



# MASON COUNTY ROAD COMMISSION

---

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

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

## **2024 LAKESHORE DRIVE BOX CULVERT**

### **Addendum #1 – March 19, 2024**

Please see the revised:

Progress Clause & Proposal (signature page)

Add the below EGLE Permit to the Bid Documents:

EGLE Permit – Lakeshore Drive over South Bayou of Hamlin Lake

Please acknowledge receipt of Addendum #1 and return this to the MCRC prior to bidding or with the bid. Failure to acknowledge Addendum #1 shall be a basis for rejection of the bid.

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Email: \_\_\_\_\_

Business Phone: \_\_\_\_\_

Signature: \_\_\_\_\_ Date \_\_\_\_\_

Eric R. Nelson, P.E.  
County Highway Engineer

## 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 Contractor will have twelve (12) consecutive weeks to complete the project once the road is closed to traffic.**

**If construction begins in the 2024 calendar year, the open to traffic date is November 8, 2024.**

**If the construction begins in the 2025 calendar year, the open to traffic date is November 8, 2025.**

No work shall take place between November 8<sup>th</sup>, 2024, to April 7, 2025, unless approved by the Engineer.

The entire project must be completed by the final completion date of November 8, 2025.

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 the 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.

**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 12 consecutive weeks, but no later than November 8, 2025.** 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](mailto: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**



## 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.

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

**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 plan 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 1/2" 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:  $f_y = 50,000$  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 BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE 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

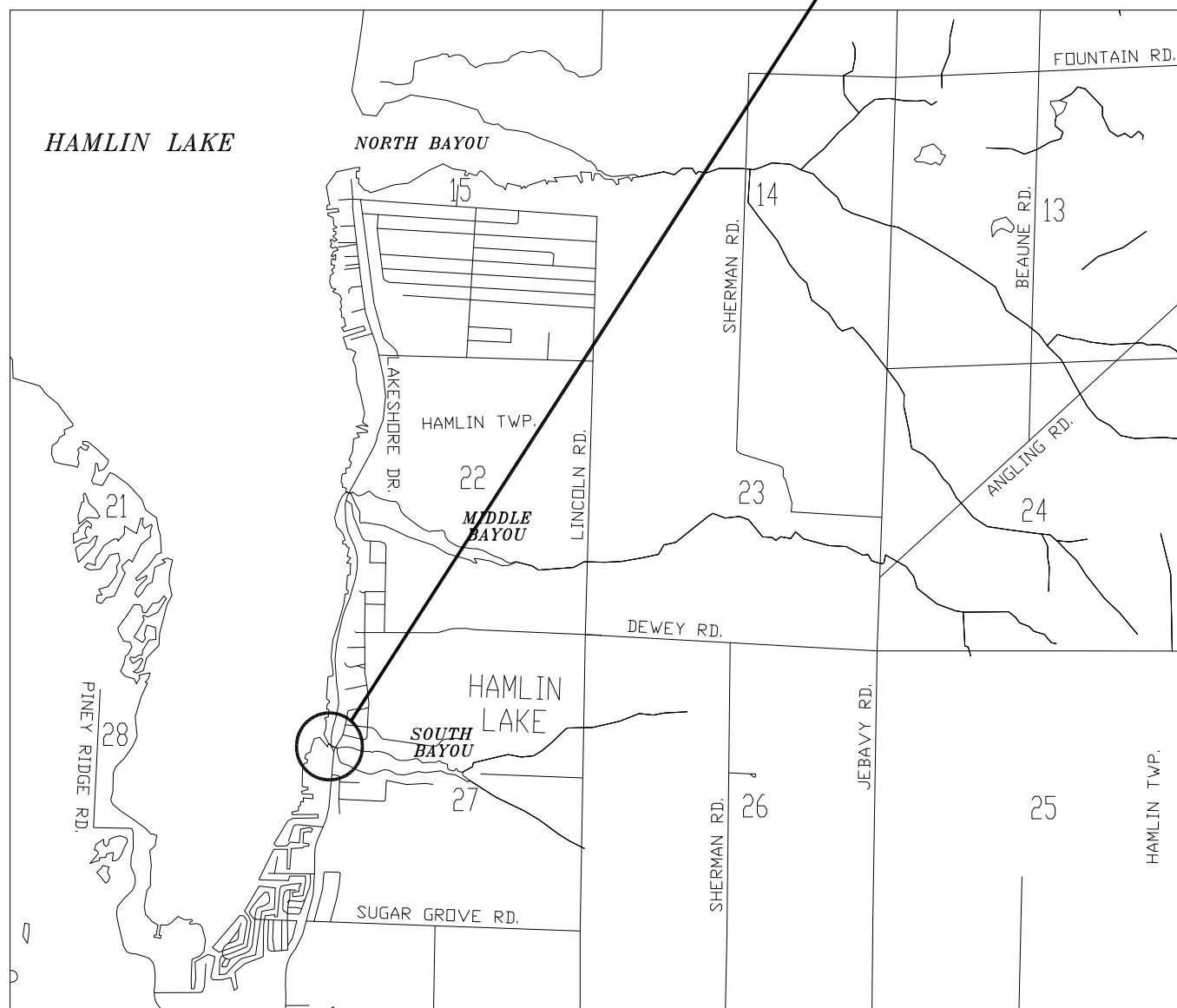


PROJECT LOCATION

POB: 9+60

POE: 12+00

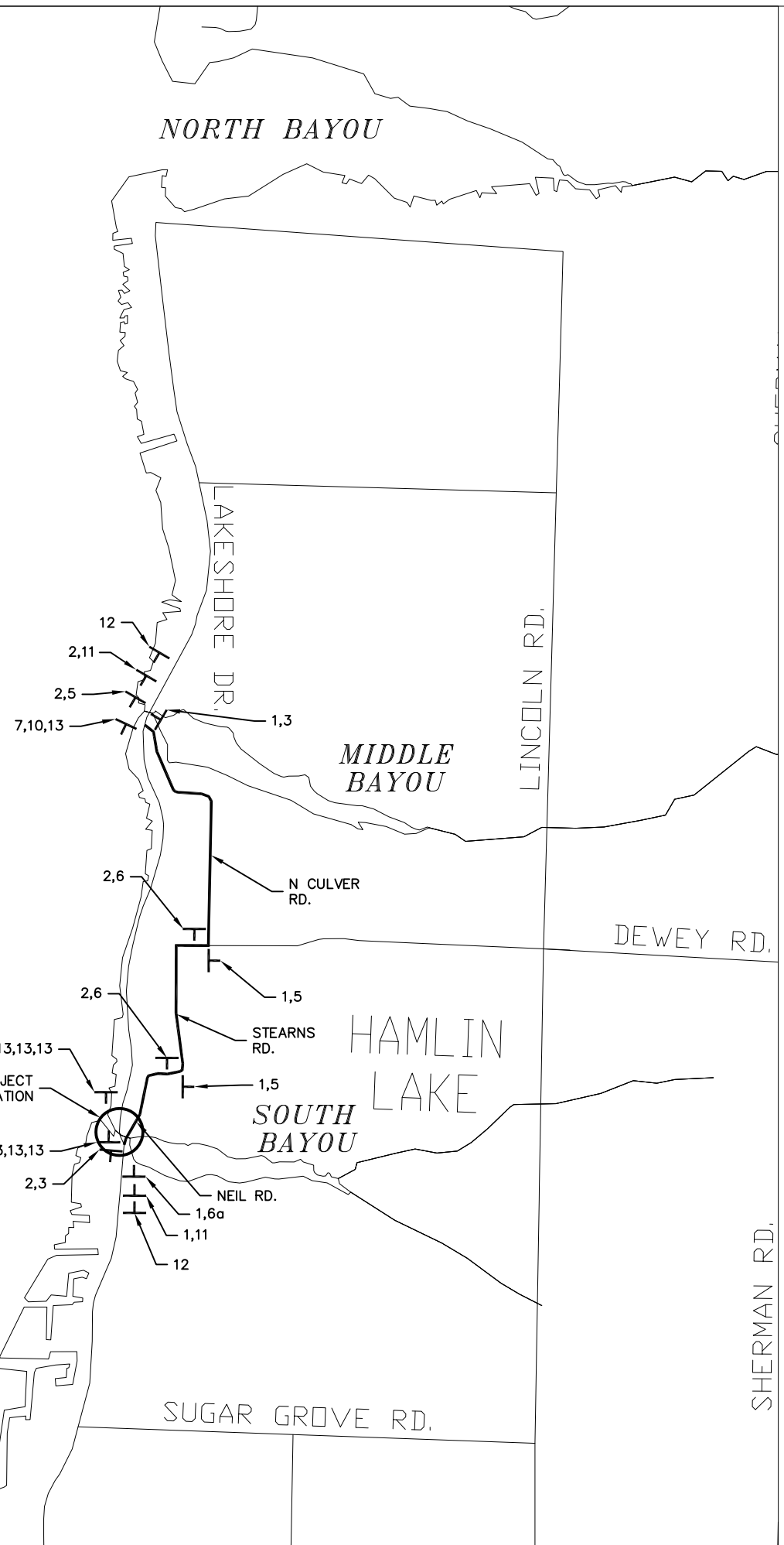
PROJECT LENGTH = 240'



LAKESHORE DR. OVER SOUTH BAYOU

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

# HAMLIN LAKE



SIGN DETAILS				
REFERENCE NO.	SIGN	SIGN TYPE/SIZE	QUANTITY	PAY QUANTITY (Sft)
*1	LAKESHORE DR. NORTH	D3-2a 3' x 2'	5	30.0
*2	LAKESHORE DR. SOUTH	D3-2a 3' x 2'	6	36.0
3	DETOUR ENDS	M4-8a 2' x 1.5'	2	6.0
4	DETOUR	M4-9 2.5' x 2'	0	0.0
5	DETOUR	M4-9(L) 2.5' x 2'	4	20.0
6	DETOUR	M4-9(R) 2.5' x 2'	2	10.0
6a	DETOUR	M4-9(UR) 2.5' x 2'	1	5.0
7	DETOUR	M4-10(L) 4' x 1.5'	1	6.0
8	DETOUR	M4-10(R) 4' x 1.5'	1	6.0
9	ROAD CLOSED	R11-2 4' x 2.5'	2	20.0
10	ROAD CLOSED TO THRU TRAFFIC	R11-4 5' x 2.5'	1	12.5
11	DETOUR AHEAD	W20-2 4' x 4'	2	32
12	ROAD CLOSED AHEAD	W20-3 4' x 4'	2	32
13	TYPE III BARRICADE		7	-
SIGN, TYPE B, TEMP, PRISMATIC, FURN AND OPER TOTAL				149.5
*SIGN, TYPE B, TEMP, PRISMATIC, SPEC, FURN AND OPER TOTAL				66.0

NOTES:

- CONTRACTOR TO FURNISH AND PLACE ALL SIGNS FOR DETOUR ROUTE AS INDICATED ON THIS SHEET OR AS DIRECTED BY THE ENGINEER.
- CONTRACTOR TO FURNISH AND PLACE TYPE III BARRICADES, HIGH INTENSITY, LIGHTED, AS SHOWN ON THIS SHEET OR AS DIRECTED BY THE ENGINEER.
- ADDITIONAL TYPE III BARRICADES AND TYPE B TEMPORARY SIGNING MAY BE REQUIRED TO SUFFICIENTLY CONTROL AND DIRECT TRAFFIC, AS DIRECTED BY THE ENGINEER.
- THE SPECIAL FABRICATION SIGNING WILL BE BLACK LETTERING ON AN ORANGE BACKGROUND.
- ALL SIGNS SHALL HAVE BORDERS AS REQUIRED IN THE 2011 MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD).
- 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**

**SCCECO**  
SCOTT CIVIL ENGINEERING COMPANY  
GRAND RAPIDS, MICHIGAN

2  
15

EGLE  
WRP040387-1.0  
10/23/23

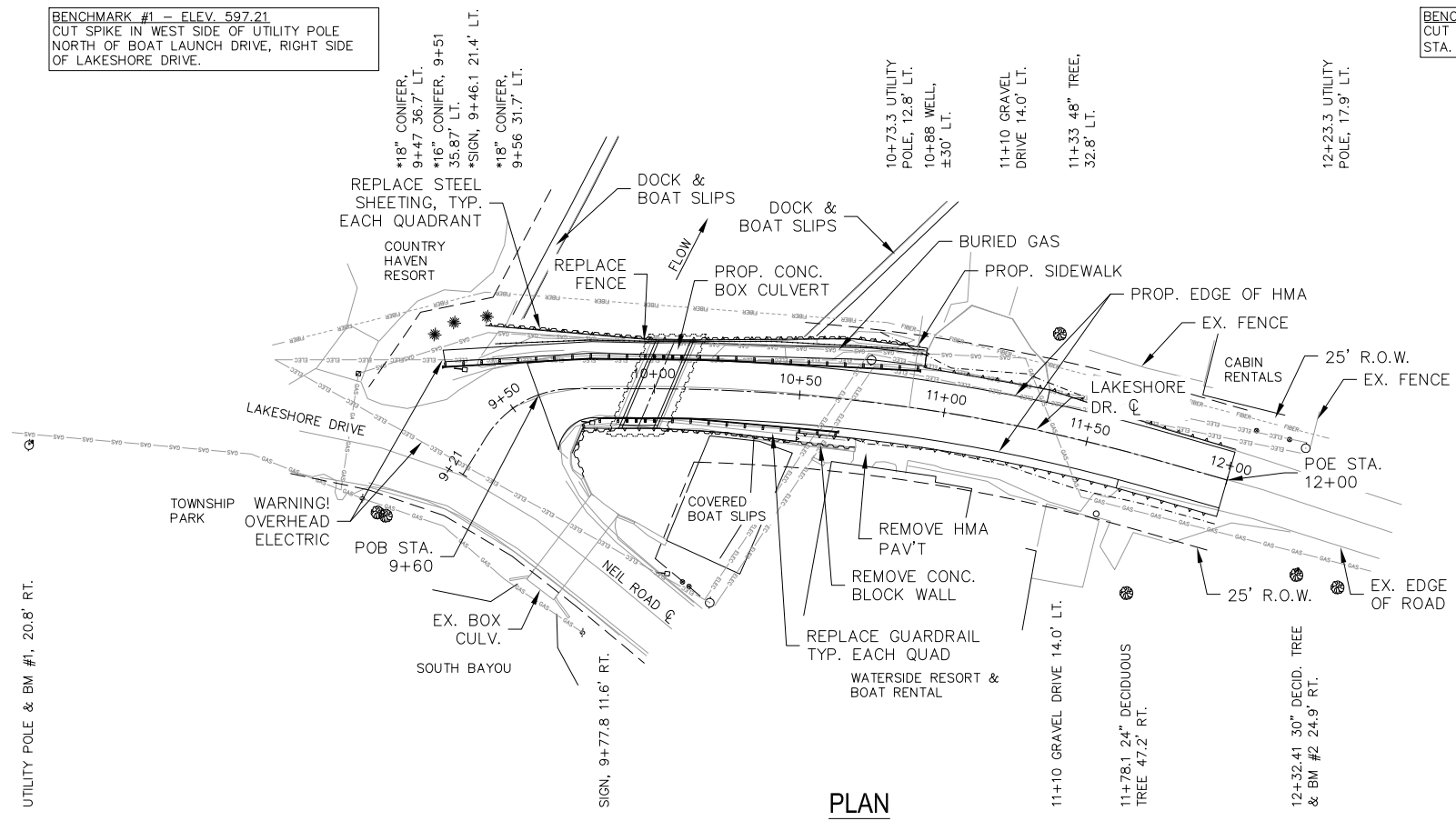
DRAWN AE CHECKED RTW DATE 10/23/23



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



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:

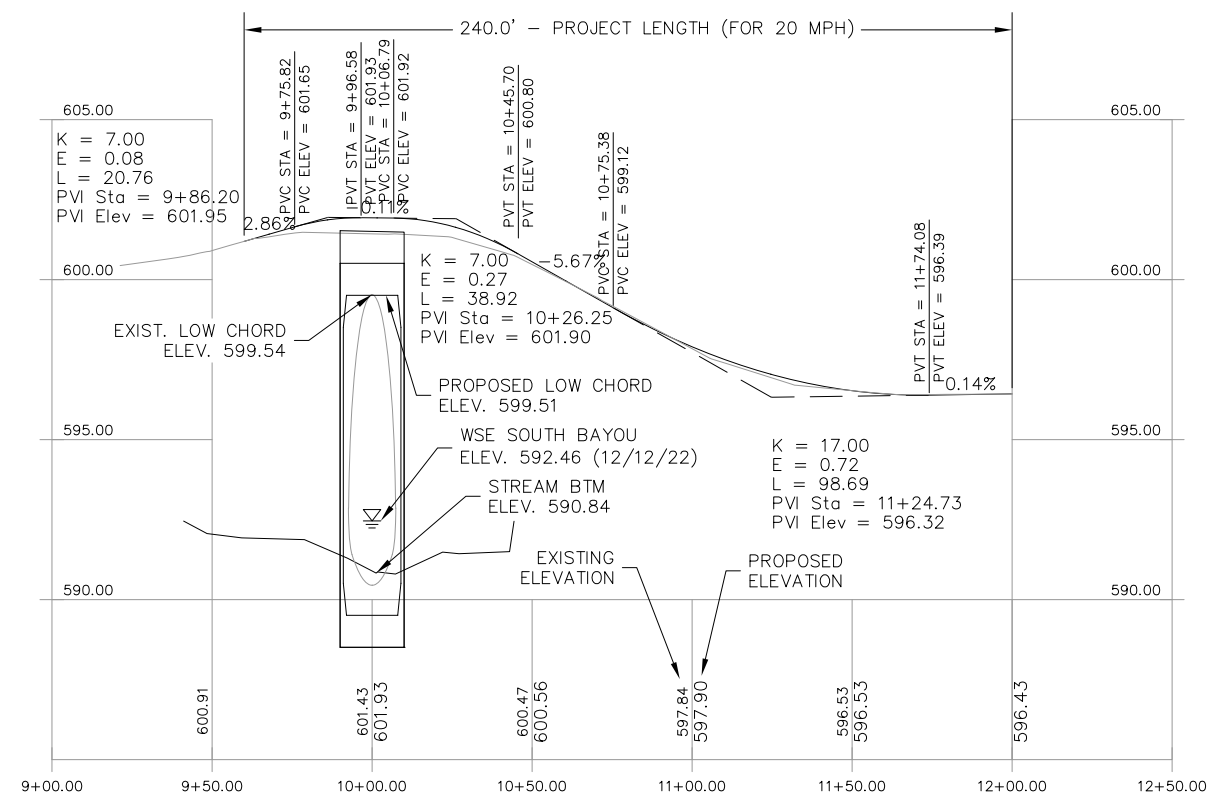
DTE HAS A GAS MAIN ALONG THE WEST STEEL SHEETING, TO BE ABANDONED BY OTHERS.

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.



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

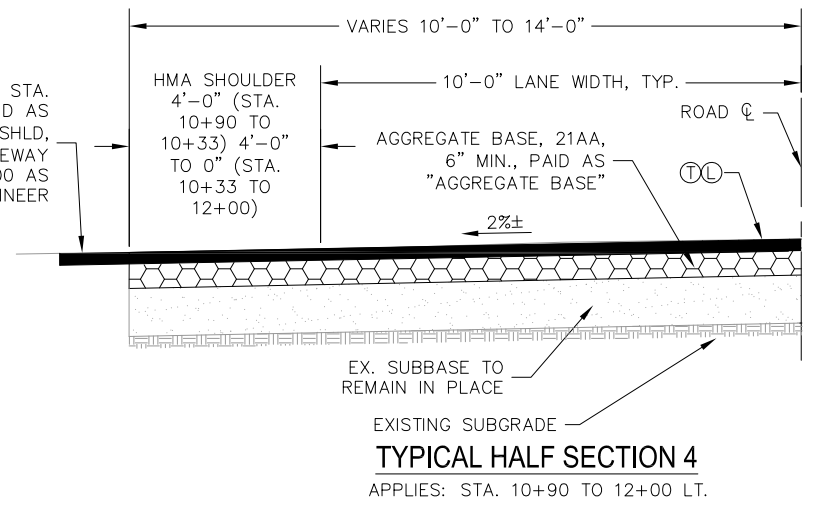
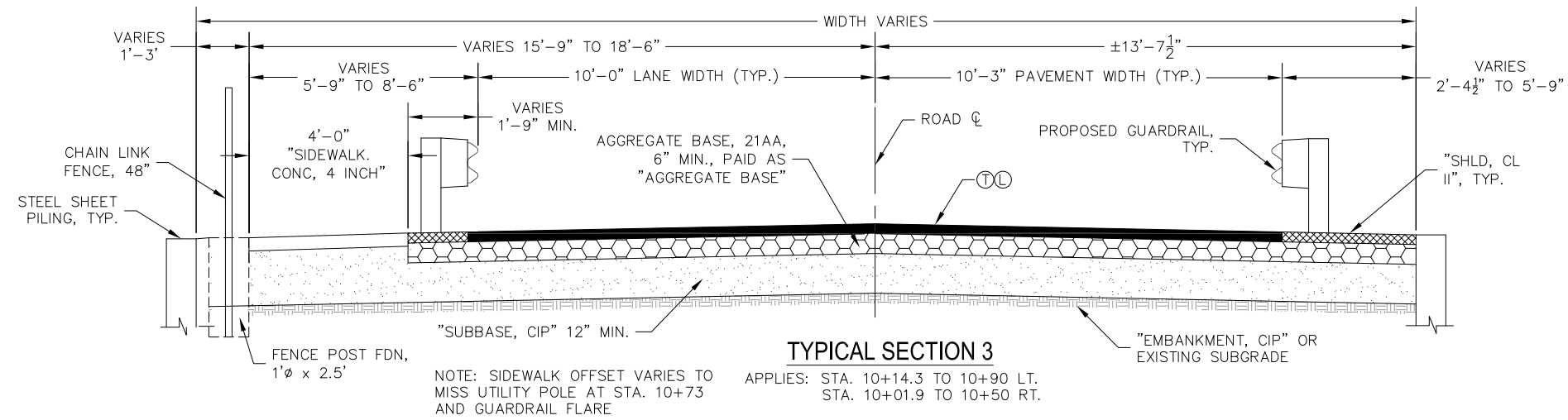
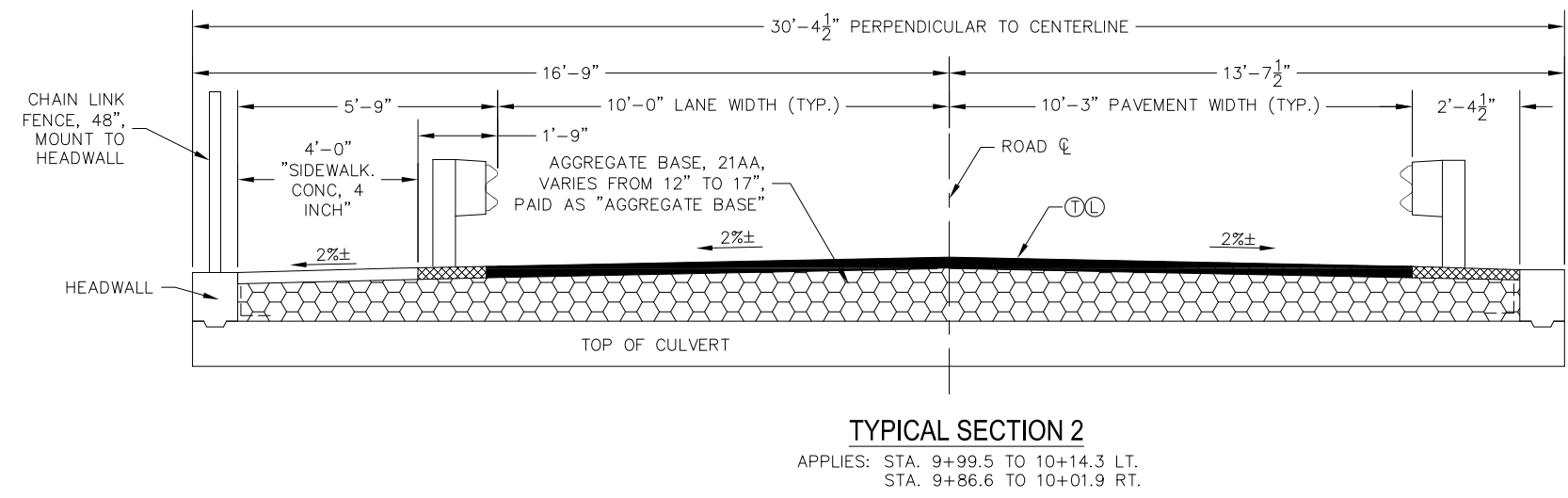
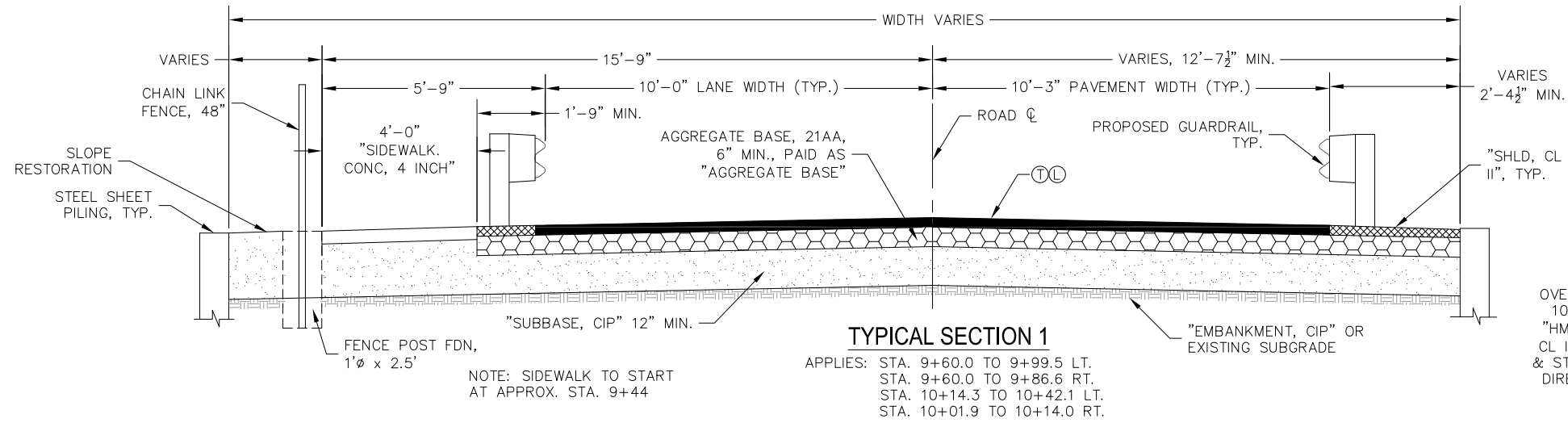
GENERAL PLAN OF SITE  
LAKESHORE DRIVE  
OVER SOUTH BAYOU

**SCECO**  
SCOTT CIVIL ENGINEERING COMPANY  
GRAND RAPIDS, MICHIGAN

3  
15

DRAWN AE CHECKED RTW DATE 9/14/23





**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
Ⓣ	TOP COURSE	HMA, 13A	165 LB/SYD	58 - 28
Ⓛ	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

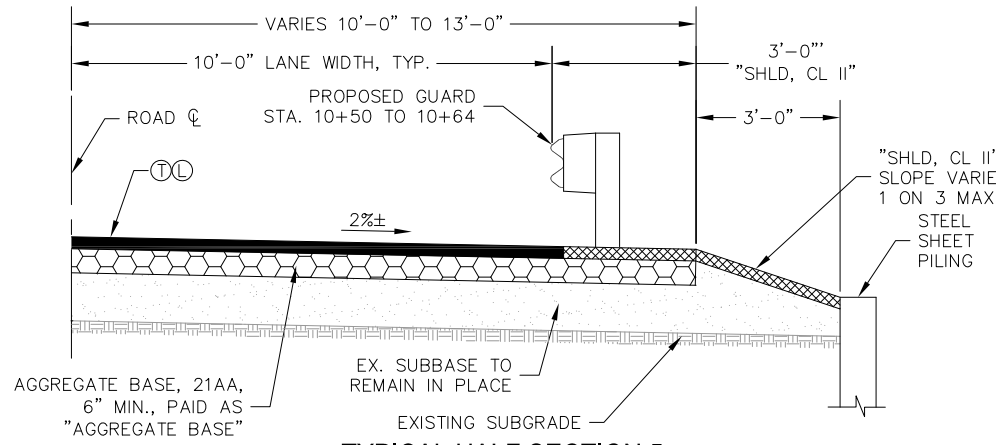
**HAMLIN TOWNSHIP**

**TYPICAL SECTIONS  
 LAKESHORE DRIVE  
 OVER SOUTH BAYOU**

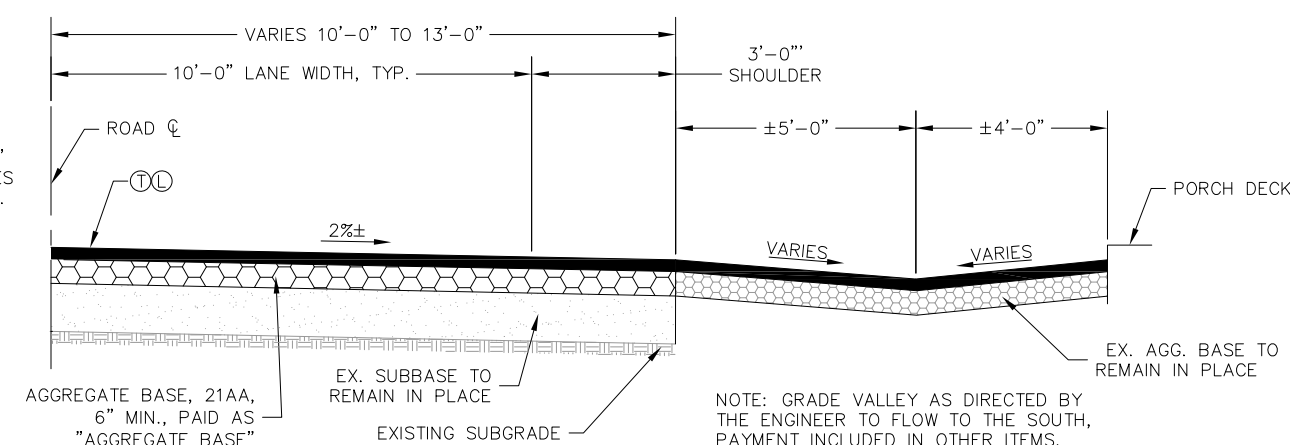
**SCCO**  
 SCOTT CIVIL ENGINEERING COMPANY  
 GRAND RAPIDS, MICHIGAN

DRAWN: AE CHECKED: NNN DATE: 10/23/23

4  
 15

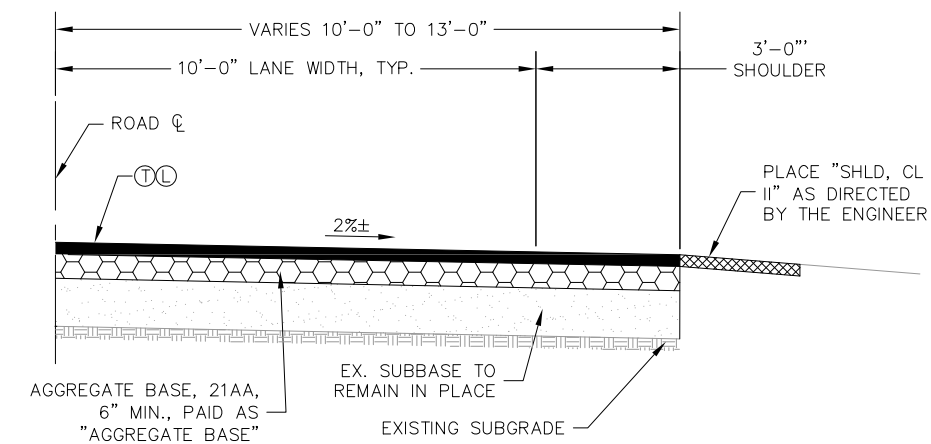


**TYPICAL HALF SECTION 5**  
APPLIES: STA. 10+50 TO 10+71 RT.



**TYPICAL HALF SECTION 6**  
APPLIES: STA. 10+71 TO 10+90 RT.

NOTE: GRADE VALLEY AS DIRECTED BY THE ENGINEER TO FLOW TO THE SOUTH, PAYMENT INCLUDED IN OTHER ITEMS.

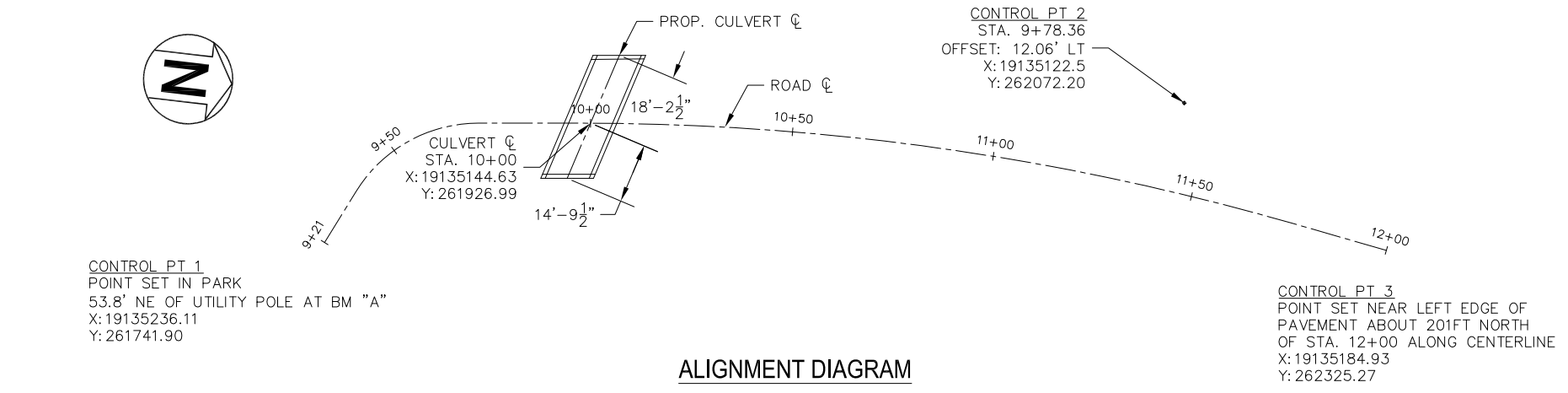
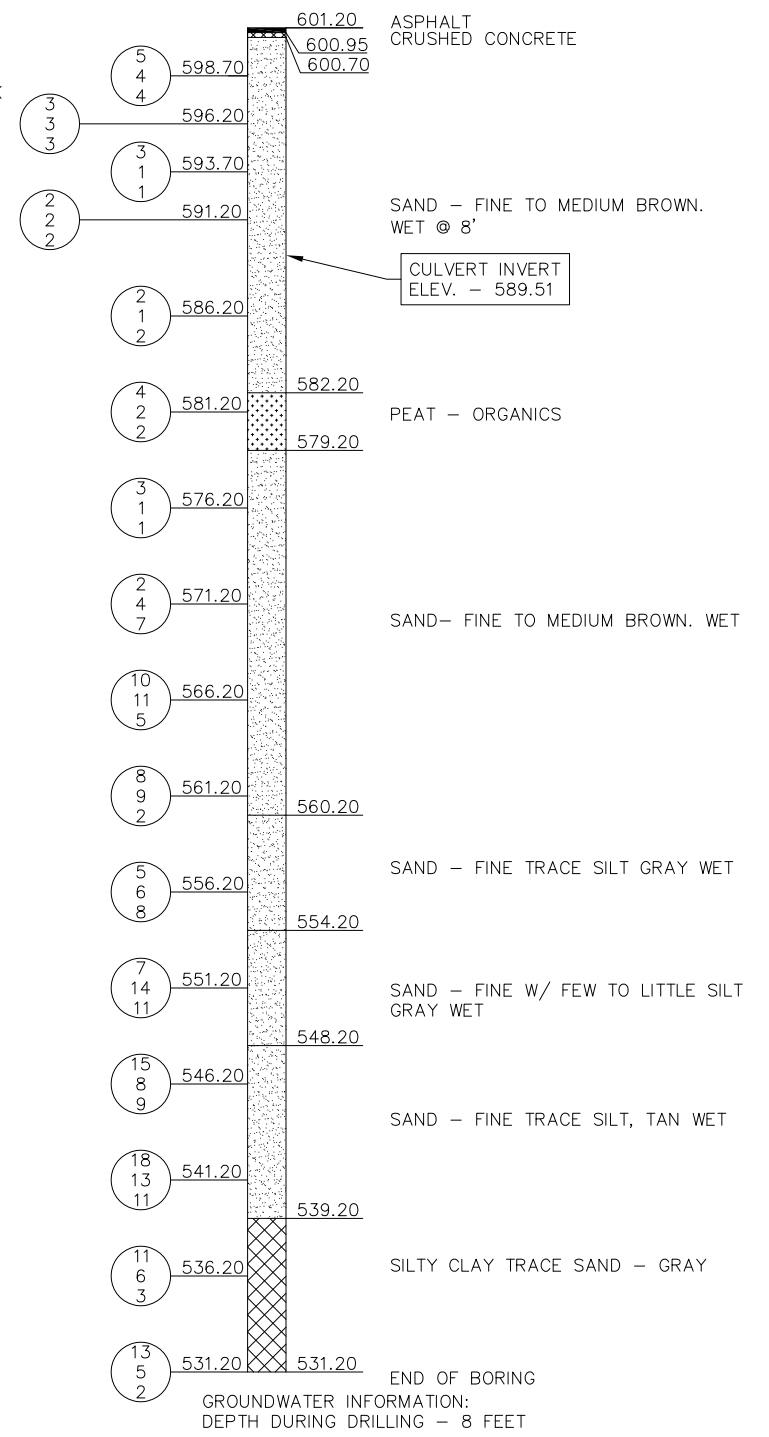


**TYPICAL HALF SECTION 7**  
APPLIES: STA. 10+90 TO 12+00 RT.

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



**ALIGNMENT DIAGRAM**

**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

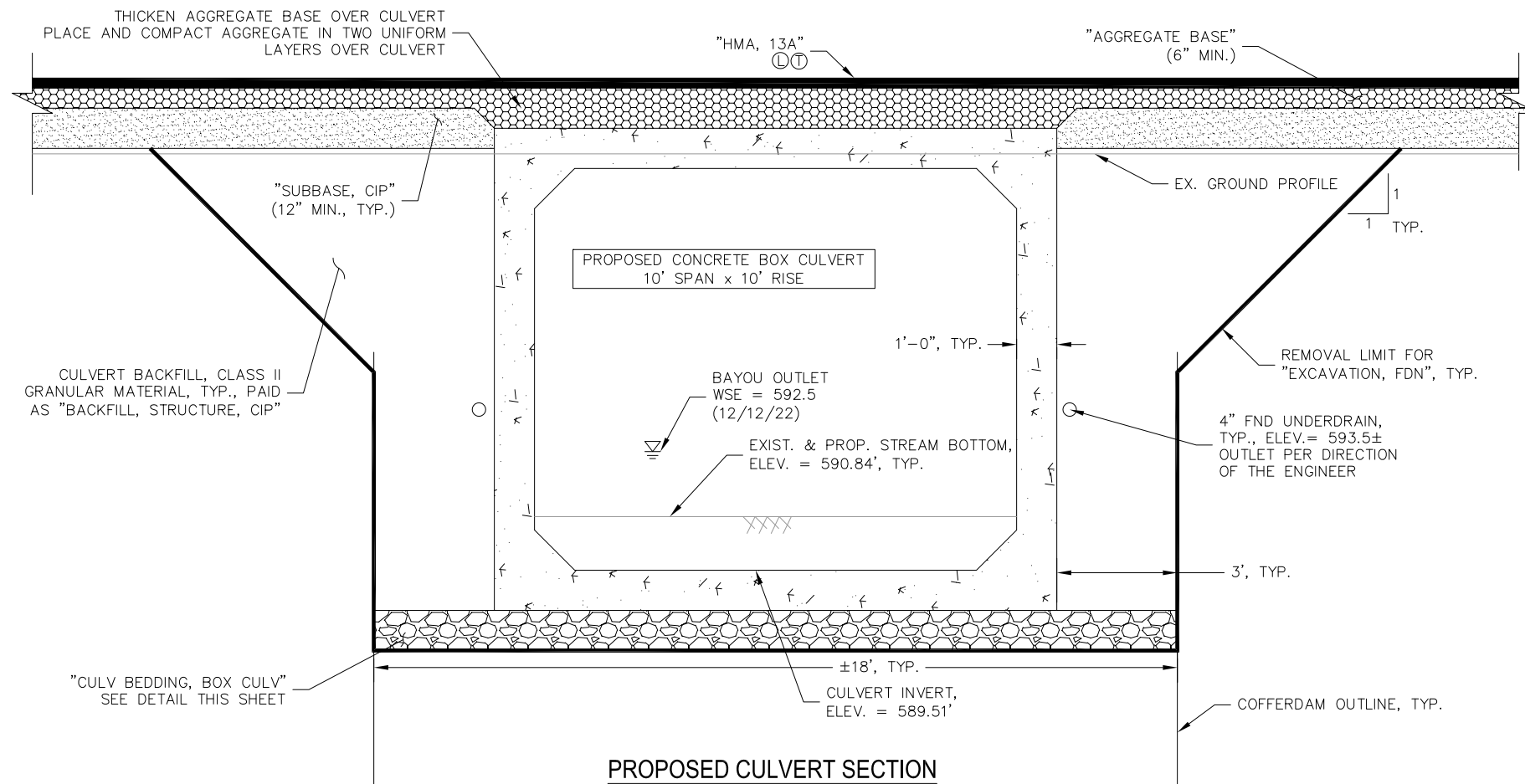
TYPICAL SECTIONS  
LAKESHORE DRIVE  
OVER SOUTH BAYOU

**SCCO**  
SCOTT CIVIL ENGINEERING COMPANY  
GRAND RAPIDS, MICHIGAN

5  
15  
DATE 10/23/23

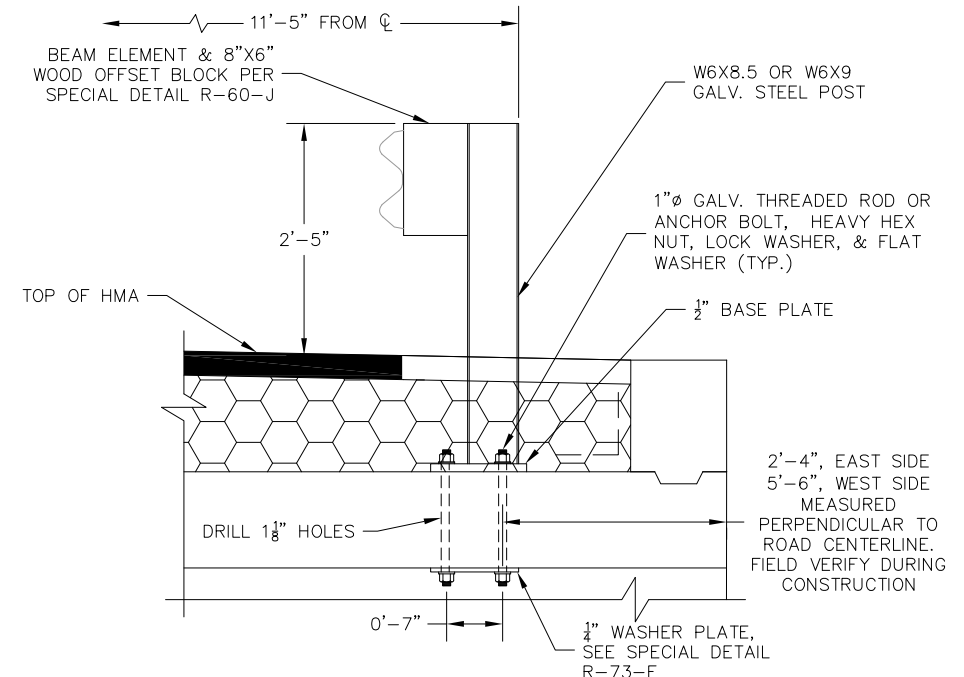




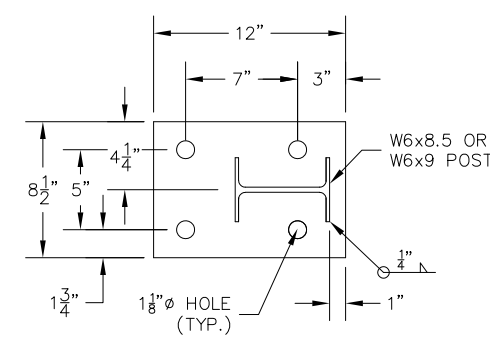


**PROPOSED CULVERT SECTION**

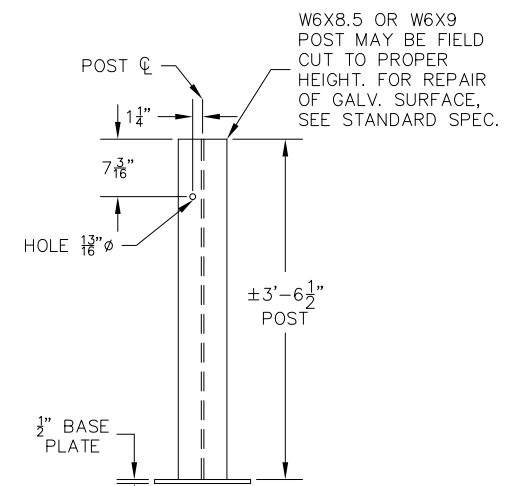
NOTE: OUTLET FOUNDATION UNDERDRAIN PER DIRECTION OF THE ENGINEER



**RAIL POST SECTION**

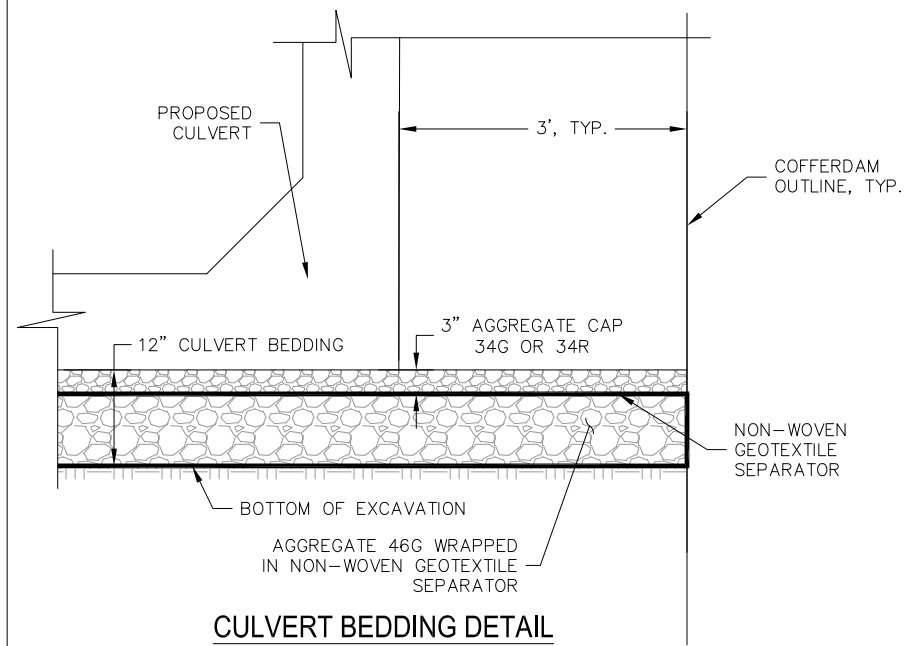


**BASE PLATE DETAIL**



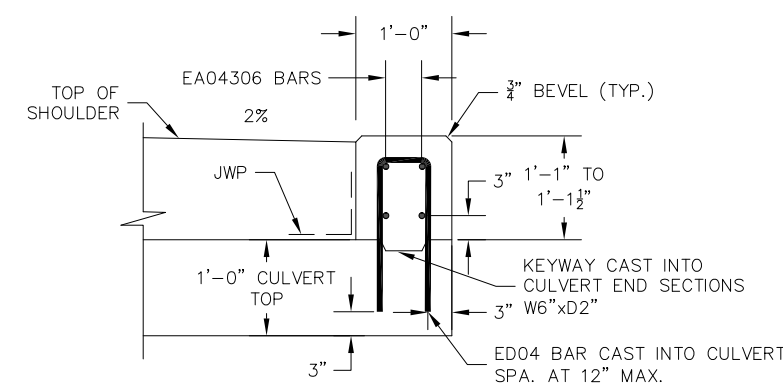
**STEEL POST DETAIL**

POST HEIGHT SUBJECT TO CHANGE BASE ON SHOP DRAWING DIMENSIONS



**CULVERT BEDDING DETAIL**

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



**HEADER SECTION**

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**

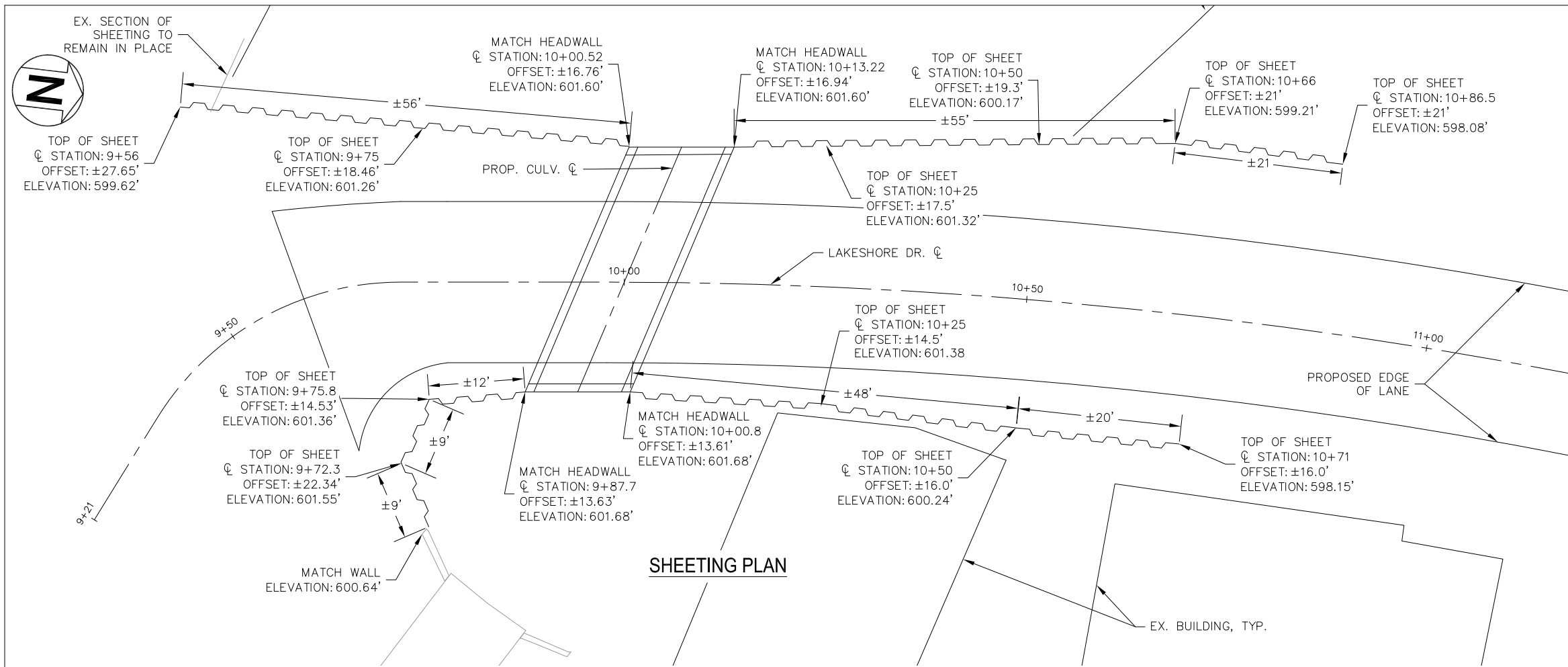
**GENERAL PLAN OF STRUCTURE  
LAKESHORE DRIVE  
OVER SOUTH BAYOU**

**SCCO**

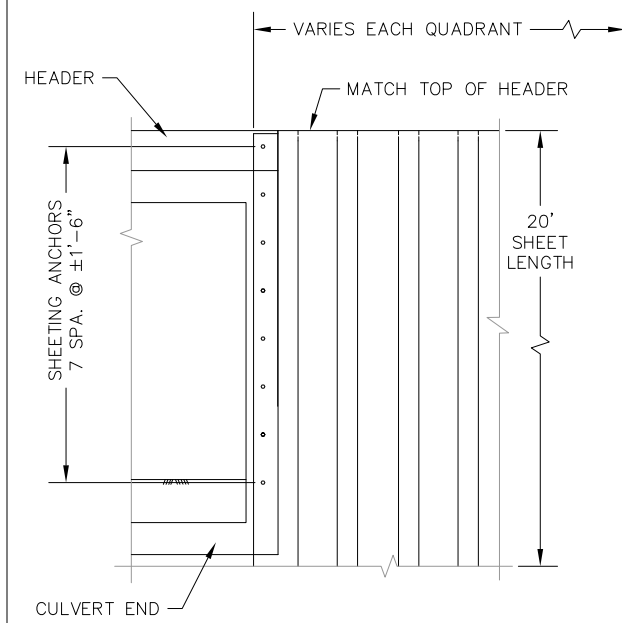
SCOTT CIVIL ENGINEERING COMPANY  
GRAND RAPIDS, MICHIGAN

DATE 10/23/23

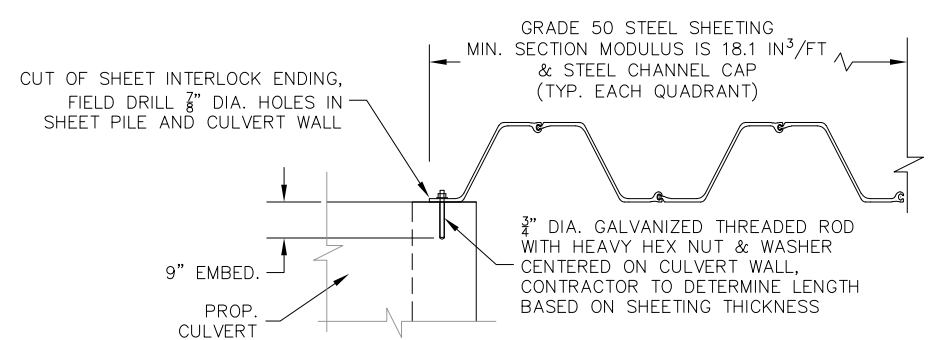
DRAWN AE CHECKED NNN



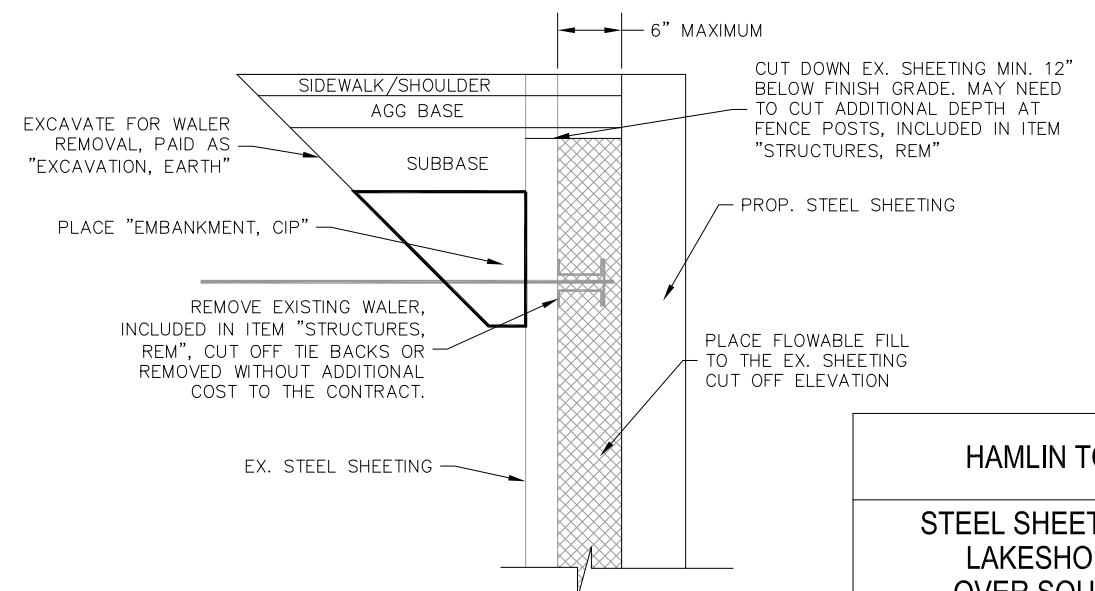
**SHEETING PLAN**



**SHEET PILE WALL ELEVATION**



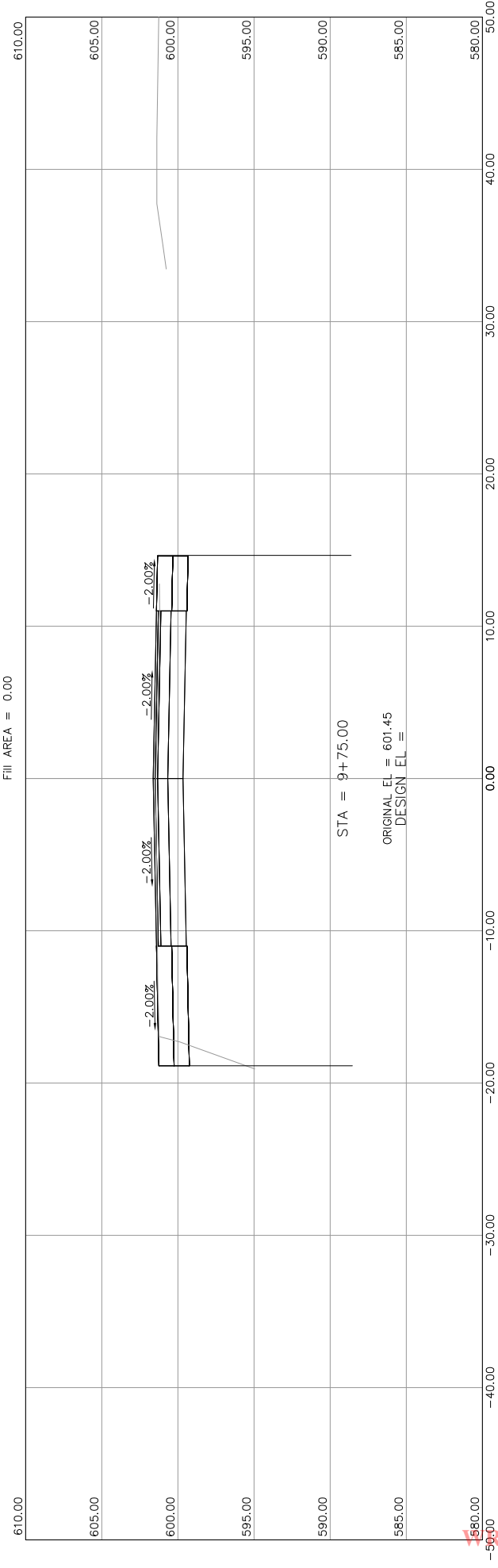
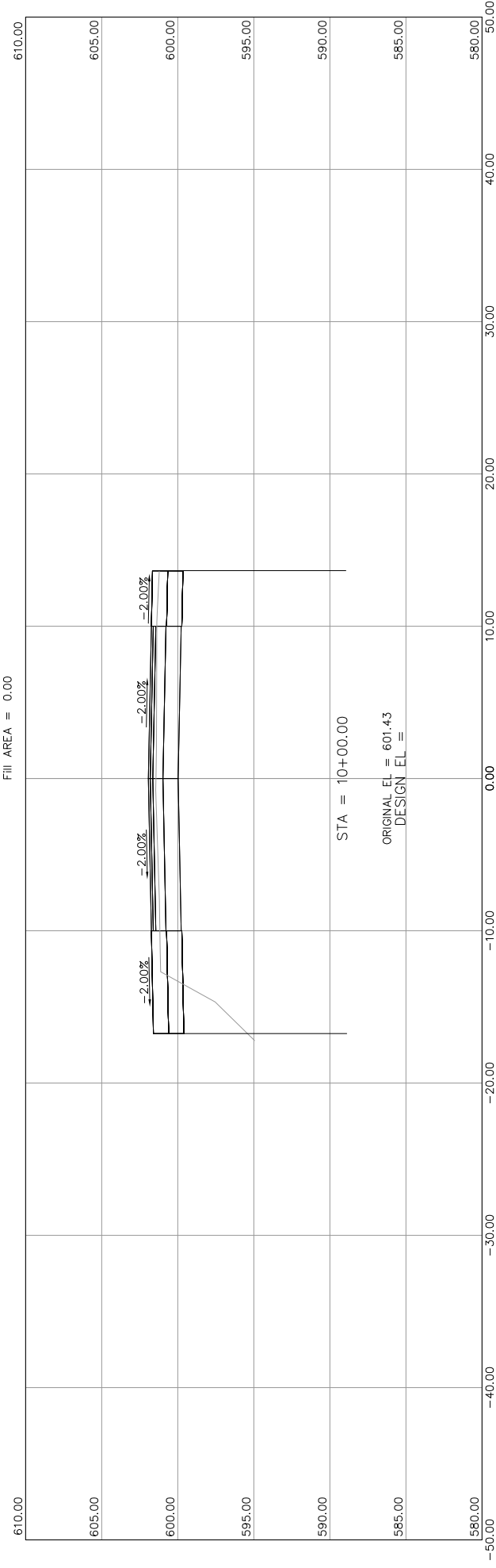
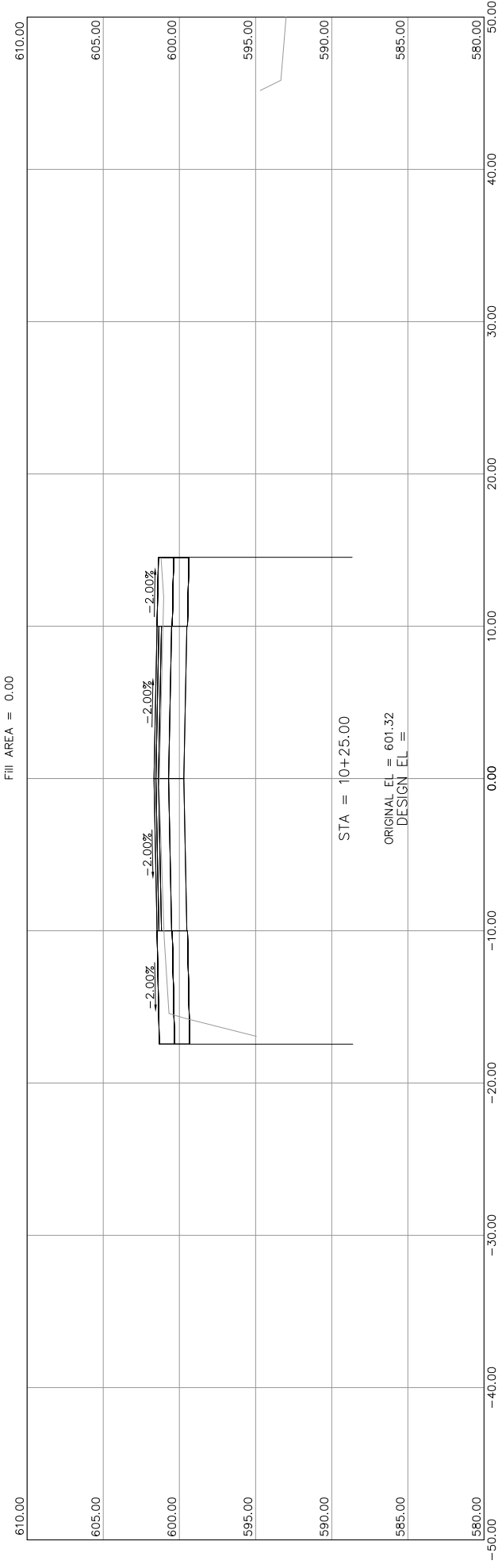
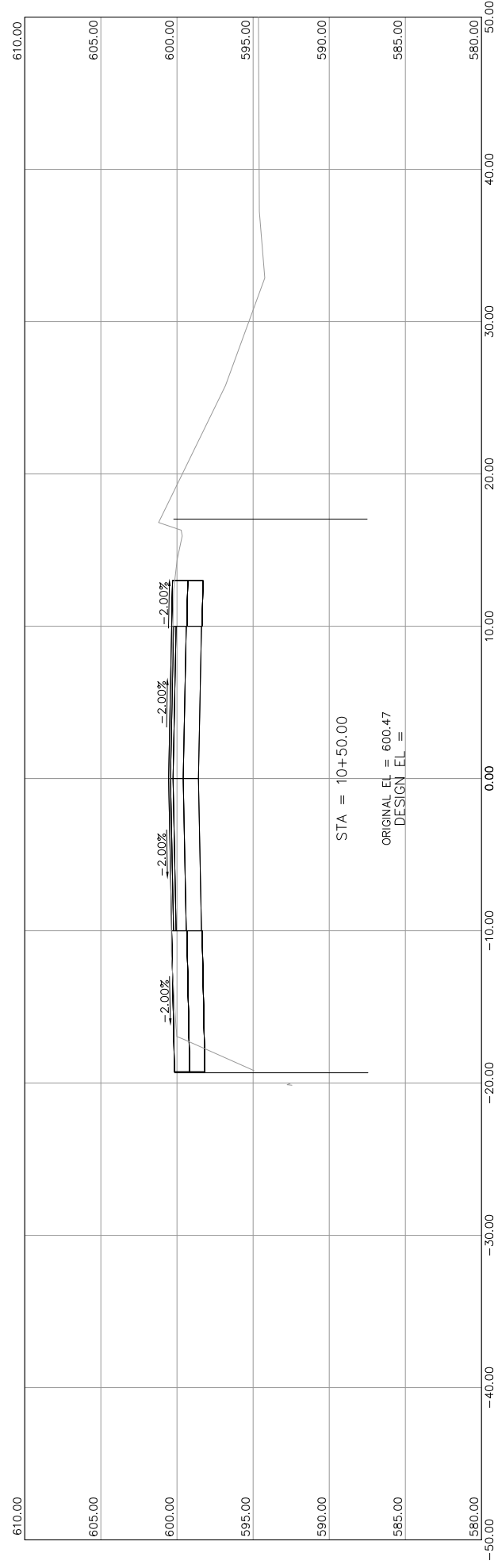
**SHEET PILE WALL CULVERT CONNECTION DETAIL**



**TYP. SHEET WALL SECTION**

<b>HAMLIN TOWNSHIP</b>			
<b>STEEL SHEETING LAYOUT LAKESHORE DRIVE OVER SOUTH BAYOU</b>			
<b>SCCO</b> SCOTT CIVIL ENGINEERING COMPANY GRAND RAPIDS, MICHIGAN			8 15
DRAWN	AE	CHECKED	DATE 10/23/23

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



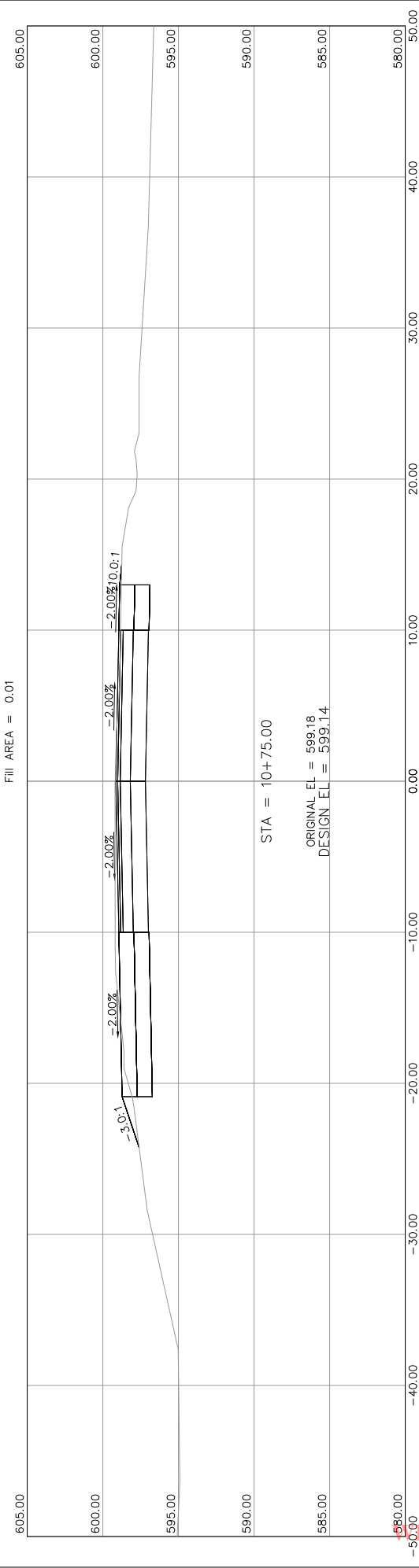
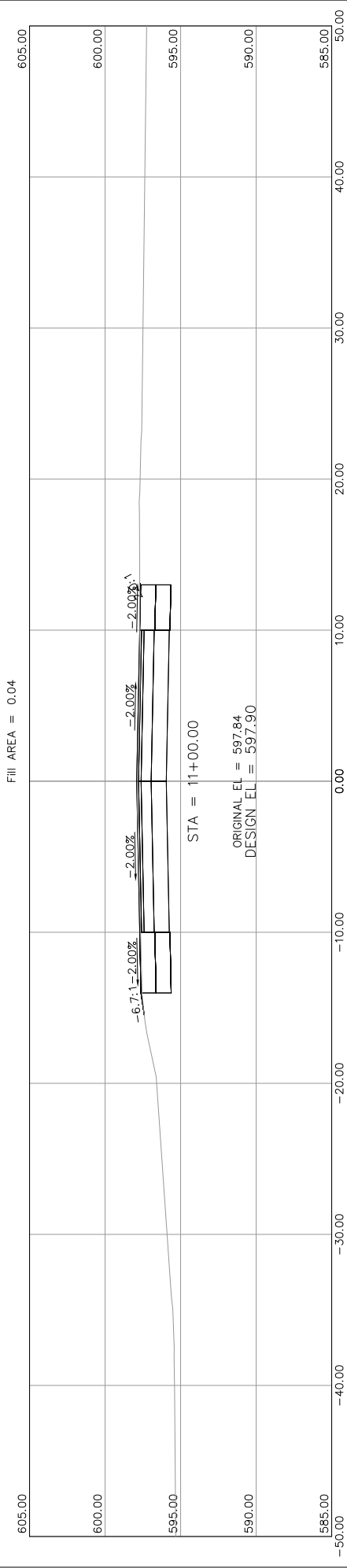
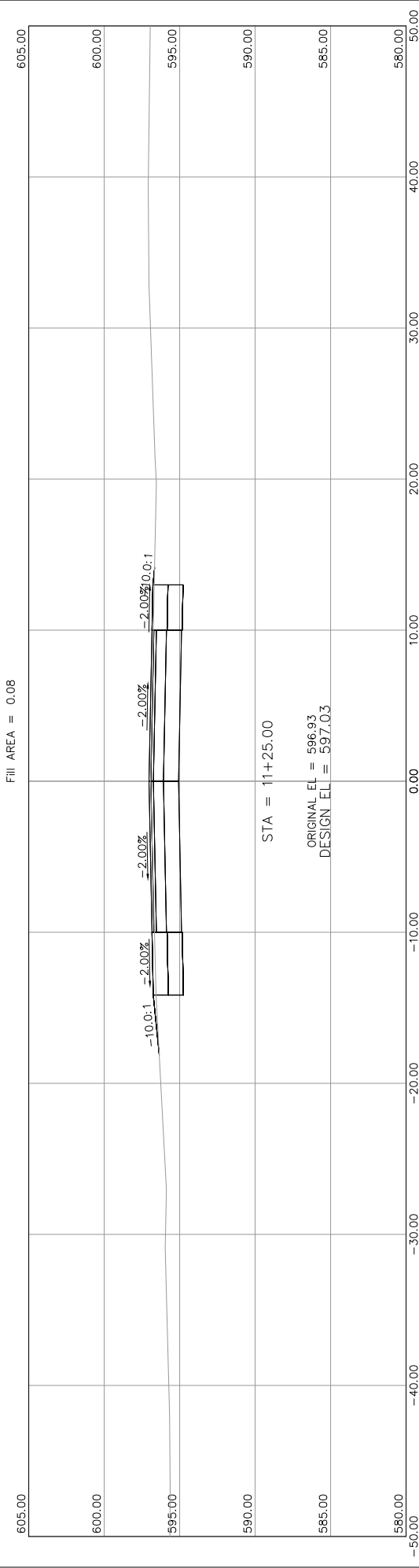
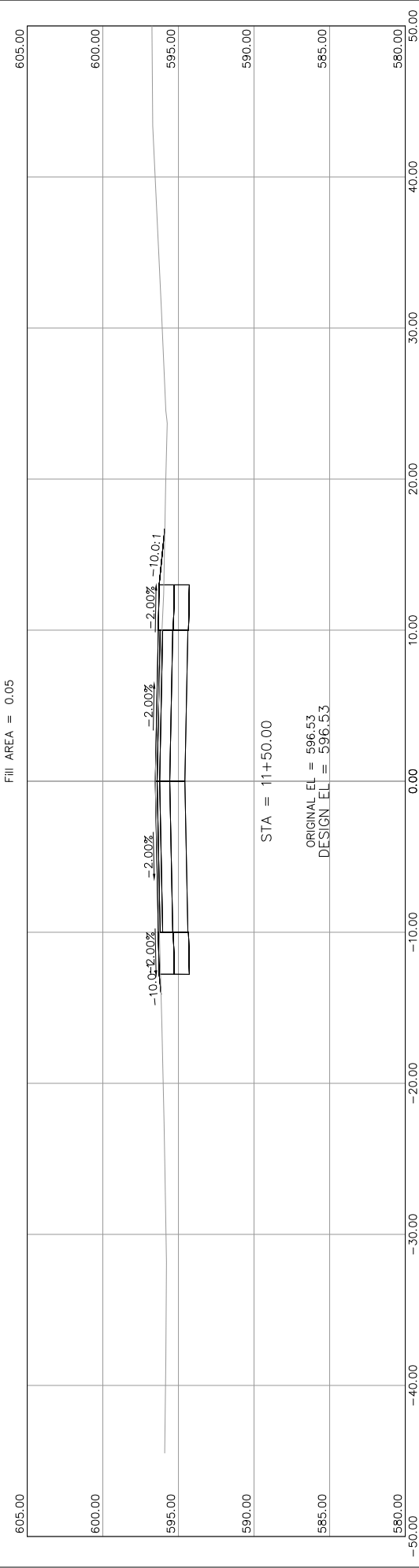
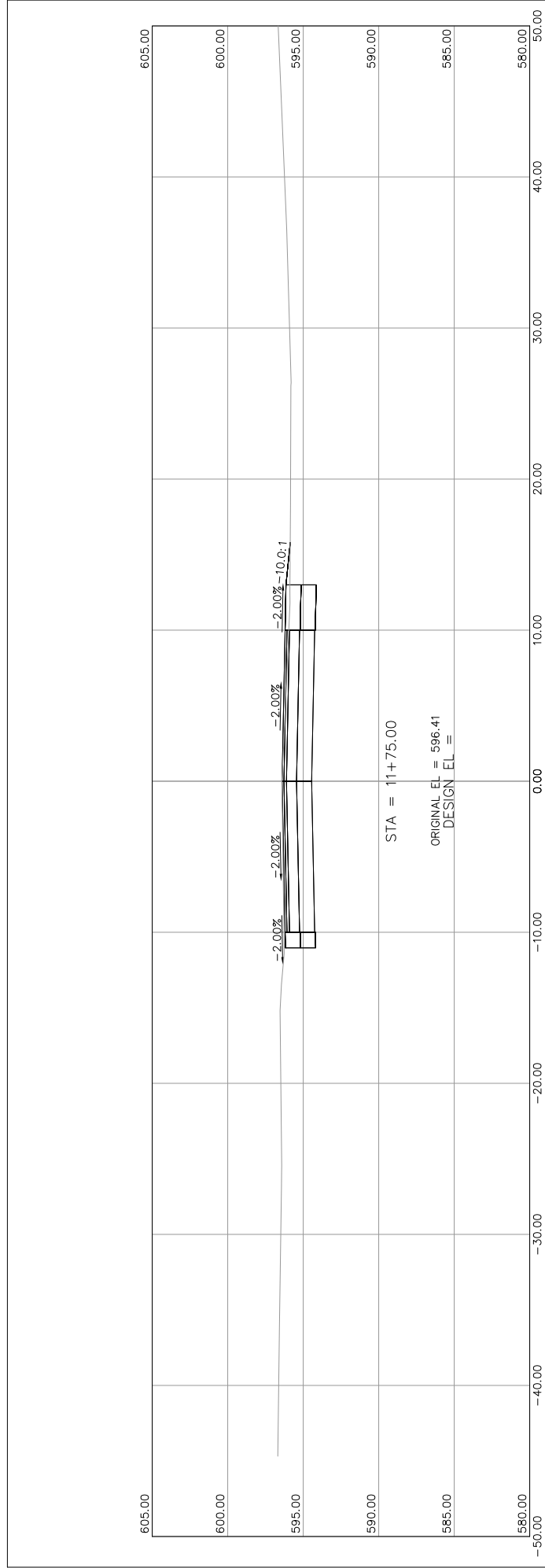
HAMLIN TOWNSHIP  
LAKESHORE DR. OVER SOUTH BAYOU

CROSS SECTION SHEET 9 TOTAL SHEETS 15

SCALES: 1" = 5'

SCOTT CIVIL ENGINEERING COMPANY  
DRAWN BY: KTW DATE: 10/23/23

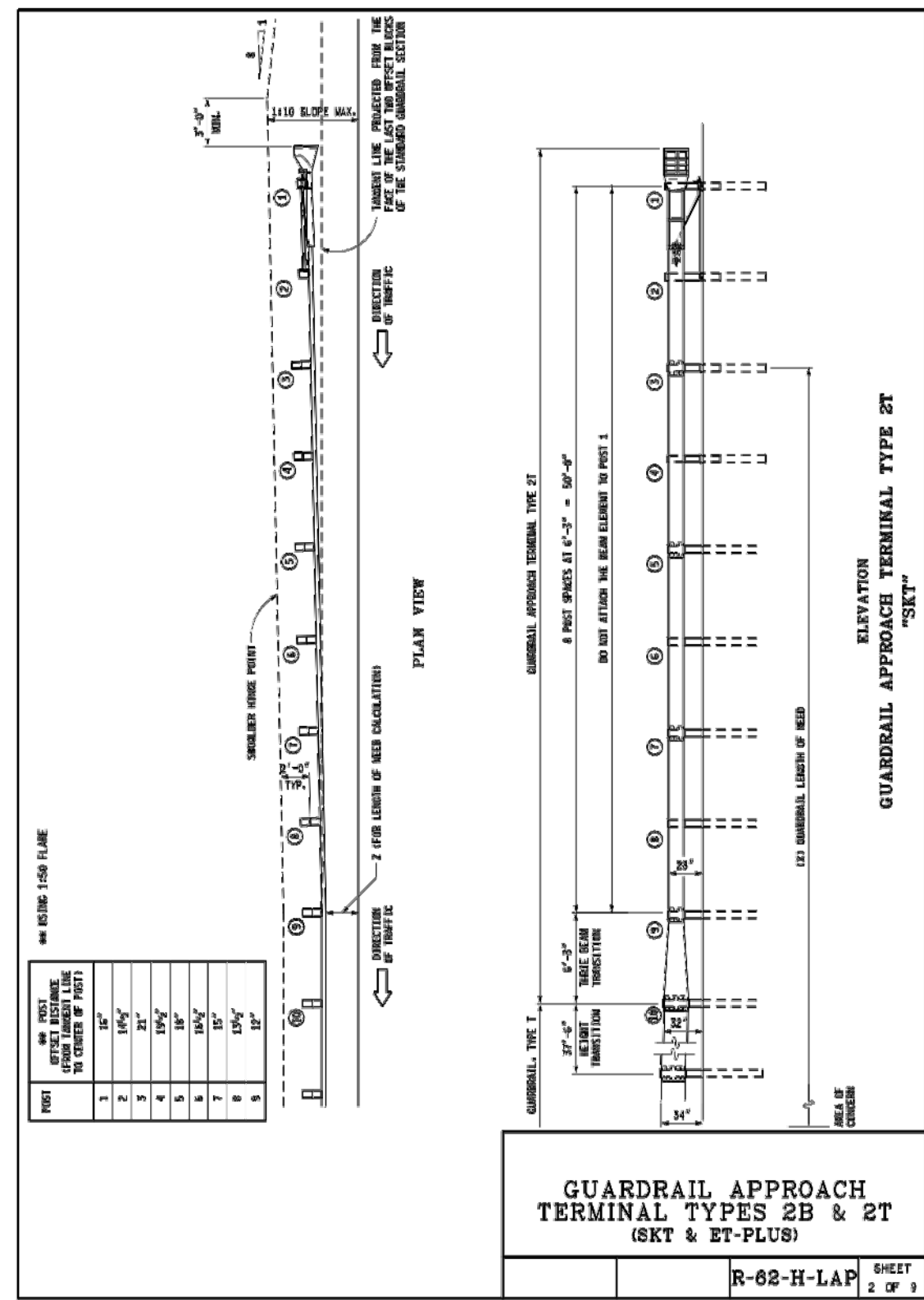
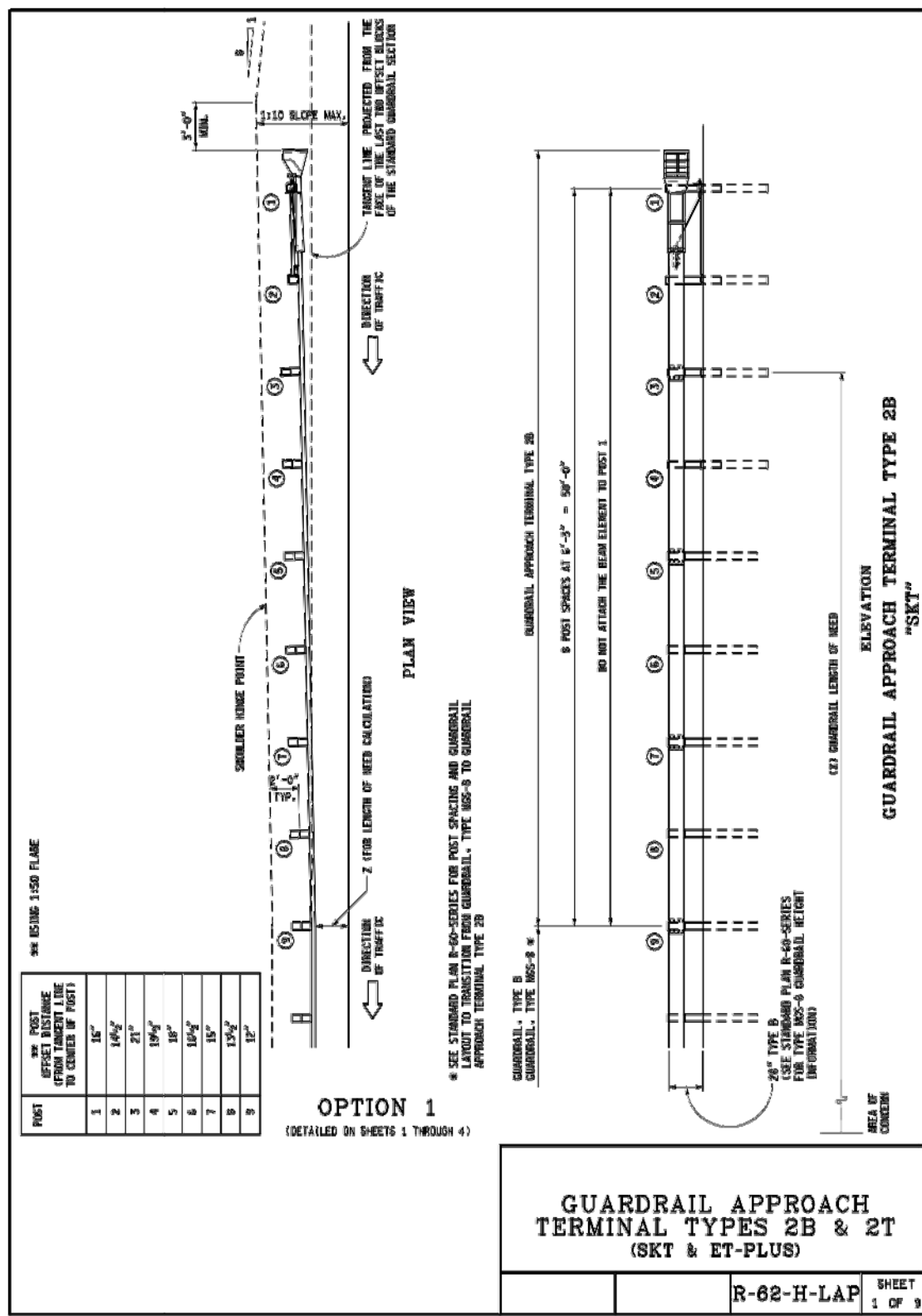
EGLE  
P04038  
Approved  
Issued On: 02/15/2024  
Expires On: 02/15/2029



HAMLIN TOWNSHIP		
LAKESHORE DR. OVER SOUTH BAYOU		
CROSS SECTION SHEET	SHEET NO.	TOTAL SHEETS
	10	15

SCALES: 1" = 5'

DRAWN BY: KTW  
 DATE: 10/23/23  
 APPROVED: [Signature]  
 SCOTT CIVIL ENGINEERING COMPANY



HAMLIN TOWNSHIP

GUARDRAIL DETAILS  
LAKESHORE DRIVE  
OVER SOUTH BAYOU

**SCCO**  
SCOTT CIVIL ENGINEERING COMPANY  
GRAND RAPIDS, MICHIGAN

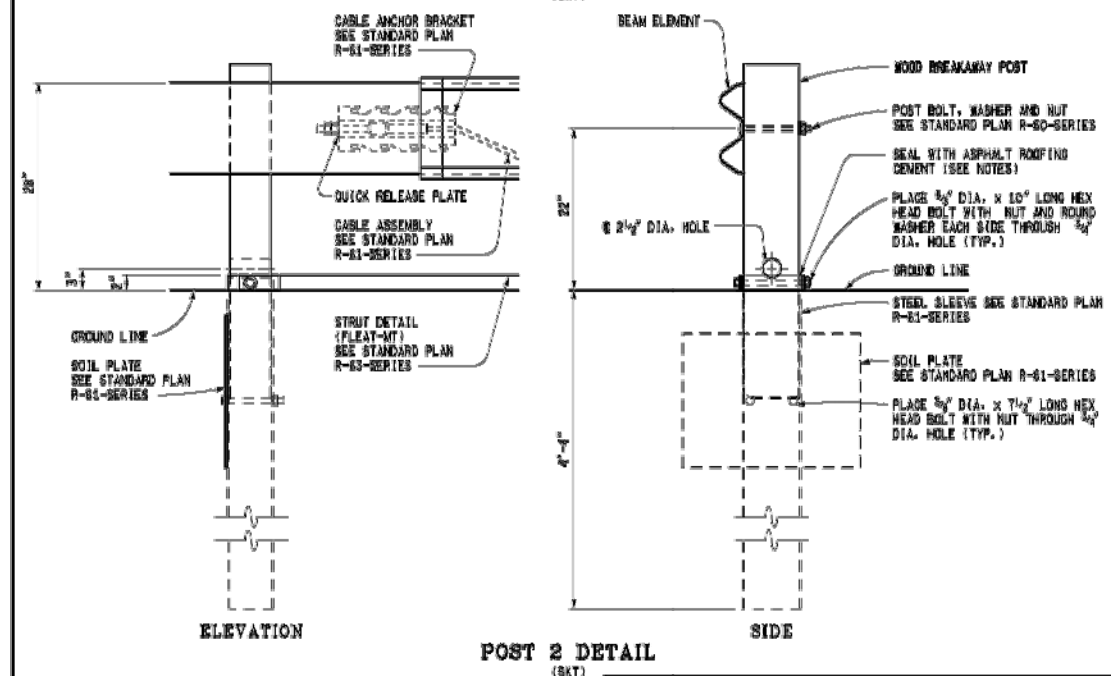
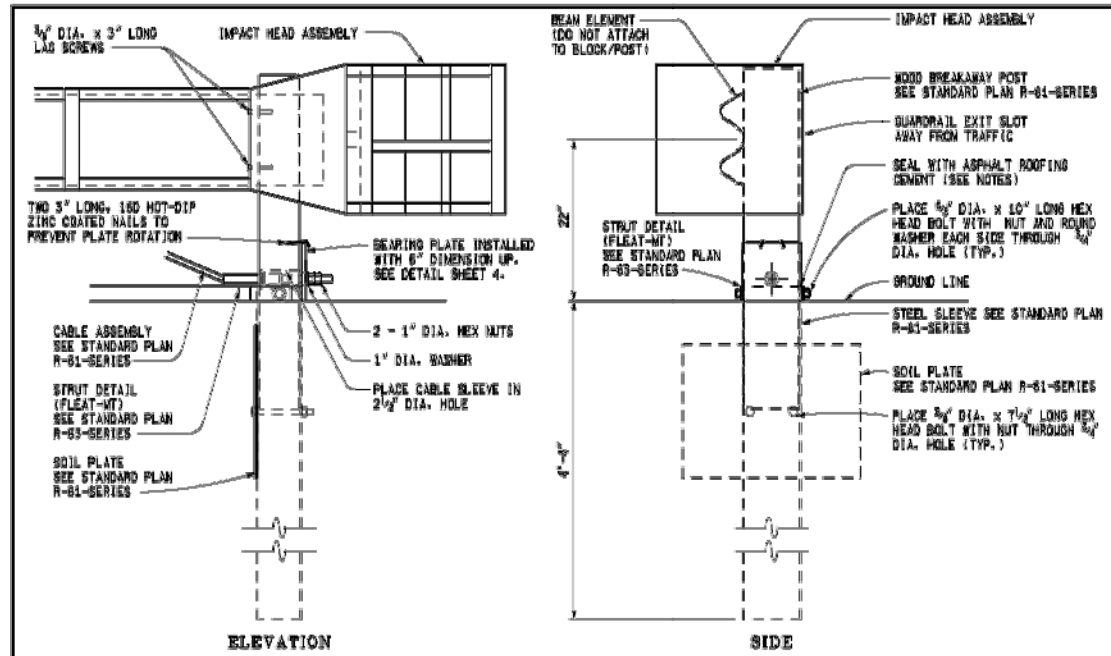
11  
15

AE CHECKED NNN DATE 10/19/23

WRP040382-1.0

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

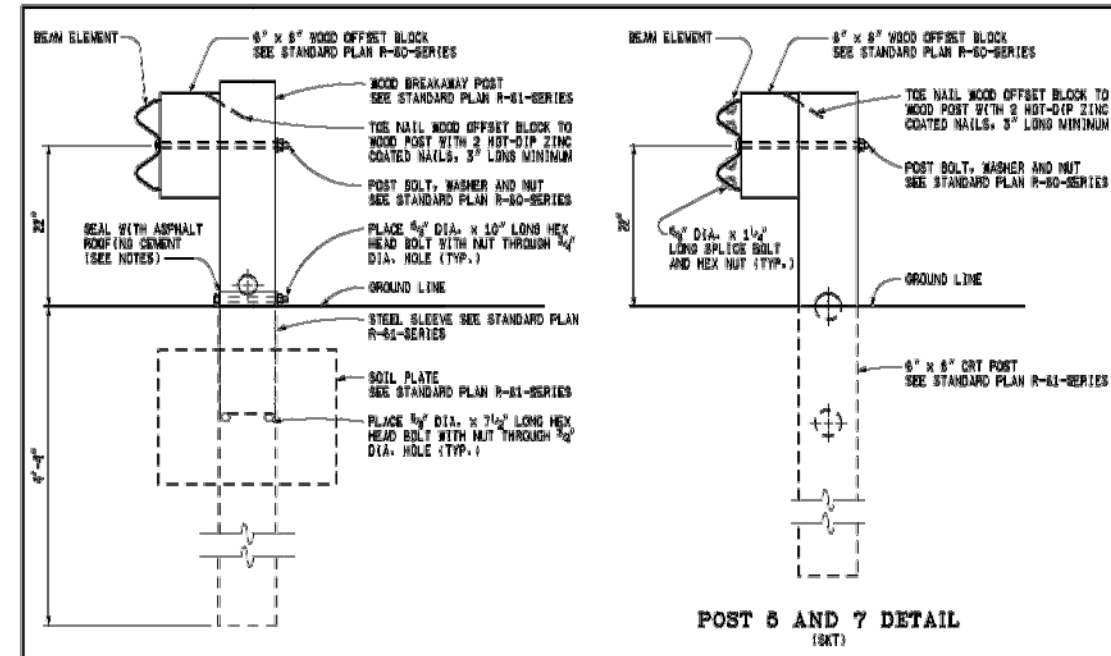




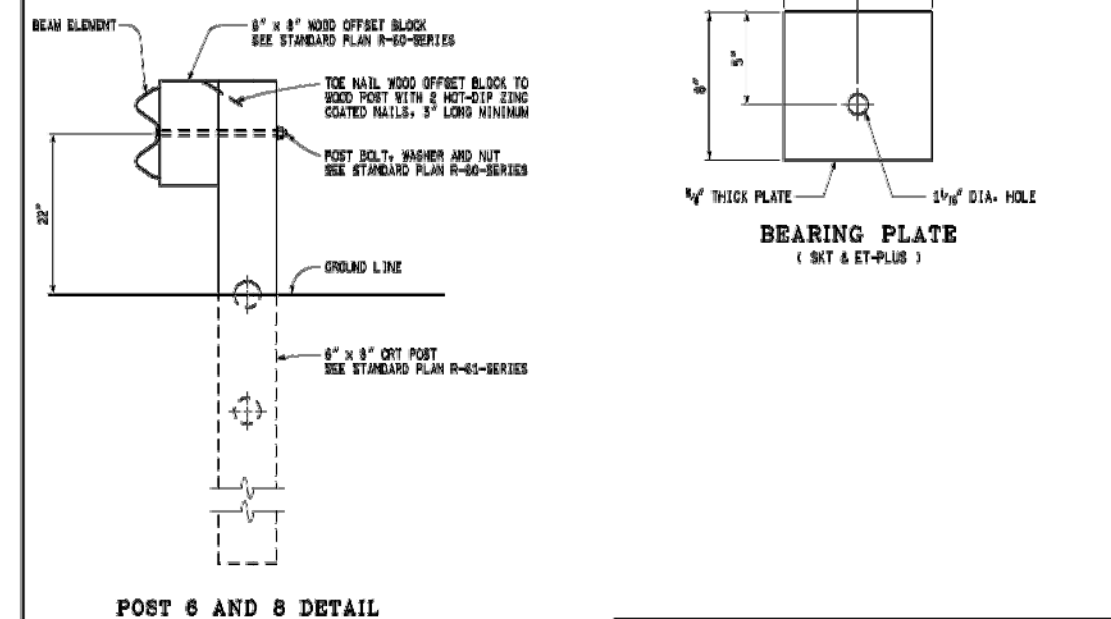
**NOTE:**  
 AFTER THE CABLE ASSEMBLY IS TAUT, A SECOND NUT SHALL BE INSTALLED ON EACH END OF THE CABLE SO THAT THE CABLE WILL NOT LOOSEN.  
 ASPHALT ROOFING CEMENT SHALL BE USED TO SEAL THE PERIMETER AREA BETWEEN THE STEEL SLEEVE (SOIL TUBE) AND THE WOOD BREAKAWAY POST.

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

R-62-H-LAP SHEET 3 OF 9



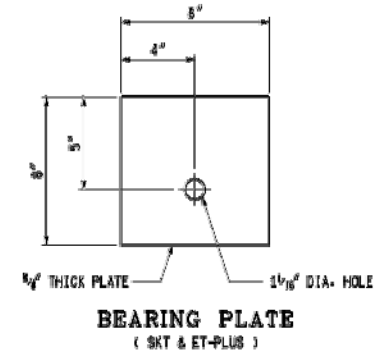
**NOTE:** BEAM ELEMENTS ARE SPLICED TOGETHER AT POST 3 (SKT)



**NOTE:**  
 ASPHALT ROOFING CEMENT SHALL BE USED TO SEAL THE PERIMETER AREA BETWEEN THE STEEL SLEEVE (SOIL TUBE) AND THE WOOD BREAKAWAY POST.  
 THE SECOND, THIRD, AND FOURTH BEAM ELEMENTS ARE STANDARD RAIL. (POSTS 3 THROUGH 6)  
 POST 9 IS A STANDARD LINE POST.

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

R-62-H-LAP SHEET 4 OF 9



HAMLIN TOWNSHIP

GUARDRAIL DETAILS  
 LAKESHORE DRIVE  
 OVER SOUTH BAYOU

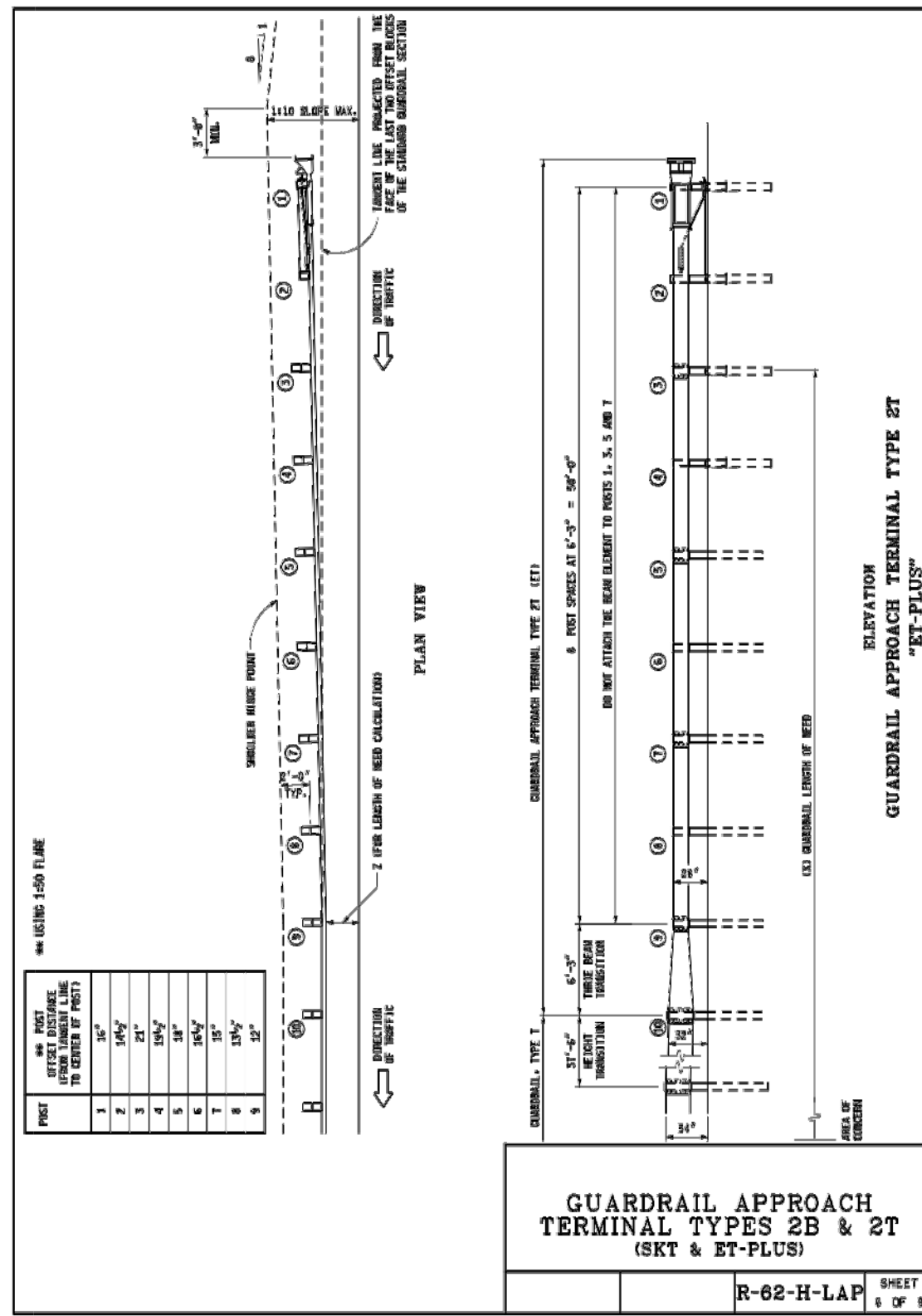
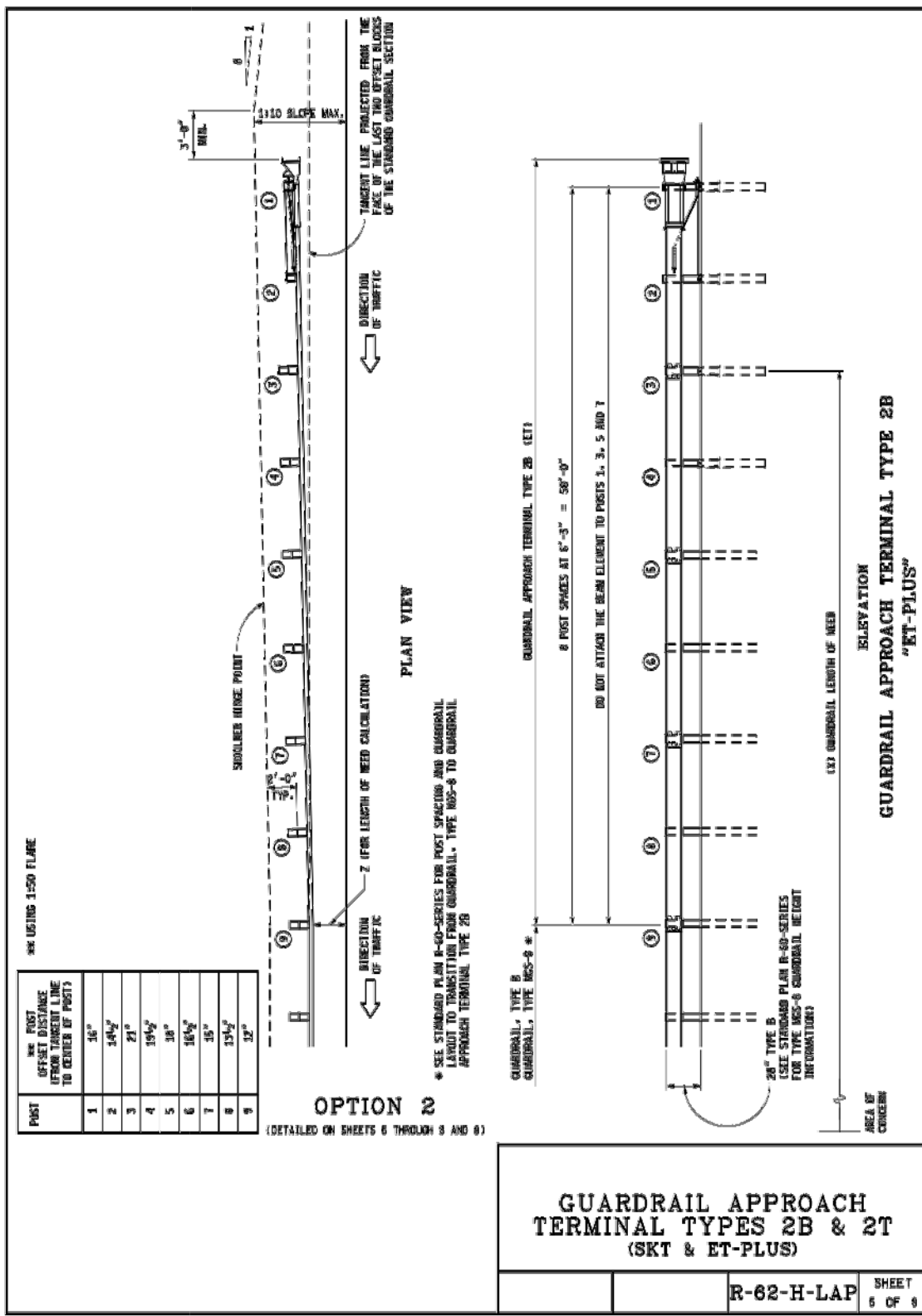
**SCCO**  
 SCOTT CIVIL ENGINEERING COMPANY  
 GRAND RAPIDS, MICHIGAN

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

12  
 15  
 WRP040387-1.0

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





HAMLIN TOWNSHIP

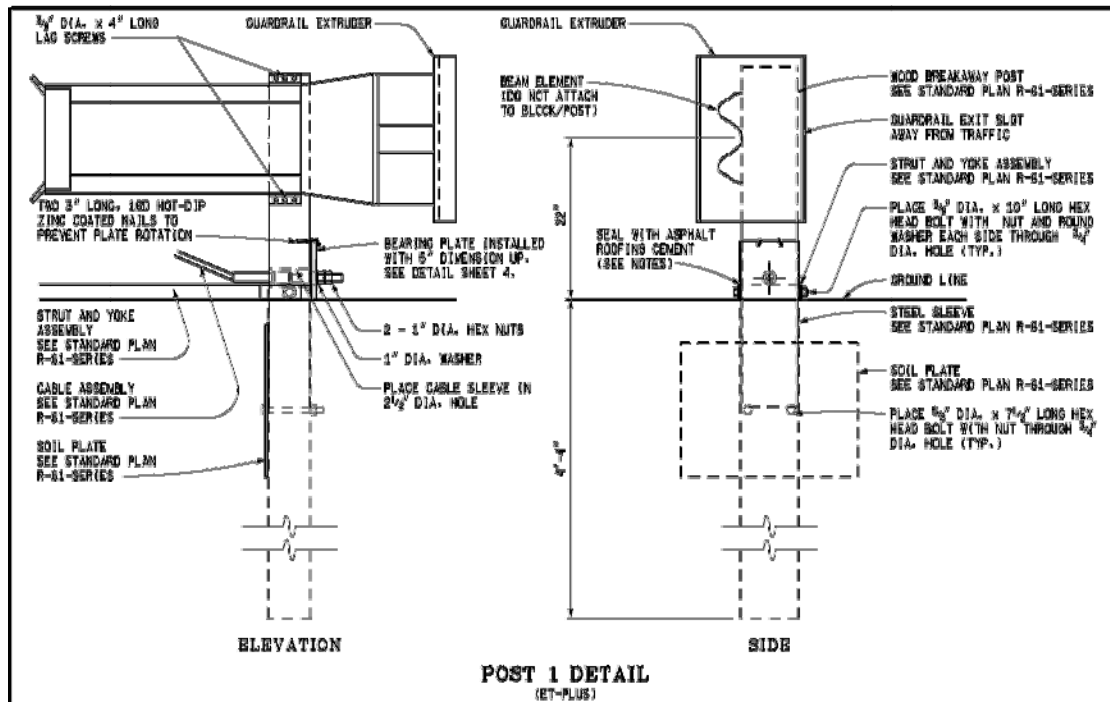
GUARDRAIL DETAILS  
LAKESHORE DRIVE  
OVER SOUTH BAYOU

**SCECO**  
SCOTT CIVIL ENGINEERING COMPANY  
GRAND RAPIDS, MICHIGAN

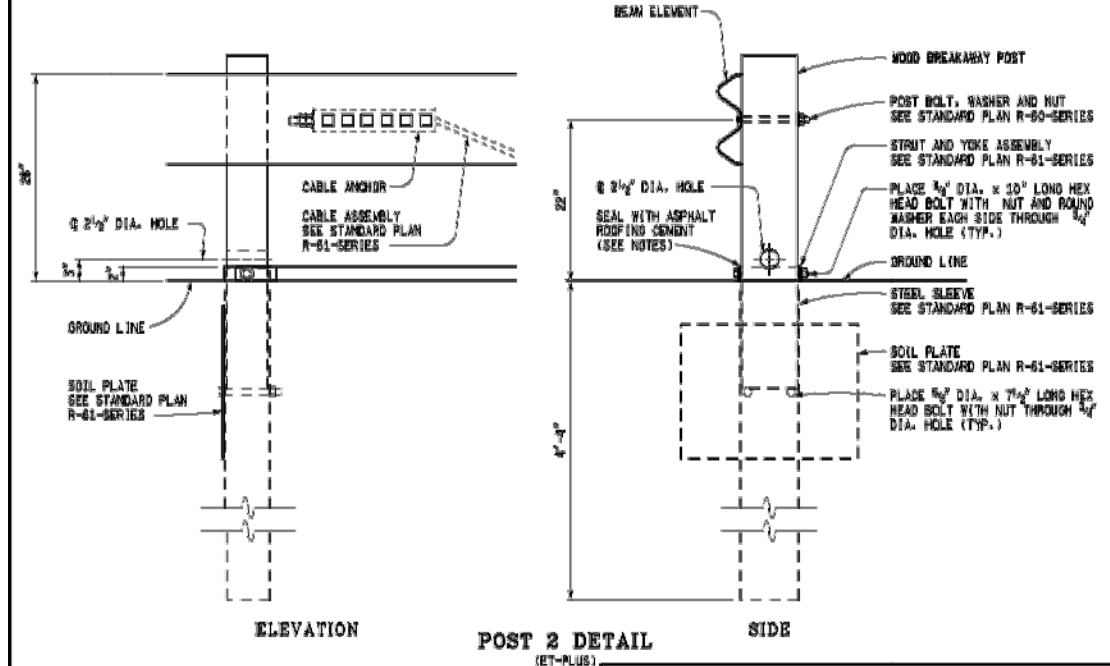
DRAWN *AE* CHECKED *NNN* DATE 10/19/23

13  
15  
1.0

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



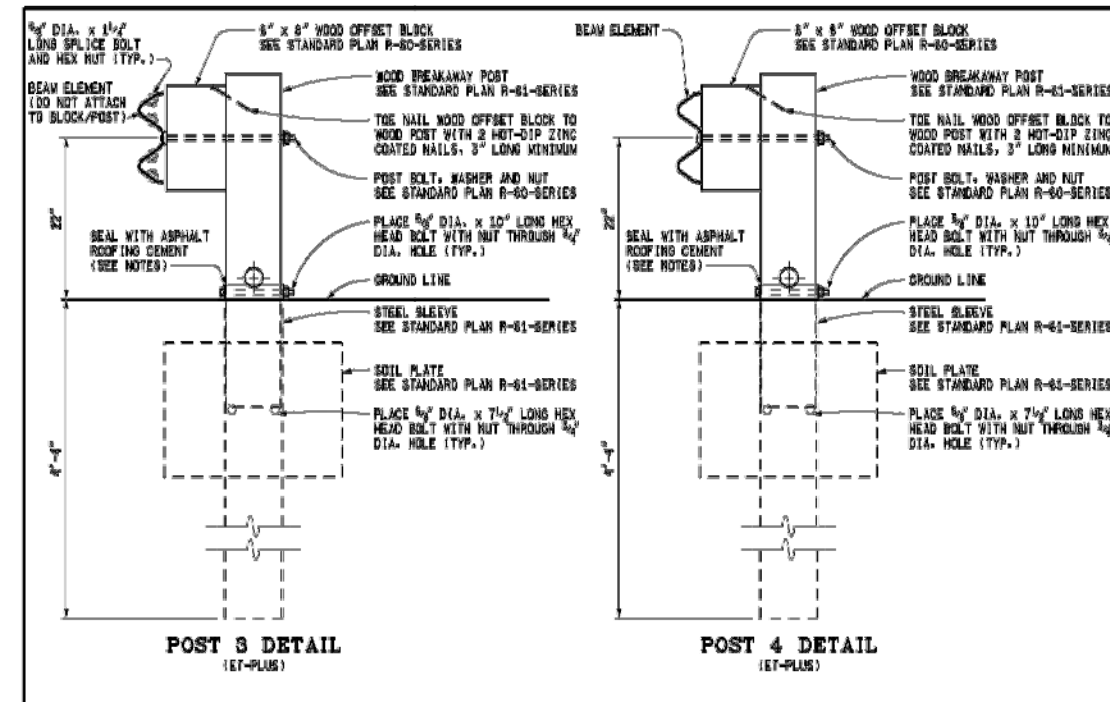
**POST 1 DETAIL**  
(ET-PLUS)



**POST 2 DETAIL**  
(ET-PLUS)

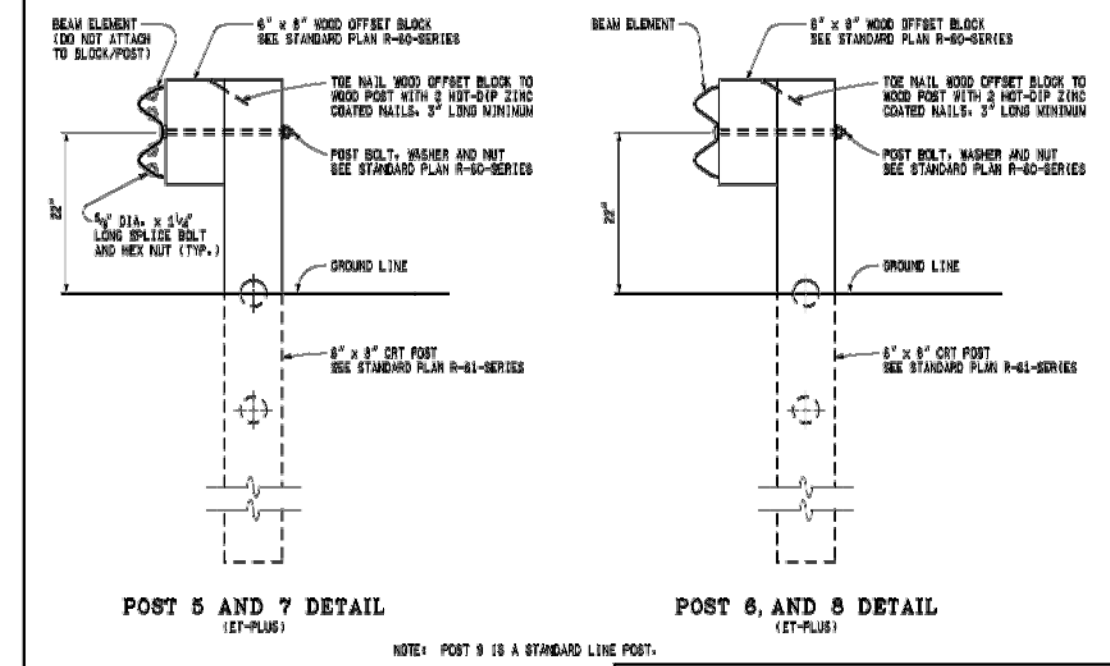
**GUARDRAIL APPROACH  
TERMINAL TYPES 2B & 2T  
(SKT & ET-PLUS)**

R-62-H-LAP SHEET 7 OF 9



**POST 3 DETAIL**  
(ET-PLUS)

**POST 4 DETAIL**  
(ET-PLUS)



**POST 5 AND 7 DETAIL**  
(ET-PLUS)

**POST 6, AND 8 DETAIL**  
(ET-PLUS)

NOTE: POST 9 IS A STANDARD LINE POST.

NOTE:  
ASPHALT ROOFING CEMENT SHALL BE USED TO SEAL THE PERIMETER AREA BETWEEN THE STEEL SLEEVE (SOIL TUBE) AND THE WOOD BREAKAWAY POST.  
THE SECOND, THIRD, AND FOURTH BEAM ELEMENTS ARE STANDARD RAIL. (POSTS 5 THROUGH 9)  
POST 9 IS A STANDARD LINE POST.

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

R-62-H-LAP SHEET 8 OF 9

HAMLIN TOWNSHIP

GUARDRAIL DETAILS  
LAKESHORE DRIVE  
OVER SOUTH BAYOU

**SCCO**  
SCOTT CIVIL ENGINEERING COMPANY  
GRAND RAPIDS, MICHIGAN

14  
15  
1.0

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

**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-80-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-82-H-LAP SHEET  
8 OF 8

HAMLIN TOWNSHIP

GUARDRAIL DETAILS  
LAKESHORE DRIVE  
OVER SOUTH BAYOU



SCOTT CIVIL ENGINEERING COMPANY  
GRAND RAPIDS, MICHIGAN

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

15  
15

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