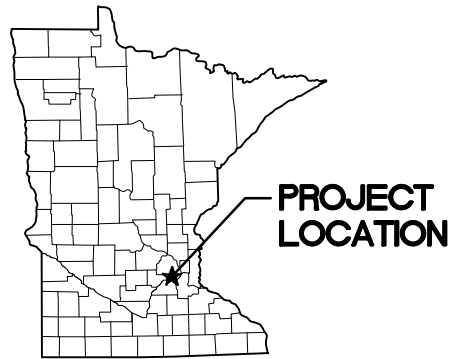


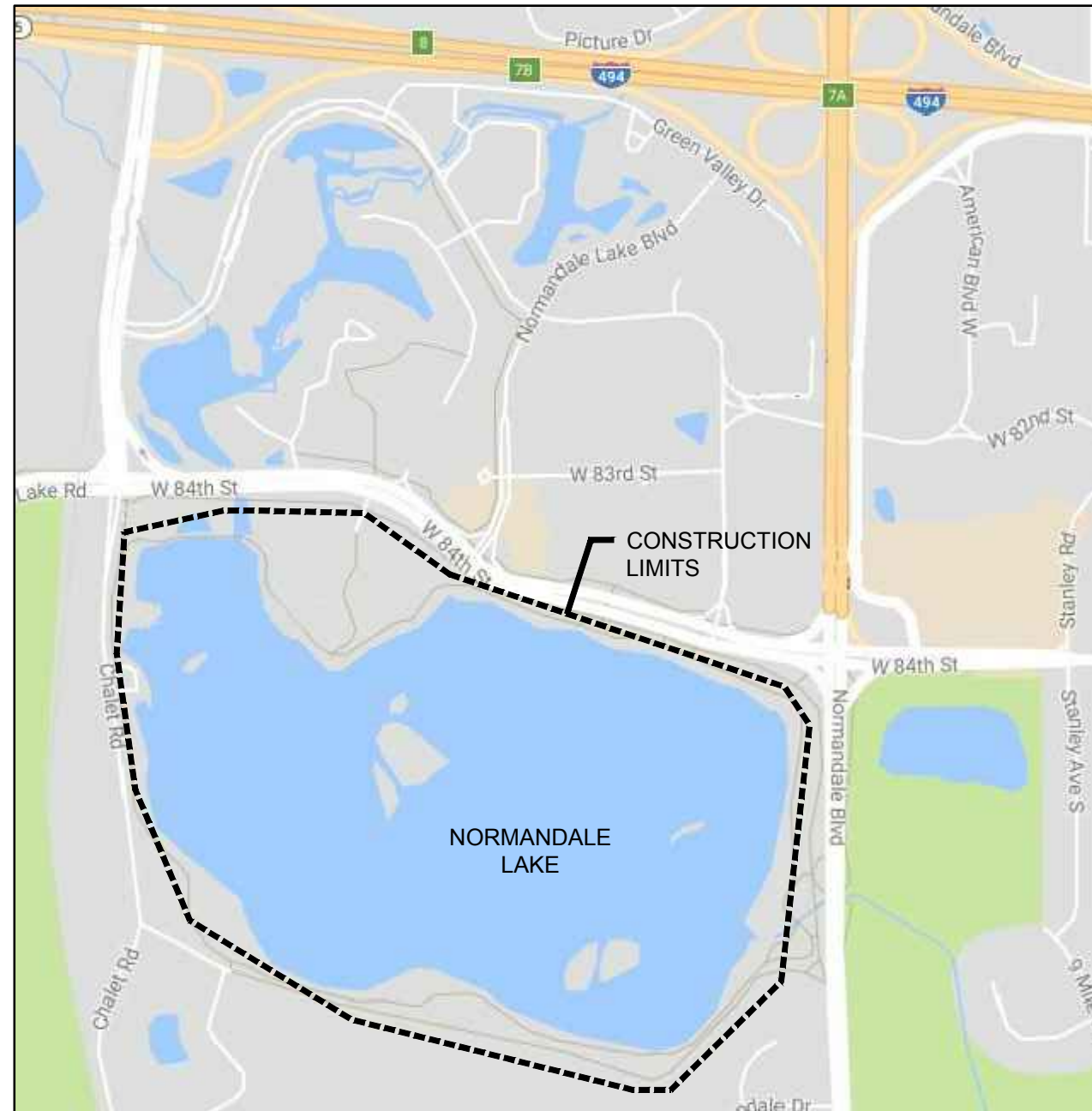
NINE MILE CREEK WATERSHED DISTRICT

NORMANDALE LAKE DRAWDOWN

BLOOMINGTON, MINNESOTA







LOCATION MAP 



VICINITY MAP 

SHEET NO.	TITLE
<u>GENERAL DRAWINGS</u>	
G-01	TITLE SHEET AND DRAWING INDEX
G-02	STORMWATER POLLUTION PREVENTION PLAN
<u>CIVIL DRAWINGS</u>	
C-01	EROSION CONTROL, PLAN
C-02	EROSION CONTROL, DETAILS
C-03	EROSION CONTROL, DETAILS
C-04	GENERAL PLAN
C-05	INLET TEMPORARY WEIR, PLAN, PROFILE, AND SECTION
C-06	OUTLET BYPASS, PLAN AND PROFILE
C-07	STOPLOG, PLAN AND DETAIL
C-08	TRAFFIC CONTROL PLAN

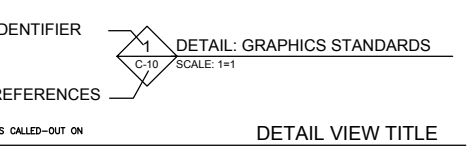
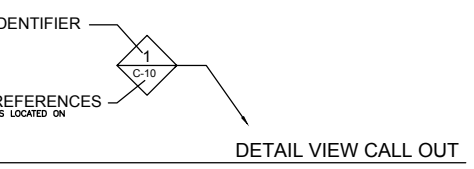
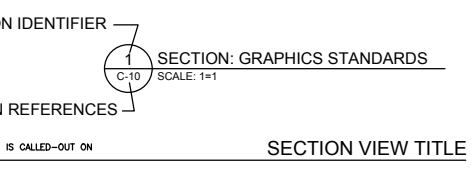
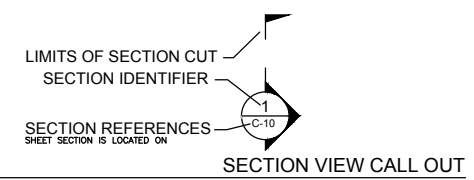
LINETYPE LEGEND

-  CONSTRUCTION LIMITS
-  WATER EDGE
-  HIDDEN
-  CENTERLINE

ABBREVIATIONS:

- CONC CONCRETE
- DIA DIAMETER
- DS DOWNSTREAM
- EL ELEVATION
- GALV GALVANIZED
- HDPE HIGH DENSITY POLYETHYLENE
- NWL NORMAL WATER LEVEL
- HWL HIGH WATER LEVEL
- ID IDENTIFIER
- INV INVERT
- RCP ROUND REINFORCED CONCRETE PIPE
- TO TOP OF
- TYP TYPICAL
- US UPSTREAM

PRELIMINARY
DRAFT



CADD USER: Amanda Rammandon FILE: M:\DESIGN\23271645\0023271645.G01 TITLE SHEET.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2018 6:39 PM
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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.		CLIENT: BARR ENGINEERING CO. BID: 4300 MARKETPOINTE DRIVE, SUITE 200 CONSTRUCTION AGENCY: MINNEAPOLIS, MN 55435	Scale: AS SHOWN Date: 05/23/2018 Drawn: JAM4 Checked: BJS Designed: BJS Approved: JAK	9 MILE CREEK WATERSHED DISTRICT MINNEAPOLIS, MINNESOTA	NORMANDALE LAKE DRAWDOWN BLOOMINGTON, MINNESOTA	BARR PROJECT No. 23271645.00 CLIENT PROJECT No.
PRINTED NAME: _____ SIGNATURE: _____ DATE: _____ LICENSE # _____		RELEASED TO/FOR: _____ DATE RELEASED: _____	TITLE SHEET AND DRAWING INDEX		DWG. No. G-01 REV. No. A	

GENERAL CONSTRUCTION ACTIVITY INFORMATION:

The Stormwater Pollution Prevention Plan (SWPPP) is required for the General Permit Authorization to Discharge Stormwater Associated with Construction Activity (NPDES Permit) as required by the Minnesota Pollution Control Agency (MPCA) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS).

This project is a Nine Mile Creek Watershed District Project to improve the water quality of Normandale Lake in Bloomington, Minnesota. The project will consist of constructing a weir to control upstream waters and adding piping and control structure to drain Normandale Lake. The purpose of draining the lake in the fall to allow for freezing the lake bottom which will kill off the Curly-Leaf Pondweed and aide in improving the lake's water quality. The project is within the Nine Mile Creek Watershed within Hennepin County in the City of Bloomington, Minnesota. Proposed construction will take place within the sites listed below:

Project Sites:

- 1) Inlet of Nine Mile Creek to Normandale Lake; South of West 84th Street 600 feet east of the intersection of West 84th Street and Chalet Road; Located in the NE ¼ of Section 17, T116N, R21W Latitude: 44.8537, Longitude: -93.3606.
- 2) Outlet of Nine Mile Creek from Normandale Lake; Normandale Blvd. between West 84th Street and Normandale Drive in the SE ¼ of Section 16, T116N, R21W Latitude: 44.8482, Longitude: -93.3514.

LOCATION MAP

See Title Sheet G-01 of the Construction Plans, Site Location Map and Sheet Index of site locations.

The project Work includes mobilization and demobilization; control of water and or dewatering to perform work; temporary pumping to draw lake; construction of temporary berm to control upstream waters, construction of coffer dam for inlet of lake drain piping, excavation for installation of discharge piping and control structure for draining lake, earthwork and grading; riprap and filter installation at drain pipe outlet; site restoration with native seed mixes; repairs to existing trails used for site access that may be necessary due damage from construction activities, temporary and permanent erosion controls. The project proposed has a total disturbance area of less than five (5) acres. Erosion prevention measures are required to prevent sediment from being transported off site or to nearby surface waters. Refer to project drawings for further details.

The anticipated total area of disturbance is approximately 0.33 acres.

The total area of pre-construction impervious area is approximately 0.00 acres. The total area of post-construction impervious area is approximately 0.00 acres.

DATES OF CONSTRUCTION: Begin Construction August 15, 2018, Completion April 28, 2019.

RESPONSIBLE PERSONS:

Below is a list of people responsible for this project who are knowledgeable and experienced in the application of erosion prevention and sediment control BMPs. They shall oversee the implementation of the SWPPP, inspection, and maintenance of erosion prevention, and sediment control BMPs before and during construction.

RESPONSIBLE PERSONS:

OWNER: Nine Mile Creek Watershed District	CONTRACTOR: TBD
MAILING ADDRESS: 12800 Gerard Dr. Eden Prairie, MN 55346	MAILING ADDRESS: TBD
CONTACT PERSON: Randy Anhorn District Administrator	CONTACT PERSON: TBD
PHONE: 952-835-2078	PHONE: Owner
MOBILE PHONE:	MOBILE PHONE: TBD
EMAIL: ranhorn@ninemilecreek.org	EMAIL: TBD

ENGINEER Barr Engineering Co.
MAILING ADDRESS: 4300 MarketPointe Dr., Suite 200 Bloomington, MN 55435-4803
CONTACT PERSON: Janna Kieffer, PE Project Manager
PHONE: 952-832-2785
MOBILE PHONE:
EMAIL: jkieffer@barr.com

TRAINED INDIVIDUAL	RESPONSIBILITY	APPLICABLE TRAINING	TRAINING DOCUMENTATION ATTACHED?
Jacob N. Burggraff Barr Engineering Co. 4300 MarketPointe Drive Bloomington, MN 55435 952-832-2743 jburggraff@barr.com	Preparation of SWPPP	Design of Construction SWPPPs U of MN, April 2008, Updated Nov. 2010, March 2014, May 2017 Expires May 31, 2020	No
Greg Nelson Barr Engineering Co. 4300 MarketPointe Drive Bloomington, MN 55435 952-832-2770 612-599-8889	Oversight of SWPPP Implementation, Revision Amendment	Construction Site Management Barr Engineering	No
Contractor Employee? TBD TBD TBD	Performance or Supervision of Installation Maintenance, and Repair of BMPs. Performance of SWPPP Inspections.	Construction Site Management U of MN Expires ?	No

RECEIVING WATERS:

Water Body Name	Water body ID	Special Water?	Impaired Water?
Nine Mile Creek	07020012-808	No	No
Normandale Lake	N/A	No	Yes

Project Area Soil Type: Rural Land, hydrologic soil groups Ta, Sb, HaB, HaB2, Lf, Df.

REGULATORY CONTEXT:

Special or Impaired Waters: This project discharges to impaired waters within one mile of the sites and the project is required to follow the requirements for discharging to an impaired water in Appendix A Part C.1 & C.2 of the permit.

This project stormwater discharge is not anticipated to impact any of the following: Outstanding resource value waters, trout waters, wetlands, calcareous fens, properties listed by the National Register of Historic Places or archaeological sites and is not subject to additional regulations due to any formal environmental reviews, endangered or threatened species.

PROJECT PLANS AND SPECIFICATIONS:

Required Feature	Sheet No.
Site Locations and Sheet Index	G-01
Erosion Control Details	C-02 AND C-03
Construction Limits	C-01
Existing and Final Grades with Flow Direction	C-05
Impervious Surfaces	C-05
Potential Pollution generating activities	C-04 THROUGH C-07
Areas not to be disturbed	C-04
Areas where construction will be phased	C-01
Temporary and Permanent erosion and sediment control BMPs	C-02 AND C-03
Standard Details for erosion and sediment control	C-02 AND C-03
Estimated Preliminary BMP Quantities	Bid Documents, Bid Form

TEMPORARY EROSION CONTROL PRACTICES

Timing:

1. Delineate areas of the site not to be disturbed (with flags, stakes, signs, silt fence, etc.) before work begins.
2. Construction phasing will be used when possible to minimize concurrent soil exposure; stabilizing areas as soon as work is completed; and restoring access paths when they are no longer needed.
3. Initiate stabilization immediately whenever any construction activity has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 7 calendar days.
4. Complete stabilization no later than 7 calendar days after the construction activity in any portion of the site has temporarily or permanently ceased.

BMPs:

1. Erosion control and stabilization practices to be installed are depicted on the Drawings No. C-01, C-02 and C-03, and include: silt fence, sediment control logs, riprap outfall, inlet drain protection, erosion control blanket, turf reinforcement mat (TRM), rock construction entrance, flotation silt curtain, and vegetation (through seeding).
2. Soils stockpiles shall be stabilized with fast-growing cover crop and hydro mulch and silt fence or sediment log shall be placed around the perimeter of the stock piles.
3. Erosion control blanket shall be used to cover all disturbed slopes.
4. Direct construction site discharges to vegetated areas where feasible.
5. Install all BMPs in accordance with relevant manufacturer specifications and accepted engineering practices.

TEMPORARY SEDIMENT CONTROL PRACTICES

Timing:

1. Establish sediment control practices on all downgradient perimeters prior to commencing any upgradient land-disturbing activities.
2. If sediment control practices must be adjusted or removed to accommodate short-term activities, complete the activity as quickly as possible and re-install immediately after the activity has been completed or before the next precipitation event (even if the activity is not yet complete).
3. Maintain downgradient sediment control practices until final stabilization has been achieved for upgradient areas.

BMPs:

1. Minimize soil compaction where feasible.
2. Preserve topsoil where feasible; if topsoil must be removed, store in a segregated stockpile for reuse in site restoration.
3. Sediment control practices to be installed are depicted on Sheets C-01, C-02 and C-03 and include: rock construction entrance, storm sewer pipe rip rap outlet, flotation silt curtain, turf reinforcement mat (TRM), silt fence, siltation logs, inlet protection, rock construction entrance.
4. Install silt fence or siltation logs around the perimeter of temporary soil stockpiles.
5. Any dewatering of site construction areas that have turbid or sediment laden water must be discharged into a filtering device such as containment bin or filter bag for treatment. Any dewatering discharge cannot adversely affect the receiving waters downstream of the construction site.
6. Install rock construction entrances as a vehicle tracking BMP to minimize the track out of sediment from the construction site.
7. Monitor adjacent paved surfaces for track out of sediment from construction site and remove sediment via street sweeping if necessary.
8. Install all BMPs in accordance with relevant manufacturer specifications and accepted engineering practices.

BMP DESIGN FACTORS

1. Expected amount, frequency, intensity, and duration of precipitation: Approximately 2.4 inches of precipitation from the 1-year, 24-hour storm event (Atlas 14).
2. Nature of stormwater runoff and run-on at the sites, including factors such as expected flow from impervious surfaces, slopes, and site drainage features:
3. If any stormwater flow will be channelized at the site, design BMPs to control both peak flow rates and total stormwater volume to minimize erosion at outlets and to minimize downstream channel and streambank erosion: Peak flow rates and total stormwater volume should not be increased during this project. Stormwater channelization is anticipated. Channelized flow will be routed to vegetated areas where appropriate.
4. Range of soil particle sizes expected to be present on the site and surrounding area: clay, sandy clay, sandy silt, silty sand, sand, gravel.

PERMANENT STORMWATER MANAGEMENT SYSTEM

This project will not generate greater than one acre of new impervious surface and will not require a stormwater management system.

INSPECTION AND MAINTENANCE ACTIVITIES

Inspection Requirements:

1. Inspect the entire construction site at least once every 7 days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours.
2. Contractor must keep inspection log and copies of the log must be submitted to Engineer.
3. Where parts of the site have permanent cover, but work remains on other parts of the site, inspection frequency may be reduced to once per month in areas with permanent cover.
4. Inspect all erosion prevention and sediment control BMPs and pollution prevention management measures for integrity and effectiveness.
5. Inspect surface waters for evidence of erosion and sediment deposition.
6. Inspect construction site vehicle exit locations for evidence of off-site sediment tracking onto paved surfaces and inspect streets and other areas adjacent to the project for evidence of off-site accumulations of sediment.
7. Inspections must be conducted by an appropriately trained individual in accordance with the Construction Stormwater (CSW) Permit.

Maintenance Requirements:

1. Repair, replace, or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery or as soon as field conditions allow access.
2. Repair, replace or supplement all perimeter control devices when they become nonfunctional or the sediment reaches 1/2 of the height of the device.
3. Remove all deltas and sediment deposited in surface waters and re-stabilize the areas where sediment removal results in exposed soil within 7 days of discovery.
4. Remove tracked sediment from all paved surfaces both on and off site within 24 hours of discovery.
5. Remove off-site accumulations of sediment in a manner and at a frequency sufficient to minimize off-site impacts.
6. Maintain all BMPs accordance with relevant manufacturer specifications and accepted engineering practices.

Recordkeeping:

1. All inspections and maintenance must be recorded within 24 hours in writing and records must be retained with the SWPPP.
2. Records of each inspection and maintenance activity shall include:
 - a. Date and time of inspections
 - b. Name of person(s) conducting inspections
 - c. Findings of inspections, including the specific location where corrective actions are needed.
 - d. Corrective actions taken (including dates, times, and party completing maintenance activities).
 - e. Date and amount of all rainfall events greater than 0.5 inches in 24 hours; rainfall amounts will be obtained from a properly maintained rain gauge installed onsite, a weather station that is within 1 mile of the site, or a weather reporting system that provides site specific rainfall data from radar summaries.
 - f. If any discharge is observed to be occurring during the inspection, a record of all points of the property from which there is a discharge must be made, and the discharge should be described (i.e., color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of pollutants) and photographed.
 - g. Any amendments to the SWPPP proposed as a result of the inspection must be incorporated within 7 calendar days.

RECORD RETENTION

This SWPPP including, all changes to it, and inspections and maintenance records must be kept at the site during construction in either the field office or in an on-site vehicle during normal working hours.

Upon request make this SWPPP (including all certificates, reports, records, or other information required by the CSW Permit) available to federal, state, and local officials within 72 hours for the duration of the permit and for 3 years following the NOT.

POLLUTION PREVENTION MANAGEMENT MEASURES

1. Minimize exposure to stormwater of the following products, materials, or wastes: building products that have potential to leach pollutants are not expected to be present on site, but if present exposure to stormwater will be minimized through coverage with plastic sheeting; pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials through coverage with plastic sheeting; hazardous materials and toxic waste (including oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) through proper storage in sealed containers in restricted access storage areas and in compliance with Minn. R. ch. 7045 including secondary containment as applicable; solid waste through proper storage, collection, and disposal in compliance with Minn. R. ch. 7035.
2. Position portable toilets so that they are secure and will not be tipped or knocked over.
3. Properly dispose of sanitary waste in accordance with Minn. R. ch. 7041.
4. Spill Prevention and Response: Take reasonable steps to prevent the discharge of spilled or leaked chemicals, ensure adequate supplies of absorbent and other dry clean-up materials are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials, report and clean up spills immediately as required by Minn. Stat. §115.061.
5. Fueling and maintenance of equipment and/or vehicles will not occur on-site.
6. Washing of vehicles and/or equipment will not occur on-site.
7. Washout of concrete and/or other similar wastes (such as stucco, paint, form release oils, curing compounds and other construction materials) will not occur on-site.

FINAL STABILIZATION

Ensure final stabilization of the site.

1. For final stabilization to be considered complete, the following must occur:
 - a. Complete all soil disturbing activities at the site.
 - a. Stabilize all soils with permanent cover, 70% or greater vegetation cover of disturbed areas.
 - a. Remove all temporary synthetic and structural erosion prevention and sediment control BMPs.
2. Permanent Cover will consist of seeding, erosion control blanket on slopes and disturbed areas, and seeding and mulching in all other disturbed areas.
3. Storm sewer culverts shall have flared sections and riprap to eliminate erosion.
4. Within 30 days after all activities for final stabilization have been completed, submit a Notice of Termination (NOT) form to the MPCA.

SWPPP AMENDMENTS OR CHANGES

See Contractor's Inspection Log Records.



GOPHER STATE ONE CALL:
CALL BEFORE YOU DIG.
1-800-252-1166

CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD-LOCATING ALL SITE UTILITIES, PRIVATE AND PUBLIC, PRIOR TO STARTING THE WORK. ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE UTILITY OWNER.

PRELIMINARY
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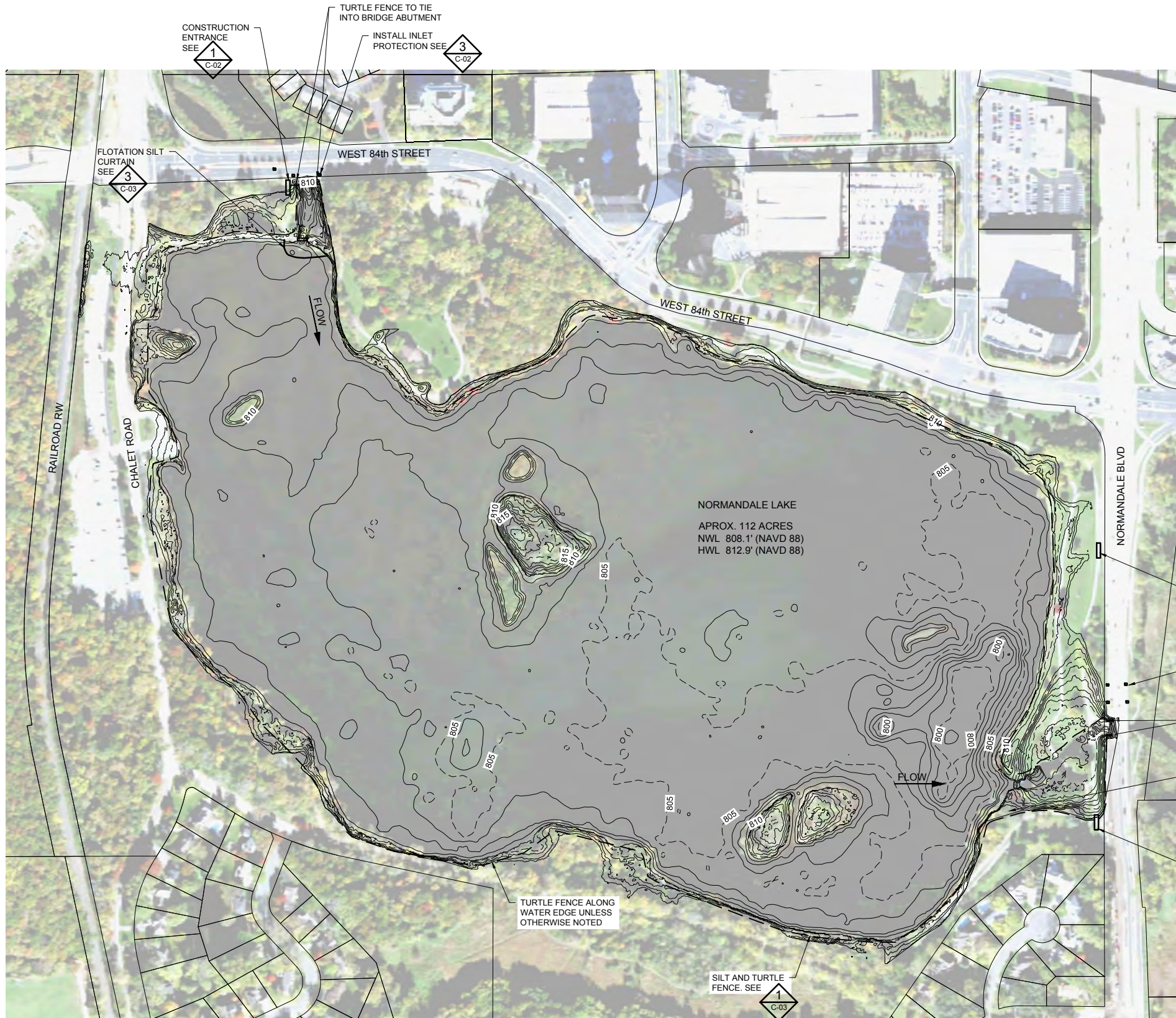
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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.		CLIENT BID CONSTRUCTION AGENCY	BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE SUITE 200 MINNEAPOLIS, MN 55435		Scale Date Drawn Checked Designed Approved	AS SHOWN 05/23/2018 JAM4 BJS BJS JAK	9 MILE CREEK WATERSHED DISTRICT MINNEAPOLIS, MINNESOTA	NORMANDALE LAKE DRAWDOWN BLOOMINGTON, MINNESOTA	BARR PROJECT No. 23271645.00	
PRINTED NAME: _____ SIGNATURE: _____ DATE: _____ LICENSE # _____		RELEASED TO/FOR	Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Ph: (952) 832-2601 www.barr.com						CLIENT PROJECT No.	
NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION			STORMWATER POLLUTION PREVENTION PLAN	DWG. No. G-02	REV. No. A

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EROSION CONTROL NOTES

1. MINIMIZE BOTH THE AREA AND TIME OF SOIL DISTURBANCE AT THE SITE, THROUGHOUT THE DURATION OF THE PROJECT.
2. MANAGE STORM WATER MOVING ACROSS THE SITE. BY REDUCING THE VELOCITY AND VOLUME OF THE RUNOFF, THE IMPACT TO EXPOSED SOILS WILL BE REDUCED.
3. INSTALL EROSION AND SEDIMENT CONTROL MEASURES EARLY AND KEEP THEM WELL MAINTAINED, ESPECIALLY IMPORTANT DURING MONTHS THAT RECEIVE HEAVY RAIN EVENTS.
4. KEEP SEDIMENT FROM LEAVING THE SITE. SLOWING DOWN THE RUNOFF BEFORE IT LEAVES THE SITE WILL PREVENT SEDIMENT FROM GETTING INTO ENVIRONMENTALLY SENSITIVE AREAS.
5. ESTABLISHING TEMPORARY VEGETATION BY SEED WILL REDUCE EROSION BY UP TO 90%.
6. STREET SWEEPING: STREETS LEADING TO AND FROM THE CONSTRUCTION ENTRANCE WILL BE CHECKED DAILY FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING ONTO PAVED SURFACES. THESE AREAS WILL BE SWEEPED CLEAN OF ANY TRACKED MATERIALS AS SOON AS POSSIBLE WITH COMPLETION WITHIN 24 HOURS OF DISCOVERY. SWEEPING SHALL EXTEND TO THE EXTREMITY OF ANY OFF SITE SEDIMENT TRACKING. ADDITIONAL INLET PROTECTION MAY BE REQUIRED ALONG HAUL ROUTES AND SHALL BE INSTALLED AT LOCATIONS DETERMINED BY THE CONTRACTOR OR AS DIRECTED BY THE ENGINEER.
7. ALL STORM SEWER INLETS AND OUTLETS SHALL BE PROTECTED BY APPROPRIATE BMPs DURING CONSTRUCTION. THESE PRACTICES SHALL REMAIN IN PLACE UNTIL THE POTENTIAL SOURCES FOR DISCHARGING SEDIMENT TO INLETS HAVE BEEN STABILIZED.



1 PLAN: EROSION CONTROL 0 200 400 SCALE IN FEET

PRELIMINARY DRAFT

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
A	JAM4	BJS	JMK2	6/1/2018	DRAFT FOR AGENCY REVIEW

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PRINTED NAME: _____
 SIGNATURE: _____
 DATE: _____ LICENSE # _____

CLIENT	BID	CONSTRUCTION AGENCY	8/1/18
RELEASED TO/FOR	A	B	C
DATE RELEASED	0	1	2

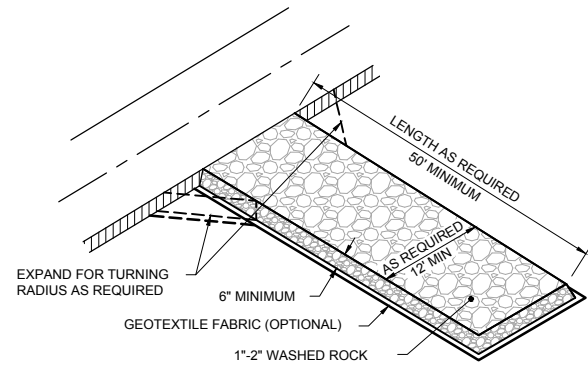
BARR Project Office:
 BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 Suite 200
 MINNEAPOLIS, MN 55435
 Corporate Headquarters:
 Minneapolis, Minnesota
 Ph: 1-800-632-2277
 Fax: (952) 832-2601
 www.barr.com

Scale	AS SHOWN
Date	05/23/2018
Drawn	JAM4
Checked	BJS
Designed	BJS
Approved	JAK

9 MILE CREEK WATERSHED DISTRICT
 MINNEAPOLIS, MINNESOTA

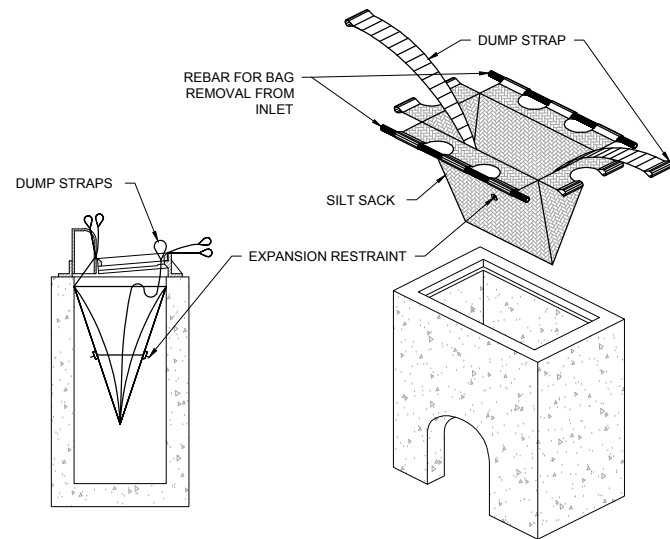
NORMANDALE LAKE DRAWDOWN
 BLOOMINGTON, MINNESOTA
 EROSION CONTROL
 PLAN

BARR PROJECT No.	23271645.00
CLIENT PROJECT No.	
DWG. No.	C-01
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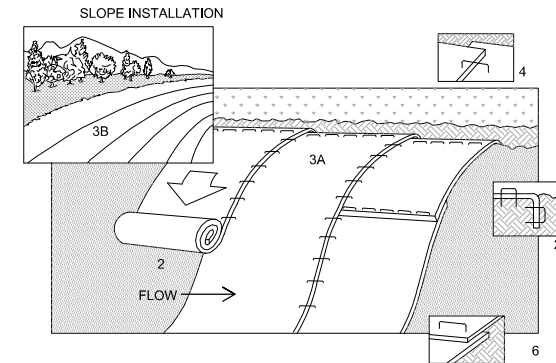
- NOTES:**
1. MAINTAIN ENTRANCE THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACE AS REQUIRED TO PREVENT TRACKING OFFSITE.
 2. REMOVE ENTRANCE IN CONJUNCTION WITH FINAL GRADING AND SITE STABILIZATION.

1 **DETAIL: CONSTRUCTION ENTRANCE - ROCK**
NOT TO SCALE



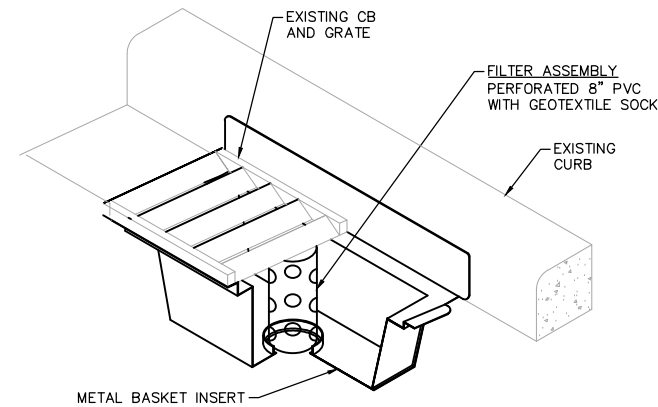
- NOTES:**
1. INSTALL INLET PROTECTION PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING ANY CATCHBASIN INSTALLATION AND MAINTAIN THROUGHOUT THE CONSTRUCTION PERIOD.
 2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/AROUND FILTER SACK.
 3. CLEAN FILTER SACK AND REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO ALLOW FLOW INTO THE CATCHBASIN AND PREVENT SEDIMENT FROM LEAVING THE DEVICE.
 4. REMOVE DEVICE AND ANY ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

3 **DETAIL: INLET PROTECTION - FILTER SACK**
NOT TO SCALE



- NOTES:**
1. REFER TO MANUFACTURER RECOMMENDATIONS FOR STAPLE PATTERNS FOR SLOPE INSTALLATIONS.
 2. PREPARE SOIL BY LOOSENING TOP 1-2 INCHES AND APPLY SEED (AND FERTILIZER WHERE REQUIRED) PRIOR TO INSTALLING BLANKETS. GROUND SHOULD BE SMOOTH AND FREE OF DEBRIS.
 3. BEGIN (A) AT THE TOP OF THE SLOPE AND ROLL THE BLANKETS DOWN OR (B) AT ONE END OF THE SLOPE AND ROLL THE BLANKETS HORIZONTALLY ACROSS THE SLOPE.
 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 6" OVERLAP, WITH THE UPHILL BLANKET ON TOP.
 5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
 6. BLANKET MATERIALS SHALL BE AS SPECIFIED OR AS APPROVED BY ENGINEER.

2 **DETAIL: EROSION CONTROL BLANKET - INSTALLATION**
NOT TO SCALE



4 **DETAIL: INLET PROTECTION, METAL BASKET TYPE**
NOT TO SCALE

PRELIMINARY
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PRINTED NAME: _____
SIGNATURE: _____
DATE: _____ LICENSE # _____

CLIENT	BID	CONSTRUCTION AGENCY	RELEASED TO/FOR	DATE RELEASED
BARR ENGINEERING CO.	3/1/18			

BARR
Project Office:
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

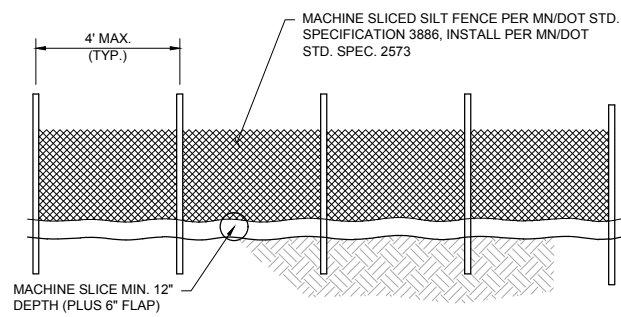
Scale	AS SHOWN
Date	05/23/2018
Drawn	JAM4
Checked	BJS
Designed	BJS
Approved	JAK

9 MILE CREEK WATERSHED DISTRICT
MINNEAPOLIS, MINNESOTA

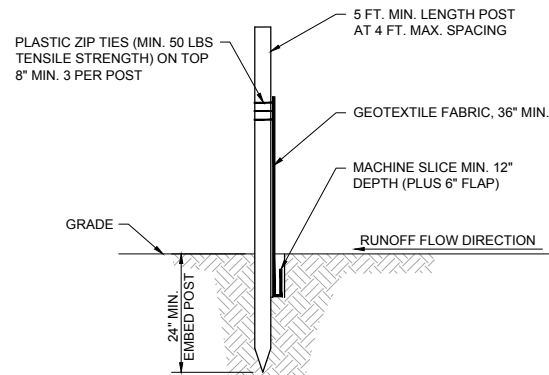
NORMANDALE LAKE DRAWDOWN
BLOOMINGTON, MINNESOTA

EROSION CONTROL DETAILS

BARR PROJECT No. 23271645.00	
CLIENT PROJECT No.	
DWG. No. C-02	REV. No. A



DOWNSTREAM VIEW

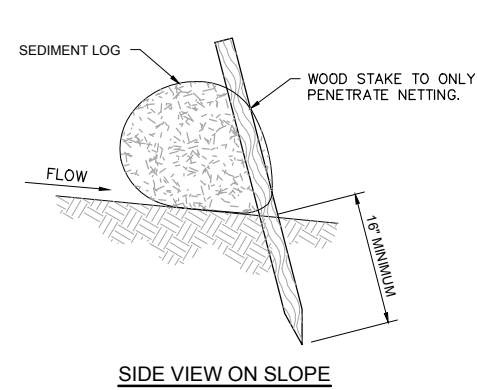


SECTION VIEW

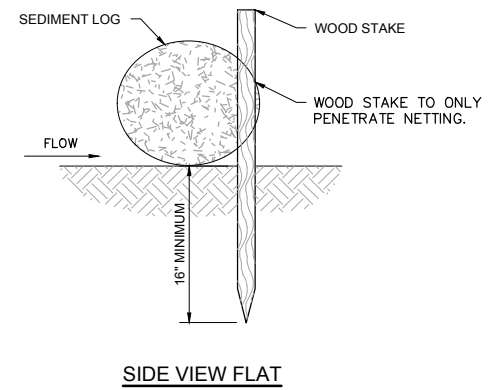
NOTES:

1. INSTALL SILT FENCE PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED AND MAINTAIN THROUGHOUT THE CONSTRUCTION PERIOD. REMOVE SILT FENCE AND ANY ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.
2. SILT FENCE MATERIALS AND INSTALLATION SHALL MEET THE REQUIREMENTS OF MN/DOT SPECIFICATIONS 2573 AND 3886.
3. NO HOLES OR GAPS SHALL BE PRESENT IN/UNDER SILT FENCE. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
4. REMOVE ACCUMULATED SEDIMENT WHEN BUILD UP REACHES 1/3 OF FENCE HEIGHT. OR INSTALL A SECOND SILT FENCE DOWNSTREAM OF THE ORIGINAL FENCE AT A SUITABLE DISTANCE.
5. WHEN SPLICES ARE NECESSARY MAKE SPLICE AT POST ACCORDING TO SPLICE DETAIL. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS TOGETHER AT LEAST 180 DEGREES TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. CUT THE FABRIC NEAR THE BOTTOM OF THE POSTS TO ACCOMMODATE THE 6 INCH FLAP, THEN DRIVE BOTH POSTS AND BURY THE FLAP AND COMPACT BACKFILL.

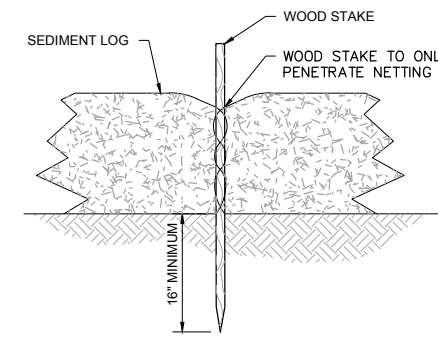
1 **DETAIL: SILT AND TURTLE FENCE - MACHINE SLICED**
NOT TO SCALE



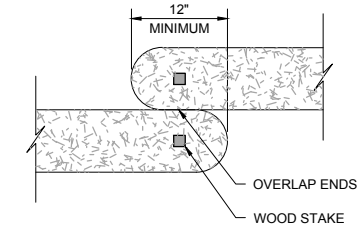
SIDE VIEW ON SLOPE



SIDE VIEW FLAT



FRONT VIEW



TOP VIEW

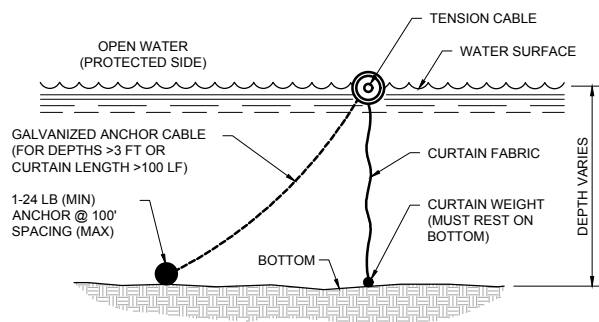
NOTES:

1. INSTALL SEDIMENT LOG ALONG CONTOURS (CONSTANT ELEVATION).
2. NO GAPS SHALL BE PRESENT UNDER SEDIMENT LOG. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
3. REMOVE ACCUMULATED SEDIMENT WHEN REACHING 1/3 OF LOG HEIGHT.
4. MAINTAIN SEDIMENT LOG THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACED AS REQUIRED.

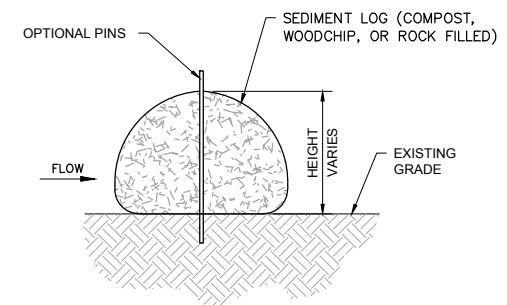
2 **DETAIL: EROSION LOG - STAKING**
NOT TO SCALE

NOTES:

1. INSTALL SILT CURTAIN PRIOR TO ANY CONSTRUCTION ACTIVITIES IN AREAS DRAINING TO OPEN WATER OR WORK IN WATER.
2. ANCHOR TENSION CABLE AT SHORE AT BOTH END WITH STEEL POSTS OF DIAMETER AND LENGTH SUFFICIENT TO PREVENT BENDING AND PULL-OUT.
3. ELIMINATE ANCHOR AND CABLE FOR WATER DEPTHS LESS THAN 3'-0" OR DISTANCE BETWEEN SHORE ANCHORS FOR TENSION CABLE OF LESS THAN 100'
4. CURTAIN WEIGHT SHALL BE HEAVY ENOUGH TO HOLD CURTAIN VERTICAL IN CURRENT AND WAVES TYPICAL FOR THE SITE.
5. SILT CURTAIN MATERIALS SHALL CONFORM TO MN/DOT SPECIFICATION 3887.
6. MAINTAIN SILT CURTAIN AND REPAIR OR REPLACE AS REQUIRED TO PREVENT DISCHARGE OF SEDIMENT TO PROTECTED WATER BODY.
7. REMOVE ANY ACCUMULATED SEDIMENT PRIOR TO REMOVAL OF SILT CURTAIN.
8. REMOVE SILT CURTAIN FOLLOWING SITE STABILIZATION OR AS DIRECTED BY ENGINEER.



3 **DETAIL: FLOTATION SILT CURTAIN**
NOT TO SCALE



NOTES:

1. STAKE FREE SEDIMENT LOG TO BE USED IN AREAS THAT ARE RELATIVELY FLAT AND SHOULD BE INSTALLED ALONG CONTOURS (CONSTANT ELEVATION).
2. NO GAPS SHALL BE PRESENT UNDER SEDIMENT LOG. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN REACHING 1/2 OF LOG HEIGHT.
4. SEDIMENT LOG SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIRED OR REPLACED AS REQUIRED.

4 **DETAIL: SEDIMENT LOG - STAKE FREE**
NOT TO SCALE

PRELIMINARY
DRAFT

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____
SIGNATURE: _____
DATE: _____ LICENSE # _____

CLIENT	BARR ENGINEERING CO.
BID	4300 MARKETPOINTE DRIVE
CONSTRUCTION	Suite 200
AGENCY	MINNEAPOLIS, MN 55435
RELEASED TO/FOR	A B C 0 1 2 3
DATE RELEASED	

BARR
Project Office:
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
Suite 200
MINNEAPOLIS, MN 55435
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277
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www.barr.com

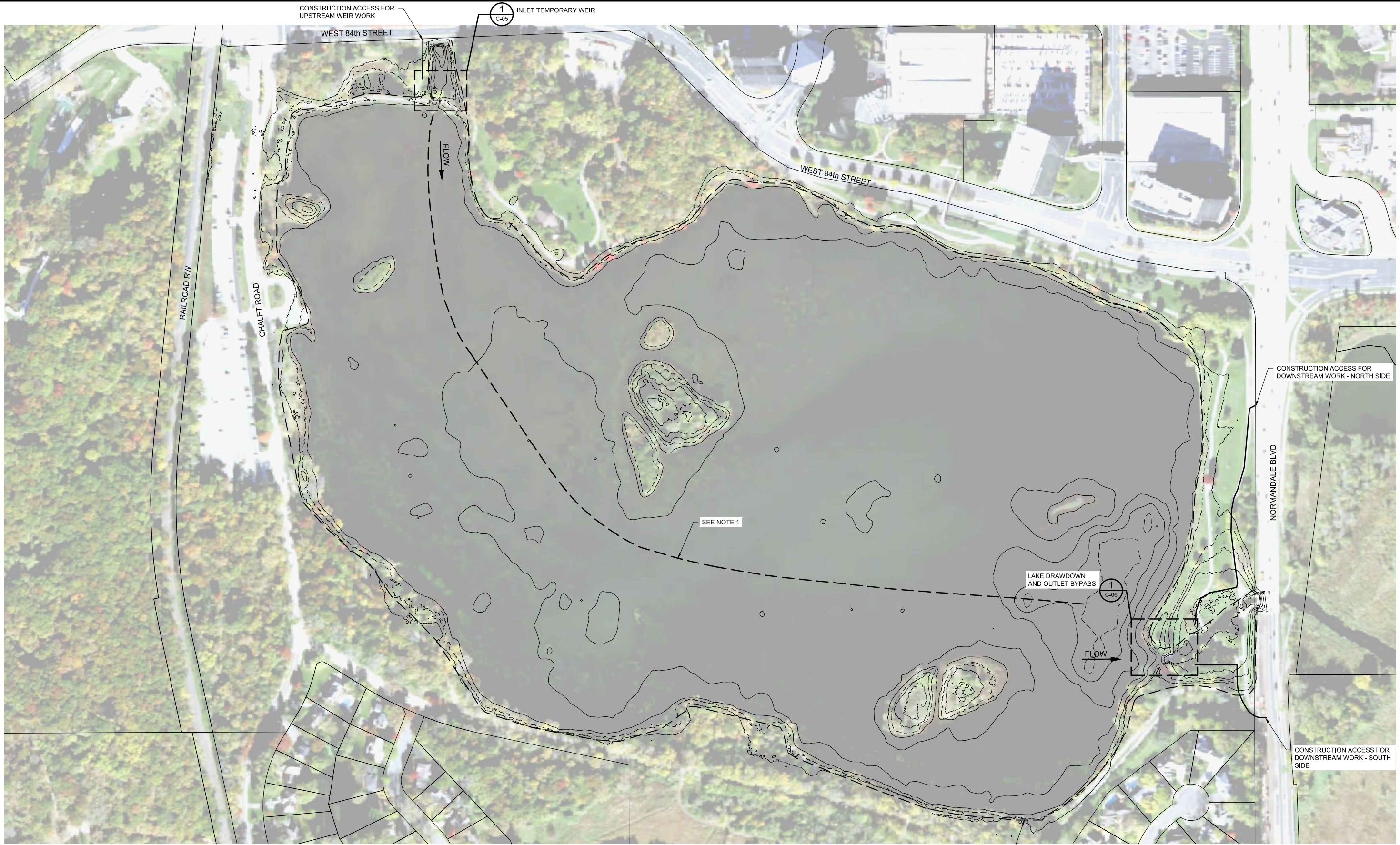
Scale	AS SHOWN
Date	05/23/2018
Drawn	JAM4
Checked	BJJ
Designed	BJJ
Approved	JAK

9 MILE CREEK WATERSHED DISTRICT
MINNEAPOLIS, MINNESOTA

NORMANDALE LAKE DRAWDOWN
BLOOMINGTON, MINNESOTA

EROSION CONTROL
DETAILS

BARR PROJECT No.	23271645.00
CLIENT PROJECT No.	
DWG. No.	C-03
REV. No.	A



SHEET NOTES:
 1. MAINTAIN LOW FLOW CHANNEL FOR POSITIVE DRAINAGE AS NECESSARY
 2. ALL DISTURBED AREAS TO BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITIONS.

1 PLAN: SITE
 0 150 300
 SCALE IN FEET

SILT AND TURTLE FENCE. SEE 1 C-03

PRELIMINARY DRAFT

CADD USER: Dale W. Urevig FILE: M:\DESIGN\23271645\00 C-04 GENERAL PLAN.DWG PLOT SCALE: 1:2 PLOT DATE: 6/11/2018 12:41 PM
 BARR M:\AutoCAD\2011\AutoCAD 2011 Support\encl\Templates\Barr_2011_Template.dwt Plot at 1: 10/05/2010 14:03:50

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____
 SIGNATURE: _____
 DATE: _____ LICENSE # _____

CLIENT								
BID								
CONSTRUCTION AGENCY	8/1/18							
RELEASED TO/FOR	A	B	C	0	1	2	3	
DATE RELEASED								

BARR
 Project Office:
 BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 Suite 200
 MINNEAPOLIS, MN 55435
 Corporate Headquarters:
 Minneapolis, Minnesota
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Scale	AS SHOWN
Date	05/23/2018
Drawn	JAM4
Checked	BJS
Designed	BJS
Approved	JAK

9 MILE CREEK WATERSHED DISTRICT
 MINNEAPOLIS, MINNESOTA

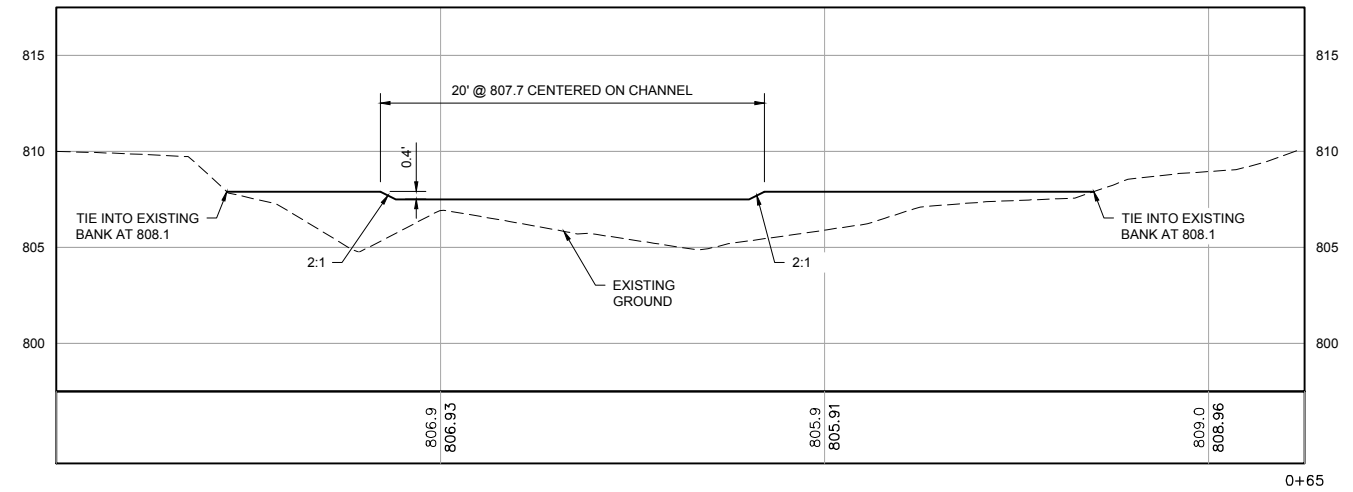
NORMANDALE LAKE DRAWDOWN
 BLOOMINGTON, MINNESOTA

GENERAL PLAN
 PLAN

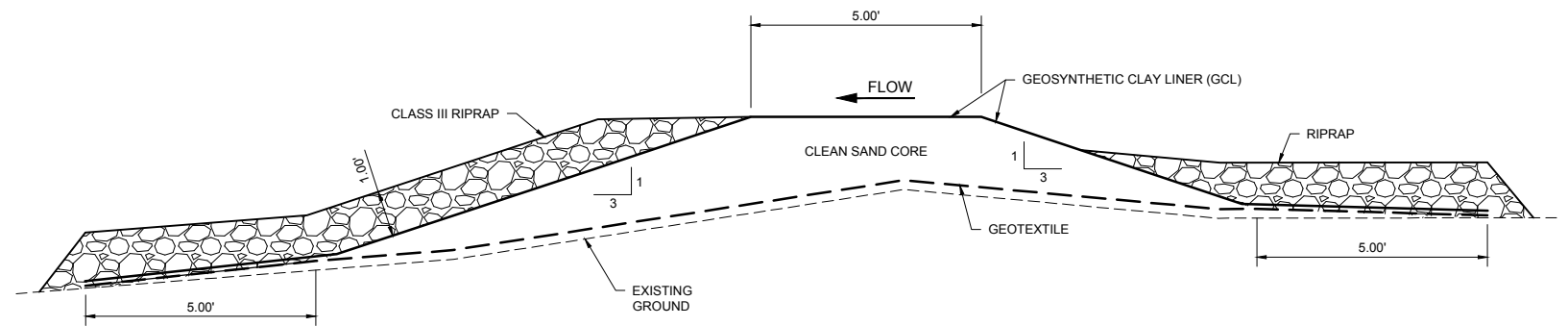
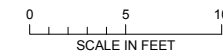
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CLIENT PROJECT No.		
DWG. No.	C-04	REV. No.
		A



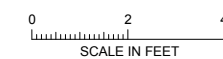
1 PLAN: INLET TEMPORARY WEIR
 C-01 1"=10'
 SCALE IN FEET



2 PROFILE: INLET TEMPORARY WEIR
 1"=5'



3 SECTION: INLET TEMPORARY WEIR
 1"=2'



PRELIMINARY
 DRAFT

CADD USER: Amanda Rammandon FILE: M:\DESIGN\23271645.00\23271645.00 C-05 INLET TEMPORARY WEIR.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2018 5:38 PM
 BARR:\X\AutoCAD 2011\AutoCAD 2011 Support\enu\template\Barr_2011_Template.dwt Plot at 1: 10/05/2010 14:03:50

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
A	JAM4	BJS	JMK2	6/1/2018	DRAFT FOR AGENCY REVIEW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____
 SIGNATURE: _____
 DATE: _____ LICENSE # _____

CLIENT	BID	CONSTRUCTION	AGENCY	RELEASED TO/FOR	DATE RELEASED
			8/1/18	A B C 0 1 2 3	

BARR Engineering Co.
 Project Office:
 BARR ENGINEERING CO.
 4300 MARKETPOINTE DRIVE
 Suite 200
 MINNEAPOLIS, MN 55435
 Corporate Headquarters:
 Minneapolis, Minnesota
 Ph: 1-800-632-2277
 Fax: (952) 832-2601
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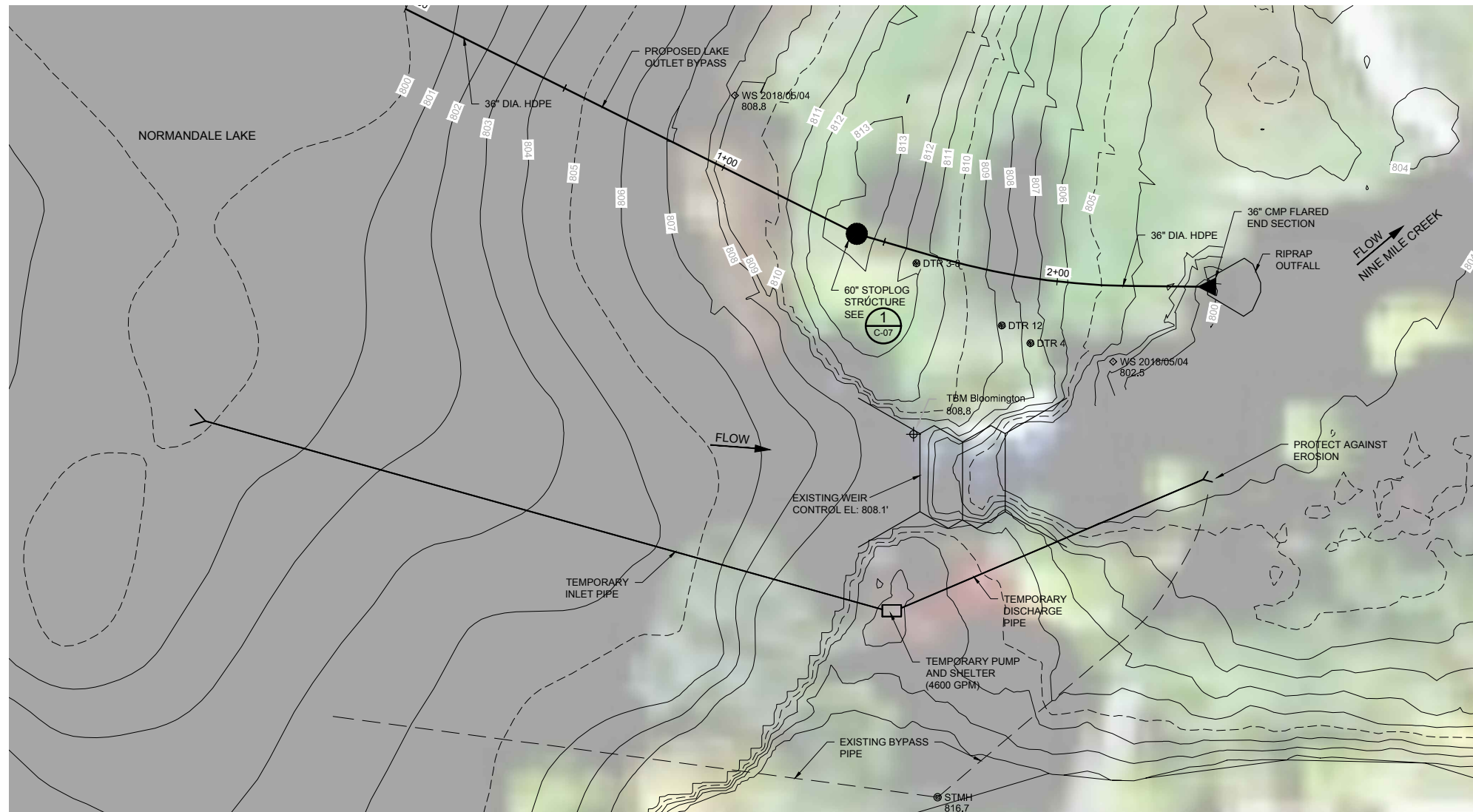
Scale	AS SHOWN
Date	05/23/2018
Drawn	JAM4
Checked	BJS
Designed	BJS
Approved	JAK

9 MILE CREEK WATERSHED DISTRICT
 MINNEAPOLIS, MINNESOTA

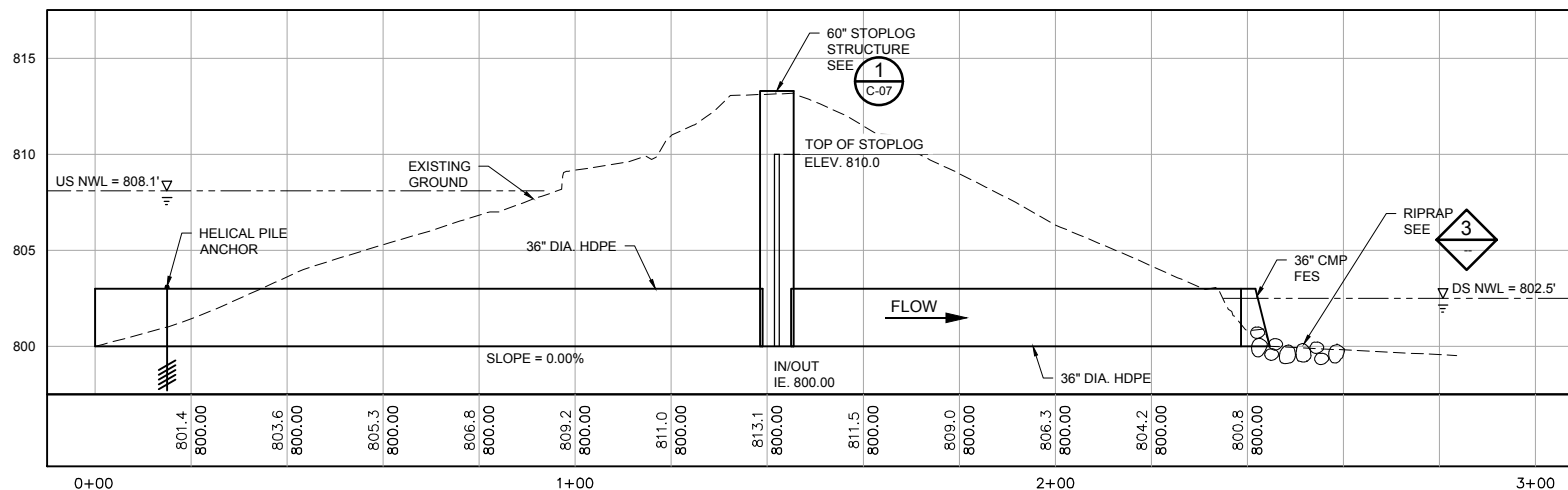
NORMANDE LAKE DRAWDOWN
 BLOOMINGTON, MINNESOTA

INLET TEMPORARY WEIR
 PLAN AND DETAILS

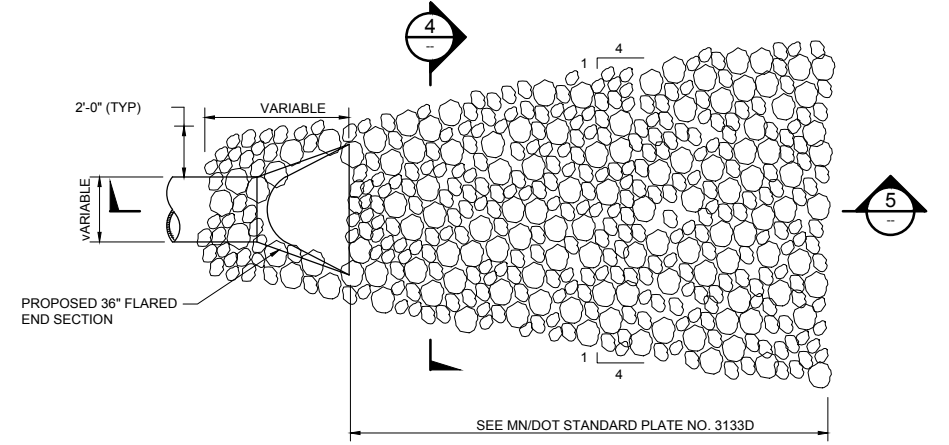
BARR PROJECT No. 23271645.00	
CLIENT PROJECT No.	
DWG. No. C-05	REV. No. A



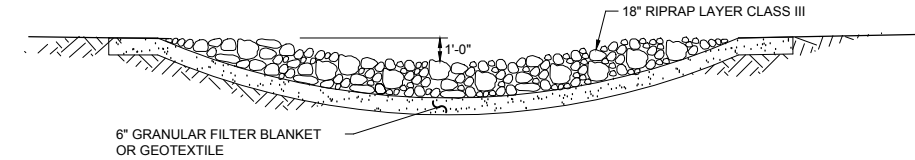
1 PLAN: BYPASS PIPE
 C-01 1"=20'
 SCALE IN FEET



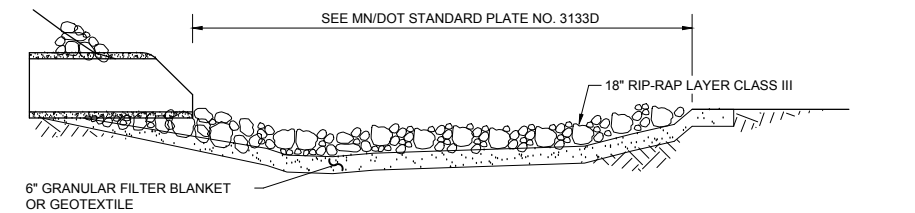
1 PPROFILE: BYPASS PIPE
 C-01 1"=5' V, 1"=20' H
 SCALE IN FEET



3 DETAIL: RIP-RAP APRON
 NOT TO SCALE



4 SECTION: RIP-RAP AND FILTER
 NOT TO SCALE



5 SECTION: PIPE AND RIP-RAP
 NOT TO SCALE

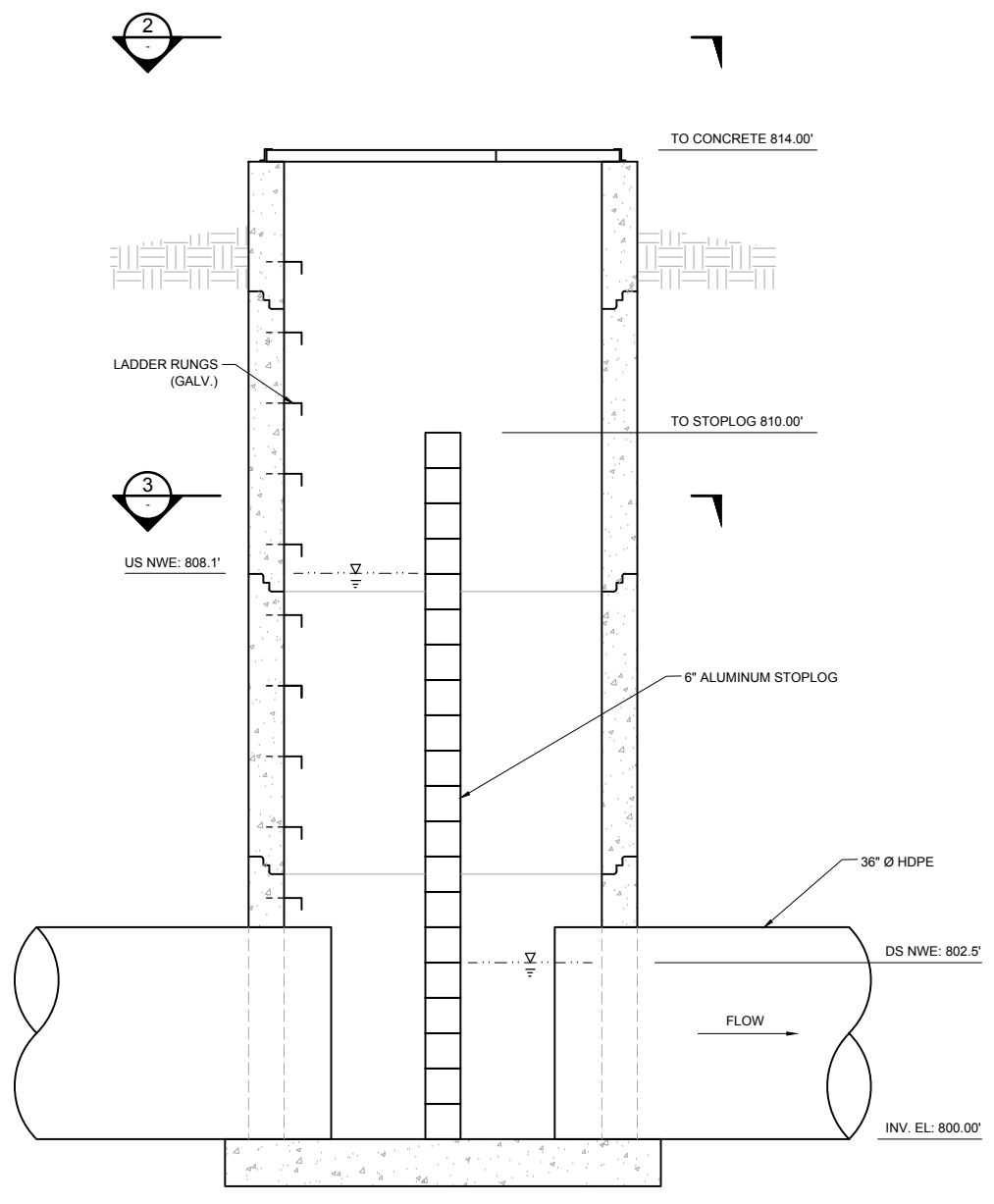
NOTE:
 1. THE CONTRACTOR, AT HIS OPTION, MAY SUBSTITUTE A GEOTEXTILE FABRIC, SPEC. 3733. FOR THE GRANULAR FILTER BLANKET UNLESS OTHERWISE SPECIFIED IN THE PLANS. THE FABRIC SHOULD COVER THE AREA OF THE RIP-RAP AND EXTEND UNDER THE PIPE 3'.
 2. REFERENCE MN/DOT STANDARD PLATE NO. 3133D.

PRELIMINARY
 DRAFT

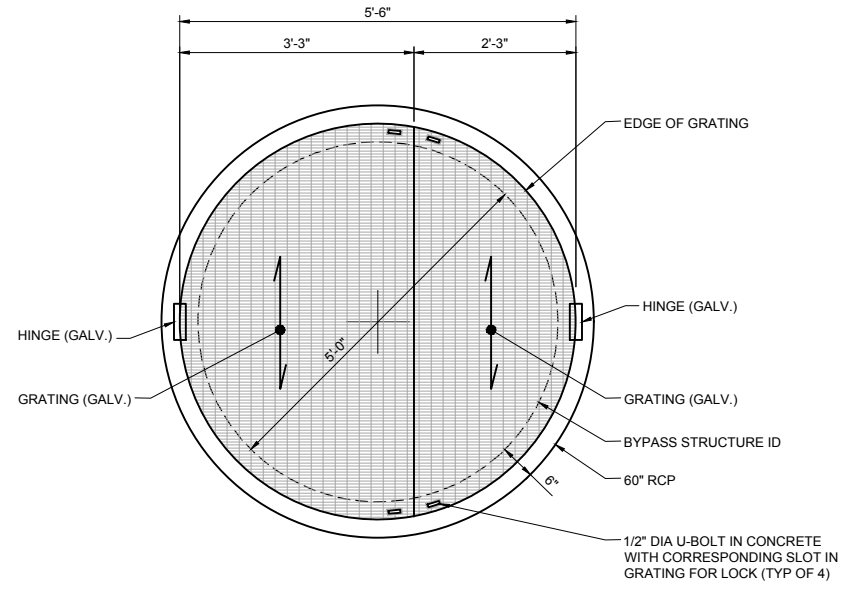
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 BARR M:\AutoCAD 2011\AutoCAD 2011 Support\en\Template\Barr_2011_Template.dwt Plot at 1:10/05/2010 14:03:50

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINTED NAME: _____ SIGNATURE: _____ DATE: _____ LICENSE #: _____		CLIENT: _____ BID: _____ CONSTRUCTION AGENCY: _____ RELEASED TO/OF: _____ DATE RELEASED: _____	BARR Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com	Scale: AS SHOWN Date: 05/23/2018 Drawn: JAM4 Checked: BJS Designed: BJS Approved: JAK	9 MILE CREEK WATERSHED DISTRICT MINNEAPOLIS, MINNESOTA	NORMANDALE LAKE DRAWDOWN BLOOMINGTON, MINNESOTA OUTLET BYPASS PLAN AND PROFILE	BARR PROJECT No. 23271645.00 CLIENT PROJECT No. DWG. No. C-06 REV. No. A
NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION		
A	JAM4	BJS	JMK2	6/1/2018	DRAFT FOR AGENCY REVIEW		

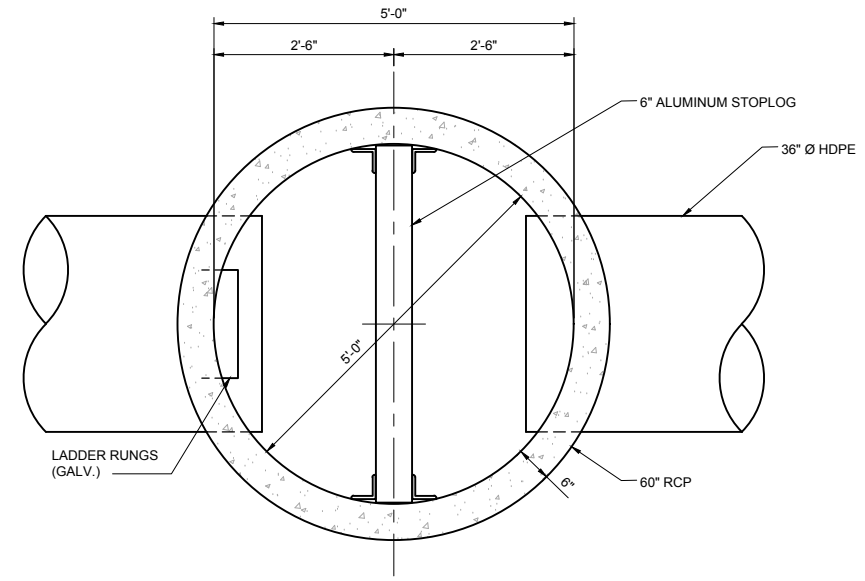
CADD USER: Amanda Rammandon FILE: M:\DESIGN\23271645.00\23271645.00 C-07 STOPLOG PLAN AND DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 01/20/2018 5:38 PM
 Job: M:\Design\23271645.00\23271645.00 C-07 Stoplog Plan and Details.dwg Plot at: 05/30/2018 17:23:30



1 SECTION: BYPASS STRUCTURE
 C-06 3/4"=1'-0"
 SCALE: 0 6" 1' 2' 3' 4'



2 PLAN: BYPASS STRUCTURE TOP GRATING
 3/4"=1'-0"
 SCALE: 0 6" 1' 2' 3' 4'



3 PLAN: BYPASS STRUCTURE STOPLOGS
 3/4"=1'-0"
 SCALE: 0 6" 1' 2' 3' 4'

PRELIMINARY DRAFT

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					NO. BY CHK. APP. DATE REVISION DESCRIPTION						RELEASED TO/FOR: A B C 0 1 2 3 DATE RELEASED:					STOPLOG PLAN AND DETAILS		DWG. No. C-07 REV. No.	

CADD USER: Dale W. Urevig FILE: M:\DESIGN\23271645\00\23271645.00 C-08 TRAFFIC CONTROL PLANDWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2018 12:47 PM

BARR:\AutocAD\2011\AutocAD 2011 Support\enu\Template\Bar_2011_Template.dwt Plot at 1 10/05/2010 14:03:50

SHEET NOTES:

1 PLAN: TRAFFIC CONTROL

PRELIMINARY DRAFT

				I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.				CLIENT BID CONSTRUCTION AGENCY				 Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com				Scale Date Drawn Checked Designed Approved		AS SHOWN 05/23/2018 JAM4 BJS BJS JAK		9 MILE CREEK WATERSHED DISTRICT MINNEAPOLIS, MINNESOTA				NORMANDALE LAKE DRAWDOWN BLOOMINGTON, MINNESOTA TRAFFIC CONTROL PLAN				BARR PROJECT No. 23271645.00 CLIENT PROJECT No.		DWG. No. C-08 REV. No. A				
				PRINTED NAME SIGNATURE DATE				RELEASED TO/FOR DATE RELEASED				<table border="1"> <tr><td>A</td><td>B</td><td>C</td><td>0</td><td>1</td><td>2</td><td>3</td></tr> </table>				A	B	C	0	1	2	3												
A	B	C	0	1	2	3																												
A	JAM4	BJS	JMK2	6/1/2018	DRAFT FOR AGENCY REVIEW																													
NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION																													

Technical Memorandum

To: Jason Spiegel, Minnesota Department of Natural Resources
From: Janna Kieffer, Barr Engineering
Subject: Hydraulic Analysis of Proposed Temporary Weir in Nine Mile Creek upstream of Normandale Lake
Date: June 1, 2018
c: Erica Sniegowski, Nine Mile Creek Watershed District
Randy Anhorn, Nine Mile Creek Watershed District

The Nine Mile Creek Watershed District (NMCWD), in coordination with the City of Bloomington, is planning an improvement project on Normandale Lake to protect and improve the native aquatic plant community and to address water quality concerns associated with a prevalence of curly-leaf pondweed in the lake and release of phosphorus from lake-bottom sediments (internal loading). The proposed improvement project includes a lake-level drawdown to freeze a large portion of the lake bottom and kill the curly-leaf pondweed turions in the sediment.

As part of the project, a temporary water level control structure (weir) will be installed in Nine Mile Creek between West 84th Street and Normandale Lake to prevent lowering of the water levels in the wetland area upstream of West 84th Street during the lake drawdown. The temporary weir would consist of an earthen berm covered with a geosynthetic clay liner (GCL). The temporary weir would be removed in spring 2019 once the drawdown is complete and the area would be restored to pre-construction conditions.

The purpose of this memorandum is to provide a summary of the hydraulic modeling completed to document that the 100-year flood elevations upstream of the proposed temporary water level control structure do not increase as a result of the project. The NMCWD developed detailed XP-SWMM hydrologic and hydraulic models of the watershed in the early-2000s to update the 100-year flood management elevations along Nine Mile Creek. The NMCWD models were submitted to FEMA and served as the basis for the Federal Emergency Management Administration (FEMA) Hennepin County map updates effective in 2016. The NMCWD updated their hydrologic and hydraulic models in 2015 based on the revised National Oceanic and Atmospheric Administration's (NOAA) precipitation frequency estimates ("Atlas 14"). The NMCWD has had flood management elevations in place for decades based on past computations that used future land use development projections. As part of the 2015 Atlas 14 modeling updates, the historic Nine Mile Creek flood management elevations were compared to the updated Atlas 14 flood elevations and the higher of these elevations were adopted (2016) as the revised regulatory flood management elevations.

To: Jason Spiegel, Minnesota Department of Natural Resources
From: Janna Kieffer, Barr Engineering
Subject: Hydraulic Analysis of Proposed Temporary Weir in Nine Mile Creek upstream of Normandale Lake
Date: June 1, 2018
Page: 2

The NMCWD's 2015 Atlas 14 XP-SWMM model of the creek system was used as a baseline model for the hydraulic analysis of the proposed temporary weir. Modeling of the channel between West 84th Street and Normandale Lake was refined by incorporating additional cross-sections; previously this channel was not explicitly modeled and instead was included as part of the Normandale Lake "storage". The updated "existing conditions" 100-year flood elevations upstream of Normandale Lake as a result of the model refinements are summarized in Table 1.

The proposed temporary weir was incorporated into the "proposed conditions" model based on the design shown on Sheet C-05 of the NMCWD Normandale Lake Drawdown preliminary (60%) design drawings (attached). The proposed weir consists of an earthen berm of approximately 40 feet in length across the channel just upstream of the existing footbridge at elevation 808.1 feet MSL (control elevation of existing Normandale Lake outlet weir), with a 20 foot notch in the weir at 807.7 feet MSL. The "notch" will be centered in accordance with the existing Nine Mile Creek stream centerline, with the intent of channelizing the conveyance of baseflows (approximately 5 cfs) and reducing the potential for downstream erosion.

Table 1 summarizes the "proposed condition" 100-year flood elevations for locations along Nine Mile Creek upstream of Normandale Lake as a result of the proposed temporary weir structure. Note that elevations included in Table 1 are based on the National Geodetic Vertical Datum of 1929 (NGVD 29), whereas elevations shown on Sheet C-05 of the preliminary design drawings are based on North American Vertical Datum of 1988 (NAVD 88). The conversion of elevations from NGVD 29 to NAVD 88 in the project area is approximately 0.2 feet.

As shown in Table 1, model results indicate minor temporary increases in the 100-year flood elevation in several locations upstream of the proposed temporary water level control weir. However, the minor increases will only last for the duration of the project (anticipated fall 2018 through spring 2019). Review of LiDAR elevation data indicates that no structures are within the 100-year floodplain in these areas under existing or proposed conditions. The 100-year flood elevations under proposed conditions are below the NMCWD's historic flood management elevations for all locations identified in Table 1, with exception of BlmCrk2 (North Fork of Nine Mile Creek downstream of Green Valley Drive) which has an existing and proposed flood elevation that is slightly higher than the NMCWD regulatory flood management elevation. The slightly higher flood elevations, as compared with the NMCWD historic flood management elevation, are likely due to the additional refinements made to the model in the channel between West 84th Street and Normandale Lake.

To: Jason Spiegel, Minnesota Department of Natural Resources
From: Janna Kieffer, Barr Engineering
Subject: Hydraulic Analysis of Proposed Temporary Weir in Nine Mile Creek upstream of Normandale Lake
Date: June 1, 2018
Page: 3

Table 1. Comparison of 100-year flood elevations for existing and proposed conditions.

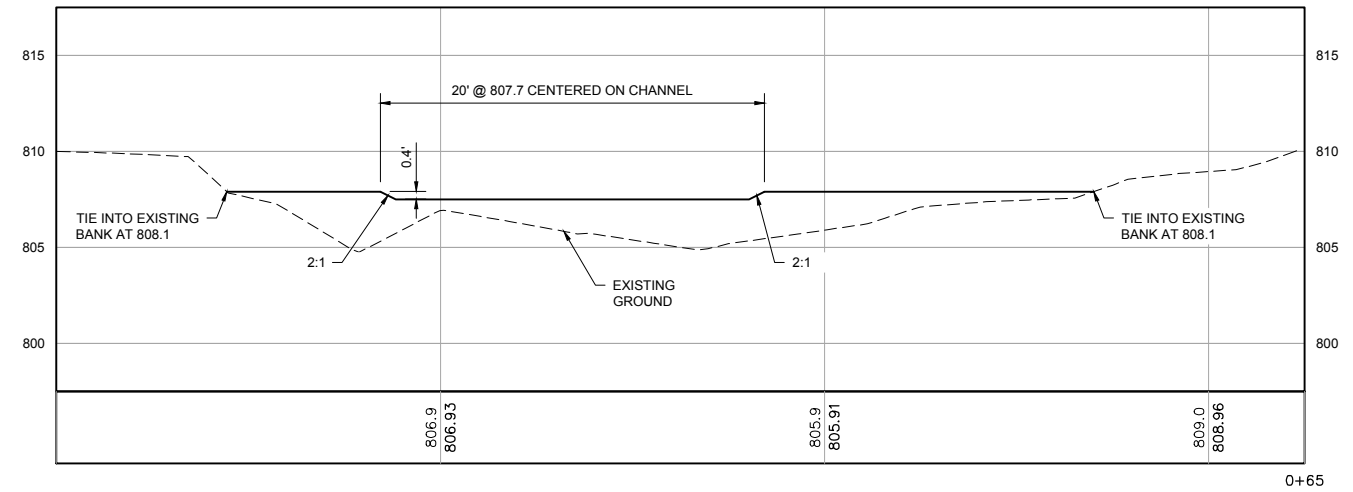
XP-SWMM Model Node	Location Description	100-year Flood Elevation ¹ (feet)			NMCWD 100-year Flood Management Elevation (feet)
		Existing Conditions	Proposed Conditions	Difference	
BlmCrk5	Nine Mile Creek upstream of West 84th Street	813.68	813.70	0.02	814.5
BlmCrk4	South Fork of Nine Mile Creek upstream of American Boulevard	814.43	814.45	0.02	814.5
WBlmCrk5	South Fork of Nine Mile Creek upstream of East Bush Lake Road	815.18	815.20	0.02	816.0
WBlmCrk4	South Fork of Nine Mile Creek downstream of Hwy 494	815.90	815.91	0.01	819.5
BlmCrk3	North Fork of Nine Mile Creek upstream of American Boulevard	815.16	815.18	0.02	816.5
BlmCrk2	North Fork of Nine Mile Creek downstream of Green Valley Drive	816.87	816.88	0.01	816.8
¹ Modeled elevations in NGVD 29					

Attachments:

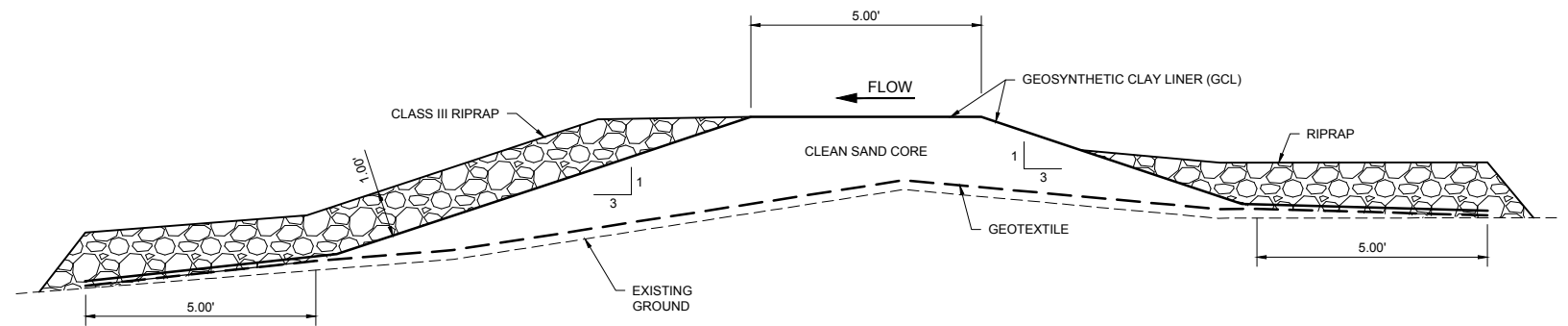
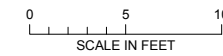
Plan sheet C-05



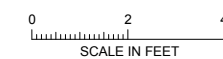
1 PLAN: INLET TEMPORARY WEIR
 C-01 1"=10'
 SCALE IN FEET



2 PROFILE: INLET TEMPORARY WEIR
 1"=5'



3 SECTION: INLET TEMPORARY WEIR
 1"=2'



PRELIMINARY
DRAFT

CADD USER: Ananda Rammandan FILE: M:\DESIGN\23271645.00\C-05 INLET TEMPORARY WEIR.DWG PLOT SCALE: 1:2 PLOT DATE: 6/1/2018 5:38 PM
 BARR:\X\AutoCAD 2011\AutoCAD 2011\Support\enu\Template\Barr_2011_Template.dwt Plot at 1 10/05/2010 14:03:50

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
A	JAM4	BJS	JMK2	6/1/2018	DRAFT FOR AGENCY REVIEW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____
 SIGNATURE: _____
 DATE: _____ LICENSE # _____

CLIENT									
BID									
CONSTRUCTION									
AGENCY	8/1/18								
RELEASED TO/FOR	A	B	C	0	1	2	3		
DATE RELEASED									

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 www.barr.com

Scale	AS SHOWN
Date	05/23/2018
Drawn	JAM4
Checked	BJS
Designed	BJS
Approved	JAK

9 MILE CREEK WATERSHED DISTRICT
 MINNEAPOLIS, MINNESOTA

NORMANDALE LAKE DRAWDOWN
 BLOOMINGTON, MINNESOTA

INLET TEMPORARY WEIR
 PLAN AND DETAILS

BARR PROJECT No.	23271645.00
CLIENT PROJECT No.	
DWG. No.	C-05
REV. No.	A