MINNEHAHA CREEK
WATERSHED DISTRICT
QUALITY OF WATER, QUALITY OF LIFE

Meeting: Board Meeting
Meeting date: 2/13/2020
Agenda Item #: 10.1
Item type: Permit Requiring Variance

Title: Permit 19-614 & W19-38: 3537 Zenith Avenue South, Minneapolis: Bakken Museum

Prepared by: Name: Heidi Quinn
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Purpose:
Recommendation: Approval of MCWD permit application on the following conditions:

1. Identification of the contractor responsible for implementing the erosion control plan;
2. Submission of draft maintenance declaration for stormwater management and Wetland Buffers for District approval, then recordation;
3. Reimbursement of District fees for engineering and legal review.

Background:
The Bakken Museum (Applicant) has applied for a Minnehaha Creek Watershed District (MCWD or District) permit and approval of a Wetland Conservation Act (WCA) determination for a redevelopment project at the Bakken Museum located at 3537 Zenith Avenue South in Minneapolis. The application is before the MCWD Board of Managers for consideration as the Applicant has requested an Exception from compliance with the minimum buffer width provision in section 6(c) of the Wetland Protection rule. All necessary materials were submitted to complete the applications on January 7th, 2020 and a public notification for the board meeting was sent to residents within 600 feet of the project on January 7th, 2020. Under MCWD Resolution 13-025, delegating WCA decision making authority to the administrator, the Board of Managers must consider the WCA decision when the permit application is before the Board of Managers if a variance or exception from the District wetlands rule is requested. The Applicant has requested a determination that proposed fill in an onsite wetland qualifies for a de minimis exemption under WCA.

The project proposes the construction of a new elevated concrete walkway along the east side of the existing building, a granite patio area, and concrete steps to an existing rooftop patio. The Applicant's stated goal of the project is to improve the visitor experience.

The project triggers the District's Erosion Control, Stormwater Management, and Wetland Protection rules. The applicant also has sought approval of the proposed work under the WCA, which is administered by the District in the portion of Minneapolis that is within MCWD's boundary. The project plans show a shortfall from the applicable wetland buffer width requirement, from which the Applicant has requested an Exception.

District Rule Analysis:

Erosion Control Rule
The District's Erosion Control Rule is applied to projects proposing 5,000 square feet of disturbance or 50 cubic yards of fill, excavation, or stockpiling on-site. The Applicant is proposing 15,925 square feet of land disturbance, therefore the rule is applied. In accordance with the rule provisions, the Applicant has submitted an erosion control plan which identifies erosion and sediment control best management practices, such as, silt fence downgradient of disturbed areas, location of a rock construction entrance, and has identified that concrete

washout will be contained on the truck. Additionally, a vegetative stabilization plan including the incorporation of six-inches of topsoil into underlying soils prior to final stabilization has been provided.

Identification of the contractor responsible for maintaining the erosion control plan is a recommended condition of approval. Upon satisfaction of the recommended condition, the project meets the Erosion Control Rule.

Stormwater Management

The District's Stormwater Management Rule is applied to projects that propose the creation of new or replacement of existing impervious surface. The proposed project will create 5,880 square feet (0.14 ac) of additional impervious area that will result in 15,942 square feet (0.37 ac) of site disturbance on the 2.58 acre site, therefore the rule is applied. The project proposes redevelopment of a site larger than one acre; less than 40% of the site will be disturbed and a less than 50% increase in impervious area, therefore, per section 5(b), the Applicant is required to treat the area of increased impervious surface for volume, phosphorus, and rate controls per section 3. Table 1 below summarizes the size of the site, the area to be disturbed, and increase in impervious surface.

Size of Site (ac)	Site Drains To	Existing Impervious Area (ac)	Proposed Impervious Area (ac)	Proposed Net Increase in Impervious Area (ac)
2.579 acres (0.366 ac disturbed)	Bde Maka Ska	0.83	0.965	0.135

Table 1: Existing and Proposed Site Conditions

The Applicant has submitted documentation that the site has clay soils and a high ground water table. Staff and the District Engineer have reviewed the documentation and have confirmed that the clay soils (Type D soils) and high ground water table make infiltration on site infeasible. The Applicant has proposed to meet the District's Stormwater Management rule by providing a pretreatment SAFL Baffle and filtration basin best management practice (BMP) to treat runoff from 20,473 square feet (0.47 ac) of impervious surface of the existing parking lot and a portion of the proposed elevated walkway. A second SAFL Baffle will provide additional sediment removal for 4,792 square feet (0.11 ac) of impervious surface from a portion of the existing building and a portion of the new proposed impervious surface.

The volume control requirement of the rule, requires the abstraction of the first inch of runoff from the site's area of increased impervious surface. When a site is not suitable for infiltration, a 50% credit for a filtration BMP is given per Appendix A of the rule. The District's phosphorus control requirement is met when the volume control requirement is met. Based on a proposed increase in impervious surface of 5,880 square feet, the Applicant is required to provide 490 cubic feet of abstraction (5,880 sf / 12" = 490 cf). The site is not suitable for infiltration, therefore the Applicant is required to provide 980 cubic feet of filtration (490 cf * 50% = 980 cf). Staff and the District Engineer have reviewed the plans and stormwater report and have determined that the filtration BMP will provide 1,234 cubic feet of filtration and provide a total phosphorus (TP) reduction of 0.8 pounds per year. The proposed plan meets and exceeds the District's volume and phosphorous control requirements.

The rate control section of the rule requires applicants to demonstrate that runoff rates will be maintained or reduced from existing to proposed conditions at all downgradient property boundaries. The entirety of the site drains to the existing wetland onsite and existing stormwater pond prior to outletting to the City storm sewer, which ultimately drains to Bde Maka Ska. Staff and the District Engineer have reviewed the plans and stormwater management report provided by the applicant and have determined that rates discharging from the site will not increase from existing to proposed conditions for the 1-year, 10-year, and 100-year storm event. Table 2 below summarizes the existing and proposed rates leaving the site. Therefore, the proposed plan meets the District's rate control requirements.

Downstream Drainage Outfall	1-year Storm (cfs)		10-year Storm (cfs)		100-year Storm (cfs)	
	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Total	**2.8**	**2.1**	**6.6**	**6.6**	**13.2**	**13.2**

Table 2: Existing and Proposed Rates Leaving the Site

The high water elevation section of the rule, requires that at least two vertical feet of separation be provided between the low opening of structures and the 100-year high water elevation of BMPs. The Applicant has submitted plans that demonstrate that the 100-year high water elevation of the BMP is 858.45' and the low opening of the museum building proper is 862.05'. Staff and the District Engineer have reviewed the plan and determined that Applicant has provided 3.6 feet of separation between the 100-year high water elevation of the BMPs and the low opening of the structure. The plan as proposed meets the District's two feet of freeboard requirement.

The impacts to downstream waterbodies section of the rule regulates new point source discharges and impacts to the bounce, inundation, and runout control elevations of waterbodies. The project does not propose a new point source or a change in the runout control elevation of any waterbody. The District Engineer has reviewed the proposed development and has determined that because there is no increase in the proposed rates leaving the site (described above in Table 2), the project will not change the bounce or inundation of the wetland onsite or Bde Maka Ska downstream during the 1-year, 10-year, or 100-year storm events. The project as proposed is in conformance with the downstream waterbody requirements of the rule.

The maintenance requirement of stormwater facilities will be satisfied through the recordation of a maintenance declaration, listed as a condition of approval.

The project as proposed, upon fulfillment of the recommended condition, meets the requirements of the Stormwater Management Rule.

Wetland Conservation Act (WCA)

Under Resolution 13-025, a WCA determination must be made by the board of managers when the applicant's permit request includes a variance or exception from the District wetlands rule. The applicant has requested an exception to the District's Wetland Protection rule, therefore, the WCA De Minimis Exemption application for 370 square feet of wetland fill in Wetland 1 is before the Board of Managers for consideration.

The wetland boundary and type of one wetland, Wetland 1, was approved under W19-16 Notice of Decision (NOD) on October 3rd, 2019. The NOD also approved a portion of Wetland 1 to meet incidental criteria, for an area of wetland caused by manmade conditions, and approved a Manage 2 classification for the entire wetland (attachment 5).

The WCA regulates draining, filling, and excavation in wetlands. The project is proposing to fill 370 square feet of Wetland 1 for the construction of the elevated walkway and retaining wall.
Under MN WCA Rule 84200420 Exemption Standards, Subpart 8- De Minimis, a replacement plan is not required for projects that propose less than 400 square feet of impact to wetland types 1, 2, or 6 for wetlands that are outside of the building setback zone, but within the shoreland wetland protection zone.

NOD W19-16 approved Wetland 1 as a type 1/5 wetland and approved the area of type 5 wetland to meet incidental criteria (area of existing stormwater pond). The proposed impacts to Wetland 1, are located within the shoreland wetland protection zone, outside of the building set-back zone, and are less than 400 square feet.

The Notice of Application for the De Minimis Exemption application was provided to the Technical Evaluation Panel (TEP) on January 7th, 2020 (attachment 6). The Board of Soil and Water Resources (BWSR), provided comment on January 15th, 2020 that the project qualifies for the De Minimis Exemption and that a portion of the

proposed 370 square foot impact includes the a portion of the incidental wetland, which is not regulated under the WCA. No additional comments were received.

Staff recommends approval of the De Minimis Exemption determination.

Wetland Protection

The Wetland Protection rule is applicable for any project that proposes temporary or permanent wetland impact. Furthermore, the buffer provisions of the rule are applicable whenever the Stormwater Management or Waterbody Crossings & Structures rules are applied. There is one wetland located within the property, a portion of which the applicant proposes to fill, and the stormwater rule is triggered, therefore the rule is triggered.

Per section 5(a) of the Wetland Protection rule, buffers must be provided around all disturbed wetlands and on wetland edges downgradient of disturbance. The applicant has provided plans that include a wetland buffer provided on the eastern edge, northern edge, and southern edge of the wetland and has requested an exception to proving the minimum buffer width requirement on the western edge of the wetland. Additional analysis on buffer width has been provided under section 6(c) below.

Per section 5(b) of the rule, buffers are required, and have been analyzed under section 6, below.

Per section 5(c) of the rule, buffers must be documented by a declaration or other recordable instrument. Submission of a maintenance declaration is listed as a recommended condition of approval to satisfy this requirement.

Section 5(d) of the rule requires a permanent wetland buffer monument to be installed at each lot line where it intersects the buffer, and where needed to indicate the contour of the buffer, with a maximum spacing of 100 feet. The applicant has submitted a wetland buffer monumentation plan that is accordance with the rule on the condition that the exception to not provide a wetland buffer on the eastern wetland edge is granted (pg 4 of plan set; attachment 4).

Per section 6(a) of the rule, buffer width requirements are determined by the management class of the wetland. The District's Functional Assessment of Wetlands inventory did not identify the wetland and therefore a management class was not assigned. The Minnesota Routine Assessment Method (MnRAM) classifies the wetland as a Manage 2, which was approved with the boundary and type NOD, and corresponds to a 30-foot buffer.

Per section 6(c) of the rule, buffer averaging is permitted should the full width of the buffer not be able to be provided in all locations. Under this provision of the rule, buffer averaging may encompass minimum buffer widths of 15 feet (50%), with a maximum width of 60 feet (200%) for Manage 2 wetlands, provided that there is no reduction in total buffer area (assumes an area equal to a uniform 30 foot buffer along the length of the wetland). Based on review of the plans and specifications, the Applicant is able to provide the required buffer area based on a 30 foot average buffer, but has not provided the minimum buffer width of 15 feet at all locations around the wetland.

The total buffer area required is limited by the property boundary on the south side of the wetland. Staff have calculated that the total buffer area required within the property boundary to be 8,893 square feet. The Applicant has submitted a wetland buffer plan that demonstrates a wetland buffer area of 9,570 square feet will be provided. Staff have reviewed the plan and have concluded that the provided buffer area of 9,570 square feet exceeds the required buffer area. The minimum buffer width is not being met at all locations due the proposed elevated walkway on the east side of the building. The Applicant has requested an Exception to section 6(c) of the Wetland Protection rule, which has been analyzed under the '*Exception*' heading below.

Section 6(d) of the rule does not apply as the Applicant has not requested a reduction in Applied Buffer Width based on the proposed buffer providing value equal to or greater than would be provided by a buffer of the applicable Applied Buffer Width.

Section 6(e) of the rule does not apply as this is not a Linear Reconstruction Project.

Section 6(f) of this rule does not apply as this project is not a New Principal Residential Structure.

The criteria of section 7(a) of the Wetland Protection rule, which prohibits actions such as mowing, fertilizing or placement of yard waste within the buffer area is memorialized with the maintenance declaration. Submission of a maintenance declaration including these provisions is listed as a recommended condition of approval.

Section 7(b) of the rule does not apply as the site is not considered public land, a homeowners associations, or right-of-way.

Per section 7(c) of the rule, does not apply as the applicant is requesting an exception to provide no wetland buffer around the western wetland edge (proposed wetland impact) and no areas of the proposed eastern and southern buffer will be disturbed by grading or other site activities.

In summary, upon satisfaction of the recommended condition, the project meets the requirements of the Wetland Protection Rule, apart from section 6(c), as noted above, for which the Applicant has requested an Exception.

Exception

The Variance and Exception Rule allows the Board of Managers to grant exceptions from a provision of the rules on a determination that the proposed application will achieve a greater degree of water resource protection than strict compliance with the provision. The Applicant has requested an exception from section 6(c) of the Wetland Protection rule for maintaining a minimum buffer width of 50% of the applied buffer width at all points.

The buffer provision of the Wetland Protection rule requires buffers on wetlands that are downgradient of site disturbance and around the entirety of wetlands that are proposed to be disturbed. One wetland is located downgradient of site disturbance and is proposed to be disturbed, therefore, a wetland buffer is required around the entirety of the wetland. The approved MnRAM identified the wetland as a Manage 2 classification, which requires an average buffer width of 30 feet and a minimum buffer width of 15 feet.

Due to the location of the proposed elevated walkway, maintaining the minimum buffer width of 15 feet at all points around the wetland is not achievable with the proposed project. The Applicant has requested an exception to provide no wetland buffer for 96 linear feet on the western side of the wetland.

The wetland buffer provision per section 6(c) of the Wetland Protection Rule is intended to provide water quality treatment to stormwater runoff prior to entering a waterbody and to provide habitat adjacent to waterbodies. The Applicant has submitted plans that demonstrate that the total buffer area provided is 9,570 square feet, which is exceeds the required buffer area of 8,893 square feet by 677 square feet. Staff have reviewed the wetland buffer plan and have determined that biological and ecological intent of the wetland buffer provision to provide habitat adjacent to wetlands have been provided and there is a shortfall of providing filtration of stormwater runoff prior to entering the wetland, which ultimately drains to Bde Maka Ska. Per the submitted Exception Request Application, the Applicant has incorporated a stormwater filtration BMP to capture runoff from the entire existing impervious parking lot. The Applicant has submitted simplified MIDS modeling to demonstrate that total phosphorous (TP) reduction achieved by the stormwater filtration BMP exceeds the TP reduction achieved by only treating the site's new impervious surface as required by the

District's Stormwater Management rule. (attachment 3). Table 3 below summarizes the pollutant removals that is required by the District's Stormwater Management rule and what the Applicant is proposing.

	Required Stormwater Management Treatment (new impervious surface)	Proposed Stormwater Management Treatment	**Additional Stormwater Treatment Provided**
Area of Impervious Surface (ac)	0.14	0.47	**0.34**
Total Phosphorus Removed (lbs/yr)	0.2	0.8	**0.6**
Total Suspended Solids Removed (lbs/yr)	27	130	**103**

Table 3: Water Quality Benefit

Staff and the District Engineer have reviewed the stormwater management model and have determined that filtration of the first one inch of runoff from the from the site's proposed increase in impervious surface would achieve a TP reduction of 0.2 pounds per year and a total suspended solids (TSS) reduction of 27 pounds per year. Furthermore, Staff and the District Engineer have reviewed the stormwater model and have confirmed that the proposed stormwater filtration BMP treating the impervious surface of the existing parking lot will achieve a TP removal of 0.8 pounds per year and a TSS removal of 130 pounds per year, thus providing a greater water quality benefit of 0.6 pounds per year of TP removal and 103 pounds per year of TSS removal than full compliance with the District's rule. Staff and the District Engineer have determined that the proposed stormwater management plan provides a greater water quality benefit than providing a 15 foot wide wetland buffer for 96 linear feet on the western edge of the wetland.

Staff and District Engineer find that the Applicant has submitted sufficient evidence for the MCWD Board of Managers to consider the Exception request that the project will achieve a greater natural resources benefit by providing a greater water quality benefit than strict compliance with the Wetland Protection rule.

Summary:

The Bakken Museum has applied for a MCWD permit for the Erosion Control, Stormwater Management, and Wetland Protection rules and has requested an Exception to the buffer provisions of the Wetland Protection rule for a proposed elevated concrete walkway along the east side of the building, a decomposed granite patio area, and concrete steps to the existing rooftop patio Staff find that the Applicant has provided a satisfactory analysis for the Board of Managers to consider the exception request for providing no wetland buffer for 96 linear feet and have exceeded the stormwater management regulatory requirements. Staff have found that the proposed project meets the applicable rule requirements, upon the Board's consideration of the Exception request and fulfillment of the recommended conditions of approval, and recommend approval of the permit. Furthermore, recommend approval of the WCA De Minimis application.

Supporting documents (list attachments):

1. Permit Application
2. Exception Application
3. Stormwater Management Calculations (Extracted from Stormwater Management Report)
4. Site Plan
5. W19-16 NOD
6. W19- 38 NOA and WCA Application

Attachment 1

19-614

WATER RESOURCE PERMIT APPLICATION FORM

Use this form to notify/apply to the Minnehaha Creek Watershed District (MCWD) of a proposed project or work which may fall within their jurisdiction. Fill out this form completely and submit with your site plan, maps, etc. to the MCWD at:
15320 Minnetonka Blvd. Minnetonka, MN 55345.
Keep a copy for your records.

YOU MUST OBTAIN ALL REQUIRED AUTHORIZATIONS BEFORE BEGINNING WORK.

1. Name of each property owner: Michael Sanders - Bakken Museum Executive Director
Mailing Address: 3537 Zenith Avenue South City: Minneapolis State: MN Zip: 55416
Email Address: sanders@thebakken.org Phone: (612) 926-3878 x213 Fax:

2. Property Owner Representative Information (not required) (licensed contractor, architect, engineer, etc…)
Business Name: Rehder and Associates, Inc Representative Name: Nicholas Adam, P.E.
Business Address: 3440 Federal Dr. Ste 110 City: Eagan State: MN Zip: 55122
Email Address: nadam@rehder.com Phone: (651) 337-6729 Fax:

3. Project Address: 3537 Zenith Ave. S. City: Minneapolis
State: MN Zip: 55416 Qtr Section(s): S W Section(s): 05 Township(s): 28 Range(s): 24
Lot: 34-37 Block: Subdivision: Auditor's Subd. No. 163 PID: 0502824310014

4. Size of project parcel (square feet or acres): 112,335 S.F.
Area of disturbance (square feet): 15,925 SF Volume of excavation/fill (cubic yards): 700
Area of existing impervious surface: 36,162 S.F Area of proposed impervious surface: 42,049 S.F.
Length of shoreline affected (feet): 0 Waterbody (& bay if applicable): N/A

5. Type of permit being applied for (Check all that apply):
- ☒ EROSION CONTROL
- ☐ FLOODPLAIN ALTERATION
- ☒ WETLAND PROTECTION
- ☐ DREDGING
- ☐ SHORELINE/STREAMBANK STABILIZATION
- ☐ WATERBODY CROSSINGS/STRUCTURES
- ☒ STORMWATER MANAGEMENT
- ☐ APPROPRIATIONS
- ☐ ILLICIT DISCHARGE

6. Project purpose (Check all that apply):
- ☐ SINGLE FAMILY HOME
- ☐ ROAD CONSTRUCTION
- ☐ UTILITIES
- ☐ DREDGING
- ☐ SHORELINE/STREAMBANK STABILIZATION
- ☐ MULTI FAMILY RESIDENTIAL (apartments)
- ☒ COMMERCIAL or INSTITUTIONAL
- ☐ SUBDIVISIONS (include number of lots)
- ☐ LANDSCAPING (pools, berms, etc.)
- ☐ OTHER (DESCRIBE):

7. NPDES/SDS General Stormwater Permit Number (if applicable): N/A

8. Waterbody receiving runoff from site: Bde Maka Ska

9. Project Timeline: Start Date: 04-01-2020 Completion Date: 09-01-2020

Permits have been applied for: City ☐ County ☒ MN Pollution Control Agency ☐ DNR ☐ COE ☐
Permits have been received: City ☐ County ☐ MN Pollution Control Agency ☐ DNR ☐ COE ☐

By signing below, I hereby request a permit to authorize the activities described herein. I certify that I am familiar with MCWD Rules and that the proposed activity will be conducted in compliance with these Rules. I am familiar with the information contained in this application and, to the best of my knowledge and belief, all information is true, complete and accurate. I understand that proceeding with work before all required authorizations are obtained may be subject to federal, state and/or local administrative, civil and/or criminal penalties.

Signature of Each Property Owner — Date: 10/25/19

OCT 30 2019

REQUEST FOR EXCEPTION FROM A RULE PROVISION

MINNEHAHA CREEK WATERSHED DISTRICT (MCWD)
15320 MINNETONKA BLVD.
MINNETONKA, MN 55345
Phone: 952-471-0590
Fax: 952-471-0682

A request for an exception must be accompanied by a MCWD Water Resources Application

Project Details:

Project address: 3537 Zenith Ave South City: Minneapolis State: MN Zip: 55416

County: Hennepin Property ID number (PID): 0502824310014

The Board of Managers may grant an exception from a provision of the rules on a determination that the proposed application will achieve a greater degree of water resource protection than would strict compliance with the provision. An exception must be approved by a two-thirds majority of managers voting.

Exception Requested From MCWD Rule(s):

- ☐ Erosion Control
- ☐ Floodplain Alteration
- ■ Wetland Protection
- ☐ Shoreline & Streambank Stabilization
- ☐ Waterbody Crossings & Structures
- ☐ Stormwater Management
- ☐ Appropriations
- ☐ Illicit Discharge

Provision(s) and Requirement(s) of the Rule(s):

6 (c) Buffer width may vary based on demonstrated site constraints, provided that a width of at least 50 percent of the Applied Buffer Width is maintained at all points, there is no reduction in total buffer area, and the buffer provides wetland and habitat protection at least equivalent to a buffer of uniform Applied Buffer Width.

Requested Exception:

We are requesting an exception for a providing the minimum buffer width due to the proximity of the existing wetland to the existing building. The existing wetland edge comes as close as 2' to the east face of the existing building and does not currently meet the minimum buffer width of 15'.

Describe how the proposed design will achieve a greater degree of water resource protection than strict compliance with the provision, referring to the impacts on water quality, water quantity, and ecological integrity. Quantify water resource protection as much as possible (pounds of pollutant removal, acres of habitat creation, etc).

We are able to meet the required buffer area, but are unable to meet the minimum width requirement. To make up for this we are providing additional storm water treatment on the site above and beyond what is required to meet the storm water management rule.

Required Impervious Area to Treat = 0.135 acres
Impervious Area Treated by SAFL Baffle and Biofiltration Basin = 0.47 acres

Required Filtration Volume in Biofiltration Basin= 980 cu.ft.
Provided Filtration Volume in Biofiltration Basin= 1,213 cu.ft.

TP and TSS removed if only increase in impervious area (0.135 acres) was treated by Biofiltration Basin:
Particulate P = 0.108 lbs
Dissolved P = 0.062 lbs
TSS = 27.0 lbs

Actual TP and TSS removed by Biofiltration Basin with 0.47 acres of impervious area draining to it:
Particulate P = 0.526 lbs
Dissolved P = 0.297 lbs
TSS = 103.7 lbs

In addition to the Biofiltrtion Basin a SAFL Baffle is proposed in CB 1 and CB 2.
CB 1 has a sediment removal efficiency of 93.5%
CB 2 has a sediment removal efficiency of 72.1%

(See Storm Water Management Report)

Rehder & Associates, Inc.
Civil Engineers, Planners & Land Surveyors

STORM WATER MANAGEMENT REPORT

for

Bakken Museum

10-30-19

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.

Nicholas P. Adam, P.E.
Registration Number: 43856

3440 Federal Drive, Suite 110 • Eagan, Minnesota 55122 • 651-452-5051 • Fax: 651-452-9797 • Email: info@rehder.com

NARRATIVE

Bakken Museum
Minneapolis, Minnesota

Project Summary

The project consists of the construction of a new concrete walk along the east side of the building, decomposed granite patio area, and concrete steps to the rooftop patio at the Bakken Museum located at 3537 Zenith Avenue South in Minneapolis, Minnesota.

Existing Conditions

The site consists of an existing building, parking lot and misc sidewalks. Runoff from the site drains to the east into a storm water basin and wetland before being discharged to the City's storm sewer system.

Storm Water Management

Storm water management for the site will be provided by the construction of a biofiltration basin to provide treatment and rate control. Volume control could not be provided due to the clay soils and high ground water. The biofiltration basin is designed to provide filtration for 2.0" of runoff off of the increase in impervious area. The basin will also provide rate control for the 1, 10, & 100-yr events before being discharged into the existing storm water basin and wetland. In addition, SAFLE Baffles will be installed in the last catch basin prior to discharge to the biofiltration basin and also in the catch basin that will receive runoff from the proposed concrete steps and granite patio area. The SAFLE Baffles will provide additional TSS removal.

Rehder & Associates, Inc.
Civil Engineers, Planners & Land Surveyors

3440 Federal Drive, Suite 110 · Eagan, Minnesota 55122
651-452-5051 · Fax: 651-452-9797 · Email: info@rehder.com

WORKSHE

By: Date:
Checked by: Date:
Project No: Sheet of
Subject:

VOLUME CONTROL SIZING CALCULATIONS

REQUIRED VOLUME:

Proposed Increase in Impervious Area = 0.135 Acres

$$= \frac{2.00}{12\text{in./ft}} \times 0.135 \text{ ac} = \boxed{0.023} \text{ ac-ft}$$

$$= \boxed{980} \text{ cu.ft.}$$

VOLUME PROVIDED:

(SEE ATTACHED HYDROCAD WORKSHEET)

Stage-Area-Storage for Pond 1P: BIOFILTRATION BASIN

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
859.00	550	0
859.05	565	28
859.10	580	57
859.15	596	86
859.20	611	116
859.25	627	147
859.30	643	179
859.35	660	211
859.40	676	245
859.45	693	279
859.50	710	314
859.55	727	350
859.60	744	387
859.65	762	424
859.70	779	463
859.75	797	502
859.80	815	543
859.85	834	584
859.90	852	626
859.95	871	669
860.00	890	713
860.05	911	758
860.10	933	804
860.15	954	852
860.20	976	900
860.25	999	949
860.30	1,021	1,000
860.35	1,044	1,051
860.40	1,067	1,104
860.45	1,090	1,158
860.50	1,114	1,213
860.55	1,137	1,269
860.60	1,161	1,327
860.65	1,186	1,386
860.70	1,210	1,445
860.75	1,235	1,507
860.80	1,260	1,569
860.85	1,285	1,633
860.90	1,311	1,697
860.95	1,336	1,764
861.00	1,362	1,831
861.05	1,389	1,900
861.10	1,415	1,970
861.15	1,442	2,041
861.20	1,469	2,114
861.25	1,496	2,188
861.30	1,524	2,264
861.35	1,551	2,341
861.40	1,579	2,419
861.45	1,608	2,499
861.50	1,636	2,580
861.55	1,665	2,662
861.60	1,694	2,746
861.65	1,723	2,832
861.70	1,753	2,918
861.75	1,782	3,007
861.80	1,812	3,097
861.85	1,843	3,188
861.90	1,873	3,281
861.95	1,904	3,375
862.00	**1,935**	**3,471**

FILTRATION VOLUME REQUIRED = 980 CU.FT.

FILTRATION VOLUME PROVIDED

MIDS SUMMARY

	BASELINE	PROPOSED CONDITIONS	ADDITIONAL TREATMENT PROVIDED ABOVE AND BEYOND WHAT WAS REQUIRED
	(ONLY INCREASE IN IMPERVIOUS AREA TREATED)	(ACTUAL IMPERVIOUS AREA TREATED)	
ANNUAL PARTICULATE P REMOVED (LBS)	0.108	0.526	0.418
ANNUAL DISSOLVED P REMOVED (LBS)	0.062	0.297	0.235
ANNUAL TSS REMOVED	27.0	130.7	103.7

Project Information

BASELINE - INCREASE IN IMPERVIOUS AREA

Calculator Version:	Version 3: January 2017
Project Name:	Bakken Museum
User Name / Company Name:	
Date:	10-23-19
Project Description:	
Construction Permit?:	No

Site Information

Retention Requirement (inches):	1.1
Site's Zip Code:	55416
Annual Rainfall (inches):	31
Phosphorus EMC (mg/l):	0.3
TSS EMC (mg/l):	54.5

Total Site Area

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed				0	0
			Impervious Area (acres)		.135
INCREASE IN IMPERVIOUS AREA			Total Area (acres)		0.135

Site Areas Routed to BMPs

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed					0
			Impervious Area (acres)		0.135
			Total Area (acres)		0.135

Summary Information

Performance Goal Requirement

Performance goal volume retention requirement:	539	ft3
Volume removed by BMPs towards performance goal:	14	ft^3
Percent volume removed towards performance goal	**3**	**%**

Annual Volume and Pollutant Load Reductions

Post development annual runoff volume	0.2982	acre-ft
Annual runoff volume removed by BMPs:	0.0079	acre-ft
Percent annual runoff volume removed:	**3**	**%**
Post development annual particulate P load:	0.134	lbs
Annual particulate P removed by BMPs:	0.108	lbs
Post development annual dissolved P load:	0.11	lbs
Annual dissolved P removed by BMPs:	0.062	lbs
Percent annual total phosphorus removed:	**70**	**%**
Post development annual TSS load:	44.2	lbs
Annual TSS removed by BMPs:	27	lbs
Percent annual TSS removed:	**61**	**%**

BMP Summary

Performance Goal Summary

BMP Name	BMP Volume Capacity (ft3)	Volume Recieved (ft3)	Volume Retained (ft3)	Volume Outflow (ft3)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	14	539	14	525	3

Annual Volume Summary

BMP Name	Volume From Direct Watershed (acre-ft)	Volume From Upstream BMPs (acre-ft)	Volume Retained (acre-ft)	Volume outflow (acre-ft)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	0.2982	0	0.0079	0.2903	3

Particulate Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	0.1338	0	0.1077	0.0261	81

Dissolved Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	0.1095	0	0.0615	0.048	56

TSS Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	44.2	0	26.99	17.21	61

BMP Schematic

PROPOSED - FULL IMPERVIOUS AREA ROUTED TO BASIN

Project Information

Calculator Version:	Version 3: January 2017
Project Name:	Bakken Museum
User Name / Company Name:	
Date:	10-23-19
Project Description:	
Construction Permit?:	No

Site Information

Retention Requirement (inches):	1.1
Site's Zip Code:	55416
Annual Rainfall (inches):	31
Phosphorus EMC (mg/l):	0.3
TSS EMC (mg/l):	54.5

Total Site Area

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed				0.73	0.73
				Impervious Area (acres)	0.47
				Total Area (acres)	1.2

Site Areas Routed to BMPs

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed				0.73	0.73
				Impervious Area (acres)	0.47
				Total Area (acres)	1.2

Summary Information

Performance Goal Requirement

Performance goal volume retention requirement:	1877	ft3
Volume removed by BMPs towards performance goal:	14	ft^3
Percent volume removed towards performance goal	**1**	**%**

Annual Volume and Pollutant Load Reductions

Post development annual runoff volume	1.4624	acre-ft
Annual runoff volume removed by BMPs:	0.0104	acre-ft
Percent annual runoff volume removed:	**1**	**%**
Post development annual particulate P load:	0.656	lbs
Annual particulate P removed by BMPs:	0.526	lbs
Post development annual dissolved P load:	0.537	lbs
Annual dissolved P removed by BMPs:	0.297	lbs
Percent annual total phosphorus removed:	**69**	**%**
Post development annual TSS load:	216.8	lbs
Annual TSS removed by BMPs:	130.7	lbs
Percent annual TSS removed:	**60**	**%**

BMP Summary

Performance Goal Summary

BMP Name	BMP Volume Capacity (ft3)	Volume Recieved (ft3)	Volume Retained (ft3)	Volume Outflow (ft3)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	14	1877	14	1863	1

Annual Volume Summary

BMP Name	Volume From Direct Watershed (acre-ft)	Volume From Upstream BMPs (acre-ft)	Volume Retained (acre-ft)	Volume outflow (acre-ft)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	1.4624	0	0.0104	1.452	1

Particulate Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	0.6563	0	0.526	0.1303	80

Dissolved Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	0.537	0	0.2971	0.2399	55

TSS Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (with underdrain)	216.79	0	130.69	86.1	60

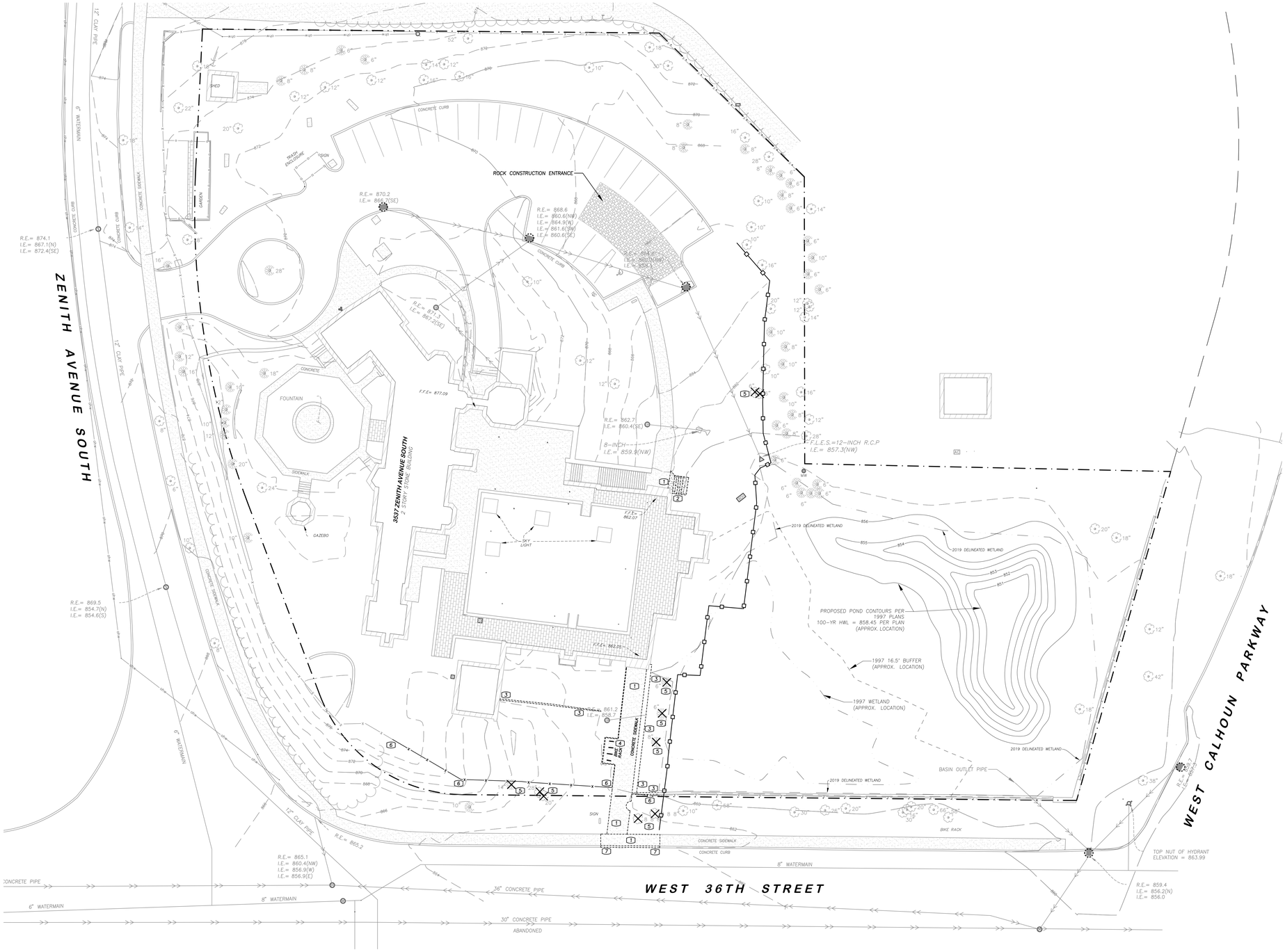
BMP Schematic

RATE CONTROL SUMMARY

STORM EVENT	EXISTING RATE TO WETLAND	PROPOSED RATE TO WETLAND
	CFS	CFS
1-YR	2.8	2.1
10-YR	6.6	6.6
100-YR	13.2	13.2

VOLUME CONTROL SUMMARY

STORM EVENT	EXISTING VOLUME TO WETLAND	PROPOSED VOLUME TO WETLAND
	AC-FT	AC-FT
1-YR	0.18	0.19
10-YR	0.42	0.44
100-YR	0.87	0.89



GENERAL PLAN NOTES

1. State law: 48 hours before excavating, call gopher one–call, 651–454–0002, for field location of underground utility lines. This is a free service which locates utility company lines but does not locate private lines. Contractors excavating on site shall provide for locating of private lines, including privately owned lines, by contractor service or other suitable means.
2. Contractor is responsible for providing all O.S.H.A. Safety measures during underground work. This includes providing and maintaining barricades and warning signs, and maintaining appropriate angle of repose on all exposed trenches to protect person and property. Provide shoring and sheeting as required.
3. Contractor shall be responsible for locating and protection of existing structures and utilities as required during excavation and underground work.
4. Contractor shall be responsible for disposal of all excavated material not suitable for backfill and all excess material remaining after backfilling has been completed.
5. Contractor shall be responsible for establishing existing site conditions including elevations, grades, finished surfaces and existing utilities. All areas affected during construction shall be returned to their original condition upon completion of underground work.
6. Contractor shall be responsible for obtaining and paying for all permits required prior to beginning work.
7. Field very all elevations, dimensions and distances.
8. An obstruction permit is required anytime construction work is performed in the Public right–of–way. Please contact Scott Kramer at 612– 673–2383 regarding details of sidewalk and lane closures. Log on to http://minneapolis.mn.roadway.net/ for a permit.
9. Contact Allan Klugman at 612–673–2743 prior to construction for the temporary removal/temporary relocation of any City of Minneapolis lighting or traffic signal system that may be in the way of construction.
10. All costs for relocation and/or repair of Cit Traffic facilities shall be borne by the Contractor and/or Property Owner.
11. Contact Bill Prince at 612–673–3901 regarding impacts to the existing street lighting system.
12. Contact Doug Maday at 612–673–5755 prior to construction for the removal of any City of Minneapolis right–of–way signs that may be in the way of construction.
13. Permits and approval are required from Environmental Services for the following activities: After hours work, temporary storage of impacted soils on site prior to disposal or reuse, remediation of contaminated soil and groundwater, dewatering and discharge of accumulated storm water or ground water to City sewers, flammable waste traps, underground or above ground tank installation or removal, well construction or sealing, or on–site rock crushing. Contact Tom Frame (612–673–5807) tom.frame@ci.minneapolis.mn.us for permit applications and approvals.
14. No construction, demolition or commercial power maintenance equipment shall be operated within the City between the hours of 6:00 p.m. and 7:00 a.m. on weekdays or during any hours on Saturdays, Sundays and state and federal holidays, except under permit. Contact Environmental Services at 612–673–3867 for permit information.
15. If impacted soil is encountered during site activities, work will need to stop and notification provided to the MN State Duty officer at 651–649–5451.
16. An encroachment permit shall be required for all streetscape elements in the Public right–of–way such as: plants & shrubs, planters, tree grates and other landscaping elements, sidewalk furniture (including bike racks and bollards), and sidewalk elements other than standard concrete walkways such as pavers, stairs, raised landings, retaining walls, access ramps, and railings (NOTE: railings may not extend into the sidewalk pedestrian area). Please contact Bob Boblett at (612) 673–2428 for further information.

MINNEAPOLIS STANDARD EROSION CONTROL NOTES

1. Contractor must call a construction start 48 hours prior to any land disturbances 612–673–3867. Failure to do so may result in fines, the revocation of permit and a stop work order being issued.
2. Install perimeter erosion control at the locations shown on the plans prior to the commencement of any land disturbance or construction activities.
3. Before beginning construction, install a temporary rock construction entrance at each point where vehicles exit the construction site. Use 2 inch or greater diameter rock in a layer at least 6 inches thick across the entire width of the entrance. Extend the rock entrance at least 50 feet into the construction zone using a geo–textile fabric beneath the aggregate to prevent migration of soil into the rock from below.
4. Remove all soils and sediments tracked or otherwise deposited onto public and private pavement areas. Removal shall be on a daily basis when tracking occurs and may be ordered by Minneapolis inspectors at any time if conditions warrant. Sweeping shall be maintained throughout the duration of the construction and done in a manner to prevent dust being blown to adjacent properties.
5. Install inlet protection at all public and private catch basin inlets, which receive runoff from the disturbed areas. Contractor shall clean, remove sediment or replace storm drain inlet protection devices on a routine basis such that the devices are fully functional for the next rain event. Sediment deposited in and/or plugging drainage systems is the responsibility of the contractor. Hay bales or filter fabric wrapped grates are not allowed for inlet protection.
6. Locate soil or dirt stockpiles no less than 25 feet from any public or private roadway or drainage channel. If remaining for more than seven days, stabilize the stockpiles by mulching, vegetative cover, tarps, or other means. Control erosion from all stockpiles by placing silt barriers around the piles. Temporary stockpiles located on paved surfaces must be no less than two feet from the drainage/gutter line and shall be covered if left more than 24 hours.
7. Maintain all temporary erosion and sediment control devices in place until the contributing drainage area has been stabilized. Inspect temporary erosion and sediment control devices on a daily basis and replace deteriorated, damaged, or rotted erosion control devices immediately.
8. Temporarily or permanently stabilize all construction areas which have undergone final grading, and all areas in which grading or site building construction operations are not actively underway against erosion due to rain, wind and running water within 7–14 days. Use seed and mulch, erosion control matting, and/or sodding and staking in green space areas. Remove all temporary synthetic, structural, non–biodegradable erosion and sediment control devices after the site has undergone final stabilization with permanent vegetation establishment. Final stabilization for purposes of this removal is 70% established cover over denuded area.
9. Ready mixed concrete and concrete batch/mix plants are prohibited within the public right of way. All concrete related production, cleaning and mixing activities shall be done in the designated concrete mixing/washout locations as shown in the erosion control plan. Under no circumstance may washout water drain onto the publicright of way or into any public or private storm drain conveyance.
10. Changes to approved erosion control plan must be approved by the erosion control inspector prior to implementation. Contractor to provide installation and details for all proposed alternate type devices.
11. If dewatering or pumping of water is necessary, the contractor is responsible for obtaining any necessary permits and/or approvals prior to discharge of any water from the site. If the discharge from the dewatering or pumping process is turbid or contains sediment laden water, it must be treated through the use of sediment traps, vegetative filter strips, or other sediment reducing measures such that the discharge is not visibly different from the receiving water. Additional erosion control measures may be required at the discharge point to prevent scour erosion. The contractor shall provide a dewatering/pumping plan to the Erosion Control Inspector prior to initiating dewatering activities.
12. A portable washout basin is to be used. Exact location to be determined in the field.

CITY APPROVAL

PARTY RESPONSIBLE FOR MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES

ALL CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THE PLAN

OWNER DATE

DEVELOPER DATE

CONTRACTOR DATE

NOTE: A PORTABLE CONCRETE WASHOUT BASIN SHALL BE PROVIDED DURING CONSTRUCTION FOR CONCRETE WASHOUT OPERATIONS.

NOTE: INSTALL INLET PROTECTION IN THE NEAREST DOWNSTREAM STORM SEWER INLETS OR AS DIRECTED BY THE CITY.

NOTE: SEE SHEET C2 FOR REMOVAL/DEMOLITION OF EXISTING UTILITIES.

Boundary & Topographical information was prepared by Egan, Field & Nowak, Inc. This information has not been verified as to its accuracy or completeness by Rehder & Associates, Inc.

DEMOLITION NOTES

1 – Remove concrete pavement.
2 – Remove concrete stairs.
3 – Remove retaining wall.
4 – Remove bike rack.
5 – Remove tree(s).
6 – Remove fence.
7 – Remove concrete curb & gutter.

LEGEND

CONCRETE TO BE REMOVED
TREE TO BE REMOVED
SILT FENCE
INLET PROTECTION DEVICE

N

0 10 20 40 60
Scale in Feet

RSP

RSP Architects
1220 Marshall Street NE
Minneapolis
Minnesota 55413-1036
612.677.7100
612.677.7499 fax
www.rsparch.com

Consultants

Rehder & Associates, Inc.
Civil Engineers, Planners and Land Surveyors
3440 Federal Drive, Suite 110
Eagan, Minnesota 55122
Tel: 651-452-5051
Fax: 651-452-9797
email: info@rehder.com
PROJECT NO: 191-6591.313
DRAWING FILE: 6591313.DWG

Certification

NOT FOR CONSTRUCTION

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.

Signature

Registration Number

Date

Project For

THE BAKKEN MUSEULM
PHASE I REMODEL

Project No.	2079.001.02
Drawn By	
Checked By	
Date	10/30/19

Revisions

No.	Date	Description

SITE DEMOLITION & EROSION CONTROL PLAN

C1

Boundary & Topographical information was prepared by Egan, Field & Nowak, Inc. This information has not been verified as to its accuracy or completeness by Rehder & Associates, Inc.

ROCK CONSTRUCTION ENTRANCE

REMOVE EX. CB

CB 2 W/SAFL BAFFLE
TOP 864.9 (MATCH)
INV 860.3 (NW, MATCH)
INV 859.1 (SE)
INV 858.1 (SUMP)

23' – 12" HDPE @ 0.43%

FE
INV 859.0

51' – 6" PERF. HDPE @ 0.0%

BIOFILTRATION BASIN
100-YR HWL = 861.1

REMOVE & REPLACE CURB/GUTTER AND BITUMINOUS AS REQUIRED

REMOVE EX. 12" RCP AND FE BACK TO EX. CB

11' – 12" HDPE @ 0.91%

CONTROL STRUCTURE
TOP 862.0
WEIR WALL 860.5
INV 858.9 (12" INLET)
INV 857.5 (DT, 12" OUTLET)

21' – 12" HDPE @ 0.95%

F.L.E.S.=12-INCH R.C.P
I.E.= 857.3(NW)

FE
INV 857.3

13' – 8" PVC @ 7.69%

CONNECT TO EX. 8" PVC WITH A 45° BEND
R.E.= 862.7
I.E.= 860.4(SE)

8-INCH
I.E.= 859.9(NW)

3537 ZENITH AVENUE SOUTH
2 STORY CORE BUILDING

EXTEND EX. ROOF DRAIN OUTLET UNDER WALK AND THROUGH WALL USING EX. BRONZE DOWNSPOUT NOZZLE

RETAINING WALL W/RAILING
(SEE ARCHITECTURAL)

PROPOSED POND CONTOURS PER 1997 PLANS
100-YR HWL = 858.45 PER PLAN
(APPROX. LOCATION)

1997 16.5' BUFFER
(APPROX. LOCATION)

1997 WETLAND
(APPROX. LOCATION)

2019 DELINEATED WETLAND

12" – 4" PVC @ 1.00%
(FOR CONNECTION TO DRAINTILE UNDER STAIR PLANTER)

CONCRETE STEPS
(SEE ARCHITECTURAL)

DECOMPOSED GRANITE

RETAINING WALL W/RAILING
(SEE ARCHITECTURAL)

REMOVE EX. STORM SEWER AND CATCH BASIN

80' – 4" PERF HDPE DRAINTILE

TRENCH DRAIN
TOP 861.8
(SEE LANDSCAPE)

SEAT WALL
(SEE LANDSCAPE)

11' – 6" PVC @ 1.0%
(FROM TRENCH DRAIN)

20' – 12" PVC @ 0.50%

EXTEND STORM SEWER UNDER NEW WALK/WALL AND DAYLIGHT AT WALL FACE WITH A BRONZE DOWNSPOUT NOZZLE
INV 858.9

CB 1 W/SAFL BAFFLE
TOP 862.0
INV 859.5 (4",6")
INV 859.0 (12")
INV 855.0 (SUMP)

NEW PEDESTRIAN CURB RAMP

NEW B624 C&G

BASIN OUTLET PIPE

TOP NUT OF HYDRANT
ELEVATION = 863.99

R.E.= 859.4
I.E.= 856.2(N)
I.E.= 856.0

R.E.= 865.1
I.E.= 860.4(NW)
I.E.= 856.9(W)
I.E.= 856.9(E)

R.E.= 869.5
I.E.= 854.7(N)
I.E.= 854.6(S)

= 874.1
= 867.1(N)
= 872.4(SE)

R.E.= 870.2
I.E.= 865.0(SE)

R.E.= 868.6
I.E.= 860.6(NW)
I.E.= 864.9(N)
I.E.= 861.6(SW)
I.E.= 860.6(SE)

R.E.= 864.6
I.E.= 860.2(NW)
I.E.= 860.2(SE)

R.E.= 873.3
I.E.= 867.4(SE)

F.F.E= 877.09

ZENITH AVENUE SOUTH

WEST CALHOUN PARKWAY

WEST 36TH STREET

12" CLAY PIPE

6" WATERMAIN

8" WATERMAIN

36" CONCRETE PIPE

30" CONCRETE PIPE
ABANDONED

LEGEND

- PROPOSED MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED FLARED END
- PROPOSED STORM SEWER
- PROPOSED CONCRETE
- PROPOSED CONTOUR
- PROPOSED ELEVATION
- SILT FENCE
- INLET PROTECTION DEVICE
- CONSTRUCTION LIMITS
- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- LOT LINE
- BUILDING/PARKING SETBACK LINE
- DRAINAGE ARROW
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING CONTOUR
- EXISTING ELEVATION

N

0 10 20 40 60
Scale in Feet

CITY APPROVAL

PARTY RESPONSIBLE FOR MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES

ALL CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THE PLAN

OWNER DATE

DEVELOPER DATE

CONTRACTOR DATE

SITE SUMMARY

SITE AREA = 2.58 ACRES
DISTURBED AREA = 0.36 ACRES
EXISTING IMPERVIOUS AREA = 0.83 ACRES
POST CONSTRUCTION IMPERVIOUS AREA = 0.96 ACRES

AREA DRAIN SCHEDULE

STRUCTURE NO.	NYLOPLAST BASIN TYPE	NYOPLAST GRATE
AD 1	8" INLINE DRAIN (2708AG04S)	8" ROUND (0899CGS)

CATCH BASIN SCHEDULE

STRUCTURE NO.	BARREL SIZE	NEENAH CASTING NO.
CB 1	48"	R-2573-1C
CB 2	48"	R-3067V
CONTROL STRUCTURE	48"	R-1642B

NOTE: SEE SHEET C0 FOR EROSION CONTROL NOTES & BMP PLACEMENT

GRADING NOTES

1 – All elevations shown are to final surfaces.

RSP

RSP Architects
1220 Marshall Street NE
Minneapolis
Minnesota 55413-1036
612.677.7100
612.677.7499 fax
www.rsparch.com

Consultants

Rehder & Associates, Inc.
Civil Engineers, Planners and Land Surveyors
3440 Federal Drive, Suite 110
Eagan, Minnesota 55122
Tel: 651-452-5051
Fax: 651-452-9797
email: info@rehder.com
PROJECT NO. 191-6591.313
DRAWING FILE: 6591313.DWG

Certification

NOT FOR CONSTRUCTION

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.

Signature

Registration Number

Date

Project For

THE BAKKEN MUSEULM
PHASE I REMODEL

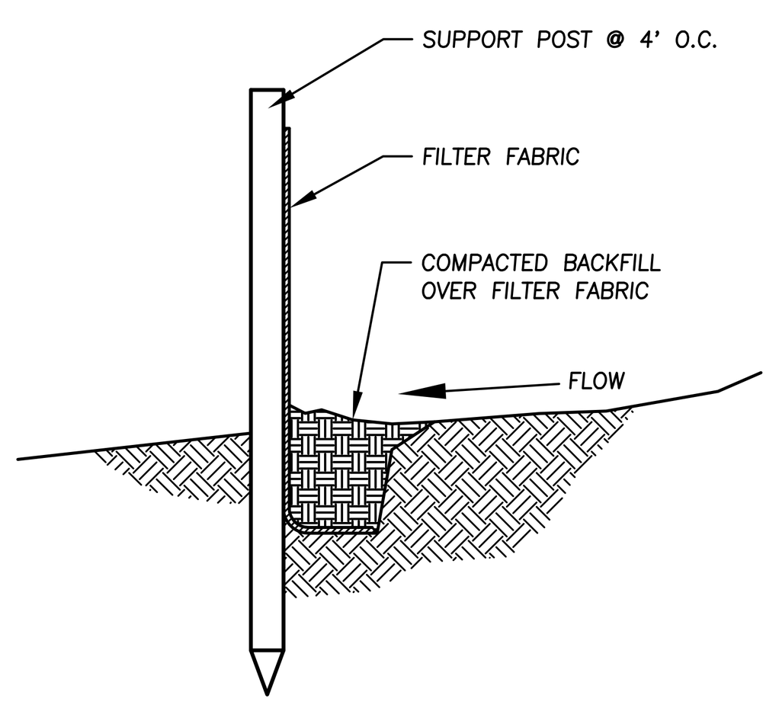
Project No. 2079.001.02
Drawn By
Checked By
Date 10/30/19

Revisions

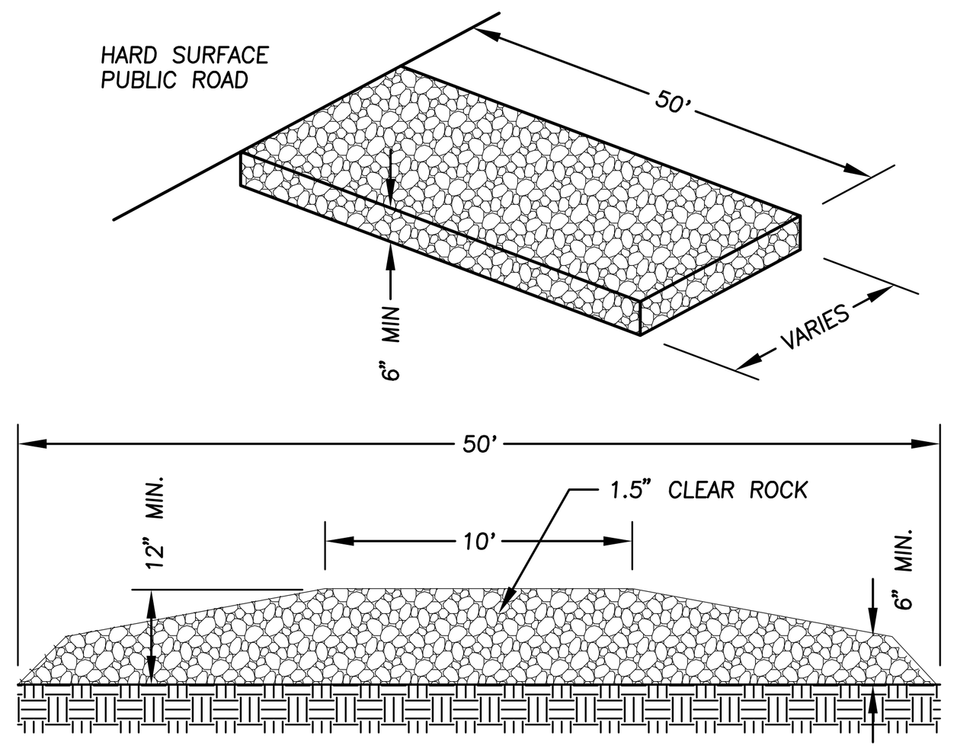
No.	Date	Description

GRADING & DRAINAGE PLAN

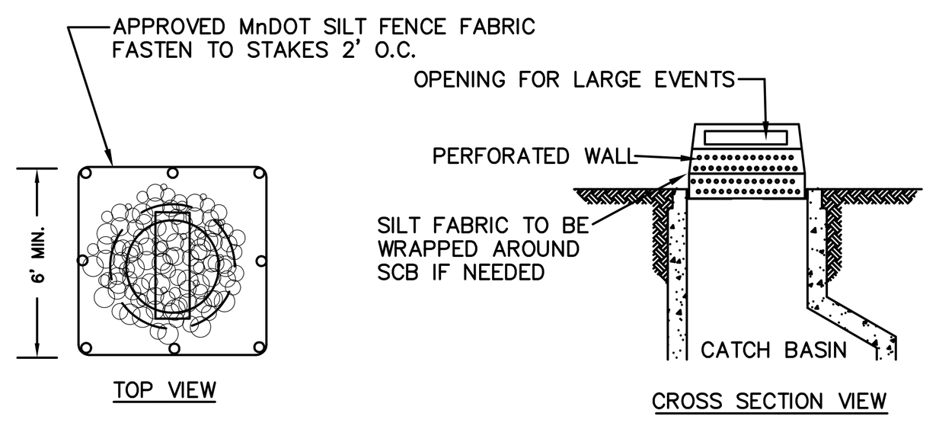
C2



1/C3 SILT FENCE
NO SCALE

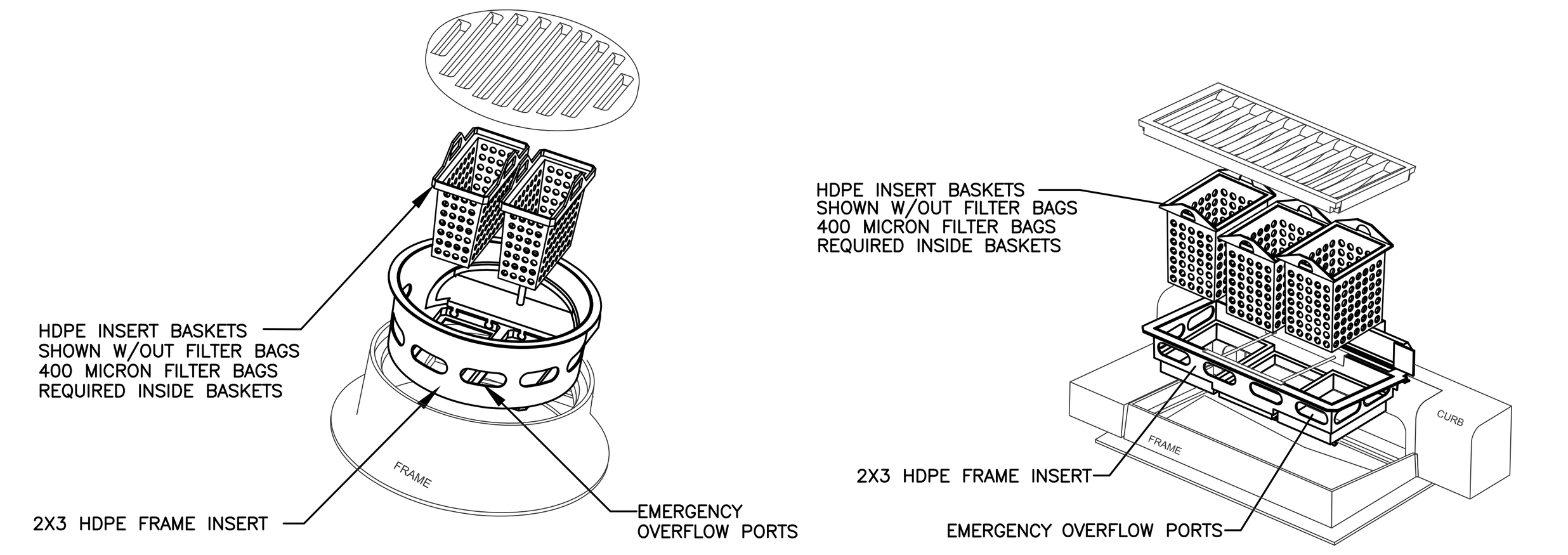


2/C3 ROCK CONSTRUCTION ENTRANCE
NO SCALE



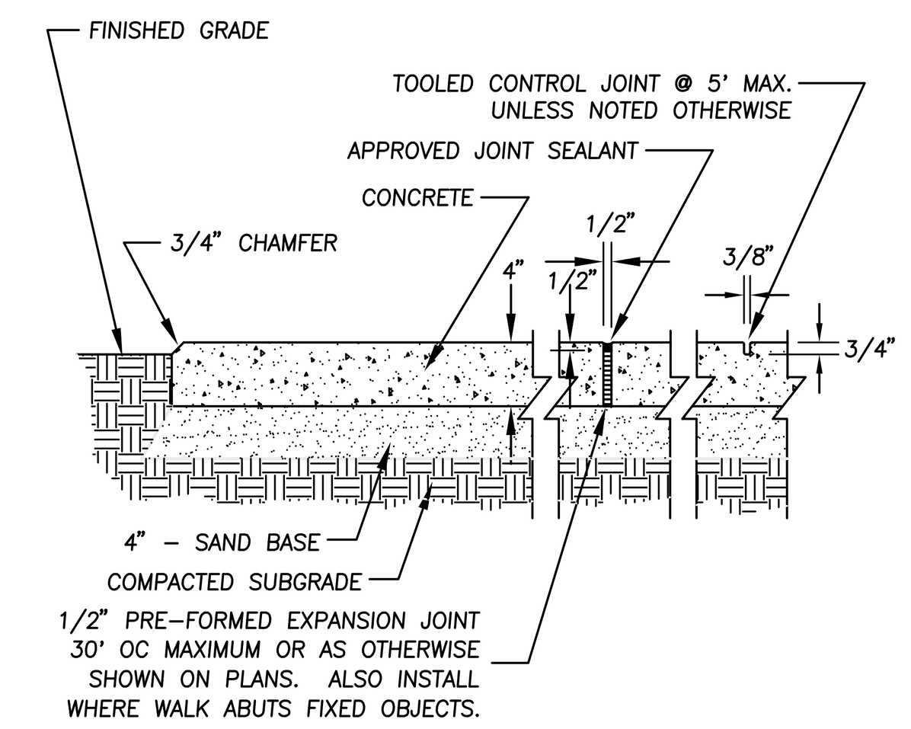
NOTE: USE THIS TYPE OF INLET PROTECTION BEFORE THE CASTING IS INSTALLED.

3/C3 INLET PROTECTION (INFRASAFE OR EQUAL)
NO SCALE

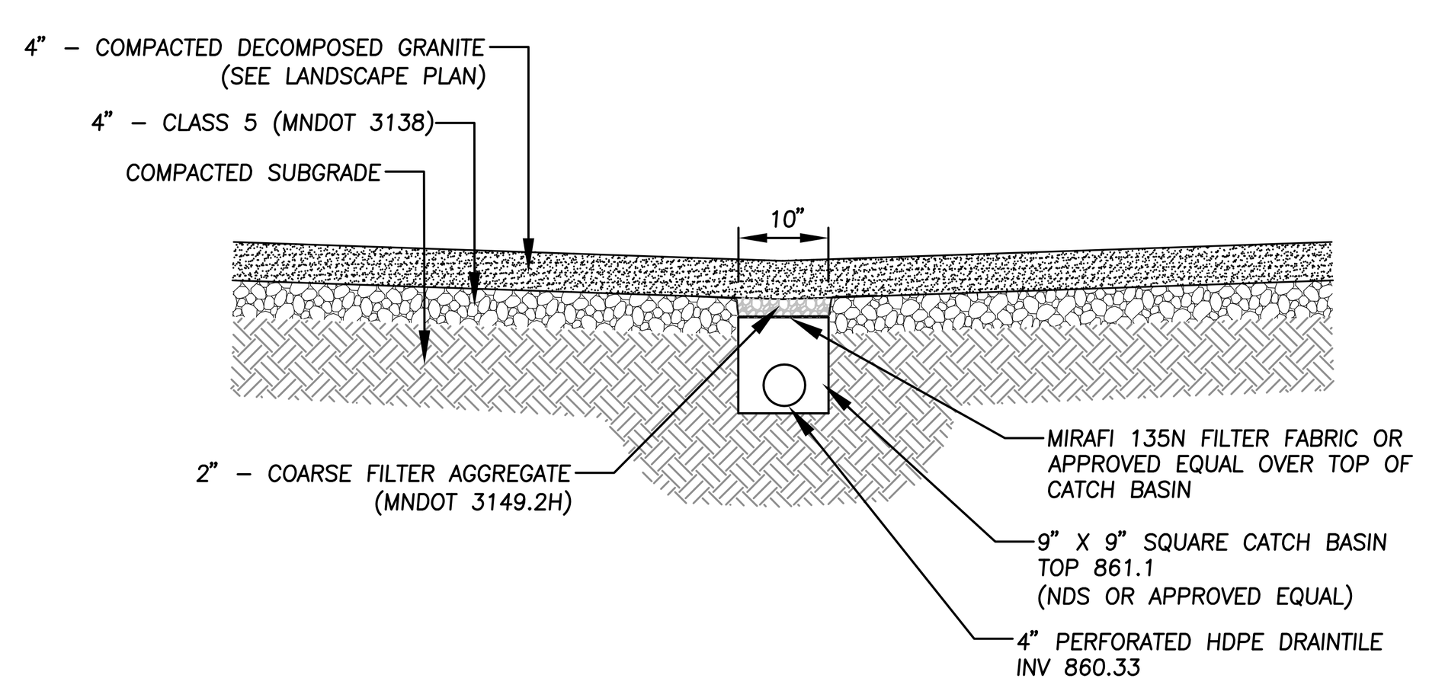


NOTE: USE THIS TYPE OF INLET PROTECTION AFTER THE CASTING IS INSTALLED.

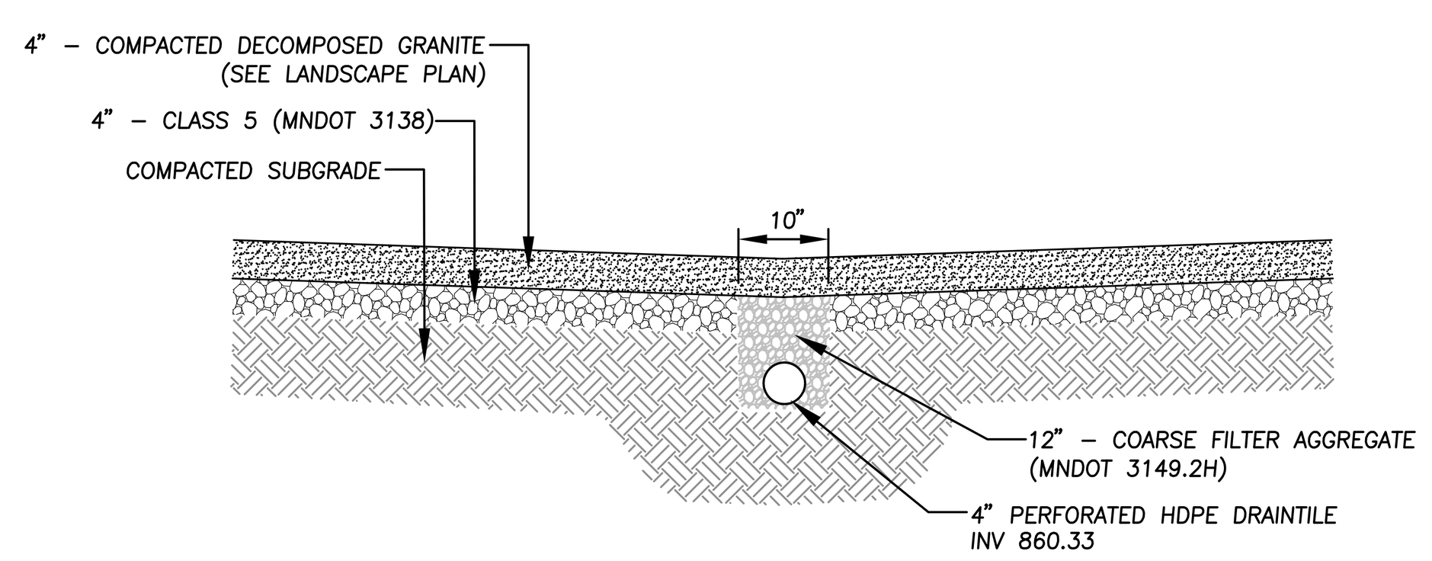
4/C3 INLET PROTECTION (INFRASAFE OR EQUAL)
NO SCALE



6/C3 CONCRETE SIDEWALK
NO SCALE

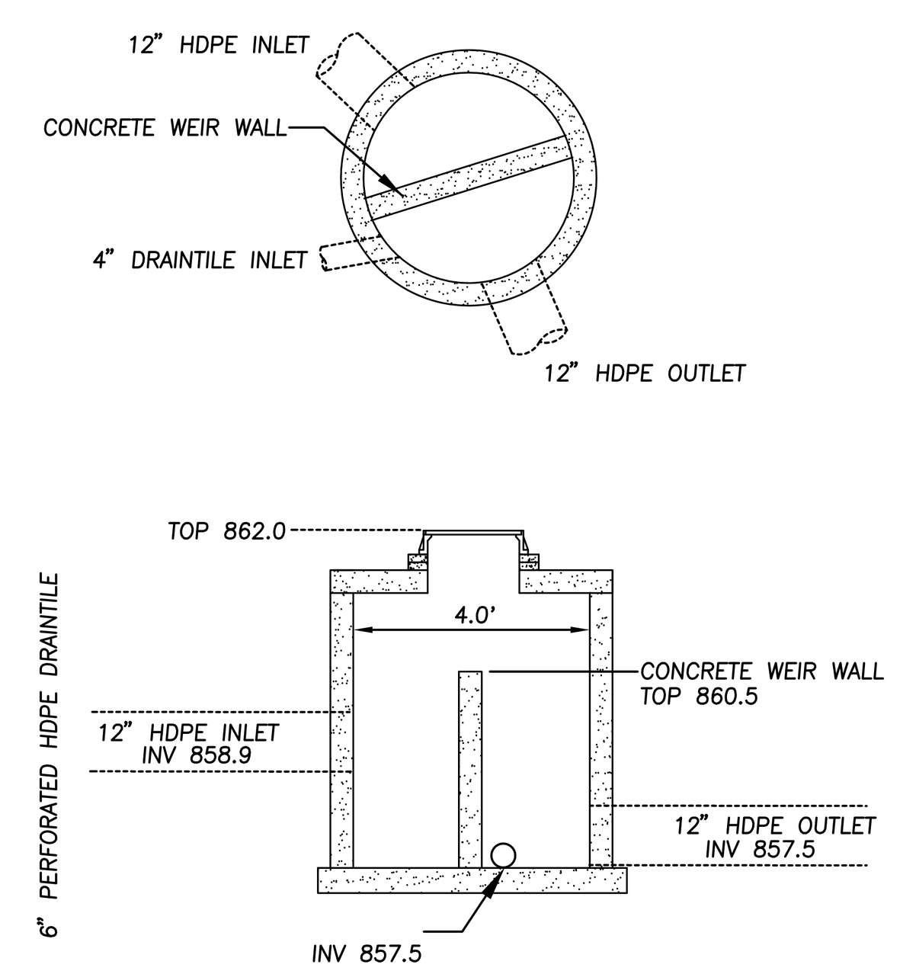


SECTION THROUGH CATCH BASINS

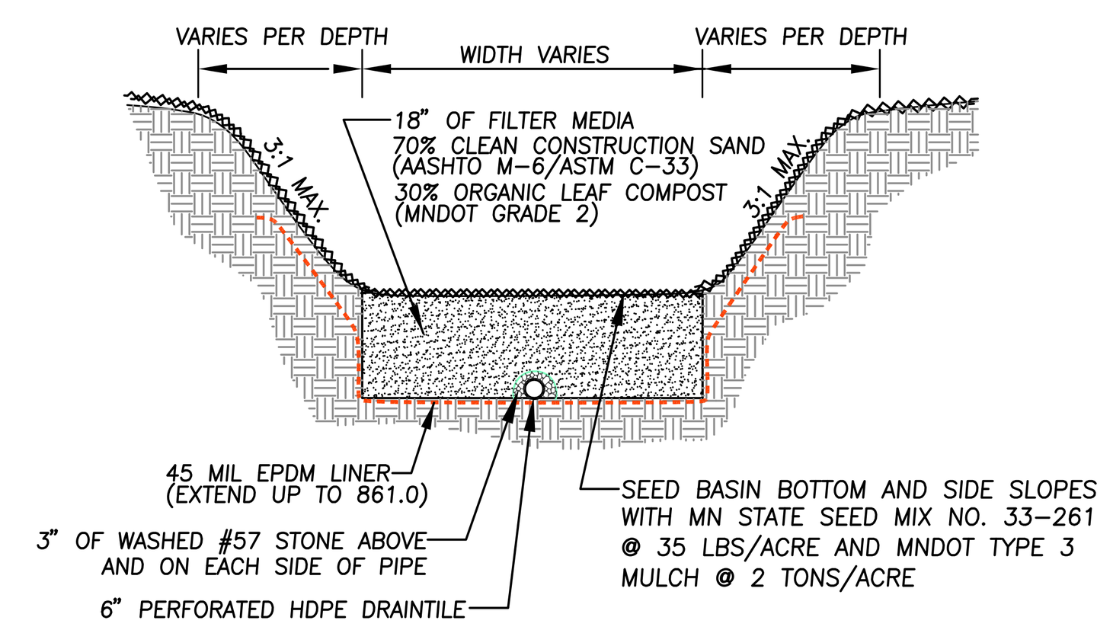


SECTION THROUGH DRAINTILE PIPE

6/C5 GRANITE PAVEMENT DRAINAGE SECTIONS
NO SCALE

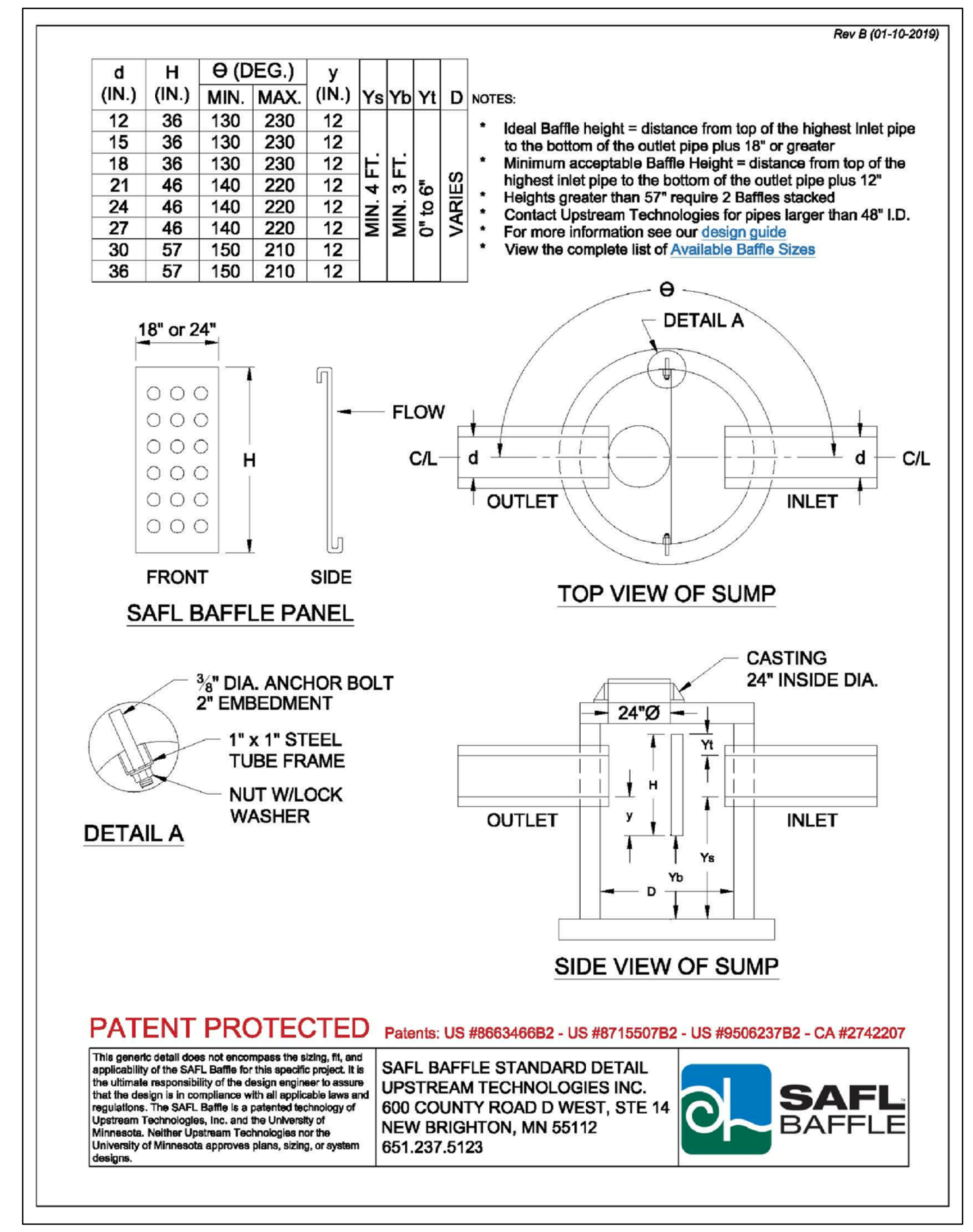


7/C5 CONTROL STRUCTURE
NO SCALE



NOTE: SEE PLAN VIEW FOR LOCATION OF 6" DRAINTILE

8/C5 BIOFILTRATION BASIN CROSS SECTION
NO SCALE



Rev B (01-10-2019)

d (IN.)	H (IN.)	Θ (DEG.) MIN.	Θ (DEG.) MAX.	y (IN.)	Ys	Yb	Yt	D
12	36	130	230	12	MIN. 4 FT.	MIN. 3 FT.	0" to 6"	VARIES
15	36	130	230	12				
18	36	130	230	12				
21	46	140	220	12				
24	46	140	220	12				
27	46	140	220	12				
30	57	150	210	12				
36	57	150	210	12				

NOTES:
* Ideal Baffle height = distance from top of the highest Inlet pipe to the bottom of the outlet pipe plus 18" or greater
* Minimum acceptable Baffle Height = distance from top of the highest inlet pipe to the bottom of the outlet pipe plus 12"
* Heights greater than 57" require 2 Baffles stacked
* Contact Upstream Technologies for pipes larger than 48" I.D.
* For more information see our design guide
* View the complete list of Available Baffle Sizes

SAFL BAFFLE PANEL

TOP VIEW OF SUMP

DETAIL A

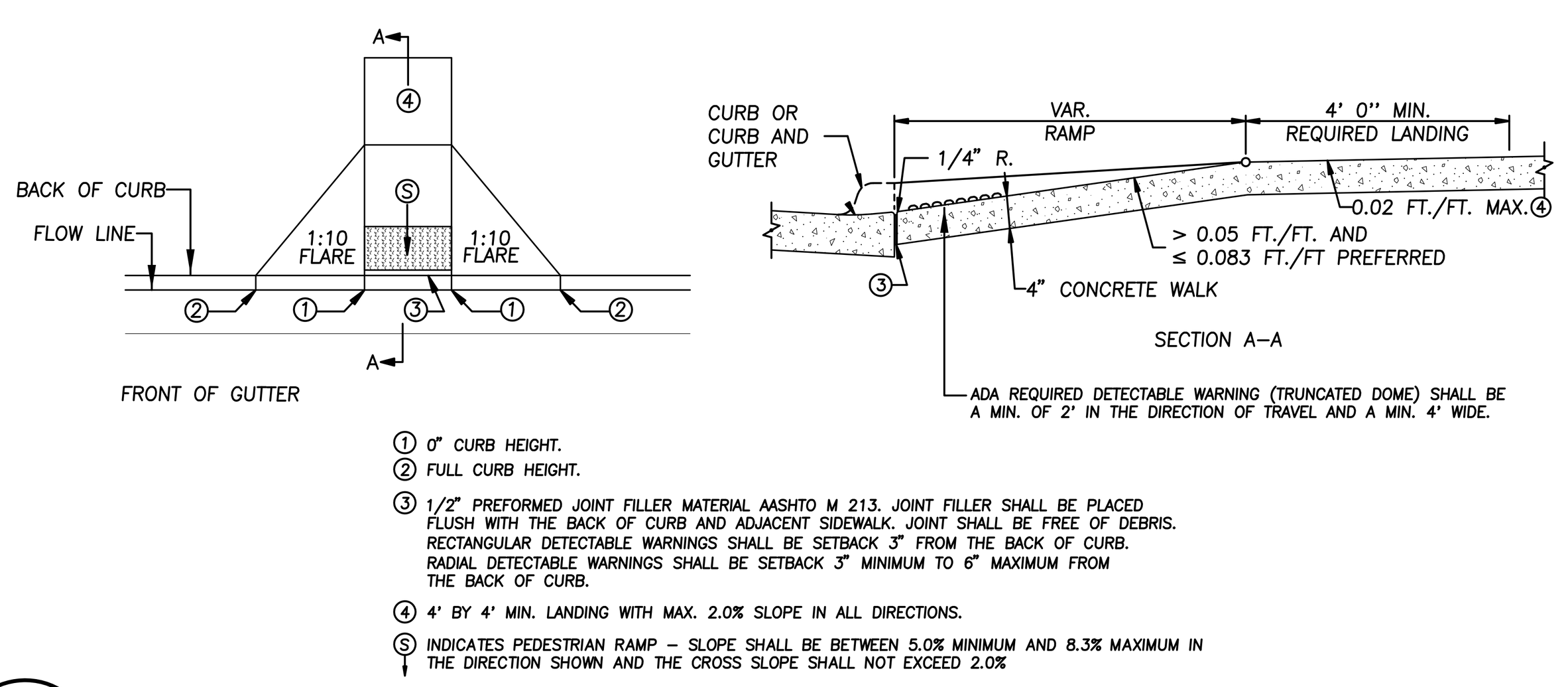
SIDE VIEW OF SUMP

PATENT PROTECTED Patents: US #8663466B2 - US #8715507B2 - US #9506237B2 - CA #2742207

This generic detail does not encompass the sizing, fit, and applicability of the SAFL Baffle for this specific project. It is the ultimate responsibility of the design engineer to assure that the design is in compliance with all applicable laws and regulations. The SAFL Baffle is a patented technology of Upstream Technologies, Inc. and the University of Minnesota. Neither Upstream Technologies nor the University of Minnesota approves plans, sizing, or system designs.

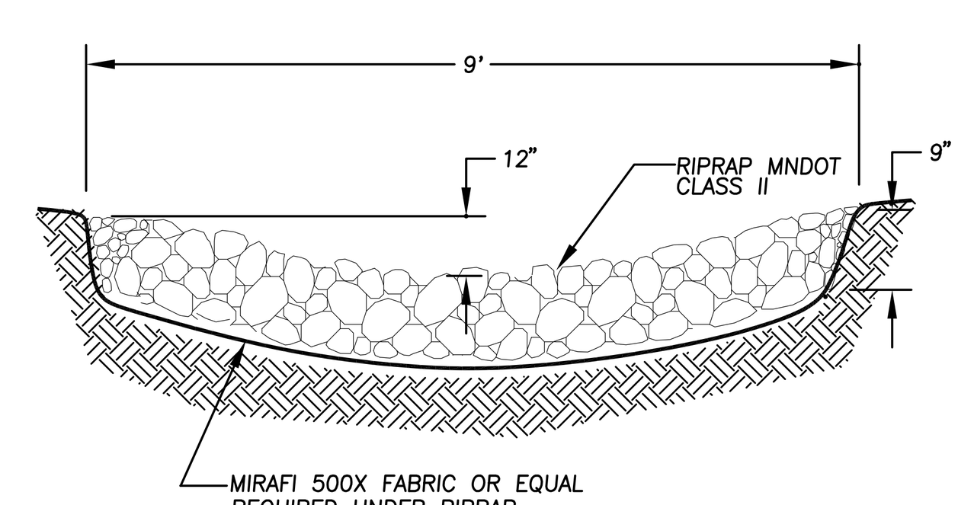
SAFL BAFFLE STANDARD DETAIL
UPSTREAM TECHNOLOGIES INC.
600 COUNTY ROAD D WEST, STE 14
NEW BRIGHTON, MN 55112
651.237.5123

SAFL BAFFLE

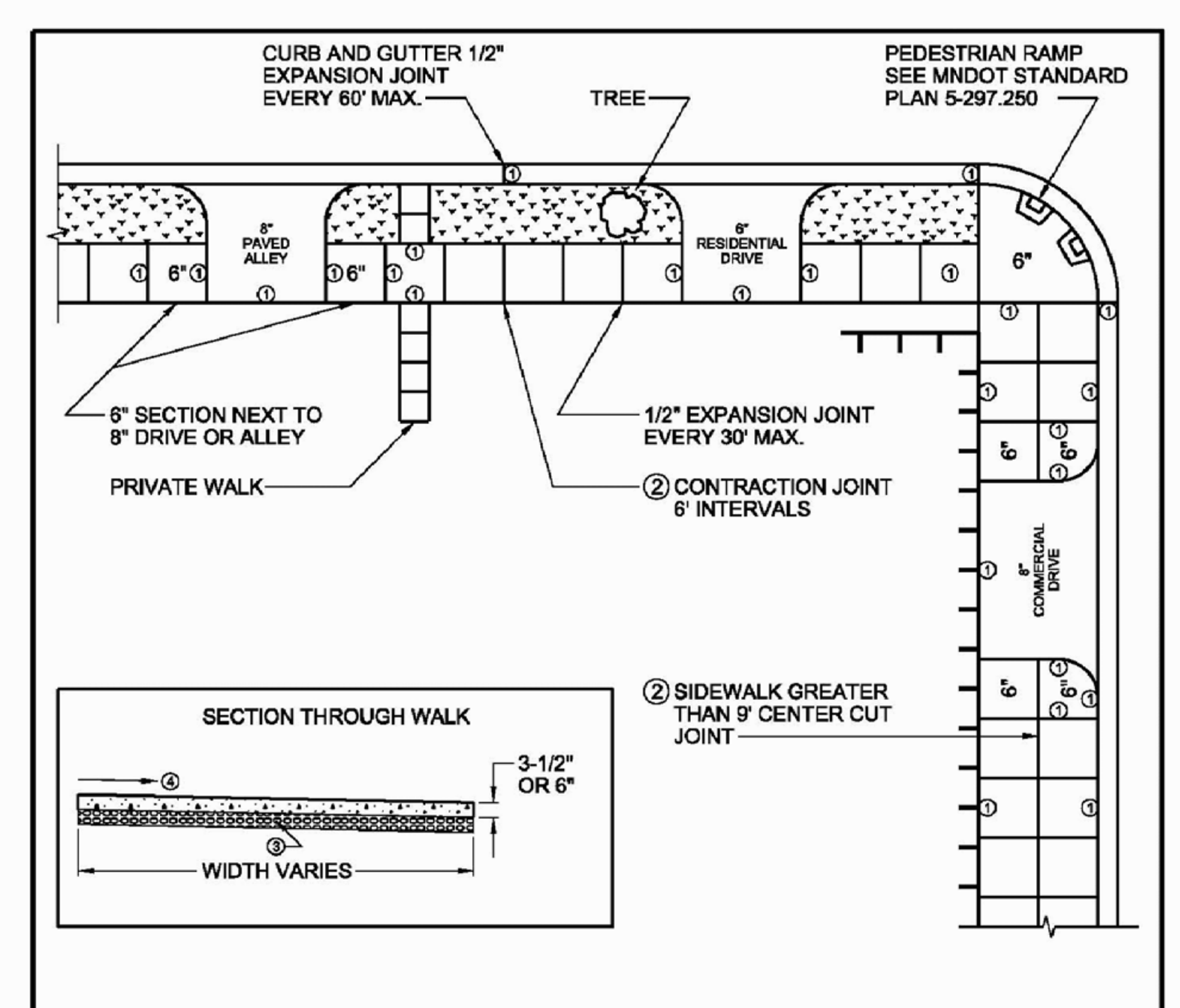


① 0" CURB HEIGHT.
② FULL CURB HEIGHT.
③ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
④ 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
Ⓢ INDICATES PEDESTRIAN RAMP – SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%

9/C5 PEDESTRIAN RAMP
NO SCALE

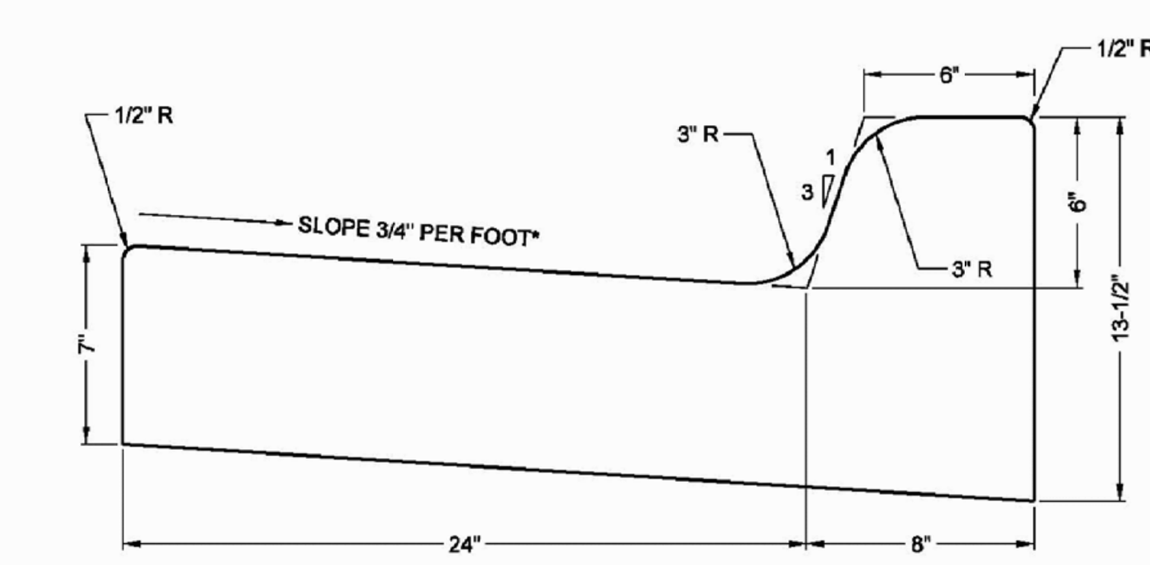


10/C5 POND OVERFLOW
NO SCALE



NOTES:
① EXPANSION MATERIAL REQUIRED (SEE MNDOT SPEC BOOK, 2301.3K JOINT CONSTRUCTION). FIRST SECTION NEXT TO COMMERCIAL DRIVEWAY OR ALLEY 6" THICK. 1/2" THICK EXPANSION JOINTS AT 30' INTERVALS (MAXIMUM). EXPANSION TO BE USED WHEN SIDEWALK ABUTS:
• BUILDING,
• CURB,
• OTHER PAVEMENTS INDICATED ON GRAPHIC ABOVE.
② CONTRACTION JOINT TO BE CENTERED ON SIDEWALK WIDER THAN 9'. CONTRACTION JOINT TO BE PLACED EVERY 6' OR LESS.
③ DEVELOPMENT PROJECTS SHALL PLACE AND COMPACT 4" OF CLASS 5 AGGREGATE UNDER THE NEW SIDEWALK.
④ SLOPE TOWARD ROADWAY, 3/16" PER FT. TYPICAL, 1/4" PER FT. MAX. AS CONSTRUCTED.

Minneapolis Public Works	DRW: JFC	DATE: 1/4/16	TYPICAL SIDEWALK AND DRIVEWAY CONSTRUCTION	STANDARD PLATE NO. ROAD-2003-R1
	APP: JSH	DATE: 12/30/15		



*SLOPE NOT TO EXCEED 1:20 AT CURB RAMPS

Minneapolis Public Works	DRW: JFC	DATE: 8/10/07	B-624 CURB AND GUTTER	STANDARD PLATE NO. ROAD-1003
	APP: GAS	DATE: 5/19/08		

RSP

RSP Architects
1220 Marshall Street NE
Minneapolis
Minnesota 55413-1036
612.677.7100
612.677.7499 fax
www.rsparch.com

Consultants

Rehder & Associates, Inc.
Civil Engineers, Planners and Land Surveyors
3440 Federal Drive, Suite 110
Eagan, Minnesota 55122
Tel: 651-452-5051
Fax: 651-452-9797
email: info@rehder.com
PROJECT NO: 191-0591.313
DRAWING FILE: 0591313.DWG

Certification

NOT FOR CONSTRUCTION

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.

Signature

Registration Number

Date

Project For

THE BAKKEN MUSEULM
PHASE I REMODEL

Project No.	2079.001.02
Drawn By	
Checked By	
Date	10/30/19

Revisions

No.	Date	Description

DETAILS & SEPECIFICATION

C3

RSP Architects
1220 Marshall Street NE
Minneapolis
Minnesota 55413-1036
612.877.7100
612.877.7499 fax
www.rsparch.com

Consultants

Rehder & Associates, Inc.
Civil Engineers, Planners and Land Surveyors
3440 Federal Drive, Suite 110
Eagan, Minnesota 55122
Tel: 651-452-5051
Fax: 651-452-0797
email: info@rehder.com
PROJECT NO: 191-6591.313
DRAWING FILE: 6591313.DWG

Certification

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.

Signature

Registration Number 43856

Date 11/1/2019

Project For

THE BAKKEN MUSEULM
PHASE I REMODEL

Project No. 2079.001.02

Drawn By

Checked By

Date 11/22/19

Revisions

No.	Date	Description

WETLAND BUFFER EXHIBIT

C4

Minnesota Wetland Conservation Act
Notice of Decision

Local Government Unit (LGU)	Address
Minnehaha Creek Watershed District	**15320 Minnetonka Blvd** **Minnetonka, MN 55345**

1. PROJECT INFORMATION

Applicant Name	Project Name	Date of Application	Application Number
The Bakken Museum (Michael Sanders)	**3537 Zenith Avenue South, Minneapolis**	**7/15/2019**	**W19-16**

☒ Attach site locator map

Type of Decision:

☒ Wetland Boundary or Type ☒ No-Loss ☐ Exemption ☐ Sequencing
☐ Replacement Plan ☐ Banking Plan

Technical Evaluation Panel Findings and Recommendation (if any):

☒ Approve ☐ Approve with conditions ☐ Deny

Summary (or attach):

See Attached

2. LOCAL GOVERNMENT UNIT DECISION

Date of Decision: **October 3rd, 2019**

☒ Approved ☐ Approved with conditions (include below) ☐ Denied

LGU Findings and Conclusions (attach additional sheets as necessary):

Michael Sanders on behalf of the Bakken Museum has applied for a wetland boundary & type confirmation for the wetlands located at 3537 Zenith Avenue South (PID 0502824310014) in the City of Minneapolis, Hennepin County, Minnesota. Legal description: Section 5, Township 28N, Range 24W. The boundary & type approval was requested July 15th, 2019.

A wetland delineation was conducted by Kjolhaug Environmental Services on June 10th, 2019. A complete delineation report and WCA application were submitted to MCWD on July 15th, 2019. One Wetland was delineated within the project area. Wetland 1 was identified as a 1/5, seasonally flooded basin wetland with an excavated deep open water center wetland.

The library was expanded in 1997 (MCWD permit #97-007). To meet Stormwater Management requirements, at the time, the excavated pond was constructed in upland to provide rate and water quality controls. The plans also indicated a 1997 wetland boundary with a 16.5' upland buffer. MCWD and the applicant requested an onsite TEP meeting to discuss the boundary of the historical wetland that would fall within WCA regulation.

The TEP and Kjough Envriomental Services Staff reviewed the boundaries in the field on July 31st, 2019. The TEP was inagreement that 1997 permit plans indicated that the stormwater pond and upland buffer areas met wetland criteria but were created by manmade activites, therrfore meeting incidental

weltand criteria. Two boundary flags on the wetstern side of the wetland were adjusted slightly to the east. MCWD requested that an updated wetland boundary exhibit be submitted. (See TEP Findings). An updated wetland boundary figure, "Revised Figure 2", was submitted to MCWD on August 29th, 2019.

On September 12th, 2019, MCWD requested, in writing, to extend the 60 day deadline to make a descsion. Addtionally, on Septeber 12th, 2019, the applcaint requested to revise the WCA applcaiton to include an incidental wetland confirmaiton under section 8420.0150 Scope-D.

MCWD approves the wetland boundaries and types as shown in the Revised Figure 2 as the area of the 1997 historical wetland boundary within the 2019 delineated wetland boundary. Furthermore, MCWD approves the No-Loss request for the area shown as incidental wetland and stormwater pond under section 8420.0315 (B) that incidental wetlands are not within the scope of the WCA under section 8420.0150 Scope-D.

This decision is valid for five years. A future project located on this property may require a permit from the MCWD.

Additionally, MCWD approves the MnRAM analysis submitted on August 29th, 2019 that Wetland 1 is a Manage 2.

For Replacement Plans using credits from the State Wetland Bank:

Bank Account #	Bank Service Area	County	Credits Approved for Withdrawal (sq. ft. or nearest .01 acre)

Replacement Plan Approval Conditions. In addition to any conditions specified by the LGU, the approval of a Wetland Replacement Plan is conditional upon the following:

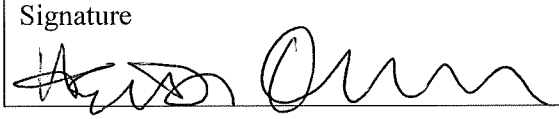
☐ **Financial Assurance:** For project-specific replacement that is not in-advance, a financial assurance specified by the LGU must be submitted to the LGU in accordance with MN Rule 8420.0522, Subp. 9 (List amount and type in LGU Findings).

☐ **Deed Recording:** For project-specific replacement, evidence must be provided to the LGU that the BWSR "Declaration of Restrictions and Covenants" and "Consent to Replacement Wetland" forms have been filed with the county recorder's office in which the replacement wetland is located.

☐ **Credit Withdrawal:** For replacement consisting of wetland bank credits, confirmation that BWSR has withdrawn the credits from the state wetland bank as specified in the approved replacement plan.

Wetlands may not be impacted until all applicable conditions have been met!

LGU Authorized Signature:

Signing and mailing of this completed form to the appropriate recipients in accordance with 8420.0255, Subp. 5 provides notice that a decision was made by the LGU under the Wetland Conservation Act as specified above. If additional details on the decision exist, they have been provided to the landowner and are available from the LGU upon request.		
Name **Heidi Quinn**	Title **Permitting Technician**	
Signature 	Date **10/3/2019**	Phone Number and E-mail **952-641-4504** **hquinn@minnehahacreek.org**

THIS DECISION ONLY APPLIES TO THE MINNESOTA WETLAND CONSERVATION ACT. Additional approvals or permits from local, state, and federal agencies may be required. Check with all

appropriate authorities before commencing work in or near wetlands.

Applicants proceed at their own risk if work authorized by this decision is started before the time period for appeal (30 days) has expired. If this decision is reversed or revised under appeal, the applicant may be responsible for restoring or replacing all wetland impacts.

This decision is valid for three years from the date of decision unless a longer period is advised by the TEP and specified in this notice of decision.

3. APPEAL OF THIS DECISION

Pursuant to MN Rule 8420.0905, any appeal of this decision can only be commenced by mailing a petition for appeal, including applicable fee, within thirty (30) calendar days of the date of the mailing of this Notice to the following as indicated:

Check one:

☒ Appeal of an LGU staff decision. Send petition and $100 fee to: **Minnehaha Creek Watershed District** **15320 Minnetonka Blvd** **Minnetonka, MN 55345**	☐ Appeal of LGU governing body decision. Send petition and $500 filing fee to: Executive Director Minnesota Board of Water and Soil Resources 520 Lafayette Road North St. Paul, MN 55155

4. LIST OF ADDRESSEES

☒ SWCD TEP member: **Stacey Lijewski-stacey.lijewski@co.hennepin.mn.us**
☒ BWSR TEP member: **Ben Carlson-ben.carlson@state.mn.us**
☐ LGU TEP member (if different than LGU Contact):
☒ DNR TEP **Leslie Parris-**
☐ DNR Regional Office (if different than DNR TEP member):
☐ WD or WMO (if applicable):
☒ Applicant (notice only) and Landowner (if different): **Michael Sanders- sanders@thebakken.org**
☒ Members of the public who requested notice (notice only): **Kyle Uhler – kyle@kjolhaugenv.com; Liz Stout- Elizabeth.Stout@minneapolis,m.gov**
☒ Corps of Engineers Project Manager (notice only): **usace_requests_mn@usace.army.mil**
☐ BWSR Wetland Bank Coordinator (wetland bank plan applications only)

5. MAILING INFORMATION

➢For a list of BWSR TEP representatives: www.bwsr.state.mn.us/aboutbwsr/workareas/WCA_areas.pdf

➢For a list of DNR TEP representatives: www.bwsr.state.mn.us/wetlands/wca/DNR_TEP_contacts.pdf

➢Department of Natural Resources Regional Offices:

NW Region:	NE Region:	Central Region:	Southern Region:
Reg. Env. Assess. Ecol. Div. Ecol. Resources 2115 Birchmont Beach Rd. NE Bemidji, MN 56601	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1201 E. Hwy. 2 Grand Rapids, MN 55744	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1200 Warner Road St. Paul, MN 55106	Reg. Env. Assess. Ecol. Div. Ecol. Resources 261 Hwy. 15 South New Ulm, MN 56073

For a map of DNR Administrative Regions, see: http://files.dnr.state.mn.us/aboutdnr/dnr_regions.pdf

➢For a list of Corps of Project Managers: www.mvp.usace.army.mil/regulatory/default.asp?pageid=687 or send to:

US Army Corps of Engineers
St. Paul District, ATTN: OP-R

180 Fifth St. East, Suite 700
St. Paul, MN 55101-1678

➢ For Wetland Bank Plan applications, also send a copy of the application to:
Minnesota Board of Water and Soil Resources
Wetland Bank Coordinator
520 Lafayette Road North
St. Paul, MN 55155

6. ATTACHMENTS

In addition to the site locator map, list any other attachments:
☒ **TEP Findings**
☒ **Approved wetland boundaries, Revised Figure 2**
☒ **E-mail with 60 Extension and Request to Revise Application**

Minnesota Wetland Conservation Act
Technical Evaluation Panel Findings Report

Date(s) of Site Visit/Meeting:	July 31st, 2019	LGU:	MCWD
County:	Hennepin County	LGU Contact:	Heidi Quinn
Project Name:	W19-16: Bakken Museum	Phone #:	952-641-4504
Location of Project: (attach map if possible)	3537 Zennith Avenue South, Minneapolis	Email Address:	hquinn@minnehahacreek.org

TEP ATTENDEES:	OTHER ATTENDEES:	OTHER ATTENDEES:
LGU: Heidi Quinn, MCWD	**Kyle Uhler, Kjolhaug**	
SWCD: Stacey Lijewski, Hennepin County	**Bakken Museum Staff**	
BWSR: Ben Carlson, BWSR	**Rehder & Associates Staff**	
DNR:		

PROJECT DESCRIPTION AND PURPOSE OF MEETING:
The purpose of the meeting was to review the wetland boudnary in the field and discuss the extent of a stormwater pond constructed in 1997 within the delineated boundary. During the meeting the property owner inquired about the allowable impact under the De Minimis Exemption for a future building expansion.

TYPE OF MEETING: *Check all applicable*

☐ Office ☒ On-Site ☐ Phone Conference ☒ E-Mail ☐ Other: _____

TEP FINDINGS AND RECOMMENDATIONS [1]:

On July 31st, 2019, the TEP met onsite to discuss and review the delineated wetland boundary line that would be regulated under the WCA. The LGU brought construction plans from MCWD permit 97-007 that showed grading and excavation for a stormwater pond that was constructed in upland. Additionally the plans indicated a delineated wetland boundary with a 16.5' upland wetland buffer. The TEP was in agreement that the areas of the manmade stormwater pond and wetland buffer had taken on wetland characteristics, thus should be considered as incidental wetland. Two wetland boundary flags on the western edge were requested to be adjusted to slightly to the east. The LGU requested that the applicant provide an updated wetland boundary figure showing the extent of the historical wetland, the slight boundary adjustment on the western edge, and the location of the stormwater pond.

Furthermore, Bakken Museum and Rehder & Associates staff shared preliminary plans for a future building expansion that would result in approximately 750 square feet of wetland impact along the NW edge. The De Minimis Exemption Standards under section 8420.0420 Subp. 8 A(3) were discussed as; (c) 400 square feet of wetland impact outside of the building set-back but within the shoreland wetland protection zone or (e) 20 square feet of wetland impact inside the building set-back. Rehder & Associates staff shared a preliminary plan that indicated that potions of the southern historical wetland area were within the building set-back. The TEP committed to providing clarity on the allowable amount of impact under the De Minimis Exemption, as a portion of the wetland was within the building set-back zone.

On August 8th, 2019, Rehder & Associates provided the LGU an updated concept plan indicating that wetland impacts had been minimized to 283 square feet on NW edge. After review of the updated concept plan, the TEP concurred via e-mail that the wetland impacts had been minimized and that since the impact was proposed outside of the building set-back, the criteria of (c) 400 square feet of wetland impact would be allowable under the De Minimis Exemption.

[1] TEP Findings should be a meaningful concise summary detailing the project conditions, technical data, and what rules apply. The TEP recommendation should be clear,based on rule and best professional judgement.

On August 29th, 2019 Kjolhaug submitted an updated wetland figure (Revised Figure 2) to the LGU showing the extent of the 1997 historical wetland boundary, approximate area of the stormwater pond, location of the 2019 delineation, and areas of incidental wetland.

In September 2019 the TEP concurred, via e-mail, that the areas of the 1997 historical wetland boundary within the 2019 delineated wetland boundary fall under regulation of the WCA. The area of the stormwater pond and incidental wetland as shown on the figure qualify for a No-Loss confirmation under section 8420.0315 (B) that incidental wetlands are not within the scope of the WCA, Chapter 8420.

In Summary:
The submitted Revised Figure 2 adequately represents the wetland boundary regulated under WCA and the extents of the incidental wetland area not within the scope of WCA.

Allowable wetland impacts to the western side of the wetland are 400 square feet under the De Minimis Exemption. A separate WCA application, with a surveyed wetland boundary, for proposed wetland impacts will be required. As the TEP has preliminary reviewed the proposed 283 square feet of wetland impact, no NOA will be sent for the Exemption Application.

SIGNATURES

Under the WCA

Stacey Lizewski	9-20-2019	Ben Carlson	9/20/2019
SWCD Representative	Date	BWSR Representative	Date
Do not concur ☐		Do not concur ☐	
[signature]	9/20/19		
LGU Representative	Date	DNR Representative	Date
Do not concur ☐		Do not concur ☐	

[1] TEP Findings should be a meaningful concise summary detailing the project conditions, technical data, and what rules apply. The TEP recommendation should be clear,based on rule and best professional judgement.

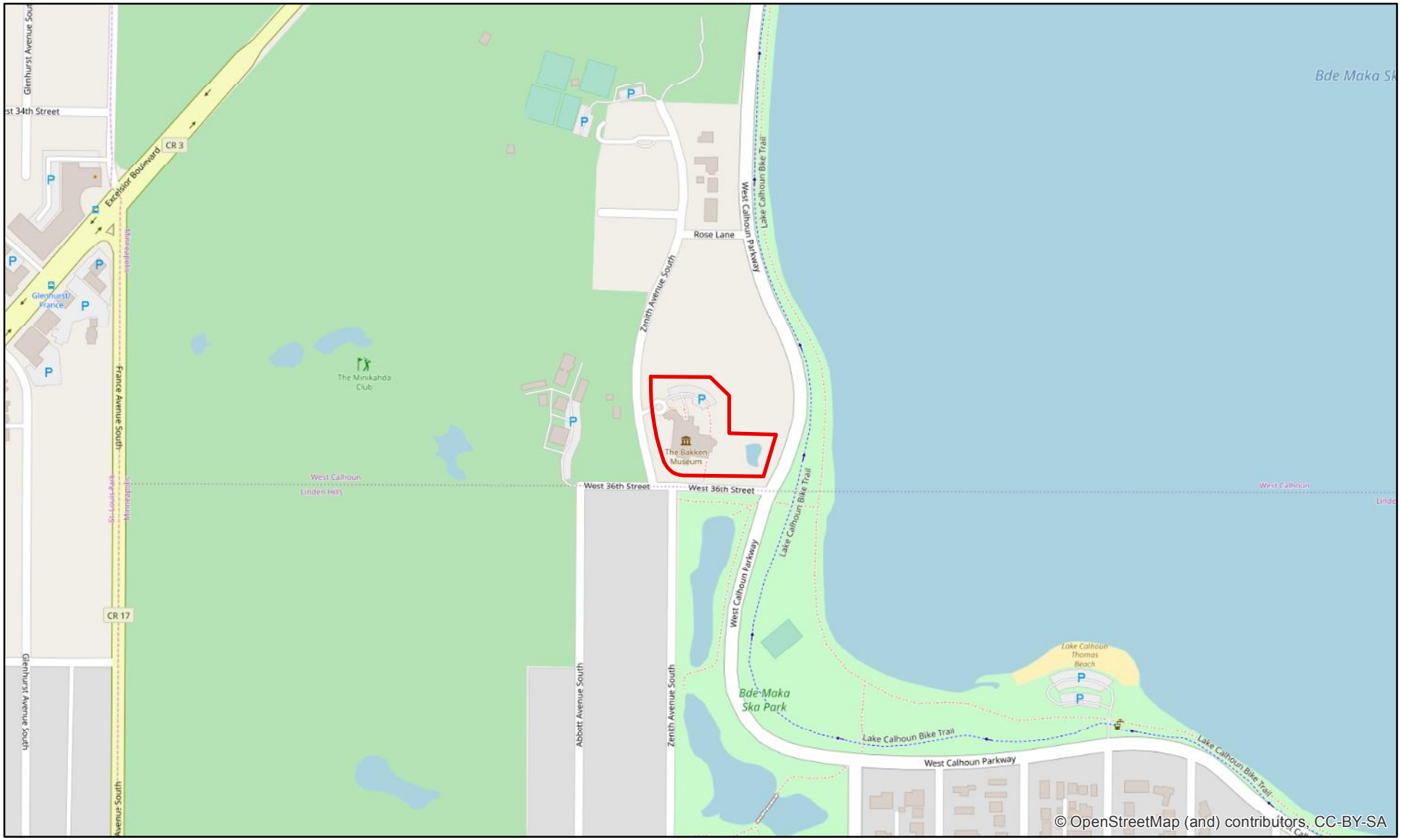


Figure 1 - Site Location Map

N

0 500 Feet

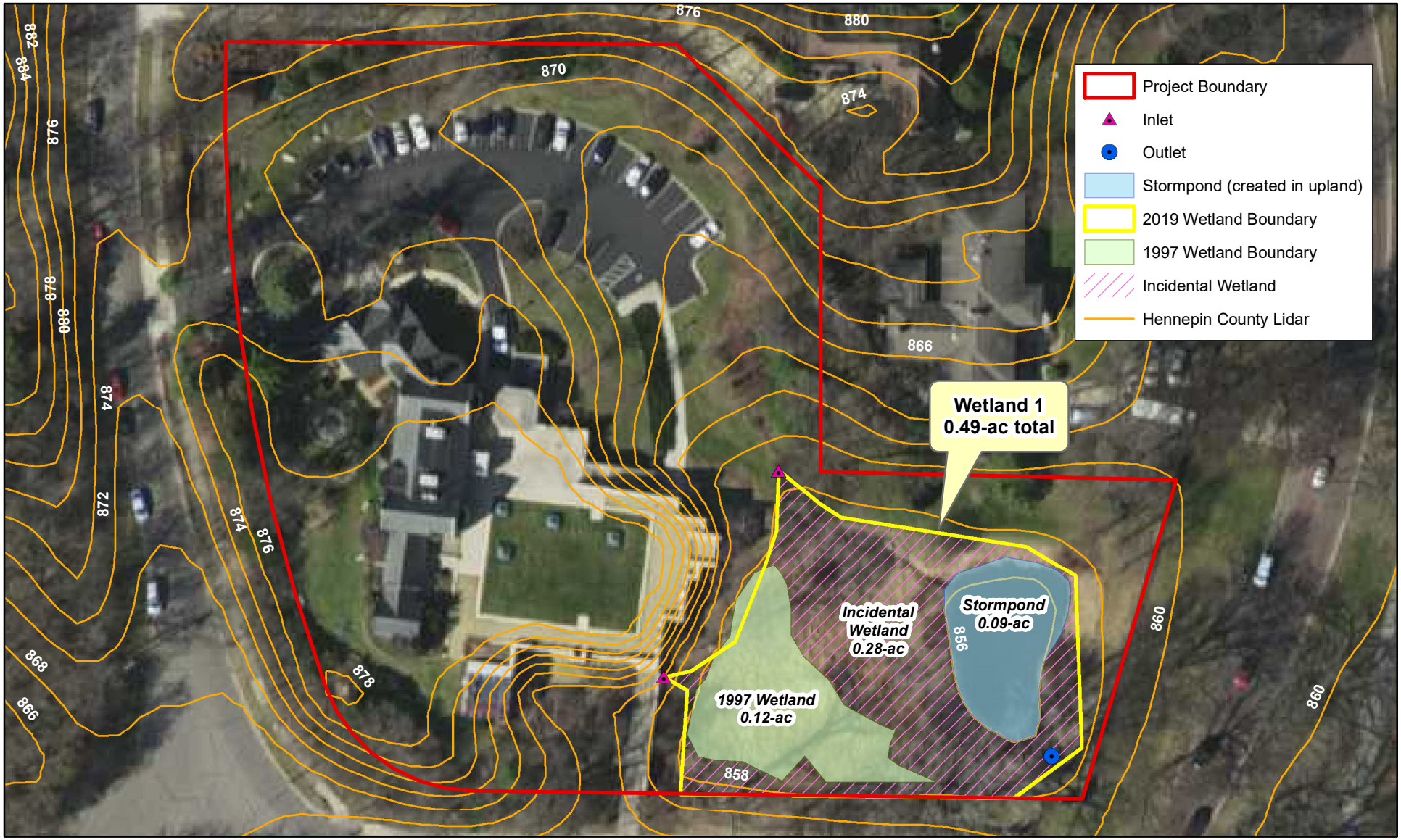
Project Boundary

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: ESRI Streets Basemap

3537 Zenith Ave S (KES 2019-046)
Minneapolis, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.



Revised Figure 2 - Existing Conditions (2016 MnGEO Photo)

N

0 150 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

3537 Zenith Ave S (KES 2019-2019-046)
Minneapolis, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

From:	Melissa Barrett
To:	Heidi Quinn; Kyle Uhler
Cc:	Carlson, Ben (BWSR); Nicholas Adam; Jason Christiaansen; Erica Washburn
Subject:	RE: MCWD W19-16 60 day extension
Date:	Thursday, September 12, 2019 2:07:12 PM
Attachments:	image001.png

Heidi,
Please amend the WCA application to include an incidental wetland confirmation under section 8420.0105 Scope – D.

Thank you.

Melissa Barrett
Certified Wetland Delineator, Licensed Soil Scientist
Kjolhaug Environmental Services, Inc.
2500 Shadywood Road, Suite 130
Orono, MN 55331
Office: (952) 401-8757
Cell: (952) 388-3752

From: Heidi Quinn <hquinn@minnehahacreek.org>
Sent: Thursday, September 12, 2019 2:02 PM
To: Melissa Barrett <melissa@kjolhaugenv.com>; Kyle Uhler <kyle@kjolhaugenv.com>
Cc: Carlson, Ben (BWSR) <ben.carlson@state.mn.us>; Nicholas Adam <NAdam@rehder.com>; Jason Christiaansen <jason.christiaansen@rsparch.com>; Erica Washburn <washburn@thebakken.org>
Subject: MCWD W19-16 60 day extension

Melissa,

Thank you for the updated wetland figure and MnRAM results.

I have received general concurrence from the TEP regarding the updated boundary figure showing the 1997 wetland within the 2019 delineated wetland boundary as regulated under WCA and the stormwater pond/expanded wetland area to meet incidental status. I will be distributing the TEP findings this week with the intent to issue the NOD next week (week of September 16th, 2019).

Please accept this e-mail as a written notice to extend the 60-day period to make a decision on WCA application W19-16.

As a formality, please request in writing (e-mail will suffice) to amend the WCA application to include an incidental wetland confirmation under section 8420.0105 Scope – D.

Let me know if you have questions.

Thank you,

Heidi

Heidi Quinn | Permitting Technician | Minnehaha Creek Watershed District
15320 Minnetonka Boulevard | Minnetonka, MN 55345 | Office: 952-641-4504

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Conservation Act
Notice of Application

Local Government Unit: Minnehaha Creek Watershed District	**County:** Hennepin
Applicant Name: The Bakken Museum (Michael Sanders) **Applicant Representative:** Jason Christiansen, RSP Architects & Kyle Uhler, Kjolhaug Environmental	
Project Name: The Bakken Museum	**LGU Project No. (if any):** W19-38
Date Complete Application Received by LGU: December 18th, 2019	
Date this Notice was Sent by LGU: January 7th, 2020	
Date that Comments on this Application Must Be Received By LGU[1]: January 29th, 2020	

[1] *minimum 15 business day comment period for Boundary & Type, Sequencing, Replacement Plan and Bank Plan Applications*

WCA Decision Type - check all that apply

☐ Wetland Boundary/Type ☐ Sequencing ☐ Replacement Plan ☐ Bank Plan (not credit purchase)
☐ No-Loss (8420.0415) ☒ Exemption (8420.0420)
Part: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H Subpart: ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☒ 8 ☐ 9

Replacement Plan Impacts (replacement plan decisions only)

Total WCA Impact Area Proposed:

Application Materials

☒ Attached ☐ Other[1] (specify):

[1] Link to ftp or other accessible file sharing sites is acceptable.

Comments on this application should be sent to:

LGU Contact Person: Heidi Quinn, MCWD Permitting Technician
E-Mail Address: hquinn@minnehahacreek.org
Address and Phone Number: 15320 Minnetonka Blvd, Minnetonka, MN 55345 952-641-4504
Decision-Maker for this Application: ☐ Staff ☒ Governing Board/Council ☐ Other (specify):

Notice Distribution (include name)

Required on all notices:

☒ SWCD TEP Member: Stacey Lijewski-stacey.lijewski@co.hennepin.mn.us ☒ BWSR TEP Member: Ben Carlson-ben.carlson@state.mn.us
☐ LGU TEP Member (if different than LGU contact):
☒ DNR Representative: Leslie Parris – leslie.parris@state.mn.us
☐ Watershed District or Watershed Mgmt. Org.:
☒ Applicant (notice only): Michael Sanders- sanders@thebakken.org ☒ Agent/Consultant (notice only): Jason Christiansen- jason.christiaansen@sparch.com; Kyle Uhler- kyle@kjolhaugenv.com

Optional or As Applicable:

☒ Corps of Engineers: usace_requests_mn@usace.army.mil
☐ BWSR Wetland Mitigation Coordinator (required for bank plan applications only):
☒ Members of the Public (notice only): City Staff ☐ Other:

Signature:	Date:
	1/7/2020

This notice and accompanying application materials may be sent electronically or by mail. The LGU may opt to send a summary of the application to members of the public upon request per 8420.0255, Subp. 3.

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Providing Sound, Balanced, Comprehensive Natural Resource Solutions

Memorandum

Date: December 18, 2019

To: Heidi Quinn, Minnehaha Creek Watershed District (MCWD)
Project Manager, U.S. Army Corps of Engineers (USACE)

Cc: Erica Washburn, The Bakken Museum
Jason Christiaansen, RSP Architects

From: Kyle Uhler, Kjolhaug Environmental Services Company

Re: WCA De Minims Exemption Application
Section 404 Minor Discharges RGP Application
Bakken Museum, Minneapolis, MN
3537 Zenith Ave S, Minneapolis (KES#2019-046) (MVP-2019-01694-EJW)

The 2.58-acre Bakken Museum site (3537 Zenith Ave S) was originally inspected on June 10, 2019 for the presence and extent of wetland. The property is located in the Southwest ¼ of Section 5, Township 28 North, Range 24 West, City of Minneapolis, Hennepin County, Minnesota. More specifically, the site is situated west of West Lake Calhoun Parkway and north of 36th Street West (**Figure 1**) and corresponds to Hennepin County PID 0502824310014.

This application requests approval for less than 400 sf of fill to wetland for the purposes of a walkway and new site entrance for the Bakken Museum. The Joint Application Form for Activities Affecting Water Resources in Minnesota is included as **Attachment A**.

Wetland Delineation & Shoreland

One Type 1/5 wetland was identified and delineated within project area by Kjolhaug Environmental Services (KES) in June of 2019 (**Figure 2**). The ***3537 Zenith Ave S. Wetland Delineation Report*** dated July 15, 2019 was submitted previously, and copies are available upon request. The Notice of Decision (NOD) approving the wetland boundary is included in **Attachment B**. WCA NOD also included No-Loss approval for incidental wetland within the 2019 delineated boundary (**Figure 2**).

DNR Public Water 27-31P is located approximately 210 feet to the east of site boundaries; therefore, this site falls within Shoreland.

Proposed Project

The purpose of the project is to reorient the main visitor entrance to the east to increase public visibility from Calhoun Parkway and provide public access from W. 36th Street. The proposed project will require a level, exterior paved walkway along the east side (lake side) of the existing building, from W. 36th Street to the south to the new site entrance on the east.

Complete avoidance of wetland impacts is not possible due to the proximity of the existing building footprint and the wetland boundary (some of which is incidental).

Due to the need for a level walkway and the presence of sloping topography between the existing building and Wetland 1, a retaining wall will be constructed. With this plan, the walkway grading footprint is minimized thereby minimizing wetland impacts to the extent possible.

Construction of the new site entrance and corresponding walkway will result in 370 sf of fill impact to Wetland 1 (**Figure 3**). The area proposed for impact is Type 1 (PEMA) wet meadow wetland, a portion of which is incidental.

This plan does not allow for buffer along the west site of Wetland 1. Because it is not prudent to fill wetland to created buffer, the Applicant will also be applying for a MWCD buffer exemption (separate submittal).

Requested Approvals

According to MN WCA Rule Mn WCA Rule 8420.0420 Exemption Standards:

> Subp. 8. De minimis. A. Except as provided in items B and C, a replacement plan is not required for projects that impact up to the following amounts of wetlands:
>
> (3) in a less than 50 percent area:
>
> (c) 400 square feet of type 1, 2, or 6 wetlands outside of the building setback zone, as defined in the local shoreland management ordinance, but within the shoreland wetland protection zone;

Proposed impacts to Wetland 1, located within Shoreland of DNR Pubic Water 27-31P, totals 370 sf. ***With submission of this memo we are requesting De Minimis Exemption approval from MCWD.*** The proposed project also meets the criteria of Section 404 Minor Discharges Regional General Permit (RGP) conditions. Pre-Construction Notification (PCN) is not required. Due to degraded (reed canary grass) and partially incidental nature of wetland impact area, no compensatory mitigation is proposed. ***This application requests concurrence from USACE for this determination.***

The Joint Application Form for Activities Affecting Water Resources in Minnesota is included as **Attachment A**.

Thank you.

The Bakken Museum Site

Minneapolis, Minnesota

Figures

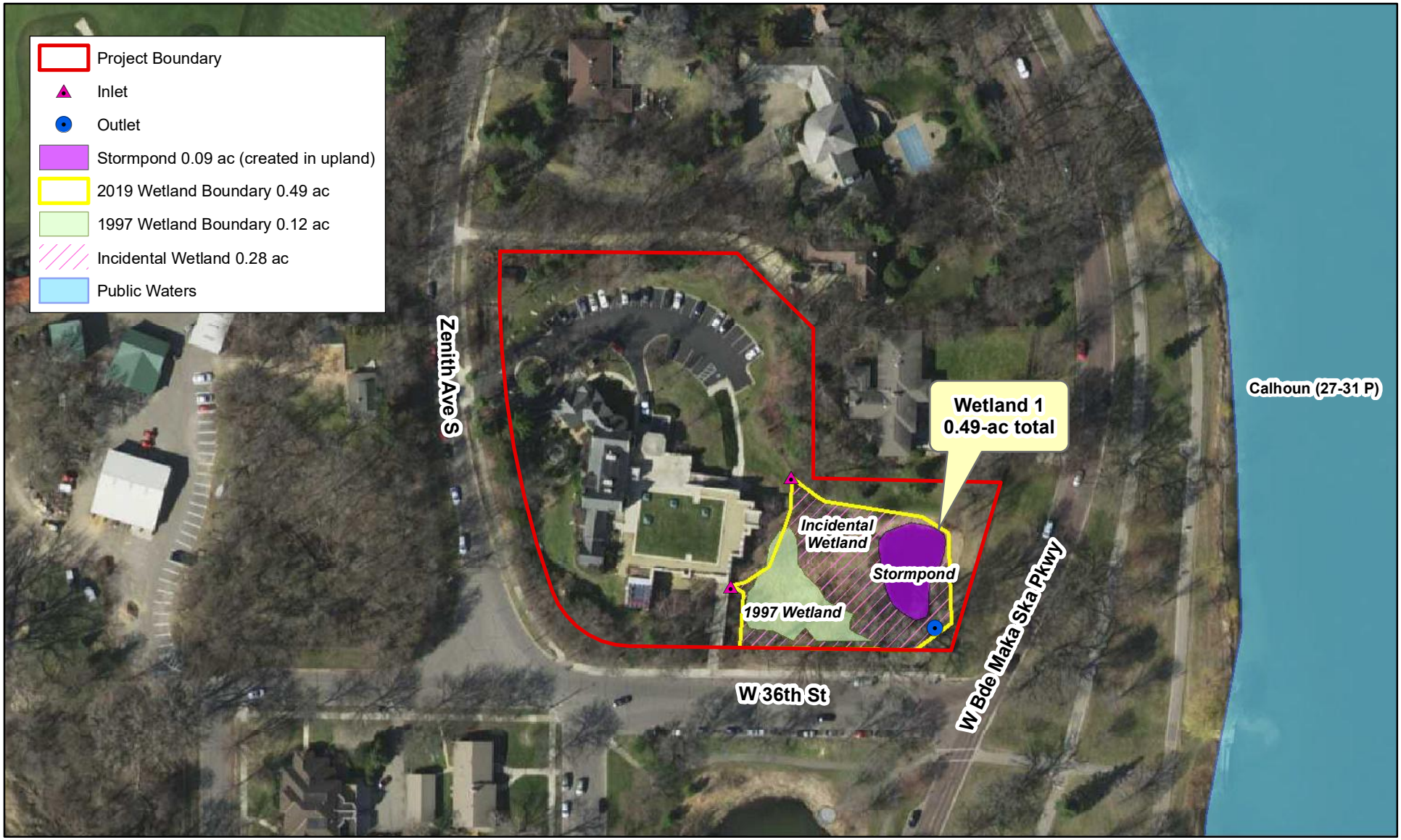


Figure 1 - General Project Location with Wetland Delineation (2016 MnGEO Photo)

N

0 125 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

3537 Zenith Ave S (KES 2019-2019-046)
Minneapolis, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

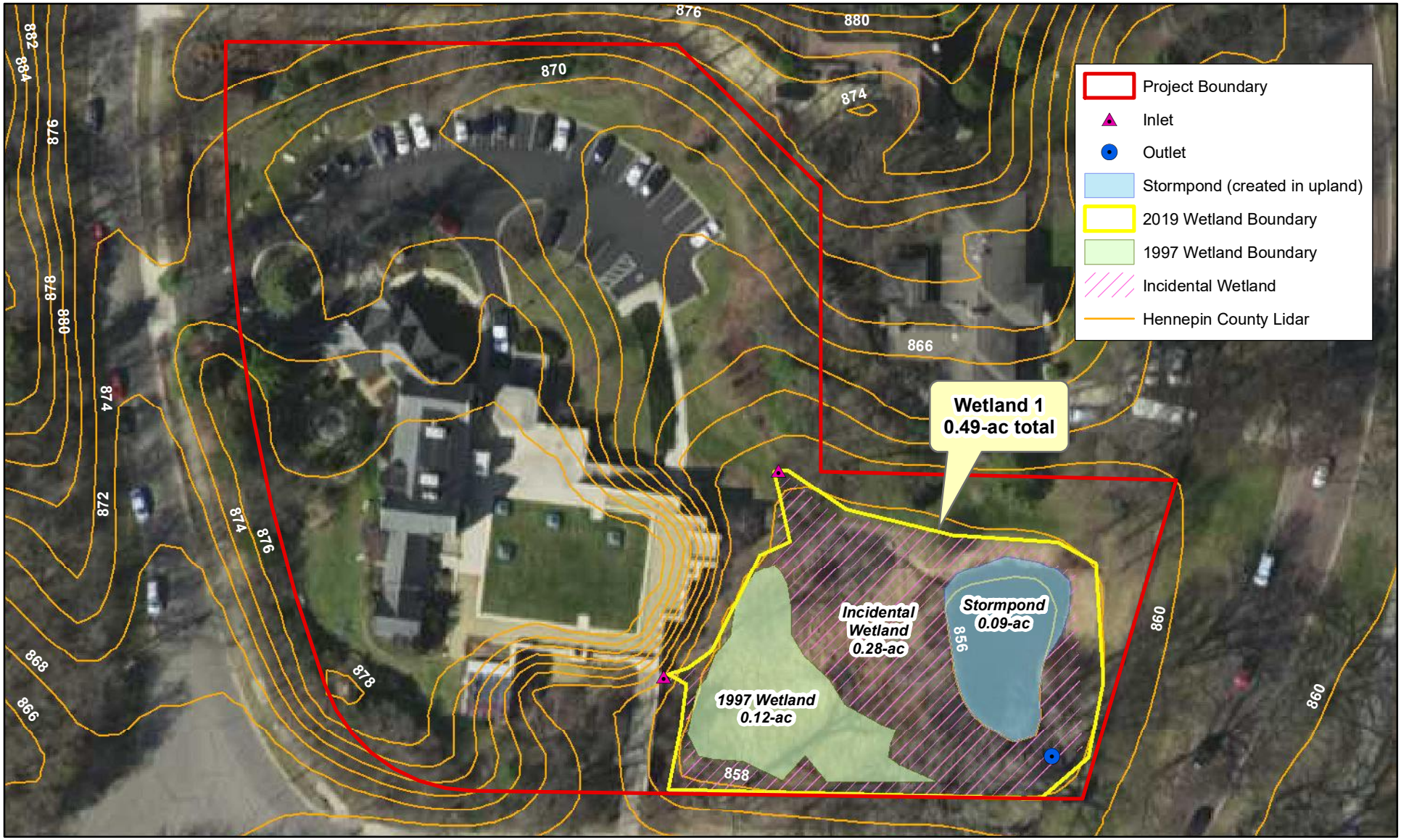


Figure 2 - Existing Conditions (2016 MnGEO Photo)

N

0 150 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

3537 Zenith Ave S (KES 2019-2019-046)
Minneapolis, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

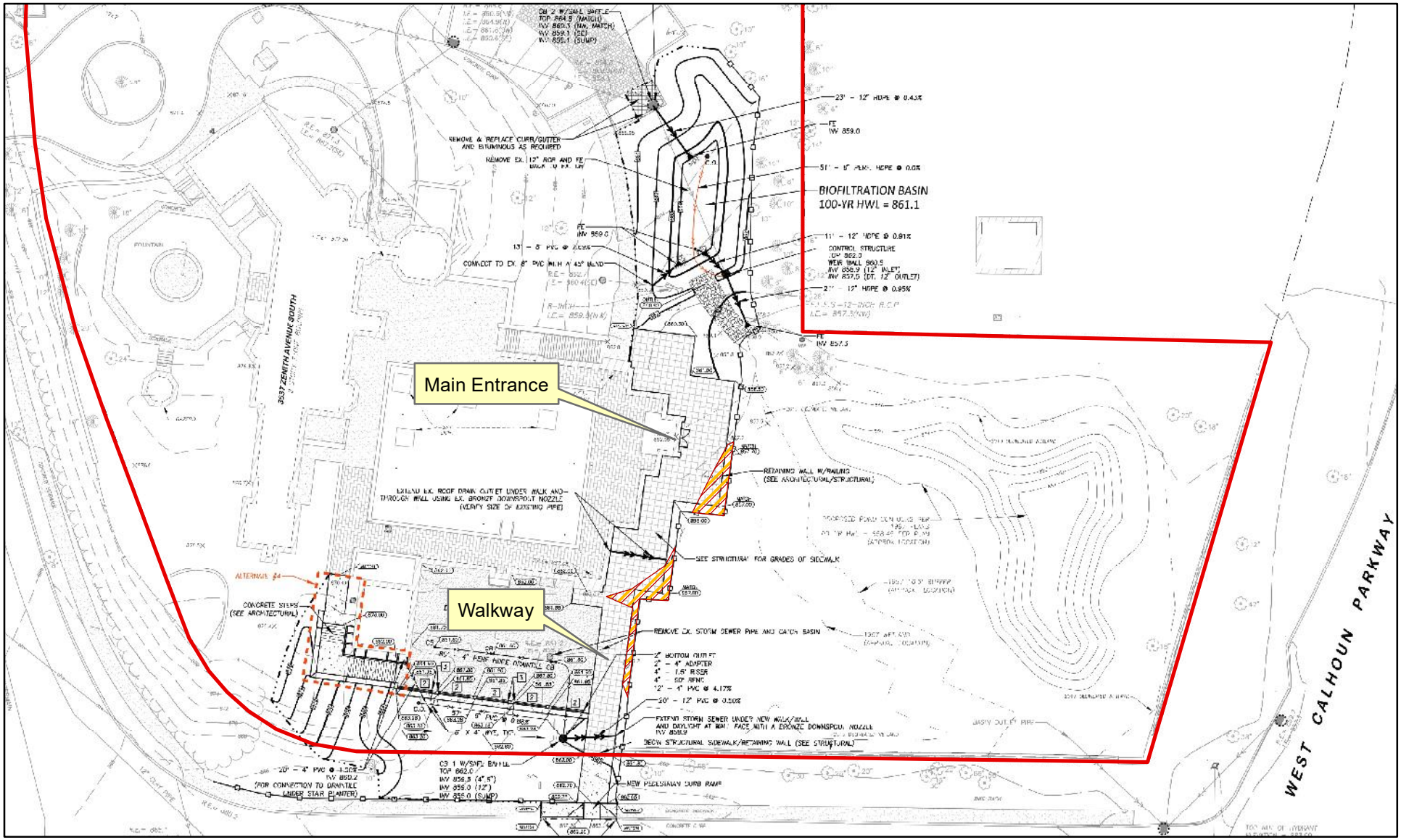


Figure 3 - Wetland Impact

N

0 50 Feet

Wetland Impact 370-SF (partially incidental)

Project Boundary

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: RSP Architects

3537 Zenith Ave S (KES 2019-2019-046)
Minneapolis, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

The Bakken Museum Site

Minneapolis, Minnesota

Appendix A – Joint Application Form

Joint Application Form for Activities Affecting Water Resources in Minnesota

This joint application form is the accepted means for initiating review of proposals that may affect a water resource (wetland, tributary, lake, etc.) in the State of Minnesota under state and federal regulatory programs. Applicants for Minnesota Department of Natural Resources (DNR) Public Waters permits **MUST** use the MPARS online permitting system for submitting applications to the DNR. Applicants can use the information entered into MPARS to substitute for completing parts of this joint application form (see the paragraph on MPARS at the end of the joint application form instructions for additional information). This form is only applicable to the water resource aspects of proposed projects under state and federal regulatory programs; other local applications and approvals may be required. Depending on the nature of the project and the location and type of water resources impacted, multiple authorizations may be required as different regulatory programs have different types of jurisdiction over different types of resources.

Regulatory Review Structure

Federal

The St. Paul District of the U.S. Army Corps of Engineers (Corps) is the federal agency that regulates discharges of dredged or fill material into waters of the United States (wetlands, tributaries, lakes, etc.) under Section 404 of the Clean Water Act (CWA) and regulates work in navigable waters under Section 10 of the Rivers and Harbors Act. Applications are assigned to Corps project managers who are responsible for implementing the Corps regulatory program within a particular geographic area.

State

There are three state regulatory programs that regulate activities affecting water resources. The Wetland Conservation Act (WCA) regulates most activities affecting wetlands. It is administered by local government units (LGUs) which can be counties, townships, cities, watershed districts, watershed management organizations or state agencies (on state-owned land). The Minnesota DNR Division of Ecological and Water Resources issues permits for work in specially-designated public waters via the Public Waters Work Permit Program (DNR Public Waters Permits). The Minnesota Pollution Control Agency (MPCA) under Section 401 of the Clean Water Act certifies that discharges of dredged or fill material authorized by a federal permit or license comply with state water quality standards. One or more of these regulatory programs may be applicable to any one project.

Required Information

Prior to submitting an application, applicants are **strongly encouraged** to seek input from the Corps Project Manager and LGU staff to identify regulatory issues and required application materials for their proposed project. Project proponents can request a pre-application consultation with the Corps and LGU to discuss their proposed project by providing the information required in Sections 1 through 5 of this joint application form to facilitate a meaningful discussion about their project. Many LGUs provide a venue (such as regularly scheduled technical evaluation panel meetings) for potential applicants to discuss their projects with multiple agencies prior to submitting an application. Contact information is provided below.

The following bullets outline the information generally required for several common types of determinations/authorizations.

- For delineation approvals and/or jurisdictional determinations, submit Parts 1, 2 and 5, and Attachment A.
- For activities involving CWA/WCA exemptions, WCA no-loss determinations, and activities not requiring mitigation, submit Parts 1 through 5, and Attachment B.
- For activities requiring compensatory mitigation/replacement plan, submit Parts 1 thru 5, and Attachments C and D.
- For local road authority activities that qualify for the state's local road wetland replacement program, submit Parts 1 through 5, and Attachments C, D (if applicable), and E to both the Corps and the LGU.

Submission Instructions

Send the completed joint application form and all required attachments to:

U.S Army Corps of Engineers. Applications may be sent directly to the appropriate Corps Office. For a current listing of areas of responsibilities and contact information, visit the St. Paul District's website at: http://www.mvp.usace.army.mil/Missions/Regulatory.aspx and select "Minnesota" from the contact Information box. Alternatively, applications may be sent directly to the St. Paul District Headquarters and the Corps will forward them to the appropriate field office.

Section 401 Water Quality Certification: Applicants do not need to submit the joint application form to the MPCA unless specifically requested. The MPCA will request a copy of the completed joint application form directly from an applicant when they determine an individual 401 water quality certification is required for a proposed project.

Wetland Conservation Act Local Government Unit: Send to the appropriate Local Government Unit. If necessary, contact your county Soil and Water Conservation District (SWCD) office or visit the Board of Water and Soil Resources (BWSR) web site (www.bwsr.state.mn.us) to determine the appropriate LGU.

DNR Public Waters Permitting: In 2014 the DNR will begin using the Minnesota DNR Permitting and Reporting System (MPARS) for submission of Public Waters permit applications (https://webapps11.dnr.state.mn.us/mpars/public/authentication/login). Applicants for Public Waters permits **MUST** use the MPARS online permitting system for submitting applications to the DNR. To avoid duplication and to streamline the application process among the various resource agencies, applicants can use the information entered into MPARS to substitute for completing parts of this joint application form. The MPARS print/save function will provide the applicant with a copy of the Public Waters permit application which, at a minimum, will satisfy Parts one and two of this joint application. For certain types of activities, the MPARS application may also provide all of the necessary information required under Parts three and four of the joint application. However, it is the responsibility of the Applicant to make sure that the joint application contains all of the required information, including identification of all aquatic resources impacted by the project (see Part four of the joint application). After confirming that the MPARS application contains all of the required information in Parts one and two the Applicant may attach a copy to the joint application and fill in any missing information in the remainder of the joint application.

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name: Bakken Museum
Mailing Address: 3537 Zenith Ave S, Mpls, MN 55416
Phone: 612-926-3878
E-mail Address: Sanders@thebakken.org

Authorized Contact (do not complete if same as above): Jason Christiaansen, RSP Architects
Mailing Address: 1220 Marshall Street NE, Minneapolis, MN 55413
Phone: 612.677.7485
E-mail Address: jasonchristiaansen@rsparch.com

Agent Name: Kyle Uhler, Kjolhaug Environmental
Mailing Address: 2500 Shadywood Road, Suite 130, Orono, MN 55331
Phone: 952-401-8757
E-mail Address: kyle@kjolhaugenv.com

PART TWO: Site Location Information

County: Hennepin **City/Township: Minneapolis**
Parcel ID and/or Address: 0502824310014
Legal Description (Section, Township, Range): Sec 5, T 28N, R24 W
Lat/Long (decimal degrees): 44°56'17.95"N, 93°19'16.53"W
Attach a map showing the location of the site in relation to local streets, roads, highways.
Approximate size of site (acres) or if a linear project, length (feet): 2.58-ac

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted ***prior to*** this application then describe that here and provide the Corps of Engineers project number.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

Application is for WCA De Minimis Exemption and Section 404 Minor Discharges RGP.

Project Name and/or Number: **Bakken Museum De Minimis (3537 Zenith Ave S, Mpls) (KES#2019-046)**

PART FOUR: Aquatic Resource Impact[1] Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	**Aquatic Resource Type** (wetland, lake, tributary etc.)	**Type of Impact** (fill, excavate, drain, or remove vegetation)	**Duration of Impact** Permanent (P) or Temporary (T)[1]	**Size of Impact**[2]	**Overall Size of Aquatic Resource** [3]	**Existing Plant Community Type(s)** in Impact Area[4]	**County, Major Watershed #, and Bank Service Area #** of Impact Area[5]
Wetland 1	Wetland	Fill	P	370 sf	0.49-ac	Wet meadow	Henn, 20, 7

[1]If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".
[2]Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).
[3]This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".
[4]Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.
[5]Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

PART FIVE: Applicant Signature

☐ Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: _____ Date: 12/16/19

I hereby authorize _____ to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

[1] **The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.**

Attachment B
Supporting Information for Applications Involving Exemptions, No Loss Determinations, and Activities Not Requiring Mitigation

Complete this part ***if*** you maintain that the identified aquatic resource impacts in Part Four do not require wetland replacement/compensatory mitigation OR ***if*** you are seeking verification that the proposed water resource impacts are either exempt from replacement or are not under CWA/WCA jurisdiction.

Identify the specific exemption or no-loss provision for which you believe your project or site qualifies:

Subp. 8. De minimis. A. Except as provided in items B and C, a replacement plan is not required for projects that impact up to the following amounts of wetlands:

(3) in a less than 50 percent area:

(c) 400 square feet of type 1, 2, or 6 wetland outside of the building setback zone, as defined in the local shoreland management ordinance, but within the shoreland wetland protection zone.

Provide a detailed explanation of how your project or site qualifies for the above. Be specific and provide and refer to attachments and exhibits that support your contention. Applicants should refer to rules (e.g. WCA rules), guidance documents (e.g. BWSR guidance, Corps guidance letters/public notices), and permit conditions (e.g. Corps General Permit conditions) to determine the necessary information to support the application. Applicants are strongly encouraged to contact the WCA LGU and Corps Project Manager prior to submitting an application if they are unsure of what type of information to provide:

See attached WCA De Minimis/Section 404 Minor Discharges RGP memo for Bakken Museum.

Attachment C
Avoidance and Minimization

Project Purpose, Need, and Requirements. Clearly state the purpose of your project and need for your project. Also include a description of any specific requirements of the project as they relate to project location, project footprint, water management, and any other applicable requirements. Attach an overhead plan sheet showing all relevant features of the project (buildings, roads, etc.), aquatic resource features (impact areas noted) and construction details (grading plans, storm water management plans, etc.), referencing these as necessary:

See attached WCA De Minimis/Section 404 Minor Discharges RGP memo for Bakken Museum.

Avoidance. Both the CWA and the WCA require that impacts to aquatic resources be avoided if practicable alternatives exist. Clearly describe all on-site measures considered to avoid impacts to aquatic resources and discuss at least two project alternatives that avoid all impacts to aquatic resources on the site. These alternatives may include alternative site plans, alternate sites, and/or not doing the project. Alternatives should be feasible and prudent (see MN Rules 8420.0520 Subp. 2 C). Applicants are encouraged to attach drawings and plans to support their analysis:

See attached WCA De Minimis/Section 404 Minor Discharges RGP memo for Bakken Museum.

Minimization. Both the CWA and the WCA require that all unavoidable impacts to aquatic resources be minimized to the greatest extent practicable. Discuss all features of the proposed project that have been modified to minimize the impacts to water resources (see MN Rules 8420.0520 Subp. 4):

See attached WCA De Minimis/Section 404 Minor Discharges RGP memo for Bakken Museum.

Off-Site Alternatives. An off-site alternatives analysis is not required for all permit applications. If you know that your proposal will require an individual permit (standard permit or letter of permission) from the U.S. Army Corps of Engineers, you may be required to provide an off-site alternatives analysis. The alternatives analysis is not required for a complete application but must be provided during the review process in order for the Corps to complete the evaluation of your application and reach a final decision. Applicants with questions about when an off-site alternatives analysis is required should contact their Corps Project Manager.

NA

Attachment D
Replacement/Compensatory Mitigation

Complete this part ***if*** your application involves wetland replacement/compensatory mitigation not associated with the local road wetland replacement program. Applicants should consult Corps mitigation guidelines and WCA rules for requirements.

Replacement/Compensatory Mitigation via Wetland Banking. Complete this section if you are proposing to use credits from an existing wetland bank (with an account number in the State wetland banking system) for all or part of your replacement/compensatory mitigation requirements.

Wetland Bank Account #	**County**	**Major Watershed #**	**Bank Service Area #**	**Credit Type** (if applicable)	**Number of Credits**

Applicants should attach documentation indicating that they have contacted the wetland bank account owner and reached at least a tentative agreement to utilize the identified credits for the project. This documentation could be a signed purchase agreement, signed application for withdrawal of credits or some other correspondence indicating an agreement between the applicant and the bank owner. *However, applicants are advised not to enter into a binding agreement to purchase credits until the mitigation plan is approved by the Corps and LGU.*

Project-Specific Replacement/Permittee Responsible Mitigation. Complete this section if you are proposing to pursue actions (restoration, creation, preservation, etc.) to generate wetland replacement/compensatory mitigation credits for this proposed project.

WCA Action Eligible for Credit[1]	**Corps Mitigation Compensation Technique[2]**	**Acres**	**Credit % Requested**	**Credits Anticipated[3]**	**County**	**Major Watershed #**	**Bank Service Area #**

[1]Refer to the name and subpart number in MN Rule 8420.0526.
[2]Refer to the technique listed in *St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota*.
[3]If WCA and Corps crediting differs, then enter both numbers and distinguish which is Corps and which is WCA.

Explain how each proposed action or technique will be completed (e.g. wetland hydrology will be restored by breaking the tile……) and how the proposal meets the crediting criteria associated with it. Applicants should refer to the Corps mitigation policy language, WCA rule language, and all associated Corps and WCA guidance related to the action or technique:

Attach a site location map, soils map, recent aerial photograph, and any other maps to show the location and other relevant features of each wetland replacement/mitigation site. Discuss in detail existing vegetation, existing landscape features, land use (on and surrounding the site), existing soils, drainage systems (if present), and water sources and movement. Include a topographic map showing key features related to hydrology and water flow (inlets, outlets, ditches, pumps, etc.):

Attach a map of the existing aquatic resources, associated delineation report, and any documentation of regulatory review or approval. Discuss as necessary:

For actions involving construction activities, attach construction plans and specifications with all relevant details. Discuss and provide documentation of a hydrologic and hydraulic analysis of the site to define existing conditions, predict project outcomes, identify specific project performance standards and avoid adverse offsite impacts. Plans and specifications should be prepared by a licensed engineer following standard engineering practices. Discuss anticipated construction sequence and timing:

For projects involving vegetation restoration, provide a vegetation establishment plan that includes information on site preparation, seed mixes and plant materials, seeding/planting plan (attach seeding/planting zone map), planting/seeding methods, vegetation maintenance, and an anticipated schedule of activities:

For projects involving construction or vegetation restoration, identify and discuss goals and specific outcomes that can be determined for credit allocation. Provide a proposed credit allocation table tied to outcomes:

Provide a five-year monitoring plan to address project outcomes and credit allocation:

Discuss and provide evidence of ownership or rights to conduct wetland replacement/mitigation on each site:

Quantify all proposed wetland credits and compare to wetland impacts to identify a proposed wetland replacement ratio. Discuss how this replacement ratio is consistent with Corps and WCA requirements:

By signature below, the applicant attests to the following (only required if application involves project-specific/permittee responsible replacement):

- All proposed replacement wetlands were not:
  - Previously restored or created under a prior approved replacement plan or permit
  - Drained or filled under an exemption during the previous 10 years
  - Restored with financial assistance from public conservation programs
  - Restored using private funds, other than landowner funds, unless the funds are paid back with interest to the individual or organization that funded the restoration and the individual or organization notifies the local government unit in writing that the restored wetland may be considered for replacement.
- The wetland will be replaced before or concurrent with the actual draining or filling of a wetland.
- An irrevocable bank letter of credit, performance bond, or other acceptable security will be provided to guarantee successful completion of the wetland replacement.
- Within 30 days of either receiving approval of this application or beginning work on the project, I will record the Declaration of Restrictions and Covenants on the deed for the property on which the replacement wetland(s) will be located and submit proof of such recording to the LGU and the Corps.

Applicant or Representative: Title:

Signature: _____ Date: