



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
GRAND RAPIDS



LIESL EICHLER CLARK
DIRECTOR

December 23, 2020

Watson Drain Drainage District & Cloverdale Drain Drainage District c/o Barry County Drain
Commissioner
220 W State St
Hastings, MI 49058

Dear Watson Drain Drainage District & Cloverdale Drain Drainage District c/o Barry County
Drain Commissioner:

SUBJECT: Draft Permit for Countersignature; Submission Number: HNR-EXFE-SV4Z9;
County: Barry; Project Name: 08-Delton Rd.-Delton

The Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD), has reviewed the above-referenced application for permit pursuant to Part 301, Inland Lakes and Streams, and Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The purpose of the project, as depicted in your application, is to:

Authorized activity shown on Pg. 2-3: Install a lake level gauge in Upper Crooked Lake. Install a 12-inch pressure-pipe in the Delton Road Infiltration Basin to facilitate pumping to the Delton Marsh on a temporary basis for the alleviation of floodwaters on Upper Crooked Lake in the absence of a permanent solution. This pump system includes a screen filter (ALT1: AMIAD EBS 10K (4-Micron Screen) or ALT2: Filtersafe BS-400E (25-Micron Screen)). The 12 inch pressure-pipe will temporarily discharge water into the Delton Marsh through riprap to be installed in upland before entering the Delton Marsh. Install lake level gauges in front of the screened intake structure for the suction line. This permit does not authorize additional wetland impacts in this location.

Authorized activity shown on Pg. 4: Install a total of 2 lake level gauges, one on either side of Stevens Road.

Authorized activity shown on Pg. 5: Install a lake level gauge in Cloverdale Lake. Remove most of the existing 10 inch storm pipe between Cloverdale Lake and Long Lake and install a 36 inch intake pipe to a fixed weir control structure that connects to a 24 inch storm sewer under Guernsey Lake Road and outlets into Jones Lake. A gradual controlled drawdown of Cloverdale Lake using multiple 6-inch tall stoplogs in the control structure is authorized down to the fixed concrete elevation of 922.00 feet. Once removed, the stoplogs cannot be added back to the control structure without an additional permit giving authorization for that activity. The intake pipe from Cloverdale Lake will include a 1 mm cylindrical wedge wire screen and dredging of a 15 foot by 1 foot area totaling 17 cubic yards sediment dredged from wetland. To facilitate construction, 40 feet of sheet pile will be installed in the area of the intake structure and pumped water will be discharged through a dewatering bag in upland. The dewatering bag shall be removed upon completion of construction. Install a lake level gauge in Long Lake. Place 14 cubic yards of MDOT heavy riprap 20 feet long, 15 feet wide, over geotextile fabric in wetland along the ordinary high-water mark of Long Lake below the storm sewer to prevent erosion at the culvert outlet.

December 23, 2020

Page 2

Authorized activity shown on Pg. 6: Install a total of 2 lake level gauges, one on either side of North Shore Drive. Install a 4 foot wide by 3 foot deep box culvert 9 feet long between Long Lake and an unnamed stream that ultimately becomes the West Branch of Fall Creek to replace existing side by side culverts that are 24 inch and 21 inch diameter. Place fill 20 feet wide, 60 feet long for a temporary access drive through 0.039 acres of wetland on the North side of North Shore Drive which will be removed after construction of the new road. Install 40 linear feet of steel sheet pile in front of the culvert to facilitate construction, that shall be removed upon completion.

We have determined that the project can be permitted. Enclosed is a draft permit that requires a countersignature.

Carefully review and fully understand the draft permit and all of its associated terms and conditions. As the permittee, you are responsible for assuring that the project is completed as authorized and in compliance with permit requirements. If you agree to all of the terms and conditions, sign the draft permit in the space provided, initial each of the drawings, and return the entire document to our office within 30 days of the date of this letter.

This permit is not valid until signed by an official of the WRD. Upon return of the signed and initialed document from you, the WRD will issue the permit in a timely manner and return a signed copy to you. Construction activity is not authorized to begin until a valid permit is held at the project site. If you do not return the signed and initialed document by the required date, an application denial letter will be sent to you.

If you have any questions regarding the specifics of this draft permit, please contact me at 616-401-1201; kruppk1@michigan.gov; or EGLE, WRD, Grand Rapids District Office, State Office Building, Fifth Floor, 350 Ottawa Ave NW, Unit 10, Grand Rapids, MI, 49503-2341. Please include your submission number, HNR-EXFE-SV4Z9, in your response.

Sincerely,



Kelsey Krupp
Grand Rapids District Office
Water Resources Division

Enclosure

cc: Hope Township Clerk
Barry Township Clerk
Barry County Drain Commission
Barry County
Brian Cenci, Agent
Nick DeSimpelare, Agent
EGLE, Audrie Kirk
EGLE, Amy Barry



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

Issued To:

**Watson Drain Drainage District & Cloverdale Drain Drainage District c/o Barry County Drain Commissioner
220 W State St
Hastings, MI 49058**

**Permit No: WRP026548 v.1
Submission No.: HNR-EXFE-SV4Z9
Site Name: 08-Delton Road-Delton
Issued: DRAFT
Expires: DRAFT**

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:

Part 301, Inland Lakes and Streams **Part 303, Wetlands Protection**

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

Authorized Activity:

Authorized activity shown on Pg. 2-3: Install a lake level gauge in Upper Crooked Lake. Install a 12 inch pressure-pipe in the Delton Road Infiltration Basin to facilitate pumping to the Delton Marsh on a temporary basis for the alleviation of floodwaters on Upper Crooked Lake in the absence of a permanent solution. This pump system includes a screen filter (ALT1: AMIAD EBS 10K (4-Micron Screen) or ALT2: Filtersafe BS-400E (25-Micron Screen)). The 12 inch pressure-pipe will temporarily discharge water into the Delton Marsh through riprap to be installed in upland before entering the Delton Marsh. Install lake level gauges in front of the screened intake structure for the suction line. This permit does not authorize additional wetland impacts in this location.

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Authorized activity shown on Pg. 6: Install a total of 2 lake level gauges, one on either side of North Shore Drive. Install a 4 foot wide by 3 foot deep box culvert 9 feet long between Long Lake and an unnamed stream that ultimately becomes the West Branch of Fall Creek to replace existing side by side culverts that are 24 inch and 21 inch diameter. Place fill 20 feet wide, 60 feet long for a temporary access drive through 0.039 acres of wetland on the North side of North Shore Drive which will be removed after construction of the new road. Install 40 linear feet of steel sheet pile in front of the culvert to facilitate construction, that shall be removed upon completion. All work shall be done in accordance with attached plans and permit specifications.

Waterbody Affected: Crooked Lake, Wilkinson Lake, Cloverdale Lake, Long Lake, and an unnamed stream

Property Location: Barry County, Hope and Barry Township, Town/Range/Section 01N/09W/06

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, 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 www.mi.gov/eglestormwater and select "Soil Erosion and Sedimentation Control Program" under "Related Links."
 - 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, including but not limited to explicit landowner easements and authorizations required on property where the permitted activities take place.
 - 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. 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 or continuation of the authorized activities mentioned above is required, a new permit must be sought.
7. The authorizations in this permit are limited to those identified above. This permit does not remove the permittee's liability or responsibility regarding any damage to adjacent properties, groundwater levels, or water wells in the vicinity of the project. Projects which include the pumping or discharge of water may require a National Pollution Discharge Elimination System (NPDES) permit under Part 31, Water Resources Protection, of the NREPA. Also, removal or pumping of groundwater that interferes with drinking water wells in the area are subject to dispute resolution as outlined in Part 317 Aquifer Protection and Dispute Resolution, of the NREPA. Water shall not be withdrawn from a lake, wetland, or stream in such quantity and/or duration so as to adversely impact or degrade water quality standards, aquatic life, riparian rights or uses. In addition, large quantity water withdrawal may require a permit be obtained from or an annual report be submitted to EGLE's Water Resource Division under the authority of Part 327, Great Lakes Preservation, of the NREPA.
8. All raw areas in uplands 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.
9. 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.
10. All fill/backfill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants.
11. All fill 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.
12. No work within regulated Part 303 or Part 301 areas is allowed or authorized by this permit from October 15 to May 1 to protect the riparian area, public and private property, and populations of turtles, frogs, and other organisms that burrow into sediments overwinter or from March 15 to June 30 due to critical spawning, migration, and/or recreational use periods.
13. This permit is limited to authorizing the construction as specified above and carries with it no assurances or implications that associated lake, stream, wetland or floodplain areas can be developed and serviced by the structures authorized by this permit.
14. Prior to the start of construction, all adjacent non-work wetland areas shall be protected by properly trenched sedimentation barrier to prevent sediment from entering the wetland. Orange construction fencing shall be installed as needed to prohibit construction personnel and equipment from entering or performing work in these areas. Fence shall be maintained daily throughout the construction process. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site, the sedimentation barrier shall then be removed in its entirety and the area restored to its original configuration and cover.
15. All riprap shall be properly sized and graded based on wave action and velocity and shall consist of natural field stone or rock (free of paint, soil or other fines, asphalt, soluble chemicals, or organic material). Broken concrete is not allowed.

Conditions Specific to the Dredging Activities Shown on Page 5 of 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, and stabilized with sod and/or seed and mulch in such a manner to prevent and ensure against erosion of any material into any waterbody, wetland, or floodplain.
17. Prior to commencement of any dredging authorized by this permit, the entire dredged area shall be enclosed with a turbidity curtain to prevent off-site siltation. The turbidity curtain shall be installed to extend from the bed of the waterbody to a point above the existing water's surface. The turbidity curtain shall be maintained for the duration of the project and shall be left in place after completion of dredging until all disturbed sediments have settled.
18. The permittee is cautioned that excessive dredging resulting in the impairment of the structural integrity of seawalls on neighboring riparian properties is subject to civil damage litigation.

Conditions Specific to the Temporary Access Drive in Wetlands Shown on Page 6 of the Approved Plans

19. The permittee shall provide a restoration plan, including a construction sequence and timeline, defining how any permitted wetland fill will be removed and the site restored. The permittee shall notify EGLE Water Resources Division prior to initiation of the restoration plan.
20. Prior to the initiation of any permitted construction activity, a sedimentation barrier shall be installed along the entire route of the disturbed wetland area and maintained in good working order until permanent stabilization and re-vegetation of all disturbed areas has occurred. The sedimentation barrier shall be removed after re-vegetation.
21. Construction must be undertaken and completed during the dry period of the wetland, or when frozen.
22. If the area does not dry out or freeze, construction shall be done on equipment mats to prevent compaction of the soil.
23. Upon completion of the project, the disturbed wetland areas shall be restored to the original contour elevation, revegetated and reseeded with species native to Michigan appropriate to the site, and mulched to prevent erosion. Pictures need to be submitted from during the growing season post restoration showing the area as wetland.

Conditions Specific to the Authorized Intake Pipe and Box Culvert Shown on Page 5 and 6 of the Approved Plans

24. No work shall be done in the stream during periods of above-normal flows except as necessary to prevent erosion.
25. The existing culverts shall be kept open to pass the stream flow during removal of the existing road fill.
26. The placement of the new culvert and the initial placement of fill in the stream shall be done immediately after removal of the existing culvert. The placement shall be conducted in such a manner that all flow is immediately passed through the new culverts, allowing the major placement of fill to be done in the dry or in still water where erosion and siltation will be minimized. The fill material used in this initial placement shall be washed gravel, coarse aggregate, or rock and shall be placed at both ends of the culvert to a level above normal water level before backfill material is placed.
27. During work shown on page 6 of the approved plans, and until the site is stabilized, the stream shall be blocked off with clean stone, gravel bags, or other acceptable materials, and the water pumped around the crossing. Water shall be discharged into the watercourse with appropriate treatments to remove suspended particles and to dissipate energy. An extra pump shall be kept on site in the event of failure.
28. The culvert shall be installed to align with the center line of the existing stream at both the inlet and outlet ends and must be buried below the stream bed to provide a natural channel substrate through the structure as shown on the approved plans.

29. 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.

Flood Relief Pumping Restrictions

30. The Permittee shall stop pumping for any of the following reasons:
- a. Upper Crooked Lake level is 926 feet in elevation or lower.
 - b. Water levels at Cloverdale Lake outlet reach above 923.15 feet in elevation.
 - c. Water levels at Long Lake outlet reach above 908 feet in elevation.
 - d. Erosive forces are experienced at any of the outlet locations.
 - e. Stress on any of the impacted wetlands due to the pumping especially the bog system located on the opposite side of a private road (two track) crossing Delton Marsh.
 - f. Monitoring shows any adverse effects to any of the waterbodies within the receiving waters.

Monitoring

31. Within 45 days from issuance of this permit, the permittee shall develop, submit for EGLE approval, and then implement plans for monitoring water chemistry, aquatic invasive species, impacts to wetlands especially the bog systems and zooplankton using EGLE approved methods, in the Wilkinson Lake, Cloverdale Lake, Long Lake, and the unnamed stream/Fall Creek. One calendar year of baseline requirements for these parameters are required before construction begins.
32. Permittee agrees to record/collect water surface elevation (WSE) readings at least once per week, while pumping and for one week after pumping ceases, at the following locations:
- a. Delton Marsh outlet at Stevens Road on the upstream end. Vertical measurement from the culvert crown to the WSE shall be taken at each monitoring event.
 - b. Within Delton Marsh on both sides of the private road (two track) crossing. Vertical measurement in reference to the road surface elevation shall be taken at each monitoring event.
 - c. Cloverdale Lake outlet at Guernsey Lake Road on the upstream end. Vertical measurement from the culvert crown to the WSE shall be taken at each monitoring event.
 - d. Long Lake outlet on the upstream end. Vertical measurement from the culvert crown to the WSE shall be taken at each monitoring event.
- Measurements shall be taken with the use of a rigid measuring device in units of one tenth of one foot. If ice is present directly below the culvert crown, it shall be removed before sampling current WSE. If no water is present under the ice, or the ice cannot be removed, this shall be noted and a measurement to the surface of the ice shall be taken. A photo shall be taken depicting the measurement to WSE.
33. The permittee shall perform inspections of the intake pumps and the discharge site into Delton Marsh daily. The contractor shall also perform weekly inspection of the pipe route.
34. The permittee shall monitor gauged stream flows at the outlet of the project to ensure that flow rates and velocities are such that erosion to receiving stream system is not occurring. If erosion potential is detected, then pumping shall cease until flows are to an acceptable level to protect downstream waters. Any erosion shall be noted, reported to EGLE, and a corrective action plan submitted.
35. Monitoring as required in permit conditions above may be performed either by the permittee or by a designated third-party representative of the permittee. For any required monitoring that is to be conducted by a third-party, the permittee agrees to submit written documentation of any monitoring agreement/arrangement with the third party.

36. Permittee shall conduct wetland inspection once per month at the Delton Marsh and Cloverdale chain bog wetlands for the duration of pumping. EGLE may establish additional wetland monitoring sites later based on monitoring information submitted and site inspections. Progression and encroachment of any project-related surface water into these sensitive wetlands, as well as first signs of vegetation stress during the growing season, shall be documented. Monitoring shall include:
- a. A rapid general assessment of vegetation, soil saturation, and current water levels and inundation distribution at and near each monitoring site.
 - b. Photo documentation from permanent photo station in cardinal directions, orientated towards the ground surface (i.e., a photo view of ground surface at a shallow viewing angle that shows approximately 5 feet from the plot center outward to potentially 30+ feet from the plot center)
 - c. Staff gauge measurement of inundation (i.e., water depth) at plot center point, as well as water depth measurements at the base of all nearby woody vegetation (i.e., trees and large shrubs within 15-ft radius). The permittee shall install staff gauges for WSE readings and submit documentation of their locations on a map in site plan view and shall remain in the same locations after installation. Reports shall show any changes in WSE in collected data and cross section and include elevations of the existing wetland ground surface and previously collected water levels.
 - d. Evidence of stunted or stressed woody or herbaceous vegetation
 - e. Summary of any other relative changes (i.e., changes noted since previous wetland monitoring inspection and since commencement of the project).
- The permittee shall hire a qualified wetland professional to conduct the wetland monitoring. A concise report of the wetland monitoring shall be provided to MDEQ no longer than 3 business days after the date of the wetland monitoring.

Upon signing by the permittee named herein, this permit must be returned to EGLE, Water Resources Division, 350 Ottawa Avenue NW Unit 10, Grand Rapids, MI 49503-2341 for final execution. This permit shall become effective on the date of EGLE representative's signature. Permittee hereby accepts and agrees to comply with the terms and conditions of this permit.

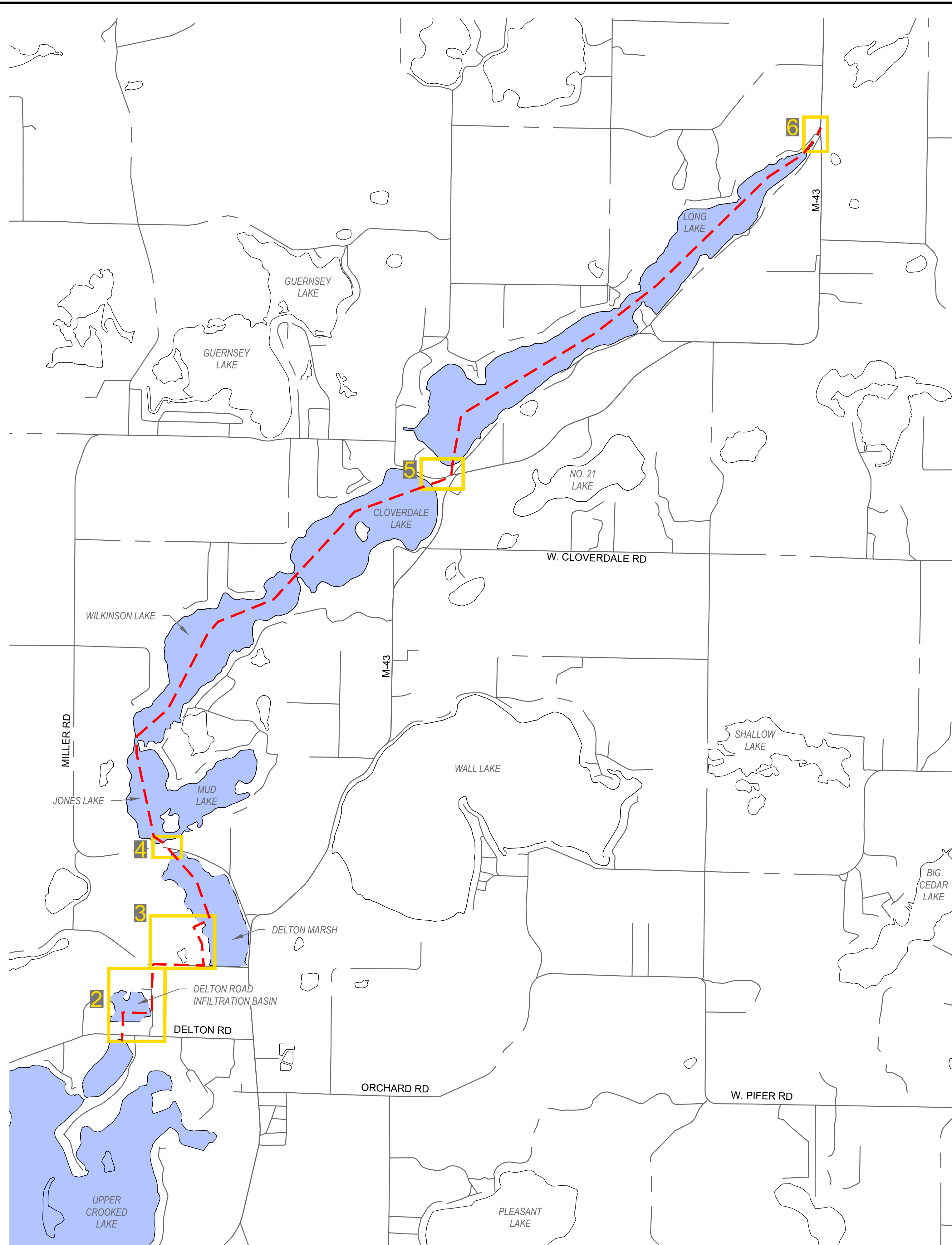
Permittee Date

Printed Name and Title of Permittee

Issued By: _____
Kelsey Krupp
Grand Rapids District Office
Water Resources Division
616-401-1201

- cc: Hope Township Clerk
Barry Township Clerk
Barry County Drain Commissioner
Barry County Clerk
Brian Cenci, Agent
Nick DeSimpelare, Agent
EGLE, Audrie Kirk
EGLE, Amy Berry

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COVER SHEETS LEGEND:

- ROAD €
 - SHEET NUMBER
 - WATER BODIES IN PROJECT
 - PROPOSED FLOODWATER CONVEYANCE ROUTE*
- *ROUTE INCLUDES EXISTING WATER BODIES, EXISTING UNIMPROVED INFRASTRUCTURE, PROPOSED IMPROVEMENTS TO EXISTING INFRASTRUCTURE AND NEWLY PROPOSED INFRASTRUCTURE. SEE PLAN & PROFILE SHEETS FOR DETAILS.

PLAN & PROFILE SHEETS LEGEND:

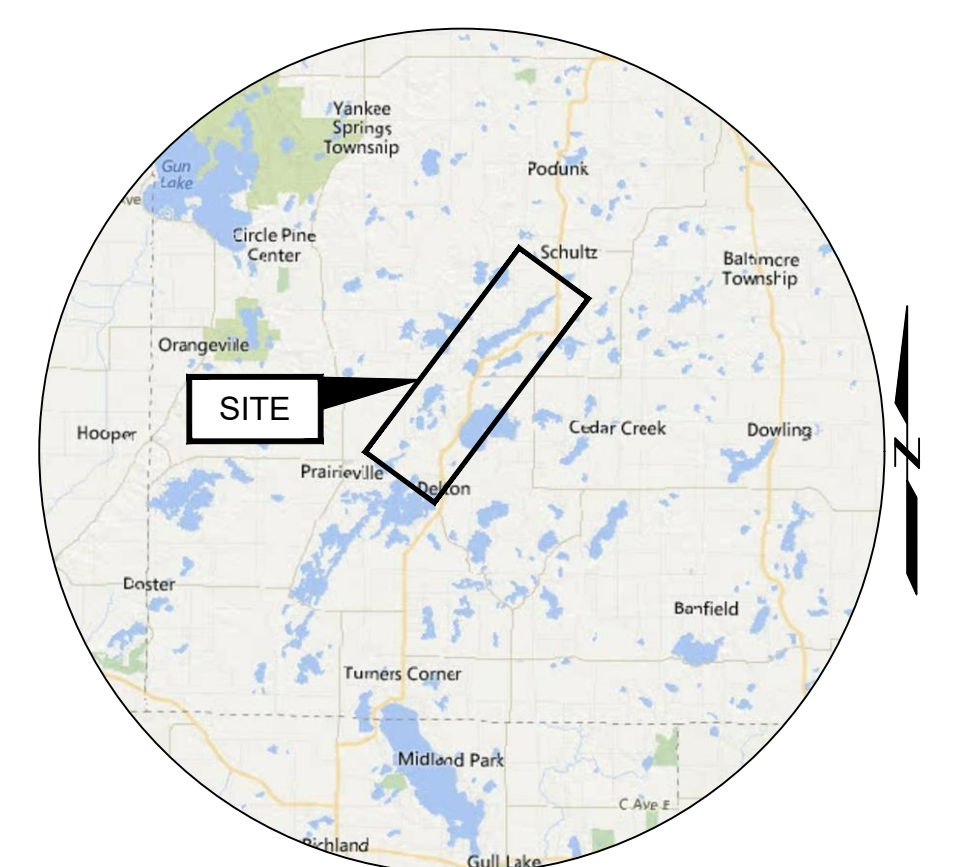
- PROPERTY LINE
- EASE EASEMENT
- ROW ROAD RIGHT OF WAY
- STATIONING ALIGNMENT
- CONTOUR INTERVAL (5 FOOT)
- INDEX CONTOUR INTERVAL (25 FOOT)
- EXISTING GROUND SURFACE - PROFILE VIEW
- EXISTING STORM SEWER - PLAN & PROFILE VIEW
- EXISTING PRESSURE PIPE - PLAN & PROFILE VIEW
- DELINEATED WETLAND BOUNDARY
- APPROXIMATED WETLAND BOUNDARY
- SURVEYED WATERS EDGE (10/21/19)
- PROPOSED GROUND SURFACE - PROFILE VIEW
- PROPOSED PAVEMENT RESTORATION
- PROPOSED STORM SEWER - PLAN & PROFILE VIEW
- PROPOSED PRESSURE PIPE - PLAN & PROFILE VIEW
- PROPOSED RIPRAP
- PROPOSED SILT FENCE SF
- PROPOSED TURBIDITY CURTAIN TC
- PROPOSED SHEET PILE
- PROPOSED/EXISTING MANHOLE
- PROPOSED/EXISTING PUMP
- EXISTING WATER LEVEL GAGUE
- PROPOSED TEMPORARY SESC MEASURE
- PROPOSED PERMANENT SESC MEASURE
- SWMM EX. CONDITIONS MODEL AVG. WSEL (MAY-NOV)
- SWMM PROP. CONDITIONS MODEL AVG. WSEL (MAY-NOV)

SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	UPPER CROOKED LAKE TO PINE LAKE ROAD - PLAN & PROFILE
3	PINE LAKE ROAD TO DELTON MARSH - PLAN & PROFILE
4	STEVENS ROAD CROSSING - PLAN & PROFILE & PROJECT DETAILS
5	CLOVERDALE LAKE OUTLET - PLAN & PROFILE
6	LONG LAKE OUTLET - PLAN & PROFILE

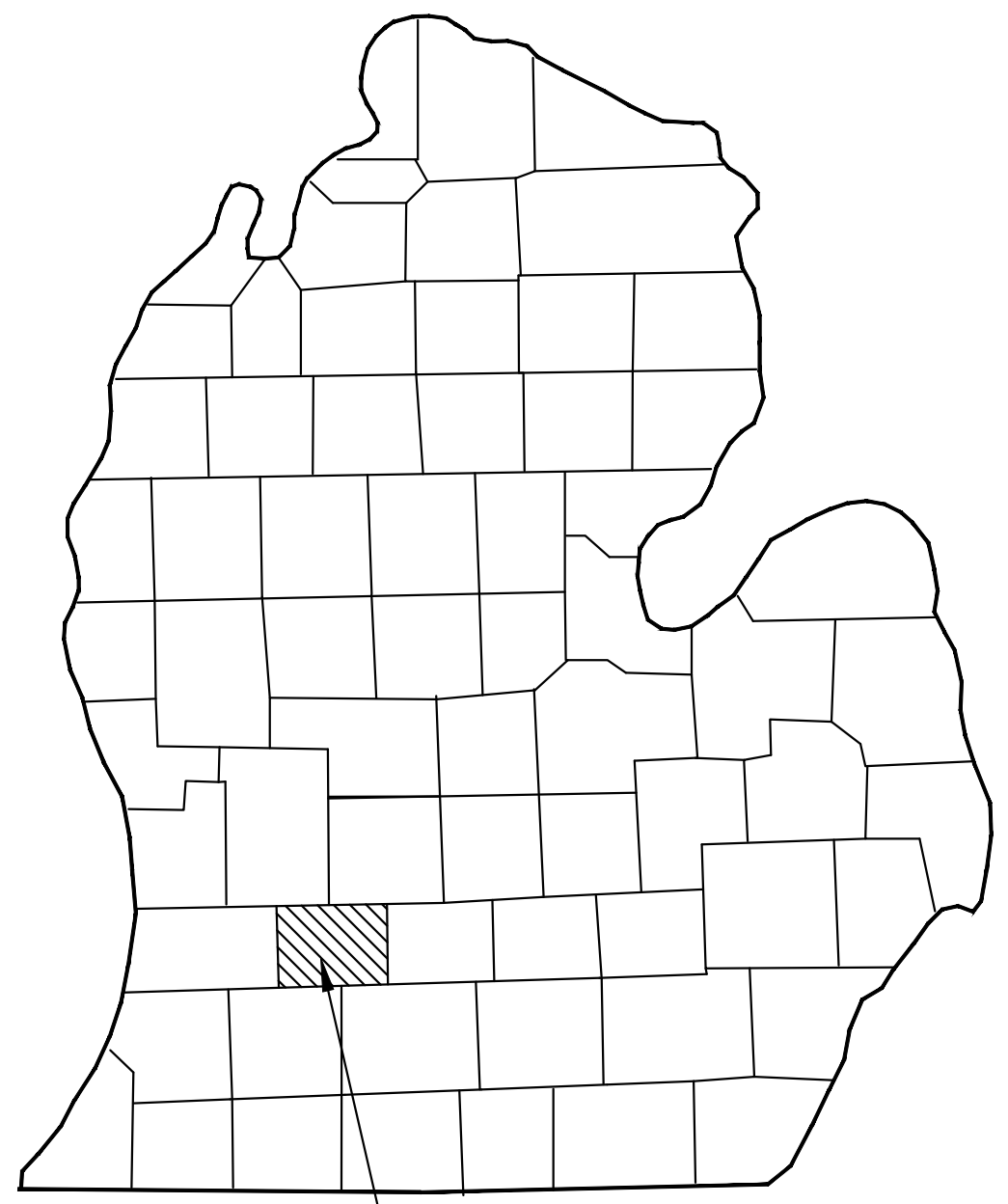
MACDC - SESC MEASURES

KEY	SESC MEASURE	SYMBOL	WHERE USED
1	Seeding		When bare soil is exposed, temporarily or permanently, to erosive forces from wind and or water on flat areas, mid slopes, grassed waterways and spillways, diversion ditches and dikes, borrow and stockpile areas, and spoil piles.
2	Mulch		On flat areas, slopes, grassed waterways and spillways, diversion ditches and dikes, borrow and stockpile areas, and spoil piles when areas are subject to raindrop impact, and erosive forces from wind or water.
5	Perimeter Sediment Control Measures (Silt Fence, Straw Watties, etc.)		As a temporary measure used to capture sediment from sheet flow. May also divert small volumes of sheet flow to protected outlets.
7	Storm Drain Inlet Protection		Around the entrance to a catch basin or an inlet that will capture runoff from an earth change activity.
10	Soil Binding Polymers		Over all exposed soil surfaces or prepared seed beds that need protection from precipitation impact, sheet flow, till flow or wind prior to erosive force impact.
15	Riprap		Along drain banks, shorelines, or where concentrated flows occur. Slows velocity, reduces erosion and sediment load.
23	Outfall Stabilization		In the stream or drain bank usually above the ordinary high water mark where an enclosed drain or tile discharges to an open drain.
29	Temporary Check Dam		In constructed and existing flow corridors to reduce flow velocities.
38	Sheet Piling		As a permanent measure in locations where a vertical bank is required and other erosion control measures have failed. As a weir. As a temporary cofferdam during construction.
39	Dewatering/Bypass Pumping		When construction or maintenance activities are limited by the presence of water and a dry work area is required.
40	Turbidity Curtain		Within a stream or drain parallel to flow when a slack water area is necessary to isolate earth change activities from a lake or channel.

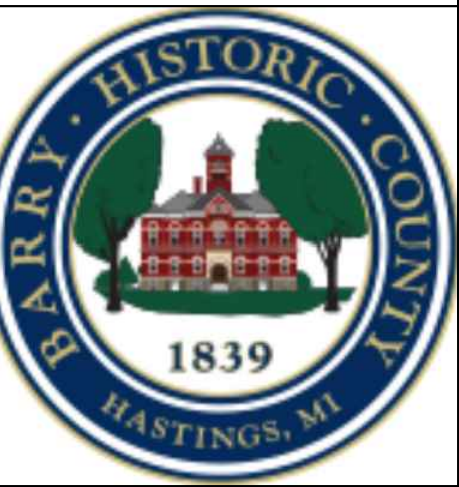


LOCATION MAP

SOURCE: GOOGLE MAPS
NO SCALE



PROJECT LOCATION - BARRY COUNTY, MI



APPLICANT: CLOVERDALE DRAIN DRAINAGE DISTRICT & WATSON DRAIN DRAINAGE DISTRICT
C/O: JIM DULL, BARRY COUNTY DRAIN COMMISSIONER
AGENT: GEI CONSULTANTS

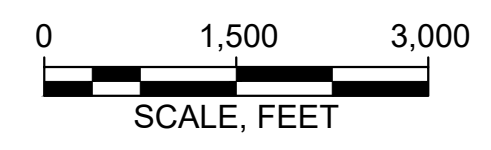
WATERBODIES: DELTON MARSH, CLOVERDALE LAKE & LONG LAKE
TOWNSHIP: BARRY & HOPE
COUNTY: BARRY

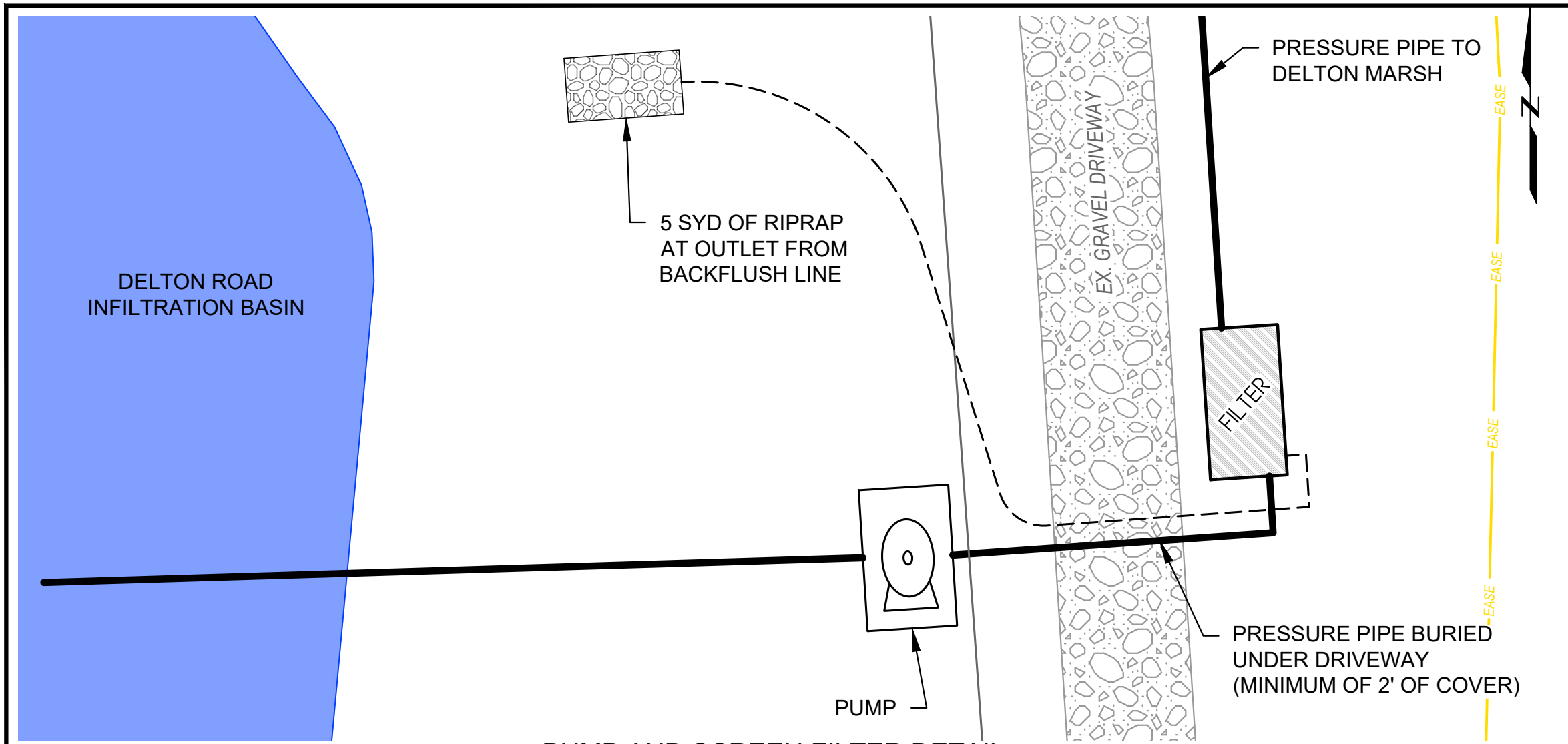
Attention: 1" scale bar
If this scale bar does not measure 1" then drawing is not original scale.
Designed: NJD
Checked: BJC
Drawn: LCM/MJW
Approved By: BJC

COVER SHEET

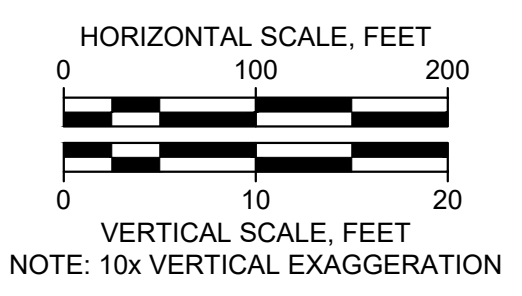
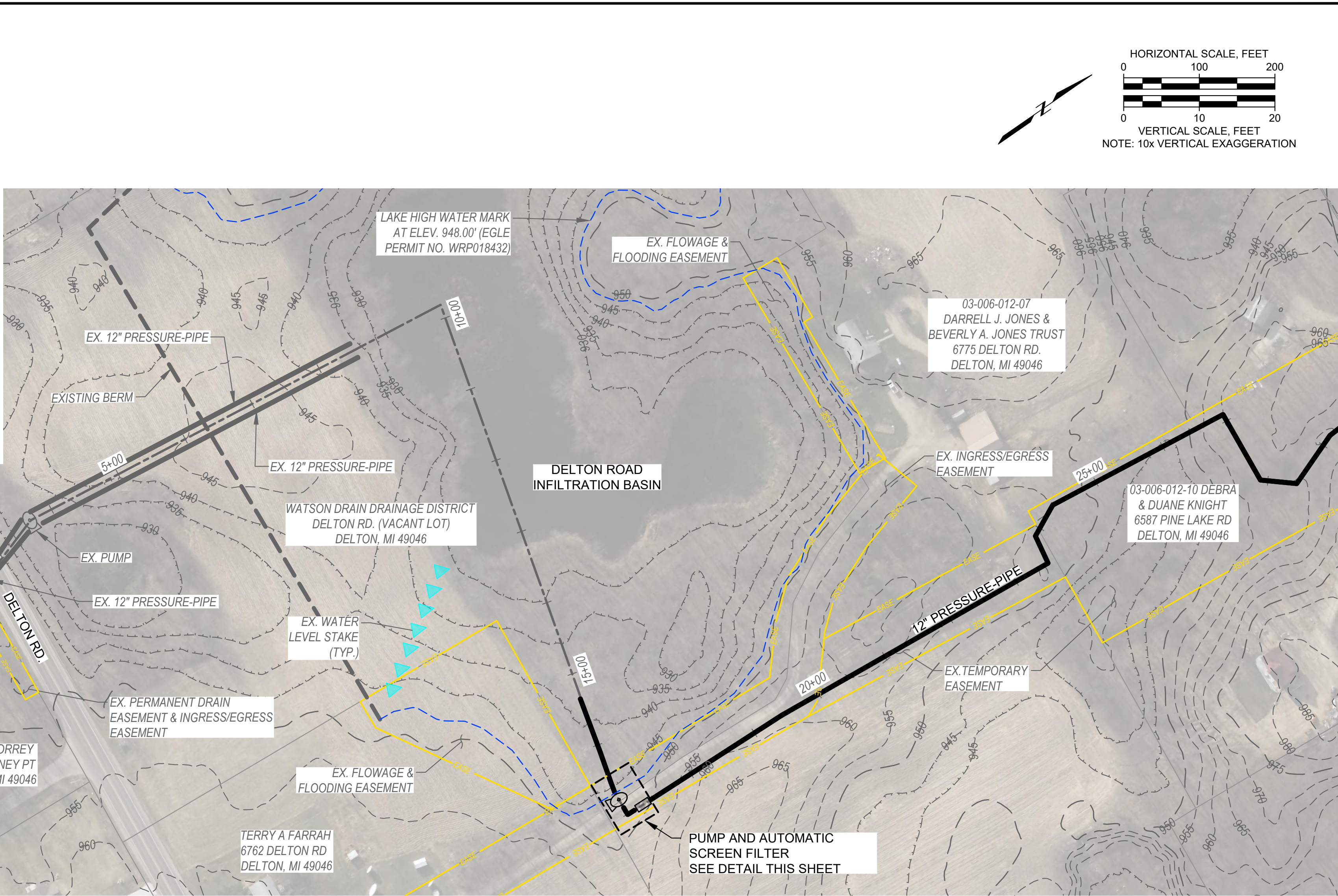
GEI Project 2000140
SHEET NO. 1

PERMIT APPLICATION PLAN SET





- DETAIL LEGEND:**
- AUTOMATIC SCREEN FILTER
ALT 1: AMIAD EBS 10K (40-MICRON SCREEN)
ALT 2: FILTERSAFE BS-400E (25-MICRON SCREEN)
 - PRESSURE PIPE
 - BACKFLUSH LINE

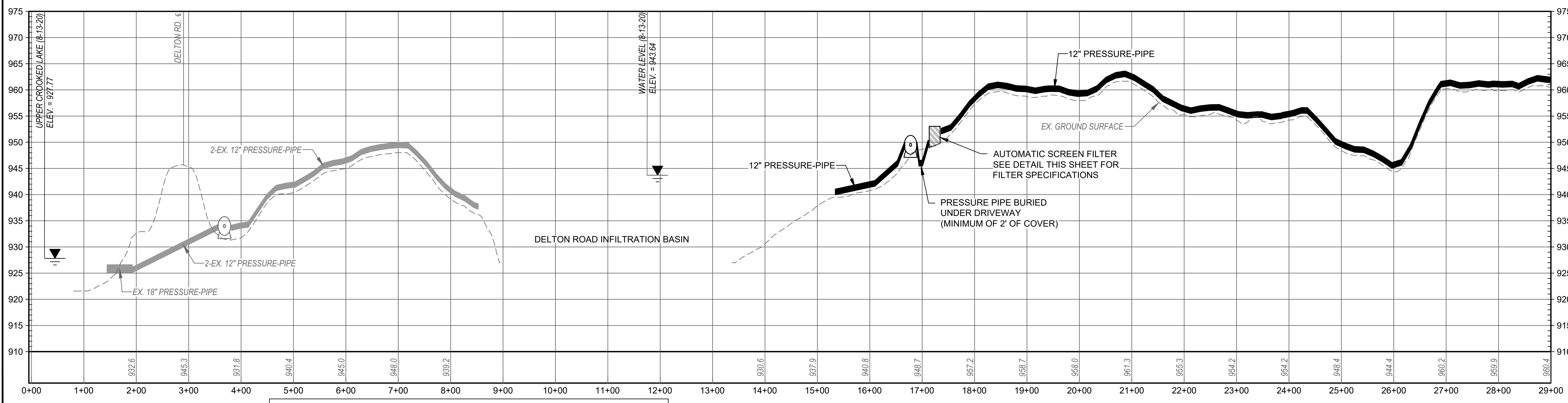


GEI Consultants
230 N. WASHINGTON SQUARE
SUITE 203
LANSING, MI 48933
(313) 863-2836

BARRY HISTORIC COUNTY
1839
HASTINGS, MI

APPLICANT: CLOVERDALE DRAIN DRAINAGE DISTRICT & WATSON DRAIN DRAINAGE DISTRICT
C/O: JIM DULL, BARRY COUNTY DRAIN COMMISSIONER
AGENT: GEI CONSULTANTS

WATERBODIES:
DELTON MARSH,
CLOVERDALE LAKE
& LONG LAKE
TOWNSHIP: BARRY
& HOPE
COUNTY: BARRY



- NOTES:**
1. ELEVATION DATUM: NAVD88
 2. ELEVATION UNITS: FEET ABOVE MEAN SEA LEVEL
 3. GROUND ELEVATION DATA SOURCE: USGS LIDAR TOPOGRAPHY
 4. CONTOUR DATA INTERVAL: 5 FEET
 5. INDEX CONTOUR INTERVAL: 25 FEET

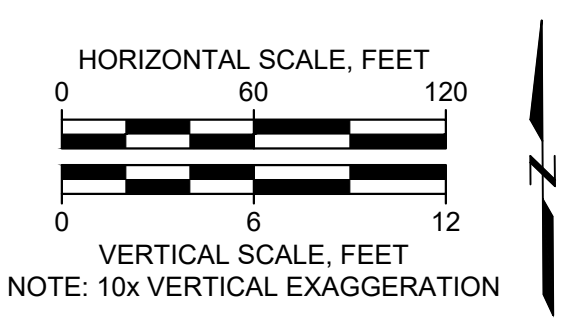
PROPOSED RESOURCE IMPACTS						
RESOURCE	ACTIVITY	LOCATION	LENGTH (FT)	WIDTH (FT)	DEPTH (FT)	VOLUME (CYD)
INLAND LAKE	STRUCTURE - PRESSURE PIPE	INTAKE FROM INFILTRATION BASIN	20	1	1	1

LENGTHS ARE PARALLEL TO STATIONING - WIDTHS ARE PERPENDICULAR TO STATIONING

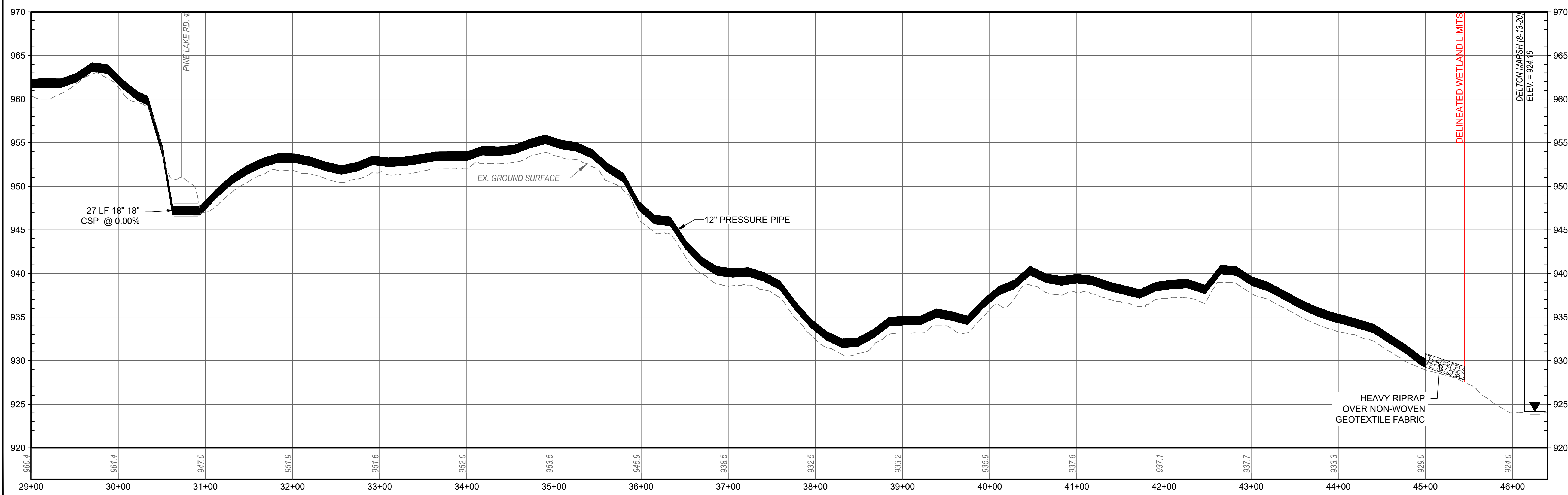
Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed: NJD
Checked: BJC
Drawn: LCM/MJW
Approved By: BJC

UPPER CROOKED LAKE TO PINE LAKE ROAD - PLAN & PROFILE



APPLICANT: CLOVERDALE DRAIN
 DRAINAGE DISTRICT & WATSON
 DRAIN DRAINAGE DISTRICT
 C/O: JIM DULL, BARRY COUNTY
 DRAIN COMMISSIONER
 AGENT: GEI CONSULTANTS



WATERBODIES:
 DELTON MARSH,
 CLOVERDALE LAKE
 & LONG LAKE
 TOWNSHIP: BARRY
 & HOPE
 COUNTY: BARRY

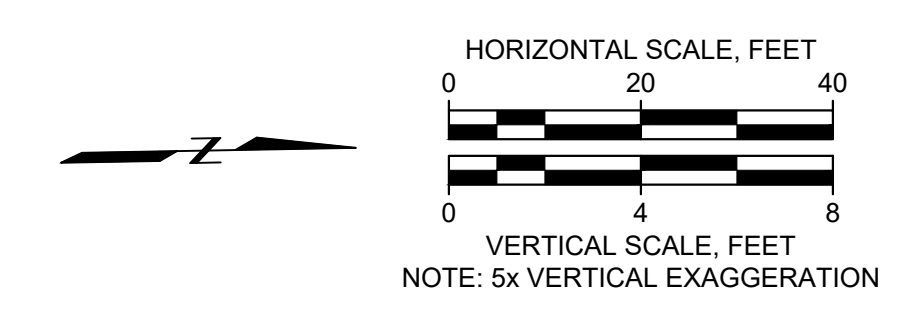
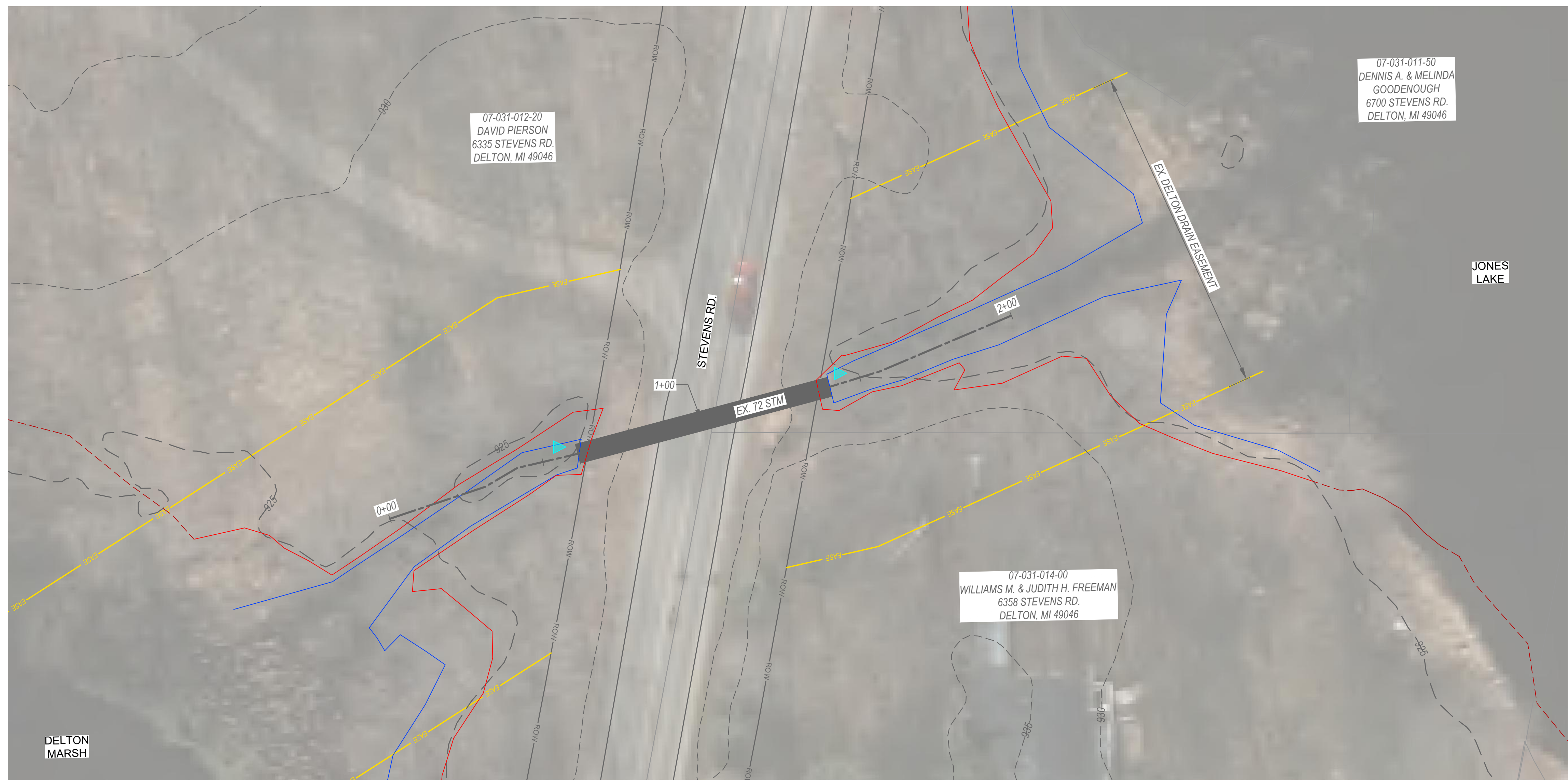
Attention: 1"
 If this scale bar does not measure 1" then drawing is not original scale.
 Designed: NJD
 Checked: BJC
 Drawn: LCM/MJW
 Approved By: BJC

**PINE LAKE ROAD TO
 DELTON MARSH -
 PLAN & PROFILE**

- NOTES:**
- ELEVATION DATUM: NAVD88
 - ELEVATION UNITS: FEET ABOVE MEAN SEA LEVEL
 - ELEVATION DATA SOURCE: USGS LIDAR TOPOGRAPHY
 - CONTOUR INTERVAL: 5 FEET
 - INDEX CONTOUR INTERVAL: 25 FEET

NO RESOURCE IMPACTS PROPOSED THIS SHEET

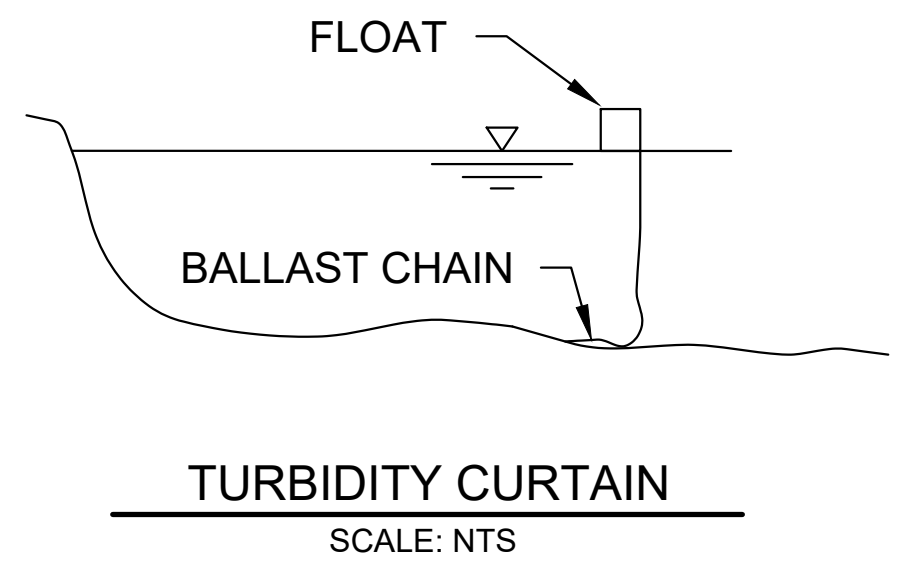
PERMIT APPLICATION PLAN SET



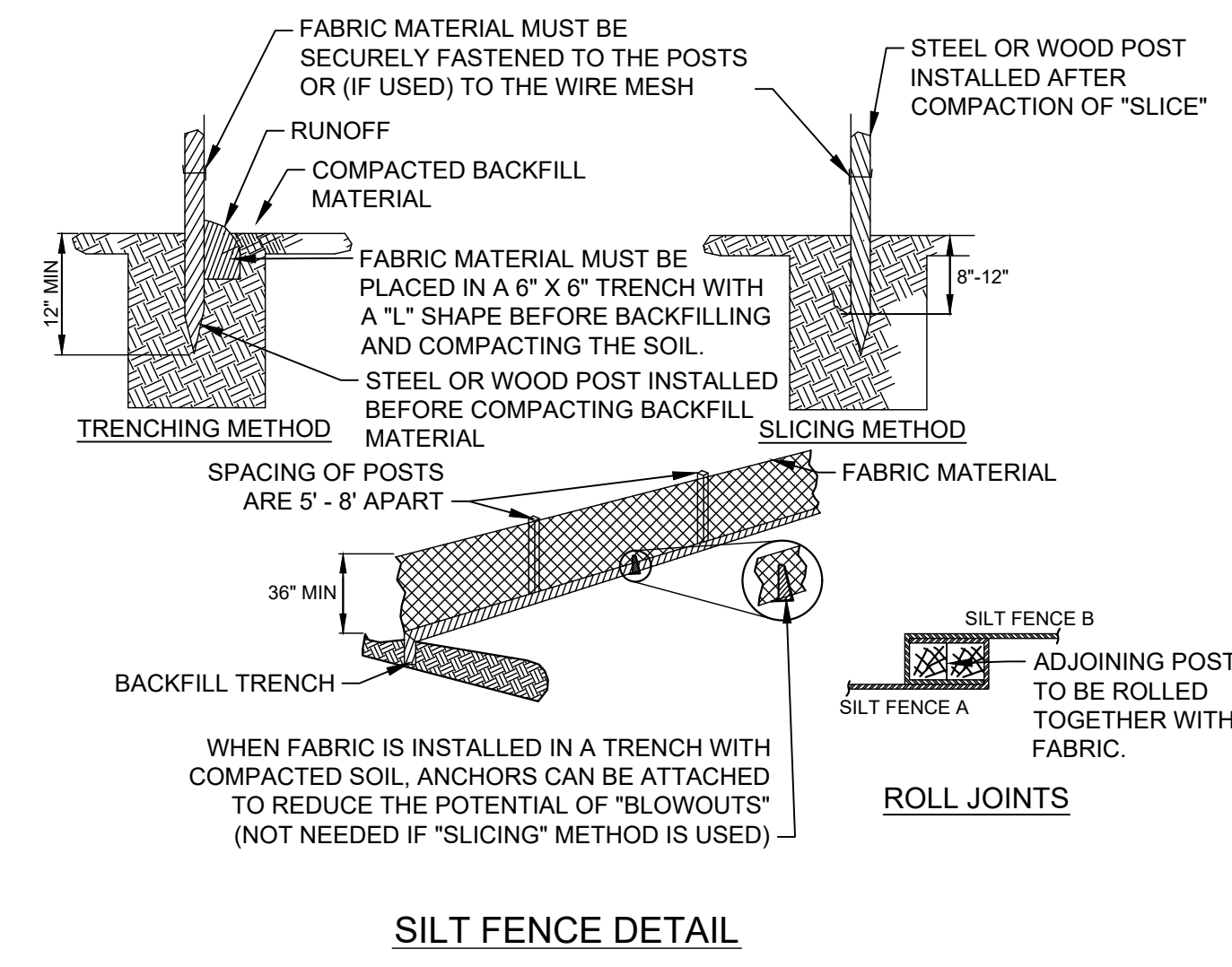
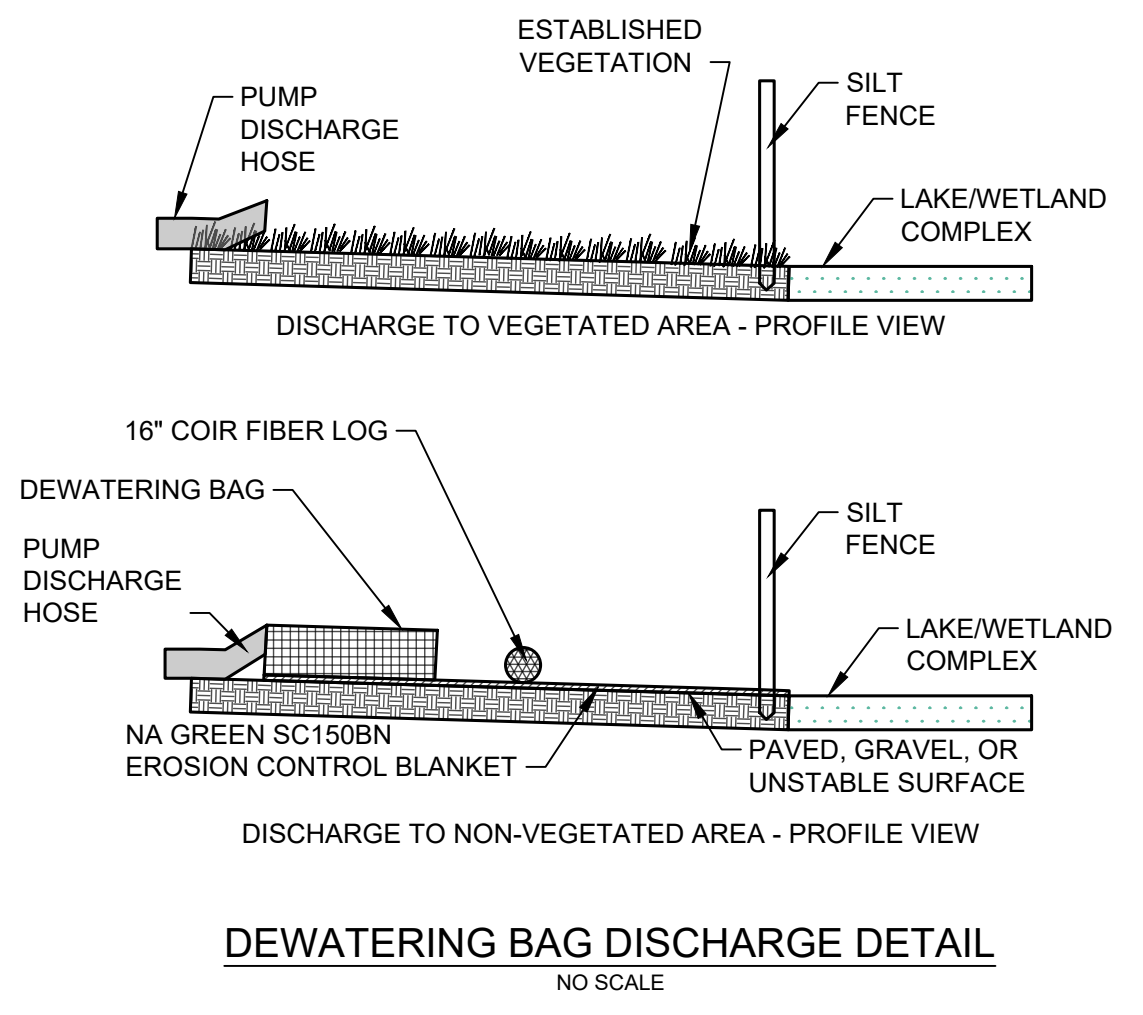
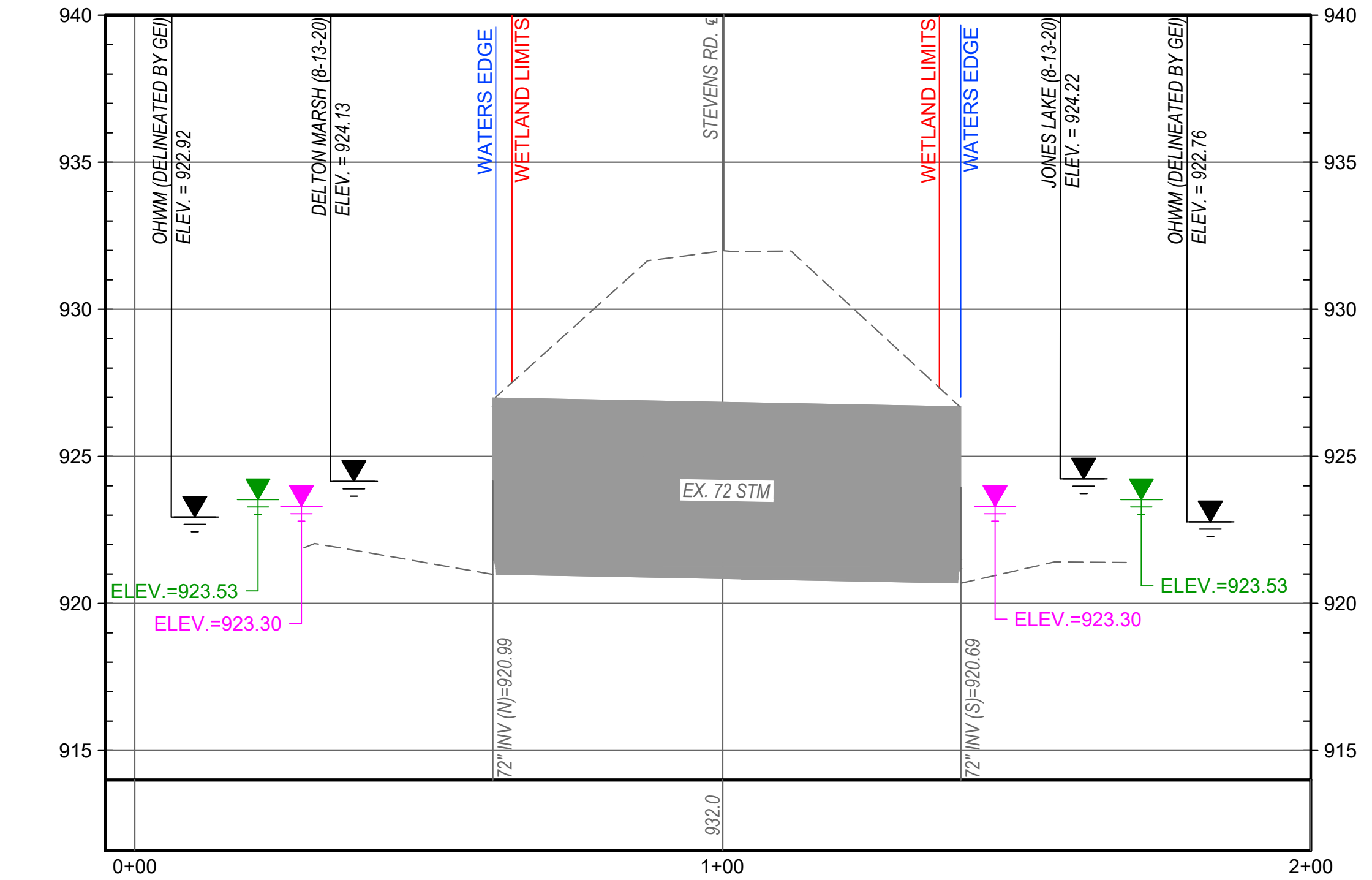
NO WORK THIS SHEET

NO RESOURCE IMPACTS PROPOSED THIS SHEET

APPLICANT: CLOVERDALE DRAIN DRAINAGE DISTRICT & WATSON DRAIN DRAINAGE DISTRICT
 C/O: JIM DULL, BARRY COUNTY DRAIN COMMISSIONER
 AGENT: GEI CONSULTANTS



WATERBODIES:
 DELTON MARSH,
 CLOVERDALE LAKE
 & LONG LAKE
 TOWNSHIP: BARRY
 & HOPE
 COUNTY: BARRY



- NOTES:**
- ELEVATION DATUM: NAVD88
 - ELEVATION UNITS: FEET ABOVE MEAN SEA LEVEL
 - PLAN VIEW ELEVATION DATA SOURCE: USGS LIDAR TOPOGRAPY
 - PROFILE VIEW ELEVATION DATA SOURCE: GPS SURVEY DATA
 - CONTOUR INTERVAL: 5 FEET
 - INDEX CONTOUR INTERVAL: 25 FEET

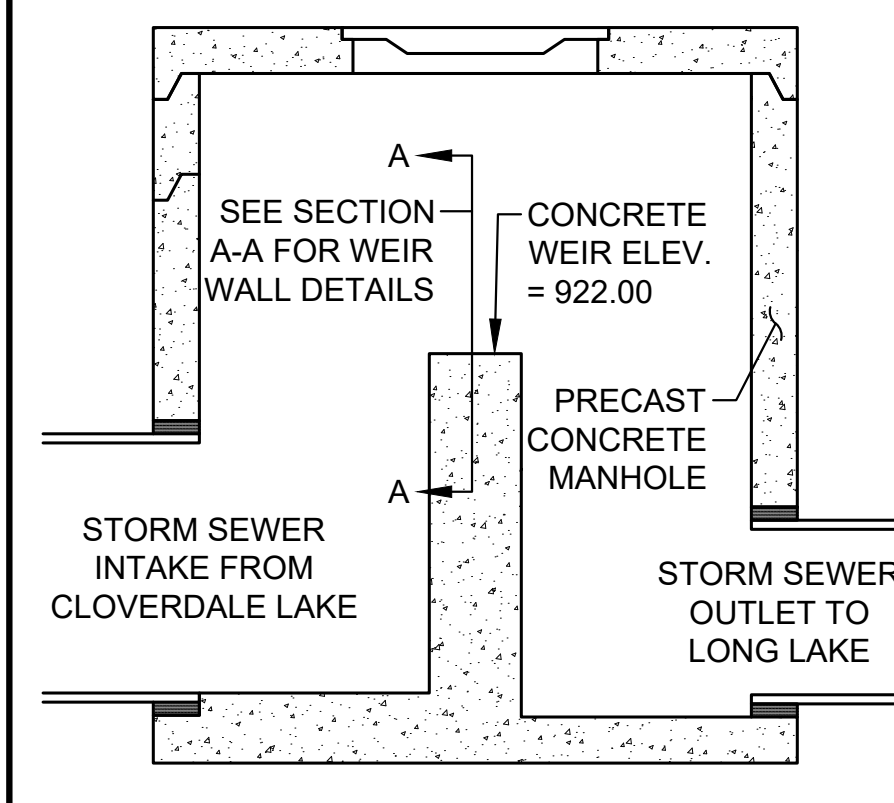
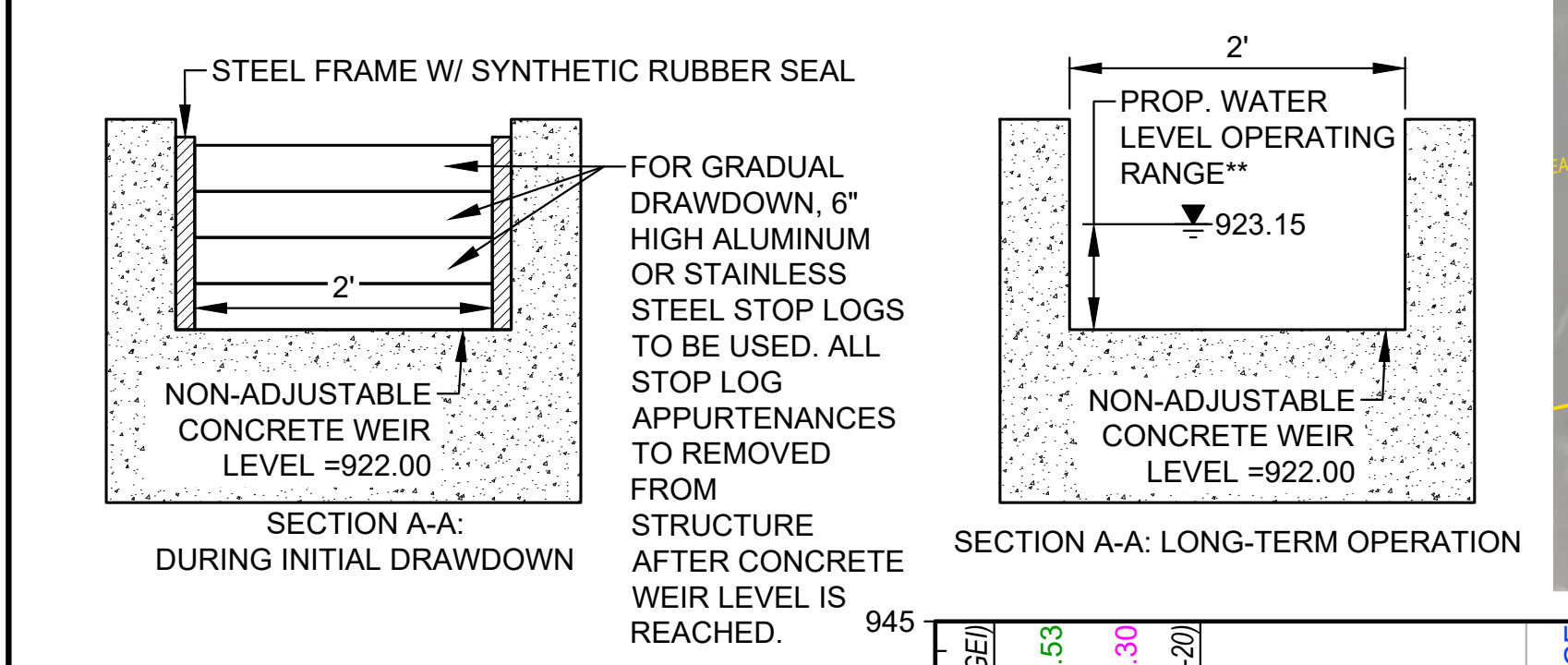
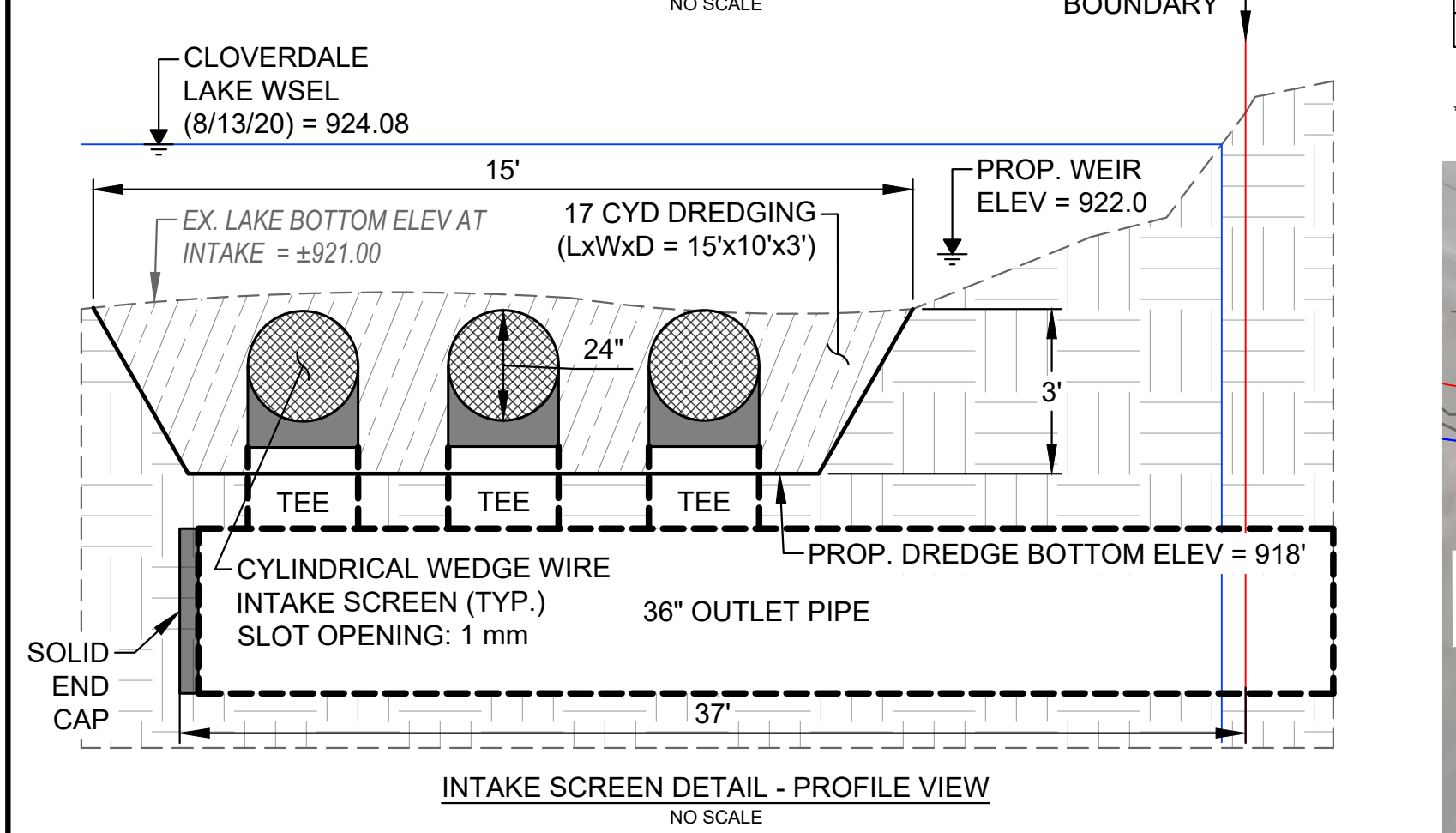
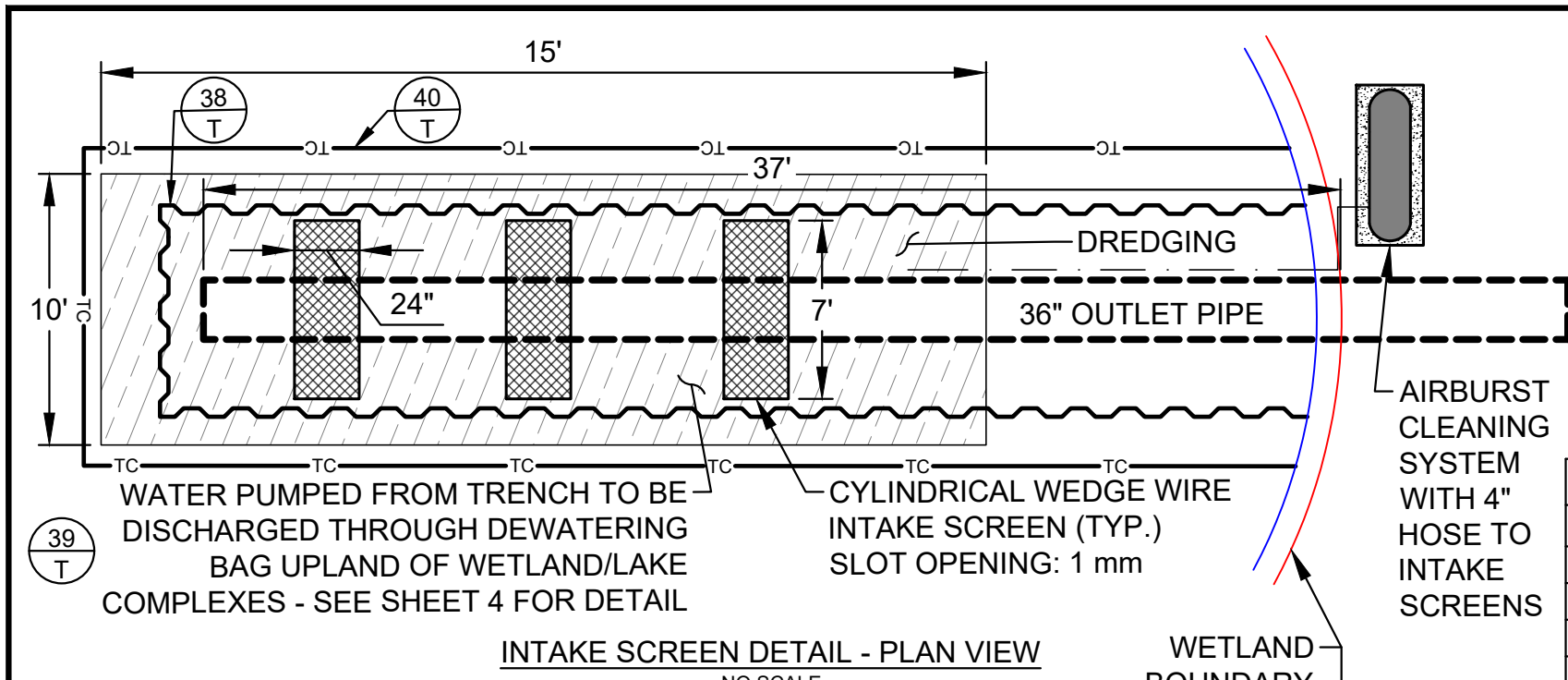
Attention: 1" scale bar

If this scale bar does not measure 1" then drawing is not original scale.

Designed: NJD
 Checked: BJC
 Drawn: LCM/MJW
 Approved By: BJC

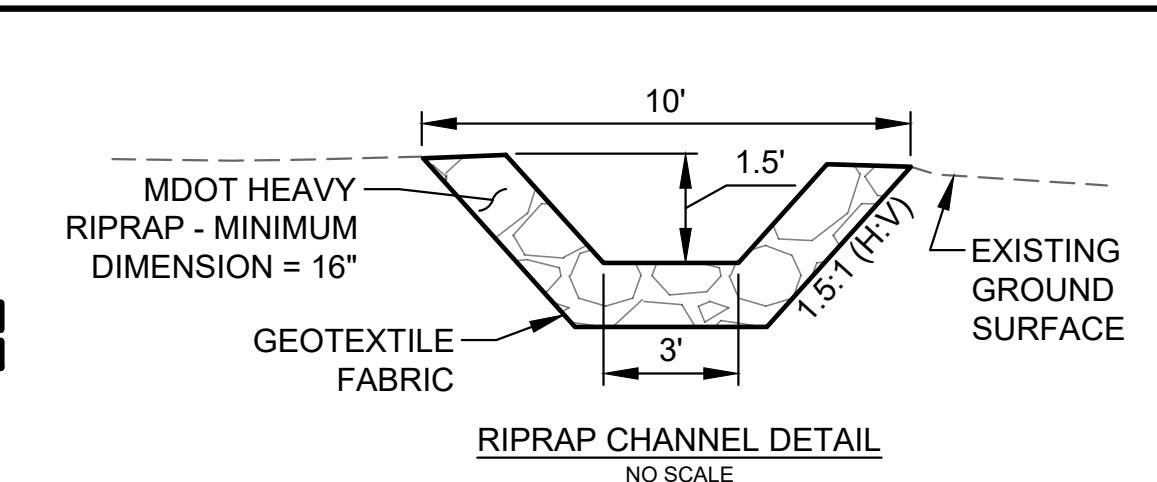
STEVENS ROAD CROSSING - PLAN & PROFILE & PROJECT DETAILS

GEI Project 2000140
 SHEET NO. 4



CLOVERDALE LAKE OUTLET CONTROL STRUCTURE DETAIL
NO SCALE

**OPERATING RANGE REFERS TO THE RANGE OF WATER LEVELS ON CLOVERDALE LAKE FOR WHICH PUMPING FROM UPPER CROOKED LAKE WOULD BE PERFORMED. THE OPERATING RANGE DOES NOT REFER TO THE WEIR LEVEL OR STOP LOG LEVEL. THE CONCRETE WEIR LEVEL IS PROPOSED AT A NON-ADJUSTABLE ELEVATION OF 922.00. STOP LOGS ARE PROPOSED TO BE USED FOR A GRADUAL DRAWDOWN OF THE CLOVERDALE LAKE WATER LEVEL. ONCE THE DRAWDOWN IS COMPLETE, ALL STOP LOGS AND STOP LOG APPURTENANCES WILL BE REMOVED FROM THE CONTROL STRUCTURE AND ALL THAT WILL REMAIN IS THE CONCRETE WEIR WALL AT ELEVATION 922.00. AN EXAMPLE OF THE PROPOSED WATER LEVEL OPERATING RANGE IS AS FOLLOWS: IF THE CLOVERDALE LAKE WATER LEVEL IS 922.60, PUMPING FROM UPPER CROOKED LAKE WOULD BE PERMISSIBLE SINCE THE CLOVERDALE LAKE WATER LEVEL IS WITHIN THE PROPOSED OPERATING RANGE (922-923.15). IF THE CLOVERDALE LAKE WATER LEVEL IS 923.30, PUMPING FROM UPPER CROOKED LAKE WOULD NOT BE PERMISSIBLE SINCE THE CLOVERDALE LAKE WATER LEVEL IS OUTSIDE THE PROPOSED OPERATING RANGE (922-923.15) UNDER BOTH SCENARIOS. THE WEIR LEVEL ON CLOVERDALE LAKE WOULD BE AT A FIXED AND UNALTERED ELEVATION OF 922.00.



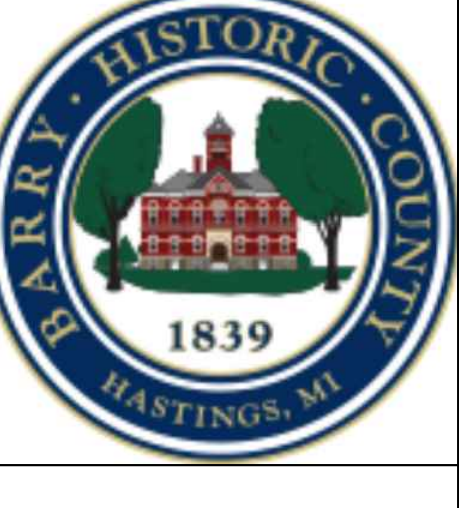
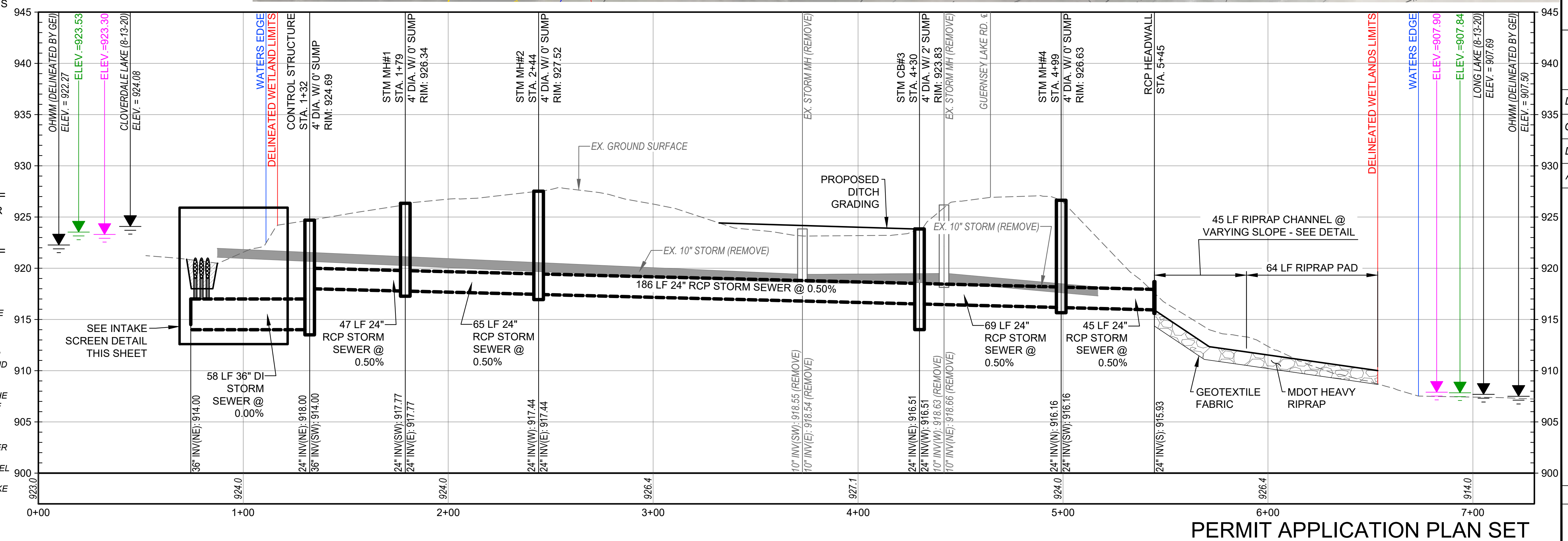
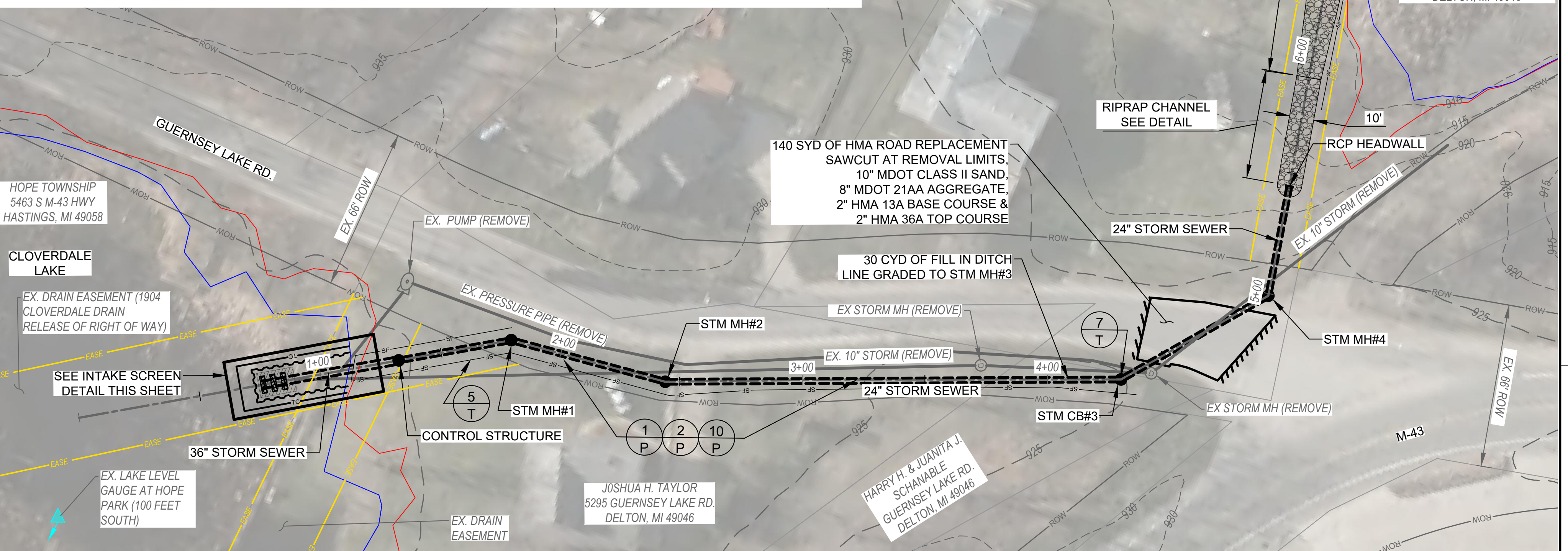
PROPOSED RESOURCE IMPACTS

RESOURCE ¹	ACTIVITY	LOCATION	LENGTH (FT)	WIDTH (FT)	DEPTH (FT)	VOLUME (CYD)
WETLAND/INLAND LAKE	TURBIDITY CURTAIN	INTAKE AT CLOVERDALE LAKE	0	40	0	0
WETLAND/INLAND LAKE	STEEL SHEET PILE	INTAKE AT CLOVERDALE LAKE	0	40	0	0
WETLAND/INLAND LAKE	DREDGE AT INTAKE	INTAKE AT CLOVERDALE LAKE	15	10	3	17
WETLAND/INLAND LAKE ²	STRUCTURE - WEDGE WIRE CYLINDRICAL SCREEN	INTAKE AT CLOVERDALE LAKE	2	21	2	3
WETLAND/INLAND LAKE	STRUCTURE - RCP STORM SEWER	INTAKE AT CLOVERDALE LAKE	37	3	3	12

1. INLAND LAKE IMPACTS CONSERVATIVELY ASSUMED TO BEGIN AT WETLAND LIMITS
2. TOTAL WIDTH (PERD. TO STORM SEWER) LISTED FOR SCREEN WILL BE DISTRIBUTED ACROSS THREE SEPARATE SCREENS AS SHOWN IN THE DRAWINGS (7' X 3 SCREENS=21')
LENGTHS ARE PARALLEL TO STATIONING - WIDTHS ARE PERPENDICULAR TO STATIONING

NOTES:
1. ELEVATION DATUM: NAVD88
2. ELEVATION UNITS: FEET ABOVE MEAN SEA LEVEL
3. PLAN VIEW ELEVATION DATA SOURCE: USGS LIDAR TOPOGRAPHY
4. PROFILE VIEW ELEVATION DATA SOURCE: GPS SURVEY DATA
5. CONTOUR INTERVAL: 5 FEET
6. INDEX CONTOUR INTERVAL: 25 FEET

HORIZONTAL SCALE, FEET
0 30 60
VERTICAL SCALE, FEET
0 6 12
NOTE: 5x VERTICAL EXAGGERATION



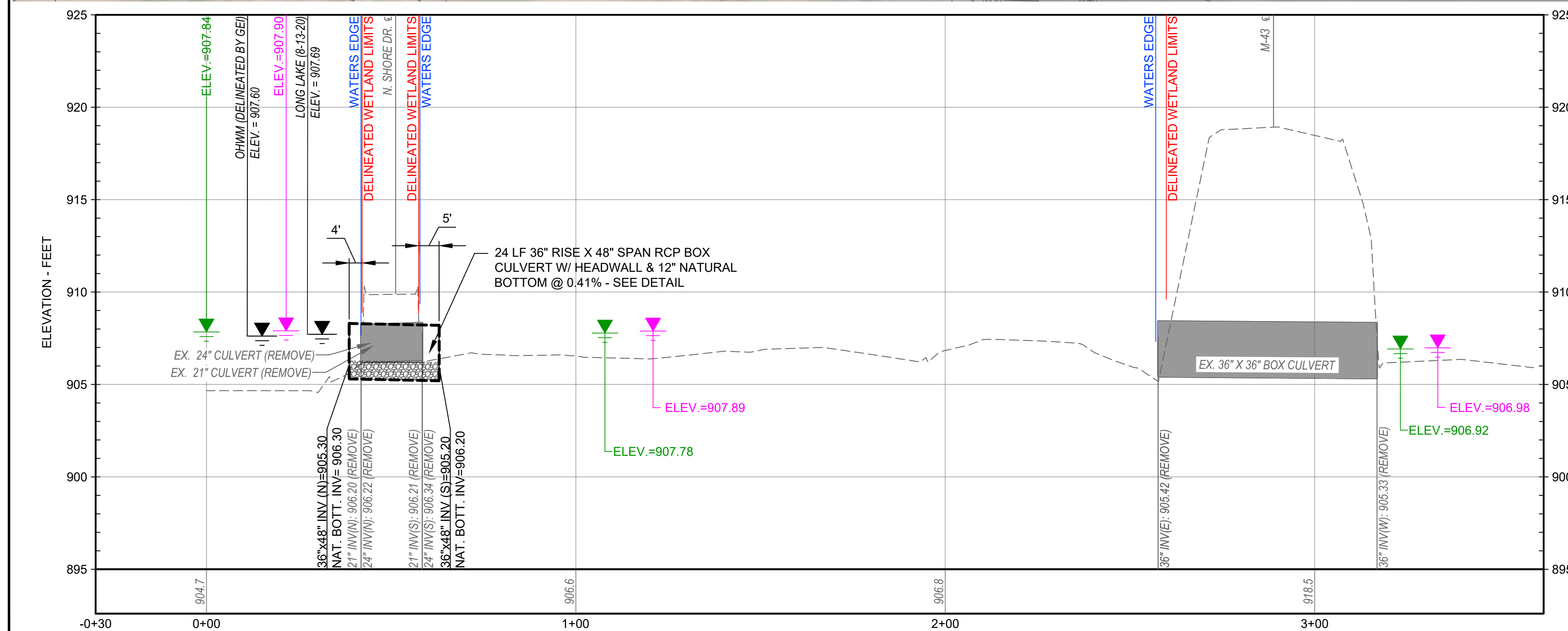
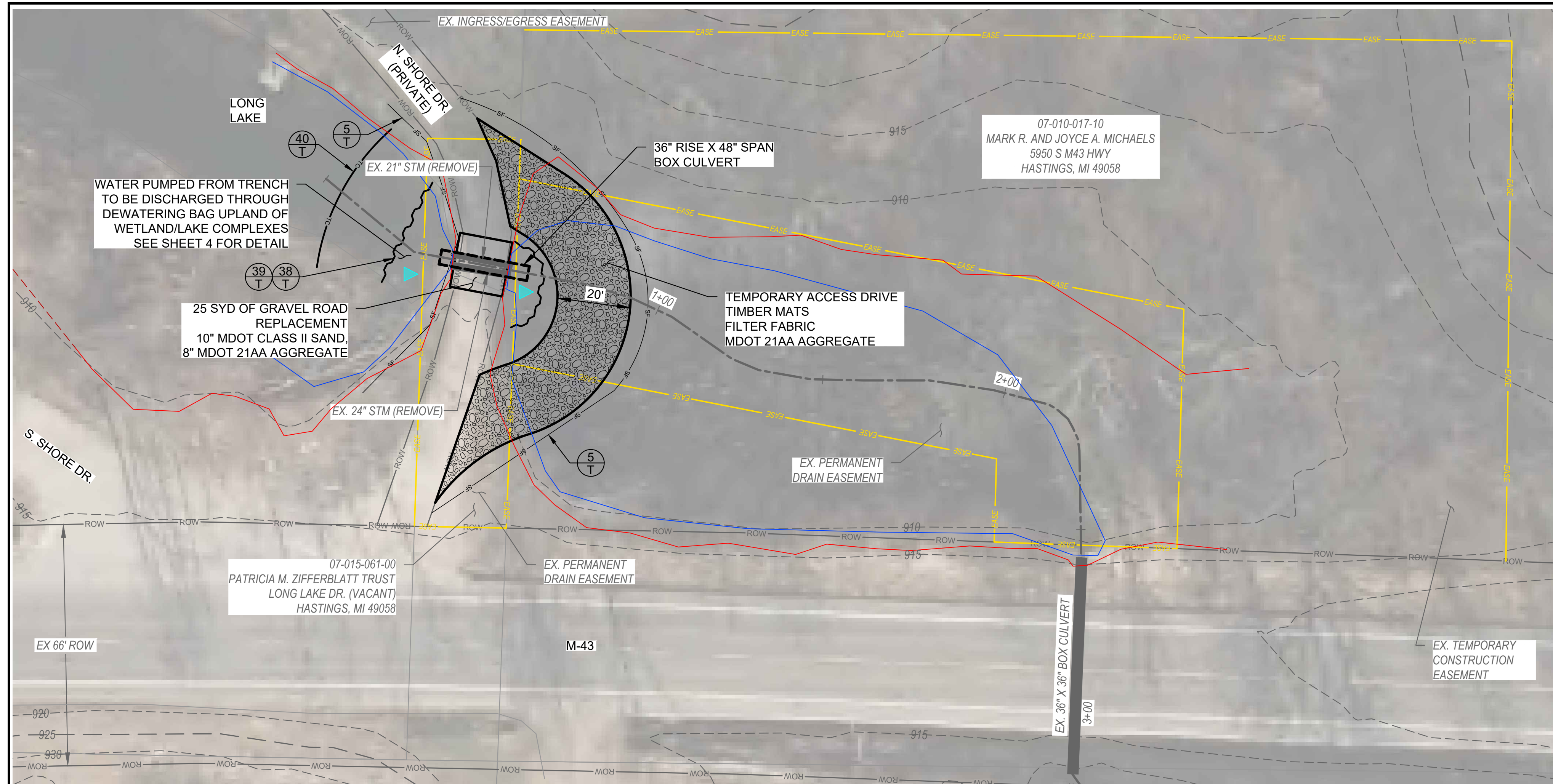
APPLICANT: CLOVERDALE DRAIN DRAINAGE DISTRICT & WATSON DRAIN DRAINAGE DISTRICT
C/O: JIM DULL, BARRY COUNTY DRAIN COMMISSIONER
AGENT: GEI CONSULTANTS

WATERBODIES: DELTON MARSH, CLOVERDALE LAKE & LONG LAKE
TOWNSHIP: BARRY & HOPE
COUNTY: BARRY

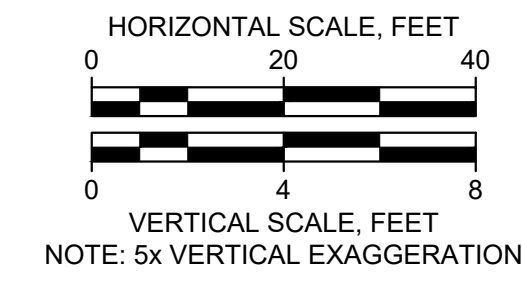
Attention: 1" scale bar does not measure 1" then drawing is not original scale.
Designed: NJD
Checked: BJC
Drawn: LCM/MJW
Approved By: BJC

CLOVERDALE LAKE OUTLET - PLAN & PROFILE

GEI Project 2000140
SHEET NO. 5



- NOTES:**
- ELEVATION DATUM: NAVD88
 - ELEVATION UNITS: FEET ABOVE MEAN SEA LEVEL
 - PLAN VIEW ELEVATION DATA SOURCE: USGS LIDAR TOPOGRAPHY
 - PROFILE VIEW ELEVATION DATA SOURCE: GPS SURVEY DATA
 - CONTOUR INTERVAL: 5 FEET
 - INDEX CONTOUR INTERVAL: 25 FEET



APPLICANT: CLOVERDALE DRAIN DRAINAGE DISTRICT & WATSON DRAIN DRAINAGE DISTRICT
 C/O: JIM DULL, BARRY COUNTY DRAIN COMMISSIONER
 AGENT: GEI CONSULTANTS

WATERBODIES:
 DELTON MARSH,
 CLOVERDALE LAKE
 & LONG LAKE
 TOWNSHIP: BARRY
 & HOPE
 COUNTY: BARRY

Attention:
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Designed: NJD
 Checked: BJC
 Drawn: LCM/MJW
 Approved By: BJC

LONG LAKE OUTLET - PLAN & PROFILE

GEI Project 2000140
 SHEET NO. 6

PROPOSED RESOURCE IMPACTS						
RESOURCE ¹	ACTIVITY	LOCATION	LENGTH (FT)	WIDTH (FT)	DEPTH (FT)	VOLUME (CYD)
WETLAND/STREAM	TURBIDITY CURTAIN	SOUTH OF N. SHORE DRIVE	0	50	0	0
WETLAND/STREAM	STEEL SHEET PILE	SOUTH OF N. SHORE DRIVE	0	40	0	0
WETLAND/STREAM	STRUCTURE - BOX CULVERT	SOUTH OF N. SHORE DRIVE	4	4	4	2
WETLAND/STREAM	STRUCTURE - BOX CULVERT	NORTH OF N. SHORE DRIVE	5	4	4	3
WETLAND/STREAM	STEEL SHEET PILE	NORTH OF N. SHORE DRIVE	0	35	0	0
WETLAND/STREAM	FILL - GRAVEL TEMPORARY ACCESS DRIVE	NORTH OF N. SHORE DR.	60	20	3	133

1. INLAND LAKE/STREAM IMPACTS CONSERVATIVELY ASSUMED TO BEGIN AT WETLAND LIMITS
 LENGTHS ARE PARALLEL TO STATIONING - WIDTHS ARE PERPENDICULAR TO STATIONING

