



US Army Corps
of Engineers
St Paul District

**APPLICANT: U.S. Steel Corporation
Minntac**

Public Notice

ISSUED: August 7, 2015

EXPIRES: September 8, 2015

REFER TO: MVP-2014-01247-TJH

SECTION: 404 - Clean Water Act

1. APPLICATION FOR PERMIT to discharge fill material into approximately 5.75 acres of wetlands that are part of the tributary system of the Dark River for the construction of a seepage collection system at the west tailings basin of United States Steel Corporation's Minntac iron ore mining and processing facility in the City of Mountain Iron, Minnesota.

A 30-day public notice for a previous permit application to construct the Western Tailings Basin Seepage Collection System was issued on May 16, 2014. This public notice is for a revised project that includes design changes and a corresponding reduction in proposed wetland impacts.

2. SPECIFIC INFORMATION.

APPLICANT'S ADDRESS:

Mr. Tom Moe
U.S. Steel Corporation
Minnesota Ore Operations
8819 Old Highway 169
Mt. Iron, Minnesota 55768

PROJECT LOCATION: The project site is located in Sections 6, 7, 18, 19, and 30, Township 59N, Range 18W; and in Section 24, Township 59N, Range 19W, St. Louis County, Minnesota.

PROJECT PURPOSE: The purpose of the Minntac Tailings Basin West Seepage Collection System Project (Project) is to collect surface seepage water from the west tailings basin perimeter dike and return it back to the tailings basin to reduce the impact of surface seepage on downstream water quality.

DESCRIPTION OF PROJECT: Minntac is an iron ore mining and processing facility. During the processing of the ore, fine tailings (the non-magnetic fraction of the ore) are sent to the tailings basin in slurry form. The Minntac tailings basin is approximately 8,000 acres in size and consists of perimeter water-retaining dams, two clear water pools (Cell #1 and Cell #2) operated in series, and internal fine tailings cells. Decant from the fine tailings slurry is reclaimed and recirculated as process water in a nearly closed loop system. While most of the reclaimed water returns to the plant, some seepage occurs from the tailings basin perimeter dams. Previous studies have identified the seepage from the basin as containing elevated levels of certain constituents (e.g., hardness, total dissolved solids, specific conductance, and possibly sulfate) which may not currently be in compliance with existing Minnesota surface water quality standards.

As required by a June 9, 2011 Schedule of Compliance (SOC) agreement between United States Steel Corporation (U.S. Steel) and the Minnesota Pollution Control Agency (MPCA), a surface seepage collection and return system for the west side of the tailings basin was originally designed by Hatch.

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A permit application for that project was submitted to the U.S. Army Corps of Engineers (USACE) in 2014 and it was assigned project number 2014-01247-TJH by the USACE. As a result of comments received on the public notice for the 2014 permit application and concerns raised by the USACE and Minnesota Department of Natural Resources (MnDNR), U.S. Steel evaluated alternative designs that would reduce wetland and water quality impacts of the proposed project. U.S. Steel, in conjunction with Barr Engineering, developed a new design for the Project similar to the conceptual design originally submitted in 2014, but with an emphasis on minimizing wetland impacts. The new design consists of constructing approximately 7,440 linear feet of sheet pile, four pump stations, drainage piping, and ditches designed to provide seepage collection over approximately 10,400 linear feet of the western perimeter dam toe. The design features of the Project with associated wetland impact areas are shown on the attached plan and profile drawings labeled 2014-01247-TJH (2015), Figures 1 of 6 through 6 of 6.

QUANTITY, TYPE, AND AREA OF FILL: There are approximately 98 acres of wetlands identified within the 225 acre Project area. Wetland impacts that would result from the Project were evaluated by determining the footprint of major project elements with respect to wetland boundaries that were delineated in 2011, 2012 and 2014 along the outer tailings basin dike. These boundaries are denoted by a diagonal striped pattern in each of the attached figures. The Project was designed to eliminate indirect hydrologic impacts to wetlands by proposing that sheet pile be driven into native soils only far enough to capture tailings basin seepage and minimize back-draining of wetlands into the collection system to allow for existing groundwater flows to continue and contribute to maintaining wetland hydrology. This seepage collection method was used on the seepage collection system on the east side of the tailings basin. The applicant's wetland impact analysis identified the following permanent and temporary impacts that would result from sheet pile installation, access and maintenance road construction, and from the expected water level changes in wetlands adjacent to proposed project features. The Project would result in permanent direct wetland impacts totaling 5.15 acres, which represents a 79% wetland impact reduction from the previous collect and pumpback design proposed in 2014.

The direct wetland impacts in the Subcatchment 2 area include the placement of fill for the construction of roads to drive sheet pile and to conduct system maintenance. Fill material would be discharged in wetlands at Seep D for sheet pile installation and would remain for maintenance access to a new downstream ditch that will be designed to maintain current upstream wetland water levels. The small wetland along the ditch line will be impacted to prevent the ditch water from discharging into the nearby open water wetland. The wetlands from the ditch discharge to Seep F will be permanently impacted by either wetland water level changes, sheet pile fill or maintenance access road construction. A small amount of fill to install sheet pile north of Seep F will be needed to provide a cutoff for Seep D source water. A small swale east of Seep D is provided to minimize wetland water level changes in the wetland to the north of Seep D. The direct wetland impacts in the Subcatchment 3 area will consist of anticipated water level changes, sheet pile fill, and maintenance access road construction. The direct wetland impacts in the Subcatchment 4 area would result from installation and maintenance of the sheet pile section running in a north to south direction along the existing beaver dam. This section would be used to control and maintain the existing upstream water level in the wetland. The section of wetland southeast of the beaver dam adjacent to the perimeter dam toe will be permanently impacted by either wetland water level changes, sheet pile fill, or maintenance access construction.

Temporary wetland impacts would total 0.60 acre and occur from the placement of fill material in

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wetlands for the installation of sheet pile by Seep C. This fill material would be removed upon completion of the sheet pile installation. The design drainage path would maintain current wetland water levels within the subcatchment area.

Permanent and temporary wetland impacts by project element and wetland type are listed in Table 1 and in Table 2.

TABLE 1 - SUMMARY OF PROPOSED WETLAND IMPACTS

Wetland ID	Wetland Type	Wetland Impact Summary		
		Type	Project Element	Acres
Permanent Wetland Impacts				
W7A	7	Direct	Sheet Pile/Water Level Changes	0.90
W7B	6	Direct	Sheet Pile/Water Level Changes	0.06
W10A	6	Direct	Sheet Pile/Water Level Changes	1.69
W10B	7	Direct	Sheet Pile/Water Level Changes	0.52
W11D	7	Direct	Sheet Pile	0.02
W13A	7	Direct	Sheet Pile/Water Level Changes	0.53
W13B	5	Direct	Sheet Pile	0.03
W13D	4	Direct	Sheet Pile/Water Level Changes	0.30
W13E	5	Direct	Water Level Changes	0.01
W13F	7	Direct	Ditch	0.05
W32A	5	Direct	Sheet Pile	0.12
W32B	4	Direct	Sheet Pile	0.51
W33A	6	Direct	Sheet Pile	0.04
W33C	7	Direct	Sheet Pile/Water Level Changes	0.37
Total Permanent Direct Wetland Impacts				5.15
Temporary Wetland Impacts				
W23B	6	Temporary	Pipe Installation	0.04
W23C	4	Temporary	Pipe Installation	0.01
W34B	6	Temporary	Sheet Pile	0.55
Total Temporary Wetland Impacts				0.60

TABLE 2 - SUMMARY OF PROPOSED IMPACTS BY WETLAND TYPE

Wetland Plant Community Type		Acres By Impact Type	
Eggers and Reed	Predominant Vegetation in Impacted	Direct	Temporary
Shallow Marsh	<i>Typhix g/auca, Carex l. Calamogrostis c.</i>	1.79	0
Deep Marsh	<i>Typhax g/auca, Carex l.</i>	0.3	0.56
Shallow Open Water	Submerged macrophytes	0.03	0
Alder Thicket	<i>A/nus i., Calamogrostis c., Carex spp.</i>	0.6	0.04
Coniferous Swamp	<i>Picea m., Larix /., A/nus i. Calamogrostis c.</i>	2.43	0
TOTALS		5.15	0.60

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VEGETATION IN THE AFFECTED AREA: The project area is located within the Laurentian Mixed Forest Province (MnDNR's Ecological Classification System). Wooded habitat in uplands and wetlands cover approximately 35% of the land area, most of which is second growth forest composed of aspen and birch. Wetland communities found within the corridor include Shallow marsh, Shallow open water, Shrub-carr, and Hardwood swamp/Coniferous swamp. Shallow marsh (Type 3) wetlands typically support cattails, bulrushes, water plantains, arrowhead and lake sedge. Shallow open water areas (Type 5) are typically less than 10 feet deep and generally support emergent vegetation such as cattail, reed, and bulrush along fringe areas. Open areas typically support pondweed, coontail, water-milfoil, waterweed, duckweed, and water Lily. Shrub-Carr (Type 6) wetlands typically support alders and willows. Hardwood/Coniferous swamp (Type 7) wetlands typically support tamarack, northern white cedar, black spruce, balsam fir, balsam poplar, and black ash. Much of the area near the project is fragmented by existing haul roads and the existing Minntac tailings basin.

SOURCE OF FILL MATERIAL: Blast Furnace Trim (BFT), waste rock, and coarse taconite tailings from the Minntac facility would be used in access road construction. Local soils would be used if necessary for grading the collection swales.

SURROUNDING LAND USE: The project area is located within the Little Fork River Watershed along the toe of an existing tailings basin at an active taconite mine. Typical mining activities include operation of excavators, mining trucks, and weekly blasting of material. The City of Mountain Iron has zoned the project area as a mineral mining district. Mining, processing, storage and transportation of taconite and other metallic ores are permitted uses. Land use in the project area is dominated by the existing Minntac mine operations. Much of the area remains undeveloped, with expanses of wooded habitat and open agricultural areas, wetlands, natural water bodies, and abandoned mine pits.

THE FOLLOWING POTENTIALLY TOXIC MATERIALS COULD BE USED AT THE PROJECT SITE: No use of toxic materials has been identified by the applicant.

THE FOLLOWING PRECAUTIONS TO PROTECT WATER QUALITY HAVE BEEN DESCRIBED BY THE APPLICANT: Best Management Practices to protect water quality in the form of temporary and permanent erosion and sediment control measures would be used as required throughout the project area.

PROPOSED MITIGATION: The applicant has proposed compensatory mitigation for the permanent loss of 5.15 acres of wetlands at the project site by debiting 7.73 new Sedge Meadow wetland credits from U.S. Steel's Palisade III Wetland Bank located in Aitkin County, Minnesota. The Palisade III wetland bank is located in an adjacent bank service area (the Minntac Western Seepage Collection Project is in Bank Service Area 2, whereas the Palisade III bank site is located in Bank Service Area 5). The Project and the compensatory mitigation site are both located on landscapes with greater than 80% of pre-settlement wetlands remaining. The permanently impacted wetlands are Shallow Marsh (1.79 acres), Deep Marsh (0.30 acre), Shallow Open Water (0.03 acre), Alder Thicket (0.60 acre), and Coniferous Swamp (2.43 acres) wetland plant communities. Compensation for permanently impacted wetlands would be provided with Sedge Meadow and/or Fresh (wet) Meadow wetland credits totaling 7.73 credits from the Palisades III Wetland Bank. The proposed compensation would be in-advance, but not in-kind or in-place. The proposed compensation ratio is 1.5:1.

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ALTERNATIVES: In 2012, U.S. Steel and Hatch completed a Phase I Design for west tailings basin seepage collection that included a more extensive seepage collection system than what is currently proposed. The Phase I Design was rejected due to a number of technical issues, construction risks and a much larger area of wetland impact.

In April 2014, U.S. Steel developed the Phase II Design and submitted a permit application for that project to the USACE. A public notice for the Phase II Design project was issued in May 2014. As a result of comments received on the public notice for the 2014 permit application and concerns raised by the USACE and MnDNR, U.S. Steel evaluated alternative designs that would reduce wetland and water quality impacts of the proposed project.

In May 2015, U.S. Steel and Barr Engineering completed an analysis that explored three options for seepage collection: (1) collection and pumpback, (2) hydromill and seepage cutoff, and (3) a combination of collection and pumpback and seepage cutoff. The latter two options were ultimately rejected because a seepage cutoff could significantly reduce the groundwater level in adjacent wetlands that would cause large-scale secondary wetland impacts. Therefore, U.S. Steel elected to proceed with the proposed collection and pumpback option and submitted the revised permit application for the Project on May 28, 2015.

The no-build alternative considered not installing the surface seep collection and return system. However, U.S. Steel must complete the seep collection project for the west tailings basin of the Minntac iron ore mining and processing facility, as per the June 9, 2011 SOC entered into between U.S. Steel and the MPCA.

AVOIDANCE AND MINIMIZATION MEASURES: The construction activities and installation of the seepage collection system are expected to result in a combination of direct and temporary impacts to wetlands adjacent to the west side of the Minntac tailings basin. The proposed project has been redesigned to avoid and minimize impacts to wetlands. Complete avoidance is not possible because groundwater seeps occur at ten locations within low lying areas of the landscape and then flow overland or via subsurface flow through natural drainage systems, both being settings where wetlands generally occur. The following discusses key project elements with respect to wetland avoidance and minimization.

Access Road Construction: Due to dam safety and integrity requirements, construction of the access roads cannot cut into the existing perimeter dike slope; therefore, the maintenance access roads must be located away from the perimeter dike, limiting opportunities to utilize the perimeter dike to construct and operate the seepage collection and return system. The width of access roads must be wide enough for large grading equipment to maintain the roads and to allow for the appropriate berm size that meets Mine Safety and Health Administration requirements, limiting options to reduce the overall footprint of the access road. Where possible, access roads and seepage collection system facilities are being constructed over existing roads to reduce wetland impacts.

Sheet Pile: Wherever possible, fill material will be removed after completion of sheet pile installation. Some areas require that fill remain in place to allow maintenance access to other elements of the seepage collection system, or to provide cutoff for seep source water. Sheet pile

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will be installed only into the native soil and only far enough to minimize back draining of wetlands into the collection system while allowing existing groundwater flows to contribute to the wetland hydrology.

3. REPLIES/COMMENTS: Interested parties are invited to submit to this office written facts, arguments, or objections within 30 days of the date of this notice. These statements should bear upon the suitability of the location and the adequacy of the project and should, if appropriate, suggest any changes believed to be desirable. Comments received may be forwarded to the applicant.

Replies may be addressed to: Regulatory Branch, St. Paul District, Corps of Engineers, 180 Fifth Street East, Suite 700, Saint Paul, MN 55101-1678.

Or, IF YOU HAVE QUESTIONS ABOUT THE PROJECT, call Tom Hingsberger at the St. Paul District office of the Corps, telephone number (651) 290 - 5367.

To receive Public Notices by e-mail, go to: http://mvp-extstpp/list_server/ and add your information in the New Registration Box.

4. FEDERALLY-LISTED THREATENED OR ENDANGERED WILDLIFE OR PLANTS OR THEIR CRITICAL HABITAT.

None were identified by the applicant or are known to exist in the permit area. However, St. Louis County is within the known or historic range of the following Federally-listed threatened and endangered species:

<u>Species</u>	<u>Status</u>	<u>Habitat</u>
Gray wolf (<i>Canis lupus</i>)	Threatened	Northern Forest
Canada lynx (<i>Lynx canadensis</i>)	Threatened; Critical Habitat	Northern Forest
Piping Plover (<i>Charadrius melodus</i>)	Endangered; Critical Habitat	Great Lakes Shorelines
Rufa Red knot (<i>Calidris canutus rufa</i>)	Threatened	Coastal areas around Lake Superior
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Threatened	Caves, mines, upland forests

This application is being coordinated with the U.S. Fish and Wildlife Service. Any comments it may have concerning Federally-listed threatened or endangered wildlife or plant species or their critical habitat will be considered in our final assessment of the described work.

5. JURISDICTION.

This application is being reviewed in accordance with the practices for documenting Corps jurisdiction under Sections 9 & 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act identified in Regulatory Guidance Letter 08-02. We have made an initial determination that the aquatic resources that would be impacted by the proposed project are regulated by the Corps of Engineers under Section 404 of the Clean Water Act and/or Section(s) 9 & 10 of the Rivers and Harbors Act. The Corps will prepare an approved or preliminary jurisdictional determination prior to making a permit decision.

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Approved jurisdictional determinations are posted on the St. Paul District web page at <http://www.mvp.usace.army.mil/Missions/Regulatory.aspx>.

THE APPLICANT HAS STATED THAT THE FOLLOWING STATE, COUNTY, AND/OR LOCAL PERMITS HAVE BEEN APPLIED FOR/ISSUED: State NPDES Permitting has been completed for this project.

6. STATE SECTION 401 WATER QUALITY CERTIFICATION.

Valid Section 404 permits cannot be issued for any activity unless state water quality certification for the activity is granted or waived pursuant to Section 401 of the Clean Water Act. The state Section 401 authority in Minnesota is the Minnesota Pollution Control Agency (MPCA). The St. Paul District has provided this public notice and a copy of the applicant's Section 404 permit application form to the MPCA. If MPCA needs any additional information in order for the Section 401 application to be considered complete by MPCA, the MPCA has indicated that it will request such information from the applicant. It is the permit applicant's responsibility to ensure that the MPCA has received a valid, complete application for state Section 401 certification and to obtain a final Section 401 action from the MPCA.

The MPCA has indicated that this public notice serves as its public notice of the application for Section 401 water quality certification under Minnesota Rules Part 7001. The MPCA has also indicated that the Section 401 process shall begin to commence upon the issuance date of this public notice unless the MPCA notifies both the St. Paul District and the permit applicant to the contrary, in writing, before the expiration date of this public notice.

Any comments relative to MPCA's Section 401 Certification for the activity proposed in this public notice may be sent to:

Minnesota Pollution Control Agency, Resource Management and Assistance Division,
Attention: 401 Certification, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

7. HISTORICAL/ARCHAEOLOGICAL.

This public notice is being sent to the National Park Service and the State Archaeologist for their comments. The Corps will review information on known cultural resources and/or historic properties within and adjacent to the project area. The Corps will also consider the potential effects of the project on any properties that have yet to be identified. The results of this review and the Corps' determination of effect will be coordinated with the State Historic Preservation Officer independent of this public notice. Any adverse effects on historic properties will be resolved prior to the Corps authorization, or approval, of the work in connection with this project.

The Mountain Iron Mine Pit Reservoir is a listed historic property on the National Register of Historic Places. It is located in the town of Mt. Iron at the end of Missabe Avenue, approximately two miles to the SE of the Western Seepage Collection System Project area. According to the National Register's nomination form, mining of this pit began in 1892 and marked the opening of the Mesabi Range, setting in motion events which made Minnesota the largest producer of iron ore in the nation. During the 64

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years the mine was in operation, it yielded more than 48 million tons of ore. The pit is now used as a reservoir by U.S. Steel. It can be viewed from an observation point in the city of Mountain Iron. The Western Seepage Collection Project would have no effect on the Historic Mine Pit Reservoir.

8. PUBLIC HEARING REQUESTS.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, in detail, the reasons for holding a public hearing. A request may be denied if substantive reasons for holding a hearing are not provided or if there is otherwise no valid interest to be served.

9. PUBLIC INTEREST REVIEW.

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production and, in general, the needs and welfare of the people. Environmental and other documents will be available for review in the St. Paul District Office.

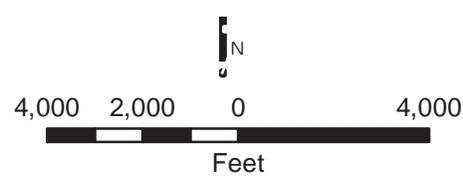
The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Benjamin R. Cox
Chief, Northwest Section

Enclosures

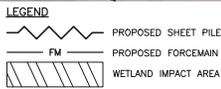
NOTICE TO EDITORS: This public notice is provided as background information and is not a request or contract for publication.

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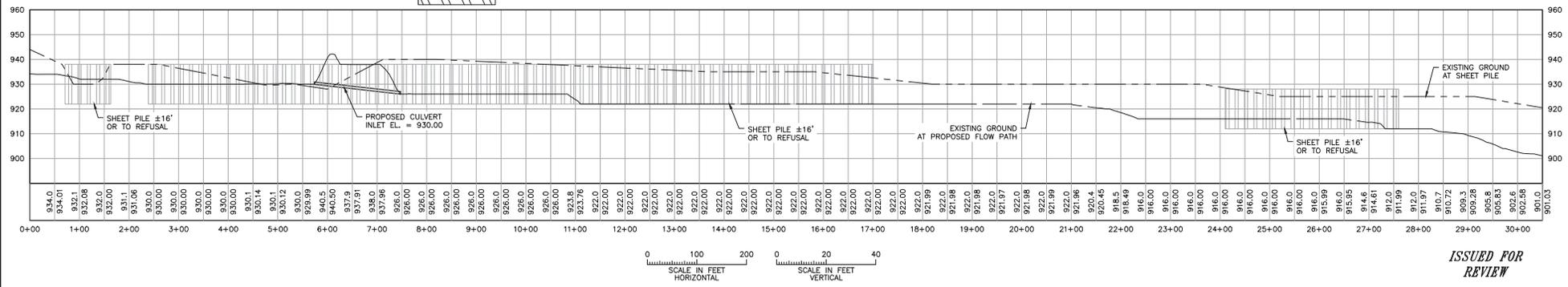
Imagery: FSA (2013)

Figure 1
 WEST SIDE
 SEEP LOCATIONS
 U. S. Steel - Minntac
 St. Louis County, MN



PERMANENT WETLAND IMPACTS = 0.00 ACRES
 TEMPORARY FOR CONSTRUCTION = 0.55 ACRES

- NOTES:
 1. WETLAND BOUNDARIES ARE PER DELINEATIONS PROVIDED BY MINNTAC FROM 2014 DELINEATION REPORT
 2. SUBSURFACE GEOTECHNICAL INFORMATION PROVIDED BY MINNTAC FROM HISTORICAL RECORDS
 3. TOPOGRAPHY PROVIDED BY MINNTAC



ISSUED FOR REVIEW

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NO.	CHK.	APP.	DATE	REVISION DESCRIPTION
D	VJS	JMM3	6/01/15	ISSUED FOR REVIEW-UPDATED WITH NEW WETLAND FILES
C	VJS	JMM3	5/13/15	ISSUED FOR REVIEW-UPDATED WITH WETLAND ID NUMBERS
E	VJS	JMM3	5/08/15	ISSUED FOR REVIEW-UPDATED PER MINNTAC COMMENTS
A	VJS	JMM3	4/16/15	ISSUED FOR 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	4/16/08/136/03
BID	
CONSTRUCTION	
RELEASED TO/FOR	A B C D O 1 2
DATE RELEASED	

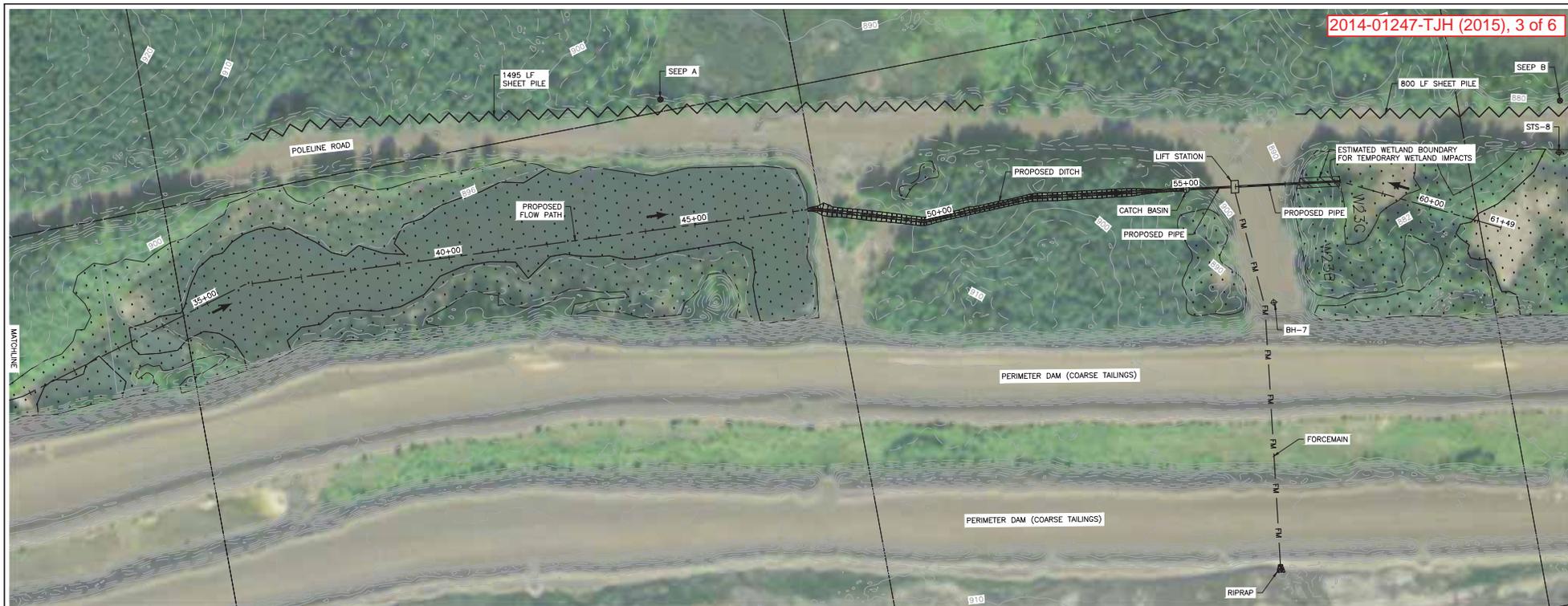


Project Office:
 BARR ENGINEERING CO.
 3128 14TH AVENUE EAST
 HIBBING, MN 55746
 Ph: 1-800-225-1866
 Fax: (218) 262-3460
 www.barr.com

Scale	AS SHOWN
Date	03/10/15
Drawn	VJS
Checked	JMM3
Designed	VJS
Approved	JMM3

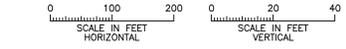
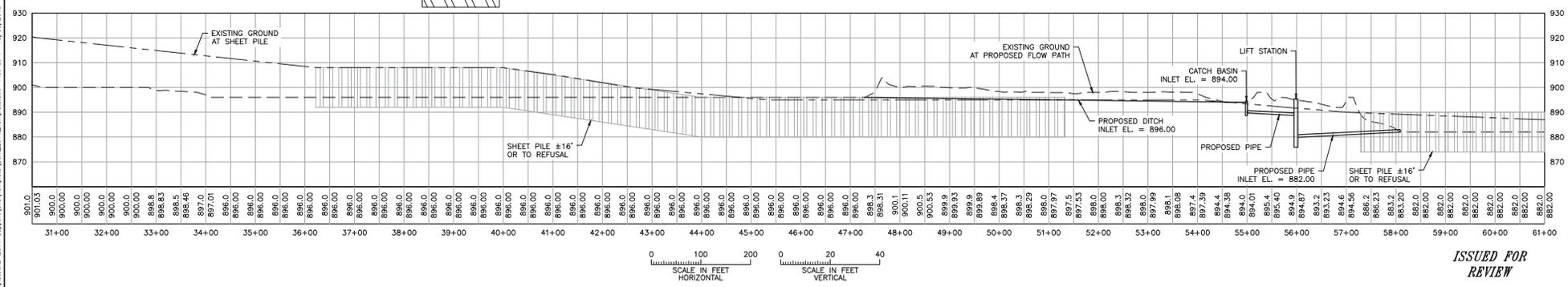
MINNTAC
 MOUNTAIN IRON, MINNESOTA

MINNTAC TAILING BASIN WEST SEEPAGE COLLECTION	BARR PROJECT No. 23/69-1607 CLIENT PROJECT No.
OPTION 1 - CATCHMENT 1 COLLECT/PUMP BACK - MIN WETLAND IMPACT	DWG. No. FIG 1A REV. No. D



PERMANENT WETLAND IMPACTS = 0.00 ACRES
 TEMPORARY FOR CONSTRUCTION = 0.05 ACRES

- NOTES:
 1. WETLAND BOUNDARIES ARE PER DELINEATIONS PROVIDED BY MINNTAC FROM 2014 DELINEATION REPORT
 2. SUBSURFACE GEOTECHNICAL INFORMATION PROVIDED BY MINNTAC FROM HISTORICAL RECORDS
 3. TOPOGRAPHY PROVIDED BY MINNTAC



ISSUED FOR REVIEW

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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
D	VJS	JMM3	JMM3	6/01/15	ISSUED FOR REVIEW-UPDATED WITH NEW WETLAND FILES
C	VJS	JMM3	JMM3	5/13/15	ISSUED FOR REVIEW-UPDATED WITH WETLAND ID NUMBERS
E	VJS	JMM3	JMM3	5/08/15	ISSUED FOR REVIEW-UPDATED PER MINNTAC COMMENTS
A	VJS	JMM3	JMM3	4/16/15	ISSUED FOR 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	4/16/5/08/13/6/03
CONSTRUCTION	
RELEASED TO/FOR	A B C D O 1 2
DATE RELEASED	

BARR
 Corporate Headquarters
 Minneapolis, Minnesota
 Ph: 1-800-632-2277

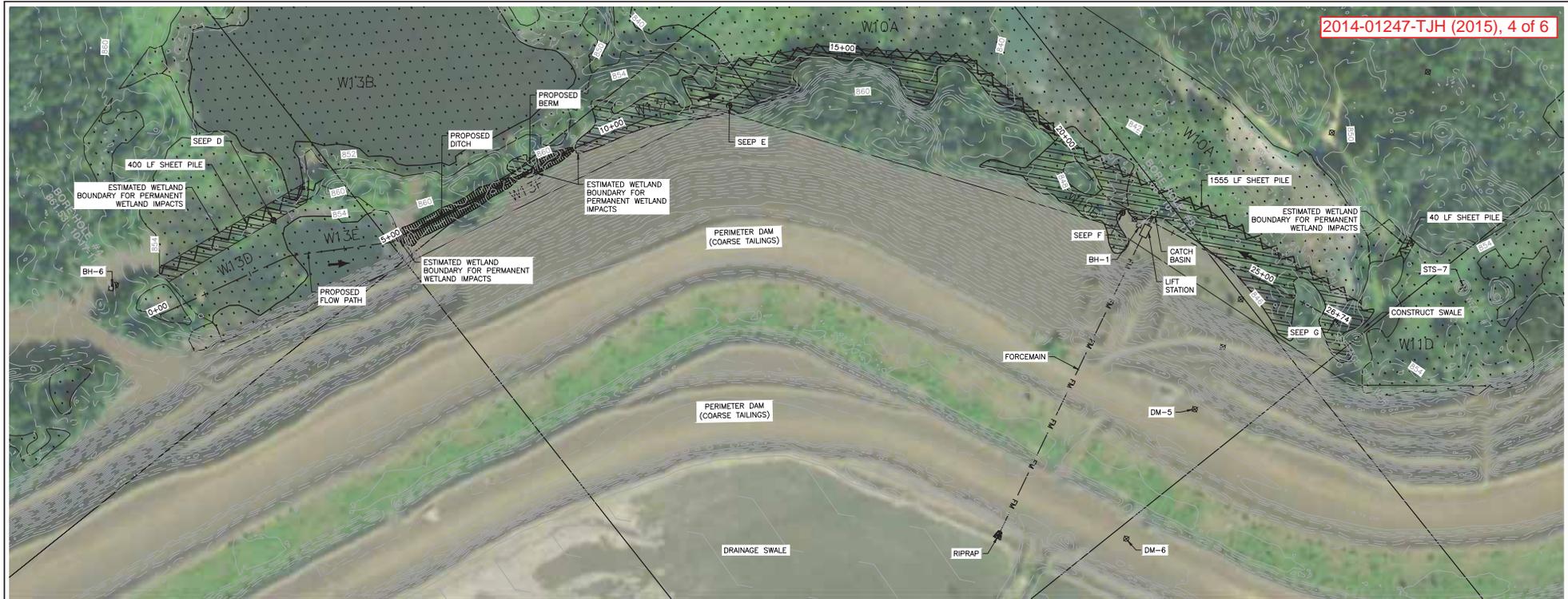
Project Office:
 BARR ENGINEERING CO.
 3128 14TH AVENUE EAST
 HIBBING, MN 55746
 Ph: 1-800-225-1966
 Fax: (218) 262-3460
 www.barr.com

Scale	AS SHOWN
Drawn	03/10/15
Checked	JMM3
Designed	VJS
Approved	JMM3

MINNTAC
 MOUNTAIN IRON, MINNESOTA

MINNTAC TAILING BASIN WEST SEEPAGE COLLECTION
OPTION 1 - CATCHMENT 1 COLLECT/PUMP BACK - MIN WETLAND IMPACT

BARR PROJECT No.	23/69-1607
CLIENT PROJECT No.	
DWG. No.	FIG 1B
REV. No.	D

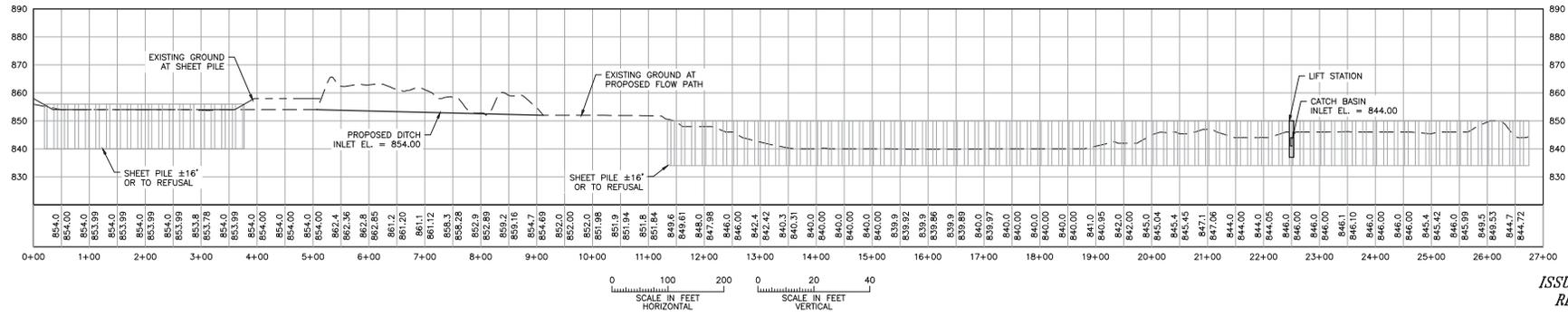


LEGEND

- PROPOSED SHEET PILE
- FM PROPOSED FORCEMAIN
- WETLAND IMPACT AREA

PERMANENT WETLAND IMPACTS = 3.15 ACRES
 TEMPORARY FOR CONSTRUCTION = 0.00 ACRES

- NOTES:**
1. WETLAND BOUNDARIES ARE PER DELINEATIONS PROVIDED BY MINNTAC FROM 2014 DELINEATION REPORT
 2. SUBSURFACE GEOTECHNICAL INFORMATION PROVIDED BY MINNTAC FROM HISTORICAL RECORDS
 3. TOPOGRAPHY PROVIDED BY MINNTAC



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CAD USER: Verrin_Smith FILE: M:\DESIGN\2014\01247-TJH\DWG\20140702_TJH_2.DWG PLOT SCALE: 1:2 PLOT DATE: 6/7/2015 11:14 PM
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
D	VJS	JMM3	JMM3	6/01/15	ISSUED FOR REVIEW-UPDATED WITH NEW WETLAND FILES
C	VJS	JMM3	JMM3	5/13/15	ISSUED FOR REVIEW-UPDATED WITH WETLAND ID NUMBERS
E	VJS	JMM3	JMM3	5/08/15	ISSUED FOR REVIEW-UPDATED PER MINNTAC COMMENTS
A	VJS	JMM3	JMM3	4/16/15	ISSUED FOR REVIEW

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 SIGNATURE: _____
 DATE: _____ LICENSE #: _____

CLIENT	4/18/5/08/13/6/03
CONSTRUCTION	
RELEASED TO/FOR	A B C D O 1 2
DATE RELEASED	

BARR
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 Minneapolis, Minnesota
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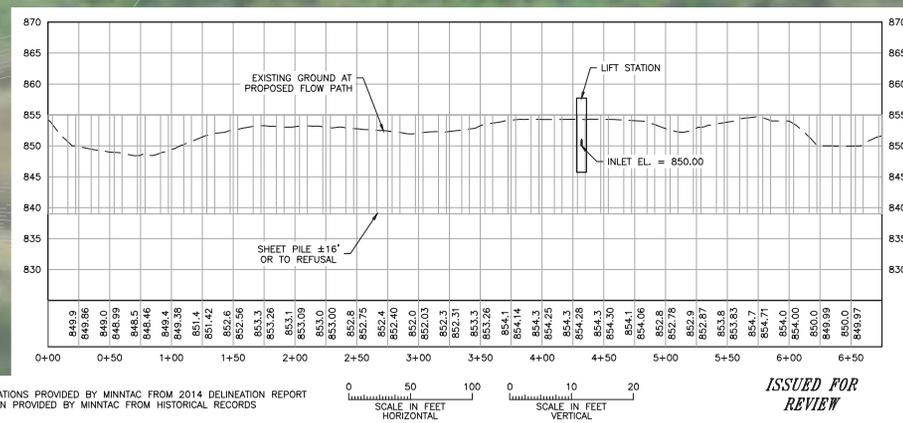
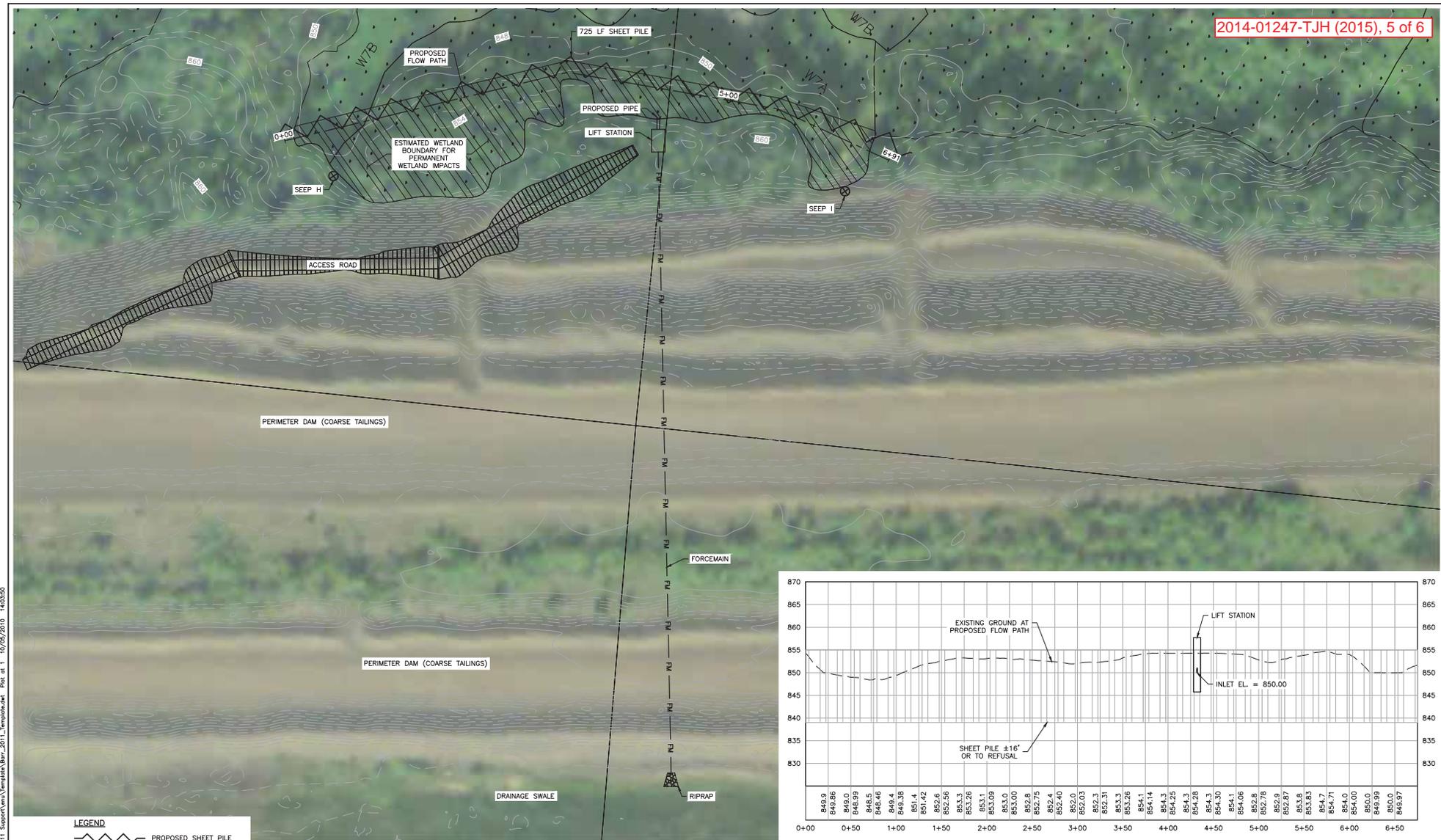
Project Office:
 BARR ENGINEERING CO.
 3126 14TH AVENUE EAST
 HIBBING, MN 55746
 Ph: 1-800-225-1966
 Fax: (218) 262-3460
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Scale	AS SHOWN
Date	03/10/15
Drawn	VJS
Checked	JMM3
Designed	VJS
Approved	JMM3

MINNTAC
 MOUNTAIN IRON, MINNESOTA

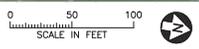
MINNTAC TAILING BASIN WEST SEEPAGE COLLECTION
OPTION 1 - CATCHMENT 2 COLLECT/PUMP BACK - MIN WETLAND IMPACT

BARR PROJECT No.	23/69-1607
CLIENT PROJECT No.	
DWG. No.	FIG 2
REV. No.	D



LEGEND

- PROPOSED SHEET PILE
- FM PROPOSED FORCEMAIN
- WETLAND IMPACT AREA



PERMANENT WETLAND IMPACTS = 0.96 ACRES
 TEMPORARY FOR CONSTRUCTION = 0.00 ACRES

- NOTES:**
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 3. TOPOGRAPHY PROVIDED BY MINNTAC

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CAD: USER: Venetia Seshat FILE: M:\DESIGN\2014\01247-TJH\2014\01247-TJH_0506_3.DWG PLOT SCALE: 1:2 PLOT DATE: 6/27/2015 2:03 PM
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
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C	VJS	JMM3	JMM3	5/13/15	ISSUED FOR REVIEW-UPDATED WITH WETLAND ID NUMBERS
B	VJS	JMM3	JMM3	5/08/15	ISSUED FOR REVIEW-UPDATED PER MINNTAC COMMENTS
A	VJS	JMM3	JMM3	4/16/15	ISSUED FOR REVIEW

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 SIGNATURE: _____
 DATE: _____ LICENSE # _____

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DATE RELEASED	

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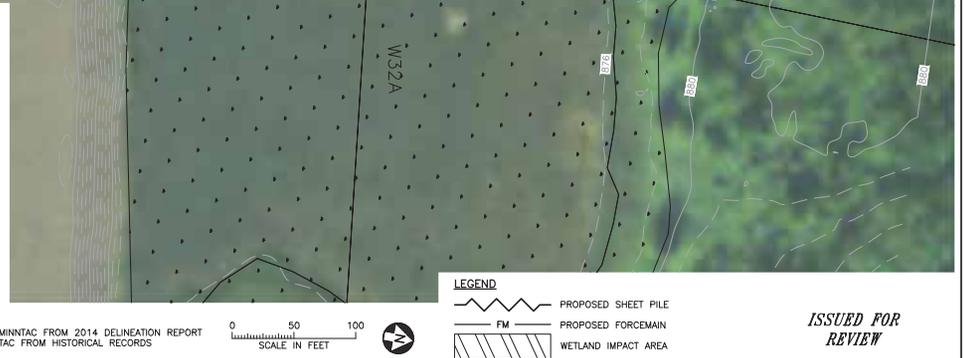
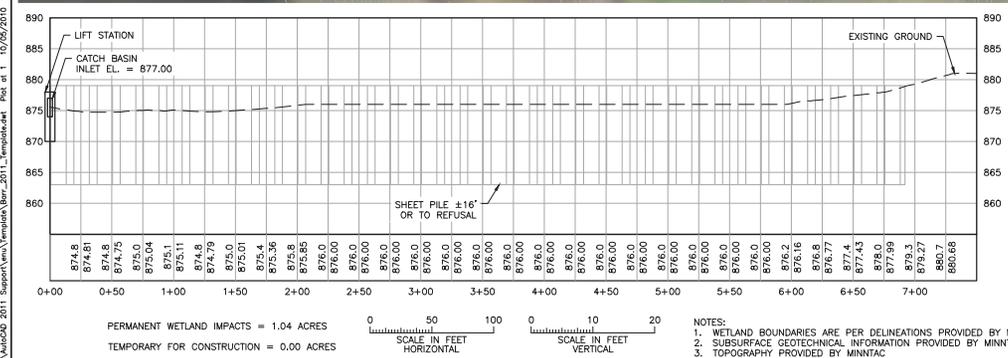
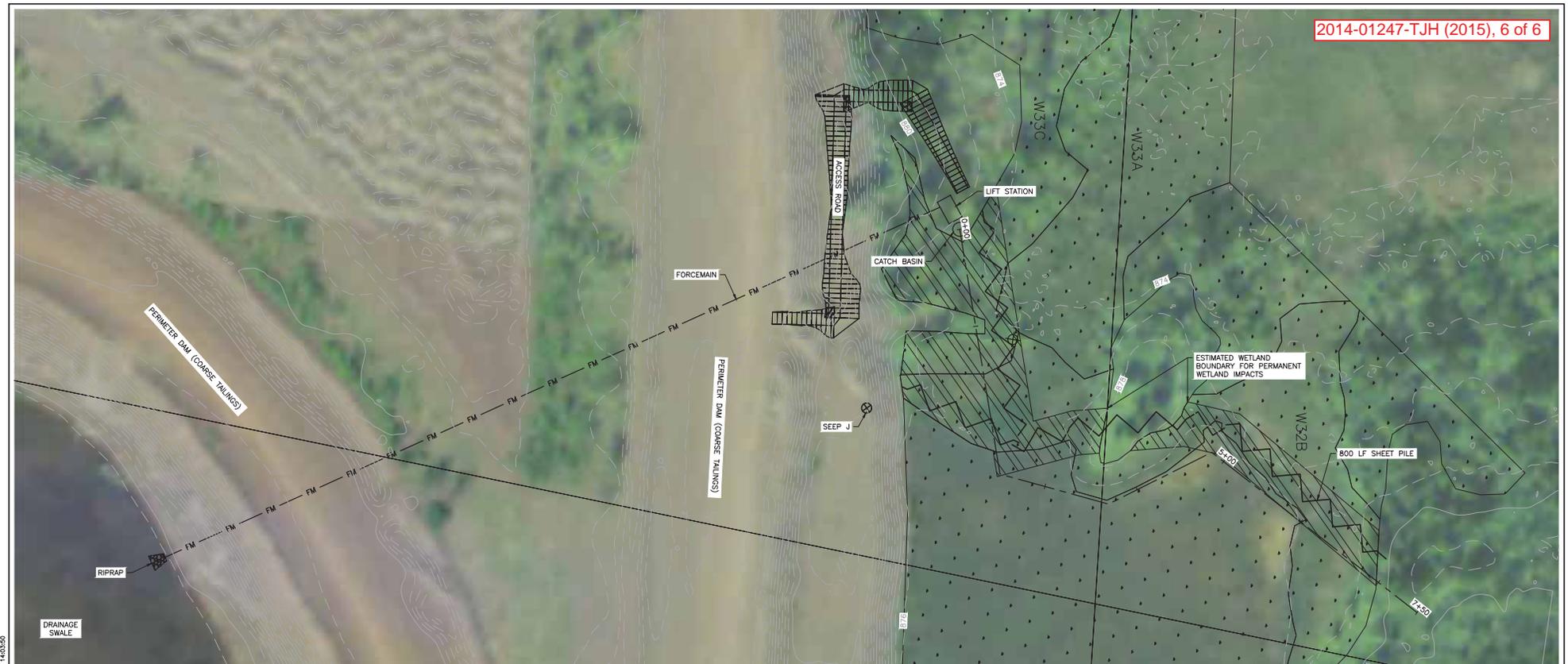
Scale	AS SHOWN
Drawn	03/10/15
Checked	JMM3
Designed	VJS
Approved	JMM3

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MINNTAC TAILING BASIN
 WEST SEEPAGE COLLECTION

OPTION 1 - CATCHMENT 3
 COLLECT/PUMP BACK - MIN WETLAND IMPACT

BARR PROJECT No.	23/69-1607
CLIENT PROJECT No.	
DWG. No.	FIG 3
REV. No.	D



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CADW: USER: Venetia Siskett FILE: M:\DESIGN\23891607\00\2389160700\FIGURE 48.DWG PLOT SCALE: 1:2 PLOT DATE: 6/2/2015 2:13 PM
 M:\Projects\2011\AutoCAD 2011 Support\venetia_siskett\00\2389160700\FIGURE 48.DWG Plot at 1 10/25/2015 14:35:50

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
D	VJS	JMM3	JMM3	6/01/15	ISSUED FOR REVIEW-UPDATED WITH NEW WETLAND FILES
C	VJS	JMM3	JMM3	5/13/15	ISSUED FOR REVIEW-UPDATED WITH WETLAND ID NUMBERS
E	VJS	JMM3	JMM3	5/08/15	ISSUED FOR REVIEW-UPDATED PER MINNTAC COMMENTS
A	VJS	JMM3	JMM3	4/16/15	ISSUED FOR REVIEW

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Scale	AS SHOWN
Date	04/03/15
Drawn	VJS
Checked	JMM3
Designed	VJS
Approved	JMM3

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MINNTAC TAILING BASIN
 WEST SEEPAGE COLLECTION
 OPTION 1 - CATCHMENT 4
 COLLECT/PUMP BACK - MIN WETLAND IMPACT

BARR PROJECT No.	23/69-1607
CLIENT PROJECT No.	
DWG. No.	FIG 4
REV. No.	D