MECO-HENEGHAN ENGINEERS, LLC
CIVIL / STRUCTURAL / ELECTRICAL / MECHANICAL ENGINEERS
3120 Palmyra Road | Hannibal, MO 63401 | P: 636-395-7055

# Addendum No. 1

for

"Phase 1b – Contract G – Finished Water Transmission Main"

Illinois Alluvial Regional Water Company
Jersey County, Illinois

H&A File No. 71000-412 Contract "G"
September 30, 2026

The Contract Documents prepared by MECO-Heneghan Engineers, LLC for Phase 1b Contract "G" for the Illinois Alluvial Regional Water Company are hereby amended or clarified as follows:

PROJECT SPECIFICATIONS
Changes/additions/clarifications to the project specifications are as listed below:

- An updated **BID FORM FOR CONSTRUCTION CONTRACT 9/30/26** is included with this addendum, only bids submitted on this bid form will be accepted.
    - Updated numbering for bid items to reflect revisions contained in this addendum.
    - Revised bid item #6 Fire Hydrant with Gate Valve and Valve Box quantity
    - Revised bid item #10 W County Road Crossing – Jack and Bore 48" Steel Outer Casing includes Carrier Pipe quantity
    - Revised bid item #15 Maple Summit Road Crossing – Jack and Bore 48" Steel Outer Casing includes Carrier Pipe quantity
    - Revised bid item #19 Directional Bore W County Road Crossing – 1-1/4" HDPE SDR 11 Fiber Optic Conduit quantity
    - Revised bid item #21 Directional Bore Creek Crossing – 1-1/4" HDPE Pipe, SDR 11 Fiber Optic Conduit quantity
    - Revised bid item #24 Directional Bore Maple Summit Road Crossing – 1-1/4" HDPE SDR 11 Fiber Optic Conduit quantity
    - Revised bid item #31 Backfill Typical quantity
    - Revised bid item #34 1-1/4" HDPE Conduit, SDR 11 quantity
    - Revised bid item #40 12" PVC Pipe, CL 200, SDR 21 quantity
    - Added bid item #7 12"x12" Tapping Sleeve with 12" Gate Valve with Box
    - Added bid item #40 Master Meter Site Work, Driveway, Fencing, Grading, Etc.

Technical Provisions:

- Tangential fittings
    1. Fittings are manufactured of ductile iron, grade 70-50-05 (minimum tensile strength: 70,000 psi; minimum yield strength: 50,000 psi: minimum elongation: 5%) in accordance with AWWA C110 or C153.
    2. Pipes are manufactured of ductile iron, grade 60-42-10; (minimum tensile strength: 60,000 psi; minimum yield strength: 42,000 psi; minimum elongation: 10%) in accordance with AWWA C151.
    3. Flange adaptors for AWWA C110/C115 Flange to ANSI/ASME B16.1 Class 250 Flange are manufactured of ASTM A36 steel.
    4. Flanges and static-cast MJ bells can be tapped for studs when specified by the

purchaser.

5. All pressure ratings shown are suggested standard and are for water service.
6. Unless otherwise noted, all cast-on flanges are per AWWA C110 or C153.
7. All Mechanical Joints comply with AWWA C111. Threaded-on or otherwise fabricated MJ bells are per applicable portions of AWWA C115 and C153. Weights of MJ accessories are not included in weights of fittings with MJ outlets shown in tables, unless otherwise specified.
8. Weights of fittings can vary due to changes in foundry practice.

- Add the attached specifications related to the Master Meter Building
  - **Specification 061000 For Carpentry**
  - **Specification 067000 For Fiberglass Reinforced Polymer (FRP) Products and Fabrications**
  - **Specification 071113 For Bituminous Damp Proofing**
  - **Specification 072116 For Insulation**
  - **Specification 072400 For Door/Window Caulking and Sealants**
  - **Specification 072616 For Vapor Barriers**
  - **Specification 074116 For Insulated Metal Roof Panels**
  - **Specification 081100 For Metal Doors, Frames and Hardware**
  - **Specification 260000 For General Electrical Requirements**
  - **Specification 260500 For Basic Electrical Materials & Methods**
  - **Specification 260519 For Wire, Cable and Conductors**
  - **Specification 260526 For Grounding**
  - **Specification 260533 For Conduit, Boxes and Raceways**
  - **Specification 260553 For Electrical Identification**
  - **Specification 260586 For Wiring Methods**
  - **Specification 260800 For Wiring Devices**
  - **Specification 262600 For Electrical Utility Services**
  - **Specification 331233 For Electromagnetic Flow Meter**
  - **Specification 400557.23 For Electric Valve Actuators**

- **Specification 338223 for Optical Fiber Communications Transmission and Distributing Cabling**
  2.01 Manufacturers – Add Optical Cable Corporation (OCC) as an approved equal.

- HDPE pipe must be Ductile Iron Pipe Size (DIPS). Iron Pipe Size (IPS) is not permitted.

- Inside the HDPE conduit for Fiber Optic, the contractor shall provide and install a locate wire that is per 330500.2.05.D.

- **Specification 330523.13 for Highway Crossings**
  2.02.F Casing Pipe – replace with the following:
  Length of casing shall be as shown on the plans or at a minimum at least 10 feet beyond the edge of pavement.

PROJECT DRAWINGS

Changes/additions/clarifications to the project specifications are as listed below:

- **Sheet CD1** – Option A with only sand is allowed. Rock stored for Type 5 full depth shall not be in a field without written consent from the landowner with copy to the ENGINEER.

- **Sheet CD1** – The fiber optic conduit is currently shown in a separate trench below the water main. Alternatively, it may be placed within the water main bedding, provided a minimum vertical separation of 6 inches is still maintained.

- **Sheet CD2** – The Blow-Off Hydrant Detail currently shows a tangential tee. A reducing tee with a downward outlet and a 90-degree bend may be used in place of the tangential tee.

- **Sheet CD2** – The Gate Valve Detail currently shows both Spur Gear and Bevel Gear gate valves. The gate valve shall be installed with 42-inches of cover above the operating nut. Therefore, bevel gears should be used where spur gears cannot be meet the 42-inches of cover.

- Add Gate Valves Spur/Bevel, modifications to depth of main adjusted during construction, at the following locations:
    - Add Gate Valve w/ Bevel Gear at station 435+08, 7.05' cover to top of water main
    - Add Gate Valve w/ Spur Gear at station 522+24, 8.70' cover to top of water main
    - Add Gate Valve w/ Bevel Gear at station 626+00, 7.54' cover to top of water main

- Add hydrants, modifications to depth of main adjusted during construction, at the following locations:
    - None

- Add air release valve, modifications to depth of main adjusted during construction, at the following locations:
    - ARV at station 513+28 shall be located on easement 1-59.
    - ARV at station 586+03 shall be located on easement 1-64.

- The master meter building will be constructed by the CONTRACTOR, not by the telemetry provider. The following plans sheets have been replaced/added to the contract:
    - Replace **Sheet C12-HDPE**
    - Add **Sheet C15-HDPE**
    - Add **Sheet A1**
    - Add **Sheet A2**
    - Add **Sheet S1**

<u>GENERAL</u>

- Timeline
    - If the Bids are acceptable, a recommendation will be given to Illinois Alluvial Regional Water company. If accepted, the Contract will be tentatively awarded at the IARWC's October 22, 2026, regular board meeting, after concurrence from Illinois Environmental Protection Agency at which time the CONTRACTOR would be sent a Notice of Award. The CONTRACTOR will then have two weeks to execute the necessary paperwork and bonding requirements. The Notice to Proceed is expected to be issued around January 15, 2027, with a construction start date of approximately January 15, 2027.
- Easements are not part of the contract, but can be viewed on the website https://haengr.com/portfolio/iarwc-phase-1b-contract-g/?portfolioCats=40 under Bidding Information Easements.
- Geotechnical Report is not part of the contract, but can be viewed on the website https://haengr.com/portfolio/iarwc-phase-1b-contract-g/?portfolioCats=40 under Bidding Information Geotechnical Report.
- Corrosion Report is not part of the contract, but can be viewed on the website https://haengr.com/portfolio/iarwc-phase-1b-contract-g/?portfolioCats=40 under Bidding Information Corrosion Report.
- Utility conflicts are the responsibility of the contractor to relocate and at the contractor's cost.

- Road Agreements
    - Unsigned Road Use for County and township roads.
    - IDOT Permit being revised to 36-inch HDPE and 48-inch casing.
    - Unsigned County Road Permits.
    - Unsigned Township Road Permits.
- Attached is the Pre-Bid meeting minutes and attendance list from the Pre-Bid meeting held September 16, 2026, 10:00am at the Jersey County Rural Water Company, Jerseyville, Illinois. The Agenda is made a part of this Addendum, and the items stated in the Agenda shall be followed.

End of Addendum.

Seth W. Elliott, P.E. Project Manager

MECO-Heneghan Engineers, LLC

**PRE-BID MEETING**
**ILLINOIS ALLUVIAL REGIONAL WATER COMPANY**
**PHASE 1 B CONTRACTS**
**WEDNESDAY, SEPTEMBER 16, 2026 AT 10:00 A.M.**
**MHE PROJECT NO. 700-005**

| ATTENDEES | REPRESENTING | TELEPHONE |
|---|---|---|
| Mark Middendorf | MHE | 217-491-2400 |
| Kyle Kaerbe | DN | 847-946-2063 |
| John Williams | JCW | 618-498-9534 |
| Scott Parker | Landmark Structures | 682 417 7178 |
| John Joiner | Core & main | 618-225-9250 |
| Dennis Ackerman | Core & main | 618-799-1468 |
| Aaron Martin | Martin General | 573-485-2107 |
| Cody Trosley | Kamex Inc | 618-931-3760 |
| Josh Sisson | KCI | 618-975-3075 |
| Marko Dragovich | Geotechnical Construction, Inc | 314-609-4260 |
| Craig Bahlis | FSCO | 314-573-0514 |
| Mark D Vaughn | FWD | 618 259 0935 |
| Kendal Eckert | Caldwell Tanks | 573-303-4403 |
| Andy Long | MPCO HEN | 573 221 4048 |
| Justin Wittman | Loellke Plumbing | 618-498-5185 |
| Tyler Meyer | MHE | 618-533-6525 |
| Seth Elliott | MHE | |
| | | |
| | | |

# PRE-BID MEETING *MINUTES*

September 16, 2026, 10:00 A.M.

700-005; 71000-412

Illinois EPA's published PWSLP pre-bid meeting should be held at least 20 days before bid opening to discuss Disadvantaged Business Enterprise requirements and answer bidders' questions. Therefore, DBE compliance is the principal Illinois EPA topic that must be covered.

## 1. Project and bidding information

- Introductions and attendance record.
- Project scope, contract divisions, alternates and funding status.
- Bid deadline, location, delivery requirements and public opening.
- Required bid form and acknowledgment of addenda.
- Minimum 5% bid security.
- 100% performance and payment bonds.
- Bid evaluation procedure and award to the lowest responsive, responsible bidder.
- Bid-hold period and anticipated award and notice-to-proceed dates.
- *Anticipate award at October 22nd Alluvial Board meeting (4th Thursdays) pending IEPA concurrence*

## 2. DBE requirements — essential Illinois EPA discussion

- Illinois EPA's current fair-share objectives are:
  - Minority Business Enterprises: 5%
  - Women Business Enterprises: 12%
- These percentages are objectives, not quotas.
- Every prime bidder must perform the required good-faith efforts, including a bidder that is itself DBE-certified.
- If subcontracting or supplier opportunities exist, the bidder must advertise them:
  - In an eligible local daily newspaper or established online construction clearinghouse;
  - For at least one day; and
  - At least 16 days before bid opening.
- Subcontracting opportunities include construction, equipment, materials, supplies and services.
- The bidder must allow DBEs sufficient information and time to prepare proposals.
- Bidders must evaluate DBE and non-DBE proposals objectively and on the same basis.
- Work should be divided into smaller tasks when economically feasible to encourage DBE participation.
- Required bid documentation should be reviewed, including:
  - Proof of publication or online posting;
  - Bidder's list containing DBE and non-DBE firms that submitted quotes;
  - DBE utilization forms;
  - Identification of DBEs solicited but not selected, with justification;
  - Certification if no DBE responses were received; or
  - Certification that the bidder will perform the entire contract without subcontractors, suppliers or other outside procurement, if applicable.
- Missing DBE documentation may make a bid nonresponsive or require rejection, and noncompliance can result in rebidding.
- DBE obligations continue after award. The contractor must notify the owner before terminating or replacing a DBE subcontractor and must repeat the good-faith efforts when seeking a replacement.

Illinois EPA recommends conducting this meeting at least 20 days before bid opening, which provides

bidders time to satisfy the 16-day DBE advertising requirement. Illinois EPA DBE Guidance, September 2025

## 3. Davis-Bacon requirements

- Applicable federal wage determination and any modifications issued before bid opening.
- Payment of applicable wage rates and fringe benefits.
- Weekly certified payroll submissions.
- Payroll classifications and procedures for requesting additional classifications.
- Required jobsite postings and employee interviews.
- Record-retention requirements.
- Flow-down of Davis-Bacon requirements to every covered subcontract.
- Responsibility of the prime contractor for subcontractor compliance.

## 4. Build America, Buy America

- BABA applies to the SRF-funded project.
- Covered iron, steel, manufactured products and construction materials must be produced in the United States.
- The successful contractor must obtain and maintain adequate manufacturer certifications and supporting documentation.
- BABA requirements apply to subcontractors, suppliers and vendors.
- A product should not be ordered based on an assumption that a waiver will be granted.
- Potential noncompliant products must be brought to the engineer and owner's attention before procurement.
- Substitutions based on domestic-content compliance must follow the contract's substitution procedures.

Illinois EPA currently states that BABA applies to all SRF-funded projects. Illinois EPA SRF program page

## 5. Illinois labor requirements

- Illinois Works Jobs Program Act Apprenticeship Initiative requirements for projects exceeding the applicable total-project-cost threshold—currently stated by Illinois EPA as $500,000.
- Contractor registration, reporting and apprenticeship documentation.
- Employment of Illinois Workers on Public Works Act requirements.
- Any Illinois prevailing-wage obligations that apply in addition to Davis-Bacon.

## 6. Contract administration

- Required insurance.
- Contract execution and bond-submittal deadlines.
- Subcontractor and supplier identification.
- Change-order procedures and prohibition against performing extra work without authorization.
- Illinois EPA access to the project site and contractor records.
- Debarment and suspension certifications.
- Non-collusion and Illinois Criminal Code certifications.
- Nondiscrimination provisions.
- Payment procedures, retainage and required supporting documentation.
- Substantial- and final-completion dates and liquidated damages.

## Contracts F, G

- Coordination Among Contracts – *current Contract "E" contractor is Haier Plumbing and Heating*
- Fiber Optic
- Landowner Coordination and Easement Restrictions
- Erosion Control and NPDES Permit
- Local Utilities

- Working Hours 7:30-5:30– *can request working outside of these hours to Alluvial Board*
- Clean-up
- Topsoil Preservation – *can provide soils report if requested for depths*
- Bores
- Restrained Joint Pipe instead of Thrust Blocks
- Ripping Soil
- Installation in IDOT ROW/Traffic Control
- Road Permits and Road Use Agreements
- Flushing, Disinfection, and Testing
- Site tour and bidder observations.

## 8. Questions and addenda

- State that oral answers do not modify the contract documents.
- Require questions to be submitted in writing by the stated deadline.
- Explain that binding interpretations will be issued only by written addendum.
- Remind bidders to acknowledge every addendum in their bids.
- *What is the anticipated start date for construction? Estimated mid-January 2027*
- *Is the project 100% BABA? Yes*
- *Is there extra dirt available at the WTP for a dirt mound for contract A-2? Yes*

Important distinction: Illinois EPA describes the pre-bid meeting itself as “encouraged,” not universally mandatory under its published DBE guidance. If your advertisement makes attendance mandatory—or your assigned Illinois EPA project manager has required it for this loan—the attendance and eligibility consequences should be stated clearly and applied consistently. The current PWSLP front-end package contains the controlling procurement and contract requirements. Illinois EPA PWSLP plans/specifications checklist and front-end documents, February 2026

# BID FORM FOR CONSTRUCTION CONTRACT 9/30/26

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders~~,~~ and the General Conditions~~, and the Supplementary Conditions~~.

**ARTICLE 1—OWNER AND BIDDER**

1.01 This Bid is submitted to:

**Allen Davenport, Board President**
**Illinois Alluvial Regional Water Company, Inc.**
**1009 State Highway 16, Jerseyville, IL, 62052**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**ARTICLE 2—ATTACHMENTS TO THIS BID**

2.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. List of Proposed Subcontractors;

C. List of Proposed Suppliers;

D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;

E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;

F. Required Bidder Qualification Statement with supporting data; and

G. **Non-Collusion and Certification Statements**

H. **Certification of Nonsegregated Facilities**

I. **Certificate Regarding Bid Rigging & Rotating (Criminal Code 33E)**

J. **Certificate Regarding Debarment, Suspension, and Other Responsibility Matters**

K. **Certification that all iron, steel manufactured products and construction materials used for this project must be produced in the United States. [Build America, Buy America Act]**

L. **Disadvantaged Business Utilization and Affirmative Efforts**

**ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES**

3.01 *Unit Price Bids*

A. Bidder will perform the following Work at the indicated unit prices:


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| Base Bid A – Contract G – 9/30/26 | | | | | |
|---|---|---|---|---|---|
| **Item No.** | **Description** | **Unit** | **Estimated Quantity** | **Bid Unit Price** | **Bid Amount** |
| 1 | 36" HDPE PIPE, CLASS 200 | LF | 32,438 | $ | $ |
| 2 | DUCTILE IRON CLASS 250 OR HDPE CLASS 200, 36"X36"X12" TEE | EA | 1 | $ | $ |
| 3 | DUCTILE IRON CLASS 250 OR HDPE CLASS 200, 12" - 90 DEGREE BEND | EA | 2 | $ | $ |
| 4 | DUCTILE IRON CLASS 250 OR HDPE CLASS 200, 36" - 45 DEGREE BEND | EA | 15 | $ | $ |
| 5 | DUCTILE IRON CLASS 250 OR HDPE CLASS 200, 36" CAP | EA | 2 | $ | $ |
| 6 | FIRE HYDRANT WITH GATE VALVE AND VALVE BOX | EA | 9 | $ | $ |
| 7 | 12"X12" TAPPING SLEEVE WITH 12" GATE VALVE WITH BOX | EA | 1 | $ | $ |
| 8 | 12" GATE VALVE WITH VALVE BOX | EA | 2 | $ | $ |
| 9 | 36" GATE VALVE WITH SPUR GEAR OR BEVEL GEAR ACTUATOR AND VALVE BOX | EA | 3 | $ | $ |
| 10 | W COUNTY ROAD CROSSING - JACK AND BORE 48" STEEL OUTER CASING INCLUDES CARRIER PIPE | LF | 45 | $ | $ |
| 11 | S CENTENNIAL ROAD CROSSING - JACK AND BORE 48" STEEL OUTER CASING INCLUDES CARRIER PIPE | LF | 60 | $ | $ |
| 12 | DOGWOOD LANE CROSSING - JACK AND BORE 48" STEEL OUTER CASING INCLUDES CARRIER PIPE | LF | 60 | $ | $ |
| 13 | DIRECTIONAL BORE CREEK CROSSING - 36" HDPE PIPE, CLASS 200 | LF | 400 | $ | $ |
| 14 | BEATTY MOUND ROAD CROSSING - JACK AND BORE 48" STEEL OUTER CASING INCLUDES CARRIER PIPE | LF | 80 | $ | $ |
| 15 | MAPLE SUMMIT RD CROSSING - JACK AND BORE 48" STEEL OUTER CASING INCLUDES CARRIER PIPE | LF | 45 | $ | $ |
| 16 | CRYSTAL LAKE ROAD CROSSING - JACK AND BORE 48" STEEL OUTER CASING INCLUDES CARRIER PIPE | LF | 60 | $ | $ |


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| | | | | | |
|---|---|---|---|---|---|
| 17 | STATE HIGHWAY 109 CROSSING - JACK AND BORE 48" STEEL OUTER CASING INCLUDES CARRIER PIPE | LF | 60 | $ | $ |
| 18 | US HIGHWAY 67 CROSSING - JACK AND BORE 48" STEEL OUTER CASING INCLUDES CARRIER PIPE | LF | 270 | $ | $ |
| 19 | DIRECTIONAL BORE W COUNTY ROAD CROSSING - 1-1/4" HDPE SDR 11 FIBER OPTIC CONDUIT | LF | 45 | $ | $ |
| 20 | DIRECTIONAL BORE S CENTENNIAL ROAD CROSSING - 1-1/4" HDPE SDR 11 FIBER OPTIC CONDUIT | LF | 60 | $ | $ |
| 21 | DIRECTIONAL BORE DOGWOOD LANE CROSSING - 1-1/4" HDPE SDR 11 FIBER OPTIC CONDUIT | LF | 60 | $ | $ |
| 22 | DIRECTIONAL BORE CREEK CROSSING - 1-1/4" HDPE PIPE, SDR 11 FIBER OPTIC CONDUIT | LF | 400 | $ | $ |
| 23 | DIRECTIONAL BORE BEATTY MOUND ROAD CROSSING - 1-1/4" HDPE SDR 11 FIBER OPTIC CONDUIT | LF | 80 | $ | $ |
| 24 | DIRECTIONAL BORE MAPLE SUMMIT RD CROSSING - 1-1/4" HDPE SDR 11 FIBER OPTIC CONDUIT | LF | 45 | $ | $ |
| 25 | DIRECTIONAL BORE CRYSTAL LAKE ROAD CROSSING - 1-1/4" HDPE SDR 11 FIBER OPTIC CONDUIT | LF | 60 | $ | $ |
| 26 | DIRECTIONAL BORE STATE HIGHWAY 109 CROSSING - 1-1/4" HDPE SDR 11 FIBER OPTIC CONDUIT | LF | 60 | $ | $ |
| 27 | DIRECTIONAL BORE US HIGHWAY 67 CROSSING - 1-1/4" HDPE SDR 11 FIBER OPTIC CONDUIT | LF | 270 | $ | $ |
| 28 | EROSION CONTROL | LS | 1 | $ | $ |
| 29 | SEEDING, FERTILIZING, MULCHING, SOIL TESTING, RIPPING | LS | 1 | $ | $ |
| 30 | FENCE REPAIR | LF | 40 | $ | $ |
| 31 | DRAIN TILE REPAIR | EA | 30 | $ | $ |
| 32 | BACKFILL TYPICAL | LF | 31,334 | $ | $ |


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| | | | | | |
|---|---|---|---|---|---|
| 33 | BACKFILL TYPE 5 FULL DEPTH | LF | 24 | $ | $ |
| 34 | 6" AIR RELEASE VALVE, 72" DIAMTER VAULT AND 6" PIPE | EA | 16 | $ | $ |
| 35 | 1-1/4" HDPE CONDUIT, SDR 11 | LF | 31,358 | $ | $ |
| 36 | 24"X36"X36" HDPE FIBER OPTIC HANDHOLD | EA | 16 | $ | $ |
| 37 | 12"X12"X12" HDPE FIBER OPTIC HANDHOLD - BURIED | EA | 20 | $ | $ |
| 38 | 24 STRAND SINGLE MODE FIBER WITH ARMORED SHIELD | LF | 34,438 | $ | $ |
| 39 | MASTER METER BUILDING, FOUNDATION, PIPING, ELECTRICAL, ETC. | LS | 1 | $ | $ |
| 40 | MASTER METER SITE WORK, DRIVEWAY, FENCING, GRADING, ETC. | LS | 1 | $ | $ |
| 41 | 12" PVC PIPE, CL 200, SDR 21 | LF | 100 | $ | $ |
| 42 | EXPLORATORY DIG (UTILITIES) | EA | 30 | $ | $ |
| 43 | ROCK EXCAVATION | CY | 500 | $ | $ |
| Total of All Unit Price Bid Items | | | | | $ |

Dollars

(In Words)

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and

2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

3.02 *Total Bid Price (Lump Sum and Unit Prices)*

| | |
|---|---|
| Total Bid Price (Total of all Lump Sum and Unit Price Bids) | $ |

**ARTICLE 4—TIME OF COMPLETION**

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.


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## ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

A. This Bid will remain subject to acceptance for 120 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda:

| Addendum Number | Addendum Date |
|---|---|
| | |
| | |
| | |

## ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder's Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the ~~Supplementary~~General Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the ~~Supplementary~~General Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the ~~Supplementary~~General Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and


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procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:

a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.

c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.

d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

Bidder is currently certified as an MBE or WBE under EPA's DBE Program? Yes ☐ No ☐


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BIDDER hereby submits this Bid as set forth above:

Bidder:

_____

*(typed or printed name of organization)*

By: _____

*(individual's signature)*

Name: _____

*(typed or printed)*

Title: _____

*(typed or printed)*

Date: _____

*(typed or printed)*

*If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.*

Attest: _____

*(individual's signature)*

Name: _____

*(typed or printed)*

Title: _____

*(typed or printed)*

Date: _____

*(typed or printed)*

Address for giving notices:

_____

_____

Bidder's Contact:

Name: _____

*(typed or printed)*

Title: _____

*(typed or printed)*

Phone: _____

Email: _____

Address:

_____

_____

_____

Bidder's Contractor License No.: (if applicable) _____


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**DIVISION 6 – WOOD, PLASTICS AND COMPOSITES**

**SECTION 061000 - CARPENTRY**

## 1.00 GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Special Conditions and Division 1 specification section, apply to this section.

### 1.02 SUMMARY

A. The Contractor shall furnish all labor, materials, equipment and services necessary to install the carpentry required for this project as shown on the Drawings and as specified herein.

B. This section covers the carpentry materials including:

1. Wood framing
2. Wood furring
3. Wood siding
4. Nailers
5. Related hardware

C. To avoid divided responsibility, the General Contractor shall assume complete responsibility for the furnishing and installation of all items relating to carpentry.

### 1.03 SUBMITTALS

A. Product Data: Include the following:

1. Product literature
2. Complete product description
3. Manufacturer's warranty
4. A list of all deviations from drawings and specifications.

B. Shop Drawings: All shop drawing submittals shall be in accordance with the General Conditions and Division 1 and include the following:

1. Dimensions and required clearances
2. Weights and forces
3. Layout installation details
4. Submit shop drawings of wood roof trusses, floor trusses, and other shop fabricated work. Indicate species and stress grades of lumber to be used and details of metal connectors to be used at joints. Show pitch, span and location of trusses or panels. Provide large scale details of typical connections and anchorages.

C. Wood Treatment Data: Submit certification by the treatment plant that required treatments comply with the specified standards.

D. Material Certificates: Where dimension lumber is provided to comply with minimum allowable unit stresses, indicate species and grade selected for each use, and submit evidence of compliance with specified requirements.

## 2.00 PRODUCTS

### 2.01 STRUCTURAL LUMBER

A. All structural lumber including studding, sills, plates, nailers, etc., shall be No. 1 common southern pine or Douglas Fir with not more than 19% moisture content. Each piece of lumber (or bundle in bundled stock)

shall bear official grade and trademark of association having jurisdiction in the area in which the woods are produced. All lumber must be sound, thoroughly seasoned, well manufactured and free from warp that cannot be corrected in process of bridging or nailing.

B. All wood to come in contact with the concrete floor or masonry walls shall be pressure preservative treated meeting the requirements of AWPA Standards P-5 and Federal Standards TT-W-550 and TT-W-571. The pressure treatment used shall be Koppers Company "Wolmanized" process, Osmose Wood Preserving Company, or equal. The finished treated wood shall be clean, oil free and odorless with the preservative chemicals affixed to the wood in such a manner to prevent leaching.

C. Dimension and board lumber, and timbers shall be identified by the grademark of the recognized grading association or of any independent lumber grading inspection agency authorized to grade the species. The association or independent inspection agency and the grading rules under which they grade shall be certified by the Board of Review, American Lumber Standards Committee.

**2.02 PLYWOOD**

A. All plywood, not otherwise shown, shall be Douglas Fir and shall be identified with the DFPA grade trademark of the American Plywood Association, and shall meet the requirements of the latest edition of U.S. Product Standard PS 1-74 for Softwood Plywood.

B. Roof sheathing to be 5/8" plywood, DFPA B-D Exterior Grade. Panels shall bear official grade and trademarks of the American Plywood Association.

**2.03 ROOF AND FLOOR TRUSSES**

A. General - Provide roof trusses where shown. Comply with the applicable requirements of the NLMA's "National Design Specifications for Stress Graded Lumber and Its Fastenings" and the Truss Plate Institute's Light Metal Connected Wood Trusses".

B. The roof trusses shall be factory manufactured with wood webs, structural wood chords (f = 1,500, E = 1,760,000).

1. Structural wood chord members shall be of machine stress rated lumber of approved joist grade and kiln dried to a maximum moisture content of 19%. All end joints shall be finger joints conforming of details approved by the building code or authority.

C. Design: The joist shall be custom designed to fit the dimensions and loads indicated on the plans. All designs shall be in accordance with allowable values assigned by the building code approval. Complete design calculation showing internal layout, member forces and stress control points are to be available upon request for each joist design. The design of the joists is to be under the supervision of a Registered Professional Engineer.

**2.04 TRIM, BASE, MOLDING, ETC.**

A. The trim around doors shall be in single lengths without splicing of clear grade birch or white pine, 1-1/2" wide and 1/2" thick. The trim at corners shall be clear grade white pine or birch, 1" wide corner bead. It shall be finished smooth and free from machine or tool marks.

B. Trim at corners shall be clear grade white pine or birch, 1" wide corner bead.

C. Vinyl base/cove molding shall be provided, as detailed on the plans, throughout the building. Base/cove to be 4" wide of rigid vinyl. The Contractor shall submit a sample of the base/cove to the Engineer for acceptance prior to installation.

**2.05 ROUGH HARDWARE**

A. The Contractor shall furnish all nails, bolts, nuts, and miscellaneous devices required for installation of lumber, trim, drywall, etc. Materials used shall be standard manufacture.

## 3.00 EXECUTION

### 3.01 INSTALLATION

A. The contractor is responsible for establishing lines and levels and laying out the work. This shall include the erection of temporary railings, barriers, planking, etc., for protection of complete or partially complete work.

### 3.02 CONSTRUCTION REQUIREMENTS

A. Furnish snug fit interior finish in very best manner, hand sanding rough places and using proper number and size of nails, which must be set ready to be finished by paint contractor. Blind nail where possible.

B. No hammer-scarred, butchered work will be accepted and all finish work shall be of size and design as indicated on the drawings with all joints and rough edges thoroughly sanded and placed in good condition ready to be painted.

C. All finish work shall be assembled at the mill, insofar as is practical and delivered ready for erection.

D. When it is necessary to cut and fit on the job, the material shall be made with ample allowance for cutting and all work shall be made in accordance with measurements taken at the job, using mitered joints.

E. Moldings shall be true to details, cleanly cut and sharp, and machine sanded ready for finish.

F. Mill assemblies shall be jointed with nails, screws, and glue where practical.

G. All wood grounds or bucks to be fastened to masonry or concrete shall be fastened by bolting to bolts set in the masonry or by wood plugs, toggle bolts or other approved methods. No grounds shall be installed by shooting or driving studs into such surface.

H. Construct paneling to allow movement of panels and edge-glued pieces narrow enough to prevent warping.

### 3.03 STRUCTURAL LUMBER

A. Contractor shall install work plumb, level and true, accurately set to required lines and levels and rigidly secured in place.

B. Provide all necessary blocking required for support of utilities. Note on plans any special framing and headers which may be required.

C. All lumber shall be stored at location(s) which insure proper drainage, ventilation, and protection from the weather.

### 3.04 ROOF SHEATHING

A. The sheathing shall be well nailed to the joists, using 8d common smooth nails, spaced 12" at panel edges and 12" at intermediate supports. The DFPA "B" face shall be placed up.

### 3.05 ROOF TRUSSES

A. The joists if stored prior to erection shall be stored in a vertical position and protected from the weather. They shall be handled with care so they are not damaged.

B. The trusses are to be erected and installed in accordance with the plans, the approved truss drawings and installation suggestions. Temporary construction loads which cause member stresses beyond design limits are not permitted. Erection bracing in addition to specified bridging is to be provided to keep the trusses straight and plumb as required to assure adequate lateral support for the individual truss and entire system until the sheathing material has been applied. The contractor will give notification prior to enclosing the trusses to provide opportunity for inspection of the installation.

**3.06 TRIM, BASE, MOLD, ETC.**

A. Where required along corners, at the base of walls, etc., the Contractor will install the specified trim, base, molding, etc., in a workmanlike manner.

B. All joints shall be mitered (corners or molding) or coped (interior angles), tight and formed to conceal shrinkage.

C. All nail heads shall be set and receive putty.

**3.07 ROUGH HARDWARE**

A. The Contractor shall install all required rough hardware in a workmanlike manner, driving all nails home, tightening all nuts on anchor bolts, etc. Poor or shoddy installation of the required rough hardware, or less than acceptable quantities of rough hardware will form a basis for rejection by the Engineer, requiring the Contractor to make appropriate amends.

**END OF SECTION 061000**

**DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES**

## SECTION 067000 - FIBERGLASS REINFORCED POLYMER (FRP) PRODUCTS AND FABRICATIONS

### 1.00 GENERAL

### 1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.

### 1.02 SUMMARY:

A. This section includes the FRP Products & Fabrications for FRP Foam Core Building Panels.

### 1.03 SCOPE OF WORK:

A. Furnish all labor, materials, equipment and incidentals governed by this section necessary to install the fiberglass reinforced polymer (FRP) products as specified herein.

### 1.04 QUALITY ASSURANCE:

A. The material covered by these specifications shall be furnished by an ISO-9001 certified manufacturer of proven ability who is regularly engaged in the manufacture, fabrication and installation of FRP systems.

B. Substitution of any component or modification of system shall be made only when approved by the Architect or Design Engineer.

C. Fabricator Qualifications: Firm experienced in successfully producing FRP fabrications similar to that indicated for this project, with sufficient production capacity to produce required units without causing delay in the work.

D. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

### 1.05 DESIGN CRITERIA:

A. Design live loads shall be in accordance with the governing building code as follows:
   1. Wall Panels shall be designed for the following wind load conditions using the methods in ASCE 7:
      a) Wind Velocity - 115 mph
      b) Exposure - C
      c) Wind Importance Factor - 1w=1.0
      d) Maximum Deflection - L/180
   2. Roof Panels shall be designed for the following load conditions using the methods in ASCE 7 (the effect of ponding shall be considered):
      a) Design Snow Load - 20 psf
      b) Design Rain Load - 15 psf
      c) Design Live Load - 20 psf
      d) Maximum Deflection – L/240

B. Structural connections shall be designed to transfer the design loads.

C. Reinforce and stiffen penetrations in foam core panels in accordance with the manufacturer's recommendations.

**1.06 SUBMITTALS:**

A. Shop drawings of all fabricated foam core building panels shall be submitted to the Design Engineer for approval.

B. Manufacturer's catalog data showing:

1. Materials of construction
2. Dimensions, spacings, and construction of foam core building panels.

C. Detail shop drawings showing:

1. Dimensions
2. Sectional assembly
3. Location and identification mark
4. Size and type of supporting frames required

**1.07 SHIPPING AND STORAGE INSTRUCTIONS:**

A. All systems, sub-systems and structures shall be shop fabricated and assembled into the largest practical size suitable for transporting.

B. All materials and equipment necessary for the fabrication and installation of foam core building panels and appurtenances shall be stored before, during, and after shipment in a manner to prevent cracking, twisting, bending, breaking, chipping or damage of any kind to the materials or equipment, including damage due to over exposure to the sun. Any material which, in the opinion of the Design Engineer, has become damaged as to be unfit for use, shall be promptly removed from the site of work, and the Contractor shall receive no compensation for the damaged material or its removal.

C. Identify and match-mark all materials, items and fabrications for installation and field assembly.

**2.00 <u>PRODUCTS</u>**

**2.01 GENERAL:**

A. Materials used in the manufacture of the FRP products shall be raw materials in conformance with the specification and certified as meeting the manufacturer's approved list of raw materials.

B. All raw materials shall be as specified by the contract.

C. The visual quality of the pultruded shapes shall conform to ASTM D4385.

D. All foam core building panels shall be manufactured using a pultruded process utilizing vinyl ester resin with flame retardant and ultraviolet (UV) inhibitor additives. A minimum 7 mil synthetic surface veil fabric shall encase the glass reinforcement. FRP shapes shall achieve a flame spread rating of 25 or less in accordance with ASTM test method E-84, the flammability characteristics of UL 94 V0 and the self-extinguishing requirements of ASTM D635.

E. If required, after fabrication, all cut ends, holes and abrasions of FRP shapes shall be sealed with a compatible resin coating.

F. FRP products exposed to weather shall contain an ultraviolet inhibitor and additional ultraviolet five (5) mil minimum UV coating field applied.

G. All exposed surfaces shall be smooth and true to form, consistent with ASTM D4385.

H. Manufacturers:

1. Strongwell (or equal)

I. Pultruded FRP products shall be manufactured and fabricated in the USA. Manufacturer shall provide a written Certificate of Compliance.

J. The materials covered by these specifications shall be furnished by an ISO-9001 certified manufacturer.

**2.02 FRP FOAM CORE BUILDING PANELS:**

**2.03** Materials

A. Each panel shall be manufactured using a pultruded process utilizing vinyl ester resin with flame retardant and UV inhibitor additives. A synthetic surface veil shall be the outermost layer covering the exterior surface. The FRP panel shall achieve a flame spread rating of 25 or less in accordance with ASTM test method E-84.

B. Exposed foam core panel ends shall be encapsulated with FRP pultruded materials. All exposed ends of the panels must be encapsulated or coated with a resin similar to the skin resin to maintain the corrosion and weather resistant qualities of the total panel.

C. Mechanical and physical properties shall meet or exceed the values listed in Table 3.

**Table 3-Foam Core Building Panel Properties (nominal)**

| Mechanical Property (Nominal) | Units | 3" Panel 76.2 mm |
|---|---|---|
| Flexural Strength | psi | 869 |
| | $N/mm^2$ | 6 |
| Flexural Modulus | $10^6$ psi | .17 |
| | $10^3$ $N/mm^2$ | 1.17 |
| Short Beam Shear | psi | 90 |
| | $N/mm^2$ | 0.62 |
| Pullout Test (Pull Through) | | |
| * Std. Washer (1" dia. w/3/8" hole) | lbs | 730 |
| (25.4 mm dia. w/9.525 mm hole) | N | 3,245 |
| * Fender Washer (2" dia. w/ 1/2" hole) | lbs | 1,620 |
| (50.8 mm dia. w/ 12.7 mm hole) | N | 7,209 |
| Crush Test (6" x 6" Load Plate) | lbs | 6,750 |
| (152.4 mm x 152.4 mm) | N | 30,037 |
| Crush Test (Full Width) | | |
| * 1" dia. Bar | lbs | |
| (25.4 mm dia. Bar) | N | |
| * 2-1/2" dia. Bar | lbs | 18,800 |
| (63.5 mm dia Bar) | N | 83,660 |

a) **Table 3-Foam Core Building Panel Properties (nominal) – cont'd**

| Physical Property (Nominal) | Units | 3" Panel 76.2 mm |
|---|---|---|
| Weight | lbs/linear ft (kg/lin. m) | 7.85 (11.68) |
| Panel Width | in. (mm) | 24 (609.6) |
| "R" Factor | | 17 |
| Coefficient of Thermal Expansion* | $10^{-6}$ in/in/$^o$F | 5.2 |
| | $10^{-6}$ mm/mm/$^o$C | 9.36 |
| Foam Density | #/cu. Ft ($kg/m^3$) | 4 (64.1) |
| Flame Spread Rating | | |
| * Fiberglass Composite Skin | | Max. 25 |
| * Foam | | Max. 25 |

* Typical Values

b) Fiberglass pultruded foam core panels to be manufactured by Strongwell (or equal).

D. Connections

Panels will be designed for tongue-in-groove joint connections.

The panels are to be fastened to the super structure with stainless steel or fiberglass fasteners as shown on the approved shop drawings.

E. Approved Manufacturers

Strongwell (or equal)

## PART 3 – EXECUTION

### 3.01 PREPARATION:

A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction.

B. Coordinate delivery of such items to project site.

### 3.02 INSPECTION AND TESTING:

A. The Design Engineer shall have the right to inspect and test all materials to be furnished under these specifications prior to their shipment from the point of manufacture.

B. All labor, power, materials, equipment and appurtenances required for testing shall be furnished by the Contractor at no cost to the Owner.

### 3.03 INSTALLATION, GENERAL:

A. Fastening to in-place construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous FRP fabrications to in-place construction; include threaded fasteners for concrete, toggle bolts, through-bolts, lag bolts and other connectors as indicated by the Panel Manufacturer.

B. Cutting, fitting and placement: Perform cutting, drilling and fitting required for installation of miscellaneous FRP fabrications. Set FRP fabrication accurately in location, alignment and elevation; with edges and surfaces level, plumb, true and free of rack; measured from established lines and levels.

C. Provide temporary bracing or anchors in form work for items that are to be built into concrete masonry or similar construction.

### 3.04 ALL FRP INSTALLATION:

A. If required, all field cut and drilled edges, holes and abrasions shall be sealed with a catalyzed resin compatible with the original resin as recommended by the manufacturer.

B. Install items specified as indicated and in accordance with manufacturer’s instructions.

**END OF SECTION 067000**

**DIVISION 7 - THERMAL AND MOISTURE PROTECTION**

**SECTION 071113 - BITUMINOUS DAMP PROOFING**

## 1.00 GENERAL

A. Related Documents: The general provisions of the Contract apply to the work specified in the section.

B. Scope: Furnish all labor and materials to complete damp proofing of all below grade concrete work. Additional damp proofing shall be as specified herein and as shown on the plans.

C. Surface Conditions: Application of material constitutes acceptance of surface conditions by waterproofing contractor. Before starting work, check the following:

1. Concrete walls and tops of footings: Cleaned of fins, mortar droppings, mud, oil, etc.

2. Wall ties cut back and pointed.

3. Pipes, etc., through walls: caulked or grouted tightly in place, flush with outside of wall.

4. Exterior surfaces of foundation walls below grade to be damp proofed shall be prepared in accordance with the damp proofing manufacturer’s recommendations.

5. All pre-cast concrete structures not specifically required to be coated by the pre-caster.

## 2.00 PRODUCTS

A. "Sonneborn Hydrocide 700 Mastic", or approved equal, a heavy-bodied non-sag coating, formulated with a heavy content of selected bitumens for trowel application.

B. Sonneborn 700B, or approved equal for spray or brushed application. Brush application shall receive two coats. Total mil thickness shall be 10-12 mils dry film thickness. Surface preparation shall be brush-off blast (SSPC-SP7) and in accordance with the manufacturer’s recommendations.

C. Tnemec Series 46H-413 for spray application. Total mil thickness shall be 10-12 mils dry film thickness. Surface preparation shall be brush-off blast (SSPC-SP7) and in accordance with the manufacturer’s recommendations.

## 3.00 EXECUTION

A. Apply in accordance with manufacturer's printed specifications to 1/8" film thickness.

## 3.01 GUARANTEE

A. This Contractor shall guarantee dampproofing work for a period of one (1) year protecting Owner against dampness on inside face of dampproofed walls caused by defective materials or workmanship.

**END OF SECTION 071113**

**DIVISION 7 - THERMAL AND MOISTURE PROTECTION**

**SECTION 072116 - INSULATION**

## 1.00 GENERAL

A. This section includes everything necessary for and incidental to the execution and completion of building insulation as indicated on the drawings and specified herein.

B. To avoid divided responsibility, the General Contractor shall assume complete responsibility for the furnishing and installation of all items relating to building insulation.

## 2.00 PRODUCTS

### 2.01 FOUNDATION PERIMETER INSULATION

A. Extruded Polystyrene Board Insulation: Rigid closed-cell extruded expanded polystyrene complying with FS HH-I-524 Type IV, 20 psi compressive strength, aged k-value of 0.20, 1.1 perm-inch max. vapor rating, 0.3% max water absorption.

B. The polystyrene shall be Owen Corning Foamular 250 or equal. Insulation boards shall be manufactured 2" thick and 24" wide.

### 2.02 EXTERIOR STUD WALL INSULATION

A. The wall insulation shall be Johns Manville Comfort-Therm R-13 Premium Fiberglass Batt Insulation or equal; 3 1/2" thick x 15" wide with attached tear resistant vapor barrier.

### 2.03 CEILING INSULATION

A. The ceiling insulation shall be a batten type, mineral glass fiber blanket insulation having a minimum "R" value of 38. This shall be a 6" layer of unfaced and a 6" layer of poly vapor barrier faced Owens Corning Fiberglass insulation, Johns Manville Fiberglass insulation or equal.

## 3.00 EXECUTION

### 3.01 GENERAL

A. Prior to installing the insulation, the Contractor shall remove all dirt, oil, masonry, waste and debris. All fins and projections left from concrete and block work shall be removed to provide an even surface.

B. All insulation shall be installed according to the manufacturer's recommendations and as indicated on drawings.

C. Clean up rubbish and empty containers daily and pile in a convenient place for easy removal by General Contractor.

D. Perimeter Foundation Insulation to be installed horizontally as indicated on the drawings.

### 3.02 SHOP DRAWINGS

A. The Contractor shall submit four (4) copies of the Shop Drawings or catalog cuts for approval. These Shop Drawings shall contain the pertinent insulating, vapor conductive and fireproofing properties of the materials the Contractor is proposing to use.

**END OF SECTION 072116**

**DIVISION 7: THERMAL AND MOISTURE PROTECTION**

**SECTION 072400 - DOOR/WINDOW CAULKING AND SEALANTS**

## 1.00 GENERAL

A. Related Documents:

1. The general provisions of the Contract apply to the work specified in this section.

## 2.00 PRODUCTS

### 2.01 CAULKING AND SEALANTS

A. Caulking compounds shall be elastic, waterproof, and non-corrosive, but not brittle hard; and the oils shall not leave the body of the material to stain adjacent work.

B. Caulking compounds shall be oleo-resinous compounds requiring no priming of the surface, and conforming to the provisions of Federal Specifications U.S. TT-C-589b.

C. Sealants shall be one (1) part acrylic terpolymer compounds requiring no primer and conforming to Federal Specification U.S. TT-C-230a.

D. Color of caulking and sealant shall be same as adjacent material.

E. Joint backing, where required, shall be closed-cell polyethylene in round or square shape. It shall also be non-staining, non-absorbent and capable of at least 30% recover.

F. Manufacturers ( or as approved by Engineer):

| | | |
|---|---|---|
| 1. | Caulking Compound: | Tremco Manufacturing Company<br>DAP, Inc.<br>Pecora Chemical Corporation |
| 2. | Sealants: | Tremco Manufacturing Company<br>General Electric Company<br>DAP, Inc.<br>Pecora Chemical Corporation |

## 3.00 EXECUTION

A. All caulking and sealants shall be applied by skilled applicators.

B. Examine all surfaces prior to application of material and notify the Engineer of any conditions detrimental to a satisfactory application.

C. All surfaces to receive caulking and/or sealants shall be dry and cleaned thoroughly of all foreign matter likely to affect the performance of the application. No material is to be applied when the temperature is below 40 degrees F.

D. Surfaces with protective coatings with which the sealant will come into contact, such as new aluminum or bronze, shall be wiped with xylol or a methyl ethyl ketone solvent to remove the protective coating and any oil deposit that may be left on the metal surfaces.

E. Masonry surfaces shall be cleaned with a wire brush and blown clean. Any waterproofing treatments which would contaminate the joint shall be completely removed.

F. Concrete surfaces shall be cleaned with a wire brush and blown clean. Any waterproofing treatments which would contaminate the joint shall be completely removed. Install “Primer” as per manufacturer’s written instructions.

G. Where joints are deeper than ½", polyethylene joint backing shall be used and packed into the joint to within ½" of the surface. A size shall be selected so as to allow for a minimum of 30% compression of the backing when inserted into the joint. Where joints are ¾" wide, the backing shall be placed so that the depth of the joint to receive sealant does not exceed ¼".

H. Sealant and caulking shall be gun applied through a nozzle opening of such a diameter than the full bead of sealant is gunned into the joint, filling the joint completely (a superficial or skin bead shall be acceptable).

I. All beads shall be tooled immediately after application to insure firm, full contact with the inner faces of the joint. Excess material shall be struck off with a tooling stick or knife.

J. The finished bead shall be flush with the surface, or as otherwise indicated.

K. Remove all excess materials and smears adjacent to the joint as work progresses.

L. Caulk or seal all openings as shown on the drawings, and all openings which normally require caulking or sealant including but not being limited to the following:

1. Joints at head and jambs between exterior door frames and adjoining surfaces, both sides.

2. Interior and exterior joints where required or indicated.

3. Joint around head and jambs, at surfaces at exterior metal door frames, both sides.

4. Joint at head jamb and sill at window frames and adjoining surfaces.

**END OF SECTION 072400**

**DIVISION 7 - THERMAL AND MOISTURE PROTECTION**

**SECTION 072616 - VAPOR BARRIERS**

1.00 **GENERAL**

A. The Contractor shall furnish all labor material and equipment necessary to complete the work under this vapor barrier section as shown on the drawings and as specified herein.

1. Vapor barriers shall be installed under all concrete slabs on grade.

2.00 **PRODUCTS**

A. Polyethylene Vapor Barrier: 6 mil carbonated polyethylene film, rated 0.1 perms or less.

3.00 **EXECUTION**

A. Provide lapped seams and lap vapor barriers onto other work at edges of coverages and at penetrations of barriers by other work.

B. Contractor shall take every precaution and protect the vapor barrier from punctures and tears.

**END OF SECTION 072616**

**DIVISION 7 – THERMAL AND MOISTURE PROTECTION**

**SECTION 074116 – INSULATED METAL ROOF PANELS**

## 1.00 GENERAL

### 1.01 SECTION INCLUDES

A. Foamed-insulation-core standing seam metal roof panels, with related metal trim and accessories.

### 1.02 QUALITY ASSURANCE

A. Manufacturer/Source: Provide metal panel assemblies and accessories from a single manufacturer approved under an accredited third-party quality control program

B. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum ten years' experience in the manufacturing of similar products and successful use in similar applications.

1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:

   a) Product data, including certified independent test data indicating compliance with requirements.
   b) Samples of each component.
   c) Sample submittal from similar project.
   d) Project references: Minimum of five installations not less than five years old, with Owner and Architect contact information.
   e) Sample warranty.
   f) Certificate from an accredited third-party Quality Control Program.

2. Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements

3. Approved manufacturers must meet separate requirements of Submittals Article.

C. Installer Qualifications: Experienced Installer with minimum of five years' experience with successfully completed projects of a similar nature and scope.

1. Installer's Field Supervisor: Experienced mechanic [certified by metal panel manufacturer] supervising work on site whenever work is underway.

### 1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Prior to erection of framing, conduct preinstallation meeting at site attended by Owner, Architect, metal panel installer, metal panel manufacturer's technical representative, inspection agency, and related trade contractors.

1. Coordinate building framing in relation to metal panel system.
2. Coordinate openings and penetrations of metal panel system.
3. Coordinate work of openings and penetrations and manufacturer's accessories with installation of metal panels.

### 1.04 ACTION SUBMITTALS

A. Product Data: Manufacturer's data sheets for specified products.

B. Shop Drawings: Show layouts of metal panels. Include details of each condition of installation, panel profiles, and attachment to building. Provide details at a minimum scale 1-1/2-inch per foot

of edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, curbs, vents, snow guards, lightning arresting equipment, and special details. Make distinctions between factory and field assembled work.

1. Include data indicating compliance with performance requirements.
2. Indicate points of supporting structure that must coordinate with metal panel system installation.
3. Include structural data indicating compliance with performance requirements and requirements of local authorities having jurisdiction.

C. Samples for Initial Selection: For each exposed product specified including sealants. Provide representative color charts of manufacturer's full range of colors.

1. Samples for Verification:

a) Provide 12-inch- long section of each metal panel profile.
b) Provide color chip verifying color selection.

**1.05 INFORMATIONAL SUBMITTALS**

A. Product Test Results: Indicating compliance of products with requirements.

B. Qualification Information: For Installer firm and Installer’s field supervisor.

C. Accreditation Certificate: Indicating that manufacturer is accredited under an accredited third-party quality control program, including IAS AC472 and based upon chapter 17 of the International Building Code (IBC).

D. Buy American Certification: Manufacturers' letters of compliance acceptable to authorities having jurisdiction, indicating that products comply with requirements.

E. Warranty:

1. Submit manufacturer’s written two (2) year limited warranty providing panels to be free from defects in materials and workmanship, beginning from the date of substantial completion excluding coil coatings (paint finishes) that are covered under a separate warranty.
2. The installation contractor shall issue a separate warranty against defects in installed materials and workmanship, beginning from the date of substantial completion of the installation.

**1.06 CLOSEOUT SUBMITTALS**

A. Maintenance data.

B. Manufacturer's Warranty: Executed copy of manufacturer's warranty.

**1.07 DELIVERY, STORAGE, AND HANDLING**

A. Protect products of metal panel system during shipping, handling, and storage to prevent staining, denting, deterioration of components, or other damage. Protect panels and trim bundles during shipping. Protect painted surfaces with a protective covering before shipping.

1. Deliver, unload, store, and erect metal panels and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.
2. Store in accordance with Manufacturer's written instructions. Provide wood collars for stacking and handling in the field.
3. Shield foam insulated metal panels from direct sunlight until installation.

**1.08 WARRANTY**

A. Special Manufacturer's Warranty: Submit Manufacturer's two (2) year limited warranty providing panels to be free from defects in materials and workmanship, beginning from the date of substantial completion excluding coil coatings (paint finishes) that are covered under a separate warranty.

B. The installation contractor shall issue a separate warranty against defects in installed materials and workmanship, beginning from the date of substantial completion of the installation.

C. Special Panel Finish Warranty: Submit Manufacturer's limited warranty on the exterior paint finish for adhesion to the metal substrate and limited warranty on the exterior paint finish for chalk and fade.

1. Fluoropolymer Two-Coat System:
   a) Color fading in excess of [5] or [10] for copper, silver metallic and bright red; Hunter units per ASTM D 2244.
   b) Chalking in excess of [6] for copper, silver metallic and bright red or [8] rating per ASTM D 4214.
   c) Failure of adhesion, peeling, checking, or cracking.

**2.00 PRODUCTS**

**2.01 MANUFACTURER**

A. Basis of Design Manufacturer: Metl-Span, a Nucor company; Lewisville, Texas

1. Provide basis of design product

**2.02 PERFORMANCE REQUIREMENTS**

A. General: Provide metal panel system meeting performance requirements as determined by application of specified tests by a qualified testing facility on manufacturer's standard assemblies.

B. Roof Panel Radiative Property Performance:
1. Energy Star Qualified: Listed on USDOE ENERGY STAR Roof Products Qualified Product List.
2. Cool Roof Rating Council: Listed in CRRC Rated Product Directory, with minimum properties as required by applicable Energy efficiency or High-Performance Green Building standard.

C. Structural Performance: Provide metal panel assemblies capable of withstanding the effects of indicated loads and stresses within limits and under conditions indicated, as determined by ASTM E 72 or ASTM E 1592 applied in accordance with ICC AC 04, Section 4, Panel Load Test Option or Section 5, Panel Analysis Option:

1. Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings.
   a) Roof Panel Wind Uplift Testing: Certify capacity of metal panels by testing of proposed assembly per ASTM E 72 or ASTM E 1592.
   b) Roof Panel Snow Loads: **[**25 lbf/sq. ft.**]**.
   c) Deflection Limits: Withstand inward and outward wind-load design pressures in accordance with applicable building code with maximum deflection of 1/180 of the span with no evidence of failure.
   d) Roof Panel Air Infiltration, ASTM E 1680: Maximum 0.023 cfm/sq. ft. (0.115 L/s per sq. m) at static-air-pressure difference of 12 lbf/sq. ft. (575 Pa).

e) Roof Panel Water Penetration Static Pressure, ASTM E 1646: No uncontrolled water penetration at a static pressure of 20 lbf/sq. ft. (958 Pa).

f) Test procedure for susceptibility to leakage of discontinuous roof systems protocol TAS 114: Water applied to a depth of 6" above the lowest section of roof profile. No water infiltration observed during the seven-day test period.

g) Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction. Allow for deflection and design for thermal stresses caused by temperature differences from one side of the panel to the other.

h) Thermal Performance: When tested in accordance with ASTM C 518, Measurement of Steady State thermal Transmission, the panels shall provide a k factor of 0.114 btu/sf/hr/deg F at a 35° F (1.67° C) mean temperature.

## 2.03 INSULATED METAL ROOF PANELS

A. Standing Seam, Foamed-Insulation-Core Metal Roof Panels: Structural metal panels consisting of an exterior standing seam with an interior tongue and groove joint, coupled with a vapor seal in the standing seam, and provides superior resistance to air and moisture intrusion. Attached with concealed fasteners to the structure.

1. Basis of Design: Metl-Span**, CFR Insulated Metal Panel**.

   a) **G-90 Galvanized Coated Steel:** ASTM A 653 **or Aluminum-Zinc Alloy-Coated Steel**: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ50 (Grade 340, Coating Class AZM150), prepainted by the coil-coating process per ASTM A 755/A 755M.

2. Exterior Face Sheet: **[**24 gauge**]** coated thickness, with stucco embossed**]** surface.

   a) Finish: Fluoropolymer two-coat system
   Color: As selected by Owner from manufacturer's standard colors

3. Interior Face Sheet: **[**24 gauge**]** coated thickness, with stucco embossed surface Mesa profile.
   a) Finish: Fluoropolymer two-coat system
   b) Color: As selected by Owner from manufacturer's standard colors

4. Endlaps: Provide panels with factory endlaps, notching, swedging and backer plates; where panel lengths permit.

5. Low Eave Treatment: Provide cutback for trim/gutter installation; where panel lengths permit.

6. Panel Width: 42 inches [as shown on drawings].

7. Panel Thickness: 5 inch **[**As required to meet performance requirements**]**

8. Insulating Core: Polyurethane with zero ozone depletion potential blowing agent
   a) Closed Cell Content: 90% or more as determined by ASTM D 6226
   b) Compressive Strength: As required to meet structural performance requirements and with a minimum of 22 psi as determined by ASTM D 1621
   c) Shear Strength: As required to meet structural performance requirements and with a minimum of 36 psi as determined by ASTM C 273
   d) Tensile Strength: As required to meet structural performance requirements and with a minimum of 41 psi ASTM D 1623
   e) Minimum Density: 2.0 pcf as determined by ASTM D 1622

f) **Thermal Resistance (R-Value)**: 43.7 value deg. F * hr * sq. ft./Btu (K * sq. m/W) as determined by ASTM C 518 at 35 degrees Fahrenheit mean temperature.

9. Heat Transfer Coefficient (U-factor)**:** 0.027 value Btu/hr * sq. ft. * deg. F insert corresponding value (W/K * sq. m) as determined by ASTM C 1363 at 35 degrees Fahrenheit mean temperature. Tested specimen must include at least two engaged side joints.

## 2.04 METAL ROOF PANEL ACCESSORIES

A. General: Provide complete metal panel assemblies incorporating trim, copings, fascia, gutters and downspouts, and miscellaneous flashings. Provide required fasteners, closure strips, and sealants as indicated in manufacturer's written instructions.

B. Flashing and Trim: Match material, thickness, and finish of metal panel face sheet.

C. Panel Fasteners: Self-tapping screws and other acceptable fasteners recommended by metal panel manufacturer. Provide corrosion-resistant fasteners with heads matching color of metal panels by means of factory-applied coating, with weathertight resilient washers.

D. Joint Sealers: Provide Tape Mastic Sealants and Concealed Joint Sealants.

E. **Roof Accessories**: Approved by metal panel manufacturer.

F. **Snow Guards**: Compatible with standing seam roof and approved by metal panel manufacturer.

## 2.05 FABRICATION

A. General: Provide factory fabricated and finished metal panels, trim, and accessories meeting performance requirements, indicated profiles, and structural requirements.

B. Fabricate metal panel joints configured to accept sealant tape providing weathertight seal and preventing metal-to-metal contact and minimizing noise resulting from thermal movement.

C. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions, approved shop drawings, and project drawings.

## 2.06 FINISHES

A. Finishes, General: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

B. Exterior Face Sheet Coil-Coated Finish System

1. Silicone-Polyester Two-Coat System: 0.20 – 0.25 mil primer with 0.7 – 0.8 mil color coat.
   a) Basis of Design: Metl-Span, Silicone Polyester.

2. Fluoropolymer Two-Coat System: 0.2 – 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF fluoropolymer color coat.
   a) Basis of Design: Metl-Span, Fluoropolymer.

C. Interior Face Sheet Coil-Coated Finish System:

1. Fluoropolymer Two-Coat System: 0.2-mil primer with 0.7 - 0.8 mil 70 percent PVDF fluoropolymer color coat
   a) Basis of Design: Metl-Span, Fluoropolymer

## 3.00 EXECUTION

## 3.01 EXAMINATION

A. Examine metal panel system substrate with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal panels.

1. Inspect framing that will support insulated metal panels to determine if support components are installed as indicated on approved shop drawings and are within tolerances acceptable to metal panel manufacturer and installer. Confirm presence of acceptable framing members at recommended spacing to match installation requirements of metal panels.
2. Panel Support Tolerances: Confirm that metal panel supports are within tolerances acceptable to metal panel manufacturer but not greater than the following:
   a) 1/4 inch in 20 foot in any direction.

B. Correct out-of-tolerance work and other deficient conditions prior to proceeding with insulated metal panel installation.

## 3.02 METAL PANEL INSTALLATION

A. Standing Seamed, Concealed-Fastener Insulated Metal Panels: Install metal panel system in accordance with manufacturer's written instructions, approved shop drawings, and project drawings. Install metal panels in orientation, sizes, and locations indicated. Anchor panels and other components securely in place. Provide for thermal and structural movement.

B. Attach panels to metal framing using clips, fasteners, and sealants recommended for application by metal panel manufacturer.

1. Fasten metal panels to supports with fasteners at each location indicated on approved shop drawings, at spacing and with fasteners recommended by manufacturer.
2. Cut panels in field where required using manufacturer's recommended methods.
3. Provide weatherproof jacks for pipe and conduit penetrating metal panels.
4. Dissimilar Materials: Where elements of metal panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by metal panel manufacturer.

C. Attach panel flashing trim pieces to supports using recommended fasteners and joint sealers.

D. Joint Sealers: Install tape sealers and liquid sealants where indicated and where required for weatherproof performance of metal panel assemblies.

1. Seal panel side and perimeter joints using joint sealers indicated in manufacturer's instructions.
2. Seal roof panel joints utilizing tape sealer and vapor seal bead of non-curing butyl.

## 3.03 ACCESSORY INSTALLATION

A. General: Install metal panel accessories with positive anchorage to building and weathertight mounting; provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel assembly, including trim, copings, flashings, sealants, closure strips, and similar items.
2. Comply with details of assemblies utilized to establish compliance with performance requirements and manufacturer's written installation instructions.
3. Set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently weather resistant.

## 3.04 FIELD QUALITY CONTROL

## 3.05 CLEANING AND PROTECTION

A. Remove temporary protective films immediately in accordance with metal panel manufacturer's instructions. Clean finished surfaces as recommended by metal panel manufacturer.

B. Replace damaged panels and accessories that cannot be repaired to the satisfaction of the Architect.

**END OF SECTION 074116**

**DIVISION 8 - OPENINGS**

**SECTION 081100 - METAL DOORS, FRAMES AND HARDWARE**

## 1.00 GENERAL

A. The contractor shall furnish all labor, materials and equipment necessary to complete the work under this door and frame section as shown on the drawings or as specified herein.

## 1.01 HOLLOW METAL DOORS & FRAMES

A. Standards: In addition to other specified requirements, comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" (SDI-100), for the following classifications:

1. Hollow Metal Doors: SDI-100, Grade III, extra heavy-duty, Model 2, minimum 16 gage faces, Exterior Doors - Insulated and Galvanized.

## 1.02 SUBMITTALS

A. With manufacturer's standard details and specifications for steel doors and frames, submit shop drawings showing application to project, as required.

## 2.00 PRODUCTS

A. Manufacturer: One of the following or approved equal:

1. Steelcraft
2. Allied Steel Products, Inc.
3. Amweld/Dic. American Welding & Mfg. Co.
4. Ceco Corp.
5. Curries Mfg., Inc.
6. Dittco Products Div.
7. Fenestra Corp.
8. Mesker Industries, Inc.
9. Pioneer Builders, Products Corp./Sub. Republic Steel

B. Materials: Steel doors and frames; hot-rolled, pickled and oiled per ASTM A 569 and A 568; cold-rolled per ASTM A 366 and A 568.

C. Anchors and Accessories: Manufacturer's standard units. Use galvanized items for units built into exterior walls, complying with ASTM A 153.

D. Fabrication: Fabricate units to be rigid, neat in appearance, and free from defects, warp or buckle. Weld exposed joints continuously, grind, dress and make smooth, flush and invisible.

1. Prepare steel doors and frames to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling and tapping, complying with ANSI A 115 "Specifications for Door and Frame Preparation for Hardware".

a) Reinforce units to receive surface-applied finish hardware to be field applied.

b) Locate finish hardware as indicated or, if not indicated, per DHI "Recommended Locations for Builder's Hardware."

2. Shop paint exposed surfaces of doors and frame units, including galvanized surfaces using manufacturer's standard baked-on rust inhibitive primer.

E. Doors: Comply with SDI-100, of the types and styles indicated, for materials, quality, metal gages and construction details.

**2.01 HOLLOW METAL FRAMES**

A. Comply with SDI-100, of the types and styles indicated, for materials, quality, metal gages and construction details.

1. Provide standard hollow metal frames for doors, transoms, sidelights, borrowed lights, and other openings as indicated.

2. Prepare frames to receive 2 silencers on strike jamb of single-swing frames and on heads of double-swing frames.

3. Provide 26-gage steel plaster guards or mortar boxes, welded to frame, at back of hardware cutouts where installed in concrete, masonry or plaster openings.

4. Protect inside faces of frames in plaster or masonry wall construction which are placed with anti-freeze additives, using high-build fibered asphalt emulsion coating.

**2.02 FINISH HARDWARE**

A. Provide separate keys for each lock and master key. Provide 2 keys each.

**3.00 EXECUTION**

**3.01 INSPECTION**

A. Installer must examine door frames and verify that frames are correct type and have been installed as required for proper hanging of corresponding door and notify Contractor in writing of conditions detrimental to proper and timely installation of doors. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

**3.02 INSTALLATION**

A. Condition doors to average prevailing humidity in installation area prior to hanging.

1. Job Fit Doors: Align doors to frame for proper fit and uniform clearance at each edge and machine for hardware. Seal cut surfaces after fitting and machining. Bevel non-rated doors 1/8” in 2” at lock and hinge edges. Bevel fire-rated doors 1/8" in 2" at lock edge.

**3.03 ADJUST AND CLEAN**

A. Re-hang or replace doors which do not swing or operate freely, as directed by Engineer.

1. Finished Doors: Re-finish or replace doors damaged during installation, as directed by Engineer.

2. Protection and Completed Work: Advise Contractor of proper procedures required for protection of installed doors from damage or deterioration until acceptance of work.

**3.04 GENERAL INSTRUCTIONS**

A. Hardware mounting heights: Door and Hardware Institute's "Recommended Locations for Builder's Hardware for Custom Steel Doors and Frames", except as otherwise indicated.

B. Install each hardware item to comply with manufacturer's instructions and recommendations.

C. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant. Remove excess sealant and clean adjacent surfaces.

D. Hardware adjustment: Return to project one month after Owner's occupancy, and adjust hardware to proper operation and function. Instruct Owner's personnel in proper maintenance and adjustment.

**END OF SECTION 081100**

**DIVISION 26 – ELECTRICAL**

**SECTION 260000 - GENERAL ELECTRICAL REQUIREMENTS**

## 1.00 GENERAL

A. The Contractor shall furnish all labor and materials, equipment, supplies, services, and supervision to install and place in service the electrical, electronic, and communications equipment as indicated on the Drawings and as specified herein. All labor, material and equipment not shown on drawings and not specified but necessary and incidental to provide first class and complete installation of electrical work shall be included in this contract.

B. The electrical drawings are intended to cover the layout and design of the work but should not be scaled for exact measurements. Where specific details and dimensions are not shown, the Contractor shall take measurements and make layouts as required for the proper installation of the electrical work so that interference with all other work will be avoided. The Contractor shall check all drawings and specifications for the project and shall be responsible for the installation of all electrical work.

C. The Contractor shall be responsible for coordinating electrical work with other working trades on the job. Other sections in this contract as applicable to this section of work shall be referred to.

D. The Contractor shall obtain all necessary licenses and permits from the proper authority having jurisdiction to perform the work.

E. At the completion of the project, the Contractor shall furnish three (3) complete copies of service manuals in hard-back binders for all equipment furnished and/or installed for the project.

1. The service manuals shall include, but not be limited to the following:
   a) Disconnects & Fuses
   b) Light Fixtures
   c) Service Entrance Equipment
   d) Terminal Enclosures and Connectors
   e) Wiring Devices
   f) Motor Control Centers

2. The service manuals shall include approved shop drawings and details, including manufacturer's literature on installation, maintenance, and operation of motors, motor controllers, parts list, and service bulletins of motor controller components. The contractor shall keep and save all instruction manuals, service bulletins and parts list of equipment and components installed on the jobsite, for inclusion in the O & M manuals.

F. The Contractor shall coordinate the installation of the new service with the local utility (AmerenUE). AmerenUE will supply the transformer and conductors to the transformer. The Electrical Contractor shall coordinate metering installation with the Utility. The new electric service shall be 277/480 volt, 3-phase.

## 2.00 PRODUCTS

## 3.00 EXECUTION

**END OF SECTION 260000**

**DIVISION 26 - ELECTRICAL**

**SECTION 260500 - BASIC ELECTRICAL MATERIALS & METHODS**

## 1.00 GENERAL

### 1.01 SUMMARY

A. The entire set of bid documents including plans & specifications applies to this section.

### 1.02 DRAWINGS AND SPECIFICATIONS

A. All drawings and specifications on the project are complementary, each to all other sets, and they shall be used in combination for the execution of this work. Electrical work shown on any of the contract drawings or any section of the contract specifications, shall be considered as included in this work unless specifically excluded by inclusion in some other branch of the work. This shall include roughing-in for connections and equipment as called for or inferred. The Contractor shall check all drawings and specifications for the project and shall be responsible for the installation of all electrical work.

B. The contract drawings for electrical work are in part schematic, intended to convey the scope of work and indicate the general layout, design and arrangement. The Contractor shall follow these drawings in the layout of his work and shall consult general construction drawings, mechanical drawings and all other drawings for this project to determine all conditions affecting the electrical work. The contract drawings are not to be scaled and the Contractor shall verify spaces in which the electrical work is to be installed.

C. Where specific details and dimensions for electrical work are not shown on the drawings, the Contractor shall take measurements and make layouts as required for the proper installation of the work and coordination with all other work on the project. In case of any discrepancies between the drawings and the specifications that have not been clarified by addendum prior to bidding, it shall be assumed by the signing of the contract that the higher cost (if any difference in costs) is included in the contract price, and the Contractor shall perform the work in accordance with the drawings or with the specifications, as determined and approved by the Engineer, and no additional costs shall be allowed by the contract price.

### 1.03 WORK INCLUDED

A. This work shall include all plant, labor, material and equipment as required to furnish and install electrical work including demolition as shown on drawings and as hereinafter specified. Work shall also include all labor, material and equipment not shown on drawings and not specified but necessary and reasonably incidental to comply with the intent of contract to provide first class and complete installations of electrical work. Furnish and install all materials, equipment, devices, and accessories not specifically called for by item but that are necessary to provide the requirements in operation and function that is established by the design and by the equipment specified.

B. Work shall also include: (1) All hoists, scaffolds, staging, runways, and equipment required for the performance of the work; (2) All job measurements and shop layouts required for the proper installation of material and equipment included in the work; (3) All lights, guards, and signs as required by safety regulations applicable to the work; (4) The removal from the premises, as it accumulates, of all dirt and refuse resulting from the performance of the work; and (5) Modifications to existing structure, equipment and installations required in order to install new work; (6) Demolition Work.

C. Work shall include providing labor and equipment for current and voltage readings, and adjustments required on electrical equipment for testing and balancing of mechanical systems as specified elsewhere in this specification.

### 1.04 MATERIAL AND MANUFACTURER

A. All material and equipment shall be new except as stated otherwise; shall be of the best quality and design; shall be free from defects and imperfections and shall have markings or a nameplate identifying the manufacturer and providing sufficient reference to establish quality, size and capacity. As possible, all material and equipment of the same type shall be of the same manufacturer. Equipment shall function and perform efficiently and quietly at the required capacity without producing objectionable noise within the

occupied areas of the building; if not, the Contractor shall remedy the condition or replace the equipment at no additional cost to the contract.

**1.05 SUBSTITUTIONS**

A. Reference in the specifications to any article, device, product, material, fixture, equipment, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. Any article, device, product, material, fixtures, equipment, form or type of construction other than those specified may be substituted for consideration, in accordance with the preliminary matters, general conditions, and supplemental conditions as applicable unless otherwise specified.

**1.06 LABOR, WORKMANSHIP AND SUPERVISION**

A. All labor for the installation of material and equipment furnished under the electrical work shall be done by experienced mechanics of the proper trade and all workmanship shall be first class and incompliance with the specific requirements of drawings and specifications.

B. All material and equipment for the electrical work shall be installed under competent supervisory service furnished by the Contractor. Where necessary, this shall include the services of special technicians and operation personnel.

**1.07 SAFETY REGULATIONS**

A. All electrical work shall be performed in compliance with all applicable and governing safety regulations including the regulations of the Occupational and Safety Health Act. All safety lights, signs and guards required for performance of electrical work shall be the responsibility of the Contractor.

**1.08 CODES, ORDINANCES, REGULATIONS AND U.L. APPROVAL**

A. See General Conditions

B. Laws, codes, ordinances and regulations shall take precedent excepting only where the work called for by the drawings and specifications exceeds by quality and quantity.

C. Fixtures, appliances, equipment and materials which are subject to Underwriter's Laboratory tests shall bear such approval.

D. All work of this Division shall be installed in strict accordance with the latest addition of NFPA 70, The National Electric Code. (NEC)

**1.09 CONTRACTOR'S EQUIPMENT**

A. All hoists, scaffolds, staging, runways, tools, machinery and equipment required for the performance of the electrical work shall be furnished by the Contractor.

**1.10 STORAGE AND PROTECTION**

A. Material and equipment for the electrical work shall be protected from dirt and damage and maintained in a clean condition during the performance of the work. This shall include adequate protection from the weather if storage is outside. All parts of material and equipment that have become rusted or damaged shall be replaced or restored to an acceptable condition as approved by the Owner's Representative. This shall include factory finishes damaged during construction.

**1.11 CLEANING**

A. Dirt and refuse resulting from the performance of the work shall be removed from the premises as required to prevent accumulation and the Contractor shall cooperate in the maintenance of reasonably clean premises at all times.

B. Immediately prior to the final inspection, Contractor shall clean all material and equipment. Dirt, refuse and

stains shall be removed from all surfaces and damaged finishes restored to original condition.

## 1.12 OPERATION AND MAINTENANCE INSTRUCTION

A. This Contractor shall furnish all services as required for adequate verbal and printed instructions the Owner's operating and maintenance personnel for operation and maintenance of all equipment and systems installed under this Division. Three complete copies of service manuals in hardback binders shall be furnished at the end of the project in accordance with the General Conditions of the specifications. The manuals shall include warranties, printed operating and maintenance instructions for systems and equipment specified under this Division, all approved shop drawings, all manufacturer's printed data, parts lists control diagrams, valve schedules, parts lists, list of equipment suppliers, list of Contractors & Subcontractors, balancing reports, test reports.

B. When the work is complete and at a time designated by the Owner's Representative, the Contractor shall furnish the services of a qualified instructor to instruct Owner's operating and maintenance personnel in the operation and maintenance of the systems and equipment furnished and installed under this Division.

C. The bound copies of the operating and maintenance manuals shall be used during the verbal instructions.

## 1.13 MOTORS, CONTROLS, AND OTHER EQUIPMENT

A. Except as otherwise specified electrical contractor shall make one power connection to each piece of equipment, (i.e., exhaust fan, rooftop unit, chiller, pump, etc. Any parts furnished loose by mechanical contractor that require wiring to the main unit shall be wired by electrical contractor at mechanical contractors expense, and shall not be an extra cost to the owner.

B. Except as otherwise specified, the electrical work shall include receiving, installing and mounting all detached motors, switches, motor control equipment and other control devices furnished under other divisions or work. Contractor shall check all headings of specifications for equipment to be installed. Work shall include overload heater for motor starters, mountings and supports as required for all equipment, including angle frames, steel plates, bars, bolts, etc., and all conduit, wire, etc., as required to connect all equipment including motors, disconnect switches, starters, controls, pushbuttons, etc. Detached motors shall be set and aligned with coupling or drive. Motor connections shall be terminated with unexposed leads in suitable condulet and cover. Conduit shall terminate close to motor with a minimum of 12" of flexible liquid tight conduit between rigid conduit or EMT and motor.

C. Unless specified otherwise, perform all work required to rough-in and connect to all equipment requiring electrical connections. This work shall be as indicated on drawings, by approved equipment shop drawings and by direction on the job.

D. All equipment, materials or devices furnished by others including that furnished by the Owner or under any other division which require electrical connections shall be roughed-in and connected under this division, unless specified otherwise. It shall be the Contractor's responsibility to verify exact requirements for rough-in and connection of equipment furnished by others prior to installation. Extras will not be allowed for failure to verify same.

E. The Contractor shall run feeders to starters, disconnects, control panels and motors as shown on drawings, make connections, furnish overload heaters for motor starters, and install and wire all mechanical components in accordance with wiring diagrams furnished under mechanical work. The Contractor shall coordinate with any other trades involved for the proper coil voltages for control of magnetic starters and contactors.

## 1.14 ADJUSTING, ALIGNING AND TESTING

A. All electrical equipment furnished under this Division shall be adjusted and tested by this Contractor. Motors and other equipment furnished by others, to which electrical connections are made under this Division, shall be checked for short circuit and open circuits before energizing. Motors shall be checked for proper phasing and rotation. The thermal overload protection shall be checked in all motor starters, and any protector heaters found to be of improper size as required by the motor name plate full load amperage and voltage rating for protection of the motor shall be listed (include equipment designation, rating of heater, motor nameplate horsepower, full load amps and voltage) and 4 copies of list shall be submitted to the Owner's

Representative.

B. Mechanism of all electrical equipment shall be checked, adjusted and tested for proper operation. Protective devices and parts shall be checked and tested for specified and required application and adjusted as required. Adjustable parts of all lighting fixtures and electrical equipment shall be checked, tested and adjusted as required to produce the intended performance.

C. Completed wiring systems shall be free from short circuits and after completion, perform tests for insulation resistance in accordance with the requirements of the National Electrical Code.

D. The Contractor shall be held responsible for the operation, service and maintenance of electrical equipment during construction and prior to acceptance by the Owner. All electrical equipment shall be maintained in the best operating condition. Operational failure caused by defective material and/or labor furnished under this Division shall be immediately corrected. Owner's Representative shall be immediately notified of any operational failures caused by defective material and/or labor covered under other Divisions or furnished by others.

**1.15 ELECTRICAL CIRCUITRY FOR EQUIPMENT**

A. The electrical circuits, components, and controls for all equipment are selected and sized, based on the equipment as furnished. It shall be the responsibility of all parties concerned, involved in, and furnishing the substitute and/or equivalent equipment to verify and compare the electrical characteristics and requirements of that furnished to that specified and/or shown. If greater capacity or more materials or labor is required for the rough-in, circuitry or connections than for the item specified and provided for, then it shall be the responsibility of the parties involved in providing the substitute and/or equivalent items of equipment to provide all compensation for additional charges made for the proper rough-in, circuitry and connections for the equipment furnished. No additional charges shall be made to the Base Bid price or to the Owner.

B. Before rough-in of circuitry or connecting to equipment, the Contractor shall verify the electrical characteristics and requirements of the equipment being furnished, and for that specified and shown on drawings.

**1.16 CLEARANCES**

A. All electrical equipment shall be so installed to maintain proper clearance and headroom as required by the National Electrical Code. (NEC)

**1.17 CUTTING AND PATCHING**

A. The Contractor shall coordinate with the Owner's Representative before any cutting and obtain approval from the Owner's Representative prior to any cutting. All patching and finishing shall be by the Contractor.

B. Cutting shall be done with extreme care and in such a manner that the strength of the structure will not be endangered. Wherever possible, openings in concrete or masonry construction shall be by concrete saw or rotary core drill. Openings in any construction shall be cut the minimum size required for the installation of the work. Adequate protection shall be provided to prevent damage to adjacent areas and to prevent dust from spreading to adjacent areas.

C. Where openings or holes are cut in existing construction and the cutting breaks existing electrical circuitry or control circuitry conduit and wiring, then it shall be the responsibility of the Contractor to reroute the circuitry conduit and requiring and to complete the circuitry as required and as approved by the Engineers. Temporary completion shall be provided where necessary before the permanent rerouting and completion work is finished.

D. Before any cutting, patching, or finishing work is started, dust and moisture protection shall first be installed as required in these specifications.

E. Openings cut in floor shall be cut by core drilling where possible. After work is installed through any opening in floor, the opening around the work shall be patched and sealed watertight with epoxy or silicone based, non-cracking elastomeric sealant.

F. Where existing work is removed from sleeves or openings through floor and the sleeve or opening is not to be reused, patch the hole or opening by filling with shrink epoxy cement grout, in strict accordance with the grout manufacturer's instructions and recommendations and as required to make completely watertight and fireproof. Finish the floor surface as directed by the Owner's Representative.

**1.18 SHOP DRAWINGS AND SAMPLES**

A. Acceptance of the work shall be subject to the Engineer’s approval of shop drawings, product data and samples, as specified in the "General Conditions" of these specifications.

B. Submittals shall include the manufacturer's model number, capacity, performance data, electrical characteristics, etc., all clearly shown and marked for the specific item of equipment to be furnished on this project. General catalog data that does not indicate the specifics for the item to be furnished for this project will not be accepted. Performance data shown or marked on the submittals shall be at the actual specified operating conditions for this project.

**1.19 IDENTIFICATION, INSTALLATION AND USE OF ELECTRICAL EQUIPMENT**

A. All electrical equipment shall be furnished with factory identification for the suitability of use and installation, either by a description marked on the equipment, permanently attached label, or printed description packed with the equipment, in accordance with article 110 of the National Electrical Code (NEC). If a printed description is packaged with the equipment, this shall be bound in the Operation and Maintenance Manuals.

**1.20 NOISE AND VIBRATION**

A. Contractor shall be responsible for the installation of all equipment in such a manner as to control the transmission of noise and vibration for many installed equipment or system, so the sound level shall not exceed NC35, in any occupied space. Contractor shall be responsible for the correction of any objectionable noise in any occupied area due to improperly installed equipment.

**1.21 EQUIPMENT IDENTIFICATION AND LABELS**

A. All electrical equipment, such as disconnect switches, motor starters, controls, push-button, panel boards, and other similar items shall be adequately identified with labels. Labels shall clearly designate name and use of equipment, and panel and circuit number or power source, Labels shall be laminated plastic with 1/4" white letters on a black background. Labels shall be attached with pop-rivets or permanent adhesive. **"Dymo" type labels not acceptable.**

**1.22 WARRANTIES**

A. Warranties shall be provided for all equipment in accordance with the requirements of the General Conditions, except that all warranties shall be non-prorated for one year.

B. Acceptance of the work under this Division shall be subject to the conditions that all installed systems, equipment, apparatus, and appliances included in the work shall operate and perform as designed, including code clearances, and as selected with respect to efficiency, capacity and quietness and shall operate and perform without producing objectionable noise within occupied areas of the building.

C. Acceptance of the work shall also be subject to the conditions that any time within one year after date of acceptance final payment, any defective part of the work resulting from the supply of faulty workmanship or material shall be immediately amended, required or replaced as a part of the contract work without cost to the contract.

**2.00 PRODUCTS**

**3.00 EXECUTION**

**END OF SECTION 260500**

**DIVISION 26 – ELECTRICAL**

**SECTION 260519 - WIRE, CABLE AND CONDUCTORS**

## 1.00 GENERAL

### 1.01 WORK INCLUDES

A. Base Bid:

1. Electrical Contractor:

a) Provide all necessary wire and cable of the sizes and types shown on the plans or specified herein for:

(i) General power distribution and branch circuit system

(ii) Lighting systems

(iii) Control systems

(iv) Emergency power system

### 1.02 QUALITY ASSURANCE

A. Installation shall comply with NFPA 70 - National Electric Code (NEC).

B. Insulation types, ratings and usage shall be in accordance with National Electrical Code requirements.

C. Wire and cable shall be constructed in accordance with ICEA, NFPA, NEMA and IEEE published standards and shall be UL listed.

### 1.03 SUBMITTALS

A. No submittals required when using specified materials.

## 2.00 PRODUCTS

### 2.01 LOW VOLTAGE WIRE AND CABLE (600V OR LESS)

A. General

1. All conductors shall be 98% conductivity copper.

2. Unless otherwise noted, minimum wire size for lighting and power branch circuits shall be No. 12 AWG. For control and auxiliary systems the minimum size shall be No. 14 AWG.

3. Conductors for emergency power and exit wiring shall be minimum #12 AWG.

4. Insulation on power and control systems wiring 480 volts and below shall be 600 volt rated, type XHHW, THWN or THHN. Insulation of conductors for other systems shall be 600 volt unless otherwise noted.

5. Type XHHW or THWN insulation must be used for all conductors installed in wet locations. This includes all outdoor feeders and branch circuits, underground conduit runs and conduits run in slab on grade.

6. Conductors size 8 AWG and larger shall be Class B stranded. Conductors size 10 AWG and smaller may be solid or stranded. Conductors size 14 AWG for control and auxiliary systems shall be stranded.

B. Acceptable Manufacturers: Cable and wire shall be a standard type as manufactured by:

1. General Cable Company
2. Carol
3. Anaconda
4. Roma
5. ITT Royal
6. Beldon Wire and Cable
7. Approved equal

**2.02 MEDIUM VOLTAGE WIRE AND CABLE (601V to 5KV)**

A. The 5KV shielded cable shall be UL Type MV-90 rated 5KV at 90C in wet or dry locations with a single stranded, bare annealed copper Class B conductor. The construction shall include an extruded conductor shield, Ethylene propylene rubber (EPR) insulation, a semi-conducting tape, a copper tape shield and a PVC jacket. Cables shall be furnished in sizes as shown on the Drawings.

B. The 5KV non-shielded cable shall be UL Type MV-90 rated 5KV at 90C in wet or dry locations with a single stranded, bare annealed copper Class B conductor. The construction shall include an extruded conductor shield, Ethylene propylene rubber (EPR) insulation and a PVC jacket. Cables shall be furnished in sizes as shown on the Drawings.

C. Approved Manufacturers

a) HWC Distribution Corp.
b) Rome
c) Perilli
d) Okonite
e) Approved equal

**2.03 INSTRUMENTATION AND COMMUNICATION CABLE**

A. The type of instrumentation and communication cable required shall be as recommended by the instrumentation and communications system manufacturer. The 4-20 ma cables shall be Belden 9342, or approved equal.

**2.04 CONNECTIONS AND SPLICES**

A. 600V and Less

1. All components used at wiring terminations, connections and splices shall be UL listed.

2. Connectors for joints #10 AWG and smaller sizes to be made with spring connectors insulated with vinyl skirt and live spring. Prior to installation, wires shall be properly twisted together.

3. Connectors for #8 AWG (copper) and up to #2/0 sizes to be high-pressure type mechanical crimp connectors applied to a cleaned wire surface. Insulate splices with electrical insulating putty and tape to cover with four layers, half lapped.

4. Connections for #3/0 (copper) and larger shall be Cadwelded. Insulate splices using electrical insulating putty and tape to cover with four layers, half lapped.

B. 601V to 5KV

1. Splices shall be made with cold shrink rubber splices suitable for use with 5KV cable.

2. Connectors for splices and lugs for terminations shall be compatible with the cable and terminal, compression type rated for 5000 volts and installed per manufacturer’s requirements.

C. Acceptable Manufacturers

1. Thomas and Betts

2. 3M
3. Buchanan
4. Ideal

**2.05 WIRE PULLING LUBRICANT**

A. Pulling lubricant shall be UL listed, water based, polymer solution. Lubricants containing waxes or soaps are not acceptable.

B. The lubricant shall be compatible with the cable insulation and shall not cause any premature deterioration of the insulation material.

C. The lubricant shall be approved by the cable manufacturer for use with their cables.

D. Acceptable Manufacturers

1. American Colloid/Poly-X
2. American Polywater/Polywater J
3. ARNCO/Hydar-Lube
4. Buchanan/Quick Slip
5. Ideal/Aqua-Gel
6. Approved equal

**3.00 EXECUTION**

**3.01 INSTALLATION**

A. General

1. A separate neutral, sized in accordance with the National Electrical Code shall be installed for each feeder or branch circuit.

2. Install vinyl markers to identify branch circuits where they enter panel boards, pull boxes, junction boxes and device boxes.

3. Color coding shall occur at all conductor termination points and in all junction boxes and pullboxes. Identification may be by colored insulation or colored electrical tape at the Contractor's option (See Section 16.075 - Electrical Identification).

B. Power And Branch Circuits

1. Conductor sizes as shown on the Drawings and specified herein are minimum and shall be increased as required to maintain a minimum voltage drop of 3% for any branch circuit and 5% at any point in the system. Conductor size shall be increased as required by NEC where more conductors are installed in a common raceway than indicated on the Drawings.

2. Conductors shall be color coded for their entire length in accordance with NEC; all wiring shall be color coded using the same color for each conductor within a system.

3. Wire size shall be #12 AWG minimum for branch circuit wiring.

4. Minimum size conductors for 120/208V or 277/480V shall be #12 AWG. Increase conductors at least one (1) size for home run feeders over 75 feet long or if furthest outlet is greater than 125 feet from feeder panel.

C. Control Systems

1. Control and systems wiring shall be terminated using forked tongue terminals.

2. Terminal strip connectors shall be ratchet-tooled in accordance with manufacturer’s recommendations. Plier type crip is not acceptable.

D. Provide self adhesive tape minimum 3-inch wide band on larger size conductors for color codes. Tape color shall be per conductor color codes. Tape shall be provided at all terminations in switchgear, panelboards, pull boxes, motor controllers, disconnect and starters.

E. No conductors shall be installed in rooms or areas prior to completion of medical gas piping installation.

F. All fasteners and lugs used for electrical connections shall be torqued to values indicated by manufacturer's instructions. Use particular care to equalize lug torques where parallel conductor feeders are used. Use approved lugs when copper conductor is to be connected to aluminum bus.

**3.02 TESTING**

A. Upon completion of cable and wire installation, but before termination to equipment, test each wire for grounds and short circuits. Replace or correct defective wiring.

**END OF SECTION 260519**

**DIVISION 26 – ELECTRICAL**

**SECTION 260526 - GROUNDING**

## 1.00 GENERAL

### 1.01 WORK INCLUDES

A. Base Bid

1. Electrical Contractor provide a complete grounding and bonding system as shown on the drawings and specified herein.

### 1.02 QUALITY ASSURANCE

A. Grounding shall be in accordance with the requirements of the 1996 edition of the National Electrical Code (NEC) or the latest revision.

## 2.00 PRODUCTS

A. GROUNDING

1. The grounding system shall consist of grounding electrode(s), grounding electrode conductor (GEC), equipment grounding conductor and bonding jumpers installed to effectively bond and ground all non-current carrying metal parts of all fixtures and equipment. On grounded systems, one conductor shall also be bonded to the grounding system to limit excessive voltages to ground.

   a) The grounding electrode system shall consist of at least one of the following: metal underground water pipe, concrete encased electrode, or ground ring. In addition, an electrode consisting of three (3) 5/8" diameter by ten (10) feet long copper-clad rods with top driven to a minimum depth 18-inchs below ground level and not less than 2-inches from exterior of wall.

   b) The grounding electrode conductor shall be bare solid or standard copper, sized in accordance with the NEC or as indicated on the drawings and bonded to a grounding electrode with metal fusing type connectors such as "Cadweld" or approved equivalent. Where a grounding electrode conductor is installed exposed on building surfaces or on exterior of equipment enclosures, the conductor shall be installed in rigid metal conduit.

   c) All service entrance equipment shall be grounded by connecting neutral bus to the grounding electrode with a grounding electrode conductor.

   d) The grounding bus of distribution equipment shall be bonded to the grounding electrode with a grounding electrode conductor all constructed as heretofore specified.

   e) Equipment grounding shall consist of connecting all noncurrent carrying metal parts of the wiring system to a ground source. This includes the conduit or other steel raceways, boxes and similar components as well as metal enclosures of equipment.

   f) Ground source shall be ground terminal of system grounding in main service equipment. Conduits fitted with grounding bushings shall be used as the primary grounding conductor, and shall be bonded to the ground source and to equipment with a green insulation color-coded stranded minimum size No.12 AWG copper wire.

   g) Motors shall be grounded by connecting a conductor from the motor frame to the grounding terminal on the connector for rigid to flexible conduit. Separate ground conductor, where required, shall be at least fifty percent (50%) of total copper per phase of feeder to motor with minimum size No.12 AWG wire.

h) Panelboards shall be grounded by connecting bare copper conductor to the grounding stud and to the incoming and outgoing feeder conduit grounding bushing.

i) Separate equipment grounding conductor shall be provided with each conduit run and where required by the equipment manufacturer.

j) The metal conduit for all feeder circuits and for branch circuits operating at more than 250 volts to ground, shall be bonded to the equipment enclosure with grounding locknuts and insulated throat steel grounding bushings. Where indicated on the drawings or where conduit for above circuits are installed in concentric stamped knockouts with portions of stamped rings remaining, conduit shall be bonded to equipment enclosures or groundgin bus with insulated grounding bushings with lugs and copper wire bonding jumpers.

k) All bonding jumpers shall be copper bonding, braided strap, solid or stranded wire sized in accordance with NEC and continuity of all grounding shall be as specified by the NEC.

l) Locate grounding conductors so as to permit as far as practical, the shortest and most direct path to ground clamp. Make ground connections to plant equipment as close to current carrying parts as practical. All ground connections shall have clean contact surfaces and shall be tinned and sweated while bolting. Connections shall be readily accessible for inspection.

B. MANUFACTURERS

1. Grounding clamps, straps, grounding conduit, bushings, and other grounding fittings shall be UL-approved and as manufactured by Thomas and Betts, Kearney, or approved equivalent.

## 3.00 EXECUTION

A. The Contractor shall install the grounding system in accordance with Article 250, Grounding, in the latest edition of the National Electrical Code.

**END OF SECTION 260526**

**DIVISION 26 – ELECTRICAL**

**SECTION 260533 - CONDUIT, BOXES AND RACEWAYS**

## 1.00 GENERAL

### 1.01 WORK INCLUDES

A. Base Bid

1. Electrical Contractor:

a) Furnish and install complete conduit and raceway systems as required for power, lighting, control and communication systems as shown in the Drawings and specified herein.

b) Furnish and install all outlet, junction and pull boxes as indicated on the Drawings and as necessary to install the required conduit and wiring in a neat and workmanlike manner, as specified herein.

### 1.02 QUALITY ASSURANCE

A. Pull boxes and junction boxes shall be in accordance with NEC requirements and shall be UL labeled.

B. Raceways shall meet NEMA standards and shall be UL listed and labeled.

## 2.00 PRODUCTS

### 2.01 CONDUIT

A. EMT conduit shall be installed for all work concealed in partitions or in concrete block walls and for all conduits run in ceiling plenums and exposed runs, except where noted otherwise.

B. Rigid galvanized steel conduits shall be used outdoors and in all mechanical rooms where not supported directly to walls or ceilings, and for all medium voltage cable runs.

C. PVC conduits shall be installed underground or in concrete slabs and shall be a minimum size of ¾-inch. Rigid galvanized elbows shall be used for all stub-ups through or out of concrete slabs.

D. Jacketed flexible steel conduit (Sealtite) shall be used in wet areas where flexible conduit connections are required and on all motorized equipment and motors.

E. Minimum conduit size shall be ¾-inch.

F. All conduit to be listed by Underwriter's Laboratories, Inc. All conduit shall have UL label.

G. Rigid & IMC conduit shall be heavy/intermediate wall, threaded, hot dipped galvanized steel. Each section of conduit furnished shall be free from blisters and other surface defects. Galvanizing shall not crack or flake when conduit is bent.

H. Thin wall conduit (EMT), couplings and fittings shall have a circular cross section of sufficient diameter to meet all State Codes. The wall thickness shall be uniform throughout with the interior surface free of defects. Welding of seams shall be continuous.

I. Flexible steel conduit shall be made from a continuous length of galvanized cold rolled steel strip, spirally wound. Adjacent strips shall have locked typed construction with all the edges turned in.

J. Liquid-tight flexible steel conduit shall consist of a steel core of the same construction as specified for flexible steel conduits, with an extruded PVC jacket.

K. PVC conduit shall be heavy wall, Schedule 40, UL listed under Standard 651 or extra heavy wall, Schedule 80, UL listed under Standard 651. Conduit shall be suitable for use with 90 degree C insulated wire. Conduit, fittings, and cement shall be of the same manufacturer. Schedule 80 shall be installed in aboveground installations where the conduit is exposed to impact by cars and trucks or to other physical damage (or where specifically noted on the plans).

L. Acceptable Manufacturer's

1. Pittsburgh Steel
2. Allied
3. Republic Steel
4. National Electric
5. Keystone
6. Jones and Laughlin
7. Carlon
8. Approved equal

**2.02 FITTINGS**

A. All fittings shall be UL Listed, insulated-throat type.

B. Couplings and connectors for thin wall conduit shall be all steel type. No die cast connectors will be allowed.

C. Expansion and deflection fittings shall be of a type suitable for the particular condition and shall be complete with bonding jumper.

D. Acceptable Manufacturer's

1. Thomas and Betts (T&B)
2. O-Z Gedney
3. Appleton
4. Raco
5. Approved equal

**2.03 BOXES**

A. Flush outlet, junction and pull boxes to be pressed steel galvanized, minimum 4" square and 1 1/2" depth, unless otherwise specified or shown on the Drawings. Box sizes shall be selected as required to comply with the NEC.

B. Boxes for exposed work in finished areas to be Type FS with threaded hubs and rigid conduit risers.

C. Pull boxes shall be made of code gauge galvanized steel with removable cover plates fastened with screws or hinged doors as indicated or required. Sizes shall comply with the NEC.

D. Steel boxes cast in concrete shall be designed for concrete installation.

E. Acceptable Manufacturer's

1. Appleton
2. Raco
3. Killark
4. Hoffman
5. Steel City
6. Square D
7. Thomas and Betts
8. O.Z./Gedney
9. Approved equal

**2.04 ELECTRIC MANHOLES**

A. All electric manholes shall be provided with a sump pump. The sump pump unit shall be Little Giant Model 6E-CIA-SFS (120 volt), or approved equal.

B. The manholes shall be provided with a hinged aluminum access hatches and flat tops.

C. Unless otherwise indicated, electric manholes shall comply with SECTION 02536 - SANITARY SEWER MANHOLES, FRAMES AND COVERS. Exfiltration and/or vacuum testing is not required.

## 3.00 EXECUTION

### 3.01 INSTALLATION

A. Conduit

1. In finished areas, conduit must be concealed above accessible ceilings, within the building structure, or within chases. Exposed conduits to be run tight to wall or ceiling and installed in a neat workmanlike manner, ready for painting.

2. All conduit shall be supported by suitable clamps or hangers attached to the elements of the building structure at the required spacing to provide rigid installation. In no case shall conduit be attached to or supported from adjoining ductwork or pipe, ceiling systems, or installed in such manner as to prevent the ready removal of other pipe for repairs.

3. Install conduit parallel or perpendicular to building lines (except where run in or below floor slabs). Keep conduit runs as close to underside of structure as possible.

4. No more than the equivalent of four (4) 90 degree bends will be allowed in any one conduit run. Where more bends are necessary in any single run, a pull box shall be installed. Pull boxes shall also be installed in long runs at a maximum separation of 100'-0".

5. Exercise necessary precautions to prevent accumulation of water, dirt, or concrete in conduits during execution of electrical work. Conduit in which water or foreign material has been permitted to accumulate shall be thoroughly cleaned, or replaced where such accumulations cannot be removed.

6. Do not run conduit in slabs under boilers, hot water heaters or other heat-producing equipment and maintain minimum 6" clearance from hot water piping.

7. Install a 240 lb. tensile strength poly pull line or a #12 THHN or THWN pull wire in all empty conduits.

8. Install expansion fittings at all locations where conduits cross building expansion joints.

9. Secure rigid conduit at cabinets and boxes using insulated throat type grounding and bonding bushings. Locknuts shall be tightened to cut through painted surfaces.

10. Where a number of conduits are to be run exposed and parallel, one with another, they shall be grouped and supported by trapeze hangers or unistrut racks tight to the building structure. Hanger rods shall be fastened to concrete ceiling slab with threaded rod in steel expansion bolt type inserts. Trapeze hangers shall be Unistrut, angle iron or channel iron. Each conduit shall be clamped to the trapeze hanger with conduit clamps.

11. Metallic conduit systems shall be grounded in accordance with the NEC, and as shown on the Drawings. Metallic conduit systems shall be metallically joined together into a continuous electrical conductor and shall be so connected to all boxes, fittings, and cabinets to provide effective electrical continuity.

12. Threaded couplings shall be used for joints on rigid metallic conduit. Field joints shall be cut square, reamed smooth to remove burrs and sharp and rough edges, and properly threaded to receive couplings. The use of running threads is not permitted.

13. Conduit systems shall be supported at each elbow and the end of every straight run terminating in a box or cabinet. Fastening shall be provided at maximum spacing of 7 ft. for horizontal runs and 8 ft. for vertical runs, unless codes require more stringent supporting. Conduit shall not be fastened to other pipe or installed to prevent ready removal of other pipe for repairs. The use of perforated strap hangers is not permitted.

14. Conduit to be buried shall be installed a minimum of 24 in. below finished grade.

15. Where telephone/data outlet locations are indicated on the Drawings, install 1” EMT from telephone outlet box and 1” conduit from data outlet box (4" x 4" x 1-1/2" or 4" x 2" x 1-1/2") to top of finished wall or a point above accessible ceiling.

B. Boxes

1. Support all boxes independently of conduit except for cast boxes connected to two (2) rigid conduits both supported within 12-inches of box.

2. Provide knockout closures of the correct size to cap unused knockout holes where blanks have been removed.

3. Outlet Boxes

a) Flush mount outlet boxes in areas other than mechanical rooms, electrical rooms and above removable ceilings.
b) Provide at least 6-inch separation between outlet boxes. Do not install boxes back to back in same wall unless specifically noted on the plans. If specifically noted on the plans install 2 pieces of 5/8” drywall between the boxes to maintain both fire rating and soundproofing of wall.
c) Use multiple gang boxes where more than one device is mounted together. Do not use sectional boxes. Provide barriers to separate different voltage systems.
d) Provide cast boxes for exterior and wet locations.

4. Junction and Pull Boxes

a) Mount junction and pull boxes securely to building structure in a location that meets the requirements of the National Electrical Code for accessibility and work space clearance. Coordinate exact locations of work with other trades.
b) Support independent of conduit
c) Locate pull or junction boxes to limit conduit runs to no more than 100 linear feet (LF) or four (4) 90 degree bends between pulling points.

5. Provide covers for all boxes.

C. Motor Connections

1. The final 18 in. of connections to motors shall be made in liquid-tight flexible steel conduit.

**END OF SECTION 260533**

**DIVISION 26 – ELECTRICAL**

**SECTION 260553 - ELECTRICAL IDENTIFICATION**

## 1.00 GENERAL

### 1.01 WORK INCLUDES

A. Base Bid:

1. Electrical Contractor: Provide identification for all new electrical equipment as specified herein, and as needed for a complete and proper installation including, but not necessarily limited to:

   a) Panelboards
   b) Conductors and Conduit
   c) Control Boxes
   d) All other pertinent electrical devices

### 1.02 QUALITY ASSURANCE

A. Comply with:

1. ANSI A 13.1., Identification of Piping Systems.
2. NFPA 70 - National Electric Code (NEC)

### 1.03 REFERENCES

A. American National Standards Institute (ANSI)

B. Underwriters Laboratories, Inc. (UL): All products UL listed and labeled.

C. Manufacturers' Catalogs: Specification manufacturers' catalogs are incorporated by reference to same force and effect as if repeated herein in full.

### 1.04 SUBMITTALS

A. Provide schedule of proposed identification plate wording for A/E approval.

## 2.00 PRODUCTS

### 2.01 EQUIPMENT IDENTIFICATION PLATES

A. Provide plates for switchgear, disconnects, panelboards and all other pertinent electrical equipment consisting of machine engraved laminated plastic. Plate field shall be black core.

1. Size of plate shall be commensurate with lettering thereon.

2. Lettering for major items of equipment, such as a switchboard, shall be 3/4" in height. Lettering for smaller items, such as switches, shall be 1/2" in height.

3. Wording on plate shall contain the following information as appropriate and approved by the Engineer.

   a) Drawing nomenclature.
   b) Equipment served.
   c) Voltage.

B. Acceptable Manufacturers:

1. Quentin D. Schwab, 606 E. Dodson Dr., Urbana, IL 61801.
2. Joe Halm Building Specialties, Box 525, LaGrange, IL.

3. Mechanical Tag Systems, Box 1565, Cedar Rapids, IA 52406.
4. Seton Name Plate Corp., 592 Boulevard, New Haven, CT 06505.
5. N & E Specialty Co., Box 3518, Peoria, IL 61614.
6. Artistic Engravers, Box 1385, Peoria, IL 61654.
7. Approved equal.

**2.02 WIRING SYSTEM IDENTIFICATION**

A. Wire insulation color:

1. 277Y/480V, 3 phase

| | | | |
|---|---|---|---|
| a) | Phase A | - | Brown |
| b) | Phase B | - | Orange |
| c) | Phase C | - | Yellow |
| d) | Neutral | - | White |
| e) | Ground | - | Green |
| f) | Isolated Ground | | Green with yellow stripe |

2. 120Y/208V, 3 phase

| | | | |
|---|---|---|---|
| a) | Phase A | - | Black |
| b) | Phase B | - | Red |
| c) | Phase C | - | Blue |
| d) | Neutral | - | White |
| e) | Ground | - | Green |
| f) | Isolated Ground | | Green with yellow stripe |

B. Code all wire and cable larger than color coded sizes available from manufacturer by application of electrical plastic tape in colors specified. Apply tape in uniform manner circling wire or cable. Half-lap tape for length of cable as required by NEC. Tape shall be 3M, Plymouth or Permacel.

C. Maintain consistent coding throughout installation to ensure proper phase identification.

D. Control wiring may use numbered or lettered marker tape. Record wiring so marked on project record documents. Marker tape shall be 3M Scotch Code, Panduit Insta-Code, T & B E-Z Coder, Stranco Tuff-Code, Bradypack or Electrovert.

**2.03 EMERGENCY SYSTEM IDENTIFICATION**

A. The emergency wiring system (if applicable) shall be installed in accordance with Section 700 (Emergency Systems) of the National Electrical Code (NFPA-70).

1. Wiring from the emergency source or emergency source overcurrent protection device to the emergency load(s) shall be independent of all other wiring systems.

2. Wire for multiple emergency circuits supplied from the same source shall be permitted in the same raceway, box, etc…

3. Emergency panels, switches, wiring, raceway, and boxes shall be labeled as such.

**3.00 <u>EXECUTION</u>**

**3.01 INSTALLATION**

A. Affix Equipment Identification Plates to equipment with stainless steel self tapping screws.

B. Apply markers or bands on all exposed conduit at 50 ft. intervals, at all junction boxes and on both sides of walls through which conduits penetrate.

**END OF SECTION 260553**

**DIVISION 26**

**SECTION 260586 - WIRING METHODS**

## 1.00 GENERAL

### 1.01 SUMMARY

A. The entire set of bid documents including plans & specifications applies to this section.

## 2.00 PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products from one of the following manufacturers:

1. Hubbell
2. Arrow-Hart
3. General Electric
4. Sierra
5. Circle F
6. Bryant
7. Pass & Seymour

### 2.02 CONDUIT AND INSTALLATION

A. Rigid threaded conduit, threaded intermediate conduit and electrical metallic tubing shall be standard size of approved manufacturer and shall be galvanized or sherardized on inside and outside, including with water-tight compression fittings or with concrete-tight, pressure cast set screw type fittings. Rigid threaded conduit and threaded intermediate conduit shall be installed with threaded couplings and fittings.

B. Conduit may be electrical metallic tubing (E.M.T.), except conduit larger than 4", conduit in wet or damp locations, conduit in hazardous locations, conduit in earth or below grade, and except as otherwise noted on drawings or specified other wise. Conduit shall be minimum 3/4" dia., except switch legs and control wiring may be minimum ½” size.

C. Galvanized steel rigid or intermediate grade (I.M.C.) conduit shall be used in wet or damp locations, in NEC classified hazardous locations and for conduit sizes larger than 4" except below grade outside of building. Aluminum conduit may not be used.

D. Short sections of flexible conduit may be used from junction or outlet boxes to lighting fixtures as permitted by the National Electrical Code. Connections from outlet boxes above ceilings to fluorescent fixtures recessed in ceiling shall be made with flexible steel conduit not to exceed 6 ft. in length.

E. Short sections of flexible watertight (Sealtite) conduit shall be used for connections to motors, transformers and vibrating type equipment.

F. Unless specified or noted on drawings otherwise, conduit shall be installed concealed, excepting in areas where concealment of conduit is not possible or practicable and is approved by the Engineer. Conduits shall be installed continuous between outlets, boxes, cabinets, etc.

G. Conduits installed exposed to view (not concealed by finish) shall be run parallel and perpendicular to building lines and shall be run against the structure in a neat workmanlike manner with conduit offsets neatly formed around all structure offsets and obstructions.

H. Conduits shall be securely fastened in place with approved type hangers, clamps and supports. Conduit shall not be fastened to or supported from ductwork, piping, lay in ceiling support wires or mechanical equipment. Conduit ends shall be reamed before installation and all conduit shall be thoroughly cleaned before installation and kept clean after installation. All conduit shall be fished clean before pulling of wires. Plug ends of conduits, with temporary plugs, where conduits are open to weather and before concrete is poured to keep inside of conduit free of water and concrete.

I. Exposed conduits shall be securely fastened in place on intervals in accordance with the NEC, and hangers supports and fastenings shall be provided at each elbow, at the end of each straight run terminating at a box or cabinet, and adjacent to each outlet.

J. Horizontal and vertical conduit runs 2-1/2" and smaller may be supported by one hole malleable straps, clamp backs or devices with suitable bolts, expansion shields or beam-clamps for mounting to building structure.

K. Adjustable hangers may be used to suspend 3" or larger conduits when separately located.

L. Hangers shall be suitable for the application involved. Where excessive corrosive conditions are encountered, hanger assemblies shall be protected after fabrication by sherardizing or galvanizing, special paint or other suitable preservative methods.

M. Use of perforated iron strap, cord or wire for supporting conduits will not be permitted.

N. The required strength of the supporting equipment, size and type of anchors shall be based on the combined weight of conduit, hanger and cables.

O. Install pull wire or pull string in all unused empty conduits.

**2.03 OPENINGS AND SLEEVES**

A. The Contractor shall furnish and install all box-outs and sleeves for openings required to install this work. Openings through structural members shall be only as approved by the Engineer or as shown on the structural drawings. Openings through concrete walls and floors shall be core drilled. Openings through masonry walls shall be galvanized steel conduit sleeves.

**2.04** ACCESS DOORS

A. Where junction boxes and equipment are installed in concealed spaces, access doors shall be installed infurring to provide for operation, service, inspection, and maintenance.

B. Access doors shall be Milcor style K, M, DW, or AT as required by construction, equivalent Zurn or Wade, flush type steel units with frames. Construction shall be of #14 gauge level stock, cadmium plated and fitted with pivot hinges and screw driver coin type lock and finished with prime coat of paint. Panels shall have a minimum size of 12" x 12" for hand holes and 18" x 18" for manholes.

C. Accessible ceilings with removable type ceiling tiles do not require access panels to be installed.

**2.05 WIRES AND WIRING FOR 600 VOLT OR LESS**

A. Wires and cables shall be insulated soft annealed copper conductors with 600 volt insulation unless noted or specified otherwise and shall be listed and approved by Underwriter's Laboratories and shall meet all specifications of the IPCEA and NEMA Standards. Gauge of wire shall be (AWG) gauge. No. 10 gauge and smaller shall be solid conductor or stranded conductor. No. 8 gauge and larger shall be stranded conductor, except all ground wires shall be stranded. Stranded conductors shall not be fastened directly under screw terminals that rotate against conductors (such as side screw terminals of wall switches and convenience receptacles). Wire smaller than No. 12 gauge, shall not be used unless specifically called for on drawings or in specifications. Aluminum wiring shall not be used.

B. Unless specified otherwise, 600 volt wires in general use shall be type "THHN".

C. Grounding wires shall be stranded copper with 75 degrees C. "THHN" insulation with green color or green tracer. Every branch & feeder conduit shall contain a code sized green insulated ground conductor.

D. Wire insulation shall be color coded as follows:

120/208 VOLT
Phase A - Black

Phase B - Red
Phase C - Blue
Neutral - White
Ground - Green

277/480 VOLT
Phase A - Yellow
Phase B - Brown
Phase C - Orange
Neutral – White with blue stripe
Ground - Green

E. Control and indication wiring shall be #14 AWG type "THHN", except runs greater than 200 feet in length shall be #12 AWG unless noted otherwise on drawings.

F. Conductors used where low leakage type is required, such as for ground fault protected circuits, the insulation shall be type "XHHW".

G. All wires shall be run in conduit or surface raceway shall be continuous between outlets and boxes. At least 8" of wire shall be left at outlets for fixture connections.

H. All terminations and splices shall be made in accordance with proper methods and recommendations for the type of wire and devices used and as recommended by the manufacturers of material and equipment involved.

I. Splice and Terminal Materials: Splices for 600 volt conductors smaller than No. 8 AWG shall utilize twist type insulated spring connectors. Terminals or splices for stranded conductors No. 8 AWG and larger shall utilize indent, hex screw, or bolt clamp-type connectors, with or without tongue, properly taped, and approved for the particular application. Exposed splice connector device shall be insulated with a minimum of two half-lapped layers of specification grade rubber insulating type and a minimum of two half lapped layers of polyvinyl chloride electrical tape applied over the rubber tape. The polyvinyl chloride type shall extend a minimum of two cable diameters over the cable jacket. For cable size 250 MCM and larger, connectors shall have at least two clamping elements or compression indents, and shall have at least two clamping elements or compression indents, and shall have provision for at least two bolts for joining to apparatus terminals. All wire and cable connectors shall be of high conductivity corrosion resistant material and have actual contact area equal at least to the current carrying capacity of the wire or cable.

J. Crimping Hand Tools used in securing the conductor in the compression type connectors or terminal lugs shall be those made for the purpose and for the conductor sizes involved. The crimping tools shall be of the ratchet type which prevents the tool for opening until the crimp action is completed. Such tools shall be a product of the connector manufacturer.

K. Insulating Compounds and Tapes for splice and termination insulation shall be of a type approved by the cable manufacturer for the particular use, lo cation, and voltage.

L. Where wire size is shown on drawings or specified it shall be the same size throughout the circuit.

**2.06 OUTLET BOXES, JUNCTION BOXES, PULL BOXES AND LOCATION OF OUTLETS**.

A. Outlet boxes shall be installed for all electrical service outlets, including plug receptacles, lamp receptacles, lighting fixtures, switches, etc. Boxes for concealed work shall be size 4" code gauge steel knockout boxes, galvanized or sherardized and of required depth for services and devices. Boxes installed for concealed work shall have code gauge galvanized raised plaster rings set to plaster ground or markers with outside edge flush with plaster or wall finish. Plaster rings shall be selected with proper opening for device installed in box. Thru-wall type box will not be permitted. Outlet boxes in unplastered concrete block walls in finished rooms shall be masonry type and shall be set to line with wall joints.

B. Boxes for exposed work, where permitted or approved, shall be 4" square or 4" long by 2-1/8" wide standard utility boxes specifically designed for surface installation and as required by device, wiring, and number of conduits and all covers for devices and blank covers shall be stamped steel with turned down edges to fit with sides of box.

C. Pull and junction boxes shall be code gauge galvanized steel boxes of size shown or required and with bolted or screwed covers. Boxes shall be flush or surface mounted as shown or required and shall be finished with factory prime coat of paint.

D. All rigid threaded and intermediate threaded conduit shall be clamped to boxes and enclosures with bushing inside of box and locknut outside of box. Bushings and locknuts shall be galvanized malleable iron. EMT shall be clamped to boxes and enclosures with fittings designed for EMT connections to boxes, and the fittings shall be tightly secured to the EMT and shall be clamped to box with locknut inside of box. Open end of fitting inside of box shall be smooth to prevent damage to conductor insulation when pulling conductors.

E. Location of outlets on drawings is approximate and, except where dimensions are shown, exact location of outlets shall be as taken from plans and details on general drawings or as directed by the Engineer. Outlets shall be located generally from column centers and finished wall lines or to center of acoustical and decorative ceiling panels and to centers of joints of wall panels. Outlets shall be installed in accessible location and no outlets shall be installed above ducts, behind furring or other obstructions. Outlets below ducts shall be connected with extension connections to outlets in ceiling or slab above.

F. Switch outlets, convenience receptacle outlets and telephone outlets, unless shown otherwise or required otherwise by wainscots, counters, etc., shall be mounted at height as specified under the device heading in this specification. Each device shall be carefully aligned to center vertically on other devices that are installed in the same vicinity

## 2.07 LIGHTING CONTROL SWITCHES

A. Occupancy Sensor Switches - Leviton #6768, 180 VA flourescent, 120 V, equal by Lutron, Hubbell, Arrow Hart, GE.

B. General use wall switches unless specified otherwise, shall be specification grade, quiet operating for A.C. inductive loads and with side screw terminals, and back wiring screw-clamp type terminals. Stranded conductors shall not be directly terminated under side screw terminals that rotate against the conductors. Groups of switches shall be installed under one-piece plate. Switches, where indicated on drawings, shall be key operated type; all others shall be toggle handle type. Switches shall be mounted with centerline 3'-10" above floor unless otherwise noted on drawings. Color as selected by Engineer (Basis of design is Hubbell)

| | | |
|---|---|---|
| Single Pole | #1221-GRY | 20 amp - 120/277 volts |
| Three Way | #1223-GRY | 20 amp - 120/277 volts |
| Momentary | #1556-GRY | 15 amp - 120/277 volts |

position, 2 circuit, single pole, double throw.

## 2.08 RECEPTACLES

A. Receptacles, unless specified or shown otherwise, shall 3 wire grounding type, NEMA configuration 5-20R, duplex receptacle rated 20 amps @ 125 volts. Receptacles shall have automatic grounding clip on receptacle mounting ear and shall have side screw terminals and back-wiring screw-clamp type terminals including grounding terminal. Stranded conductors shall not be mounted directly under binding screws without clamp-type terminals. Receptacles shall be mounted in wall with centerline 12" above finished floor unless noted otherwise on drawings or unless required to be higher by counters, wainscots, etc. (Basis of design is Hubbell #5362.)

B. Special receptacles shall be as required for load served.

## 2.09 DEVICE PLATES AND BLANK PLATES

A. Wall plates for switches and receptacles in flush wall boxes shall be .040" thick beveled-edge, satin-finished stainless steel. Plates for devices in exposed boxes shall be stamped steel with turned down edges to fit side of box.

B. Blank plates on boxes in finished spaces shall be stainless steel or brass as specified to match receptacle and switch plates. Blank plates on flush boxes in unfinished spaces, shall be flat galvanized steel. Plates for surface mounted boxes shall be galvanized stamped steel with turned down edges to fit side of box.

## 3.00 EXECUTION

### 3.01 ROUGH-IN

A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

B. Refer to equipment specifications for rough-in requirements.

### 3.02 GENERAL

A. Sequence, coordinate and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:

1. Coordinate electrical systems, equipment, and materials installation with other building components.
2. Verify all dimensions by field measurements.
3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations.
4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
5. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
6. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
7. Coordinate connection of electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
8. Install systems, materials, and equipment to conform with reviewed submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Engineer.
9. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
10. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
11. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.
12. Install electrical equipment in order to maintain required clearances. Where space limitations mandate that equipment (i.e. water piping) may contribute moisture within these clearances, provide non-combustible shielding to protect electrical equipment from moisture.

### 3.03 ELECTRICAL CONNECTIONS TO MECHANICAL EQUIPMENT

A. Electrical: Conform to applicable requirements in Division 16 Sections.

B. Grounding: Ground equipment. Tighten electrical connectors and terminals, including grounding connections, according to manufacturer's published torque tightening valves. Where manufacturer's torque valves are not indicated, use those specified in UL 486A and UL 486B.

C. Obtain all mechanical equipment control wiring diagrams from mechanical contractor so as to allow installation of field-installed control wiring in conduit between any mechanical equipment and accessories. This electrical contractor shall provide all control wiring in conduit under the supervision of the SCADA System contractor. All accessories will be mounted by the contractor providing that accessory. Control wiring includes all accessories operating at 110-volts or above and 50 volts or below.

D. Provide all power connections to mechanical equipment as indicated on drawings or outlined in Division 16 Sections.

**END OF SECTION 260586**

**DIVISION 26 – ELECTRICAL**

**SECTION 260800 - WIRING DEVICES**

## 1.00 GENERAL

### 1.01 WORK INCLUDES

A. Base Bid:

1. Electrical Contractor

a) Furnish and install complete wiring devices and coverplates as shown or implied on the Contract Documents.

b) Provide receptacle ampacity and electrode configuration to accommodate equipment to be served.

### 1.02 QUALITY ASSURANCE

A. Wiring Devices shall be UL listed and labeled.

B. Wiring Devices shall be in accordance with NEC, NFPA, and NEMA standards.

### 1.03 SUBMITTALS

A. Submit product literature in accordance with Division 1 for the following:

1. Wiring devices and Plates
2. Time Switches
3. Photo Electric Controls

## 2.00 PRODUCTS

### 2.01 GENERAL

A. Grounding type devices shall meet all requirements set forth by the NEC and/or State Codes.

B. Unless noted otherwise, all wiring devices shall be specification grade.

### 2.02 RECEPTACLES

A. Receptacles shall be polarized, 3-wire, grounding type with bronze contacts. Standard duplex receptacles shall be rated 20 Amp, 120 V, with parallel slots and two ground terminals. Screw terminals arranged for back or side wiring. Weatherproof duplex receptacles shall have stainless steel or die cast aluminum plates with a double cover. Special purpose receptacles shall be of the capacity and design indicated on the Drawings. All receptacles on emergency power system shall be red with red cover plate.

B. Ground fault circuit interrupting (GFCI) receptacles shall be duplex 20 Amp, 120 V, duplex with test and reset buttons.

C. Acceptable Manufacturer’s

1. Eagle
2. Hubbell
3. Leviton
4. Bryant
5. Approved equal

**2.03 SWITCHES**

A. Snap switches shall be furnished with screw terminals for looped or back wiring and shall be white in color and of the quiet, toggle type. Switches shall be rated at 20 Amp, 120 V. Switches shall be SPST, DPST, 3 or 4 way as required and/or indicated on the Drawings. Where more than one switch is shown at a location, switches shall be installed under a gang plate.

B. Acceptable Manufacturer's

1. Eagle
2. Hubbell
3. Leviton
4. Bryant
5. Approved equal

**2.04 COVER PLATES**

A. Indoors: Cover plates shall be high-strength, scratch-resistant, smooth nylon, white in color.

B. Outdoors: Cover plates shall be stainless steel or die cast aluminum. Plates of non-ferrous metal shall be not less than 0.04 in. thick; those of ferrous metal shall be not less than 0.03 in. thick.

C. Acceptable Manufacturer's

1. Eagle
2. Leviton
3. Hubbell
4. Bryant
5. Approved equal

**3.00 EXECUTION**

**3.01 GENERAL INSTALLATION**

A. Boxes and devices shall be mounted vertically and securely fastened. Plates for exposed outlets shall square galvanized covers, raised 1/2" with edges flush with top of box. Mount switches in multi-gang boxes wherever several devices are grouped together.

B. Unless otherwise noted on the drawings, all snap switches shall be installed 45 in. above the floor level and general use outlets shall be 15 in. above the floor level. All dimensions refer to the centerline of the box.

C. Boxes and devices located in a brick veneer wall shall be mounted horizontally in the brick course.

D. Grounding duplex receptacles shall be installed with the grounding electrode terminal in the top or up position.

**END OF SECTION 260800**

**DIVISION 26 – ELECTRICAL**

**SECTION 262600 - ELECTRICAL UTILITY SERVICES**

## 1.00 GENERAL

A. The Contractor shall furnish all labor and materials, equipment, supplies, services, testing and supervision to install and place in operational service the electrical components at the lift station site.

B. Applicable Sections: 311000 Site Clearing; 312300 Excavating Filling and Grading; 312500 Sedimentation and Erosion Control; and 329000 Fertilizing, Seeding and Mulching.

## 1.01 SERVICE PEDESTAL

A. The work shall include furnishing and installing the electrical service pedestal including setting 3" diameter rigid metal conduit posts, filled with concrete, attaching stainless steel unistrut with stainless steel hardware. Mounting and wiring the meter base, generator disconnect, utility service disconnect, and automatic transfer switch. Installing the three (3) ground rods with proper wire. Installing conduit and conductors of proper size to meet national electrical code and equipment manufacturers requirements.

B. All outside electric panels shall be NEMA 3R or NEMA 4.

C. The electrical drawings are intended to cover the layout and design of the work but should not be scaled for exact measurements. Where specific details and dimensions are not shown, the Contractor shall take measurements and make layouts as required for the proper installation of the electrical work so that interference with all other work will be avoided. The Contractor shall check all drawings and specifications for the project and shall be responsible for the installation of all electrical work.

D. The Contractor shall be responsible for coordinating electrical work with other working trades on the job. Other sections in this contract as applicable to this section of work shall be referred to.

E. The Contractor shall obtain all necessary licenses and permits from the proper authority having jurisdiction to perform the work.

F. At the completion of the project, the Contractor shall furnish three (3) complete copies of service manuals in hard-back binders for all equipment furnished and/or installed for the project.

1. The service manuals shall include, but not be limited to the following:

    a) Disconnects & Fuses
    b) Light Fixtures
    c) Service Entrance Equipment
    d) Terminal Enclosures and Connectors
    e) Wiring Devices
    f) Automatic Transfer Switch (If required noted on plans)

2. The service manuals shall include approved shop drawings and details, including manufacturer's literature on installation, maintenance, and operation of motors, motor controllers, parts list, and service bulletins of motor controller components. The contractor shall keep and save all instruction manuals, service bulletins and parts list of equipment and components installed on the jobsite, for inclusion in the O & M manuals.

## 1.02 CONTROL PANEL

A. The general contractor shall furnish and install the lift station control panel including setting 3" diameter rigid metal conduit posts, filled with concrete, attaching stainless steel unistrut with stainless steel hardware, mounting the control panel and junction boxes, installing ground rod and wire and installing conduit and conductors of the proper size required by the equipment manufacturer.

B. Conduits from the lift station wet well to the control panel shall be sealed in the bottom entrance to the junction box and the bottom entrance to the control panel, to prevent passage of condensate or vapors. The mastic used to seal the conduits shall be Appleton Duxseal Weatherproof Compound, General Electric silicone sealant or approved equal.

**1.03 DUSK TO DAWN LIGHT**

A. The mercury vapor dawn to dusk light shall be a Luma Pro 175 watt, photocell controlled, suitable for external use.

B. It shall be mounted on a thirty (30) foot high, round, tapered aluminum anchor base pole with a six (6) foot arm. The pole shall be capable of withstanding winds of a minimum 90 miles per hour. The pole shall be a Cooper Lighting (RTA7L30 AA S16) or approved equal.

C. The base for the dawn to dusk light pole shall be a two (2) foot diameter by seven (7) foot deep reinforced concrete base five (5) foot buried and two (2) foot above grade, as shown on the drawings.

**1.04 SHOP DRAWINGS**

A. Shop drawings shall be submitted in accordance with the General Conditions. This data shall include accurate dimensions of all components, JIC Standard Schematic wiring diagrams, physical layout wiring diagrams of factory wired components and complete bill of materials and description of operation for special components. All connection for wiring to external devices shall be clearly shown and wires numbered to correspond to the wire numbers as installed.

**2.00 PRODUCTS**

**3.00 EXECUTION**

**END OF SECTION 262600**

**DIVISION 33 – UTILITIES**

**SECTION 331233 – ELECTROMAGNETIC FLOW METER**

## 1.00 GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Special Conditions and Division 1 specification section, apply to this section.

### 1.02 SUMMARY

A. The Contractor shall furnish, install and place in satisfactory operating condition the flow monitoring equipment and appurtenances as shown on the drawings and described in the specifications.

B. This section covers the flow monitoring equipment including:

1. Raw water meter at wells

C. Related sections include the following:

1. 330500 Utility Materials
2. 260000 General Electrical Requirements

### 1.03 PERFORMANCE REQUIREMENTS

A. Design Summary: Flow meters shall be placed to measure the following:

1. Meter Installation

a. Raw Water Meter – 10” Diameter

2. Meter shall be Ultra Mag Model UM08 or equal.

### 1.04 SUBMITTALS

A. Product Data: Include the following for each different piece of equipment called for in this section:

1. Product literature
2. Manuals
3. Complete product description
4. Affidavits of compliance with referenced standards and codes.
5. Manufacturer's warranty
6. A list of all deviations from drawings and specifications.

B. Shop Drawings: All shop drawing submittals shall be in accordance with the General Conditions and Division 1 and include the following:

1. Dimensions and required clearances
2. Layout for all equipment including installation details

C. Operation and Maintenance Data: Two (2) copies of each manufacturer's Maintenance and Operating Instructions Manual shall be provided with the equipment at the time of delivery. Three (3) copies that include all revisions made during start-up shall be provided after final acceptance.

### 1.05 QUALITY ASSURANCE

A. In order to assure uniform quality, ease of maintenance and minimal parts storage, it is the intent of these specifications that the flow meters called for under this section shall be supplied by a single manufacturer. All equipment manufacturers shall, in addition to the Contractor, assume the responsibility for proper installation and functioning of the equipment supplied by them.

B. The Contract Documents represent the minimum acceptable standards for equipment specified in this section on this project. All equipment shall conform fully in every respect to the requirements of the respective parts and sections of the drawings and specifications. If not named, the equipment which is a "standard product" with the manufacturer shall be modified, redesigned from the standard mode and shall be furnished with special features, accessories, materials of construction or finishes as may be necessary to conform to the quality mandated by the technical and performance requirements of the specification.

C. Factory Tests: Manufacturer shall factory assemble equipment to detect any defects and demonstrate that they will function satisfactory under all conditions specified. Manufacturer shall prepare and submit a written report on the results of remedial action taken, if any.

D. Reference Standards: Comply with all applicable provisions and recommendations of the following, except as otherwise shown or specified.

1. National Electrical Code (NEC).
2. National Electrical Manufacturers Association (NEMA)
3. Occupational Safety and Health Act (OSHA)
4. American Society of Testing and Materials (ASTM)
5. American Welding Society (AWS)
6. American Institute of Steel Construction (AISC)
7. American Society of Civil Engineers (ASCE)
8. Steel Structures Painting Council (SSPC)
9. American National Standards Institute (ANSI)
10. American Water Works association (AWWA)

**1.06 DELIVERY, STORAGE, AND HANDLING**

A. Preparation for Transport: Prepare all equipment according to the following:

1. Ensure that all the equipment is dry and protected.
2. Package all the equipment to protect from damage while in transport, loading, and unloading.

B. Storage:

1. Carefully prepare for storage and label all equipment and materials after they have been inspected.
2. Store materials to permit easy access for inspection and identification. Support all material off of the ground and protect steel members and package material from corrosion and deterioration as per manufacturer's instructions.

C. Handling: Handle all equipment as per manufacturer's instructions.

D. Inspect all equipment and materials against reviewed shop drawings at the time of delivery.

E. Equipment and materials damaged or not meeting the requirements of the reviewed shop drawings shall be immediately returned for replacement or repair.

## 2.00 PRODUCTS

### 2.01 MANUFACTURERS

A. The manufacturer must meet all the requirements as specified herein and as indicated on the drawings.

B. Manufacturer's Qualifications: All manufacturers shall assume complete responsibility for the design and performance of the equipment supplied by them.
The manufacturer(s) of the equipment specified in this section shall meet one (1) of the following requirements:

1. Have a minimum of five (5) years experience in producing equipment specified in this section and shall produce evidence of at least five (5) installations of similar size in satisfactory operation in the United States.

2. Submit a bond or cash deposit, which will guarantee replacement of the equipment specified in this section in the event of failure. The guarantee bond or cash deposit is required for five (5) years from the date of Owner acceptance of the equipment. Equipment, which does not meet the experience clause and is proposed under these conditions, must meet all technical requirements.

### 2.02 METER INSTALLATION

A. Meter shall be a velocity sensing electromagnetic type with microprocessor based signal converter, sealed housing, flanged tube meter for 300-psi working pressure and CSA approved. The meters shall be McCrometer flanged model UM 08 or preapproved alternate. The meters shall be ten inch (10”) as shown on the plans. They shall have a range of 52 to 7670 gpm. The indicator shall be equipped with six-digit digital totalizer reading in units of 1000 gallons and shall be accurate within 0.5% of true flow. The meter assembly shall operate within a range of 0.2 FPS to 49 FPS and be constructed as follows:

B. Meter Tube (Sensor) shall be fabricated stainless steel pipe and use 300-lb. AWWA Class “D: flat face steel flanges. The internal and external of the meter tube shall be blasted to near white metal and lined with 40 mils of NSF approved fusion bonded epoxy coating, applied by the fluidized bed method. Meter tubes shall have a constant nominal inside diameter offering no obstruction to the flow. Electrodes shall be 316 stainless steel.

C. Mag Shield shall be welded to the tube providing a completely sealed environment for all coils, electrode connections and wiring harness capable of submerged or buried operation (NEMA 6P). Connection cable shall also be rated for submerged conditions.

D. Signal Converter (Indicator/transmitter) shall be pulsed dc coil excitation type with auto zeroing. The signal converter shall be remotely mounted away from the meter. The converter shall indicate direction of flow and provide a flow rate indication and a totalization of flow volume for both forward and reverse directions. Both forward and reverse totalizers shall be electronically resettable. The converter shall provide an isolated 4-20 mA output in 800-ohm load, and a frequency output of a maximum of 0-800 Hz and a scaled pulse output. The microprocessor based signal converter shall have a self-diagnostic test mode and a backlit display that continuously displays “Rate of Flow” and “Total Volume”. The signal converter configuration parameters shall be lockout protected, but can be changed via the front panel keypad or with the use of a personal computer or electronic organizer with a 9-pin RS232 serial interface port. The converter shall be compatible with Microsoft Windows and other software programs with built in terminal communication capabilities. The converter shall be remotely mounted up to 300-ft. from sensor, and shall be supplied in a sealed NEMA 4X case, with all calibration complete for desired requirements. Converter shall be supplied with a programmable low flow drop out and empty pipe zero return.

E. Grounding Rings shall be 316 stainless steel and two shall be supplied with each meter tube.

F. Volumetric Testing of all meters must be performed and approved prior to shipment. The complete meter assembly and signal converter must be wet accuracy tested and calibrated as a unit near minimum, intermediate, and maximum manufacturer's specified flow ranges of the meter. The amount of water used to conduct the test must be shown on a shipping tag attached to the meter. The test facility must be certified annually to accuracy of +0.2% and be traceable to the National Institute of Standards and Technology. If desired, the test shall be witnessed by the Owner or their selected agent. A copy of the certified accuracy test record must be furnished at no charge to the Owner, if requested.

G. Warranty Meters shall be warranted for a period of 2 years from the date of manufacturer.

## 3.00 EXECUTION

### 3.01 INSTALLATION

A. Install all equipment specified in this section as indicated on the contract drawings and in accordance with the manufacturer's instructions. The Contractor shall field verify all dimensions and provide piping and fittings to properly fit the meter into the piping. All piping and meters shall fit together in true alignment.

B. The Contractor shall furnish and install all field wiring, including indicator wires, required including proper sized wire, conduit, fittings, and supports, as called for on the plans and specified in Division 16.

C. Provide the Owner with an installation certificate signed by the equipment manufacturer's representative attesting that the equipment has been properly installed and is ready for start-up and continuous operation.

### 3.02 FIELD QUALITY CONTROL

A. Each manufacturer of the electronic equipment called for in this section shall provide a qualified field serviceman for a minimum period of one (1) day with one (1) trip to perform the following services:

1. Equipment installation:

(a) Inspect the completed installation and note deficiencies, if any.

(b) Assist Owner and Contractor during start-up, and adjusting of completed installation.

2. Training:

(a) Instruct personnel in the operating and maintenance of the equipment, provided under this item.

(b) All procedures shall be covered including preventative maintenance, method of controlling equipment, and troubleshooting.

### 3.03 WARRANTY

A. Warranty all parts to be free from defects in material and workmanship for a period of two years after start-up of the equipment specified in this section. Furnish and install replacement parts found to be defective within the defined two year warranty period.

**END OF SECTION 331233**

**DIVISION 40: PROCESS INTEGRATION**

**SECTION 400557.23 – ELECTRIC VALVE ACTUATORS**

## 1.00 GENERAL

### 1.01 MANUFACTURERS

A. Harold Beck & Sons, Inc.
B. Hayward Flow Control
C. Asahi / Amcorp, Inc.
D. Or Equal

## 2.00 PRODUCTS

### 2.01 ELECTRIC ACTUATORS

A. All actuators shall be quarter-turn type or multi-turn type with or without an external gearbox, suitable for modulating service or on/off service as specified in the valve schedule.

B. Refer to the valve schedule for service conditions.

C. Actuators shall contain motor, gearing, manual over-ride, limit switches, drive coupling, integral motor controls, position feedback transmitter, and position indicator. No special setting tools shall be required for actuator setup and configuration.

D. Motor
1. Designed for modulating actuator service.
2. Induction type.
3. Insulation: Class H.
4. Totally enclosed, non-ventilated.
5. 120 volt, 1 phase, 60 Hz.
6. Motor shall be non-coasting, suitable for high duty cycle conditions, and shall be self-locking and self-releasing without the use of a separate brake winding, mechanical brake, or worm gear mechanism.
7. The motor shall be capable of up to 60 starts/stops per minute or a temporary stall condition without overheating.
8. Triacs shall be utilized for solid-state switching. Torque capacity of the operators shall be sufficient to operate the valves with a maximum pressure differential indicated in the Valve Schedule with a safety factor of at least 1.5.
9. Maximum current draw of motors shall be 3.1 amperes in a fully stalled condition.
10. Motors shall reach synchronous speed on start-up in 1.5 AC power cycles, and shall also reach dead stop from full synchronous speed in 1.5 cycles. Motor shall not overheat or fail when in continuous stall condition for 72 hours.
11. No electrical or thermal overload protection shall be required for protection of a stalled or cycling operator.

E. Control drive shall be-designed to stay in place upon loss of power and shall be capable of holding a load equal lo at least 200% of the model's rated output. Stall torque shall be self- limiting not exceeding 2.5 times the rated torque. Torque switches shall not be required. Drive shall operate on an increasing signal for full 100° rotation. Control drives shall be able to operate in any mounting orientation.

F. Gear train shall have high efficiency spur gears constructed of heat treated alloy steel or ductile Iron only. Readily available gear modules shall provide for a range of torque and liming combinations within the drive's rated capacity, and shall be field interchangeable. Gears shall be rated at twice the output torque of the operator, so that a continuous stall condition of 72 hours will not create any significant wear or performance degradation. Over-travel of operator shall prevented by internal mechanical stops cast into the actuator. Operating time between full limits of travel shall be between 22-180 seconds for quarter turn models.

G. Motor pinion and all gearing shall be lubricated with a premium, heavy-duty lithium based lubricant, and shall not require changing of the lubrication for a minimum of five years. No oil baths shall be used for lubrication purposes. Maintenance-free bearings shall be used.

H. Manual Operation
1. Manual over-ride shall be by handwheel.
2. Manual operation shall be via power gearing.
3. Return from manual to electric mode of operation shall be automatic upon motor operation.
4. A mechanical indicator of valve position shall be provided and attached to the main output shaft driving the load.
5. No declutching mechanism shall be required for manual operation.
6. Manual operation shall be possible with electric components removed.

I. Actuators using bracket/linkage connection shall consist of linkage between operator and valve shall be by crank arms and connecting rod, with adjustable starting point of valve position and adjustable rod length. Direct coupled actuators shall use a compression fit coupling to connect the Beck output shaft to the valve shaft. Operators shall stop precisely Within 0.15 degrees of the desired control position. Operator output shaft shall be stainless steel. Stem shall be self- locking when the motor is de-energized. Modular construction and special lubrication shall permit the operator to be mounted in any position. Modulating operators shall be capable of operating in ambient temperatures ranging from -40°F to 185°F.

J. Limit Switches
1. Two SPDT limit switches for over-travel protection and four auxiliary SPDT limit switches (two normally open, two normally closed) shall be provided on all operators.
2. Limit switches shall be snap-acting, SPDT, silver alloy contacts rated for 6 amperes at 120 VAC. Switches shall have lubrication-free. nylon rollers, polished stainless steel roller-axle, and tempered blades. Switches shall be Infinitely adjustable over the full range of valve travel. Limit switches shall be wired to a terminal board for remote output
3. Drive shall also have integral mechanical stops, capable of limiting travel of the drive and load, with or without the drive motor.
4. Switch adjustment shall not be altered by manual operation. The use of batteries shall not be required to accomplish this function.

K. The operators for the modulating valves shall be provided with 4-20 mA output signals for valve position feedback. Continuous position sensing of valve position shall be provided. Position sensing shall require no contacting or wiping surface. The position sensing unit shall be provided integral with the operator and shall provide a linear 4-20 mA output signal, approximately. proportional to valve percent open.

L. Modulating actuators shall have a position feedback device mounted directly to the valve actuator gearing inside the gearing compartment. The feedback device shall provide a 4-20 mA signal corresponding to valve position. Modulating valve actuators shall be designed to respond to either a 4-20 mA DC analog signal or a pulsed AC signal as specified herein.

M. Modulating valve actuators designed to respond to 'pulse' open/close signals shall operate the valve during the time the open or close pulse signal is being received. Modulating actuators designed to respond to "pulse" open/close signals shall have the latching circuitry described for open/close actuators disabled.

N. Actuators shall contain wiring and terminals for the following control functions. All dry contacts shall be rated for 6A at 120VAC

1. A five-position, drive-mounted electric handswitch shall be provided to permit local electrical operation of the unit for control adjustment or operation on loss of control signal

2. Four (4) unpowered contacts shall be provided, three of which shall be selected to indicate valve "Opened" position, valve "Closed' position, and 'Auto" status of the actuator.

3. Where required in the Valve Schedule the actuator must be wired to interface with the remote manual control station as supplied by the Electrical Contractor.

O. Certified electrical control schematic diagrams shall be provided by the actuator Manufacturer for each service type of electric actuator. Interconnecting wiring information shall be submitted including terminal numbers, color coding, and the name and terminal numbers. for items to which the wiring is to be connected.

P. Enclosure shall be totally enclosed, cast, weatherproof, dust-tight, NEMA 4X, construction and IP68 rated. Separate conduit entrances shall be available for power and control wiring connections.

Q. Local Controls

1. A five-position, drive-mounted electric handswitch shall be provided to permit local electrical operation of the unit for control adjustment or operation on loss of control signal. All switches, wiring, relays, etc. shall be brought to a terminal board for field connection.
   a) When the handswitch is in the "Auto" position, the actuator shall be controlled by remote control signals. Operators for modulating service shall be provided with integral position controllers which shall receive a 4-20 mA signal and, while in "Auto" mode, shall position the valve to match the setpoint.
   b) When the handswitch is in the "CW' or "CCW" position, the actuator shall move toward the appropriate end-of-travel limit switch. Placing the selector switch in the "Stop" position shall stop the actuator travel.

## 3.00 EXECUTION

### A. DELIVERY, STORAGE AND HANDLING

1. Packing and Shipping:

   a) Valves specified herein shall be factory assembled. Any valve appurtenances, accessories, parts and assemblies that are shipped unassembled shall be packaged and tagged in a manner that will protect the equipment from damage and facilitate the final assembly in the field.

   b) Care shall be taken in loading, transporting and unloading to protect valves, appurtenances, or coatings from damage. Equipment shall not be dropped. All valves and appurtenances shall be examined before installation and no piece

shall be installed which is found to be defective. Any damage(s) shall be repaired.

c) Prior to shipping, the valves and all associated accessories shall be acceptably packaged and covered to prevent entry of foreign materials.

d) All valves shall be shipped, remain covered and stored on site until they are installed and put into use.

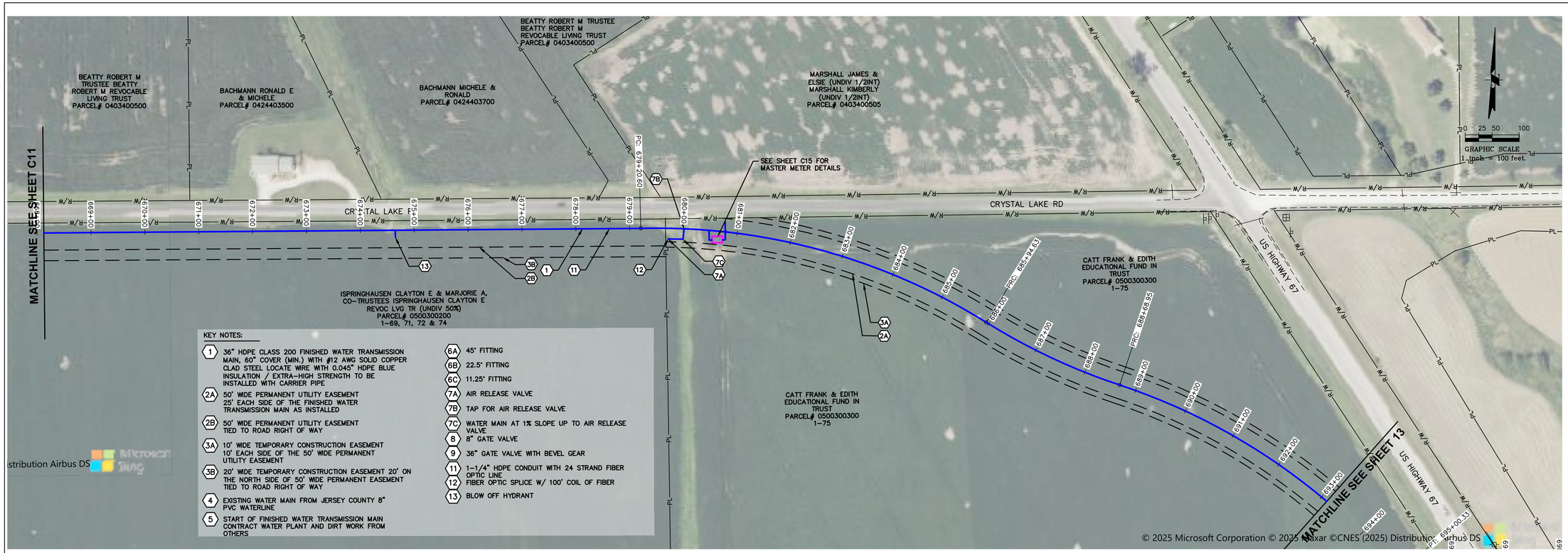
B. **FIELD TESTING**

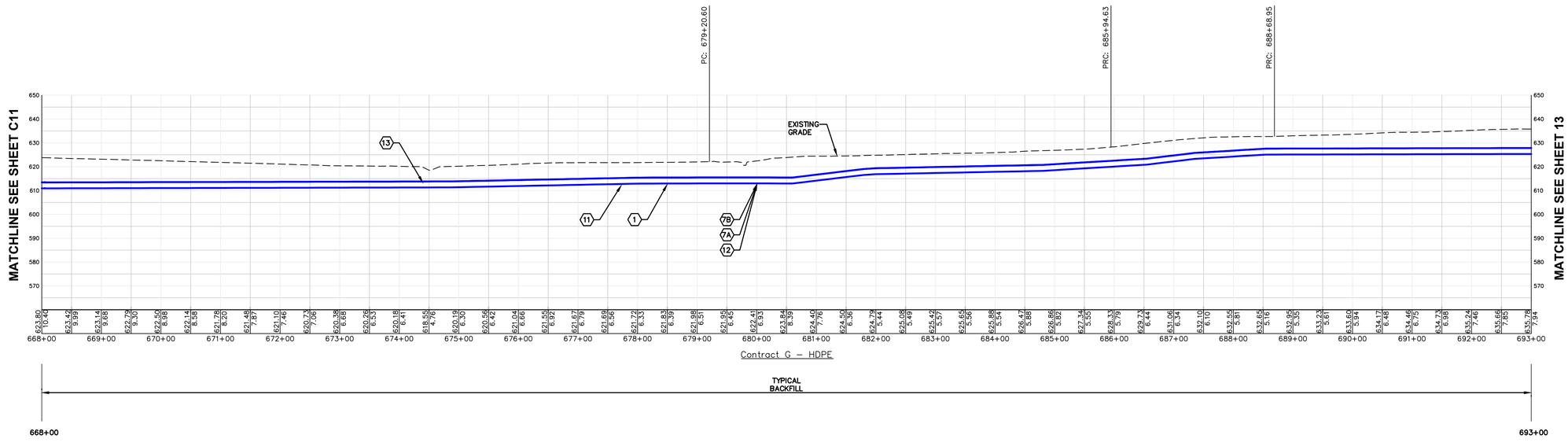
1. A direct factory representative shall be made available by the equipment supplier for start-up service, inspection and necessary adjustments.

C. **WARRANTY**

1. The Valve manufacturer shall warrant the valve to be free of defects in material and workmanship for a period of three years from date of shipment provided the valve is installed and used in accordance with all applicable instructions. Electrical components shall have a one-year warranty.

**END OF SECTION 400557.23**




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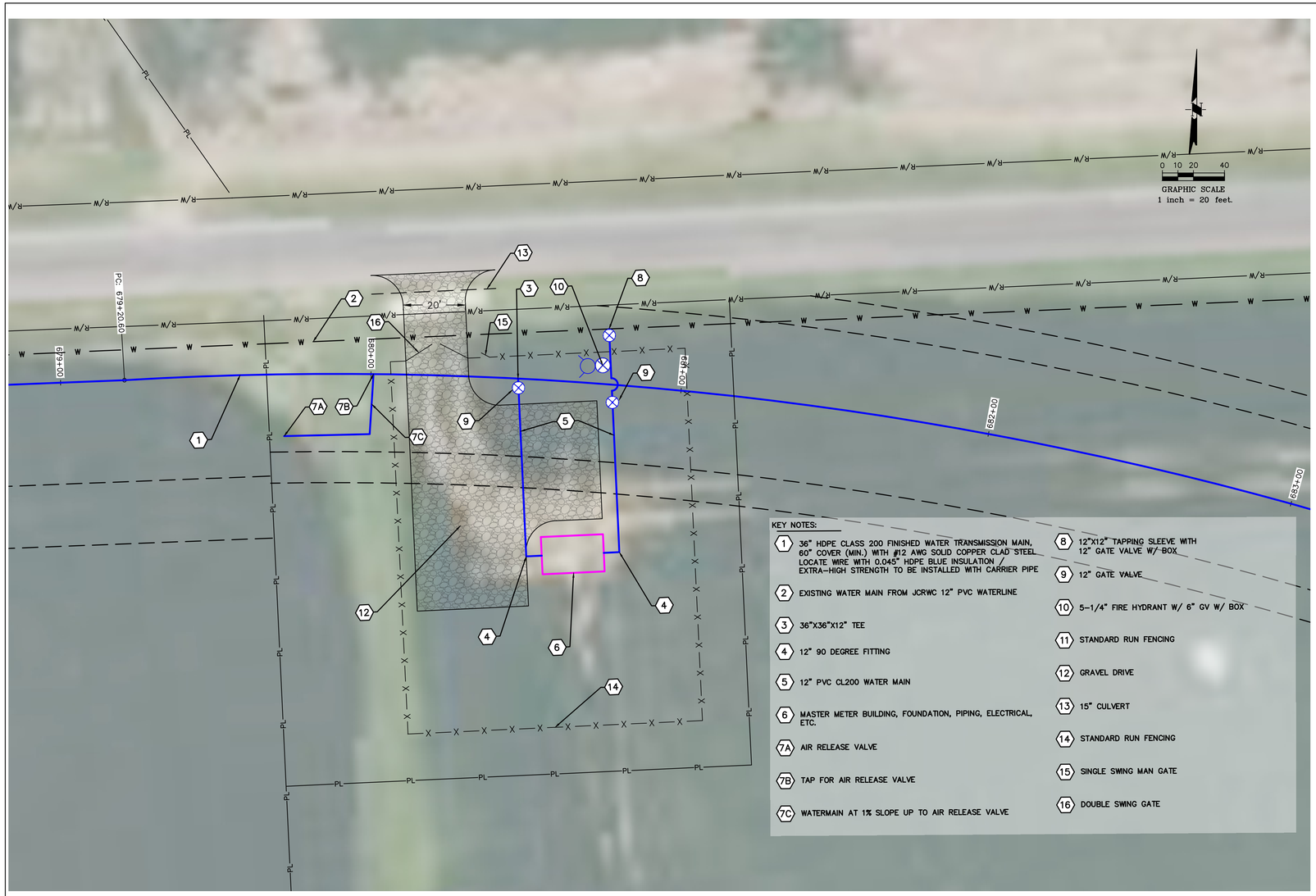
REVISIONS | DATE | NO.

CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN
AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

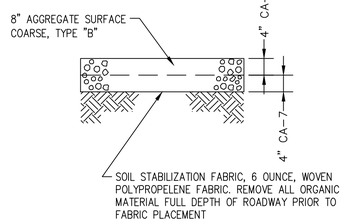
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PROJECT NO. 71000-412
DATE: 9/17/2026
SHEET NO. C12-HDPE
15 OF 25 SHEETS

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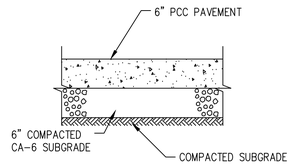



KEY NOTES:

1. 36" HDPE CLASS 200 FINISHED WATER TRANSMISSION MAIN, 60" COVER (MIN.) WITH #12 AWG SOLID COPPER CLAD STEEL LOCATE WIRE WITH 0.045" HDPE BLUE INSULATION / EXTRA-HIGH STRENGTH TO BE INSTALLED WITH CARRIER PIPE
2. EXISTING WATER MAIN FROM JCRWC 12" PVC WATERLINE
3. 36"X36"X12" TEE
4. 12" 90 DEGREE FITTING
5. 12" PVC CL200 WATER MAIN
6. MASTER METER BUILDING, FOUNDATION, PIPING, ELECTRICAL, ETC.
7A. AIR RELEASE VALVE
7B. TAP FOR AIR RELEASE VALVE
7C. WATERMAIN AT 1% SLOPE UP TO AIR RELEASE VALVE
8. 12"X12" TAPPING SLEEVE WITH 12" GATE VALVE W/ BOX
9. 12" GATE VALVE
10. 5-1/4" FIRE HYDRANT W/ 6" GV W/ BOX
11. STANDARD RUN FENCING
12. GRAVEL DRIVE
13. 15" CULVERT
14. STANDARD RUN FENCING
15. SINGLE SWING MAN GATE
16. DOUBLE SWING GATE




## GRAVEL DRIVE SECTION
(NOT TO SCALE)




NOTE:
PORTLAND CEMENT CONCRETE SHALL CONFORM TO SECTION 420 OF THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AS PUBLISHED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION

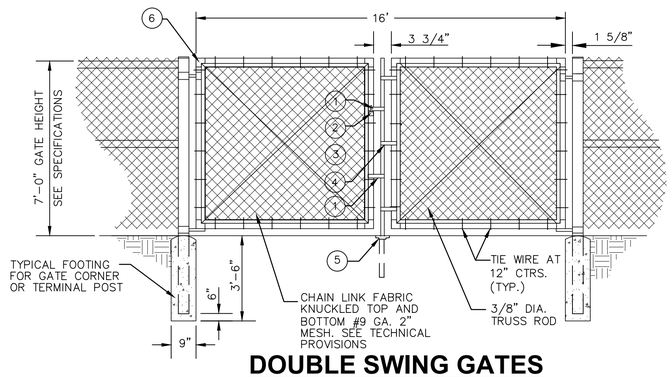
## CONCRETE PAVEMENT SECTION
(NOT TO SCALE)

1. LATCH FORK
2. FORK CATCH
3. LOCK KEEPER
4. LOCK KEEPER GUIDE 5 PLUNGER ROD CATCH (ALTERNATE-MUSHROOM PLATE ROD CATCH)
6. #4 A1 (PR. STL.) RIVETED

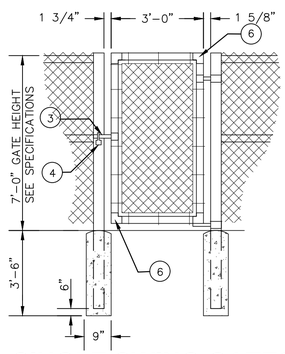
## TUBULAR RAIL AND POSTS

TOP AND BRACE RAIL-1 5/8" O.D., SCH 40
INTERMEDIATE POSTS-2 1/2" O.D., SCH 40
TERMINAL POST----3" O.D., SCH 40

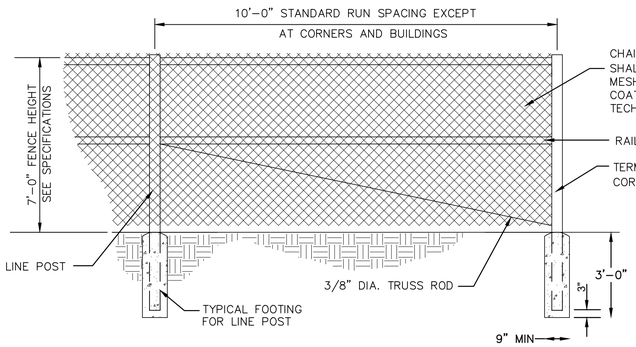
NOTE: ALL POSTS SHALL BE GALVANIZED OR ALUMINUM COATED STEEL.




## DOUBLE SWING GATES
NO SCALE




## SINGLE SWING GATES
NO SCALE




## STANDARD RUN FENCING DETAILS
NO SCALE

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P: (636) 395-7055

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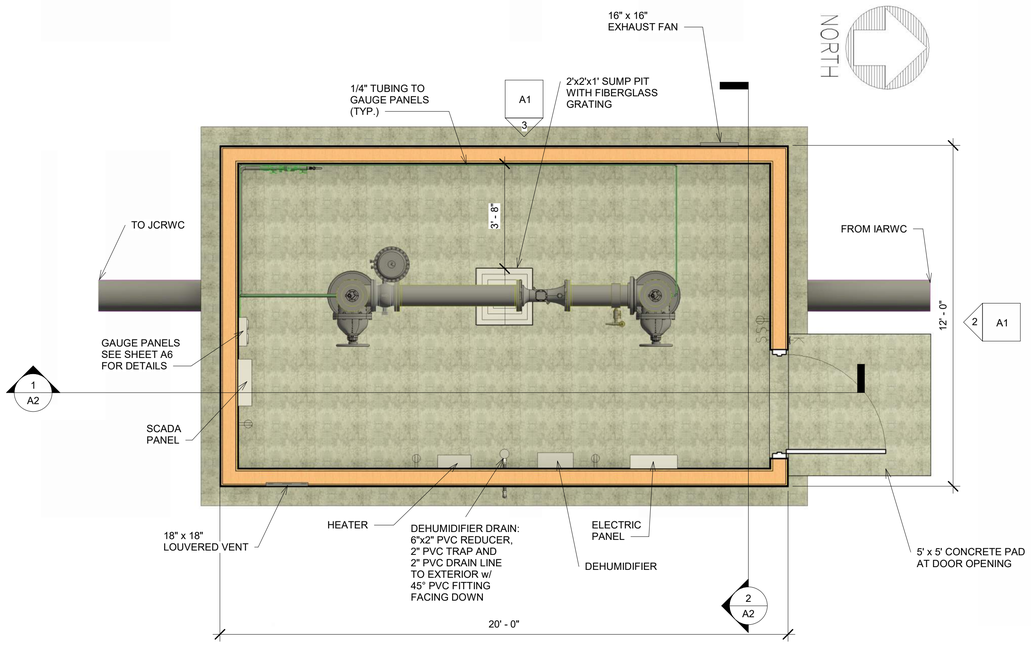
CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN
AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

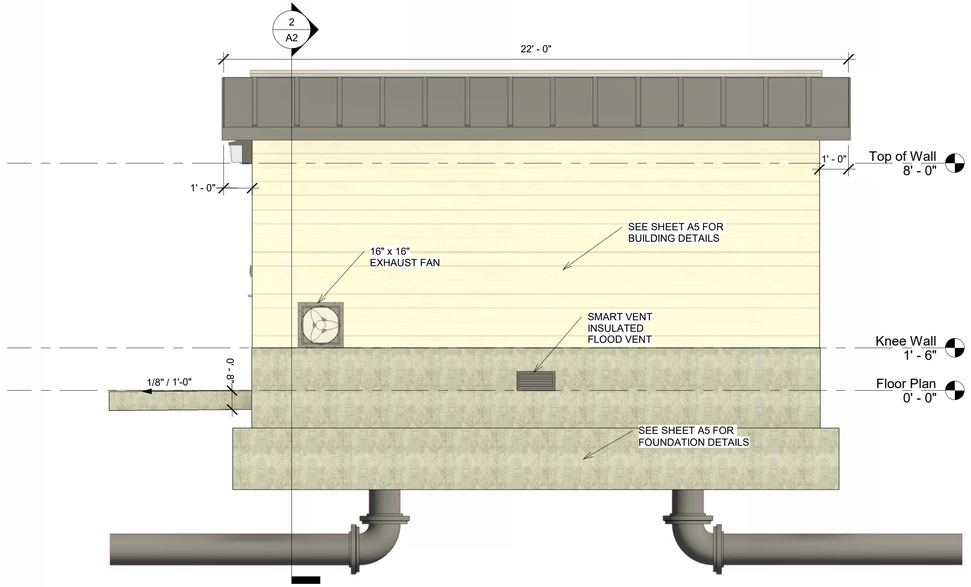
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| VERTICAL SCALE: | 1"=20' |
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| DATE: | 9/30/2026 |
| SHEET NO. | C15-HDPE |

15A OF 25 SHEETS

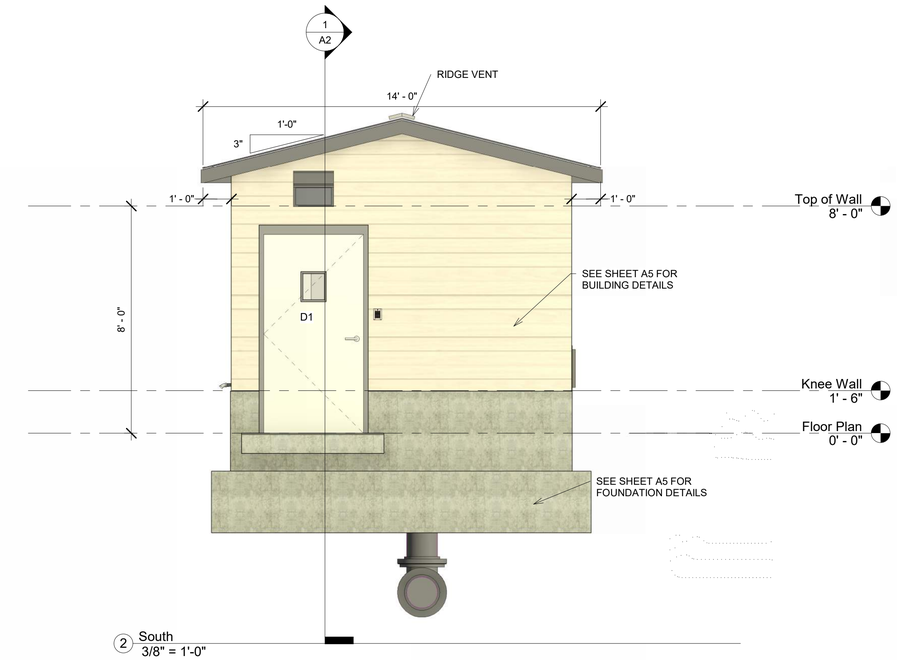
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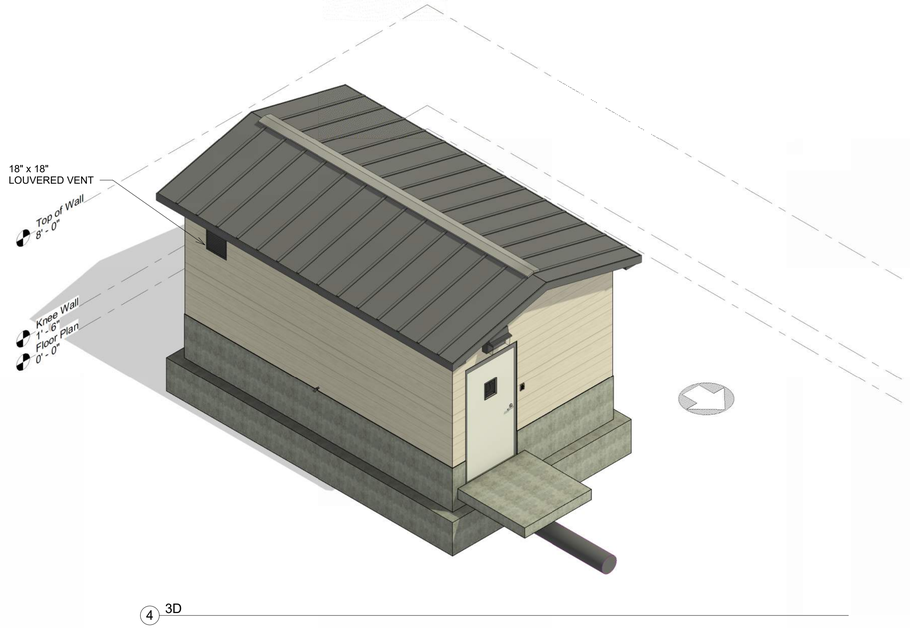

1 Floor Plan
3/8" = 1'-0"




3 East
3/8" = 1'-0"




2 South
3/8" = 1'-0"




4 3D

| DOOR SCHEDULE | | | | | | |
|---|---|---|---|---|---|---|
| MARK | DOOR SIZE | DOOR MATERIAL | FRAME MATERIAL | INTERIOR HARDWARE | EXTERIOR HARDWARE | REMARKS |
| D1 | 3'-6" x 7'-0" x 1 3/4" | STEEL | STEEL | PANIC LOCK SET & DOOR CLOSER | KEYLESS TOUCHPAD | 12"x18" WIRED GLASS BY DOOR MANUFACTURER |

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035.003949
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EXPIRES: DECEMBER 31, 2026
3120 PALMYRA ROAD
HANNIBAL, MO 63401
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F: (573) 221-4377

REVISIONS | DATE | NO.

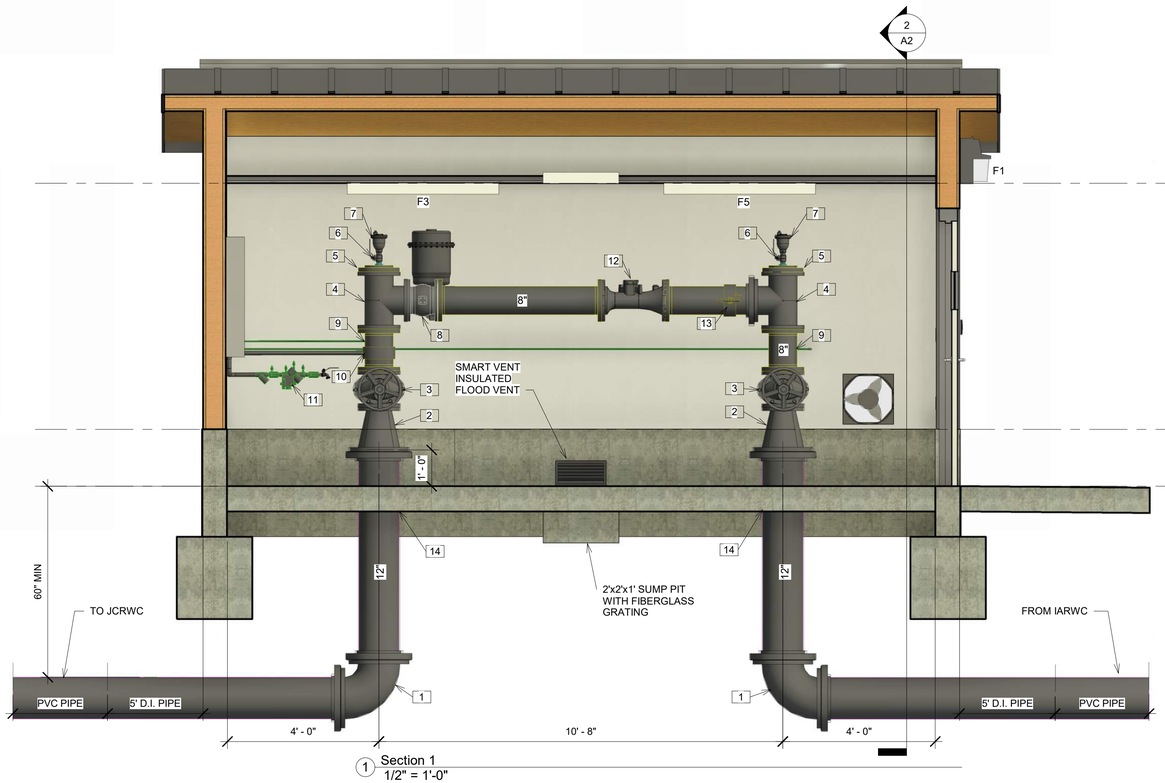
CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN
SOUTHLAND MASTER METER DETAIL

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

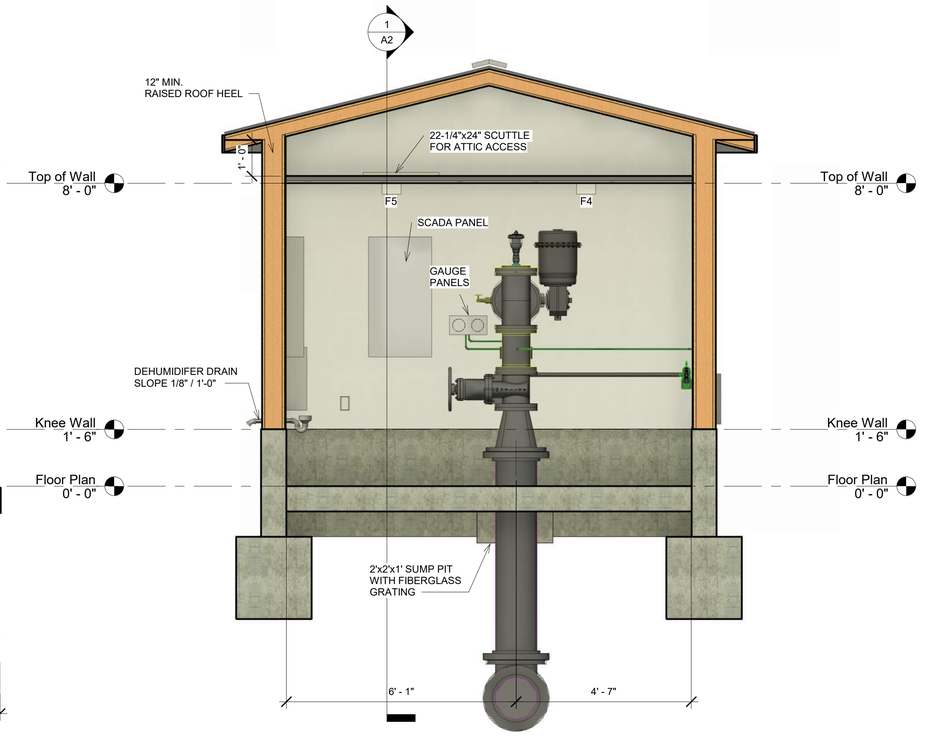
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VERTICAL SCALE: N/A
PROJECT NO. 71000-412
DATE: 2/10/2026
SHEET NO. A1
26 OF29SHEETS

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1 Section 1
1/2" = 1'-0"



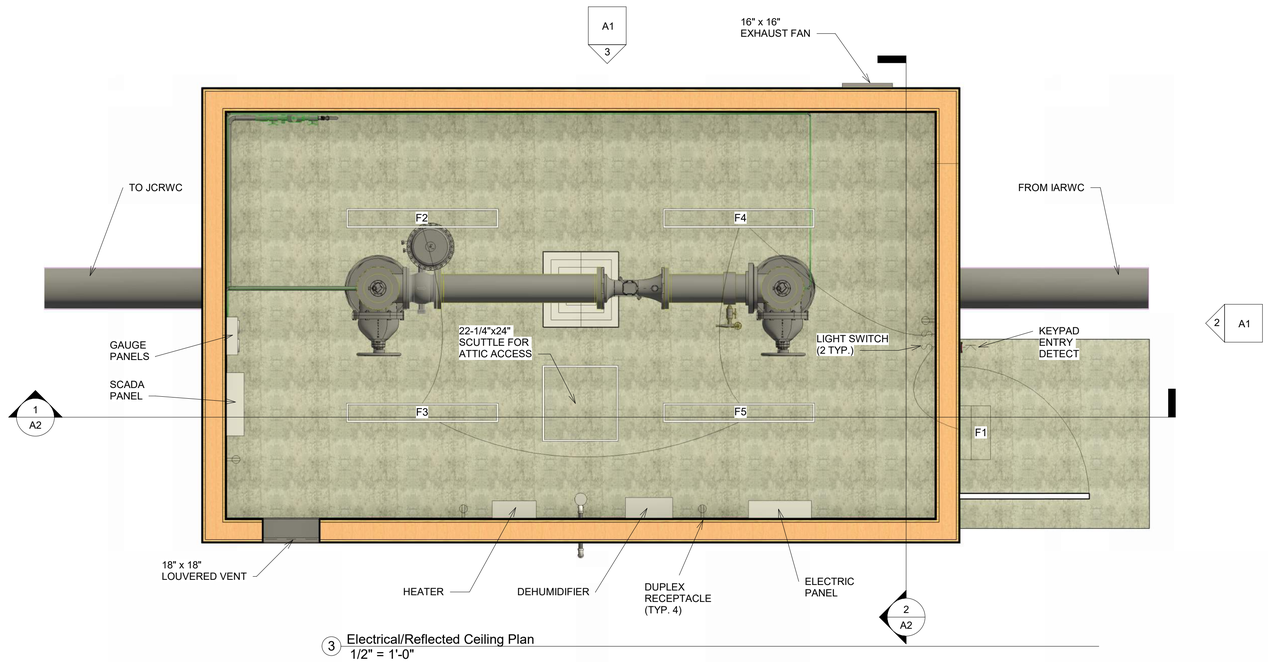

2 Section 2
1/2" = 1'-0"

NOTES:

1. PROVIDE PIPE SUPPORTS AS NEEDED TO PREVENT STRAIN ON METERS, VALVES, ETC.
2. ALL FLOORS SHALL SLOPE AT LEAST 1/8 INCH IN EVERY 1 FOOT TO A SUITABLE DRAIN.
3. CONTRACT E CONTRACTOR RESPONSIBLE FOR THE WATER MAIN 5 FEET AND BEYOND THE OUTSIDE WALL OF THE BUILDING.

| FITTING SCHEDULE | |
|---|---|
| NUMBER | DESCRIPTION |
| 1 | 12" - 90° BEND |
| 2 | 12"x8" CONCENTRIC REDUCER |
| 3 | 8" GATE VALVE |
| 4 | 8" TEE |
| 5 | 8" BLIND FLANGE w/ TAPPED 1" IPT |
| 6 | 1" QUARTER TURN ISOLATION VALVE |
| 7 | 1" AIR RELEASE VALVE |
| 8 | 8" CONTROL VALVE |
| 9 | TAP FOR 1/4" TUBING TO GAUGE PANEL |
| 10 | TAP FOR 1" PIPING TO RPZ |
| 11 | RPZ |
| 12 | 8" METER |
| 13 | SMOOTH NOSED SAMPLE TAP AND BIB |
| 14 | PIPE SLEEVE w/ LINK SEAL AT FLOOR PENETRATION |

| LIGHTING FIXTURE SCHEDULE | | | |
|---|---|---|---|
| FIXTURE NUMBER | MANUFACTURER OR EQUAL | MAKE OR MODEL NUMBER | LAMP |
| F1 | LUMAPRO | 453D94 WALL PACK w/ DUSK TO DAWN KIT | 49W LED |
| F2 | RAB | SHARK4-50NW/D10 (48") | 50W LED |
| F3 | RAB | SHARK4-50NW/D10 (48") | 50W LED |
| F4 | RAB | SHARK4-50NW/D10 (48") | 50W LED |
| F5 | RAB | SHARK4-50NW/D10 (48") | 50W LED |
| | | | |




3 Electrical/Reflected Ceiling Plan
1/2" = 1'-0"

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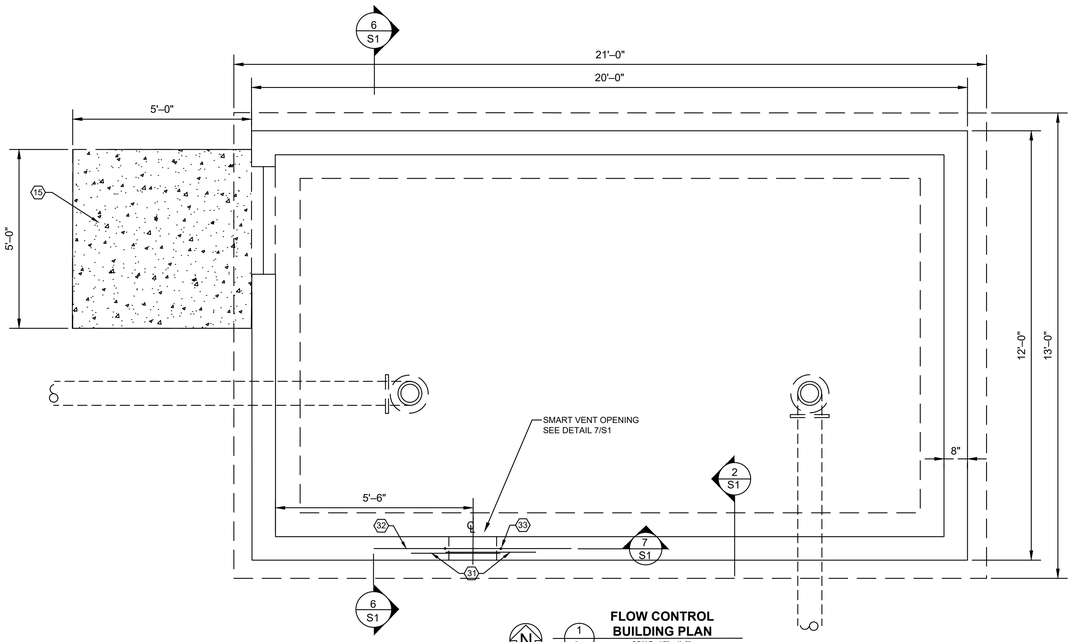
REVISIONS

| NO. | DATE |
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CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN
SOUTHLAND MASTER METER DETAIL

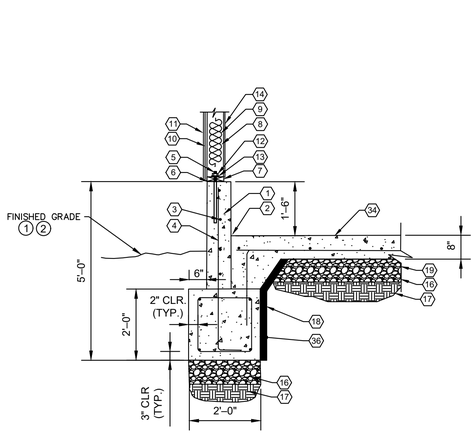
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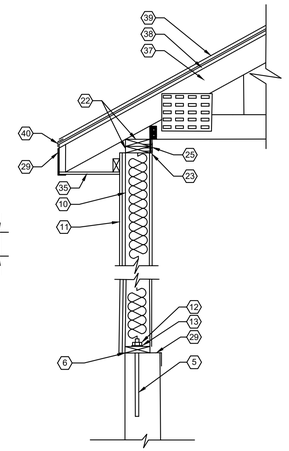

## FLOW CONTROL BUILDING PLAN

SCALE: 1/2" = 1'-0"



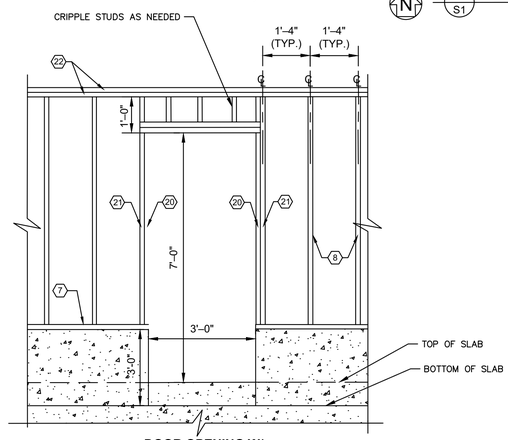

## FOUNDATION SECTION

SCALE: 1/2" = 1'-0"



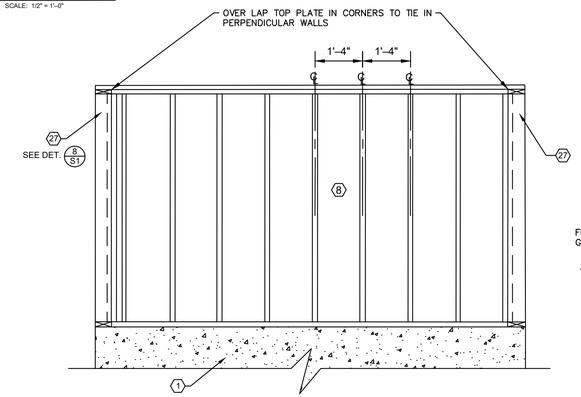
## ROOFING TRUSS TO WALL CONNECTION

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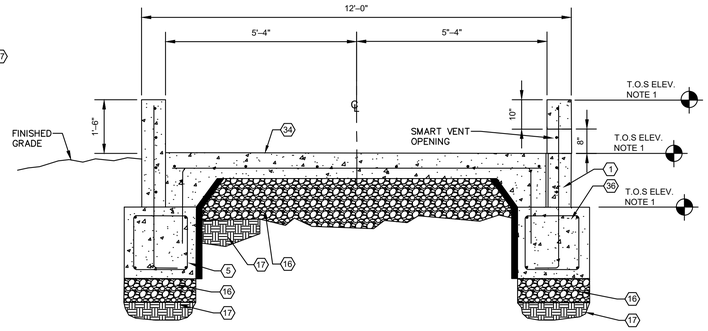

## DOOR OPENING W/ BOXED INSULATED HEADER

SCALE: 1/2" = 1'-0"




## TYPICAL WALL DETAIL

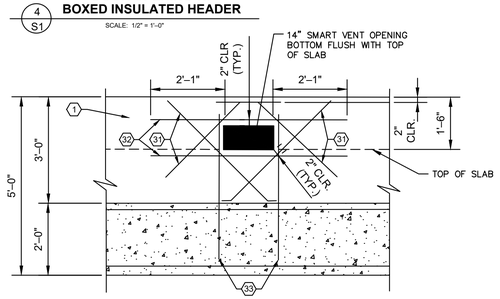
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## SMART VENT ELEVATION VIEW

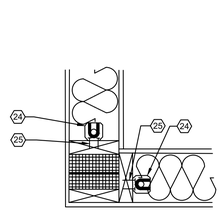
SCALE: 1/2" = 1'-0"

NOTE 1:
ELEVATIONS PROVIDED DURING CONSTRUCTION BY ENGINEER



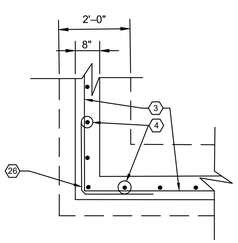

## SMART VENT PENETRATION DETAIL

SCALE: 1/2" = 1'-0"




## TYP. 3 STUD CORNER W/ DTT1Z WALL BRACING BRACKETS

NO SCALE




## TYPICAL KNEE WALL CORNER REINFORCEMENT

NO SCALE

## KEY NOTES

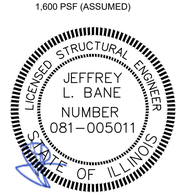
1. 8" THICK CONCRETE KNEE WALL
2. 1/2" EXPANSION JOINT FILLER
3. (4) CONTINUOUS #4 HORIZONTAL BARS EQ. SPA.
4. #4 VERTICAL BARS @ 12" O.C W/ STD. 90° HOOK ALT. DIRECTIONS
5. 1/2"Ø A36 THREADED ROD W/ 12" EMBEDMENT AND 3" PROJECTION ASTM F1554 Gr. 36 (OR EQUAL) @ 48" O.C., 12" FROM CORNERS & OPENINGS.
6. SILL PLATE SEALER
7. 2x6 PRESSURE TREATED SILL PLATE
8. 2x6 STUD FRAME WALL @ 16" O.C. (TYP.)
9. 6" BATT INSULATION (UNFACED)
10. 5/8" EXTERIOR GRADE OSB PLYWOOD SHEATHING
11. VINYL SIDING OVER BUILDING WRAP (CHOSEN BY OWNER)
12. 1/2" Ø ASTM A563 GRADE A NUT
13. 1/2" Ø ASTM F463 TYPE 1 FLAT WASHER
14. INTERIOR FIBERGLASS REINFORCED PANELS (FRP)
15. 5'x5'x8" FRONT DOOR CONCRETE PAD
16. IDOT CA6 CRUSHED STONE BASE COMPACTED TO 95% SPD
17. UNDISTURBED EARTH OR VIBRATORY COMPACTED BACKFILL
18. 2" RIGID FOAM INSULATION BOARD
19. 15 MIL VAPOR BARRIER
20. 2"x6" JACK STUD
21. 2"x6" KING STUD
22. 2"x6" DOUBLE TOP PLATE
23. "SIMPSON STRONG TIE" 18 GA. H1A HURRICANE TIE (OR EQUAL)
24. "SIMPSON STRONG TIE" DTT1Z WALL BRACING (OR EQUAL) W/ $\frac{3}{8}$" DIA. FASTENERS W/ 12" EMBED
25. "SIMPSON STRONG TIE" NO.9 x 1.5" SD9112 CONNECTORS (OR EQUAL)
26. (4) #4 2'x2' KNEE WALL CORNER BARS EQ. SPA. W/ STD. 90° BEND
27. 3 STUD CORNER W/ OVERLAPPING TOP PLATE
28. (2) LAYER OF 2" RIGID INSULATION
29. ALUMINUM FLASHING (COLOR CHOSEN BY OWNER)
30. HOT–DIP GALVANIZED 12D 3 1/2" FRAMING BOX NAILS
31. #4 DIAGONAL BARS 50" LONG CENTERED ON CORNER OF VENT OPENING IN KNEE WALL W/ 2" CLEARANCE
32. #4 HORIZONTAL BARS 5'-6" LONG W/ 2" CLEARANCE AND EXTEND 25" PAST VENT OPENING ON EACH SIDE
33. #4 VERTICAL BARS 4'-6" LONG W/ 2" CLEARANCE FROM VENT OPENING AND RUN FULL HEIGHT OF KNEE WALL
34. 8" CONCRETE SLAB W/ #4 @12"O.C. E.W.
35. PREFINISHED ALUMINUM SOFFIT (CHOSEN BY OWNER)
36. 2'x2' FOUNDATION GRADE BEAM W/ (4) #4 CONT. & #4 STIRRUPS AT 16"O.C.
37. PRE-ENGINEERED WOOD TRUSSES @ 24"O.C.
38. 5/8" EXTERIOR GRADE OSB PLYWOOD ROOF SHEATHING
39. ARCHITECTURAL ASPHALT SHINGLES (COLOR CHOSEN BY OWNER), ALGAE RESISTANT, RATED FOR 130 MPH OVER 15# ROOFING FELT
40. ALUMINUM DRIP EDGE (COLOR CHOSEN BY OWNER)

## GENERAL NOTES

1. BOTTOM OF FOOTING SHALL BE 3'–0" MIN. BELOW FINISHED GRADE TO STAY BELOW FREEZE LINE.
2. FINISHED GRADE SHALL START BELOW FINISHED FLOOR ELEVATION, IS TO SLOPE AWAY FROM BUILDING FOR PROPER DRAINAGE, AND IS TO BE BLENDED INTO EXISTING GROUND.
3. ALL REBAR SHALL BE ASTM A615 GRADE 60.
4. ALL CONCRETE SHALL HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 4,000 PSI. W/ AIR ENTRAINMENT.
5. ALL DIMENSIONAL LUMBER TO BE #2 SOUTHERN YELLOW PINE.
6. ALL LUMBER IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED.

DESIGN PARAMETERS

| | |
|---|---|
| SNOW LOAD PARAMETERS: | |
| GROUND SNOW LOAD | $P_g$ = 20 PSF |
| SNOW LOAD IMPORTANCE FACTOR | $I_s$ = 1.0 |
| SNOW EXPOSURE FACTOR | $C_e$ = 1.0 |
| WIND LOAD PARAMETERS: | |
| BASIC WIND SPEED | V = 108 MPH (ULTIMATE) |
| WIND IMPORTANCE FACTOR | $I_w$ = 1.0 |
| WIND EXPOSURE CATEGORY | EXPOSURE C |
| ENCLOSURE CLASSIFICATION | ENCLOSED BUILDING |
| SEISMIC LOAD PARAMETERS: | |
| MAPPED SHORT SPECTRAL ACCELERATION | Ss = 0.35g |
| MAPPED 1-SEC SPECTRAL ACCELERATION | S1 = 0.14g |
| SITE CLASS DEFINITION | SITE CLASS D |
| SHORT SPECTRAL RESPONSE COEFFICIENT | SDS = 0.358g |
| 1-SEC SPECTRAL RESPONSE COEFFICIENT | SD1 = 0.215g |
| SEISMIC DESIGN CATEGORY | SDC = D |
| SEISMIC IMPORTANCE FACTOR | Ie = 1.0 |
| OCCUPANCY CATEGORY | II |
| RESISTING SYSTEM | LIGHT FRAME WOOD WALLS SHEATHED W/ STRUCTURAL WOOD SHEAR PANELS |
| LIVE LOADS: | |
| ROOF = 20 PSF | |
| DEAD LOADS: | |
| ROOF = 15 PSF | |
| NET ALLOWABLE SOIL BEARING PRESSURE | 1,600 PSF (ASSUMED) |




Sealed 09/30/2026

Expires 11/30/2026

KUHN & TRELLO
CONSULTING ENGINEERS
A Limited Liability Company
109 N. 7th Street, 3rd Floor
Springfield, IL 62701
Phone: 217-679-0044
Professional Design Firm No. 184.006516

| | | | |
|---|---|---|---|
| USER NAME | = | DESIGNED | — PHR |
| FILE NAME | = | DRAWN | — MDD |
| PLOT SCALE | = | CHECKED | — JLB |
| PLOT DATE | = | DATE | — 09/30/2026 |

| REVISIONS | DATE | BY | DESCRIPTION |
|---|---|---|---|
| | | | |

**ALLUVIAL**

# PLAN & DETAILS

| PROJECT NO. | |
|---|---|
| 26055 | |
| TOTAL SHEETS | SHEET NO. |
| 1 | S1 |

SHEET NO. 1 OF 1 SHEETS

FILE NAME = \Job####\ drawingname.dwg
MODEL = = = =
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# PROJECT ROAD USE AGREEMENT

THIS AGREEMENT is made and entered into as of the _____ day of _____, 2026 (hereinafter referred to as the "Effective Date") by and between Jersey County, Illinois ("Road Authority") and Illinois Alluvial Regional Water Company ("Alluvial"). Road Authority and Alluvial may be collectively referred to herein as the "Parties" and individually as a "Party."

**WITNESSETH**

**WHEREAS,** Alluvial intends to engage in a rebuild construction of an existing 36" HDPE transmission line and related facilities (the "Project") in and through various portions of Jersey County, Illinois, Jersey Township, and English Township.

**WHEREAS,** Alluvial intends to use roads under the jurisdiction of the Road Authority for activities related to the Project and has provided to the Road Authority a Project Traffic Map depicting, among other things, the location of the Project facilities, the jurisdictional boundaries of the Road Authority, and identified local roads to be used as haul routes for Project construction vehicles allowing access to points of entry to the Project footprint for all material deliveries and construction activities. A copy of this document is attached hereto as Exhibit "A" and is referred to herein as the "Project Traffic Map."

**WHEREAS,** Alluvial intends to complete the construction portion of the Project by January 2029.

**NOW THEREFORE,** in consideration of the mutual promises and covenants herein set forth, the Parties hereto agree as follows:

1. The Road Authority permits Alluvial and its contractors and agents to use the local roads identified on the Project Traffic Map provided, however, that the Road Authority may restrict road use during the traditional road posting season depending on weather and road conditions.
2. The Road Authority shall issue vehicle permits for Project-related overweight and oversize vehicles that will be using the local roads identified on the Project Traffic Map. All overweight and oversize vehicles shall have a copy of the issued permit in the vehicle and available to be inspected by police or representatives of the Road Authority issuing the permit.
3. Alluvial will make all reasonable efforts to use private rights-of-way for construction of the Project in order to minimize the impact of its construction activities on the public roadways and roadway appurtenances.

4. Alluvial agrees to provide roadway traffic control and protection in accordance with current applicable IDOT standards at any time Alluvial, its contractors and/or agents are conducting any construction activities and/or have construction equipment within 5' from the edge of pavement.
5. Prior to mobilization, Alluvial will ~~secure a third-party contractor to~~ perform an initial inspection of the local roads identified on the Project Traffic Map. This inspection will include geospatial imaging and a summary report of the initial road conditions. ~~This contractor~~ Alluvial will perform additional ongoing monitoring of the local roads identified in the Project Traffic Map at a frequency based on the rate of road damage occurrence observed, if any. These reports and all geospatial imagery shall be delivered to the Parties upon completion.
6. During Project construction, Alluvial will keep all local roads identified on the Project Traffic Map clear of tracked mud caused by construction activities and passable by local traffic. If damage occurs to the local roads identified on the Project Traffic Map as a result of the Project construction, Alluvial agrees to pay for interim repairs to maintain the roads so they remain passable for local traffic.
7. Alluvial will post signs concerning road hazards, construction activities, and road closures.
8. Alluvial agrees to work in good faith with the Road Authority to coordinate construction activities and proactively address any issues that may arise throughout the duration of construction.
9. Upon Project completion, the third-party road monitoring contractor will perform a post-construction final inspection of the local roads identified as haul routes in the Project Traffic Map. This inspection will also include geospatial imaging and a summary report of the final road conditions. This report and all geospatial imagery shall be delivered to the Parties upon completion.
10. Upon receipt of the final inspection referenced above, Alluvial agrees to work in good faith with the Road Authority to identify damages caused by Alluvial and the appropriate remediation to restore the roads and areas of public rights of way, entrances, and points of ingress and egress to their pre-construction condition.
11. Based on the identified damages caused by Alluvial and appropriate remediation, the Road Authority will provide to Alluvial reasonable estimates for road repair or restoration in accordance with industry recognized standards to repair the roads back to their pre-construction condition. Alluvial agrees to pay the Road Authority the estimated cost to repair the roads back to their pre-construction conditions.
12. In the event that the Parties cannot agree on final damages caused and the amounts or costs of the repairs, Alluvial agrees to hire, at its cost, a mutually agreed upon engineer to review the inspection reports and cost estimates. The engineer will

determine a final cost of the repairs to restore the roads to their pre-construction condition. The Parties agree to accept this as the final amount and Alluvial agrees to pay the costs of the repairs within 30 days after receipt of invoice from the respective Road Authority.

13. Notwithstanding anything else to the contrary contained in this agreement, upon presentation of supporting invoices, Alluvial hereby agrees to pay for any and all legal fees, engineering fees, construction costs and all other costs associated with the development, execution and implementation of this agreement, including any disputes arising therefrom, not to exceed $25,000.
14. This Agreement cannot be modified or amended without the written consent of the Parties.
15. Any notice, statement, or invoice provided for in this Agreement shall be in writing and shall be considered as having been given if hand carried, facsimiled, or if mailed by United States mail, postage prepaid, to the following address, respectively:

| **Alluvial** | **COUNTY NAME** |
|---|---|
| **Name: Illinois Alluvial Regional Water Company**<br>**Address: 14500 State Hwy 16**<br>**Fieldon, Illinois 62031**<br>**Attention: Allen Davenport** | Name: Jersey County Highway Department<br><br>Address: 722 State Highway 16<br>Jerseyville, Illinois 62052<br><br>Attention: Tom Klasner<br>618.498.9074<br>tklasner@jerseycounty-il.us |

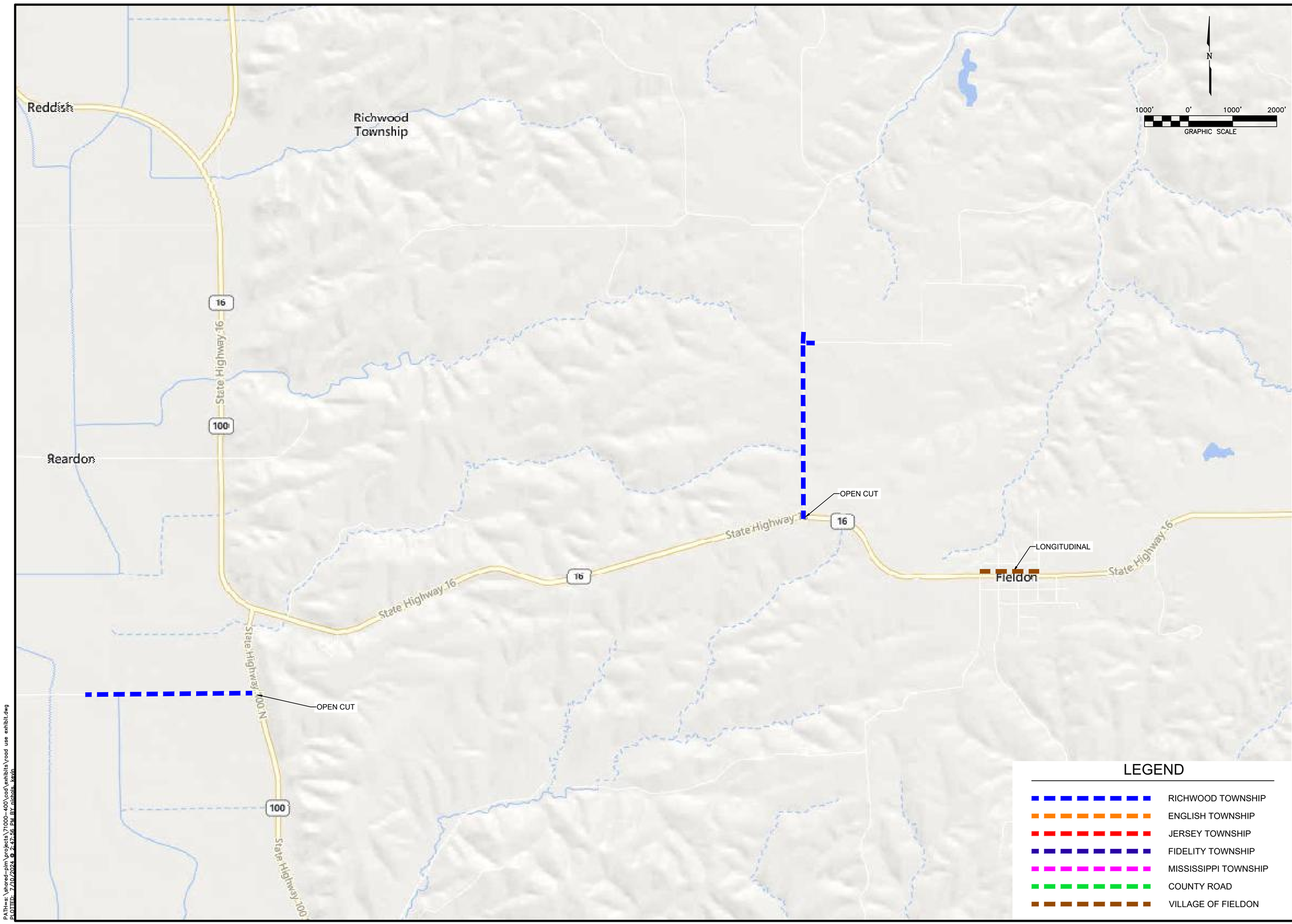
1. This Agreement shall be construed and interpreted in accordance with the laws of the State of Illinois, without recourse to any principles of law governing conflicts of law, which might otherwise be applicable.
2. This agreement in addition to the Illinois Compiled Statutes Section 9-113, 9-113.01 and 9-122 will constitute the entire agreement between the Parties with reference to the subject matter hereof.
3. This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument. Delivery of an executed counterpart of a signature page of this Agreement by facsimile (or other electronic) transmission shall be effective as delivery of a manually executed counterpart of this Agreement.

*1 The "Road Authority" shall include all of the following entities: Jersey County, Jersey Township, and English Township.*

*2 "Alluvial" shall include all contractors, sub-contractors, agents, affiliates, employees, material suppliers, vendors, representatives and designers.*

**IN WITNESS WHEREOF,** Jersey County, Illinois and Alluvial have caused this Agreement to be duly executed, all as of the date set forth above.

| **Jersey County, Illinois** | **Illinois Alluvial Regional Water Company** |
|---|---|
| **By:** _____ | By: _____ |
| **Name:** _____ | Name: _____ |
| **Title:** _____ | Title: _____ |




## LEGEND

- RICHWOOD TOWNSHIP
- ENGLISH TOWNSHIP
- JERSEY TOWNSHIP
- FIDELITY TOWNSHIP
- MISSISSIPPI TOWNSHIP
- COUNTY ROAD
- VILLAGE OF FIELDON


**HENEGHAN ASSOCIATES**

ENGINEERS-SURVEYORS
www.haengr.com

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IL: 184-002692, EXPIRES APRIL 30, 2025
MO: 001310, EXPIRES DECEMBER 31, 2025

- 1004 STATE HWY. 16
  JERSEYVILLE, IL 62052
  P: (618) 498-6418
  F: (618) 498-6410
- 800 BROADWAY, SUITE 3
  MOUNT VERNON, IL 62864
  P: (618) 533-6525
  F: (618) 533-6652
- 310A VISION DRIVE
  COLUMBIA, IL 62236
  P: (618) 281-8133
  F: (618) 281-8290
- 1929 RICHARDSON ROAD
  ARNOLD, MO 63010
  P: (636) 464-3610
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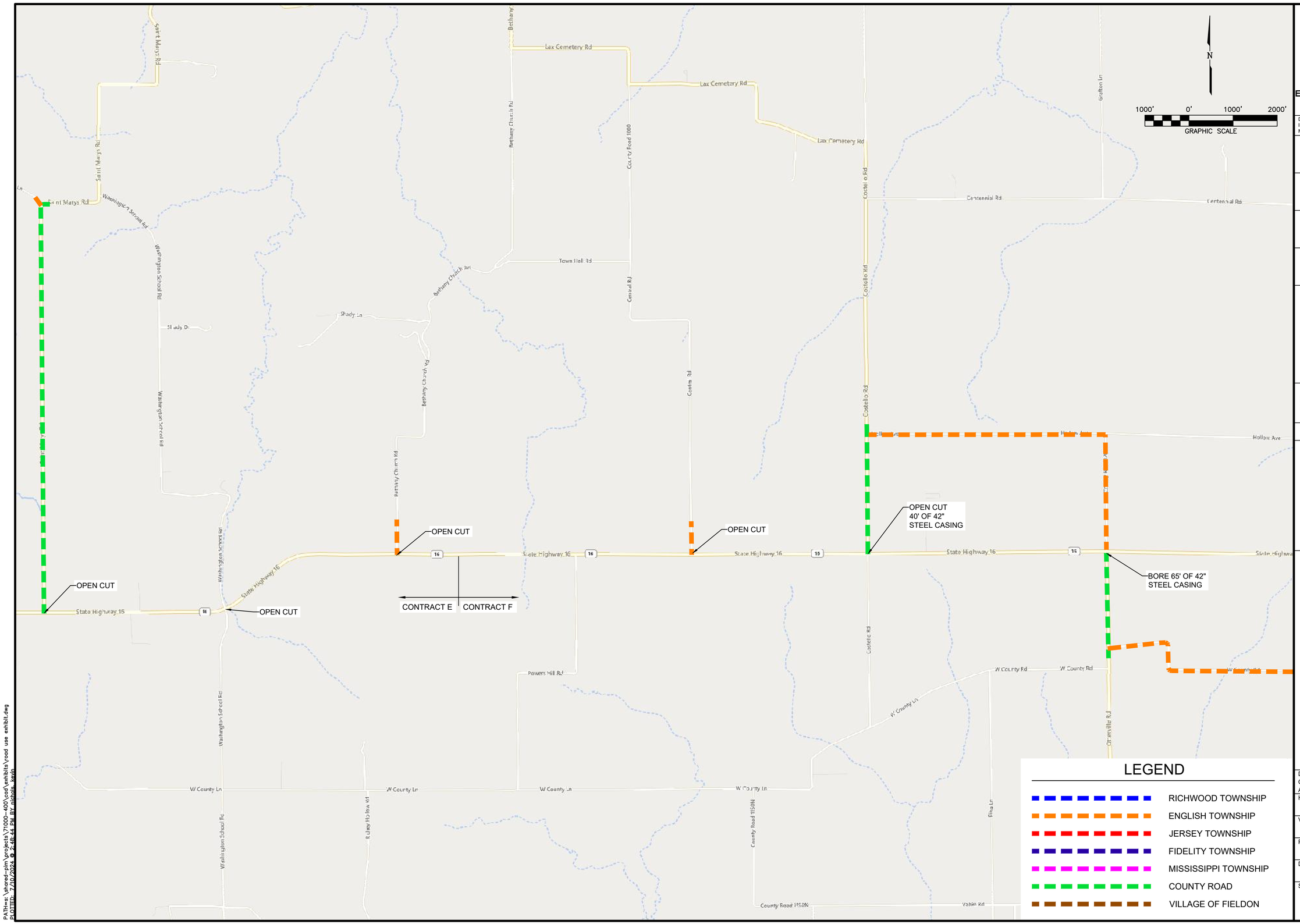
# ROAD USE EXHIBIT
# RICHWOOD TOWNSHIP
# JERSEY COUNTY

ILLIONOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

| | |
|---|---|
| DRAWN BY: | KDN |
| CHECKED BY: | KEW |
| APPROVED BY: | SWE |
| HORIZONTAL SCALE: | 1"=1000' |
| VERTICAL SCALE: | N/A |
| PROJECT NO. | 71000-400 |
| DATE: | 5/31/24 |
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1 OF 6 SHEETS

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# ROAD USE EXHIBIT
# ENGLISH TOWNSHIP
# JERSEY COUNTY

ILLIONOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

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| APPROVED BY: | SWE |
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2 OF 6 SHEETS

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OPEN CUT

OPEN CUT

LONGITUDINAL
AT FRY PROPERTY

BORE

OPEN CUT

BORE 60' OF 42"
STEEL CASING

OPEN CUT

BORE 60' OF 42"
STEEL CASING

## LEGEND

- RICHWOOD TOWNSHIP
- ENGLISH TOWNSHIP
- JERSEY TOWNSHIP
- FIDELITY TOWNSHIP
- MISSISSIPPI TOWNSHIP
- COUNTY ROAD
- VILLAGE OF FIELDON

1000' 0' 1000' 2000'
GRAPHIC SCALE


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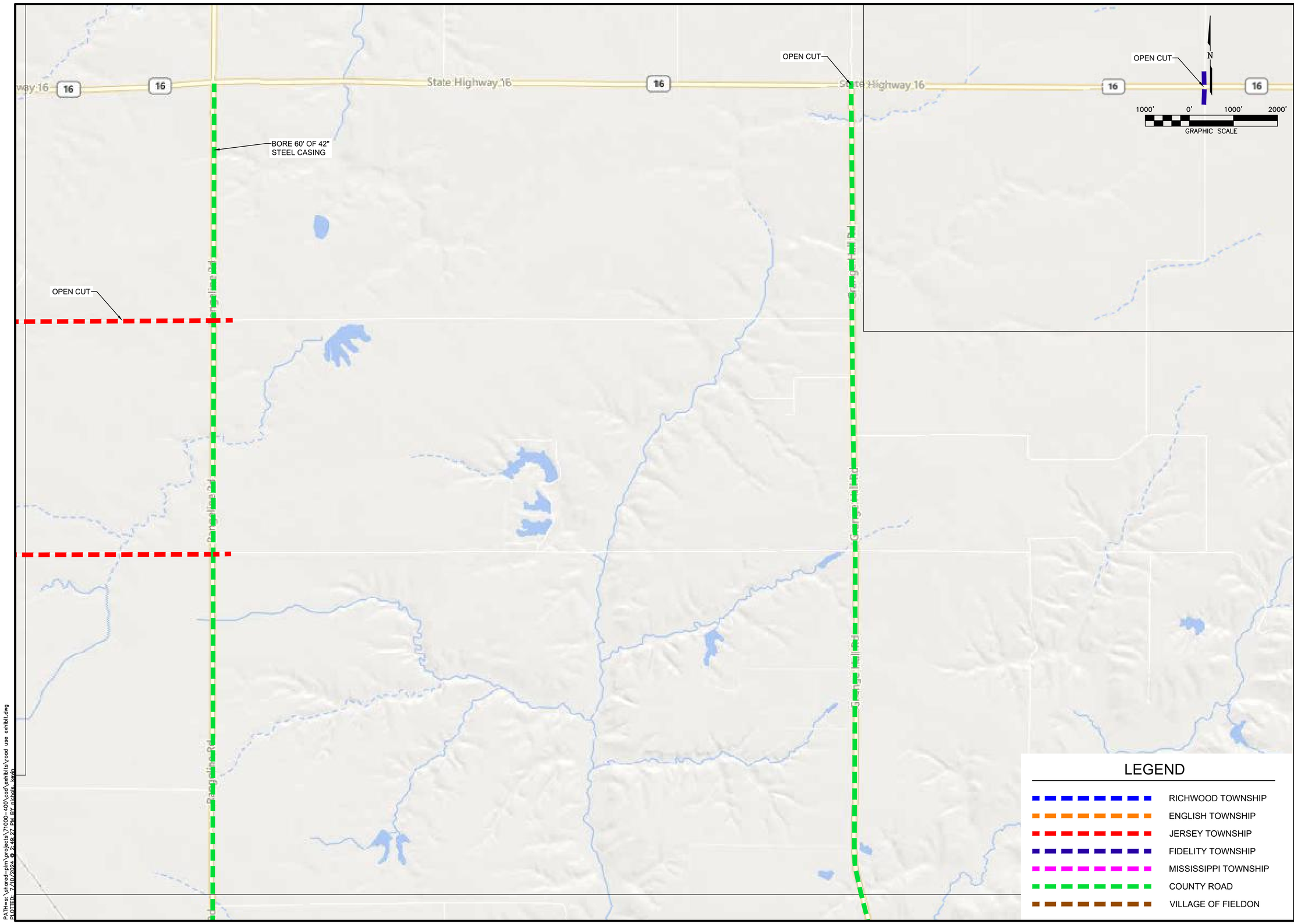
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JERSEY & MACOUPIN COUNTIES, ILLINOIS

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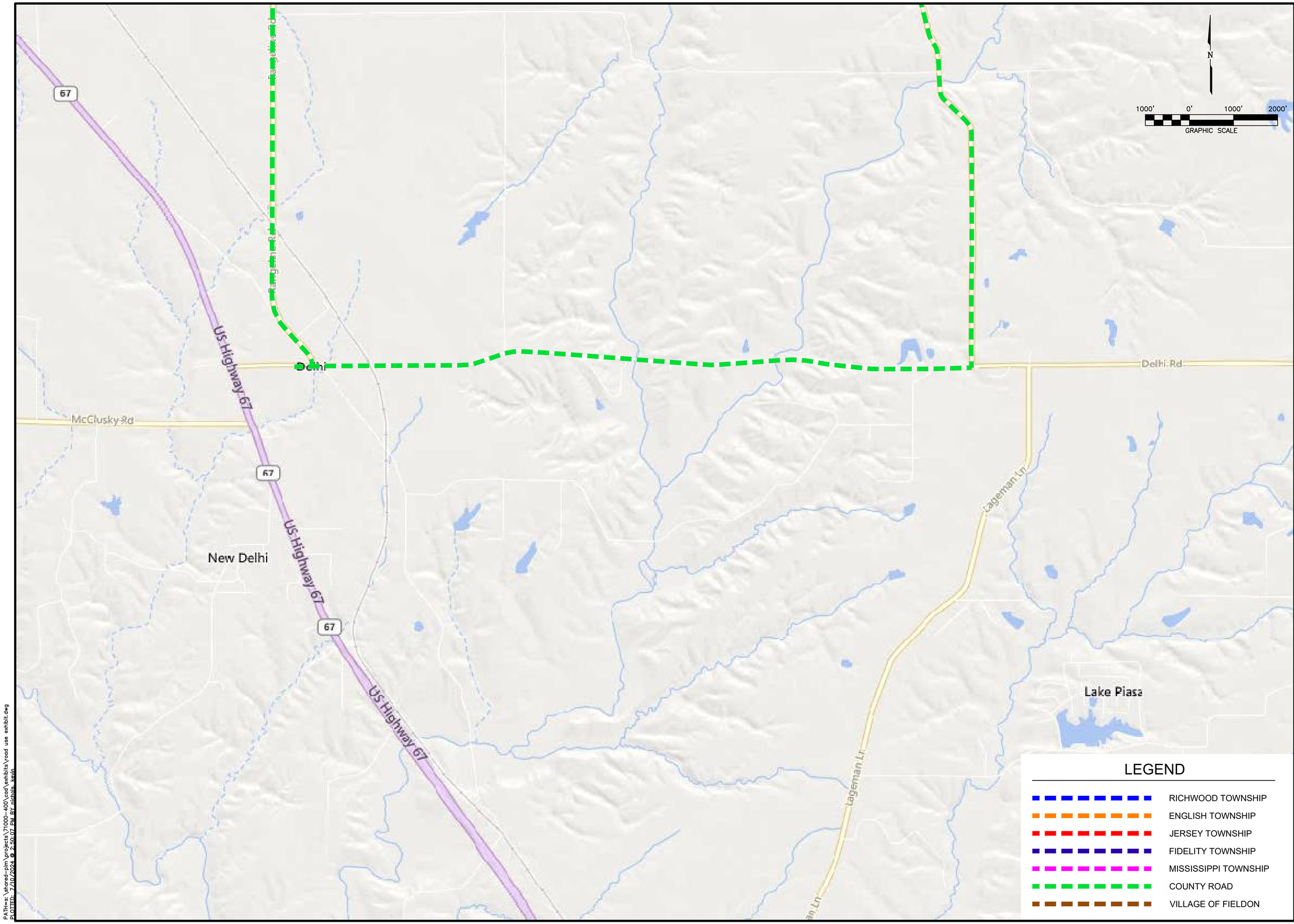
# ROAD USE EXHIBIT
# JERSEY TOWNSHIP
# FIDELITY TOWNSHIP
# JERSEY COUNTY

ILLIONOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

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| DRAWN BY: | KDN |
| CHECKED BY: | KEW |
| APPROVED BY: | SWE |
| HORIZONTAL SCALE: | 1"=1000' |
| VERTICAL SCALE: | N/A |
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# ROAD USE EXHIBIT
# PIASA TOWNSHIP
# JERSEY COUNTY

ILLIONOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

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5 OF 6 SHEETS


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Fidelity

State St

Fidelity Rd

Route 111

111

Route 111

267

N

1000' 0' 1000' 2000'

GRAPHIC SCALE

OPEN CUT

BORE

Highway 16

16

16

State Highway 16

Route 16

16

Route 16

Piasa

Route 16

Route 111

111

267

## LEGEND

- RICHWOOD TOWNSHIP
- ENGLISH TOWNSHIP
- JERSEY TOWNSHIP
- FIDELITY TOWNSHIP
- MISSISSIPPI TOWNSHIP
- COUNTY ROAD
- VILLAGE OF FIELDON


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# ROAD USE EXHIBIT
# FIDELITY TOWNSHIP
# JERSEY COUNTY

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JERSEY & MACOUPIN COUNTIES, ILLINOIS

| | |
|---|---|
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| APPROVED BY: | SWE |
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| VERTICAL SCALE: | N/A |
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| | 6 OF 6 SHEETS |


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PLOTTED: 7/10/2024 @ 2:50:31 PM BY: nichols, kevin

# TOWNSHIP ROAD PERMIT

Illinois Alluvial Regional Water Company

John Woolsey, Township Road Commissioner
Jersey, Township
720 State Hwy 16
Jerseyville, Illinois 62052

Permission is hereby requested to perform the following:

Construct, operate, and maintain buried water main(s) and services lines in township right-of-way. as shown on the attached location sketches

Crossing Chart

| Crossing | Contract and Aerial Sheet # | Sec. | Township | Township Road | Fused HDPE Pipe | Open Cut Length | Maintenance Fee |
|---|---|---|---|---|---|---|---|
| 1 | Contract G C2 | 30 | Jersey | W. County Rd. | 36” | 20’ | $10,000 |
| 2 | Contract G C3 | 30 | Jersey | S. Centennial Rd. | 36” | 23’ | $10,000 |
| 3 | Contract G C4 | 30/31 | Jersey | Dogwood Ln. | 36” | 20’ | $10,000 |
| 4 | Contract G C6 | 31/32 | Jersey | Beaty Mound Rd. | 36” | 23’ | $10,000 |

Subject to the following conditions and restrictions:

1. Illinois Alluvial Regional Water Company agrees to pay a maintenance fee of $40,000.00 for future expenses due to settling or other issues after the warranty period.

2. Readjustments due to road rehabilitation shall be at the expense of Illinois Alluvial Regional Water Company.

3. In the case of buried pipe, the pipe shall be placed as shown on the attached sketch and/or plan sheet(s). Surfaces damaged during excavating shall be restored to at least the original condition as they existed prior to construction. The OWNER will provide the Township Highway Commissioner a video of both pre-construction and post-construction of the roads.

4. Illinois Alluvial Regional Water Company shall notify the Township Road Commissioner prior to construction or repairs along the water lines.

5. Illinois Alluvial Regional Water Company shall notify the Township Road Commissioner of all changes in water main routing.

6. The Township Road Commissioner reserves the right to approve or disapprove construction under adverse conditions.

7. Any open cut or damaged pavement areas shall be initially backfilled by the Contractor with gravel per the current specification for open cutting roads. The Township will then be responsible for final resurfacing of the roadway and will be reimbursed as follows:

    1. $75.00 per road crossing
    2. $2.00 per foot for longitudinal repair

8. Any other conditions or restrictions defined on pages attached to this permit.

9. Illinois Alluvial Regional Water Company requests that permission be granted to perform this work and so indicated by dating and signing Page 2 of this form. If, for some reason, there is reasonable objection to the proposed construction, please contact Illinois Alluvial Regional Water Company, Seth Elliott, Project Manager, as soon as possible so that the company may consider action necessary to resolve the objection.

Work is to be started approximately Spring 2027 .
(Month/Year)

Illinois Alluvial Regional Water Company.
(District/Company)

_____
(Signature)

Chairman
(Title)

Permission given this _____ day of _____.

TOWNSHIP ROAD COMMISSIONER

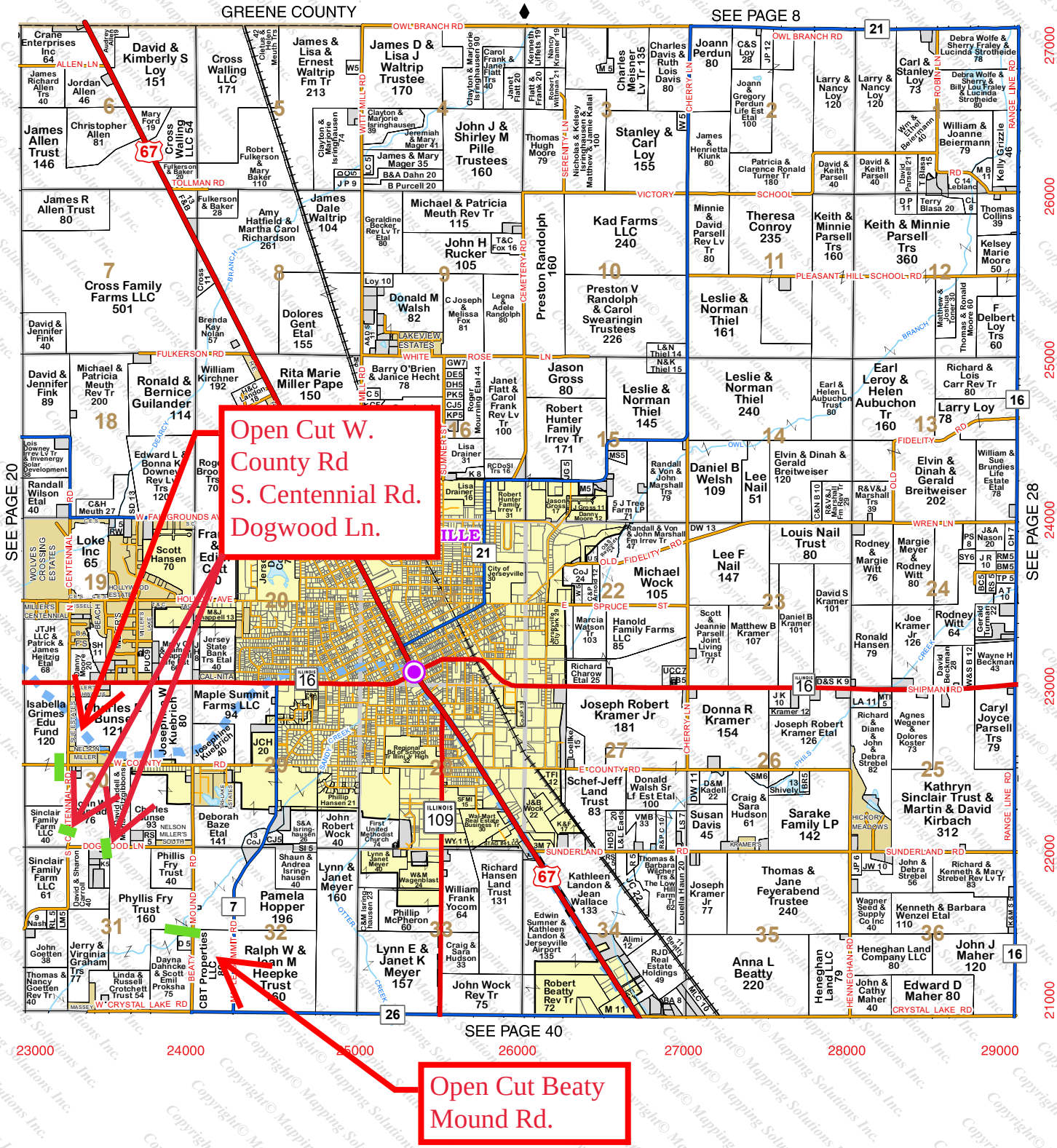
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(Signature)

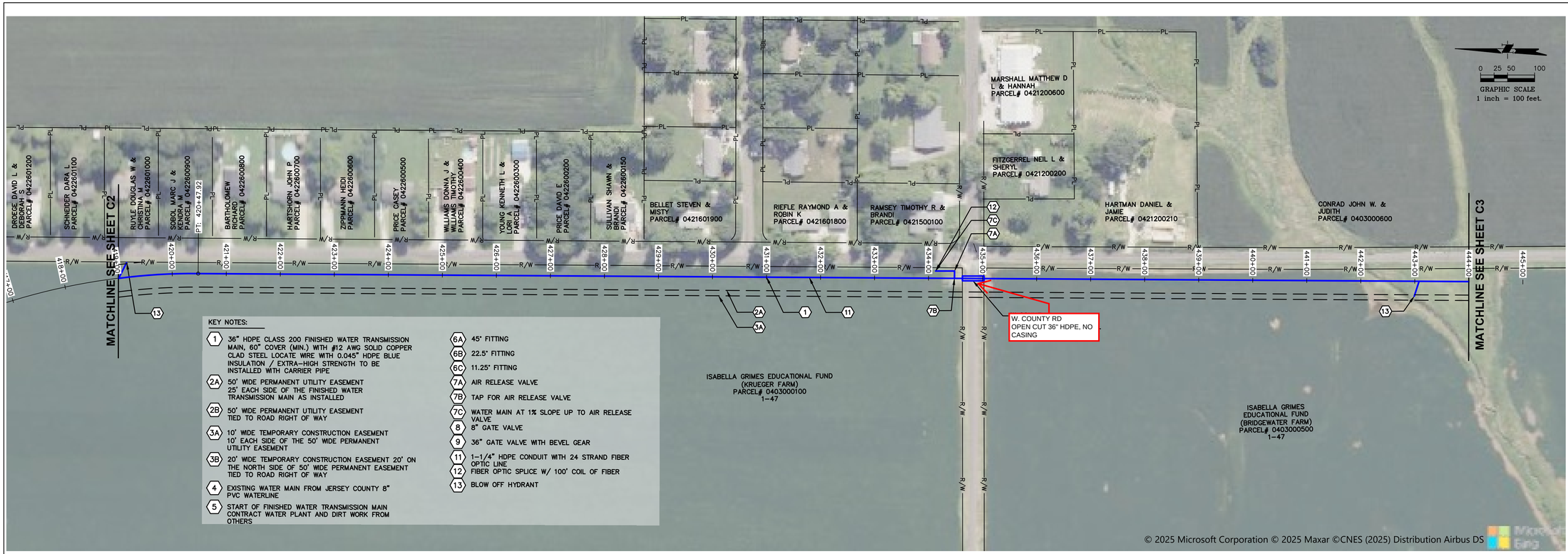
# Jersey (S)

0 0.5 1 2 Miles

# Township 8N - Range 11W

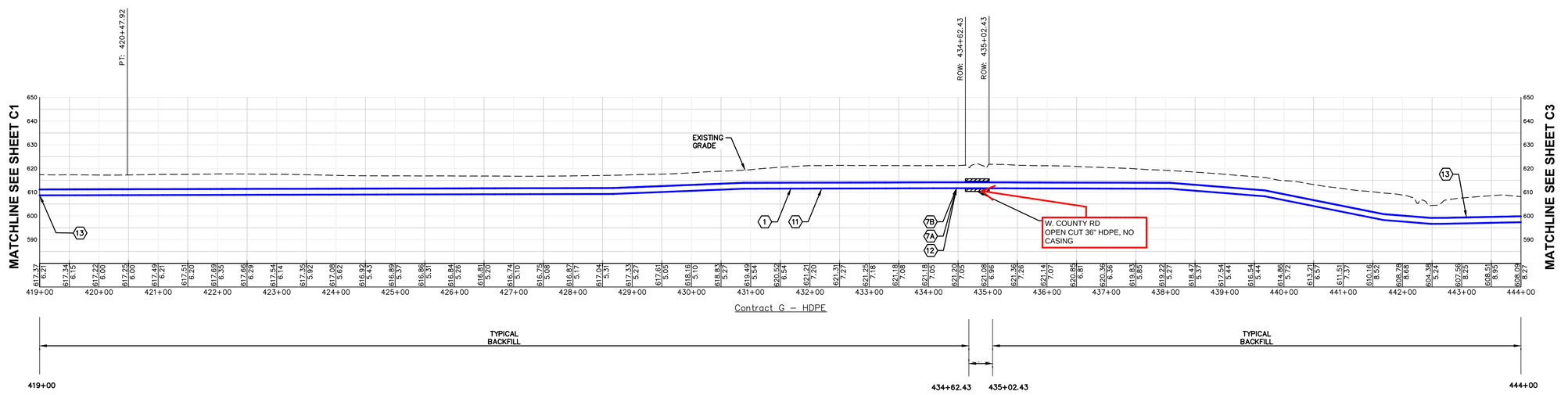
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KEY NOTES:

1. 36" HDPE CLASS 200 FINISHED WATER TRANSMISSION MAIN, 60" COVER (MIN.) WITH #12 AWG SOLID COPPER CLAD STEEL LOCATE WIRE WITH 0.045" HDPE BLUE INSULATION / EXTRA-HIGH STRENGTH TO BE INSTALLED WITH CARRIER PIPE
2A. 50' WIDE PERMANENT UTILITY EASEMENT 25' EACH SIDE OF THE FINISHED WATER TRANSMISSION MAIN AS INSTALLED
2B. 50' WIDE PERMANENT UTILITY EASEMENT TIED TO ROAD RIGHT OF WAY
3A. 10' WIDE TEMPORARY CONSTRUCTION EASEMENT 10' EACH SIDE OF THE 50' WIDE PERMANENT UTILITY EASEMENT
3B. 20' WIDE TEMPORARY CONSTRUCTION EASEMENT 20' ON THE NORTH SIDE OF 50' WIDE PERMANENT EASEMENT TIED TO ROAD RIGHT OF WAY
4. EXISTING WATER MAIN FROM JERSEY COUNTY 8" PVC WATERLINE
5. START OF FINISHED WATER TRANSMISSION MAIN. CONTRACT WATER PLANT AND DIRT WORK FROM OTHERS
6A. 45° FITTING
6B. 22.5° FITTING
6C. 11.25° FITTING
7A. AIR RELEASE VALVE
7B. TAP FOR AIR RELEASE VALVE
7C. WATER MAIN AT 1% SLOPE UP TO AIR RELEASE VALVE
8. 8" GATE VALVE
9. 36" GATE VALVE WITH BEVEL GEAR
11. 1-1/4" HDPE CONDUIT WITH 24 STRAND FIBER OPTIC LINE
12. FIBER OPTIC SPLICE W/ 100' COIL OF FIBER
13. BLOW OFF HYDRANT




MECO-HENEGHAN ENGINEERS, LLC
www.meco-heneghan.com
DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2027
MO: 2018004041
EXPIRES: DECEMBER 31, 2026
900 S. HIGHWAY DR.
SUITE 202
FENTON, MO 63026
P: (636) 395-7055

REVISIONS | DATE | NO.

CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN AERIAL PLAN AND PROFILE

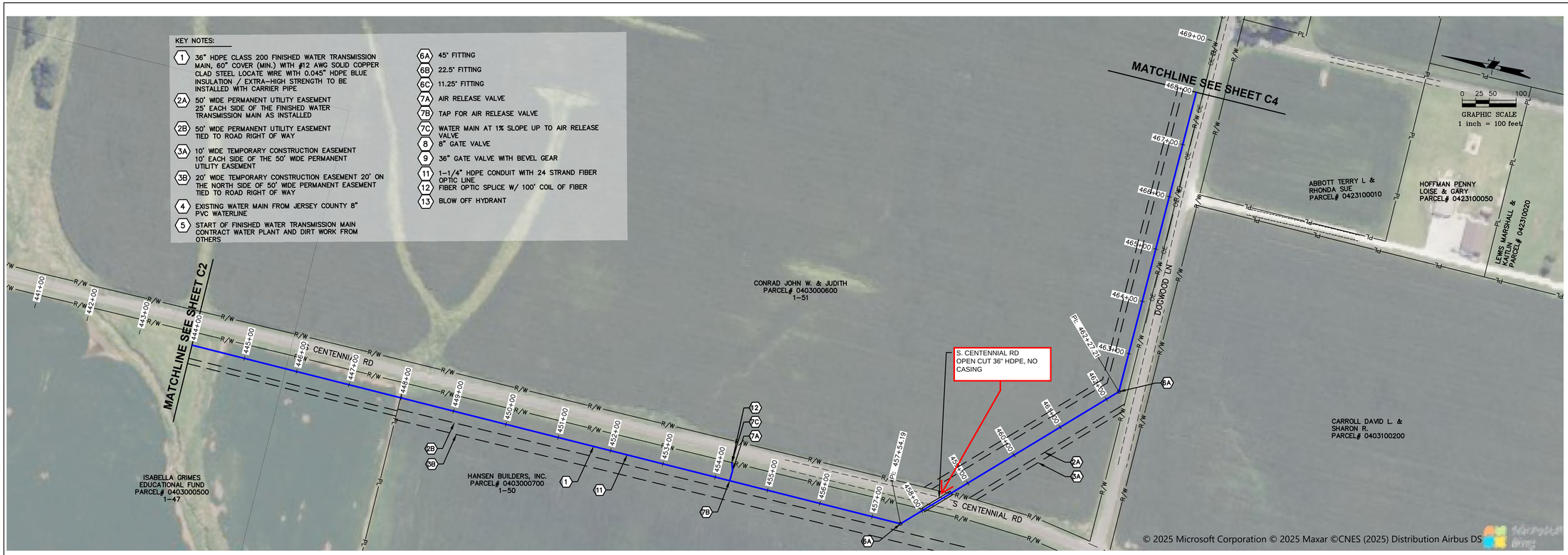
ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

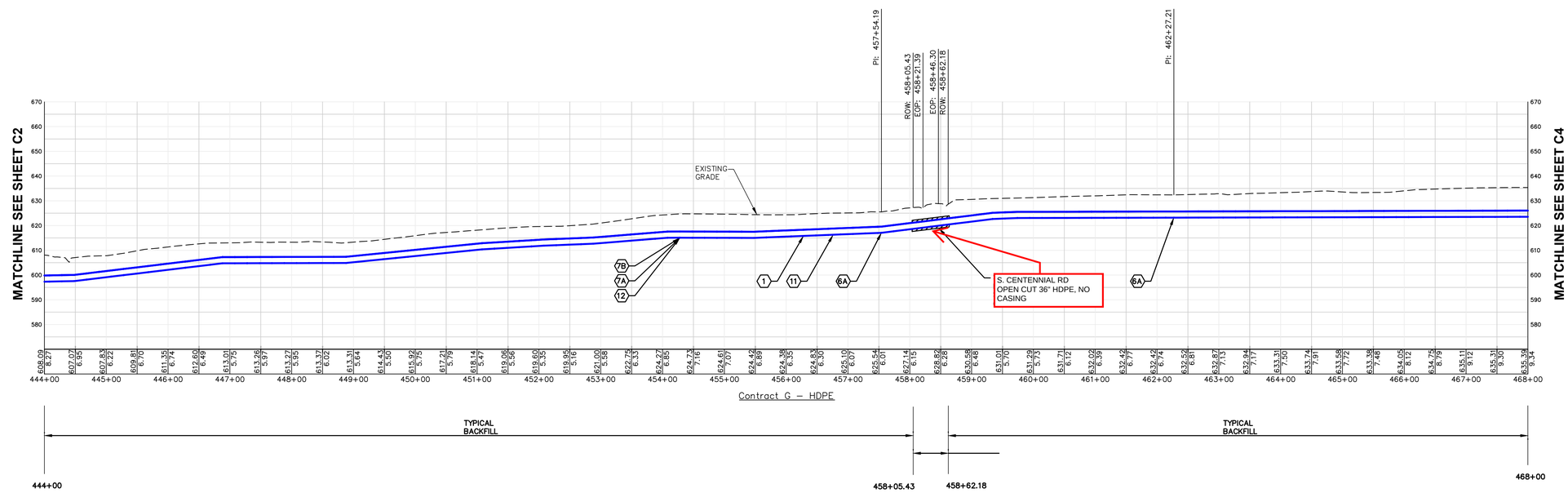
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CHECKED BY: TAM
APPROVED BY: SWE
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=25'
PROJECT NO. 71000-412
DATE: 9/7/2026
SHEET NO. C2-HDPE
5 OF 25 SHEETS

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PLOTTED: 9/7/2026 @ 11:30:45 PM BY seth.elliott

KEY NOTES:

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13. BLOW OFF HYDRANT





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DESIGN FIRM NUMBERS:
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REVISIONS | DATE | NO.

# CONTRACT "G" FINISHED WATER TRANSMISSION MAIN AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

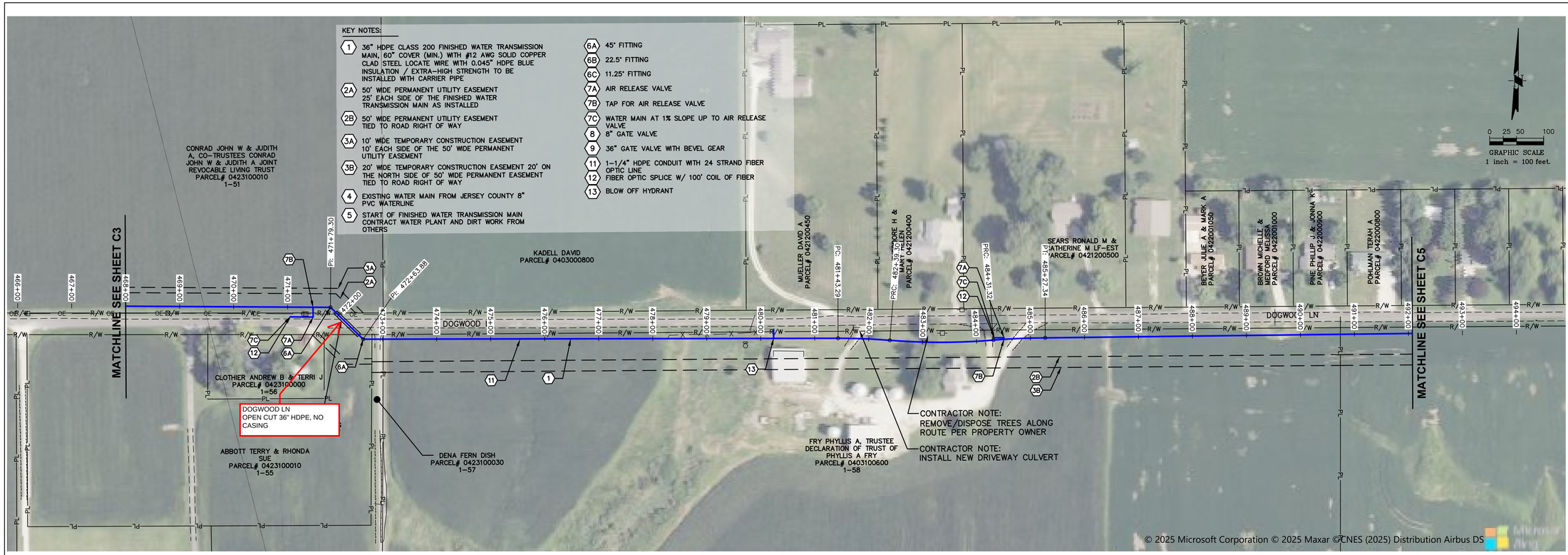
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| CHECKED BY: | TAM |
| APPROVED BY: | SWE |
| HORIZONTAL SCALE: | 1"=100' |
| VERTICAL SCALE: | 1"=25' |
| PROJECT NO. | 71000-412 |
| DATE: | 9/7/2026 |
| SHEET NO. | C3-HDPE |

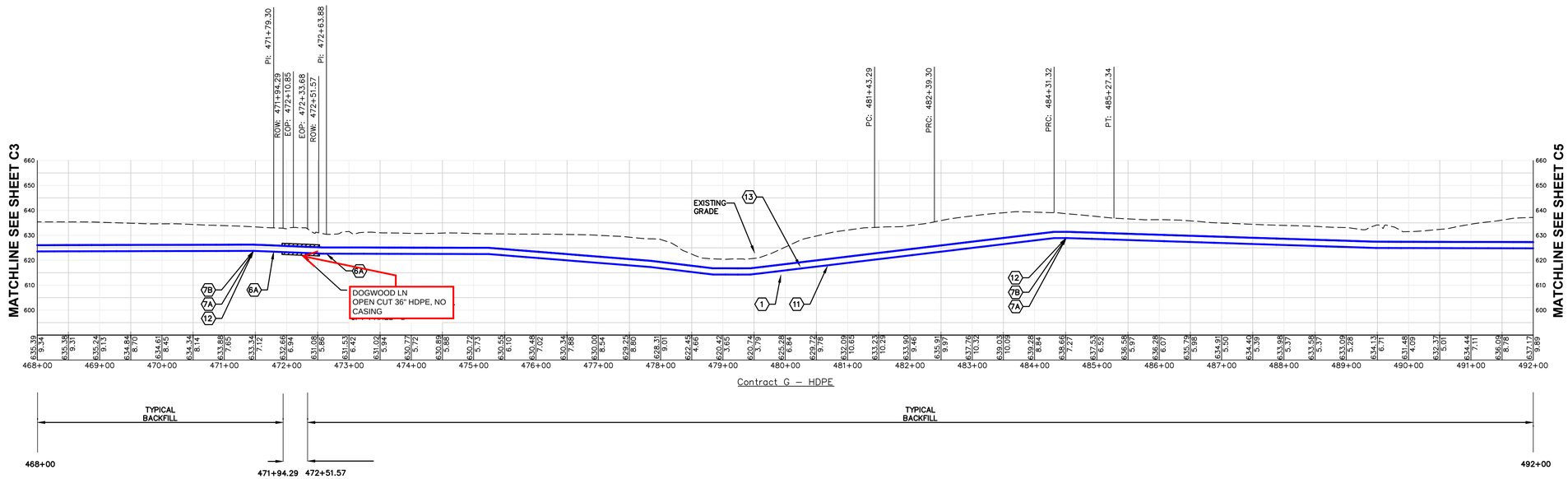
6 OF 25 SHEETS


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REVISIONS

| NO. | DATE |
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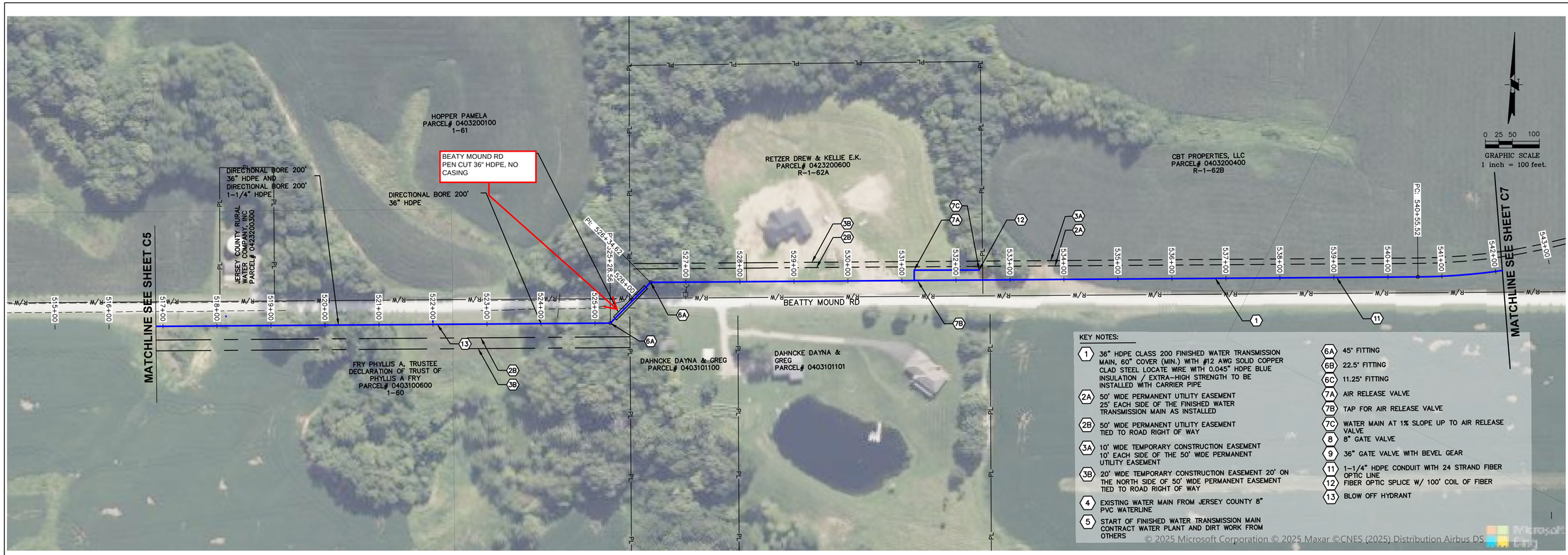
CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN
AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

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|---|---|
| DRAWN BY: | MNM |
| CHECKED BY: | TAM |
| APPROVED BY: | SWE |
| HORIZONTAL SCALE: | 1"=100' |
| VERTICAL SCALE: | 1"=25' |
| PROJECT NO. | 71000-412 |
| DATE: | 9/8/2026 |
| SHEET NO. | C4-HDPE |

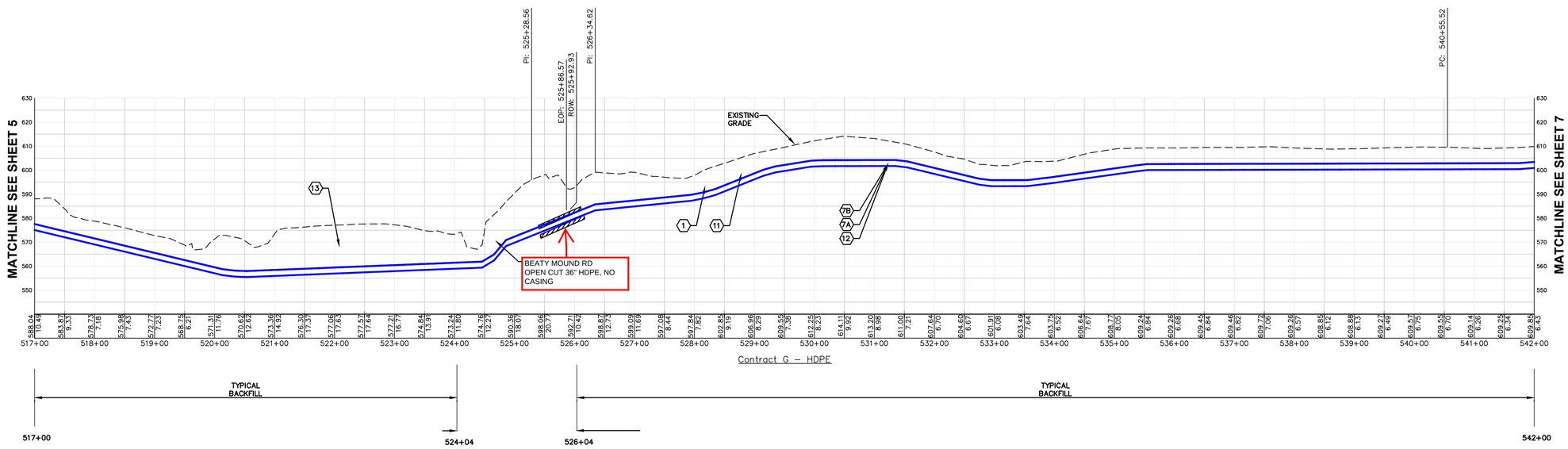
7 OF 25 SHEETS


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SUITE 202
FENTON, MO 63026
P: (636) 395-7055

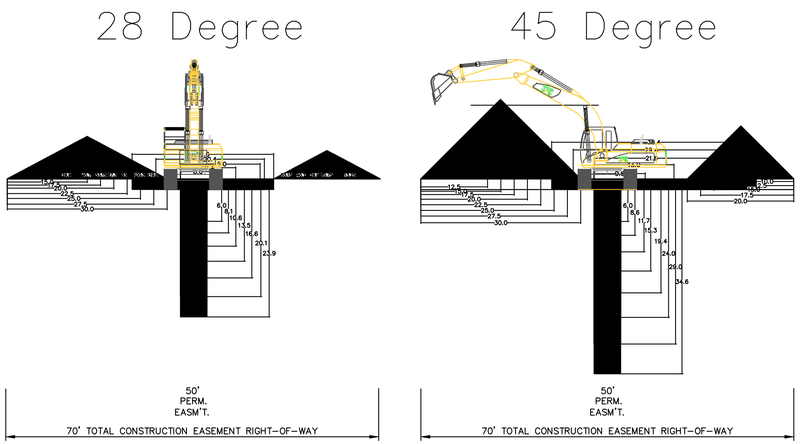
REVISIONS | DATE | NO.

CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN
AERIAL PLAN AND PROFILE

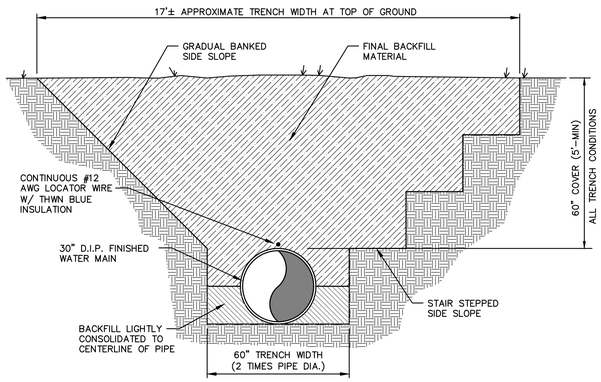
ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

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CHECKED BY: TAM
APPROVED BY: SWE
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=25
PROJECT NO. 71000-412
DATE: 9/8/2026
SHEET NO. C6-HDPE
9 OF 25 SHEETS

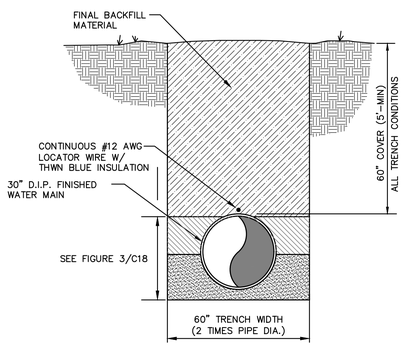
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**2 / C18 RECOMMENDED CONSTRUCTION EASEMENT R-O-W WIDTH (30" PIPE DIA.)**
NO SCALE




**TYPICAL TRENCH WITH SIDE SLOPES**




**TYPICAL TRENCH**

## GENERAL NOTES:

1. MINIMUM TRENCH WIDTH SHALL BE MAINTAINED FROM 6" BELOW PIPE TO 12" ABOVE THE TOP OF PIPE.
2. IF PAYMENT IS AUTHORIZED, PAY LINES FOR ROCK REMOVAL SHALL BE BASED UPON 2 TIMES PIPE DIAMETER.
3. PIPE BEDDING NOTE BELOW IS MINIMUM STANDARD, HOWEVER ANY MORE STRINGENT REQUIREMENTS SET BY PIPE SUPPLIER SHALL SUPERSEDE THE REQUIREMENTS SHOWN.
4. GRANULAR BEDDING GRADUATION SHALL BE AS FOLLOWS UNLESS REQUIRED BY THE PIPE MANUFACTURER OR APPROVED BY THE ENGINEER.

| SIEVE SIZE | PERCENT PASSING |
|---|---|
| 1/2" | 100 |
| 3/8" | 80-100 |
| #4 | 5-80 |
| #10 | 0-5 |

5. FLOWABLE FILL MIX SHALL BE AS FOLLOWS UNLESS OTHERWISE APPROVED BY THE ENGINEER.

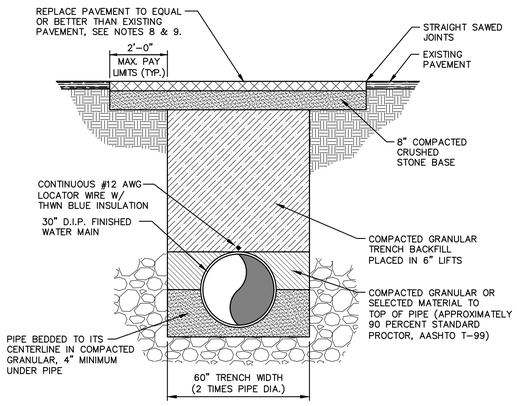
| MATERIAL | QUANTITY/CU YD |
|---|---|
| CEMENT | 70 POUNDS |
| FLY ASH | 300 POUNDS |
| FINE AGGREGATE | 2600 POUNDS |
| WATER | 50 GALLON |

6. UNSUITABLE BACKFILL MATERIAL SHALL BE DISPOSED OF BY CONTRACTOR AT HIS EXPENSE AND SUITABLE REPLACEMENT MATERIAL PROVIDED AT NO ADDITIONAL COST TO OWNER.
7. ALL TRENCHES SHALL MEET O.S.H.A. REQUIREMENTS.
8. ROADWAY RESURFACING SHALL BE REPLACED AS SHOWN IN ACCORDANCE WITH PROJECT SPECIFICATIONS OR CURRENT REQUIREMENTS OF THE CONTROLLING AUTHORITY, WHICH EVER IS MORE STRINGENT AS DEFINED BY THE ENGINEER.
9. PAVEMENT REPLACEMENT TO CONSIST OF THE FOLLOWING:

ASPHALT
MATERIAL: HOT MIX ASPHALT
THICKNESS: MATCH EXISTING, BUT NOT LESS THAN 4" COMPACTED IN PLACE
NOTE: DELETE C.S. BASE FOR FLOWABLE FILL
TACK COAT TOP OF FLOWABLE FILL OR PRIME CRUSHED STONE BASE AT A RATE OF 0.25 GALLON / SQUARE YARD.

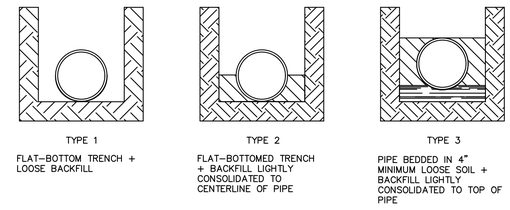
CONCRETE
MATERIAL: PORTLAND CEMENT CONCRETE 4,000 PSI @ 28 DAYS
DOWEL W/#4x24" @ 24" O.C.
THICKNESS: MATCH EXISTING (NOT LESS THAN 6")
NOTE: DELETE C.S. BASE FOR FLOWABLE FILL

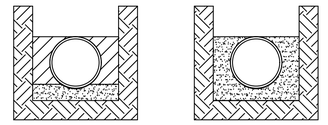
GRAVEL
MATERIAL: 1" MINUS CRUSHED STONE
THICKNESS: MATCH EXISTING, BUT NOT LESS THAN 6" COMPACTED IN PLACE
NOTE: DELETE CRUSHED STONE BASE AND SAW JOINT REQUIREMENTS




**GRANULAR BACKFILL WARRANTED CONDITIONS**
(INCLUDING ROCK EXCAVATION)

**1 / C18 TRENCH CONDITIONS**
SCALE: 3/8" = 1'-0"




**3 / C18 LAYING CONDITIONS**
NO SCALE

MECO-HENEGHAN ENGINEERS, LLC
www.meco-heneghan.com
DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2025
MO: 2018004041
EXPIRES: DECEMBER 31, 2024
400 N. FIFTH STREET
SUITE 107
ST. CHARLES, MO 63301
P: (636) 395-7055

REVISIONS | DATE | NO.

CONTRACT "F"
FINISHED WATER TRANSMISSION MAIN
TYPICAL DETAILS

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

DRAWN BY: MNM
CHECKED BY: TAM
APPROVED BY: SWE
HORIZONTAL SCALE: AS SHOWN
VERTICAL SCALE:
PROJECT NO. 71000-400
DATE: 1/29/24
SHEET NO. C22
26 OF 32 SHEETS

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# COUNTY HIGHWAY PERMIT
## COUNTY OF JERSEY

THIS AGREEMENT made this _____ day of _____ 20____, between County Highway Engineer of Jersey County, State of Illinois (hereinafter designated "County") and Illinois Alluvial Regional Water Company (hereinafter designated "Owner"), their successors and assigns.

WHEREAS, Owner has requested permission and authority to construct, operate, maintain, repair, renew, extend, and remove an underground water transmission and distribution system consisting of mains, valves, valve boxes, meters, meter boxes, and other appurtenances (hereinafter referred to as "water system") in, upon, along, under, and across county highways in the County of Jersey and State of Illinois over which the County of Jersey has now or may in the future have jurisdiction.

WHEREAS, it is in the public interest that such a water system be so constructed, operated, and maintained,

WHEREAS, the proposed installation is described as follows:

Boring and open cutting water mains and under various County Highways (see attached list).

NOW THEREFORE, BE IT RESOLVED, by the County that Owner be and are hereby granted the above-described permission and authority for a term of perpetuity commencing from this date, provided that the facility is so constructed to meet the approval of the County Engineer and that he is notified when construction is to begin.

This permission and authority and permit from the County Engineer of Highways is granted subject to the following limitations and conditions:

1. The OWNER shall submit a plan and specifications of any proposed work to the County Engineer of Highways for approval before any work is started. Said plan and specifications shall show the type and extent of work proposed and any other pertinent information that might be required by the County Engineer of Highways. In case of minor or emergency repairs, no such plan and specifications will be required.

2. Upon completion of any work, the County Engineer of Highways shall be given written notifications, and, if completed in a satisfactory manner, he shall provide the OWNER with a letter of acceptance. This letter of acceptance shall in no way relieve the OWNER of his responsibility under this resolution.

3. All water lines shall be buried at least forty-eight inches (48") below the road surface and the road ditch, sufficient to permit proper maintenance of the roads and proper cleaning of all roadway ditches without interference of the water lines.

4. All disturbed roadway ditches shall be regraded and reseeded for proper drainage.

5. The construction company installing said water lines over and across County highways shall give the Jersey County Highway Department at least forty-eight (48) hours notice of each intended bore under the roads, and shall further permit said Jersey County Highway Department to be present to inspect the installation, backfilling, and restoration of road ditch at the time of all work involving the County roads.

6. The OWNER upon written request of the County Engineer of Highways, will lower, relocate, or rearrange any of its pipe lines and appurtenances within the present limits of any said road right-of-way at OWNER's expense whenever it becomes necessary in the construction, maintenance, or improvement of said roads.

7. The OWNER will be liable for the entire cost of relocation or damage to all existing utilities caused by the construction, maintenance, and repair to their own "water system".

8. In the case of damage to the existing highway caused by the construction, reconstruction, or maintenance of said water system, the OWNER shall repair said damage within ten days of receipt of written notification from the county, climatic conditions permitting. If, at the end of ten days, said damage to the highway is not repaired in a satisfactory manner, and the delay is not caused by climatic conditions, the County may repair said damage and the actual cost of such repair, including the cost of all material and labor, shall be paid to the County by the OWNER upon receipt of an itemized statement of costs.

9. The OWNER shall take all necessary precautions by use of signs, signals, flagmen, or watchmen, to protect the general public and all reasonable measures to cause least interference with traffic movement along the roadways where reconstruction or maintenance is in progress. All traffic control shall be in accordance with the State of Illinois "Manual of Uniform Traffic Control Devices" and amendments thereof.

10. The OWNER warrants that the water system shall be constructed, operated, and maintained in accordance with the rules and regulations promulgated by the Illinois Environmental Protection Agency and in accordance with the laws, resolutions, ordinances, and regulations of the State of Illinois or any branch thereof.

11. The OWNER, where called for on the plans, shall bore all water mains County highways. No open excavation including direction boring pits shall be located, any portion of the excavated area, any closer than ten (10) feet from the edge of the pavement as measured from the edge of the stabilized road surface.

12. The OWNER, where called for on the plans, shall open cut the County Highway to install the steel casing and water main. The trench shall be backfilled with excavated material except for the under the improved surface and two feet beyond the improved surface where compacted rock backfill will be used for the entire

depth. The OWNER shall repair the surface to like condition at time of construction.

13. The OWNER will provide to the County Highway Department both a pre-construction and post construction videos.

14. All water main passing under County highways shall be encased in ASTM A139 Grade B welded-joint steel pipe. The steel casing shall extend a minimum of ten feet (10') from the edge of the pavement in both directions and will be grouted to the water main at each casing end.

BE IT FURTHER RESOLVED that the County shall transmit two certified copies of this resolution to the Illinois Alluvial Regional Water Company, in care of Seth Elliott, Project Manager, 1004 State Highway 16, Jerseyville, Illinois 62052.

BE IT FURTHER RESOLVED that the permission and authority herein granted is limited to the jurisdiction the County may have over said highways, and does not presume to release the OWNER from fulfilling any and all statutes relating to constructing, operating, inspecting, maintaining, repairing, and changing the size of the water system and all appurtenances thereto and/or statutes relating to the right of owners of abutting property along said highways.

ACCEPTED:_____
Allen Davenport, Chairman
Illinois Alluvial Regional Water Company

ATTEST: _____
Sue Campbell, Secretary
Illinois Alluvial Regional Water Company

Approved and Permit granted this

_____ day of _____, 20_____.

Subject to the attached provisions.

Approved: _____
Thomas Klasner, County Engineer of Highways
Jersey County Highway Department

HENEGHAN ASSOCIATES

Jerseyville, IL 1004 State Highway 16
Mt. Vernon, IL 800 Broadway Suite 3
Columbia, IL 310A Vision Drive
Maryville, IL 2140 Vadalabene Drive
Arnold, MO 1929 Richardson Road
618.498.6418 www.haengr.com

September 30, 2026

Jersey County Highway Department
722 State Highway 16
Jerseyville, IL 62052

Attn: Mr. Thomas Klasner

Re: Finished Water Transmission Main
Illinois Alluvial Regional Water Company
Jersey County, Illinois
H&A File 71000-412

Dear Mr. Klasner:

The following is a request on behalf of the Illinois Alluvial Reginal Water Company,1004 State Highway, Jerseyville, IL 62052 (618-498-7708) to install water main in County Highway Right-of-Way. The proposed locations are indicated on the plans and in the chart below. The main will be installed inside a steel casing and will carry finished water, be made of HDPE pipe with the sizes shown in the attached chart and as indicated on the plan sheets. The steel casing pipe will be sealed at each casing end. The length of the steel casing will extend a minimum of 10-feet beyond edge of pavement and as specified on the Construction Drawings and in the table enclosed. The steel casing will have at least 48-inches of ground cover at all locations, as shown on the enclosed detail sheet. No longitudinal installation is currently expected. We will notify and revise the permit if we need to move to ROW.

The OWNER, where called for on the plans, is requesting permission to bore water mains under County Highways. At these locations, open excavation including boring pits, shall be located, so that no portion of the excavated area will be closer than ten (10) feet from the edge of the pavement as measured from the edge of the stabilized road surface.

The OWNER will provide to the County Highway Department both a pre-construction and post construction videos.

See the enclosed location maps, aerial sheets, and page(s) of specifications for more details regarding this permit application. If you have any questions or require additional documentation, please call me at 618-498-6418 or e-mail swelliott@heneghanassoc.com.

The requested crossing locations as follows:

Crossing Chart

| Crossing Type | Contract and Aerial Sheet No. | Section | Township | County Highway | Water Main Dia. (in.) | Casing Diameter (in) | Min. Casing Length (ft.) |
|---|---|---|---|---|---|---|---|
| Bore | Contract F C1 | 30 | English | St. Mary's Rd. | 36" | 48" | 40' |
| Bore | Contract F C8 | 22/23 | English | Costello Rd. | 36" | 48" | 40' |
| Bore | Contract F C7 | 25/26 | English | Otterville Rd. | 36" | 48" | 65' |
| Bore | Contract G C14 | 32 | Jersey | Maple Summit Rd. | 36" | 48" | 40' |
| Bore | Contract G C17 | 33 | Jersey | Crystal Lake Rd. | 36" | 48" | 60' |

Sincerely,
HENEGHAN AND ASSOCIATES, P.C.

Seth W. Elliott, P.E.
Project Manager

**DIVISION 33 - SITE CONSTRUCTION**

**SECTION 330523.13 - HIGHWAY CROSSINGS**

## 1.00 GENERAL

A. Furnish all materials, accessories, equipment, tools, transportation, services, labor and perform all operations necessary for the installation of pipelines on or under railway and/or highway property.

B. The contractor shall be responsible for notification of appropriate officials as required by Highway and Railroad permits.

C. The contractor is responsible for any charges by the Railroad/s for flagmen, foremen, engineering observers, and others; and by IDOT and others during the course of the work; and shall include such costs in his bid price

## 1.01 DESCRIPTION OF WORK

A. Pipelines laid under highways and across highway rights-of-way shall be encased in a larger pipe or conduit (casing pipe).

B. Casing pipes shall be installed by simultaneously dry boring and jacking method, or horizontal directional drilling as called out on plans.

C. Laws and orders of highway authority prescribing a higher degree of protection than specified herein shall supercede the applicable portions.

D. Pipelines and casing pipe shall be suitably insulated from underground conduits carrying electric wires on rights-of-way.

E. Applicable Sections: 312300 Excavating, Filling and Grading and 330500 Utility Materials.

## 1.02 SUBMITTALS

A. Type of material including product data specifications.

B. Name and address of proposed subcontractor.

C. All exceptions or substitutions to the specifications.

## 2.00 PRODUCTS

## 2.01 CARRIER PIPE

A. Carrier line pipe shall be of material, and pressure class, as shown on the plans or as approved by the Engineer.

B. Pipe shall be laid with sufficient slack so that it is not in tension.

C. Length of carrier pipe shall be as shown on the plans.

## 2.02 CASING PIPE

A. Casing pipe shall be continuous butt-welded steel pipe with a coal tar epoxy protective coating (outside of pipe) capable of withstanding highway and railway loading.

B. In all cases, pipe diameter shall be great enough to allow carrier pipe to be removed subsequently without disturbing the casing pipe or roadbed.

C. Annular spaces at the ends of the casing shall be sealed with Pipeline Seal and Insulation, Inc. (PSI) Models or approved equal and shall be pull-on casing end seals with stainless steel banding straps.

D. Casing spacers shall be installed on 6' intervals around the carrier pipe with double spacers at each end of the casing. One casing spacer must be within two (2) feet of each side of a pipe joint. Spacers shall have a minimum height that clears the pipe bell. Casing spacers shall be Cascade Waterworks model CCS with stainless steel and polyethylene with stainless steel bolts and nuts or approved equal.

E. Steel Pipe:

1. Steel pipe shall have a minimum yield strength of 35,000 psi (ASTM A53 Grade B).

2. Minimum wall thickness for steel casing pipe shall be as follows:

| Nominal Thickness Inches | Nominal Diameter Inches |
|---|---|
| 0.6045 | 42 |

F. Length of casing shall be as shown on the plans.

## 3.00 EXECUTION

### 3.01 GENERAL

A. Casing shall be installed as to prevent the formation of a waterway under the right-of-way, with an even bearing throughout its length and shall slope to one end.

### 3.02 METHOD OF INSTALLATION

A. Boring or Jacking:

1. Bored or jacked installations shall have a bored hole diameter essentially the same as the outside diameter of the pipe plus the thickness of the protective coating.

2. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe (including coating) by more than approximately 1", remedial measures as approved by the Engineer shall be taken. Boring operations shall not be stopped if such stoppage would be detrimental to the highway or railroad.

3. Once the casing pipe has been bored, the receiving pit shall be opened up to establish if proper elevation of the casing has been accomplished. The carrier pipe, casing spacers and end seals shall be installed at the time of boring. Protect ends of carrier pipe from backfill.

B. Directional Boring:

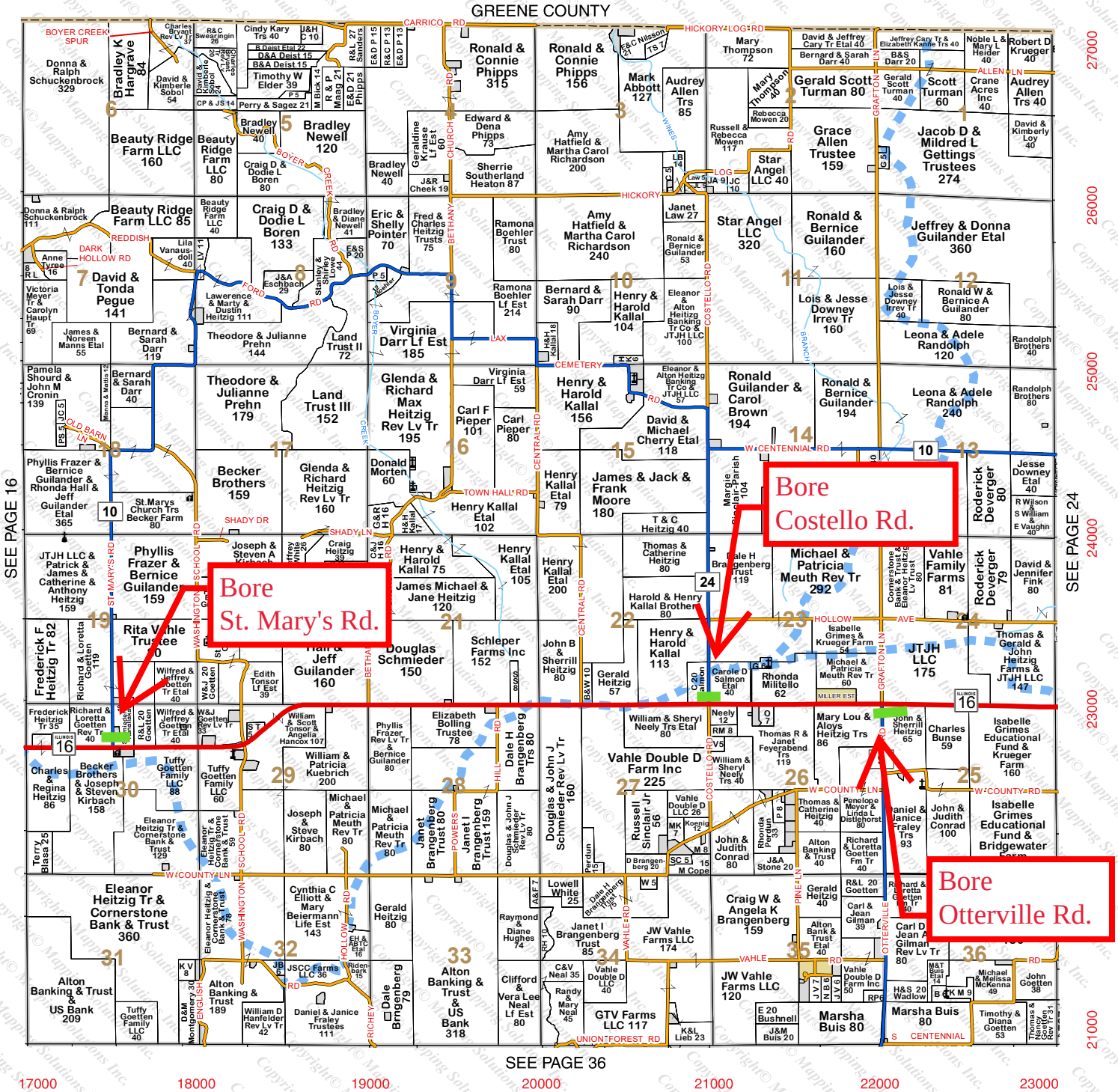
1. Once the casing pipe has been bored, the receiving pit shall be opened up to establish if proper elevation of the casing has been accomplished. The carrier pipe, casing spacers and end seals shall be installed at the time of boring. Protect ends of carrier pipe from backfill.

### 3.03 EXECUTION OF WORK

A. The execution of work on rights-of-way shall be subject to the inspection and direction of both the Owner and respective rights-of-way Engineers or their designated representatives.

B. The Contractor shall comply with all requirements, including bonding and insurance, of the highway or railway authorities having jurisdiction and shall also comply with any permits, licenses, etc. issued with respect to this project.

**END OF SECTION 330523.13**

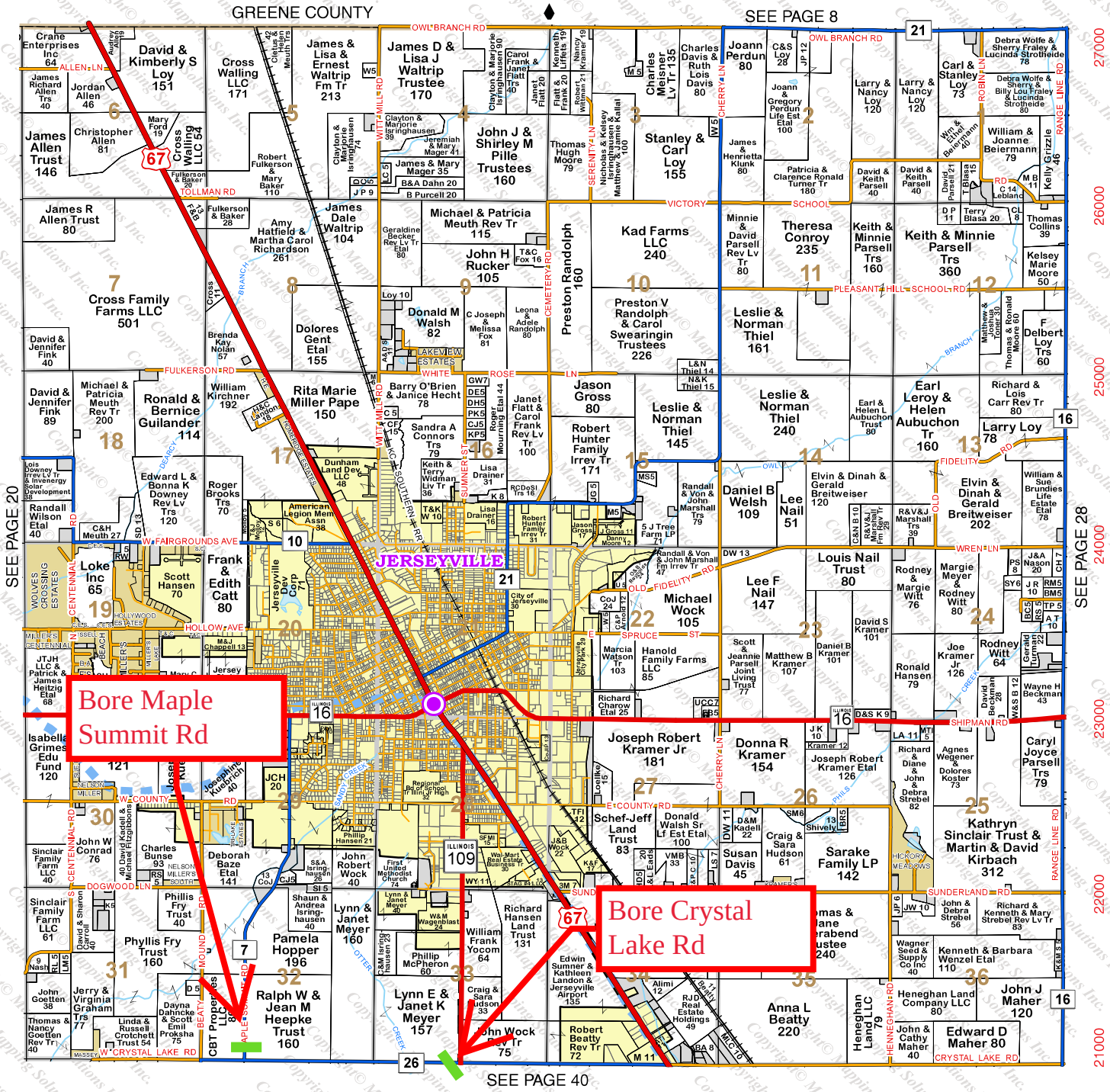

English
0 0.5 1 2 Miles
Township 8N - Range 12W
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GREENE COUNTY
SEE PAGE 16
SEE PAGE 24
SEE PAGE 36
Bore
Costello Rd.
Bore
St. Mary's Rd.
Bore
Otterville Rd.
17000
18000
19000
20000
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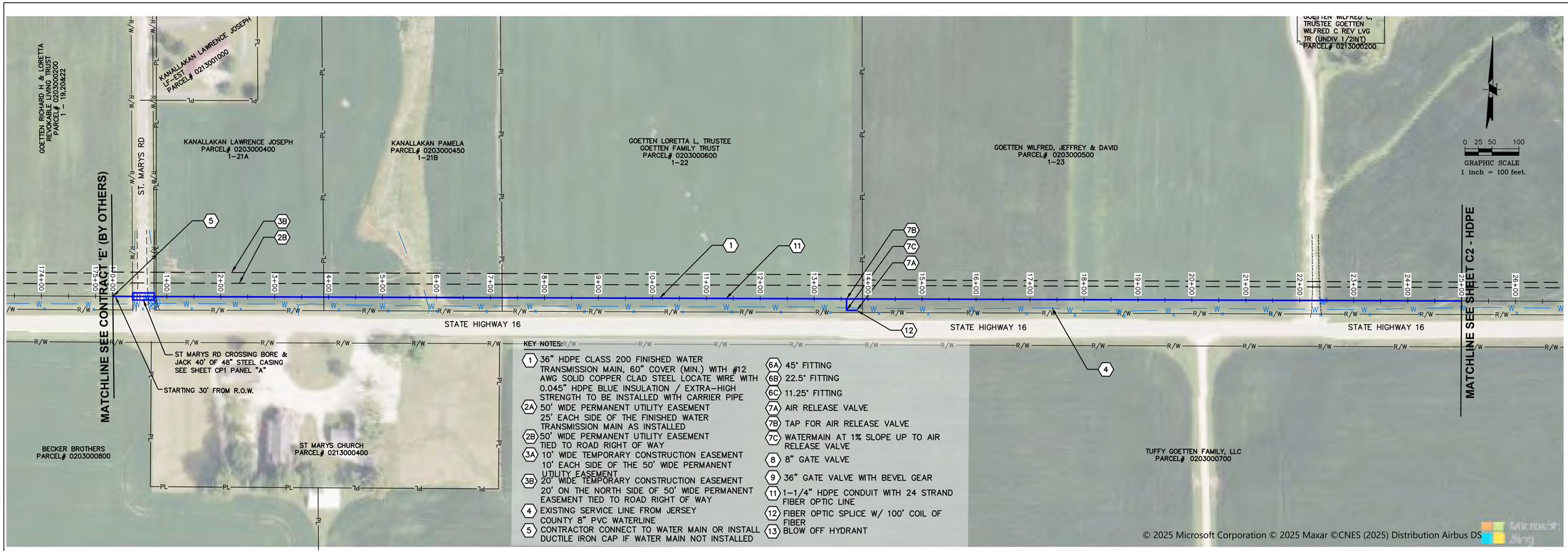
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0 0.5 1 2 Miles

# Township 8N - Range 11W

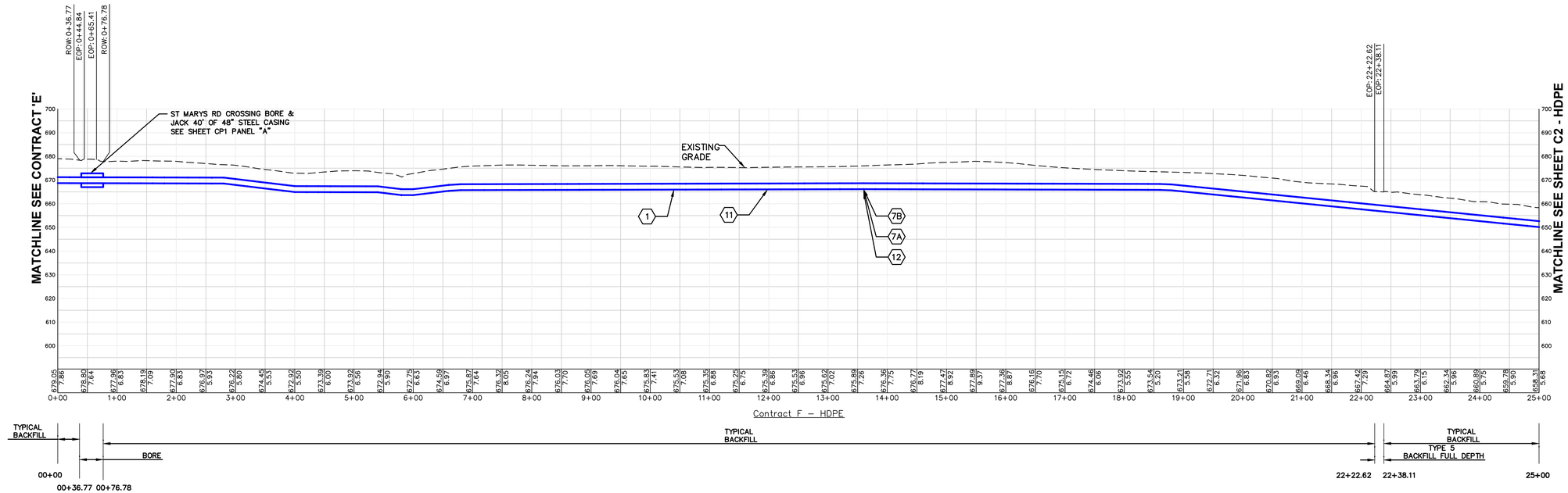
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**KEY NOTES:**

1. 36" HDPE CLASS 200 FINISHED WATER TRANSMISSION MAIN, 60" COVER (MIN.) WITH #12 AWG SOLID COPPER CLAD STEEL LOCATE WIRE WITH 0.045" HDPE BLUE INSULATION / EXTRA-HIGH STRENGTH TO BE INSTALLED WITH CARRIER PIPE
2A. 50' WIDE PERMANENT UTILITY EASEMENT 25' EACH SIDE OF THE FINISHED WATER TRANSMISSION MAIN AS INSTALLED
2B. 50' WIDE PERMANENT UTILITY EASEMENT TIED TO ROAD RIGHT OF WAY
3A. 10' WIDE TEMPORARY CONSTRUCTION EASEMENT 10' EACH SIDE OF THE 50' WIDE PERMANENT UTILITY EASEMENT
3B. 20' WIDE TEMPORARY CONSTRUCTION EASEMENT 20' ON THE NORTH SIDE OF 50' WIDE PERMANENT EASEMENT TIED TO ROAD RIGHT OF WAY
4. EXISTING SERVICE LINE FROM JERSEY COUNTY 8" PVC WATERLINE
5. CONTRACTOR CONNECT TO WATER MAIN OR INSTALL DUCTILE IRON CAP IF WATER MAIN NOT INSTALLED
6A. 45° FITTING
6B. 22.5° FITTING
6C. 11.25° FITTING
7A. AIR RELEASE VALVE
7B. TAP FOR AIR RELEASE VALVE
7C. WATERMAIN AT 1% SLOPE UP TO AIR RELEASE VALVE
8. 8" GATE VALVE
9. 36" GATE VALVE WITH BEVEL GEAR
11. 1-1/4" HDPE CONDUIT WITH 24 STRAND FIBER OPTIC LINE
12. FIBER OPTIC SPLICE W/ 100' COIL OF FIBER
13. BLOW OFF HYDRANT




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www.meco-heneghan.com
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035.003949
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MO: 2018004041
EXPIRES: DECEMBER 31, 2026
900 S. HIGHWAY DR.
SUITE 202
FENTON, MO 63026
P: (636) 395-7055

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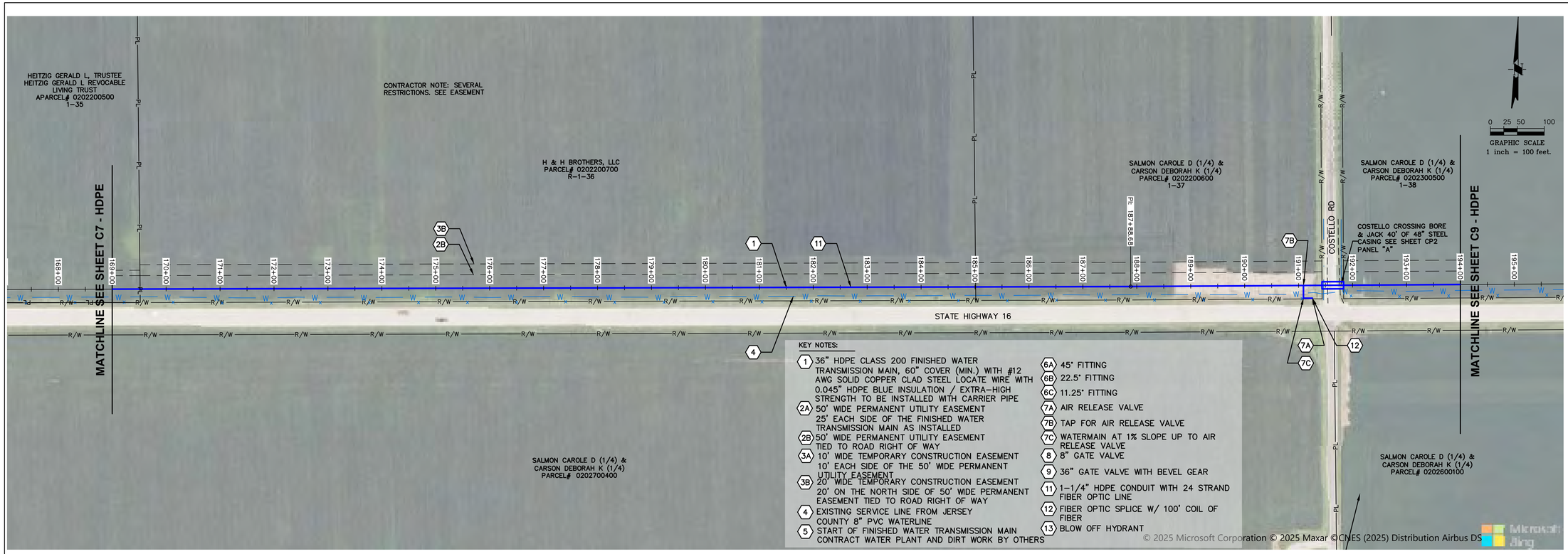
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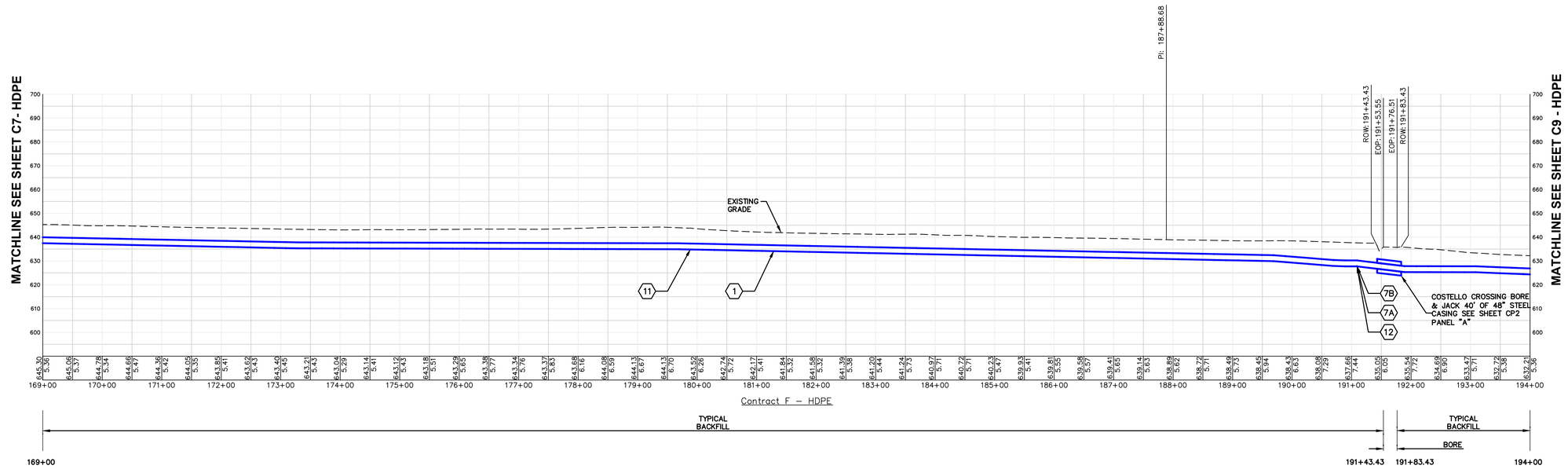
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JERSEY & MACOUPIN COUNTIES, ILLINOIS

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| APPROVED BY: | SWE |
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| DATE: | 9/7/2026 |
| SHEET NO. | C1-HDPE |

4 OF 23 SHEETS

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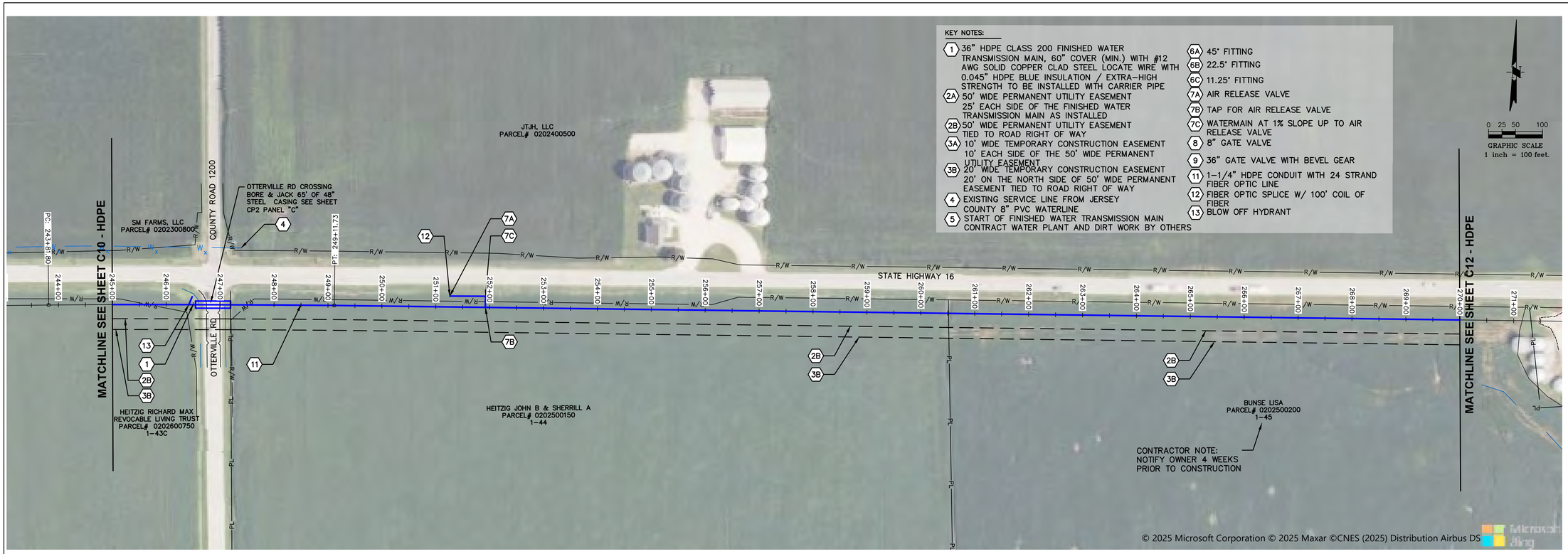
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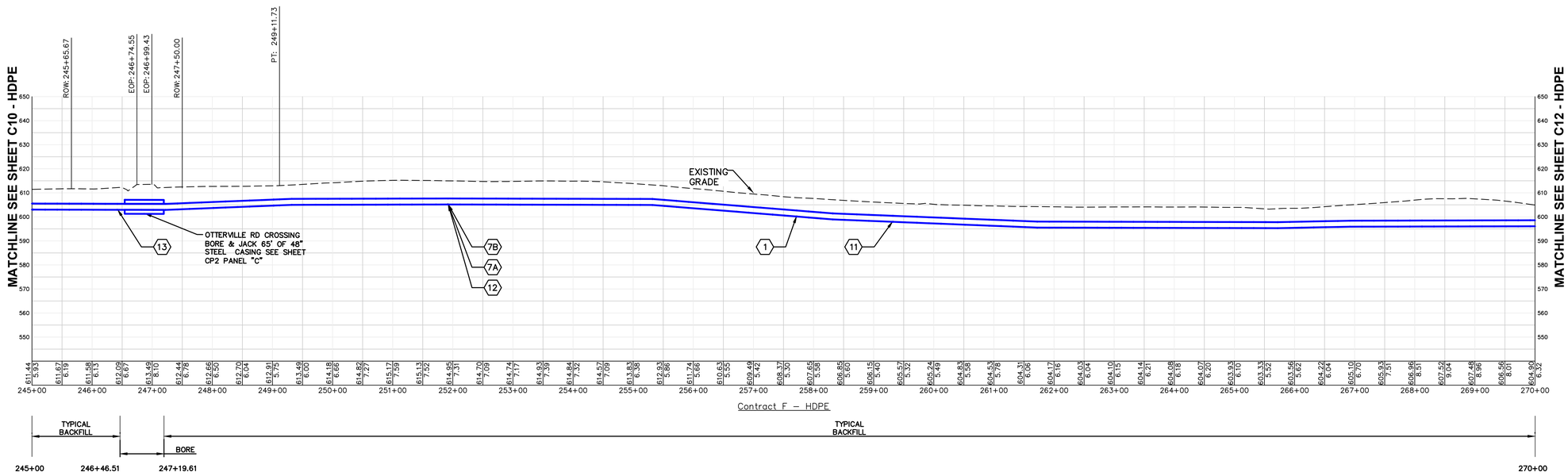
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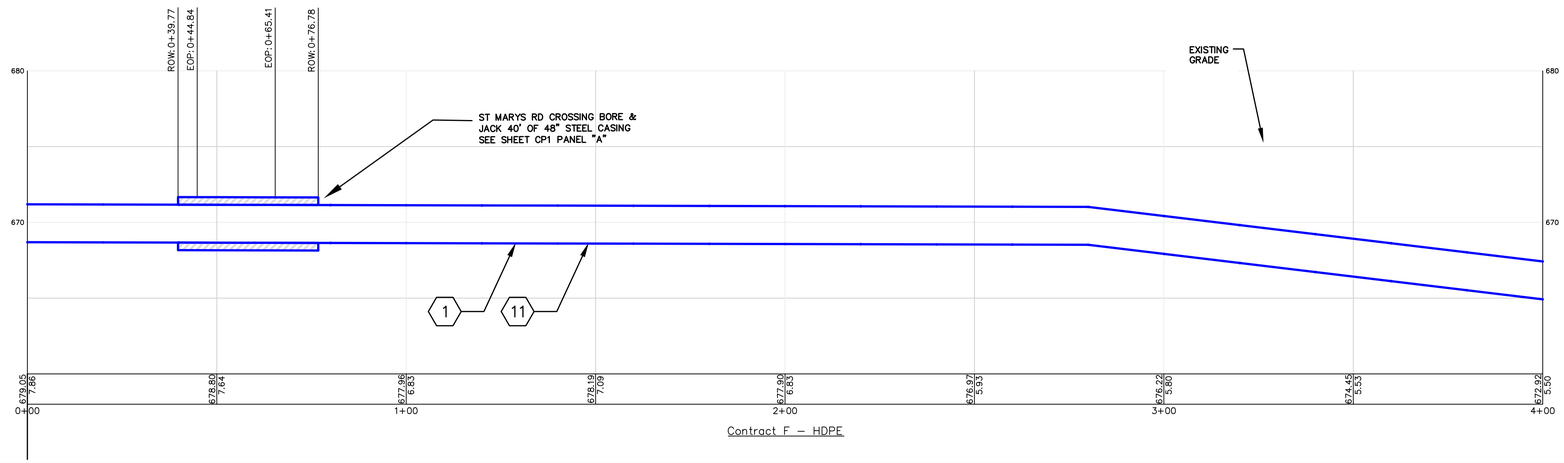
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AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

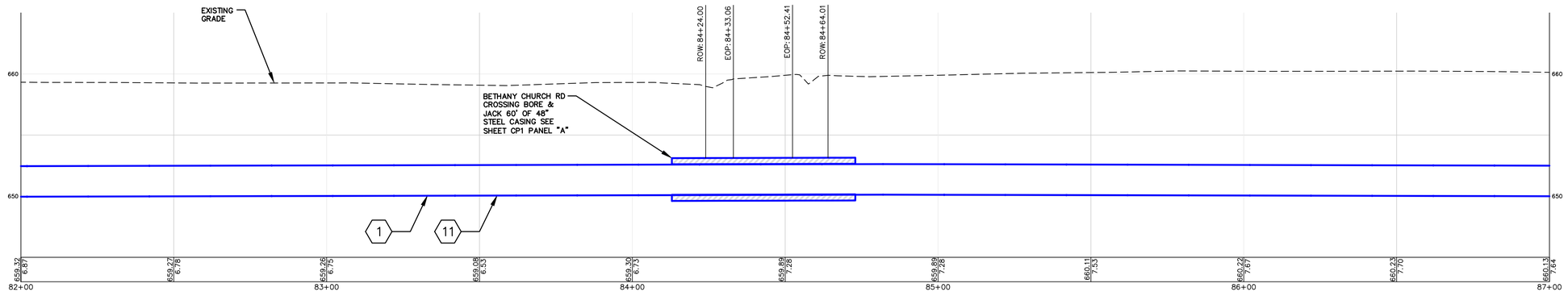
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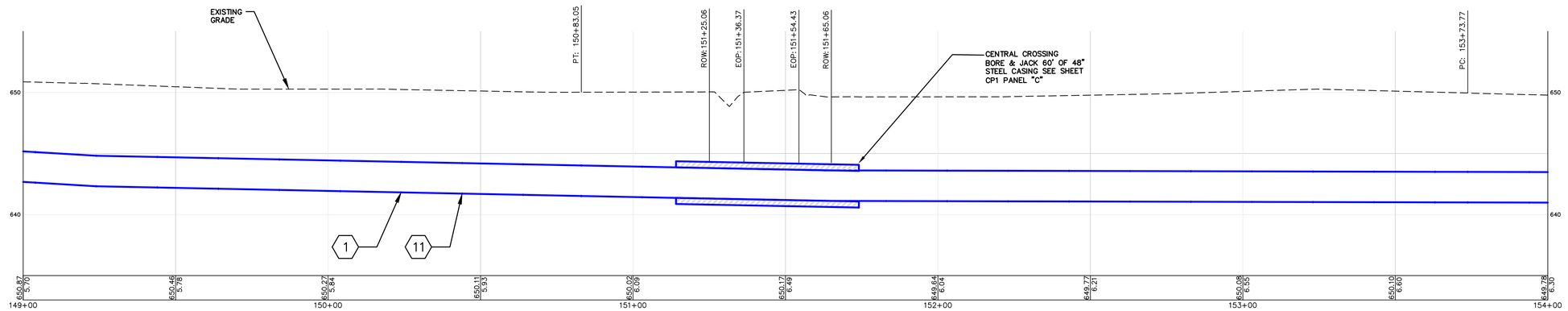

**PANEL 'A'**

Contract F – HDPE




**PANEL 'B'**

Contract F – HDPE




**PANEL 'C'**

Contract F – HDPE


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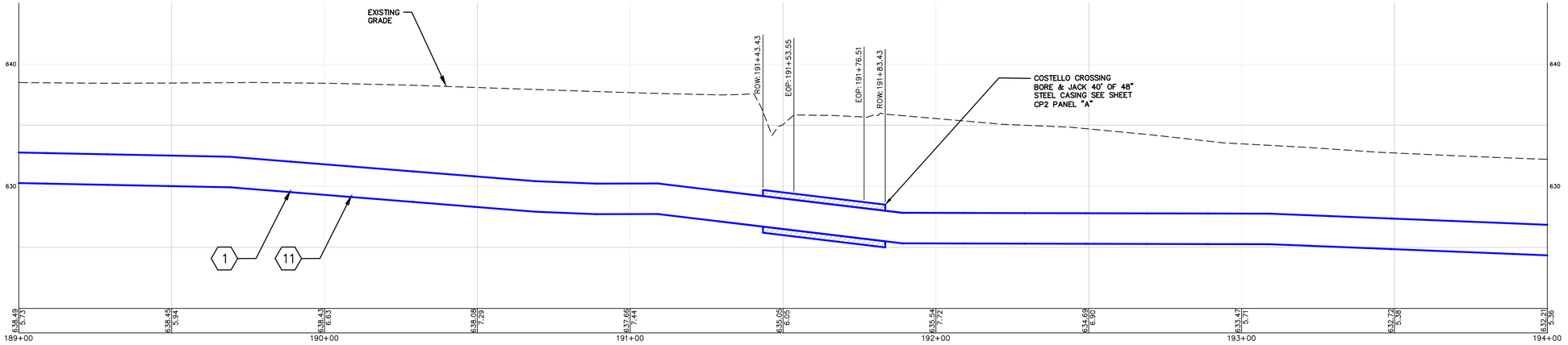

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# CONTRACT "F"
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# ROAD CROSSING PROFILES

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JERSEY & MACOUPIN COUNTIES, ILLINOIS

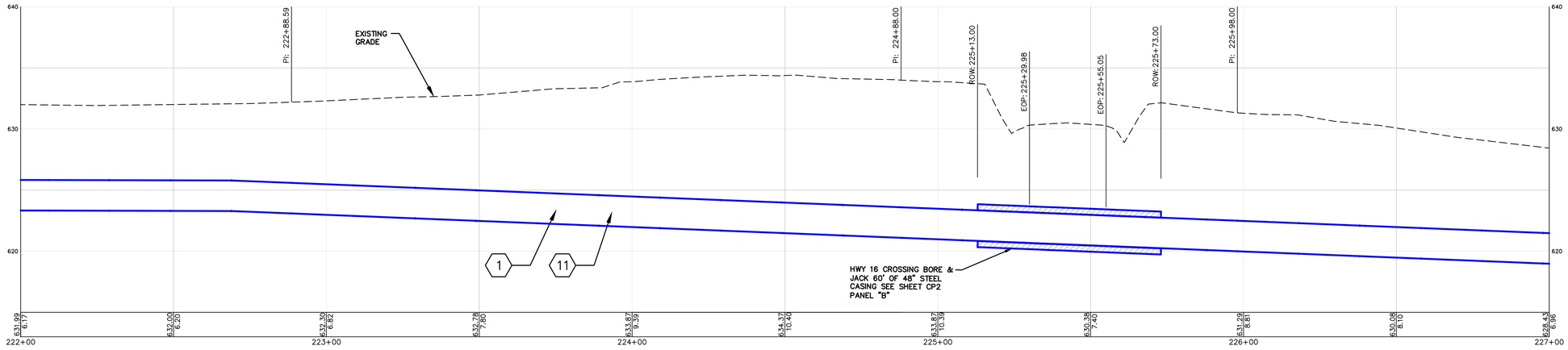
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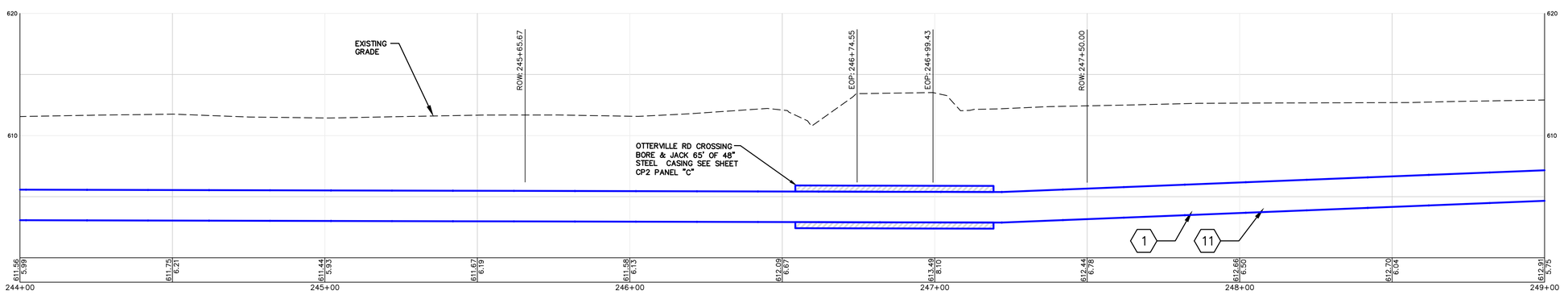

**PANEL 'A'**

Contract F – HDPE




**PANEL 'B'**

Contract F – HDPE




**PANEL 'C'**

Contract F – HDPE


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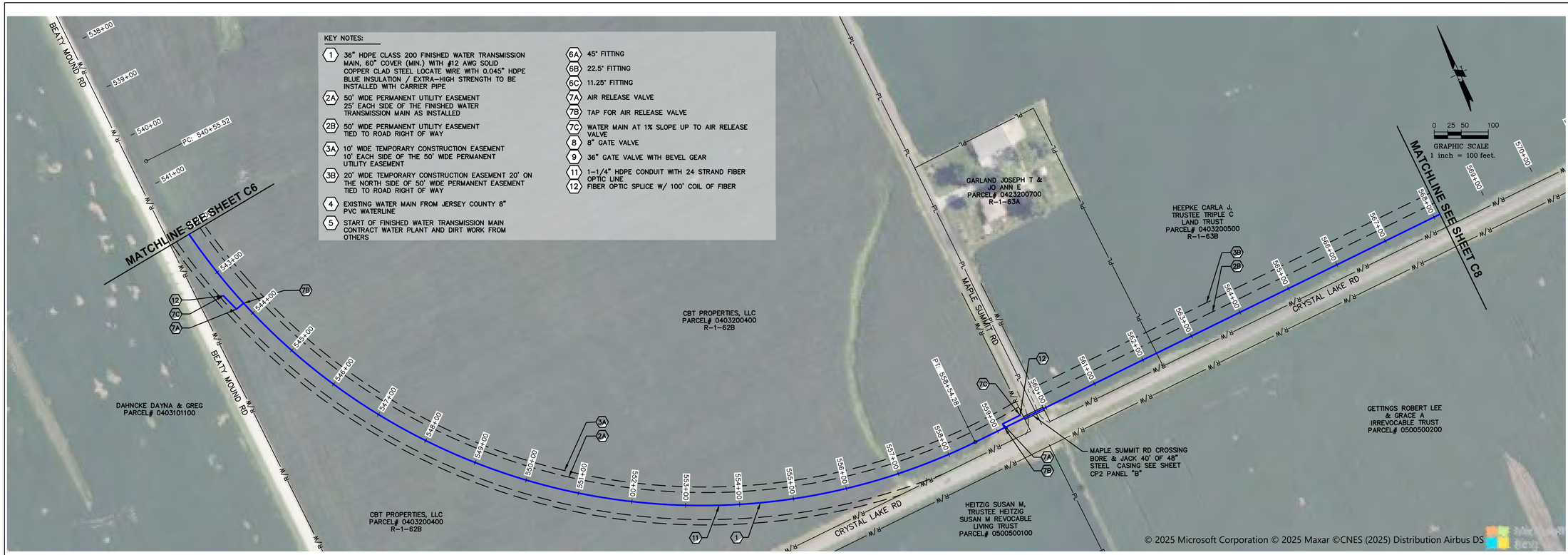
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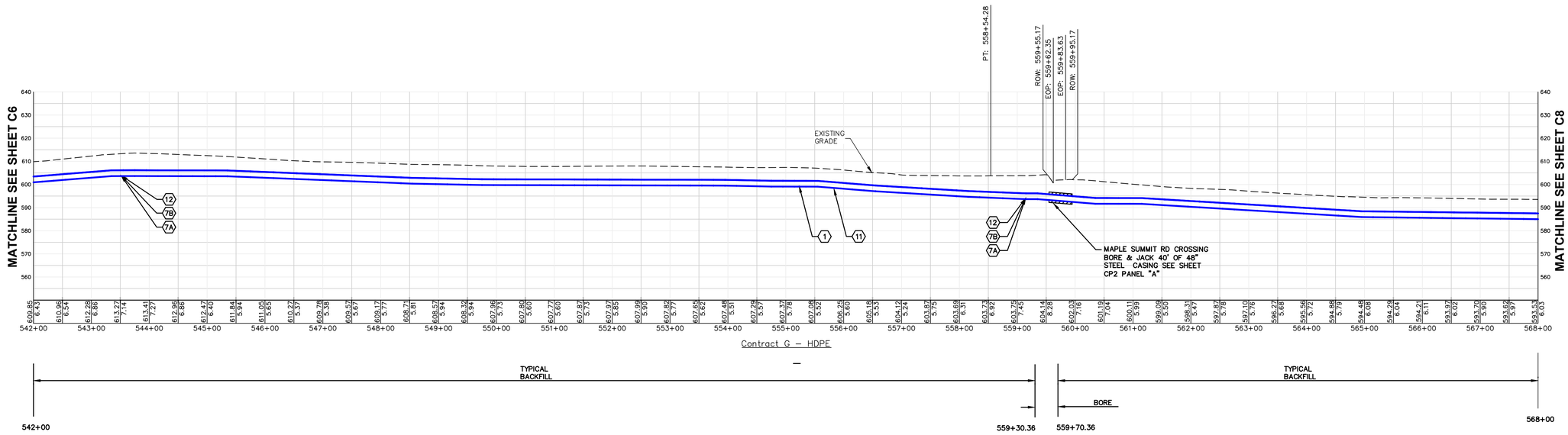
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JERSEY & MACOUPIN COUNTIES, ILLINOIS

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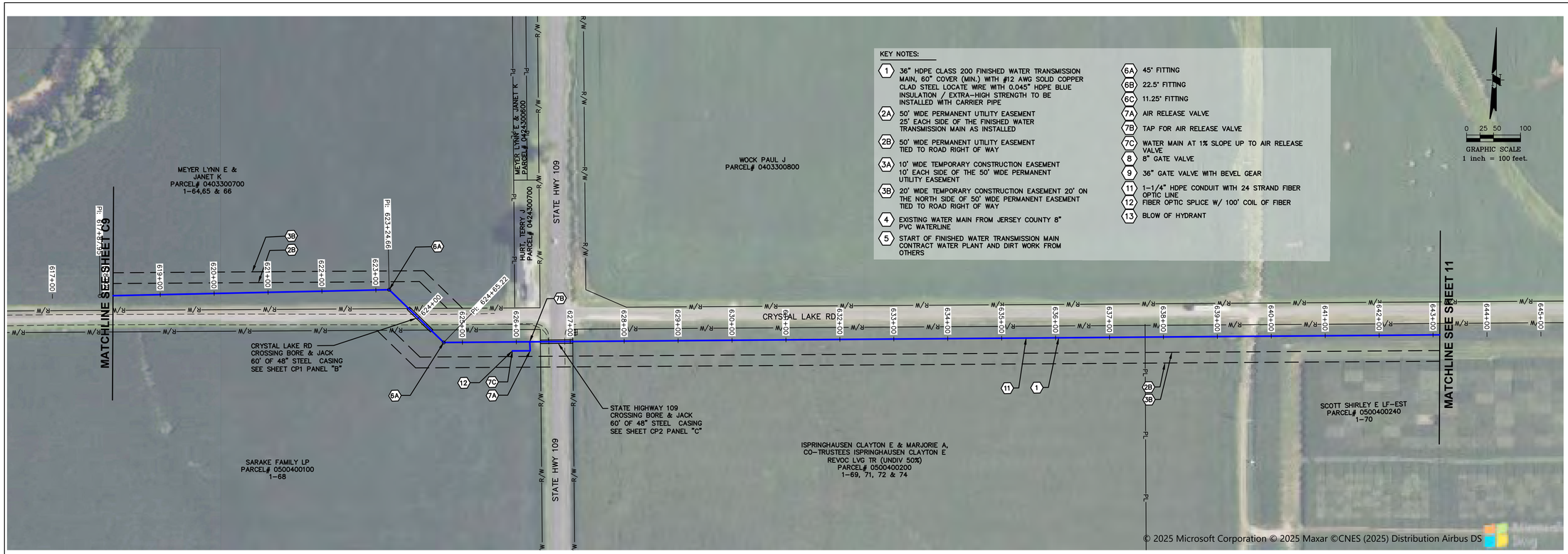
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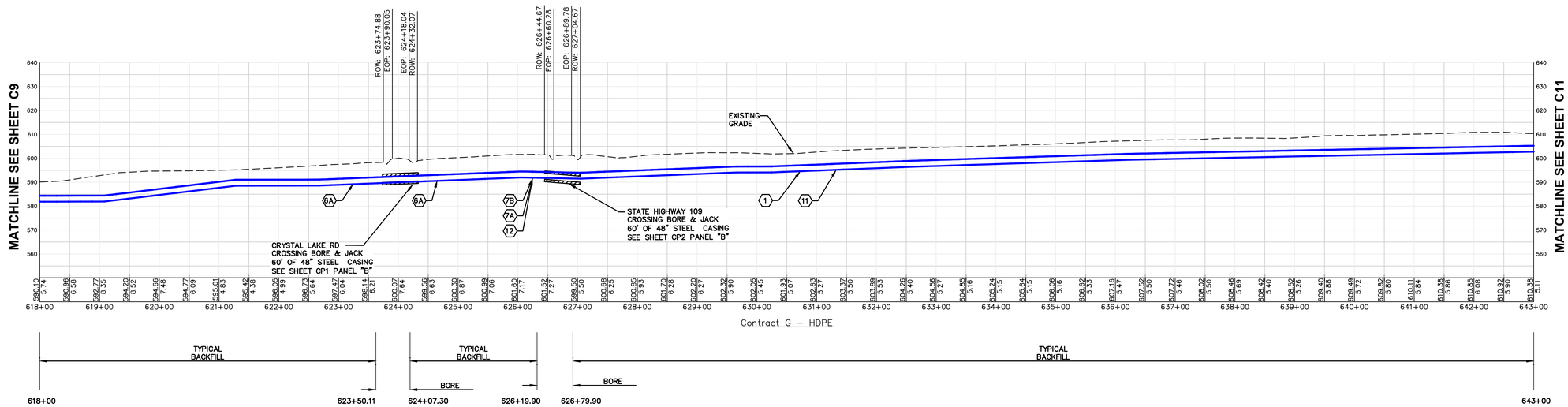
CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN
AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

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VERTICAL SCALE: 1"=25'
PROJECT NO. 71000-412
DATE: 9/7/2026
SHEET NO. C7-HDPE
10 OF 25 SHEETS

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EXPIRES: APRIL 30, 2027
MO: 2018004041
EXPIRES: DECEMBER 31, 2026
900 S. HIGHWAY DR.
SUITE 202
FENTON, MO 63026
P: (636) 395-7055

| NO. | DATE | REVISIONS |
|---|---|---|

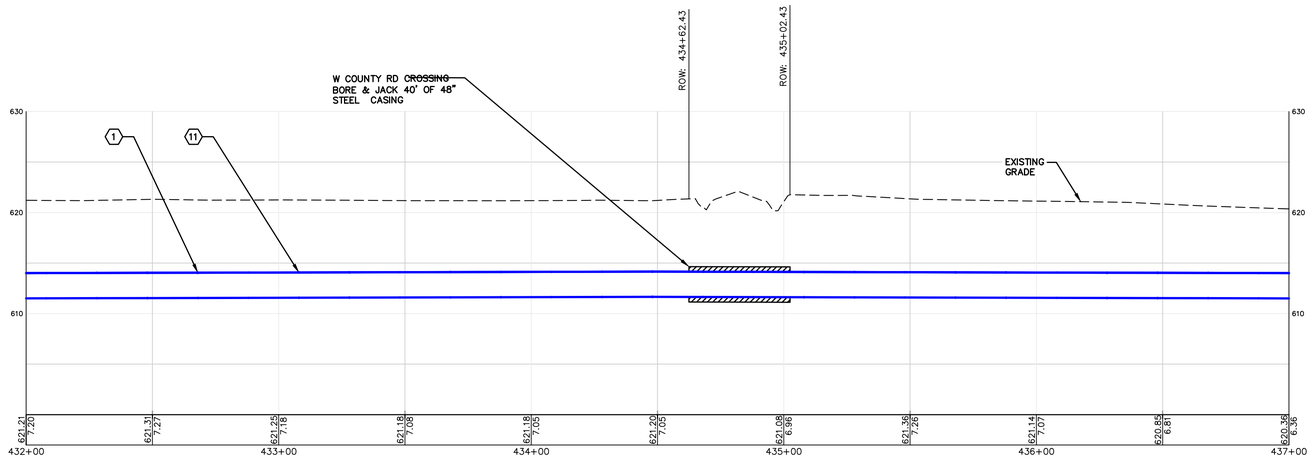
CONTRACT "G"
FINISHED WATER TRANSMISSION MAIN
AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

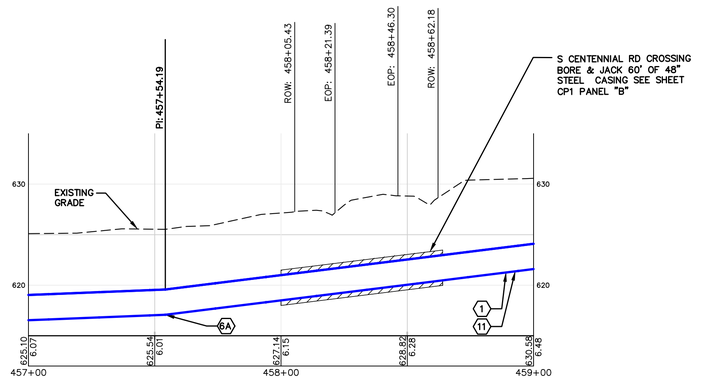
| | |
|---|---|
| DRAWN BY: | MNM |
| CHECKED BY: | TAM |
| APPROVED BY: | SWE |
| HORIZONTAL SCALE: | 1"=100' |
| VERTICAL SCALE: | 1"=25' |
| PROJECT NO. | 71000-412 |
| DATE: | 9/7/2026 |
| SHEET NO. | C10-HDPE |

13 OF 25 SHEETS

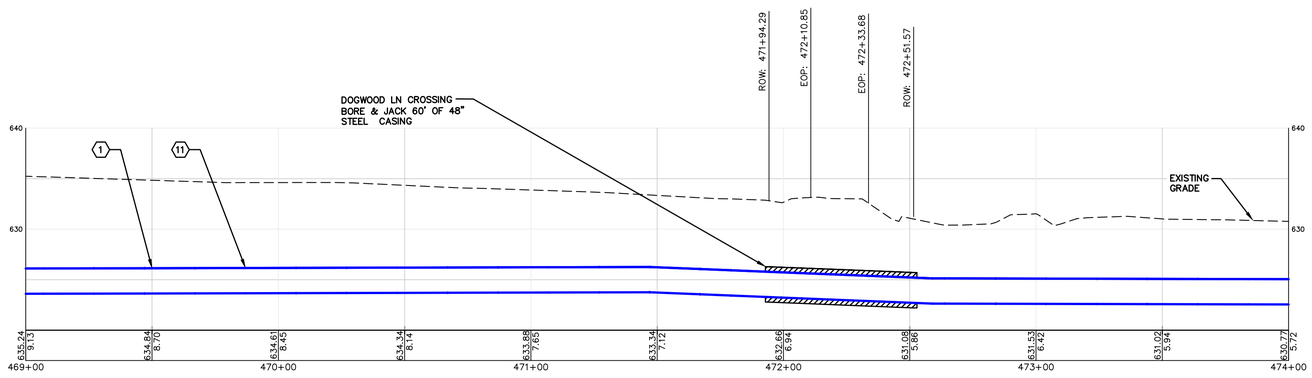
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PLOTTED: 9/7/2026 @ 11:36:11 PM BY seth elliott




Contract G – HDPE




Contract G – HDPE




Contract G – HDPE


**MECO-HENEGHAN ENGINEERS, LLC**

www.meco-heneghan.com

DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2027
MO: 2018004041
EXPIRES: DECEMBER 31, 2026

900 S. HIGHWAY DR.
SUITE 202
FENTON, MO 63026
P: (636) 395-7055


| NO. | DATE | REVISIONS |
|---|---|---|
| | | |

# CONTRACT "G"
# FINISHED WATER TRANSMISSION MAIN
# ROAD CROSSING PROFILES

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

DRAWN BY: MNM
CHECKED BY: TAM
APPROVED BY: SWE

HORIZONTAL SCALE: 1"=30'

VERTICAL SCALE: 1"=5'

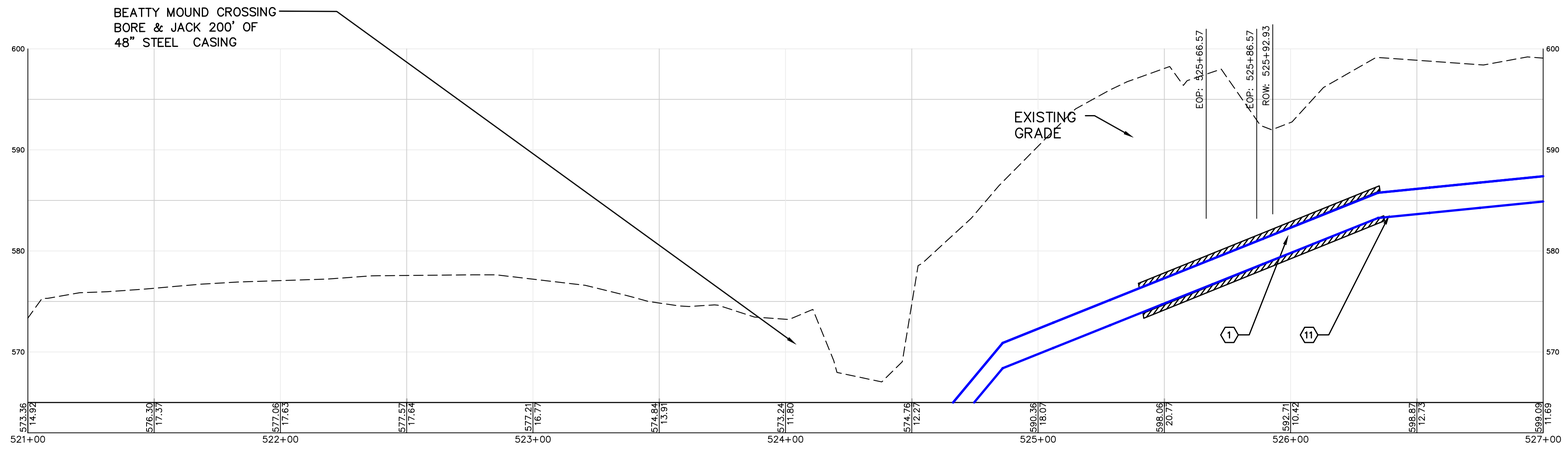
PROJECT NO. 71000-412

DATE: 9/7/2026

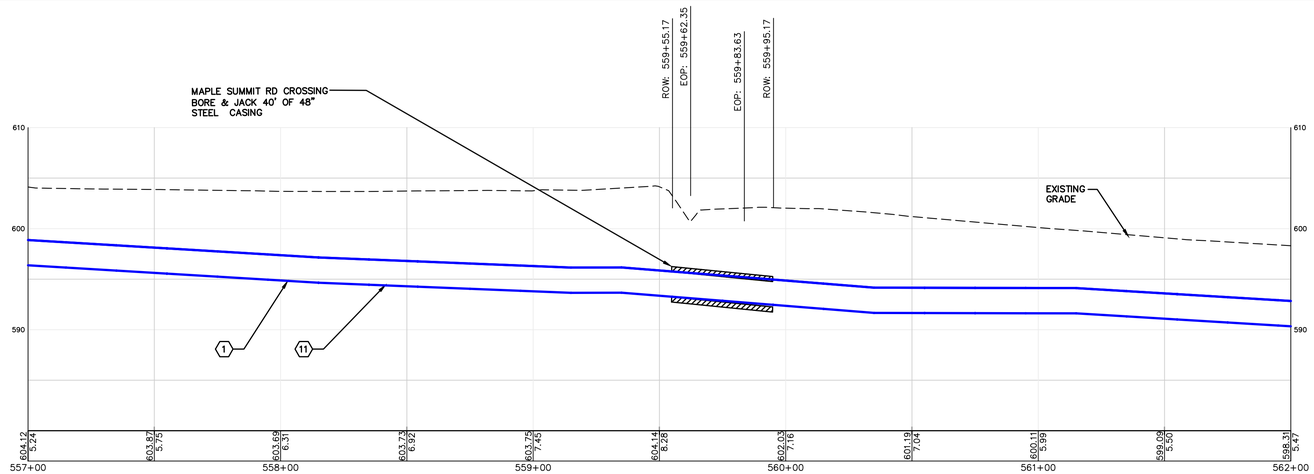
SHEET NO. CP1-HDPE

18 OF 25 SHEETS

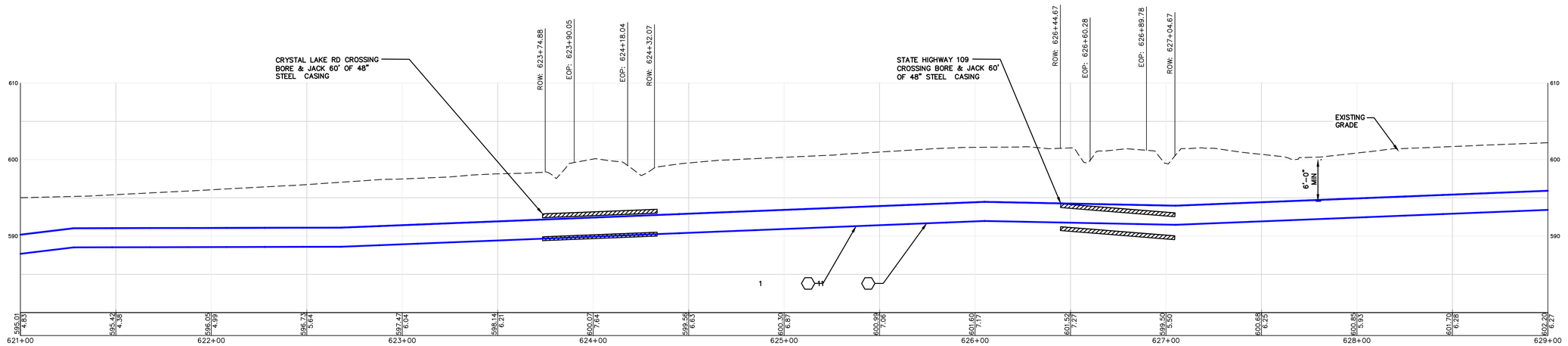

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Contract G – HDPE




Contract G – HDPE




Contract G – HDPE


**MECO-HENEGHAN ENGINEERS, LLC**

www.meco-heneghan.com

DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2027
MO: 2018004041
EXPIRES: DECEMBER 31, 2026

900 S. HIGHWAY DR.
SUITE 202
FENTON, MO 63026
P: (636) 395-7055


| REVISIONS | DATE | NO. |
|---|---|---|
| | | |

# CONTRACT "G"
# FINISHED WATER TRANSMISSION MAIN
# ROAD CROSSING PROFILES

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

| | |
|---|---|
| DRAWN BY: | MNM |
| CHECKED BY: | TAM |
| APPROVED BY: | SWE |
| HORIZONTAL SCALE: | 1"=30' |
| VERTICAL SCALE: | 1"=5' |
| PROJECT NO. | 71000-412 |
| DATE: | 9/7/2026 |
| SHEET NO. | CP2-HDPE |

19 OF 25 SHEETS


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Illinois Department of Transportation

# Utility Permit

IDOT Public Improvement ☐ Yes ☐ No

IDOT Permit No. 8-34693

Utility Reference No. IARWC 67-109 Crossing

I (We) Name of Applicant: Illinois Alluvial Regional Water Company

E-mail:

Mailing Address: 1004 State Highway 16

City: Jerseyville State: IL Zip Code: 62052

hereinafter termed the Permittee, request permission and authority to occupy, and to do certain work herein described on, the right-of-way of the State highway known as FAP 310 (US 67); FAS 747 (IL 109), Section 258; 58,

in Jersey County.

Latitude/Longitude Begin 39.083875 -90.298208 End 39.086827 -90.322992

The work is described in detail below and/or on the attached sketch or plans.

Bore and Jack approximately 270 lineal feet of 42" steel casing across US 67 for 30" diameter ductile iron water main.
US 67(FAP 310), Section 3 T7N, R11W, Lat/Long: 39.083875 -90.298208, just S of Crystal Lake Rd
Bore and Jack approximately 60 lineal feet of 42" steel casing across IL 109 for 30" diameter ductile iron water main.
IL 109(FAS 747), Sec 4 T7N, R11W, Lat/Long: 39.086827 -90.322992 at Crystal Lake Rd.
As shown on the cross sections, casing shall extend from ROW to ROW at both crossings.

This permit covers the operation and presence of specified equipment, material or facility on the right-of-way that may be related to the authorized work. A copy of this permit must be present when crews or equipment occupy highway right-of way. Failure to comply may result in the cessation of all construction.

This permit is subject to conditions and restrictions of Part 530 of Title 92 of the Illinois Administrative Code, Accommodation of Utilities on Right-of-Way of the Illinois State Highway System. The removal, relocation or modification of facilities permitted to occupy the right-of-way is governed by Section 9-113 of the Illinois Highway Code, as amended by Public Act 92-0470. The Permittee agrees to comply with the requirements of these laws and with all terms and conditions established by this permit. This permit is subject to revocation by the Department on violation of the terms and conditions governing its use.

Permittee Signature & Date

Allen Davenport Digitally signed by Allen Davenport Date: 2024.04.22 09:00:36 -05'00'

Name of Permitee or Agent (Print or Type): Allen Davenport

Mailing Address: 1004 State Highway 16

City: Jerseyville State: IL Zip Code: 62052

The work authorized by this permit shall be completed by _____ or within 180 calendar days (180 days max.) after the date of approval by the Department, otherwise the permit will be considered null and void.

Public Improvement Projects only: The anticipated letting date is _____

The permit allowing occupancy and work on state right-of-way is approved. The Utility Coordination Council established by the Department in the area covered by this permit is the district in which the permit was issued.

Regional Engineer or Designee Signature & Date

Kirk H. Brown Digitally signed by Kirk H. Brown Date: 2024.06.04 17:06:58 -05'00'

This permit is subject to the conditions and restrictions **established in accordance with the Illinois Highway Code and** Part 530 of Title 92 of the Illinois Administrative Code including but not limited to the following:

(1) The applicant represents all parties in interest and shall furnish material, do all work, pay all costs and shall in a reasonable length of time restore the damaged portions of the highway to a condition similar or equal to that existing before the commencement of the described work, including any landscape restoration necessary. (See Section 530.250 of Title 92).

(2) The proposed work shall be located and constructed to the satisfaction of the Regional Engineer or his duly authorized representative. No revisions or additions shall be made to the proposed work on the right-of-way without the written permission of the Regional Engineer or his duly authorized representative (See Section 530.200 of Title 92). **In certain circumstances the Department may require that the construction plans and/or the as-built documents be sealed by an Illinois Registered Professional Engineer.** Typical of such projects would be petroleum or gas pipelines.

(3) The applicant shall at all times conduct the work in such a manner as to minimize hazards to vehicular and pedestrian traffic. All signs, barricades, flaggers, etc., required for traffic control shall be furnished by the applicant. (See Section 530.240 of Title 92).

(4) The applicant must ascertain the presence of Highway Authority Agreements established in accordance with 35 Ill. Admin. Code Section 742.1020 in the path of its proposed installation and take precautions to protect its workers, human health and the environment in those areas. (See Section 530.240 of Title 92). Where contamination is encountered through excavation in the ROW, it should be managed offsite and IDOT's generator number for the appropriate county may be used.

(5) The applicant shall not trim, cut or in any way disturb any trees or shrubbery along the highway without the approval of the Regional Engineer or his duly authorized representative. (See Section 530.600 of Title 92).

(6) The facilities authorized to occupy the right-of-way by this permit are subject to removal, relocation or modification by the permittee at no expense to the State on notice given by the Department in accordance with Section 9-113 of the Illinois Highway Code, as amended. Participation by the permittee in the UTILITY Coordination Council identified on page one of this permit is required as a condition of this permit. Permittee shall cooperate with the Department with the scheduling of any removal, relocation or modification deemed necessary for highway or highway safety purposes, and, if Utility Coordination Council participation is required by this permit, with the activities of the council identified on the first page of this permit. (See Section 9-113 of the Illinois Highway Code.) Use of and compliance with current IDOT Traffic Control Standards will be required.

(7) If the applicant and the District cannot agree either on whether the permit should be issued or on what conditions would be appropriate, the applicant may, within 30 days of the issuance of written notice of the District's position, appeal the District's determination to the Chief of the Department's Central Bureau of Operations. (See Section 530.900 of Title 92).

(8) The permittee agrees to fully comply with the following legal obligations in advance of entering and while upon any Right-of-way within the Illinois State Highway System.

a) Only a permit issued by the Department under this Part will satisfy the "written consent" requirement of Section 9-113 of the Illinois Highway Code (the Code).

b) A permit from the Department grants a license only to undertake certain activities in accordance with this Part on a State right-of-way, and does not create a property right or grant authority to the permittee to impinge on the rights of others who may have an interest in the right-of-way. Such others might include an owner of an underlying fee simple interest if the right-of-way is owned as an easement or dedication of right of way, an owner of an easement, or another permittee.

c) It shall be the responsibility of the permittee to ascertain the presence and location of existing above-ground or underground facilities on the highway right-of-way to be occupied by their proposed facilities. The Department will make its permit records available to a permittee for the purpose of identifying possible facilities. When notified of an excavation or when requested by the Department, a permittee shall locate, physically mark, and indicate the depth of its underground facilities within 48 hours excluding weekends and holidays.

d) The permittee shall avoid conflicts with any existing underground or above-ground facilities on or near the highway right-of-way. Both the Department and J.U.L.I.E. are to be contacted for assistance during the application process.

e) The permittee shall comply with all other applicable laws relating to the placement of utility lines.

f) The issuance of a utility permit by the Department does not excuse the permittee from complying with any existing statutes, local regulations or requirements of other Department (e.g., oversize and overweight vehicles) or the requirements of other State agencies including, but not limited to, the following:

Illinois Commerce Commission, Illinois Department of Agriculture
Illinois Department of Natural Resources, Illinois Department of Mines and Minerals
Illinois Environmental Protection Agency, Illinois Historic Preservation Agency

g) Rights of abutting and underlying property owners are protected by common law and Sections 9-113 and 9-127 of the Code. The permittee will address these rights prior to initiating activities on State right-of-way. The Department will not be a party in any negotiations between the utility and abutting property owners.

h) In no case shall the permit give or be construed to give an entity any easement, leasehold or other property interest of any kind in, upon, under, above or along the State highway right-of-way.

i) Each person responsible for a utility, in place on the effective date of this Part, on a State highway right-of-way shall notify the Department in writing, if that facility does not comply with this Part. The Department shall treat such a notice as a request for a variance under Section 530.130. Until informed that a variance will not be granted, a person responsible for a pre-existing utility will not be in violation of this Part. The failure to provide such notice constitutes a violation of this Part and of the utility accommodation permit (if any) and would justify the imposition of the sanctions set forth in Section 530.810.

Work to be coordinated with Department Reps:

| Department Rep 1 | Phone |
|---|---|
| Tara McLaren | (618) 346-3203 |

| Department Rep 2 | Phone |
|---|---|
| | |

| Utility Contact Person/E-mail | Phone |
|---|---|
| Seth Elliott, swelliott@heneghanassoc.com | (618) 498-6418 |

Work to be done by:

Contractor

TBD

| Daytime Phone | Emergency Phone |
|---|---|
| | |

Traffic control operation:

| Number of lane closures | Time of closures |
|---|---|
| N/A | |

# IMPORTANT UTILITY PERMIT INFORMATION

❖ **A COPY OF THE PERMIT MUST BE ON SITE WITH THE CONTRACTOR.**

❖ **POTHOLING UTILITIES.** Potholes can be a maximum diameter of 12 inches. Backfill with CLSM (flowable fill) to the bottom of the pavement and then fill with concrete. If you make a square hole, you must make a full lane width concrete patch.

❖ **STEEL PLATES.** If you need to use a steel plate to cover a hole until the repair can be made, 1) CALL FIRST. Do not assume this is permitted. 2) DON'T TRY IT WHEN THE SNOWPLOWS MIGHT BE RUNNING. 3) The steel plate must ALWAYS BE BOLTED to the pavement.

❖ **SIDEWALKS.** Do not put handholes in sidewalks without written permission from the municipality. NEVER disturb an ADA ramp or the sidewalk panels adjacent to it.

❖ **LANE CLOSURES.** If at any time vehicles or equipment will be closer than 24 inches to the white lane line on the highway for more than 15 minutes, a full lane closure with flaggers is required. Some lane closures require that a 21-day notice be given to Springfield. If you need a lane closure, please contact the permit technician AT LEAST 25 working days in advance for forms OPER 2410 and BSPE 725.
The forms can also be found at http://idot.illinois.gov/doing-business/permits/utility-permits/index

❖ **TRAFFIC CONTROL.** Proper traffic control devices must be placed prior to beginning work. Suggested Highway Standards are attached to aid you in selecting the correct application of Traffic Control to meet the conditions of your construction, but this does not relieve you of your responsibility of having the correct Traffic Control Devices if the above Standards do not fit your situation. If you have any questions concerning Traffic Control, please contact IDOT's Traffic Control Technician, Phone No. 618-346-3287, or the Department Representative.

**FAILURE TO COMPLY MAY RESULT IN SUSPENSION OF PRESENT WORK OR FUTURE UTILITY PERMITS**

# IMPORTANT UTILITY PERMIT INFORMATION

❖ **3 WEEKDAYS NOTICE REQUIRED.** **Please notify us when you will start permitted work by emailing DOT.D8UtilityPermits@illinois.gov . Please include the District Permit Number in the subject line and contact information in the body of the email.**

**No broken pavement, open holes, trenches, barricades, cones, or drums will remain on or adjacent to the traveled way and all lanes shall be opened to traffic during any legal holiday period, unless the contractor is working behind concrete barricades. The legal holidays will include:**

**New Year's Day**
**Easter**
**Memorial Day**
**Independence Day**
**Labor Day**
**Thanksgiving Day**
**Christmas Day**

**The length of the holiday period shall vary as follows, depending on the day of the week the legal holiday falls on or is observed.**

| Day of Holiday | Length of Holiday Period |
|---|---|
| Sunday | 3 p.m. Friday – 11:59 p.m. Monday |
| Monday | 3 p.m. Friday – 11:59 p.m. Monday |
| Tuesday | 3 p.m. Friday – 11:59 p.m. Tuesday |
| Wednesday | 3 p.m. Tuesday – 11:59 p.m. Wednesday |
| Thursday | 3 p.m. Wednesday – 11:59 p.m. Sunday |
| Friday | 3 p.m. Thursday – 11:59 p.m. Sunday |
| Saturday | 3 p.m. Thursday – 11:59 p.m. Sunday |

**On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical.**

**FAILURE TO COMPLY MAY RESULT IN SUSPENSION OF PRESENT WORK OR FUTURE UTILITY PERMITS**

# IMPORTANT UTILITY PERMIT INFORMATION

❖ **NOTICE OF COMPLETION REQUIRED.** When the work is completed and the right-of-way is restored, please email a notice of completion to DOT.D8UtilityPermits@illinois.gov . Please include the District Permit Number in the subject line of the email.

❖ **CHANGES IN THE FIELD.** If anything is to be installed differently than what is shown on the permit application, approval MUST be obtained from the Department PRIOR to installation and As Built Plans MUST be submitted to the District Office upon completion of work.

❖ **TREE TRIMMING/REMOVAL.** All tree trimming and/or removal operations must be approved by the Bureau of Operations and the adjacent property owners. An approved Vegetation Clearing Permit or a Tree Removal permit must be obtained at least ***30 DAYS*** in advance of any proposed tree impacts. All trees to be removed must be mitigated and replaced on public right-of-way at a 3:1 ratio in accordance with Department policies. The Bureau of Operations will review and coordinate these permits. You may contact the Bureau of Operations at 618-346-3280 to initiate this process. No trees shall be trimmed or removed in advance of the required review and approved permit.

❖ **IDOT OPERATIONS HIGHWAY ACCESS PERMITS**

Issuance of a Utility Permit does not allow for the installation of any type of construction entrance within the State right-of-way. The Bureau of Operations shall be contacted at 618-346-3280 to obtain the required Access Permit for this type of work.

**FAILURE TO COMPLY MAY RESULT IN SUSPENSION OF PRESENT WORK OR FUTURE UTILITY PERMITS**

# IMPORTANT UTILITY PERMIT INFORMATION

## ❖ IDOT OPERATIONS UNDERGROUND ELECTRICAL FACILITIES.

**The Department may have Underground Electrical Facilities located within the limits of this Utility Permit. The Department is not a member of JULIE and does not locate its own facilities (such as underground conduit or cable for traffic signals or highway lighting). The contractor, at his or her own expense, must obtain the services of a qualified electrical contractor to locate such state-owned facilities. Any facilities damaged or relocated under this permit will be the responsibility of the Permittee. Three of the region's electrical contractors are: Wissehr Electric (618) 398-7575; Electrico (618) 538-9500; JF Electric (618) 797-5353**

**If there is a State contract under construction in the permitted area, it is understood that the work covered by this Permit shall in no way interfere with the State's Contractor and any claims that the State's Contractor may have due the work proposed in this permit, shall be accepted as the sole responsibility of the permittee.**

The applicant will be responsible for determining location of and protecting all State-owned facilities including buried facilities (such as Culverts, Storm Sewer Drainage, Traffic Signal Conduits, Lighting Conduits) and will be responsible for the cost of repair or replacement of any such facilities damaged as a result of the work covered herein.

Clean-up of the State's right-of-way shall immediately follow construction operations as the job progresses and shall not be left until all construction is completed. **The applicant has 30 days to restore the right-of-way after construction operations have ceased in any one location.** Right-of-way restoration may include grading, seeding or sodding, or any other items required to restore the right-of-way to a condition which is at least as good as it was before the permitted work took place. Maintenance of trenches, filling of settlement, removing eroded dirt from highway ditches and drainage structures shall be a continuous operation.

Immediately following the described work, all excavation within the limits of the highway right-of-way shall be completely backfilled. The backfill shall be placed in layers of not more than 6" and each layer is to be firmly tamped into place.

**FAILURE TO COMPLY MAY RESULT IN SUSPENSION OF PRESENT WORK OR FUTURE UTILITY PERMITS**

# IMPORTANT UTILITY PERMIT INFORMATION

The backfill material for trenches where the inner edge of the trench is within 2 ft of the proposed edge of pavement, curb, curb and gutter, stabilized shoulder, or sidewalk shall be CA 6 or CA 10. The material shall be deposited in uniform lifts not exceeding 8 inches in depth, loose measurement, and each lift shall be compacted to a minimum 85 percent of standard lab density by mechanical means.

The work area must be left in a safe and presentable condition at the end of each workday.

The underground utility installation under an **ACCESS CONTROLLED HIGHWAY** shall be installed by means of boring at a depth of 4' below the elevation of the surface of roadway pavement and/or design flow lines of ditches. **The minimum length of bore shall extend from out to out of the highway access control** or as otherwise specified by IDOT's utility Permit Technician. ACCESS CONTROLLED highways included every interstate and the interchanges. Typically there will be fencing along both sides of the highway.

The underground utility installation under conventional highways shall be installed at a minimum depth of 4' below the elevation of the surface of roadway pavement and/or flow lines of ditches. The length of bore shall extend a minimum distance of 10' beyond the outer edges of the highway pavement or as otherwise specified by IDOT's Utility Permit Technician.

The underground utility installation along State highways shall maintain a minimum depth of 36". LONGITUDINAL UTILITIES SHALL BE LOCATED AS NEAR THE RIGHT-OF-WAY LINE AS PRACTICABLE and not more than eight feet from and parallel to the right-of-way line. **GROUND-MOUNTED APPURTENANCES SHALL BE LOCATED WITHIN ONE FOOT OF THE RIGHT-OF-WAY LINE OR AS NEAR AS PRACTICABLE.**

All exposed facilities, such as pedestals, manholes, end sections, monitoring wells, valves and/or meters, within State right-of-way should be clearly marked to avoid conflicts with the State's Maintenance work.

**FAILURE TO COMPLY MAY RESULT IN SUSPENSION OF PRESENT WORK OR FUTURE UTILITY PERMITS**

# IMPORTANT UTILITY PERMIT INFORMATION

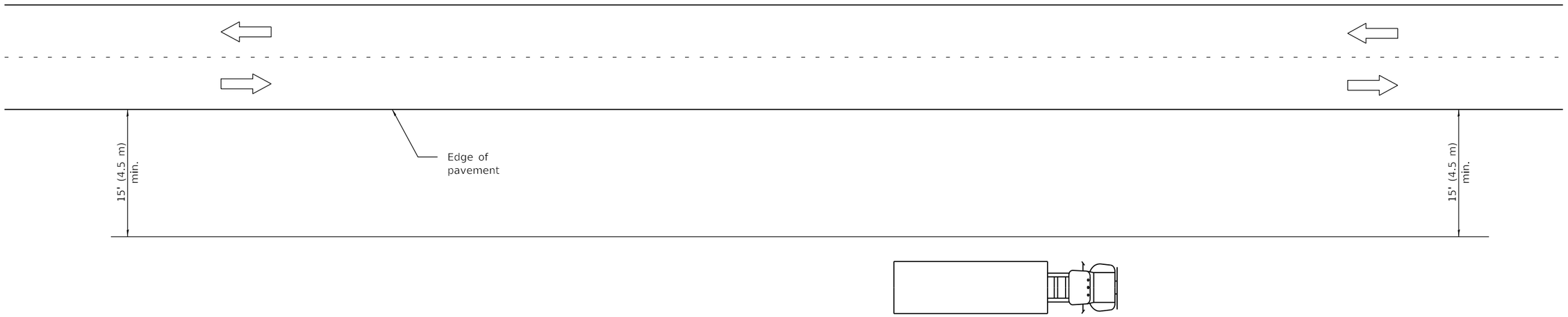
UTILITY POLES SHALL BE LOCATED AS NEAR THE RIGHT-OF-WAY LINE AS PRACTICABLE AND NOT MORE THAN FIVE FEET FROM AND PARALLEL TO THE RIGHT-OF-WAY LINE.

Plastic pipe must have an electrically conducting wire or other means of locating the pipe while it is underground. Tracer wire may not be wrapped around the pipe and contact with the pipe must be minimized but is not prohibited. Tracer wire or other metallic elements installed for pipe locating purposes must be resistant to corrosion damage, either by use of coated copper wire or by other means.

This permit is issued only with the express understanding that the permittee has obtained any required authority for the said installation from the Environmental Protection Agency in accordance with the Environmental Protection Act.

**The issuance of this utility permit by the Department does not excuse the permittee from obtaining the necessary approvals from the Corps of Engineers, Division of Waterway, Department of Public Health, IDNR, and any other property owner, municipality, or agency that may be involved or have concerns with this procedure.**

**FAILURE TO COMPLY MAY RESULT IN SUSPENSION OF PRESENT WORK OR FUTURE UTILITY PERMITS**




## TYPICAL APPLICATIONS

Landscaping work

Utility work

Fencing contracts and maintenance

Cleaning culverts

## GENERAL NOTES

This Standard is used where at all times all vehicles, equipment, workers or their activities are more than 15' (4.5 m) from the edge of pavement.

When the work operation requires that two or more work vehicles cross the 15' (4.5 m) clear zone in any one hour, traffic control shall be according to Standard 701006.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009

ENGINEER OF OPERATIONS

APPROVED January 1, 2009

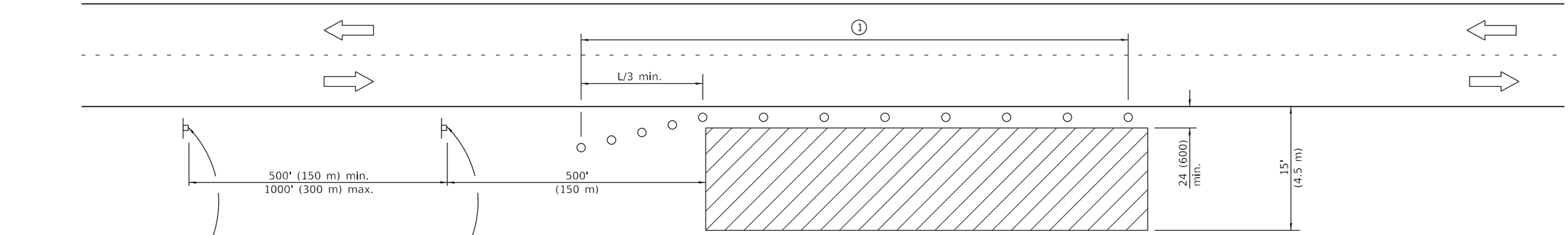
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

| DATE | REVISIONS |
|---|---|
| 1-1-09 | Switched units to |
| | English (metric). |
| | |
| 1-1-05 | Revised title and notes. |
| | |
| | |

# OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5 m) AWAY

**STANDARD 701001-02**




For contract construction projects




W20-I103(0)-48



W21-1(0)-48

For maintenance and utility projects




W20-1(0)-48

## TYPICAL APPLICATIONS

Utility operations
Culvert extensions
Side slope changes
Guardrail installation and maintenance
Delineator installation
Landscaping operations
Shoulder repair
Sign installation and maintenance

## SYMBOLS

Work area

Sign

Cone, drum or barricade

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25' (8 m) centers for L/3 distance, and at 50' (15 m) centers through the remainder of the work area.

## GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15' (4.5 m) to 24 (600) from the edge of pavement.

Calculate L as follows:

| SPEED LIMIT | FORMULAS English | FORMULAS (Metric) |
|---|---|---|
| 40 mph (70 km/h) or less: | $L=\frac{WS^2}{60}$ | $L=\frac{WS^2}{150}$ |
| 45 mph (80 km/h) or greater: | L=(W)(S) | L=0.65(W)(S) |

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1. 2014
ENGINEER OF SAFETY ENGINEERING

APPROVED January 1. 2014
ENGINEER OF DESIGN AND ENVIRONMENT

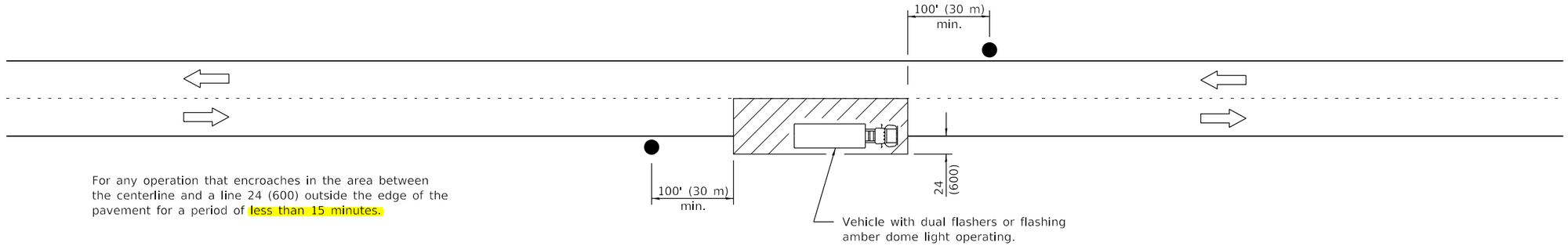
ISSUED 1-1-97

| DATE | REVISIONS |
|---|---|
| 1-1-14 | Revised workers sign |
| | number to agree with |
| | current MUTCD. |
| 1-1-13 | Omitted text 'WORKERS' |
| | sign. |
| | |

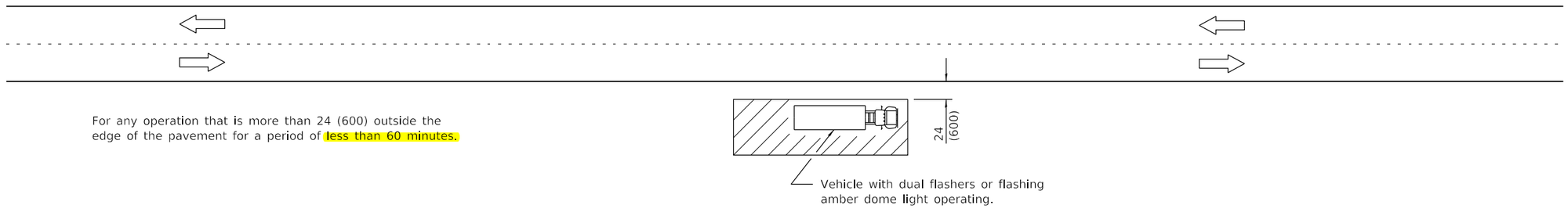
# OFF-RD OPERATIONS, 2L, 2W, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE

## STANDARD 701006-05

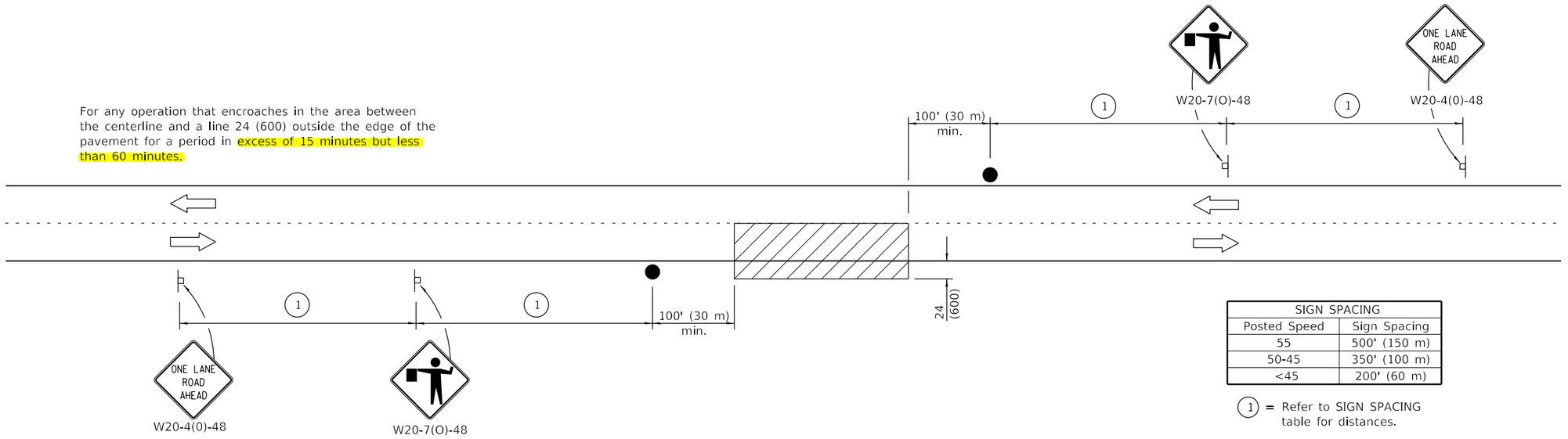
For any operation that encroaches in the area between the centerline and a line 24 (600) outside the edge of the pavement for a period of less than 15 minutes.




For any operation that is more than 24 (600) outside the edge of the pavement for a period of less than 60 minutes.




For any operation that encroaches in the area between the centerline and a line 24 (600) outside the edge of the pavement for a period in excess of 15 minutes but less than 60 minutes.




| SIGN SPACING | |
|---|---|
| Posted Speed | Sign Spacing |
| 55 | 500' (150 m) |
| 50-45 | 350' (100 m) |
| <45 | 200' (60 m) |

(1) = Refer to SIGN SPACING table for distances.

## TYPICAL APPLICATIONS

Marking patches
Field survey
String line
Utility operations
Cleaning up debris on pavement

## SYMBOLS

Work area

Sign on portable or permanent support

Flagger with traffic control sign

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2011
ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2011
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

| DATE | REVISIONS |
|---|---|
| 1-1-11 | Revised flagger sign. |
| | |
| | |
| 1-1-09 | Switched units to |
| | English (metric). |
| | |

# LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS

## STANDARD 701301-04

# Illinois Department of Transportation

## Memorandum

To: District Bureau of Operations - Craig Poettker

From: Project Support - Tara McLaren

Subject: INVESTIGATION OF UTILITY PERMIT APPLICATION

Date: 5/20/2024

PERMIT NO.: **8- 34693**

APPLICANT: **Illinois Alluvial Regional Water Company**

ROUTE: **FAP 310; FAS 747**

MARKED ROUTE: **US 67; IL 109**

SECTION: **258; 58**

LOCATION: **Jerseyville - IL 109 at Crystal Lake Rd, US 67 1275' S of Crystal Lake Rd**

COUNTY: **Jersey**

NATURE OF WORK: **jack and bore 42" steel casing for 30" diameter DI water main**

Please investigate the attached utility permit application; and, return with any recommendations.

Note below any special requirements you consider necessary in the permit. If application cannot be investigated within two weeks, please advise.

REMARKS:

Attachments

## McLaren, Tara A

**From:** Poettker, Craig S
**Sent:** Wednesday, May 22, 2024 7:54 AM
**To:** Varble, Nathan J; McLaren, Tara A
**Subject:** FW: 34693 Investigation of Utility Permit
**Attachments:** 34693 permit.pdf; 34693 il alluvial s of jerseyville dox.pdf

Tara, I'm not sure that it notes it specifically, the profile shows it, but I would like the plans/notes to state that the casing should go ROW to ROW. I don't want assumptions by the contractor that it's not ROW to ROW.

Nathan, do you have anything to add?

Thank you

Craig Poettker
(618)346-3279

---

**From:** McLaren, Tara A <Tara.McLaren@illinois.gov>
**Sent:** Monday, May 20, 2024 1:30 PM
**To:** Davis, Kenneth R <Kenneth.Davis@illinois.gov>; Poettker, Craig S <Craig.Poettker@illinois.gov>; Milton, Michael I. <Michael.Milton@Illinois.gov>; Varble, Nathan J <Nathan.Varble@illinois.gov>
**Cc:** Stumpf, RuAnna M <RuAnna.Stumpf@illinois.gov>
**Subject:** 34693 Investigation of Utility Permit

Please investigate the attached utility permit application and traffic control authorization. Return with any recommendations.

PERMIT NO.: **8- 34693**

APPLICANT: **Illinois Alluvial Regional Water Company**

ROUTE: **FAP 310; FAS 747**

MARKED ROUTE: **US 67; IL 109**

SECTION: **258; 58**

LOCATION: **Jerseyville - IL 109 at Crystal Lake Rd, US 67 1275' S of Crystal Lake Rd**

COUNTY: **Jersey**

NATURE OF WORK: **jack and bore 42" steel casing for 30" diameter DI water main**

Thank you.

Tara McLaren
Utility Permits and Agreements
(618)346-3203
tara.mclaren@illinois.gov

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## McLaren, Tara A

**From:** Davis, Kenneth R
**Sent:** Monday, May 20, 2024 1:40 PM
**To:** McLaren, Tara A
**Subject:** RE: 34693 Investigation of Utility Permit

The department does not have any underground electrical utilities at this location.

**Ken Davis**
**Electrical Services Supervisor D-8**
**Office: (618)346-3274**
**Cell: (618)363-3347**
Illinois Department of Transportation

---

**From:** McLaren, Tara A <Tara.McLaren@illinois.gov>
**Sent:** Monday, May 20, 2024 1:30 PM
**To:** Davis, Kenneth R <Kenneth.Davis@illinois.gov>; Poettker, Craig S <Craig.Poettker@illinois.gov>; Milton, Michael I. <Michael.Milton@Illinois.gov>; Varble, Nathan J <Nathan.Varble@illinois.gov>
**Cc:** Stumpf, RuAnna M <RuAnna.Stumpf@illinois.gov>
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Thank you.

Tara McLaren
Utility Permits and Agreements
(618)346-3203
tara.mclaren@illinois.gov

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## McLaren, Tara A

**From:** Milton, Michael I.
**Sent:** Monday, May 20, 2024 2:00 PM
**To:** McLaren, Tara A; Davis, Kenneth R; Poettker, Craig S; Varble, Nathan J
**Cc:** Stumpf, RuAnna M
**Subject:** RE: 34693 Investigation of Utility Permit IL 109 Jerseyville
**Attachments:** 34693 il alluvial s of jerseyville dox.pdf; 34693 permit.pdf

There are no current access permit conflicts at this location.

Thanks,

**Mike Milton**
Operations Permit Technician
Permits Unit/ District 8/ Operations
1102 Eastport Plaza Drive
Collinsville, IL 62234
618-346-3281
Michael.Milton@illinois.gov

---

**From:** McLaren, Tara A <Tara.McLaren@illinois.gov>
**Sent:** Monday, May 20, 2024 1:30 PM
**To:** Davis, Kenneth R <Kenneth.Davis@illinois.gov>; Poettker, Craig S <Craig.Poettker@illinois.gov>; Milton, Michael I. <Michael.Milton@Illinois.gov>; Varble, Nathan J <Nathan.Varble@illinois.gov>
**Cc:** Stumpf, RuAnna M <RuAnna.Stumpf@illinois.gov>
**Subject:** 34693 Investigation of Utility Permit

Please investigate the attached utility permit application and traffic control authorization. Return with any recommendations.

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Tara McLaren
Utility Permits and Agreements
(618)346-3203
tara.mclaren@illinois.gov

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## McLaren, Tara A

**From:** Varble, Nathan J
**Sent:** Wednesday, May 22, 2024 8:10 AM
**To:** Poettker, Craig S; McLaren, Tara A
**Subject:** RE: 34693 Investigation of Utility Permit

As long as their casing carries throughout the limits of ROW, they maintain a 4' depth below the true flowline of the ditches, maintain consistent positive drainage for the duration of the project and utilize proper traffic control, I'm fine with it.


## *Nate Varble*

Operations Supervisor
Jerseyville Yard 618-498-2723
Carrollton Yard 217-942-5112
Brussels Ferry 618-786-3636
Kampsville Ferry 618-653-4518
Joe Page Bridge 618-576-2316


---

**From:** Poettker, Craig S <Craig.Poettker@illinois.gov>
**Sent:** Wednesday, May 22, 2024 7:54 AM
**To:** Varble, Nathan J <Nathan.Varble@illinois.gov>; McLaren, Tara A <Tara.McLaren@illinois.gov>
**Subject:** FW: 34693 Investigation of Utility Permit

Tara, I'm not sure that it notes it specifically, the profile shows it, but I would like the plans/notes to state that the casing should go ROW to ROW. I don't want assumptions by the contractor that it's not ROW to ROW.

Nathan, do you have anything to add?

Thank you

Craig Poettker
(618)346-3279

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**Sent:** Monday, May 20, 2024 1:30 PM
**To:** Davis, Kenneth R <Kenneth.Davis@illinois.gov>; Poettker, Craig S <Craig.Poettker@illinois.gov>; Milton, Michael I. <Michael.Milton@Illinois.gov>; Varble, Nathan J <Nathan.Varble@illinois.gov>
**Cc:** Stumpf, RuAnna M <RuAnna.Stumpf@illinois.gov>
**Subject:** 34693 Investigation of Utility Permit

Please investigate the attached utility permit application and traffic control authorization. Return with any recommendations.

PERMIT NO.: **8- 34693**

APPLICANT: **Illinois Alluvial Regional Water Company**

ROUTE: **FAP 310; FAS 747**

MARKED ROUTE: **US 67; IL 109**

SECTION: **258; 58**

LOCATION: **Jerseyville - IL 109 at Crystal Lake Rd, US 67 1275' S of Crystal Lake Rd**

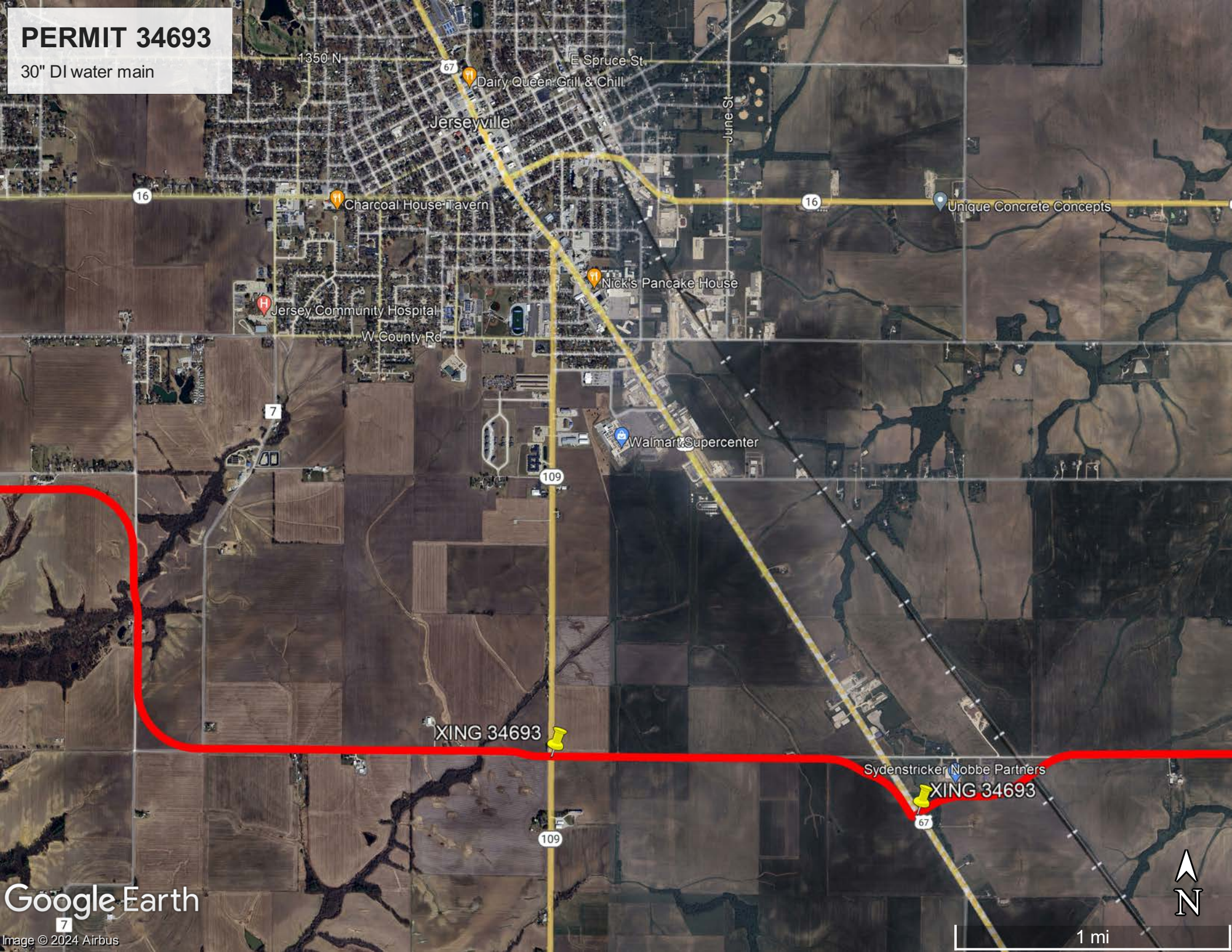
COUNTY: **Jersey**

NATURE OF WORK: **jack and bore 42" steel casing for 30" diameter DI water main**

Thank you.

Tara McLaren
Utility Permits and Agreements
(618)346-3203
tara.mclaren@illinois.gov

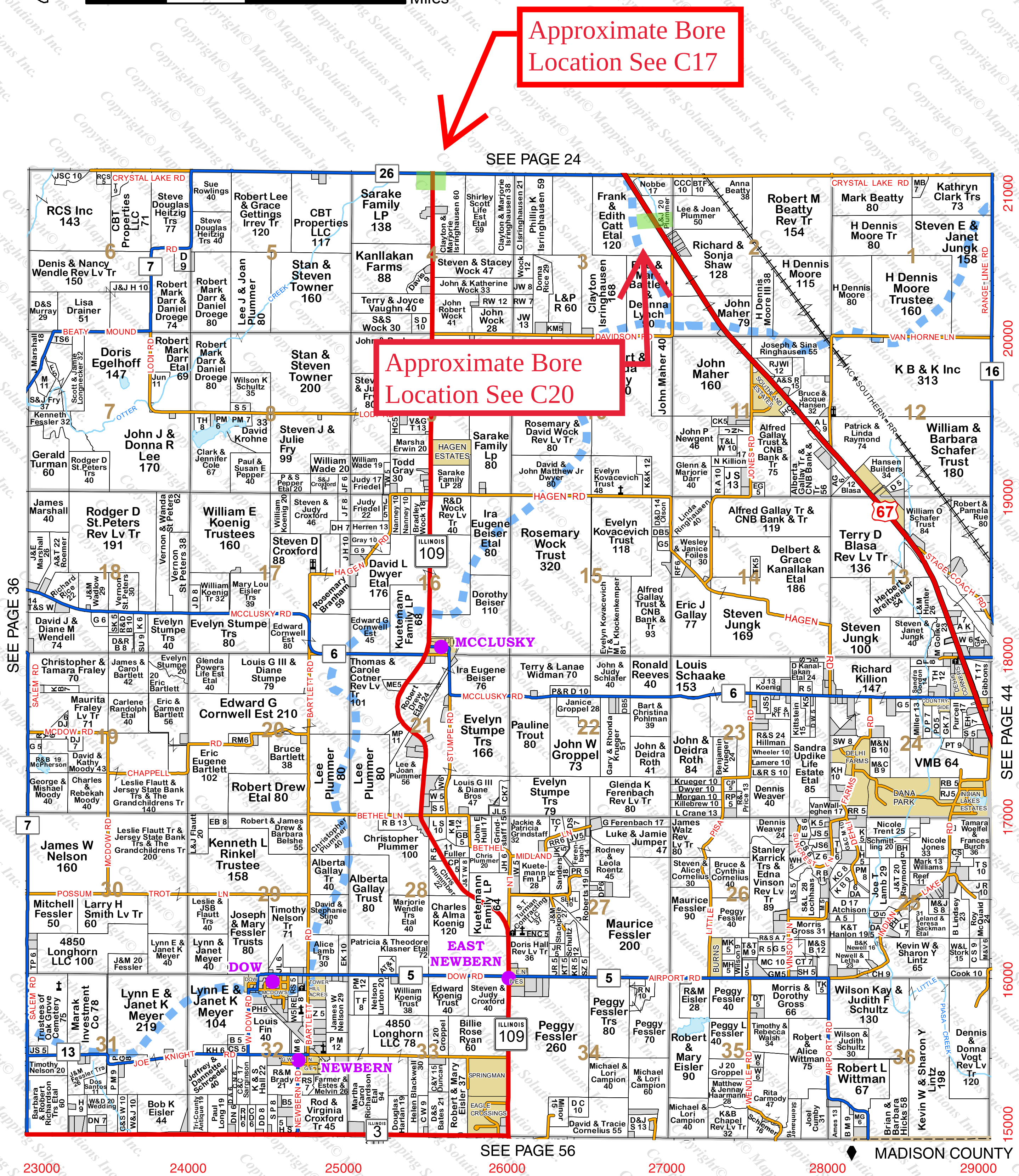
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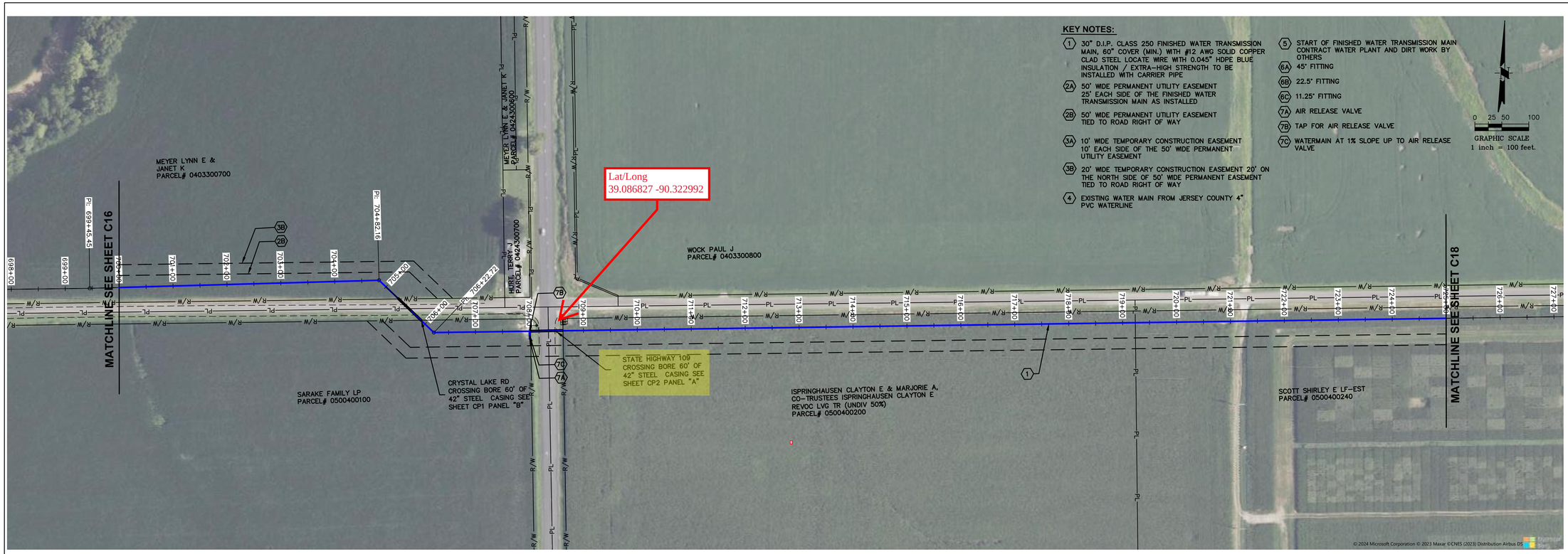

PERMIT 34693
30" DI water main
1350 N
E Spruce St
Dairy Queen Grill & Chill
Jerseyville
June St
Charcoal House Tavern
Unique Concrete Concepts
Nick's Pancake House
Jersey Community Hospital
W County Rd
Walmart Supercenter
XING 34693
Sydenstricker Nobbe Partners
XING 34693
Google Earth
Image © 2024 Airbus
1 mi
N

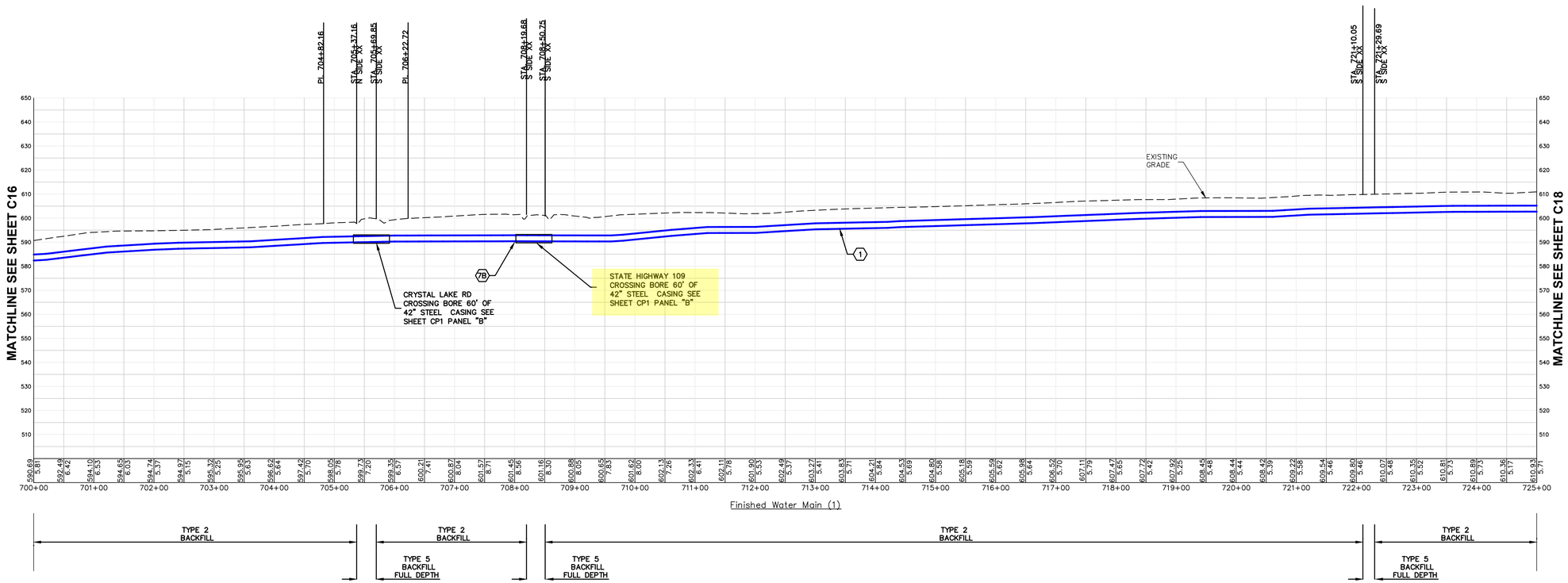
0 0.5 1 2 Miles

# Township 7N - Range 11W

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PLOTTED: 2/2/2024 @ 1:14:47 AM BY elliott seth

**MECO-HENEGHAN ENGINEERS, LLC**
www.meco-heneghan.com

DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2025
MO: 2018004041
EXPIRES: DECEMBER 31, 2024

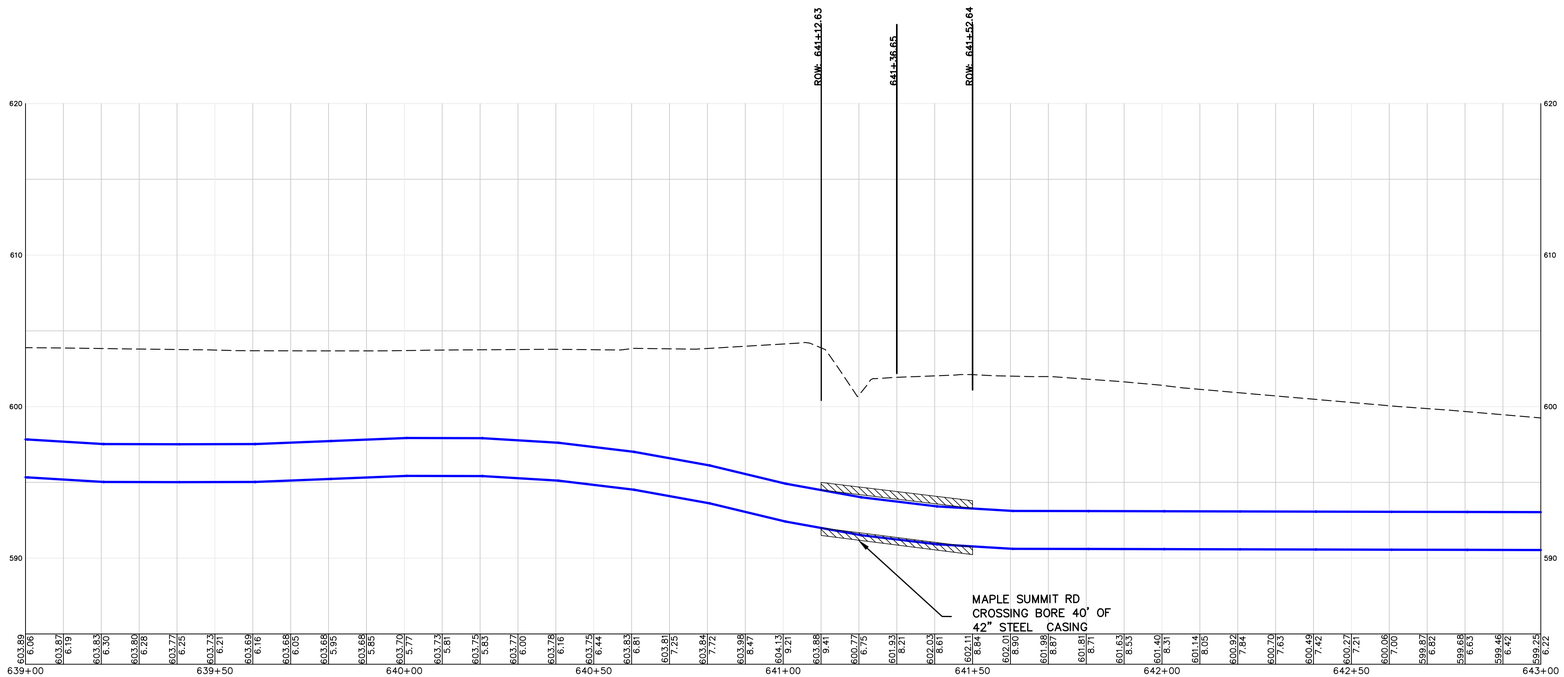
400 N. FIFTH STREET
SUITE 107
ST. CHARLES, MO 63301
P: (636) 395-7055

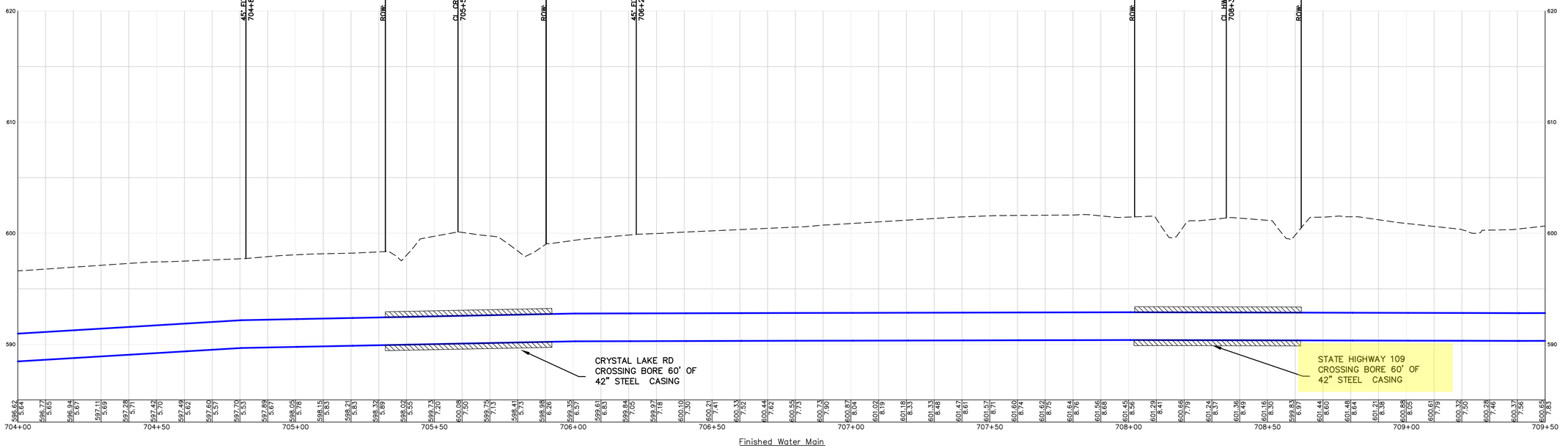
| NO. | DATE | REVISIONS |
|---|---|---|
| | | |

# CONTRACT "G" FINISHED WATER TRANSMISSION MAIN AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

DRAWN BY: MNM
CHECKED BY: TAM
APPROVED BY: SWE
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=25'
PROJECT NO. 71000-400
DATE: 1/29/24
SHEET NO. C17
11 OF 20 SHEETS




PATH=s:\shared-pim\projects\71000-400\coal\contract g dwgs\finished sheets 23-34.dwg
PLOTTED: 2/2/2024 @ 11:22:01 AM BY elliott, seth


**MECO-HENEGHAN ENGINEERS, LLC**

www.meco-heneghan.com

DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2025
MO: 2018004041
EXPIRES: DECEMBER 31, 2024

400 N. FIFTH STREET
SUITE 107
ST. CHARLES, MO 63301
P: (636) 395-7055


| NO. | DATE | REVISIONS |
|---|---|---|
| | | |

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

DRAWN BY: MNM
CHECKED BY: TAM
APPROVED BY: SWE

HORIZONTAL SCALE: 1"=20'

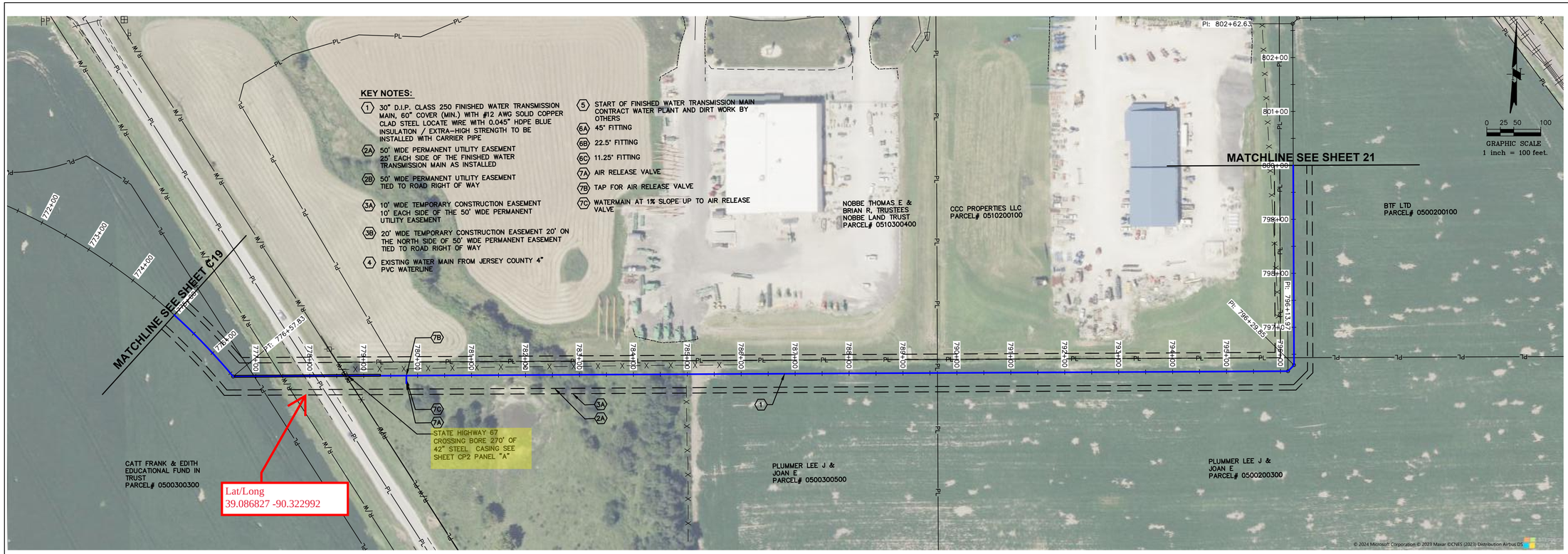
VERTICAL SCALE: 1"=5'

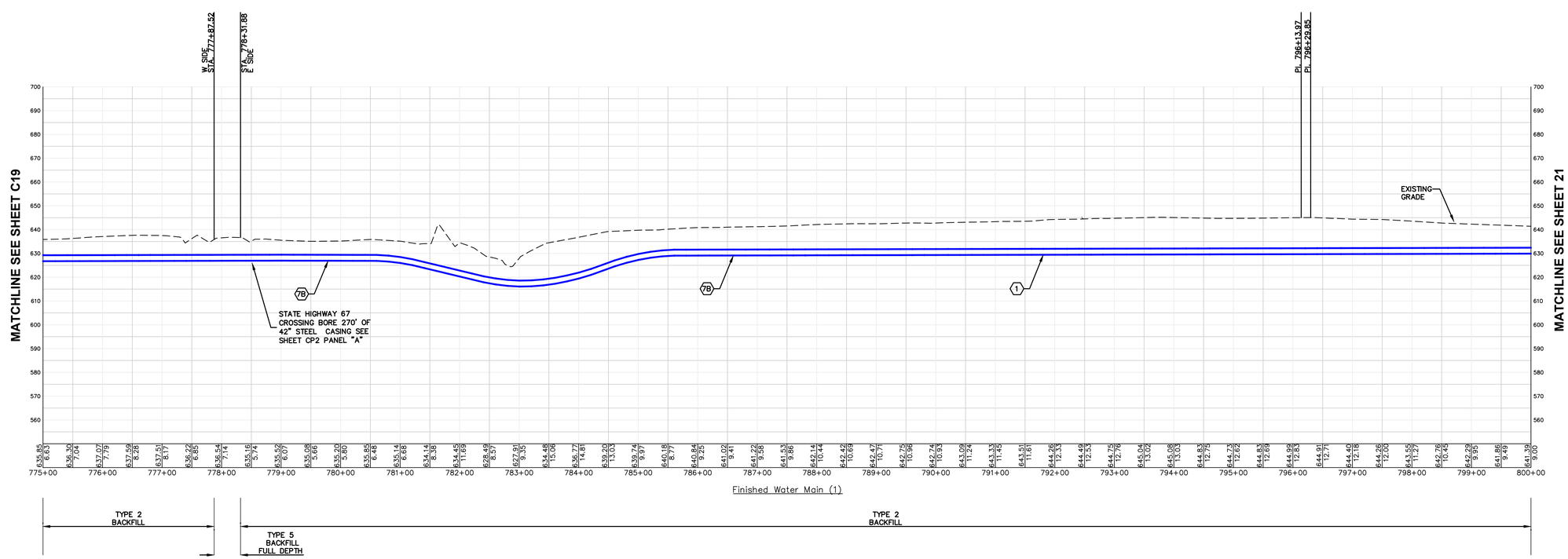
PROJECT NO. ----

DATE: 1/29/24

SHEET NO. CP1

31 OF 32 SHEETS




MECO-HENEGHAN ENGINEERS, LLC

www.meco-heneghan.com

DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2025
MO: 2018004041
EXPIRES: DECEMBER 31, 2024

400 N. FIFTH STREET
SUITE 107
ST. CHARLES, MO 63301
P: (636) 395-7055

| NO. | DATE | REVISIONS |
|---|---|---|

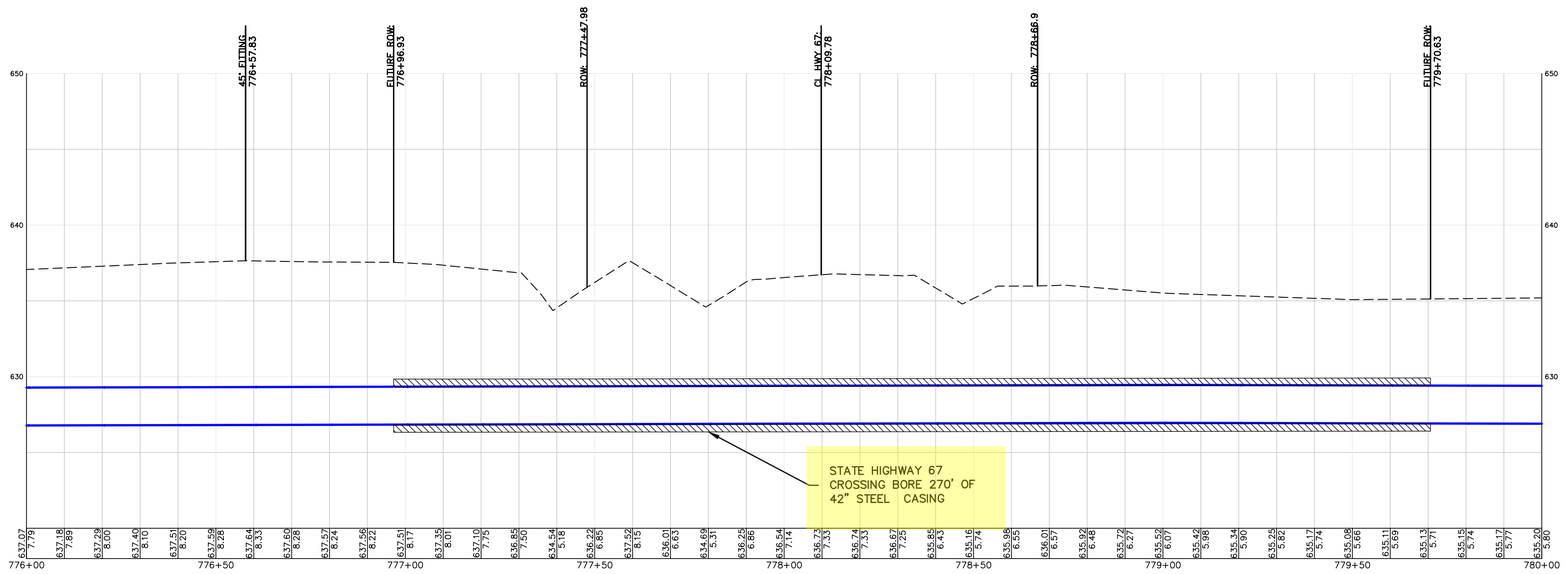
# CONTRACT "G" FINISHED WATER TRANSMISSION MAIN AERIAL PLAN AND PROFILE

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

| | |
|---|---|
| DRAWN BY: | MNM |
| CHECKED BY: | TAM |
| APPROVED BY: | SWE |
| HORIZONTAL SCALE: | 1"=100' |
| VERTICAL SCALE: | 1"=25' |
| PROJECT NO. | 71000-400 |
| DATE: | 1/29/24 |
| SHEET NO. | C20 |

24 OF 32 SHEETS

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PLOTTED: 2/2/2024 @ 1:16:40 AM BY elliott, seth




Finished Water Main


**MECO-HENEGHAN ENGINEERS, LLC**

www.meco-heneghan.com

DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2025
MO: 2018004041
EXPIRES: DECEMBER 31, 2024

400 N. FIFTH STREET
SUITE 107
ST. CHARLES, MO 63301
P: (636) 395-7055


| NO. | DATE | REVISIONS |
|---|---|---|
| | | |

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

DRAWN BY: MNM
CHECKED BY: TAM
APPROVED BY: SWE

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'

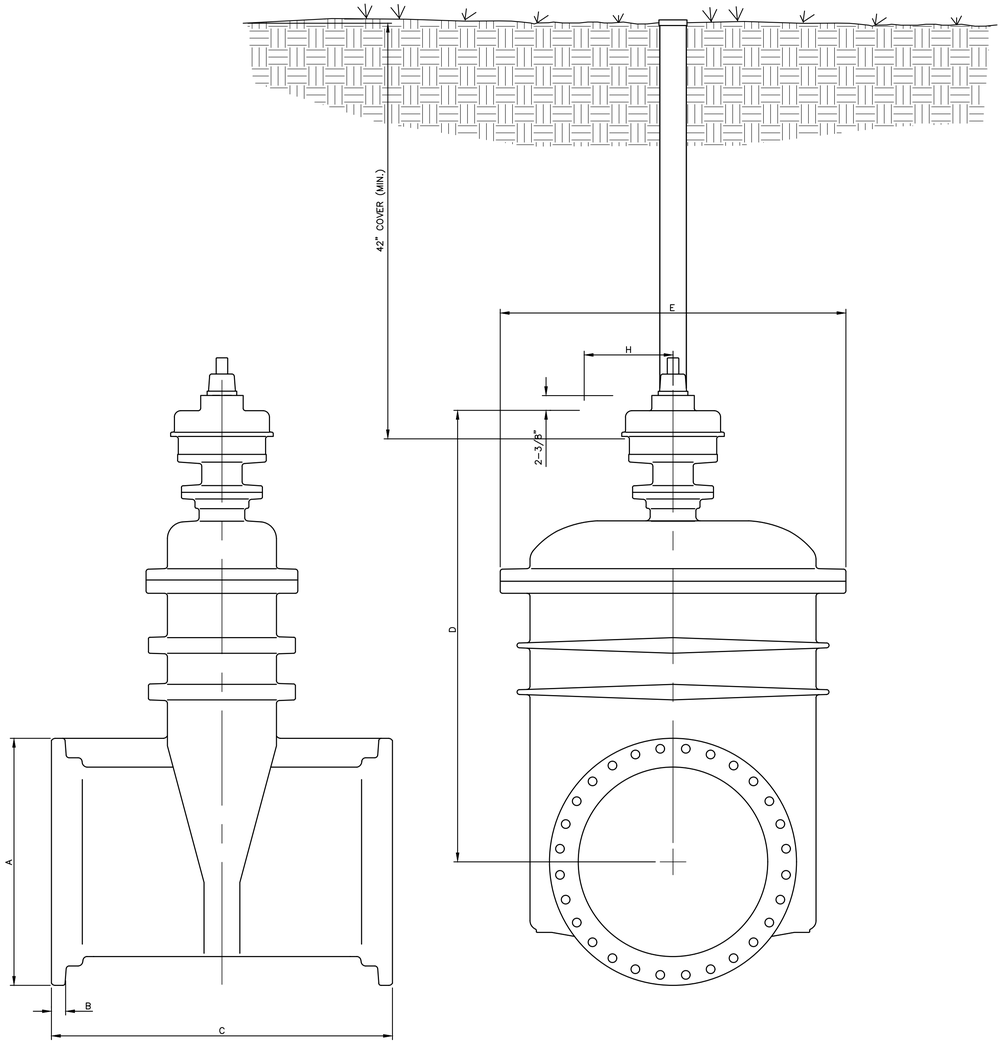
PROJECT NO. ----

DATE: 1/29/24

SHEET NO. CP2

32 OF 32 SHEETS


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PLOTTED: 2/2/2024 @ 1:22:31 AM BY elliott, seth

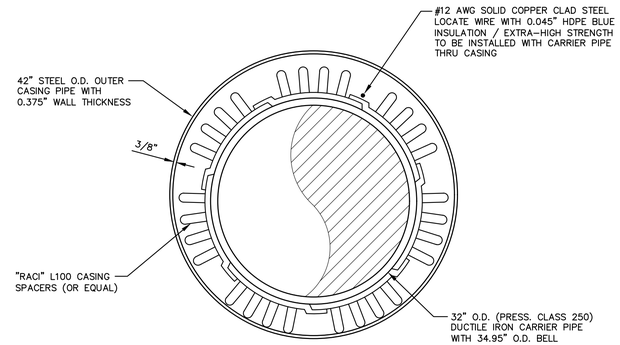



| VALVE SIZE | A | B | C | D | E | F | G | H | J |
|---|---|---|---|---|---|---|---|---|---|
| 30" | 39-1/2" | 1-3/4" | 48-1/2" | 71-1/2" | 54-3/4" | 20" | 1" | 14-7/8" | 2" |

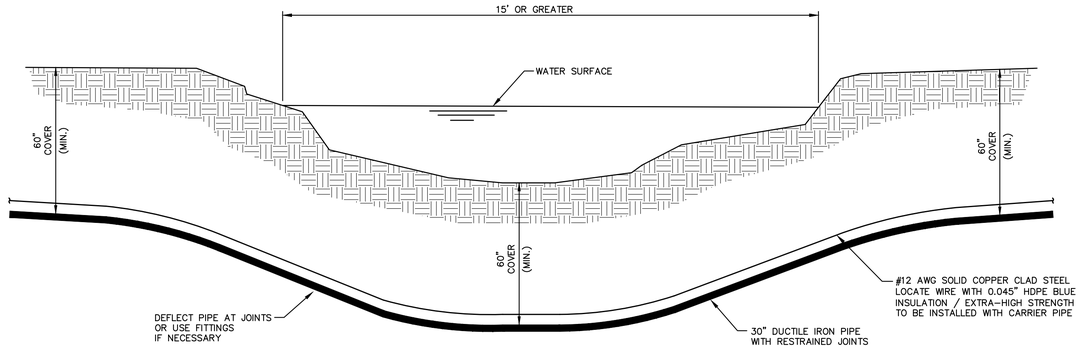
**1 C20** **30" GATE VALVE WITH BEVEL GEARING**
NO SCALE

NOTES:

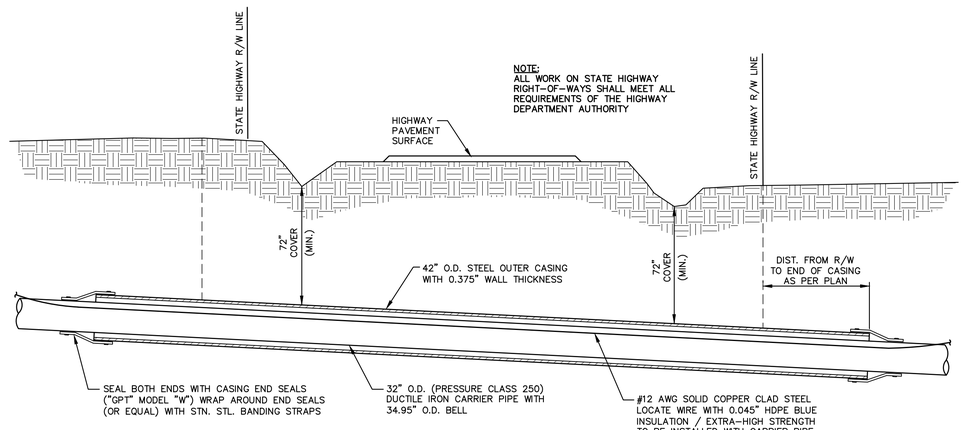
1. CASING SPACERS SHALL BE INSTALLED AT INTERVALS NOT TO EXCEED MANUFACTURER'S SPECIFICATIONS OR 6' WHICHEVER IS LESS.
2. DOUBLE SPACERS SHALL BE INSTALLED ONE FOOT FROM EACH END OF THE CASING.
3. ONE CASING SPACER MUST BE WITHIN 2' OF EACH SIDE OF A PIPE JOINT.
4. SPACERS SHALL HAVE A MINIMUM HEIGHT THAT EXCEEDS THE PIPE BELL HEIGHT.
5. CASING SPACERS SHALL BE RACI MODEL CI (OR EQUAL) POLYETHYLENE WITH STAINLESS STEEL BOLTS AND NUTS.




**2 C20** **SECTION THRU BORED STEEL CASING PIPE**
NO SCALE




**3 C20** **TYPICAL CREEK CROSSING - DIRECTIONAL BORE (NO CASING)**
NO SCALE




**4 C20** **TYPICAL SECTION THRU STATE HIGHWAY BORE**
NO SCALE


**MECO-HENEGHAN ENGINEERS, LLC**
www.meco-heneghan.com
DESIGN FIRM NUMBERS:
IL: 184.007845-0010
035.003949
EXPIRES: APRIL 30, 2021
MO: 2018004041
EXPIRES: DECEMBER 31, 2020
400 N. FIFTH STREET
SUITE 107
ST. CHARLES, MO 63301
P: (636) 395-7055


REVISIONS | DATE | NO.

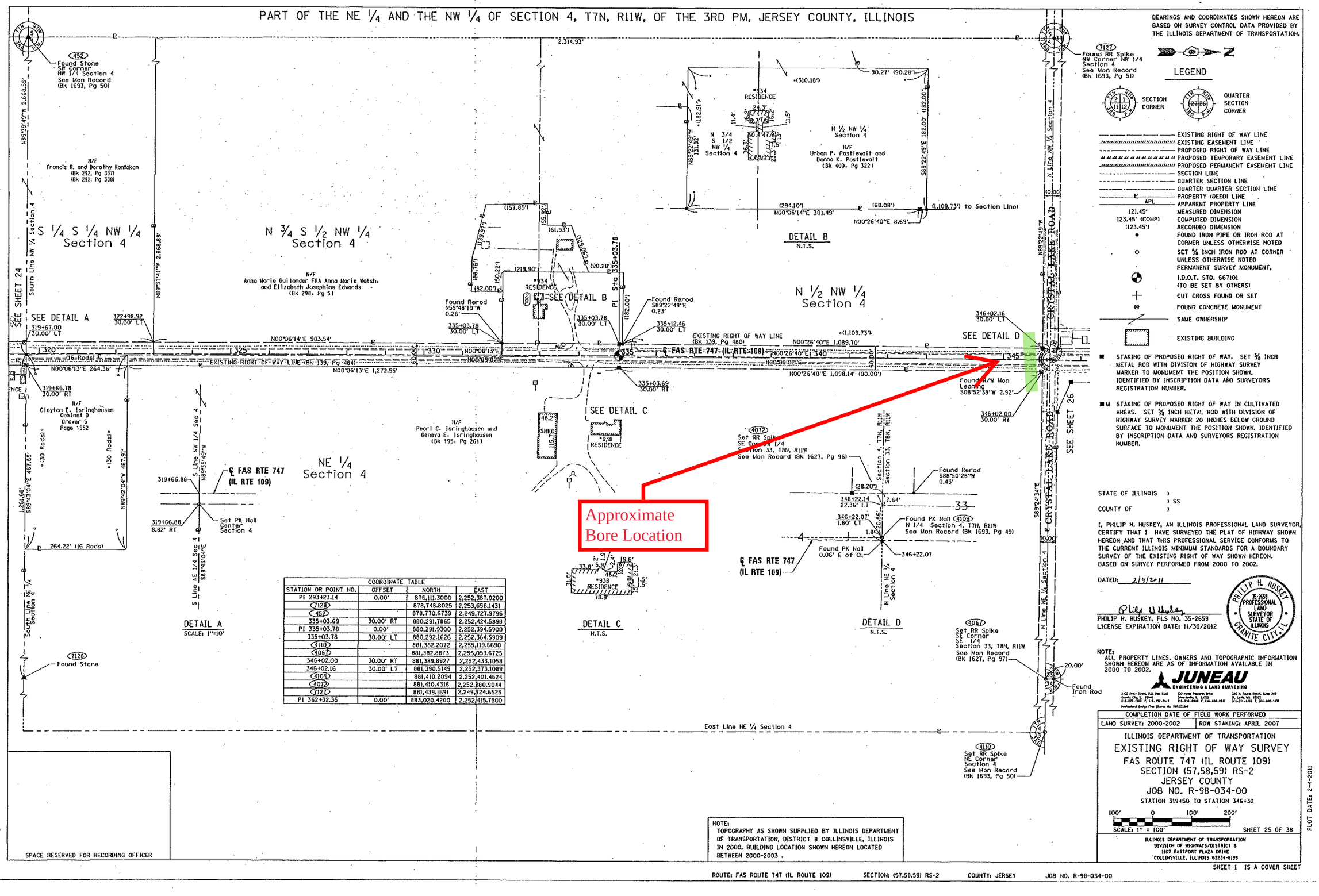
CONTRACT "B"
FINISHED WATER TRANSMISSION MAIN
TYPICAL DETAILS

ILLINOIS ALLUVIAL REGIONAL WATER COMPANY
JERSEY & MACOUPIN COUNTIES, ILLINOIS

DRAWN BY: MNM
CHECKED BY: TAM
APPROVED BY: SWE
HORIZONTAL SCALE: AS SHOWN
VERTICAL SCALE: ———
PROJECT NO. 71000-400
DATE: 1/29/24
SHEET NO. C20
24 OF 27 SHEETS


PATH=s:\shared-pin\projects\71000-400\cad\contract e dwgs\typ det.dwg
PLOTTED: 1/29/2024 @ 11:14:02 AM BY elliott, seth

# PART OF THE NE 1/4 AND THE NW 1/4 OF SECTION 4, T7N, R11W, OF THE 3RD PM, JERSEY COUNTY, ILLINOIS




| COORDINATE TABLE | | | |
|---|---|---|---|
| STATION OR POINT NO. | OFFSET | NORTH | EAST |
| PI 293+23.14 | 0.00' | 876,111.3000 | 2,252,387.0200 |
| 7128 | | 878,748.8025 | 2,253,656.1431 |
| 452 | | 878,770.6739 | 2,249,727.9796 |
| 335+03.69 | 30.00' RT | 880,291.7865 | 2,252,424.5898 |
| PI 335+03.78 | 0.00' | 880,291.9300 | 2,252,394.5900 |
| 335+03.78 | 30.00' LT | 880,292.1626 | 2,252,364.5909 |
| 4110 | | 881,382.2072 | 2,255,119.6690 |
| 4067 | | 881,382.8873 | 2,255,053.6725 |
| 346+02.00 | 30.00' RT | 881,389.8927 | 2,252,433.1058 |
| 346+02.16 | 30.00' LT | 881,390.5149 | 2,252,373.1089 |
| 4109 | | 881,410.2094 | 2,252,401.4624 |
| 4072 | | 881,410.4318 | 2,252,380.9044 |
| 7127 | | 881,439.1691 | 2,249,724.6525 |
| PI 362+32.35 | 0.00' | 883,020.4200 | 2,252,415.7500 |

BEARINGS AND COORDINATES SHOWN HEREON ARE BASED ON SURVEY CONTROL DATA PROVIDED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.

7127
Found RR Spike
NW Corner NW 1/4
Section 4
See Mon Record
(Bk 1693, Pg 51)

## LEGEND

SECTION CORNER

QUARTER SECTION CORNER

EXISTING RIGHT OF WAY LINE
EXISTING EASEMENT LINE
PROPOSED RIGHT OF WAY LINE
PROPOSED TEMPORARY EASEMENT LINE
PROPOSED PERMANENT EASEMENT LINE
SECTION LINE
QUARTER SECTION LINE
QUARTER QUARTER SECTION LINE
PROPERTY (DEED) LINE
APL APPARENT PROPERTY LINE
121.45' MEASURED DIMENSION
123.45' (COMP) COMPUTED DIMENSION
(123.45') RECORDED DIMENSION
• FOUND IRON PIPE OR IRON ROD AT CORNER UNLESS OTHERWISE NOTED
○ SET 5/8 INCH IRON ROD AT CORNER UNLESS OTHERWISE NOTED PERMANENT SURVEY MONUMENT,
I.D.O.T. STD. 606101 (TO BE SET BY OTHERS)
CUT CROSS FOUND OR SET
⊠ FOUND CONCRETE MONUMENT
SAME OWNERSHIP
EXISTING BUILDING

■ STAKING OF PROPOSED RIGHT OF WAY. SET 5/8 INCH METAL ROD WITH DIVISION OF HIGHWAY SURVEY MARKER TO MONUMENT THE POSITION SHOWN, IDENTIFIED BY INSCRIPTION DATA AND SURVEYORS REGISTRATION NUMBER.

■M STAKING OF PROPOSED RIGHT OF WAY IN CULTIVATED AREAS. SET 5/8 INCH METAL ROD WITH DIVISION OF HIGHWAY SURVEY MARKER 20 INCHES BELOW GROUND SURFACE TO MONUMENT THE POSITION SHOWN, IDENTIFIED BY INSCRIPTION DATA AND SURVEYORS REGISTRATION NUMBER.

STATE OF ILLINOIS )
) SS
COUNTY OF )

I, PHILIP H. HUSKEY, AN ILLINOIS PROFESSIONAL LAND SURVEYOR, CERTIFY THAT I HAVE SURVEYED THE PLAT OF HIGHWAY SHOWN HEREON AND THAT THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A BOUNDARY SURVEY OF THE EXISTING RIGHT OF WAY SHOWN HEREON. BASED ON SURVEY PERFORMED FROM 2000 TO 2002.

DATED: 2/4/2011

PHILIP H. HUSKEY, PLS NO. 35-2659
LICENSE EXPIRATION DATE: 11/30/2012

PHILIP H. HUSKEY 35-2659 PROFESSIONAL LAND SURVEYOR STATE OF ILLINOIS GRANITE CITY, IL

NOTE:
ALL PROPERTY LINES, OWNERS AND TOPOGRAPHIC INFORMATION SHOWN HEREON ARE AS OF INFORMATION AVAILABLE IN 2000 TO 2002.

JUNEAU ENGINEERING & LAND SURVEYING

| COMPLETION DATE OF FIELD WORK PERFORMED | |
|---|---|
| LAND SURVEY: 2000-2002 | ROW STAKING: APRIL 2007 |

ILLINOIS DEPARTMENT OF TRANSPORTATION
EXISTING RIGHT OF WAY SURVEY
FAS ROUTE 747 (IL ROUTE 109)
SECTION (57,58,59) RS-2
JERSEY COUNTY
JOB NO. R-98-034-00
STATION 319+50 TO STATION 346+30

100' 0 100' 200'
SCALE: 1" = 100'

SHEET 25 OF 38

ILLINOIS DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS/DISTRICT 8
1102 EASTPORT PLAZA DRIVE
COLLINSVILLE, ILLINOIS 62234-6198

SHEET 1 IS A COVER SHEET

SPACE RESERVED FOR RECORDING OFFICER

NOTE:
TOPOGRAPHY AS SHOWN SUPPLIED BY ILLINOIS DEPARTMENT OF TRANSPORTATION, DISTRICT 8 COLLINSVILLE, ILLINOIS IN 2000, BUILDING LOCATION SHOWN HEREON LOCATED BETWEEN 2000-2003 .

ROUTE: FAS ROUTE 747 (IL ROUTE 109) SECTION: (57,58,59) RS-2 COUNTY: JERSEY JOB NO. R-98-034-00

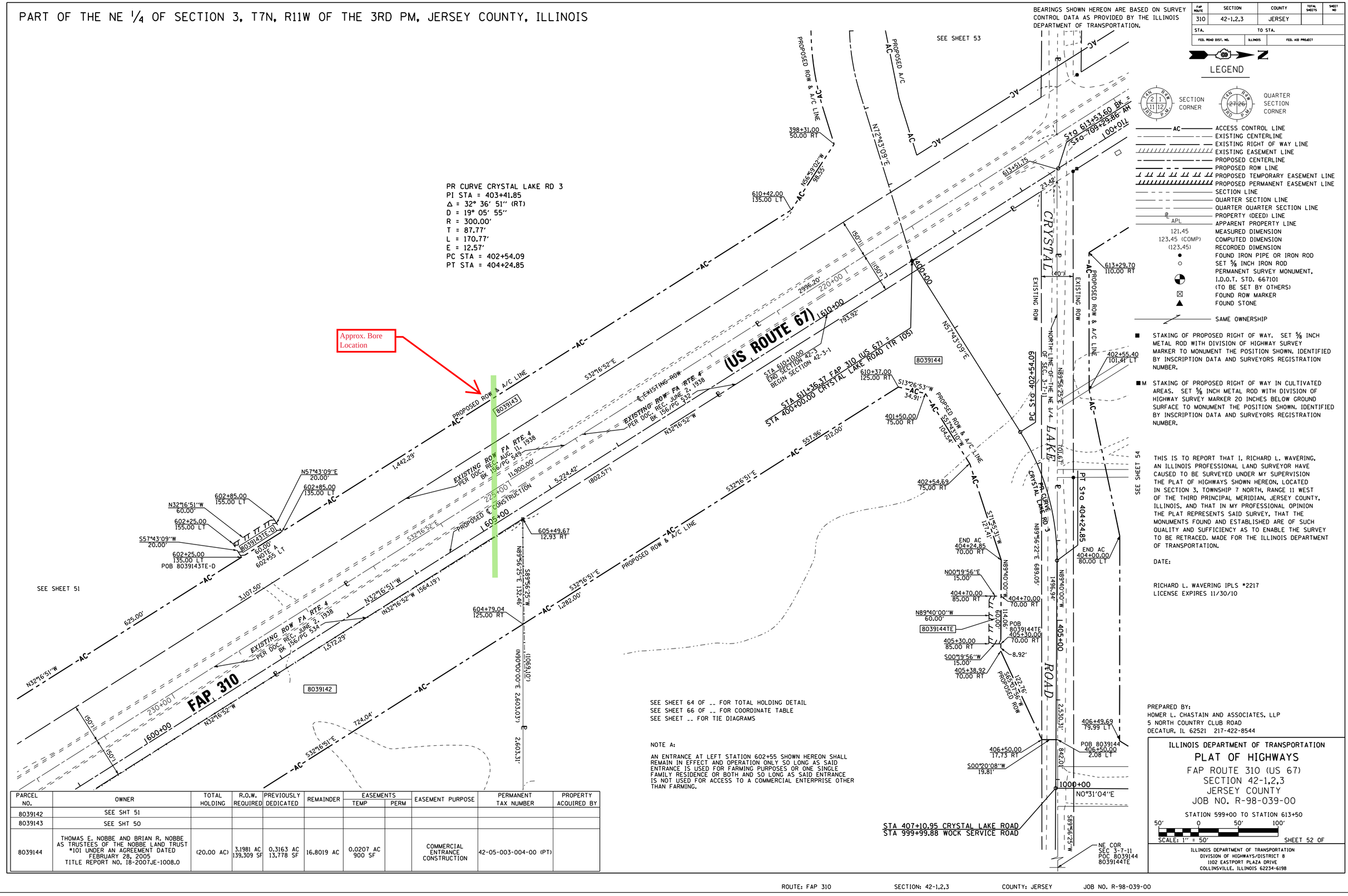
PLOT DATE: 2-4-2011

023609 J.R.D.
27RPLI#9.dgn
TopoLI#9w.dgn
PLILEL#9.dgn
PLILEL#9w.dgn
B3RIGE2_108FT.dgn
PLILEL#9b.dgn

# PART OF THE NE 1/4 OF SECTION 3, T7N, R11W OF THE 3RD PM, JERSEY COUNTY, ILLINOIS

BEARINGS SHOWN HEREON ARE BASED ON SURVEY CONTROL DATA AS PROVIDED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION.

| FAP ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO |
|---|---|---|---|---|
| 310 | 42-1,2,3 | JERSEY | | |
| STA. | TO STA. | | | |
| FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT | | |




## LEGEND

- SECTION CORNER
- QUARTER SECTION CORNER
- AC — ACCESS CONTROL LINE
- EXISTING CENTERLINE
- EXISTING RIGHT OF WAY LINE
- EXISTING EASEMENT LINE
- PROPOSED CENTERLINE
- PROPOSED ROW LINE
- PROPOSED TEMPORARY EASEMENT LINE
- PROPOSED PERMANENT EASEMENT LINE
- SECTION LINE
- QUARTER SECTION LINE
- QUARTER QUARTER SECTION LINE
- PROPERTY (DEED) LINE
- APL — APPARENT PROPERTY LINE
- 121.45 — MEASURED DIMENSION
- 123.45 (COMP) — COMPUTED DIMENSION
- (123.45) — RECORDED DIMENSION
- ● FOUND IRON PIPE OR IRON ROD
- ○ SET 5/8 INCH IRON ROD
- PERMANENT SURVEY MONUMENT, I.D.O.T. STD. 667101 (TO BE SET BY OTHERS)
- ⊠ FOUND ROW MARKER
- ▲ FOUND STONE
- SAME OWNERSHIP

■ STAKING OF PROPOSED RIGHT OF WAY. SET 5/8 INCH METAL ROD WITH DIVISION OF HIGHWAY SURVEY MARKER TO MONUMENT THE POSITION SHOWN. IDENTIFIED BY INSCRIPTION DATA AND SURVEYORS REGISTRATION NUMBER.

■M STAKING OF PROPOSED RIGHT OF WAY IN CULTIVATED AREAS. SET 5/8 INCH METAL ROD WITH DIVISION OF HIGHWAY SURVEY MARKER 20 INCHES BELOW GROUND SURFACE TO MONUMENT THE POSITION SHOWN. IDENTIFIED BY INSCRIPTION DATA AND SURVEYORS REGISTRATION NUMBER.

THIS IS TO REPORT THAT I, RICHARD L. WAVERING, AN ILLINOIS PROFESSIONAL LAND SURVEYOR HAVE CAUSED TO BE SURVEYED UNDER MY SUPERVISION THE PLAT OF HIGHWAYS SHOWN HEREON, LOCATED IN SECTION 3, TOWNSHIP 7 NORTH, RANGE 11 WEST OF THE THIRD PRINCIPAL MERIDIAN, JERSEY COUNTY, ILLINOIS, AND THAT IN MY PROFESSIONAL OPINION THE PLAT REPRESENTS SAID SURVEY, THAT THE MONUMENTS FOUND AND ESTABLISHED ARE OF SUCH QUALITY AND SUFFICIENCY AS TO ENABLE THE SURVEY TO BE RETRACED. MADE FOR THE ILLINOIS DEPARTMENT OF TRANSPORTATION.

DATE:

RICHARD L. WAVERING IPLS #2217
LICENSE EXPIRES 11/30/10

SEE SHEET 64 OF -- FOR TOTAL HOLDING DETAIL
SEE SHEET 66 OF -- FOR COORDINATE TABLE
SEE SHEET -- FOR TIE DIAGRAMS

NOTE A:

AN ENTRANCE AT LEFT STATION 602+55 SHOWN HEREON SHALL REMAIN IN EFFECT AND OPERATION ONLY SO LONG AS SAID ENTRANCE IS USED FOR FARMING PURPOSES OR ONE SINGLE FAMILY RESIDENCE OR BOTH AND SO LONG AS SAID ENTRANCE IS NOT USED FOR ACCESS TO A COMMERCIAL ENTERPRISE OTHER THAN FARMING.

| PARCEL NO. | OWNER | TOTAL HOLDING | R.O.W. REQUIRED | PREVIOUSLY DEDICATED | REMAINDER | EASEMENTS TEMP | EASEMENTS PERM | EASEMENT PURPOSE | PERMANENT TAX NUMBER | PROPERTY ACQUIRED BY |
|---|---|---|---|---|---|---|---|---|---|---|
| 8039142 | SEE SHT 51 | | | | | | | | | |
| 8039143 | SEE SHT 50 | | | | | | | | | |
| 8039144 | THOMAS E. NOBBE AND BRIAN R. NOBBE AS TRUSTEES OF THE NOBBE LAND TRUST #101 UNDER AN AGREEMENT DATED FEBRUARY 28, 2005 TITLE REPORT NO. I8-2007JE-1008.0 | (20.00 AC) | 3.1981 AC 139,309 SF | 0.3163 AC 13,778 SF | 16.8019 AC | 0.0207 AC 900 SF | | COMMERCIAL ENTRANCE CONSTRUCTION | 42-05-003-004-00 (PT) | |

PREPARED BY:
HOMER L. CHASTAIN AND ASSOCIATES, LLP
5 NORTH COUNTRY CLUB ROAD
DECATUR, IL 62521 217-422-8544

ILLINOIS DEPARTMENT OF TRANSPORTATION
PLAT OF HIGHWAYS
FAP ROUTE 310 (US 67)
SECTION 42-1,2,3
JERSEY COUNTY
JOB NO. R-98-039-00

STATION 599+00 TO STATION 613+50

50' 0 50' 100'
SCALE: 1" = 50'

SHEET 52 OF

ILLINOIS DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS/DISTRICT 8
1102 EASTPORT PLAZA DRIVE
COLLINSVILLE, ILLINOIS 62234-6198

$$DATE$$ •DATE-TIME• •DGN-SPEC• •REF- •REF- •REF- •REF-

$FILENAME$ $TIME$ $DATE$ PLOT DATE:

ROUTE: FAP 310 SECTION: 42-1,2,3 COUNTY: JERSEY JOB NO. R-98-039-00