



**CONTRACT DOCUMENTS & SPECIFICATIONS**

for

**SANITARY SEWER MANHOLE REHABILITATION;  
PROJECT NO. 2023-S-10**

*Bid Opening*

Tuesday, January 30, 2024 @ 2:00 pm  
City of Grand Island, City Hall  
100 East 1<sup>st</sup> Street  
Grand Island, NE 68801

**ENGINEERING DIVISION  
DEPARTMENT OF PUBLIC WORKS  
GRAND ISLAND, NEBRASKA**

**DECEMBER 2023**

**BIDDER CHECKLIST FOR  
SANITARY SEWER MANHOLE REHABILITATION;  
PROJECT NO. 2023-S-10**

**CITY OF GRAND ISLAND, NEBRASKA**

**Bids must be received by the City Clerk before 2:00 p.m., (local time) on Tuesday, January 30, 2024.**

The following items must be completed for your bid to be considered.

- This completed bidder checklist form.
- A signed **original and one copy** of the bidding documents.
- Acknowledgment of Addendum(s), if any.
- Firm unit pricing; or lump sum pricing as applicable. (See bid Form)
- A certified check, cashiers check or bid bond in a separate envelope attached to the **outside of the envelope containing the bid**. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened.
- Acknowledgement of **PERFORMANCE BOND** requirement on award of the Contract. The successful Contractor shall furnish a Performance Bond which shall be in an amount equal to the full contract price, guaranteeing faithful compliance with all requirements of the contract documents and complete fulfillment of the contract, and payment of all labor, material and other bills incurred in carrying out this contract. According to Nebraska Law, the surety company executing the Performance Bond must be authorized to do business in the State of Nebraska.
- Acknowledgement of **PAYMENT BOND** requirement on award of the contract. The successful contractor shall furnish a Payment Bond which shall be in an amount equal to the full contract price, guaranteeing protection of all persons supplying labor and materials to the contractor or its subcontractors for the performance of the work provided for in the contract. In accordance with Nebraska Law, the surety company executing the Payment Bond must be authorized to do business in the State of Nebraska.

*\* If checked you will be claiming the individual pricing as listed on the Bid Form is proprietary information and should not be released under a public records request. The total amount of the bid is not considered proprietary information and will be released pursuant to City Procurement Code.*

\_\_\_\_\_  
Bidder Company Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print – Name of Person Completing Bid

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
Signature

**SANITARY SEWER MANHOLE REHABILITATION;  
PROJECT NO. 2023-S-10**

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**CITY OF GRAND ISLAND, NEBRASKA**

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**ADVERTISEMENT TO BIDDERS**  
**For**  
**SANITARY SEWER MANHOLE REHABILITATION;**  
**PROJECT NO. 2023-S-10**  
**CITY OF GRAND ISLAND, NE**

Sealed bids will be **received at the office of the City Clerk**, 100 E. First Street., Grand Island, NE 68801, until **2:00 p.m., (Local Time), Tuesday, January 30, 2024** for the construction of **“Sanitary Sewer Manhole Rehabilitation; Project No. 2023-S-10”** for the City of Grand Island. Bids will be publicly opened at this time in Conference Room #1 located on 1st floor of City Hall. Bids received after the specified time will be returned unopened to sender

Bids shall be submitted on forms which will be furnished by the City OR bidding documents, plans, and specifications for use in preparing bids may be downloaded from the Quest CDN website, [www.QuestCDN.com](http://www.QuestCDN.com) for a forty-two dollar (\$42) fee. Bids must be uploaded to the Quest CDN website and received before the specified time to be considered. Each bidder shall submit with their bid a certified check, a cashiers check or bid bond payable to the City of Grand Island Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fifteen (15) days, at the bid price, after acceptance by the City. **“Your certified check, cashiers check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid.” Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened or considered. OR Bid bonds must be uploaded to Quest CDN, [www.QuestCDN.com](http://www.QuestCDN.com).** Bid bonds must be issued by surety companies authorized to do business in the State of Nebraska.

**Please return one (1) original and two (2) copies of each bid sheet.**

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S. 73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska.

Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Successful bidder shall comply with the requirements of City's insurance and provide performance and payment bonds. Successful bidder shall maintain a Drug Free Workplace Policy.

**Title VI:** The City of Grand Island, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252,42 U.S.C 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notified all bidden that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin, sex, age and disability/handicap in consideration for an award.

**Section 504/ADA Notice to the Public:** The City of Grand Island does not discriminate on the basis of disability in admission of its programs, services, or activities, in access to them, in treatment of individuals with disabilities, or in any aspect of their operations. The City of Grand Island also does not discriminate on the basis of disability in its hiring or employment practices.

This notice is provided as required by Title II of the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. Questions, complaints, or requests for additional information or accommodation regarding the ADA and Section 504 may be forwarded to the designated ADA and Section 504 compliance coordinator.

City Administrator  
308-389-0140  
100 East First Street, Grand Island, NE 68801  
Monday through Friday, 8:00 a.m. to 5:00 p.m.

No bidder may withdraw their bid for a period of forty-five (45) days after date of opening bids.

Bidding documents may be examined in the City's office, City Public Works Department, 100 East First Street, Grand Island, Nebraska, 68801.

RaNae Edwards, City Clerk

# **CONTRACTOR'S BID**

**SANITARY SEWER MANHOLE REHABILITATION;  
PROJECT NO. 2023-S-10**

**CITY OF GRAND ISLAND, NEBRASKA**

**CONTRACTOR'S BID**

TO THE MEMBERS OF THE COUNCIL  
CITY OF GRAND ISLAND  
GRAND ISLAND, NEBRASKA

THE UNDERSIGNED BIDDER, having examined the plans, specifications, general and special conditions, and other proposed contract documents, and all addenda thereto and being acquainted with and fully understanding (a) the extent and character of the work covered by this Bid, (b) the location, arrangement, and specified requirements for the proposed work, (c) the location, character, and condition of existing streets, roads, highways, railroad, pavements, surfacing, walks, driveways, curbs, gutters, trees, sewers, utilities, drainage courses and structures, and other installations, both surface and underground which may affect or be affected by the proposed work, (d) the nature and extent of the excavations to be made and the handling and re-handling of excavated materials, (e) the location and extent of necessary or probable dewatering requirements, (f) the difficulties and hazards to the work which might be caused by storm and flood water, (g) local conditions relative to labor, transportation, hauling and rail delivery facilities, and (h) all other factors and conditions affecting or which may be affected by the work.

HEREBY PROPOSES to furnish all required materials, supplies, equipment, tools and plans, to perform all necessary labor and supervision, and to construct, install, erect, equip and complete all work stipulated in, required by and in accordance with the contract documents and the plans, specifications and other documents referred to therein (as altered, amended or modified by all addenda thereto) for and in consideration of the following prices:

**BASE BID SECTION**

Item No.	Item	Est. Quantity	Unit	Unit Price	Extended Price
1	Mobilization / Demobilization	1.00	LS	\$	\$
2	Remove & Replace Ex. Manhole Frame & Cover	1.00	EA	\$	\$
3	Install Poly Ring Infiltration Barrier	1.00	EA	\$	\$
4	Install Elastomeric Chimney Infiltration Barrier	1.00	EA	\$	\$
5	Remove Manhole Step	464.00	EA	\$	\$
6	Infiltration Leak MH Sidewall	3.00	EA	\$	\$
7	Bench & Invert Replacement	1.00	EA	\$	\$
8	Manhole Repair Patching	11.00	EA	\$	\$

9	Remove & Replace Inside Drop Piping	3.00	EA	\$	\$
10	Bypass Pumping	1.00	EA	\$	\$
11	Traffic Control	1.00	LS	\$	\$

BASE BID TOTAL= \$ \_\_\_\_\_

**ALTERNATE BID SECTION NO. 1**

Item No.	Item	Est. Quantity	Unit	Unit Price	Extended Price
ALT 1-1	1/2" Cementitious Concrete Lining	1,140.73	VF	\$	\$
ALT 1-2	Epoxy Lining	958.58	VF	\$	\$

ALTERNATE NO. 1 TOTAL= \$ \_\_\_\_\_

**ALTERNATE BID SECTION NO. 2**

Item No.	Item	Est. Quantity	Unit	Unit Price	Extended Price
ALT 2-1	Manhole Rehabilitation	958.58	VF	\$	\$

ALTERNATE NO. 2 TOTAL= \$ \_\_\_\_\_

**BASE BID + ALTERNATE BID NO. 1 Total= \$ \_\_\_\_\_**

**BASE BID + ALTERNATE BID NO. 2 TOTAL= \$ \_\_\_\_\_**



**EXPERIENCE DATA:**

Each bidder shall supply the following data on their experience:

Name of Bidder: \_\_\_\_\_

Project Owner/Contact/Phone No.                      Project Location                      Completion Date

\_\_\_\_\_  
\_\_\_\_\_

Additional Data: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**INSURANCE:** Bidder acknowledges that bid includes compliance with the attached insurance requirements.

**ADDENDA:**

Bidder acknowledges that the following Addendums were received and considered in Bid preparation.

<u>ADDENDUM NO.</u>	<u>DATE</u>	<u>SIGNATURE</u>
_____	_____	_____
_____	_____	_____

Exceptions shall be listed in the following blanks. If additional space is required for exception explanation, please reference and attach a letter to bid. Reference shall not be made to other attachments for exceptions and supplementary terms. Failure to outline such exceptions as specifically stated herein will require the successful bidder to comply with these specifications. In case of conflict between the bid and these specifications, these specifications shall govern unless specific exceptions are listed by the bidder.

Exceptions to specifications, pages \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The undersigned bidder agrees to furnish the required performance and payment bond and to enter into a contract within fifteen (15) days after acceptance of this Bid, and further agrees to complete all work covered by the foregoing bid in accordance with specified requirements. **No work shall commence until the Certificate of Insurance and bonds (when required) are approved by the City and the contract is executed.** The proposed work can commence after the contract is signed and the required bond is approved.

**Completion:** All contract work shall be substantially complete by **July 30, 2024**, with final completion for the whole project by **August 15, 2024**. The section of manholes south of Guenther Road along the west side of US Highway 281 and located within row crop ground are to be completed by May 24, 2024. These manholes are shown as B18-1, B18-2, B18-3, B18-4, and B19-1.

**Liquidated Damages:** It is understood and agreed that time is the essence of the contract. Should the Contractor fail to perform all of the work within the overall period of time stipulated in the Contract Agreement, the Contractor shall pay to the City, as liquidated damages and not as a penalty, **\$500.00 per calendar** day of default unless extensions of time granted by the City specifically provide for the waiving of liquidated damages.

The City shall have the right to deduct the liquidated damages from any moneys in its hands, otherwise due, or to become due, to the Contractor, or to use for and recover compensation for damages for non-performance of this contract within the time stipulated.

Enclosed herewith is the required bid guarantee in the amount of \_\_\_\_\_ Dollars (\$\_\_\_\_\_)

which the undersigned bidder agrees is to be forfeited to and become the property of the City of Grand Island, Nebraska, as liquidated damages should this Bid be accepted and a contract be awarded to them and they fail to enter into a contract in the form prescribed and to furnish the required bond within fifteen (15) days, but otherwise the aforesaid bid guarantee will be returned upon signing the contract and delivering the approved bond.

In submitting the bid it is understood that the right is reserved by the City to reject any and all bids; to waive irregularities therein and to accept whichever bid that may be in the best interest of the City. It is understood that this bid may not be withdrawn by the bidder until after forty-five (45) days from bid opening.

In submitting the bid, the bidder states that bidder fully complies with, and will continue to comply with, applicable State fair labor standards as required by section 73-102 RRS, 1943 and also complies with, and will continue to comply with, section 48-657 RRS, 1943 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska.

The undersigned bidder hereby certifies (a) that this bid is genuine and is not made in the interest of or in the behalf of any undisclosed person, firm or corporation, and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation, (b) that they have not directly or indirectly induced or solicited any person, firm or corporation to refrain from bidding, (c) that they have not sought, by collusion or otherwise, to obtain for themselves an advantage over any other bidder or over the City of Grand Island, and (d) that they have not directly or indirectly induced or solicited any other bidder to put in a false or sham bid.

DATED \_\_\_\_\_

SIGNATURE OF BIDDER:

If an Individual: \_\_\_\_\_ doing business

as \_\_\_\_\_

If a Partnership: \_\_\_\_\_

by \_\_\_\_\_, member of firm.

If a Corporation: \_\_\_\_\_

by \_\_\_\_\_ (Seal)

Title

BUSINESS ADDRESS OF BIDDER

\_\_\_\_\_

TELEPHONE NUMBER OF BIDDER

EMAIL

\_\_\_\_\_

**NAMED EQUIPMENT / SUBCONTRACTORS**

Bidders shall enter the names of manufacturers for items of equipment proposed to be furnished. Substitutions will not be permitted unless the proposed equipment does not meet the specifications or the manufacturer of the proposed equipment is unable to meet delivery requirements of the construction schedule.

Acceptance of the named equipment as part of the bid shall not constitute a waiver of specifications covering such equipment. Final acceptance shall be based upon review of shop drawings of the proposed equipment.

<i>Equipment</i>	<i>Manufacturer</i>

**LIST OF SUBCONTRACTORS**

Bidders shall enter the names of subcontractors to be used in performing the work. If any of the following work is to be self-performed, fill in the name of the Bidder. Bidder certifies that all subcontractors listed are eligible to perform the work. The City reserves the right to reject any listed subcontractor(s).

<i>Subcontractor's Work</i>	<i>Subcontractor's Name</i>

Failure to furnish the information requested on this form may be cause for rejection of the bid.

Bidder: \_\_\_\_\_

**CERTIFICATE OF COMPLIANCE  
FAIR LABOR STANDARDS**

**CERTIFICATE OF COMPLIANCE  
FAIR LABOR STANDARDS**

The undersigned Bidder hereby certifies that they are complying with, and will continue to comply with, fair labor standards in the pursuit of their business and in the execution of the Contract.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name and Title of Signer

\_\_\_\_\_  
Firm Name

# **INSTRUCTIONS TO BIDDERS**

## INSTRUCTIONS TO BIDDERS

### SANITARY SEWER MANHOLE REHABILITATION; PROJECT NO. 2023-S-10

#### CITY OF GRAND ISLAND, NEBRASKA

**EXCEPTIONS TO SPECIFICATIONS:** Each bidder shall carefully check all requirements herein set forth and shall offer items which fully comply with these requirements or shall plainly set forth all points, features, conditions, specifications of items that are non-compliant. Bidder must comply with all applicable Federal, State and Local rules and regulations.

**SUBMISSION OF BIDS:** All bids shall be submitted using the City's bid form. Bids shall **be addressed to the City Clerk** and plainly marked, "**BID FOR SANITARY SEWER MANHOLE REHABILITATION; PROJECT NO. 2023-S-10**".

**INSURANCE COVERAGE:** The Contractor shall purchase and maintain at their expense as a minimum insurance coverage of such types and in such amounts as are specified herein to protect Contractor and the interest of Owner and others from claims which may arise out of or result from Contractor's operations under the Contract Documents, whether such operations be by Contractor or by any subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. Failure of Contractor to maintain proper insurance coverage shall not relieve them of any contractual responsibility or obligation.

**BASE BID:** The bidder is expected to base their bids on materials and items complying fully with these specifications, and in the event the contractor names in the bid materials items which do not conform, they will be responsible for furnishing materials and items which fully conform at no change in the bid price.

**ALTERNATE BID:** The bidder is to complete both the Base Bid, and at least one (1) of the Alternate Bids.

**PREAPPROVED PRODUCTS:** Contractor must submit any product not listed in the Technical Specifications list to engineer by **January 22, 2024**. Items to include with the submitted product to include companies and manufacturers years of experience, reference contacts (3 minimum), previous project list including F.F. of product installed, and product specifications.

**BIDDER QUALIFICATION:** Bids will be received only from qualified bidders. A bidder will be considered qualified if they are a recognized manufacturer or supplier of materials and items similar to that specified herein with complete factory facilities in the United States and has had experience in the design and manufacture of items of equal or greater size than that specified herein. If requested, the Bidder shall supply experience data. Such data will be used to assist in determining the qualifications of the Bidder. Bidder must comply with all applicable Federal, State and Local rules and regulations.

**GRATUITIES AND KICKBACKS:** City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or



controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract to order.

**CHECKS OR BID BONDS:** Checks or bid bonds of the unsuccessful bidders will be returned when their bids have been rejected and not to exceed forty-five (45) days from the date bids are opened. All bids shall remain in force for this forty-five (45) day Period. The check or bid bond of the successful bidder will be returned when the Contracts are signed by both parties and necessary bonds supplied. Should the Purchaser make an award to a Contractor who refuses to enter into a Contract and furnish the required bonds within fifteen (15) days after notification of acceptance, then the bid security which has been deposited with the Purchaser will be forfeited to the Purchaser as liquidated damages.

**PERFORMANCE BOND:** When required, on award of the Contract, the successful Contractor shall furnish a Performance Bond which shall be in an amount equal to the full Contract price, guaranteeing faithful compliance with all requirements of the Contract Documents and complete fulfillment of the Contract, and payment of all labor, material and other bills incurred in carrying out this Contract. According to Nebraska Law, the surety company executing the Performance Bond must be authorized to do business in the State of Nebraska.

**PAYMENT BOND:** When required, on award of the Contract, the successful Contractor shall furnish a Payment Bond which shall be in an amount equal to the full Contract price, guaranteeing protection of all persons supplying labor and materials to the Contractor or its subcontractors for the performance of the work provided for in the Contract. In accordance with Nebraska Law, the surety company executing the Payment Bond must be authorized to do business in the State of Nebraska.

**TAXES:** The City of Grand Island is exempt from paying local City and State Sales Tax for materials incorporated into the work. Refer to Exempt Sale Certificate enclosed for your information. Contractor must pay any other tax which might be applicable.

**REQUESTS FOR PAYMENT:** The City of Grand Island will make payments only after approval at regularly scheduled City Council meetings. These meetings typically occur the second and fourth Tuesday each month. Requests for payment must be received no less than ten (10) working days prior to the designated meeting to allow proper review and consideration. Progress Payments will be permitted during the project, so long as work is being done to the City's satisfaction unless otherwise stated in bidding documents.

**REQUEST FOR INTERPRETATION:** If any person, contemplating submitting a bid for this Contract is in doubt as to the true meaning of any part of the specifications or other proposed Contract documents, they may submit to the Purchasing Department a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made by addendum only issued and/or delivered to each person receiving a set of such documents. The addenda upon closing shall become a part of the Contract. The Purchasing Department will not be responsible for any other explanation or interpretation of the proposed documents.

**TIME OF COMPLETION:** All contract work shall be substantially complete by **July 30, 2024**, with final completion for the whole project by **August 15, 2024**. The section of manholes south of Guenther Road along the west side of US Highway 281 and located within row crop ground are to be completed by May 24, 2024. These manholes are shown as B18-1, B18-2, B18-3, B18-4, and B19-1.

**LIQUIDATED DAMAGES:** It is understood and agreed that time is the essence of the contract. Should the Contractor fail to perform all of the work within the overall period of time stipulated in the Contract Agreement, the Contractor shall pay to the City, as liquidated damages and not as a penalty, **\$500.00** per **calendar** day of default unless extensions of time granted by the City specifically provide for the waiving of liquidated damages.

The City shall have the right to deduct the liquidated damages from any moneys in its hands, otherwise due, or to become due, to the Contractor, or to use for and recover compensation for damages for non-performance of this contract within the time stipulated.

**CLEANING UP:** Contractor shall maintain a clean and safe work area while on site.

**ADDENDA:** Any addendum to the specifications issued during the time allowed for preparation of bids shall be covered in the bid and shall become a part of the specifications. Addendums issued before the date of the letting will be sent to all bidders. One signed copy is to be returned immediately to the Purchasing Department (or other department if so designated in the Addendum) as acknowledgment of receipt.

**MODIFICATION OF BIDS:** Bids may be modified or withdrawn by an appropriate document duly executed in the manner that a bid must be executed and delivered to the place where bids are to be submitted at any time prior to the final time set for receiving bids. Bidders may modify or withdraw bids by Fax communication at any time prior to the time set for receiving bids provided this instruction is positively identified. Any Fax modification should not reveal the amended bid price but should provide only the addition, subtraction or other modifications. A duly-executed document confirming the Fax modification shall be submitted within three days after bids are opened.

**BID DATA:** Bidders shall submit bid data, if required, on items offered in the Bid by **furnishing one original and one copy of the completed Contractor's Bid form**. The bid sheets shall be filled out legibly in ink to permit reproduction.

**BIDDER SECURITY:** Bidder security, when required, shall be enclosed in a separate envelope marked, "**BIDDER SECURITY/BID FOR SANITARY SEWER MANHOLE REHABILITATION; PROJECT NO. 2023-S-10**". The envelope shall contain only a cashier's check, certified check or bidder's bond payable to the City of Grand Island Treasurer in an amount no less than five (5) percent of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fifteen (15) days, at the bid price, after acceptance by the City. **Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened or considered. OR Bid bonds must be uploaded to Quest CDN, [www.QuestCDN.com](http://www.QuestCDN.com).** Bid bonds must be issued by surety companies authorized to do business in the State of Nebraska.

**This separate envelope shall be attached to a sealed envelope containing the bid and any other bid materials. This second envelope shall be labeled "BID FOR SANITARY SEWER MANHOLE REHABILITATION; PROJECT NO. 2023-S-10" and be addressed to the City Clerk.** Bids of an incomplete nature or subject to multiple interpretation may, at the option of the Purchaser, be rejected as being irregular.

**FINANCIAL STATEMENT:** The bidder shall furnish, upon request, a complete financial statement signed by the bidder, if an individual, by all partners if the bidder is a partnership and, by the President or Secretary, if the bidder is a corporation.

**DRUG FREE WORKPLACE POLICY:** Bidders shall furnish, upon request, a copy of their Drug Free workplace Policy.

**EQUAL EMPLOYMENT OPPORTUNITY:** The Contractor agrees that during the performance of this Contract not to discriminate in hiring or any other employment practice on the basis of race, color, religion, sex, disability, age or national origin, and to comply with Executive Order 11,246 of September 24, 1965, and the rules, regulations and relevant orders of the Secretary of Labor, and Chapter 20 of the Reissue Revised Statutes of the State of Nebraska.

**LOCAL CONDITIONS:** Each bidder shall have an authorized representative visit the site of the work and thoroughly inform them of all conditions and factors which would affect the work and the cost thereof, including the arrangement and conditions of existing or proposed structures affecting or affected by the proposed work; the procedure necessary for maintenance of uninterrupted operation; the availability and cost of labor and facilities for transportation, handling, and storage of materials and equipment.

**TILE VI:** The City of Grand Island, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office the Secretary, Part 21, Nondiscrimination in Federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notified all bidden that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin, sex, age and disability/handicap in consideration for an award.

**SECTION 504/ADA NOTICE TO THE PUBLIC:** The City of Grand Island does not discriminate on the basis of disability in admission of its programs, services, or activities, in access to them, in treatment of individuals with disabilities, or in any aspect of their operations. The City of Grand Island also does not discriminate on the basis of disability in its hiring or employment practices. This notice is provided as required by Title II of the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. Questions, complaints, or requests for additional information or accommodation regarding the ADA and Section 504 may be forwarded to the designated ADA and Section 504 compliance coordinator.

City Administrator  
308-389-0140  
100 East First Street, Grand Island, NE 68801  
Monday through Friday; 8:00 a.m. to 5:00 p.m.

It must be understood and agreed that all such factors have been investigated and considered in the preparation of every bid submitted. No claims for financial adjustment to any Contract awarded for the work under these Specifications and documents will be permitted by the City, which are based on lack of such prior information, or its effect on the cost of the work.

**CORRESPONDENCE:** Correspondence regarding drawings, instruction manuals, and other engineering data shall be clearly marked "FOR ENGINEERING DEPARTMENT" and sent through:

City of Grand Island  
Public Works Department/Engineering Division  
P.O. Box 1968  
Grand Island, NE 68802-1968  
(308) 385-5455  
Attn: Keith Kurz

LOCAL BIDDER PREFERENCE: In case of tied low bids, all other things being equal, preference shall be given in the following order:

1. To those bidders who manufacture their products within the limits of the City of Grand Island.
2. To those bidders who manufacture their products within the limits of the County of Hall.
3. To those bidders who package, process, or through some other substantial operation have employees and facilities for these purposes in the City of Grand Island.
4. To those bidders who package, process, or through some other substantial operation have employees and facilities for these purposes in the County of Hall.
5. To those bidders who maintain a bona fide business office in the City of Grand Island, whose products may be made outside the confines of the City of Grand Island.
6. To those bidders who maintain a bona fide business office in the County of Hall, whose products may be made outside the confines of the County of Hall.
7. To those bidders whose commodities are manufactured, mined, produced, or grown within the State of Nebraska, and to all firms, corporations, or individuals doing business as Nebraska firms, corporations or individuals, when quality is equal or better, and delivered price is the same or less than the other bids received.
8. To those bidders whose commodities are manufactured, mined, produced, or grown within the United States of America, and to all firms, corporations, or individuals doing business as firms registered in states other than Nebraska, when quality is equal or better, and delivered price is the same or less than the other bids received.

# **INSURANCE REQUIREMENTS**

**MINIMUM INSURANCE REQUIREMENTS**

**SANITARY SEWER MANHOLE REHABILITATION;  
PROJECT NO. 2023-S-10**

CITY OF GRAND ISLAND, NEBRASKA

*You are urged to include in your bid compliance with the City’s minimum insurance requirements; however, any non-compliance must be detailed in the Exceptions Section of the bid. Compliance with the specified OCP coverage is mandatory.*

The Bidder shall take out, throughout the duration of the Contract, insurance of such types and in such amounts as may be necessary to protect themselves and the interests of the City against all hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations to the fullest extent possible and provide no exclusions relative to any aspect of the work being performed for the City. The form and limits of such insurance, together with the underwriter thereof in each case, shall be approved by the City but regardless of such approval, it shall be the responsibility of the Bidder to maintain adequate insurance coverage at all times. Failure of the Bidder to maintain adequate coverage shall not relieve them of any contractual responsibility or obligation.

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

**1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY**

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	\$100,000 each accident
	\$100,000 each employee
	\$500,000 policy limit

**2. BUSINESS AUTOMOBILE LIABILITY**

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder’s employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$ 500,000 Combined Single Limit
---------------------------------	----------------------------------

**3. COMPREHENSIVE GENERAL LIABILITY**

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$ 500,000 each occurrence
	\$1,000,000 aggregate

#### **4. UMBRELLA LIABILITY INSURANCE**

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$1,000,000 each occurrence
	\$1,000,000 general aggregate

#### **5. ADDITIONAL REQUIREMENTS**

The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

#### **6. CERTIFICATE OF INSURANCE**

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract. **The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the bidder cannot have the "endeavor to" language stricken, the bidder may elect to provide a new certificate of insurance every 30 days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**

# Nebraska Resale or Exempt Sale Certificate for Sales Tax Exemption

Name and Mailing Address of Purchaser			Name and Mailing Address of Seller		
Name			Name		
Legal Name					
Street or Other Mailing Address			Street or Other Mailing Address		
City	State	Zip Code	City	State	Zip Code

**Check Type of Certificate**

- Single Purchase    If single purchase is checked, enter the related invoice or purchase order number \_\_\_\_\_.
- Blanket                If blanket is checked, this certificate is valid until revoked in writing by the purchaser.

I hereby certify that the purchase, lease, or rental by the above purchaser is exempt from the Nebraska sales tax for the following reason:

**Check One**    Purchase for Resale (Complete Section A.)    Exempt Purchase (Complete Section B.)    Contractor (Complete Section C.)

**Section A—Nebraska Resale Certificate**

Description of Property or Service Purchased

I hereby certify that the purchase, lease, or rental of \_\_\_\_\_ from the seller listed above is exempt from the Nebraska sales tax as a purchase for resale, rental, or lease in the normal course of our business. The property or service will be resold either in the form or condition in which it was purchased, or as an ingredient or component part of other property or service to be resold.

I further certify that we are engaged in business as a:     Wholesaler     Retailer     Manufacturer     Lessor

Description of Product Sold, Leased, or Rented

of \_\_\_\_\_

My Nebraska Sales Tax ID Number is 01-\_\_\_\_\_.

If none, state the reason \_\_\_\_\_,

or Foreign State Sales Tax Number \_\_\_\_\_ State \_\_\_\_\_.

**Section B—Nebraska Exempt Sale Certificate**

The basis for this exemption is exemption category \_\_\_\_\_ (See the list of Exemption Categories and corresponding numbers on reverse side).

If exemption category 2 or 5 is claimed, enter the following information:

Description of Property or Service Purchased	Intended Use of Property or Service Purchased
_____	_____

If exemption category 3 or 4 is claimed, enter your Nebraska Certificate of Exemption State ID number. 05-\_\_\_\_\_ Do **not** enter your Federal Employer ID Number.

If exemption category 6 is claimed, the seller must enter the following information and sign this form below:

Description of Items Sold	Date of Seller's Original Purchase	Was tax paid when purchased by seller? <input type="checkbox"/> Yes <input type="checkbox"/> No	Was item depreciable? <input type="checkbox"/> Yes <input type="checkbox"/> No
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**Section C—For Contractors Only**

**1. Purchase of building materials or fixtures.**

As an Option 1 or Option 3 contractor, I hereby certify that the purchase of building materials and fixtures from the seller listed above are exempt from Nebraska sales tax. My Nebraska Sales or Use Tax ID Number is: \_\_\_\_\_.

**2. Purchases made by an Option 2 contractor under a Purchasing Agent Appointment on behalf of \_\_\_\_\_ (exempt entity)**

As an Option 2 contractor, I hereby certify that the purchase of building materials and fixtures from the seller listed above is exempt from Nebraska sales tax pursuant to the **attached** Purchasing Agent Appointment and Delegation of Authority for Sales and Use Tax, Form 17.

Any purchaser, agent, or other person who completes this certificate for any purchase which is not for resale, lease, or rental in the regular course of the purchaser's business, or is not otherwise exempted from sales and use taxes is subject to a penalty of \$100 or ten times the tax, whichever amount is larger, for each instance of presentation and misuse. With regard to a blanket certificate, this penalty applies to each purchase made during the period the blanket certificate is in effect. Under penalties of law, I declare that I am authorized to sign this certificate, and to the best of my knowledge and belief, it is correct and complete.

**sign here** ▶

Authorized Signature \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

Authorized Signature Name (please print) \_\_\_\_\_

**Do not send this certificate to the Nebraska Department of Revenue. Keep it as part of your records.  
Sellers cannot accept incomplete certificates.**

**The Department is committed to the fair administration of the Nebraska tax laws. It is unlawful to claim an exemption for purchases of property or services that are subject to tax. Sellers are encouraged to notify the Department of any unlawful use of this form.  
revenue.nebraska.gov, 800-742-7474 (NE and IA), 402-471-5729**



## Instructions

**Who May Issue a Resale Certificate.** Purchasers are to give the seller a properly completed Form 13, Section A, when making purchases of property or taxable services that will subsequently be resold in the purchaser's normal course of business. The property or services must be resold in the same form or condition as when purchased, or as an ingredient or component part of other property that will be resold.

**Who May Issue an Exempt Sale Certificate.** Form 13, Section B, may be completed and issued by governmental units or organizations that are exempt from paying Nebraska sales and use taxes. See this list in the [Nebraska Sales Tax Exemptions Chart](#). Most nonprofit organizations are **not** exempt from paying sales and use tax. Enter the appropriate number from "Exemption Categories" (listed below) that properly reflects the basis for your exemption.

For additional information about proper issuance and use of this certificate, please review [Reg-1-013, Sale for Resale – Resale Certificate](#), and [Reg-1-014, Exempt Sale Certificate](#).

**Contractors.** Contractors complete Form 13, Section C, part 1 or part 2 based on the option elected on the [Contractor Registration Database](#).

To make tax-exempt purchases of building materials and fixtures, Option 1 or Option 3 contractors must complete Form 13, Section C, Part 1. To make tax-exempt purchases of building materials and fixtures pursuant to a construction project for an exempt governmental unit or an exempt nonprofit organization, Option 2 contractors must complete Form 13, Section C, Part 2. The contractor must also attach a copy of a properly completed [Purchasing Agent Appointment and Delegation of Authority for Sales and Use Tax, Form 17](#), to the Form 13, and both documents must be given to the supplier when purchasing building materials. See the [contractor information guides](#) and [Reg-1-017, Contractors](#), for additional information. Also, see the Important Note under "Exemption Categories" number 3.

**When and Where to Issue.** The Form 13 must be given to the seller at the time of the purchase to document why sales tax does not apply to the purchase. The Form 13 must be kept with the seller's records for audit purposes.

**Sales Tax Number.** A purchaser who is engaged in business as a wholesaler or manufacturer is not required to provide an ID number when completing Section A. Out-of-state purchasers may provide their home state sales tax number. Section B does not require a Nebraska ID number when exemption category 1, 2, or 5 is indicated.

**Fully Completed Resale or Exempt Sale Certificate.** A fully completed resale or exempt sale certificate is proof for the retailer that the sale was for resale or is exempt. For a resale certificate to be fully completed, it must include: (1) identification of the purchaser and seller, type of business engaged in by the purchaser; (2) sales tax permit number; (3) signature of an authorized person; and (4) the date of issuance.

For an exempt sale certificate to be fully completed, it must include: (1) identification of purchaser and seller; (2) a statement that the certificate is for a single purchase or is a blanket certificate covering future sales; (3) a statement of the basis for exemption, including the type of activity engaged in by the purchaser; (4) signature of an authorized person; and (5) the date of issuance.

**Penalties.** Any purchaser who gives a Form 13 to a seller for any purchase which is other than for resale, lease, or rental in the **normal** course of the purchaser's business, or is not otherwise exempted from sales and use tax under the Nebraska Revenue Act, is subject to a penalty of \$100 or ten times the tax, whichever is greater, for each instance of presentation and misuse. In addition, any purchaser, or their agent, who fraudulently signs a Form 13 may be found guilty of a Class IV misdemeanor.

### Exemption Categories

(Insert appropriate number from the list below in Section B)

1. Governmental units, identified in [Reg-1-072, United States Government and Federal Corporations](#); and [Reg-1-093, Governmental Units](#). Governmental units are not assigned exemption numbers.

Sales to the U.S. government, its agencies, instrumentalities, and corporations wholly owned by the U.S. government are exempt from sales tax. However, sales to institutions chartered or created under federal authority, but which are not directly operated and controlled by the U.S. government for the benefit of the public, generally are taxable.

Purchases by governmental units that are **not** exempt from Nebraska sales and use taxes include, but are not limited to: governmental units of other states; sanitary and improvement districts; rural water districts; railroad transportation safety districts; and county historical societies.

2. Purchases when the intended use renders it exempt. See [Nebraska Sales Tax Exemption Chart](#).
3. Purchases made by organizations that have been issued a [Nebraska Exempt Organization Certificate of Exemption](#) (Certificate of Exemption). [Reg-1-090, Nonprofit Organizations](#); [Reg-1-091, Religious Organizations](#); and [Reg-1-092, Educational Institutions](#), identify these organizations. These organizations are issued a Certificate of Exemption with a state ID number which must be entered in Section B of Form 13.

**Important Note:** Nonprofit educational institutions must be accredited regionally or nationally and have their primary campus in Nebraska to be exempt from sales and use tax. Also nonprofit organizations providing any of the types of health care or services that qualify to be exempt must be licensed or certified by the Nebraska Department of Health and Human Services (DHHS) to be exempt from sales and use taxes. There is no sales and use tax exemption prior to these entities being accredited, licensed, or certified. They CANNOT issue either a [Resale or Exempt Sale Certificate, Form 13](#), or a [Purchasing Agent Appointment, Form 17](#), to any retailer or contractor relating to purchases of building materials for construction or repair projects performed prior to being accredited, licensed, or certified. After an entity becomes accredited, licensed, or certified upon completion of the construction project, it may submit a [Form 4](#).

Nonprofit **health care organizations** that hold a Certificate of Exemption are exempt for purchases for use at their facility, or portion of the facility, covered by the license issued under the Nebraska Health Care Facility Licensure Act. Only specific types of health care facilities and activities are exempt. Purchases of items for use at facilities that are not covered under the license, or for any other activities that are not specifically exempt, are taxable. The exemption is not for the entire organization that offers different levels of health care or other activities, but is limited to the specific type of health care that is exempt. Purchases for non-exempt types of health care are taxable.

4. Purchases of motor vehicles, trailers, semitrailers watercraft, and aircraft used predominately as common or contract carrier vehicles; accessories that physically become part of the common or contract carrier vehicle; and repair and replacement parts for these vehicles. The exemption ID number must be entered in Section B of the Form 13. An individual or business that has been issued a common or contract carrier certificate of exemption may only use it to purchase those items described above prior to the expiration date on the certificate. The certificate of exemption expires every 5 years. (See [Nebraska Common or Contract Carrier Information Guide](#)).
5. Purchases of manufacturing machinery and equipment made by a person engaged in the business of manufacturing, including repair and replacement parts or accessories, for use in manufacturing. (See [Reg-1-107, Manufacturing Machinery and Equipment Exemption](#)).
6. Occasional sales of used business or farm machinery or equipment productively used by the seller as a depreciable capital asset for more than one year in his or her business. The seller must have previously paid tax on the item being sold. The seller must complete, sign, and give the Exempt Sale Certificate to the purchaser. (See [Reg-1-022, Occasional Sales](#)). The Form 13 must be kept with the purchaser's records for audit purposes.

# Purchasing Agent Appointment and Delegation of Authority for Sales and Use Tax

## Section A – Purchasing Agent Appointment

Name and Address of Contractor			Name and Address of Exempt Governmental Unit or Exempt Organization		
Name			Name		
Street or Other Mailing Address			Street or Other Mailing Address		
City	State	Zip Code	City	State	Zip Code
Name and Location of Project			Appointment Information		
Name			Effective Date (See instructions)		
Street Address			Expiration Date		
City	State	Zip Code	Nebraska Exemption Number (Exempt Organizations Only)		

Provide the contract name, number, and a description of the project.

The undersigned governmental unit or exempt organization appoints the above-named contractor and the contractor's delegated subcontractors as its agent to purchase and pay for building materials that will be annexed to real estate by them into the tax exempt construction project identified above.

**sign  
here** ▶

Authorized Signature of Exempt Governmental Unit or Exempt Organization

Title

Date

## Section B — Delegation of Contractor's Authority A contractor can delegate its authority to its subcontractor.

Name and Address of Subcontractor			Delegation Information for the Project Identified in Section A		
Name			Effective Date		
Street or Other Mailing Address			Expiration Date		
City	State	Zip Code	Portion of Project		

The undersigned contractor hereby delegates authority to the above-named subcontractor to act as the purchasing agent of the named governmental unit or exempt nonprofit organization.

**sign  
here** ▶

Signature of Contractor or Authorized Representative

Title

Date

Name and Address of Subcontractor			Delegation Information for the Project Identified in Section A		
Name			Effective Date		
Street or Other Mailing Address			Expiration Date		
City	State	Zip Code	Portion of Project		

The undersigned contractor hereby delegates authority to the above-named subcontractor to act as the purchasing agent of the named governmental unit or exempt nonprofit organization.

**sign  
here** ▶

Signature of Subcontractor or Authorized Representative

Title

Date

Name and Address of Subcontractor			Delegation Information for the Project Identified in Section A		
Name			Effective Date		
Street or Other Mailing Address			Expiration Date		
City	State	Zip Code	Portion of Project		

The undersigned contractor hereby delegates authority to the above-named subcontractor to act as the purchasing agent of the named governmental unit or exempt nonprofit organization.

**sign  
here** ▶

Signature of Subcontractor or Authorized Representative

Title

Date

# Instructions

## Section A

**Who Can Issue.** Any governmental unit or nonprofit organization that is exempt from sales and use tax may appoint a contractor as its purchasing agent for building materials and fixtures that will be annexed to property that belongs to or will belong to the exempt governmental unit or exempt nonprofit organization pursuant to a construction contract or covered under an on-call, repair, or maintenance service agreement. Exempt governmental units and exempt nonprofit organizations are identified in [Sales and Use Tax Regulations 1-072, 1-090, 1-091, 1-092, and 1-093](#).

**Important Note:** A nonprofit organization that has not received its sales and use tax Exempt Organization Certificate of Exemption, cannot issue either a Purchasing Agent Appointment and Delegation of Authority for Sales and Use Tax, Form 17, or a [Nebraska Resale or Exempt Sale Certificate for Sales Tax Exemption, Form 13](#).

**Appointment Information.** To appoint a contractor as its purchasing agent, the exempt governmental unit or exempt nonprofit organization must complete Section A. The phrase “upon completion” or similar phrase is not an acceptable expiration date. If the project is not completed before the expiration date, a new purchasing agent appointment must be issued with the new effective and expiration dates. The purchasing agent authority for the contractor becomes effective on the later of the “effective date” or the signature date of the individual authorized to sign the Form 17 on behalf of the exempt governmental unit or exempt nonprofit organization.

**When To Issue.** The qualified exempt nonprofit organization or exempt governmental unit should issue the completed and signed Form 17 to the contractor BEFORE the contractor annexes any building materials. If the Form 17 is not timely issued, the Option 2 or Option 3 general contractor must pay the sales and use taxes on all building materials annexed to real estate before the effective date or signature date on the appointment.

**Important Note:** A copy of the completed Form 17 should be retained by the exempt governmental unit or exempt nonprofit organization. The original is to be retained by the contractor.

**On-Call, Repair, or Maintenance Agreements.** Exempt governmental units and exempt nonprofit organizations, in lieu of issuing a separate purchasing agent appointment to the same Option 2 or Option 3 contractor for each service call, may issue to the Option 2 or Option 3 contractor a written on-call, repair, or maintenance agreement and purchasing agent appointment that covers a calendar year or part of a calendar year. A new written agreement and purchasing agent appointment must be issued at least each calendar year.

## Section B

**Delegation of Contractor’s Authority.** The contractor or subcontractor who has previously been delegated to be a purchasing agent for a portion of the project may delegate his or her authority as the purchasing agent to other subcontractors for all or a portion of the project. Contractors who are delegating their authority as the purchasing agent are only required to complete Section B. Contractors and subcontractors must issue a separate Form 17 to each subcontractor to whom they are delegating their purchasing agent authority. The purchasing agent authority for the subcontractor becomes effective on the later of the “effective date” or the signature date of the contractor’s or subcontractor’s authorized individual.

If Section B is full and additional delegations are required, it is necessary for the contractor who is delegating his or her authority to complete a new Form 17, Section B and provide a copy of the Form 17 between the exempt governmental unit or exempt nonprofit organization and the contractor. Reproductions of this delegation must be provided to the contractor, who must retain a copy for his or her records, and to the governmental unit or exempt nonprofit organization.

**When To Issue.** The delegation must be issued to the subcontractor BEFORE the subcontractor annexes any building materials. If the Form 17, Section B, Delegation of Contractor’s Authority is not issued, the Option 2 or Option 3 subcontractor must pay the sales and use taxes on all building materials annexed to real estate before the effective date or signature date on the appointment.

## Other Contractor Information

**Purchasing Tax Exempt Building Materials and Fixtures.** Option 1 and Option 3 contractors who perform construction work for an exempt governmental unit or exempt nonprofit organization can purchase the building materials and fixtures tax exempt by issuing a properly and fully completed Form 13, Section C, Block 1, to its suppliers. It is not necessary for the Option 1 or Option 3 subcontractor to attach a copy of the Form 17 to its Form 13.

Option 2 contractors who perform construction work for an exempt governmental unit or exempt nonprofit organization can purchase the building materials and fixtures tax exempt by issuing a properly and fully completed Form 13, Section C, Block 2, and a copy of the Form 17 to its supplier. This delegation will not allow purchases of building materials and fixtures without payment of the tax by the contractor or subcontractor before the later of the effective date of the appointment or the signature date of the individual authorized to delegate them as a purchasing agent. In addition, the appointment cannot be made after the expiration date of the original appointment.

Form 13 and Form 17 must be retained with the supplier’s and contractor’s records for audit purposes. A contractor may reproduce copies of these documents which can be furnished to the suppliers for each invoice or order made by them.

Invoices from suppliers for the purchase of building materials by a contractor as purchasing agent, or an authorized subcontractor, must clearly identify that the purchase is for the specific Form 17 project.

Option 2 and Option 3 contractors who bill another contractor for work performed for an exempt governmental unit or exempt nonprofit organization are not required to collect sales tax on the amount charged for their contractor labor charges since their labor charges are not subject to tax. They do not need to obtain a Form 13 or Form 17 from the contractor.

**Credit/Refund of Sales and Use Tax.** Option 2 contractors who have been appointed as a purchasing agent before any materials are annexed, may withdraw tax-paid building materials from inventory that will be annexed to real estate or used to repair property annexed to real estate and receive a credit for the sales or use tax amount previously paid on those materials.

The Option 2 contractor or subcontractor may take a credit either against its current tax liability, or file a [Claim for Overpayment of Sales and Use Tax, Form 7](#), and receive a refund of the sales or use tax paid on those materials.

**Tools, Equipment, Supplies, and Taxable Services.** The purchase, rental, or lease of tools, supplies, equipment, or taxable services (for example, scaffolding, barricades, machinery, building cleaning services etc.) by a contractor for use to complete an exempt project CANNOT be purchased tax exempt, even if the contractor has been issued a Form 17 for the project.

**Penalty.** Any person who signs this document with the intent to evade payment of tax is liable for the sales and use tax, interest, and penalty, and may be found guilty of a misdemeanor.

**Authorized Signature.** The purchasing agent appointment, Section A, must be signed by the proper government official or by an officer of the exempt nonprofit organization or another individual authorized by an attached power of attorney. The delegation of the prime or subcontractor's authority, Section B, must be signed by an owner, partner, corporate officer, or other individual authorized to sign the Delegation of Contractor's Authority.

**DRAFT**  
**CONTRACT AGREEMENT**

---

**DRAFT CONTRACT AGREEMENT**

THIS AGREEMENT made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2024, by and between \_\_\_\_\_, hereinafter called the Contractor, and the City of Grand Island, Nebraska, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published, for construction of **SANITARY SEWER MANHOLE REHABILITATION; PROJECT NO. 2023-S-10**; and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the proposals submitted, and has determined the aforesaid Contractor to be the lowest responsive bidder, and has duly awarded to the said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself or themselves, and its or their successors, as follows:

ARTICLE I. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the contract documents as listed in the attached General Specifications, said documents forming the contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE II. That the City shall pay to the contractor for the performance of the work embraced in this contract and the contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the contract) of \_\_\_\_\_ (\$ \_\_\_\_\_) for all services, materials, and work covered by and included in the contract award and designated in the foregoing Article I; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

ARTICLE III. The contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of **SANITARY SEWER MANHOLE REHABILITATION; PROJECT NO. 2023-S-10**.

ARTICLE IV. It is understood and agreed that time is of the essence of the Contract. No work shall commence until the Certificate of Insurance and bonds (when required) are approved by the City, the Contract is executed, and a Notice to Proceed is issued. The Contractor shall coordinate with the City of Grand Island Public Works relative to scheduling work. All contract work shall be substantially complete by **July 30, 2024**, with final completion for the whole project by **August 15, 2024**. The section of manholes south of Guenther Road along the west side of US Highway 281 and located within row crop ground are to be completed by **May 24, 2024**. These manholes are shown as B18-1, B18-2, B18-3, B18-4, and B19-1.

ARTICLE V. It is understood and agreed that time is the essence of the contract. Should the Contractor fail to perform all of the work within the overall period of time stipulated in the Contract Agreement, the Contractor shall pay to the City, as liquidated damages and not as a penalty, **\$500.00 per calendar** day of default unless extensions of time granted by the City specifically provide for the waiving of liquidated damages.

The City shall have the right to deduct the liquidated damages from any moneys in its hands, otherwise due, or to become due, to the Contractor, or to use for and recover compensation for damages for non-performance of this contract within the time stipulated.

ARTICLE VI. The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE VII. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska.

ARTICLE VIII. During the performance of this contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis of race, color, religion, sex, national origin, age or disability and to comply at all times with all applicable state and federal civil rights acts and executive orders of the President of the United States.

ARTICLE IX. Every public contractor and their subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE X. City Code states that it is unethical for any person to offer, give or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

ARTICLE XI. The City reserves the right to terminate this contract at any time upon sixty (60) days notice. If the contract is terminated, the contractor will be compensated for any services, not in dispute, rendered to date of termination.

ARTICLE XII. FAIR EMPLOYMENT PRACTICES: Each proposer agrees that they will not discriminate against any employee or applicant for employment because of age, race, color, religious creed, ancestry, handicap, sex or political affiliation.

ARTICLE XIII. LB 403: Every public consultant and his, her or its subcontractors who are awarded an agreement by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

IN WITNESS WHEREOF, the parties hereto have executed this Contract Agreement as of the date and year first above written.

**CONTRACTOR**

By \_\_\_\_\_ Date \_\_\_\_\_

Title \_\_\_\_\_

CITY OF GRAND ISLAND, NEBRASKA,

By \_\_\_\_\_ Date \_\_\_\_\_  
Mayor

Attest: \_\_\_\_\_  
City Clerk

The contract and bond are in due form according to law and are hereby approved.

\_\_\_\_\_ Date \_\_\_\_\_  
Attorney for the City



## APPENDIX A – TITLE VI NON-DISCRIMINATION -

During the performance of this agreement, the consultant, for itself, its assignees and successors in interest (hereinafter referred to as the "consultant") agrees as follows:

- (1) **Compliance with Regulations:** The consultant shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, and the Federal Highway Administration (hereinafter "FHWA") Title 23, Code of Federal Regulations, Part 200 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this agreement.
- (2) **Nondiscrimination:** The Consultant, with regard to the work performed by it during the agreement, shall not discriminate on the grounds of race, color, or national origin, sex, age, and disability/handicap in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The consultant shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the Regulations.
- (3) **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the consultant for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor supplier shall be notified by the consultant of the consultant's obligations under this agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin, sex, age, and disability/handicap.
- (4) **Information and Reports:** The consultant shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the City of Grand Island or the FHWA to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a consultant is in the exclusive possession of another who fails or refuses to furnish this information the consultant shall so certify to the City of Grand Island, or the FHWA as appropriate, and shall set forth what efforts it has made to obtain the information.
- (5) **Sanctions for Noncompliance:** In the event of the consultant's noncompliance with the nondiscrimination provisions of this agreement, the City of Grand Island shall impose such agreement sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
  - (a.) withholding of payments to the consultant under the agreement until the consultant complies, and/or
  - (b.) cancellation, termination or suspension of the agreement, in whole or in part.
- (6) **Incorporation of Provisions:** The consultant shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The consultant shall take such action with respect to any subcontract or procurement as the City of Grand Island or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a consultant becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the consultant may request the City of Grand Island to enter into such litigation to protect the interests of the City of Grand Island, and, in addition, the consultant may request the United States to enter into such litigation to protect the interests of the United States.

# **DIVISION I**

## **GENERAL SPECIFICATIONS**

**APPLICABLE TO ALL  
CONSTRUCTION CONTRACTS**

**DIVISION I  
GENERAL SPECIFICATIONS**

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**DIVISION I  
GENERAL SPECIFICATIONS**

**SECTION 1 - DEFINITIONS OF WORDS AND TERMS**

Wherever in these specifications or in other contract documents the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

1.01        Abbreviations.

AASHTO	American Association of State Highway And Transportation Officials
ASTM	American Society for Testing and Materials
ANSI	American National Standards Institute
AWWA	American Water Works Association
AREA	American Railway Engineering Association
AWS	American Welding Society
AAN	American Association of Nurserymen

1.02        Advertisement. The advertisement for work or materials on which bids are to be received.

1.03        Award. The decision of the City to accept the bid of the lowest responsible bidder for the work, subject to the execution and approval of a satisfactory contract therefor and bond to secure the performance thereof and to such other conditions as may be specified or otherwise required by law.

1.04        Backslope. The sloping surface of a cut, the downward inclination of which is toward the roadbed.

1.05        Bidder. Any individual, firm, or corporation formally submitting a bid for the work contemplated, acting directly or through a duly authorized representative.

1.06        Calendar Day. Every day shown on the calendar, Sundays and holidays included.

1.07        Change Order. A written order to the Contractor, signed by the Engineer, ordering a change in the work from that originally shown in the plans and specifications.

1.08        City. The word "City" as used in these specifications refers to the City of Grand Island, Nebraska, acting through its City Council.

1.09        Contract. The written agreement executed between the City and the Contractor, covering the performance of the work and the furnishing of labor and materials, by which the Contractor is bound to perform the work and furnish the labor and materials, and by which the City is obligated to compensate Contractor therefor at the mutually established and accepted rate or price.

The contract shall include the "Notice to Bidders", these specifications, the Contractor's bond, the general and detailed plans, the bid, special provisions, and supplemental agreements.

1.10 Contract or Performance Bond. The approved form of security, executed by the Contractor and their surety or sureties, guaranteeing complete execution of the contract and all supplemental agreements pertaining thereto and the payment of all legal debts pertaining to the construction of the project.

1.11 Contract Item. An item of work specifically described and for which a price, either unit or lump sum, is provided. It includes the performance of all work and the furnishing of all labor, equipment, and materials described in the text of a specification item included in the contract or described in any subdivision of the text of the supplemental specification or special provision of the contract.

1.12 Contract Period. The period from the date specified in the contract for the commencement of the work to the date specified for its completion, both dates inclusive.

1.13 Contractor. The party of the second part to the contract; the individual, firm, or corporation undertaking the execution of the work under the terms of the contract and acting directly or through Contractor's agents or authorized employees.

1.14 Cul-de-sac Street. A local street open at one end only and with special provision for turning around.

1.15 Culvert. Any structure not classified as a bridge which provides an opening under any street.

1.16 Easement (Right-of-way). A right acquired by public authority to use or control property for a designated purpose.

1.17 Employee. Any person working on the project mentioned in the contract of which these specifications are a part, and who is under the direction or control or receives compensation from the Contractor or Contractor's subcontractor.

1.18 Engineer. The City Engineer, acting either directly or through an assistant or other representative duly authorized by the City Engineer, such assistant or representative acting within the scope of the particular duties assigned or with the authority given.

1.19 Extra Work. Work performed by the Contractor in order to complete the contract in an acceptable manner but for which there is no basis of payment provided in the contract.

1.20 Holidays. In the State of Nebraska, holidays occur on: January 1, Martin Luther King, Jr. Day in January, Presidents' Day in February, Arbor Day in April, Memorial Day in May, July 4, Labor Day in September, Columbus Day in October, Veterans Day and Thanksgiving Day in November, and December 25. If any of said dates fall on Sunday, the following Monday shall be a holiday. If any of said dates fall on Saturday, the previous Friday shall be a holiday.

1.21 Inspector. An authorized representative of the Engineer assigned to make detailed inspection of any or all portions of the work performed and materials furnished by the Contractor.

1.22 Laboratory. The testing laboratory of the City or any other testing laboratory which may be designated by the Engineer.

- 1.23 Notice to Bidders. The provisions, requirements, and instructions pertaining to the work to be awarded, manner and time of submitting bids , quantities of the major items or work required, as prepared for the information of bidders.
- 1.24 Plans. The official plans, profiles, typical cross sections, general cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, approved by the Engineer, which show the location, character, dimensions, and details of the work to be done, and which are to be considered as a part of the contract supplementary to these specifications.
- 1.25 Project. All work necessary to be performed under the contract.
- 1.26 Bid. The offer of the bidder, submitted on the prescribed bid form, to perform the work and to furnish the labor and materials at the prices quoted by the bidder.
- 1.27 Bid Form. The approved form on which the City requires formal bids be prepared and submitted.
- 1.28 Bid Guarantee. The security furnished by the Bidder with Bidder's bid for a project as a guarantee that Bidder will enter into a contract for the work if said bid is accepted.
- 1.29 Right-of-way. The land area which is reserved or secured by the City for constructing the work or for obtaining material therefor.
- 1.30 Special Provisions. Special directions, provisions, or requirements peculiar to the project under consideration and not otherwise thoroughly or satisfactorily detailed or set forth in the specifications.
- 1.31 Specifications. The general term comprising all the directions, provisions, and requirements contained herein, together with such as may be added or adopted as supplemental specifications or special provisions, all of which are necessary for the proper performance of the contract.
- 1.32 Subcontractor. Any individual, firm, or corporation to whom the Contractor, with the written consent of the City, sublets any part of the contract.
- 1.33 Superintendent. The representative of the Contractor, present on the work at all times during progress, authorized to receive and fulfill instructions from the Engineer and capable of superintending the work efficiently.
- 1.34 Supplemental Agreements. Written agreements executed by the Contractor and the City subsequent to having entered into the contract, covering alterations in the plans or unforeseen items of construction.
- 1.35 Supplemental Specifications. Specifications adopted subsequent to the publication of this book. They generally involve new construction items or substantial changes in the approved specifications. Supplemental specifications shall prevail over those published in this book whenever in conflict therewith.
- 1.36 Surety. The corporate body bound with and for the Contractor for the acceptable performance of the contract, the completion of the work, and for payment of all just claims arising therefrom.



1.37 Work. Work shall be understood to mean the furnishing of all labor, materials, equipment, and other incidentals necessary or convenient to the successful completion of the project by the Contractor and the carrying out of all the duties and obligations imposed by the contract.

1.38 Working Day. Any day, except Saturdays, Sundays, and Nebraska holidays, on which the Contractor is not prevented by weather, soil conditions, or other conditions beyond the Contractor's control, adverse to the current controlling operation or operations, as determined by the Engineer, from proceeding with at least 80 percent of the labor and equipment force normally engaged in such operation or operations for at least 50 percent of the full number of hours in Contractor's normal daily schedule. Also, a Saturday, Sunday, or Nebraska holiday on which any work is performed on the current controlling operation or operations unless the Contractor is prevented by weather, soil conditions, or other conditions beyond the Contractor's control as determined by the Engineer, from proceeding for at least 50 percent of the full number of hours in their normal schedule with 80 percent of the normal working force.

1.39 Working Drawings. Stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplementary plans for similar data which the Contractor is required to submit to the Engineer for approval.

1.40 Work Order. A written order signed by the Engineer, of a contractual status requiring performance by the Contractor without negotiation of any sort and may involve starting, resuming, or the suspension of work. (Not to be confused with extra work order).

1.41 Completion of the Work and Formal Acceptance by the City. Whenever the term "completion of the work and formal acceptance by the City" is used, it refers to and means the formal acceptance of the work by the Engineer and the City at the time the Contractor has all work under the contract completed and in place.

1.42 Final Acceptance of the Work. Whenever the term "final acceptance of the work" is used, it refers to and means the time when the Engineer and the City finally accept the work. The contractor guarantee shall remain in force from the City's final acceptance for a period of one year.

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## **SECTION 2 – BID REQUIREMENTS AND CONDITIONS**

2.01 Contents of Bid Forms. Bidders will be furnished with bid forms which will state the location and description of the contemplated work and will show the estimate of the various quantities and kinds of work to be performed or materials to be furnished, with a schedule of items for which unit bid prices are asked, the time in which the work must be completed and the date, time, and place of opening bids. All special provisions and required provisions will be grouped together and bound with or included through reference in the bid form.

2.02 Interpretation of Quantities in Bid Forms. The quantities listed in the bid forms are to be considered as approximate, unless otherwise provided by special provision. It is understood that the quantities of work to be done and materials to be furnished may each be increased, diminished, or omitted as hereinafter provided without in any way invalidating the unit bid prices, except as provided in the section in these specifications entitled Increased or Decreased Quantities of Work.

2.03 Examination of Plans, Specifications, Special Provisions, and Site of Work. The bidder is required to examine carefully the site, the bid, plans, specifications, special provisions, and contract form for the work contemplated, and it will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished and as to the requirements of these specifications, the special provisions, and contract. It is mutually agreed that the submission of a bid shall be considered prima facie evidence that the bidder has made such examination.

2.04 Preparation of Bid. Bidders shall submit their bids on blank forms furnished by the Engineer with the full name and address and the place of business or residence of the bidder. If the bidder is co-partnership, the signature shall be by a member of the firm with the names and addresses of each member. If the bidder is a corporation, the signature shall be by an officer of the corporation in the corporate name and with the corporate name and the corporate seal attached thereto.

All blank spaces in the form shall be fully filled; numbers shall be stated in legible figures and writing when required; the signature shall be longhand; and the complete form shall be without interlineation, alteration, or erasure.

No oral, telegraphic, or telephonic bids or modifications will be considered.

When certain alternative prices, for both increasing and decreasing the cost, are required, as called for in the bid sheet, it must be understood that all materials and workmanship required shall be the best of their respective kinds and in all cases shall correspond with similar work herein specified and, if accepted, the work shall be done under the general terms of the specifications.

2.05 Statement of Bidder's Plant and Financial Conditions. Each bidder may submit with bid and, in any event, the City may, after bids are opened and prior to award of contract, require any bidder to submit the following data:

1. A statement that the bidder maintains a permanent place of business and address thereof;
2. A statement of equipment which the bidder proposes to use on the project, together with a statement noting that equipment previously mentioned which the bidder owns and that which bidder does not own but is certain bidder will be able to rent or otherwise procure for use on the project;
3. A financial statement, duly sworn to in a form approved by the City, listing assets and liabilities;
4. Statement listing projects of similar nature which the bidder has constructed or in the construction of which the bidder was actively engaged in a responsible capacity. Any bidder may be required by the City to submit additional data to satisfy the City that such bidder is prepared to fulfill the contract if it is awarded to them.

2.06 Certified Check, Cashier's Check, or Bid Bond. Each bidder must submit with the bid a certified check, cashier's check, or bid bond in the amount of not less than five percent (5%) of the amount bid, drawn to the order of the City Treasurer, Grand Island, Nebraska, guaranteeing the execution of the contract and bond required within ten (10) days of the notification of award. Any certified check must be issued by a bank in the State of Nebraska.

2.07 Filing of Bid. Bidders shall submit bid data on items offered in the Bid by filling in one set of data sheets supplied by the Engineering Department. The bid sheets shall be filled out legibly in black ink to permit reproduction.

Bidder security, when required, shall be enclosed in a special envelope marked, "BIDDER SECURITY/BID FOR \_\_\_\_\_." The envelope shall contain only a cashier's check or bidder's bond. This special envelope shall be attached to a sealed envelope containing the bid, filled out specifications, descriptive information drawings, qualification list and any other bid materials. This second envelope shall be marked "BID FOR \_\_\_\_\_." Bids of an incomplete nature or subject to multiple interpretations may, at the option of the Purchaser, be rejected as being irregular.

All bids shall be filed with the City at the place designated in the Notice to Bidders, prior to the time advertised for the opening of bids.

2.08 Withdrawal of Bid. A bidder will be permitted to withdraw said bid unopened after it has been submitted, if bidder's request for withdrawal is made in writing and delivered personally by the bidder or bidders' authorized representative prior to the time specified for opening of bids.

2.09 Public Opening of Bids. Bids will be publicly opened and read at the time and place stipulated in the Notice to Bidders.

2.10 Material Guarantee. Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition, and manufacture of any or all materials to be used in the construction of the work together with samples, which samples may be subjected to the test provided for in these specifications to determine their quality and fitness for the work.

### **SECTION 3 - AWARD AND EXECUTION OF THE CONTRACT**

3.01 Consideration of Bids. After the bids are opened and read, they will be compared on the basis of the summation of the products and the quantities shown in the bid schedule by the unit bid prices. The results of such comparisons will be immediately available to the public.

The right is reserved to reject any and all bids and to waive technical errors as may be deemed best for the interest of the City.

3.02 Award of Contract. In the award of contract, consideration will be given not only to the prices bid but also the mechanical and other equipment available to the bidder, the financial responsibility of the bidder, and bidder's ability and experience in the performance of like or similar contracts.

Award of contracts will be made as promptly as practical after bids have been opened and read. The City reserves the right to delay the award for such time as is needed for the consideration of the bids and for the receipt of concurrence in recommended contract awards from other governmental agencies whose concurrence may be required.

3.03 Cancellation of Award. The City reserves the right to cancel the award of any contract at any time before execution of the said contract by all parties without any liability against the City.

3.04 Return of Bid Guarantee. Bid guaranties will be returned to the unsuccessful bidders by mail promptly after the signing of the contract has been made. Return to the successful bidder will be made after the signing of the contract and filing of the contract bond.

3.05 Performance Bond. The Contractor shall furnish a performance bond with a company having the approval of the City in an amount of 100 percent of the contract price guaranteeing complete and faithful performance of the contract, payment of all bills of whatever nature which could become a lien against the property, and guaranteeing replacement of defective materials and workmanship for a period of one year after completion of the contract.

3.06 Contract Documents. Three (3) copies of Contract Documents shall be made, executed, and distributed as follows:

One copy to City Clerk  
One copy to Contractor                      One copy to Engineer

The following documents are a part of the contract:

*Notice to Bidders	*General Specifications
*Instructions to Bidders	*Special Provisions
*Bid	*Supplemental Specifications
*Detailed Specifications	*Performance Bond
*Contract	*Additional Drawings as required to make clear the intent of the contract

**Revised 1-25-2011**

3.07 Failure to Execute Contract. Failure to execute a contract and file an acceptable performance bond as provided herein within ten (10) days from date of award shall be just cause for the annulment of the award and the forfeiture of the certified check or cashier's check to the City, not as a penalty but in liquidation of damages sustained.

#### **SECTION 4 - SCOPE OF WORK**

4.01 Intent of Plans and Specifications. The intent of the plans and specifications is to provide for the construction and completion of every detail of the work described therein. It shall be understood by the Contractor that Contractor will furnish all labor, materials, tools, transportation, and supplies required for all or any part of the work to make each item complete in accordance with the spirit of the contract. It is understood that the apparent silence of the specifications as to any detail or the apparent omission of a detailed description concerning any point shall be regarded as meaning that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used.

For the purpose of design and the preparation of the Engineer's Estimate, the City may perform a reasonable amount of exploratory work to gain information relative to surface and subsurface conditions relating to type of soil, moisture content, and types and extent of rock strata.

This information when shown on the plan represents to the best of the City's knowledge conditions as of the date the survey was made. The appearance of this information on the plan will not constitute a guarantee that conditions other than those indicated will not be encountered at the time of construction.

The bidder may utilize this information as they see fit. Any bidder interested in the work is authorized to make whatever investigation they considers advisable.

In making such additional investigation, the bidder is directed to the Engineer for information relating to available right-of-way. If there are, at that time, any parcels of land over which the City does not have jurisdiction, right of entry must be secured by the prospective bidder from those authorized to grant such permission. Investigational work, performed by a prospective bidder on existing streets open to traffic, shall be performed in compliance with the

requirements of the current Manual on Uniform Control Devices for Street and Highways. All such additional investigational work shall be performed without costing or obligating the City in any way.

4.02 Special Work. Any conditions not covered by these standard specifications are stated in the special provisions.

4.03 Increased or Decreased Quantities of Work. The Engineer reserves the right to alter the quantities of contract items for which there are bid prices. Such increases or decreases in quantities shall be made as the City considers necessary or desirable without waiving or invalidating any of the provisions of the contract. All such alterations must be ordered in writing and a supplemental agreement must be executed with the Contractor for the item or items involved when such alterations involve an increase or decrease of more than 20 percent of the total cost of the work of any group of the contract calculated from the original bid quantities and the contract unit prices. The Contractor shall not start work on any alteration requiring a supplemental agreement until the agreement setting forth an equitable adjustment of compensation, satisfactory to both parties, shall have been executed by the Engineer and the Contractor and approved by City Council.

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4.04 Extra Work. The City reserves the right to order the performance of work of a class not contemplated in the bid but which may be considered necessary to complete satisfactorily the work included in the contract. Such extra work will be paid for as provided in these specifications under section entitled Payment for Extra Work.

4.05 Maintenance of Detours. Unless so required by the plans or the special provisions, the Contractor will not be required to assume any responsibility in connection with the maintenance or marking of suitable detours.

4.06 Temporary Traffic Control. Part VI of the Manual of Uniform Traffic Control Devices (MUTCD) is the national standard for work zone traffic control. The current version that has been adopted by the Nebraska Department of Roads is also applicable to the City of Grand Island and shall be followed.

Any City crews, contractors, utility company, or any other person, firm or corporation performing work within the right-of-way of any public street, public way, or alley in the City of Grand Island shall install and maintain Temporary Traffic Control (TTC) in accordance with the standards of the MUTCD.

The Public Works Director or their representative shall have the authority to direct corrective actions for any TTC not in compliance with the MUTCD and these provisions. These actions may include suspending operations and requiring removal of all equipment or materials from the right-of-way.

If the TTC is left in place longer than four (4) hours and no personnel are on the site, the individual responsible for installing the TTC shall provide telephone numbers of personnel who will be available on a 24 hours per day, seven days per week basis to the Public Works Director. These individuals shall be responsible for repair, correction, replacement and maintenance of the traffic control devices. These individuals shall perform inspections of the TTC at the site a minimum of twice during the day and once during the night every day until the work is completed and the right-of-way is cleared.

Subsidiary: Unless contract pay items are included with the bid specifications, direct payment for providing, installing, maintaining, and performing site inspections of TTC devices will not be made but are considered subsidiary to other items for which direct payment is

provided. When the contract contains a pay item for TTC, the NDOR standard items, specifications, etc. will be used.

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4.07 Maintenance of Traffic. The Contractor shall conduct the work so as to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, the Contractor shall, at Contractor's expense, provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them. Such maintenance of travel will not be required when the Contractor has obtained permission from the owner or tenant of private property or from the authority having jurisdiction over public property involved to obstruct traffic at the designated area.

4.08 Street Closing. In the event it is deemed necessary for the Contractor to close any streets during the execution of said work, the Contractor shall notify the owner of such street closing 72 hours in advance, prior to any street closing due to open cut street crossing.

4.09 Miscellaneous Removal Items. The Contractor shall inform the Engineer sufficiently ahead of construction so landowners can be notified to remove small trees, shrubs, and fences from the construction limits if the landowners desire to save them.

4.10 Removal and Replacement of Property Stakes. If it is necessary to remove any property corners or markers during construction operations, the Contractor shall notify the Engineer so the Engineer can establish reference ties. Any markers removed without notice to the Engineer shall be replaced at the Contractor's expense in accordance with the proper land surveying techniques.

4.11 Removal and Disposal of Structures and Obstructions. The Contractor for bridge and culvert work shall remove any existing structure or part of structure that in any way interferes with the new construction. If specific payment for such work has not been provided in the contract, it will be paid for as extra work.

The Contractor shall remove any materials or structures found on the right-of-way which are not to remain in place or which have not been designated for use in the new construction. The removal and disposal of pipe culverts will not be paid for directly but shall be considered as incidental work, and the cost of such removal and disposal shall be considered to be included in the contract price for other items. Pipe culverts shall be removed by methods that will cause a minimum of damage to the pipe culverts. The removal and disposal of bridges or other masonry or monolithic concrete construction will be paid for. If the contract does not contain an item for such work, it will be paid for as extra work.

4.12 Rights In and Use of Materials Found on the Right-of-way. Unless stated to the contrary in the contract documents, all materials, such as stone, gravel, sand, timber, and structures or parts of structures, found on the right-of-way of the street or on land acquired for the work, are the property of the City or the owner of the fee title to the land, and shall not be used or destroyed by the Contractor without special permission from the Engineer. When the Contractor is permitted to use materials found on the right-of-way, any excavations that they make below the grade elevation shall be backfilled with other suitable materials so the finished street will conform to the grade shown on the plans. No extra compensation will be allowed for such backfilling.

When rock excavation is encountered, any portion of rock excavation which would otherwise be deposited in waste areas and not be incorporated in the embankments may be processed and used, royalty free, by the Contractor in any other portion of the construction in which material of that quality would be acceptable. No deduction will be made from excavation quantities for rock so used.

4.13 Construction and Demolition Debris. Debris from any City awarded project, as well as Municipal Solid Waste (that is not recycled), shall be disposed of at the City's Solid Waste facilities.

4.14 Final Cleaning Up. Upon completion of the work and before acceptance and final payment, the Contractor shall clean the street, borrow pits, and all ground occupied by Contractor in connection with the work of all rubbish, excess materials, falsework, temporary structures, and equipment, and all parts of the work, shall be left in a neat and presentable condition.

When required in the plans, the Contractor shall, at Contractor's expense, replace waste material or stripping back into borrow and material pits as directed by the Engineer. Trees, tree stumps and material placed on property adjacent to the street during the execution of the work shall be disposed of by the Contractor.

4.15 Right-of-way. Right-of-way for the work will be provided without cost to the Contractor. Right-of-way will be made available to the Contractor on or before the date specified for the commencement of the work unless a later date for the right-of-way to be made available to the Contractor is designated in the contract documents.

4.16 Railroad Crossings. Whenever the work involves construction with which railroad companies are concerned, the performance of the work is contingent upon arrangements with the railroad companies for the proposed construction. No claims will be allowed for loss or damage caused by failure to complete such arrangements.

4.17 Safety and Health Regulations for Construction. Occupational Safety and Health Standards for the Construction Industry (29 CFR Part 1926) with amendments as of February 1, 1999 promulgated by the Occupational Safety and Health Administration, United States Department of Labor, Washington, D.C. are incorporated herein as a part of the contract documents.

## **SECTION 5 - CONTROL OF WORK**

5.01 Authority of Engineer. The Engineer will have general supervision of the work and will decide any questions that arise with reference to the intent of the contract documents and compliance therewith. Said Engineer will relay all questions relating to materials, work, progress, disputes and mutual rights between contractors, fulfillment of contract, and compensation, in accordance with the provisions of these specifications.

5.02 Plans and Working Drawings. The approved plans will be supplemented by such working drawings as are necessary to adequately control the work. It is mutually agreed that all authorized alterations affecting the requirements and information given in the approved plans shall be in writing.

Working drawings for any structure shall consist of such detailed plans as may be required of the Contractor for the prosecution of the work. These are not included in the plans

furnished by the Engineer. They shall include shop details, erection plans, masonry, and form work. The Engineer's prior approval of the shop details must be obtained before any fabrication work involving these plans is performed. Erection plans, masonry layout diagrams, and plans for cribs, cofferdams, falsework, centering, and form work, as well as any other working drawings not previously mentioned, may be required of the Contractor and shall be subject to the Engineer's approval.

No changes shall be made in any plan or drawing after it has been approved except by consent or direction of the Engineer in writing. It is expressly understood that the approval by the Engineer of the Contractor's working drawings will not relieve the Contractor from any responsibility.

The contract price shall include the cost of furnishing all working drawings, and the Contractor will be allowed no extra compensation for such drawings.

Shop plans shall be made on 22"x36" sheet with ½" margin on all sides except the left which shall be 2". The margin lines shall measure 21"x33 ½". The marking shall be in accordance with the special plans or as may be required by the Engineer. All blueprint plans which are furnished to the Engineer shall be clear and distinct and acceptable to the Engineer and shall be neatly trimmed. The Contractor shall furnish the Engineer as many extra copies of working drawings as the Engineer may direct.

The Engineer may require reproducible prints of all approved shop plans, which shall be furnished by the Contractor without cost to the Engineer. Such reproducible prints shall not be folded but shall be mailed in tubes sized to accommodate these plans without injuring them. No preliminary working drawings will be accepted by the Engineer unless they have been carefully checked by the Contractor. Drawings showing gross errors will be returned for recheck before examination by the Engineer. The name of the shop or company furnishing the drawings shall be on the tracing.

5.03 Alteration of Plans or of Character of Work. The Engineer shall have the right to make alterations in plans or character of work as may be considered necessary or desirable during the progress of the work to satisfactorily complete the proposed construction. Such alterations shall not be considered as a waiver of any conditions of the contract or invalidate any of the provisions thereof.

5.04 Coordination of Plans, Specifications, Special Provisions, and Supplemental Specifications. These specifications, the supplemental specifications, the plans, special provisions, and all supplementary documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, figured dimensions shall govern over scaled dimensions, plans shall govern over specifications, special plans shall govern over standard plans, supplemental specifications shall govern over standard specifications, and special provisions shall govern over specifications, supplemental specifications, and the plans.

5.05 Cooperation of Contractor. The Contractor will be supplied with a minimum of two sets of approved plans and contract assemblies, including special provisions, one set of which the Contractor shall keep available on the work at all times.

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof and shall cooperate with the Engineer and other contractors in every way possible.

The Contractor shall at all times have at the work site, as Contractor's agent, a competent superintendent capable of reading and thoroughly understanding the plans and specifications, thoroughly experienced in the type of work being performed, who shall receive



instructions from the Engineer or Engineer's authorized representatives. The superintendent shall have full authority to execute the orders or directions of the Engineer without delay, and to promptly supply materials, equipment, tools, labor, and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work sublet.

5.06 Surveys. Lines and elevations shall be established by the Engineer before the work commences and the Contractor shall obtain lines and elevations from the points so set by the Engineer. The Contractor shall furnish all stakes necessary for lines and elevations and cooperate with the Engineer in setting same.

5.07 Authority and Duties of Inspector. The City may appoint inspectors to represent the Engineer in the inspection of all materials used in and all work done under the contract. Such inspection may extend to any part of the work and to the preparation or manufacture of the materials to be used. The inspector will not be permitted to modify in any way the provisions of the contract documents, nor to delay the work by failing to inspect materials and work with reasonable promptness. An inspector is placed at the work site to keep the Engineer informed as to its progress and the manner in which it is being done and to call the Contractor's attention to any infringements of the contract documents. The inspector will not act as foreman or perform other duties for the Contractor nor improperly interfere with the management of the work. They will not be authorized to approve or accept any portion of the work. In case of dispute between the Contractor and the inspector as to quality of materials or the manner of performing the work, the inspector shall have the authority to reject materials or suspend the work until the question at issue can be decided by the Engineer. Written notice of the suspension of work will be given to the Engineer and the Contractor.

5.08 Inspection of Work. The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether the work is being performed in conformance with the contract documents. At any time before acceptance of the work, upon request of the Engineer, the Contractor shall remove or uncover such portions of the finished work as the Engineer may direct. After examination has been made, the Contractor shall restore such portions of the work to the standard required by the contract documents.

If the work thus exposed or examined proves acceptable, the uncovering or removing and replacing of the covering or the restoring of the parts removed shall be paid for as extra work, except that no payment will be made for the work involved in checking the smoothness of pavement surfaces. If the work thus exposed and examined proves unacceptable, the Contractor shall replace the defective work in accordance with the specifications and will be paid only the contract price for the work as finally accepted. Work done or materials used without the Engineer having been afforded ample opportunity to provide suitable inspection may be ordered removed and replaced at the Contractor's expense or may be excluded from the quantities measured for payment.

5.09 Removal of Defective Work. Any defective work shall be removed and replaced at the Contractor's expense. Should the Contractor fail or refuse to remove defective work when so ordered by the Engineer, the Engineer shall have authority to order the Contractor to suspend further operations and may withhold payment on estimates until such defective work has been removed and replaced in accordance with the plans and specifications. Continued failure or refusal on the part of the Contractor to correct defective work promptly shall be sufficient cause for the City to declare the contract in default and to proceed to have the work completed in accordance with these specifications under section entitled Abrogation.

5.10 Final Inspection. Upon notification by the Contractor or Contractor's authorized representative that the work is completed, the Engineer shall make prompt final inspection of each item of work included in the contract. If the work is found to not be in accordance with the contract documents, the Contractor will be advised as to the particular defects to be remedied.

## **SECTION 6 - CONTROL OF MATERIALS**

6.01 Source of Supply and Quality Requirements. The materials used on the work shall meet all quality requirements of the contract. In order to expedite the inspection and testing of materials, the Contractor shall notify the Engineer of Contractor's proposed sources of materials prior to delivery. At the option of the Engineer, approval of the source or approval of materials at the source prior to delivery may be required. If it is found after trial that sources of supply for previously approved materials do not produce specified products or when conditions are such that the use of unfit materials cannot be prevented except by extraordinary inspection methods, the Contractor shall

furnish materials from other sources. Before delivery is started and at any time during the process of preparation and use, the materials shall be subject to the approval of the Engineer.

6.02 Methods of Sampling and Testing, and Cited Specifications. Sampling and testing of all materials and the laboratory methods and testing equipment required under these specifications shall be in accordance with the latest published standard method of the AASHTO, except as otherwise provided.

The sampling and testing of all materials not covered by the AASHTO, but not otherwise provided for, shall conform to the latest published standard or tentative methods of the ASTM.

6.03 Storage of Materials. The Contractor shall be responsible for the care and storage of materials delivered at the work site or purchased for use thereon. Any material that has been delivered to the work site and has become damaged before actual incorporation in the work may be rejected by the Engineer even though it may previously have been accepted. Stored materials shall be so located as to facilitate thorough inspection.

6.04 Unacceptable Materials. All materials not conforming to the requirements of the specifications at the time they are to be used shall be considered as unacceptable, and all such materials will be rejected and shall be removed immediately from the site of the work unless otherwise instructed by the Engineer. No rejected materials, the defects of which have been corrected, shall be used until approval has been given.

6.05 Guarantee. The Contractor shall be responsible for any and all defects which may develop in any part of the entire installation furnished by said Contractor and, upon receipt of written notice from the Engineer, shall immediately replace and make good without expense to the City any such faulty part or parts and damage done by reason of same during a period of one (1) year from the date of formal acceptance of the installation (except when specific guarantee for another length of time is elsewhere specified).

The acceptance of the installation, or any part of it, shall not act to waive this liability on the part of the Contractor.

Upon completion and formal acceptance of the work, the Contractor may furnish a satisfactory bond in an amount of fifteen percent (15%) of contract price to insure the provisions of this guarantee. Otherwise, the original bond shall remain in full force and effect until final acceptance of the work, which acceptance shall be made one (1) year after the formal acceptance of the work as provided herein.

6.06 "Or Equal" Clause. Whenever, in any section of the contract documents, plans, or specifications, any article, material, or equipment is defined by describing a proprietary product or by using the name of a manufacturer or vendor, the term "or approved equal", if not inserted, shall be implied. The specific article, material, or equipment mentioned shall be understood as indicating the type, function, minimum standard or design, efficiency, and quality desired and shall not be construed in such a manner as to exclude manufacturer's products of comparable quality, design, and efficiency. The Engineer shall determine the acceptability of articles, materials, or equipment proposed as equals.

## **SECTION 7 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC**

7.01 Laws to be Observed. The Contractor shall keep fully informed of and, at all times, shall observe and comply with all Federal and State laws, all local bylaws, ordinances, and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority which in any manner affect those engaged or employed on the project, or which in any way affect the project. The Contractor shall protect and indemnify the City and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by said Contractor or Contractor's employees. It shall be the responsibility of the Contractor to provide all safeguards, safety devices, and protective equipment and to take any other needed actions as are reasonably necessary to protect the life and health of employees on the project.

7.02 State and City Fair Labor Standards. The Contractor agrees to comply with all applicable State and City fair labor standards in the execution of the contract, including compliance with Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. In addition, the Contractor agrees to comply with the provisions of Section 52-118, R.R.S. 1948, pertaining to payment of all labor performed and for payment for materials and equipment rental which is actually used in performing this contract.

7.03 Anti-discrimination. During the performance of the work, the Contractor agrees not to discriminate against any employee or application for employment because of race, color, age, religion, sex, or national origin.

7.04 Permits. The Contractor shall procure and pay for all permits, licenses, and bonds necessary for the prosecution of Contractor's work and/or required for municipal, State, and Federal regulations and laws.

7.05 Patents. The Contractor and the surety in all cases shall indemnify and save harmless the City for any costs, expenses, and damages which it may be obligated to pay by reason of any such infringement at any time during the prosecution of or after the completion of the project.

7.06 Restoration of Surfaces Opened by Permit. Upon the presentation of a duly authorized and satisfactory permit from the City which provides that all necessary repair work will be paid for by the party to whom such permit is issued, the Engineer may authorize the Contractor to allow parties bearing such permits to make openings in the street. The Contractor shall, when ordered by the Engineer in writing, make in an acceptable manner all necessary repairs due to such openings, and such necessary work ordered by the Engineer shall be paid for on the basis of "Extra Work" as provided for in these specifications and shall be subject to the same conditions as original work performed.

7.07 Safety, Health, and Sanitation. In the performance of the contract, the Contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation. The Contractor shall furnish such additional safeguards, safety devices, and protective equipment and shall take actions as the Engineer may determine as being reasonably necessary to protect the life and health of Contractor's employees and the public.

7.08 Barricades and Warning Signs. Except as otherwise provided specifically in this section, the Contractor shall provide and maintain barricades, danger and warning signs, and suitable and efficient lights, and shall take every reasonable precaution to prevent accidents. The name of the Contractor shall be clearly visible on the barricades. The Contractor shall provide, at their own expense, such watchmen as are necessary to protect their equipment and to maintain proper lights.

Watchmen who may be necessary to direct traffic or prevent travel on any portion of the street shall be provided by the Contractor on written order from the Engineer. Unless the contract specifically provides that such watchmen are to be furnished by the Contractor, this expense shall be paid for as provided in "Extra Work."

7.09 Use of Explosives. When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. All explosives shall be stored in a secure manner, and storage places shall be clearly marked "DANGER--EXPLOSIVES."

7.10 Claims for Labor and Materials. The Contractor shall indemnify and save harmless the City from all claims for labor and materials furnished under this contract. When requested by the City, the Contractor shall submit satisfactory evidence that all persons, firms, or corporations who have done work or furnished materials under this contract, for which the City may become liable under the laws of the State, have been fully paid or satisfactorily secured. In case such evidence is not furnished or is not satisfactory, an amount will be retained from money due the Contractor which, in addition to any other sums that may be retained, will be sufficient, in the opinion of the City, to meet all claims of the persons, firms, and corporations as aforesaid. Such sum shall be retained until the liabilities as aforesaid are fully discharged or satisfactorily secured.

7.11 Contractor's Insurance. The Contractor shall secure and maintain throughout the duration of this contract insurance, from companies authorized to do business in Nebraska, of such types and in such amounts as may be necessary to protect themselves and the interests of the City against all hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Contractor's operations and completed operations. The form and limits of such insurance, together with the underwriter thereof in each case, shall be approved by the City, but regardless of such approval it shall be the responsibility of the Contractor to maintain adequate insurance coverage at all times. Failure of the Contractor to maintain adequate coverage shall not relieve them of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. "Worker's Compensation and Employer's Liability." This insurance shall protect the Contractor against all claims under applicable State worker's compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The Contractor shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a worker's compensation

law. This policy shall include an "all states" endorsement. The liability limits shall be not less than the following:

Worker's Compensation	Statutory Limits
Employer's Liability	\$100,000 each accident
	\$100,000 each employee
	\$500,000 policy limit

2. "Business Automobile Liability." This insurance shall be written in comprehensive form and shall protect the Contractor, Contractor's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$500,000 Combined Single Limit
---------------------------------	---------------------------------

3. "Comprehensive General Liability." The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$ 500,000 each occurrence
	\$1,000,000 aggregate

4. "Umbrella Liability Insurance." This insurance shall protect the Contractor against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$1,000,000 each occurrence
	\$1,000,000 general aggregate

5. Additional Requirements. The City may require insurance covering a Contractor or Subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Contractor or Subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Contractor of all obligations under the contract.

The Contractor shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. Certificate of Insurance. Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this contract. The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Contractor cannot have the "endeavor to" language stricken, the Contractor may elect to provide a new certificate of insurance every thirty (30) days during the contract. The Contractor shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.

7.12 Proof of Carriage of Insurance. Satisfactory certificates of insurance shall be filed with the City prior to starting any construction work on this contract. The certificates shall show the City as "Additionally Insured." The certificates shall state that thirty (30) days written notice shall be given to the City before any policy covered thereby is changed or canceled (strike the "endeavor to" wording often shown on certificate forms).

7.13 Contractor's Responsibility for Utility Property and Services. At points where the Contractor's operations are adjacent to properties of railway, telegraph, telephone, and power companies or adjacent to other property to which damage might result, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

The Contractor shall cooperate with the owners of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

In the event of interruption to water or utility services as a result of accidental breakage or as result of being exposed or unsupported, the Contractor shall promptly notify the proper authority. Contractor shall cooperate with said authority in the restoration of service as promptly as possible. In no case shall interruption to water service be allowed to exist outside of working hours. Fire hydrants shall be kept accessible to the Fire Department at all times and no materials shall be kept or stockpiled within fifteen (15) feet of any fire hydrant.

The Contractor must cooperate with the utility companies and schedule work in such a manner as to protect the existing utility facilities until the facilities are abandoned or replacement facilities are completed. In instances where partial grading is necessary before a utility can install its facilities, the Contractor shall consult with the utility and plan the work so reasonable time can be allowed the utility for completing its work.

7.14 No Waiver of Legal Rights. The City shall not be precluded or estopped by any measurement, estimate, or certificate made either before or after the completion and acceptance of the work and payment therefor from showing the true amount and character of the work performed and materials furnished by the Contractor, nor from showing that such measurement, estimate, or certificate is untrue or is incorrectly made, nor that the work or materials do not in fact conform to the contract. The City shall not be precluded or estopped, notwithstanding any such measurement, estimate, or certificate and payment in accordance therewith, from recovering from the Contractor or Contractor's sureties, or both, such damage as it may sustain by reason of Contractor's failure to comply with the terms of the contract. Neither the acceptance by the City or any representative of the City, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, nor any possession taken by the City shall operate as a waiver of any portion of the contract or of any power herein reserved or of any right to damages. A waiver of any breach of the contract shall not be held to be a waiver of any other or subsequent breach.

7.15 Exposure of Pipe or Manholes. The Contractor shall conduct the work at all times in such a manner as will insure no disruption to the normal function of the sanitary sewer collection system. Particular attention shall be paid to the threat of introduction of storm water or other waters to the piping and manholes of the collection system. The Contractor shall take whatever precautions are necessary, such as, but not limited to installation of plugs in exposed pipes and manholes when work is not in progress or when leaving the work site. The Contractor will be held responsible for damages which may occur to either the collection system or to private property through introduction of storm water or other waters to exposed piping or manholes relating to the construction work.

## **SECTION 8 - PROSECUTION AND PROGRESS**

8.01 Subletting or Assigning of Contract. The Contractor will not be permitted to sublet, assign, sell, transfer, or otherwise dispose of the contract or any portion thereof or Contractor's right, title, or interest therein or to either legally or equitably assign any of the money payable under Contractor's contract or claim thereto without the written consent of Contractor's surety and the Engineer. The Contractor will not be relieved of any responsibility through any of the above actions.

8.02 Prosecution of Work. The bid for each project will show the contract period. The progress of the work shall be at a rate sufficient to complete the contract within the contract period. If it appears that the rate of progress is such that the contract will not be completed within the contract period or if the work is not being executed in a satisfactory and workmanlike manner, the City may order the Contractor to take such steps as it considers necessary to complete the contract within the period of time specified or to prosecute the work in a satisfactory manner. If the Contractor fails to comply with such order within two (2) weeks after receipt of the order, Contractor shall automatically be disqualified from receiving any additional contract awards, and the City shall have the right to declare the contract in default and to complete the work in accordance with these specifications under section entitled Abrogation.

The Contractor's sequence of operations shall be such as to cause as little inconvenience to the general public as possible.

The Contractor will be granted additional and suitable time for the prosecution of the work, as was lost by reason of a delay or delays attributable to other parties authorized to do work on the project over which the Contractor had no control or jurisdiction, as provided in these specifications under section entitled Extension of Contract Period.

8.03 Limitations of Operations. The Contractor shall conduct the work at all times in such a manner and in such sequence as will insure the least interference with traffic. Contractor shall have due regard to the location of detours and to the provisions of handling traffic. Contractor shall not open up work to the prejudice of work already started, and the Engineer may require the Contractor to finish a section on which work is in progress before work is started on any additional section. The Contractor shall so conduct operations and maintain the work in such condition that adequate drainage shall be in effect at all times.

8.04 Methods and Equipment. The methods, equipment, and appliances used shall produce a satisfactory quality of work and shall be adequate to maintain the schedule of progress specified. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property, or other streets will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that is demonstrated to accomplish the contract work in conformity with the requirements of the contract to the satisfaction of the Engineer.

When the contract specifies that the construction be performed by the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than those specified in the contract, a request may be made to the Engineer for authority to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the contractor will be fully responsible for producing construction work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not

meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining construction with the specified methods and equipment. The Contractor shall remove the deficient work and replace it with work of specified quality or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved nor in contract time as result of authorizing a change in methods or equipment under these provisions.

8.05 Temporary Suspension of Work. Work shall be suspended wholly or in part when, in the opinion of the Engineer, weather or other conditions are unfavorable to its satisfactory prosecution. Work shall also be suspended at the direction of the Engineer pending settlement of disputes arising out of failure of the Contractor to comply with the provisions of the contract. Written notice of suspension of work shall be given by the Engineer. When the conditions causing suspension no longer exist, such written notice shall be given to the Contractor by the Engineer. Promptly after such written notice, the Contractor shall resume prosecution of the work as provided in these specifications under section entitled Prosecution of Work.

8.06 Liquidated Damages. Time is an essential element of the contract, and it is important that the work be pressed vigorously to completion.

For each calendar day that any work shall remain uncompleted after the end of the contract period, the amount per calendar day specified in the bid form will be assessed, not as a penalty but as predetermined and agreed liquidated damages. The City will prepare and forward to the Contractor an invoice for such liquidated damages. The final payment will be withheld until payment shall have been made of this invoice.

Due account shall be taken of any adjustment of the contract period granted under the section of these specifications entitled Extension of Contract Period.

The assessment of liquidated damages for failure to complete the work within the contract period shall not constitute a waiver of the City's right to collect any additional damages which the City may sustain by failure of the Contractor to carry out the terms of the contract.

8.07 Extension of Contract Period. An extension of the contract period may be granted by the City for any of the following reasons:

1. Additional work resulting from a modification of the plans for the project
2. Delays caused by the City
3. Other reasons beyond the control of the Contractor which, in the City's judgment, would justify such extension.

No extension of contract period will be allowed for variations between contract quantities and actual quantities which cannot be predetermined and which amount to less than twenty percent (20%) of the contract quantities.

8.08 Abrogation. If the Contractor abandons, sublets, or assigns the work under this contract without the consent of the City, or if Contractor fails to give - personal attention to it, or if it is the Engineer's opinion, and is so certified in writing to the Contractor and the City, that the Contractor is violating any of the provisions of this contract or that Contractor is not prosecuting the work in good faith or at the rate of progress specified, or that Contractor has unnecessarily or unreasonably delayed or neglected the work or any part of it, written notice to that effect is to be given to the Contractor by the Engineer. After such notice, no materials or equipment shall be removed from the work. If, within five (5) days thereafter, the Contractor does not take steps, which in the judgment of the Engineer will insure the satisfactory completion of the work, then the City may declare this contract null and void and the security forfeited and may notify the Contractor in writing to discontinue the work or any part of it; thereupon ceasing the Contractor's right of possession of the ground and of all materials and equipment thereon. The City then, at



their option, may enter upon and take possession of the work with all materials, supplies, and equipment remaining thereon and by contract or otherwise, as the City may determine, may complete the work or the part of it designated and charge the expense thereof to the Contractor using any materials or equipment found on the site. The expense so charged, together with all damages incurred, will be deducted from any funds due or to become due under this contract and, should the unexpended balance of these funds be insufficient, the excess shall be at the cost of the Contractor and sureties on the Contractor's bond. Neither completion of a part of the work nor the extension for any reason of the time of the completion of the work is to be considered a waiver of this right to abrogate the contract for abandonment, delay, or unsatisfactory work.

8.09 Termination of Contractor's Responsibility. The contract shall be considered completed when the work has been accepted in writing by the City. Such acceptance shall release the Contractor from all further obligation with respect thereto, except as to conditions and requirement set forth in Contractor's bond.

## **SECTION 9 - MEASUREMENT AND PAYMENT**

9.01 Payments. Payments for estimated work completed will be made only on certificates of the Engineer at a regular City Council meeting.

The City, at its discretion, may include in such estimates payments for materials that will eventually be incorporated in the project, provided that such materials are suitably stored on the site of the project at the time of preparing estimates for payment. Such payment is to be based upon the estimated value thereof as ascertained by the Engineer. Such material when so paid for by the City shall not be removed from the project without consent of the City and, in case of default on the part of the Contractor; the City may use or cause to be used by others these materials in construction of the project.

The City will retain five percent (5%) of the estimated amount of work executed in an approved manner and of the approved materials and apparatus suitably stored on the site.

Payment of the retained five percent (5%) will be made within sixty (60) days after the formal approval and acceptance by the Engineer of all apparatus, materials, and work embraced in the contract.

9.02 Payments Withheld. The City may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect itself from loss on account of:

1. Defective work not remedied
2. Claims filed or reasonable evidence indicating probable filing of claims
3. Failure of the Contractor to make payments properly to subcontractors or for materials or labor
4. A reasonable doubt that the contract can be completed for the balance then unpaid
5. Damage to another contractor.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

9.03 Acceptance and Final Payment. If final inspection reveals that all details of the work have been completed satisfactorily, the Engineer shall tentatively accept the work, in writing, relieving the Contractor of further responsibility for the care and maintenance of the completed work and, provided that all equipment and materials have been removed from the right-of-way, shall also relieve the Contractor of further public liability. As soon as possible after tentative

acceptance of the work, the Engineer shall measure the completed work and compute the quantities of work for which payment is to be made. Before final settlement is made, the City shall be satisfied with the completed work. When the Engineer is satisfied that all items of the work have been found to be consistent with the terms of the contract and specifications, a final estimate including the retained percentage due the Contractor shall be released for payment. Release of the final estimate shall constitute final acceptance of the work.

All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

Extra work - See these specifications under section entitled Extra Work.

9.04 Payment for Extra Work. The Contractor will receive and accept payment for work performed under the contract as follows:

1. Items of work performed which are covered by definite prices stipulated in the contract. For all items of work performed which are covered by definite unit prices or lump sum amounts specified in the contract, the Contractor shall receive and accept compensation at the rate specified in the contract.

2. Extra work ordered by the Engineer, of a quality or class not covered by the contract, will be paid for at an agreed price. For extra work ordered by the Engineer and performed on an agreed price basis, the Engineer and the Contractor shall enter into a written agreement, and have City Council approval, before such work is undertaken. This written agreement shall describe the extra work that is to be done and shall specify the agreed price or prices therefore.

**Revised 1-25-2011**

## Technical Specifications Table of Contents

01005 – Administrative Provisions

01300 – Submittals

01400 – Quality Control

01500 – Construction Facilities & Temporary Controls

01600 – Materials & Equipment

01700 – Contract Closeout

01800 – Measurement & Payment

09960 – High-Performance Coatings

SECTION 01005  
ADMINISTRATIVE PROVISIONS

PART 1        GENERAL

1.1        REQUIREMENTS INCLUDED

- A.    Work Covered by Contract Documents.
- B.    Contract Method.
- C.    Work Sequence.
- D.    Owner Occupancy
- E.    Easements and Rights-of-Way
- F.    Responsibility for Materials and Equipment
- G.    Contractor Use of Premises.
- H.    Schedule of Values.
- I.    Applications for Payment.
- J.    Coordination.
- K.    Lines and Grades.
- L.    Preconstruction Conference.
- M.    Progress Meetings.
- N.    Reference Standards.
- O.    Cutting and Patching
- P.    Correction Period.
- Q.    Unfavorable Construction Conditions.
- R.    Permits.

## 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. This project consists of the cleaning and rehabilitation of approximately 81 existing sanitary sewer manholes which includes excavation of existing manhole, manhole cleaning, manhole repair, concrete removal and replacement, manhole coatings, manhole leak repair, bypass pumping, traffic control, and associated incidental items of work as specified herein and indicated on the drawings for an acceptable and complete installation.

## 1.3 CONTRACT METHOD

- A. Construct the work on a unit price basis.
- B. Minor items necessary to provide complete, serviceable facilities shall be included in the bid and furnished even if not specifically called for in the plans and specifications.

## 1.4 WORK SEQUENCE

- A. Contractor shall plan, schedule, and coordinate his operations in a manner which will facilitate the simultaneous progress of each item of work as identified for this contract.
- B. Coordinate construction schedule and operations with Engineer, Owner, and other construction contracts.
- C. Provide Engineer with work sequence and schedule of construction before beginning to construct for review and comment.
- D. Existing sanitary sewer system to remain operational during the construction.

## 1.5 OWNER OCCUPANCY

- A. Cooperate with Owner to minimize conflict, and to facilitate Owner's access if required.

## 1.6 EASEMENTS AND RIGHTS-OF-WAY

- A. The easements and rights-of-way for the proposed utilities will be provided by Owner. Contractor shall confine his construction operations within the easements and rights-of-way, and shall use due care in placing construction tools, equipment, excavated materials, and construction materials and supplies, so as to cause the least possible damage to property and interference with traffic.

### 1. On Private Property

- a. Easements across private property can be found on the City of Grand Islands GIS website. Contractor shall set stakes to mark the boundaries of construction easement across private property. The stakes shall be protected and maintained until completion of construction and cleanup.

- b. Contractor shall not enter for delivery or occupy for any other purpose with men, tools, equipment, construction materials, or with materials excavated from the excavation area, any private property outside the designated construction easement boundaries without written permission from the Owner and Tenant of the property.
- c. Backfill and cleanup operations shall immediately follow the excavation to the extent possible.
- d. Where wooded or grassed areas are disturbed by construction, Contractor shall relevel the area, reestablish drainage courses, and seed the areas with grass. Access roads shall be restored to their existing condition.

2. Work Within the City of Grand Island Street Right-of-Way

- a. All roadways and driveways which are disturbed shall be restored to their original condition in accordance with the roadway Owner's requirements. Surfacing shall match existing, as specified in these contract documents.
- b. Any interruption in water, sewer, electricity, or telephone service shall be limited. The Contractor shall make all the necessary arrangements for the restoring of service in the shortest practical time.
- c. Contractor shall conduct his work in conformance with provisions of the Maintenance of Traffic subsection of the Temporary Facilities section.

B. Save the Owner and its agents harmless for all damages resulting from disruption of private or public property outside the designated lands for work.

C. Traffic Control

- 1. The Contractor must setup and maintain any necessary traffic control devices prior to commencing work.
- 2. Disruption to normal traffic flow should be completed in accordance with the current Manual on Uniform Traffic Control Devices (MUTCD).

1.7 RESPONSIBILITY FOR MATERIALS AND EQUIPMENT

A. Items Furnished by Contractor:

- 1. Contractor shall be fully responsible for all materials and equipment which he has furnished.

1.8 CONTRACTOR USE OF PREMISES

A. Limit use of premises for Work and for construction operations to area designated for

construction purposes.

- B. Coordinate use of premises under direction of Owner.
- C. Contractor is responsible for all damages results from disruption of private or public property outside the designated lands for work.

#### 1.9 SCHEDULE OF VALUES

- A. Submit typed schedule on Contractor's standard form or electronic media printout.
- B. Submit schedule of values in duplicate within 15 days after date of Owner-Contractor Agreement.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification section. Identify site mobilization, bonds and insurance. The format, level of detail, and breakdowns of the schedule of values shall be acceptable to the Engineer.
- D. Include in each line item, the amount of allowances specified in this section as appropriate.
- E. Include within each line item, a directly proportional amount of Contractor's overhead and profit.
- F. An unbalanced schedule of values providing for overpayment of Contractor on items of work performed first will not be accepted.
- G. A schedule of values submitted that in the opinion of the Engineer is in an unacceptable format, contains an insufficient level of detail, or inappropriate breakdown of items for payment shall not be accepted.
- H. Contractor shall revise and resubmit unacceptable schedule of values as required until the schedule of values is acceptable to the Engineer.
- I. No progress payments shall be made to the Contractor until an acceptable schedule of values has been received and accepted by the Engineer.
- J. Revise schedule to list approved change orders with each application for payment.

#### 1.10 APPLICATIONS FOR PAYMENT

- A. Submit three (3) copies of each application on Engineer approved format. Electronic (i.e., PDF) submissions are also acceptable.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for

Payment.

- C. Payment Period: Each City Council Meeting.
- D. Include three (3) copies of an updated construction progress schedule. Electronic (i.e., PDF) submissions are also acceptable.

#### 1.11 COORDINATION

- A. Coordinate work of the various Sections of Specifications and other construction contracts to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.
- B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Execute cutting and patching to integrate elements of Work, uncover ill-timed, defective, and non-conforming work, and provide samples for testing.
- D. Coordinate completion and clean-up of work of separate sections in preparation for Substantial Completion.
- E. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- F. Where individual sewer services will be temporarily unavailable, the Contractor shall coordinate with each individual service or homeowner regarding limitations for or restrictions of use. Contractor shall provide information to businesses or homeowners a minimum of one (1) week in advance via door hangers or other information. This effort shall be coordinated with the City's communication efforts regarding the project.

#### 1.12 PRECONSTRUCTION CONFERENCE

- A. Prior to the commencement of Work at the site, a preconstruction conference will be held at a mutually agreed time and place. The conference shall be attended by:
  - Contractor and his superintendent
  - Principal subcontractors.
  - Representatives of principal suppliers and manufacturers as appropriate.
  - Engineer and his Resident Project Representative.
  - Representatives of Owner.
  - Governmental representatives as appropriate.
  - Others as requested by Contractor, Owner, or Engineer.
- B. Unless previously submitted to Engineer, Contractor shall bring to the conference a tentative schedule for each of the following:
  - Progress.



- Procurement.
  - Values for progress payment purposes.
  - Shop drawings and other submittals.
- C. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:
- Contractor's tentative schedules.
  - Transmittal, review, and distribution of Contractor's submittals.
  - Processing applications for payment.
  - Maintaining record documents.
  - Critical Work sequencing.
  - Field decisions and Change Orders.
  - Use of premises, office and storage areas, security, housekeeping, and Owner's needs.
  - Major equipment deliveries and priorities.
  - Contractor's assignments for safety and first aid.
- D. Engineer will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

#### 1.13 PROGRESS MEETINGS

- A. Engineer will schedule and administer meetings throughout progress of the Work at monthly intervals.
- B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Engineer, as appropriate to agenda topics for each meeting.
- D. Agenda:
1. Review minutes of previous meeting.
  2. Review of Work progress.
  3. Field observations, problems, and decisions.
  4. Identification of problems which impede planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Review of off-site fabrication and delivery schedules.
  7. Planned progress during succeeding work period.
  8. Coordination of projected progress.
  9. Maintenance of quality and work standards.
  10. Effect of proposed changes on progress schedule and coordination.
  11. Other business relating to Work.
- E. Engineer will record minutes and distribute copies to participants.

#### 1.14 REFERENCE STANDARDS

- A. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. The date of the standard is that in effect as of the Bid date, or date of Owner-Contractor Agreement when there are no bids, except when a specific date is specified.
- C. Obtain copies of standards when required by Contract Documents. Maintain copy at jobsite during progress of the specific work.

#### 1.15 CUTTING & PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affect:
  - 1. Structural integrity of element.
  - 2. Integrity of weather-exposed or moisture-resistant elements.
  - 3. Efficiency, maintenance, or safety of element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
  - 1. Fit the several parts together, to integrate with other Work.
  - 2. Uncover Work to install or correct ill-timed Work.
  - 3. Remove and replace defective and non-conforming Work.
  - 4. Remove samples of installed Work for testing.
  - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- E. Cut masonry and concrete materials using masonry saw or core drill.

- F. Restore Work with new Products in accordance with requirements of Contract Documents.
- G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- J. Identify hazardous substances or conditions exposed during the Work to the Engineer for decision or remedy.

#### 1.16 CORRECTION PERIOD

- A. Correct all defective work for one year after final acceptance of the project.
- B. Promptly repair or replace at no cost to the Owner all defects in material or workmanship which may appear during the correction period.

#### 1.17 UNFAVORABLE CONSTRUCTION CONDITIONS

- A. During unfavorable weather, wet ground, or other unsuitable construction conditions, the Contractor shall confine his operations to work which will not be affected adversely by such conditions. No portion of the work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by the Contractor to perform the work in a proper and satisfactory manner.

#### 1.18 PERMITS

- A. No permits are required for this project.

### PART 2 PRODUCTS

Not Used.

### PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 01300

### SUBMITTALS

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Submittal Procedures.
- B. Construction Progress Schedules.
- C. Proposed Products List.
- D. Product Data.
- E. Shop Drawings.
- F. Samples.
- G. Design Data.
- H. Test Reports.
- I. Certificates.
- J. Manufacturer's Instructions.
- K. Manufacturer's Field Reports.

##### 1.2 RELATED SECTIONS

- A. Section 01005 - Administrative Provisions.
- B. Section 01400 – Quality Control: Manufacturer’s field services and reports.
- C. Section 01700 – Contract Closeout: Contract warranties, bonds, manufacturers’ certificates, and closeout submittals.

##### 1.3 REFERENCES

- A. AGC (Associated General Contractors of America) publication "The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry".

## 1.4 SUBMITTAL PROCEDURES

- A. Submit the number of copies which the Contractor requires, plus three (3) copies which will be retained by the Engineer, using Engineer accepted form. Electronic (i.e., PDF) submissions are also acceptable.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.
- F. For each submittal for review, allow 21 days excluding delivery time to and from the contractor.
- G. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- H. Provide space for Contractor and Engineer review stamps.
- I. When revised for resubmission, identify all changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- K. Submittals not requested will not be recognized or processed.
- L. Contractor's stamp of approval is a representation to Owner and Engineer that Contractor accepts full responsibility for determining and verifying all quantities, dimensions, field construction data, materials, catalog numbers, and similar data, and that he has reviewed and coordinated each submittal with the requirements of the Work and the Contract Documents.
- M. For each section of the specifications, the initial submittal shall be completed for all items and components contained within the section of the specifications. Contractor shall accept full responsibility for the completeness of each submission. When an item consists of components from several sources, Contractor shall submit a complete initial submittal including all components.

## 1.5 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedule in duplicate within 15 days after date of Owner-Contractor Agreement.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a chart with separate line for each major portion of Work or operation identifying first work day of each week.

## 1.6 PROPOSED PRODUCTS LIST

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

## 1.7 PRODUCT DATA

- A. Product Data For Review:
  - 1. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
  - 2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.
- B. Product Data For Information:
  - 1. Submitted for the Engineer's knowledge as contract administrator or for the Owner.
- C. Product Data For Project Close-out:
  - 1. Submitted for the Owner's benefit during and after project completion.
- D. Submit the number of copies which the Contractor requires, plus three copies which will be retained by the Engineer. Electronic (i.e., PDF) submissions are also acceptable.

- E. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- F. Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- G. After review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 - Contract Closeout.

## 1.8 SHOP DRAWINGS

### A. Shop Drawings For Review:

- 1. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- 2. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - Contract Closeout.

### B. Shop Drawings For Information:

- 1. Submitted for the Engineer's knowledge as contract administrator for the Owner.

### C. Shop Drawings For Project Close-out:

- 1. Submitted for the Owner's benefit during and after project completion.

### D. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

### E. Submit the number of opaque reproductions which Contractor requires, plus three copies which will be retained by Engineer. Electronic (i.e., PDF) submissions are also acceptable.

## 1.9 SAMPLES

### A. Samples For Review:

- 1. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- 2. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - Contract Closeout.

B. Samples For Information:

1. Submitted for the Engineer's knowledge as contract administrator for the Owner.

C. Samples For Selection:

1. Submitted to Engineer for aesthetic, color, or finish selection.
2. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Engineer selection.
3. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - Contract Closeout.
4. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

D. Include identification on each sample, with full Project information.

E. Submit the number of samples specified in individual specification sections; one of which will be retained by Engineer.

F. Reviewed samples which may be used in the Work are indicated in individual specification sections.

G. Samples will not be used for testing purposes unless specifically stated in the specification section.

1.10 DESIGN DATA

A. Submit for the Engineer's knowledge as contract administrator for the Owner.

B. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.11 TEST REPORTS

A. Submit for the Engineer's knowledge as contract administrator for the Owner.

B. Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.



## 1.12 CERTIFICATES

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

## 1.13 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- C. Refer to Section 01400 - Quality Control, Manufacturers' Field Services article.

## 1.14 MANUFACTURER'S FIELD REPORTS

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

## PART 2 PRODUCTS

Not Used.

## PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 01400

### QUALITY CONTROL

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Quality assurance - control of installation.
- B. Tolerances
- C. References and standards.
- D. Mock-up.
- E. Testing services.
- F. Inspection services.

##### 1.2 RELATED SECTIONS

- A. Section 01300 - Submittals: Submission of manufacturers' instructions and certificates.
- B. Section 01600 - Material and Equipment: Requirements for material and product quality.

##### 1.3 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

- G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

#### 1.4 TOLERANCES

- A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

#### 1.5 REFERENCES AND STANDARDS

- A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date for receiving bids, except where a specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

#### 1.6 MOCK-UP

- A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be a comparison standard for the remaining Work.
- D. Where mock-up has been accepted by Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

#### 1.7 TESTING SERVICES

- A. Owner will appoint and pay services of an independent firm to perform inspections and tests where services are not required by various specification sections to be required by the Contractor. Anticipated Owner supplied testing includes concrete testing, grout testing, and compaction testing.

- B. Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the Engineer or the Owner.
- C. Reports will be submitted by the testing firm to the Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- D. Cooperate with testing firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
  - 1. Notify Engineer and testing firm 48 hours prior to expected time for operations requiring services.
  - 2. Make arrangements with testing firm and pay for additional samples and tests required for Contractor's use.
- E. Testing does not relieve Contractor to perform Work to contract requirements.
- F. Re-testing required because of non-conformance to specified requirements shall be performed by the same testing firm on instructions by the Engineer. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum/Price.

## 1.8 INSPECTION SERVICES

- A. Owner will appoint Engineer to perform inspection, on an as-needed basis.
- B. Engineer will perform inspections and other services specified in individual specification sections.
- C. Inspecting may occur on or off the project site.
- D. Reports will be submitted indicating inspection observations and indicating compliance or non-compliance with Contract Documents.
- E. Cooperate with Engineer; furnish safe access and assistance by incidental labor as requested.
- F. Notify Engineer prior to expected time for operations requiring services.
- G. Inspecting does not relieve Contractor to perform Work to contract requirements.

## PART 2 PRODUCTS

Not Used.

## PART 3 EXECUTION

### 3.1 EXAMINATION

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

### 3.2 PREPARATION

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

END OF SECTION

## SECTION 01500

### CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

#### PART 1 GENERAL

##### 1.1 REQUIREMENTS INCLUDED

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
- C. Construction Facilities: Access roads, parking, and progress cleaning.

##### 1.2 RELATED SECTIONS

- A. Section 01005 - Administrative Provisions: Contractor use of premises.
- B. Section 01700 - Contract Closeout: Final cleaning.

##### 1.3 ELECTRICITY, LIGHTING

- A. Provide service and electricity required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords.
- B. Provide separate metering for billing purposes.
- C. Contractor shall pay for power service required from utility source or temporary portable service.
- D. Provide lighting for construction operations.
- E. Existing and permanent lighting may be used during construction. Maintain lighting and make routine repairs.

##### 1.4 HEAT AND VENTILATION

- A. Provide and pay for heating devices and heat as needed to maintain specified conditions for construction operations.
- B. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

## 1.5 WATER

- A. All water required for and in connection with the work to be done under this contract will be the responsibility of the Contractor. Contractor shall be responsible for all piping and equipment required.
- B. Connection must meet City requirements for backflow protection and metering.

## 1.6 SANITARY FACILITIES

- A. Furnish temporary sanitary facilities at the site for the needs of all construction workers and others performing work or furnishing services on the project. Maintain facilities in a sanitary condition.

## 1.7 BARRIERS

- A. Provide as required to prevent public entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. All streets, roads, highways, and other public thoroughfares which are closed to traffic shall be protected by effective barricades on which shall be placed acceptable warning signs. Barricades shall be located at the nearest intersecting public highway or street on each side of the blocked section.
- C. All open trenches and other excavations shall have suitable barricades, signs, and lights to provide adequate protection to the public. Obstructions such as material piles and equipment shall be provided with similar warning signs and lights.
- D. All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise. Material storage and conduct of the Work on or alongside public streets and highways shall cause the minimum obstruction and inconvenience to the traveling public.
- E. All barricades, signs, lights, and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and, where within railroad and highway rights-of-way, as required by the authority having jurisdiction thereover.
- F. Maintain access to all residences as required by the Owner.
- G. Provide protection for plants designated to remain. Replace damaged plants.
- H. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

## 1.8 FENCING

- A. Construction: Contractor's Option.

## 1.9 ENCLOSURES

- A. Provide temporary weather-tight closures of openings in exterior surfaces to provide acceptable working conditions and protection for materials, to allow for temporary heating, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

## 1.10 PROTECTION OF INSTALLED WORK

- A. Provide temporary and removable protection for installed products. Control activity in immediate area to minimize damage.
- B. Protect installed Work and provide special protection where specified in individual specification sections.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic from landscaped areas.

## 1.11 SECURITY

- A. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.

## 1.12 WATER CONTROL

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

## 1.13 LAND FOR CONSTRUCTION PURPOSES

- A. Perform all work within the rights-of-way or easements for limits of construction indicated on the drawings.
- B. The Contractor will be permitted to use available land belonging to the Owner, on or near the site of the work, for construction purposes and for the storage of materials and



equipment. The location and extent of the areas so used shall be designated by the Owner. Contractor shall be allowed to use the City WWTP facility for storage area during the project.

- C. The Contractor shall be solely responsible for obtaining and shall pay all costs in connection with any additional work area, storage site, access to the site, or temporary right-of-way which may be required for proper completion of the work.
- D. It shall be understood that the responsibility for protection and safekeeping of equipment and materials on or near the site will be entirely that of the Contractor and that no claims shall be made against the Owner by reason of any act of an employee or trespasser. It shall be further understood that should any occasion arise necessitating access to the sites occupied by these stored materials and equipment, the Contractor owning or responsible for the stored materials or equipment shall immediately move same. No materials or equipment may be placed upon the property of the Owner until the Owner has agreed to the location contemplated by the Contractor to be used for storage.

#### 1.14 TREE AND PLANT PROTECTION

- A. All trees and other vegetation which must be removed to perform the work shall be removed and disposed of by Contractor; however, no trees or cultured plants shall be unnecessarily removed unless their removal is indicated on the drawings.
- B. All trees and plants not removed shall be protected against injury from construction operations.
- C. Contractor shall take extra measures to protect trees designated by the Engineer or Owner to be preserved, such as erecting barricades, trimming to prevent damage from hand excavation or tunneling methods. Such trees shall not be endangered by stockpiling excavated material or storing equipment against the trunk.
- D. When the injury or removal of trees designated to be preserved cannot be avoided, or when removal and replacement is indicated on the drawings, each tree injured beyond repair or removed shall be replaced with a similar tree of the nearest size possible.
- E. All trimming, repair, and replacement of trees and plants shall be performed by qualified nurserymen or horticulturists.

#### 1.15 DUST CONTROL

- A. Contractor shall take reasonable measure to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. Dusty materials in piles or in transit shall be covered when practicable to prevent blowing.

- B. Buildings or operating facilities which may be affected adversely by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels or similar equipment, shall be protected by suitable dust screen. Proper ventilation shall be included with dust screen.

#### 1.16 EROSION CONTROL

- A. Contractor shall prevent erosion of soil on the site and adjacent property resulting from his construction activities. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operation that will disturb the natural protection.
- B. Work shall be scheduled to expose areas subject to erosion for the shortest possible time, and natural vegetation preserved to the greatest extent practicable. Temporary storage and construction buildings shall be located, and construction traffic routed, to minimize erosion. Temporary fast-growing vegetation or other suitable ground cover shall be provided as necessary to control runoff.
- C. Contractor is responsible for a construction site Stormwater Pollution Prevention Plan and permit, if necessary.
- D. Maintain erosion control and sedimentation control measures implemented as part of NPDES permit, if applicable.

#### 1.18 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

- A. Contractor shall protect, shore, brace, support and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by his construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and shrubs in yards and parkings, shall be restored to their original condition, whether within or outside the easement. All replacements shall be made with new materials.
- B. No trees shall be removed outside of the permanent easement or right-of-way, except where authorized by Engineer. Whenever practicable, Contractor shall tunnel beneath trees in yards and parks when on or near the line of trench. Hand excavation shall be employed as necessary to prevent injury to trees. Trees left standing shall be adequately protected against damage by construction operations.
- C. Contractor shall be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges, and other public or private property, regardless of location or character, which may be caused by transporting equipment, materials, or men to or from the Work or any part or site thereof, whether by him or his Subcontractors. Contractor shall make satisfactory and acceptable arrangements with the owner of, or the agency or authority having jurisdiction over, the damaged property concerning its repair or replacement or payment of costs incurred in connection with the

damage.

#### 1.19 MAINTENANCE OF TRAFFIC

- A. Conduct work to interfere as little as possible with public travel, whether vehicular or pedestrian.
- B. When necessary to cross, obstruct, or close roads, driveways, and walks; Contractor shall provide suitable bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them.
- C. In making open street crossings, Contractor shall not block more than one-half of the street at a time. Whenever possible, Contractor shall widen shoulder on opposite side to facilitate traffic flow.

#### 1.20 PARKING

- A. Provide temporary gravel surface parking areas to accommodate construction personnel.

#### 1.21 CONNECTIONS TO EXISTING FACILITIES

- A. Contractor shall make all necessary connections to existing facilities including structures and utilities such as water, sewer, and electric. Contractor shall protect facilities against deleterious substances and damage.
- B. Connections to the existing facilities which are in service shall be thoroughly planned in advance and all required equipment, materials, and labor shall be on hand. Work shall proceed continuously to complete connections in minimum time.
- C. Contractor shall provide temporary facilities and make temporary modifications as required to keep existing facilities in operation during construction. Contractor shall be responsible for any diversion of flows and/or pumping required to keep existing utilities in service during construction.

#### 1.22 CLEANING DURING CONSTRUCTION

- A. Control accumulation of waste materials and rubbish; weekly dispose of off-site.
- B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.
- C. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- D. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

- E. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

#### 1.23 REMOVAL

- A. Remove temporary materials, equipment, utilities, and facilities prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Grade site and restore existing facilities used during construction to original condition.
- D. Restore permanent facilities used during construction to specified condition.

#### 1.24 FIELD OFFICES & SHEDS

- A. Office: Contractor's option.

### PART 2 PRODUCTS

Not Used.

### PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 01600

### MATERIAL AND EQUIPMENT

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

##### 1.2 RELATED SECTIONS

- A. Instructions to Bidders: Product options and substitution procedures.
- B. Section 01400 - Quality Control: Product quality monitoring.

##### 1.3 PRODUCTS

- A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- B. Provide interchangeable components of the same manufacture for components being replaced.

##### 1.4 TRANSPORTATION AND HANDLING

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

##### 1.5 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturers' instructions.

- B. Store with seals and labels intact and legible.
- C. Store sensitive Products in weather tight, climate controlled, enclosures in an environment favorable to Product.
- D. For exterior storage of fabricated Products, place on sloped supports above ground.
- E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- F. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.
- G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

#### 1.6 PRODUCT OPTIONS

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

#### 1.7 SUBSTITUTIONS

- A. Engineer will consider requests for Substitutions only within 15 days after date of Owner-Contractor Agreement.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

- D. A request constitutes a representation that the Contractor:
1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
  2. Will provide the same warranty for the Substitution as for the specified Product.
  3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  4. Waives claims for additional costs or time extension which may subsequently become apparent.
  5. Will reimburse Owner and Engineer for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
  2. Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
  3. The Engineer will notify Contractor in writing of decision to accept or reject request.

## PART 2 PRODUCTS

Not Used.

## PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 01700

### CONTRACT CLOSEOUT

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.
- E. Warranties and bonds.

##### 1.2 RELATED SECTIONS

- A. Section 01500 - Construction Facilities and Temporary Controls: Progress cleaning.

##### 1.3 CLOSEOUT PROCEDURES

- A. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.
- B. Owner will occupy designated portion of Project for the purpose of installation of equipment, conduct of business, under provision stated in Certificate of Substantial Completion.
- C. When Contractor considers Work to be complete, submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- D. Engineer will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.
- E. Final payment on the contract will not be authorized until all required documentation submittals are made and approved.

##### 1.4 FINAL CLEANING

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



- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

#### 1.5 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

#### 1.6 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed Shop Drawings, Product Data, and Samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and modifications.
- F. Record Drawings: Legibly mark each item to record actual construction including:

1. Measured depths of foundations in relation to finish floor datum.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
4. Field changes of dimension and detail.
5. Details not on original Contract drawings.

G. Submit documents to Engineer with claim for final Application for Payment.

#### 1.7 WARRANTIES AND BONDS

- A. Provide duplicate notarized copies.
- B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in binder with durable cloth cover.
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

#### PART 2 PRODUCTS

Not Used.

#### PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 01800

### MEASUREMENT AND PAYMENT

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Measurement and payment criteria applicable to portions of the Work performed where unit price adjustments are provided.
- B. Defect assessment and non-payment for rejected work.

##### 1.2 AUTHORITY

- A. The Engineer will take all measurements and compute quantities accordingly.
- B. Assist by providing necessary equipment, workers, and survey personnel as required.

##### 1.3 ADJUSTMENT UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer determine final payment.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit prices contracted.
- C. If the actual Work requires a 25 percent or greater change in quantity than those quantities indicated, the Owner or Contractor may claim for a Contract Price adjustment.

##### 1.4 MEASUREMENT OF QUANTITIES

- A. Measurement Devices:
  - 1. Weigh Scales: Inspected, tested and certified by the State of Nebraska Weights and Measures department within the past year.
  - 2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
  - 3. Metering Devices: Inspected, tested and certified by the applicable State department within the past year.

- B. Measurement by Weight: Measured by actual scale ticket weight for specific items identified.
- C. Measurement by Volume: Measured by actual area and depth of in place material.
- D. Measurement by Area: Measured by square dimension using mean length and width or radius.
- E. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.
- F. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

#### 1.5 PAYMENT

- A. Payment Includes: Full compensation for all required labor, products, tools, equipment, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.
- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Engineer multiplied by the unit sum/price for Work which is incorporated in or made necessary by the Work.

#### 1.6 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Engineer and Owner, it is not practical to remove and replace the Work, the Engineer will direct one of the following remedies:
  - 1. The defective Work may remain, but the unit sum/price will be adjusted to a new sum/price at the discretion of the Owner.
  - 2. The defective Work will be partially repaired to the instructions of the Engineer, and the unit sum/price will be adjusted to a new sum/price at the discretion of the Owner.
- C. The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.
- D. The authority of the Owner to assess the defect and identify payment adjustment, is final.

## 1.7 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
1. Products wasted or disposed of in a manner that is not acceptable.
  2. Products determined as unacceptable before or after placement.
  3. Products not completely unloaded from the transporting vehicle.
  4. Products placed beyond the lines and levels of the required Work.
  5. Products remaining on hand after completion of the Work.
  6. Loading, hauling, and disposing of rejected Products.

## 1.8 SCHEDULE OF UNIT PRICES

The unit prices shall encompass all work required to complete the Work in accordance with the drawings and specifications and the limits on quantities of certain items of work as follows:

- A. Mobilization/Demobilization. This bid item shall include all costs for bonds, insurance, establishing temporary facilities, moving construction equipment to and from the job site, and all appurtenances related to the work not otherwise specifically called out. The pay item is one (1) lump sum, with an equitable amount (25%) to be withheld until demobilization after final completion of the work.
- B. Remove and Replace Existing Manhole Frame and Cover. This bid item shall include all labor, materials, equipment, excavation, demolition, disposal, furnishing and installing new cast iron manhole ring and cover, backfill, compaction, cleanup, and incidental work for the removal of the existing manhole ring and cover and installation of a new cast iron manhole ring and cover in accordance with the plans and specifications. The pay item is one (1) each.
- C. Poly Ring Infiltration Barrier. This bid item shall include all labor, materials, equipment, excavation, furnishing and installing new poly ring infiltration barrier, backfill, compaction, cleanup, and incidental work for installing a poly ring infiltration barrier in accordance with the plans and specifications. The pay item is one (1) each.
- D. Elastomeric Chimney Infiltration Barrier. This bid item shall include all labor, materials, equipment, excavation, furnishing and installing new elastomeric chimney infiltration barrier, backfill, compaction, cleanup, and incidental work for installing an elastomeric chimney infiltration barrier in accordance with the plans and specifications. The pay item is one (1) each.

- E. Remove Manhole Step. This bid item shall include all labor, materials, equipment, torching or cutting, and all incidental items for the removal of a manhole step from the interior of an existing manhole in accordance with the plans and specifications. The pay items is one (1) each.
- F. Infiltration Leak MH Sidewall. This bid item shall include all labor, materials, equipment, polyurethane grout, drilling, installation, and incidental work for repairing a manhole infiltration leak to zero infiltration in accordance with the plans and specifications. The pay item is one (1) each.
- G. Bench and Invert Replacement. This bid item shall include all labor, materials, equipment, non-shrink concrete grout, surface preparation, installation, and incidental work for repairing a concrete manhole bench and invert in accordance with the plans and specifications. The pay item is one (1) each.
- H. Manhole Repair Patching. This bid item shall include all labor, materials, equipment, replacement brick, mortar, grout, surface preparation, installation, and incidental work for replacing manhole bricks or chipped bricks or voids around pipe penetrations so that the manhole can be lined in accordance with the plans and specifications. The pay item is one (1) each.
- I. Remove & Replace Inside Drop Piping. This bid item shall include all labor, materials, equipment, removals, salvaging, replacement, new supports, mortar, grout, installation, and incidental work for removing and replacing inside drop manhole piping and installation of pipe supports in accordance with the plans and specifications. The pay item is one (1) each.
- J. ½” Cementitious Lining. This pay item shall include all labor, materials, equipment, cleaning of existing manhole, surface prep, cementitious lining of no more than ½” thick lifts to the thickness(es) indicated on the bid form, and all incidental items in accordance with the plans and specifications. The pay item is one (1) vertical foot.
- K. Epoxy Lining. This pay item shall include all labor, materials, equipment, cleaning of existing manhole, surface prep, epoxy lining, and all incidental items in accordance with the plans and specifications. The pay item is one (1) vertical foot.
- L. Manhole Rehabilitation. This pay item shall include all labor, materials, equipment, cleaning of existing manhole, surface prep, rehabilitation coating that has been pre-approved during the bid phase, cleanup, and all incidental items in accordance with the plans and specifications. The pay items is one (1) vertical foot.
- M. Bypass Pumping. This bid item to include all labor, materials, equipment, pumps, temporary piping, pipe plugs, spill protection, drive over street ramps (if applicable), coordination with City, clean-up, concrete pavement removal and replacement (if applicable), site restoration, and other items and incidental work for installing, maintaining, and removing bypass pumping for the repair of a manhole flowline in accordance with the plans and specifications. The pay item is one (1) each for each

manhole in which the flowline is repaired. If the Contractor is able to plug the manhole with a solid plug or pass through plug and not have to operate pumps for bypassing than the pay item for that particular manhole will be 0.5 each.

- N. Traffic Control. This pay item shall include all labor, materials, equipment, signs, flashers, barricades, temporary access, traffic control plan, and other items and incidental work for developing a traffic control plan, and installing, and maintain the traffic control plan in accordance with the plans and specifications. The pay item is one (1) lump sum.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 09960

### HIGH-PERFORMANCE COATINGS

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Retain or delete this article in all Sections of Project Manual.
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

- A. Section includes surface preparation and application of high-performance coating systems on the following substrates:
  - 1. Concrete/Brick, vertical and horizontal surfaces.

##### 1.3 DEFINITIONS

- A. Retain terms that remain after this Section has been edited for a project.
- B. Conform to ANSI/ASTM D16 for interpretation of terms used in this Section.

##### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include preparation requirements and application instructions.
- B. Samples for Color Selection: For each type of topcoat product indicated.
- C. Delete "Samples for Initial Selection" Paragraph above if colors and other characteristics are preselected and specified or scheduled. Retain "Samples for Verification" Paragraph below with or without above.
- D. Product List: For each product indicated, include the following:
  - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  - 2. VOC content.



## 1.5 QUALITY ASSURANCE

- A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with five (5) years experience.
- B. Applicator: Company specializing in commercial painting and finishing with three (3) years experience and 3,000 vertical feet of application.
- C. Furnish materials of quality required by ASTM standards or other approved standards and specification.
- D. Coating products shall be capable of being installed and curing properly within the specified environments. Coating products shall be resistant to all forms of chemical or bacteriological attack found in municipal sanitary sewer systems and capable of adhering to the substrates and repair products.
- E. Coating products must have been tested by and passed ASTM G210-13 Severe Wastewater Analysis Testing (SWAT).
- F. Repair product(s) shall be fully compatible with the coating product(s) including the ability to bond effectively to the host substrate and coating product(s) forming a composite system.
- G. Contractor shall utilize equipment for the spray application of the coating product(s) which has been approved by the coating product manufacturer; and, Contractor shall have received training on the operation and maintenance of said equipment from the coating product manufacturer.
- H. Contractor shall be trained in the use of testing or inspection instrumentation and knowledgeable of the proper use, preparation and installation of the coating products to be used as specific herein.
- I. Provide guarantee against defective materials and workmanship in accordance with the requirement of these specifications.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 01600.
- B. Store and protect products under provisions of Section 01600.
- C. Deliver products to site in sealed and labeled containers; inspect to verify acceptance.

- D. Container labeling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
- E. Store paint materials at minimum ambient temperature of 45° F and a maximum of 90° F, in well ventilated area, unless required otherwise by manufacturer's instructions.
- F. Take precautionary measures to prevent fire hazards and spontaneous combustion.

## 1.7 FIELD CONDITIONS

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 50° F from 24 hours before, through 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the manufacturer.
- C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Polibrid Coatings, Inc.
  - 2. OBIC, LLC.
  - 3. Raven Lining Systems.
  - 4. The Strong Company, Inc.
  - 5. Five Star Products.
  - 6. International Protective Coatings.
  - 7. Tnemec
  - 8. DuraSeal
  - 9. Preapproved equal

- a. Contractor must submit any product not listed on the above list to engineer by January 22, 2024. Items to include with the submitted product to include companies and manufacturers years of experience, reference contacts (3 minimum), previous project list including V.F. of product installed, and product specifications.
- B. Products: Subject to compliance with requirements, provide product listed in other Part 2 articles for the paint category indicated.

## 2.2 HIGH-PERFORMANCE COATINGS, GENERAL

- A. Material Compatibility:
  1. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  2. Manufacturer of topcoat shall provide written verification of compatibility of all products recommended for use in coating system and on substrate indicated.
- B. Colors: As selected by Owner from manufacturer's full range.

## 2.3 REPAIR MORTAR

- A. Repair materials shall be used to fill voids, structurally reinforce and/or rebuild surfaces. Repair materials shall be compatible with coating and shall be applied in accordance with the manufacturer's recommendations.
- B. Trowel grade, 100% solids, non-shrink: Raven 405T with aggregate.
  1. Aggregates shall be clean, dry silica sand, aluminum oxide, garnet, quartz, river rock or approved equal.
  2. For example, mix 25 lbs of 30 mesh silica sand, 25 lbs of #7 (1/4") rock and 1 gallon of Raven 405.
  3. Aggregate material, source, and mix ratio shall be approved in writing by coating manufacturer.
- C. Fast setting, non-shrink, cementitious repair mortar: Ceilcote 400MP Corocrete with aggregate.
  1. Aggregate shall be 1/4" to 1/2" rounded aggregate or approved equal.

2. For example, mix 50 lbs of pea gravel to every 55 lb bag of Ceilcote 400MP Corocrete.
  3. Aggregate material, source, and mix ratio shall be approved in writing by coating manufacturer.
- D. Quick-setting cementitious repair mortar: Strong-Seal QSR, APM Permaform – Permacast Patch, and DuraSeal – DuraSeal RM.
  - E. Epoxy Modified Cementitious Mortar: Tnemec Mortarcrete Series 217 or Tnemec Mortarclad 218-1000.
  - F. Any hydraulic cement and/or plug shall be used to stop active infiltration. The hydraulic cement and/or plug shall be suitable for top coating, and shall be approved by the coating manufacturer.
  - G. Hydrophobic and/or Hydrophilic polyurethane chemical grouts used to stop active infiltration. The chemical grouts shall be suitable for the top coating, and shall be approved by the coating manufacturer.

#### 2.4 SURFACER

- A. High performance polymer concrete: Raven 760 HPPC.
- B. High-strength, early-cure cementitious grout: Five Star Structural Concrete V/O.
- C. Polymer Surfacer Layer: OBIC 1306

#### 2.5 PRIMER

- A. Amido-amine epoxy primer: Polibrid 670-S.
- B. Polyamide Epoxy: Tnemec Hi-Build Epoxoline Series 66HS
- C. Polyurea Adhesion Coating: OBIC 1000 polyurea

#### 2.6 FINISH COATING

- A. Solvent-free 100% solids, ultra-high build epoxy: Raven 405 or 405FS.
- B. 100% solids elastomeric, aromatic polyurethane: Polibrid 705.
- C. Fiber Reinforced Modified Polyamine Epoxy: Tnemec Perma-Shield FR Series 436.
- D. Fiber Reinforced Modified Polyamine Epoxy: DuraSeal DuraLine.

- E. Polyurea Armor Layer: OBIC 1000

## 2.7 CEMENTITIOUS LINING MATERIAL

- A. The cementitious lining material shall be a spray applied high strength corrosion resistant mortar suitable for severely corrosion environments. Product must have a protection against microbiologically induced corrosion (MIC) to protect the concrete from corrosion.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
- D. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Clean substrates of substances that could impair bond of coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
- C. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
  - 1. Comply with coating manufacturer's requirements for curing of new concrete.

### 3.3 APPLICATION

- A. Apply high-performance coatings according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

1. Use applicators and techniques suited for coating and substrate indicated.
  2. Do not apply coatings over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. Strictly follow manufacturers' requirements for cure times prior to application of subsequent coatings and returning to service.
- C. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- D. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- E. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

### 3.4 FIELD QUALITY CONTROL

- A. Holiday Detection: Contractor shall inspect coating per ASTM D-4787 "Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates", using high-voltage spark testing equipment with variable settings.
1. Test voltage shall be set at an initial 100 volts per mil (4,000 volts per mm) of specified film thickness, then increased as needed to compensate for relative conductivity of the concrete substrate by spark testing an induced holiday at furthest extension of test probe from grounding location. Once test voltage is determined, it shall be used throughout that area, then re-determined again every time a new ground is made.
  2. Detected holidays shall be marked and repaired per coating manufacturer's recommendations. Repaired areas shall be retested.
  3. Documentation of areas tested, equipment employed, results, and repairs made shall be submitted to the Owner.
- B. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.
1. Contractor shall touch up and restore coated surfaces damaged by testing.
  2. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor

shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

### 3.6 HIGH-PERFORMANCE COATING SCHEDULE

- A. Concrete Substrates:
  - 1. Raven System:
    - a. Surface Prep: 5,000 psi @ 3.5 gpm power wash to an ICRI CSP5 minimum profile. Remove all visible coatings and contaminants by abrasive blasting or power washing to achieve minimum CSP5 profile.
    - b. Repair Mortar: Raven 405T applied to areas deeper than ½", material thickness shall rebuild wall to original profile not to exceed 2" of material, rebuild 2" of profile in areas where deterioration exceeds 2". Follow Raven "Epoxy Mortars Technical Bulletin" Appendix "C" for addition of aggregate to Raven 405T for all applications greater than 1" depth.
    - c. Cementitious Grout Liner shall be spray applied beginning at the lowest point and applying a uniform thickness around the interior, The minimum application thickness measured at the manhole wall shall be ½".
    - d. Finish Coating: Raven 405 or 405FS, 100 mils DFT minimum over the entire surface to create a monolithic lining system (pinhole- and holiday-free).

2. Polibrid System:

- a. Decontamination: high-pressure water blasting (2,000 psi minimum), steam cleaning, or any other acceptable method to satisfy ASTM D-4258 "Surface Cleaning Concrete for Coating". Environmentally acceptable, biodegradable detergents may be used; however, they shall be completely rinsed off with fresh, clean water.
- b. Surface Prep: abrasive blast or water blasting (25,000 psi minimum) to produce a surface with a roughened texture resembling 60 grit sandpaper, remove all visible coatings and contaminants by abrasive or water blasting
- c. Repair Mortar: Ceilcote 400MP Corocrete applied to areas deeper than 1/2", material thickness shall rebuild wall to original profile not to exceed 2" of material, rebuild 2" of profile in areas where deterioration exceeds 2"
- d. Surface Prep: abrasive blast Repair Mortar surface to produce a 3.5 mil anchor profile (resembling 60 grit sandpaper)
- e. Primer: Polibrid 670-S, 4-10 mils DFT
- f. Finish Coating: Polibrid 705, 100 mils DFT minimum

3. Tnemec System

- a. Surface Prep: 5,000 psi @ 3.5 gpm power wash to an ICRI 4-6 SSPC 13 minimum profile. Remove all visible coatings and contaminants by abrasive blasting or power washing to achieve minimum CSP5-6 profile
- b. Repair Mortar: Tnemec 217 applied to areas deeper than 1/2", material thickness shall rebuild wall to original profile not to exceed 2" of material, rebuild 2" of profile in areas where deterioration exceeds 2". For areas with less than a 1/2" depth, Tnemec 218 can be used.
- c. Cementitious Grout Liner shall be spray applied beginning at the lowest point and applying a uniform thickness around the interior, The minimum application thickness measured at the manhole wall shall be 1/2".
- d. Finish Coating: Tnemec 436, 100 mils DFT minimum over the entire surface to create a monolithic lining system (pinhole- and holiday free).



4. DuraSeal System

- a. Surface Prep: 5,000 psi @ 3.5 gpm power wash to an ICRI 4-6 SSPC 13 minimum profile. Remove all visible coatings and contaminants by abrasive blasting or power washing to achieve minimum CSP5-6 profile.
- b. Repair Mortar: DuraSeal RM applied to areas deeper than 1/2", material thickness shall rebuild wall to original profile not to exceed 2" of material, rebuild 2" of profile in areas where deterioration exceeds 2".
- c. Cementitious Grout Liner shall be spray applied beginning at the lowest point and applying a uniform thickness around the interior, The minimum application thickness measured at the manhole wall shall be 1/2".
- d. Finish Coating: DuraLine, 100 mils DFT minimum over the entire surface to create a monolithic lining system (pinhole- and holiday free).

5. OBIC System

- a. Surface Preparation: Grind metal ring to remove all dust. Power-wash at 4,000 psi to clean all grease, foreign materials, and loose debris from the walls. Remove all materials from the invert and rinse one final time. Use heat and force air to completely dry manhole.
- b. Repair: All leaks and wet spots are to be addressed using a hydro cement or a chemical grout. Any other additional repair items to be addressed at this time.
- c. Application: Steel primer to be applied to metal ring to increase adhesion to the casting. Apply 50 mils of OBIC 1000 polyurea (adhesion layer) from flow line in invert to metal ring below the lid. Apply 400 mils of OBIC 1306 (surface layer). Apply 50 mils of OBIC 1000 polyurea (barrier layer).

END OF SECTION

# **DIVISION II**

## **PORTLAND CEMENT CONCRETE PAVEMENT**

**DIVISION II  
PORTLAND CEMENT CONCRETE PAVEMENT**

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**DIVISION II  
PORTLAND CEMENT CONCRETE PAVEMENT**

**SECTION 10 - SCOPE OF WORK**

The work covered by this division of the specifications consists of furnishing all labor, plant, equipment, appliances, and materials and performing all operations necessary to construct and complete concrete pavement and appurtenances in strict accordance with these specifications, the applicable drawings, and subject to the terms and conditions of the contract.

**SECTION 11 - MATERIALS**

11.01 Cement - 47-B (Modified) and ABX (Modified) Concrete. The specifications for 47-B (Modified) and ABX (Modified) concrete shall be as specified in Section 1002 "Portland Cement Concrete" of the most current State of Nebraska Department of Roads Standard Specifications for Highway Construction with the following exceptions.

1. Paragraph 1 of Section 1002.04 is deleted and the following added:

For 47-B (Modified) concrete no more than 50 lbs. of total water will be added for each 100 lbs. of cement (water to cement ratio not to exceed 0.50). For ABX (Modified) concrete no more than 47 lbs. of total water will be added for each 100 lbs. of cement (water to cement ratio not to exceed 0.47).

Concrete with water to cement ratios greater than specified above will be rejected. If any water is added to the concrete at any time without the permission of the Engineer, the concrete will be rejected.

2. Portland Cement Concrete for pavement shall meet the following requirements:

<u>Class of Concrete</u>	<u>Compressive Strength Requirements in Pounds per Square Inch</u>	
	<u>7 days</u>	<u>28 days</u>
47-B (Modified)	2100	3600
ABX (Modified)	2300	3800

11.02 Portland Cement. Shall be as specified in Section 1004 "Portland Cement" of the most current Nebraska Department of Roads specifications.

11.03 Mixing Water. Shall be as specified in Section 1005 "Water for Concrete" of the most current Nebraska Department of Roads specifications.

11.04 Fine Aggregate for 47-B (Modified) Concrete. Shall be as specified in Section 1033 "Aggregates", Table 1033.02A "Gradation Limits" of the most current Nebraska Department of Roads specifications.

11.05 Coarse Aggregate for 47-B (Modified) Concrete. Shall be as specified in Section 1033 "Aggregates", Table 1033.03A, of the most current Nebraska Department of Roads specifications.

11.06 Aggregate for ABX (Modified) Concrete. Shall be as specified in Section 1033 "Aggregates" of the most current Nebraska Department of Roads specifications with below noted additions.

It shall be the responsibility of the Contractor to submit test results conforming to ASTM C295 that indicate the aggregate to be used in ABX Modified concrete is non-reactive with the alkalis in cement. If the results of this test are not conclusive, then results shall be submitted that conform to ASTM C227 (Mortar Bar) which remove all doubt as to the acceptability of the aggregate for Portland cement concrete.

These results must be submitted prior to any concrete being used from any source of aggregate. New test results must be submitted each time the aggregate comes from a new source or for each 700 cubic yards of concrete poured.

In the event that non-reactive aggregate is not available, the Contractor will not be allowed to use the sand-gravel mix but will be required to use 47-B Modified Portland cement concrete as specified in these specifications under section entitled Cement - 47-B (Modified) and ABX (Modified) Concrete.

11.07 Granular Foundation Course. The granular materials shall be sand from local pits that are shown on the plans, or it may be a coarse sand, fine sand, loamy soil, or any mixture of any of these materials that conforms to the following requirements:

	<u>Minimum</u>	<u>Maximum</u>
Total Percent Retained on #200 Sieve	80	92
Plasticity Index		6

11.08 Joint Filler. Joint filler shall consist of premoulded bituminous fiber uniformly impregnated with between 35% and 50% durable asphalt by weight and be furnished in strips of the dimensions specified in the plans. A one (1) inch thick sample when compressed to 50% of original thickness at rate of 1/10 inch per minute and released shall show at least 70% recovery within one hour after compression and shall not have required more than 500 pounds per square inch compression load and extrusion of not more than 1/8 inch.

11.09 Joint Sealing Material. The hot pour joint material shall be of the rubber-asphalt type and shall be melted in a double jacket kettle equipped with an agitator for stirring the material during melting and pouring. The rubber-asphalt shall meet Federal Specification SS-S-164 or subsequent revisions.

11.10 Curing Compound. The curing compound shall consist of a nonbituminous pigmented liquid conforming to AASHTO Designation M148-49 or subsequent revisions.

## **SECTION 12 - CONSTRUCTION METHODS**

12.01 Clearing and Grubbing. Except for trees, shrubs, and grasses which are to be preserved as indicated on the plans or as designated by the Engineer, all trees, stumps, hedges, shrubs, weeds, grass, other herbaceous vegetation, and rubbish shall be removed from the right-of-way and from borrow pits furnished by the contracting authority. This work shall be classified as follows:

Clearing shall consist of the cutting, removal, and disposal of trees six (6) inches or more in diameter.

Grubbing shall consist of the removal and disposal of stumps, including roots.

Hedge removal shall consist of the pulling or grubbing and disposal of hedges or other shrubs planted close together in rows. If any individual tree of those composing a hedge has a diameter greater than four (4) inches, it shall be measured separately as a tree.

Weed and rubbish removal shall consist of the removal and disposal of all weeds, grass, other herbaceous vegetation, and all rubbish encountered on the work.

12.02 Site Preparation. This work shall consist of removal and disposal of all crosswalks, private walks, driveway approaches, curbs, curb and gutter, and headers as indicated on the plans or as directed by the Engineer.

Topsoil shall be carefully removed and deposited in storage piles convenient to the area which will subsequently receive topsoil. Topsoil shall be kept separate from other excavated materials and shall be piled free from roots, stones, and other undesirable materials.

The backfill over all existing utility lines shall be consolidated when shown on the plans or directed by the Engineer. This shall be done by water jetting and vibration to the full depth of the utility lines unless other methods are approved by the Engineer. When compaction over existing utility lines is not shown on the plans or is not a bid item and is directed to be done by the Engineer, the work shall be negotiated for in writing before any work is commenced and will be paid for as a single unit.

All sanitary and storm sewers will be televised before a street is paved or repaved to insure that the street will not have to be torn up to repair the sewer in the near future.

**Revised 1-18-2010**

12.03 Subgrade Preparation. All paving subgrade shall be brought to the exact lines, grades, and cross sections shown on the plans or as directed by the Engineer.

The subgrade shall be constructed to have a uniform density throughout its entire width. All soft or yielding material and other portions of the subgrade which will not compact readily shall be removed as directed. All hollow places, settlements, or other imperfections shall be filled with approved material and compacted.

In all places where embankment may be required to bring the subgrade to the required height, it shall be constructed in horizontal layers not to exceed six (6) inches in depth before rolling. Each successive layer of material placed as described shall be wetted to within 3% of the optimum moisture content and compacted to at least 95% of the maximum dry density obtained at optimum moisture content as determined by AASHTO Method T99.

In all embankment areas where highly expansive soils are encountered, materials shall be wetted at one percent (1%) to three percent (3%) above optimum moisture.

In cuts when the undisturbed earth is suitable for the subgrade, manipulation other than rolling will not be required, provided the upper three (3) inches is at 95% maximum dry density as called for in embankments.

12.04 Water Main, Storm and Sanitary Sewer Pipe Bedding and Backfill. The pipe bedding and backfill shall be Type "C" as required by Division V, Pipe Bedding, Trench Backfill, and Nonshrinkable Backfill. The completion of the trench backfill under pavement shall be adequate to provide 95% of maximum dry density and shall be wetted to within 3% optimum moisture as specified in this division under Subgrade Preparation.

12.05 Granular Foundation Course. This work shall consist of the construction of a compacted foundation course of granular material to the lines, grade, and dimensions shown on the plans on a previously prepared and approved subgrade.

12.06 Surplus Earth. All surplus earth shall be stockpiled by the Contractor at the location or locations designated on the plans or as the Engineer shall direct.

12.07 Adjustment of Manholes. All manholes encountered whether shown on the plans or not shall be brought to the proper grade by removing the castings and adjusting the tops of the existing manholes by removal or addition of concrete or brick, as the case may be, and resetting the frames and covers.

Brick masonry shall consist of the type of brick satisfactory to the Engineer, laid in 1:2 cement mortar. All brick must be wetted before being laid. All joints shall be completely filled with mortar and shall not be less than 1/4 inch and not more than 1/2 inch in thickness.

Contractors are instructed to use plastic or concrete risers to bring manhole ring and covers to grade. Using pieces of wood, concrete or bricks and then filling with concrete mortar will no longer be accepted.

All manholes will be inspected before and after a concrete or asphalt street is laid down to insure that no foreign material is in the flow line or at the bottom of a manhole.

**Revised 1-18-2010**

12.08 Adjustment of Storm Sewer Inlets. All storm sewer inlets shall be adjusted to line and grade by removing the castings and adjusting the tops of the existing storm sewer inlets by removing or adding concrete or bricks, as the case may be, and resetting the castings.

Brick masonry shall consist of the type of brick satisfactory to the Engineer, laid in 1:2 cement mortar. All brick must be wetted before being laid. All joints shall be completely filled with mortar and shall not be less than 1/4 inch and not more than 1/2 inch in thickness.

12.09 Integral Curb. Integral curb shall be constructed on the edge of the concrete slab in accordance with the plans and typical cross section. This curb shall be placed immediately after the concrete on the pavement has been placed and finished and before it takes its initial set. That part of the pavement which is to be covered by the integral curb shall be cleaned of all laitance and shall be roughened. Integral Curb will be required on all new pavement construction. If construction is a very short section, the Director of Public Works may allow an exception upon written request.



## **SECTION 13 - CONCRETE CONSTRUCTION**

13.01 Forms and Form Setting. On all new mainline pavement construction, slip form process will be required. If the Contractor wants to use standard forms rather than slip forms because the area is small, they must submit a written request to the Director of Public Works for an exception. If the request is granted, the contractor will be required to meet certain requirements as listed herein. Outside forms shall be metal, of depth equal to the design thickness of the pavement at its edge, and straight and free from warp. When integral curb is required, the additional height represented by the curb may be obtained by bolting extra forms upon the top of the main form. Wood forms or flexible or curved metal forms of proper radii shall be used for curves having radii of less than 100 feet. The forms shall be neatly, tightly, and securely pinned and staked to the line and grade furnished by the Engineer. They shall not at any time show a variation of more than 1/8 inch in a ten (10) foot length from the true plane of top of forms. Shimming with loose earth, pebbles, etc. will not be permitted.

Forms shall be cleaned and oiled before concrete is placed against them.

When pavement is being laid contiguous to previously finished concrete pavement of the same finish grade elevation or contiguous to previously finished independent curb and gutter, such finished pavement or curb and gutter may be made to serve as side forms and as a guide for striking, tamping, and finishing equipment.

13.02 Air Entraining. When using specifications for State of Nebraska 47-B concrete, the total air content shall be 6% plus or minus 1-1/2% by volume of the wet concrete as determined by AASHTO Standard Method T-121 or ASTM Method C-231 and up to 9% for sand and gravel mix.

13.03 Consistency. The quantity of water shall be determined by the Engineer in accordance with these specifications under section entitled Cement - 47-B (Modified) and ABX (Modified) Concrete and not varied without the Engineer's consent. The Contractor shall furnish and use with the mixer an approved adjustable water measuring device which will prevent excess water flowing into the mixer so the consistency may be under positive control and all batches may be of the same consistency.

In general, the minimum amount of water shall be used which will produce the required workability. The mortar shall cling to the coarse aggregate and shall show no free water when removed from the mixer. The upper surface of the set concrete shall show a cement film upon the surface and shall be free from all laitance. In no case shall an amount of water be used sufficient to cause the collection of a surplus on the surface or to cause segregation during the transportation to place of deposit. The concrete must be of workable consistency when placed.

13.04 Mixing. The mixing shall be done in a batch-mixer of approved type which will insure the uniform distribution of the material throughout the mass so the mixture is uniform in color and smooth in appearance. No mixer which has a capacity of less than one-sack batch shall be used on any work. The concrete shall be mixed in quantities required for immediate use. Concrete which has developed initial set or is not in place within thirty (30) minutes after the water has been added shall not be used. Retempering concrete by adding water or by other means will not be permitted.

The concrete shall be mixed for a period of at least one (1) minute after all the ingredients are assembled in the drum with the drum revolving at a rate for which the mixer was designed but, in no case, shall it be less than twelve (12) nor more than twenty (20) revolutions per minute. The mixer shall be equipped with an attachment for satisfactorily locking the discharging device to prevent the emptying before the minimum time required. The entire contents of the drum shall be discharged before any materials for the succeeding batch are placed therein.

No concrete shall be mixed while the air temperature is at or below 40 degrees Fahrenheit, except when specifically permitted by the Engineer. In such case, all water used for mixing concrete shall be heated to a temperature of at least 70 degrees but not over 150 degrees Fahrenheit. When artificial heat is applied and the air temperature is above 32 degrees Fahrenheit, the mixed concrete shall not be less than 70 degrees Fahrenheit at the time of the placing in the forms, and no concrete shall be placed in the forms when the air temperature is below 32 degrees Fahrenheit. In no case shall material containing frost or lumps of hardened material be used. When ready-mixed concrete is to be produced, the Contractor shall notify the Engineer in writing at least fourteen (14) days in advance of mixing operations as to location, type of plant and equipment which they propose to use in proportioning, mixing, and hauling concrete.

The Contractor shall furnish at least eight (8) standard 50 pound weights for calibrating and testing scales used in weighing aggregates and cement.

Ready-mixed concrete shall be mixed and delivered to the site of work by means of one of the following combinations of operations:

1. Mixed completely at a central mixing plant and the mixed concrete transported to the point of delivery in a truck agitator or in a truck mixer operating at agitator speed or in approved non-agitating equipment (known as central-mixed concrete).
2. Mixed partially at a central mixing plant and mixing completed in a truck mixer (known as transit-mixed concrete).
3. Aggregates and cement proportioned in a central plant and mixed completely in a truck mixer (known as transit-mixed concrete).

All mixers and agitators shall be operated within the limits of the manufacturer's rated capacity. They shall be operated at the speed of rotation for which the equipment was designed. Attached to each truck mixer and truck agitator shall be a metal plate on which is stated the manufacturer's capacities in terms of volume of mixed concrete and the manufacturer's stated speed of rotation for both mixing and agitation.

The truck mixer or agitator shall consist of a closed water-tight revolving drum suitably mounted and fitted with adequate revolving blades. Truck mixers shall be capable of combining aggregates, cement, and water into a thoroughly mixed and uniform mass of concrete and of discharging the concrete without segregation. Truck agitators shall be capable of transporting and discharging concrete without segregation.

For revolving drum type mixers the mixing speed shall not be less than seven (7) revolutions per minute of the drum nor greater than that which will produce a peripheral velocity of more than 225 feet per minute. For revolving blade type mixers, the mixer speed shall not be less than six (6) nor more than sixteen (16) revolutions per minute of the mixing blades. Agitation speed shall not be less than two (2) nor more than six (6) revolutions per minute of the drum or mixing blades.

Concrete transported without agitation shall not be used if the period elapsed between the time the concrete is discharged from the mixer and the time it is placed is greater than thirty (30) minutes. Concrete transported with agitation shall not be used when the cement has been in contact with the aggregate more than 1-1/2 hours before it is placed.

13.05 Placing and Finishing. The concrete shall be deposited on the prepared subgrade or on the granular foundation course so there shall be no separation of the mortar and the aggregate, and then shall be spread to the required depth and for the entire width of the pavement by approved methods, struck off, and finished. The subgrade templet shall be drawn over the subgrade or foundation course ahead of the point where concrete is being placed and shall be kept in position while the concrete is being placed. The concrete shall be deposited on the subgrade or granular foundation course between the forms in position and in such quantity as to make a uniform layer of about one (1) inch greater than the required thickness. During the operation of striking off the concrete, a uniform ridge of concrete at least three (3) inches in depth shall be maintained ahead of the vibratory strike-off screed for its entire length. After being deposited, it shall be consolidated along the forms and along all joints. At the end of the day or in case of unavoidable interruption of more than thirty (30) minutes, a transverse construction joint shall be placed at the point of stopping work, provided the section on which the work has been suspended shall not be less than ten (10) feet in length. The working edge of the screed shall be shaped to the required cross section of the pavement. After the concrete has been properly consolidated and struck off, the entire surface shall be floated longitudinally, from bridges, with a float at least twelve (12) feet long and twelve (12) inches wide. If made of wood, this float shall be two (2) inches thick. If made of metal, it shall have a weight approximately equal to a similar float made of two (2) inch plank and shall be lined on its bottom face with wood, having rounded edges. The float shall be operated by two men, one at each end, each man standing on a bridge spanning the pavement. The longitudinal and transverse motion shall be passed slowly from one side of the pavement to the other a sufficient number of times, at least twice, until the float on its last passage shall show contact with the concrete throughout its entire length. The bottom surface of the float shall remain flat on the surface of the concrete during the entire operation of longitudinal floating. The next section to be floated shall overlap the one previously floated by half the length of the float.

After the concrete has been floated longitudinally, the surface shall be floated transversely using a float of 1"x12" material three (3) to four (4) feet in length and fitted with a handle of sufficient length to permit the float to reach just beyond the center line. Any high or low areas exposed as a result of this floating shall be corrected prior to belt finishing.

After the concrete has been floated transversely and the water sheen has disappeared from the surface of the pavement, the final finish shall be given with a canvas or rubber belt, burlap drag or brooming, or any combination of the above as directed by the Engineer.

If belting is selected, it shall be accomplished with a belt of two to four ply having a width of not less than six (6) inches and a length at least two (2) feet greater than the width of the pavement. The belt shall be operated with a combined crosswise and longitudinal motion, care being taken not to work the crown out of the pavement or to permit the edges of the belt to dip into the surface of the concrete.

If a broom finish is selected, it shall be accomplished by drawing a broom across the surface from the center line toward each side with the broom held perpendicular to the surface with only one stroke of the broom on each portion of the surface. (If the pavement is being constructed lane-at-a-time, the broom shall be drawn across the full width of each lane in one operation.) The broom shall be of the push broom type not less than 18" wide made from bass or bassine fiber not more than five (5) inches long and with a handle at least one (1) foot longer than the width of pavement being broomed in one operation. The brooming operations shall be executed so the corrugation will be uniform in appearance and not more than 1/16 inch in depth.

If a burlap drag finish is selected, it shall be accomplished by drawing a wet burlap, carpet, or canvas drag over the surface in a longitudinal direction. The drag shall be at least two (2) feet longer than the width of the slab being placed and shall be wide enough so about three (3) feet will be in contact with the pavement while it is in use. If burlap is used, the drag shall consist of not less than two (2) layers. Drags shall be rinsed or washed as often as necessary to remove hardened particles which would mar the uniform surface that would be obtained with a clean drag.

13.06 Surface Test. Before final finishing and previous to initial set, the surface of the pavement shall be tested under the supervision of the Engineer. All irregularities or undulations not within the tolerance of the following test shall be corrected with fresh concrete and the affected surface brought within the requirement of the test and refinished if necessary. The test shall be made with a transverse testing templet and straightedge at least ten (10) feet long. The templet shall be accurately shaped in conformity with the typical cross section and shall be subject to the approval of the Engineer. The templet shall be used to test the shape of the surface transversely, the straightedge for longitudinal trueness. The straightedge shall be placed parallel to the center line so as to bridge any depressions and touch any high spots. Ordinates exceeding one fourth inch measured from the face of the templet or straightedge when in position at any point shall be eliminated by means of a long-handled wood float.

As soon as the pavement has set sufficiently to permit walking on it and not later than 10:00 a.m. of the day following the placing of the concrete, it shall be thoroughly checked by the inspector with a straightedge. All variations in excess of one fourth inch measured from the surface of the straightedge when it is placed parallel to the center line shall be plainly marked. The Contractor shall at once eliminate such variations by the use of approved grinding tools or carborundum brick and water. The work of grinding or rubbing shall not be performed in such manner or carried to such extremes that the bond of the concrete shall be broken. The use of brush hammer or similar device to remove irregularities after the concrete has taken its final set will not be permitted. All templets, straightedges, and other testing devices shall be furnished by the Contractor.

13.07 Headers. Concrete headers extending to full depth and width of the pavement shall be constructed at locations shown on the plans. They shall be constructed to the dimensions and design called for in the plans.

13.08 Transverse Construction Joints. Whenever concreting is stopped for a period of over thirty (30) minutes, a transverse construction joint shall be formed by finishing the concrete to a bulkhead made of two (2) inch material cut to the exact cross section of the pavement slab, as shown in the plans. When the concreting is resumed, the bulkhead shall be moved taking care not to disturb any concrete placed. The joints shall be constructed perpendicular to both the center line and the surface of the pavement. In no case shall an emergency construction joint be allowed within ten (10) feet after placing a regular expansion or construction joint. If the joint falls within this limit, the concrete shall be removed back to the previously installed joint.

When a construction joint is placed at a location where integral curb is being constructed, a piece of pre-formed joint material one half inch in thickness and conforming to the cross section of the curb shall be placed through the curb at the construction joint. The edges of the concrete shall be rounded to a radius of not more than one fourth inch.

13.9 Transverse Expansion Joints. Expansion joints shall be of a premoulded bituminous fiber type conforming to these specifications under the section entitled Joint Filler.

The joint shall extend entirely through the pavement and the joint filler shall be placed so the top edge will be one half inch below the surface of the finished pavement. No section of the joint material shall be shorter than the width of pavement strip between longitudinal joints. Before the pavement is opened to traffic, this space shall be swept, cleaned, and filled with approved joint sealing material.

The pre-formed expansion joint material shall be held securely by means of a special metal joint holder and removable cap, perpendicular to both the center line and the surface of the pavement. The metal joint holder and cap shall remain in place until after the passage of the concrete spreader. After the concrete has been finished, the metal joint holder and cap shall be removed and the edge of the concrete rounded to a radius of not more than one fourth inch. When integral curb is being constructed, an additional piece of pre-formed material of the same cross section as the curb shall be extended through the curb and to the top surface of the pavement. The joints shall be so installed and finished to insure complete separation of the slabs.

13.10 Transverse Contraction Joints. Transverse contraction joints shall be constructed at intervals of not less than ten (10) feet or more than sixteen (16) feet. The joints shall be true and straight to the center line and surface of the pavement. Variation of more than one half inch in ten (10) feet from a straight line will not be permitted. The joint shall be placed so its junction with the longitudinal joint will be a neat fitting connection. All transverse contraction joints shall be done by the saw cut method. To prevent the development of random cracks, joints at approximately eighty (80) feet intervals shall be sawed the same day as the pour is made. All other transverse contraction joints shall be sawed the following afternoon.

13.11 Longitudinal Joints. Longitudinal contraction joints, when required, shall be in accordance with the requirements for transverse contraction joints.

All sawed longitudinal joints shall be sawed before the concrete has attained an age of seven (7) days and before the pavement is opened to any vehicular traffic.

13.12 Curing. As soon as the concrete has hardened sufficiently to prevent excessive marring of the surface or adherence thereto, the concrete shall be protected with a single covering of burlap, placed and kept saturated for at least twelve (12) hours. As soon as the burlap is removed, the top surface and the edges of the pavement shall be covered with a continuous uniform nonbituminous impervious coating. The curing compound may be applied in either one or two applications in accordance with the directions of the manufacturer. However, if applied in two coatings, the second shall be applied not later than thirty (30) minutes after the first. In no case shall the rate of application be less than one (1) gallon per fifteen (15) square yards of surface area.

The sides of the pavement slab or back side of integral curb shall be covered with the curing compound within thirty (30) minutes after removal of the form.

When wet cotton mats, wet jute felt mats, paper, or any other method than curing compound is to be used for curing, the Contractor shall notify the Engineer in writing at least fourteen (14) days in advance giving the type and specifications of material and method to be used.

When it is expected that during the progress of the work the temperature may fall below 40 degrees Fahrenheit, a sufficient supply of straw, hay, grass, or other material suitable, in the judgment of the Engineer, must be maintained on hand to cover the concrete and to sufficiently protect the surface and edges against freezing until it is at least ten (10) days old. In such case, at the discretion of the Engineer, wetting and spraying may be omitted. Manure shall not be used as a protection for green concrete. Whenever the temperature falls below 40 degrees Fahrenheit, freshly finished concrete shall be protected by frames enclosed by canvas or other type of housing and the temperature of the air surrounding the concrete shall be maintained at not less than 45 degrees Fahrenheit. Sufficient heating apparatus, such as lanterns, suitable stoves, or steam equipment, shall be furnished and maintained by the Contractor. Any concrete showing injury by freezing on uncovering shall be removed and replaced at the expense of the Contractor.

13.13 Sealing of Joints. Joint sealing operations shall not be started until after final curing is completed. All joints which require sealing shall be thoroughly cleaned by a jet of compressed air. Any excess mortar or concrete shall be cut out with chisels. Joints shall be filled only when completely dry. The filler used shall be material as specified in these specifications under the section entitled Joint Sealing Material. The cleaning and filling shall be carefully done with proper equipment and a neat workmanlike joint obtained, free from excess and unsightly filler.

The joint sealing material shall be melted uniformly and with constant stirring in an asphalt kettle of such design that direct flames are not applied to the immediate surfaces of the kettle which are in contact with the joint sealing material. The material shall be furnished or prepared in pieces of such size and shape that the material can be melted readily to the proper pouring consistency. The heating of the material shall be arranged to minimize the length of time during which the temperature of the material exceeds 350 degrees Fahrenheit. In no case shall the temperature exceed the maximum recommended by the manufacturer. The joints shall be filled with the use of a pouring device which is satisfactory to the Engineer. Precautions shall be taken to prevent spilling material on surfaces of the pavement adjacent to the joint.

13.14 Protection. The Contractor shall provide and maintain substantial barricades, warning signs, and flares to provide the public and the construction work adequate protection and keep all traffic off the pavement.

13.15 Opening to Traffic. Before any traffic is permitted on the concrete, all curing and protecting materials other than membrane shall be carefully removed from the finished work and the concrete shall be swept clean. No section of pavement shall be opened to traffic until the concrete has reached a minimum age of fourteen (14) days or compression strength of 3000 psi.

The Contractor's forces may be allowed on the pavement for the purpose of clean up work any time after the concrete has reached a minimum age of seven (7) days.

13.16 Acceptance. The Contractor shall furnish a minimum of two (2) cores at locations designated by the Engineer for each 1000 square yards of pavement placed, and the acceptance of the pavement may be governed by the quality and thickness as shown by the cores. Slabs of pavement which are found to be more than one half inch short of the specified thickness shall be removed and replaced at the Contractor's expense with concrete of specified quality and thickness. If, however, in the opinion of the Engineer, there is no probability of immediate failure of such deficient slabs, they may allow the Contractor the choice of leaving the defective slabs in place and receiving no compensation or payment for the same or of replacing the pavement slab as provided above.

If the average strength of test cores or test cylinders, cured at a temperature within the range of 60 to 80 degrees Fahrenheit, is more than ten percent (10%) below the required strength, the Engineer may elect either to permit such pavement to remain in place and limit the payment for such defective work to a maximum of 90% of the contract unit price or require the Contractor, at Contractor's expense, to remove the pavement area deficient in the specified strength and replace it with pavement of satisfactory quality.

## **SECTION 14 - METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

14.01 Clearing and Grubbing. Clearing and grubbing of trees larger than six (6) inches in diameter will be measured for payment by counting the actual number of trees removed. The diameters of trees will be computed by measuring the circumference and dividing by 3.14. Payment shall be made at the contract unit price per each tree at the diameter or group of diameters shown in the bid.

Stumps will be measured for payment by taking the average diameter at cutoff. Payment shall be made at the contract unit price per each stump at the diameter or group of diameters shown in the bid.

Hedge removal will be measured for payment in lineal feet of a row of hedges.

Weeds, rubbish, and other herbaceous vegetation will not be measured for payment but will be considered as subsidiary to the contract work.

14.02 Site Preparation. Crosswalks and private walks to be removed within the area between construction lines will be measured for payment in square feet in their original position. Driveway approaches will be measured for payment in square yards in their original position.

Existing straight curb and curb and gutter to be removed will be measured for payment by length in lineal feet. Measurements for the straight curb will be made along the front face of the curb. Measurements for curb and gutter will be made along the flow line of the gutter.

Removal of existing pavement headers will be measured for payment by length in lineal feet.

Compaction over all existing utility lines will be measured for payment as a single unit except when in clay soil. In clay soil, excavation, additional materials, and recompaction over utility lines will be paid for as additional excavation.

14.03 Grading, Surplus Earth, Embankment. All grading, removal of surplus earth, and embankment will not be measured for payment but shall be subsidiary to the paving.

14.04 Granular Foundation Course. Granular foundation course will be measured for payment by area in square yards or cubic yards.

14.05 Manholes. Adjusting manholes to grade will be measured for payment as a single unit for each manhole that is adjusted to grade as shown in the plans or as directed by the Engineer.

14.06 Storm Sewer Inlets. Adjusting storm sewer inlets to line and grade will be measured for payment as a single unit.

14.07 Integral Curb. Integral curb will be measured for payment by length in lineal feet. Measurement will be made along the back side of the curb.

14.08 Concrete Pavement. Concrete pavement will be measured for payment by area in square yards. Concrete pavement shall include all joints, curing, sealing, etc. not specifically designated as separate items.

14.09 Beams. Concrete pavement beams will be measured for payment by length in lineal feet.

14.10 Headers. Concrete headers constructed as part of the project will be measured for payment by length in lineal feet.

14.11 Transverse Expansion and Miscellaneous Joints. Transverse expansion joints and all miscellaneous joints using premoulded bituminous fiber will be considered incidental to the paving construction and not as a separate pay item.

14.12 Concrete Test Cylinders. Three (3) concrete test cylinders shall be required for each block of concrete pavement placed or as directed by the Engineer.

14.13 Testing. The Engineer may require testing of coarse and fine aggregates and cement before they are used in the work. If so ordered, the Contractor shall pay the cost thereof.

The testing of cylinders shall be paid for by the Contractor.

14.14 Miscellaneous. Any item listed in the Engineer's Estimate and not covered in the specifications will be measured in the most workmanlike manner for payment according to the designation listed such as cubic yards, square feet, square yards, lineal feet, gallons, each, etc.



# **DIVISION V**

## **STORM AND SANITARY SEWER**

**DIVISION V  
STORM AND SANITARY SEWERS**

**C O N T E N T S**

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<b>26</b>	<b>MATERIALS</b>
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26.02	Concrete Pipe Joints
26.03	Vitrified Clay Pipe
26.04	Vitrified Clay Pipe Factory-Fabricated Joints
26.05	Cast Iron Pipe and Fittings
26.06	Cast Iron Pipe Joints
26.07	Portland Cement Concrete
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<b>27</b>	<b>CONSTRUCTION METHODS</b>
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27.10	Stacks
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<b>28</b>	<b>DRAINAGE STRUCTURE CONSTRUCTION</b>
28.01	Concrete Work
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<b>29</b>	<b>METHOD OF MEASUREMENT AND BASIS OF PAYMENT</b>
29.01	Sewer Pipe in Place
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29.03	Manholes
29.04	Storm Sewer Inlets

## DIVISION V STORM AND SANITARY SEWERS

This division is written so that ordinarily the type of construction described is complete but, where applicable, other divisions are considered a part of this specification.

### SECTION 25 - SCOPE OF WORK

The work covered by this division of the specifications consists of furnishing all labor, plant, equipment, appliances, and materials and performing all operations necessary to construct and complete storm and sanitary sewers and appurtenances in strict accordance with these specifications, the applicable drawings, and subject to the terms and conditions of the contract.

### SECTION 26 - MATERIALS

26.01 Reinforced Concrete Pipe. All reinforced concrete pipe shall meet the requirements and specifications of Reinforced Concrete Culvert, Storm Drain and Sewer Pipe, ASTM C76, Class III, and subsequent revisions, or as otherwise shown in the plans.

26.02 Concrete Pipe Joints.

1. Rubber Joint Filler. Rubber based joint filler shall be used on all concrete pipe joints unless otherwise specified.
2. Gasket Type Joints. When gasket type joints are required, they shall be as follows: Bell and Spigot Pipe Joints, ASTM C361, and subsequent revisions  
Tongue and Groove Pipe Joints, ASTM C443, and subsequent revisions.

All new storm sewer piping will be plastic or concrete where possible.

26.03 Vitrified Clay Pipe. All vitrified clay pipe shall meet the requirements and specifications for Extra Strength Clay Sewer Pipe conforming to ASTM C700 or C425 compression joint and subsequent revisions or as otherwise shown on the plans.

26.04 Vitrified Clay Pipe Factory-Fabricated Joints. All vitrified clay pipe shall have O-ring gasket factory-fabricated joints that meet the requirements and specifications for Vitrified Clay Pipe Joints Using Materials Having Resilient Properties, ASTM C700 and subsequent revisions or as otherwise shown on the plans.

26.05 Cast Iron Pipe and Fittings. See Division VI, Water Mains.

26.06 Cast Iron Pipe Joints. See Division VI, Water Mains.

26.07 Portland Cement Concrete. The concrete shall be air-entrained as specified in Division III, Curb and Gutter, Sidewalks, and Driveways, in the section entitled Materials -- Sand-Gravel.

26.08 Reinforcement. The deformed bars that are used in reinforcing shall be Type B, Grade 2.

26.09 Structural Brick. Bricks shall be of the type that are satisfactory to the Engineer and shall be laid in 1:2 cement mortar.

26.10 Storm Sewer Inlet Frames and Grates. The frames and grates shall be of cast iron with tensile strength test not less than Class 25.

26.11 Manhole Rings and Covers. Unless shown otherwise on the plans, the rings and covers for manholes shall be 450 pound cast iron machined rings and covers with tensile strength test not less than Class 25.

All manholes will be inspected when any work is being done around the manhole ring and/or cover.

26.12 Grout. Grout, where required, shall consist of equal parts of sand and cement with sufficient water to produce the proper consistency.

26.13 Manholes. All concrete used in the construction of manholes shall be in accordance with the following Sulfate Resistant Concrete Specifications, Section 26.15, dated March 20, 2002. This shall include all concrete used in the construction of pre-case manholes, manhole bases, and manhole inverts.

26.14 Core Drilling. If a sewer service is installed by core drilling into the public sanitary sewer main, the connection will be televised at the Contractor's expense prior to acceptance by the City.

#### 26.15 Sulfate Resistant Concrete Specifications

March 20, 2002

#### SUBMITTALS

##### A. Shop Drawings:

1. Curing compound data
2. Complete data on the concrete mix, including aggregate gradations and admixtures, in accordance with ASTM C94

##### B. Quality Control Submittals:

1. Manufacturer's application instructions for curing compound.
2. Ready-mix delivery tickets for each truck in accordance with ASTM C94.

#### QUALITY ASSURANCE

- A. Concrete and Reinforcement: Unless otherwise specified. Meet the requirements of ACI 301 and 318/318R
- B. Precast Reinforced Concrete: Unless otherwise specified. Meet the requirements of ASTM C478
- C. Formwork: Unless otherwise specified, follow the recommendations of ACI 347.
- D. Hot Weather Concreting: Conform to ACI 305R
- E. Cold Weather Concreting: Conform to ACI 306R

## ENVIRONMENTAL REQUIREMENTS

- A. Do not place Concrete when the ambient temperature is below 40 degrees F or approaching 40 degrees F and air temperature less than 40 degrees F for the first 7 days, without special protection to keep Concrete above 40 degrees F.
- B. Do not use curing compound where solvents in the curing compounds are prohibited by state or federal air quality laws. Use only water curing methods.

## CONCRETE

- A. Ready-mixed meeting ASTM C94, Option A.
- B. Portland Cement: ASTM C595, Type IP containing less than 8 percent tricalcium aluminate.
- C. Admixtures:
  - 1. Air-Entraining; ASTM C260.
  - 2. Water-Reducing; ASTM C494, Type A or D.
  - 3. Superplasticizer: ASTM C494, Type for G.
  - 4. Fly Ash: ASTM C618, Class C or F; not to exceed 25% total pozzolan by weight.
- D. Mix Design:
  - 1. Minimum Allowable 28 day Compressive Field Strength: 4,000 psi when cured and tested in accordance with ASTM C31 and C39.
  - 2. Coarse Aggregate Size: 0.5-inch and smaller, 40% Limestone by volume minimum; State of Nebraska approved source.
  - 3. Water/Cement Ratio: 0.38%.
  - 4. Air Entrainment: Between 5.0 to 7.5%.
  - 5. Water Reducers: Use in all concrete as per manufactures recommended guidelines.
  - 6. Suerplasticizer: Use in all walls. Use in slabs at CONTRACTOR's option.
  - 7. Slump Range: 1 to 4 inches; before addition of Suerplasticizer.
  - 8. Slump Range: 5 to 9 inches; after addition of Suerplasticizer.
- E. Mixing: Minimum 70 and maximum 270 revolutions of mixing drum. Nonagitating equipment is not allowed.

## REINFORCING STEEL

- A. Deformed Bars: ASTM A615, Grade 60.

## FORMWORK

### A. Form Material

1. Use hard plastic finished plywood for exposed areas, and new shiplap or plywood for unexposed areas.
2. Earth cuts may be used for forming footings.

### B. Form Ties:

1. Fixed conical or spherical type inserts that remain in contact with forming material and allow for dry packing of form ties holes.
2. Ties shall withstand pressures and limit deflection of forms to acceptable limits.
3. Wire ties are not acceptable.

### C. Construction:

1. In accordance with ACI 347.
2. Make joints tight to prevent escape of mortar and to avoid formation of fins.
3. Brace as required to prevent distortion during concrete placement.
4. Brace as required to prevent distortion during concrete placement.  
On exposed surfaces locate form ties in uniform pattern or as shown. Construct so ties remain embedded in the wall with no metal within 1 inches of concrete surface when forms, inserts, and tie ends are removed.

### D. Form Removal:

1. Remove forms with care to prevent scarring and damaging the surface.

## PLACING REINFORCING STEEL

### A. Unless otherwise specified, place reinforcing steel in accordance with CRSI Recommended practice for placing Reinforcing Bars.

### B. Splices and Laps:

1. Top Bars: Horizontal bars placed such that 12 inches of fresh concrete is cast below in single placement.
2. Horizontal wall bars are considered top bars.
3. Lap top bars 42 diameters or minimum 24 inches.
4. Lap all other bars 30 diameters or minimum 18 inches. Tie splices with 18-gauge annealed wire as specified in CRSI Standard.

## PLACING CONCRETE

### A. Place concrete in accordance with ACI 301.

### B. Prior to placing concrete, remove water from excavation and debris and foreign material from forms. Check reinforcing steel for proper placement and correct discrepancies.

### C. Before depositing new concrete on old concrete, clean surface using sandblast or bush hammer or other mechanical means to obtain a 1/4-inch rough profile.

- D. Place concrete as soon as possible after leaving mixer, without segregation or loss of ingredients, without splashing forms or steel above, and in layers not over 2 feet deep. Place within 1-1/2 hours after adding cement mix.
- E. 8 feet maximum vertical drop to final placement, when not guided with chutes or other devices to prevent segregation due to impact with reinforcing.

## COMPACTION

### A. Vibrate concrete as follows:

1. Apply vibrator at points spaced not farther apart than vibrator's effective radius.
2. Apply close enough to forms to vibrate surface effectively but not damage form surfaces.
3. Vibrate until concrete becomes uniformly plastic.
4. Vibrator must penetrate fresh placed concrete and into previous layer of fresh concrete below.

## CONSTRUCTION JOINTS

### A. Locate as shown or as approved.

## FINISHING

### A. Floor Slabs and Tops of Walls

1. Screed surface to true level planes.
2. After initial water has been absorbed, float with wood float and trowel with steel trowel to smooth finish free from trowel marks.
3. Do not absorb wet spots with neat cement.

### B. Unexposed Slab Surfaces: Screed to true surface, bull float with wood float, and wood trowel to seal surface.

## PROTECTION AND CURING

- A. Protect fresh concrete from direct rays of sunlight, drying winds, and wash by rain.
- B. Keep concrete slabs continuously wet for a 7-day period. Intermittent wetting is not acceptable or use curing compound only where approved by ENGINEER. Cure formed surfaces with curing compound applied in accordance with manufacturer's directions as soon as forms are removed and finishing is completed.
- C. Remove and replace concrete damaged by freezing.

## FIELD TESTS

### A. Evaluation of Concrete Field Strength: In accordance with ACI 318/318R

## **SECTION 27 - CONSTRUCTION METHODS**

27.01 Excavation. The ditch shall be excavated along the lines and to the depth as designated by the Engineer. The Contractor shall furnish, at Contractor's expense, all planks, stakes, spikes, grade boards, and twine that may be required. The Engineer shall have the right to limit the amount of trench that may be opened in advance of the line of work. Should the trench be excavated to a greater depth than that given by the Engineer, the Contractor shall refill to grade, at Contractor's expense, with good, well-tamped material. Trenches, where required, shall be properly sheeted and braced. The bottom of the trench under each pipe shall be shaped to receive the bottom quadrant of the pipe barrel. Bell holes shall be excavated so, after placement, only the barrel of the pipe receives bearing pressure from the trench bottom.

Whenever wet or unstable soil that is incapable of properly supporting the pipe, as determined by the Engineer, is encountered in the trench bottom, such soil shall be removed to the depth and length determined by the Engineer and the trench backfilled to grade with sand, gravel, or other suitable material.

All grading in the vicinity of trench excavation shall be controlled to prevent surface water from flowing into the trench. Any water accumulating in the trench shall be removed by pumping or other approved method. Material excavated from the trench shall be stacked in an orderly manner a sufficient distance back from the edge of the trench to avoid overloading and to prevent slides or cave-ins. Materials unsuitable for backfilling shall be wasted by the Contractor as directed by the Engineer.

A minimum of one foot of topsoil (unless otherwise noted on the plans) shall be removed in any and all areas covered by vegetation. This topsoil shall be stockpiled separately from the material removed from the remainder of the trench. After the pipe is installed and the trench backfilled to an elevation one foot (unless otherwise noted on the plans) below grade, the topsoil shall be replaced and compacted as previously described.

Excavation will not be classified. Whatever material is encountered shall be excavated to the proper grades and, if in any location such material is not sufficient to provide a uniform, even bed for the pipe, the trench shall be excavated at least three (3) inches deeper than the grade at the bottom of the pipe and the space thus excavated shall be refilled with earth or sand and thoroughly compacted.

Trench excavation shall not be paid for separately but shall be considered incidental to the sewer in place.

27.02 Protection of Existing Utilities. The accuracy of location of existing underground utilities as shown on the plans is not guaranteed. It shall be the duty of the Contractor to locate these utilities in advance of excavation and to protect them from damage after uncovering. No house service lines are shown on the plans. The Contractor shall contact the owners of the utilities for assistance in locating these service lines. Any expense incurred by reason of damaged or broken lines shall be the responsibility of the Contractor.

Pipe Laying and Jointing. Pipe shall be protected at all times against impact shocks and free fall. Laying of pipe in finished trenches shall be commenced at the lowest point with the spigot ends on bell-and-spigot pipe and tongue ends on tongue-and-groove pipe pointing in the direction of the flow. Pipe shall be set firmly to line and grade and, preparatory to making pipe joints, all surface of the pipe to be jointed shall be cleaned and dried. Joints shall be made tight to meet requirements of tests specified in the section of these specifications entitled Exfiltration, Infiltration, and Air Testing.



Sewer trenches shall be kept free from water by a method approved by the Engineer. The Contractor shall not pump sewage into a street or pump to a storm sewer unless authorized by the Engineer. Sanitary sewage must be returned to the sanitary sewer by means of pipe and hoses unless it is impossible to do so. In that instance, disposal must be approved by the Engineer.

27.04 Manholes. Manholes shall be constructed as indicated on the plans. Tops shall be fitted with cast iron rings and covers weighing approximately 450 pounds and satisfactory to the Engineer. Manhole steps, where indicated on plans shall be injection molded copolymer polypropylene steel reinforced rod type step. Placement shall be in manholes over three (3) feet in depth, placed on approximately sixteen (16) inch centers. Drop inlet manholes shall be constructed where indicated on the plans.

Manholes of Precast sections conforming to ASTM C478 specifications may be used.

The three (3) types of manhole construction which have been approved are as follows:

- Type 1 – Standard Manhole
- Type 2 – Manhole with ConShield
- Type 3 – Manhole with ConShield and Epoxy Coating

Any substitutes must be approved by the Public Works Director.

**Revised 1-6-2023**

27.05 Storm Sewer Inlets. Storm sewer inlets shall be of the type as shown on the plans and constructed as per the detailed drawings.

27.06 Pipe Bedding. For Class “C” bedding, the space between the pipe and the side of the excavation up to one (1) foot above the top of the pipe shall be filled with sand or fine earth in layers of not more than six (6) inches thick and carefully tamped to form a solid bedding.

For Class “B” bedding, the trench shall be backfilled with a granular fill of crushed stone or pea gravel to an elevation which is half the diameter of the pipe, and the remaining distance from half the diameter of the pipe to one (1) foot above top of pipe shall be a tamped backfill as specified for Class “C” bedding. The granular fill shall have not less than 95% passing 1/2” and not less than 95% retained on a #4 sieve, shall be placed in not more than six (6) inch layers and compacted by slicing with a shovel.

27.07 Trench Backfill. The area more than one foot over the top of pipe shall be designated as trench backfill. Trenches shall not be backfilled until all required tests are performed and until the system installed conforms to the requirements of the plans and specifications. The trenches shall then be carefully backfilled up to one foot above the top of the pipe as specified in the section entitled Pipe Bedding. The balance of the excavated material shall be consolidated in the following manner. As backfilling proceeds, the entire mass shall be vibrated with a mechanical vibrator, provided, however, in all locations where plastic soils are encountered, the backfill material shall not be placed until the moisture content is low enough to obtain maximum density when tamped into place with mechanical tampers. Materials for tamped backfill and the method of placement and compaction thereof shall be specified for Class “C” pipe bedding. The completion of the trench backfill under pavement shall be done according to the section of these specifications entitled Backfilling Under Pavement.

Trench backfill and compaction testing shall adhere to the following requirements:

- A. Public Right-of-Way: Backfill shall be compacted to at least 95% of the maximum dry density (obtained at optimum moisture content plus or minus 2% for silt or clay with no required moisture content for sand) as determined by AASHTO Method T99. The minimum frequency shall be one test for every 12" compacted lift for an area or length worked, but no more than 300' apart. A minimum of one test shall be taken for every 12" compacted lift for each street crossing regardless of the length.
- B. Public Utility Easement: Backfill shall be compacted to at least 90% of the maximum dry density (obtained at optimum moisture content plus or minus 2% for silt or clay with no required moisture content for sand) as determined by AASHTO Method T99. The frequency shall be the same as that for public right-of-way. A minimum of one test shall be taken for every 12" lift for each easement crossing, regardless of the length.

The Engineer in charge shall be furnished a copy of the density testing results. Information on length or area worked, material identification and description, test thickness such as probe length or sample depth, location of sample, elevation of sample, etc. shall be recorded for each sample.

In unimproved areas such as easements and alleys, the trench or opening may be backfilled with sand which shall be flushed into place with water, provided the top twelve (12) inches of backfill shall be made of the excavated topsoil.

No separate or additional payment will be made for backfill compaction and density testing.

#### 27.08 Backfilling Under Pavement.

Standard backfill methods shall be as specified in the section of these specifications entitled Trench Backfill. When standard backfill methods are used, density tests will be required for each twelve (12) inch lift of compacted material placed and for each 300 lineal feet of trench regardless of the length. Density test results shall be submitted to the Engineer before acceptance of the project by the City. Use of nonshrinkable backfill may be required or may be requested for substitution of standard backfill methods by the Contractor under all street sections, existing or proposed, with the approval of the Director Public Works.

Trenches shall not be backfilled until all required tests are performed and the system conforms to the plans and specifications. The Contractor shall maintain the sewer trench backfill for one (1) year from the date of acceptance of the project by the City.

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27.09 Nonshrinkable Backfill.

All excavations where a sidewalk, curb, gutter, or paved street has been cut or where new paving (concrete or asphalt) will be placed may be backfilled using nonshrinkable backfill per Section 27.08. The backfill shall be filled to the subgrade of the undisturbed sidewalk, curb, gutter, paving, or earth surface. The nonshrinkable backfill shall be a mixture of sand, gravel, Portland cement, and water (such as State of Nebraska Department of Transportation Standard Specifications for Highway Construction, Section 1003.02) which flows easily around the utility being covered and develops a 28 day compressive strength of from 30 to 200 psi. No nonshrinkable backfill mix designs shall be used without the approval of the Director of Public Works. Fly ash may be approved in the mix if test data are submitted to indicate the above characteristics are met.

27.10 Stacks. Where indicated on the plans or directed by the Engineer, six (6) inch stacks will be furnished and constructed complete with clay stoppers to within ten (10) feet of ground surface or above underground water surface. All stacks will be constructed in accordance with the standard plan entitled Stack Construction Details in Division VIII, Standard Plan Drawings.

A separate stack shall be constructed for each house connection and in no case shall two service connections be connected to the same stack.

27.11 Relation to Water Mains.

Horizontal and Vertical Separation. Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, the appropriate reviewing agency may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches (460 mm) above the top of the sewer.

If it is impossible to obtain proper horizontal and vertical separation as described above, both the water main and sewer must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the agency and be pressure tested to 150 psi (1034 kPa) to assure watertightness before backfilling.

Crossings. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches (460 mm) between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

When it is impossible to obtain proper horizontal and vertical separation as stipulated above, one of the following methods must be specified:

- a. The sewer shall be designed and constructed of PVC pipe and equal to water pipe, and shall be pressure tested at 150 psi (1034 kPa) to assure water tightness prior to backfilling.
- b. Either the water main or the sewer line may be encased in a watertight carrier pipe which extends 10 feet (3 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the regulatory agency for use in water main construction.

27.12 Testing. Upon completion of sewer, each pipe line and manhole will be tested as specified by the Engineer in charge. The Contractor shall furnish such tools, hose, and other equipment necessary for making such tests and shall be present during the inspection to note any deficiencies that may exist. Before final acceptance, all sewers shall be clean, shall comply with the specifications and all contract documents, and shall be acceptable to the Engineer and municipal authorities.

27.13 Exfiltration and Air Testing. Both the sewer pipe line and the manholes shall be tested. Manholes shall be exfiltration tested only. Sewer pipe lines shall be air tested only.

The first line between manholes shall be tested before backfilling and before any sewer pipe is installed in the remainder of the work. Thereafter, individual or multiple lines (optional to the Contractor with approval of the Engineer) shall be tested.

Exfiltration Test. This test shall be performed according to stated procedures and under the supervision of the Engineer. The test shall be conducted by blocking off all manhole openings, filling the manhole, and measuring the water level in the manhole for reference. The head above the pipe invert shall be about ten (10) feet. The head shall not exceed twenty-five (25) feet or be less than five (5) feet. The parameters for infiltration are similar. When the ground water level is above the pipe invert, the head shall be measured from ground water elevation. The total exfiltration shall not exceed 100 ~~200~~ gallons per inch of diameter per mile of pipe per day. Manholes shall be considered as sections of 48 inch or 60 inch pipe. The exfiltration test shall be maintained for at least two (2) hours or as long as necessary to locate all leaks, as directed by the Engineer. If the leakage in any reach exceeds the allowable maximum, it shall be retested after the leaks are repaired.

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Air Test. This test shall be performed according to stated procedures and under the supervision of the Engineer.

Equipment used shall meet the following minimum requirements: (a) Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be tested, (b) pneumatic plugs shall resist internal testing pressure without requiring external bracing or blocking, (c) all air used shall pass through a single control unit, and (d) individual hoses shall be used for the following connections: (1) from control unit to pneumatic plugs for inflation, (2) from control unit to sealed line for introducing the low pressure air, and (3) from sealed line to control unit for continually monitoring the air pressure inside the pipe being tested.

Procedures: All pneumatic lugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be pressurized to 25 psig. The sealed pipe shall be pressurized to 5 psig. The plugs shall hold against this pressure without movement of the plugs out of the pipe.

After a manhole to manhole reach of pipe has been backfilled and cleaned and the pneumatic plugs are checked by the above procedures, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any ground water that may be over the pipe.

After a manhole to manhole reach of pipe has been backfilled and cleaned and the pneumatic plugs are checked by the above procedures, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any ground water that may be over the pipe.

At least two (2) minutes shall be allowed for the air pressure to stabilize.

After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control unit to the air supply shall be disconnected. The portion of line being tested shall be termed "acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 3.0 psig (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

				SPECIFICATION TIME FOR LENGTH (L) SHOWN (MIN:SEC)								
1 Pipe Diameter (in.)	2 Minimum Time (Min: sec)	3 Length for Minimum Time (ft)	4 Time for Longer Length (sec)	100 FT	150 FT	200 FT	250 FT	300 FT	350 FT	400 FT	450 FT	
4	1:53	597	.190L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53	
6	2:50	398	.427L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12	
8	3:47	298	.760L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42	
10	4:43	239	1.187L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54	
12	5:40	199	1.709L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50	
15	7:05	159	2.671L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02	
18	8:30	133	3.846L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51	
21	9:55	114	5.235L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16	
24	11:20	99	6.837L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17	
27	12:45	88	8.653L	14:25	21:38	28:51	36:40	43:16	50:30	57:42	64:89	
30	14:10	80	10.683L	17:28	26:43	35:37	44:31	53:25	62:19	71:13	80:07	
33	15:35	72	12.926L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57	
36	17:00	66	15.384L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23	

In areas where ground water is known to exist, the Contractor shall determine the water elevation prior to running the test. The height of water over the invert of the pipe shall be divided by 2.3 to establish the pounds of pressure that will be added to all readings. For example, if the height of the water is 11-1/2 feet, then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig and the 3.0 psig to 8.0 psig. The allowable drop of one half pound and the timing remain the same. For safety reasons, do not exceed 9.0 psig.

If the installation fails to meet this requirement, the Contractor shall, at Contractor's expense, determine the source of the leakage. Contractor shall then repair or replace all defective materials and/or workmanship. Air testing shall then be performed on the repaired line to meet the above specifications.

**27.14 Television Inspection.** Television inspection shall be required to determine if any defects exist prior to final acceptance. A minimum of 30 days shall lapse between completion of construction and television inspection.

Mobile closed circuit television inspection equipment shall be used to televise sewer lines between manholes. The camera shall be pulled through the line. Push type cameras are not acceptable. Robotic type camera equipment shall be used to televise stubouts.

The television camera used for the inspection shall be a color camera specifically designed and constructed for such inspection. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe. Picture quality and definition shall be satisfactory to the Engineer. Inspection operations shall cease if the quality of the image on the screen is unsatisfactory. No payment will be made for unsatisfactory inspections.

A continuous image for viewing shall be produced. The images shall be of first rate quality according to the currently accepted standards for television inspection of sewers. A system, which displays the camera location in feet on the monitor with respect to the starting manhole's centerline, shall be used. This system shall automatically update the camera location display as the camera is pulled forward or backward through the sewer line.

Measurement for location of observations to be recorded shall be made at the ground level by means of a meter device. Measurement meters shall be accurate to one-half (0.5) foot. Measurements shall be referenced from the center of the manhole where the camera is started to the center of the manhole where observations are terminated. The measurements shall be checked at the completion of the observations by measuring the distance between manhole centers at the ground level. The observed measurements made by the meter and the ground level measurements shall correspond to within plus or minus one foot. Surface measurements shall be made by the contractor in the presence of the Engineer's representative.

The television camera shall be moved through the line at a uniform slow rate. During the inspection the camera shall be stopped at the points where one or more of the following conditions are observed and distances recorded.

1. Service line tees, wyes or taps.
2. Infiltration/inflow sources.
3. Structural defects, including broken pipe, collapsed pipe, cracks, punctures, settling, etc.
4. Abnormal joint conditions, such as horizontal and vertical misalignment, open joints, joints not fully sealed, etc.
5. Unusual conditions.

All such conditions shall be photographed as determined by the Engineer. Photographs of all questionable conditions shall be taken for subsequent review. The photographs shall be taken from the image on the TV monitor with a Polaroid, a 35 mm camera, or other approved methods. Before taking the photographs, the TV camera shall be properly positioned so the optimum view can be obtained. The image size of photographs shall be no smaller than three inches by four inches.

All photographs shall be identified by location, date taken, and names of the owner's and Contractor's representative. The location of all photographs shall be identified by recording the distance from each defect or point of interest to the center of the reference manhole. All photographs shall be submitted as specified.

A DVD/CD with a clear and audible voice narrative of the entire TV monitoring shall be furnished. Each disk will be delivered to the Engineer in charge. Each disk shall be titled on the screen with the date, manhole numbers, pipe size, district or project number. The camera shall be set to begin at the center of the manhole and the footage zeroed out.

The title shall change at each manhole and the footage zeroed out again before starting a new pull when more than one section of sewer is televised in succession. Defects in the sewer line shall be repaired or replaced by the Contractor, as directed by the Engineer, at no cost to the City.

One bound copy of the final inspection report shall be submitted to the Engineer. Included in the report shall be a map showing the work area, a wye location report, a television inspection report, and a DVD/CD and all pictures.

Television inspection shall be measured and paid for on the basis of unit price as set forth in the bid. Such unit price payment shall be full compensation for all reports, photographs, and other work related work to complete the closed circuit television monitoring.

27.15 Exposure of Pipe or Manholes. The Contractor shall conduct the work at all times in such a manner as will insure no disruption to the normal function of the sanitary sewer collection system. Particular attention shall be paid to the threat of introduction of storm water or other waters to the piping and manholes of the collection system. The Contractor shall take whatever precautions are necessary, such as, but not limited to, installation of plugs in exposed pipes and manholes when work is not in progress or when leaving the work site. The Contractor will be held responsible for damages which may occur to either the collection system or to private property through introduction of storm water or other waters to exposed piping or manholes relating to the construction work.

## **SECTION 28 - DRAINAGE STRUCTURE CONSTRUCTION**

28.01 Concrete Work. The construction of forms, mixing, placing, finishing, and curing of concrete work, as well as the fabrication, placement, protection, and cleaning of reinforcement, shall conform to the applicable parts of Division II, Portland Cement Concrete Pavement.

28.02 Brick Work. All brick shall be wetted before being laid in a 1:2 cement mortar. All joints shall be completely filled with mortar and shall not be less than 1/4 inch and not more than 1/2 inch in thickness. The joints shall be completely filled, smooth and free from surplus mortar on the inside of the walls. Bricks shall be laid radially with every sixth course laid as a stretcher course. Brick shall be plastered with 1/2 inch of mortar over the entire outside surface of wall.

28.03 Precast Manhole Sections. Precast concrete sections for manholes shall be installed with bituminous joint filler.

28.04 Acceptance. Upon completion of a job, all debris and surplus materials shall be removed from the job by the Contractor. The Engineer shall be notified, and shall make an inspection of the work. The City will be notified in writing as to the acceptability of the work.

Prior to City acceptance all storm and sanitary sewers will be televised by the City. Payment will be per foot for televising. Fifteen (15) days after any dewatering wells have been turned off the televising can be performed.

Any cleaning performed by the City will be charged by the hour to the Contractor.

## **SECTION 29 - METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

29.01 Sewer Pipe in Place. Sewer pipe shall be measured and paid for at the contract unit price per lineal foot for various sizes including excavation and backfill complete in place. Sewer pipe shall be measured for payment after installation of the sewer through all line manholes and through the walls of structures and existing manholes and shall include the portion of all wyes considered as main line sewer. Such payment shall be full compensation for all labor, plant, equipment, and materials necessary for a complete and acceptable project, including removal of all debris and final cleanup of the job.

29.02 Service Tees. Tees shall be paid for at the contract unit price for various size tees. Measurement for payment shall include that portion of the tee from the barrel of the main line sewer to the end of the tee. A 1" x 4" lumber sufficient in length to reach the ground surface shall be placed vertically at the end of each service lateral, or approved alternate marker.

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29.03 Manholes. Manholes shall be paid for at the contract unit price bid per manhole for a depth of five (5) feet which payment shall include base, stubouts, and ring cover. Additional payment shall be made for manholes more than five (5) feet in depth, measured from flow line to top of cover, at the contract unit price for each vertical foot or fraction thereof in excess of five (5) feet.

29.04 Storm Sewer Inlets. Storm sewer inlets shall be paid for at the contract unit price bid per inlet.





# **DIVISION VII**

## **PVC GRAVITY SANITARY SEWERS**

**DIVISION VII  
PVC GRAVITY SANITARY SEWERS**

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**DIVISION VII**  
**PVC GRAVITY SANITARY SEWERS**

This division is written so that ordinarily the type of construction described is complete but, where applicable, other divisions are considered a part of this specification.

**SECTION 37 - PRODUCT SPECIFICATIONS**

These specifications cover the requirements of Poly (Vinyl Chloride) (PVC) gravity pipe and fittings for the drainage of sewage. All PVC gravity sewer pipe shall conform to the physical and performance requirements of the latest revision of ASTM Specification D3034 "Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings," and ASTM Specifications F679 "Poly (Vinyl Chloride) (PVC) Large-Diameter (18"-27") Plastic Gravity Sewer Pipe and Fittings." PVC pipe shall have a minimum pipe stiffness of 46. The Poly (Vinyl Chloride) (PVC) material is classified per ASTM Specification D1784.

**SECTION 38 - NOMENCLATURE**

The plastics nomenclature used in the specifications are in accordance with the definitions given in Nomenclature ASTM D883 and ASTM F412 unless otherwise indicated. The abbreviation for Poly (Vinyl Chloride) plastic is PVC.

**SECTION 39 – JOINTING SYSTEMS**

39.01 General. The joint shall provide a permanent seal against exfiltration or infiltration. The joining technique must be elastomeric gasket.

39.02 Elastomeric Gasket Joints. The critical sealing dimensions of the bell, spigot, and gasket shall be in accordance with the manufacturer's standard dimensions and tolerances. The elastomeric compound shall comply in all respects with the physical requirements specified in ASTM Specification F477. The gasket shall provide an adequate compressive force against the sealing surfaces of the bell and spigot so as to effect a positive seal under all combinations of the joint tolerances. The gasket shall be the only element depended upon to make the joint flexible and watertight.

39.03 Fittings. Fittings using snap ring gaskets cannot be used.

**SECTION 40 - INSTALLATION**

Installation of pipe shall comply with Sections 38 through 45. The Engineer shall approve the type of bedding and backfill material.

**SECTION 41 - SCOPE**

These specifications describe procedures for installing solid single wall thermoplastic sewer pipe in excavated trenches. These installation procedures are based on design requirement for flexible conduit and provide for proper control of installation practices.

## **SECTION 42 - GENERAL REQUIREMENTS**

The pipe shall be bedded true to line and grade with uniform and continuous support from a firm base in accordance with ASTM Specification D2321. Blocking shall not be used to bring the pipe to grade. Backfill material properly placed and compacted will provide lateral restraint against deflection exceeding 5% of the base inside pipe diameter as per ASTM Specification D3034 and F679.

## **SECTION 43 - SIGNIFICANT FACTORS IN PIPE/SOIL INTERACTIONS**

The type and gradation of the material used in bedding, haunching, and initial backfilling, as well as the manner and care with which it is installed, are important factors in achieving satisfactory installation of flexible conduit. The amount of diametric deflection that can be anticipated during installation is related to the type and gradation of the embedment material and pipe stiffness as well as the care with which it is placed under, around, and over the pipe. Thus careful consideration should be given in choosing these materials and in the method of placement and compaction in accordance with ASTM Specification D2487 and ASTM Specification D2488.

## **SECTION 44 - TRENCH CONSTRUCTION**

44.01 Trench Preparation. During preparation of the trench, certain conditions may be encountered requiring special treatment to provide adequate bedding and foundation or to stabilize the trench walls or bottom. Conditions which may be anticipated are described in this section.

44.02 Trench Width. Care should be taken during excavation of the trench to provide as narrow a trench as practical at a point level with the top of the pipe. If it becomes necessary to construct a trench wider than seven (7) pipe diameters, it is recommended that the pipe be in a sub-trench (see Diagram No. 2) to minimize earth load. However, in no case shall the trench width exceed the pipe manufacturer's recommendation.

44.03 Unstable Trench Walls. Where unstable or running trench soil condition is encountered such as may be found by excavating below ground water, the trench condition must be stabilized before laying the pipe. When excessive ground water conditions exist, the Engineer may elect to use well point or under drains. Care should be taken to prevent displacement of bedding or foundation soil material as a result of lateral or upward movement of the running soil or removal of sand or silt during the dewatering. The Engineer may also elect to use shoring with sheeting, stay bracing, or a trench box to stabilize the trench walls during construction.

It is recommended that these trench supports be left in place after construction. If the shoring is to be removed, the slot left in the tamped fill should be filled and tamped in compliance with Section 43, "Haunching and Initial Backfill."

44.04 Unstable Trench Bottom. Where an unstable (i.e. water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This can be accomplished by undercutting the trench depth and replacing to grade with a foundation and bedding of processed stone or processed gravel as described for Class I in Section 43, "Bedding." The use of processed gravel and stone will act as a mat into which the unstable soil will not penetrate. The depth of the foundation and bedding is dependent on the severity of the trench bottom; however, a six (6) inch layer is sufficient in most cases. If the foundation contains large particle size material that might damage the pipe, provide a cushion of acceptable bedding material between the foundation and the pipe. Care should be taken to prevent migration of the bedding material into the foundation material.

44.05 Rock Excavation. When the pipe is laid in a rock cut, a layer of bedding six (6) inches deep shall be provided as described in accordance with Section 42, "Bedding."

## **SECTION 45 - BEDDING**

Prior to pipe installation, carefully bring the bedding material to grade along the entire length of pipe to be installed. To provide adequate support for the pipe, the following bedding procedures are recommended:

Class I Material. When Class I material is used for bedding, little or no compaction is necessary due to the nature of the angular particles. A depth of six (6) inches of Class I material is generally sufficient to provide uniform bedding. If Class I material is used for bedding, it must also be utilized for haunching up to or higher than the spring line of the pipe to avoid loss of side support through migration of Class II or Class III haunching material into the bedding.

Class II Material. Take care with Class II material to provide a uniformly compacted bedding. Excavate the bedding material or place to a point above the pipe bottom, determining such point by the depth of loose material resulting in preparation of the bedding and the amount of compaction that will be required to bring the material to grade. Use hand or mechanical tamping to compact the bedding material to a minimum 85 percent Standard Proctor Density. Slightly damp material will generally result in maximum compaction with a minimum of effort. If water is added to improve compaction or if water exists in the trench, take care to avoid saturation of Class II material which could result in additional stability problems of the bedding. Carefully bring the surface of the bedding to grade after compacting it.

Class III Material. Provide uniform pipe bedding for Class III material in the same manner as outlined for Class II materials except use hand or mechanical tamping to compact the bedding material to a minimum of 90 percent Standard Proctor Density. Take care to avoid excessive moisture in Class III material when used for bedding.

## **SECTION 46 - HAUNCHING AND INITIAL BACKFILL**

The placement of embedment material in the area around the pipe must be installed with care. The pipe's ability to withstand loading in a trench depends in a large part on the methods employed in its installation. The following procedures are recommended for the various soil types:

Class I Material. Use under wet conditions. In any area where the pipe will be installed below existing or future ground water levels or where the trench could be subject to inundation, Class I material shall be used for bedding, haunching, and initial backfill. However, in the initial state of placing this type of material, care should be taken to ensure that sufficient Class I material has been worked under the haunch of the pipe to provide adequate side support.

Precautions should be taken to prevent movement of the pipe during placing of the material under the pipe haunch. Except for the protection of the pipe from large particles of backfill material, little care need be taken and no compaction is necessary in placing backfill material in the balance of the initial backfill area above the pipe. Where unstable trench walls exist because of migratory materials such as waterbearing silts or fine sand, care should be taken to prevent the loss of side support through the migratory action.

Class I Material - Use under dry conditions. In any areas where ground water will not be experienced at any time above the level of the foundation material or where the trench will not be subject to inundation, Class I material shall be placed to or higher than the spring line of the pipe and with a minimum of effort to compact the material. However, in the initial stage of placing this type of material, take care to ensure that sufficient Class I material has been worked under the

haunch of the pipe to provide adequate side support. Take precautions to prevent movement of the pipe during placing of the material under the pipe haunch. Except for the protection of the pipe from large particles of backfill materials, little care needs to be taken and no compaction is necessary in placing the initial backfill material if Class I material is used. If Class II or Class III material is used above the spring line, achieve a compaction ratio of 85 percent Standard Proctor Density.

Class II Material. Place Class II material to the spring line of the pipe and compact by hand or mechanical tamping. Take precautions to prevent movement of the pipe during placing of the material through the pipe haunch. Place initial backfill material in two stages: one to the top of the pipe and the other to a point at least six (6) inches over the top of the pipe. Compact each stage of haunching and initial backfill by hand or mechanical tamping to a minimum of 85 percent Standard Proctor Density. If the remaining backfill material contains large particles which could damage the pipe from impact during placement, increase the second stage of initial backfill to a point at least twelve (12) inches over the top of the pipe. If the trench width is less than twice the diameter of the pipe where the moisture content at the pipeline grade is negligible and not subject to seasonal or local variations, Class II material can be installed for pipe haunching in a dry state by hand placement with no compaction.

Class III Material. Place Class III material with care under the lower haunch area of the pipe, compact, and then place additional material to the spring line of the pipe. If care has been taken to shape the bedding material to the curvature of the pipe, only one stage of placement will be required to bring the haunching material to the spring line of the pipe. In either event, thoroughly compact the haunching material to a minimum of 90 percent Standard Proctor Density. Take precautions to prevent movement of the pipe during placing of material under the pipe haunch. Perform initial backfilling in the same manner as outlined for Class II materials using hand or mechanical tamping, but achieve a minimum of 90 percent Standard Proctor Density.

## **SECTION 47 – BACKFILL**

47.01 General. The material that completes the backfilling operation need not be as carefully selected as the initial backfill. It is usually placed in the trench by machine. Care should be taken, however, to avoid large stones, frozen clumps of dirt, etc. which could damage the pipe by impact or by being forced through the soil cushion and against the pipe.

47.02 Trench Backfill. See Division V – Storm and Sanitary Sewer, Paragraph 27.07 Trench Backfill, Paragraph 27.08 Backfilling Under Pavement and Paragraph 27.09 Nonshrinkable Backfill.

## **SECTION 48 - TESTING**

48.01 Testing for Tightness. See Division V, Storm and Sanitary Sewers, Paragraph 27.13 Exfiltration and Air Testing.

48.02 Test for Deflection. After the pipe has been laid and backfilled, the Engineer shall require appropriate deflection testing. This test is conducted by pulling a pointed mandrel through the pipe as described in Appendix “A.” The Engineer shall designate the method of testing to be used. Upon completion of backfill the maximum allowable deflection shall not exceed 5% of the pipe’s base inside diameter in accordance with Appendix X2 of ASTM Specification D3034 and F679. The base inside diameter of the pipe shall be determined in accordance with Appendix Section X1 of ASTM Specification D3034 and F679. Testing shall be conducted on a manhole to manhole basis or in total, as specified. To ensure accurate measurement, it is important that the line to be tested is completely water flushed.

This test will not be run for at least thirty (30) days after the trench has been backfilled. If the trench was dewatered, the water table will be permitted to recover to at least three-fourths of its previous depth above the pipe before this thirty (30) day period starts.

48.03 Test Rejection. Should the results of any test fail to meet the criteria established in these specifications, the Contractor shall, at Contractor's expense, locate and repair the rejected section and retest until it is within specified allowance.

48.04 Alignment. Sewers shall be laid with straight alignment between manholes. Straight alignment shall be checked by either using a laser beam or lamping.

## **SECTION 49 – EXPOSURE OF PIPE OR MANHOLES**

The Contractor shall conduct the work at all times in such a manner as will ensure no disruption to the normal function of the sanitary sewer collection system. Particular attention shall be paid to the threat of introduction of storm water or other waters to the piping and manholes of the collection system. The Contractor shall take whatever precautions are necessary, such as, but not limited to installation of plugs in exposed pipes and manholes when work is not in progress or when leaving the work site. The Contractor will be held responsible for damages which may occur to either the collection system or to private property through introduction of storm water or other waters to exposed piping or manholes relating to the construction work.

### **APPENDIX “A”**

Deflection measurements shall be made upon completion of the project providing the pipe has been installed for not less than thirty (30) days and not more than twelve (12) months prior to testing. The Engineer shall require either complete or random deflection testing. If a random deflection procedure is specified, it shall be on a manhole to manhole basis, preferably in select areas as described below:

1. Where high ground water was encountered,
2. Where trench walls or bottoms were difficult to stabilize,
3. Where minimum Proctor Density was difficult to achieve,
4. Where frozen soil was utilized for final backfill,
5. Where heavy rains were encountered during construction, and
6. Any other areas that could present special problems.

The period of thirty (30) days to twelve (12) months is deemed an adequate time period for the soil to settle and stabilize. This phenomenon is dependent on geographical climatic conditions such as heavy rains or snows, changing water tables, extended dry periods, or freeze-thaw cycles. The Engineer shall designate when the testing will be performed.

Instructions for mandrel deflections testing are as follows:

1. Completely flush the line making certain the pipe is clean of any mud or trash that would hinder the passage of the mandrel.
2. During the final flushing of the line, attach a floating block or ball to the end of the mandrel, pull rope and float the rope through the line. A nylon ski rope is recommended.
3. After the rope is threaded through the line, connect the pull rope to the mandrel and place the mandrel in the entrance of the pipe.



4. Connect a second rope to the back of the mandrel. This will enable you to retrieve the mandrel if excessive deflection is encountered.

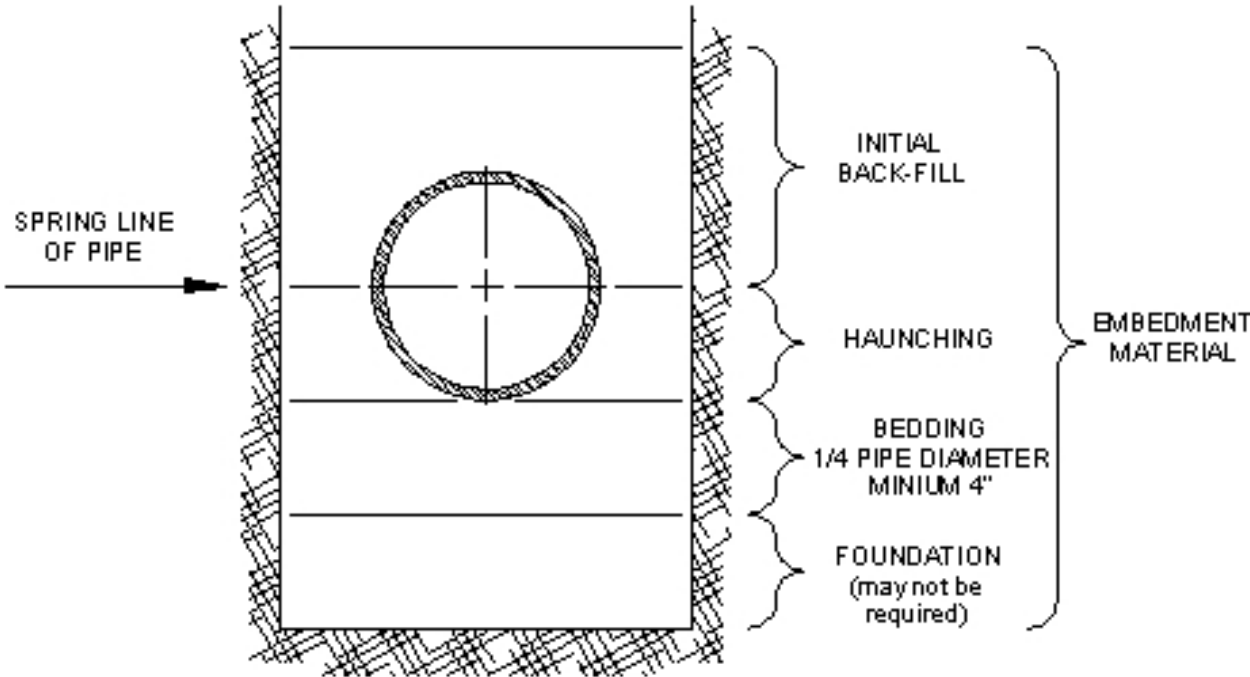
5. Remove all slack in the pull rope by gently pulling the rope at the far manhole. After the slack has been removed, place a tape marker on the rope close to the pipe where the mandrel will exit. If mandrel encounters excessive deflection, the marker will provide a means of measuring the travel distance of the mandrel so the deflected area can be located.

6. Draw mandrel through the sewer line.

7. An increasing resistance to pull is an indication of excessive deflection. If this occurs, measure the distance of the rope from the marker to the manhole.

8. Retest.

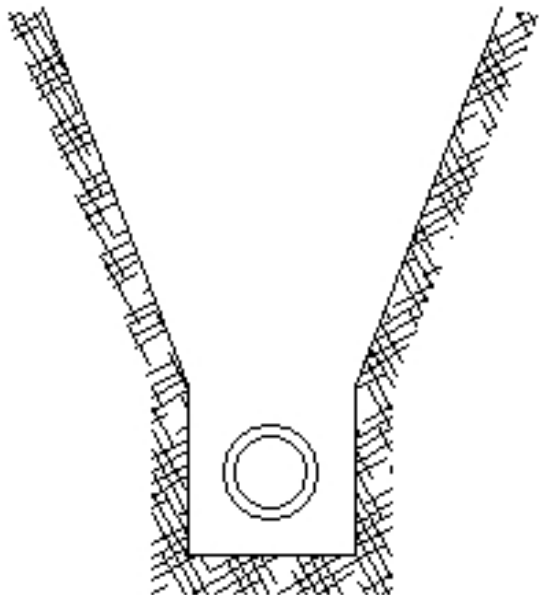
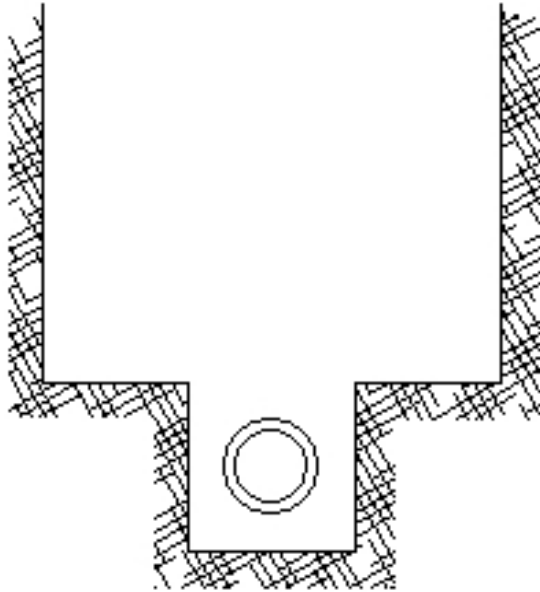
DIAGRAM 1



PIPE ZONE TERMINOLOGY

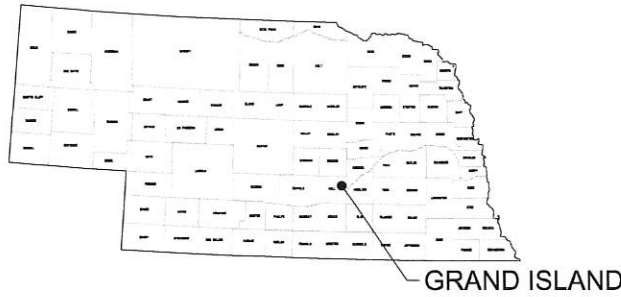
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**SUB-TRENCH DESIGN**

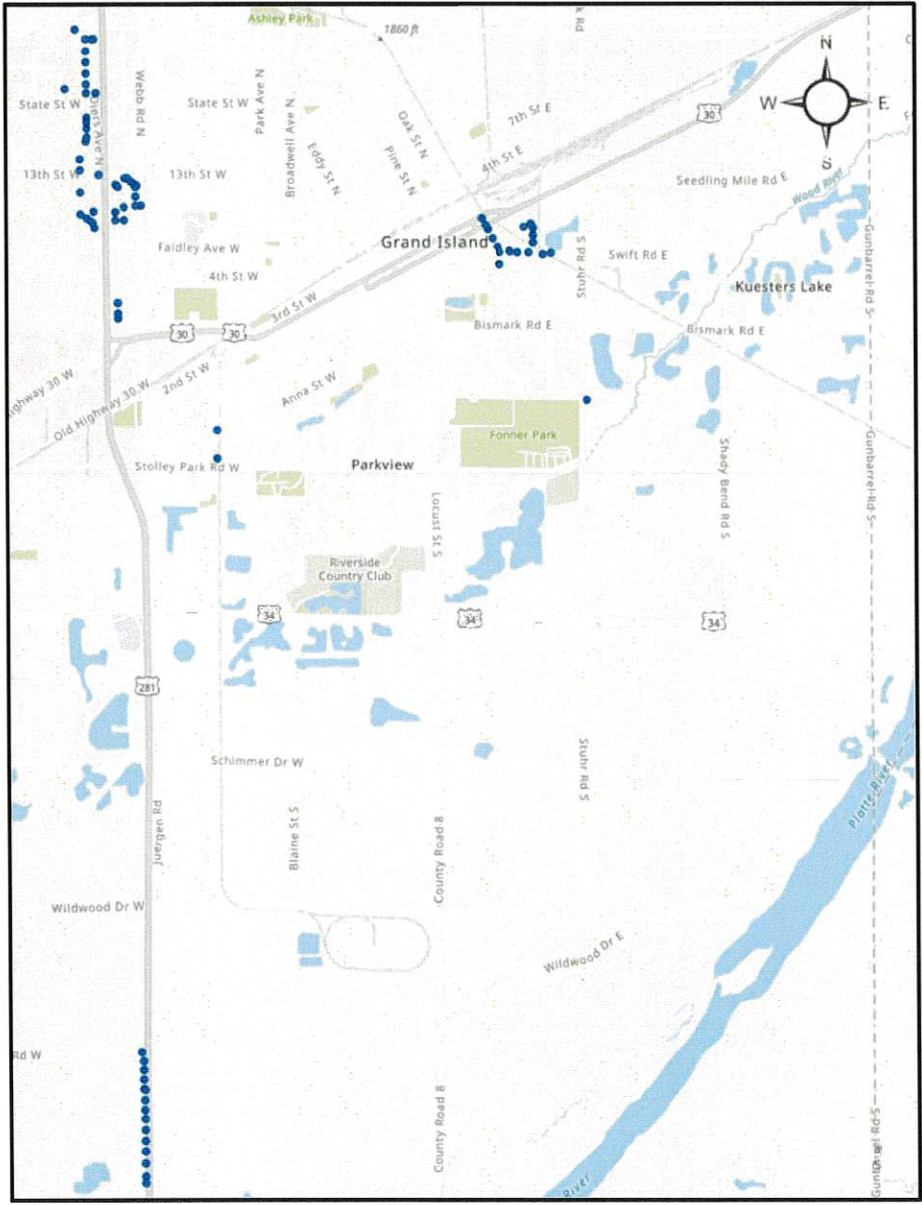


# GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION - 2024 CITY PROJECT 2023-S-10 CITY OF GRAND ISLAND, NE

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SANITARY SEWER MANHOLE REHABILITATION PROJECT 2023-S-10  
 APPROVED FOR CONSTRUCTION  
  
 PUBLIC WORKS DIRECTOR 12/18/23  
DATE



**GRAND ISLAND, NEBRASKA**  
NOT TO SCALE

INDEX OF DRAWINGS	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	SITE PLAN
4	SITE PLAN
5	SITE PLAN
6	SITE PLAN
7-26	MANHOLE REHABILITATION PLAN

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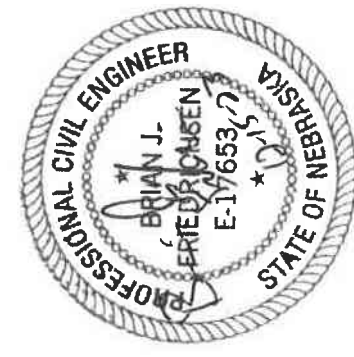
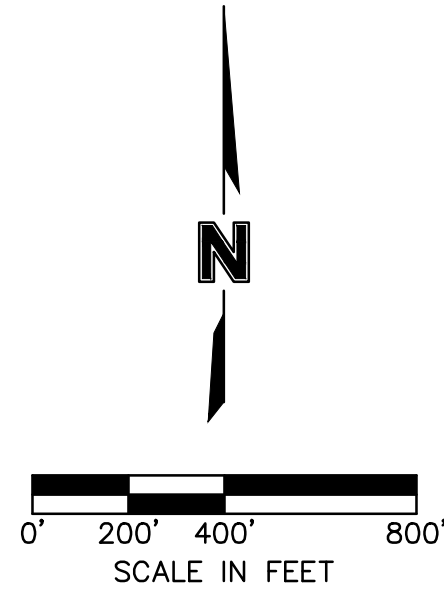
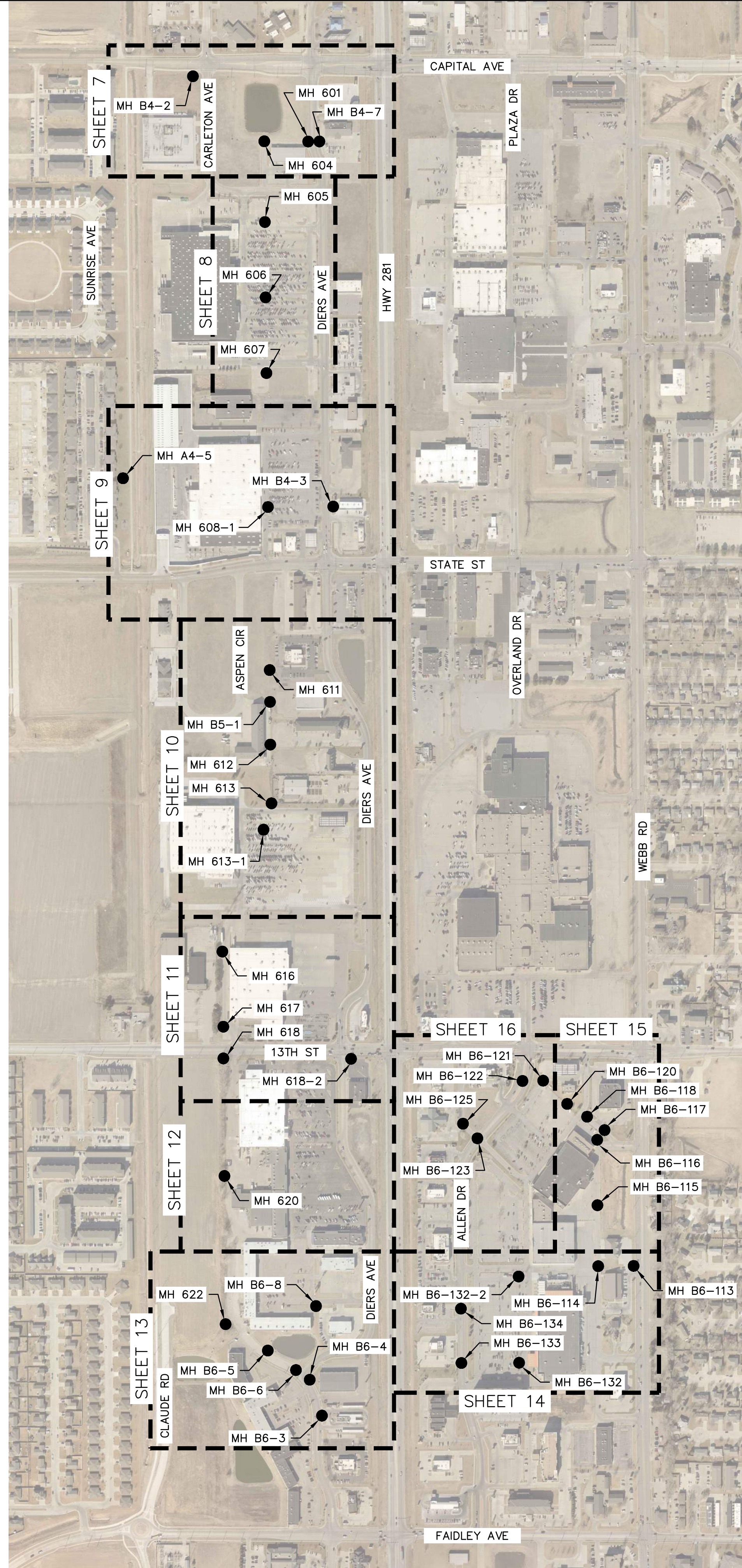
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 REHABILITATION, CITY PROJECT 2023-S-10  
 GRAND ISLAND, NEBRASKA

2023

drawn by: KDG  
 checked by: B/JF  
 approved by: B/JF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
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SITE PLAN

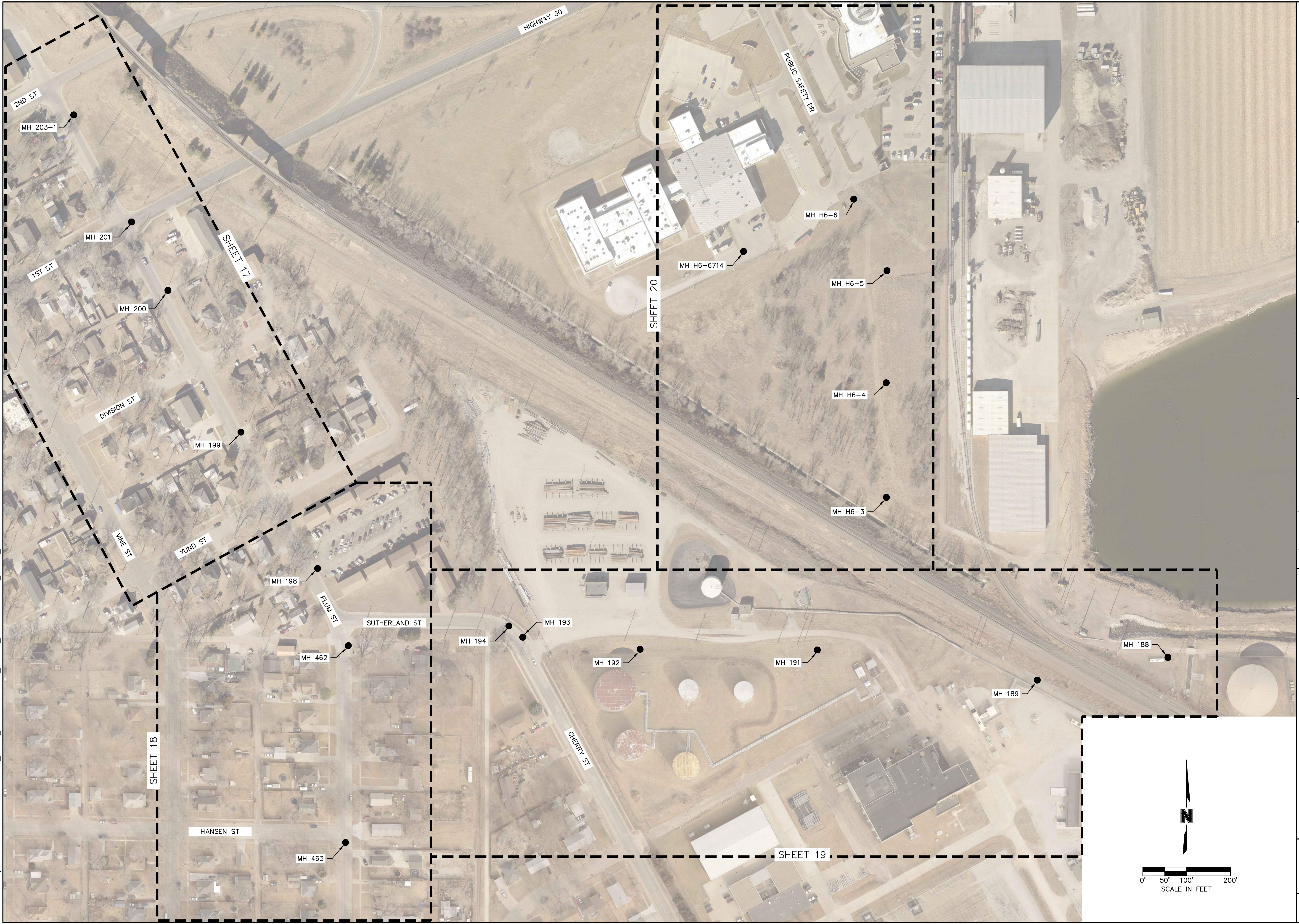
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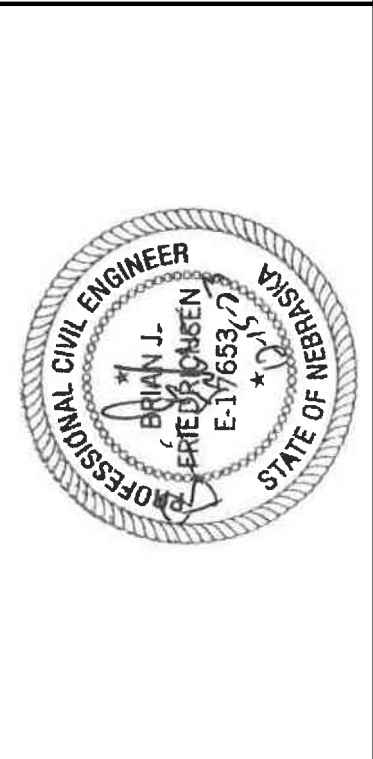
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 approved by: BJF  
 QA/QC by: JB  
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 drawing no.:  
 date: DECEMBER 2023

SHEET  
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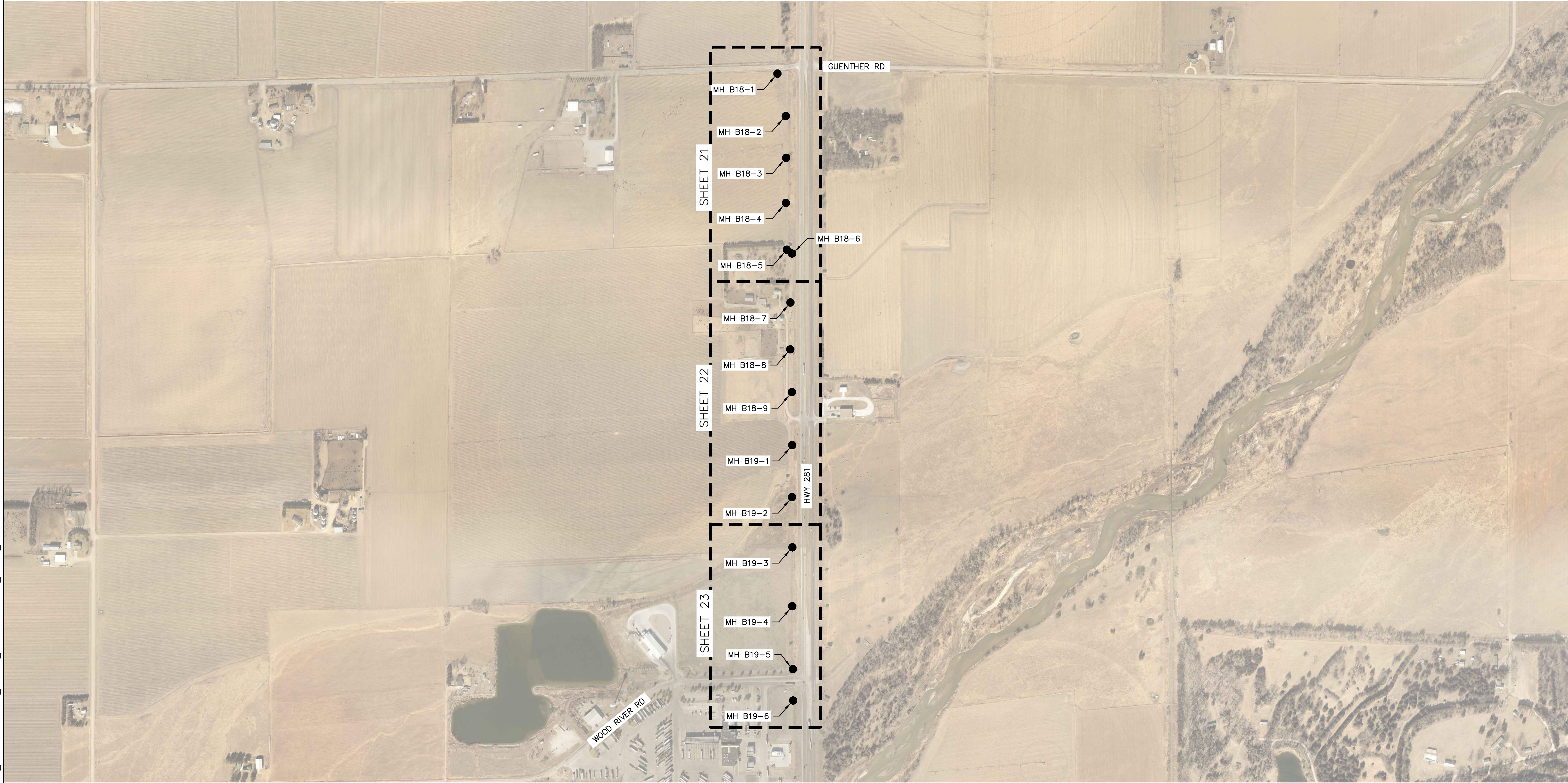
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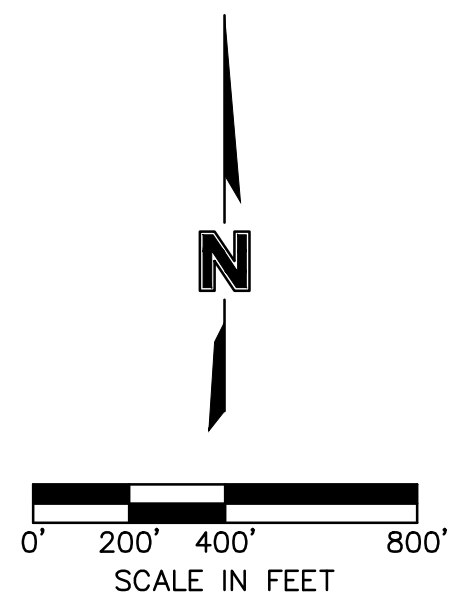
  

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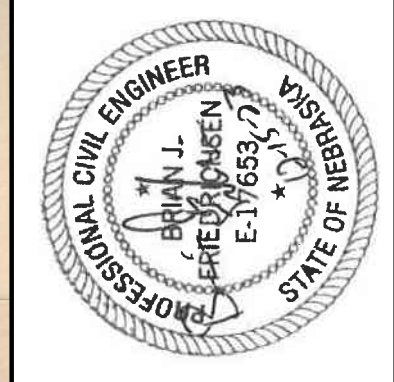
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ANY MANHOLE SITUATED ON CROP GROUND MUST BE COMPLETED NO LATER THAN MAY 24TH 2024.



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**SITE PLAN**

GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10

GRAND ISLAND, NEBRASKA

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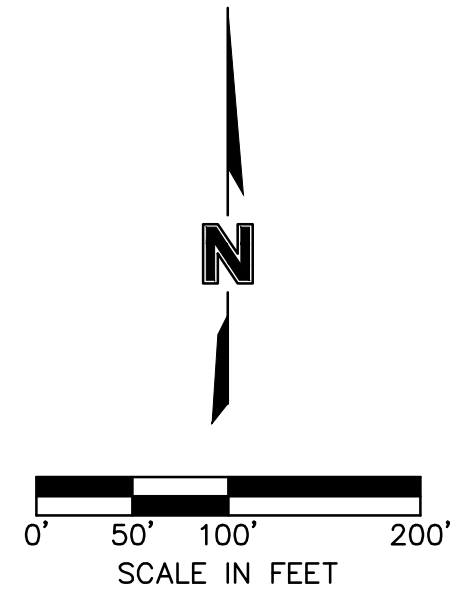
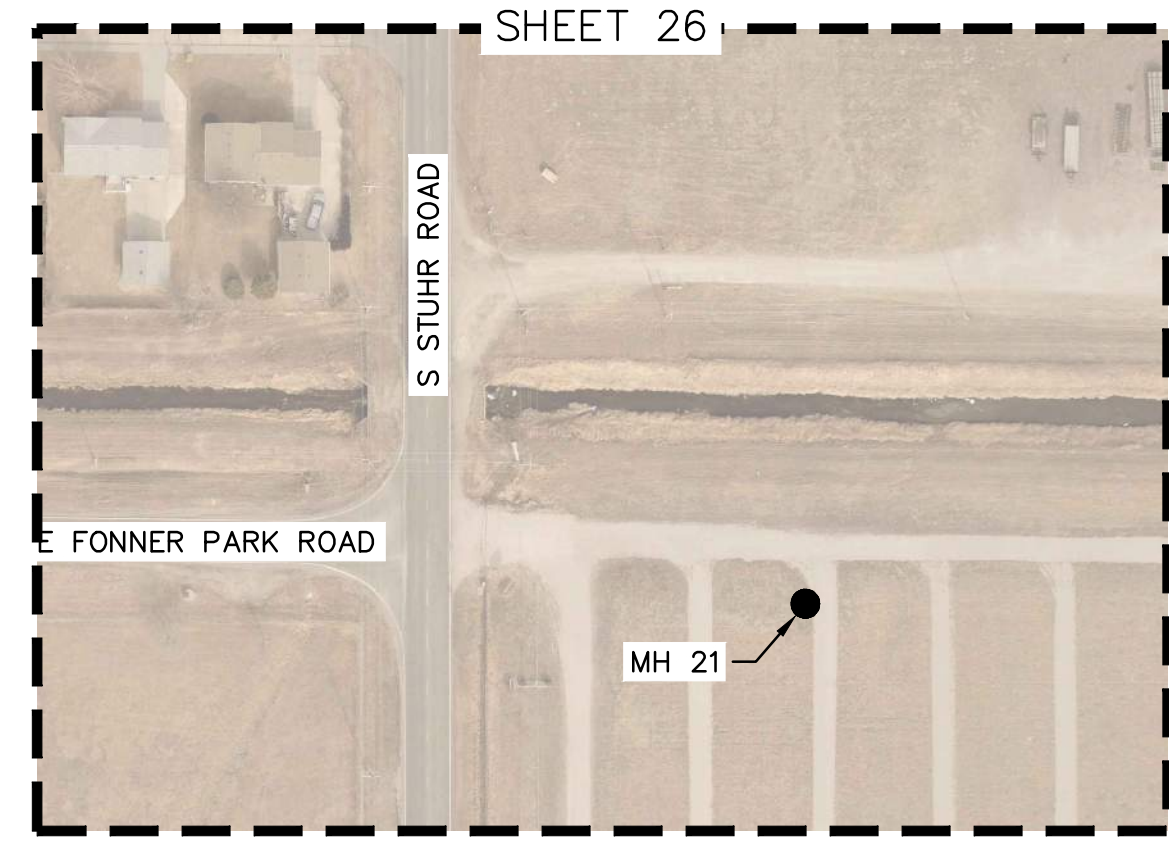
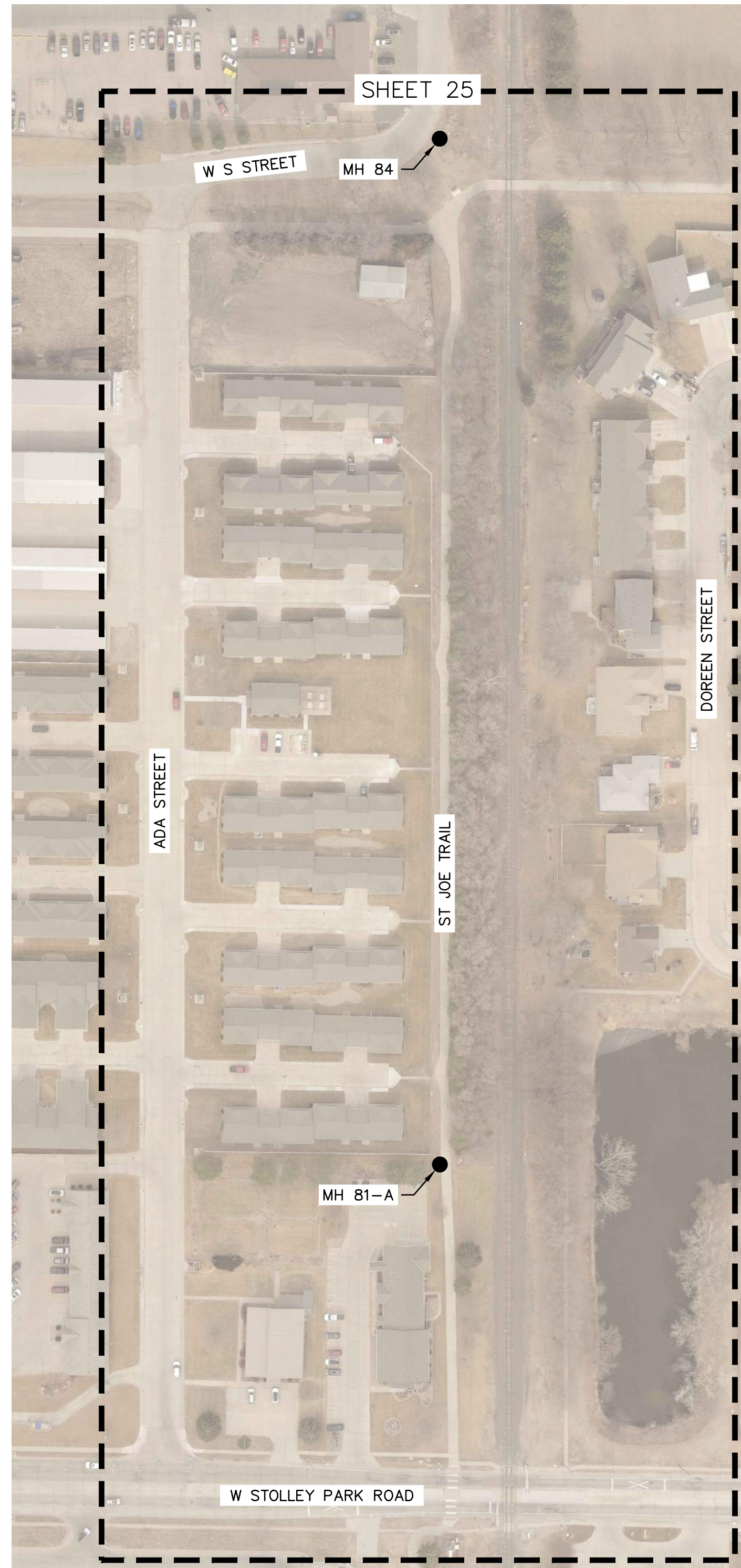
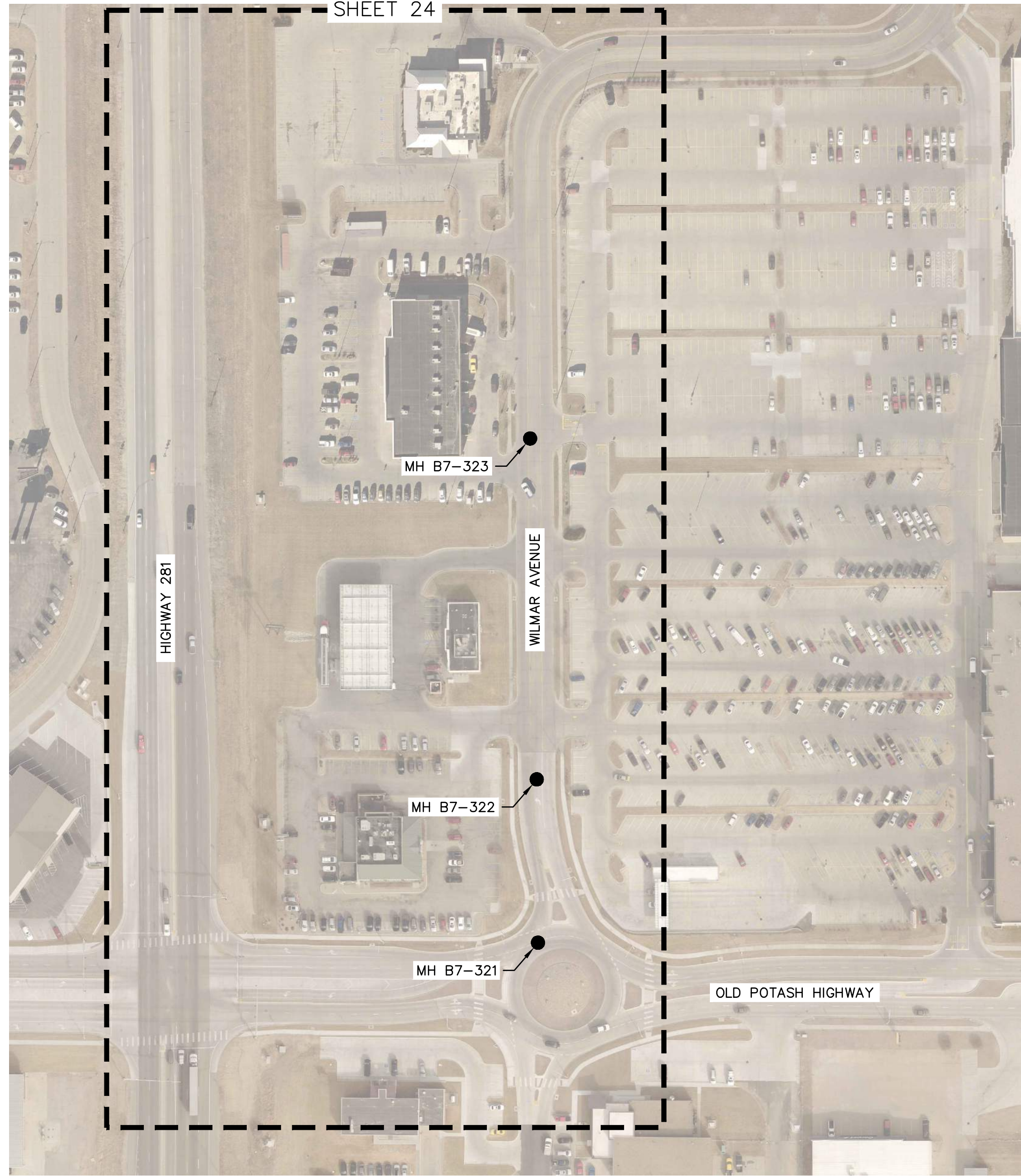
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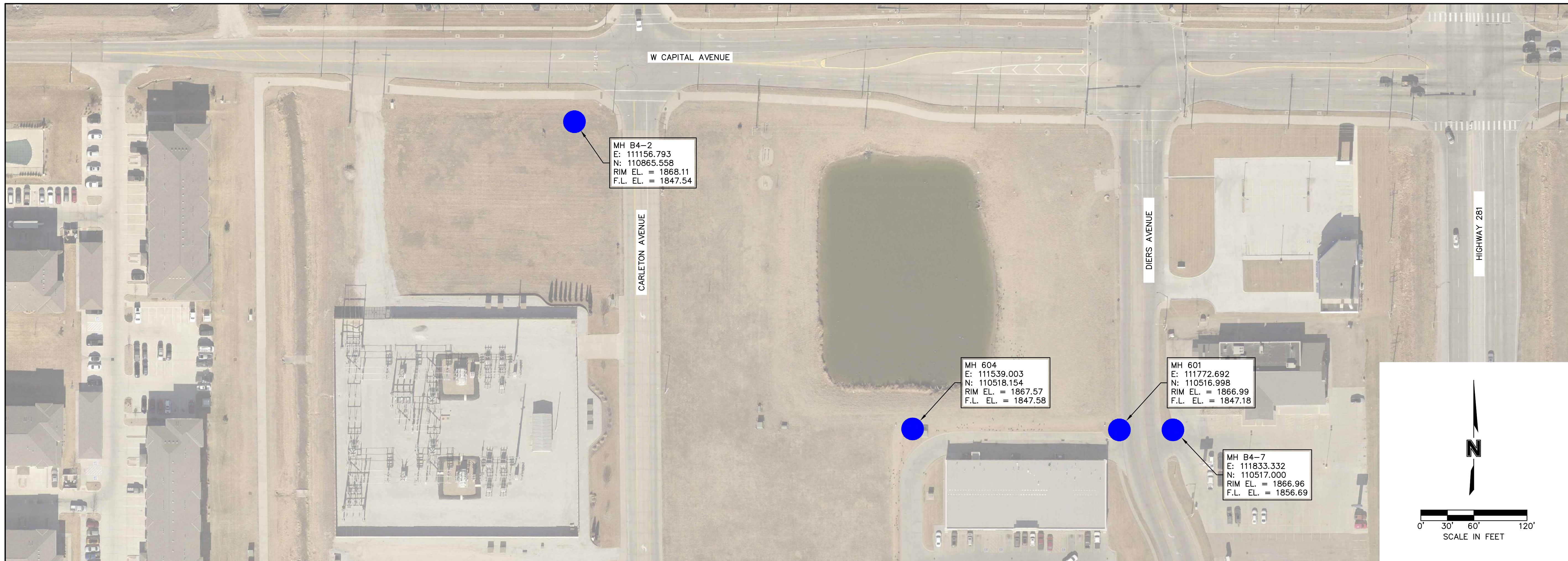


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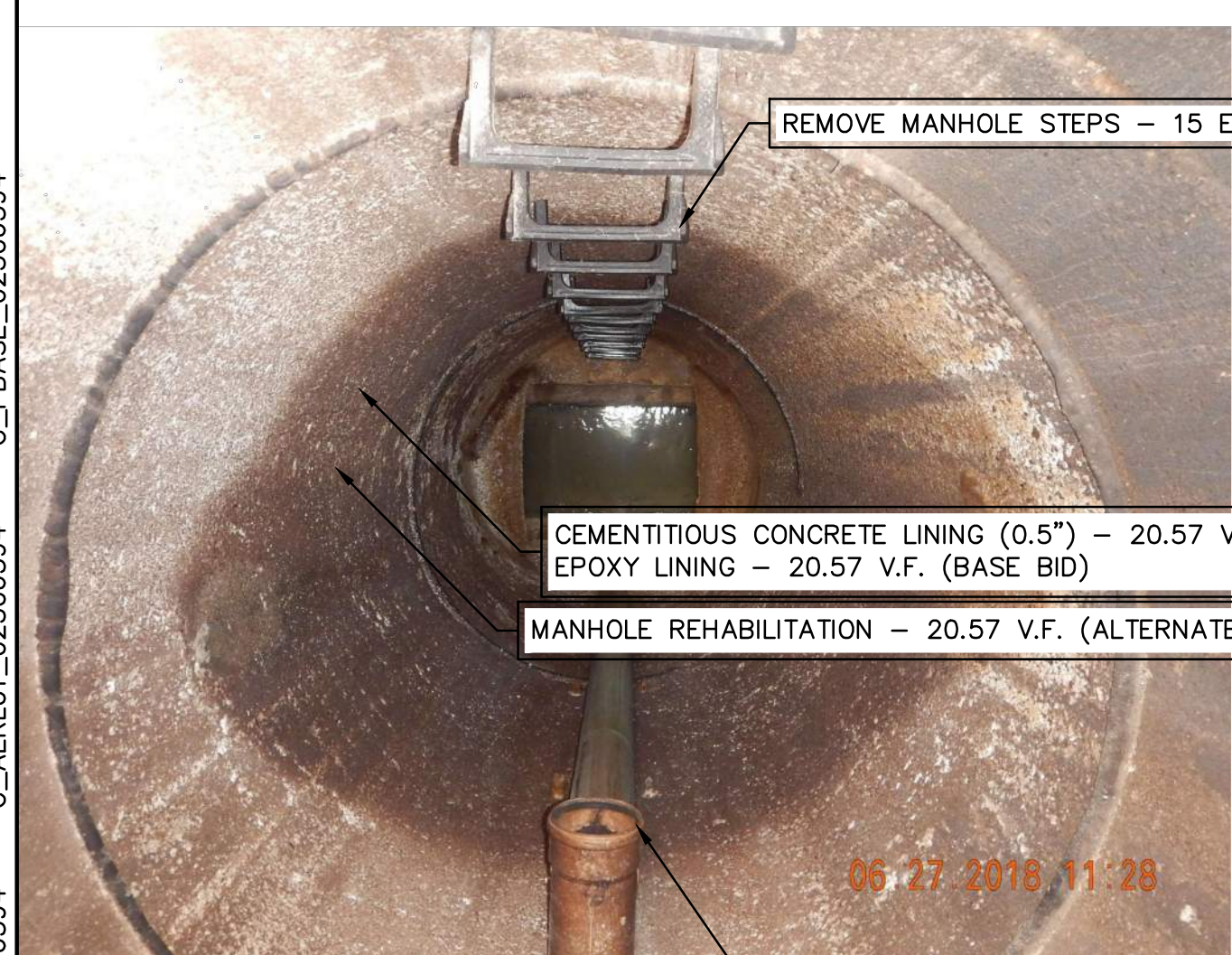
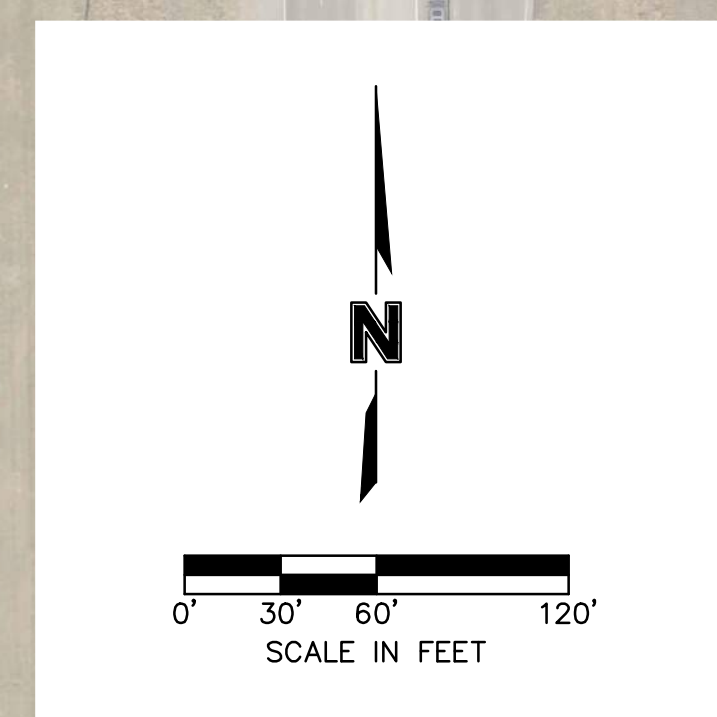
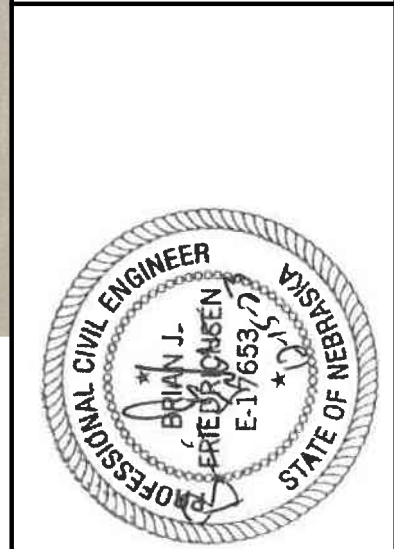
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GRAND ISLAND, NEBRASKA	2023		

drawn by:	KDG
checked by:	BJF
approved by:	BJF
QA/QC by:	JB
project no.:	023-06594
drawing no.:	
date:	DECEMBER 2023

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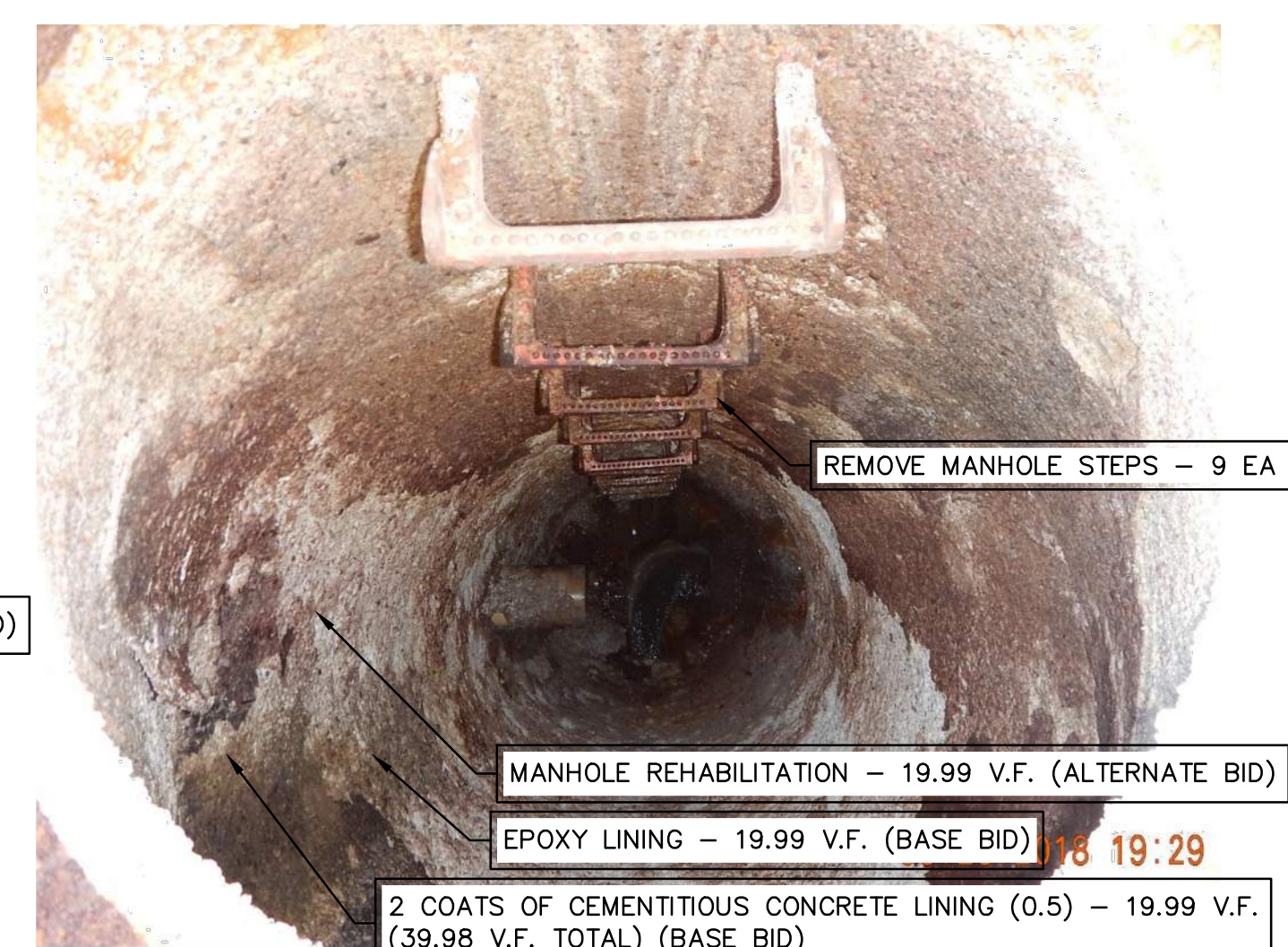


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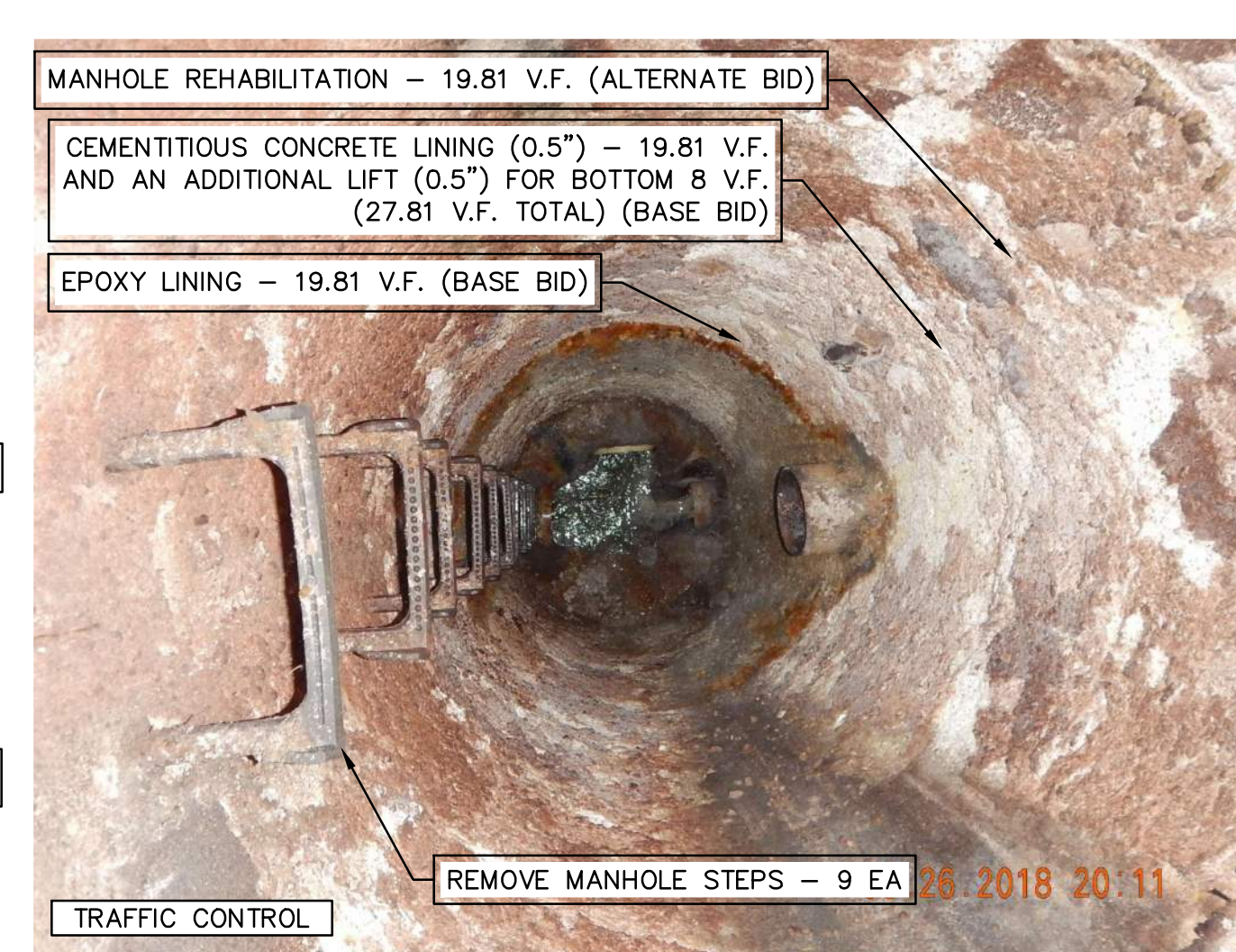


MH B4-2

REMOVE AND REPLACE INSIDE DROP PIPING AND INSTALL PIPE SUPPORTS (3). PIPE SUPPORTS SHALL BE CONSIDERED SUBSIDIARY TO REMOVE AND REPLACE INSIDE DROP PIPING



MH 604



MH 601



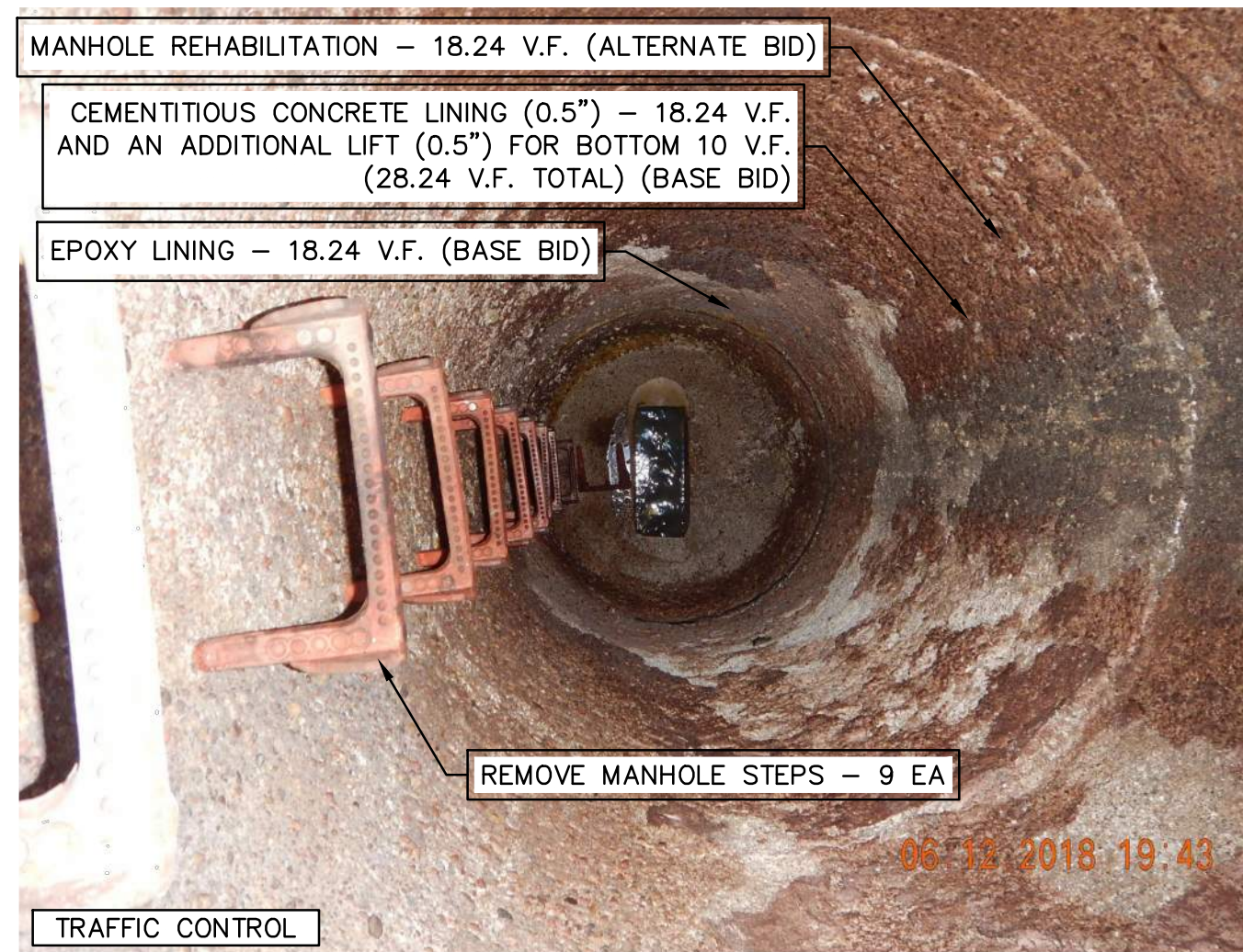
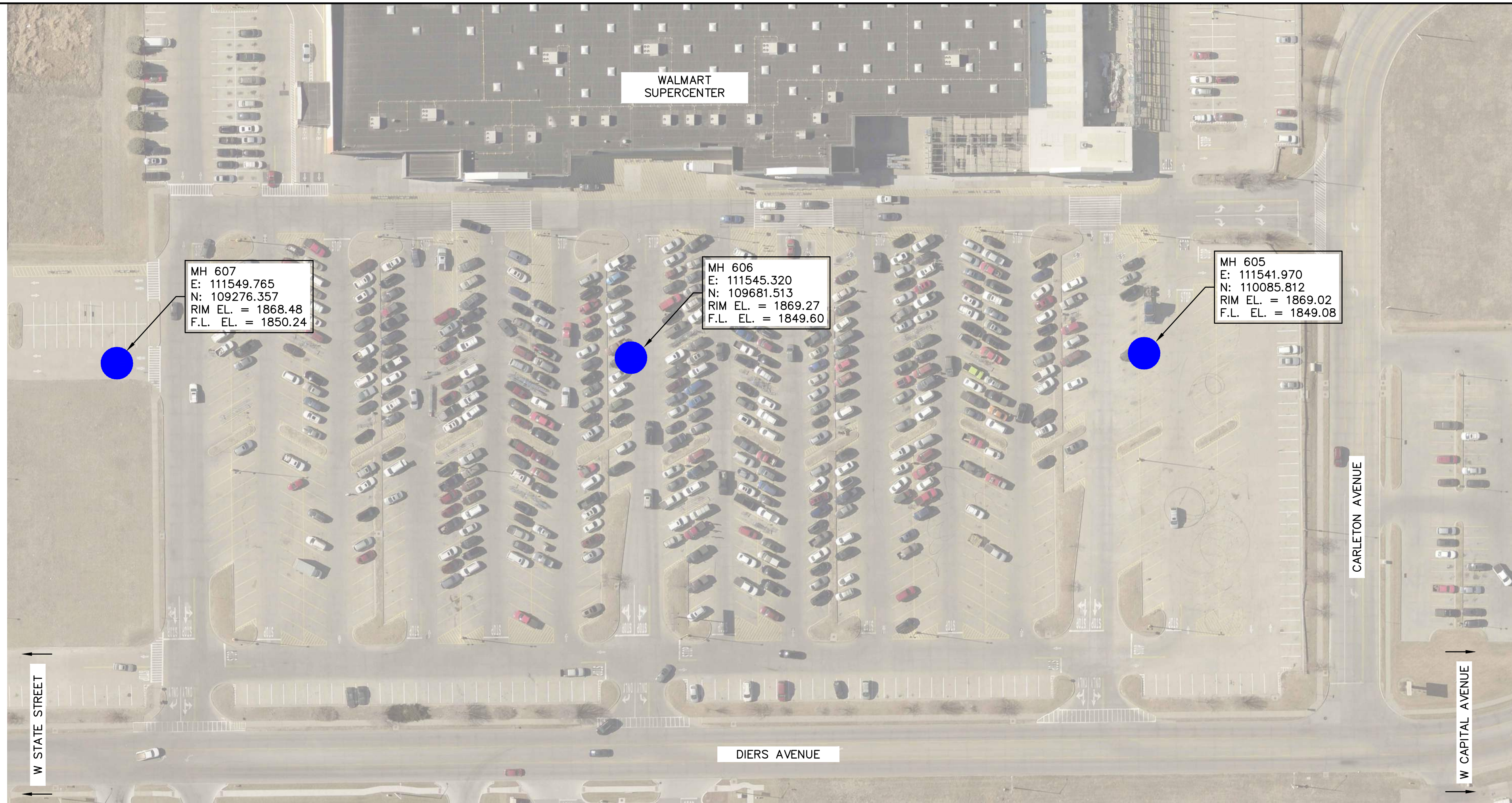
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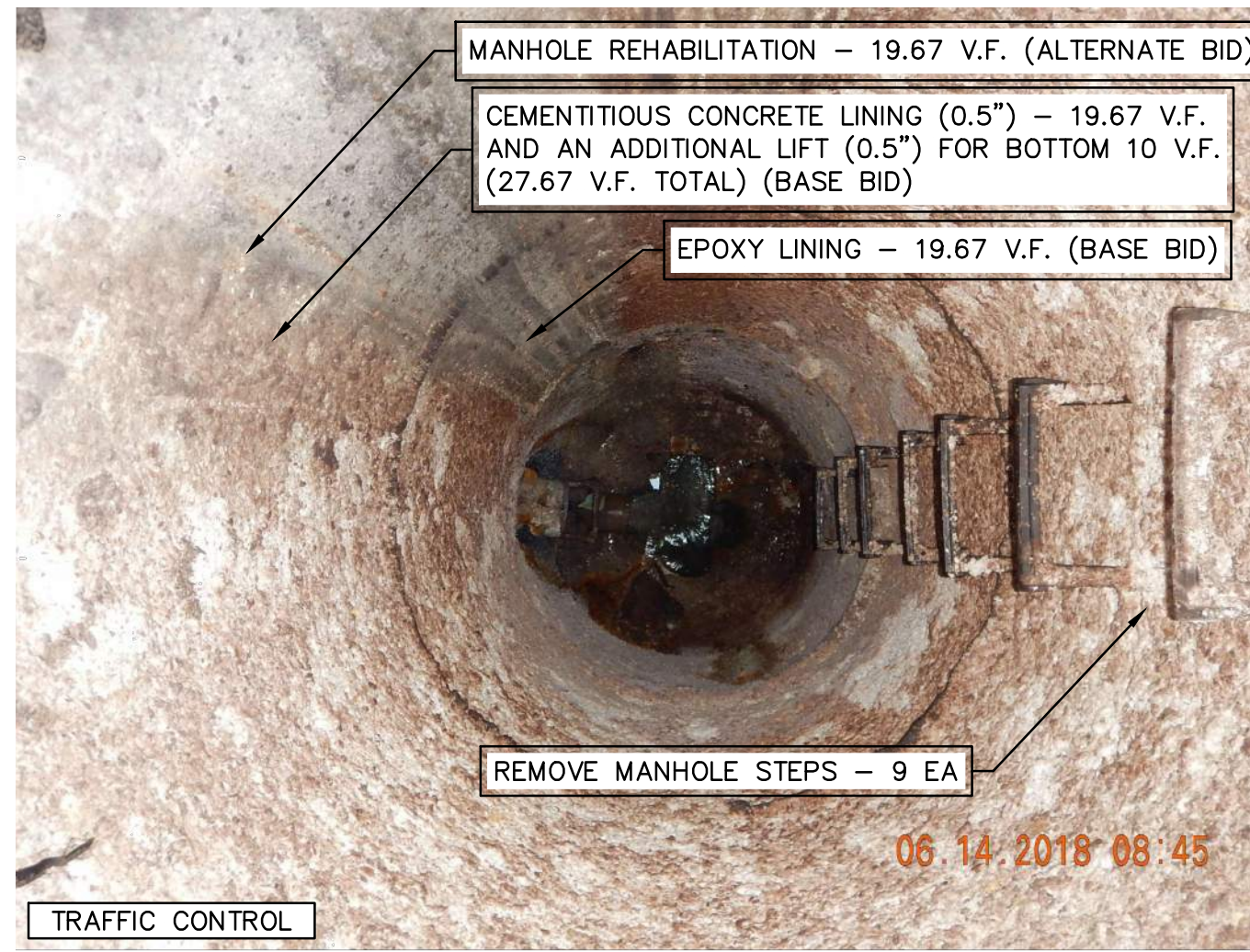
MANHOLE REHABILITATION PLAN		2023
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GRAND ISLAND, NEBRASKA		
drawn by: KDG	checked by: BJF	
approved by: BJF	QA/QC by: JB	
project no.: 023-06594	drawing no.:	
date: DECEMBER 2023		
SHEET		
7 of 26		

NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD. MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

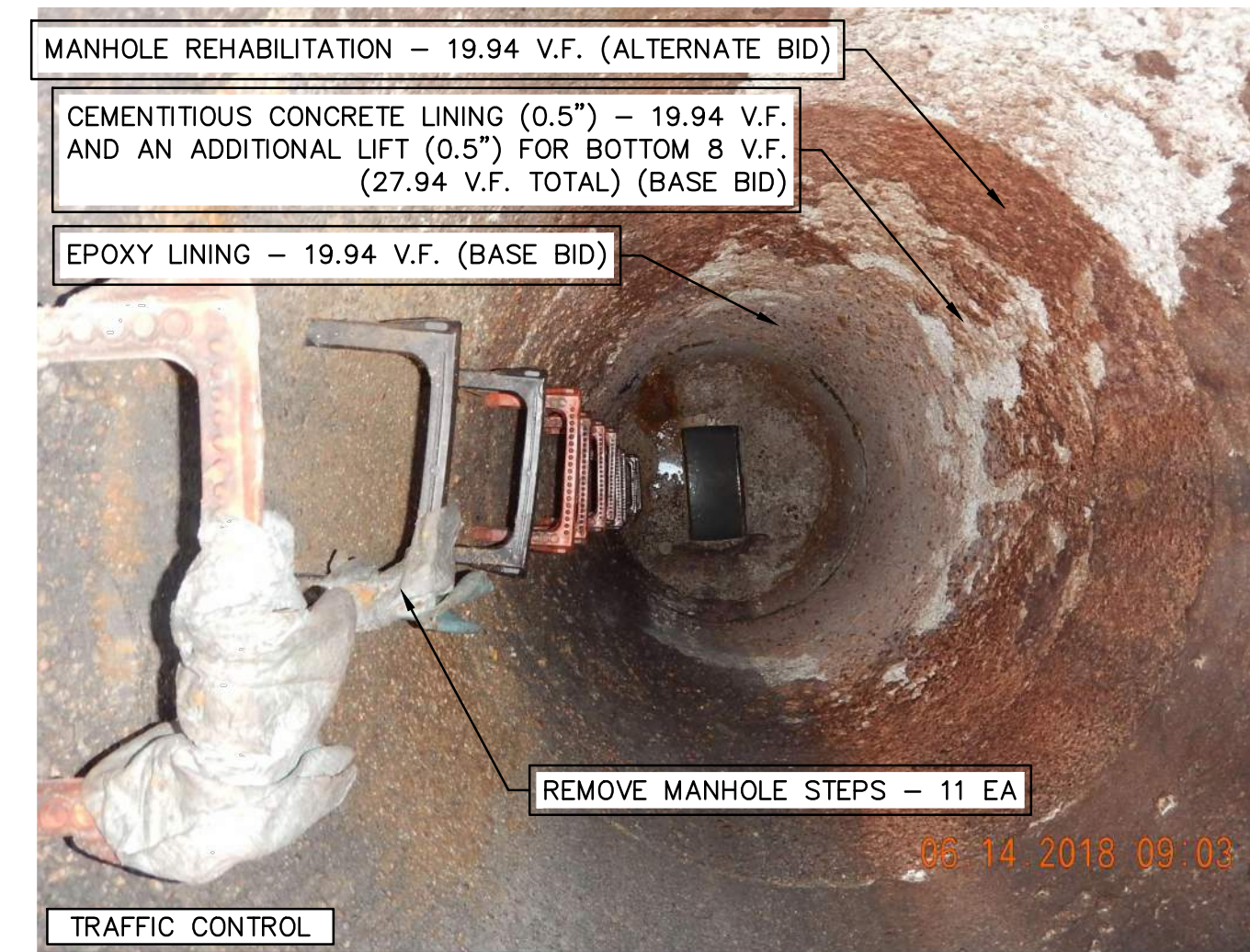
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MH 607



MH 606



MH 605

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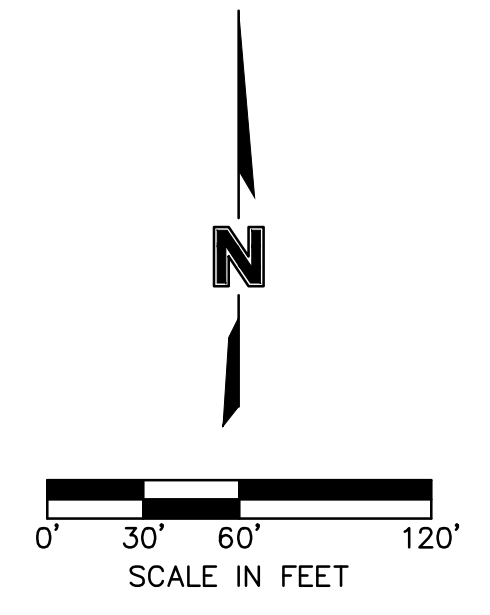
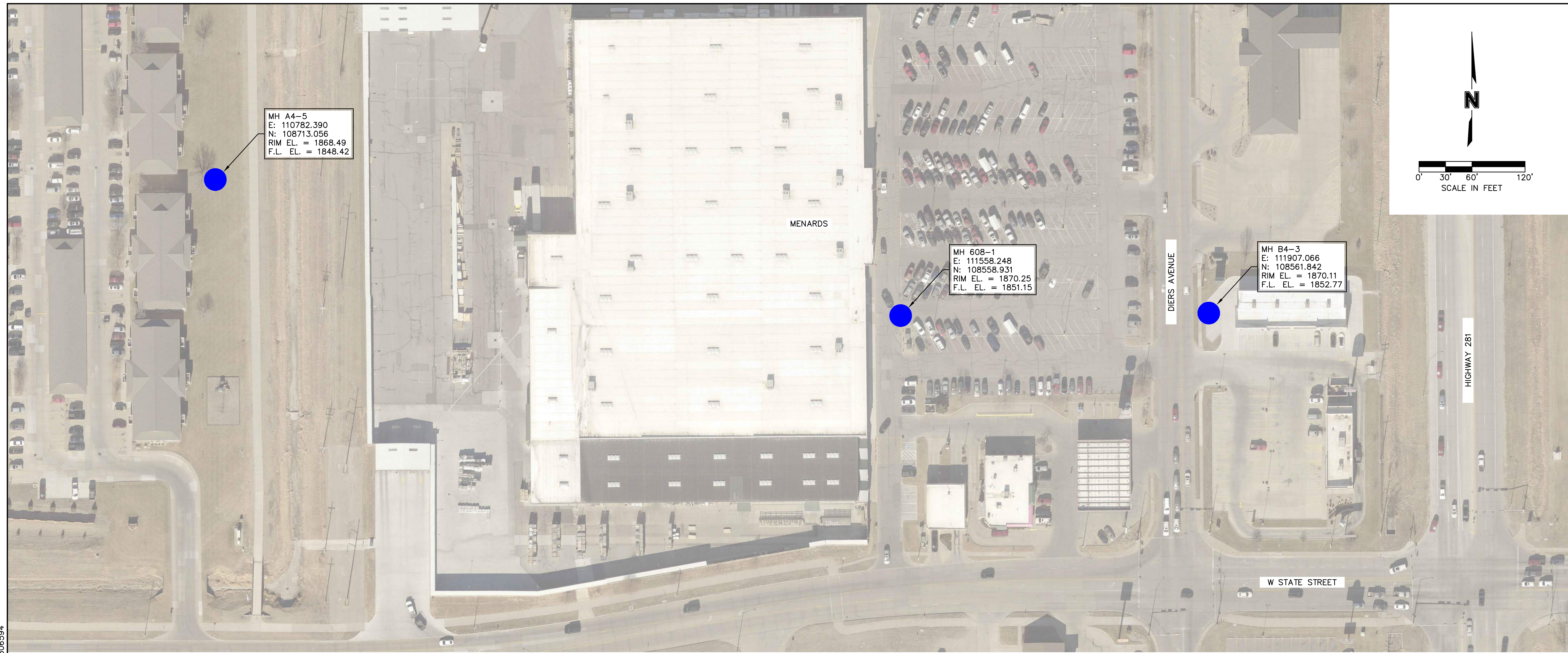
**MANHOLE REHABILITATION PLAN**  
 GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10  
 GRAND ISLAND, NEBRASKA

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approved by: BJF	QA/QC by: JB
project no.: 023-06594	date: DECEMBER 2023

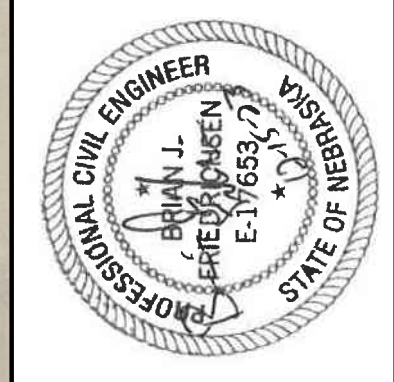
2023 REVISIONS

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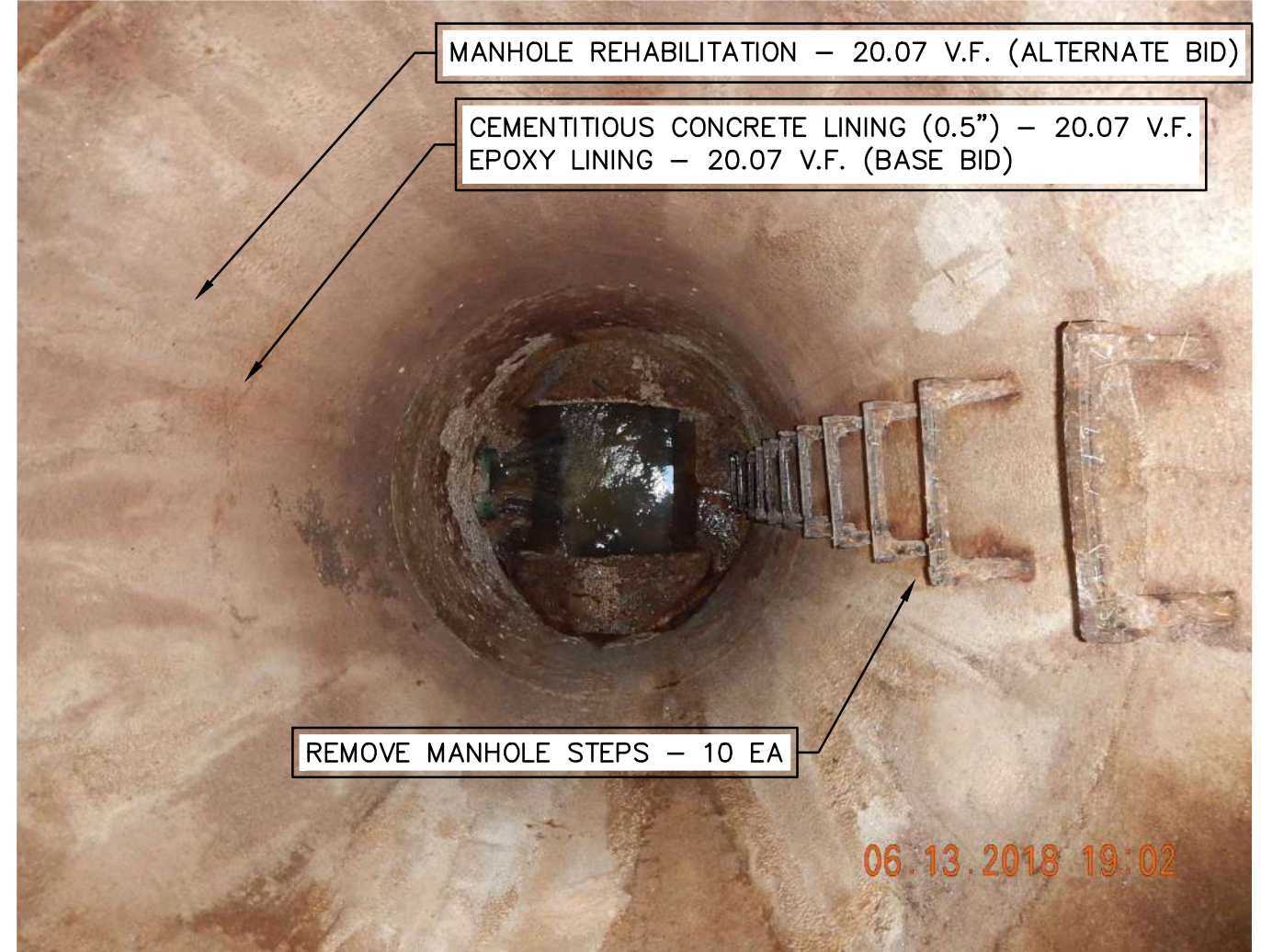
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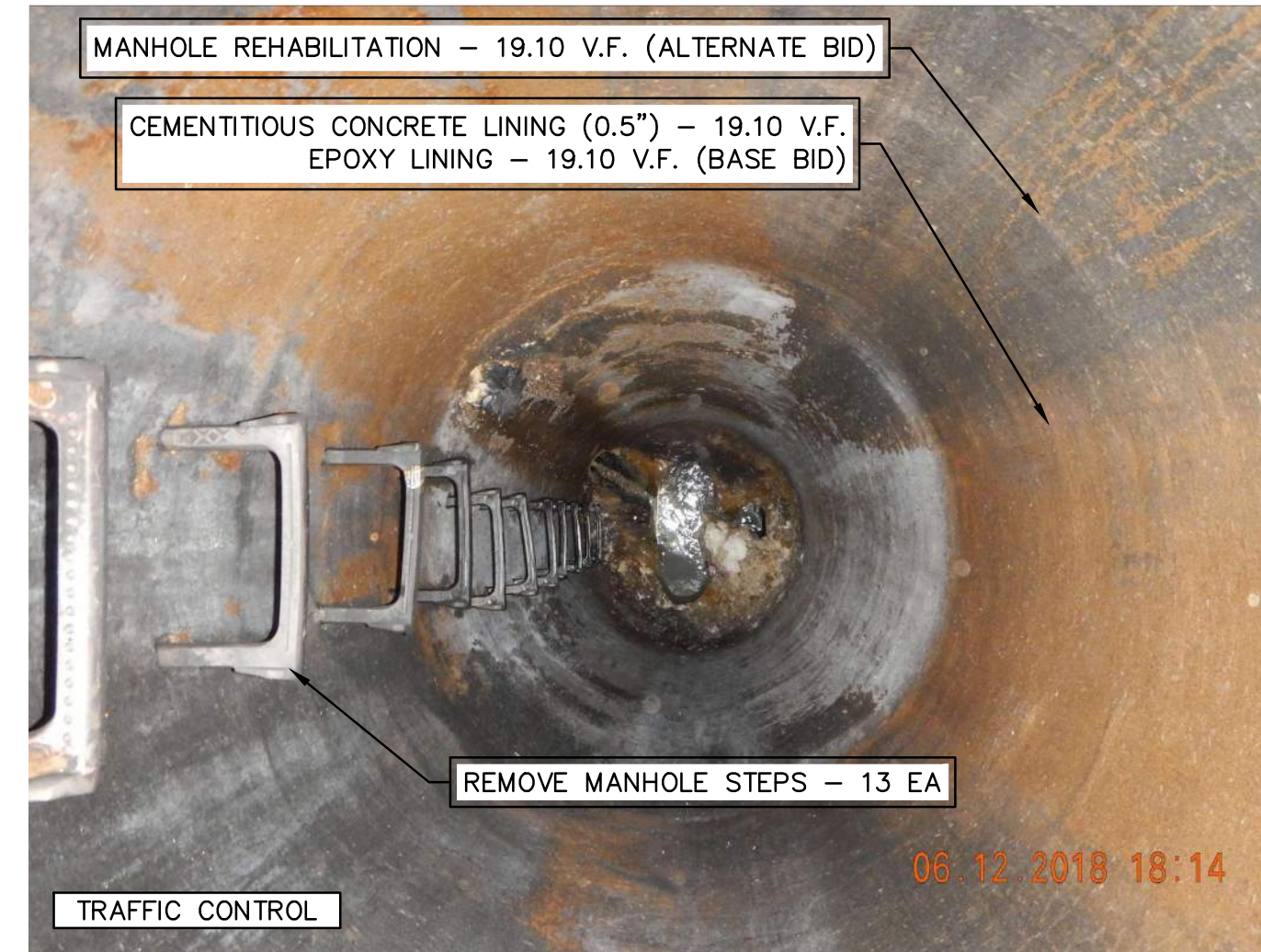
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GRAND ISLAND, NEBRASKA	

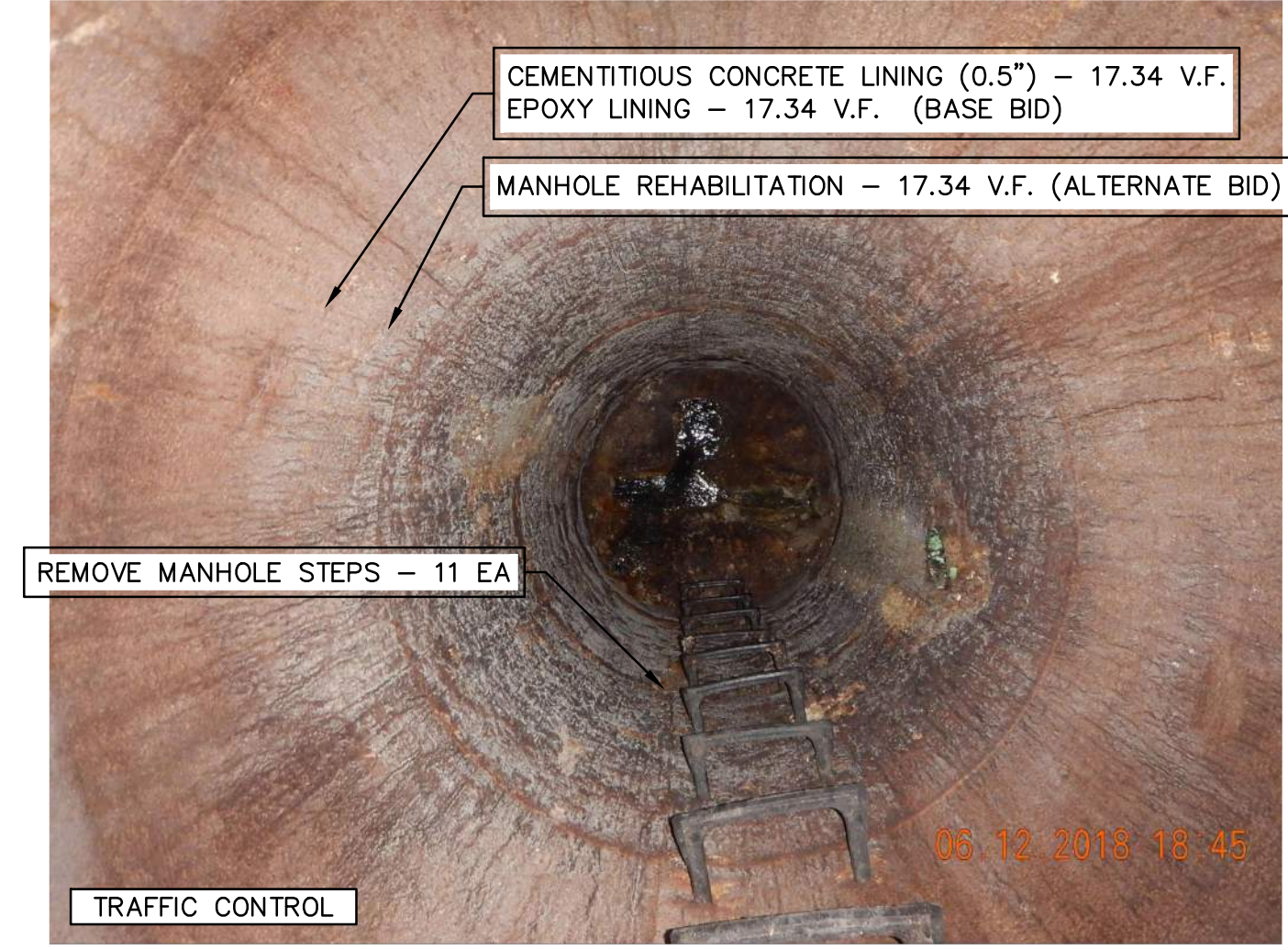
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MH A4-5



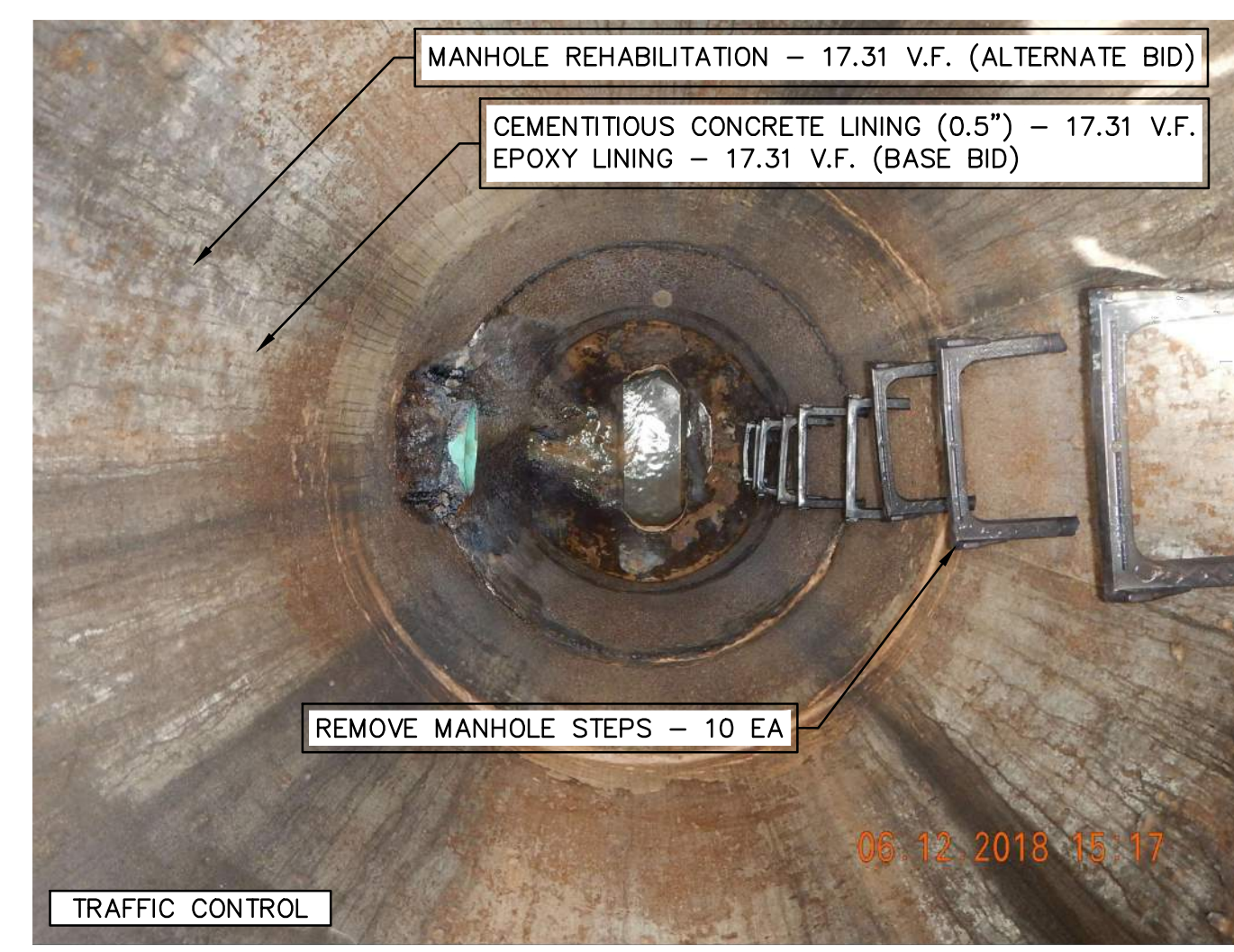
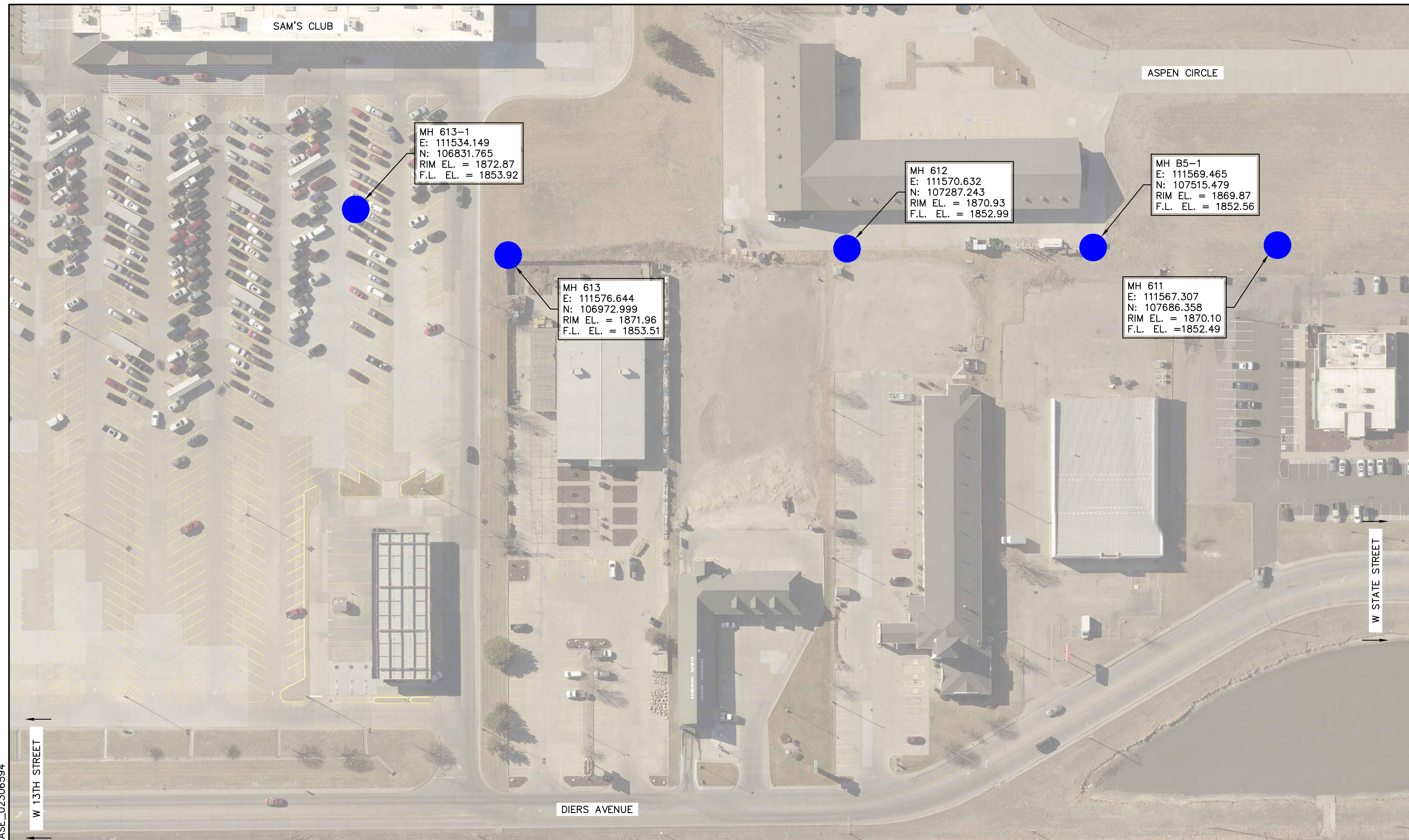
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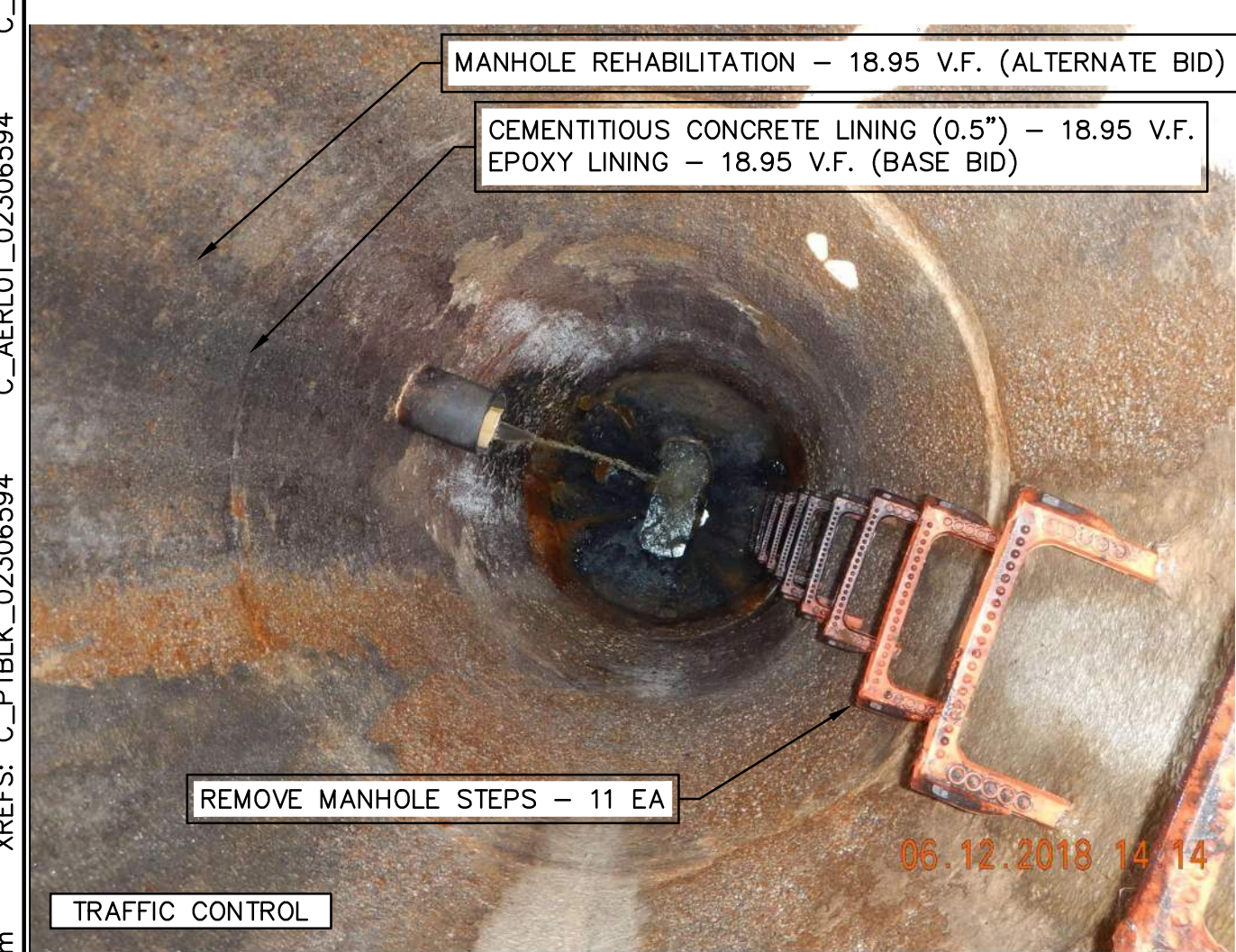
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NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD.  
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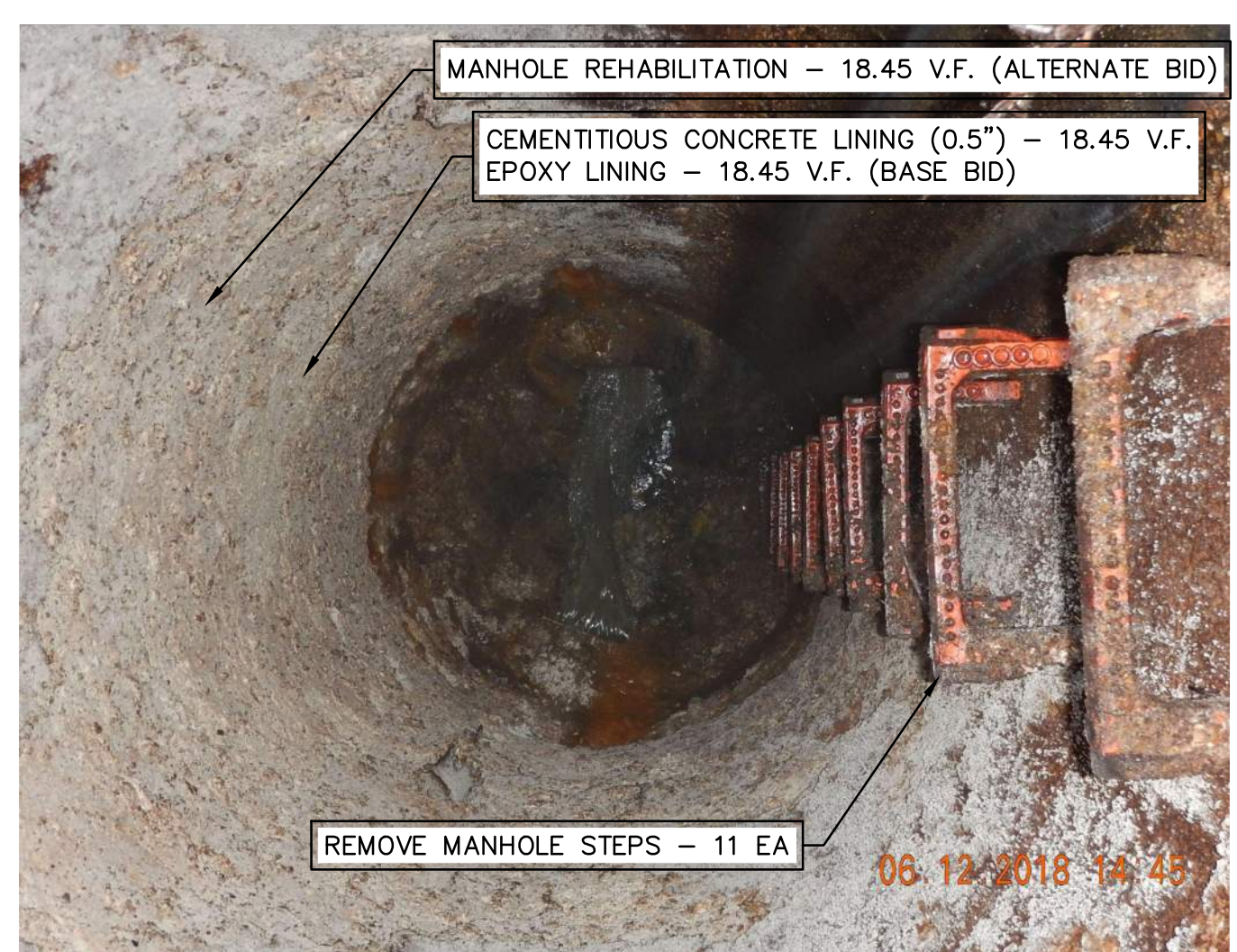
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MH B5-1



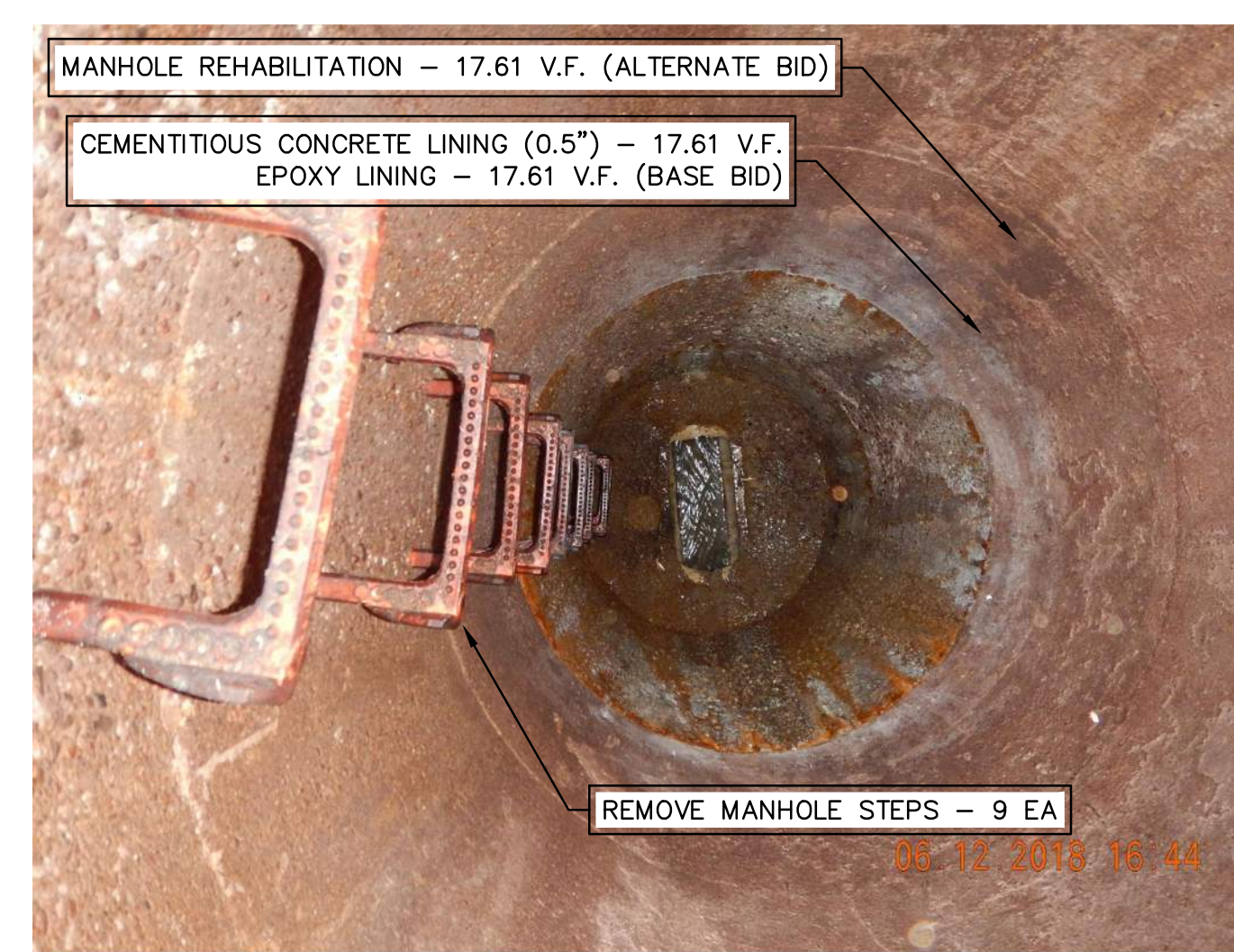
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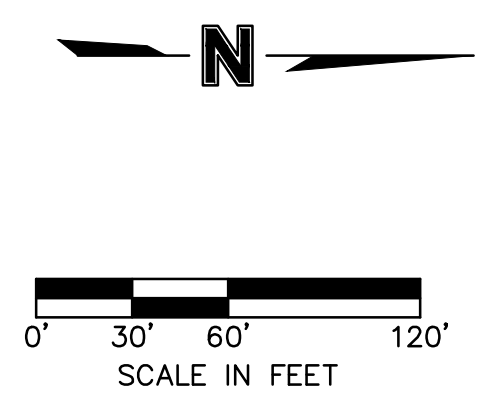
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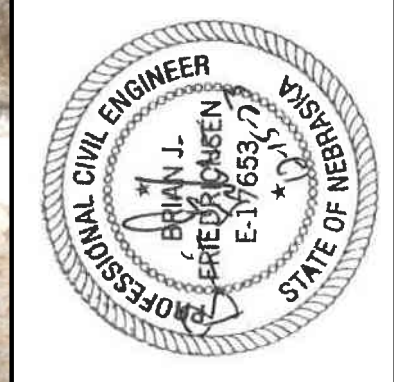
MH 612



MH 611



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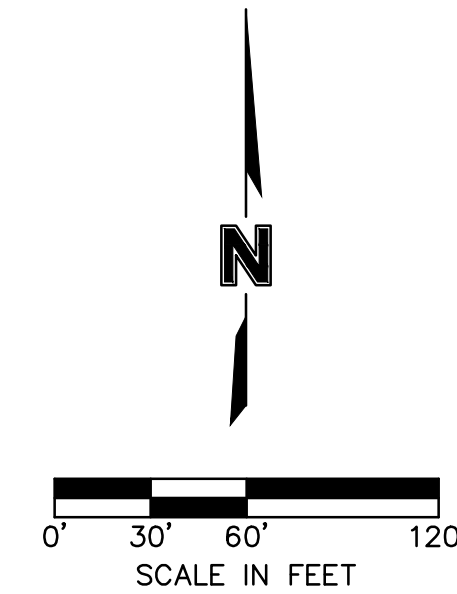
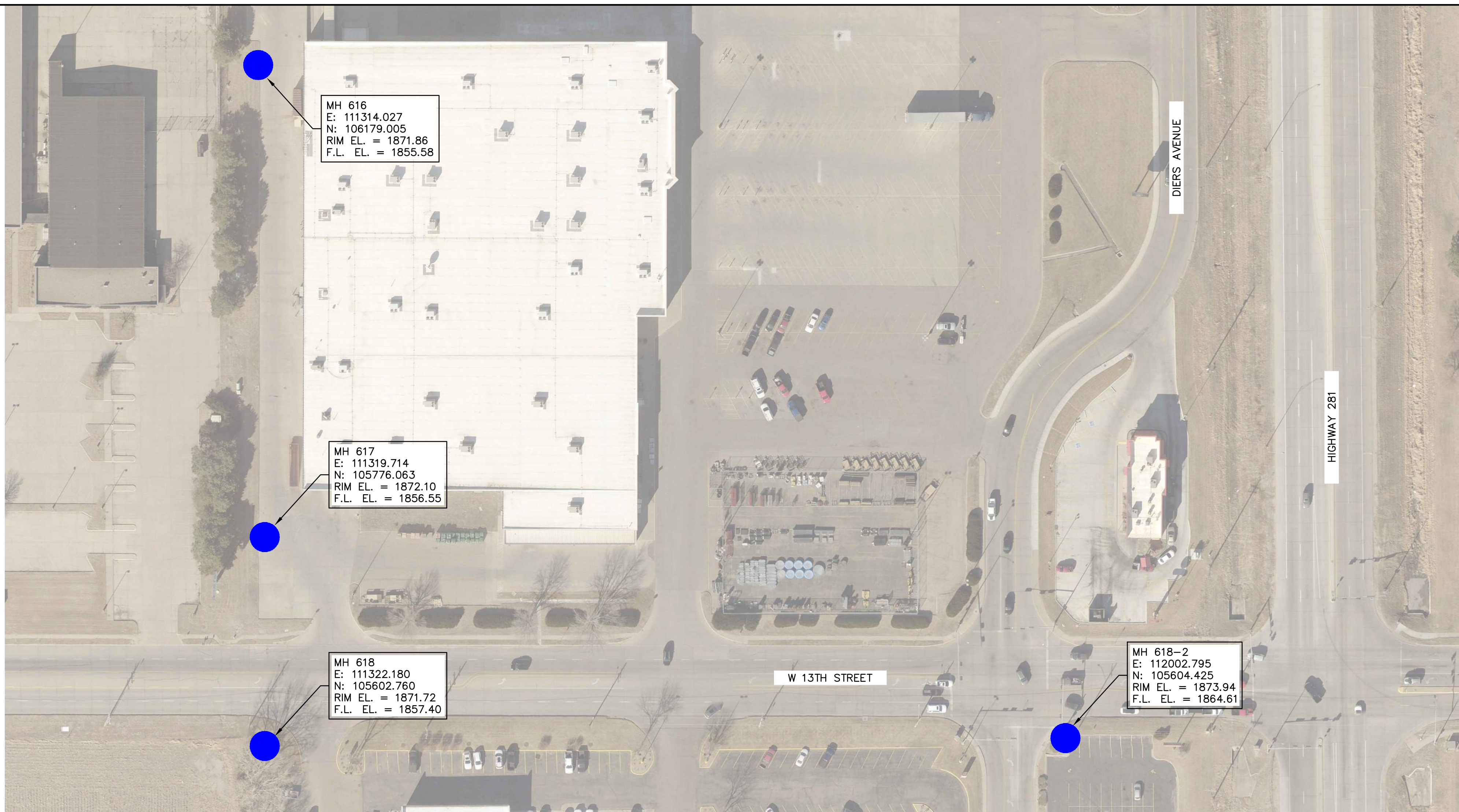
REV. NO.	DATE	REVISIONS DESCRIPTION

MANHOLE REHABILITATION PLAN	GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10	2023
	GRAND ISLAND, NEBRASKA	

drawn by: KDG  
 checked by: BJF  
 approved by: BJF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
 date: DECEMBER 2023

NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD.  
 MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

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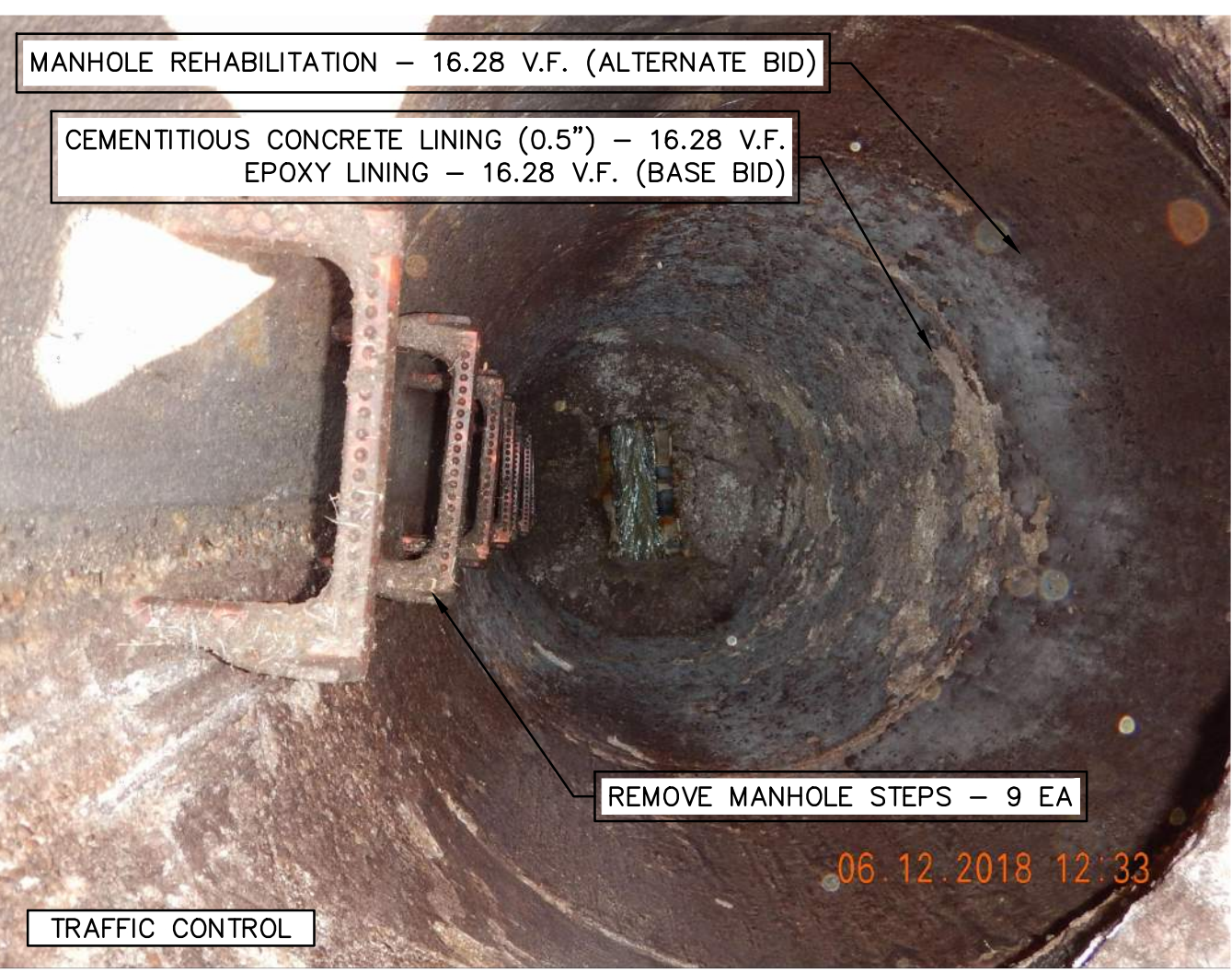
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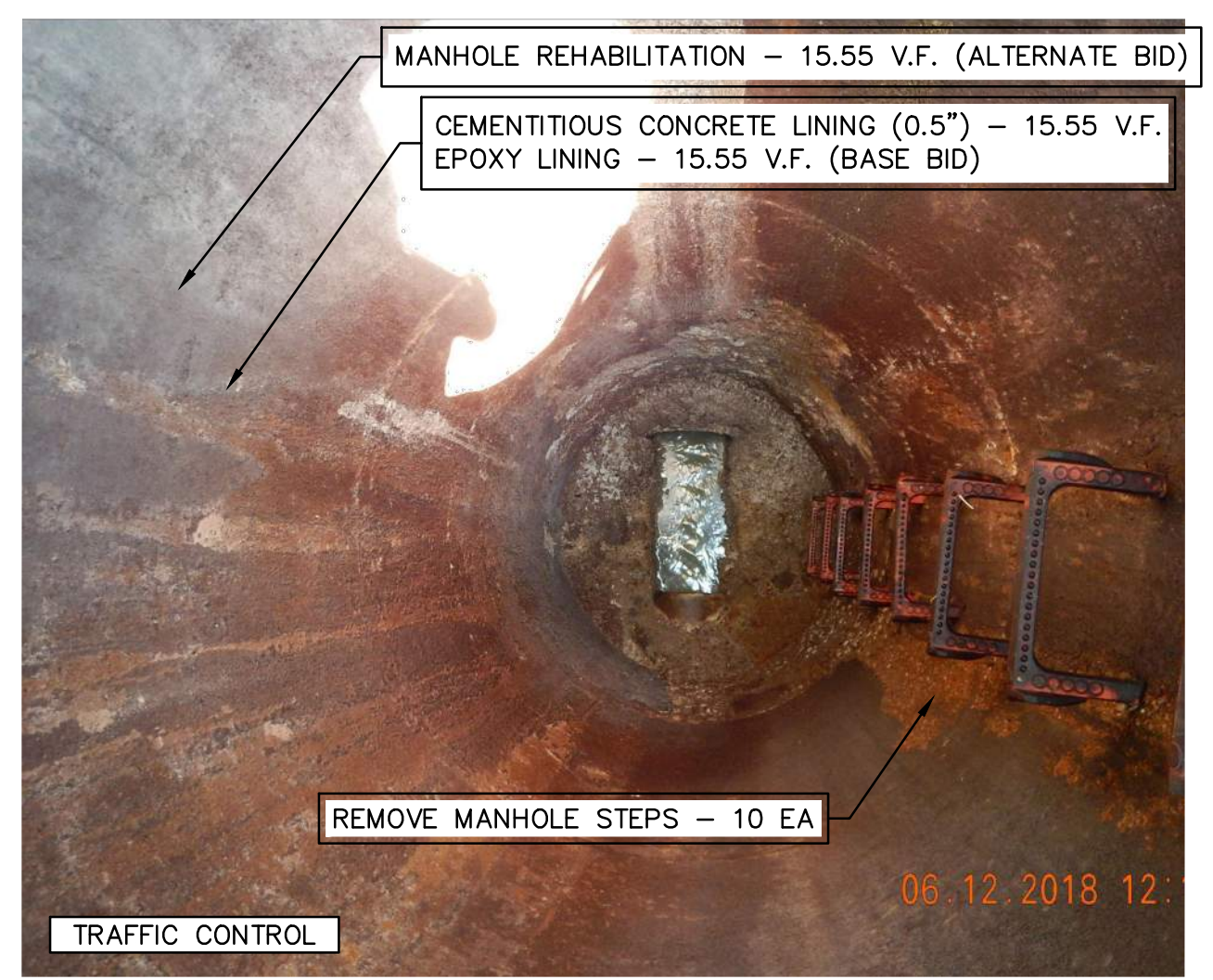
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MANHOLE REHABILITATION PLAN	2023	REVISIONS
	GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10	
	GRAND ISLAND, NEBRASKA	

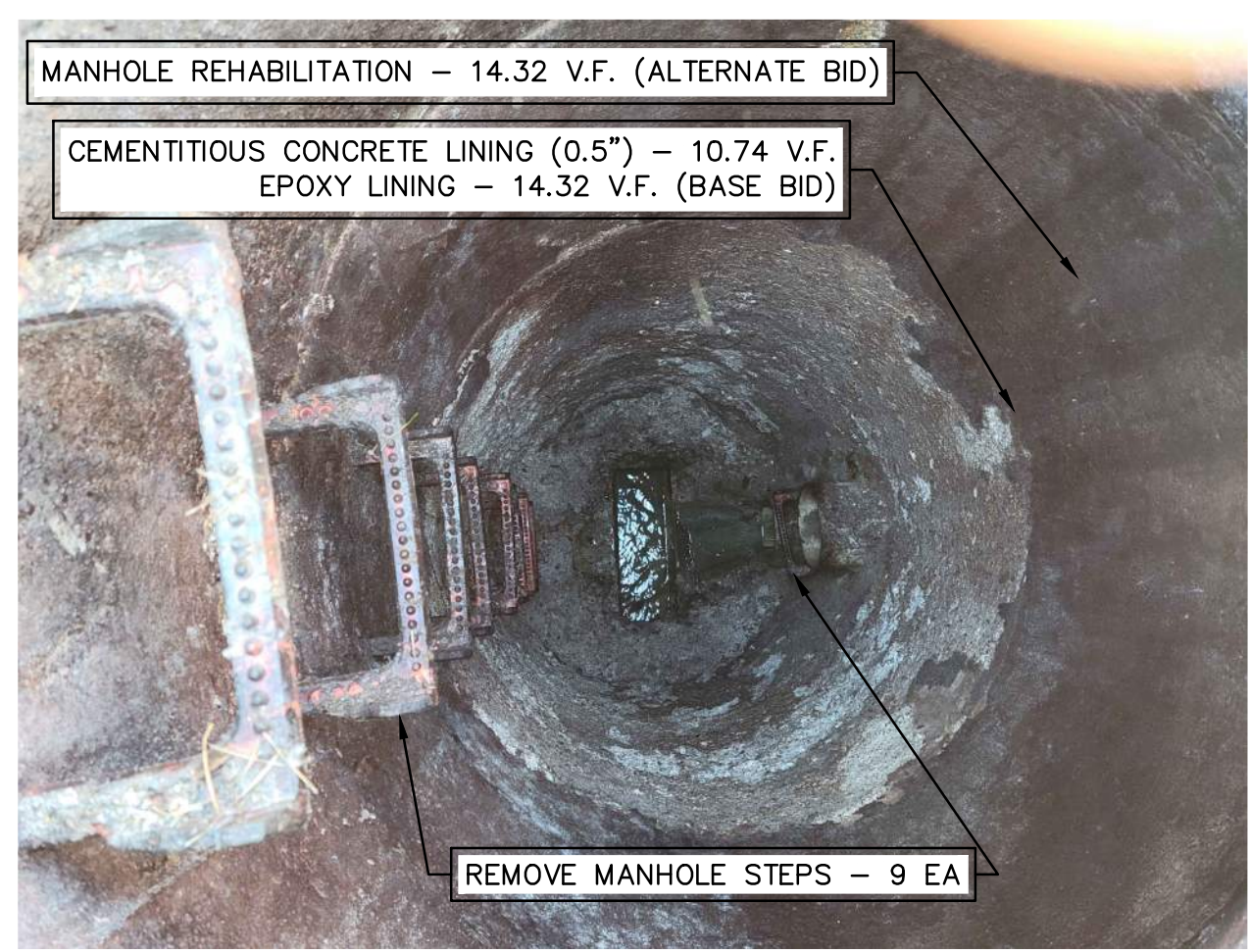
drawn by: KDG  
 checked by: BJF  
 approved by: BJF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
 date: DECEMBER 2023



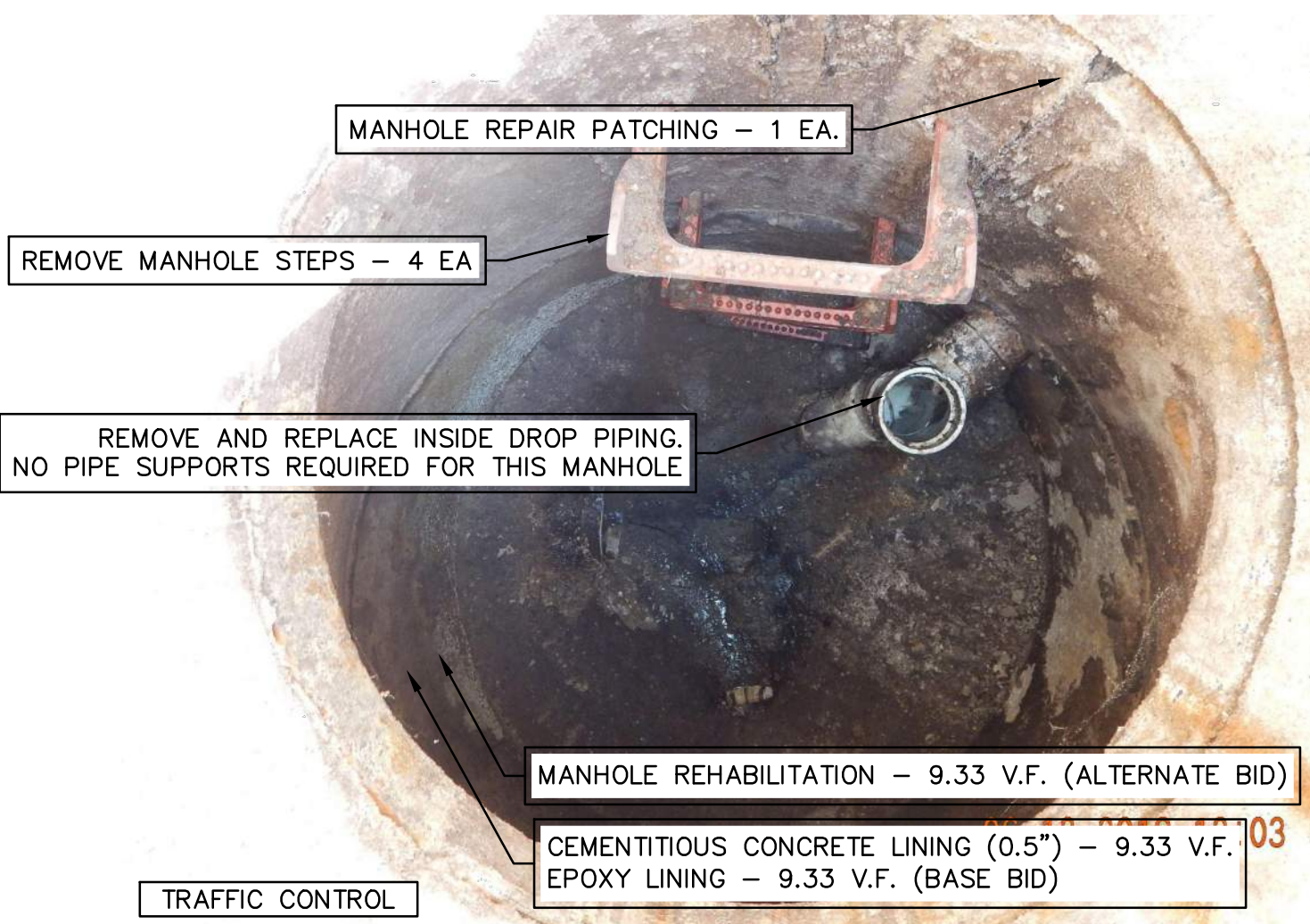
MH 616



MH 617



MH 618

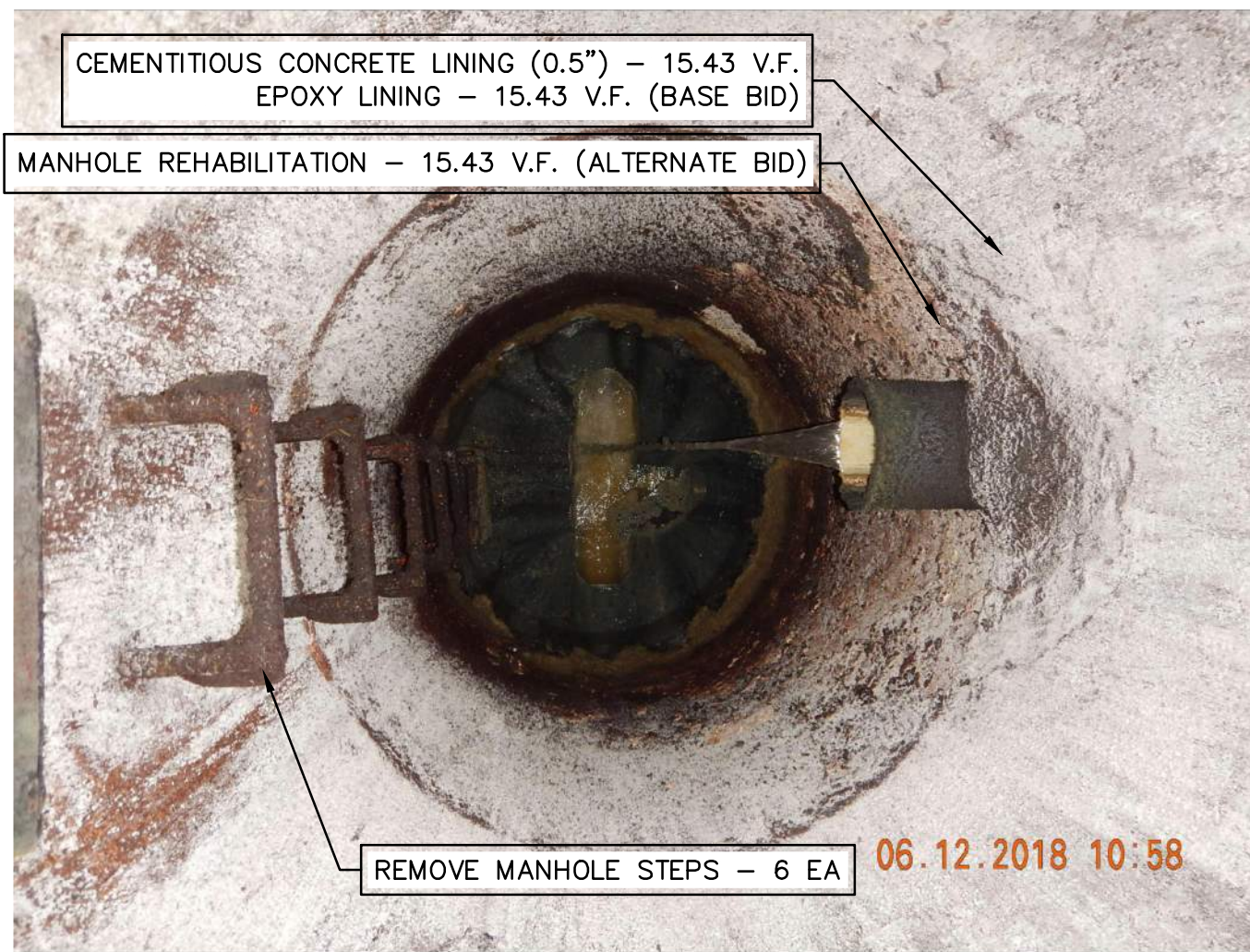
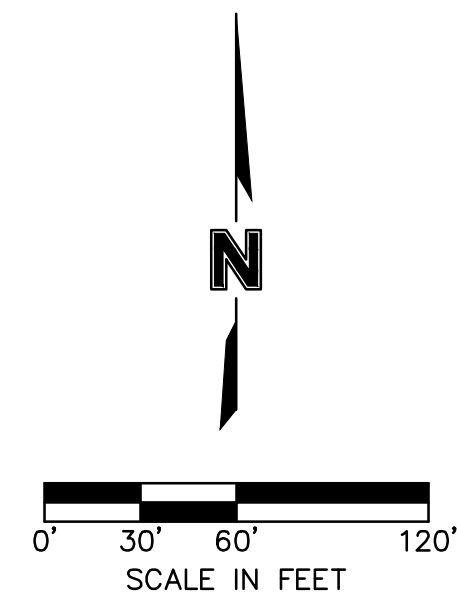


MH 618-2

NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD.  
 MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

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NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD.  
 MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.



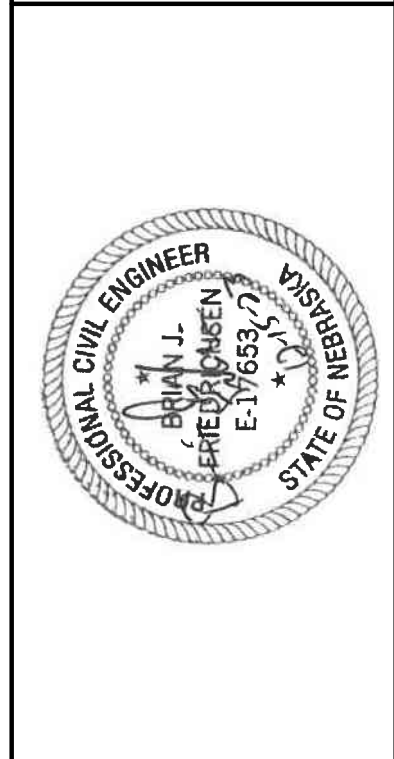
MH 620

REV. NO.	DATE	REVISIONS DESCRIPTION

MANHOLE REHABILITATION PLAN		2023
GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10		
GRAND ISLAND, NEBRASKA		2023

drawn by:	KDG
checked by:	BJF
approved by:	BJF
QA/QC by:	JB
project no.:	023-06594
drawing no.:	
date:	DECEMBER 2023

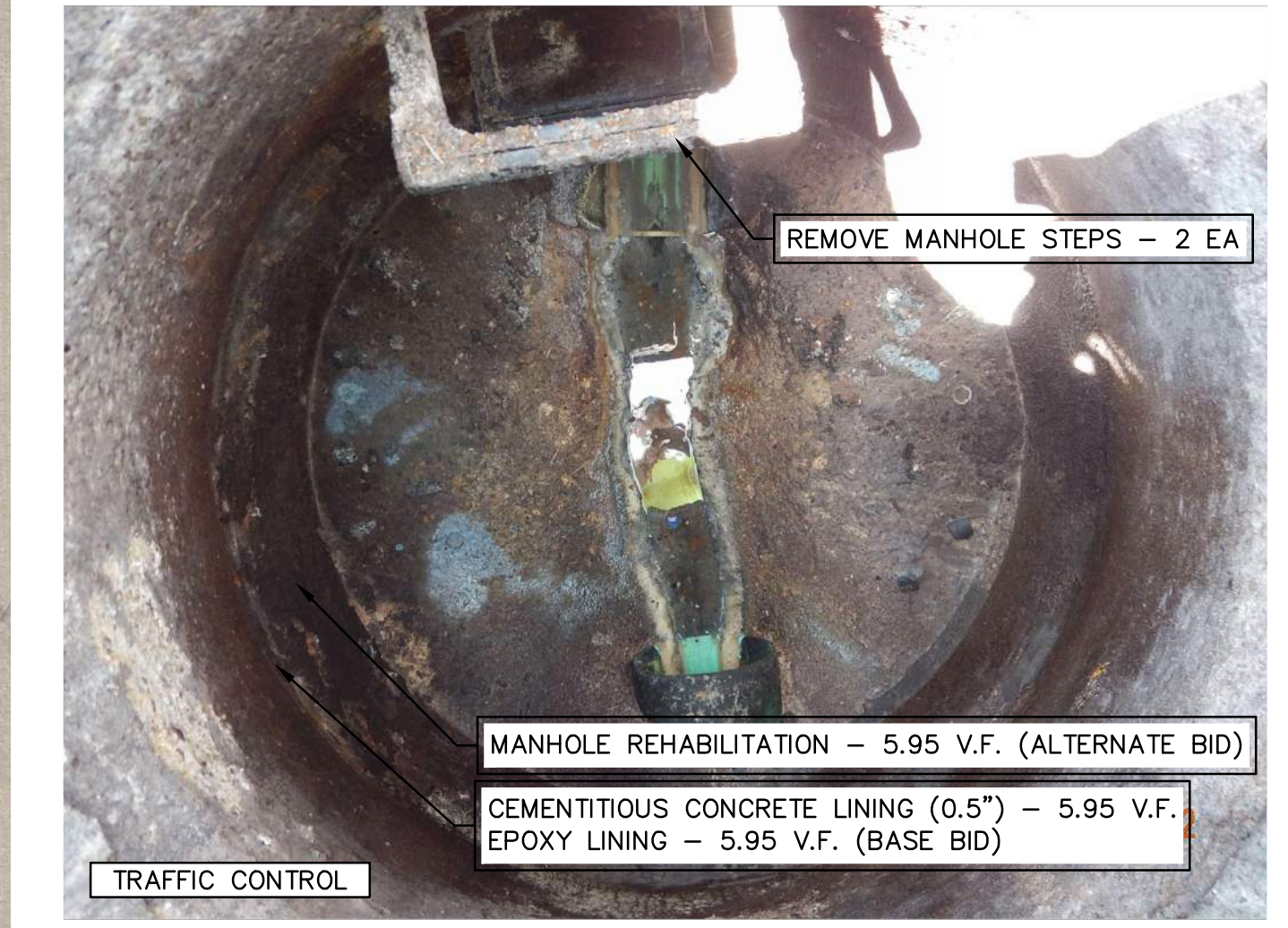
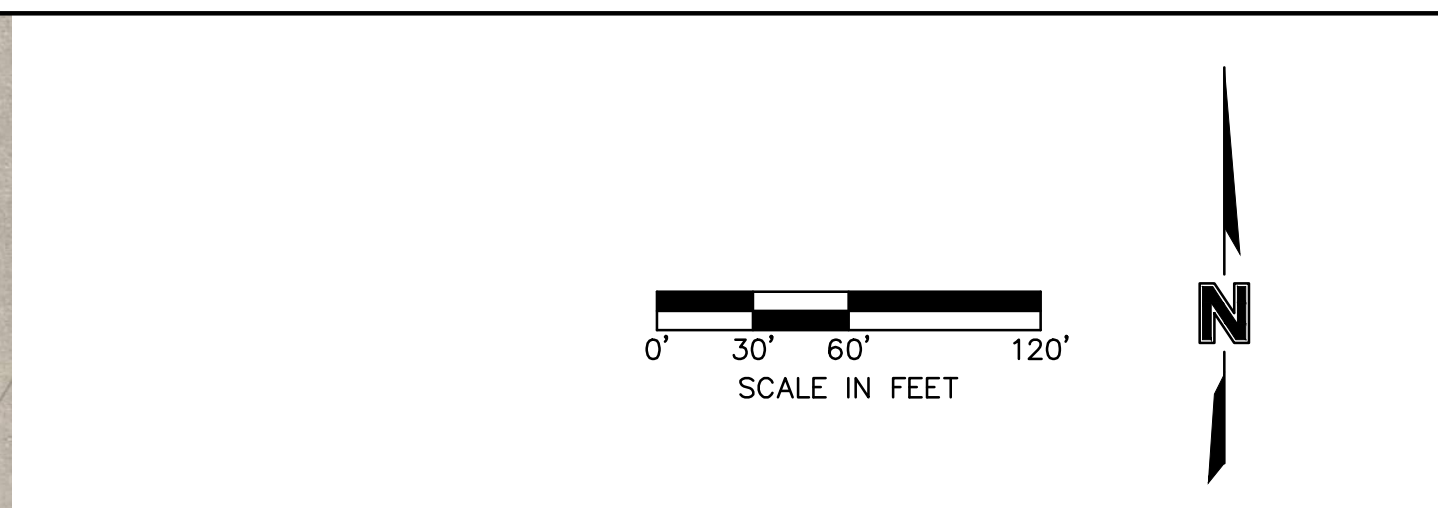
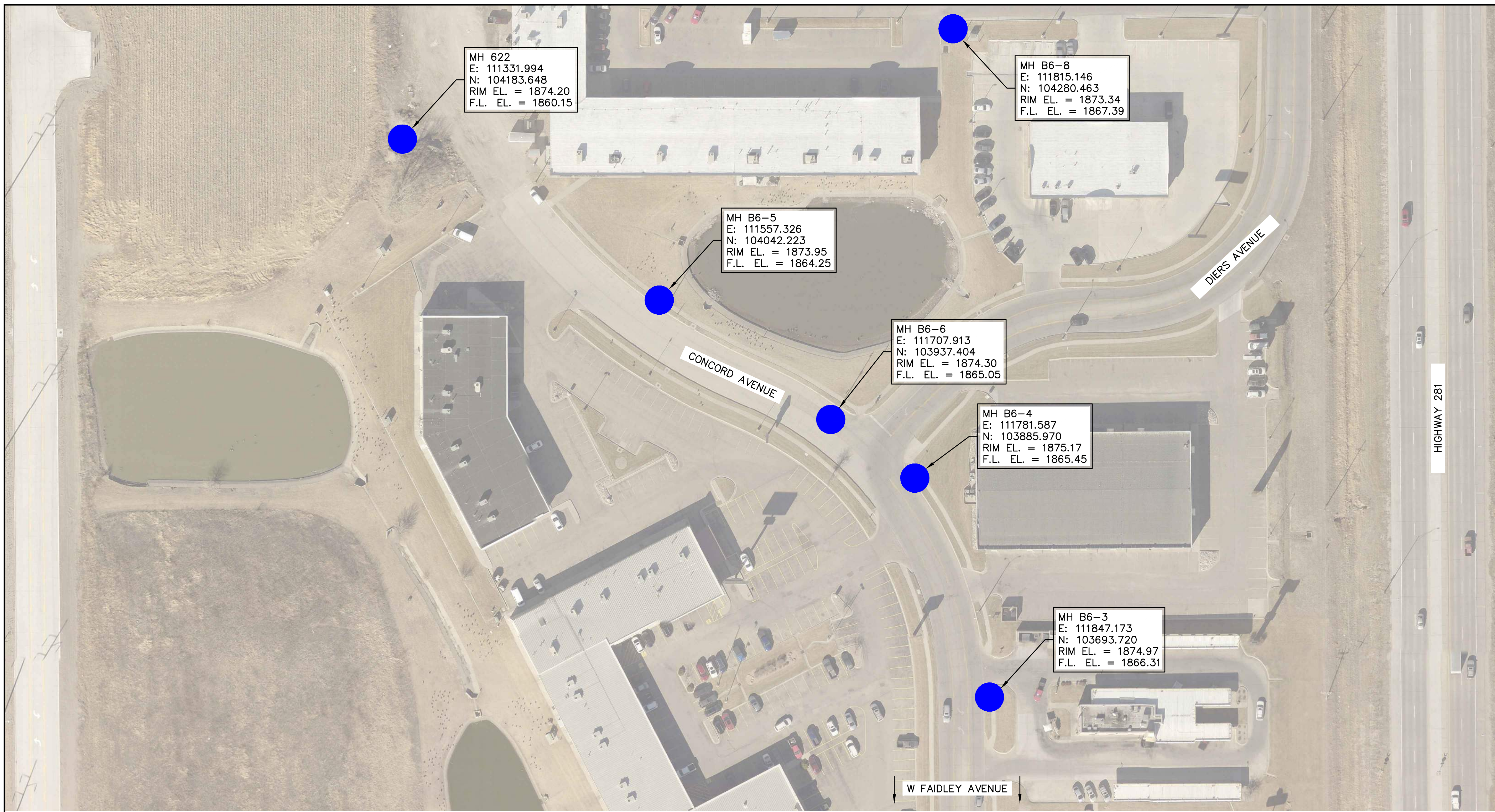
SHEET  
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USER: kgongstad

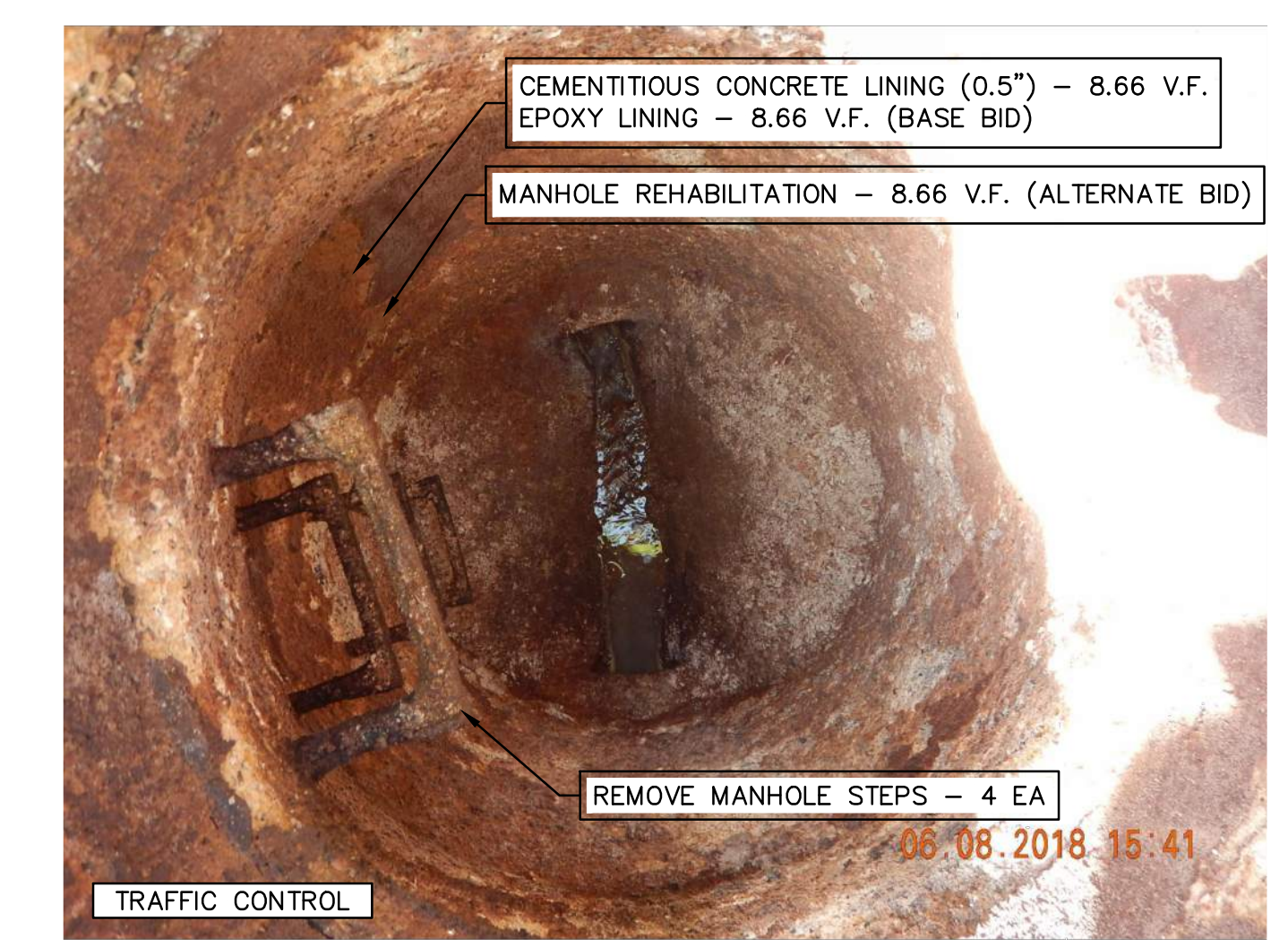
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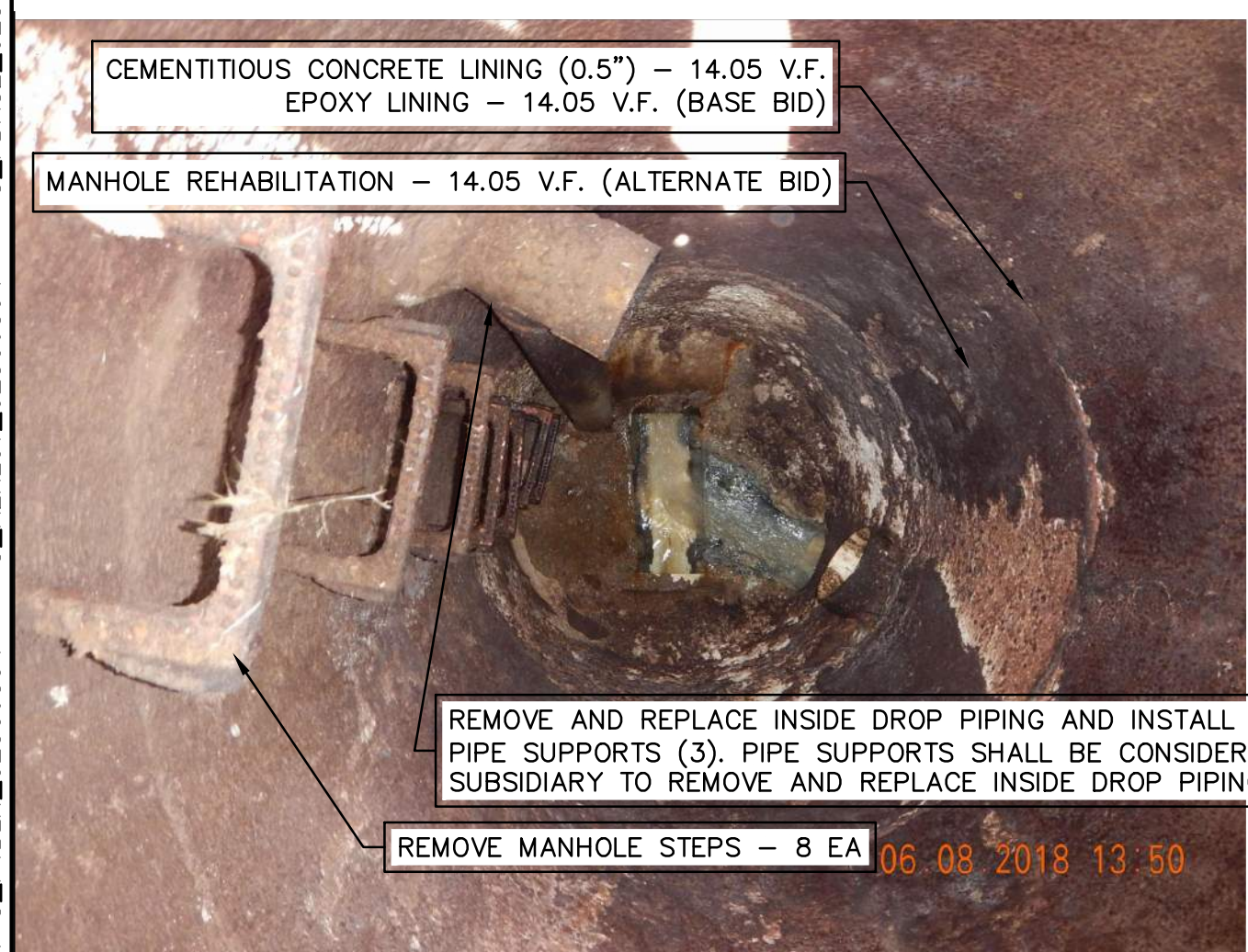
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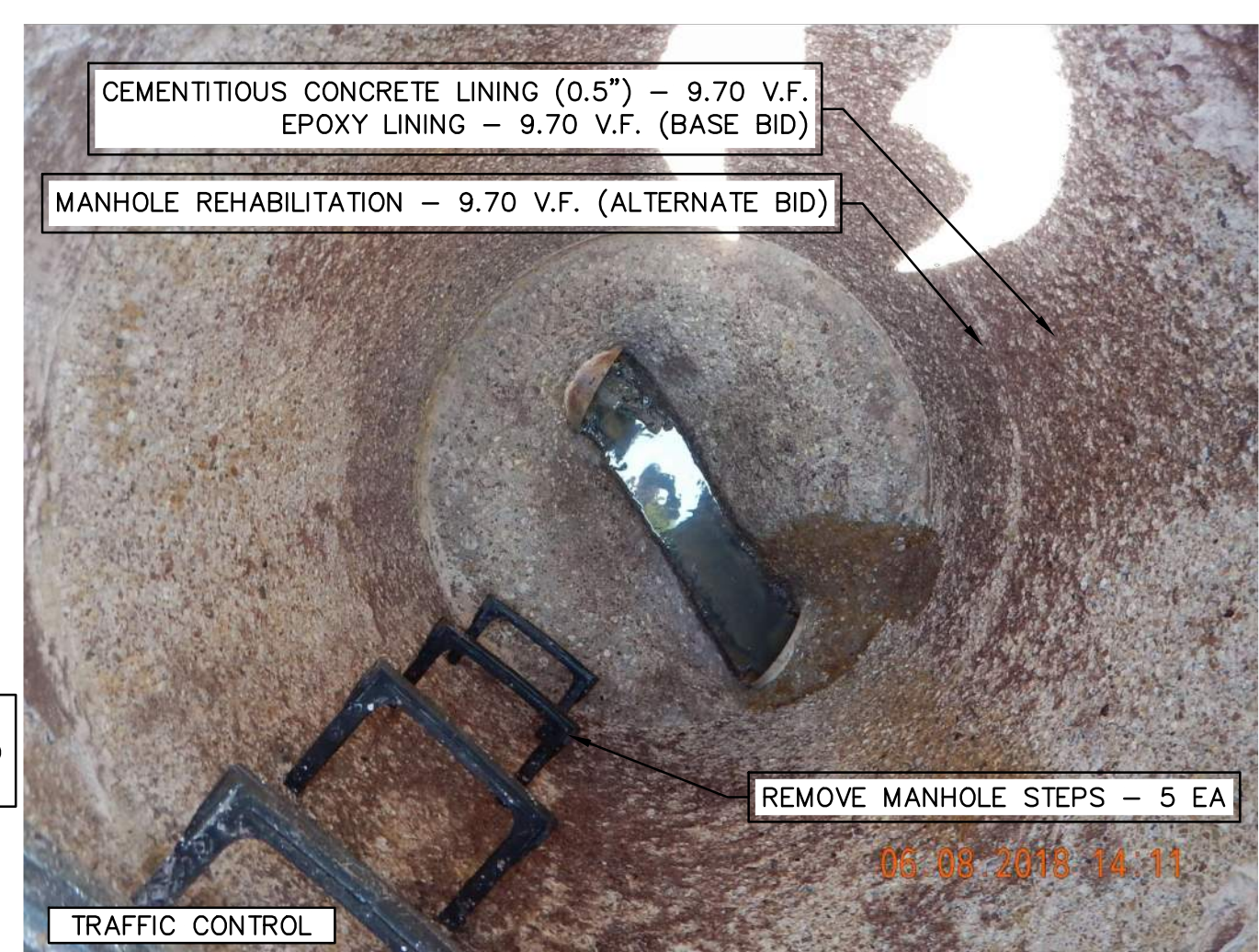
MH B6-4



MH B6-3



MH 622



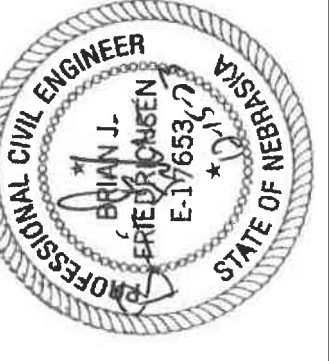
MH B6-5



MH B6-6

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REV. NO.	DATE	REVISIONS DESCRIPTION

**MANHOLE REHABILITATION PLAN**

GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10

GRAND ISLAND, NEBRASKA

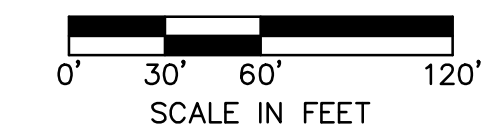
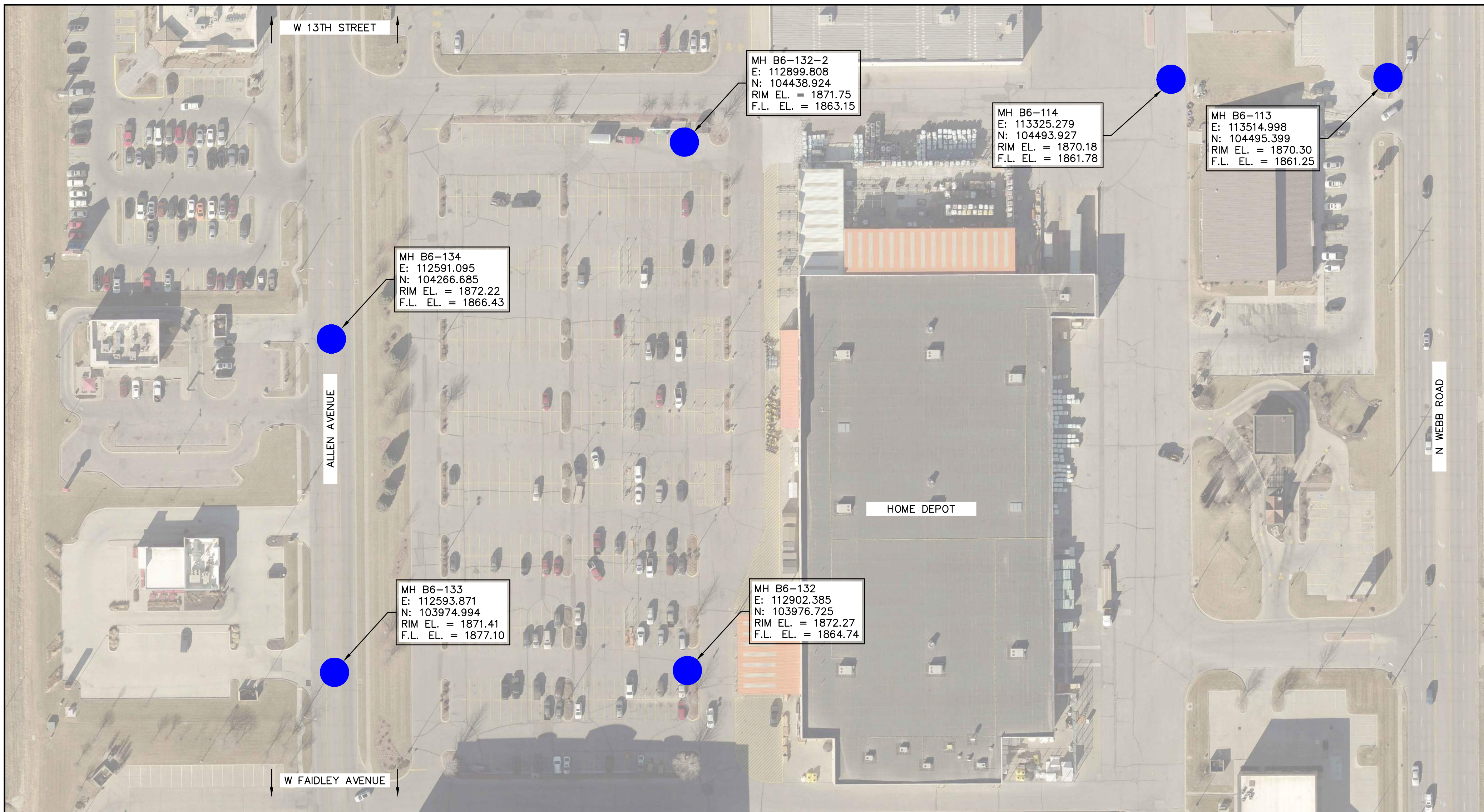
2023

drawn by: KDG  
 checked by: BJF  
 approved by: BJF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
 date: DECEMBER 2023

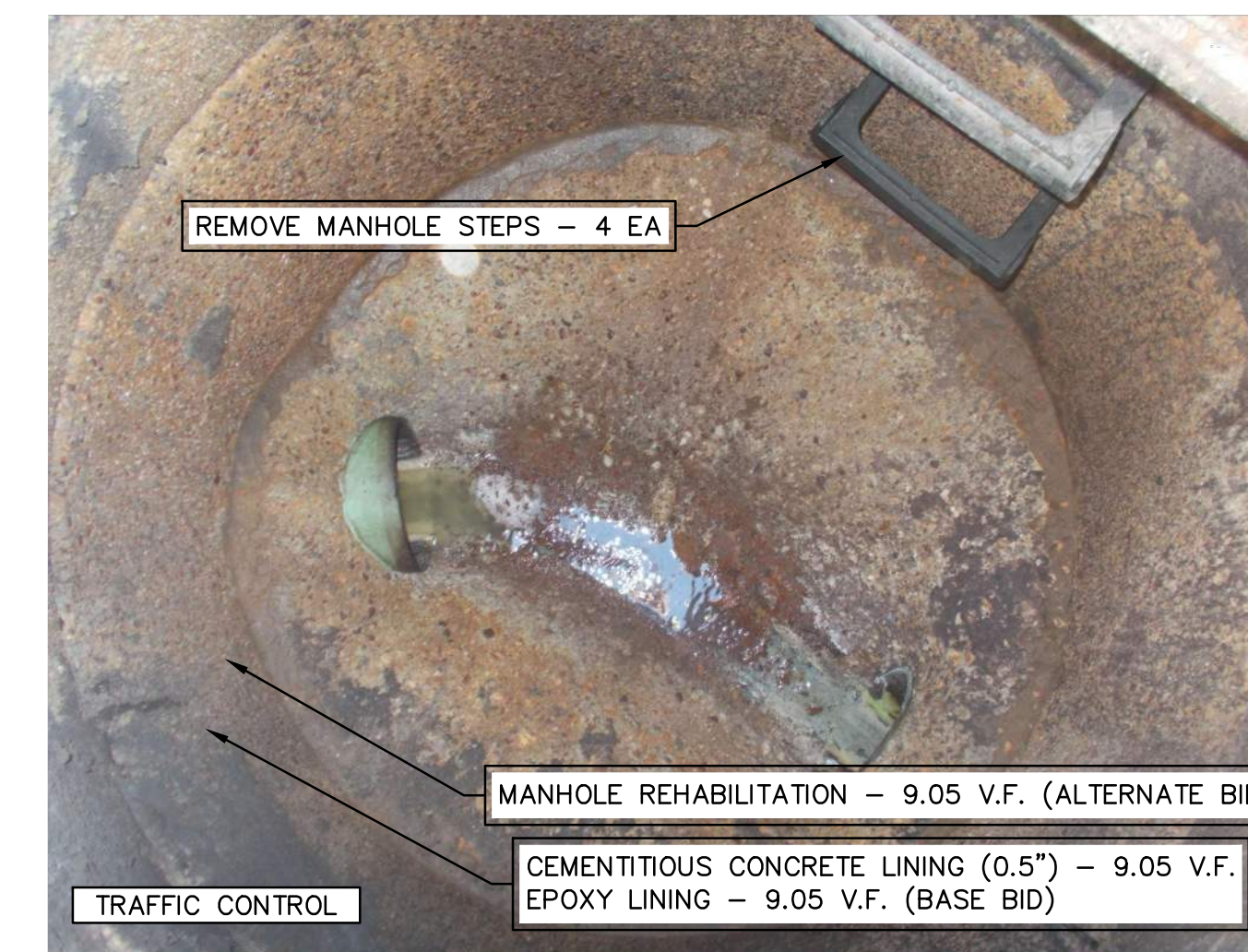
NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD. MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.



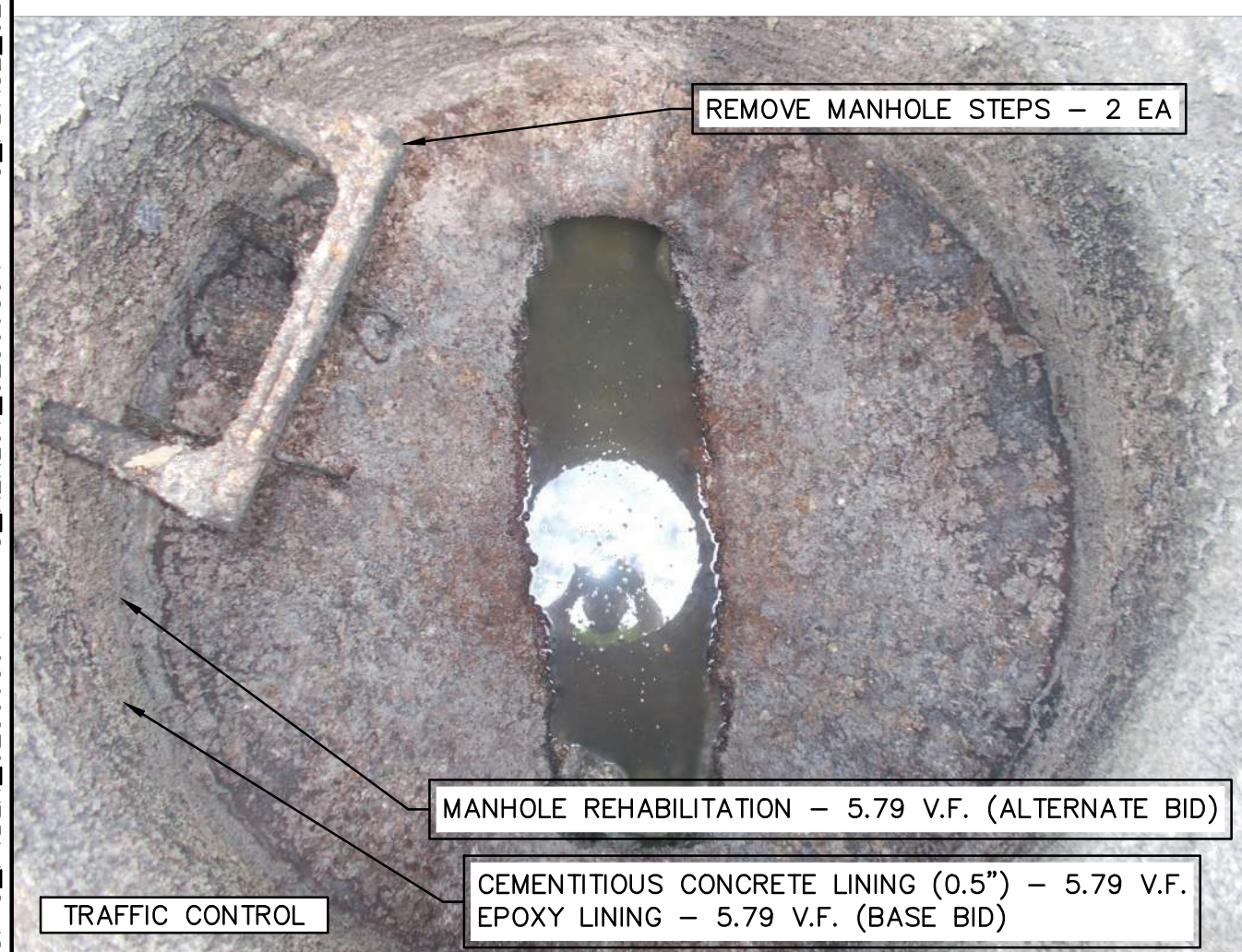
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 USER: kgongstad



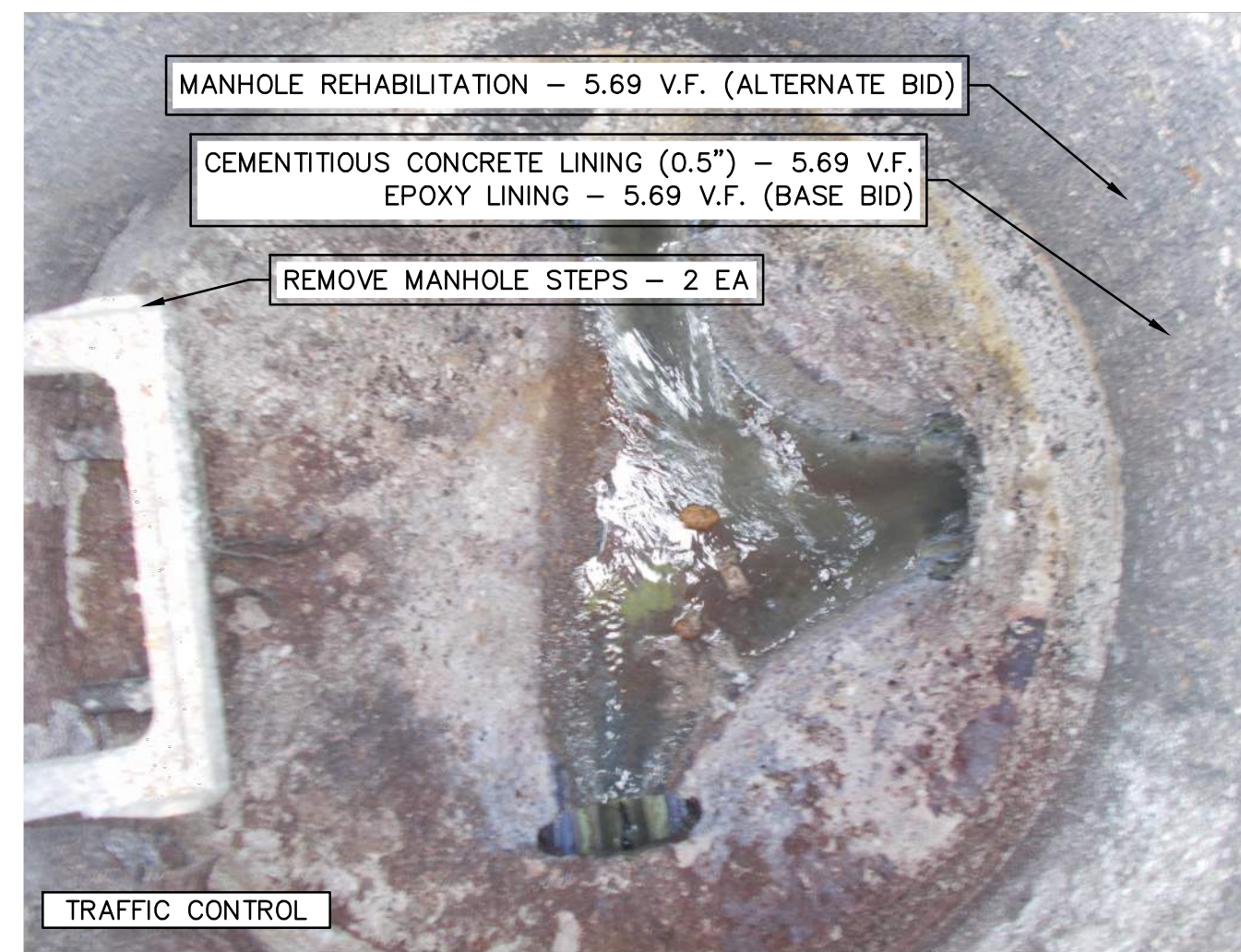
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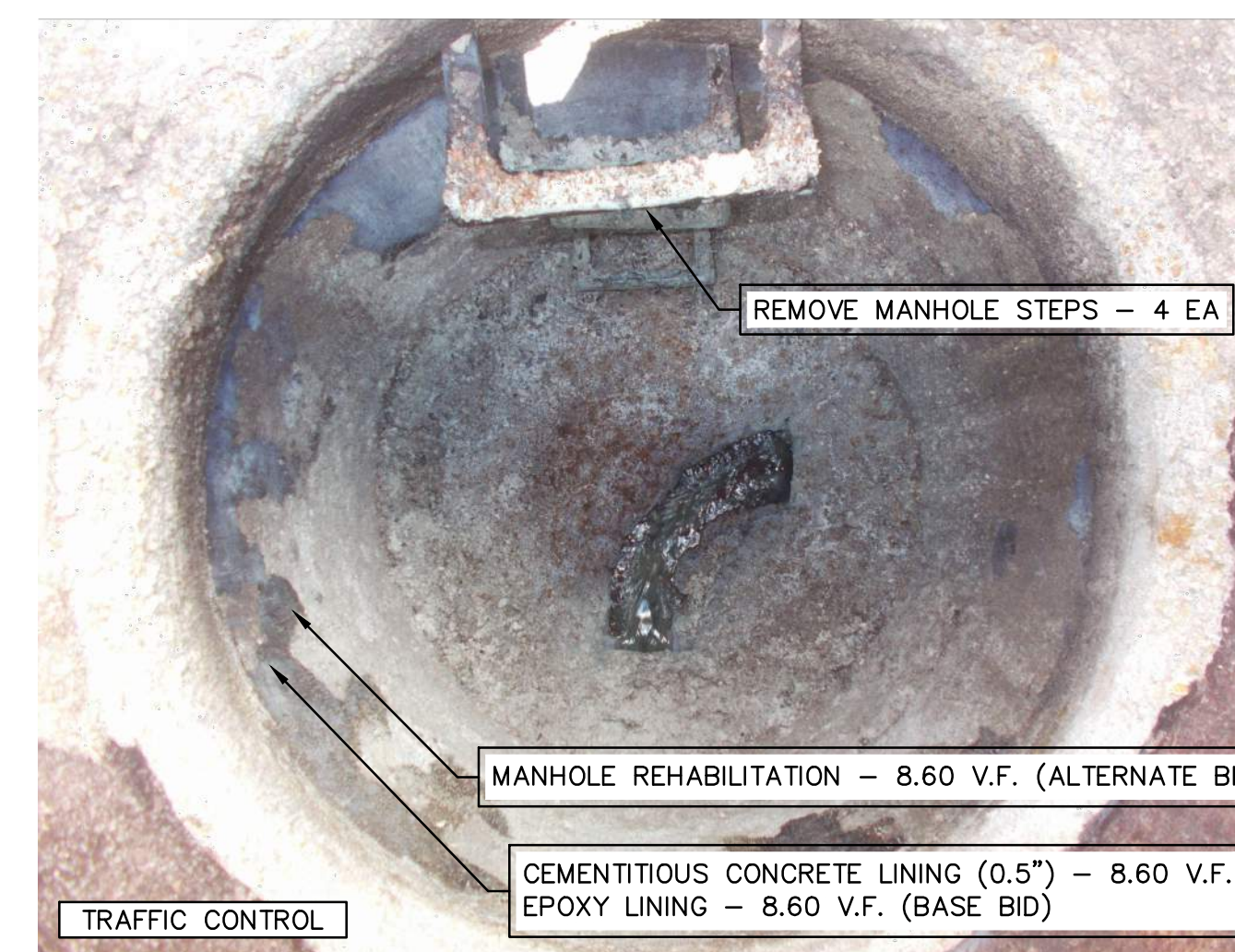
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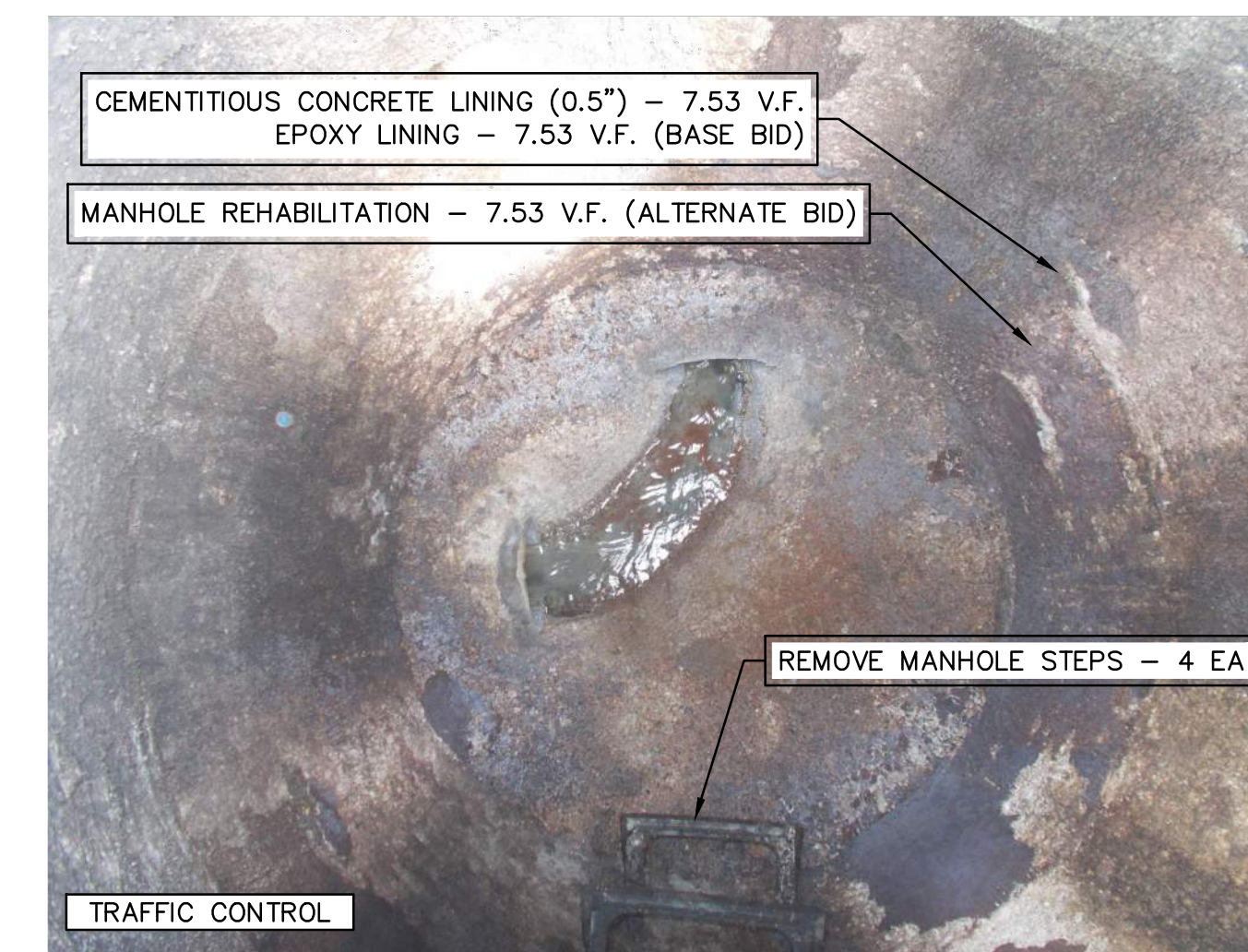
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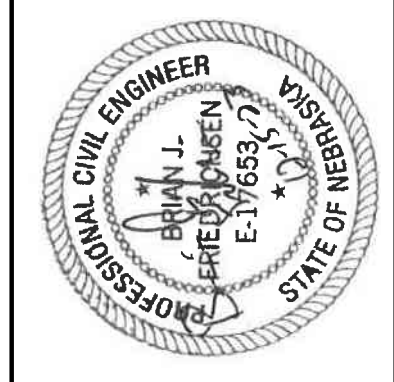
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MH B6-132-2



MH B6-132

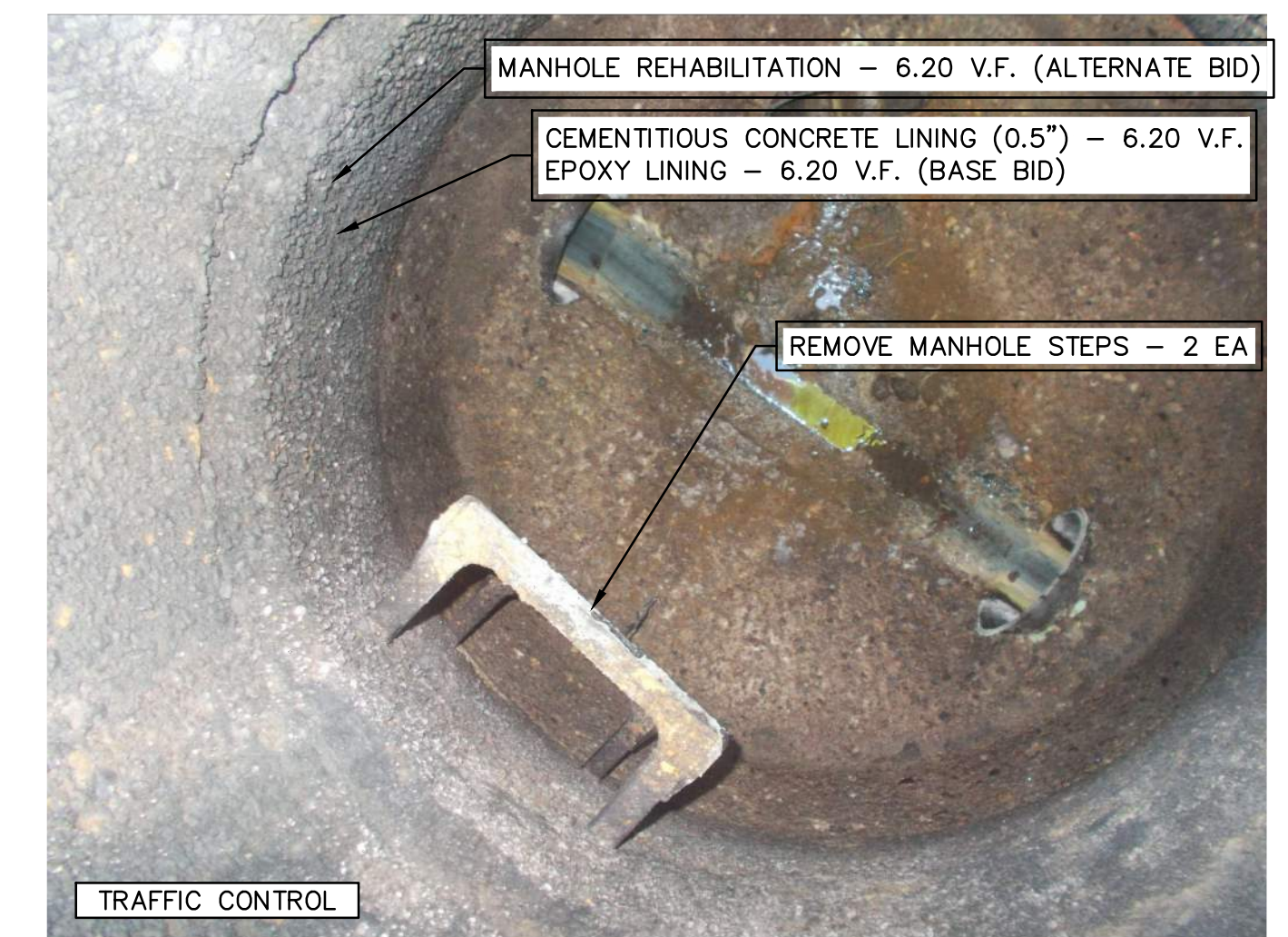
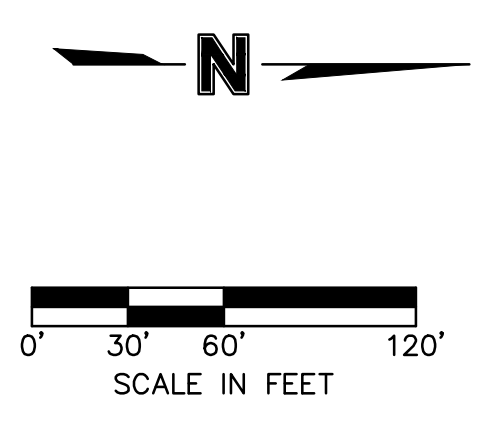
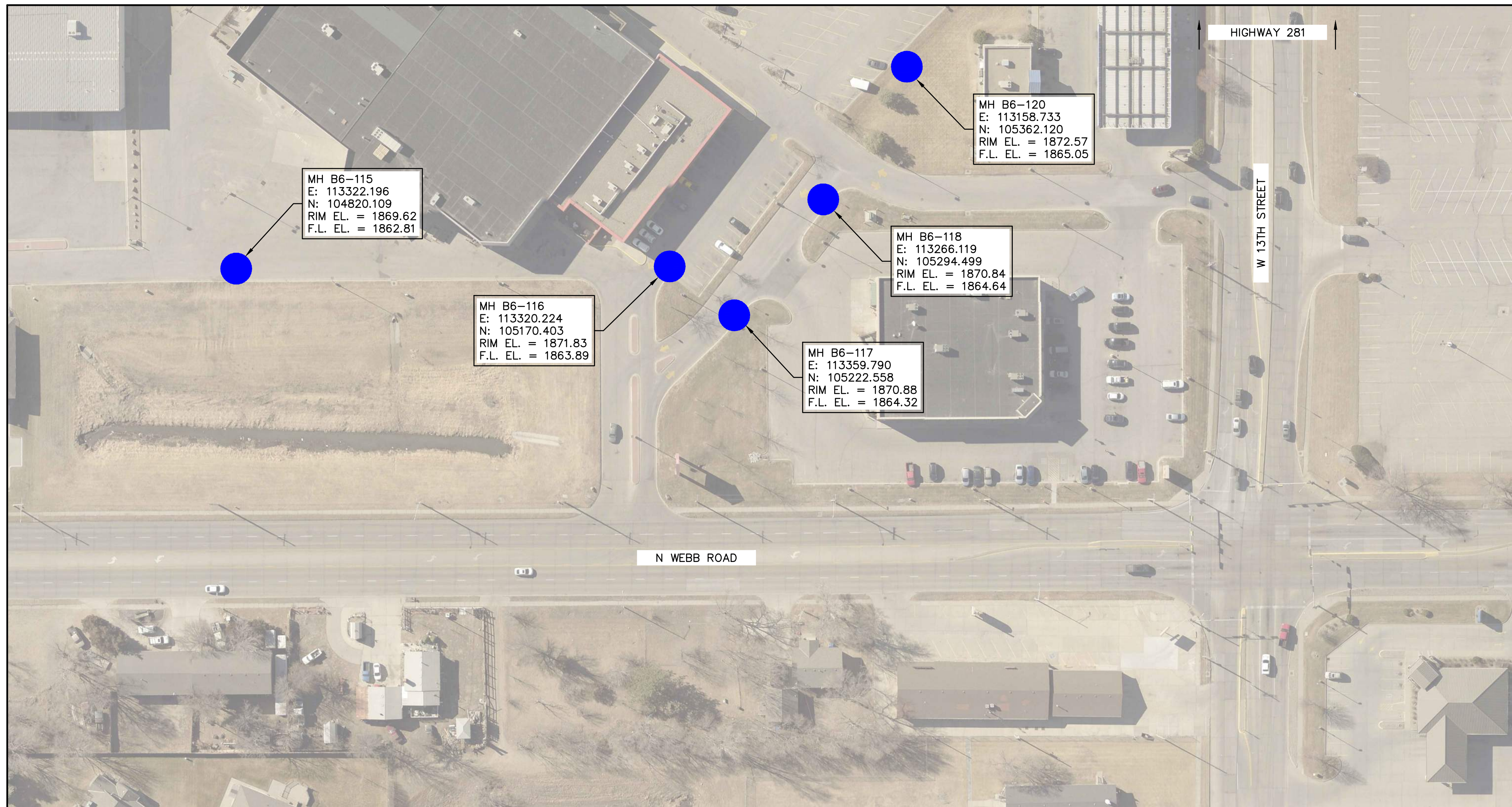


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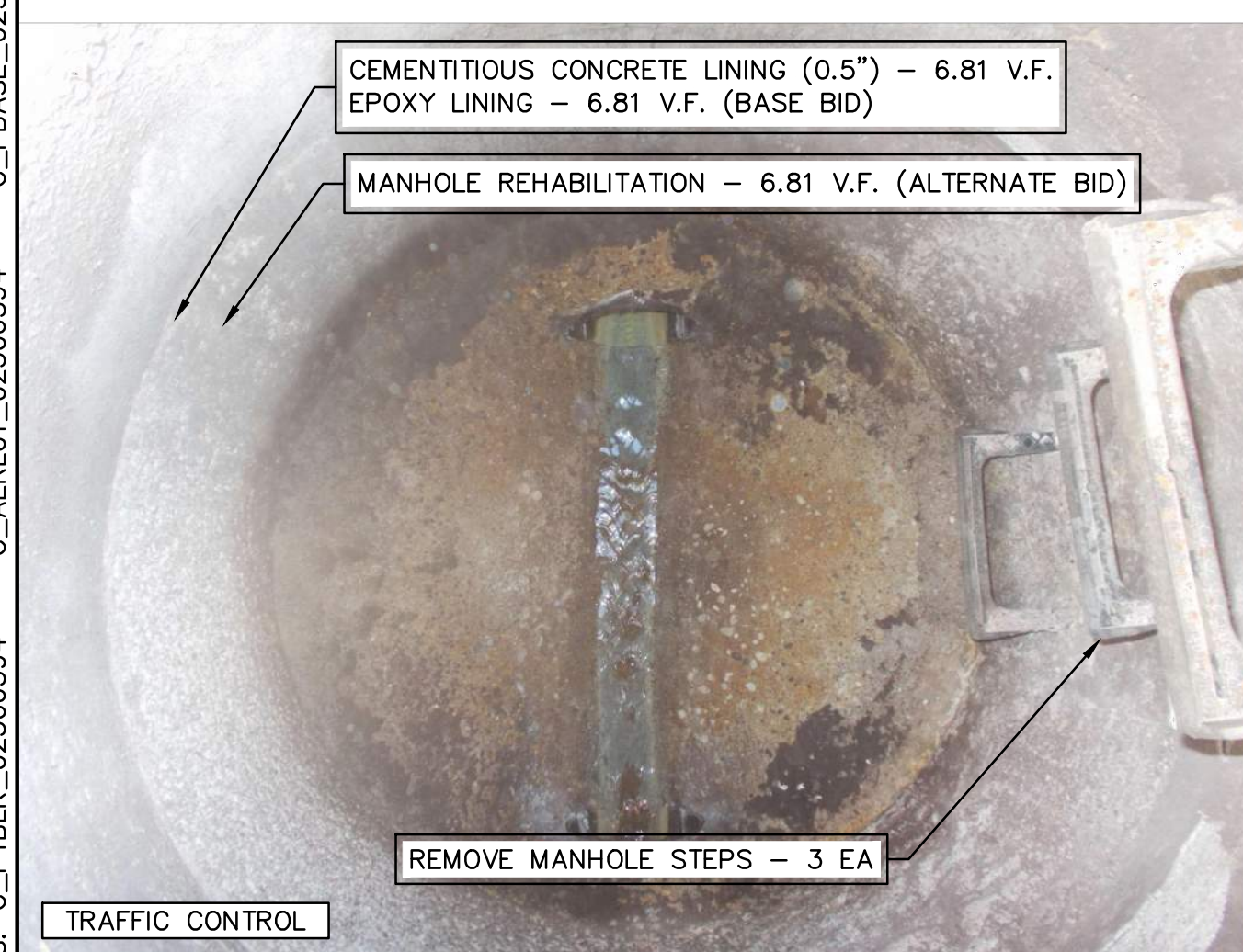
MANHOLE REHABILITATION PLAN	2023
	GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10
	GRAND ISLAND, NEBRASKA
drawn by: KDG	checked by: BJF
approved by: BJF	QA/QC by: JB
project no.: 023-06594	date: DECEMBER 2023

NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD. MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

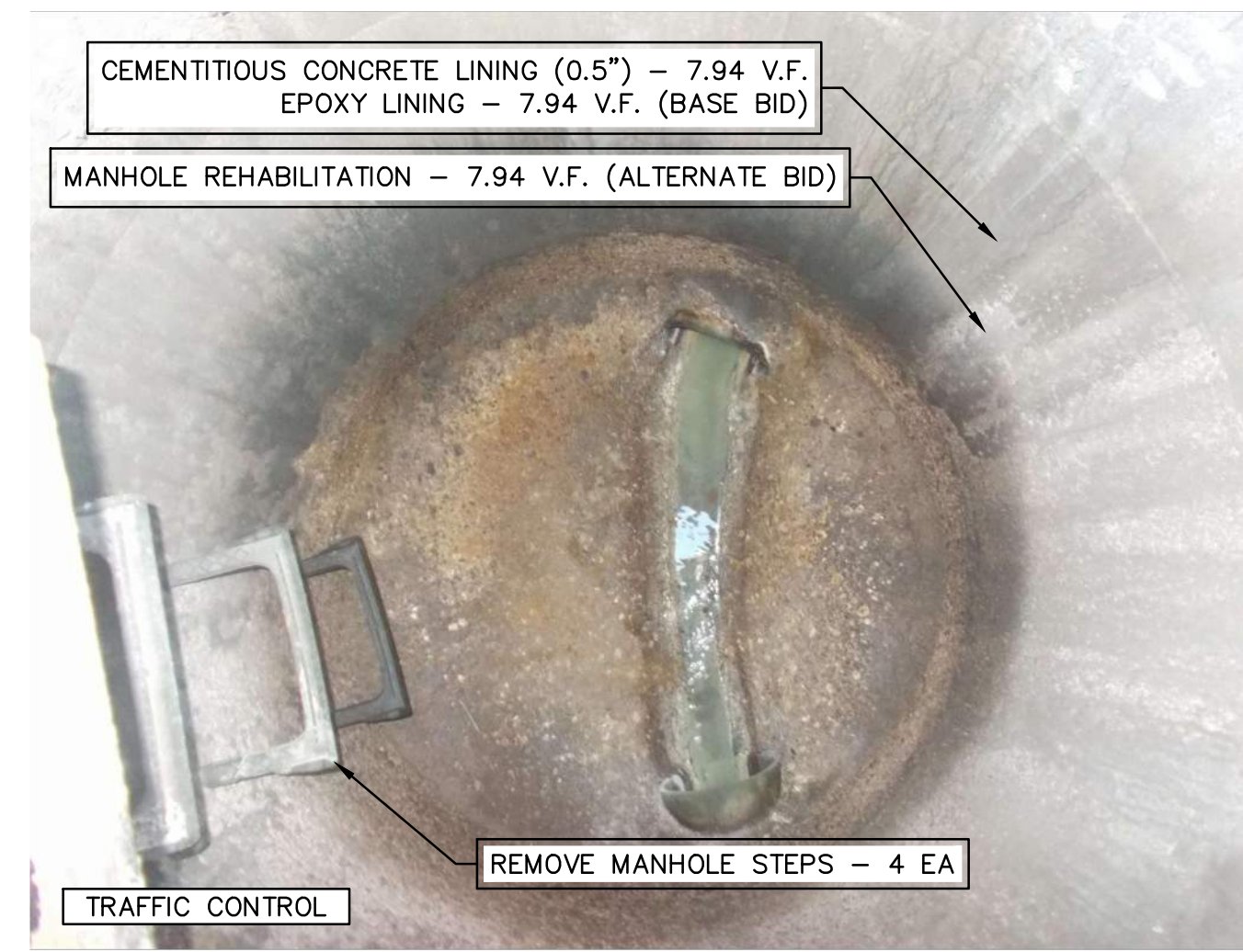
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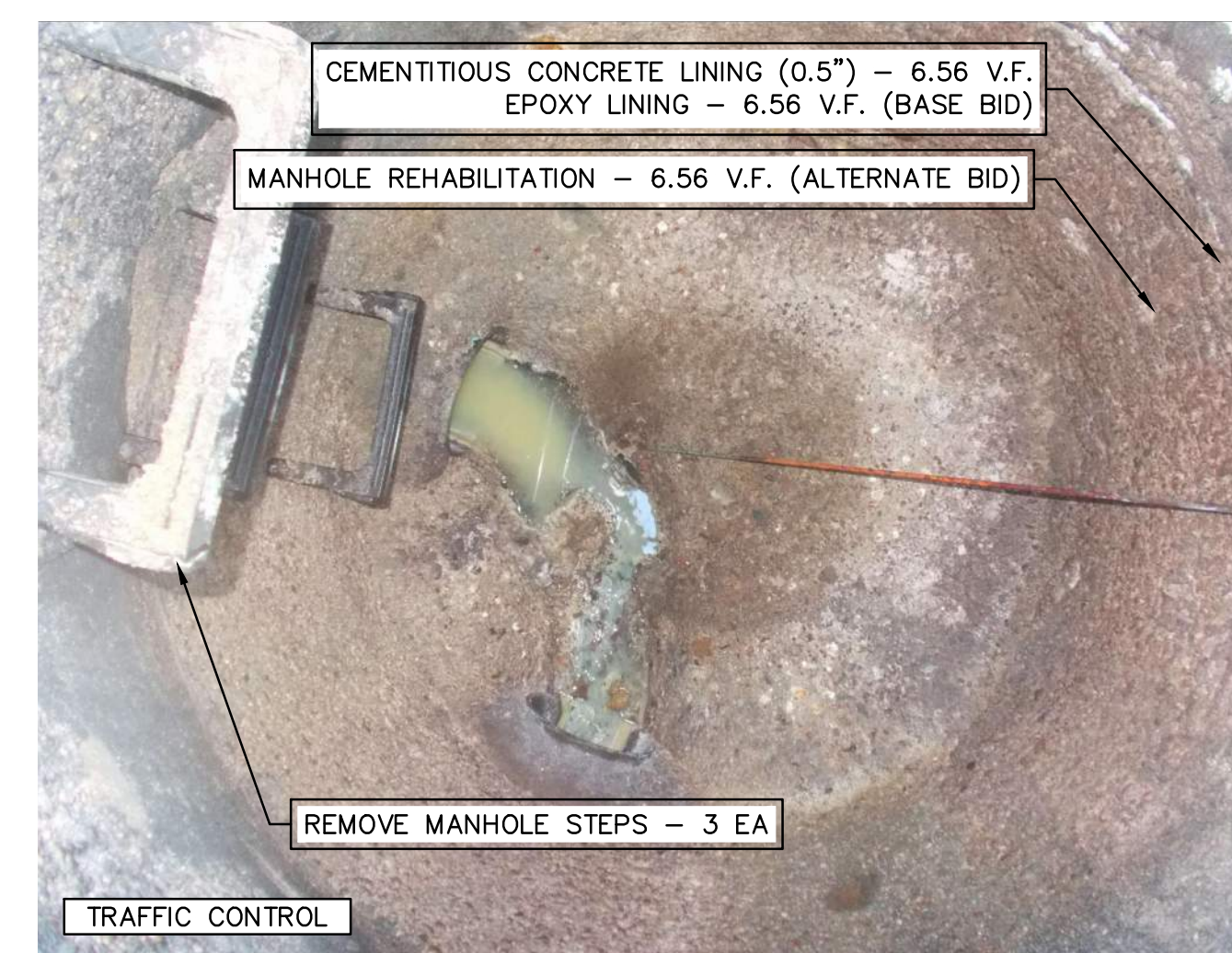
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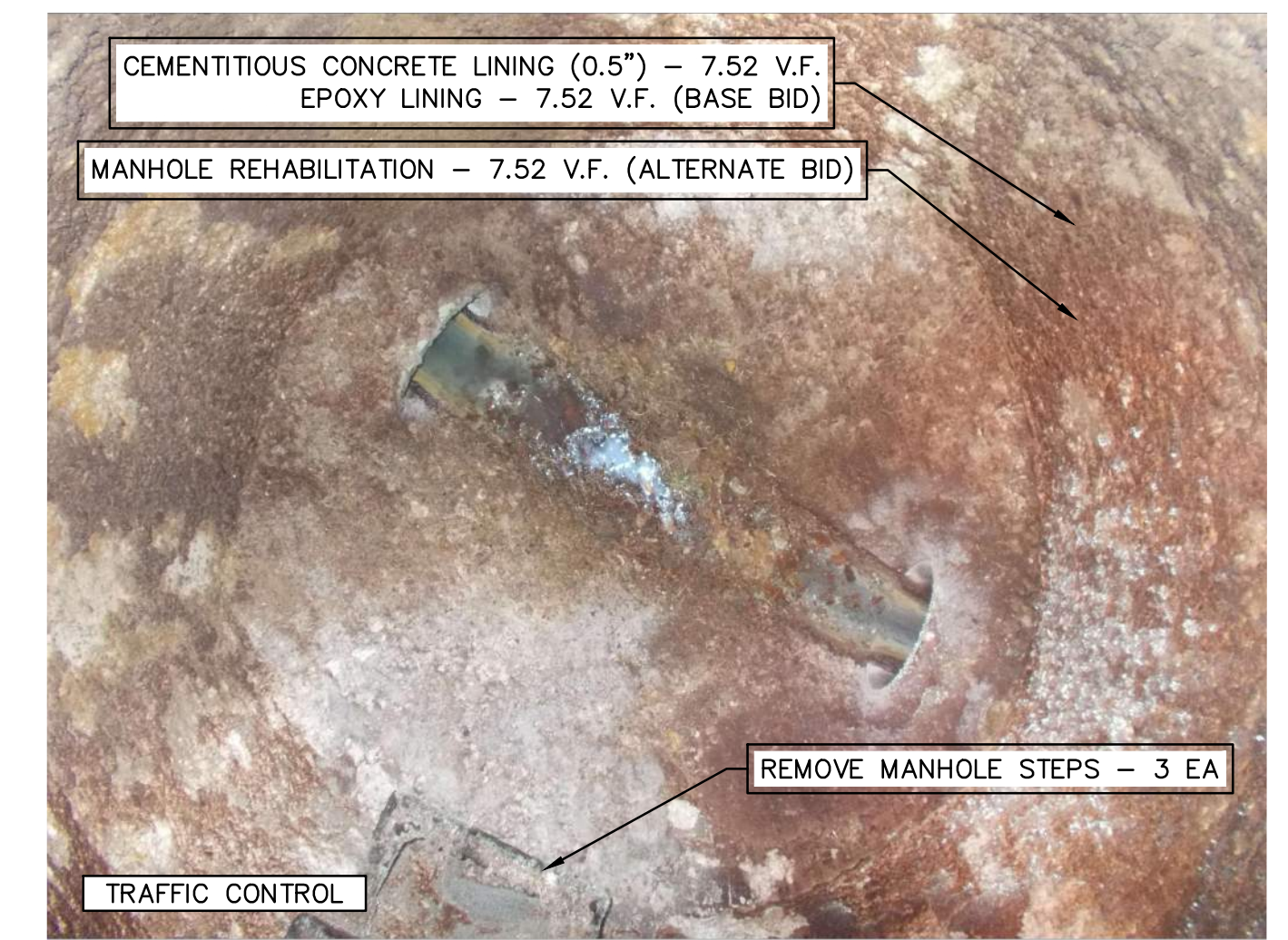
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MH B6-116



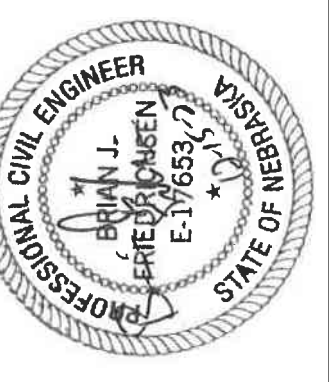
MH B6-117



MH B6-120

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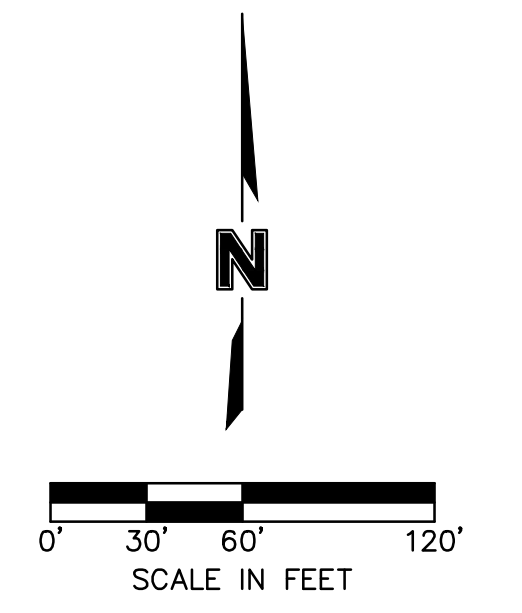
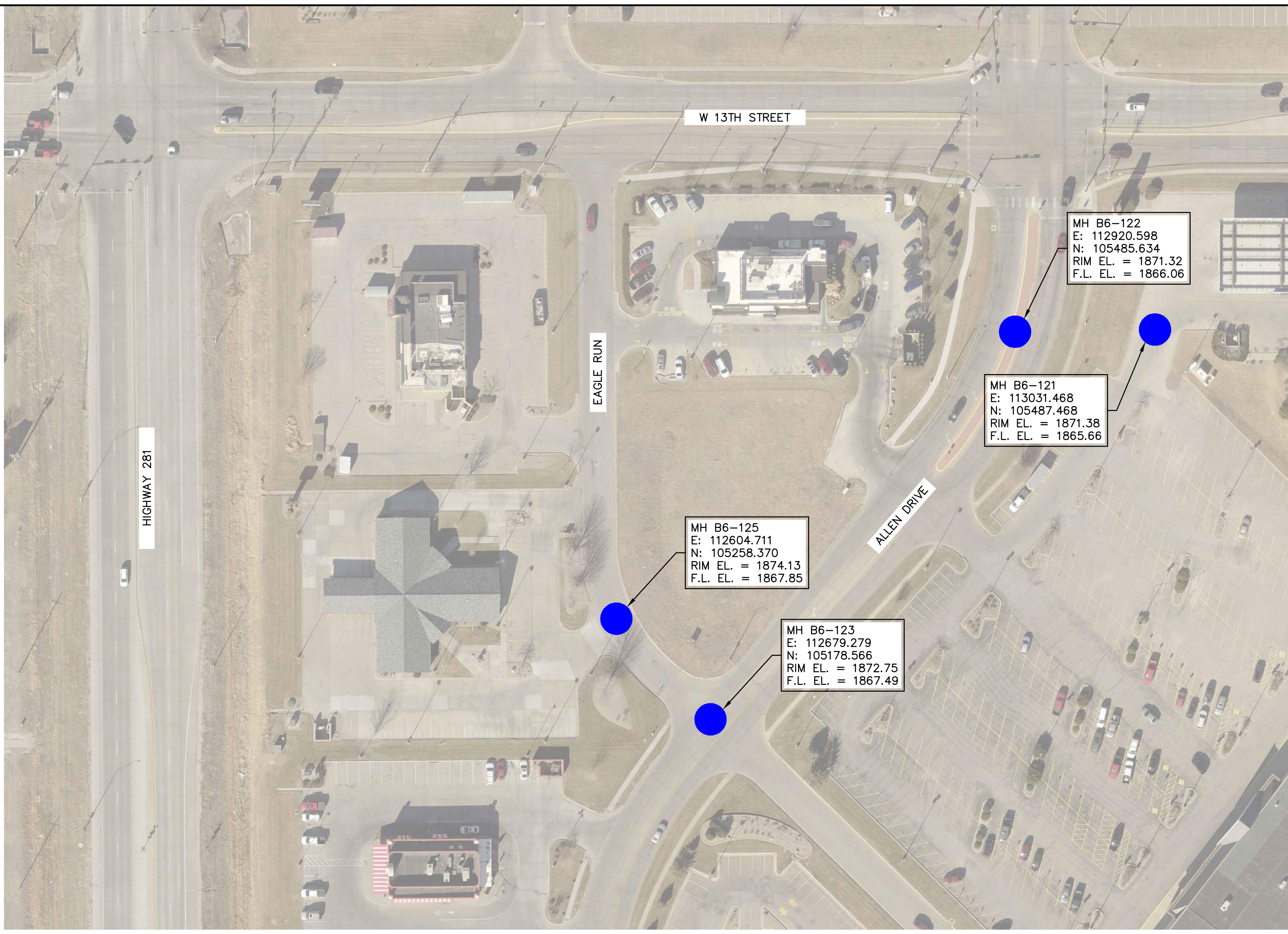
REV. NO.	DATE	REVISIONS DESCRIPTION

MANHOLE REHABILITATION PLAN	2023
GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10	
GRAND ISLAND, NEBRASKA	

drawn by: KDG  
 checked by: BJF  
 approved by: BJF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
 date: DECEMBER 2023

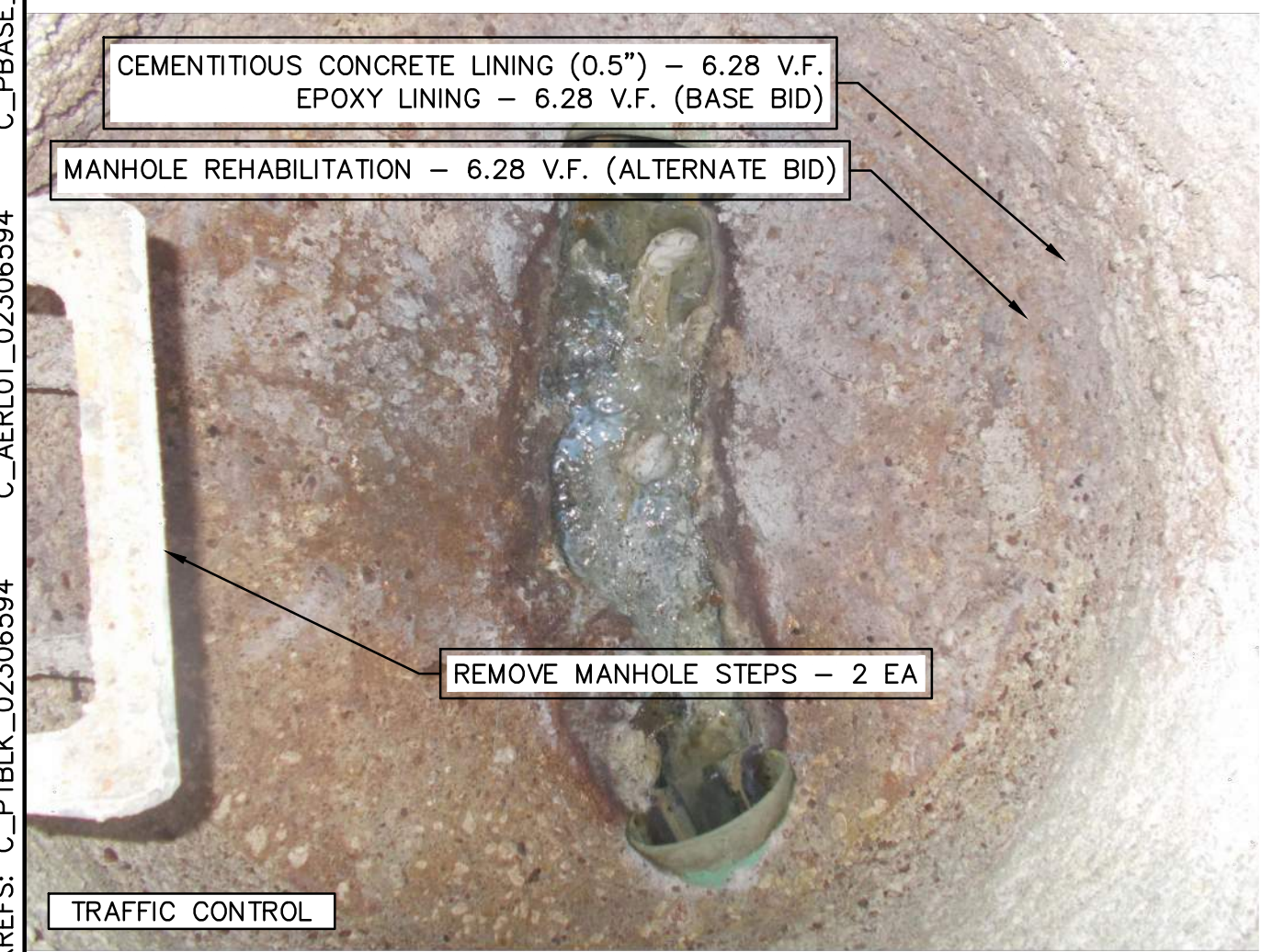
NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD. MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

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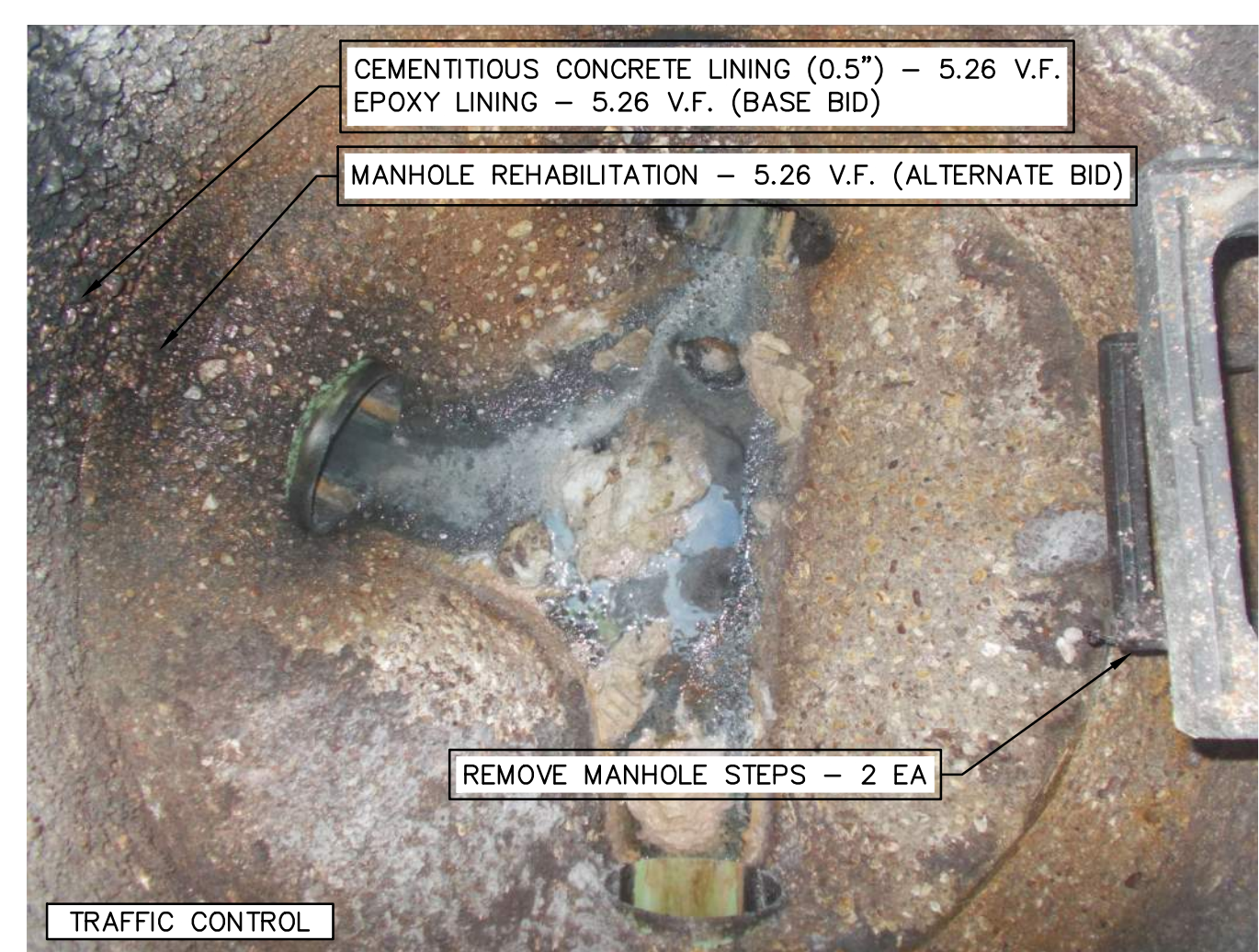


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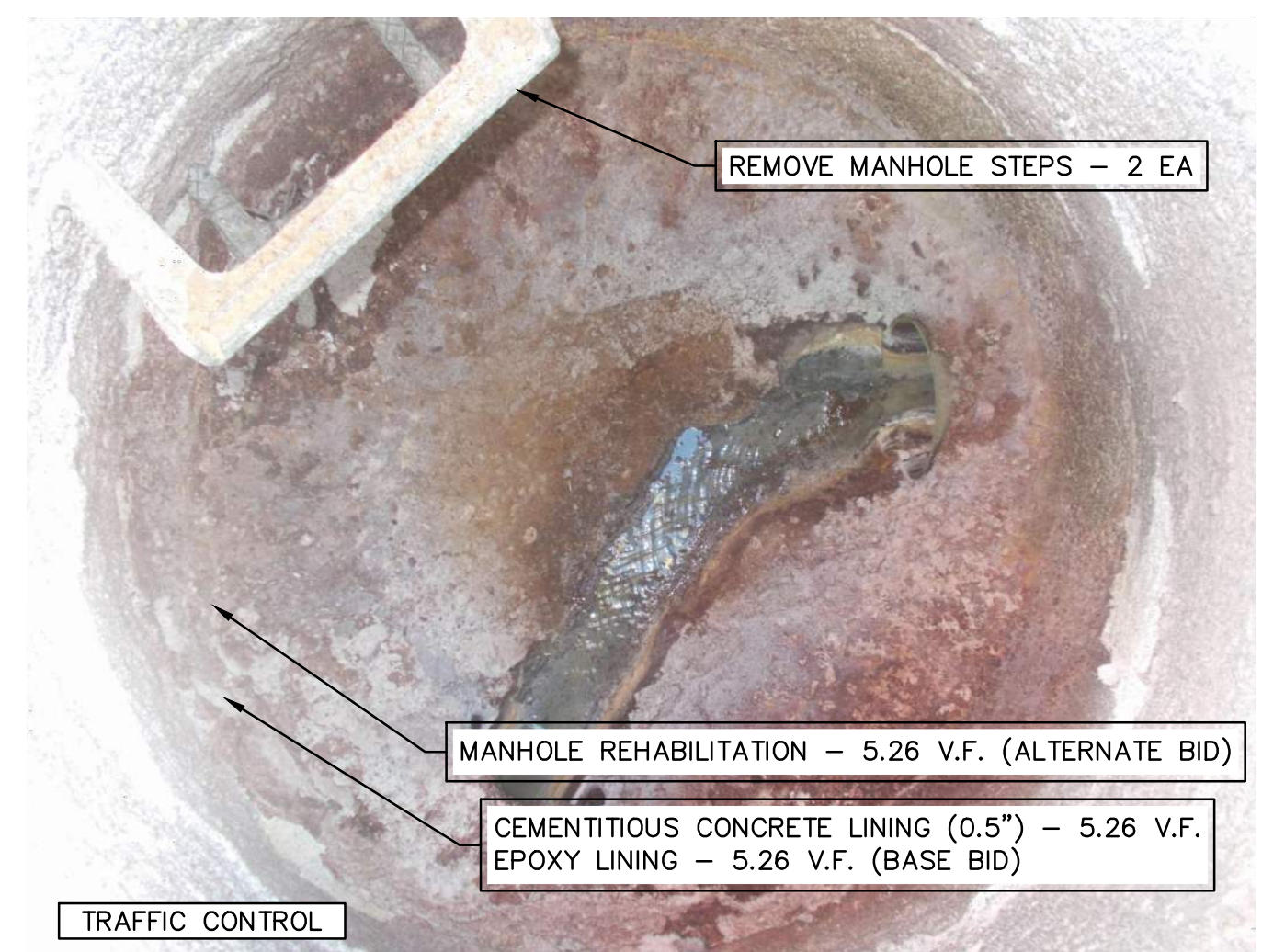
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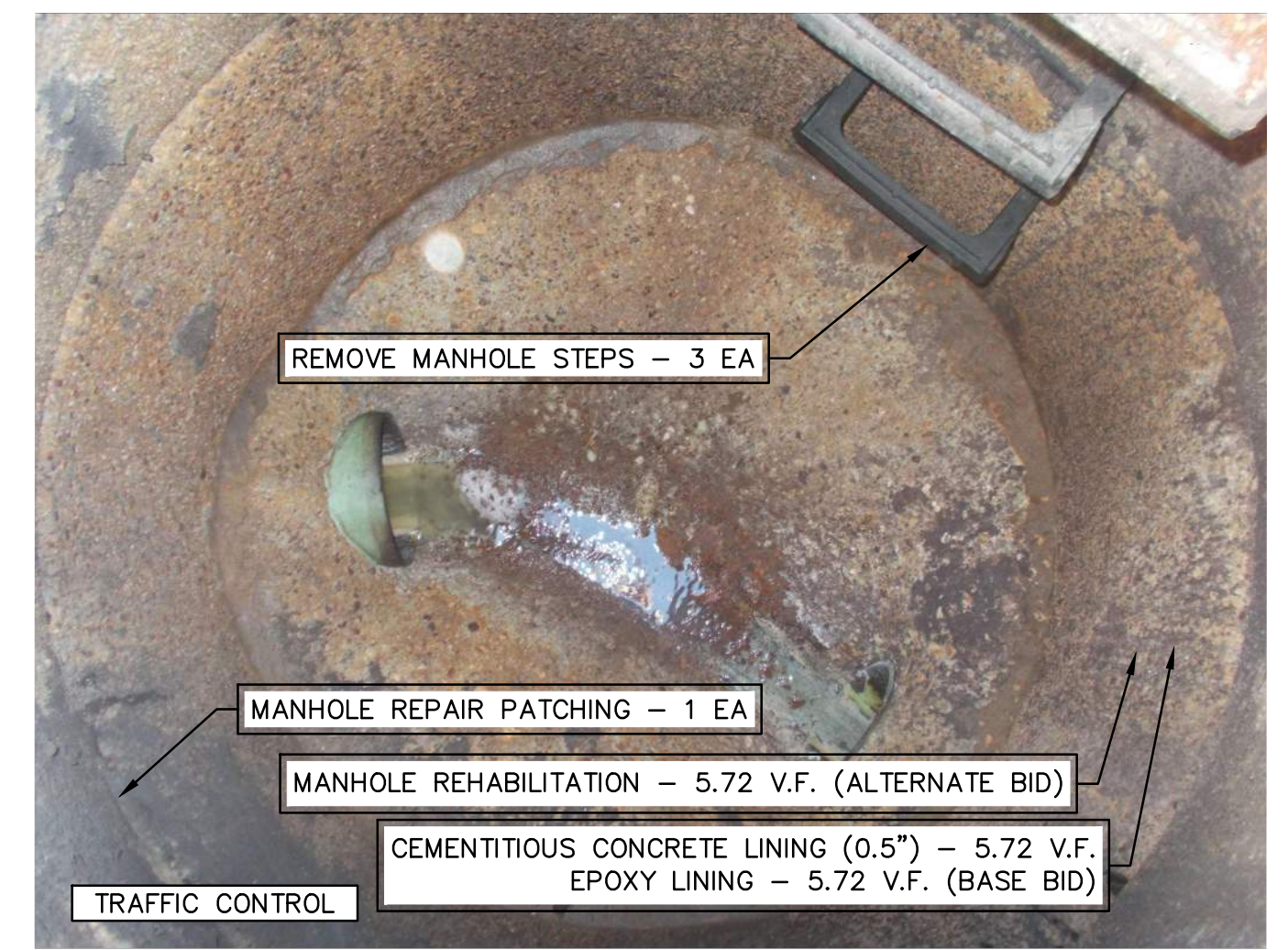
MH B6-125



MH B6-123



MH B6-122



MH B6-121

REV. NO.	DATE	REVISIONS DESCRIPTION

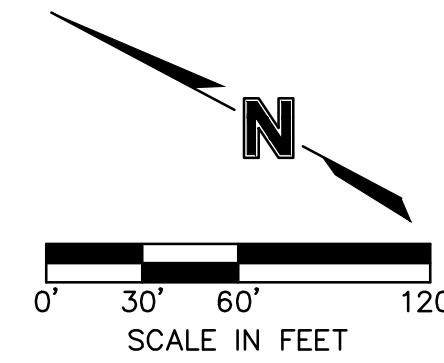
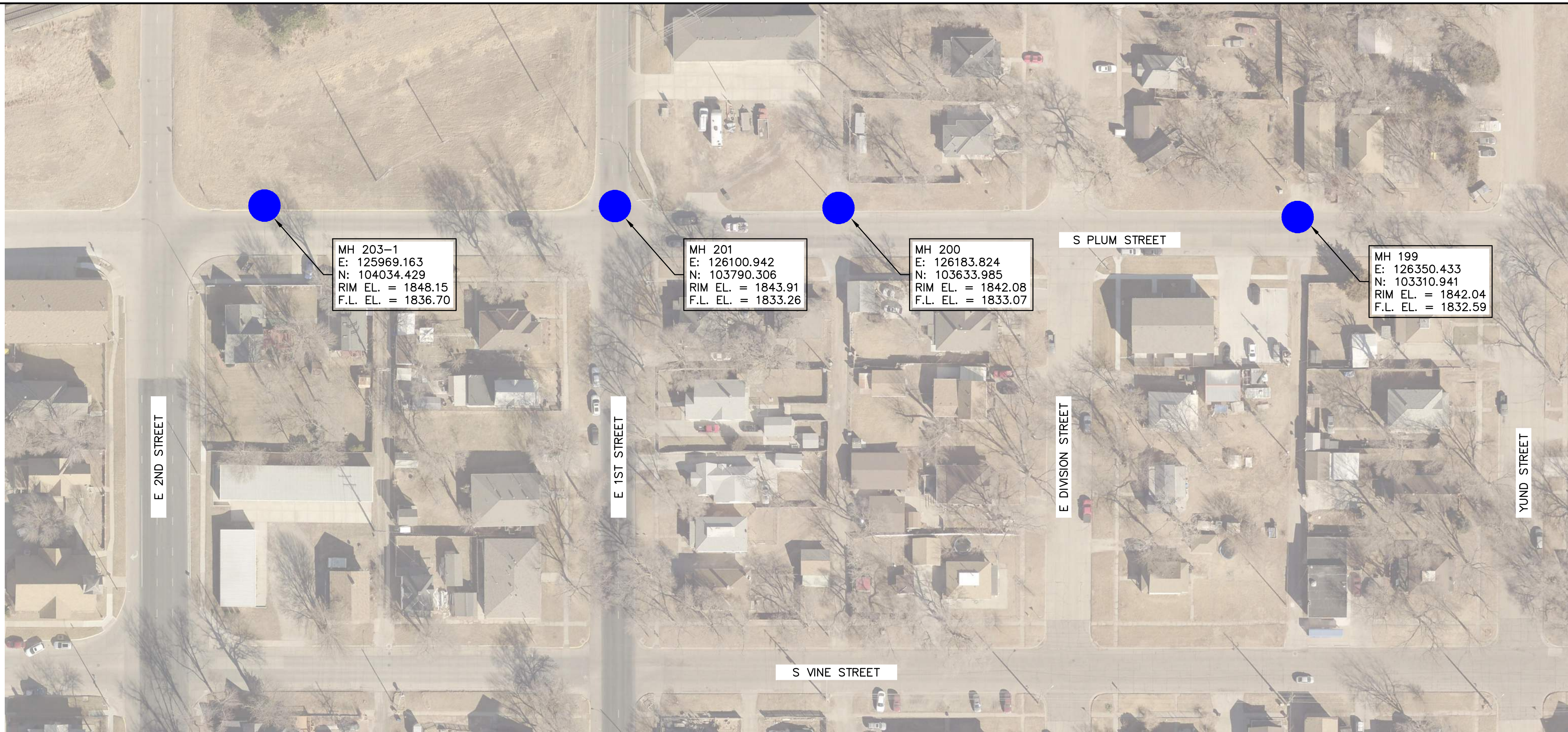
  

<b>MANHOLE REHABILITATION PLAN</b>	<b>GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10</b>	2023
		<b>REVISIONS</b>
		<b>GRAND ISLAND, NEBRASKA</b>

drawn by: KDG  
 checked by: BJF  
 approved by: BJF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
 date: DECEMBER 2023

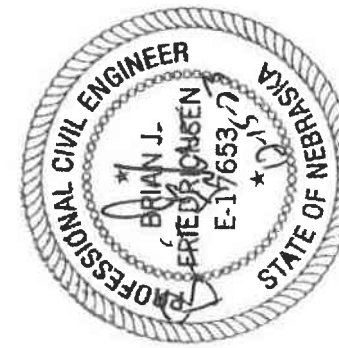
NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD.  
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MANHOLE REHABILITATION PLAN	2023
GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10	
GRAND ISLAND, NEBRASKA	

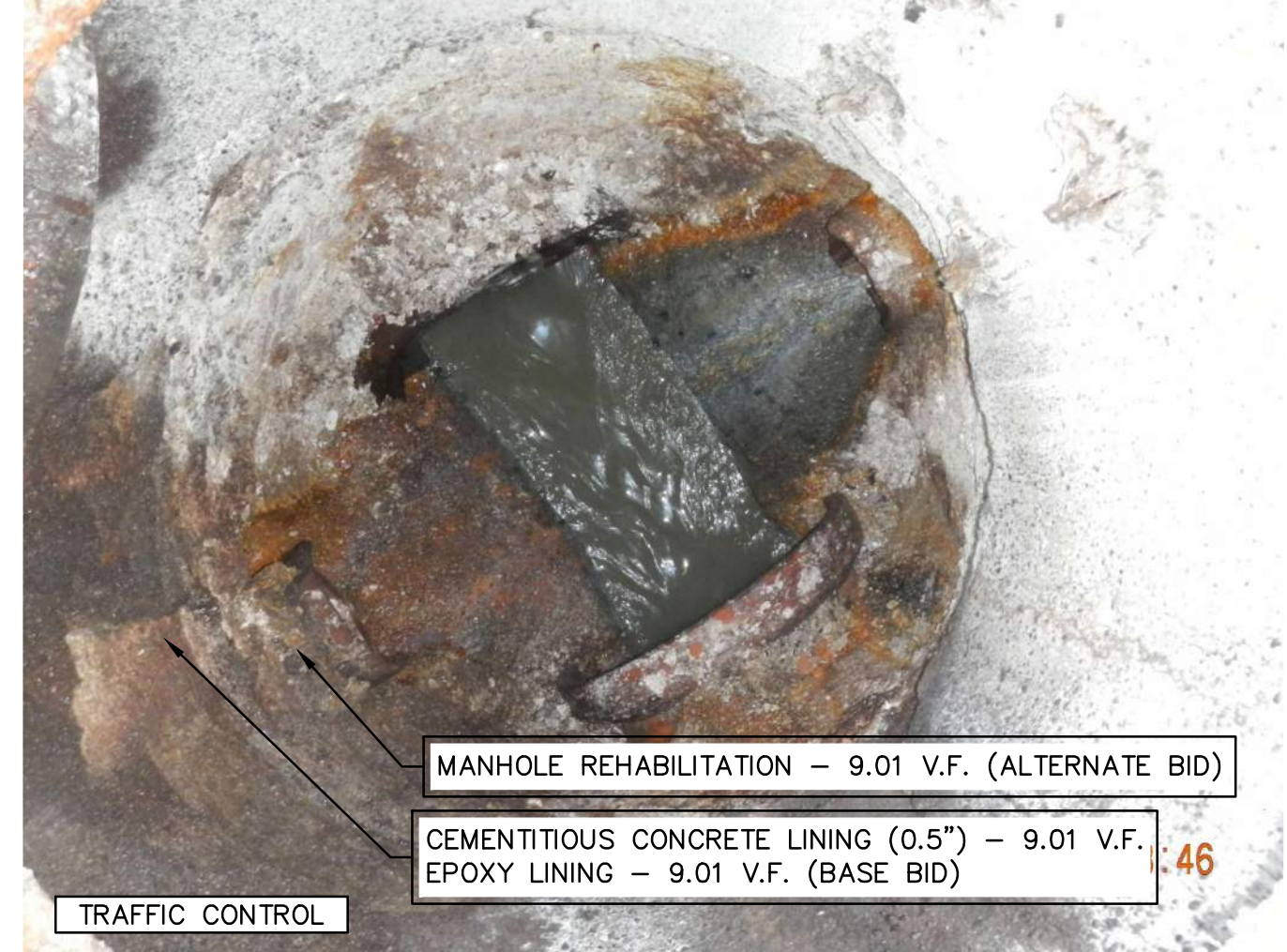
drawn by:	KDG
checked by:	BJF
approved by:	BJF
QA/QC by:	JB
project no.:	023-06594
drawing no.:	
date:	DECEMBER 2023



MH 203-1



MH 201



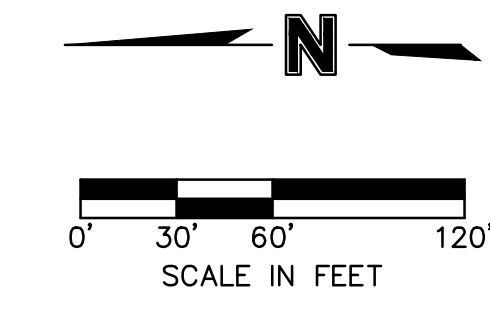
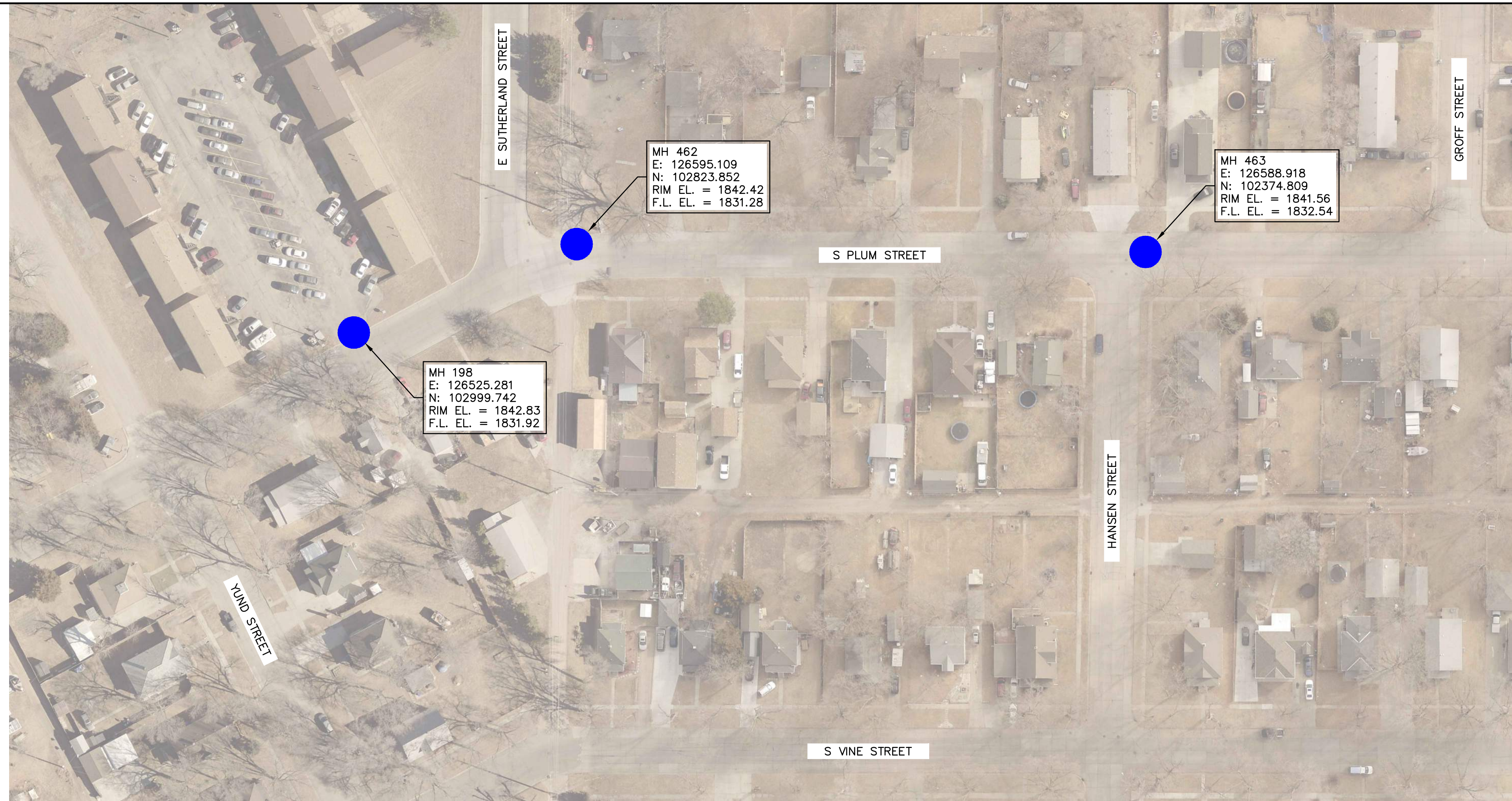
MH 200



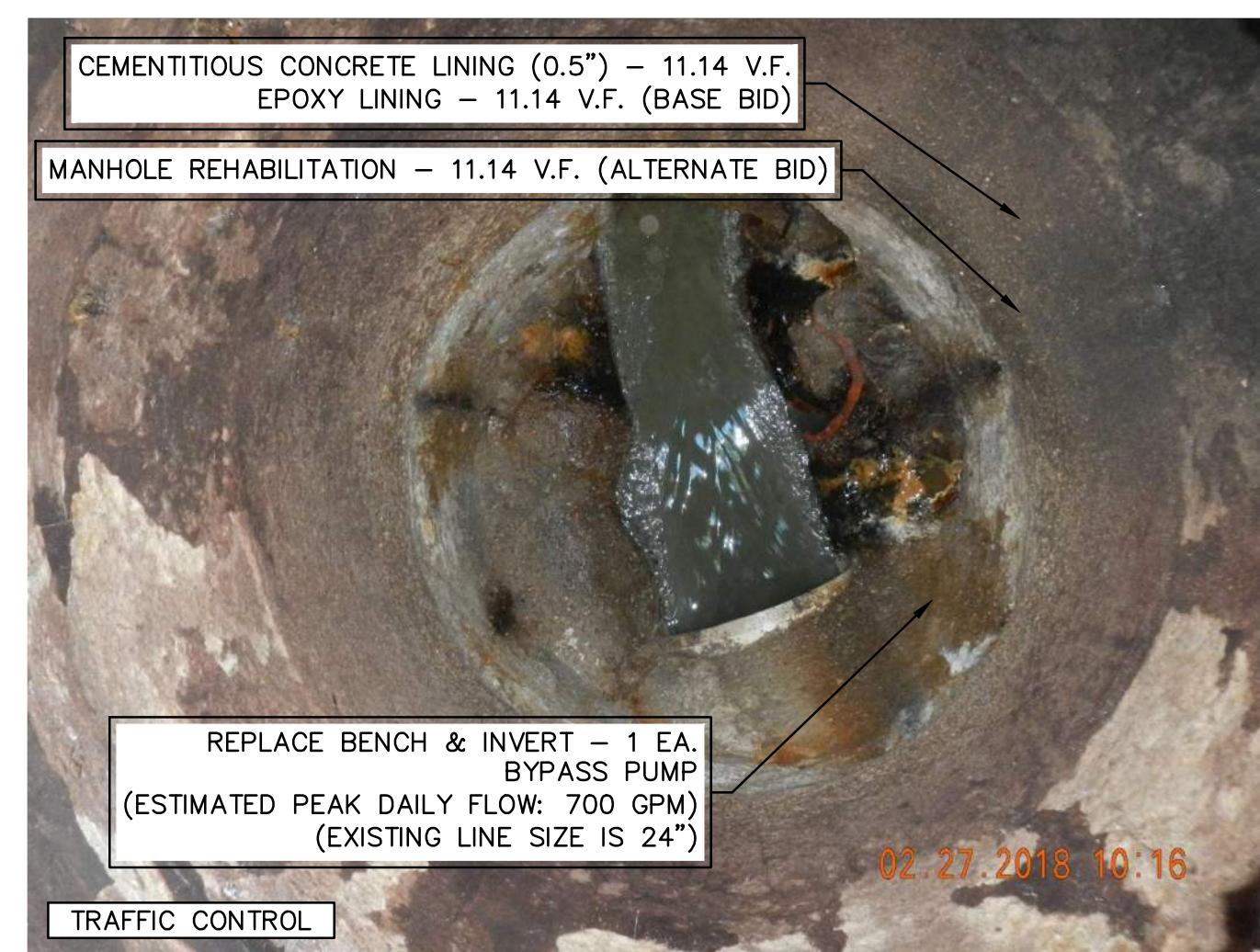
MH 199

NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD. MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

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MH 198

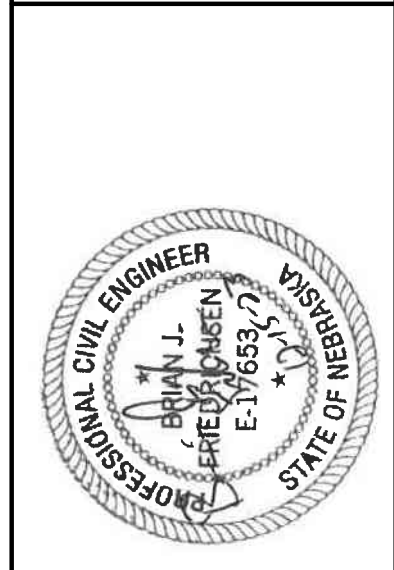


MH 462



MH 463

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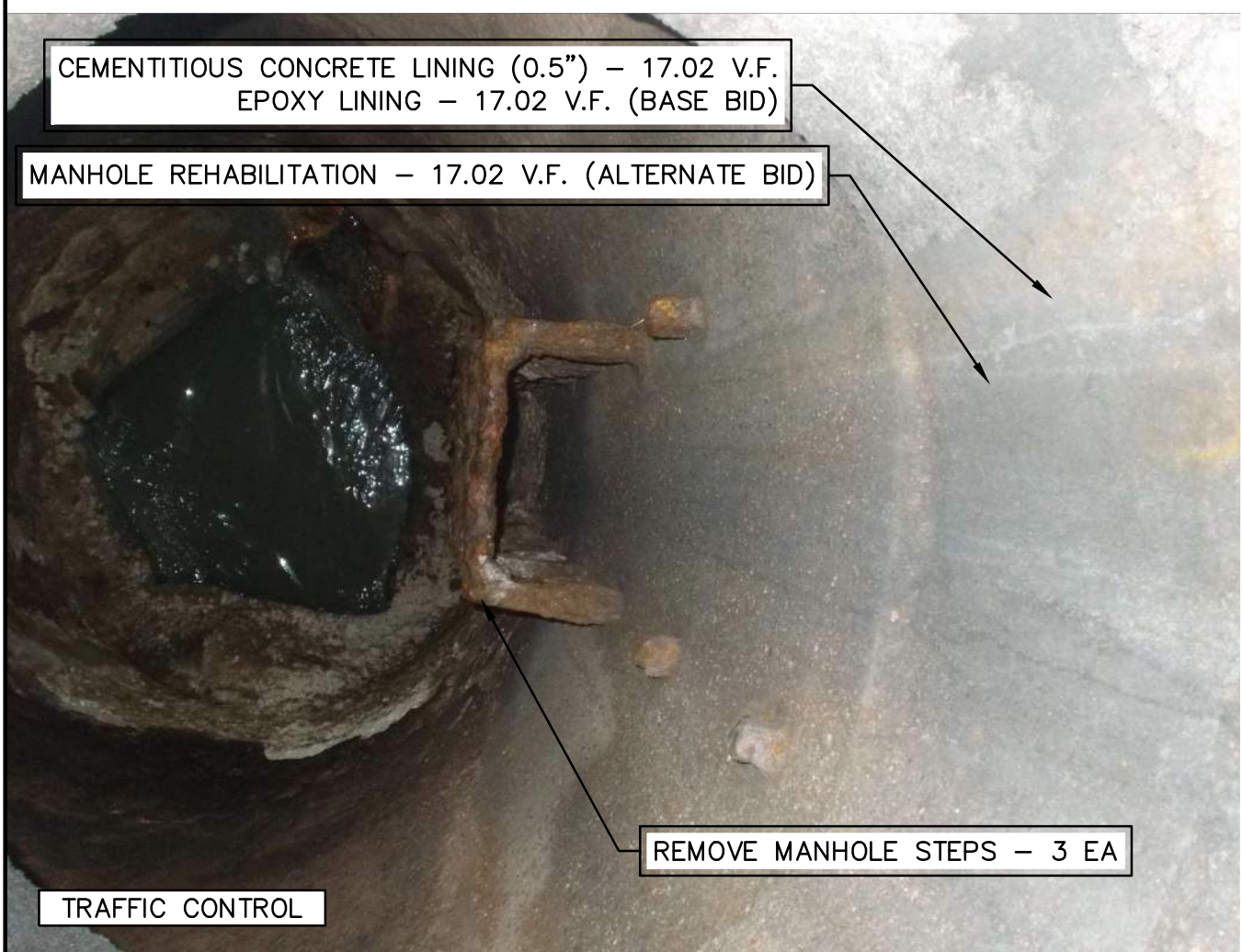
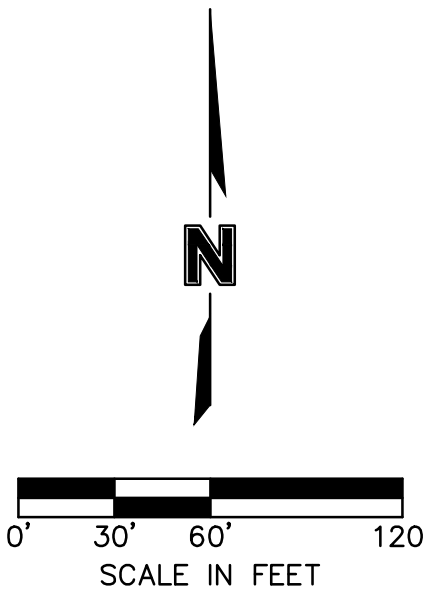
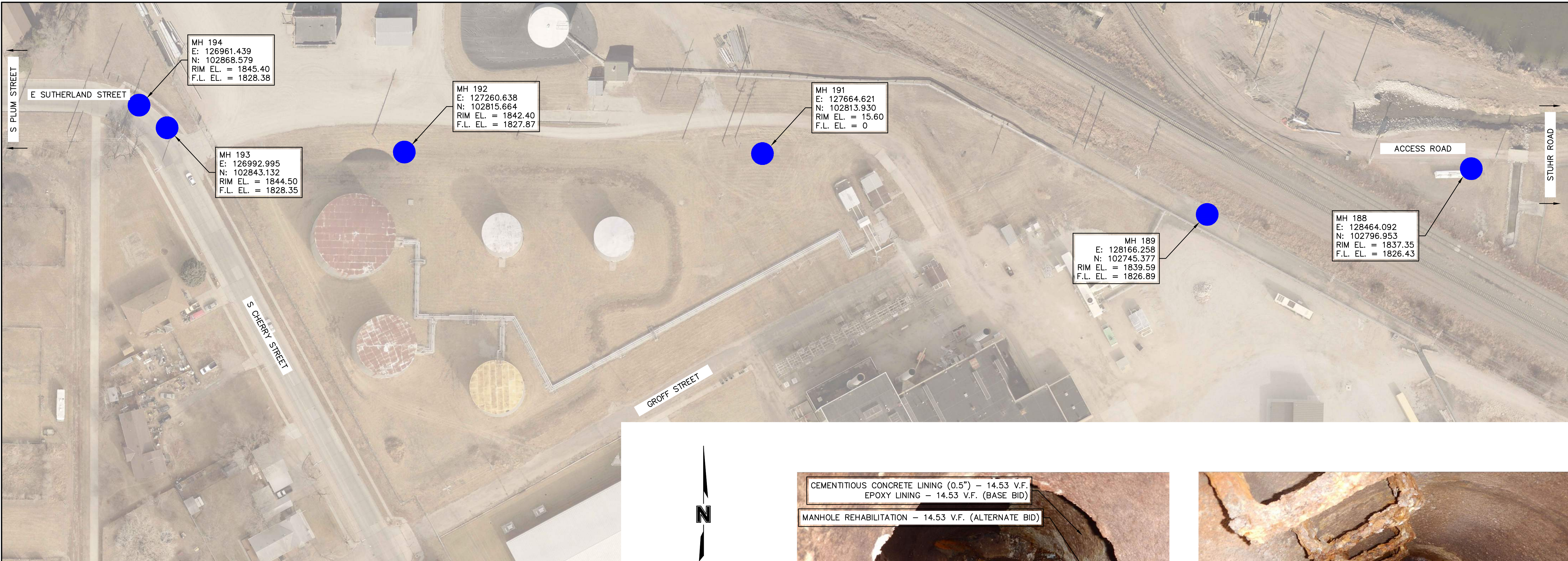
REV. NO.	DATE	REVISIONS DESCRIPTION

MANHOLE REHABILITATION PLAN	2023	REVISIONS

drawn by:	KDG
checked by:	BJF
approved by:	BJF
QA/QC by:	JB
project no.:	023-06594
drawing no.:	
date:	DECEMBER 2023

NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD.  
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MH 194



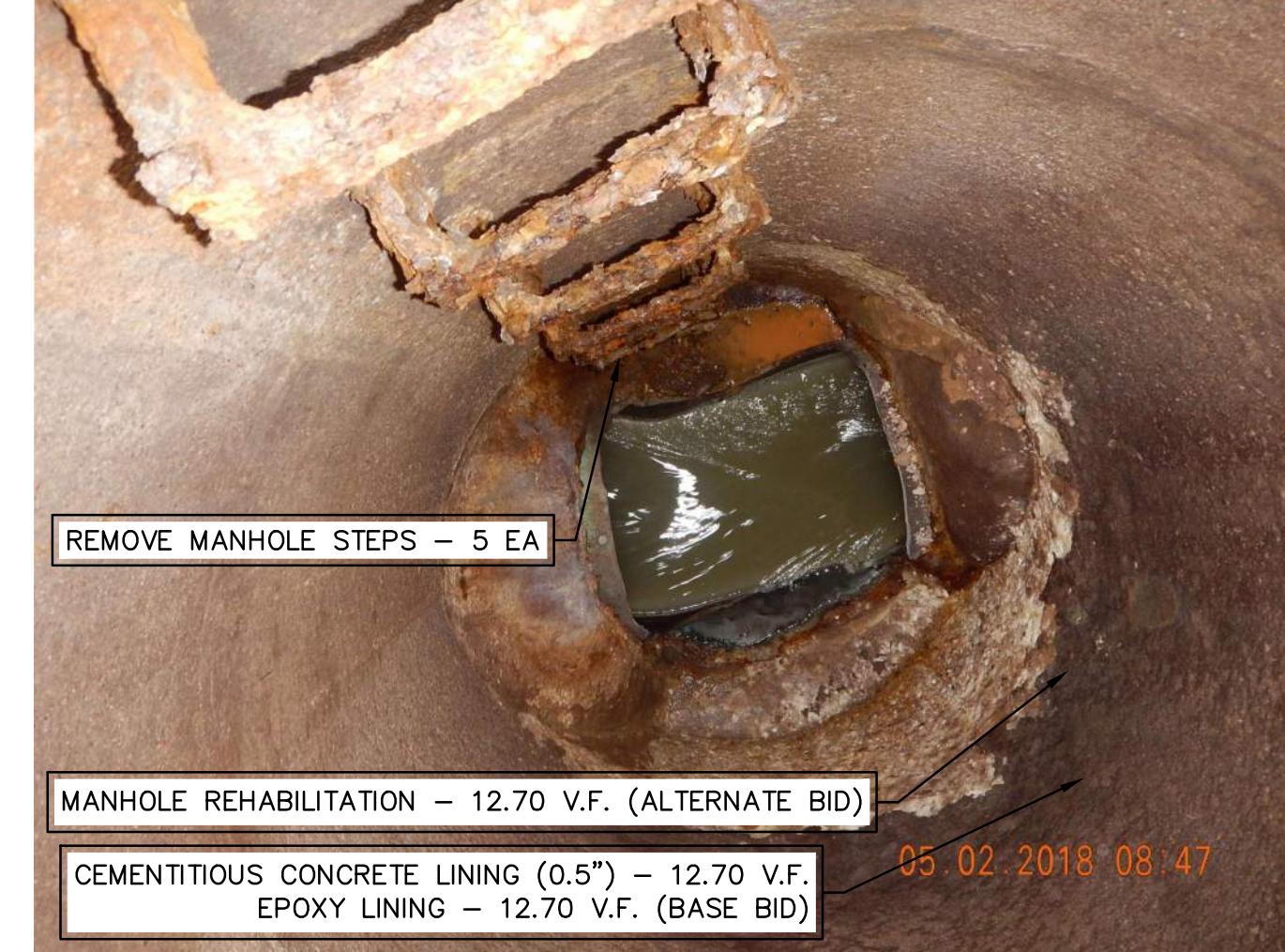
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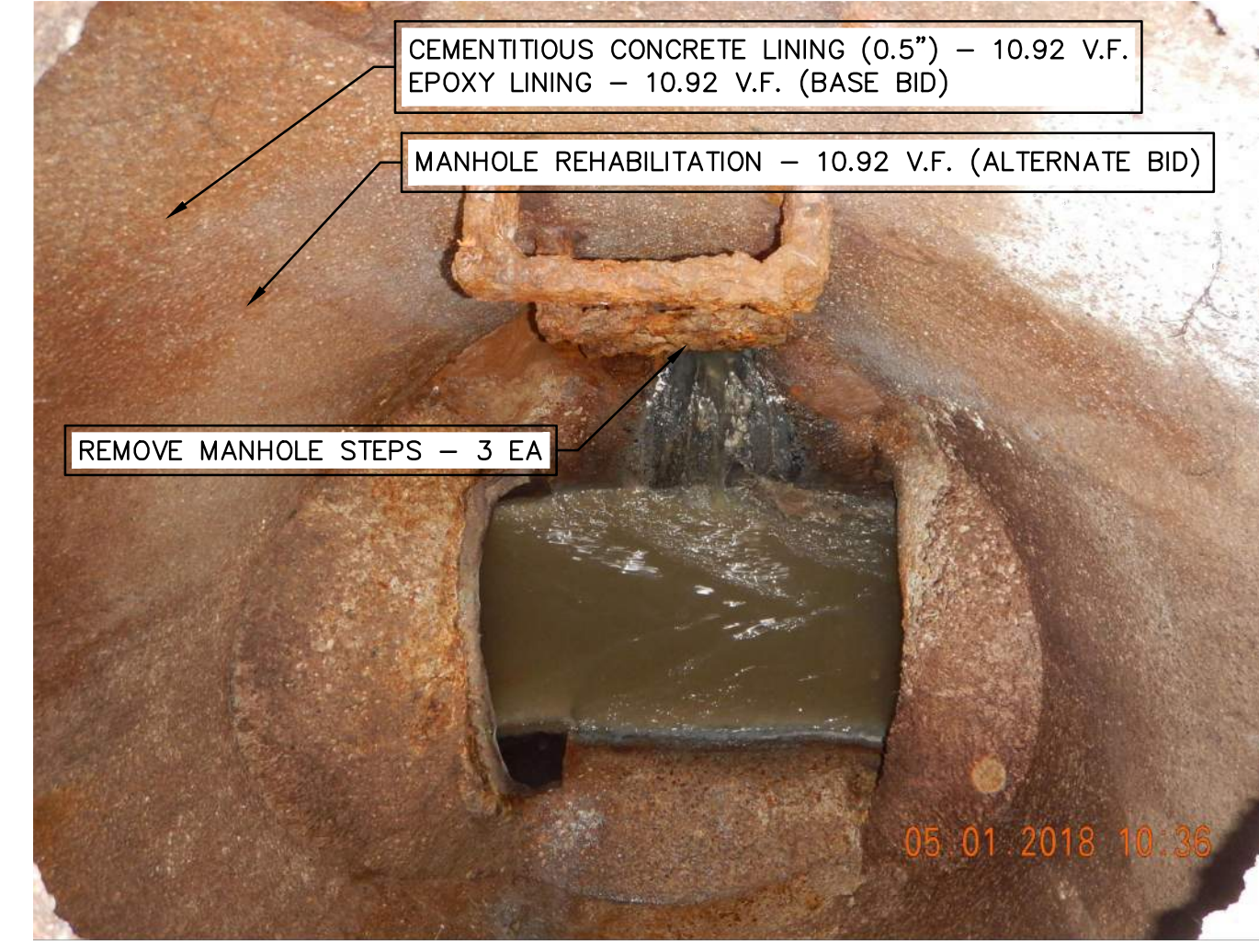
MH 192



MH 191

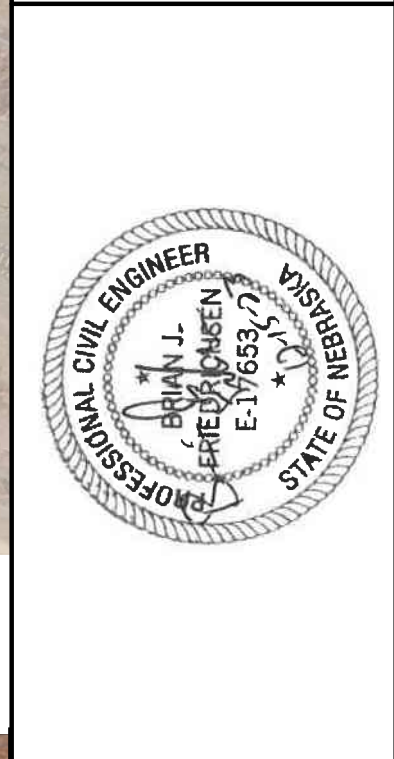


MH 189



MH 188

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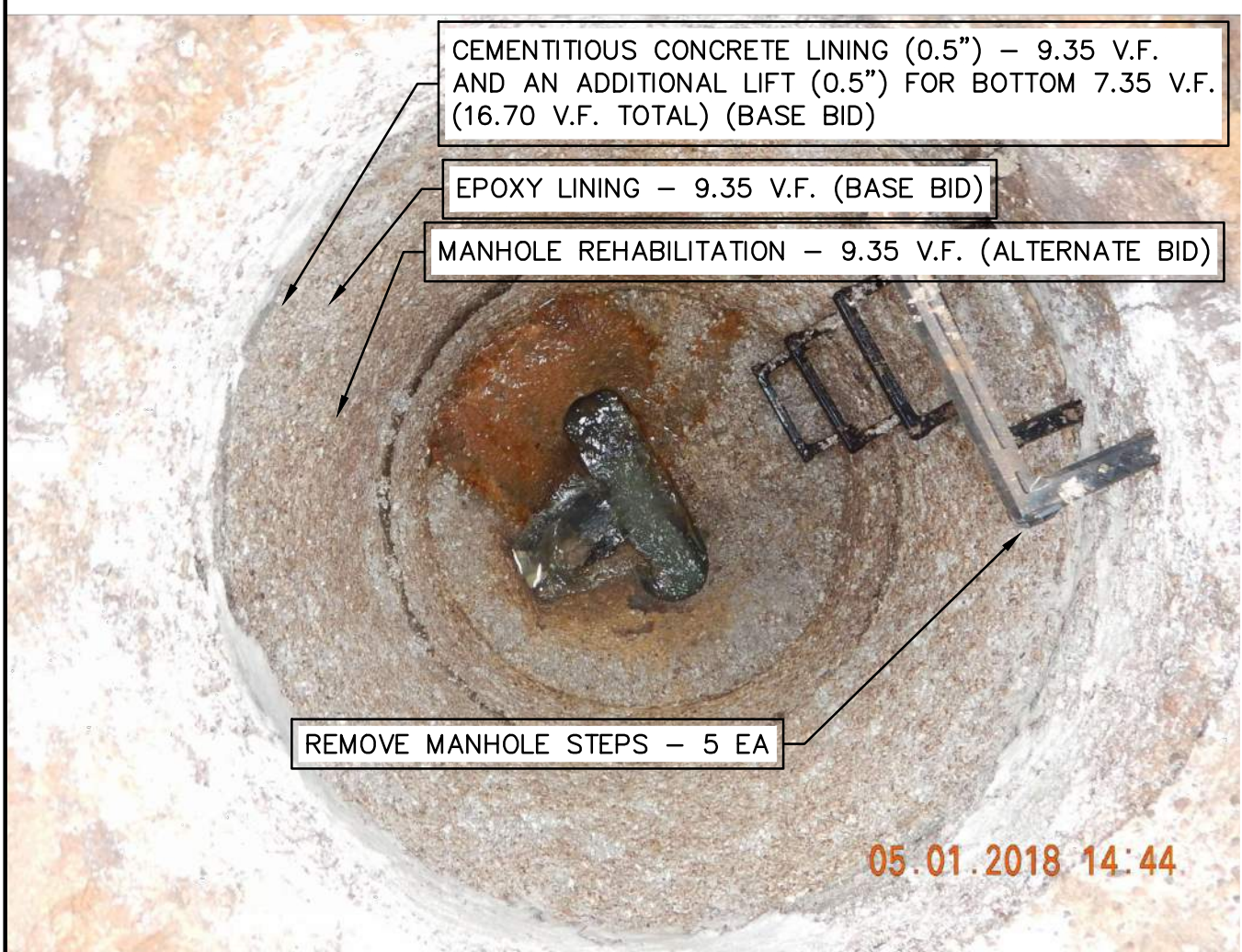
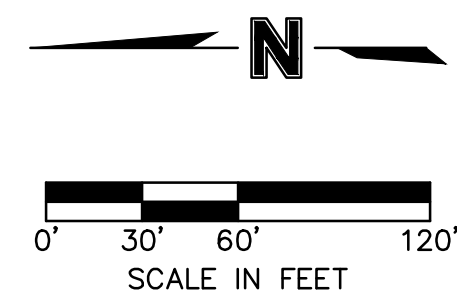
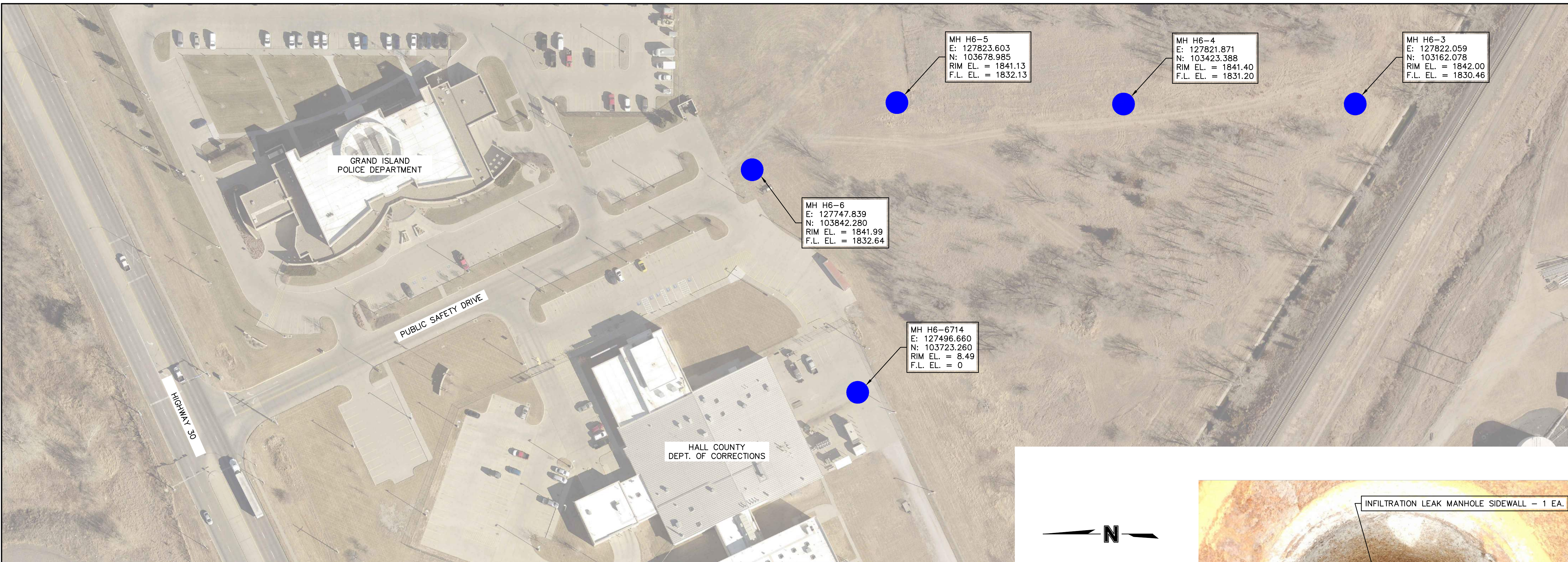
REV. NO.	DATE	REVISIONS DESCRIPTION

**MANHOLE REHABILITATION PLAN**  
 GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10  
 GRAND ISLAND, NEBRASKA

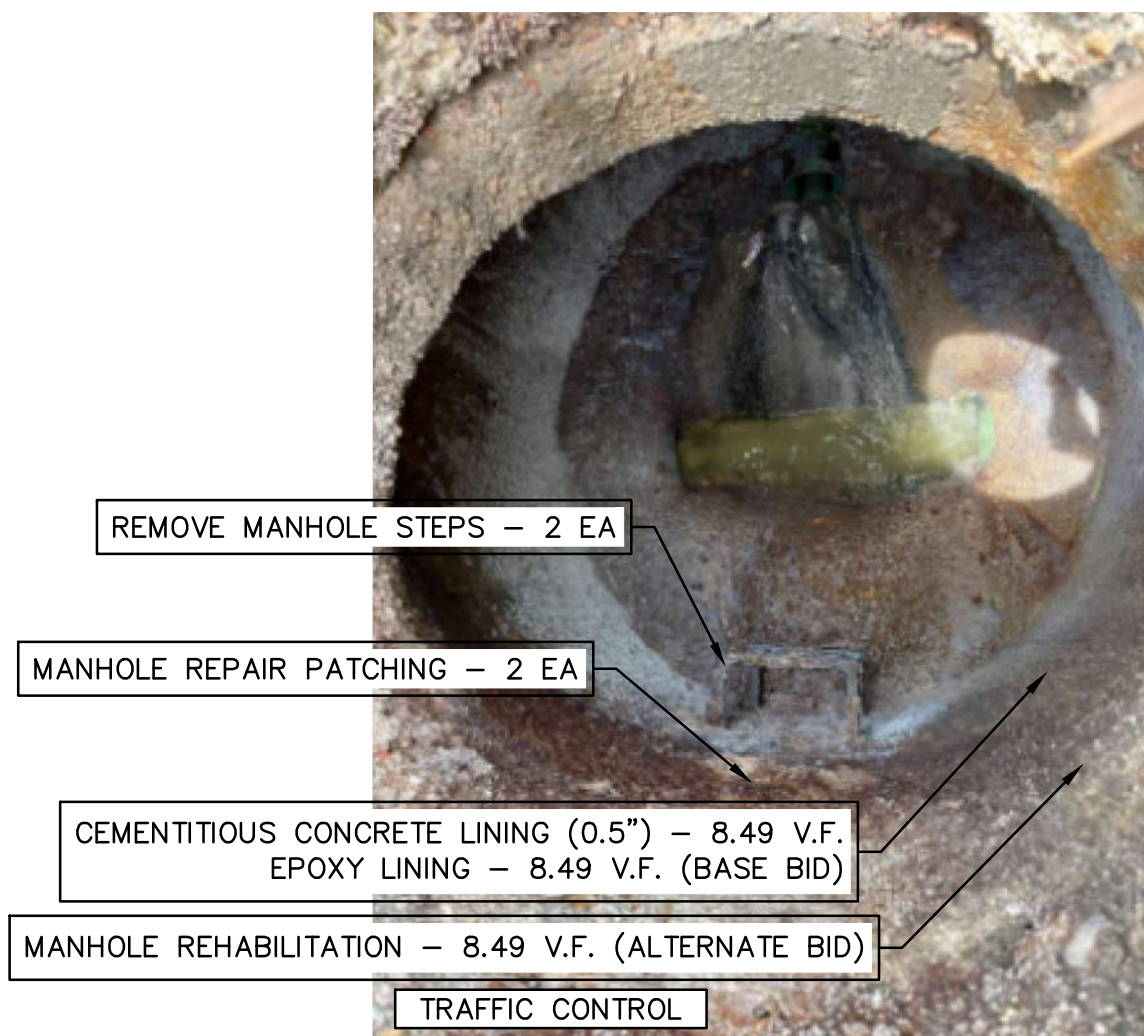
drawn by: KDG  
 checked by: BJF  
 approved by: BJF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
 date: DECEMBER 2023

NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD. MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

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 USER: kgangstad

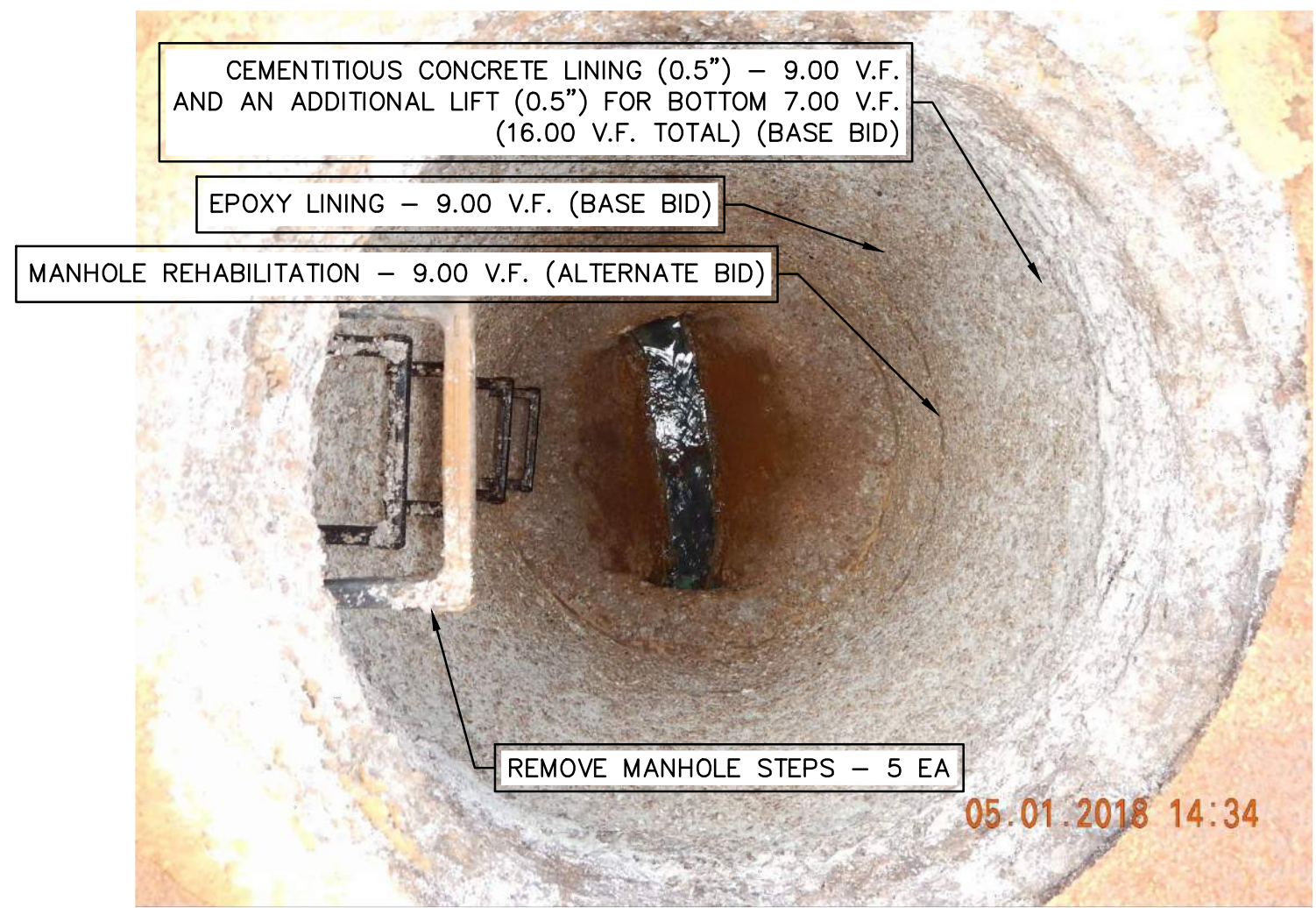


MH H6-6

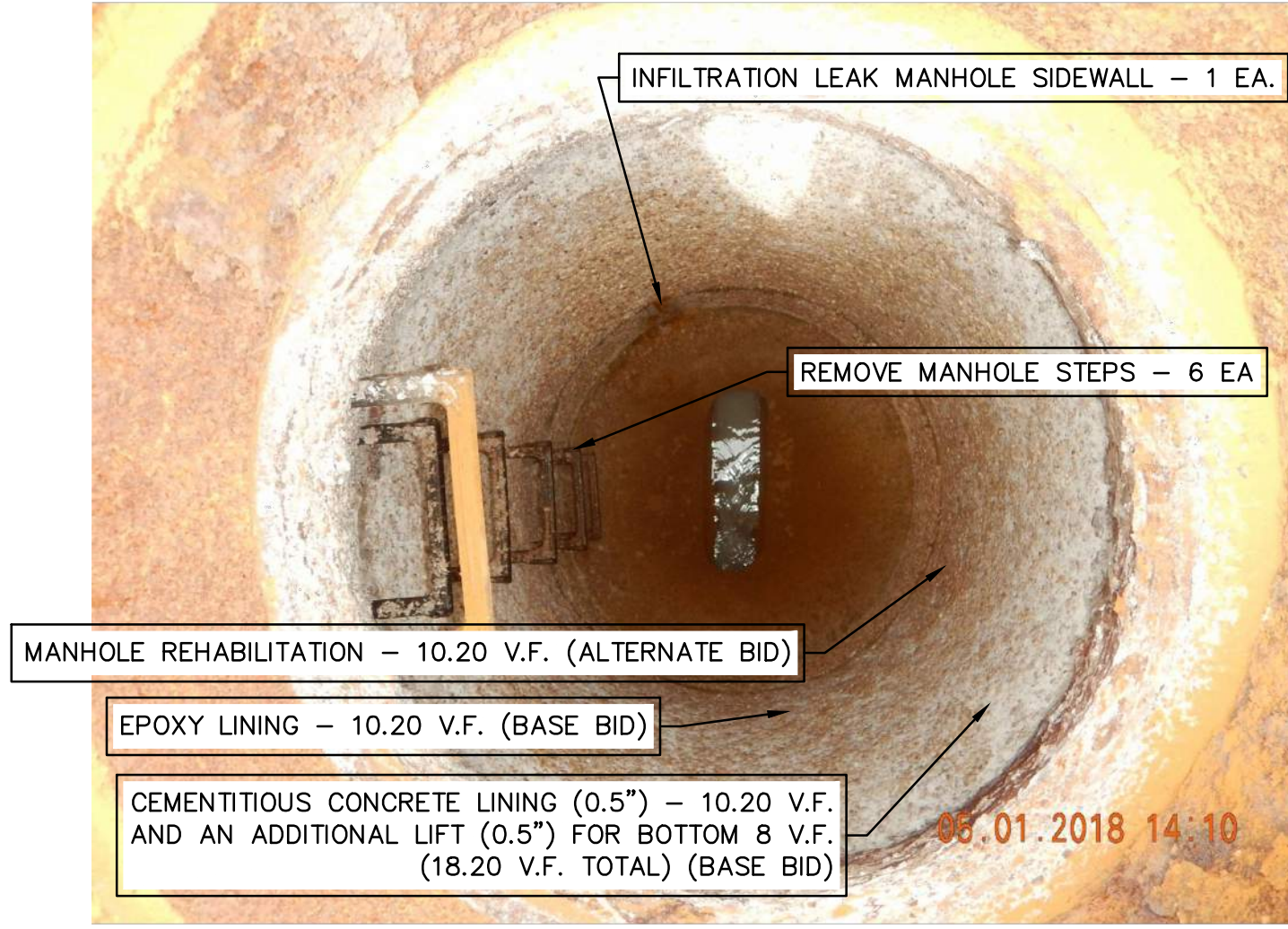


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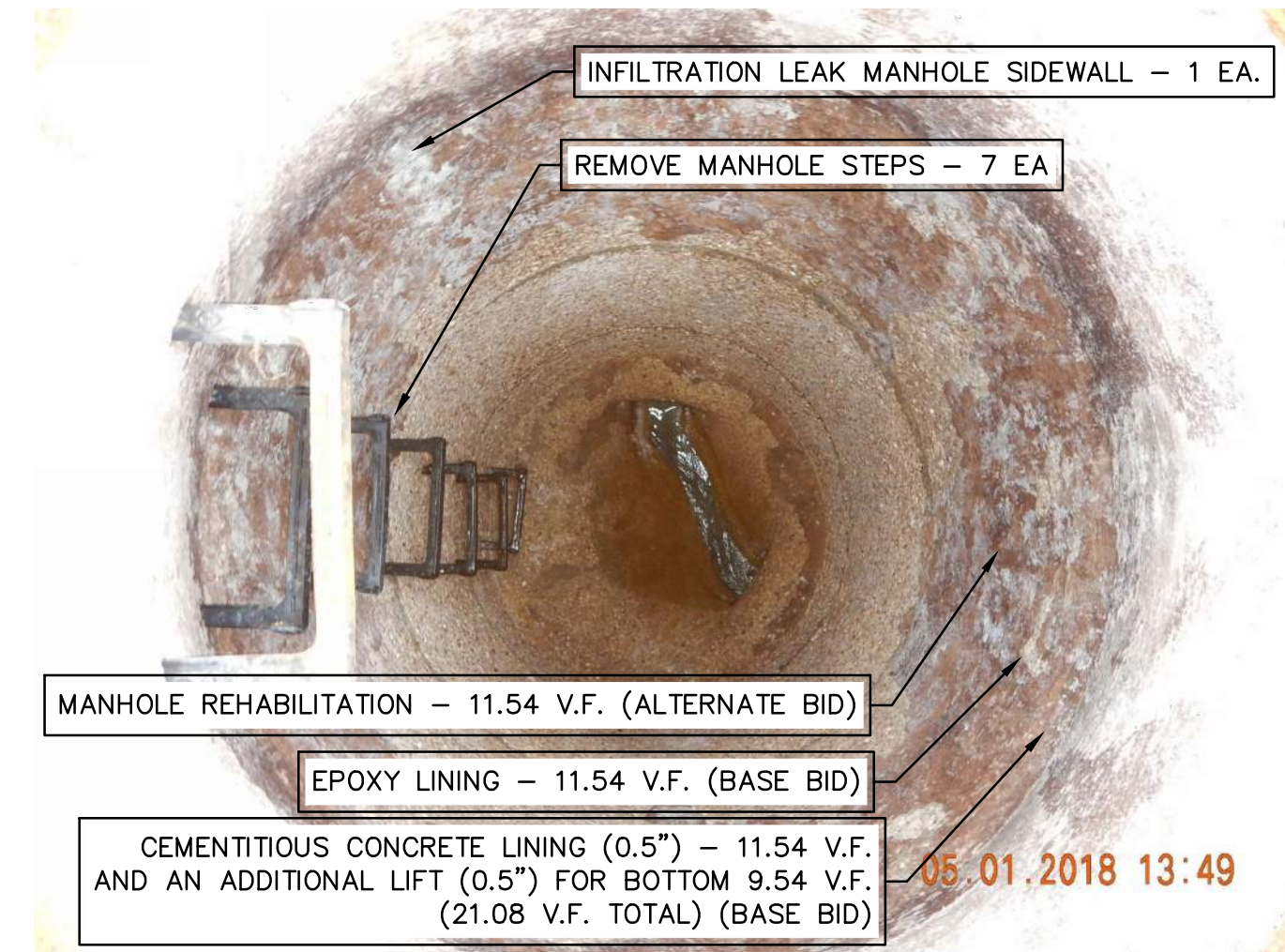
CONTRACTOR TO COORDINATE WITH HALL COUNTY DEPARTMENT OF CORRECTIONS TO ATTAIN ACCESS INSIDE GATE.



MH H6-5



MH H6-4



MH H6-3

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PROFESSIONAL CIVIL ENGINEER  
 BRYAN J. SPRENG  
 E-17653  
 STATE OF NEBRASKA

REV. NO.	DATE	REVISIONS DESCRIPTION

MANHOLE REHABILITATION PLAN

GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10

2023

GRAND ISLAND, NEBRASKA

REVISIONS

drawn by: KDG

checked by: BJF

approved by: BJF

QA/QC by: JB

project no.: 023-06594

drawing no.:

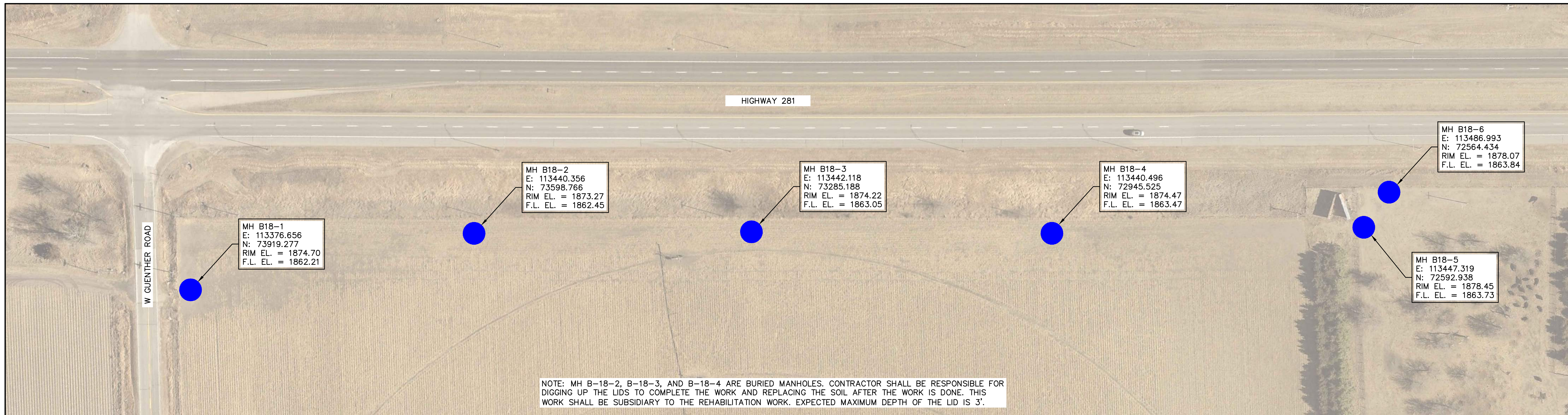
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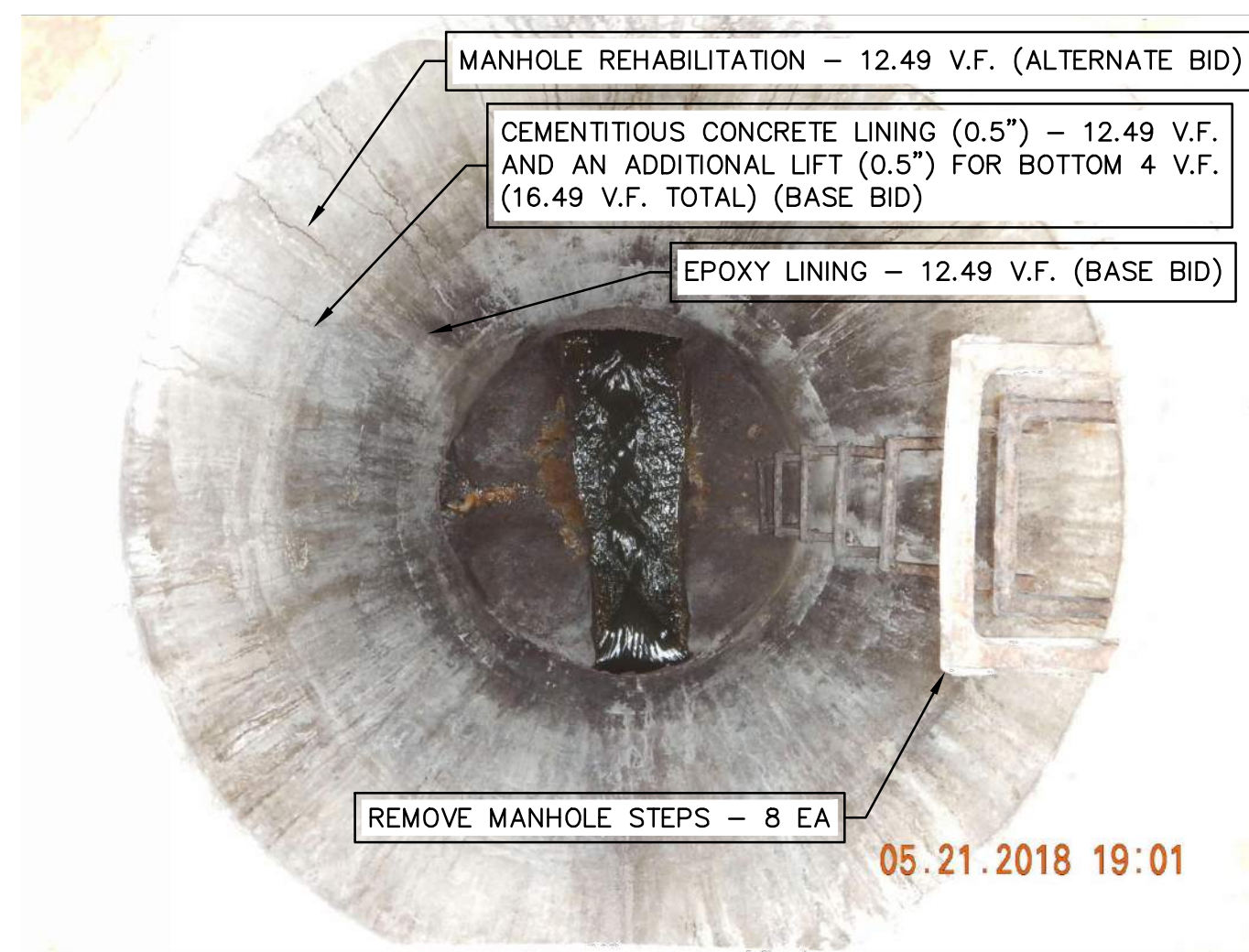
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NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD. MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

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 USER: kgangstad



NOTE: MH B-18-2, B-18-3, AND B-18-4 ARE BURIED MANHOLES. CONTRACTOR SHALL BE RESPONSIBLE FOR DIGGING UP THE LIDS TO COMPLETE THE WORK AND REPLACING THE SOIL AFTER THE WORK IS DONE. THIS WORK SHALL BE SUBSIDIARY TO THE REHABILITATION WORK. EXPECTED MAXIMUM DEPTH OF THE LID IS 3'.



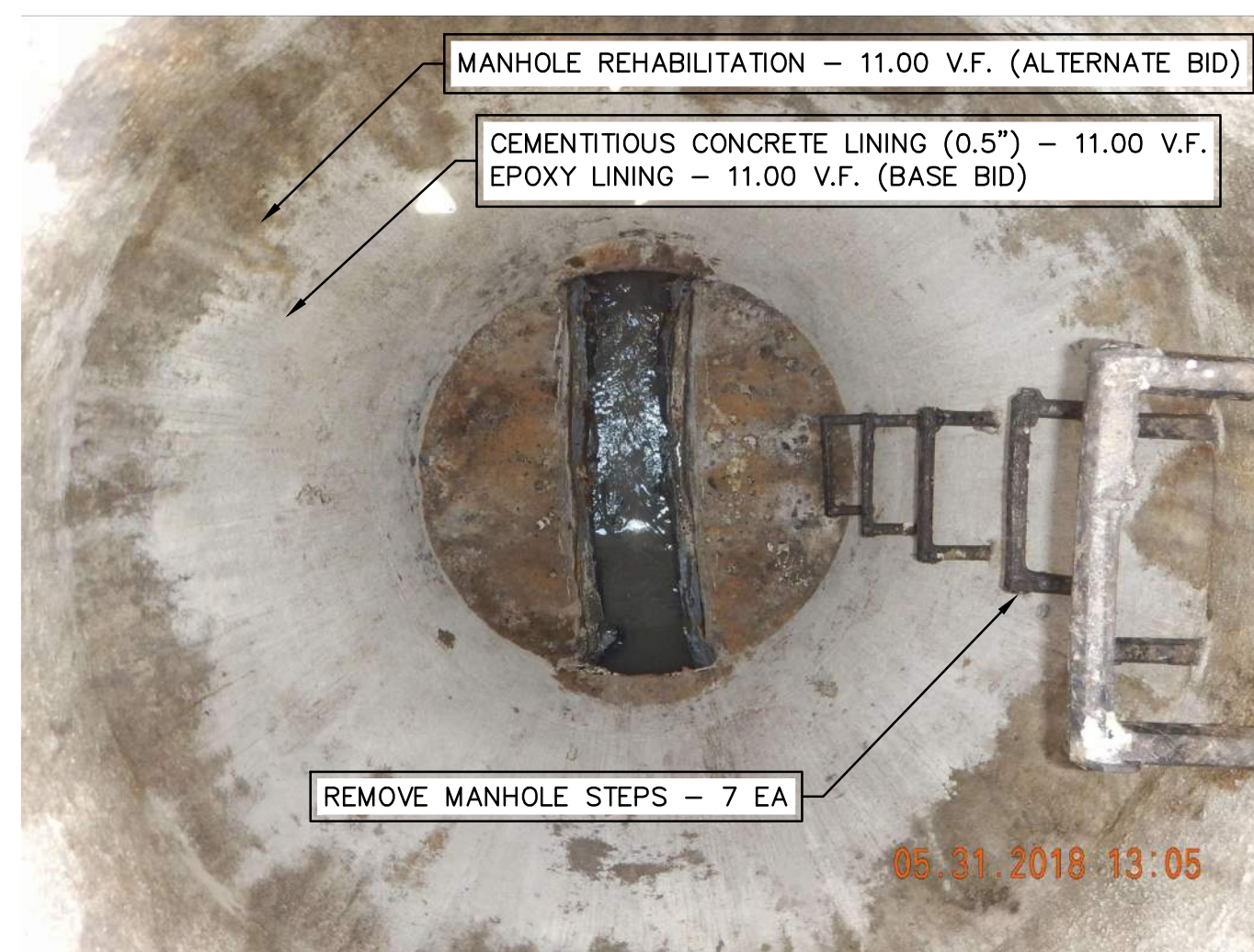
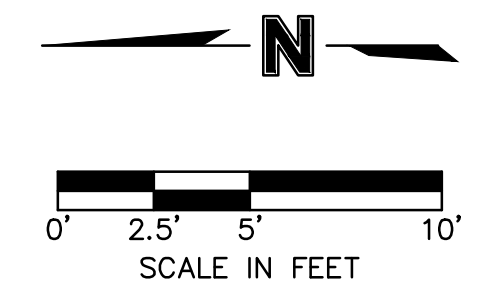
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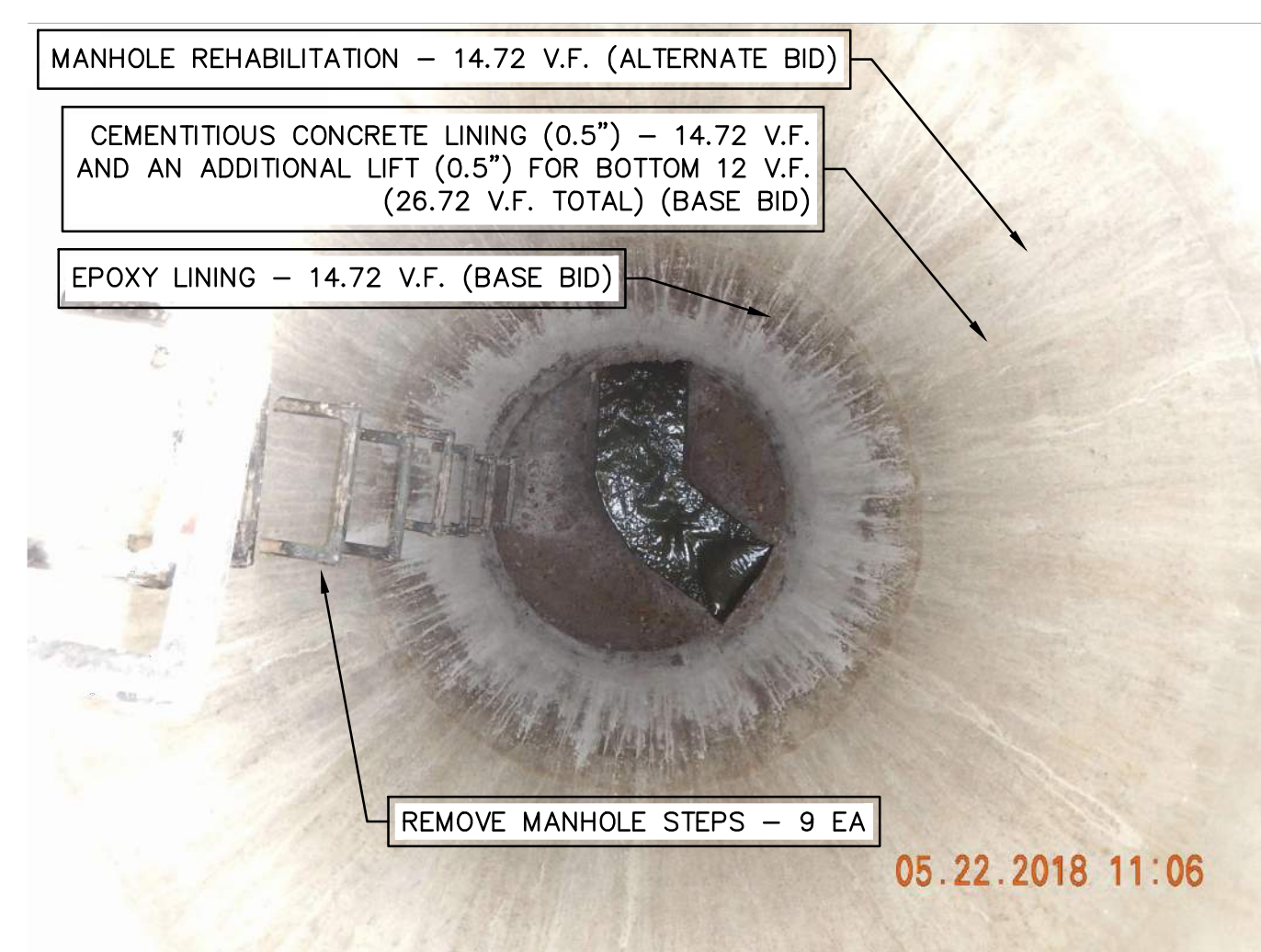
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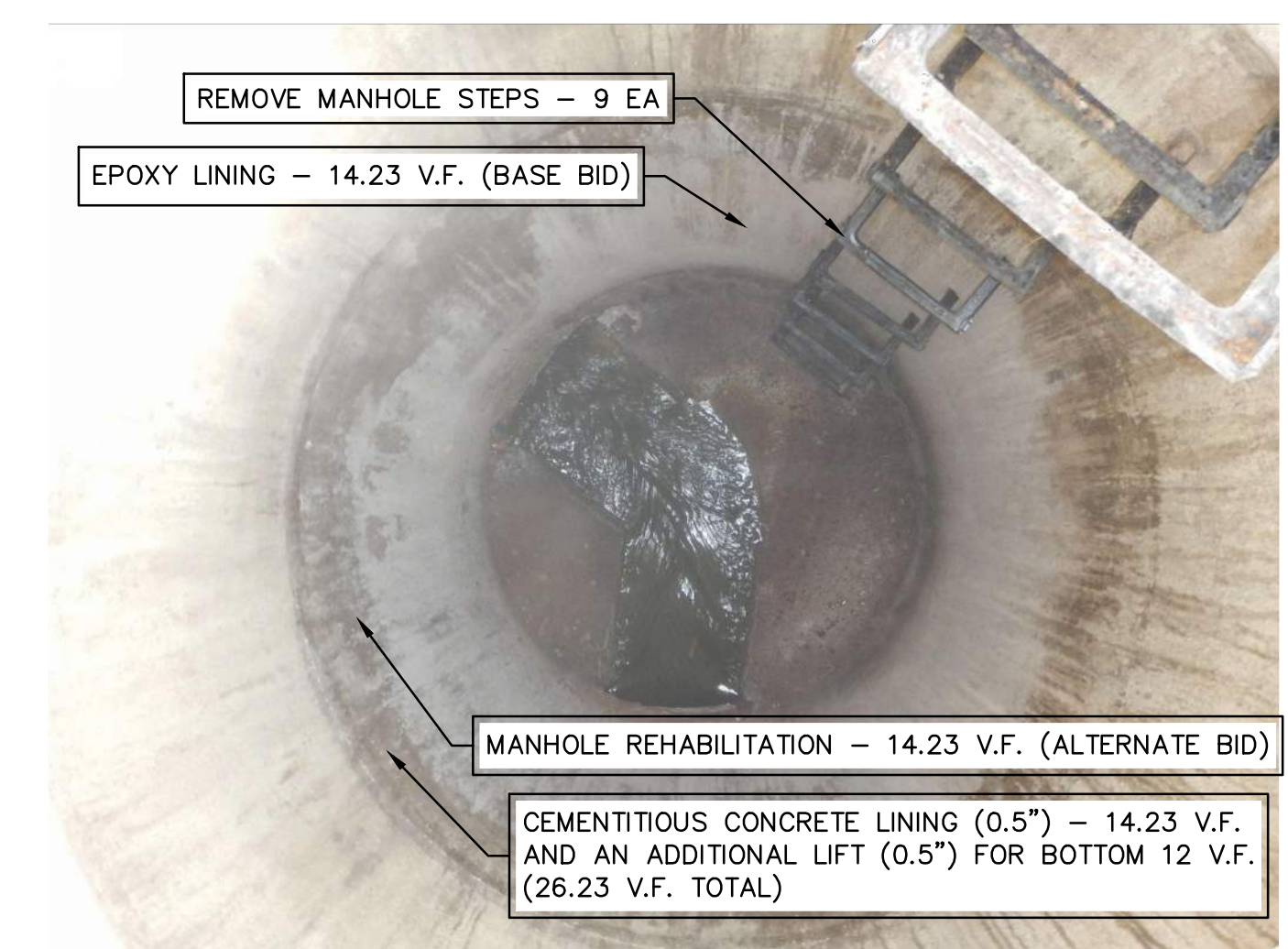
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MH B18-4



MH B18-5



MH B18-6

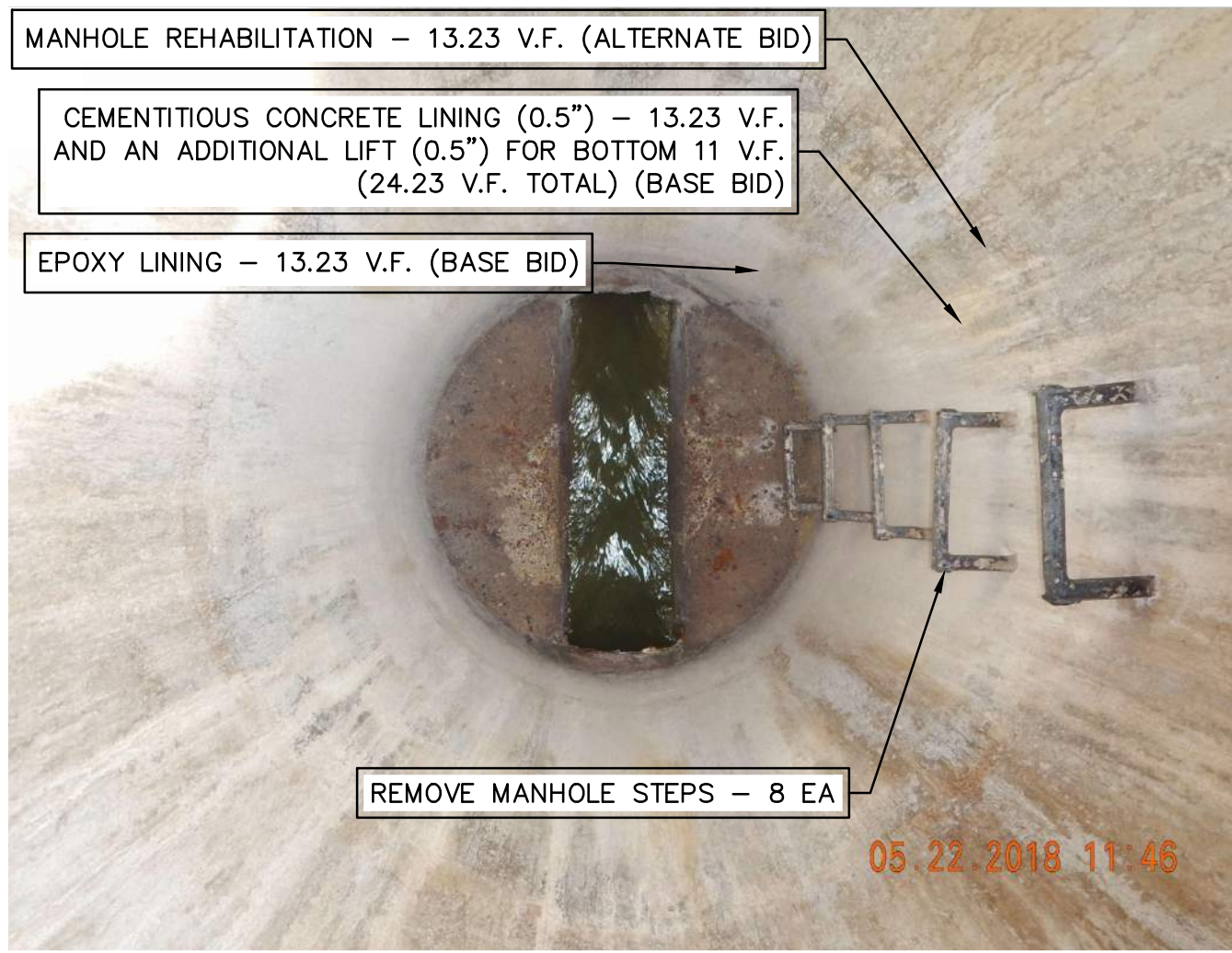
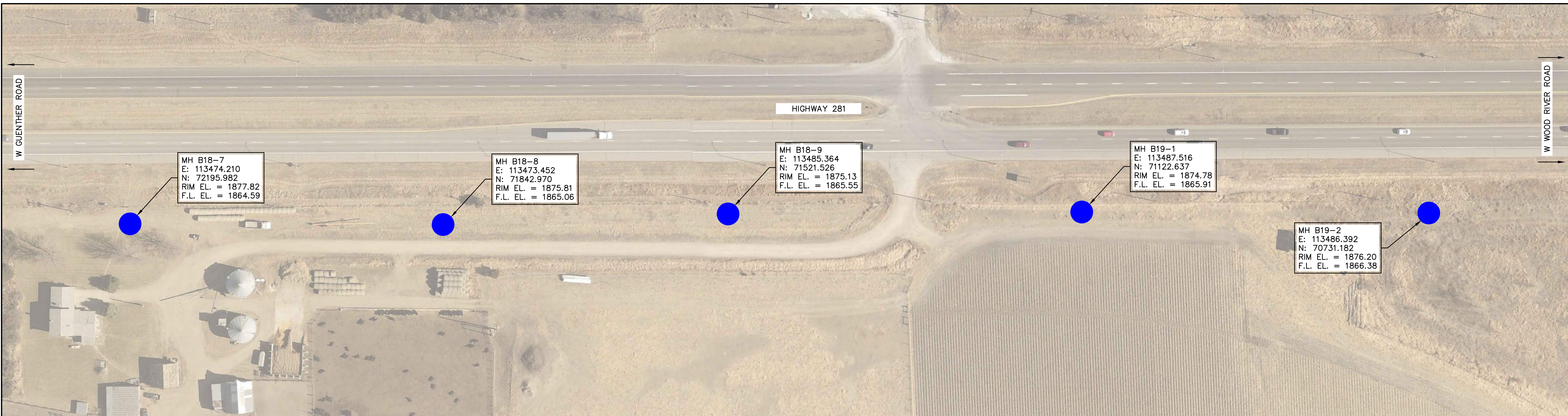
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REV. NO.	DATE	REVISIONS DESCRIPTION

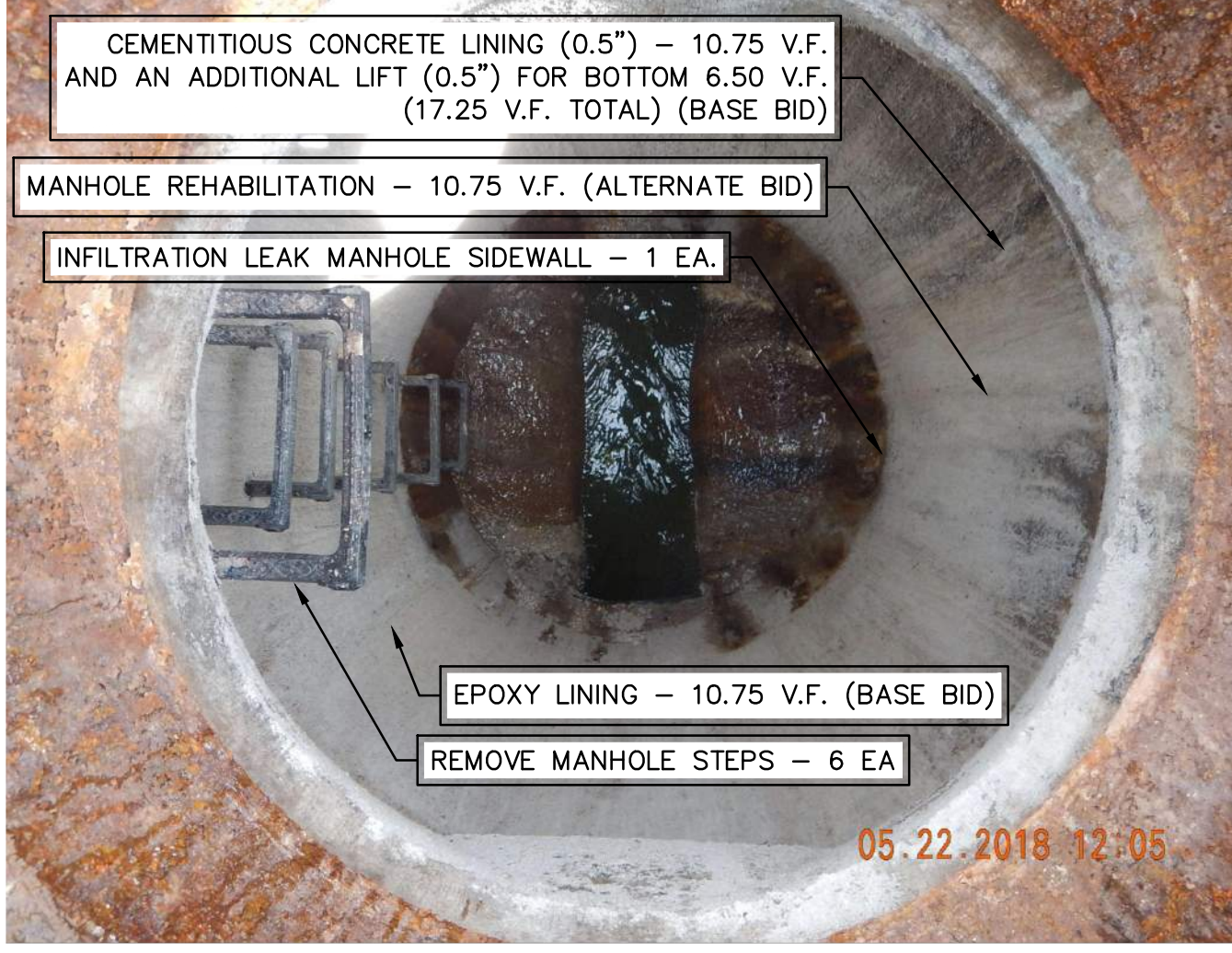
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	REVISIONS
	drawn by: KDG checked by: BJF approved by: BJF QA/QC by: JB project no.: 023-06594 drawing no.: date: DECEMBER 2023



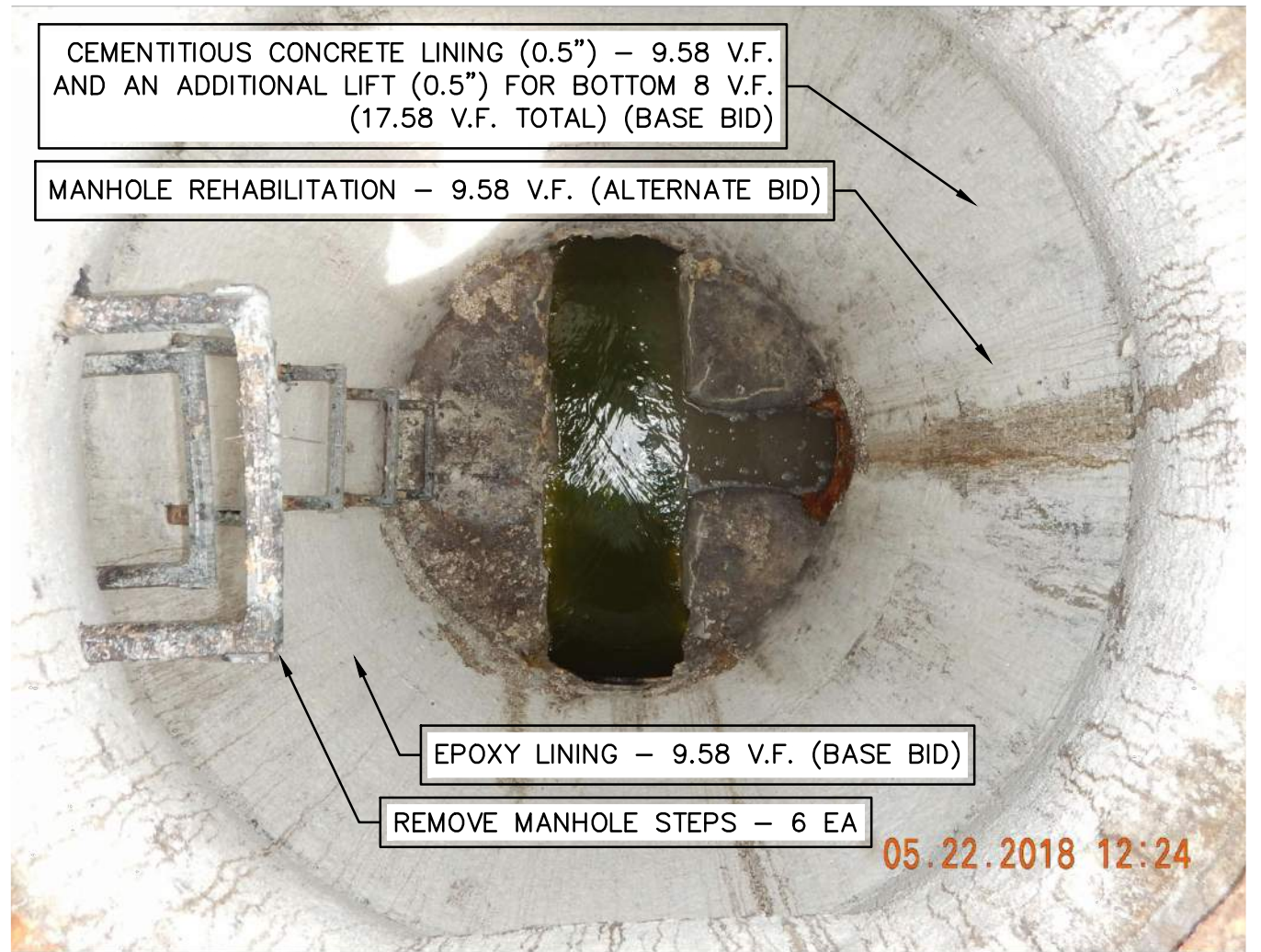
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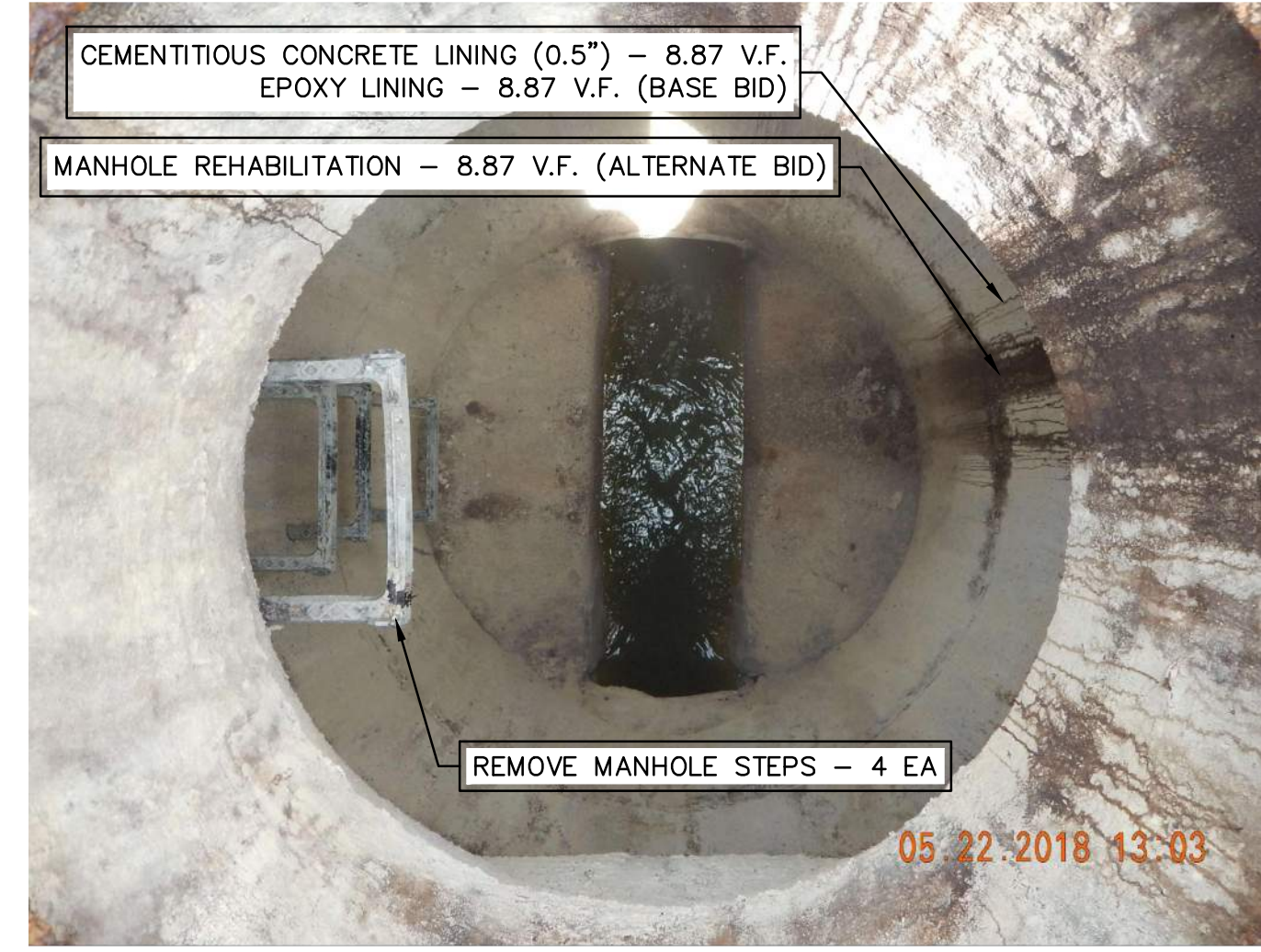
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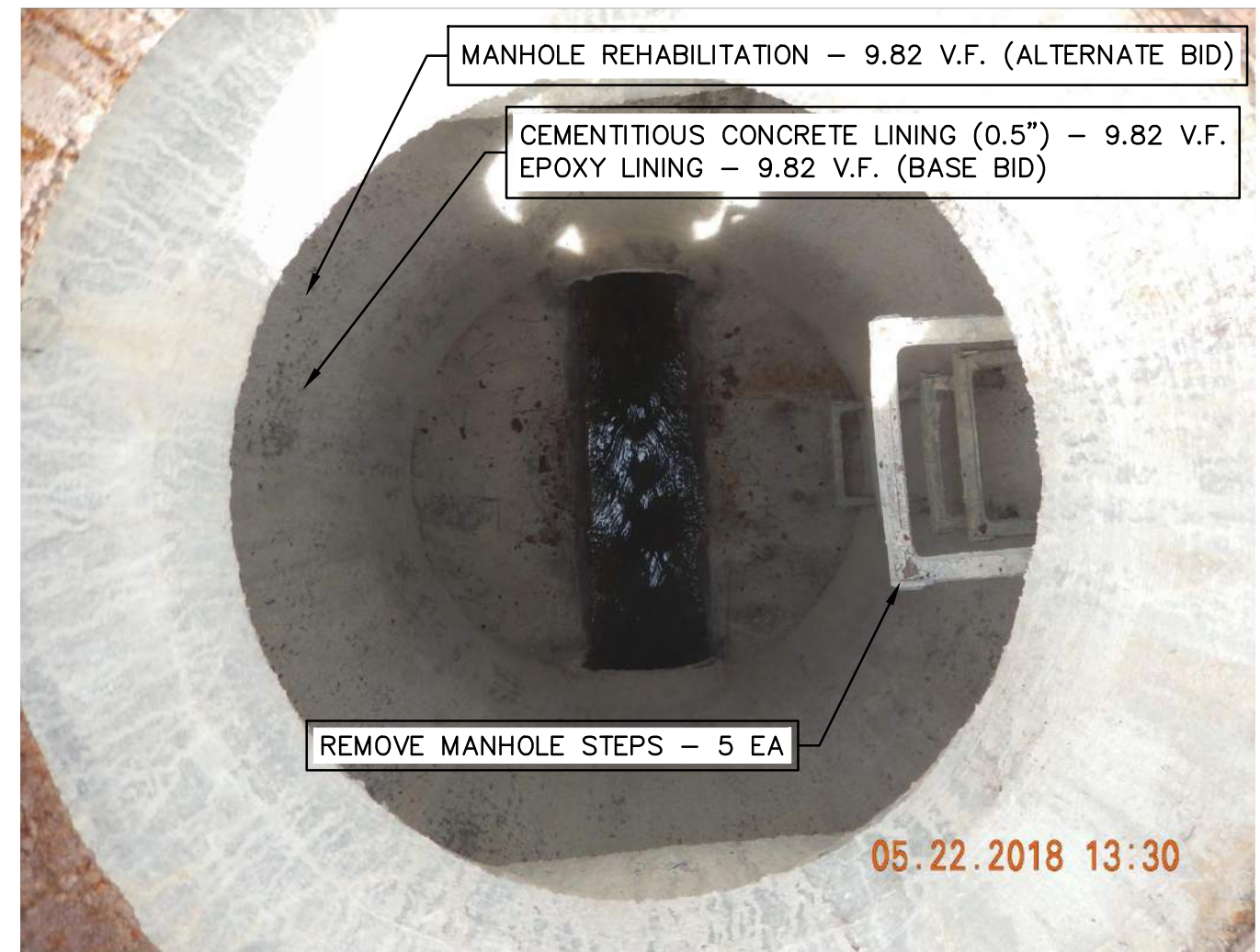
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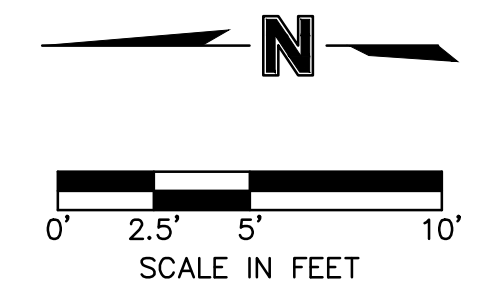
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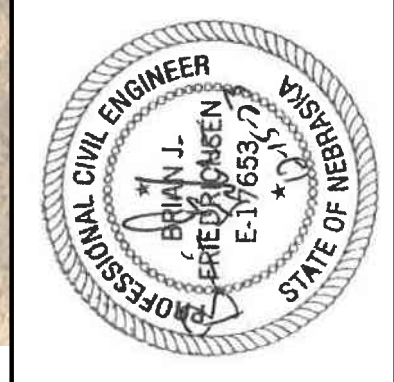
MH B19-1



MH B19-2



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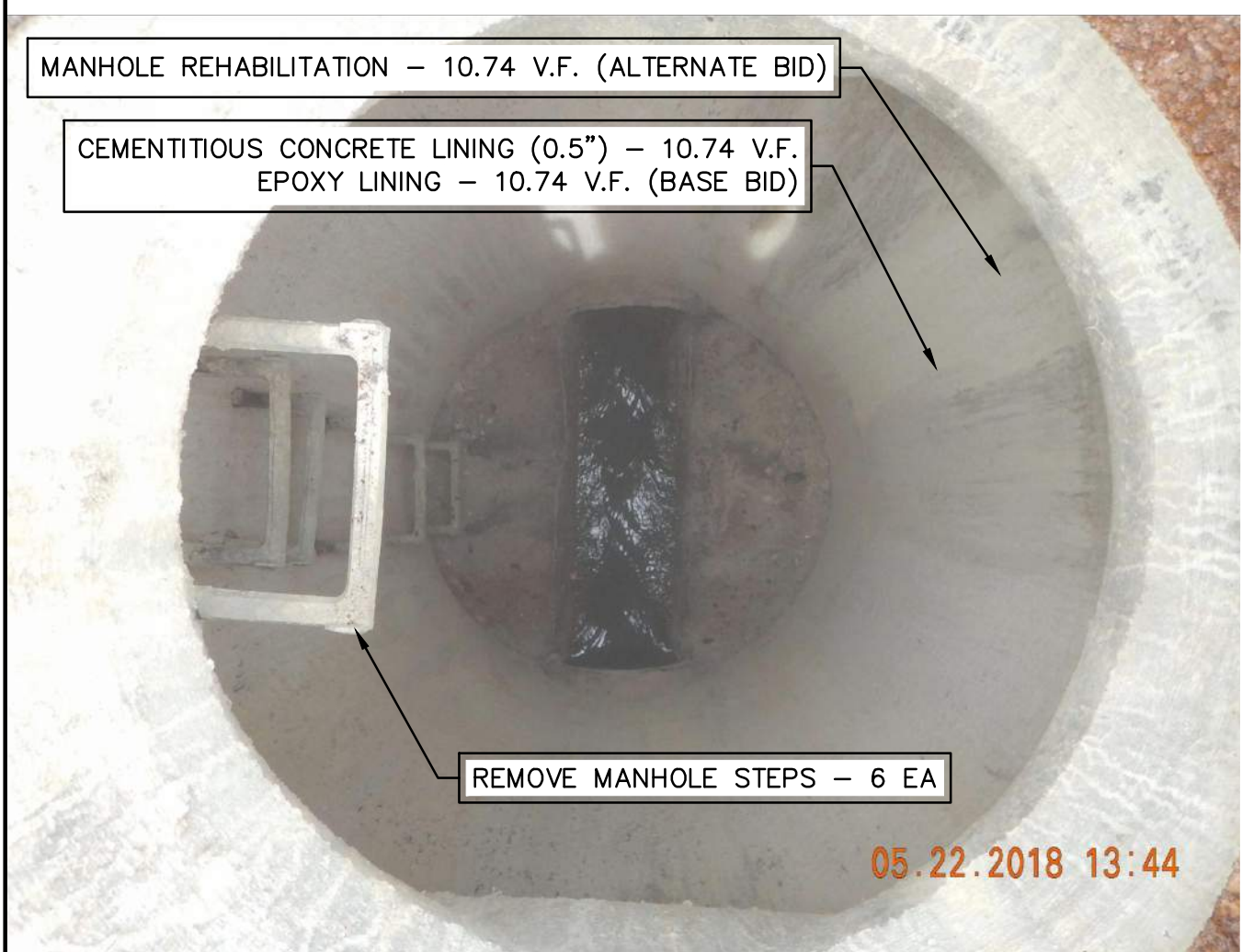
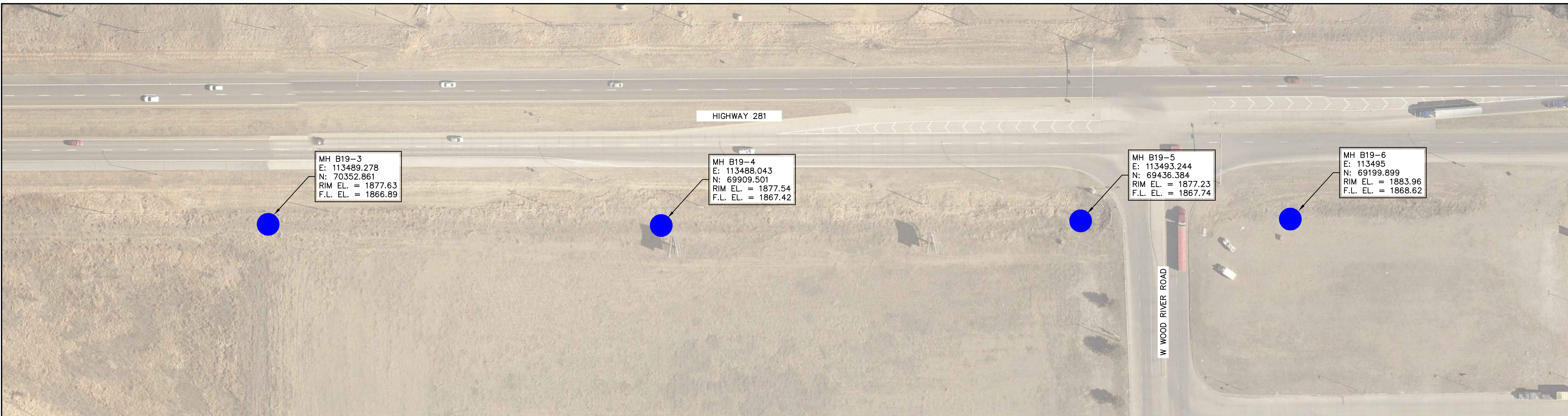


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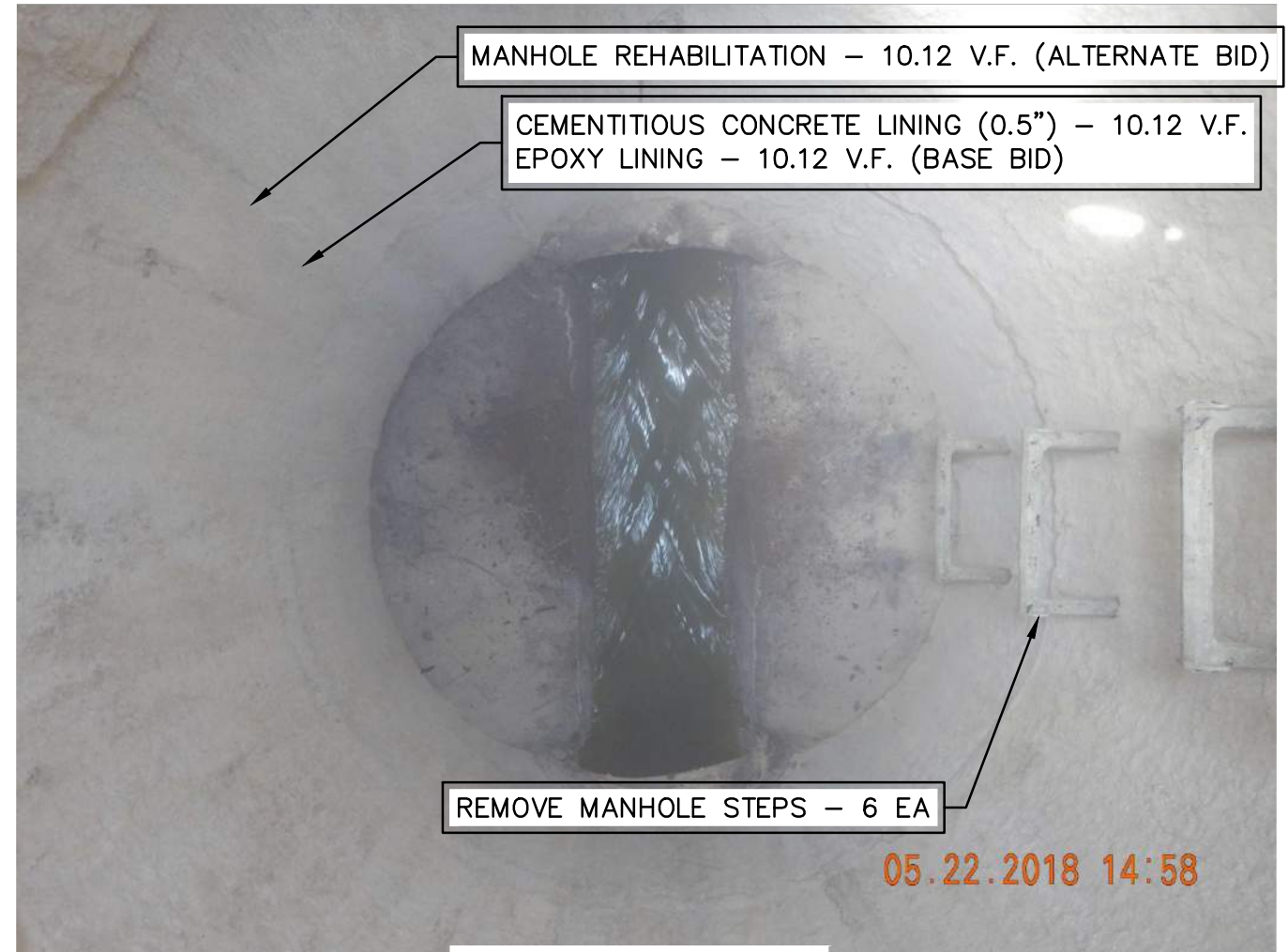
MANHOLE REHABILITATION PLAN	2023
GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10	
GRAND ISLAND, NEBRASKA	

NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD. MANHOLE DETERIORATION MAY BE WORSE THAN WHAT IS DEPICTED.

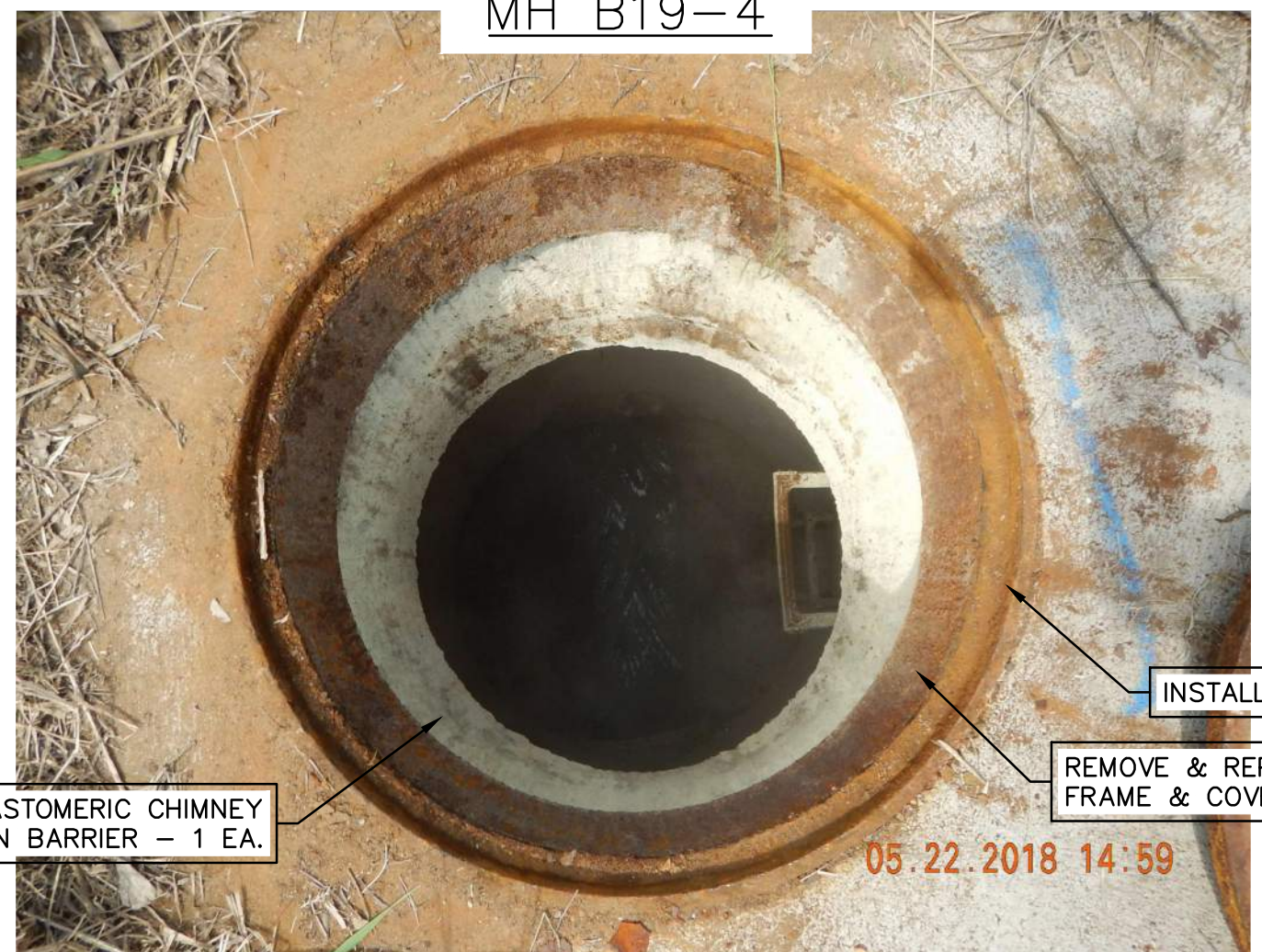
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USER: kgangstad



MH B19-3



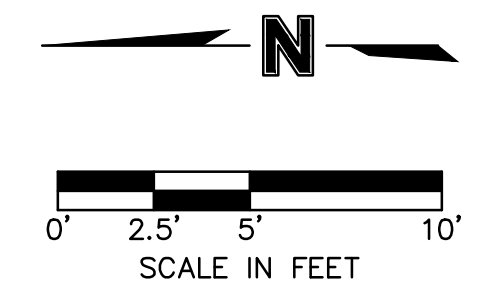
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MH B19-5



MH B19-6



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MANHOLE REHABILITATION PLAN

GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10

GRAND ISLAND, NEBRASKA

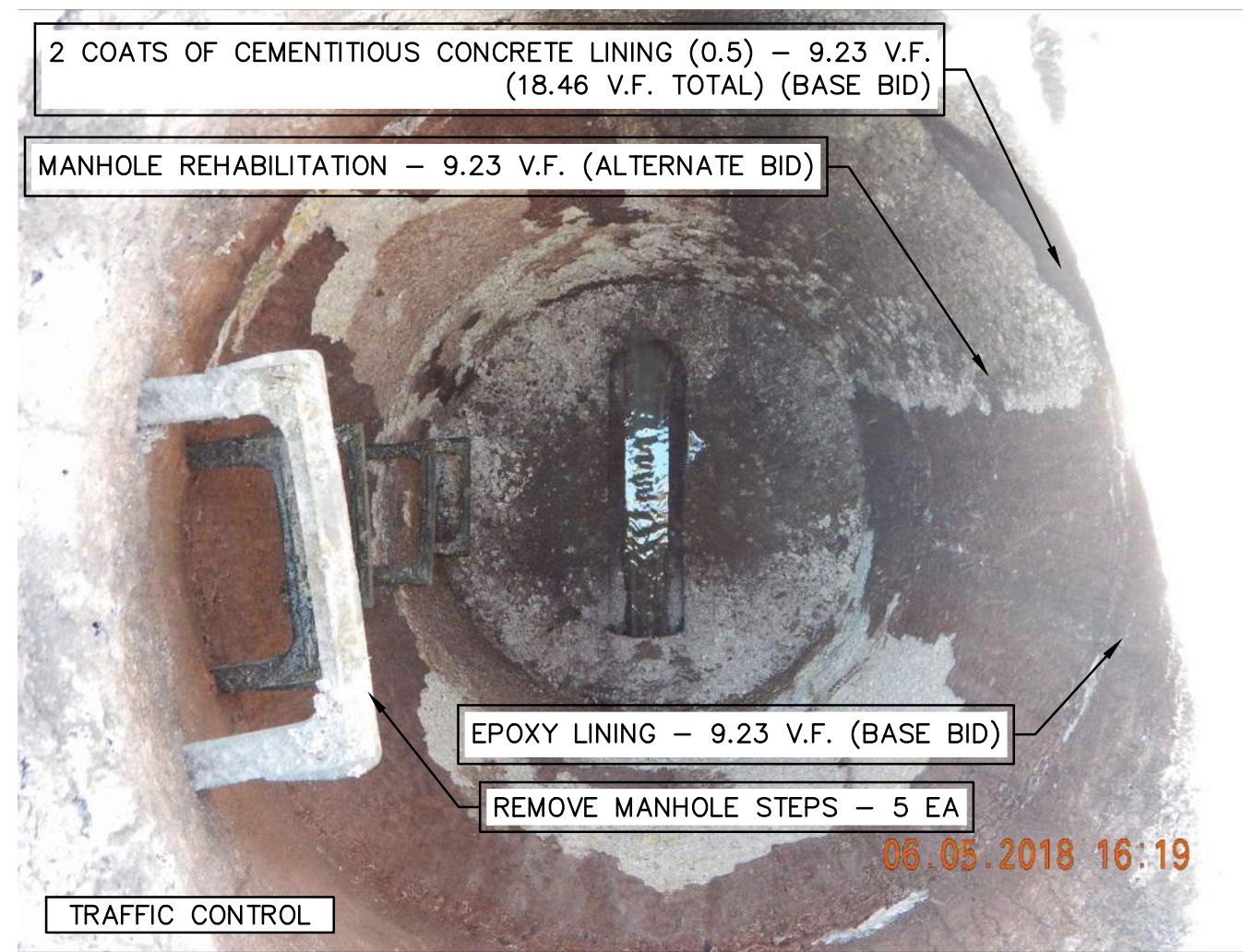
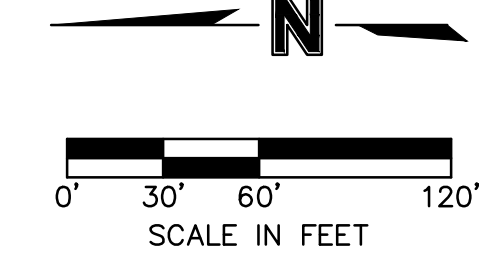
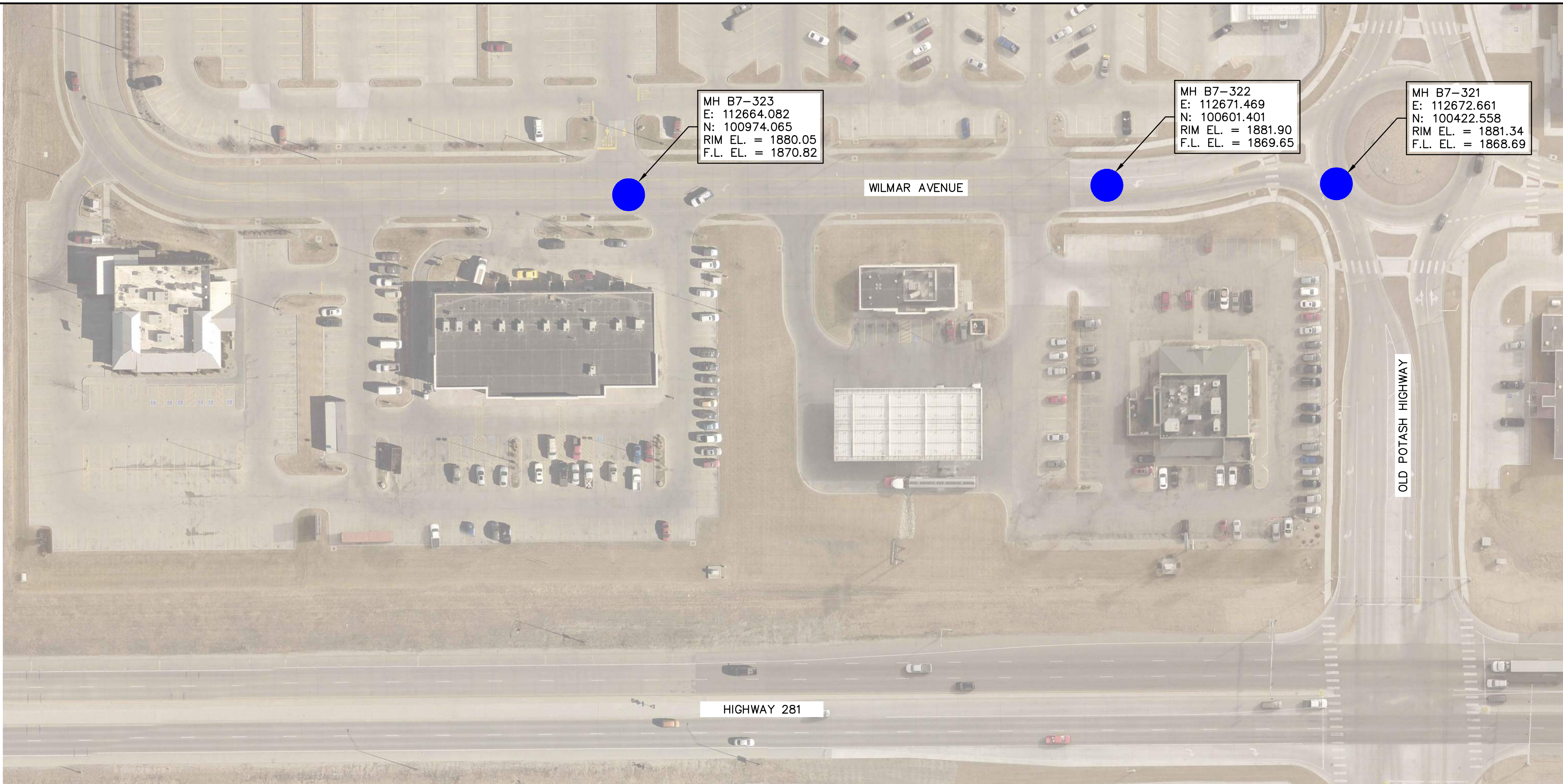
2023

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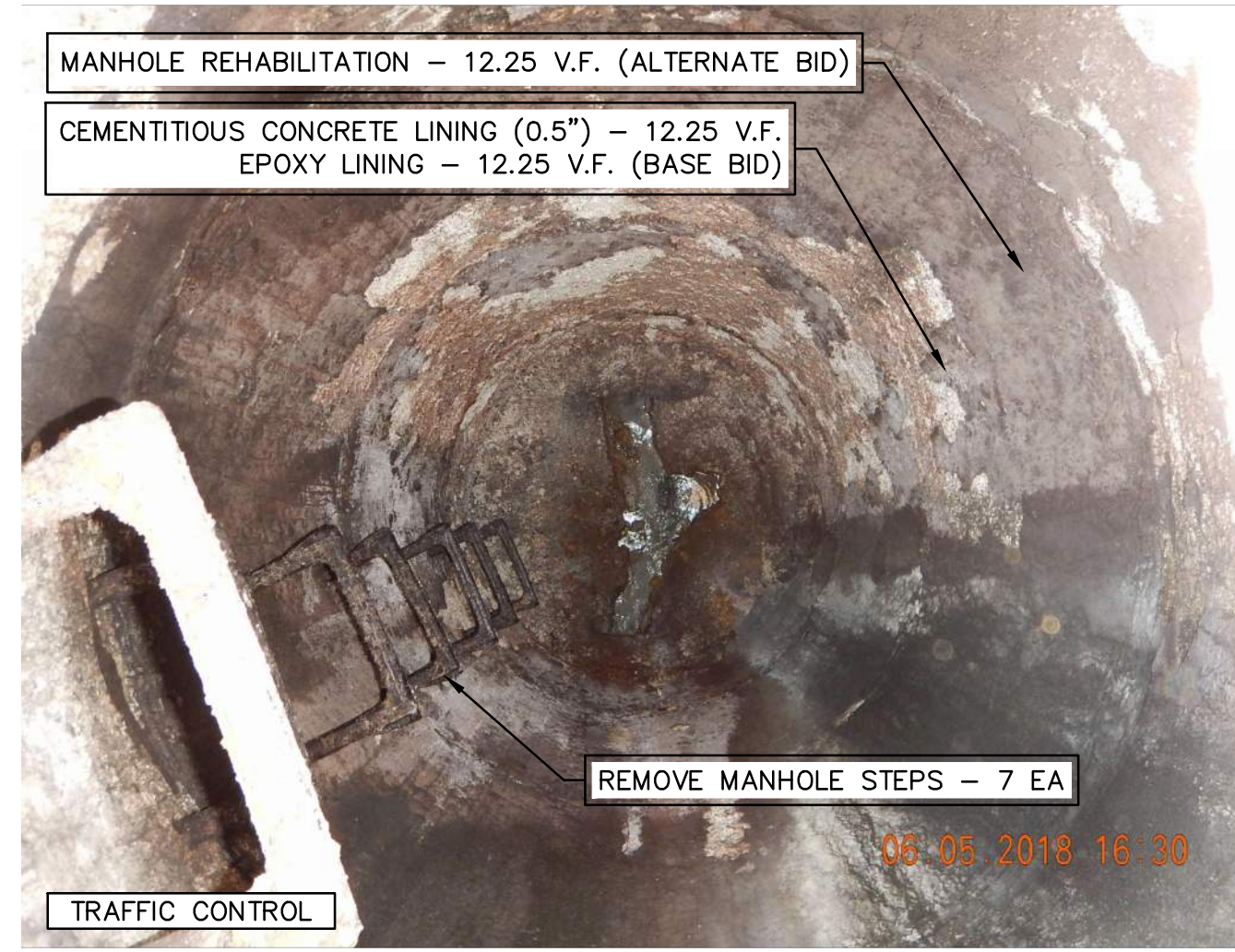
drawn by: _____	KDG
checked by: _____	BJF
approved by: _____	BJF
QA/QC by: _____	JB
project no.: _____	023-06594
drawing no.: _____	
date: _____	DECEMBER 2023

SHEET  
23 of 26

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 USER: kgongstad C\_AERL05\_02306594



MH B7-323



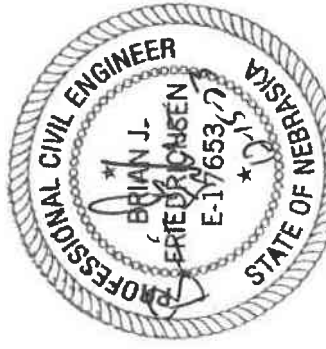
MH B7-322



MH B7-321

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MANHOLE REHABILITATION PLAN	2023
GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10	
GRAND ISLAND, NEBRASKA	

drawn by: KDG  
 checked by: BJF  
 approved by: BJF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
 date: DECEMBER 2023

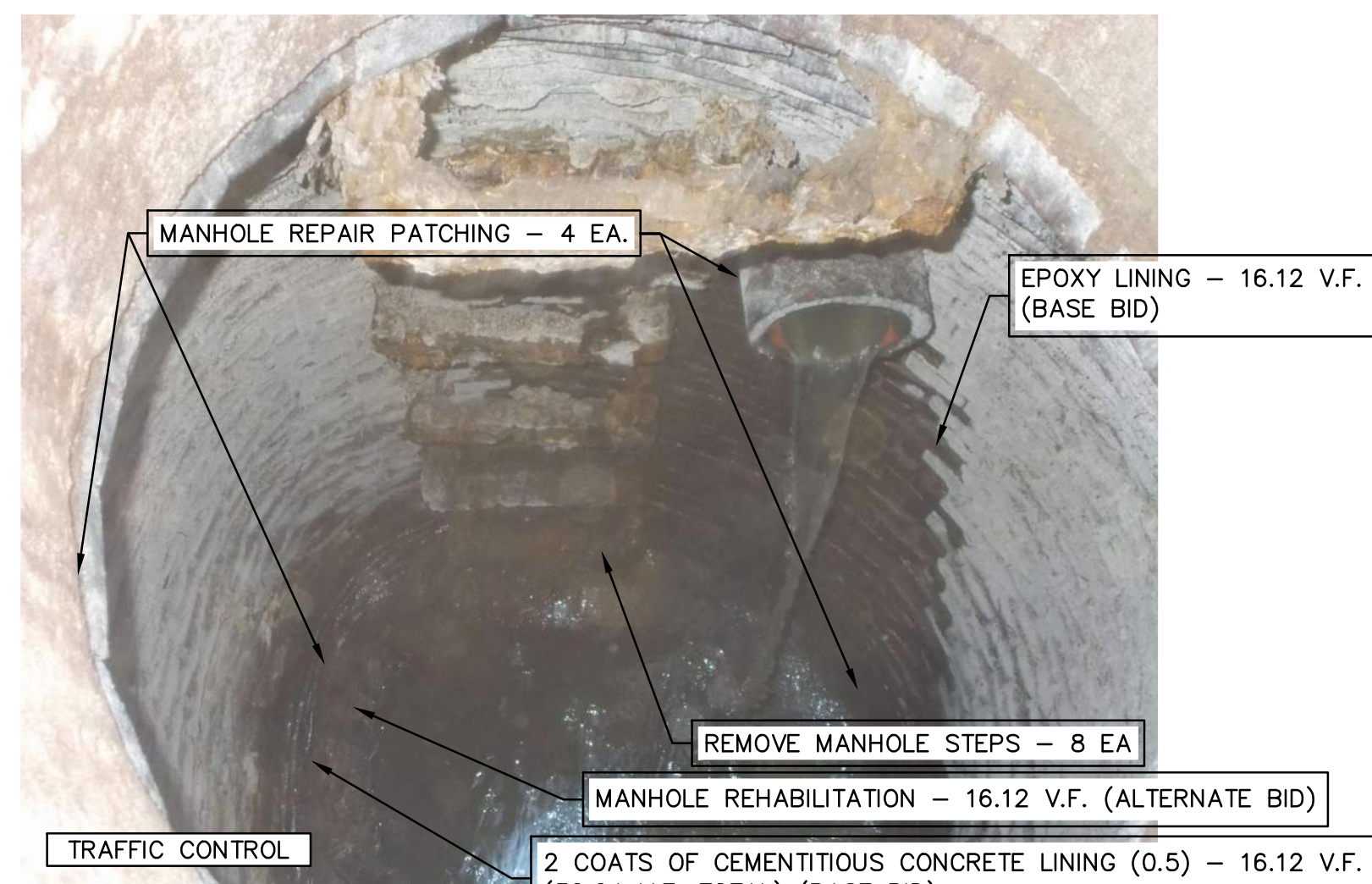
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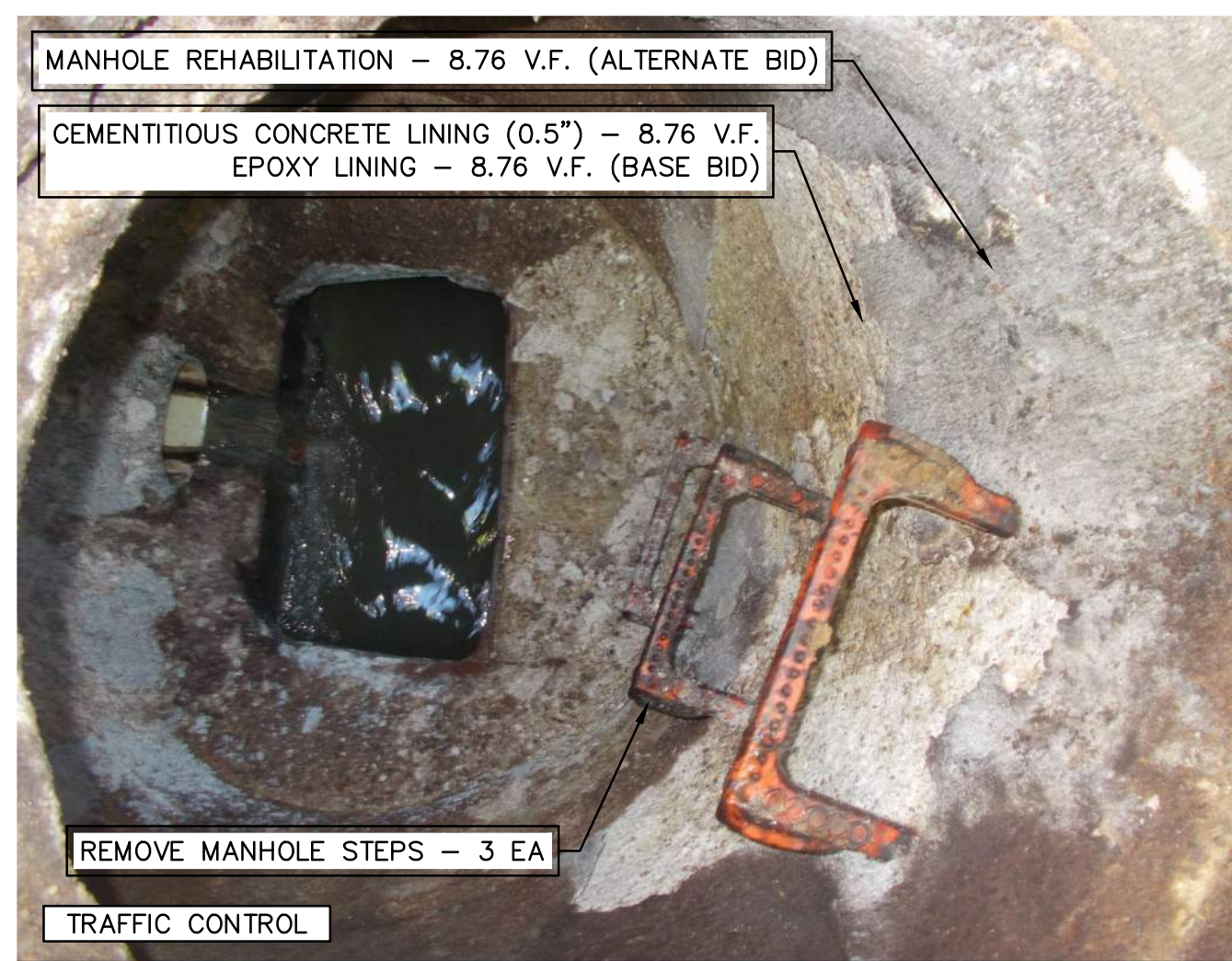


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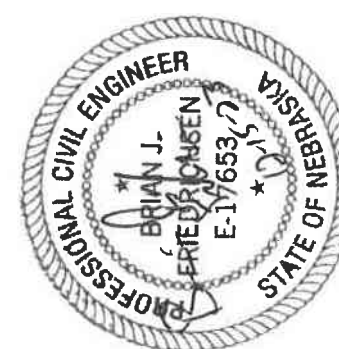
MH 84



MH 81-A

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REV. NO.	DATE	REVISIONS DESCRIPTION

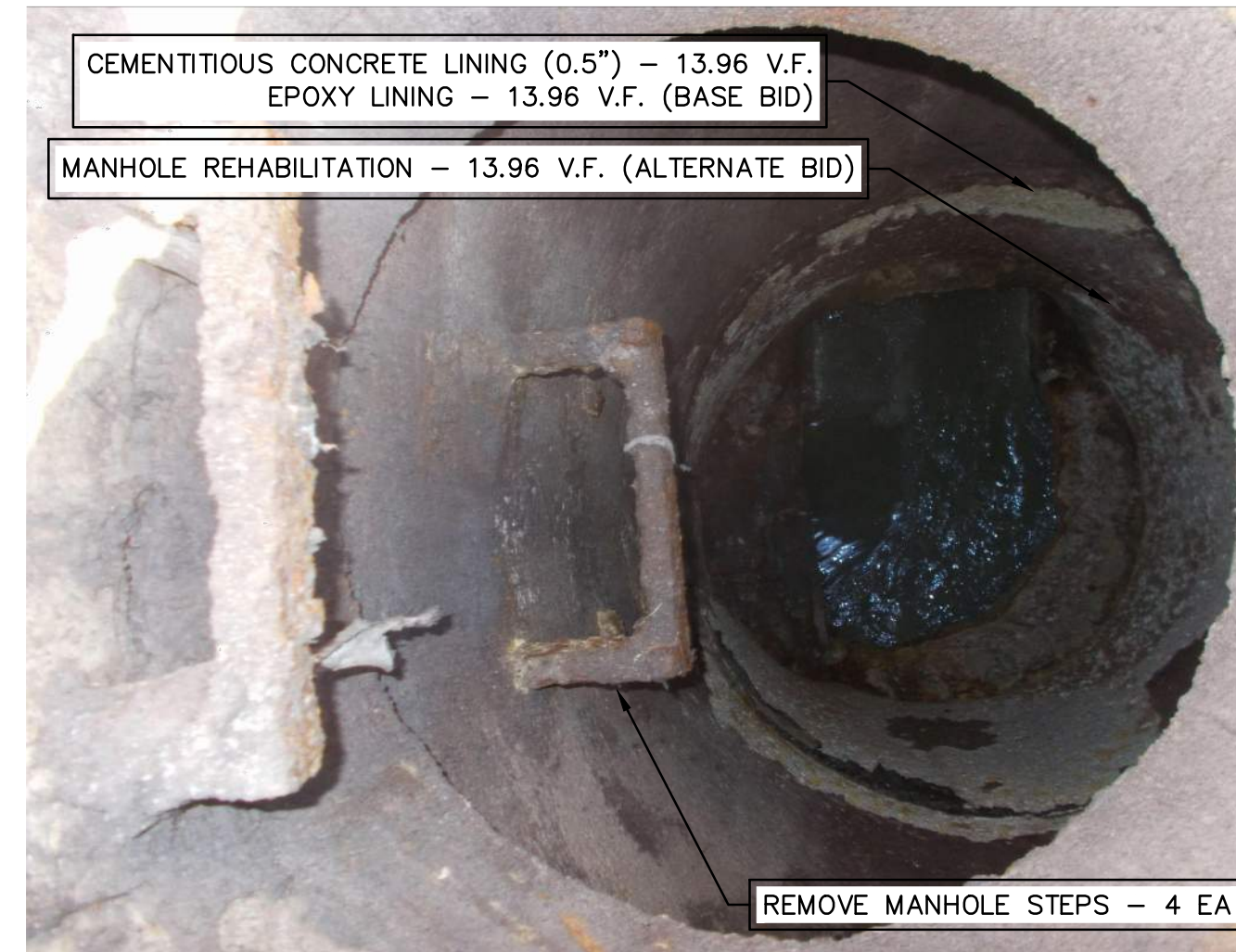
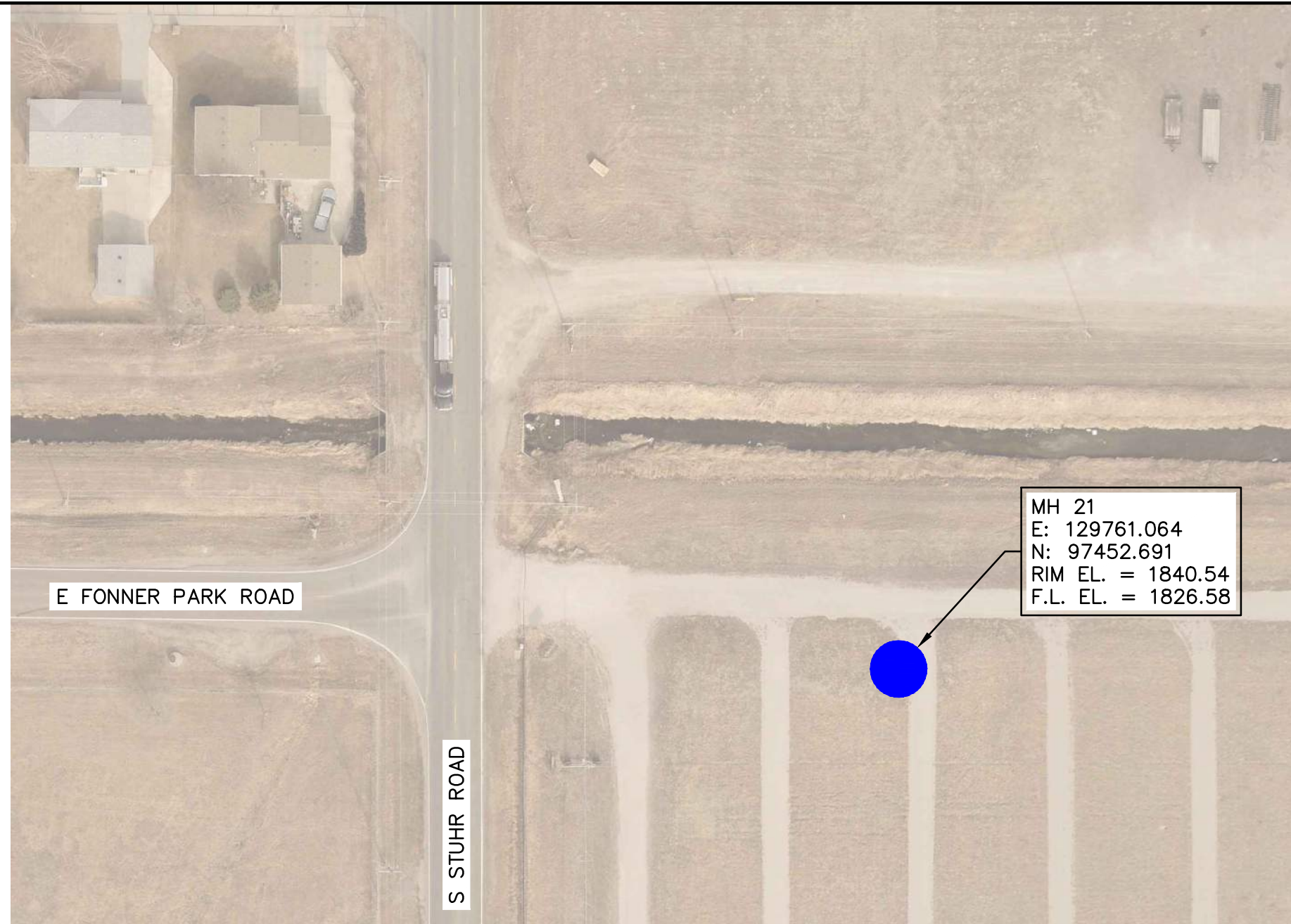
MANHOLE REHABILITATION PLAN	
GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10	
GRAND ISLAND, NEBRASKA	2023

drawn by: KDG  
 checked by: BJF  
 approved by: BJF  
 QA/QC by: JB  
 project no.: 023-06594  
 drawing no.:  
 date: DECEMBER 2023

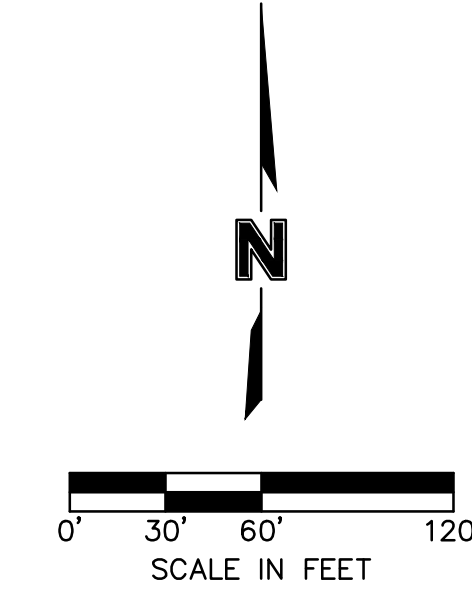
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NOTE: THE MANHOLE PHOTOS MAY BE SEVERAL YEARS OLD.  
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MH 21



MANHOLE REHABILITATION PLAN

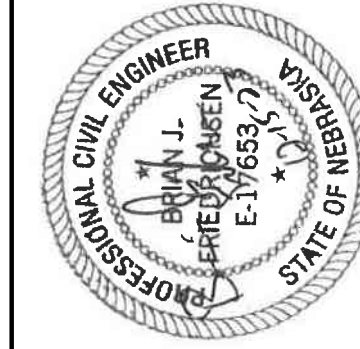
GRAND ISLAND SANITARY SEWER MANHOLE REHABILITATION, CITY PROJECT 2023-S-10

GRAND ISLAND, NEBRASKA

2023

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS



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drawn by: KDG  
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