top of pipe in accordance with Section 31 23 23.

3.4 INSTALLATION - PIPE

- A. Install pipe in accordance with latest edition of AWWA C600 or AWWA C605 as applicable.
- B. Handle and assemble pipe in accordance with manufacturer's instructions and as indicated on Drawings.
- C. Install pipe in accordance with the Standard Specifications for Water and Sewer Construction in Illinois, Illinois Plumbing Code, and all applicable sections of the ANSI/AWWA water system standards.
- D. Maintain separation of water main from sewer piping in accordance with the Standard Specifications for Water and Sewer Construction in Illinois and the Illinois Plumbing Code.
 - 1. General - The following factors should be considered in providing adequate separation:
 - a. Materials and type of joints for water and sewer pipes;
 - b. Soil conditions;
 - c. Service and branch connections into the water main and sewer line;

- d Compensating variations in the horizontal and vertical separations;
 - e Space for repair and alterations of water and sewer pipes; and
 - f Off-setting of water mains around manholes.
2. Parallel installation.
- a The water main shall be locate at least ten feet horizontally from any existing or proposed line carrying non-potable fluids such as, but no limited to drains, storm sewers, sanitary sewers, combined sewers, sewer service connections, and process waste or product lines. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten-foot separation, the department may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the water main closer to a non-potable fluid line, provided that the water main is laid in a separate trench located as far away from the non-potable line as feasible and meets other specific construction requirements. Locating a water main on an undisturbed earth shelf located on one side of the non-potable line is not recommended and requires justification by the engineer and specific case-by-case approval of the department. In either case, an elevation shall be maintained such that the bottom of the water main is at least 18 inches above the top of the non-potable line while meeting minimum cover requirements. In areas where the recommended separations cannot be obtained, either the waterline or the non-potable line shall be constructed of mechanical or manufactured restrained joint pipe, fusion welded pipe, or cased in a continuous casing. Casing pipe must be a material that is approved for use as water main. Conventional poured concrete is not an acceptable encasement.
3. Crossings.
- a Water mains crossing sewers, or any other lines carrying non-potable fluids shall be laid to provide a minimum vertical clear distance of 18 inches between the outside of the water main and the outside of the non-potable pipeline. This shall be the case where the water main is either above or below the non-potable pipeline. An 18-inch separation is a structural protection measure to prevent the sewer or water main from settling and breaking the other pipe. At crossings, the full length of water pipe shall be located so both joints will be as far from the non-potable pipeline as possible but in no case less than ten feet or centered on a 20-foot pipe. In areas where the recommended separations cannot be obtained either the waterline or the non-potable pipeline shall be constructed of mechanical or manufactured restrained joint pipe, fusion welded pipe, or cased in a continuous casing that extends no less than ten feet on both sides of the crossing. Special structural support for the water and sewer pipes may be required. Casing pipe must be a material that is approved for use as water main. Conventional poured concrete is not an acceptable encasement.
4. Exception.
- a Any exceptions from the specified separation distances in paragraphs 2 and 3 must be submitted to the department for approval.
5. Force mains.
- a There shall be at least a ten-foot horizontal separation between water mains and sanitary sewer force mains or other force mains carrying non-potable fluids and they shall be in separate trenches. In areas where the recommended separations cannot be obtained, either the waterline or the

non-potable line shall be constructed of mechanical joint pipe or cased in a continuous casing, be constructed of mechanical joint pipe, or be jointless or fusion welded pipe. Where possible, the waterline shall also be at such an elevation that the bottom of the water main is at least 18 inches above the top of the non-potable line. Casing pipe must be a material that is approved for use as water main. Conventional poured concrete is not an acceptable encasement.

6. Sewer manholes.
 - a No waterline shall be located closer than ten feet to any part of a sanitary or combined sewer manhole. Where the separation cannot be obtained, the waterline shall be constructed of mechanical or manufactured restrained joint pipe, fusion welded pipe, or cased in a continuous casing. Casing pipe must be a material that is approved for use as water main. The full length of water pipe shall be located so both joints will be as far from the manhole as possible, but in no case less than ten feet or centered on a 20-foot pipe. No water pipe shall pass through or come into contact with any part of a sanitary or combined sewer manhole.
 7. Disposal facilities.
 - a No water main shall be located closer than 25 feet to any wastewater disposal facility, agricultural waste disposal facility, or landfill. Water mains shall be separated by a minimum of 25 feet from septic tanks and wastewater disposal areas such as cesspools, subsurface disposal fields, pit privies, land application fields, and seepage beds.
- E. Install access fittings to permit disinfection of water system performed under Section 31 13 00
 - F. Route pipe as indicated on the drawings.
 - G. Form and place concrete for thrust restraints at each elbow or change of direction of pipe main as indicated in the drawing details.
 - H. Restrain all fittings in accordance with Owner's standards. In the absence of requirements by the Owner, restrain all fittings that are located within 10' of each other.
 - I. Establish elevations of buried piping with not less than 42 inches of cover.
 - J. Backfill trench in accordance with Section 31 23 23.
 - K. Flanged Joints: Not to be used in underground installations except within structures.
 - L. Install pipe with fire hydrants or air release valves (if approved by owner) to be located near high points.
 - M. Prevent foreign material from entering pipe during placement.
 - N. Install pipe to allow for expansion and contraction without stressing pipe or joints. Do not overbell the pipe.
 - O. Add chlorine tablets if required per chosen method of disinfection.
 - P. Install trace wire continuous with pipe to be duct taped to the top of pipe and fittings.

- Q. Splice trace wire per Owner's standards.
- R. Install tracer boxes (where required by Owner) at fire hydrant location next to valve boxes. Install additional tracer boxes so that no stretch of tracer wire runs more than 1,000 feet. Connect tracer wire to tracer box per manufacturer's requirements. Contractor may utilize the valve box in lieu of a tracer box if permitted by Owner. Tracer boxes shall be installed vertically and the top shall be flush with ground surface. Contractor to adjust tracer boxes upon trench settlement during final cleanup.
- S. Install Work in accordance with Owner's standards.

3.5 CARRIER PIPE INSTALLATION

- A. Clean, inspect, and handle pipe in accordance with this Section.
- B. Place carrier pipe in accordance with this Section.
- C. Exercise care to prevent damage to pipe joints when carrier pipe is placed in casing. Consecutively push sections through casing pipe ensuring that each joint is properly secured. Exercise care to prevent damage to pipe joints gasket when carrier pipe is placed in casing.
- D. Support pipeline within casing so no external loads are transmitted to carrier pipe. Attach supports to barrel of carrier pipe; do not rest carrier pipe on bells.
- E. Upon installation of carrier pipe, secure Casing Rubber End Seals with Stainless Steel Bands.
- F. Install pipe bells with minimum 1 inch clearance to casing.

3.6 INSTALLATION - GATE VALVES

- A. Install gate valves in accordance with Section 33 12 16.

3.7 INSTALLATION - TAPPING SLEEVES AND VALVES

- A. Install the tapping sleeves and valves in accordance with Drawings and in accordance with AWWA C223, MSS SP-60 and the manufacturer's instructions. The tapping procedure is to be in accordance with AWWA C223 and the tapping machine manufacturer's instructions. Make certain that the tap is located a sufficient distance from joints and fittings to eliminate splitting of pipe.

3.8 THRUST RESTRAINT

- A. Provide valves, tees, bends, caps, and plugs with concrete thrust blocks. Pour concrete thrust blocks against undisturbed earth. Locate thrust blocks at each elbow or change of pipe direction to resist resultant force and so pipe and fitting joints will be accessible for repair. Provide thrust restraint bearing on undisturbed soil as shown in drawings.
- B. Install clamps, set screw retainer glands, or restrained joints. Protect metal restrained joint components against corrosion by applying a bituminous coating, or by concrete mortar encasement of metal area. Do not encase pipe and fitting joints to flanges.

- C. Install thrust blocks and joint restraint at dead ends of water main.
- D. Install restraint devices per Owner's standards.

3.9 SERVICE CONNECTIONS

- A. Install service connections in accordance with Section 33 12 13.

3.10 BACKFILLING

- A. Backfill around sides and to top of pipe in accordance with Section 31 23 17.

3.11 DISINFECTION OF POTABLE WATER PIPING SYSTEM

- A. Flush and disinfect system in accordance with Section 33 13 00.

3.12 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Pressure test system to pressure as required by Owner, repair leaks and re-test. If Owner has not established a standard test pressure test system to 150 psi.
 1. After completion of pipeline installation, including backfill, but prior to final connection to existing system, conduct, in presence of Engineer, concurrent hydrostatic pressure and leakage tests in accordance with AWWA C600.
 2. Provide equipment required to perform leakage and hydrostatic pressure tests.
 - a To include pressure gauge with a maximum of 5 psi graduations.
 - b Brass service clamp with ball corporation stop for testing.
 3. Test Pressure: Not less than 150 psi or 50 psi in excess of maximum static pressure, whichever is greater.
 4. Conduct hydrostatic test for at least two-hour duration or as required by Owner.
 5. No pipeline installation will be approved when pressure varies by more than 5 psi at completion of hydrostatic pressure test.
 6. Before applying test pressure, completely expel air from section of piping under test. Provide corporation cocks so air can be expelled as pipeline is filled with water. After air has been expelled, close corporation cocks and apply test pressure. At conclusion of tests, remove corporation cocks removed and plug resulting piping openings.
 7. Slowly bring piping to test pressure and allow system to stabilize prior to conducting leakage test. Do not open or close valves at differential pressures above rated pressure.
 8. Examine exposed piping, fittings, valves, hydrants, and joints carefully during hydrostatic pressure test. Repair or replace damage or defective pipe, fittings, valves, hydrants, or joints discovered, following pressure test.
 9. No pipeline installation will be approved when leakage is greater than that determined by the following formula:

$$L = \frac{SD\sqrt{P}}{148,000}$$
 - L = allowable, in gallons per hour
 - S = length of pipe tested, in feet
 - D = nominal diameter of pipe, in inches

P = average test pressure during leakage test, in pounds per square inch (gauge)

10. When leakage exceeds specified acceptable rate, locate source and make repairs. Repeat test until specified leakage requirements are met.

END OF SECTION

SECTION 33 12 13

WATER SERVICE CONNECTIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Pipe and fittings for domestic water service connections to buildings.
 - 2. Corporation stop assembly.
 - 3. Curb stop assembly.
 - 4. Unions.
 - 5. Underground pipe markers.
 - 6. Bedding and cover materials.

- B. Related Requirements:
 - 1. Section 03 30 00 - Cast-In-Place Concrete.
 - 2. Section 31 05 13 - Soils.
 - 3. Section 31 23 16 - Excavation.
 - 4. Section 31 23 17 - Trenching and Backfill.
 - 5. Section 31 23 18 - Rock Removal.
 - 6. Section 31 23 23 - Fill.
 - 7. Section 32 05 16 - Aggregates.
 - 8. Section 32 91 19 - Landscape Grading.
 - 9. Section 32 92 19 - Seeding.
 - 10. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 11. Section 33 13 00 - Disinfecting of Water Utility Distribution

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- B. American Society of Mechanical Engineers (ASME):
 - 1. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.
 - 2. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

- C. ASTM International:
 - 1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.
 - 2. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.
 - 3. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
 - 4. ASTM C858 - Standard Specification for Underground Precast Concrete Utility Structures.
 - 5. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).

6. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 7. ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 8. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
 9. ASTM D2466 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
 10. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
 11. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 12. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
- D. American Welding Society (AWS):
1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
- E. American Water Works Association (AWWA):
1. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
 2. AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case.
 3. AWWA C701 - Cold-Water Meters - Turbine Type, for Customer Service.
 4. AWWA C702 - Cold-Water Meters - Compound Type.
 5. AWWA C706 - Direct-Reading, Remote-Registration Systems for Cold-Water Meters.
 6. AWWA C800 - Underground Service Line Valves and Fittings.
 7. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 in. through 3 in., for Water Service.
 8. AWWA M6 - Water Meters - Selection, Installation, Testing, and Maintenance.
- F. National Sanitation Foundation (NSF) International:
1. NSF 14 - Plastics Piping System Components and Related Materials.
 2. NSF 61 - Drinking Water System Components - Health Effects.
 3. NSF 372 - Drinking Water System Components - Lead Content.
- G. State of Illinois:
1. Standard Specifications for Water and Sewer Construction in Illinois.
 2. Title 35 - Environmental Protection, Subtitle F: Public Water Supplies.
 3. Title 77 - Public Health, Part 890 Illinois Plumbing Code.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawing:
 1. Installation Plan: Submit description of proposed installation.
- C. Design Data: Submit manufacturer's latest published literature to include illustrations, installation instructions, maintenance instructions and parts lists.

- D. Product Data: Submit data on pipe materials, pipe fittings, corporation stop assemblies, curb stop assemblies, meters, meter setting equipment, service saddles, backflow preventer, and accessories.
- E. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of piping mains, curb stops, connections, thrust restraints, and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- D. Provide Operation and Maintenance Data for valves, curb stops and meters.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with Owner's standards.
- B. Perform work in accordance with AWWA standards:
 - 1. C508 - Swing-Check Valves for Water Works.
 - 2. C509 - Resilient Seated Gate Valves.
 - 3. C512 - Air-Release, Air/Vacuum, and Combination Air Valves for Water Work Service.
 - 4. C701 - Cold-Water Meter Turbine Type for Customer Service.
 - 5. C800 - Underground Service Line Valves and Fittings.
 - 6. Perform work in accordance with NFPA standards - NFPA 291.
- C. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

- A. Manufacturer: company specializing in manufacturing Products specified in this section.
- B. Preference shall be given to American materials and manufacturers.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Prepare valves and accessories for shipment according to AWWA Standards and seal valve and fitting open ends to prevent entry of foreign matter into product body.
- C. During loading, transporting, and unloading of materials and products, exercise care to prevent any damage.

- D. Store products and materials in areas protected from weather, moisture, or possible damage; do not store products directly on ground; handle products to prevent damage to interior or exterior surfaces. Coordinate storage areas with Owner as required.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures or utilities, and landscape in immediate or adjacent areas.

1.9 COORDINATION

- A. Coordinate work with Owner.

1.10 MAINTENANCE MATERIALS

- A. Furnish two tee type wrenches to Owner required length.

PART 2 PRODUCTS

2.1 WATER PIPING AND FITTINGS FOR WATER LINE UNDER 2 INCH

- A. Copper Tubing: ASTM B88, Type K and L annealed
 - 1. Fittings: ASME B16.18, cast copper, or ASME B16.22, wrought copper.
 - 2. Joints: Compression connection or AWS A5.8, BCuP silver braze.
- B. PVC Pipe: ASTM D1785, Schedule 80
 - 1. Fittings: ASTM D2466, PVC.
 - 2. Joints: ASTM D2855, solvent weld.
- C. Polyethylene Pipe: AWWA C901, SDR-9 or ASTM D2737, PE 4710, DR-9
 - 1. Fittings: AWWA C901, molded or fabricated.
 - 2. Joints: Compression or butt fusion.

2.2 CORPORATION STOP ASSEMBLY

- A. Corporation Stops:
 - 1. Mueller Company or approved equivalent.
 - 2. Brass or red brass alloy body conforming to ASTM B62.
 - 3. Inlet end threaded for tapping according to AWWA C800.
 - 4. Outlet end suitable for service pipe specified or required.
- B. Service Saddles:
 - 1. Brass, double strap type, designed to hold pressures in excess pipe working pressure.

2.3 CURB STOP ASSEMBLY

- A. Curb Stops:
 - 1. Mueller Company or approved equivalent.
 - 2. Brass or red brass alloy body conforming to ASTM B62.

3. Ball type valve.
 4. Positive pressure sealing.
- B. Curb Boxes and Covers:
1. Cast iron body, Extension Type or Buffalo Type.
 2. Minneapolis or Arch Pattern Base.
 3. Lid with inscription WATER, with Pentagon Plug.

2.4 UNIONS

- A. Unions for Pipe 2 inches and Smaller:
1. Ferrous Piping: Class 150, malleable iron, threaded.
 2. Copper Piping: Class 150, bronze unions with soldered or brazed joints.
 3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
 4. PVC Piping: PVC.
 5. CPVC Piping: CPVC.
- B. PVC Pipe Materials: For connections to meters and valves with threaded connections, furnish solvent-weld socket to screwed joint adapters and unions, or ASTM D2464, Schedule 80, threaded, PVC pipe.

2.5 UNDERGROUND PIPE MARKERS

- A. Trace Wire: Electronic detection materials for non-conductive piping products.
1. Unshielded 10 AWG THWN insulated copper wire.
 2. Conductive tape.

2.6 BEDDING AND COVER MATERIALS

- A. Bedding: Fill as specified in Section 32 05 16.
- B. Cover: Fill as specified in Section 32 05 16.
- C. Soil Backfill from Above Pipe to Finish Grade: Soil as specified in Section 31 05 13. Subsoil with no rocks over 6 inches in diameter, frozen earth or foreign matter.

2.7 ACCESSORIES

- A. Concrete for Thrust Restraints: Concrete type specified in Section 03 30 00.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.

- C. Determine exact location and size of water lines and valves from Drawings; obtain clarification and directions from Owner's Representative prior to execution of work.
- D. Verify building service connection and water main size, location, and inverts are as indicated on Drawings.

3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION - CORPORATION STOP ASSEMBLY

- A. Make connection for each different kind of water main using suitable materials, equipment and methods approved by the Engineer.
- B. Provide service clamps for all mains.
- C. Install corporation stops directly into tapped main at 10 and 2 o'clock position on main's circumference; locate corporation stops at least 12 inches apart longitudinally and staggered.
- D. For plastic pipe water mains, provide full support for service clamp for full circumference of pipe, with minimum 2 inches width of bearing area; exercise care against crushing or causing other damage to water mains at time of tapping or installing service clamp or corporation stop.
- E. Use proper seals or other devices so no leaks are left in water mains at points of tapping; do not backfill and cover service connection until approved by the Engineer.

3.4 INSTALLATION - CURB STOP ASSEMBLY

- A. Set curb stops on solid concrete block that is bearing on compacted soil.
- B. Center and plumb curb box over curb stops. Set box cover flush with finished grade.

3.5 BEDDING

- A. Excavate pipe trench in accordance with Section 31 23 17 for Work of this Section.
- B. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 6 inches compacted depth; compact to 95 percent.
- C. Backfill around sides and to top of pipe in accordance with Section 31 23 23.
- D. Place fill material in accordance with Section 31 23 23.

3.6 INSTALLATION - PIPE AND FITTINGS

- A. Install unions per this section to cut in and connect new proposed piping to existing piping. Install non-conducting dielectric connections wherever jointing dissimilar metals.
- B. Maintain separation of water main from sewer piping in accordance with Standard Specifications for Water and Sewer Construction in Illinois.
- C. Group piping with other site piping work whenever practical.
- D. Route pipe in straight line.
- E. Install pipe to allow for expansion and contraction without stressing pipe or joints.
- F. Install access fittings to permit disinfection of water system performed under Section 33 13 00.
- G. Form and place concrete for thrust restraints at each elbow or change of direction of pipe main.
- H. Establish elevations of buried piping with not less than 42 inches of cover.
- I. Install trace wire continuous over top of pipe if piping is other than copper; coordinate with Section 31 23 23 and Section 31 23 17.
- J. Backfill trench in accordance with Section 31 23 23.

3.7 SERVICE CONNECTIONS

- A. Install water service in accordance with Owner's standards.

3.8 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Flush and disinfect system in accordance with Section 33 13 00.

3.9 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform pressure test on domestic site water distribution system in accordance with AWWA C600 and Section 33 11 13.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 33 12 16

WATER UTILITY DISTRIBUTION VALVES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Gate Valves.
 - 2. Insertion Gate Valves.
 - 3. Line Stop.
 - 4. Valve boxes.

- B. Related Sections:
 - 1. Section 03 30 00 - Cast-In-Place Concrete.
 - 2. Section 31 05 13 - Soils.
 - 3. Section 31 23 16 - Excavation.
 - 4. Section 31 23 17 - Trenching and Backfill.
 - 5. Section 31 23 18 - Rock Removal.
 - 6. Section 31 23 23 - Fill.
 - 7. Section 32 05 16 - Aggregates.
 - 8. Section 32 91 19 - Landscape Grading.
 - 9. Section 32 92 19 - Seeding.
 - 10. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 11. Section 33 13 00 - Disinfecting of Water Utility Distribution.

1.2 REFERENCES

- A. American Water Works Association:
 - 1. AWWA C509 - Resilient-Seated Gate Valves for Water-Supply Service.
 - 2. AWWA C515 - Reduced-Wall Resilient-Seated Gate Valves for Water Supply Service.
 - 3. AWWA C550 - Protecting Epoxy Interior Coating for Valves and Hydrants.
 - 4. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.

- B. Factory Mutual (FM):
 - 1. FM 1120/1130 - Fire Service Water Control Valves (OS&Y and NRS Type Gate Valves).

- C. Great Lakes - Upper Mississippi River Board:
 - 1. Recommended Standards for Water Works (Ten State Standards).

- D. National Sanitation Foundation (NSF):
 - 1. NSF 14 - Plastics Piping System Components and Related Materials.
 - 2. NSF 61 - Drinking Water System Components - Health Effects.
 - 3. NSF 372 - Drinking Water System Components - Lead Content.

- E. State of Illinois:
 - 1. Standard Specifications for Water and Sewer Construction in Illinois.
 - 2. Title 35 - Environmental Protection, Subtitle F: Public Water Supplies.
 - 3. Title 77 - Public Health, Part 890 Illinois Plumbing Code.
- F. Underwriters Laboratories, Inc. (UL):
 - 1. UL 262 - Gate Valves for Fire - Protection Service.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawing:
 - 1. Installation Plan: Submit description of proposed installation.
- C. Design Data: Submit manufacturer's latest published literature to include illustrations, installation instructions, maintenance instructions and parts lists.
- D. Manufacturer's Certificates: Submit Statement of Compliance, supporting data, from material suppliers attesting that valves, hydrants, and accessories provided meet or exceed AWWA Standards and specification requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of valves and fire hydrants.
- C. Provide Operation and Maintenance Data for valves and fire hydrants.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with AWWA C509 or AWWA C515.
- B. Perform Work in accordance with Standard Specifications for Water and Sewer Construction in Illinois and Owner's standards.
- C. Maintain one copy of each document on site.
- D. Provide uniform color scheme for fire hydrants in accordance with appropriate District Standards.

1.6 QUALIFICATIONS

- A. Manufacturer: per Owner's standards.
- B. Preference shall be given to American materials and manufacturers.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Prepare valves, hydrants and accessories for shipment according to AWWA Standards and seal valve, hydrant and ends to prevent entry of foreign matter into product body.

- B. Store products in areas protected from weather, moisture, or possible damage; do not store products directly on ground; handle products to prevent damage to interior or exterior surfaces.
 - 1. Coordinate storage areas with Owner as required

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.
- B. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures or utilities, and landscape in immediate or adjacent areas.

1.9 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate work with Owner.

1.10 MAINTENANCE MATERIALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance materials.

PART 2 PRODUCTS

2.1 RESILIENT WEDGE GATE VALVES

- A. Manufacturers:
 - 1. Per Owner's standards.
- B. Resilient Wedge Gate Valves: AWWA C509 or AWWA C515; ductile iron.
 - 1. Resilient seats: Shall be bonded or mechanically attached to the gate according to ASTM standard D429. The resilient sealing material shall be bonded from one face of the wedge to the other face.
 - 2. Stem: The stems shall be in full compliance with AWWA C509 or AWWA C515.
 - 3. Stuffing Boxes: The stuffing boxes shall be of the "O" ring seal type. Two (2) "O" rings shall be in the stem above the thrust collar.
 - 4. Operating Nut: Square; open counterclockwise unless otherwise indicated.
 - 5. Each valve shall bear the manufacturer's name; pressure rating in psi and the year the manufacturer cast the valve on the body.
 - 6. All the nuts and bolts used in construction of the valve body and cover shall be rustproof meeting ASTM A307
 - 7. Ends: Mechanical joint connections. All valve ends shall be restrained with mechanical restrainers. For valves within close proximity of fittings, the valve and fitting shall be restrained together using swivel anchor couplings and the other end of the valve shall be restrained with mechanical restrainer.
 - 8. Coating: AWWA C550; interior/exterior.

9. Sizes 12-inch diameter and smaller: 250 psig.
 10. Sizes 16-inch diameter and larger: 250 psig.
- C. Testing - Prior to shipping, each valve shall be tested as follows:
1. Hydrostatically tested: The test pressure shall be equal to (2) times the specified working pressure applied to one side while there is zero (0) pressure applied to the other. There shall be no visible signs of deformation upon completion of the test.
 2. Torque tested according to the newest revision of AWWA C509 or AWWA C515.
 3. Leakage tested according to the newest revision of AWWA C509 or AWWA C515.
 4. Hydrostatic shell: One valve of each size shall be tested to (2.5) times the rated working pressure with the gate valve open. There shall be no visible signs of deformation upon completion of the test.

2.2 INSERTION GATE VALVE

- A. Hydra-Stop's Insta-Valve 250 and Plus 250 provides a means to install a permanent block (open-close) valve into a pressurized water main with no interruption of flow through the pipe and no reduction of line pressure. The design will allow the valve to be installed into an existing pressurized pipeline while maintaining constant pressure and service without system shutdown. No restraining device, restraining fasteners, or transition gaskets shall be required for the installation or operation of the valve. The insertion of the Insta-Valve is accomplished through a single circular hole cut (under full line pressure) into the top of the pipe with no reaming. The valve permanently remains in the water distribution piping to allow shutdowns in the same manner as any gate valve which would have been originally installed with the water main.
- B. The Insta-Valve shall include the following items:
1. Standard valve nut.
 2. Valve body made of 304 stainless steel.
 3. Valve bonnet made of epoxy coated carbon steel.
 4. Valve cartridge made of reinforced composite polymer with a reinforced EPDM molded resilient wedge seal.
 5. Valve stem made of 304 stainless steel to AWWA C-500-93 Section 3.12 specifications.
 6. O-rings made of BUNA-N rubber.
 7. ANSI A-105, 150 lbs. rated flange.
 8. Body shall be 304 stainless steel extra heavy clamp on.
 9. Body sealing gasket made of BUNA-N rubber.
 10. All fastener hardware (bolts, studs, nuts, etc.) made of 304 stainless steel, coated to prevent galling.

2.3 LINE STOP

- A. Line stop provides a means to install a temporary plug into a pressurized water main with no interruption of flow through the pipe. The insertion of the plugging device is accomplished through a single circular hole cut (under full line pressure) into the top of the pipe with no reaming. The fitting shall be full encirclement, pressure retention type

split tee. The fitting shall consist to two steel weldments; and upper flange saddle plate and a lower saddle plate. These two saddle plates shall be contiguous.

- B. The line stop shall include the following items:
1. Split tee fitting body made of 304 stainless steel.
 2. Nozzle made of 304 stainless steel.
 3. Completion plug made of carbon steel with two circumferential grooves for locking device and compressible "O" ring, or reinforced composite polymer.
 4. Blind flange made of 304 stainless steel.
 5. Stainless steel ANSI A-105, 150 lbs. rated flange.
 6. Body sealing gasket made of BUNA-N rubber.
 7. All fastener hardware (bolts, studs, nuts, etc.) made of 304 stainless steel, coated to prevent galling.

2.4 VALVE BOXES

- A. Valve Boxes shall be per Owner's standards. Should Owner not have any standards regarding valve boxes the following shall be used in lieu of Owner's standards:
1. Material shall be a rigid combination of polyolefin with fibrous inorganic component reinforcing and U.V. stabilizer additives to assure resistance to material degradation from ultraviolet light
 2. The entire upper section of the box shall be made of a magnetically locatable material
 3. Box shall have a cast iron ring and a cast iron 4-pronged traffic lid marked "water". Cast iron shall have a minimum weight of 18 lbs. and must conform to ASTM-A-48, Class 20 specifications.
 4. Box to be of Buffalo (screw adjusting) type and have a shaft diameter of 5-1/4".
 5. The bottom part of the box shall have a bell measuring 7-5/8" high by 10-1/16" wide and have a knock out as standard equipment. A No. 6 round base and a 20" extension section must be available as extra cost options.

2.5 VALVE BOX ALIGNMENT DEVICE

- A. Valve Box Alignment Device shall be per Owner's standards. Should Owner not have any standards regarding valve boxes the following shall be used in lieu of Owner's standards:
1. All buried gate valves 3 in. - 12 in. requiring a valve box shall be furnished with a valve box alignment device (VBAD).
 2. The VBAD shall be of HDPE and colored white.
 3. The VBAD shall be furnished in two (2) pieces that will lock together under the operating nut without requiring the removal of the operating nut. No one-piece device shall be accepted.
 4. The VBAD shall not affect the operation of the valve.

2.6 ACCESSORIES

- A. Concrete for Thrust Restraints: Concrete type specified in Section 03 30 00.
- B. Aggregate: Aggregate for hydrant drainage shall be aggregate as specified in Section 32 05 16.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Determine exact location and size of valves from Drawings; obtain clarification and directions from Engineer prior to execution of work.
- C. Verify invert elevations of proposed and existing work prior to excavation and installation of valves.

3.2 PREPARATION

- A. Identify required lines, levels, contours and datum locations.
- B. Locate, identify, and protect utilities to protect from damage.
 - 1. Contact JULIE utility locates prior to digging.
- C. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.
 - 1. Notify Engineer not less than 7 days in advance of proposed utility interruption.
 - 2. Do not proceed without written permission from the Engineer.
- D. Perform trench excavation, backfilling and compaction in accordance with Section 31 23 17.

3.3 INSTALLATION

- A. Gate Valves:
 - 1. Install valves in conjunction with pipe laying; set valves plumb.
 - 2. Provide buried valves with valve boxes installed flush with finished grade.
 - 3. Buried valve are to be set using metal straps and concrete as indicated on the plans.
 - 4. Valve nut shall be easily accessible with Tee Wrench. The Valve box or Valve shall be reinstalled or reset should the Owner not be able to appropriately operate the valve.
- B. Insertion Gate Valve and Line Stops:
 - 1. Traditional line tapping methods shall be used for the installation of all insertion gate valves and line stops to allow removal of a single coupon for system evaluation in accordance with Drawings and in accordance with AWWA C223, MSS SP-60 and the manufacturer's instructions. Reaming the pipe, complete removal of a section of pipe (top and bottom), or milling a slot in the pipe shall be prohibited. All insertion gate valves and line stops must be installed by companies trained and authorized by the approved valve manufacturer. This will ensure high quality installation and guarantee the warranty of the product. Make certain that the insertion gate valve and line stop is located a sufficient distance from joints and fittings to eliminate splitting of pipe.

3.4 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Flush and disinfect system in accordance with Section 33 13 00.

3.5 FIELD QUALITY CONTROL

- A. Pressure test system in accordance with Section 33 11 13.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 33 13 00

DISINFECTING OF WATER UTILITY DISTRIBUTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes disinfection of potable water distribution and transmission system; and testing and reporting results.
- B. Related Sections:
 - 1. Section 33 11 13 - Public Water Utility Distribution Piping.
 - 2. Section 33 12 13 - Water Service Connections.
 - 3. Section 33 12 16 - Water Utility Distribution Valve.

1.2 REFERENCES

- A. American Water Works Association, the newest revision of the following:
 - 1. ANSI/AWWA B300 - Hypochlorites.
 - 2. ANSI/AWWA B301 - Liquid Chlorine.
 - 3. ANSI/AWWA B302 - Ammonium Sulfate
 - 4. ANSI/AWWA B303 - Sodium Chlorite.
 - 5. ANSI/AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
 - 6. ANSI/AWWA C651 - Disinfecting Water Mains.
- B. Great Lakes - Upper Mississippi River Board:
 - 1. Recommended Standards for Water Works (Ten State Standards).
- C. State of Illinois:
 - 1. Standard Specifications for Water and Sewer Construction in Illinois.
 - 2. Title 35 - Environmental Protection, Subtitle F: Public Water Supplies.
 - 3. Title 77 - Public Health, Part 890 Illinois Plumbing Code.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit procedures, proposed chemicals, and treatment levels for review.
- C. Test Reports: Indicate results comparative to specified requirements.
- D. Certificate: Certify cleanliness of water distribution system meets or exceeds specified requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Disinfection Report:

1. Type and form of disinfectant used.
 2. Date and time of disinfectant injection start and time of completion.
 3. Test locations.
 4. Name of person collecting samples.
 5. Initial and 24 hour disinfectant residuals in treated water in ppm for each outlet tested.
 6. Date and time of flushing start and completion.
 7. Disinfectant residual after flushing in ppm for each outlet tested.
- C. Bacteriological Report:
1. Date issued, project name, and testing laboratory name, address, and telephone number.
 2. Time and date of water sample collection.
 3. Name of person collecting samples.
 4. Test locations.
 5. Initial and 24 hour disinfectant residuals in ppm for each outlet tested.
 6. Coliform bacteria test results for each outlet tested.
 7. Certify water conforms, or fails to conform, to bacterial standards of the Standard Specifications for Water and Sewer Construction in Illinois as well as any authority having jurisdiction.
- D. Water Quality Certificate: Certify water conforms to quality standards of the Standard Specifications for Water and Sewer Construction in Illinois as well as any authority having jurisdiction. Tests must show that water is suitable for human consumption.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with the newest revision of AWWA C651.
- B. Perform Work in accordance with the Standard Specifications for Water and Sewer Construction in Illinois.
- C. Maintain One Copy of Each Document onsite at all times.

1.6 QUALIFICATIONS

- A. Water Treatment Firm: Company specializing in disinfecting potable water systems specified in this section.
- B. Testing Firm: Company specializing in testing and examining potable water systems, certified by State of the State of Illinois.
- C. Submit bacteriologist's signature and authority associated with testing.

PART 2 PRODUCTS

2.1 DISINFECTION CHEMICALS

- A. ANSI/AWWA B300, Hypochlorite

- B. ANSI/AWWA B301, Liquid Chlorine
- C. ANSI/AWWA B302, Ammonium Sulfate
- D. ANSI/AWWA B303, Sodium Chlorite

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify piping system has been cleaned, inspected, and pressure tested.
- C. Perform scheduling and disinfecting activity with start-up, water pressure testing, adjusting and balancing, demonstration procedures, including coordination with related systems.

3.2 INSTALLATION

- A. Provide and attach required equipment to perform the Work of this section.
- B. Perform disinfection of water distribution system and installation of system and pressure testing. Refer to Section 33 11 13.
- C. Introduce treatment into piping system.
- D. Maintain disinfectant in system per the newest revision of ANSI/AWWA C651 time requirements. (But no less than 24 hours)
- E. Flush, circulate, and clean until required cleanliness is achieved; contractor to supply potable water for this process.
- F. Replace permanent system devices removed for disinfection.

3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Disinfection, Flushing, and Sampling:
 - 1. Disinfect pipeline installation in accordance with the newest revision of ANSI/AWWA C651. Use of liquid chlorine is not permitted unless approved by Engineer.
 - 2. Upon completion of retention period required for disinfection, flush pipeline until chlorine concentration in water leaving pipeline is no higher than that generally prevailing in existing system or is acceptable for domestic use.
 - 3. Legally dispose of chlorinated water in accordance with the Standard Specifications for Water and Sewer Construction in Illinois or governing authorities' requirements. When chlorinated discharge may cause damage to

environment, apply neutralizing chemical to chlorinated water to neutralize chlorine residual remaining in water.

4. After final flushing and before pipeline is connected to existing system, or placed in service, employ an approved independent testing laboratory to sample, test and certify water quality suitable for human consumption.

END OF SECTION

ATTACHMENT 1

THIS PAGE INTENTIONALLY LEFT BLANK



Badger Meter

Recordall® Disc Meters

Thread Size and Connection Guide, Sizes 5/8 to 1 in.

DESCRIPTION

The size shown under column heading “Coupling Nut and Spud Thread,” is the actual engineering standard thread. The size in parentheses “(x/x)” is used by meter personnel and in reference to the meter size designation.

NOTE: The engineering thread is always one thread size larger than the meter size or service pipe thread designation. The size given in parentheses identifies the size to specify when ordering meter connections, such as tailpiece couplings.

EXAMPLE 1. See column heading “Service Pipe Thread (NPT).” If the installation is serviced with a 1/2 in. service pipe, the meter choice is Model 25, 5/8 × 7 1/2 in. (Model 25 is available in polymer or lead-free bronze alloy housing.)

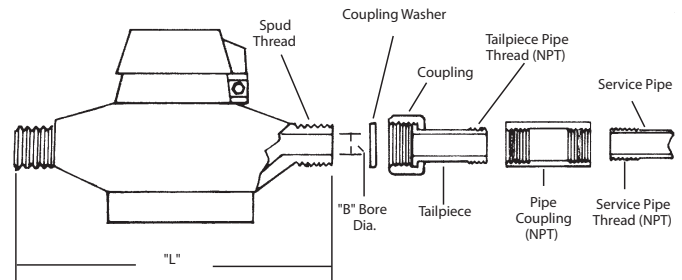
EXAMPLE 2. If the installation is serviced with a 3/4 in. service pipe, the meter choices available are Model 25, 5/8 × 3/4 × 7-1/2 in., or Model 25, 3/4 × 7-1/2 in. (Model 25 is available in polymer or lead-free bronze alloy housing.) Examples 1 and 2 are for meter settings with meter openings of 7-1/2 in.

EXAMPLE 3. For meter openings of 9 in., choices from the table would be a Model 25 polymer long or a Model 35L.

EXAMPLE 4. The same identification follows for 1 in. service lines. Model 55 would be the choice from the table.



SMALL METER THREAD SIZE AND CONNECTIONS



RECORDALL METERS (POLYMER)

Recordall Model	Size Designation (in.)	×	“L” Laying Length (in.)	“B” Bore Dia. (in.)	Coupling Nut and Spud Thread (in.)	Tailpiece Pipe Thread (NPT) (in.)	Service Pipe Thread (NPT) (in.)
25	5/8	×	7-1/2	5/8	3/4 (5/8)	1/2	1/2
25	5/8 x 3/4	×	7-1/2	5/8	1 (3/4)	3/4	3/4
25	5/8 x 3/4	×	7-1/2	3/4	1 (3/4)	3/4	3/4
25	3/4	×	9	3/4	1 (3/4)	3/4	3/4

RECORDALL METERS (LEAD-FREE BRONZE ALLOY)

Recordall Model	Size Designation (in.)	×	“L” Laying Length (in.)	“B” Bore Dia. (in.)	Coupling Nut and Spud Thread (in.)	Tailpiece Pipe Thread (NPT) (in.)	Service Pipe Thread (NPT) (in.)
25	5/8	×	7 1/2	5/8	3/4 (5/8)	1/2	1/2
25	5/8 x 3/4	×	7 1/2	5/8	1 (3/4)	3/4	3/4
25	3/4	×	7 1/2	3/4	1 (3/4)	3/4	3/4
35S	3/4	×	7-1/2	3/4	1 (3/4)	3/4	3/4
35L	3/4	×	9	3/4	1 (3/4)	3/4	3/4
35L	3/4 x 1	×	9	3/4	1-1/4 (1)	1	1
55	1	×	10-3/4	1	1-1/4 (1)	1	1

Making Water Visible®

Making Water Visible and Recordall are registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2017 Badger Meter, Inc. All rights reserved.

www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
Europe, Eastern Europe Branch Office (for Poland, Latvia, Lithuania, Estonia, Ukraine, Belarus) | Badger Meter Europe | ul. Korfantego 6 | 44-193 Knurów | Poland | +48-32-236-8787
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-371 2503
Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836
China | Badger Meter | 7-1202 | 99 Hangzhong Road | Minhang District | Shanghai | China 201101 | +86-21-5763 5412
Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11



Badger Meter

Recordall® Disc Series Meters

Cold Water Disc Meters, 5/8 in. to 2 in.



SAFETY INFORMATION

The installation of the Recordall® Disc Series Meters must comply with all applicable federal, state, and local rules, regulations, and codes.

Failure to read and follow these instructions can lead to misapplication or misuse of the Recordall® Disc Series Meters, resulting in personal injury and damage to equipment.

PRODUCT UNPACKING AND INSPECTION

Upon opening the shipping container, visually inspect the product and applicable accessories for any physical damage such as scratches, loose or broken parts, or any other sign of damage that may have occurred during shipment.

NOTE: If damage is found, request an inspection by the carrier's agent within 48 hours of delivery and file a claim with the carrier. A claim for equipment damage in transit is the sole responsibility of the purchaser.

METER PRE-INSTALLATION

Take into account the following considerations before you begin an installation:

- Inspect the piping around the meter for suitable conditions. The service line, valves, connections and meter must be watertight. Repair the piping system if pipes are corroded or damaged.
- Install the meter in the pipeline in a horizontal position so that the flow arrow on the meter housing points in the same direction as water flow. Registration should be upright and protected from damage, freezing, and tampering.
- Position the meter so it is accessible for installation, removal and reading.
- Verify that a suitable electrical grounding wire is properly attached to the upstream and downstream pipe connections of the meter. The grounding wire provides an alternative path for any electrical current that may exist across the opening in the line.
- Close the curb (shutoff) valve to relieve water pressure in the line before starting the cutting operation. Provide a high-quality upstream shut-off valve with a low pressure drop.
- When cutting into a new section of service pipe, flush the pipe to clear chips, pipe dope or other plumbing residue.
- The installed meter must not be an obstacle or a hazard to the customer or interfere with public safety.

CAUTION

- **DO NOT ATTEMPT TO USE ANY METER AS A LEVER OR CROWBAR TO STRAIGHTEN A MISALIGNED METER POSITION. THIS COULD DAMAGE THE METER.**
- **DO NOT ATTEMPT TO INSTALL A METER INTO AN OPENING THAT IS TOO LONG BY FORCING THE PIPING INTO PLACE WITH THE METER'S COUPLING NUTS. THIS WILL CAUSE SERIOUS DAMAGE TO THE THREADED ENDS OF THE METER AND HOUSING.**
- **TO AVOID POTENTIAL PROBLEMS, CORRECT ANY IRREGULARITIES IN PIPE SPACING AND MISALIGNMENT BEFORE PLACING THE METER INTO ITS POSITION.**

SPECIAL INSTRUCTIONS FOR REMOVING A METER

⚠ WARNING

DEPRESSURIZE THE LINE BEFORE STARTING ANY DISASSEMBLY OPERATION. REMOVING A METER THAT IS UNDER LINE PRESSURE CAN RESULT IN COMPONENTS BECOMING PROJECTILES, CAPABLE OF CAUSING PERSONAL INJURY.

SPECIAL FITTINGS AND ACCESSORIES

To accommodate 5/8 in., 3/4 in. and 1 in. meter installations, special fittings and accessories are available. Metal meter setters, re-setters, horns and meter yokes are available for holding the service pipe in proper alignment to the meter and laying length spacing. The metal setters and meter yokes can provide an electrical continuity to protect meters and consumers from electrical shocks.

NL bronze connections are available from Badger Meter. To compensate for minor service pipe and setting misalignment for a 5/8 in., 3/4 in. and 1 in. meter, plastic swivel connections are also available.

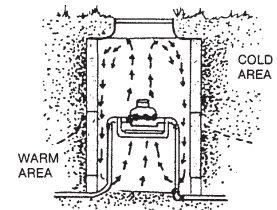
Cast iron or NL bronze companion flanges are available for a 1-1/2 in. and 2 in. meter.

INSTALLING RECORDALL DISC SERIES METERS

Outdoor Installations

When installed outdoors in a meter box, the disc meter should have a two- to three-inch clearance to avoid damage or strain to the service piping or meter, and to accommodate any "settling" that may occur after installation.

The service pipe in the meter box should be properly bedded to ensure that it is not axially misaligned and that it lays evenly on the bottom of the pipe trench. The backfill material covering the pipe should be placed appropriately to maintain pipe alignment in the event of eventual ground shifts. This will prevent damage to the pipe.



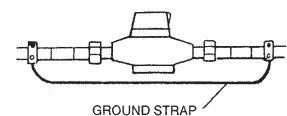
The service lines and the water meter must be protected from freezing. The earth covering the service line must be adequate to prevent frost penetration. Due to the smaller volume of water, service line pipes will freeze sooner than the main distribution line.

For those locations in which a remote possibility of freezing exists, thermoplastic or lead-free bronze alloy meters with cast iron bottoms are recommended.

The meter box pit should be excavated below the frost line. Even though the meter itself may be positioned above the frost line, the warmer air rising from the earth below the frost line will reduce the possibility of freezing.

Indoor Installations

As a precautionary measure when working with metallic pipes, indoor settings must be checked for electrical continuity through the service pipe before you remove or service a meter. American Water Works Association (AWWA) policy specifies that service pipes must not be used as an electrical ground. Check your local codes and practices. A permanent ground strap or metal setter must be used if electrical grounding to water services is required in your community. This is especially important for the engineered polymer meter.



To prevent floor damage, close the valve downstream from the meter before installing or removing a meter.

INSTALLATION INSTRUCTIONS

To prepare for meter installation, follow these steps:

1. Close the meter's inlet-side valve.
2. Open a faucet and wait until water flow stops, to depressurize the system. Do not remove the meter until the flow stops.
3. Check valves and make necessary repairs to the curb (shut-off) valve or inlet side valve if necessary.
4. Close the meter's outlet-side valve. Protect the floor below the meter against potential spills or leaks that could occur. Protect the coupling area from debris, so that the new meter will not be damaged or contaminated.
5. To replace an existing meter, continue with Step 6. To install a new meter, skip to Step 8.
6. Loosen meter couplings or flange bolts and remove the meter and the old gaskets in the coupling nuts.

IMPORTANT

Replace the entire connection set when you replace the meter (or earlier, if necessary).

7. Clean the coupling nuts or flange ends, removing any pipe dope or dirt from the threads or flange ends.
8. Check the existing setting for proper alignment and spacing. Correct any misalignment and spacing in the setting.
9. Place the new connection gaskets inside the connection coupling nuts.
10. Install the meter in the pipeline in a horizontal position so that the flow arrow on the meter housing points in the same direction as water flow.

5/8 in. to 2 in. Threaded Ends

11. Start the coupling nuts at the threaded meter ends. Verify that the nuts are properly aligned to avoid cross-threading or damage to the meter ends. This is especially important for the engineered polymer meter.

An effective method for starting a coupling nut is:

- a. Position the nut squarely against the meter's spud end.
- b. Turn the nut counterclockwise (in reverse) while holding the nut against the meter spud end. When the first threads on both the nut and the spud end coincide, you will hear a slight click and feel the nut move into the starting position.
- c. Tighten the nut by hand until it is snug.
- d. With an open-end wrench, apply a partial turn. Do not over tighten. For plastic swivel connections, a one-quarter turn is usually sufficient.

1-1/2 in. to 2 in. Elliptical Flange Ends

12. With meter and gaskets in place, tighten the flange connection bolts. Verify the nuts are properly aligned to avoid damage to the flanged ends.

PROTECT AGAINST LEAKAGE

Before turning on the service water, use care to protect against potential leakage.

1. Shut off the valves on both the inlet and outlet sides of the meter.
2. Open the curb (shutoff) valve slowly to pressurize the service line to the meter.
3. Slowly open the meter's inlet-side valve to fill the meter.
4. Check for leaks around the meter and its connections.
5. Slowly open the meter's outlet-side valve to pressurize the consumer side of the system.
6. Open a faucet to allow entrapped air to escape.
7. Once water is flowing normally, turn off the faucet.

Making Water Visible®

Recordall is a registered trademark of Badger Meter Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2018 Badger Meter, Inc. All rights reserved.

www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
Europe, Eastern Europe Branch Office (for Poland, Latvia, Lithuania, Estonia, Ukraine, Belarus) | Badger Meter Europe | ul. Korfantego 6 | 44-193 Knurów | Poland | +48-32-236-8787
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-371 2503
Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836
China | Badger Meter | 7-1202 | 99 Hangzhong Road | Minhang District | Shanghai | China 201101 | +86-21-5763 5412
Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11



The waterproof and submersible Twist Tight in-line connector is used to connect an endpoint and encoder. Follow these instructions for use.

REMOVING THE PROTECTIVE CAPS

ENDPOINT side connector

Holding the endpoint side connector as shown, twist the rotating collar *on the connector* counter clockwise (left) to loosen and remove the protective cap. When it is sufficiently loosened, the cap pulls off easily.



Endpoint side connector with protective cap

ENCODER side connector

Holding the encoder side connector as shown, twist the rotating collar *on the protective cap* counter clockwise (left) to loosen and remove the cap. When it is sufficiently loosened, the cap pulls off easily.



Encoder side connector with protective cap

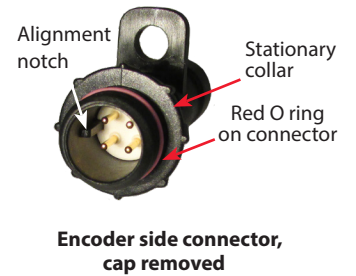
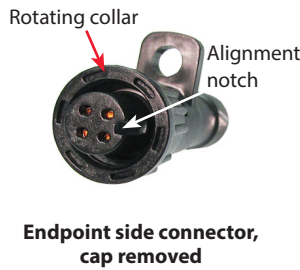


Figure 1: Twist the collar on the connector



Figure 2: Twist the collar on the cap

JOINING THE CONNECTORS

IMPORTANT

BEFORE JOINING THE CONNECTOR ENDS, MAKE SURE ALL SURFACES, INCLUDING THE THREADS, ARE CLEAN, DRY, AND FREE OF ANY DEBRIS OR DIRT. THIS STEP IS IMPORTANT TO MAKE SURE THE CONNECTOR REMAINS WATER TIGHT AND SUBMERSIBLE.

1. Align the keyed notches inside each connector and gently push the ends together until the endpoint side is fully seated into the encoder side.

NOTE: You will feel when the notches are aligned. When aligned, the connector ends go together easily.

2. Holding one connector end in each hand, twist the rotating collar on the endpoint side connector clockwise (right) until the ends are tightly connected.

IMPORTANT

Do not use tools to tighten. Hand tighten only.

When tightly connected, the tabs at the top of the connectors are aligned, and **the red O ring on the encoder side is not visible.** See [Figure 3](#).



Figure 3: Connector ends joined

3. Place the connector assembly inside the security cover (PN: 68319-001). Make sure the connector tabs rest in the slots as shown in [Figure 4](#).

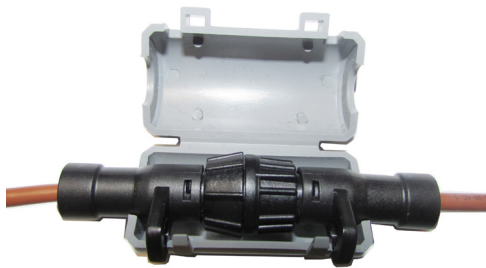


Figure 4: Connector correctly placed inside security cover

4. Snap the top and bottom together to close it.

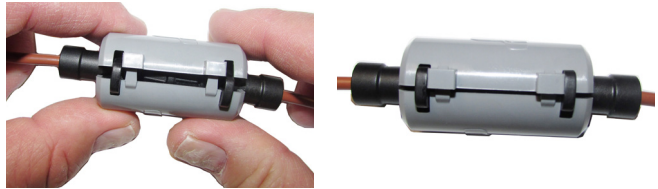


Figure 5: Security cover closed

Assembly is now complete.

REMOVING THE SECURITY COVER

1. To remove the security cover, insert the blade of a flat head screwdriver into the security cover as shown in [Figure 6](#) and twist the blade right and left to pop open each side of the cover.



Figure 6: Removing the security cover

2. After opening, discard the security cover. The cover is intended for single use only.

CABLE SHIELD OPTION

Twist Tight connector cables are available with an optional cable shield. The cable shield covers the endpoint/encoder cable to protect it from harsh environments.



Figure 7: Twist Tight with cable shield

Making Water Visible®

Making Water Visible is a registered trademark of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2018 Badger Meter, Inc. All rights reserved.

www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
México | Badger Meter de las Américas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-371 2503
Czech Republic | Badger Meter Czech Republic s.r.o. | Mařikova 2082/26 | 621 00 Brno, Czech Republic | +420-5-41420411
Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836
Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11



Badger Meter

ORION® Water Endpoints

Cellular LTE Endpoint

DESCRIPTION

The ORION® Cellular endpoint is an innovative, two-way water endpoint that utilizes existing cellular infrastructure to efficiently and securely deliver meter reading data to the utility via the reliable cellular network.

The Cellular endpoint is a member of the time-tested ORION family of products from Badger Meter, designed for maximum flexibility. Since 2002, the ORION product family has provided comprehensive Advanced Metering Analytics (AMA) for interval meter reading and data capture using both one-way and two-way communications.

FUNCTIONALITY

Operation: The endpoint communicates with the encoder and captures 15-minute interval read data and meter status information. On a regular schedule (up to twice per day) the endpoint then automatically broadcasts the information, including endpoint status information, via the cellular network to the BEACON® AMA software.

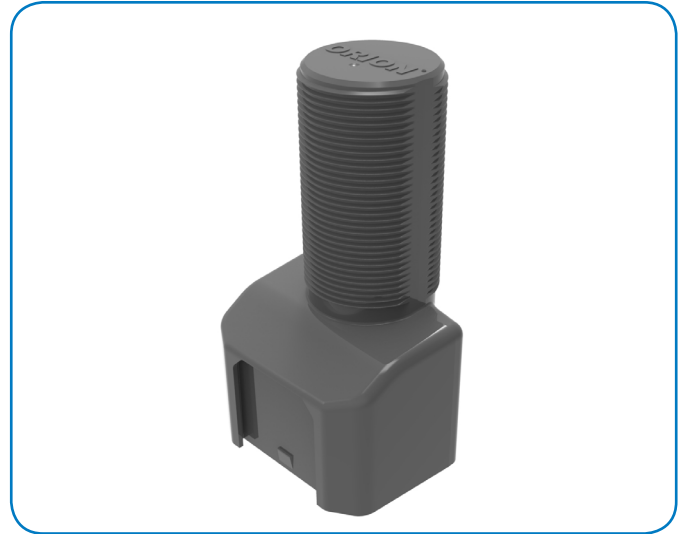
Activation: All ORION Cellular LTE endpoints are shipped in an inactive, non-transmitting state. The endpoints offer a Smart Activation feature. After installation, the endpoint begins broadcasting data when the encoder senses the first usage of water. No field programming or special tools are required. Alternatively, the Badger Meter IR Communication Device can be used to activate the endpoint and verify the encoder connection.

Successful endpoint function can be confirmed through a web app demonstrating that communication has been verified to both the encoder and the network.

Broadcast Mode: The endpoint broadcasts fixed network reading data through the secure existing cellular network within the service area. The endpoint also transmits a mobile message to support troubleshooting in the field.

Data Storage: The endpoint stores 42 days of 15-minute data.

Output Message: The endpoint broadcasts its unique serial number, meter reading data, and applicable status indicators. Each message is securely transported to the BEACON AMA software via Virtual Private Network (VPN) using Advanced Encryption Standard (AES) 256.



APPLICATION

Configurations: The endpoint is a multi-purpose endpoint that can be deployed in indoor, outdoor and pit applications. The electronics and battery assembly are fully encapsulated in epoxy for environmental integrity. The endpoint is available with a connector assembly for ease of installation.

Meter Compatibility: When attached to a Badger Meter high resolution encoder, the endpoint is compatible with all current Badger Meter Recordall® Disc, Turbo Series, Compound Series, Combo Series and Fire Service meters and assemblies, and with E-Series® Ultrasonic, E-Series® Ultrasonic Plus, and M-Series® Electromagnetic flow meters.

Encoder Compatibility: The endpoint is suitable for use with Badger Meter high resolution encoders as well as the following Badger Meter approved three-wire encoder registers that have a manufacture date of 2005 or newer, are programmed into the AMR/AMI three-wire output mode, and have three-wires connected: Elster InVISION and ScanCoder® encoders and evoQ4 meter (encoder output); Hersey® Translator; Master Meter® Octave® Ultrasonic meter encoder output; Metron-Farnier Hawkeye; Mueller Systems 420 Solid State Register (SSR) LCD; Neptune® ProRead, E-Coder® and ARB-V®; and Sensus® Electronic Register encoder (ECR) and ICE.

SPECIFICATIONS

Dimensions	5.125 in. (130 mm) (H)
	1.75 in. (44 mm) Diameter at top
	2.625 in. (W) x 2.875 in. (D) at base 67 mm (W) x 73 mm (D) at base
Broadcast Network	LTE cellular network, with fallback to 3G where LTE is unavailable. Mobile backup frequency is FCC-regulated 902...928 MHz frequency hopping modulation
Operating Temperature Range	
• Storage, Meter Reading and Mobile Backup	-40...60° C (-40...140° F)
• Cellular Communications	-20...60° C (-4...140° F)
Humidity	0%...100% condensing
Battery	One (1) lithium thionyl chloride D cell (nonreplaceable)

Construction: All ORION Cellular endpoints are housed in an engineered polymer enclosure with an ORION RF board, battery and antenna. To ensure long-term performance, the enclosure is fully potted to withstand harsh environments and to protect the electronics in flooded or submerged pit applications.

Wire Connections: ORION Cellular endpoints are available with in-line connectors (Twist Tight or Nicor®) for easy installation and connection to compatible encoders/meters. The endpoints are also available with flying leads for field splice connections. Other wire connection configurations may be available upon request.

FEATURES

Communication Type	Two-way
Application Type	Control/Monitor
Reading Interval Type	15-minute
Encoder Compatibility	Absolute
Fixed Network Reading	✓
Premise Leak Detection	✓
Cut-Wire Indication	✓
Reverse Flow Indication	✓
No Usage Indication	✓
Encoder Error	✓
Low Battery Indication	✓
Remote Programming	✓
Remote Clock Synchronization	✓
Firmware Upgrades	✓

License Requirements: ORION Cellular LTE endpoints comply with Part 15, Part 22, Part 24, and Part 27 of the FCC Rules. No license is required by the utility to operate an ORION meter reading system. This device complies with Industry Canada license-exempt RSS standard(s).

Transportation: WARNING: The operation of transmitters and receivers on airlines is strictly prohibited by the Federal Aviation Administration. As such, the shipping of radios and endpoints via air is prohibited. Please follow all Badger Meter return and/or shipping procedures to prevent exposure to liability.

Warning: To reduce the possibility of electrical fire and shock hazards, never connect the cable from the endpoint to any electrical supply source. The endpoint cable provides SELV low voltage limited energy power to the load and should only be connected to passive elements of a water meter register.

Caution: The endpoint batteries are *not* replaceable. Users should make no attempt to replace the batteries. Changes or modifications to the equipment that are not expressly approved by Badger Meter could void the user's authority to operate the equipment.

Making Water Visible®

E-Series, M-Series, Making Water Visible, ORION and Recordall are registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2018 Badger Meter, Inc. All rights reserved.

www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
 México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
 Europe, Eastern Europe Branch Office (for Poland, Latvia, Lithuania, Estonia, Ukraine, Belarus) | Badger Meter Europe | ul. Korfantego 6 | 44-193 Knurów | Poland | +48-32-236-8787
 Europe, Middle East and Africa | Badger Meter Europa GmbH | Nürtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
 Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai | UAE | +971-4-371 2503
 Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
 Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836
 Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11



Badger Meter

ORION® Cellular LTE-M, LTE-MS and LTE Endpoint Installation

This Quick Start Guide* details the four main steps for installing ORION® Cellular LTE-M, LTE-MS and LTE water endpoints.

1. **Connect the endpoint to the encoder**
(This step can be done before, or as part of installation.)
2. **Install the endpoint**
3. **Activate the endpoint**
4. **Confirm activation**

To reduce the possibility of electrical fire and shock hazards, never connect the cable from the endpoint to any electrical supply source. The endpoint cable provides SELV low voltage limited energy power to the load and should only be connected to passive elements of a water meter register.



The endpoint batteries are *not* replaceable. Users should make no attempt to replace the batteries. Changes or modifications to the equipment that are not expressly approved by Badger Meter could void the user's authority to operate the equipment.

ORION endpoints installation must comply with all applicable federal, state and local rules, regulations and codes. Proper performance and reliability of ORION endpoints depend upon installation in accordance with these instructions. Endpoints not properly installed may not be covered under warranty.

Failure to read and follow these instructions can lead to misapplication or misuse of this product, resulting in personal injury and damage to equipment.

*Complete installation information for all ORION endpoints can be found in the *ORION Water Endpoint Installation Manual*, available in the Resource Library at www.badgermeter.com.

ENDPOINTS AND ENCODERS

ORION Cellular LTE-M, LTE-MS and LTE water endpoints (*Figure 1*) are three-wire metering devices for indoor/outdoor use. ORION Cellular LTE-M is charcoal gray with a *yellow* FCC label. ORION Cellular LTE-MS is charcoal gray with a *white* FCC label. ORION Cellular LTE is medium gray with a *yellow* FCC label.



Figure 1: ORION Cellular Endpoints

The endpoints have the same dimensions (*Figure 2*). They require connection to an encoder to complete the assembly.

ORION Cellular water endpoints are compatible with Badger Meter high resolution encoders and E-Series Ultrasonic meters as well as a number of competitive encoders. See the *ORION Water Endpoints Installation Manual* for the complete list.

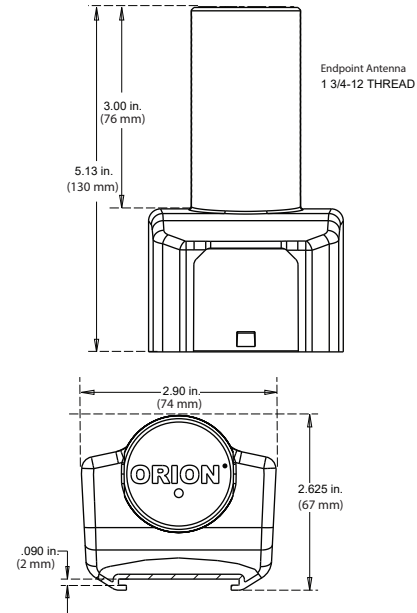


Figure 2: Endpoint dimensions

CONNECT ENDPOINTS AND ENCODERS

Endpoints with in-line connectors can be easily connected to an encoder in the field. No tools are necessary.

Endpoints with flying leads can be connected to existing wires from the encoder or directly to the encoder terminal screws, depending on the application and manufacturer.

ORION endpoint wires: **Red** = Power/Clock; **Black** = Ground; **Green** = Data

See the wiring chart in the *ORION Water Endpoints Installation Manual* if you need help.

INSTALLATION

Choose an appropriate location within the limits of the endpoint/encoder connector harness.

Indoor/Outdoor Installation:

- Indoor installation is **recommended**. Mount endpoints indoors, in the floor joist near an outside wall and away from large metal objects.
- Outdoor installation is **acceptable** and may be required where signal strength does not support an indoor installation.

Pit Installation

Mount endpoints through a NON-METAL pit lid—**REQUIRED**. See [Figure 3](#).

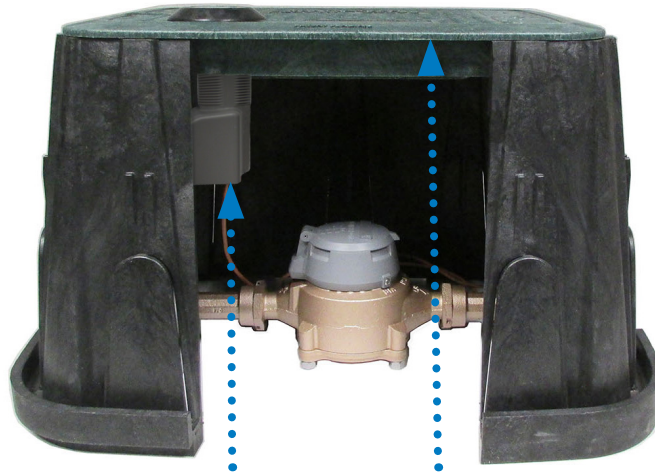


Figure 3: ORION LTE endpoint installed per instructions through non-metal pit lid

Installation Kits

Endpoint installation kits are available. Kit information can be found in the ORION Water Endpoint Installation Manual.

ENDPOINT ACTIVATION

Activation is dependent on whether the endpoint radio is in Pause (“soft sleep”) or Stop (“hard sleep”) mode. All ORION endpoints in Pause mode offer a Smart Activation feature which utilizes consumption to automatically start the endpoint.

NOTE: The ORION Endpoint Utility software can be used to identify the endpoint radio mode. See the *ORION Endpoint Utility User Manual* for Handheld or Tablet/Laptop in the Resource Library at www.badgermeter.com.

Activating Endpoints in Pause Mode via Smart Activation

With Smart Activation, the endpoint radio in Pause mode automatically “wakes up” on its own and begins broadcasting data after the encoder to which it is connected detects enough water usage from the register after installation. The amount of water consumption depends on the encoder output and meter size. This section explains how Smart Activation affects endpoints connected to encoders at the factory (Endpoint/Encoder Assemblies) and endpoints connected to an encoder in the field (Endpoint Only).

Endpoint/Encoder Assemblies

An initial encoder read is stored by the endpoint at the time the encoder and endpoint are factory connected and the endpoint is placed in Pause mode. While in Pause mode, the endpoint monitors the encoder for consumption, checking once every fifteen minutes. When the endpoint/encoder assembly is installed and water is running through the meter, the endpoint automatically “wakes up” and transitions to its active operational mode once the required amount of consumption is registered (see table below).

Encoder Output	Dial Change Required to Activate Endpoint
7-dial	Any 1 unit change in the least significant digit
8-dial	Any 5 unit change in the least significant digit
9-dial	Any 5 unit change in the least significant digit

Endpoint Only

Like endpoint/encoder assemblies, ORION “endpoint only” configurations can be shipped in Pause mode. The initial encoder read is established the first time the endpoint is field connected to an encoder.

TIP: It may take up to fifteen (15) minutes for an endpoint to recognize the initial encoder read. To expedite this process, Badger Meter recommends connecting the endpoint to the encoder in advance of field installation so a baseline encoder read can be captured before installation.

After the initial encoder read is stored, the endpoint monitors the encoder for consumption, checking for a change in the encoder read once every fifteen minutes. The endpoint automatically “wakes up” and transitions to its operational mode when the required amount of consumption is registered. See the table above.

Tools

For Smart Activation, no special tools or field programming are required. For more immediate activation or for endpoints in Stop mode, infrared (IR) activation tools are available.

Activating Endpoints Using IR

NOTE: Endpoints in Stop mode **must** be manually activated using IR communication.

1. The Badger Meter **IR Communication Device** (Figure 4) can be used to activate an endpoint in Stop or Pause mode and verify the encoder connection. Instructions are included with the device. For a short video about how to use the device, go to <https://youtu.be/IY4o4apKpql>.
2. Endpoints can also be activated using the ORION Endpoint Utility software with an ORION or customer-supplied Windows® device. The software can also identify the endpoint radio mode. Instructions are available in the *ORION Endpoint Utility User Manual*, which can be found in the Resource Library at www.badgermeter.com.

NOTE: Using the IR Alignment Tool (Figure 5) is recommended for IR activation of ORION LTE-M, LTE-MS and LTE endpoints. The IR Alignment Tool is a hands-free tool for holding the IR Communication Device or an IR programming cable head.



Figure 4: IR Communication Device (PN: 68891-001)



Figure 5: IR Alignment Tool (PN: 68779-001)

CONFIRMING INSTALLATION

Before leaving the installation site, you can confirm endpoint activation using one of the following tools.

1. BEACON® AMA users can check endpoint activation status with the **ORION Endpoint Status** tool (<https://orionstatus.beaconama.net>). Endpoints do not need to be provisioned in BEACON AMA to display using the tool. See the *ORION Water Endpoints Installation Manual* for more information.
2. The **IR Communication Device** (Figure 4) can be used to activate the endpoint and verify the encoder connection.

IMPORTANT

Badger Meter IR Communication Devices (Figure 4) that shipped **prior to January 15, 2019** require a firmware update to support use with ORION Cellular LTE-M and LTE-MS endpoints. Contact Badger Meter Utility Technical Support (800-616-3837) or your National Meter Field Support Team Representative for help.

Endpoint Network Registration

When the endpoint transitions to *Active* mode during activation, it automatically begins the network registration process. BEACON AMA assigns a daily call-in time to the endpoint as part of this process. An active operating endpoint obtains a current encoder read every 15 minutes.

Changing Registration for an Existing Endpoint Assembly

If you change the encoder connected to an ORION Cellular LTE-M, LTE-MS, or LTE endpoint, the endpoint will recognize the new encoder, once connected, and report previous and current interval data.

LICENSE REQUIREMENTS

ORION Cellular LTE-M, LTE-MS and LTE endpoints comply with Part 15, Part 22, Part 24, and Part 27 of FCC Rules. Operation is subject to the following conditions: (1) These devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation of the device.

In accordance with FCC Regulations, “Code of Federal Regulations” Title 47, Part 2, Subpart J, Section 1091, transmitters pass the requirements pertaining to radiation exposure. However, to avoid public exposure in excess of limits for general population (uncontrolled exposure), a 20 centimeter distance between the transmitter and the body of the user must be maintained during operation.

No FCC license is required by a utility to operate an ORION meter reading system.

ENDPOINT TRANSPORTATION



The operation of transmitters and receivers on airlines is strictly prohibited by the Federal Aviation Administration. As such, the shipping of radios and endpoints via air is prohibited. Please follow all Badger Meter return and/or shipping procedures to prevent exposure to liability.

MORE INFORMATION

For information not included in this guide, refer to these documents, available in the Resource Library at www.badgermeter.com.

- *ORION Water Endpoints Installation Manual*
- *ORION Water Endpoint Installation Kits Ordering Guide*
- *ORION Water Endpoint Parts List*
- *ORION Endpoint Utility User Manual*

ORION Cellular LTE-MP

Another ORION Cellular endpoint, the ORION Cellular LTE-MP pulse endpoint, is available for a limited market and for connectivity with Badger Meter M-Series® Electromagnetic flow meters. For more information, see the *ORION Water Endpoints Cellular LTE-MP Endpoint Addendum*, available at www.badgermeter.com.

SMART WATER IS BADGER METER

BEACON and ORION are registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2020 Badger Meter, Inc. All rights reserved.

ATTACHMENT 2

THIS PAGE INTENTIONALLY LEFT BLANK

Montgomery County Prevailing Wage Rates posted on 4/15/2026

Trade Title	Rg	Type	C	Base	Foreman	Overtime						Pension	Vac	Trng	Other Ins	Add OT 1.5x owed	Add OT 2.0x owed
						M-F	Sa	Su	Hol	H/W							
ASBESTOS ABT-GEN	All	ALL		34.06	35.06	1.5	1.5	2.0	2.0	9.25	23.27	0.00	0.80		16.26	32.52	
ASBESTOS ABT-MEC	All	BLD		39.60	40.60	1.5	1.5	2.0	2.0	10.95	7.25	0.00	0.50	0.00	0.00	0.00	
BOILERMAKER	All	BLD		48.00	51.50	1.5	1.5	2.0	2.0	7.07	28.48	0.00	1.29	0.00	0.00	0.00	
BRICK MASON	All	BLD		41.67	44.17	1.5	1.5	2.0	2.0	10.80	16.37	0.00	1.34		0.00	0.00	
CARPENTER	All	BLD		37.19	39.94	1.5	1.5	2.0	2.0	9.95	24.25	0.00	0.81	0.00	17.10	34.20	
CARPENTER	All	HWY		38.57	40.32	1.5	1.5	2.0	2.0	9.95	24.25	0.00	0.78	0.00	0.00	0.00	
CEMENT MASON	All	ALL		40.00	41.00	1.5	1.5	2.0	2.0	12.75	19.00	0.00	0.65	0.00	16.20	32.40	
CERAMIC TILE FINISHER	All	BLD		28.92		1.5	1.5	2.0	2.0	10.15	7.69	1.00	0.86		0.00	0.00	
ELECTRIC PWR EQMT OP	NE	ALL		59.91	71.10	1.5	1.5	2.0	2.0	9.30	16.78	0.00	0.60	0.00	0.00	0.00	
ELECTRIC PWR EQMT OP	SW	ALL		58.64	70.70	1.5	1.5	2.0	2.0	9.23	16.42	0.00	0.59		13.12	26.24	
ELECTRIC PWR GRNDMAN	NE	ALL		40.71	71.10	1.5	1.5	2.0	2.0	8.72	11.40	0.00	0.41	0.00	0.00	0.00	
ELECTRIC PWR GRNDMAN	SW	ALL		43.79	70.70	1.5	1.5	2.0	2.0	6.89	12.26	0.00	0.44		9.80	19.60	
ELECTRIC PWR LINEMAN	NE	ALL		66.69	71.10	1.5	1.5	2.0	2.0	9.50	18.67	0.00	0.67	0.00	0.00	0.00	
ELECTRIC PWR LINEMAN	SW	ALL		67.43	70.70	1.5	1.5	2.0	2.0	10.61	18.88	0.00	0.67		15.08	30.16	
ELECTRIC PWR TRK DRV	NE	ALL		45.45	71.10	1.5	1.5	2.0	2.0	8.86	12.72	0.00	0.45	0.00	0.00	0.00	
ELECTRIC PWR TRK DRV	SW	ALL		47.88	70.70	1.5	1.5	2.0	2.0	7.53	13.41	0.00	0.48		10.71	21.42	
ELECTRICIAN	E	BLD		48.00	52.80	1.5	1.5	2.0	2.0	9.45	13.51	0.00	1.20		1.32	2.64	
ELECTRICIAN	NW	BLD		41.09	43.59	1.5	1.5	2.0	2.0	9.67	13.32	0.00	0.40	0.00	1.03	2.06	
ELECTRICIAN	SW	ALL		52.41	55.55	1.5	1.5	2.0	2.0	9.39	16.01	0.00	1.44	3.42	15.13	30.26	
ELECTRONIC SYSTEM TECH	E	BLD		39.41	42.41	1.5	1.5	2.0	2.0	9.35	11.94	0.00	0.40		0.59	1.18	
ELECTRONIC SYSTEM TECH	NW	BLD		39.66	42.66	1.5	1.5	2.0	2.0	8.85	12.19	0.00	0.40		0.59	1.19	
ELECTRONIC SYSTEM TECH	SW	BLD		41.76	44.76	1.5	1.5	2.0	2.0	4.40	11.70	0.00	0.40	2.00	0.63	1.25	
ELEVATOR CONSTRUCTOR	All	BLD		65.43	73.61	2.0	2.0	2.0	2.0	16.37	21.76	5.23	0.85		0.00	0.00	
GLAZIER	All	BLD		42.27	44.27	1.5	1.5	2.0	2.0	8.20	14.00	0.00	0.68	0.00	0.00	0.00	
HEAT/FROST INSULATOR	All	BLD		43.48	44.48	1.5	1.5	2.0	2.0	11.89	14.10	0.00	1.25		0.00	0.00	
IRON WORKER	N	BLD		37.81	39.81	1.5	1.5	2.0	2.0	10.90	20.00	0.00	1.20	0.00	0.00	0.00	
IRON WORKER	N	HWY		39.33	41.58	1.5	1.5	2.0	2.0	10.90	22.09	0.00	1.20	0.00	0.00	0.00	

Montgomery County Prevailing Wage Rates posted on 4/15/2026

IRON WORKER	S	ALL		43.35	45.60	1.5	1.5	2.0	2.0	10.90	20.25	0.00	0.83	0.00	15.99	31.98
LABORER	All	ALL		33.56	34.56	1.5	1.5	2.0	2.0	9.25	23.27	0.00	0.80		16.26	32.52
LATHER	All	BLD		37.19	39.94	1.5	1.5	2.0	2.0	9.95	24.25	0.00	0.81	0.00	17.10	34.20
MACHINIST	All	BLD		60.39	64.39	1.5	1.5	2.0	2.0	11.43	9.95	1.85	1.47	0.00	0.00	0.00
MARBLE FINISHER	All	BLD		28.92		1.5	1.5	2.0	2.0	10.15	7.69	1.00	0.86		0.00	0.00
MILLWRIGHT	All	BLD		39.10	41.85	1.5	1.5	2.0	2.0	9.95	22.85	0.00	0.81	0.00	16.40	32.80
MILLWRIGHT	All	HWY		42.00	43.75	1.5	1.5	2.0	2.0	9.95	24.12	0.00	0.78	0.00	0.00	0.00
OPERATING ENGINEER	All	BLD	1	48.70	50.70	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	2	47.57	49.57	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	3	43.09	45.09	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	4	49.70	51.70	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	5	50.70	52.70	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	6	51.25	53.25	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	7	51.55	53.55	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	8	51.85	53.85	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	9	52.50	54.50	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	10	53.00	55.00	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	11	50.70	52.70	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	12	51.70	53.70	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	13	48.70	50.70	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	BLD	14	43.15	45.15	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	1	47.20	49.20	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	2	46.07	48.07	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	3	41.59	43.59	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	4	48.20	50.20	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	5	49.20	51.20	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	6	49.75	51.75	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	7	50.05	52.05	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	8	50.35	52.35	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	9	51.00	53.00	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10

Montgomery County Prevailing Wage Rates posted on 4/15/2026

OPERATING ENGINEER	All	HWY	10	51.50	53.50	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	11	49.20	51.20	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	12	50.20	52.20	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
OPERATING ENGINEER	All	HWY	13	41.65	43.65	1.5	1.5	2.0	2.0	15.45	21.75	0.00	1.90		19.55	39.10
PAINTER	All	BLD		34.49	35.99	1.5	1.5	2.0	2.0	8.20	15.23	0.00	0.70		0.00	0.00
PAINTER	All	HWY		35.69	37.19	1.5	1.5	2.0	2.0	8.20	15.23	0.00	0.70		0.00	0.00
PAINTER OVER 30 FT.	All	BLD		35.49	36.99	1.5	1.5	2.0	2.0	8.20	15.23	0.00	0.70		0.00	0.00
PAINTER PWR EQMT	All	BLD		35.49	36.99	1.5	1.5	2.0	2.0	8.20	15.23	0.00	0.70		0.00	0.00
PAINTER PWR EQMT	All	HWY		36.69	38.19	1.5	1.5	2.0	2.0	8.20	15.23	0.00	0.70		0.00	0.00
PILEDRIIVER	All	BLD		39.19	41.94	1.5	1.5	2.0	2.0	9.95	24.25	0.00	0.81	0.00	17.10	34.20
PILEDRIIVER	All	HWY		39.57	41.32	1.5	1.5	2.0	2.0	9.95	24.25	0.00	0.78	0.00	0.00	0.00
PIPEFITTER	NE	BLD		47.89	52.89	1.5	1.5	2.0	2.0	10.45	15.61	0.00	1.65	0.00	0.00	0.00
PIPEFITTER	SW	BLD		51.61	56.77	1.5	1.5	2.0	2.0	8.55	11.40	0.00	1.50	0.00	0.00	0.00
PLASTERER	All	BLD		37.80	39.30	1.5	1.5	2.0	2.0	12.75	12.60	0.00	0.75	0.00	13.05	26.10
PLUMBER	NE	BLD		47.89	52.89	1.5	1.5	2.0	2.0	10.45	15.61	0.00	1.65	0.00	0.00	0.00
PLUMBER	SW	BLD		51.61	56.77	1.5	1.5	2.0	2.0	8.55	11.40	0.00	1.50	0.00	0.00	0.00
ROOFER	All	BLD		36.00	39.10	1.5	1.5	2.0	2.0	11.19	14.58	0.00	0.59	0.00	0.00	0.00
SHEETMETAL WORKER	All	ALL		43.93	46.43	1.5	1.5	2.0	2.0	11.60	10.28	2.64	0.77	1.88	0.00	0.00
SPRINKLER FITTER	All	BLD		50.51	53.76	1.5	1.5	2.0	2.0	12.40	17.31	0.00	0.54	0.00	0.00	0.00
TERRAZZO FINISHER	All	BLD		28.92		1.5	1.5	2.0	2.0	10.15	7.69	1.00	0.86		0.00	0.00
TERRAZZO MASON	All	BLD		34.67		1.5	1.5	2.0	2.0	10.15	9.36	1.00	0.95		0.00	0.00
TRUCK DRIVER	All	ALL	1	45.35	49.71	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	2	45.93	49.71	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	3	46.25	49.71	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	4	46.60	49.71	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	5	47.71	49.71	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	1	36.28	39.77	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	2	36.74	39.77	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	3	37.00	39.77	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	4	37.28	39.77	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00

Montgomery County Prevailing Wage Rates posted on 4/15/2026

TRUCK DRIVER	All	O&C	5	38.17	39.77	1.5	1.5	2.0	2.0	17.11	8.36	0.00	0.25	0.00	0.00	0.00
--------------	-----	-----	---	-------	-------	-----	-----	-----	-----	-------	------	------	------	------	------	------

Legend

Rg Region

Type Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers

C Class

Base Base Wage Rate

OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.

OT Sa Overtime pay required for every hour worked on Saturdays

OT Su Overtime pay required for every hour worked on Sundays

OT Hol Overtime pay required for every hour worked on Holidays

H/W Health/Welfare benefit

Vac Vacation

Trng Training

Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations MONTGOMERY COUNTY

CARPENTERS AND PILEDRIVERS (NORTH) - The area north of Route 108, running east to Route 55, then north to Routes 48/127, east following Route 48 from Raymond to Harvel.

ELECTRICIANS (EAST) - Townships of Audubon, East Fork, Fillmore, Irving, Nikomis, Roundtree, South Fillmore and Witt.

ELECTRICIANS (NW) - Townships of Bois D'Arc, Pitman, and Harvel (Northern projection).

ELECTRICIANS (SW) - Townships of Zanesville, Raymond, North and South Litchfield, Butler Grove, Hillsboro, Walshville and Grishman.

ELECTRONIC SYSTEMS TECHNICIAN (EAST) - The entirety of Montgomery County except for the portions defined as the Southwest and Northwest regions.

ELECTRONIC SYSTEMS TECHNICIAN (NORTHWEST) - Townships of Bois D'Arc, Pitman, and Harvel.

ELECTRONIC SYSTEMS TECHNICIAN (SOUTHWEST) - Townships of Zanesville, Raymond, North and South Litchfield, Butler Grove, Hillsboro, Walshville and Grisham.

ELECTRIC POWER LINEMAN, GROUNDMAN, EQUIPMENT OPERATOR, TRUCK DRIVER (NE) - Entire county except Butler Grove, Grisham, Hillsboro, North and South Litchfield, Raymond, Walshville, and Zanesville Townships.

IRONWORKERS (NORTH) - That part of the county north of a diagonal line through Taylor Springs and Chapman.

Montgomery County Prevailing Wage Rates posted on 4/15/2026

PLUMBERS & PIPEFITTERS (SW) - That part of the county South and West of Route 127.

ELECTRONIC SYSTEMS TECHNICIAN (WEST) - Townships of Zanesville, Raymond, North Litchfield, Butler Grove, South Litchfield, Hillsboro, Walshville and Grisham.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

Oil and chip resealing (O&C) means the application of road oils and liquid asphalt to coat an existing road surface, followed by application of aggregate chips or gravel to coated surface, and subsequent rolling of material to seal the surface.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER AND MARBLE FINISHER

The handling, at the building site, of all sand, cement, tile, marble or stone and all other materials that may be used and installed by [a] tile layer or marble mason. In addition, the grouting, cleaning, sealing, and mixing on the job site, and all other work as required in assisting the setter. The term "Ceramic" is used for naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

ELECTRONIC SYSTEMS ELECTRICIAN

Installation, service and maintenance of low-voltage systems which utilizes the transmission and/or transference of voice, sound, vision, or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background/foreground music, intercom and telephone interconnect, field programming, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school, intercom and sound burglar alarms and low voltage master clock systems.

Excluded from this classification are energy management systems, life safety systems, supervisory controls and data acquisition systems not intrinsic with the above listed systems, fire alarm systems, nurse call systems and raceways exceeding fifteen feet in length.

Montgomery County Prevailing Wage Rates posted on 4/15/2026

OPERATING ENGINEER - BUILDING

GROUP I

Cranes, Draglines, Shovels, Skimmer Scoops, Clamshells or Derrick Boats, Pile Drivers, Crane-Type Backhoes, Asphalt Plant Operators, Concrete Plant Operators, Dredges, Asphalt Spreading Machines, Screws on Asphalt Spreading Machines, All Locomotives, Cable Ways or Tower Machines, Hoists, Hydraulic Backhoes, Ditching Machines, or Backfiller, Cherrypickers, overhead Cranes, Roller, Steam or Gas, Concrete Pavers, Excavator Concrete Breakers, Concrete Pumps, Bulk Cement Plants, Cement Pumps, Derrick-Type Drills, Boat Operators, Motor Graders or Pushcats, Scoops or Tournapulls, Bulldozers, Endloaders or Fork Lifts, Power Blade or Elevating Graders, Winch Cats, Boom or Winch Trucks or Boom Tractors, Pipe Wrapping or Painting Machines, Asphalt Plant Engineer, Journeyman Lubricating Engineer, Drills (other than derrick type), Mud Jacks, or Well Drilling Machines, Boring Machines or Track Jacks, Mixers, Conveyors (two), Air Compressors (two) Water Pumps, regardless of size (two), Welding Machines (two), Siphons or Jets (two), Winch Head or Apparatuses (two), Light Plants (two), Waterblasters (two), all Tractors, regardless of size (straight tractor only), Fireman on Stationary Boilers, Automatic Elevators, Form Grading Machines, Finishing Machines, Power Sub-Grader or Ribbon Machines, Longitudinal Floats, Distributor Operators on Trucks, Winch Heads or Apparatuses (one), Mobil Track air and heaters (two to five), Heavy Equipment Greaser, Relief Operator, Assistant Master Mechanic and Heavy Duty Mechanic, Autonomous and semi-autonomous equipment, concrete saws of all types and sizes with their attachments, gob-hoppers, excavators all sizes, the repair, greasing, and fueling of all diesel hammers, the operation, set-up and cleaning of bidwells, concrete placement booms, the alterations, repair of all barges, water blasters of all sizes and their clutches, mobile lifts, hydraulic jacks where used for hoisting, diesel or gas powered flashing signs used for traffic control, micro pavers, log skidders, iceolators used on and off of pipeline, condor cranes, drill rigs of all sizes, bow boats, survey boats, ross carriers, bob-cats and all their attachments, skid steer loaders and all their attachments, creter crane, direct drive electric motors the bolting and unbolting the adjusting and shimming, (dewatering jobs, whirley crane, conveyor belts) etc., batch plants (all sizes), roto mills, conveyors systems of any size and any configuration, hydroseeders and straw-blowers all sizes, operation, repair, service of all vibratory hammers, all power pacs and their controls regardless of location, curtains or brush burning machines, stump cutter machines, grout machines regardless of size, Nail Launchers when mounted on a machine or self-propelled, con-cover machines, Goldhofer and similar S.P.M.T. (self-propelled modular transporters) heavy transport units and all Operators (except those listed below).

GROUP II

Assistant Operators

GROUP III

Air Compressors (one), Water Pumps, regardless of size (one), Water-blasters (one), Welding Machine (one), Mixers (one bag), Conveyor (one), Siphon or Jet (one), Light Plant (one), Heater (one), Immobile Track Air (one), and Self-Propelled Walk Behind Rollers.

GROUP IV

CCO-17 ton and below

GROUP V

CCO-17.5 to 35 Ton and Boom to 50'

Montgomery County Prevailing Wage Rates posted on 4/15/2026

GROUP VI

CCO-35.5 to 75 Ton and Boom to 100'

GROUP VII

CCO-75.5 to 125 Ton and Boom to 125'

GROUP VIII

CCO- 125.5 to 200 Ton and Boom to 100'

GROUP IX

CCO-200.5 to 300 Ton and Boom to 100'

GROUP X

CCO-300.5 to 450 Ton and Boom to 150'

GROUP XI

Master Mechanic

GROUP XII

Operator Foreman, Licensed Boat Pilot

GROUP XIII

Track type hydraulic hoes & crawler gradealls prep time.

GROUP XIV

Fireman on Whirlies and Heavy Equipment Oilers, Truck Cranes, Dredges, Monigans, Large Cranes - (Over 65-ton rated capacity) Concrete Plant Oiler, Blacktop Plant oiler and Creter Crane Oiler (when required), barge tenders, oilers on drill rigs used for caisson or for pile driving and Oiler.

OPERATING ENGINEERS – Highway

GROUP I

Cranes, Draglines, Shovels, Skimmer Scoops, Clamshells or Derrick Boats, Pile Drivers, Crane-Type Backhoes, Asphalt Plant Operators, Concrete Plant Operators, Dredges, Asphalt Spreading Machines, Screws on Asphalt Spreading Machines, All Locomotives, Cable Ways or Tower Machines, Hoists, Hydraulic Backhoes, Ditching Machines, or Backfiller, Cherrypickers, overhead Cranes, Roller, Steam or Gas, Concrete Pavers, Excavator Concrete Breakers, Concrete Pumps, Bulk Cement Plants, Cement Pumps, Derrick-Type Drills, Boat Operators, Motor Graders or Pushcats, Scoops or Tournapulls, Bulldozers, Endloaders or Fork Lifts, Power Blade or Elevating Graders, Winch Cats, Boom or Winch Trucks or Boom Tractors, Pipe Wrapping or Painting Machines, Asphalt Plant Engineer, Journeyman Lubricating Engineer, Drills (other than derrick type), Mud Jacks, or Well Drilling Machines, Boring Machines or Track Jacks, Mixers, Conveyors (two), Air Compressors (two) Water Pumps, regardless of size (two),

Montgomery County Prevailing Wage Rates posted on 4/15/2026

Welding Machines (two), Siphons or Jets (two), Winch Head or Apparatuses (two), Light Plants (two), Waterblasters (two), all Tractors, regardless of size (straight tractor only), Fireman on Stationary Boilers, Automatic Elevators, Form Grading Machines, Finishing Machines, Power Sub-Grader or Ribbon Machines, Longitudinal Floats, Distributor Operators on Trucks, Winch Heads or Apparatuses (one), Mobil Track air and heaters (two to five), Heavy Equipment Greaser, Relief Operator, Assistant Master Mechanic and Heavy Duty Mechanic, concrete saws of all types and sizes with their attachments; gob-hoppers; excavators all sizes, the repair, greasing, and fueling of all diesel hammers, the operation, set-up and cleaning of bidwells, concrete placement booms, the alterations, repair of all barges, water blasters of all sizes and their clutches, mobile lifts, hydraulic jacks where used for hoisting, diesel or gas powered flashing sings used for traffic control, micro pavers, log skiders, iceolators used on and off of pipeline, condor cranes, drill rigs of all sizes, bow boats, survey boats, ross carriers, bob-cats and all their attachments, skid steer loaders and all their attachments, creter crane, direct drive electric motors the bolting and unbolting the adjusting and shimming, (dewatering jobs, whirley crane, conveyor belts) etc., batch plants (all sizes), roto mills, conveyors systems of any size and any configuration, hydroseeders and straw-blowers all sizes, operation, repair, service of all vibratory hammers, all power pacs and their controls regardless of location, curtains or brush burning machines, stump cutter machines, grout machines regardless of size, Nail launchers when mounted on a machine or self-propelled, con-cover machines, Goldhofer and similar S.P.M.T. (self-propelled modular transporters) heavy transport units and all Operators (except those listed below).

GROUP II

Assistant Operators

GROUP III

Air Compressors (one), Water Pumps, regardless of size (one), Water-blasters (one), Welding Machine (one), Mixers (one bag), Conveyor (one), Siphon or Jet (one), Light Plant (one), Heater (one), Immobile Track Air (one), and Self-Propelled Walk Behind Rollers.

GROUP IV

CCO-17 ton and below

GROUP V

CCO-17.5 to 35 Ton and Boom to 50'

GROUP VI

CCO- 35.5 to 75 Ton and Boom to 100'

GROUP VII

CCO- 75.5 to 125 Ton and Boom to 75'

GROUP VIII

CCO- 125.5 to 200 Ton and Boom to 100'

GROUP IX

CCO- 200.5 to 300 Ton and Boom to 100'

GROUP X

Montgomery County Prevailing Wage Rates posted on 4/15/2026

CCO- 300.5 to 450 Ton and Boom to 150'

GROUP XI

Master Mechanic, Working Foreman/Mechanic.

GROUP XII

Operator Foreman, licensed boat pilot.

GROUP XIII

Fireman on Whirlies and Heavy Equipment Oilers, Truck Cranes, Dredges, Monigans, Large Cranes - (Over 65-ton rated capacity) Concrete Plant Oiler, Blacktop Plant Oiler and Creter Crane Oiler (when required), barge tenders, oilers on drill rigs used for caisson or for pile driving, and Oiler.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION Class 1. Drivers on 2 axle trucks hauling less than 9 ton. Air compressor and welding machines and brooms, including those pulled by separate units, truck driver helpers, warehouse employees, mechanic helpers, greasers and tiremen, pickup trucks when hauling materials, tools, or workers to and from and on-the-job site, and fork lifts up to 6,000 lb. capacity.

Class 2. Two or three axle trucks hauling more than 9 ton but hauling less than 16 ton. A-frame winch trucks, hydrolift trucks, vector trucks or similar equipment when used for transportation purposes. Fork lifts over 6,000 lb. capacity, winch trucks, four axle combination units, and ticket writers.

Class 3. Two, three or four axle trucks hauling 16 ton or more. Drivers on water pulls, articulated dump trucks, mechanics and working forepersons, and dispatchers. Five axle or more combination units.

Class 4. Low Boy and Oil Distributors.

Class 5. Drivers who require special protective clothing while employed on hazardous waste work.

TRUCK DRIVER - OIL AND CHIP RESEALING ONLY.

This shall encompass laborers, workers and mechanics who drive contractor or subcontractor owned, leased, or hired pickup, dump, service, or oil distributor trucks. The work includes transporting materials and equipment (including but not limited to, oils, aggregate supplies, parts, machinery and tools) to or from the job site; distributing oil or liquid asphalt and aggregate; stock piling material when in connection with the actual oil and chip contract. The Truck Driver (Oil & Chip Resealing) wage classification does not include supplier delivered materials.

TERRAZZO FINISHER

The handling of all materials used for Mosaic and Terrazzo work including preparing, mixing by hand, by mixing machine or transporting of pre-mixed materials and distributing with shovel, rake, hoe, or pail, all kinds of concrete foundations necessary for Mosaic and Terrazzo work, all cement terrazzo, magnesite terrazzo, Do-O-Tex terrazzo, epoxy matrix terrazzo, exposed aggregate, rustic or rough washed for exterior or interior of buildings placed either by machine or by hand, and any other kind of

Montgomery County Prevailing Wage Rates posted on 4/15/2026

mixture of plastics composed of chips or granules when mixed with cement; rubber, neoprene, vinyl, magnesium chloride or any other resinous or chemical substances used for seamless flooring systems, and all other building materials, all similar materials and all precast terrazzo work on jobs, all scratch coat used for Mosaic and Terrazzo work and sub-bed, tar paper and wire mesh (2x2 etc.) or lath. The rubbing, grinding, cleaning and finishing of same either by hand or by machine or by terrazzo resurfacing equipment on new or existing floors. When necessary finishers shall be allowed to assist the mechanics to spread sand bed, lay tarpaper and wire mesh (2x2 etc.) or lath. The finishing of cement floors where additional aggregate of stone is added by spreading or sprinkling on top of the finished base, and troweled or rolled into the finish and then the surface is ground by grinding machines.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.