



MASON COUNTY ROAD COMMISSION

Michael Ingison, Chairman
Jeff Conklin, Vice-Chairman
Deb Del Zoppo, Member

Steve Wessels, Manager/Director
Eric Nelson P.E., County Highway Engineer

NOTICE TO BIDDERS

The Board of County Road Commissioners of Mason County will receive e-mailed and/or sealed bids at their office at 510 E. State St., Scottville MI 49454, until **2:00 P.M. on Tuesday, March 26, 2024**, for the following:

2024 Lakeshore Drive Box Culvert

Specifications and bid forms may be obtained at the Road Commission offices during regular business hours or by visiting our website at www.masoncountyroads.com or request bid documents from enelson@masoncountyroads.com.

If you plan to submit a bid, please e-mail enelson@masoncountyroads.com to be placed on the bidders list. Any communications or addendums will be sent via email to all perspective bidders.

All proposals must be submitted on Road Commission furnished bid forms. Said forms must be e-mailed to enelson@masoncountyroads.com, or in sealed envelopes, plainly marked as to item bid and shall bear the name of the bidder. E-mailed bids must be received prior to the date and time listed above. It is highly recommended to use a read and delivery receipt when e-mailing the bid. E-mailed bids will be acknowledge with an e-mail confirmation acknowledging the receipt of the e-mail bid.

The Mason County Road Commission hereby notifies all bidders that it will affirmatively insure that in any contract entered pursuant to this advertisement, disadvantaged business enterprise will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of sex, race, color or national origin in consideration for an award.

The Board reserves the right to accept or reject any or all bids, to waive any irregularities in the bids and to make award in any manner they deem to be in the best interest of Mason County.

BOARD OF COUNTY ROAD COMMISSIONERS

Mike Ingison, Chairman
Jeff Conklin, Vice-Chairman
Deb Del Zoppo, Member

PROPOSAL

2024 Lakeshore Drive Box Culvert

To: Board of Mason County Road Commission
510 East State Street
P.O. Box 247
Scottville, Michigan 49454-0247

Gentlemen:

The undersigned Contractor submits the following unit prices for the Lakeshore Drive Box Culvert project in Mason County. All unit prices shall be firm for the 2024 Lakeshore Drive Box Culvert project, MDOT 2020 Standard Specifications shall apply, as modified herein and by the attached special provisions.

A. BID ITEMS

Refer to the Bid Item Sheet, which shall be included as part of this bidding document.

B. PAYMENT TERMS:

Payments will be made on a bi-weekly basis. Final payment will be within 30 days of the final acceptance of the work and the Contractor and Project Engineer agreeing on final quantities. The Contractor shall provide all certifications of materials to the Project Engineer prior to final payment.

C. Completion Date: The project shall not start no earlier than 10 days after award. Once the Contractor starts the project, the work shall be continuous and shall be completed within 8 consecutive weeks, but no later than November 8, 2024. The Mason County Road Commission reserves the right to add or delete bid quantities. Adjustment in unit prices shall be in accordance with MDOT Specifications Section 103.

Submitted by: _____

Address: _____

Email: _____

Office Phone: _____ Cell: _____

Signature: _____ Date: _____

Bids shall be e-mailed to enelson@masoncountyroads.com or submitted in a sealed envelope, plainly marked as to contents. The right is reserved by the Mason County Road Commission, to reject any and all bids, and to accept the bid that is in the best interest of the County.

Closing Date 2:00 P.M., Tuesday, March 26, 2024

BID - Lakeshore Drive South Bayou - Box Culvert - Hamlin Township, Mason County

Pay Item Code	Description	Units	Quantity	Unit Price	Amount
1100001	Mobilization, Max	LSUM	1		
2040025	Fence, Rem	Ft	160		
2040035	Guardrail, Rem	Ft	263		
2040050	Pavt, Rem	Syd	745		
2050010	Embankment, CIP	Cyd	100		
2050016	Excavation, Earth	Cyd	676		
2050148	Flowable Fill, Non-Structural	Cyd	85		
2080036	Erosion Control, Silt Fence	Ft	200		
3010002	Subbase, CIP	Cyd	260		
3020001	Aggregate Base	Ton	255		
3070121	Shld, Cl II	Ton	20		
5010033	HMA, 13A	Ton	130		
8030044	Sidewalk, Conc, 4 inch	Sft	685		
8070080	Guardrail Reflector	Ea	24		
8077001	Guardrail, Type B, Modified	Ft	100		
8077050	Guardrail, Approach Terminal, Type 2B	Ea	3		
8087001	Fence, 48 inch	Ft	150		
8110232	Pavt Mrkg, Waterborne, 4 inch, Yellow	Ft	500		
8120012	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	Ea	7		
8120013	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Ea	7		
8120170	Minor Traf Devices	LSUM	1		
8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	145		
8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	145		
8120352	Sign, Type B, Temp, Prismatic, Spec, Furn	Sft	60		
8120353	Sign, Type B, Temp, Prismatic, Spec, Oper	Sft	60		
8162002	Slope Restoration, Non-Freeway, Type B	Syd	250		
2040060	Structures, Rem	LSUM	1		
2060002	Backfill, Structure, CIP	Cyd	135		
2060010	Excavation, Fdn	Cyd	230		
2080014	Erosion Control, Filter Bag	Ea	2		
2080042	Erosion Control, Turbidity Curtain, Deep	Ft	200		
3082000	Geotextile, Separator, Non-Woven	Syd	1410		
4040031	Underdrain, Fdn, 4 inch	Ft	300		
4040091	Underdrain Outlet, 4 inch	Ft	40		
4040111	Underdrain, Outlet Ending, 4 inch	Ea	4		
4060005	Culv Bedding, Box Culv	Cyd	25		
4060134	Culv, Precast Conc Box, 10 foot by 10 foot	Ft	33		
7040001	Steel Sheet Piling, Permanent	Sft	5000		
7040009	Cofferdams, Left in Place	LSUM	1		
7047051	Sheeting Tie System	LSUM	1		
7077030	Structural Steel, Furn, Fab, and Erect	Lb	6400		
7120043	Bolt, Adhesive Anchored, 7/8 inch	Ea	32		

Authorized Signature

Date

Company Name, Address & Phone Number

Phone #

INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

It is the intent of these contract documents to be as clear, complete, and consistent as possible.

2. BIDDER INVESTIGATION

The Bidder will be responsible for inspecting the project and various roads for delivery of materials to determine all conditions under which he will be obligated to work.

3. PROPOSAL PREPARATION

The name and legal status of the bidder, corporation, partnership, or an individual shall be stated in the proposal. A corporation bidder shall name the state in which its Articles of Incorporation are held and must give the Title of the officer having authority, under the by-laws, to sign contracts. A partnership bidder shall give the full names and addresses of all partners. Anyone signing a proposal as an agent of another, or others, must submit with this proposal legal evidence of his authority to do so. The place of residence of each bidder, or the office address in case of a firm or company, with county and state, must be given after a signature.

The proposal shall be carefully prepared in strict accordance with these instructions, otherwise the bid may be rejected. The proposal for the work is on a unit price basis. All unit prices shall be completed in ink and the proposal legally signed in ink.

The unit prices stated in the proposal shall be plainly written. Illegibility of any work or figure in the proposal may be sufficient cause for rejection of the proposal.

Hard copy proposals must be enclosed in a sealed envelope, addressed to the Mason County Road Commission, and labeled "2024 Lakeshore Drive Box Culvert".

The bids will be compared on the basis of comparison of the totals for the extensions of the stated unit prices. In case of an error in the preparation of the bid form, the unit prices shall be used.

4. BID SURETY

A Bid Bond or Certified Check must accompany this bid in an amount not less than five percent (5%) of the amount of the total bid, as based on quantities appearing on the form of the Proposal or other bid security as shall be outlined in the Proposal and/or the Special Provisions section of the Specifications. The bid bond or other security of the successful bidder will be held until the Contract has been duly executed.

5. PERFORMANCE BONDS AND INSURANCE

The successful bidder shall furnish performance and payment bonds in amounts equal to the contract bid price in such form and with such sureties licensed to conduct business in the State of Michigan. The successful bidder shall purchase and maintain such public insurance that will protect him from claims under Workmen Compensation laws and Public Liability Insurance. The Contractor shall provide for and on behalf of the County, the Mason Board of County Road Commissioners, The Mason County Road Commission, and its employees Owners Protective Public Liability Insurance. A copy of all insurance coverage shall be submitted for approval prior to the award of a contract.

6. CHAPTER 11 PROCEEDINGS

The Commission reserves the right to waive consideration of any bid submitted by a bidder who either has or has pending the filing of a Chapter 11 proceedings.

7. TESTING

All materials shall be obtained from MDOT/MCRC approved sources. Testing for compliance with 2020 MDOT Standards and Specifications shall be the responsibility of the Contractor, who shall provide copies of all tests done.

MCRC shall have performed Independent Assurance Tests (IAT) and split samples, at the cost of the MCRC. The MCRC will perform testing on sand, aggregate (imported), HMA and other materials incorporated in the work. Density testing and material verification testing will be completed by the MCRC.

In the event the IAT shows the material to be out of specification the split sample shall be sent to an independent lab for testing. The split sample result shall govern, if it agrees with the IAT the penalty shall be in accordance with MDOT Standard Specifications; if the split sample agrees with Contractors, no penalty.

The MCRC reserves the right to add or delete quantities as it deems necessary. Adjustments in unit prices shall be in accordance with MDOT Specification 103.

8. STANDARD SPECIFICATIONS

The 2020 Standard Specifications for Construction adopted by the Michigan Department of Transportation are hereby incorporated into these contract documents and shall apply unless otherwise noted. A copy of the "Standard Specifications" are available at the office of the Mason County Road Commission.

Specific References made in the contract documents will be shown as MDOT 0.0.00.

9. INSURANCE COVERAGE

The Contractor shall have a minimum insurance policy as described below:

General Liability	
Each Occurrence	\$1,000,000
Aggregate	\$2,000,000
Automotive Liability (minimum)	
Body Injury	\$ 500,000 per Person
	\$1,000,000 per
	Occurrence
Property Damage	\$1,000,000 per
	Occurrence
Workers Compensation	

The Contractor shall procure and maintain during the life of this contract, Worker's Compensation Insurance, including Employer Liability Coverage, in accordance with all applicable statutes of the State of Michigan. Additional Insured -- Commercial General Liability and Motor Vehicle Liability Insurance, as described above, shall include an endorsement stating the following shall be **Additional Insured**. The Mason County Road Commission, its Board and all employees...

The Contractor agrees to hold the MCRC harmless and indemnify the MCRC from all claims or liability arising out of or pursuant to the contract provisions, including, but not limited to, the cost of defense, court costs, and any Judgment or settlement arising out of such claims.

The Contractor shall not commence work under this contract until they have obtained the insurance and bond required. All coverages shall be with insurance companies licensed and admitted doing business in the State of Michigan. All coverages shall be with insurance companies acceptable to the Mason County Road Commission.

**SPECIAL PROVISION
FOR
HMA MIXTURE 13A**

Materials:

Target air voids for this project have been changed to 3%.

RAP maximum for this project will be 15%.

Target bitumen shall be 5.6% with a minimum of 5.4%.

The Performance Grade binder range for HMA mixtures shall be 58-28.

The Aggregate Wear Index (AWI) for the top course shall be 220, minimum.

The Bond Coat Material shall be as per Section 501.02. The uniform rate of application between courses shall be 0.05 to 0.15 gallons per square yard, or as directed by the Engineer.

The Aggregate shall conform to the applicable requirements of Section 902 or Supplemental Specifications, except that the grading shall be such that when blended, the grading will conform to that specified for the mixture.

Construction Methods:

HMA Construction practices shall be in accordance with section 501 of the 2020 MDOT Standard Specifications for Construction except as hereby modified.

Surfaces shall be cleaned of all dust, dirt, or other loose material before the Bond coat is applied. Bond Coat shall be placed incidental to Bituminous Mixture 13A.

HMA Mixture 13A shall be the material used for the top, leveling courses and approaches.

The HMA Mixture shall be placed at the application rate directed by the Engineer in pounds per square yard.

Rolling:

The Nuclear Gage Method for Testing compaction, as specified in the MDOT Specifications, is hereby waived for this project. Number of Roller Method shall apply. The Number of Rollers required is based on placement rate.

Average Laydown Rate, Square Yards/Hour	Number of Rollers Required	
	Compaction Rollers	Finish Rollers
Less than 800	1	*1
800 – 1800	1	1
1801 – 4000	2	1
4001 - 7200	3	1

*The compaction roller may be used as the finish roller also.

Method of Measurement and Basis of Payment

The Completed work as measured for HMA Mixture 13A will be paid for at the contract unit price for the contract pay items and includes all material, equipment, and labor to complete this item.

SUPPLEMENTAL SPECIFICATIONS FOR THE LAKESHORE DRIVE BOX CULVERT PROJECT

1. Bond Coat will be required on all existing asphalt surfaces to be paved and between courses on all two-course construction. Bond coat and sweeping of surfaces shall be the responsibility of the contractor and shall be included with other items of work.
2. The contractor shall provide flag control with approved signage in accordance with the Michigan manual of Uniform Traffic Control Devices or, at the discretion of the Engineer, shall be furnished, erected, and maintained by the contractor. Flag Control shall be included with other items of work.
3. The contractor will maintain local traffic on these projects at all times. Some roads may be closed to thru traffic with the prior approval of the Engineer. Provisions shall be made so that each place of business within any of the Project limits will have at least one driveway entrance open at all times.
4. Bid price shall include the cost for furnishing all materials, equipment, and labor to complete the work as specified. Legal load limitations will be enforced on all hauling equipment.
5. The contractor is responsible for furnishing a mix design for approval prior to doing any work. Any change in the approved mix design must be submitted five (5) working days prior to the change for review and action.
6. Prior to award of the contract, the contractor shall furnish a detailed Progress Schedule to the County for approval. Any variation from the Progress Schedule must have prior approval of the Engineer. The Mason County Road Commission's Engineer/Manager and Inspector will meet with the successful bidder's Superintendent and/or Foreman, after the award of the project.
8. Any request for a change in the contract must be made in writing to the Engineer at least 5 working days prior to the change being made.
9. All equipment is to be off the road at least one-half hour before dark.
10. Temperature restrictions and weather limitations shall be in accordance with the MDOT 2020 Standard Specifications for Construction and will be strictly enforced.
11. There will be no Sunday work. All construction equipment shall be equipped with working lights in accordance with the MDOT 2020 Standard Specifications for Construction.
12. The MCRC will stake the ROW at 100' intervals from the POB to POE with a distance to the centerline of the proposed road. Benchmarks will be placed between the POB and POE for the Contractors use. The MCRC will stake all easement areas as shown on the plans. Any other

staking requests by the Contractor will be in writing at a minimum of 48 hours before the staking will be completed by the MCRC. Any construction staking that is carelessly damaged by the Contractor will be replaced by the MCRC and paid for by the Contractor at \$100 per hour for a one-man crew or \$150 for a two-man crew.

13. All bids must be submitted on the Board's bid form that was provided. The bid shall be legibly prepared in ink or typed out. Erasures or alterations must be initialed by the respondent.
14. Specifications and plans should not be returned with bid, unless otherwise stated herein.
15. Proposals shall be sent to MCRC by email to enelson@masoncountyroads.com. If the email is not applicable for the respondent to submit their bid, a hard copy may be mailed, or hand delivered to the MCRC office.
16. Proposals will not be accepted after the time designated for the opening of the bids. The respondent shall assume full responsibility for delivery of proposals prior to the appointed time for opening same and shall assume the risk of late delivery or non-delivery regardless of the manner he/she employs for the transmission thereof.
17. No responsibility shall attach to the Road Commission or their representatives for premature opening or non-receipt of any proposal which is not properly addressed, delivered, or identified. A confirmation of receipt of emailed proposals received will be sent.
18. It is understood the Board is a governmental unit, and as such, is exempt from the payment of all state and federal taxes, except as allowed by the regulatory agencies to be included in the cost of materials and services.
19. The respondent, by submission of a proposal, declares the proposal is made without collusion with any other person or entity, and agrees to furnish all items and services in strict adherence with all applicable federal, state and local laws, regulations, codes, and ordinances.
20. The Board reserves the right to reject any and all proposals, to waive any irregularities therein, and to accept any proposal which, in the opinion of the Board, may be most advantageous and in the best interest of the Mason County Road Commission. In case of error, in the extension of prices in the proposal or other arithmetical error, the unit prices will govern.
21. Contractor shall maintain current up-to-date insurance coverage during the term of the contract and failure to do so shall result in termination of said contract.
22. The Contractor shall comply with the intent of the General Requirements and Covenants, Section 107 of the Michigan Department of Transportation "2020 Standard Specifications for Construction" where applicable.
23. Submission of bid will be construed as a conclusive presumption that the Contractor is thoroughly familiar with the bid requirements and specifications and that he understands and agrees to abide by each and all of the stipulations and requirements contained therein.

PROGRESS CLAUSE

The Engineer anticipates that construction can begin no earlier than 10 calendar days after award or as directed by the Engineer.

In no case shall any work be commenced prior to receipt of formal notice of award by the Department.

The Contractor shall prepare and submit a complete, detailed, signed Progress Schedule to the Engineer.

The entire project must be completed by the final completion date of **November 8, 2024**.

Unless specific pay items are provided in the contract, any extra costs incurred by the Contractor due to cold-weather protection and winter grading will not be paid for separately but will be included in the payment of other pay items in the contract.

After award and prior to the start of work, the Contractor must attend a preconstruction meeting with the Engineer. The Engineer will determine the day, time and place for the preconstruction meeting. The meeting will be conducted after project award and may be rescheduled if there are delays in the award of the project.

The named subcontractor(s) for Designated and/or Specialty Items, as shown in the Proposal, should attend the preconstruction meeting if such items materially affect the work schedule.

Failure by the Contractor to meet interim completion, open to traffic, and/or final completion dates will result in the assessment of liquidated damages in accordance with subsection 108.10.C.1 and 108.10.C.2 of the Standard Specifications for Construction.

MASON COUNTY ROAD COMMISSION

SPECIAL PROVISION FOR MAINTAINING TRAFFIC

SCECO/RTW

1 of 1

1/23/24

Description

The proposed project will be closed to traffic. The detour including signing is shown in the project plans. In addition to the signs and barricades on the detour route, signs and barricades shall be placed at both ends of the project to keep traffic out of the work area. The traffic maintenance shall be in accordance with Sections 104.07, 104.11, and 812 of the Standard Specifications for Construction, the MDOT Maintaining Traffic Typicals, and as herein specified. Local traffic shall be maintained at all times, and property owners and emergency vehicles shall be assured of access to their property. The Mason County Road Commission will maintain the surface of the detour route.

Restrictions

The closure of the bridge cannot exceed 8 weeks once the road is closed to traffic. Boat traffic between the lakes is expected to be restricted.

Construction Influence Area

The construction influence area (CIA) shall consist of the width of the project right-of-way from 2500 feet before each project P.O.B. to 2500 feet beyond each project P.O.E. and 500 feet in all directions along all crossroads.

Traffic Control Devices

All signs, barricades, warning lights, and other traffic control devices shall be in accordance with the 2011 Michigan Manual on Uniform Traffic Control Devices (MMUTCD). All temporary supports shall conform to special detail WZD-100-A, and all temporary traffic control devices shall comply with WZD-125-E.

Measurement and Payment

Payment for maintaining traffic shall be per subsection 812.04 of the Standard Specifications for Construction unless otherwise noted. The completed work will be paid for at the contract unit price for the contract pay items and includes all material, equipment, and labor to complete these items.

NOTICE TO BIDDERS
UTILITY COORDINATION

MCRC:SCECO:RTW

1 of 1

1/23/24

The contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in Section 104.08 of the Standard Specifications for Construction. In addition, for the protection of underground utilities, the contractor shall follow the requirements in Section 107.12 of the standard specifications. Contractor delay claims, resulting from a utility, will be determined based upon subsections 108.09 and 109.05 of the standard specifications.

Public Utilities

<u>Electric – Consumers Energy</u> Eric Marr 300 Chestnut Street Cadillac, MI 49601 Phone: 231-250-4505 eric.marr@cmsenergy.com	<u>Gas – DTE</u> Larry Bourke 3609 Bjornson Road Big Rapids, MI 49307 Phone: 231-349-2364 lawrence.bourke@dteenergy.com
<u>CTV – Charter Spectrum</u> Brad Kulicamp 315 Davis Street Grand Haven, MI 49417 Phone: 616-607-2356 brad.kulicamp@charter.com	

The owners of existing service facilities that are within grading or structure limits will move them to locations designated by the Engineer or will remove them entirely from the road Right-of-Way prior to construction. Owners of Public Utilities will not be required by the Township to move additional poles or structures in order to facilitate the operation of construction equipment unless it is determined by the Engineer that such poles or structures constitute a hazard to the public or are extraordinarily dangerous to the Contractor's operations.

Electric to be relocated to Neil Road and back to Lakeshore Drive.

Aerial cable tv cable to be relocated the same as the electric. A buried fiber optic line along west ROW line to be abandoned.

Gas main under the west end of the culvert to be rerouted and abandoned.



NOTICE OF AUTHORIZATION

Permit Number: WRP040382 v. 1

Date Issued: February 15, 2024

Site Name: 53 - Lakeshore Drive over South Bayou of Hamlin Lake

Expiration Date: February 15, 2029

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended: specifically:

- ☒ Part 31, Floodplain Regulatory Authority of the Water Resources Protection.
- ☒ Part 301, Inland Lakes and Streams.
- ☐ Part 303, Wetlands Protection.
- ☐ Part 315, Dam Safety.
- ☐ Part 323, Shorelands Protection and Management.
- ☐ Part 325, Great Lakes Submerged Lands.
- ☐ Part 353, Sand Dunes Protection and Management.


Authorized activity:

At Lakeshore Drive over South Bayou of Hamlin Lake, replace the existing crossing with a 33-foot long by 10-foot span by 10-foot rise concrete box culvert. Recess the culvert 1-foot below the stream bottom. Replace the existing sheet pile wall. Place 12.3 cubic yards of fill below the floodplain elevation.

To be conducted at property located in: Mason County, Waterbody: South Bayou of Hamlin Lake
Section 27, Town 19N, Range 18W, Hamlin Township

Permittee:

Mason County Road Commission
P.O. Box 247
Scottville, Michigan 49454

Issued By: 
Benjamin Johnson
Transportation Review Unit
Water Resources Division
616-295-2787

*This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.*
Please refer to the above permit number with any questions or concerns.

EGLE
WRP040382 v1.0
Approved
Issued On:02/15/2024
Expires On:02/15/2029



**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION PERMIT**

Issued To:

**Eric Nelson
Mason County Road Commission
P.O. Box 247
Scottville, Michigan 49454**

Permit No: WRP040382 v.1
Submission No.: HPX-E6MG-XP77C
Site Name: 53 - Lakeshore Drive over South Bayou of Hamlin Lake
Issued: February 15, 2024
Revised:
Expires: February 15, 2029

This permit is being issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Part 301, Inland Lakes and Streams | <input type="checkbox"/> Part 323, Shorelands Protection and Management |
| <input type="checkbox"/> Part 303, Wetlands Protection | <input type="checkbox"/> Part 325, Great Lakes Submerged Lands |
| <input type="checkbox"/> Part 315, Dam Safety | <input type="checkbox"/> Part 353, Sand Dunes Protection and Management |
| <input checked="" type="checkbox"/> Part 31, Water Resources Protection (Floodplain Regulatory Authority) | |

EGLE certifies that the activities authorized under this permit are in compliance with the State Coastal Zone Management Program and certifies without conditions under the Federal Clean Water Act, Section 401 that the discharge from the activities authorized under this permit will comply with Michigan's water quality requirements in Part 31, Water Resources Protection, of the NREPA and associated administrative rules, where applicable.

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

At Lakeshore Drive over South Bayou of Hamlin Lake, replace the existing crossing with a 33-foot long by 10-foot span by 10-foot rise concrete box culvert. Recess the culvert 1-foot below the stream bottom. Replace the existing sheet pile wall. Place 12.3 cubic yards of fill below the floodplain elevation.

Waterbody Affected: South Bayou of Hamlin Lake
Property Location: Mason County, Hamlin Township, Town/Range/Section 19N/18W/27
Property Tax No.

Authority granted by this permit is subject to the following limitations:

- A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
- B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
- C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
- D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
- E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
- F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
- G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
- H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
- I. Permittee shall notify EGLE within one week after the completion of the activity authorized by this permit.
- J. This permit shall not be assigned or transferred without the written approval of EGLE.
- K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
- L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
- M. In issuing this permit, EGLE has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, EGLE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
- N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
- O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, EGLE may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.

- P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from EGLE. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by EGLE prior to being implemented.
- Q. This permit may be transferred to another person upon written approval of EGLE. The permittee must submit a written request to EGLE to transfer the permit to the new owner. The new owner must also submit a written request to EGLE to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all the above information may be provided to EGLE. EGLE will review the request and, if approved, will provide written notification to the new owner.
- R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
- S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
- T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
- U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
- V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
- W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
- X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources (MDNR), Fisheries Division.
- Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:
1. Authority granted by this permit does not waive permit or program requirements under Part 91 of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit <https://www.michigan.gov/egle/about/organization/water-resources/soil-erosion/sesc-overview> and select "Soil Erosion and Sedimentation Control Agencies".
 2. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.

3. No fill, excess soil, or other material shall be placed in any wetland, floodplain, or surface water area not specifically authorized by this permit, its plans, and specifications.
4. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.
5. The permit placard shall be kept posted at the work site in a prominent location at all times for the duration of the project or until permit expiration.
6. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by EGLE, will be for a five-year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.
7. Authority granted by this permit does not waive compliance requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA. Any discharge of sediment into waters of the state and/or off the road right-of-way is a violation of this permit, Part 91, and Part 31, Water Resources Protection, of the NREPA. A violation of these parts subjects the permittee to potential fines and penalties.
8. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.
9. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to, or part of this project shall be confined to the existing right-of-way limits or other acquired easements.
10. Temporary soil erosion and sedimentation control measures shall be installed before or upon commencement of the earth change and shall be maintained daily. Temporary soil erosion and sedimentation control measures shall be maintained until permanent soil erosion and sedimentation control measures are in place and the area is stabilized. Permanent soil erosion and sedimentation control measures for all slopes, channels, ditches, or any disturbed area shall be installed within five (5) calendar days after final grading, or the final earth change has been completed.
11. During structure replacement, every precaution shall be taken to prevent debris from entering the watercourse. Any debris reaching the watercourse during the structure removal and shall be immediately retrieved from the water. All material shall be disposed of in an acceptable manner consistent with local, state, and federal regulations.
12. The existing structure shall be kept open to pass flow during removal of the existing road fill.

13. Prior to the removal of the existing structures, cofferdams of steel sheet piling, gravel bags, clean stone, coarse aggregate, concrete or other acceptable barriers shall be installed to isolate all construction activity from the water. The barriers shall be maintained in good working order throughout the duration of the project. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site.
14. All cofferdam and temporary steel sheet pile shall then be removed in its entirety, unless specifically shown to be left in place on the accepted plans. Cofferdam and sheet pile that is left in place shall be cut off at the elevation shown on the plans and shall be a minimum of one foot below the stream bottom.
15. The culvert shall be installed to align with the center line of the existing watercourse at both the inlet and outlet ends and must be buried below the bed to provide a natural channel substrate through the structure as shown on the approved plans.
16. All dredge/excavated spoils including organic and inorganic soils, vegetation, and other material removed shall be placed on upland (non-wetland, non-floodplain or non-bottomland), prepared for stabilization, revegetated and reseeded with native Michigan species appropriate to the site, and mulched in such a manner so as to prevent and ensure against erosion of any material into any waterbody, wetland, or floodplain.
17. All fill/backfill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants. All fills shall be contained in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be stabilized with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.
18. All other road fill slopes, ditches, and other raw areas draining directly to the watercourse may be protected with riprap, sod and/or seed and mulch as may be necessary to provide effective erosion protection. The placement of riprap shall be limited to the minimum necessary to ensure proper stabilization of the side slopes and fill in the immediate vicinity of the structure.
19. Road fill side slopes shall not be steeper than 1-on-2 (1 vertical to 2 horizontal) except where headwalls of reinforced concrete, mortar masonry, dry masonry, or other acceptable methods are used.
20. All raw areas resulting from the permitted construction activity shall be effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters or wetlands. Temporary stabilization measures shall be installed before or upon commencement of the permitted activity and shall be maintained until permanent measures are in place. Permanent measures shall be in place within five (5) days of achieving final grade.

21. All raw earth within 100 feet of a lake, stream, or wetland that is not brought to final stabilization by the end of the active growing season shall be temporarily stabilized with mulch blankets in accordance with the following dates: September 20th for the Upper Peninsula, October 1st for the Lower Peninsula north of US-10, and October 10th for the Lower Peninsula south of US-10.
22. If the project, or any portion of the project, is stopped and lies incomplete for any length of time other than that encountered in a normal work week, every precaution shall be taken to protect the incomplete work from erosion, including the placement of temporary gravel bag riprap, temporary seed and mulch, or other acceptable temporary protection.
23. Any alterations to the existing road grade elevations other than that shown on the plans will require prior approval from the WRD.
24. To avoid disturbance of Northern long-eared bat or Indiana bat, which are federally listed as endangered species, any tree larger than three inches in diameter shall not be cut between April 15th and September 30th of any year.



Issued By:

Benjamin Johnson
Transportation Review Unit
Water Resources Division
616-295-2787

THIS PERMIT MUST BE SIGNED BY THE PERMITTEE TO BE VALID.

I hereby assure that I have read, am familiar with, and agree to adhere to the terms and conditions of this permit.

Permittee Signature

Date

cc: Hamlin Township Clerk
Mason County Drain Commissioner
Mason County CEA
Nancy Vandervest, Hamlin Township Supervisor
Ryan Worden, Scott Civil Engineering
Scott Heintzelman, MDNR

EGLE
WRP040382 v1.0
Approved
Issued On: 02/15/2024
Expires On: 02/15/2029

INDEX OF SHEETS

1. TITLE SHEET
2. DETOUR
3. GENERAL PLAN OF SITE
- 4.-5. TYPICAL SECTIONS
- 6.-7. GENERAL PLAN OF STRUCTURE
8. STEEL SHEETING LAYOUT
- 9.-10. CROSS SECTION SHEETS
- 11.-15. GUARDRAIL DETAILS

MDOT DETAILS NOT INCLUDED IN PLAN SET

- R-60-J GUARDRAIL TYPES A, B, BD, T, TD, MGS-8, & MGS-8D
- R-80-F GRANULAR BLANKET, UNDERDRAINS, OUTLET ENDINGS FOR UNDERDRAINS, AND SEWER BULKHEADS
- r-84-A BOX CULVERT JOINT TIE ASSEMBLIES
- R-96-E SOIL EROSION & SEDIMENTATION CONTROL MEASURES
- R-100-I SEEDING AND TREE PLANTING
- B-103-E MOLDING, BEVEL, LIGHT STANDARD ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS

GENERAL NOTES

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2020 EDITION.

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO LRFD BRIDGE DESIGN, HL-93 LOADING. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED 1/800 OF THE SPAN LENGTH.

THE PROPOSED IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE WITH THE AASHTO: A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2011.

BEVEL ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS WITH ½” TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

OLD PLANS DO NOT EXIST FOR THIS STRUCTURE.

UNLESS OTHERWISE SHOWN ON THE PLANS, PROVIDE MINIMUM CONCRETE CLEAR COVER FOR REINFORCEMENT ACCORDING TO THE FOLLOWING:

- CONCRETE CAST AGAINST EARTH:3 in.
- PRESTRESSED BEAMS:1 in.
- ALL OTHER UNLESS SHOWN ON PLANS:2 in.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

- PERMANENT STEEL SHEETING:fy = 50,000 psi

HAMLIN TOWNSHIP

IN CO-OPERATION WITH

HAMLIN TOWNSHIP

PLAN AND PROFILE OF PROPOSED

BRIDGE REPLACEMENT

LAKESHORE DR. OVER SOUTH BAYOU

SECTION 27, HAMLIN TOWNSHIP, T19N, R18W

FOR THE PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CONTACT MISS DIG SYSTEM, INC. BY PHONE AT 811 OR 800-482-7171 OR VIA THE WEB AT EITHER ELOCATE.MISSDIG.ORG FOR SINGLE ADDRESS OR RTE.MISSDIG.ORG, A MINIMUM OF 3 BUSINESS DAYS PRIOR TO EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.



UTILITIES

ELECTRIC — CONSUMERS ENERGY

ERIC MARR
300 CHESTNUT ST
CADILLAC, MI 49601
231-779-5536
eric.marr@cmsenergy.com

GAS — DTE

LARRY BOURKE
3609 BJORNSON RD.
BIG RAPIDS, MI 49307
231-349-2364
lawrence.bourke@dteenergy.com

CTV — CHARTER

BRAD KULICAMP
315 DAVIS STREET
GRAND HAVEN, MI 49417
616-607-2356
BRAD.KULICAMP@CHARTER.COM

DESIGN CRITERIA

DESIGN SPEED	20 MPH
POSTED SPEED	25 MPH
PRESENT ADT (2023)	250
PRESENT COM.	1%
DESIGN ADT (2043)	305
DESIGN COM.	1%
DESIGN LOADING	HL-93
DEFLECTION	L/800

CONTRACT FOR: CULVERT REPLACEMENT AND RELATED APPROACH WORK

HAMLIN TOWNSHIP

NANCY VANDERVEST - TWP SUPERVISOR

DATE



SCOTT CIVIL ENGINEERING COMPANY
1345 MONROE AVENUE, SUITE 136
GRAND RAPIDS, MICHIGAN 49505

PREPARED UNDER THE SUPERVISION OF:

RYAN T. WORDEN, P.E.
REGISTERED PROFESSIONAL ENGINEER NO. 53319

DATE

EGIE
WR040382 v1.0
Approved
Issued On:02/15/2024
Expires On:02/15/2029

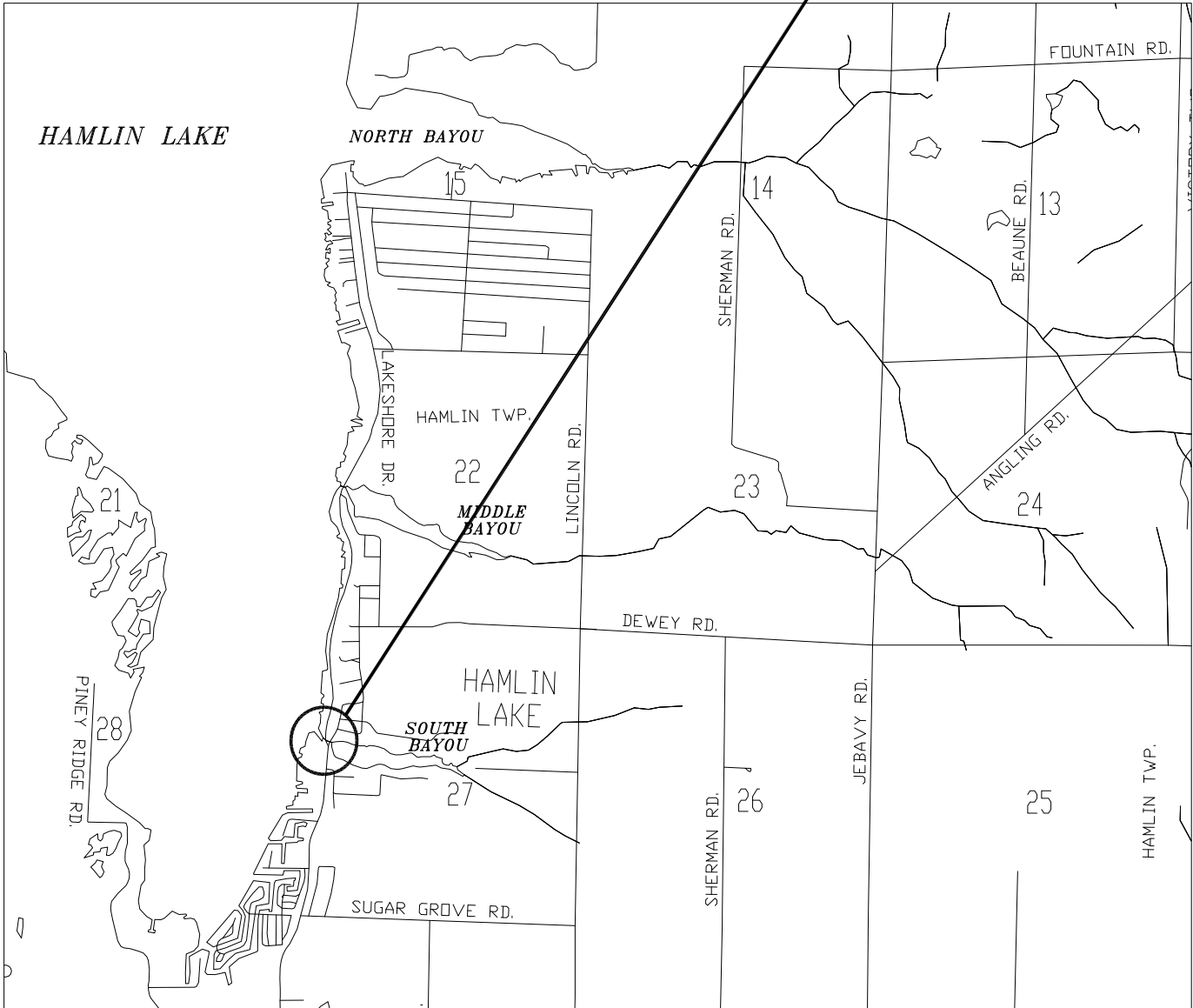


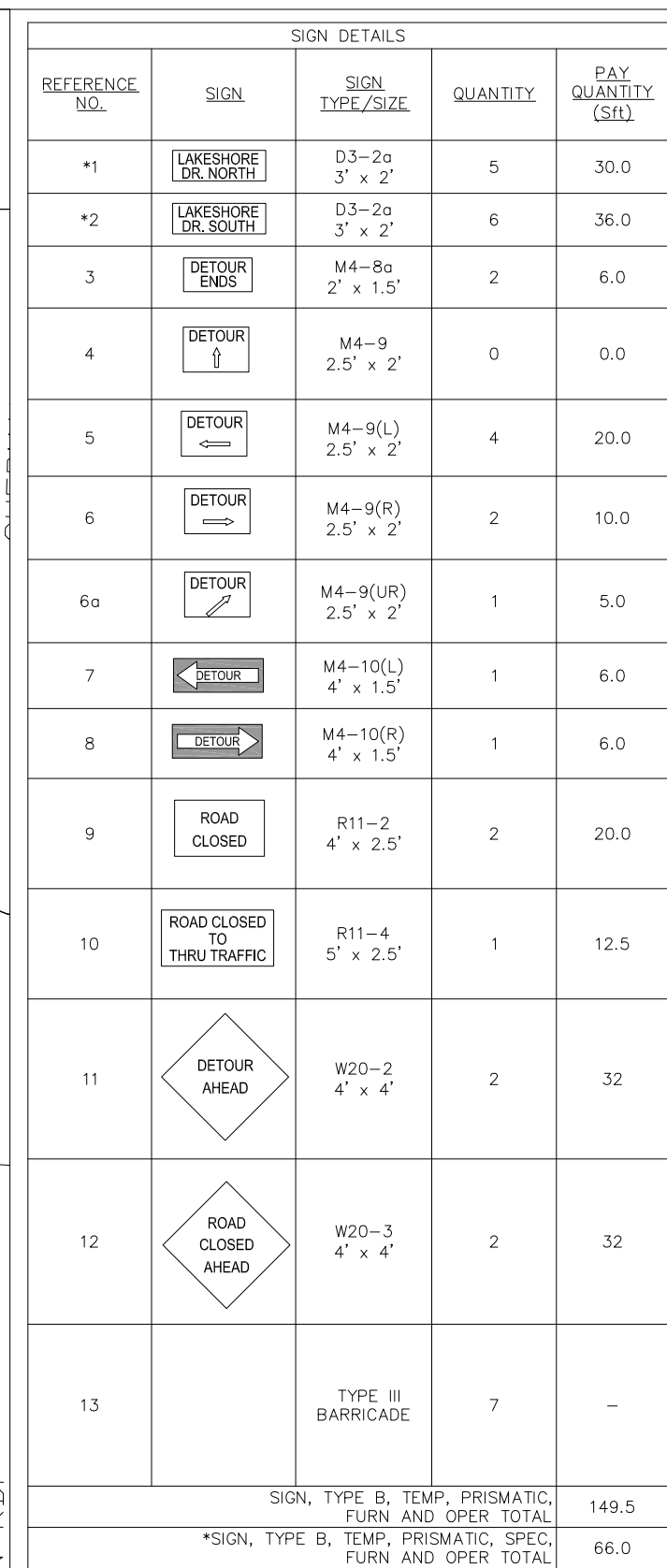
PROJECT LOCATION

POB: 9+60

POE: 12+00

PROJECT LENGTH = 240'





1. CONTRACTOR TO FURNISH AND PLACE ALL SIGNS FOR DETOUR ROUTE AS INDICATED ON THIS SHEET OR AS DIRECTED BY THE ENGINEER.
2. CONTRACTOR TO FURNISH AND PLACE TYPE III BARRICADES, HIGH INTENSITY, LIGHTED, AS SHOWN ON THIS SHEET OR AS DIRECTED BY THE ENGINEER.
3. ADDITIONAL TYPE III BARRICADES AND TYPE B TEMPORARY SIGNING MAY BE REQUIRED TO SUFFICIENTLY CONTROL AND DIRECT TRAFFIC, AS DIRECTED BY THE ENGINEER.
4. THE SPECIAL FABRICATION SIGNING WILL BE BLACK LETTERING ON AN ORANGE BACKGROUND.
5. ALL SIGNS SHALL HAVE BORDERS AS REQUIRED IN THE 2011 MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD).
6. ALL SIGN POSTS MUST BE DRIVEN INTO THE GROUND AS SPECIFIED IN THE PROPOSAL.

TRAFFIC CONTROL QUANTITIES			
PAY ITEM NO.	ITEM OF WORK	UNIT	TOTAL
8120012	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	Ea	7
8120013	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Ea	7
8120170	Minor Traf Devices	LSUM	1
8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	150
8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	150
8120352	Sign, Type B, Temp, Prismatic, Spec, Furn	Sft	66
8120353	Sign, Type B, Temp, Prismatic, Spec, Oper	Sft	66

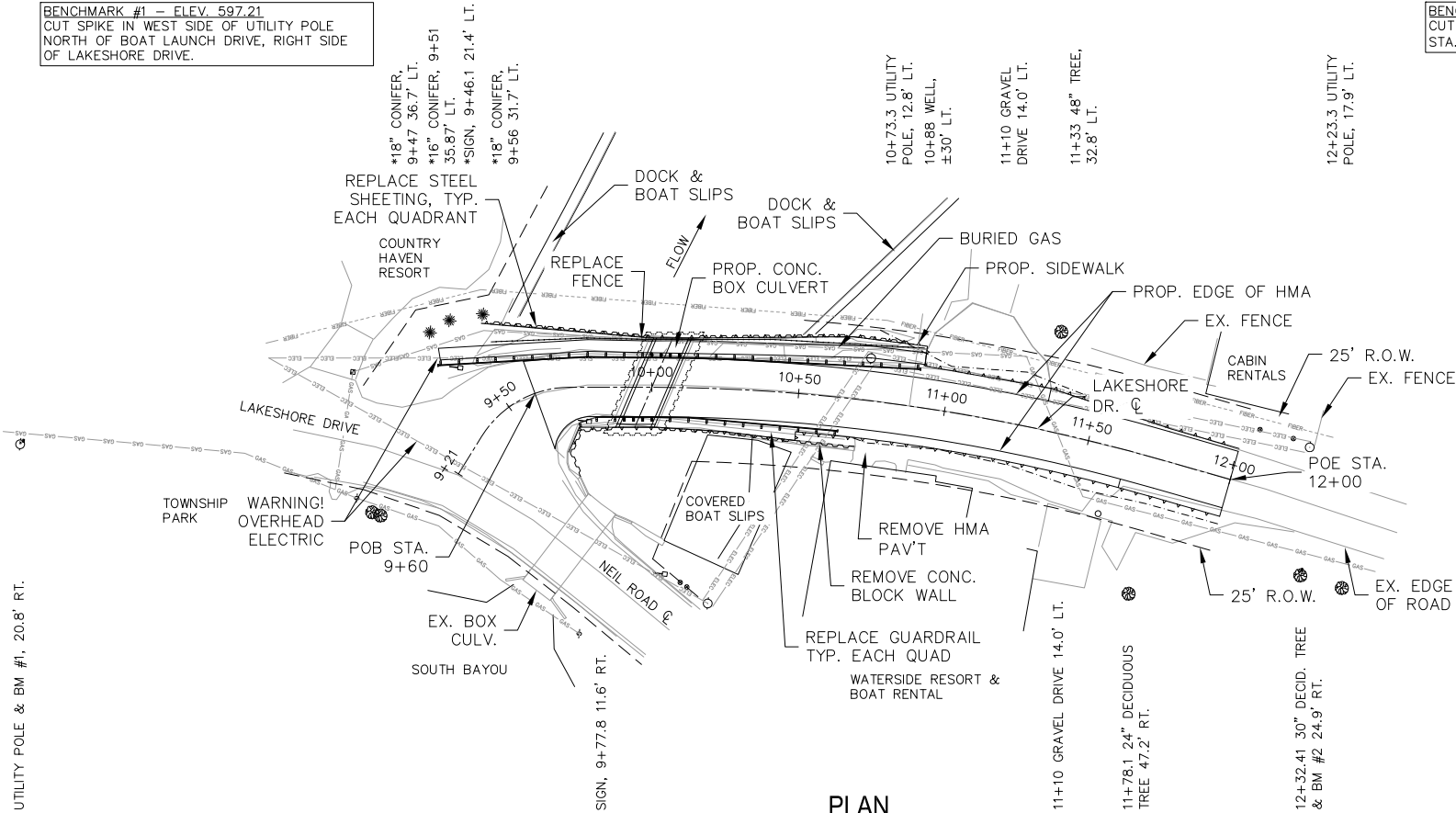
HAMLIN TOWNSHIP				
DETOUR LAKESHORE DR. OVER SOUTH BAYOU				
 SCOTT CIVIL ENGINEERING COMPANY GRAND RAPIDS, MICHIGAN				2 15
DRAWN	AE	CHECKED	RTW	DATE
				10/23/2015



SCALES:
1" = 30' HOR
1" = 3' VER

BENCHMARK #1 - ELEV. 597.21
CUT SPIKE IN WEST SIDE OF UTILITY POLE
NORTH OF BOAT LAUNCH DRIVE, RIGHT SIDE
OF LAKESHORE DRIVE.

BENCHMARK #2 - ELEV. 597.39
CUT SPIKE IN WEST SIDE OF TREE
STA. 12+31.65, 23.77' RT



PLAN

CIRCULAR CURVE #1
T = 75.87
R = 531.22
L = 150.72
E = 5.39
PI STA = 10+87.34
I = 8°7'41"
PC STA = 10+11.47
PT STA = 11+62.19

GENERAL NOTES

THE WORK COVERED BY THESE PLANS INCLUDES: MAINTAINING TRAFFIC, REMOVAL OF THE EXISTING CULVERT, CONSTRUCTION OF THE PROPOSED BOX CULVERT, STEEL SHEETING REPLACEMENT, SIDEWALK, AND APPROACH ROAD WORK TO THE LIMITS SHOWN.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

VEHICLE TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS.

MEASURES SHALL BE TAKEN WHEN REMOVING THE EXISTING CULVERT TO ENSURE THAT PORTIONS DO NOT FALL INTO THE WATER. MATERIAL FALLING INTO THE WATER SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTATIVE MEASURES MUST BE EFFECTIVE.

THE WATER LEVEL OF THE BAYOU IS SUBJECT TO CHANGE BASED ON THE SEASON. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.

IMMEDIATELY AFTER THE CONSTRUCTION OF THE CULVERT IS COMPLETED, TOPSOIL, SEEDING, FERTILIZER, STRAW MULCH BLANKETS AND SLOPE PROTECTION SHALL BE PLACED ON THE ADJACENT EMBANKMENT SLOPES.

DATUM REFERS TO USGS DATUM.

TEMPORARILY STORED EXCAVATED MATERIAL SHALL NOT BE ALLOWED TO ERODE INTO THE WATERCOURSE.

REMOVAL NOTES:

TOPO ITEMS SHOWN WITH AN ASTERISK (*) SHALL BE REMOVED. PAYMENT FOR REMOVAL SHALL BE INCLUDED IN THE RESPECTIVE REMOVAL ITEMS. ALL OTHERS SHALL REMAIN IN PLACE.

SALVAGE AND REPLACE STOP SIGN AND ROAD NAME PLACARDS, INCLUDE PAYMENT IN OTHER ITEMS.

SAW CUTTING AND REMOVAL OF ANY CONCRETE OR HMA PAVEMENT BEHIND THE GUARDRAILS SHALL BE PAID AS "PAVT, REM".

REMOVAL OF MASONRY WALL IN THE NE QUADRANT SHALL BE INCLUDED IN ITEM "STRUCTURE, REM".

UTILITY NOTES:

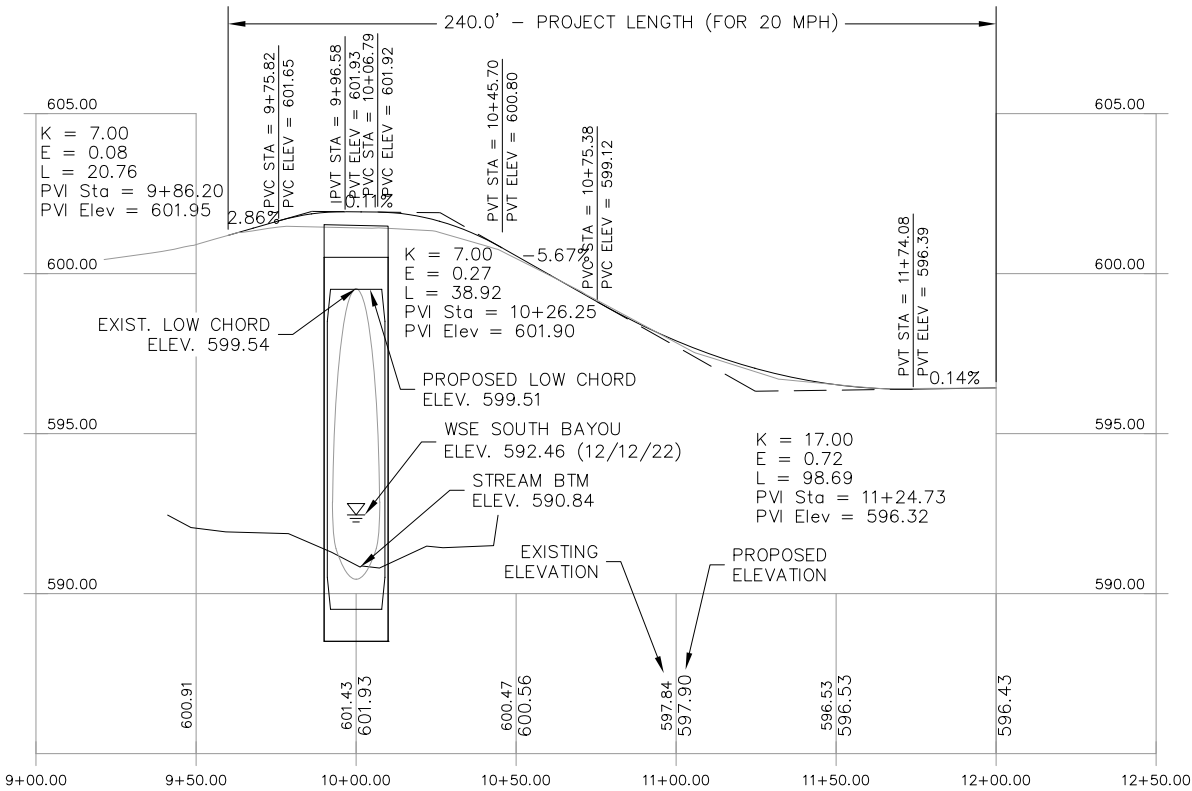
DTE HAS A GAS MAIN ALONG THE WEST STEEL SHEETING, TO BE ABANDONED BY OTHERS.

CONSUMERS ENERGY HAS OVERHEAD ELECTRIC ALONG THE WEST SIDE OF THE ROAD. THE ARE TO BE RELOCATED BY OTHERS TO A NEIL ROAD POLE AND ROUTED BACK TO LAKESHORE DRIVE POLE AT STATION 10+73.

CHARTER COMMUNICATION HAS AN AERIAL LINE ALONG THE WEST SIDE THAT WILL FOLLOW THE ELECTRIC RELOCATION PATH. THERE IS A BURIED FIBER OPTIC OUTSIDE OF THE WEST SHEETING TO BE ABANDONED BY OTHERS.

EXISTING STRUCTURE NOTES:

MULTIPLATE CMP PIPE ARCH (14-10" SPAN BY 9'-1" RISE) WITH STEEL SHEET HEAD WALLS. POSTED LOAD LIMIT IS 16/48/56.



PROFILE

GUARDRAIL LAYOUT			
LEFT		RIGHT	
STATION	COMMENT	STATION	COMMENT
9+40.2	TYPE B APPROACH TERMINAL (50')	**9+76.5	START TYPE B, 3'-1.5" POST SPA.
*9+79.6	START TYPE B, 3'-1.5" POST SPA.	9+89.0	START CULV. POSTS 3'-1.5" SPA.
9+98.4	START CULV. POSTS 3'-1.5" SPA.	10+01.5	END CULV. POSTS 3'-1.5" SPA.
10+10.9	END CULV. POSTS 3'-1.5" SPA.	10+04.6	START CULV. POSTS 3'-1.5" SPA.
10+14.0	START CULV. POSTS 3'-1.5" SPA.	10+14.0	TYPE B APPROACH TERMINAL (50')
10+29.6	START CULV. POSTS 6'-3" SPA.		
10+42.1	TYPE B APPROACH TERMINAL (50')		

*STATIONING AT CURVED CENTERLINE ALIGNMENT
**APPROXIMATE END OF EX. THRIE BEAM TRANSITION

HAMLIN TOWNSHIP

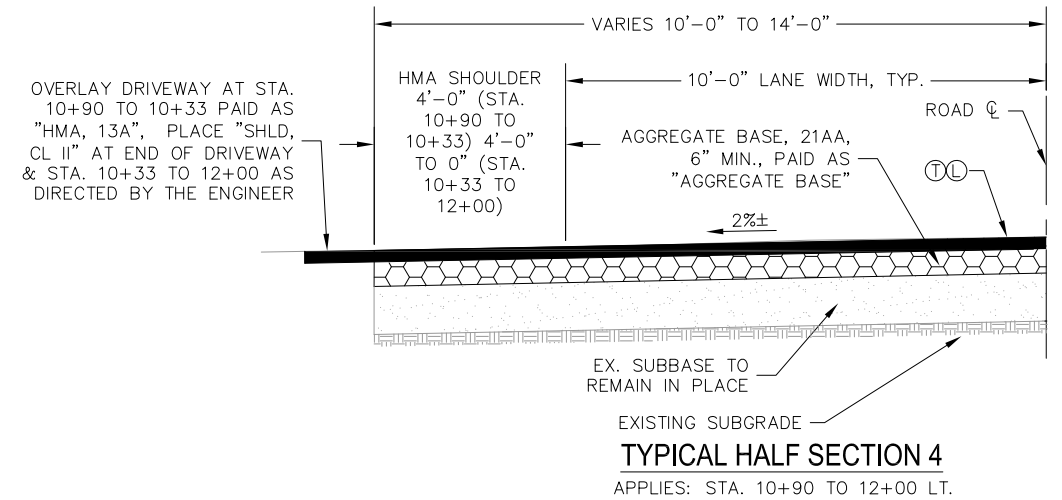
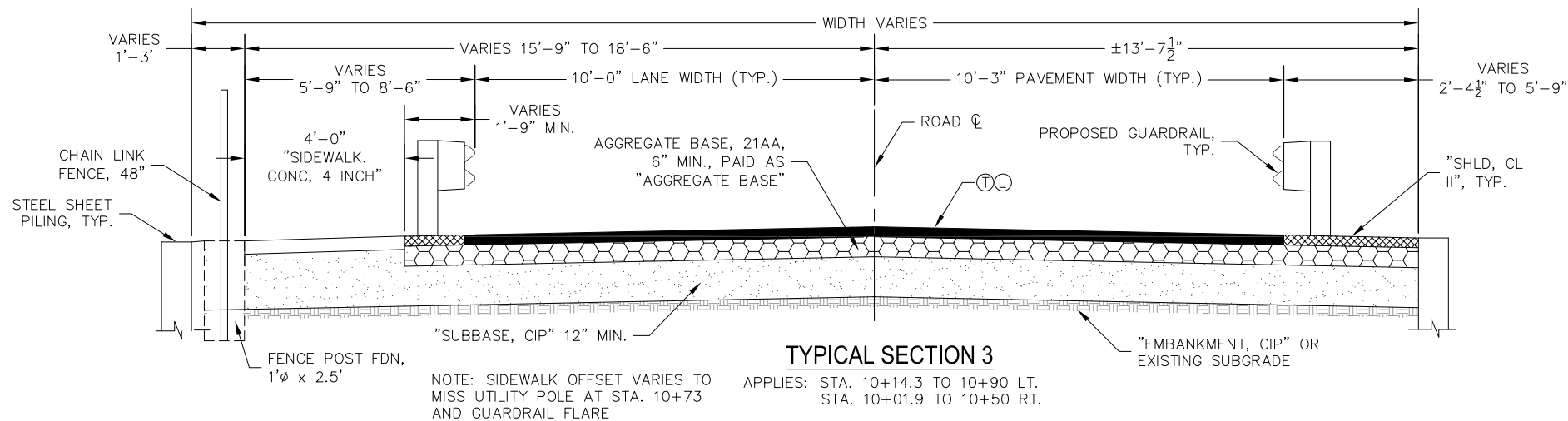
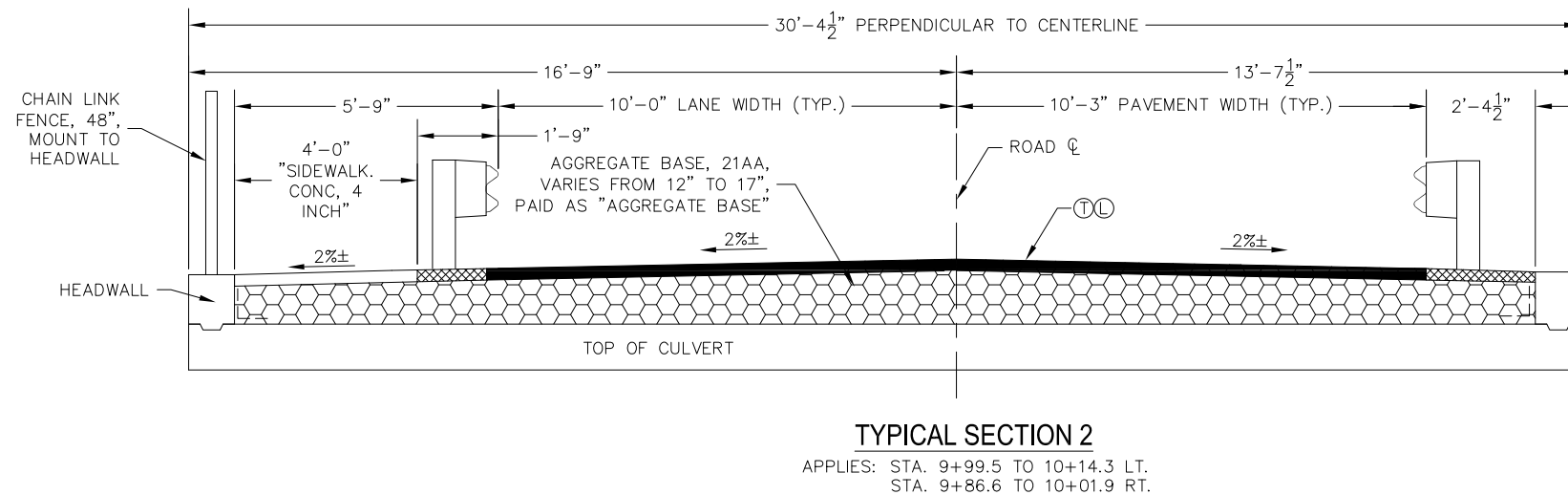
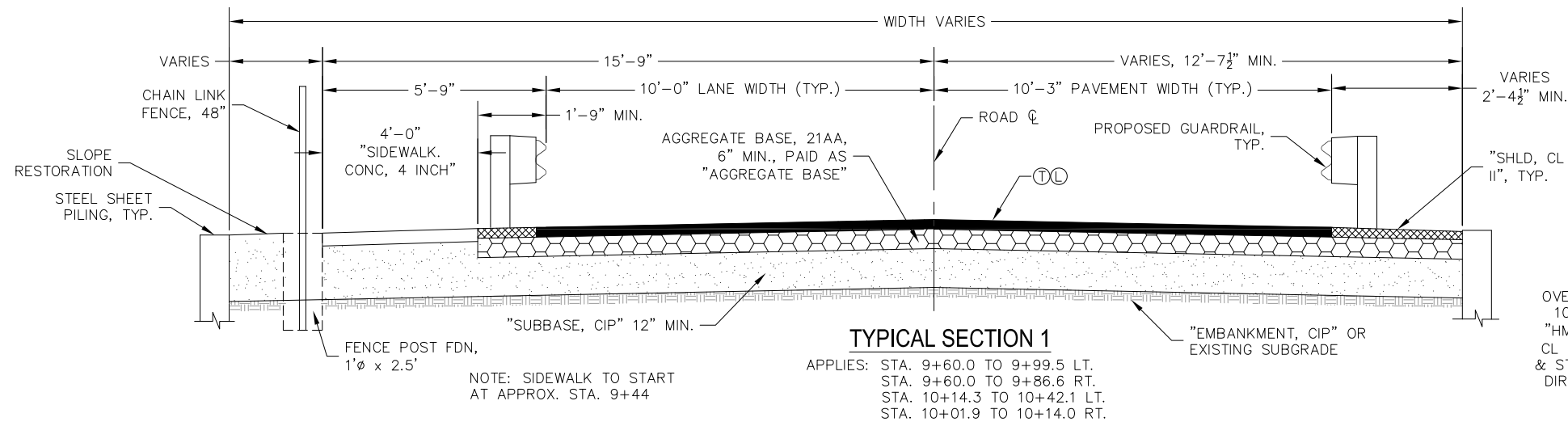
GENERAL PLAN OF SITE
LAKESHORE DRIVE
OVER SOUTH BAYOU

SCECO

SCOTT CIVIL ENGINEERING COMPANY
GRAND RAPIDS, MICHIGAN

DRAWN AE CHECKED RTW DATE 9/14/2024

Issued On:02/15/2024
Expires On:02/15/2029



NOTES:

PAY QUANTITIES FOR THE ITEMS "EXCAVATION, EARTH", "EMBANKMENT, CIP", AND "SUBBASE, CIP" SHALL BE BASED ON PLAN QUANTITY EXCEPT IN THE CASE OF A DESIGN CHANGE OR DEMONSTRATED ERROR.

PRIOR TO PLACEMENT OF SUBBASE AND EMBANKMENT, TOPSOIL, VEGETATION, AND GRAVEL SHALL BE STRIPPED IN ACCORDANCE WITH THE 2020 MDOT STANDARD SPECIFICATIONS SECTION 205.03. TOPSOIL AND GRAVEL STRIPPING WILL NOT BE PAID FOR SEPARATELY, BUT IS INCLUDED IN THE ITEM "EXCAVATION, EARTH". THE ENGINEER ESTIMATED THE STRIPPING QUANTITY USING A DEPTH OF 6".

AGGREGATE BASE IS TO BE 21AA IN ACCORDANCE WITH SECTION 902 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

SAW CUTTING OF EXISTING PAVEMENT AT LIMITS OF PROJECT IS INCLUDED IN THE PAY ITEM "HMA, 13A".

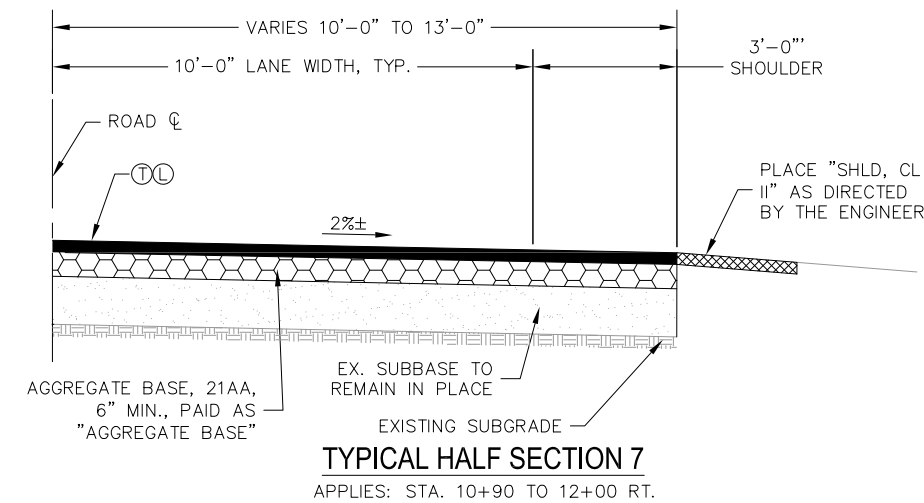
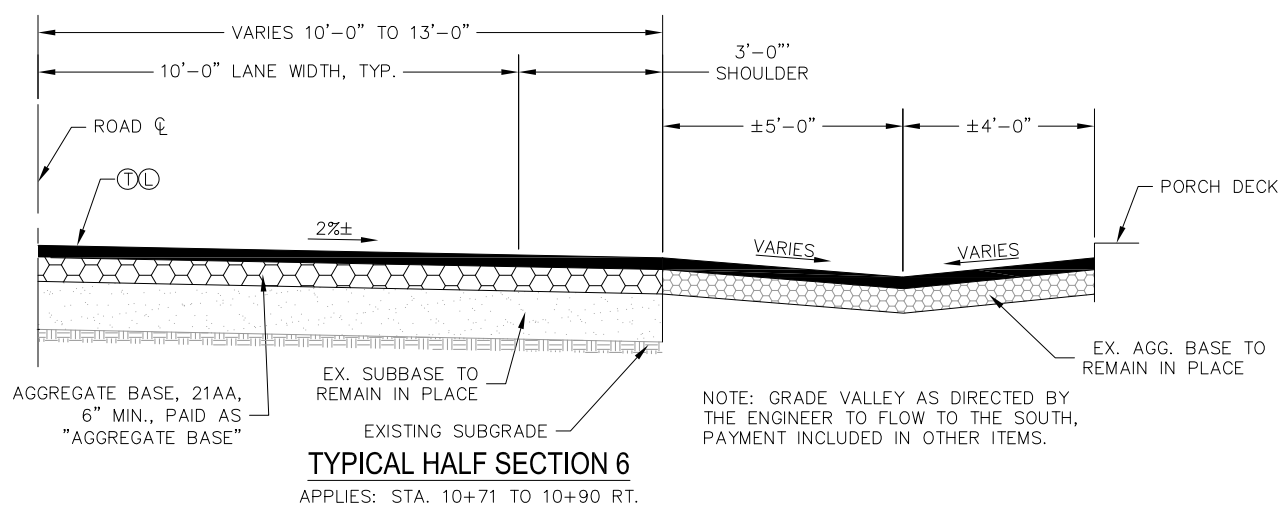
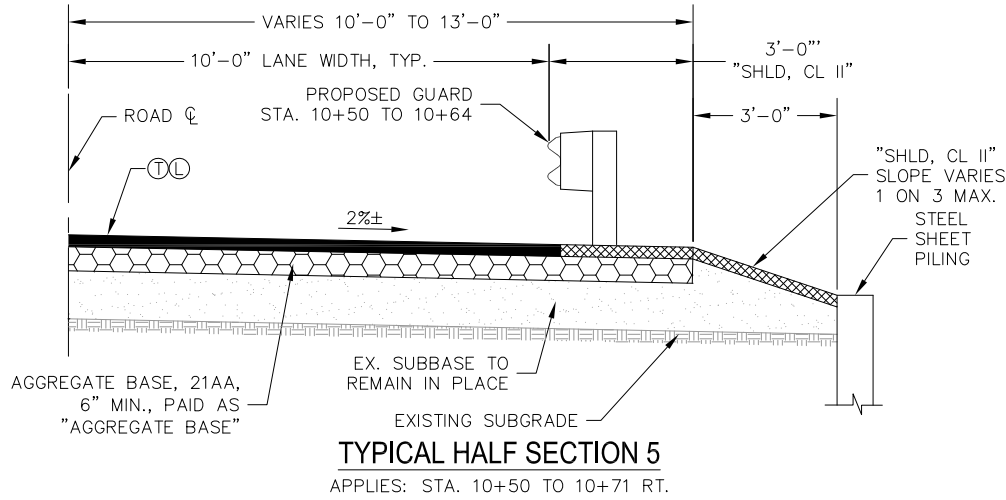
ALL HMA PAVEMENT IS PAID AS "HMA, 13A", REGARDLESS OF LOCATION PLACED.

SEED MIXTURE SHALL BE THM.

HMA APPLICATION TABLE				
IDENTIFICATION	REMARKS	PAY ITEM DESCRIPTION	RATE OF APPLICATION	PERFORMANCE GRADE
(T)	TOP COURSE	HMA, 13A	165 LB/SYD	58 – 28
(L)	LEVEL COURSE	HMA, 13A	165 LB/SYD	58 – 28
		HMA BOND COAT	0.05 – 0.15 GAL/SYD	

*WILL BE PAID FOR AS PART OF THE PAY ITEM HMA MIXTURE – NOT A PAY ITEM
NOTE: THE AGGREGATE WEAR INDEX SHALL BE A MINIMUM 220 FOR THE TOP COURSE

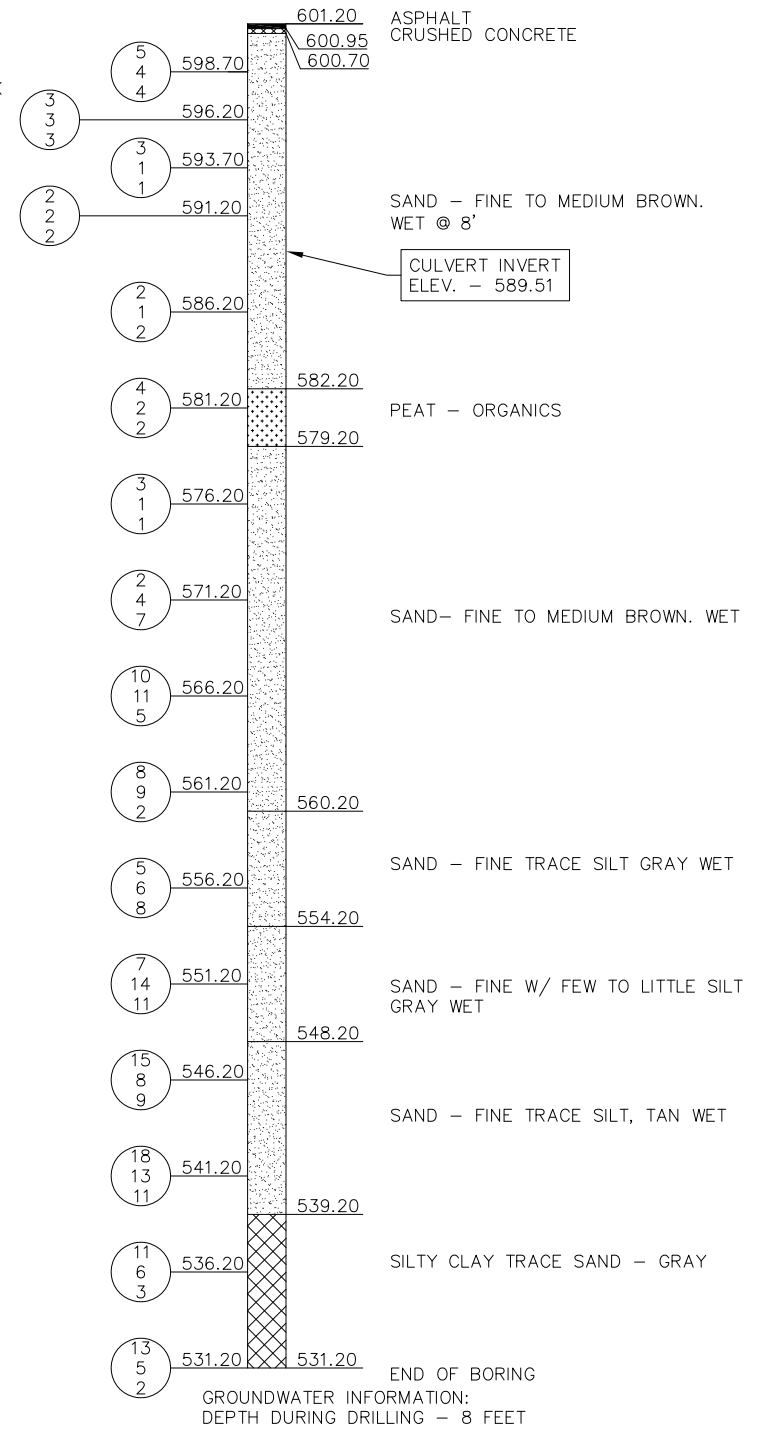
HAMLIN TOWNSHIP				
TYPICAL SECTIONS LAKESHORE DRIVE OVER SOUTH BAYOU				
				4
SCOTT CIVIL ENGINEERING COMPANY GRAND RAPIDS, MICHIGAN				15
DRAWN	AE	CHECKED	NNN	DATE 10/23/23



APPROACH QUANTITIES			
PAY ITEM CODE	DESCRIPTION	TOTAL	UNIT
1100001	Mobilization, Max_	LSUM	1
2020004	Tree, Rem, 6 inch to 18 inch	Ea	3
2040025	Fence, Rem	Ft	160
2040035	Guardrail, Rem	Ft	263
2050010	Embankment, CIP	Cyd	196
2050016	Excavation, Earth	Cyd	178
2050148	Flowable Fill, Non-Structural	Cyd	85
2080036	Erosion Control, Silt Fence	Ft	200
3010002	Subbase, CIP	Cyd	260
3020001	Aggregate Base	Ton	225
3070121	Shld, Cl II	Ton	20
5010033	HMA, 13A	Ton	130
8030044	Sidewalk, Conc, 4 inch	Sft	400
8070080	Guardrail Reflector	Ea	24
8077001	Guardrail, Type B, Modified	Ft	88
8077050	Guardrail Approach Terminal, Type 2B	Ea	3
8080011	Fence, Chain Link, 48 inch	Ft	150
8110232	Pavt Mrkg, Waterborne, 4 inch, Yellow	Ft	500
8162002	Slope Restoration, Non-Freeway, Type B	Syd	250

SOIL BORING

DATE OF BORING: 05/22/2023
LOCATION: 10' NORTH OF CULVERT EAST LANE



SOIL BORING NOTES

NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" OUTSIDE DIAMETER SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140# HAMMER FALLING 30".

BORINGS FOR SUBSURFACE SOIL CLASSIFICATIONS WERE MADE BY:

PEARSON DRILLING COMPANY
6100 W. BLUE RD.
LAKE CITY, MI 49651
PHONE: (231) 839-4444

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THE INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

HAMLIN TOWNSHIP

TYPICAL SECTIONS
LAKESHORE DRIVE
OVER SOUTH BAYOU

SCCO

SCOTT CIVIL ENGINEERING COMPANY
GRAND RAPIDS, MICHIGAN

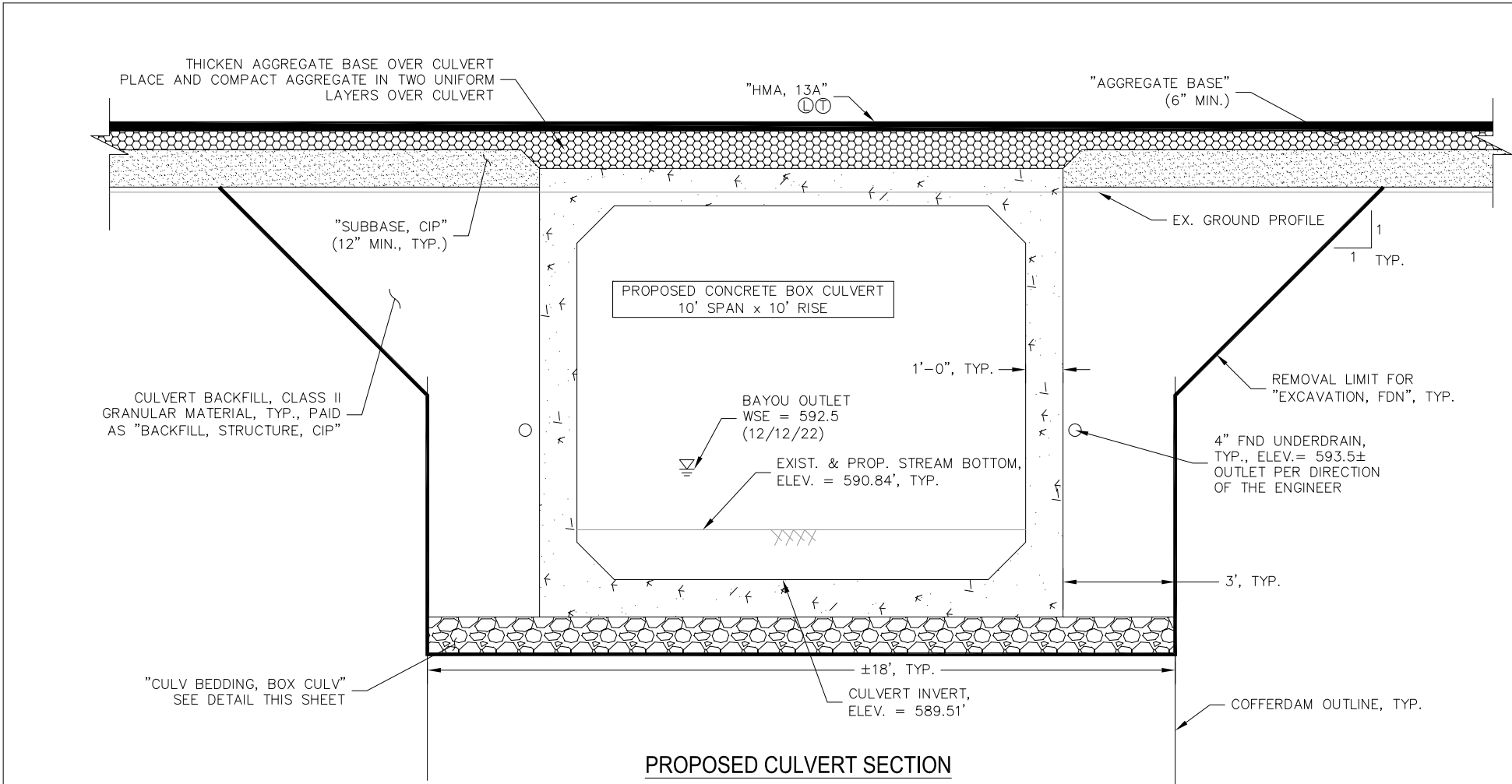
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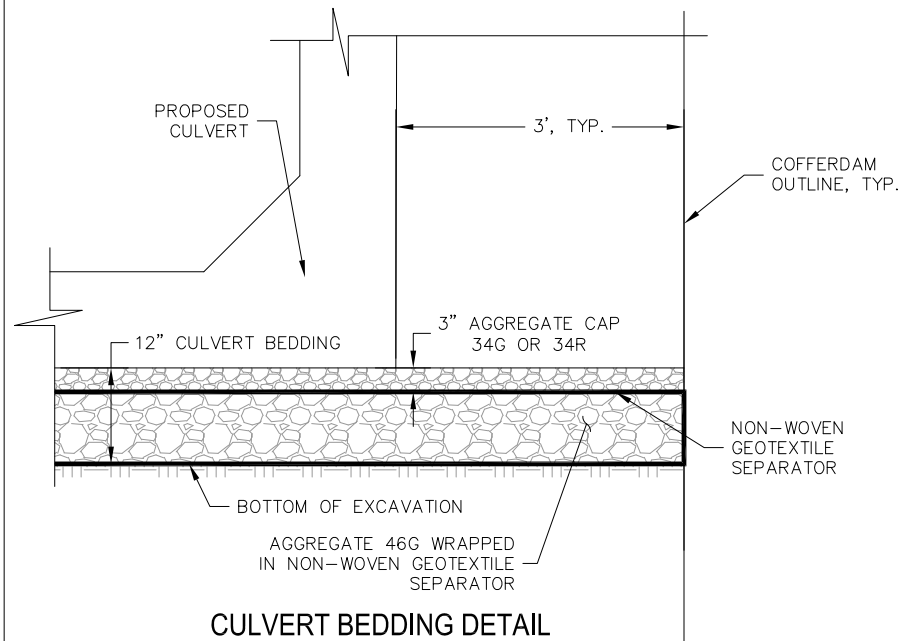
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Issued On:02/15/2024

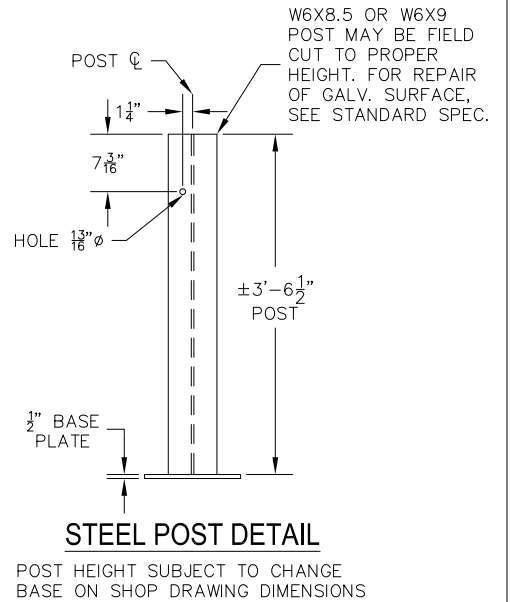
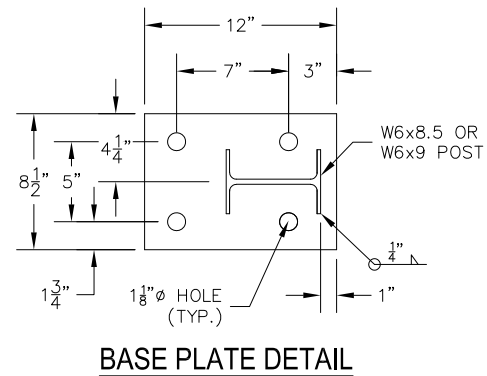
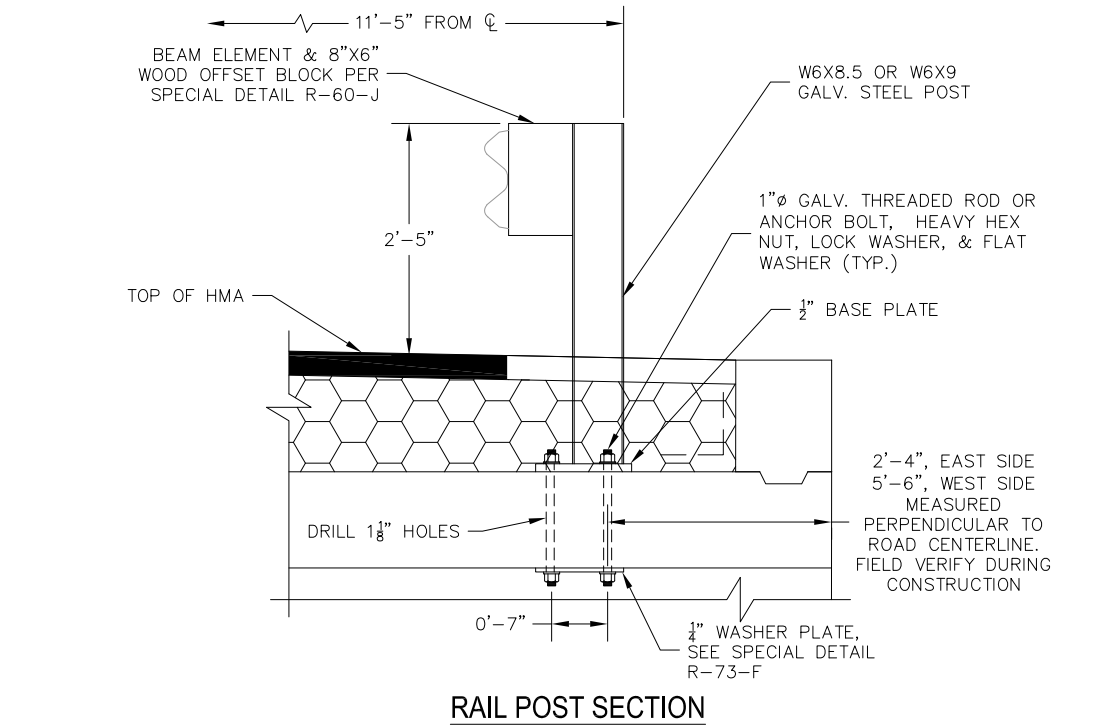
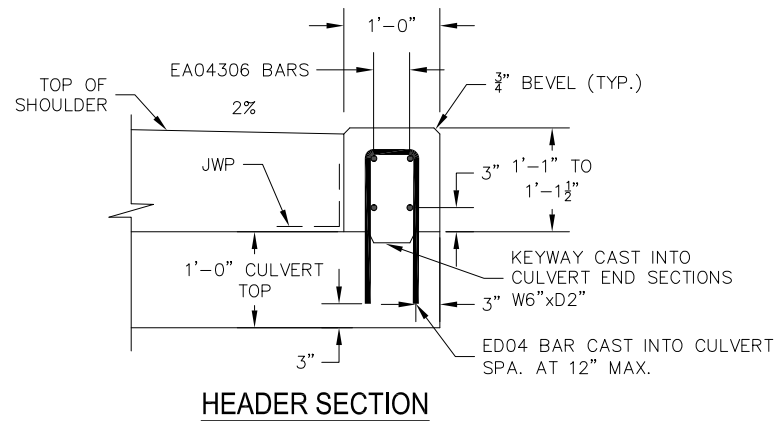
Expires On:02/15/2029



NOTE: OUTLET FOUNDATION UNDERDRAIN PER DIRECTION OF THE ENGINEER

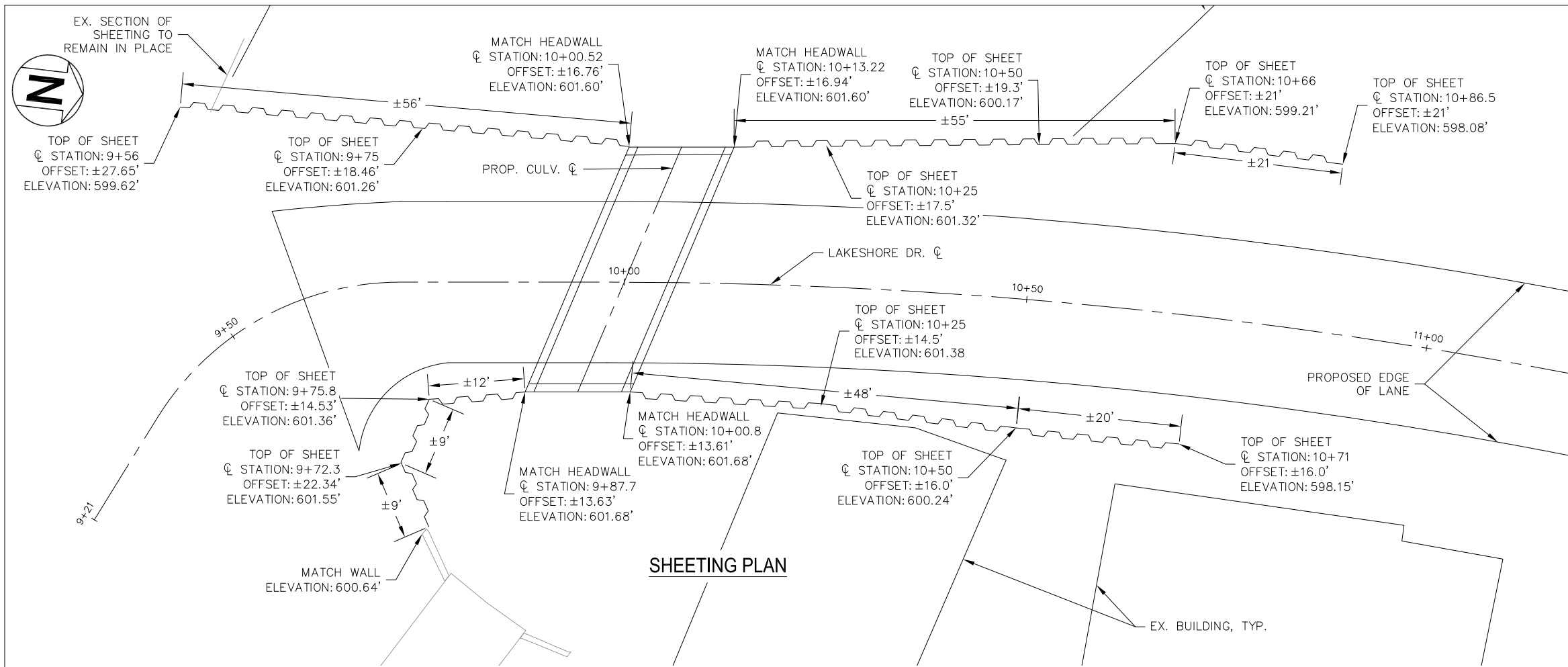


AGGREGATE 46G AND 34G OR 34R ARE NOT PAID FOR SEPARATELY BUT INCLUDED IN ITEM "CULV, BEDDING, BOX CULV"

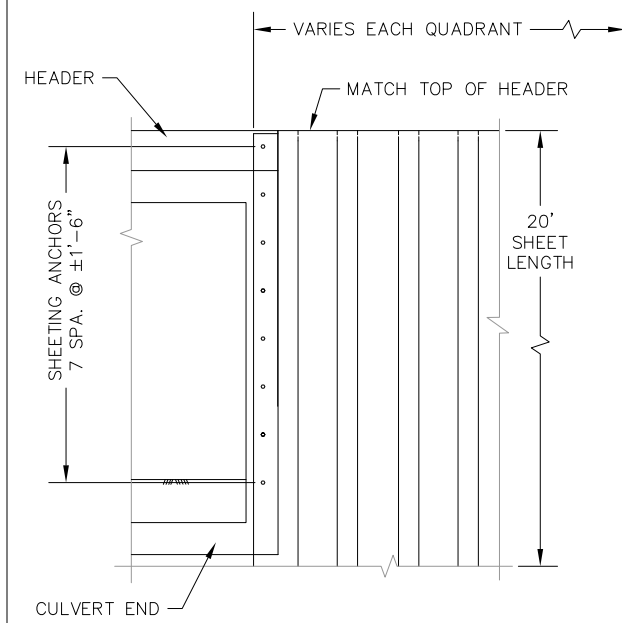


STRUCTURE QUANTITIES			
PAY ITEM NO.	ITEM OF WORK	UNIT	TOTAL
2040060	Structures, Rem	LSum	1
2060002	Backfill, Structure, CIP	Cyd	135
2060010	Excavation, Fdn	Cyd	210
2080014	Erosion Control, Filter Bag	Ea	2
2080042	Erosion Control, Turbidity Curtain, Deep	Ft	200
3082000	Geotextile, Separator, Non-Woven	Sft	1410
4040031	Underdrain, Fdn, 4 inch	Ft	300
4040091	Underdrain Outlet, 4 inch	Ft	40
4040111	Underdrain, Outlet Ending, 4 inch	Ea	4
4060005	Culv Bedding, Box Culv	Cyd	25
4060134	Culv, Precast Conc Box, 10 foot by 10 foot	Ft	33
7040001	Steel Sheet Piling, Permanent	Sft	3500
7040007	Cofferdams	LSum	1

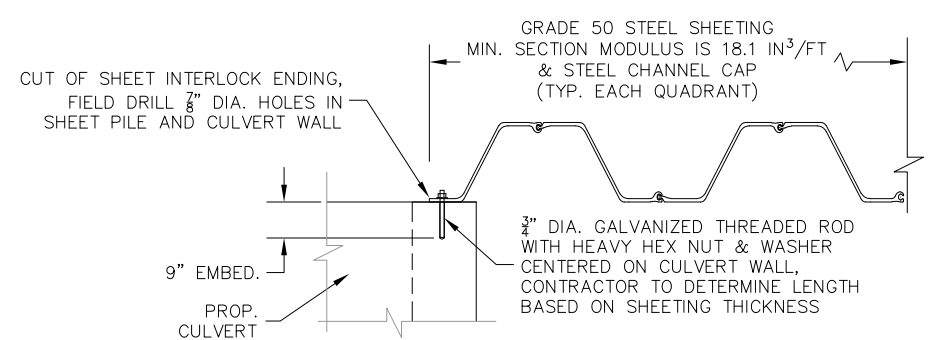
HAMLIN TOWNSHIP			
GENERAL PLAN OF STRUCTURE LAKESHORE DRIVE OVER SOUTH BAYOU			
SCCECO		7	
SCOTT CIVIL ENGINEERING COMPANY		15	
GRAND RAPIDS, MICHIGAN		10/23/2024	
DRAWN	AE	CHECKED	NNN



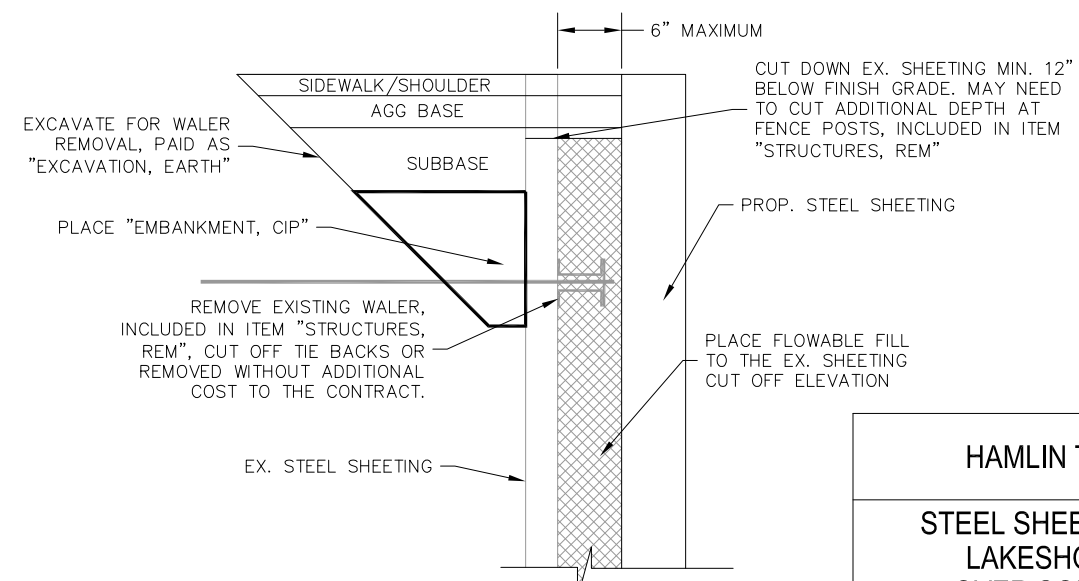
SHEETING PLAN



SHEET PILE WALL ELEVATION



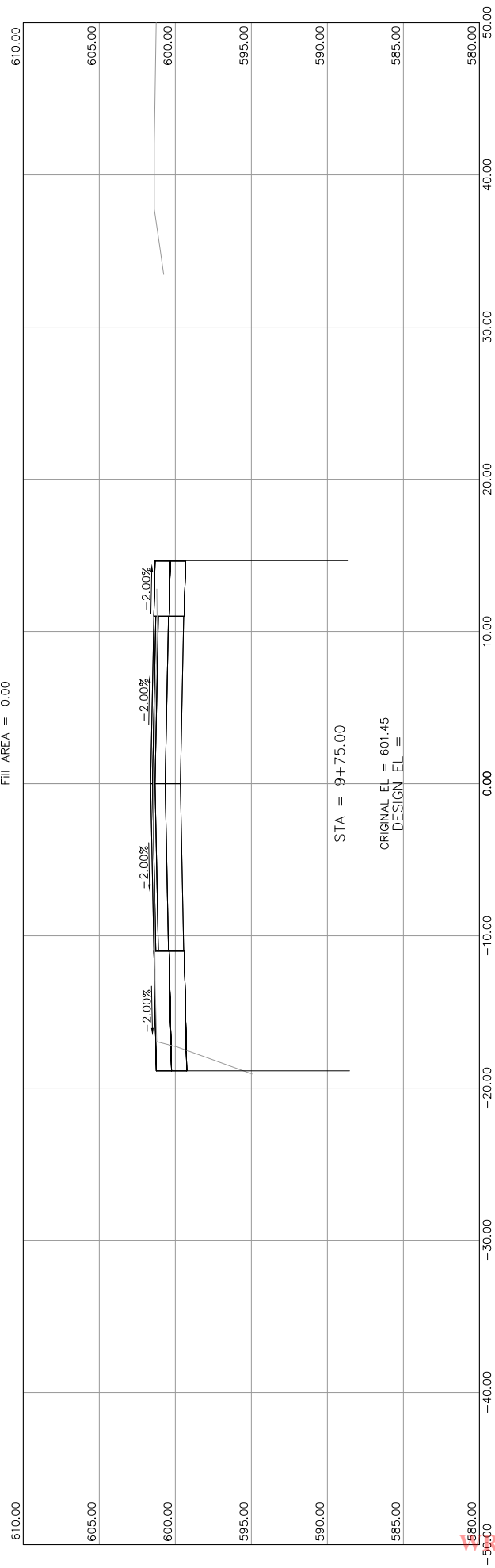
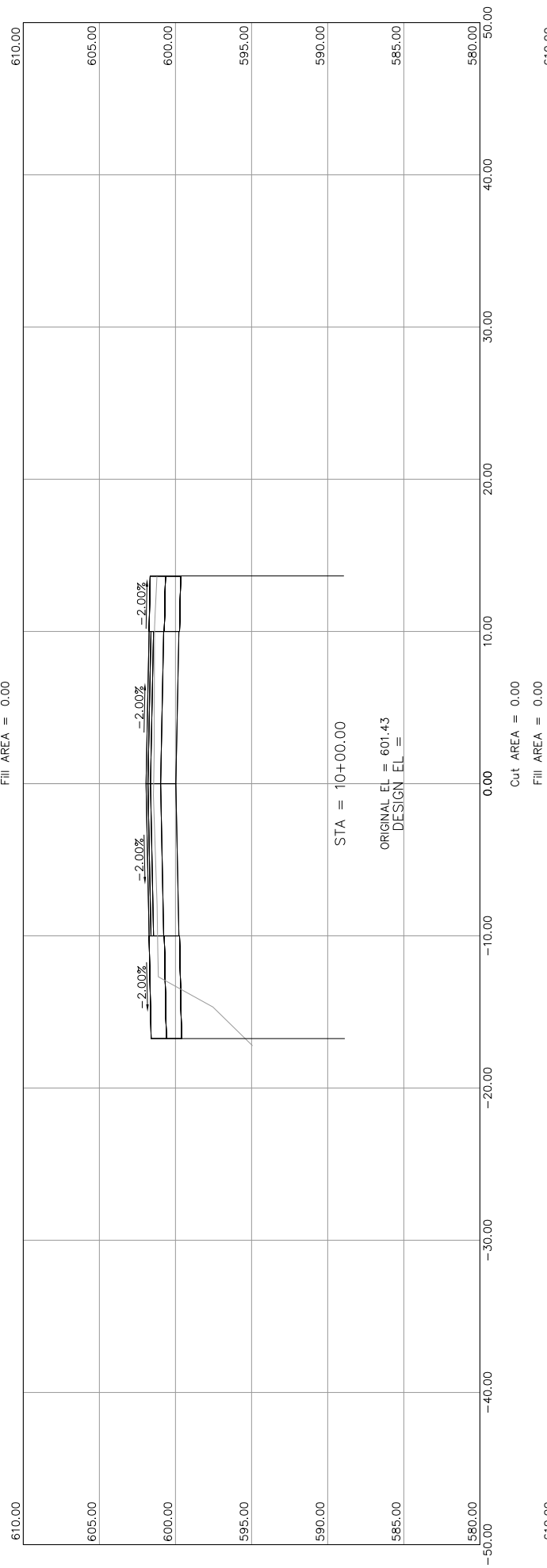
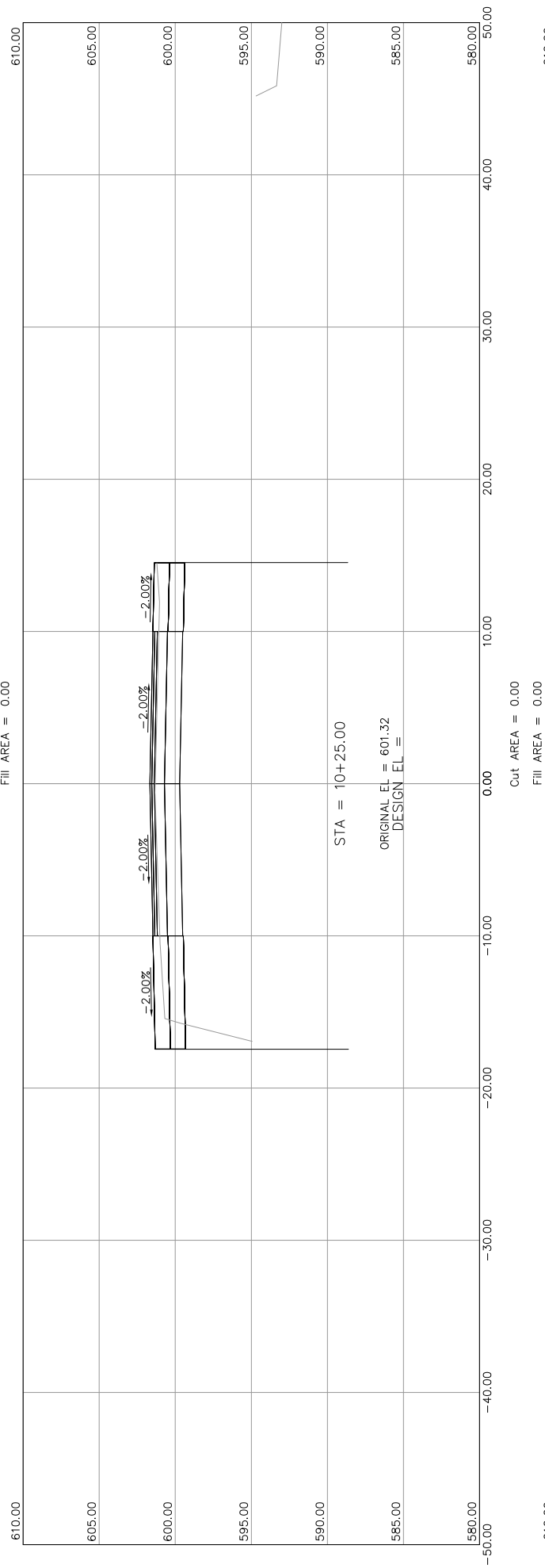
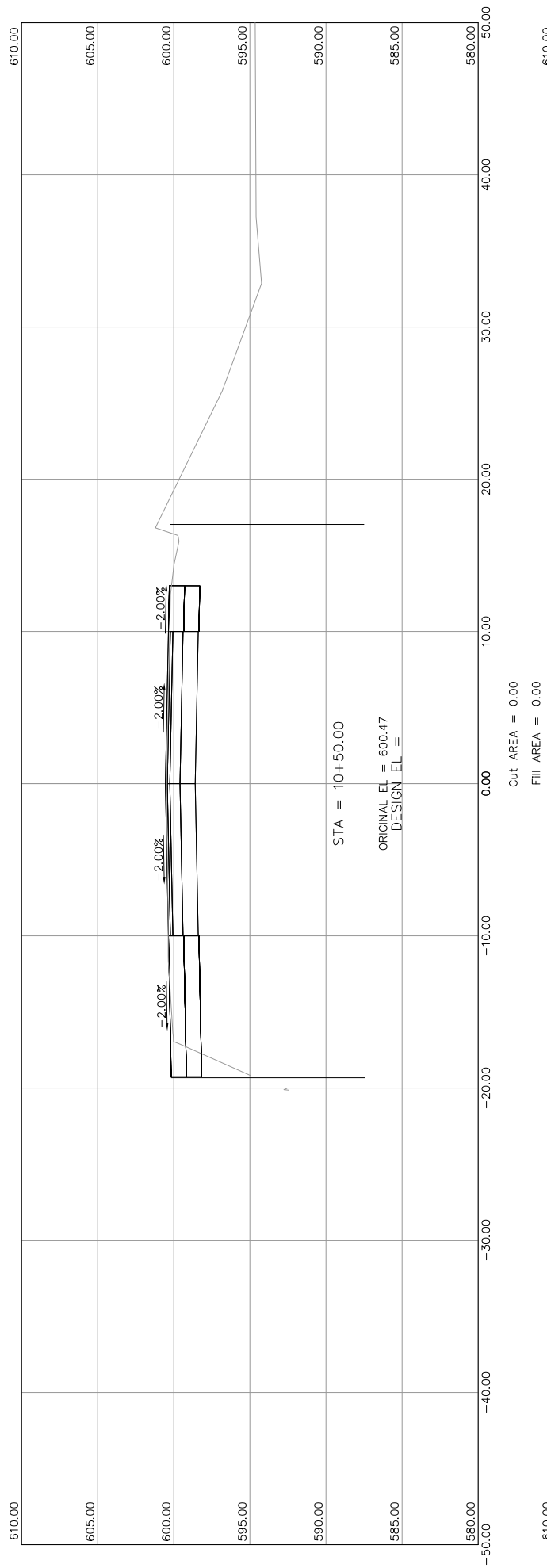
SHEET PILE WALL CULVERT CONNECTION DETAIL

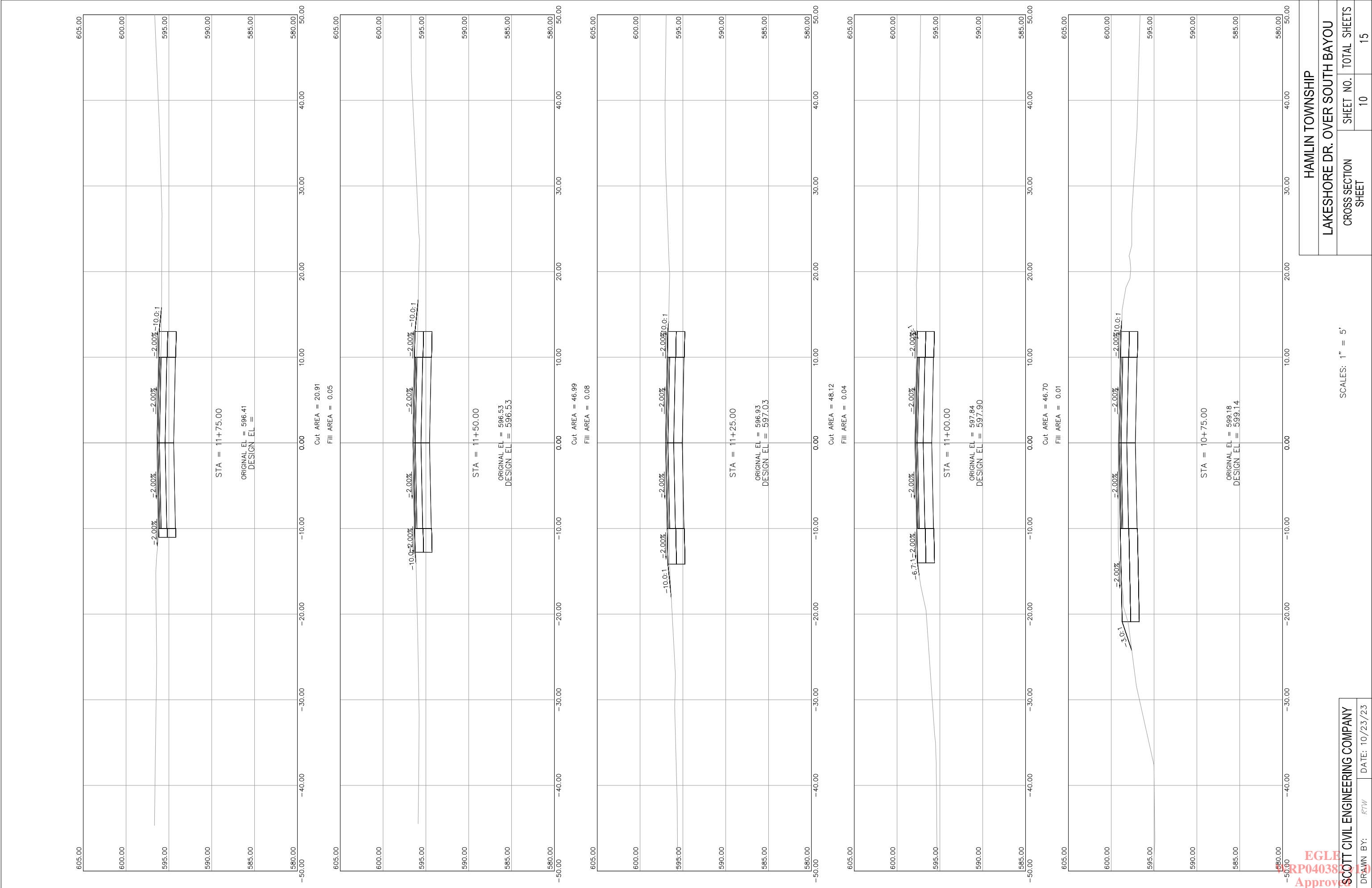


TYP. SHEET WALL SECTION

HAMLIN TOWNSHIP			
STEEL SHEETING LAYOUT LAKESHORE DRIVE OVER SOUTH BAYOU			
SCCECO SCOTT CIVIL ENGINEERING COMPANY GRAND RAPIDS, MICHIGAN			8
DRAWN	AE	CHECKED	NNN
DATE			10/23/23

Issued On:02/15/2024
Expires On:02/15/2029



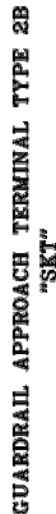


SEE US DURING 1:50 FLARE



OPTION 1
(DETAILED ON SHEETS 1 THROUGH 4)

* SEE STANDARD PLAN B-60-SERIES FOR POST SPACING AND GUARDRAIL LAYOUT TO TRANSITION FROM GUARDRAIL, TYPE WGS-8 TO GUARDRAIL APPROACH TERMINAL TYPE 2B



GUARDRAIL APPROACH
TERMINAL TYPES 2B & 2T
(SKT & ET-PLUS)

R-62-H-LAP	SHEET 1 OF 3
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GENERAL APPROACH TERMINAL TYPE 2T



**GUARDRAIL APPROACH
TERMINAL TYPES 2B & 2T
(SKT & ET-PLUS)**

R-62-H-LAP	SHEET 2 OF 1
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HAMLIN TOWNSHIP

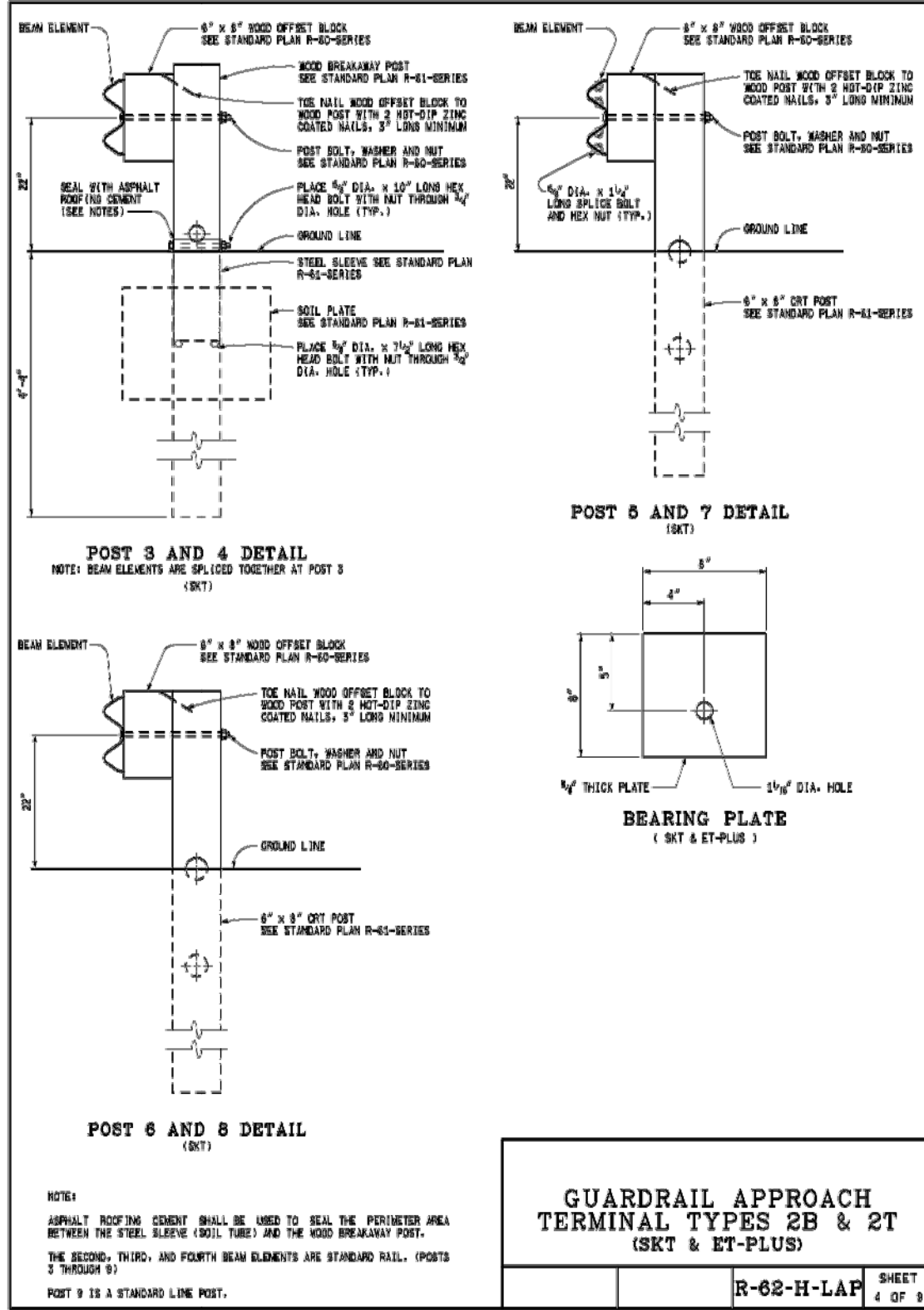
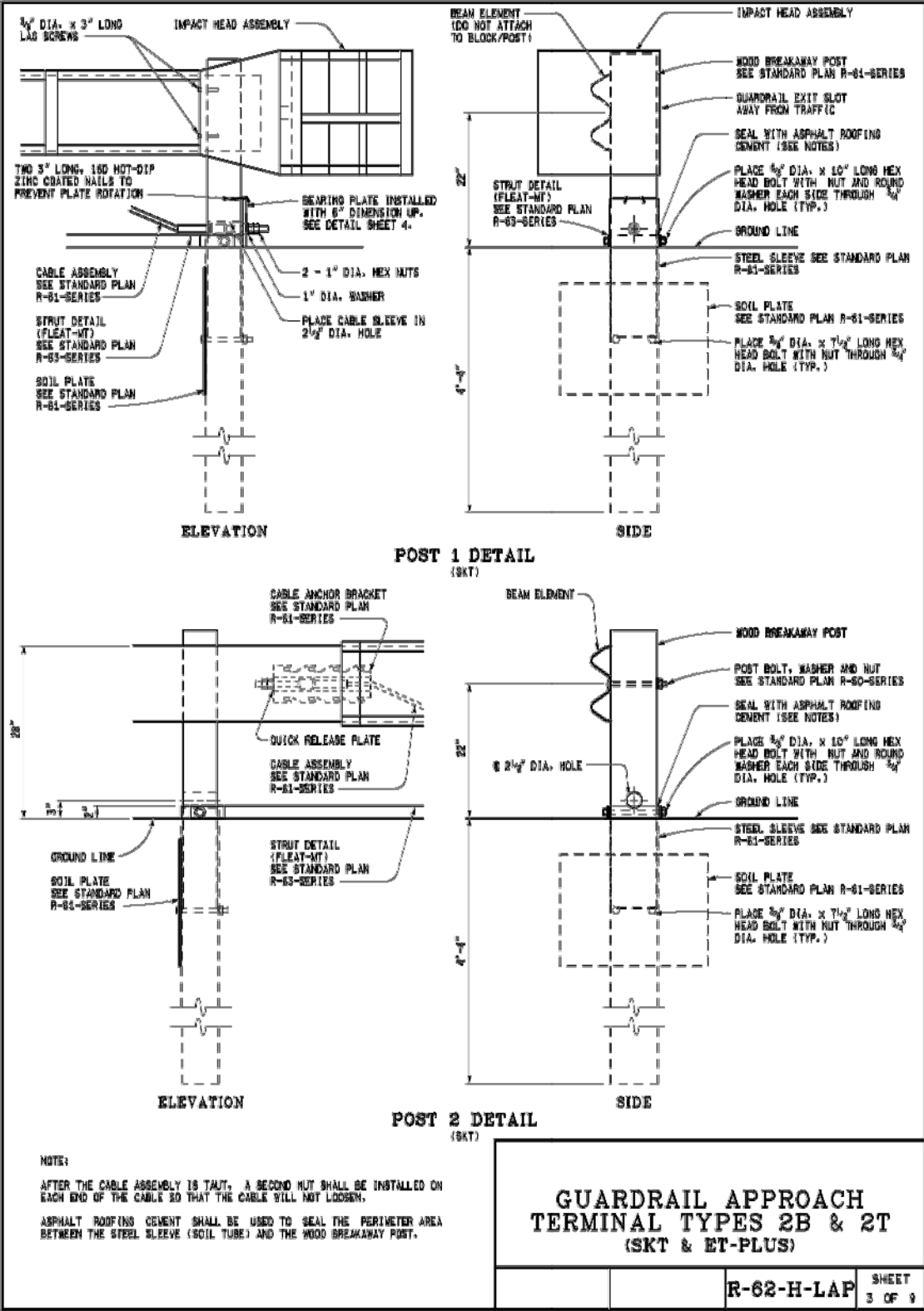
GUARDRAIL DETAILS
LAKESHORE DRIVE
OVER SOUTH BAYOU

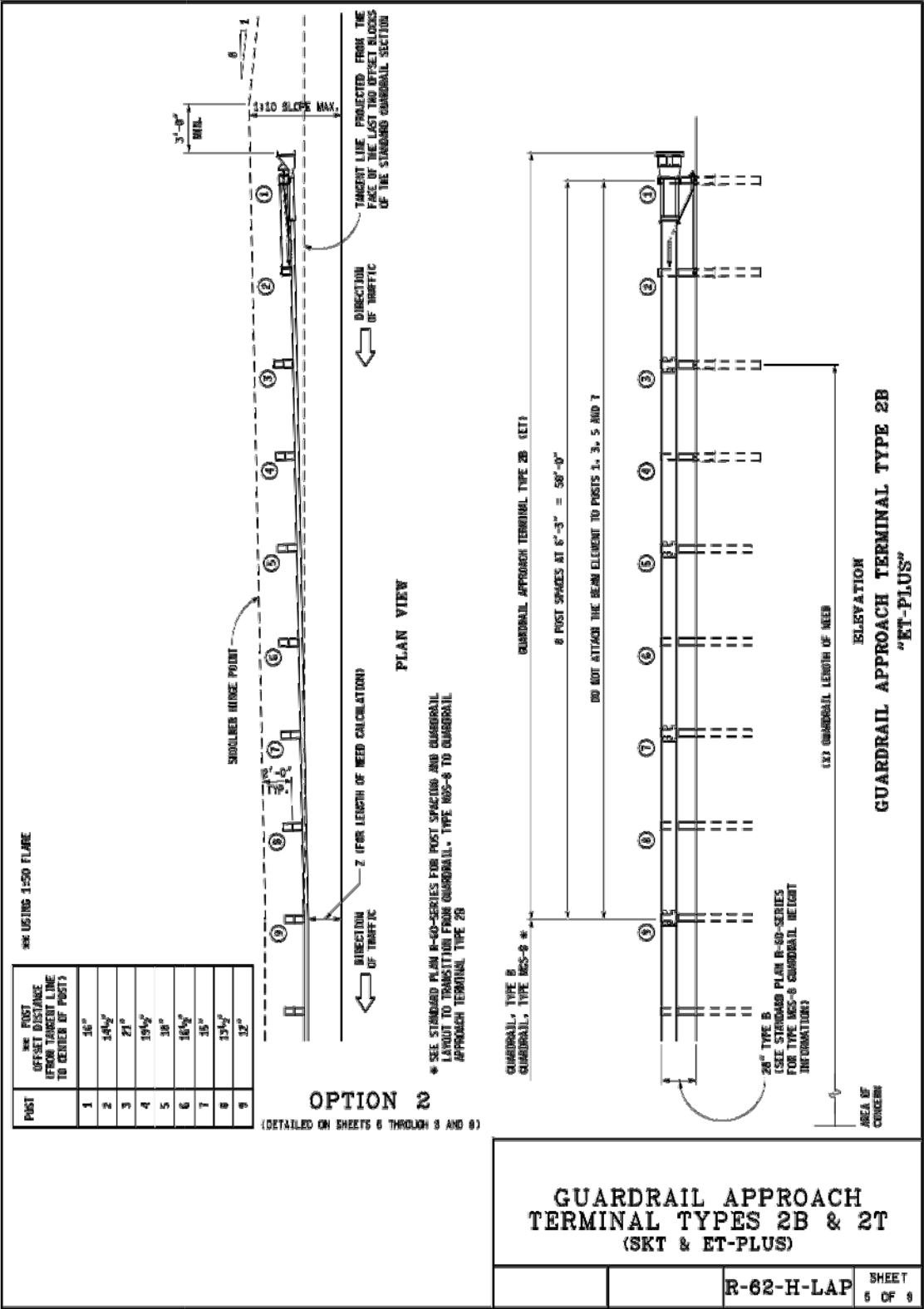
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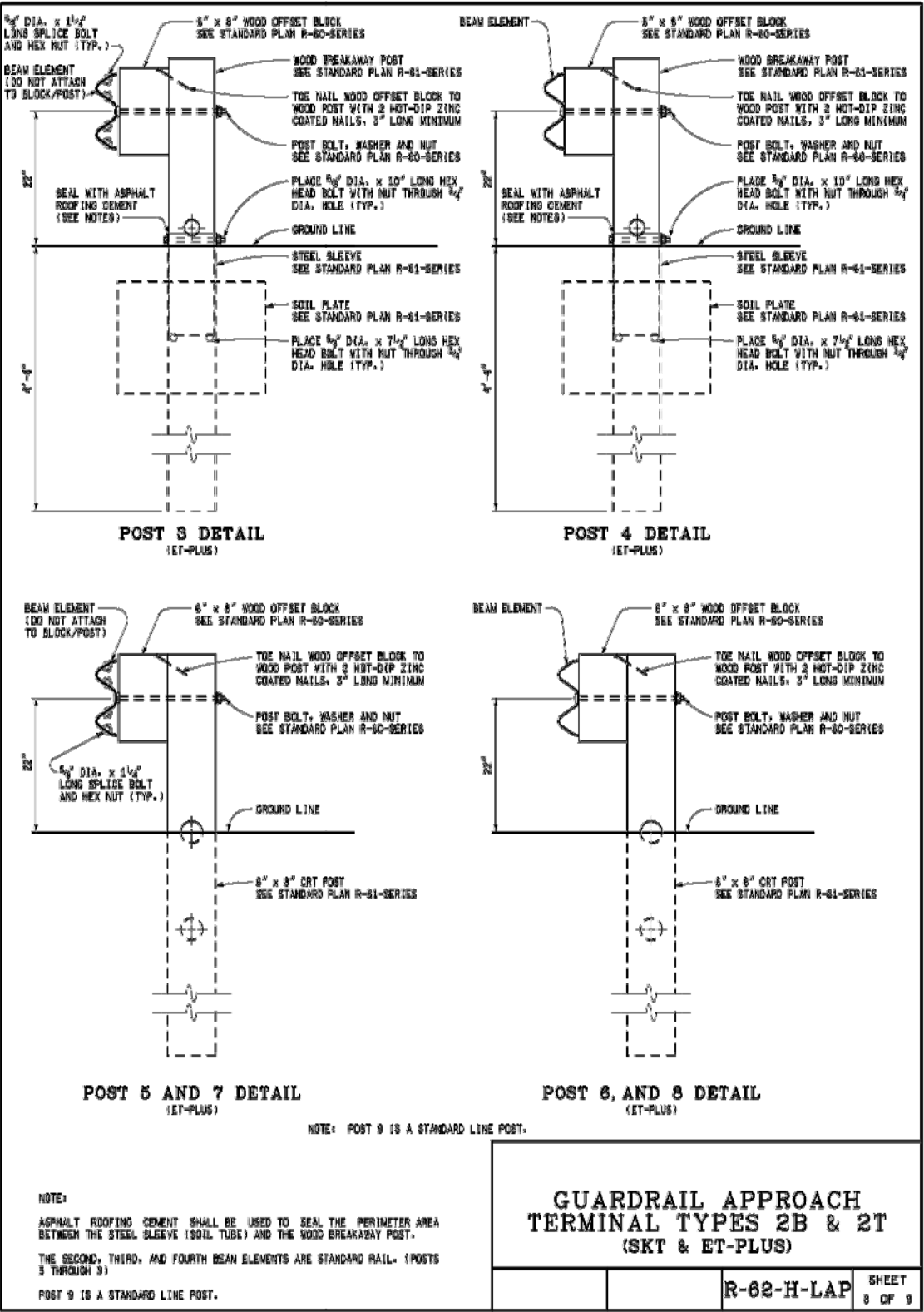
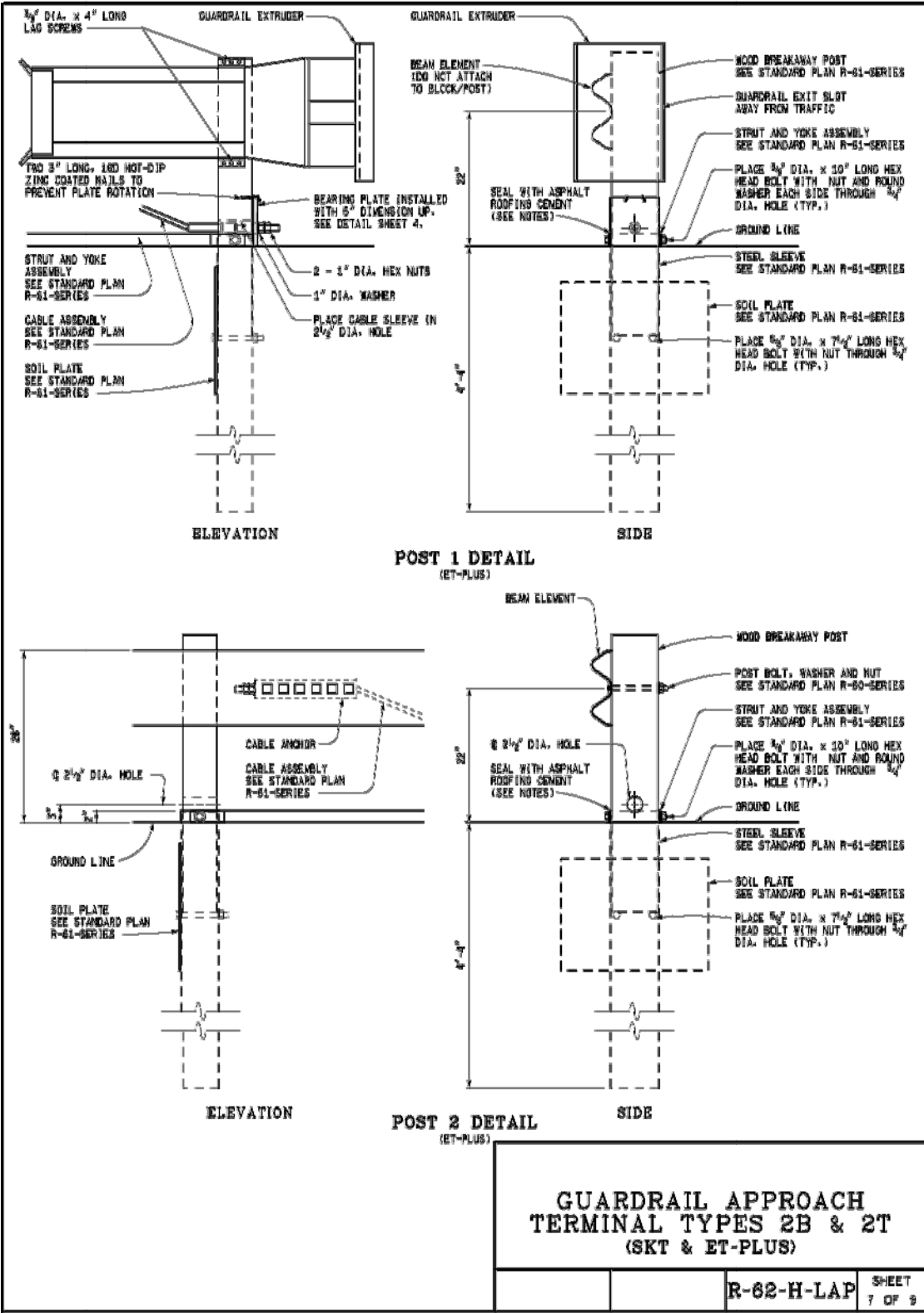
SCOTT CIVIL ENGINEERING COMPANY
GRAND RAPIDS, MICHIGAN

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Issued On:02/15/2024
Expires On:02/15/2025







HAMLIN TOWNSHIP

GUARDRAIL DETAILS
LAKESHORE DRIVE
OVER SOUTH BAYOU

SCECO

SCOTT CIVIL ENGINEERING COMPANY
GRAND RAPIDS, MICHIGAN

DRAWN *AE* CHECKED *NNN* DATE 10/19/23

Issued On:02/15/2024

Expires On:02/15/2029

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NOTES:

ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, AND HARDWARE (INCLUDING BOLTS, NUTS, AND WASHERS) SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND TO THE CURRENT STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

ALL 1:10 SLOPES SHALL BE GRADED TO CLASS A SLOPE TOLERANCES.

WHEN SITE CONDITIONS WARRANT AND WITH THE APPROVAL OF THE ENGINEER, GUARDRAIL APPROACH TERMINAL TYPES 2B & 2T CAN BE INSTALLED STRAIGHT WITHOUT THE 1'-0" OFFSET FROM THE TANGENT LINE TO THE TRAFFIC FACE OF POST 1).

GUARDRAIL REFLECTORS AND OTHER ATTACHMENTS ARE NOT TO BE USED ON THE GUARDRAIL APPROACH TERMINAL. PLACE REFLECTORS BEGINNING ON STANDARD RUN OF GUARDRAIL.

USE REFLECTIVE SHEETING ACCORDING TO THE FOLLOWING TRAFFIC CONDITIONS:
(NOTE: ALTERNATE 3" BLACK AND 3" YELLOW STRIPES ON A 45° ANGLE)



TRAFFIC PASSING ON
THE LEFT SIDE



TRAFFIC PASSING ON
BOTH SIDES



TRAFFIC PASSING ON
THE RIGHT SIDE

THE PORTION OF THE IMPACT HEAD ASSEMBLY FACING TRAFFIC SHALL BE COMPLETELY COVERED WITH HIGH INTENSITY ADHESIVE REFLECTIVE SHEETING.

GUARDRAIL APPROACH
TERMINAL TYPES 2B & 2T
(SKT & ET-PLUS)

		R-62-H-LAP	SHEET 8 OF 8
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HAMLIN TOWNSHIP			
GUARDRAIL DETAILS LAKESHORE DRIVE OVER SOUTH BAYOU			
 SCOTT CIVIL ENGINEERING COMPANY GRAND RAPIDS, MICHIGAN			15
DRAWN	AE	CHECKED	MMN
DATE 10/19/23			15

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
NON-STRUCTURAL FLOWABLE FILL

CFS:TES

1 of 1

APPR:DMG:TEB:04-01-21

a. Description. This work consists of furnishing and placing non-structural flowable fill for abandoning pipes and miscellaneous structures; constructing miscellaneous bulkheads or forms; and backfilling. This specification is not intended to address flowable fill used as structural backfill.

b. Materials. Supply non-structural flowable fill consisting of a mixture of Portland cement, fly ash, sand (2NS) and water. Use materials in accordance with the standard specifications except as modified by this special provision. All non-structural flowable fill once cured is intended to be removable using conventional mechanical excavation methods.

Use either Type I or IA Portland cement in accordance with section 901 of the Standard Specifications for Construction and Class F or C fly ash as specified by *ASTM C618* except that there is no limit on loss on ignition.

Produce a mix of cement, fly ash, sand, and water in the following proportions.

Portland Cement	50 pounds per cubic yard (lb/cyd)
Fly Ash	500 lb/cyd
Sand	2850 lb/cyd
Water	376 lb/cyd, approximately (sufficient to produce desired flowability)

c. Construction. Produce and deliver the non-structural flowable fill at a minimum temperature of 50 degrees Fahrenheit (F). Transport mixture to the point of placement in a revolving drum mixer or agitator.

Secure all pipes and conduits within the backfill area to counteract the buoyant effect of non-structural flowable fill. Place the material evenly around manholes and in utility trenches to avoid dislocating pipes and conduits.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Flowable Fill, Non-Structural.....	Cubic Yard

Flowable Fill, Non-Structural includes supplying and placing flowable fill for the purpose of abandoning pipes and miscellaneous structures and includes any necessary miscellaneous bulkheads for forms.

MASON COUNTY ROAD COMMISSION
SPECIAL PROVISION
FOR
HOT MIX ASPHALT (HMA) APPLICATION ESTIMATE

MCRC:SCECO:RTW

1 of 1

1/23/24

a. Description. Perform work in accordance with the requirements of Section 501 of the Michigan Department of Transportation (MDOT) 2020 Standard Specifications for Construction except as herein specified.

b. Materials. Materials shall meet the requirements as specified in Section 501 and Sections 902 and 904 of the MDOT Standard Specifications for Construction, except that the minimum application rate shall be 165 pounds per square yard for HMA, 13A. Hot mix asphalt is to be applied in lifts as follows.

The top course shall be HMA, 13A and shall have a yield of 165 pounds per square yard.

The leveling course shall be HMA, 13A and shall have a yield of 165 pounds per square yard.

The Performance Grade asphalt binder range for all courses shall be 58-28.

The Bituminous Bond Coat material shall be per subsection 501.02. The uniform rate of application shall be 0.05 to 0.15 gallons per square yard.

The Aggregate Wear Index shall be a minimum of 220 for the top course.

c. Measurement and Payment. Measurement and Payment shall be at the contract unit price per ton. There will be no separate payment for the bond coat.

MASON COUNTY ROAD COMMISSION

SPECIAL PROVISION
FOR

MODIFIED GUARDRAIL

MCRC:SCECO:RTW

1 of 1

1/23/24

a. Description. This work consists of providing all labor, equipment, and materials necessary to furnish and erect the guardrail in accordance with sections 807 of the Standard Specifications for Construction and as described herein, Special Details, and the project plans.

b. Materials. Use materials in accordance with subsection 807.02 of the Standard Specifications for Construction.

c. Construction. Use construction methods in accordance with subsections 807.03 of the Standard Specifications for Construction.

Install Guardrail, Type B, Modified according to Special Detail R-60-J and R-73-F with 3' – 1 ½" post spacing on and off the culvert. Four posts shall be attached to the culvert top along each side.

Install Guardrail Approach Terminal, Type 2B at the locations shown on the plans and according to R-62-H-LAP included on the plans.

Contractor to verify if a shop bent panel is needed in the southeast quadrant for attaching to the existing curved guardrail.

d. Measurement and Payment. The complete work as measured for "Guardrail Type B, Modified" and "Guardrail Approach Terminal, Type 2B" will be paid for at the contract unit price for the following contract pay item and includes all material, equipment, and labor to complete this item.

Contract Item (Pay Item)	Pay Unit
Guardrail Type B, Modified	Each
Guardrail Approach Terminal, Type 2B	Each

All work to furnish, fabricate, and install the culvert-mounted posts is included in item "Guardrail Type B, Modified"

MASON COUNTY ROAD COMMISSION

SPECIAL PROVISION
FOR
GALVANIZED CHAIN LINK FENCE

SCECO/RTW

1 of 1

1/23/24

a. Description. This work consists of providing all labor, equipment, and materials necessary to furnish and erect galvanized chain link fence in accordance with section 808 of the Standard Specifications for Construction, surface mounting details on the plans and as directed by the Engineer.

b. Materials. Meet the requirements in subsection 907.04 of the Standard Specifications for Construction with the exception that the chain link fence must be 48-inch hot-dipped galvanized coating.

1. Fabric. The galvanized steel chain link fence must meet the requirements of *ASTM F 668 Class 2b*. The core must be 0.148 inches in diameter. The mesh size must be 2 inch.

2. Posts, Mounting Bracket, Frames, and Top Rail. Must be hot-dipped galvanized. Posts shall be 1 7/8" diameter and top rail 1 5/8".

3. Concrete footings shall meet MDOT grade 3500 mix.

Provide a general certification that the materials provided meet the requirements stated above. The Department will conduct acceptance testing in accordance with subsection 907.02 of the Standard Specifications for Construction.

c. Construction. Conduct the work in accordance with section 808 of the Standard Specifications for Construction and mounting details on the plans. Embed each post in 1 foot diameter by 3 feet deep concrete footing with minimum post embedment of 2.5 feet. Space posts at 6 feet.

Electronically submit one complete set of manufacturer's specifications to the Engineer for approval at least 14 work days prior to fabrication of the materials. Do not fabricate any materials prior to receiving approval from the Engineer.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
Fence, 48 inch.....	Foot

MASON COUNTY ROAD COMMISSION

SPECIAL PROVISION
FOR
SHEETING TIE SYSTEM

SCECO/RTW

1 of 1

1/23/24

a. Description. This work consists of providing all labor, equipment, and materials necessary to furnish and erect salvaged walers and galvanized all-threaded rebar to support the steel sheeting walls with walers in accordance with section 704 of the Standard Specifications for Construction, as shown on the plans and as directed by the Engineer.

b. Materials. Meet the requirements in subsection 906 of the Standard Specifications for Construction and as listed herein.

1. All-Threaded Rebar and Accessories. Provide 1¼" nominal diameter all-threaded rod. Use stop-type couplings, heavy hex nuts washers, beveled washers, and jam nuts for waler connections. All hot-dipped galvanized per ASTM A123.
2. Walers. Use existing salvaged walers.
3. Addition Steel. Grade 36 steel. Walers C6x10.5 with 10"x10"x1/2" steel anchor plates.

c. Construction. Conduct the work in accordance with sections 704 and 707 of the Standard Specifications for Construction and details on the plans. Remove, salvage, and erect existing walers, tack weld to sheeting. Cut holes in sheeting at tie rod locations. Place threaded rod near the top of subgrade elevation, approximately 1.75 below the top of sheets. Use heavy hex nut with washers and beveled washers. Tension rods to snug-tight condition and add a jam nut before placing subbase and/or embankment material. Do not run equipment over exposed rods.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
Sheeting Tie System	LSum
Structural Steel, Furn, Fab, and Erect.....	Lb

Salvaging of existing walers, including cutting and removing existing sheeting, is included in the pay item "Structures, Rem".

The additional steel needed to complete the length of the proposed walers and bearing plates paid as "Structural Steel, Furn, Fab, and Erect", includes furnishing, fabricating, and erecting.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SLOPE RESTORATION, NON-FREEWAY

RSD:JLB

1 of 4

APPR:DMG:NJM:08-25-21

a. Description. This work consists of preparing all lawns and slopes on non-freeway projects designated for slope restoration on the plans or as directed by the Engineer and applying topsoil, fertilizer, seed, mulch with mulch anchor, mulch blanket, high velocity mulch blanket, permanent turf reinforcement mat (TRM), bonded fiber matrix (BFM), or modified mulch blanket to those areas. Ensure turf establishment is in accordance with section 816 and 917 of the Standard Specifications for Construction and Standard Plan R-100 Series, except as modified herein or otherwise directed by the Engineer.

b. Materials. The materials and application rates specified in sections 816 and 917 of the Standard Specifications for Construction apply unless modified by this special provision or otherwise directed by the Engineer. Furnish the following materials on this project:

1. Seeding mixture as called for on the plans.
2. Chemical fertilizer nutrient, Class A.
3. Topsoil either furnished or salvaged. Remove any stones greater than 1/2 inch in diameter or other debris from all topsoil.
4. Mulching material.
5. Permanent Turf Reinforcement Mat (TRM) must be 100 percent synthetic and consist of 100 percent UV stabilized polyolefin fibers sewn between two layers of black UV stabilized polypropylene netting with polyolefin thread. The TRM must meet the following "minimum average roll value" requirements:

<u>Property</u>	<u>Test Method</u>	<u>Requirement</u>
Mass/Unit Area	<i>ASTM D6566</i>	10 oz/syd
Ultraviolet Stability @ 1000 hrs	<i>ASTM D4355/D4355M</i>	80 percent
Tensile Strength (MD)	<i>ASTM D6818</i>	165 lbs/ft

Acceptance. Supply a General Certification for the permanent TRM from one of the following manufacturers or approved equal:

Recyclex TRM	American Excelsior Co., Arlington, TX	(800) 777-7645
P300 TRM	North American Green, Poseyville, IN	(800) 772-2040
Landlok 450 TRM	Propex, Inc., Chattanooga, TN	(800) 621-1273
Excel PP5-10 TRM	Western Excelsior, Evansville, IN	(866) 540-9810
Vmax P550 TRM	North American Green, Poseyville, IN	(800) 772-2040

6. Bonded Fiber Matrix (BFM). Furnish a product from the list below or an approved

equal.

Soil Guard	Mat Inc., Floodwood, MN	(888) 477-3028
HydroStraw BFM	HydroStraw, LLC, Rockford, WA	(800) 545-1755
HydraMax	North American Green, Poseyville, IN	(800) 772-2040
Bindex BFM	American Excelsior Co., Arlington, TX	(800) 777-7645
ProMatrix EFM	Profile Products LLC, Buffalo Grove, IN	(800) 508-8681

If multiple grades of the selected product are available, use the grade appropriate for the application as approved by the Engineer.

Approved equal BFM must consist of long strand, virgin wood fibers (90 percent by weight) bound together by a pre-blended, high-strength polymer adhesive (10 percent by weight). The virgin wood fibers will be thermally refined from clean whole wood chips. Ensure the organic binders are a high-viscosity colloidal polysaccharide tackifier with activating agents to render the resulting matrix insoluble upon drying.

7. Modified Mulch Blanket. Where modified mulch blanket is required, provide an excelsior mulch blanket free of chemical additives. Ensure the netting thread is 100 percent biodegradable and manufactured with non-plastic materials such as jute, sisal, or coir fiber. Degradable, photodegradable, UV-degradable, oxo-degradable, or oxo-biodegradable plastic netting including polypropylene, nylon, polyethylene, and polyester is not an acceptable alternative. All netting materials must have a loose weave design with movable junctions between the machine and cross-machine direction twines that move independently and reduce the potential for wildlife entanglement.

c. Construction. Ensure construction methods are in accordance with subsection 816.03 of the Standard Specifications for Construction. Begin this work as soon as possible after final grading of the areas designated for slope restoration but no later than the maximum time frames specified in subsection 208.03 of the Standard Specifications for Construction. It may be necessary, as directed by the Engineer, to place materials by hand.

Shape, compact, and ensure all areas to be seeded are weed-free prior to placing topsoil. Place topsoil to the minimum depth indicated above to meet proposed finished grade. If the area being restored requires more than the minimum depth of topsoil to meet finished grade, fill this additional depth using topsoil or, at the Contractor's option, embankment. Furnishing and placing this additional material is included in this item of work.

Ensure topsoil is weed and weed seed free and friable prior to placing seed. Remove any stones greater than 1/2-inch in diameter or other debris. Apply seed mixture and fertilizer to prepared soil surface. Incorporate seed into top 1/2-inch of topsoil.

Apply mulch at a rate of two tons per acre. Place mulch anchoring over the mulch at a rate specified in subsection 816.03.F of the Standard Specifications for Construction. Place mulch blanket and high velocity mulch blanket in accordance with subsection 816.03.G of the Standard Specifications for Construction and Standard Plan R-100 Series.

Install areas constructed with the TRM on prepared (seeded) grades as shown on the plans in accordance with the manufacturer's published installation guidelines. Anchor the top edge of the TRM in a minimum six-inch deep trench. Operation of equipment on the slope is prohibited after placement of the TRM. No credit for splices, overlaps, tucks, or wasted material will be made.

Mix the BFM and organic binders thoroughly at a rate of 40 pounds for each 100 gallons of water or as otherwise recommended by the manufacturer. Hydraulically apply the BFM slurry in successive layers, from two or more directions, to fully cover 100 percent of the soil surface. Ensure the minimum application rate is at least 3000 pounds of BFM for each acre or otherwise apply in accordance with the manufacturer's recommendations as appropriate depending on site conditions.

Do not apply BFM on saturated soils or immediately before, during, or after rainfall.

Install modified mulch blanket in accordance with the manufacturer's published guidelines and as directed by the Engineer.

If an area washes out after this work has been properly completed and approved by the Engineer, make the required corrections to prevent future washouts and replace the topsoil, fertilizer, seed, and mulch treatment. This replacement will be paid for as additional work using the applicable contract pay items.

If an area washes out for reasons attributable to the Contractor's activity or failure to take proper precautions, replacement will be at no cost to the contract.

The Engineer will inspect the seeded turf to ensure it is well-established, in a vigorous growing condition, and contains the species called for in the seeding mixture.

If the seeded turf is not well-established at the end of the first growing season, the Contractor is responsible to re-seed until the turf is well established and approved by the Engineer.

Provide weed control, if weeds are determined by the Engineer to cover more than 10 percent of the total area of slope restoration, in accordance with subsection 816.03.I of the Standard Specifications for Construction. Weed control will be at no additional cost to the contract.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
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Slope Restoration, Non-Freeway, Type ____	Square Yard
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1. Place **Slope Restoration, Non-Freeway, Type A** in all areas not described in the other types of slope restoration and will be measured by area in square yards in place. **Slope Restoration, Non-Freeway, Type A** includes installing Topsoil Surface, Furn, LM or Topsoil Surface, Salv, 4 inch; Fertilizer, Chemical Nutrient, Class A; seeding mixture; Mulch; and Mulch Anchoring.

2. Place **Slope Restoration, Non-Freeway, Type B** parallel (8 feet minimum) to the edge of the roadway, in areas that have a 1 on 3 slope and in any ditch with a grade less than 1.5 percent, as shown on the plans, or as directed by the Engineer. **Slope Restoration, Non-Freeway, Type B** will be measured by area in square yards in place. **Slope Restoration, Non-Freeway, Type B** includes installing Topsoil Surface, Furn, LM or Topsoil Surface, Salv, 4 inch; Fertilizer, Chemical Nutrient, Class A; seeding mixture; and Mulch Blanket.

3. Place **Slope Restoration, Non-Freeway, Type C** in areas that have a 1 on 2 slope, any ditch with a grade of 1.5 percent to 3 percent as shown on the plans, or as directed by the Engineer. **Slope Restoration, Non-Freeway, Type C** will be measured by area in square yards in place. **Slope Restoration, Non-Freeway, Type C** includes installing Topsoil Surface, Furn, LM or Topsoil Surface, Salv, 4 inch; Fertilizer, Chemical Nutrient, Class A; seeding mixture; and Mulch Blanket, High Velocity.

4. Place **Slope Restoration, Non-Freeway, Type D** in areas that have a slope steeper than 1 on 2, any ditch with a grade steeper than 3 percent as shown on the plans, or as directed by the Engineer. **Slope Restoration, Non-Freeway, Type D** will be measured by area in square yards in place. **Slope Restoration, Non-Freeway, Type D** includes installing Topsoil Surface, Furn, LM or Topsoil Surface, Salv, 4 inch; Fertilizer, Chemical Nutrient, Class A; seeding mixture; and Turf Reinforcement Mat.

5. Place **Slope Restoration, Non-Freeway, Type E** as shown on the plans, or as directed by the Engineer and measured by area in square yards in place. **Slope Restoration, Non-Freeway, Type E** includes installing Topsoil Surface, Furn, LM or Topsoil Surface, Salv, 4 inch; Fertilizer, Chemical Nutrient, Class A; seeding mixture; and Bonded Fiber Matrix.

6. Place **Slope Restoration, Non-Freeway, Type F** as shown on the plans, or as directed by the Engineer and measured by area in square yards in place. **Slope Restoration, Non-Freeway, Type F** includes installing Topsoil Surface, Furn, LM or Topsoil Surface, Salv, 4 inch; Fertilizer, Chemical Nutrient, Class A; seeding mixture; and modified Mulch Blanket.